Hazard Assessments

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E-07	Pull Wire into Conduit	May 17, 2023	64-66
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E-09	Terminating (JB's and MCC's)	May 17, 2023	71-74
E-10	Use of Drill or Drilling	May 17, 2023	75-77
E-11	Repair Contactor	May 17, 2023	78-81
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E-13	Large RTU Cabinet Transfer	May 17, 2023	86-88
E-14	Grounding Grids	May 17, 2023	89-91
E-15	Ground Rod Pounding	May 17, 2023	92-95
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E-20	Install Burner Management System on Single Well Tank Burners	May 17, 2023	111-114
E-21	Testing Circuits < 750 Volts on Live Equipment	May 17, 2023	115-117
E-22	Catodyne Installation	May 17, 2023	118-121
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E-31	Pulling Cable at Heights	May 17, 2023	155-158
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E-63	Testing Circuits < 750 Volts to confirm Zero Energy	May 17, 2023	273-276
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G-19	Fire Extinguisher Inspection	July 6, 2023	416-418
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G-21	Portable Circular Saws	July 6, 2023	424-429
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G-28	Pneumatic Drilling in Hazardous Area	July 6, 2023	439-441
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G-30	Identification of Workplace Harassment	July 6, 2023	444-446
G-31	Working on Frozen Body of Water	July 6, 2023	447-449

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G-36	Low Energy Cutting	July 6, 2023	464-465
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HV-01	Hi-Pot for Cable	May 17, 2023	473-476
HV-02	Transformer Testing	May 18, 2023	477-480
HV-03	Transformer Oil Sample	May 23, 2023	481-483
HV-04	Entering Into Substations	May 19, 2023	484-487
HV-05	InfraRed Scanning	May 19, 2023	488-490
HV-06	Relay Testing and Commissioning	May 19, 2023	491-494
HV-07	Breaker Testing (HV/MV/LV)	May 22, 2023	495-500
HV-08	Low Resistance Ohmmeter	May 22, 2023	501-504
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HV-11	PDMA Testing (On-Line)	July 7, 2023	514-517

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HV-13	Ground Grid Resistance Testing	July 7, 2023	523-525
HV-14	Load Break Disconnect Switch Testing	July 7, 2023	526-529
HV-15	Load Break Elbow Installation	July 7, 2023	530-532
HV-16	MCC Bus Hi-Pot Testing	July 7, 2023	533-536
HV-17	Primary Injection Testing	July 7, 2023	537-540
HV-18	Site Mobilization & Demobilization	July 7, 2023	541-543
HV-19	Stress Cone Installation	July 7, 2023	544-546
HV-20	Dissipation Factor (Tan Delta Test)	July 7, 2023	547-550
HV-21	Temporary Control Power Install and Removal	July 7, 2023	551-553
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HV-23	Temporary Power Quality Meter Installation	July 7, 2023	557-560
HV-24	Vacuum Bottle Integrity	July 7, 2023	561-564
HV-25	Vacuum Starter Testing	July 7, 2023	565-568
HV-26	Voltage Testing	July 6, 2023	569-571

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Instrumentation Tasks		**Date of Last Review**	**Page #**
I-01	Work on Combustion Engine	May 17, 2023	572-574
I-02	Start up and Commission Equipment	May 17, 2023	575-576
I-03	Installation of Instruments	May 17, 2023	577-578
I-04	Remove and Repair Switches	May 17, 2023	579-581
I-05	Supplied Air, Tubing Additions or Changes	May 17, 2023	582-584
I-06	Calibrating Rental Pressure Recorders	May 17, 2023	585-586
I-07	Calibrate Dri Flow Meters	May 17, 2023	587-588
I-08	Plant Switch Maintenance	May 17, 2023	589-591
I-09	Control Panel Calibrate, Maintenance Pneumatic	May 17, 2023	592-593
I-10	Pump Repair	May 17, 2023	594-595
I-11	Working with Chemicals	May 17, 2023	596-597
I-12	Fire and Gas Calibrations	May 17, 2023	598-600
I-13	Regulator or Valve Change Out	May 17, 2023	601-604
I-14	Bypass Plant Alarms	May 17, 2023	605-607
I-15	Working with Compressed Air	May 17, 2023	608-609
I-16	Bending Tubing	May 17, 2023	610-611
I-17	Meter Prove – Sour	May 17, 2023	612-614
I-18	Meter Prove – Sweet	May 17, 2023	615-617

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I-20	Instrumentation Control Loop Maintenance (High Pressure Nitrogen)	May 17, 2023	620-622
I-21	Orifice Plate Inspection	May 17, 2023	623-626
I-22	Removing Level Switches from Vessels	May 17, 2023	627-629
I-23	Cleaning & Calibrating Drexel - Brook Probe	May 17, 2023	630-633
I-24	Gas Detection Shutdown Checks	May 17, 2023	634-635
I-25	H2S Analyzer PM's	May 17, 2023	636-638
I-26	Well Site Shutdown Checks	May 17, 2023	639-641
I-27	Electronic Flow Measurement (EFM) Calibrations	May 17, 2023	642-644
I-28	Compressor Shutdown Checks	May 17, 2023	645-647
I-29	Orifice Plate Check	May 17, 2023	648-649
I-30	5-Way Manifold Operation	May 17, 2023	650-652
I-31	Block & Bleed - Instrument Calibration	May 17, 2023	653-655
I-32	Chemical Pump Maintenance	May 17, 2023	656-658
I-33	Isolation of Instruments	May 17, 2023	659-661
I-35	Valve Repairs	May 17, 2023	662-664

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Instrumentation Tasks		**Date of Last Review**	**Page #**
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S-01	Overhead Crane & Lifting Devices	July 6, 2023	668-674
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T-01	Cable Manufacturing	July 6, 2023	675-678
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T-03	Field Programming	July 6, 2023	684-688
T-04	Material Movement	July 6, 2023	689-692
T-05	Lamacoid Operation	July 6, 2023	693-697
T-06	Flashback Arrestor Testing	July 6, 2023	698-699
T-08	Climbing Towers	July 6, 2023	700-702
T-09	Terminating (Fiber Optic Cable, Patch Panels, JB's)	July 6, 2023	703-709
Valve Tasks			
V-01	A.V.K. In-Situ Testing	July 6, 2023	710-713
V-02	Basic Repair of PRV	July 6, 2023	714-717
V-03	PRV Testing (Water)	July 6, 2023	718-721
V-04	PRV Testing (Air)	July 6, 2023	722-724
V-05	Metal Lathe Work	July 6, 2023	725-729
V-06	Painting (Aerosol)	July 6, 2023	730-732
V-07	Pressure Washer	July 6, 2023	733-735
V-08	Hoist / Crane	July 6, 2023	736-739
V-09	Basic Valve Repair & Testing	July 6, 2023	740-745

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Valve Tasks		**Date of Last Review**	**Page #**
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V-11	Valve Actuator Repair	July 6, 2023	749-756
V-12	Process Valve Lubrication	July 6, 2023	757-760

Name: Hazard Assessment A-01 - Miscellaneous Office Duties
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Separate multiple copies to prepare for filing	Removing Staples	1 x 1	1	Remove staples with staple remover, Be aware of line-of-fire hazards with use of stapler or staple remover	1 x 1	1
Filing of Documentatin	Paper Cuts	1 x 1	1	Take your time, Focus on the task	1 x 1	1
Bending / Kneeling to File	Leg / Back Strain	3 x 3	9	Take your time, Focus on the task, Follow SWP's for safe lifting, handling of debris, tools, equipment, material, etc.	1 x 1	1
Photocopy to file	Chemicals from ink /toner	2 x 1	2	Wear gloves, Don't inhale fumes, Focus on the task, do not rush	1 x 1	1
Removing jams from the photocopier	Electrical Shock	2 x 1	2	Turn off machine prior to opening unit to remove paper, so as to not injure fingers or potential electrocution, Manufacturer's Operators Manual	1 x 1	1
	Pinch Points	2 x 1	2	Be aware of hand placement (line-of-fire), Identify pinch points	1 x 1	1
	Burns/Hot Surfaces	2 x 1	2	Be aware of hand placement (line-of-fire)	1 x 1	1
Office machine use	Live Parts; Potential Electrical Shock	1 x 2	2	Where required, consult operator's manual	1 x 1	1

Name: Hazard Assessment A-01 - Miscellaneous Office Duties
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment A-02 - Stocking Shelves
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Stocking Shelves	Falling Objects	2 x 2	4	Stack inventory in a safe manner	1 x 1	1
	Back & muscle strain	2 x 2	4	Follow proper lifting procedures, Wear proper PPE, Pre-task stretching	1 x 1	1

Name: Hazard Assessment A-02 - Stocking Shelves
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment A-03 - Shipping
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Shipping Material /Packages	Muscle Strain	3 x 3	9	Utilize proper lifting and transport techniques and ask for assistance, where and if required	1 x 1	1
	Parts Falling Out of Packages	3 x 3	9	Ensure adequate packageing is used	1 x 1	1
LIfting	Muscle Strain	3 x 3	9	Utilize proper lifting and transport techniques and ask for assistance, where and if required	1 x 1	1
	Not Having Proper Grip on Packages	3 x 3	9	Utilize proper lifting and transport techniques and ask for assistance, where and if required	1 x 1	1
Trasporting Material /Packages	Repetitive movement	3 x 4	12	Utilize proper lifting and transport techniques and ask for assistance, where and if required, Follow proper lifting procedures	1 x 1	1
	Muscle Strain	3 x 3	9	Utilize proper lifting and transport techniques and ask for assistance, where and if required	1 x 1	1

Name: Hazard Assessment A-03 - Shipping
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment A-04 - Receiving
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Receiving Materials /Packages	Sharp/Pointed Objects/Cuts & Punctures	3 x 3	9	Use proper instrument for opening packages, Cut away from yourself or others	1 x 1	1
LIfting	Not Having Proper Grip on Packages	3 x 3	9	Use proper lifting techniques, Follow materials handling SWP, Use solid grip on tools; 2 handles = 2 hands	1 x 1	1
	Muscle Strain	3 x 3	9	Use proper lifting techniques, Maintain proper body positioning (line-of-fire)	1 x 1	1
Stocking Shelves	Muscle Strain	3 x 3	9	Heavy parts should be stored on lower shelves /floor, Stack inventory in a safe manner, Wear appropriate PPE (in good condition), Use proper lifting techniques, Maintain proper body positioning (line-of-fire)	1 x 1	1
	Falling Objects	3 x 3	9	Heavy parts should be stored on lower shelves /floor, Follow proper material storage practice	1 x 1	1

Name: Hazard Assessment A-04 - Receiving
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment A-05 - Computer Usage
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Typing Carpal Tunnel Syndrome	Repetitive movement	3 x 4	12	Properly positioned keyboard, Chair height in relation to keyboard, Wrist Positioning, Take breaks to rest wrists; do other tasks	1 x 1	1
Staring at Computer Screen	Eye Strain	4 x 1	4	Wear corrective lenses if required, Change computer visuals to reduce eye strain, Take breaks from viewing computer screen	2 x 1	2
Printing Copies	Paper Cuts	3 x 1	3	Be aware of hand placement (line-of-fire), Focus; eyes and mind on task	1 x 1	1
Changing Print Cartridges	Chemicals from ink /toner	3 x 1	3	Don't inhale chemical dust, Do NOT touch face/eyes if toner chemical has contacted hands, Hand - Gloves (Chemical Resistant)	1 x 1	1

Name: Hazard Assessment A-05 - Computer Usage
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment A-06 - Filing
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Handling of Paper	Pinch Points	2 x 1	2	Be aware of line-of-fire hazards with closing of drawers on desks or cabinets	1 x 1	1
	Paper Cuts	3 x 1	3	Use of proper handling procedures for paper	1 x 1	1
LIfting File Boxes	Muscle Strain	3 x 3	9	Utilize proper lifting and transport techniques and ask for assistance, where and if required	1 x 1	1
Transporting File Boxes	Muscle Strain	3 x 3	9	Utilize proper lifting and transport techniques and ask for assistance, where and if required	1 x 1	1
	Repetitive movement	3 x 3	9	Utilize proper lifting and transport techniques and ask for assistance, where and if required, Follow proper lifting procedures	1 x 1	1

Name: Hazard Assessment A-06 - Filing
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment C-01 - Routine Preventative Maintenance
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Check for Potential Leaks in Piping Before Restarting Burners	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	3 x 4	12	Apply soapy water / monitor to ensure no gas leaks	2 x 1	2
Start Up Burner	Detonation	3 x 4	12	No delay in ignition process, Continuous monitoring of ball valve shut-off (fuel shut off valve)	2 x 1	2
Tuning the Burner	Detonation	3 x 4	12	Maintain proper body positioning , Focus on task / Watch line-of-fire	2 x 1	2
	Flashbacks	3 x 4	12	Use proper tools for the task	2 x 1	2
	Hazardous Gas Exposure	3 x 4	12	Continuously monitor atmosphere	2 x 1	2
	Burns/Hot Surfaces		0	Wear all appropriate PPE in good condition, Be aware of surroundings, equipment and others in vicinity		0
	Open Flame	3 x 3	9	Be aware of surroundings, equipment and others in vicinity, Focus on task / Watch line-of-fire	2 x 1	2
Capture a Final Emission Analysis	Hot Surfaces	3 x 4	12	Focus on task / Watch line-of-fire	2 x 1	2
Propane Flashback	See Task #T-06	3 x 3	9	See Task #T-06	2 x 1	2
Clean Up	Material Handling	3 x 3	9	Get help for manual lifts and load placement, Team Lift; use proper lifting techniques, Keep extremities clear of pinch points	2 x 1	2
	Loose Material and Debris	3 x 2	6	Wear all appropriate PPE in good condition, Housekeeping - Adequate, Keep site and work area tidy and clear	2 x 1	2

Name: Hazard Assessment C-01 - Routine Preventative Maintenance
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment C-02 - Burner Management System Upgrade
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Hooking Up Trailer	Heavy lifting	4 x 4	16	Wear appropriate PPE (in good condition), Complete daily trailer inspection checklist	2 x 2	4
	Pinch Points	3 x 3	9	Be aware of position of hands (line-of-fire) , Identify pinch points, Wear proper PPE (leather gloves)	2 x 1	2
	Awkward Stance/Position/Posture	3 x 3	9	Maintain proper body positioning (line-of-fire), Pre-task stretching	2 x 1	2
Driving to Site	Radio Controlled Roads	3 x 4	12	Be aware of radio controlled roads; have proper radio and road channels, Obey road signs and laws	2 x 1	2
	Wildlife	3 x 4	12	Be alert and aware of surroundings (wildlife, other vehicles, road conditions)	2 x 1	2
	Changing Weather or Road Conditions	3 x 4	12	Before leaving, visually inspect vehicle / trailer, Check weather forecast and road conditions, Drive to the conditions not the speed limit	2 x 1	2
Orientation and Permitting	Site Specific	3 x 2	6	JSHA, Permit	2 x 1	2
Decommission and Remove Existing Fuel Train	Pinch Points	3 x 3	9	Identify pinch points, Be aware of position of hands (line-of-fire)	2 x 1	2
	Heavy lifting	3 x 4	12	Get assistance for heavy lifting, Use picker truck, if/where necessary	2 x 1	2
	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	3 x 4	12	Wear appropriate PPE (in good condition), Continuous gas monitoring, LO/TO gas source	2 x 1	2
Install New BMS and Fuel Train	Improper Installation	3 x 4	12	Manufacturer's Operators Manual, Follow SWP's, Wear appropriate PPE (in good condition)	2 x 1	2
Test BMS, Components, Shutdowns, Etc.	Not Following Drawings Correctly	3 x 4	12	Read drawings carefully and follow drawings exactly	2 x 1	2
Start Up Burner	Detonation	3 x 4	12	Focus on task / Watch line-of-fire, No delay in ignition process, Continuous monitoring of ball valve shut-off (fuel shut off valve)	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Tuning the Burner Null	Open Flame	3 x 3	9	Focus on task / Watch line-of-fire	2 x 1	2
	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	3 x 4	12	Continuous gas monitoring, Wear proper PPE	2 x 1	2
	Burns/Hot Surfaces	3 x 4	12	Continuous monitoring of ball valve shut-off (fuel shut off valve), Be aware of surroundings, equipment and others in vicinity, Wear proper PPE	2 x 1	2
	Flashbacks	3 x 4	12	Maintain proper body positioning, Use proper tools for the task	2 x 1	2
	Detonation	3 x 4	12	Visual walk around inspection, Wear proper PPE	2 x 1	2
Capture a Final Emission Analysis	Hot Surfaces	3 x 3	9	Maintain proper body positioning , Wear proper PPE	2 x 1	2
Clean Up	Loose Material and Debris	3 x 2	6	Housekeeping - Adequate, Keep site and work area tidy and clear, Wear proper PPE (gloves, safety glasses	2 x 1	2
	Material Handling	3 x 3	9	Use proper lifting techniques, Maintain proper body positioning (line-of-fire)	2 x 1	2
Training Operator	Lack of Training in Equipment's Operation	3 x 3	9	Familiarize operator with new equipment, Provide manuals, information etc.	2 x 1	2

Name: Hazard Assessment C-02 - Burner Management System Upgrade
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment C-03 - Flame Arrestor Upgrade
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Hooking Up Trailer	Pinch Points	3 x 3	9	Complete daily trailer inspection checklist, Maintain proper body positioning (line of fire) and footing	2 x 1	2
	Awkward Stance/Position/Posture	3 x 2	6	Maintain proper body positioning, Pre-task stretching	2 x 1	2
	Heavy lifting	3 x 3	9	Get assistance for heavy lifting	2 x 1	2
Driving To Site	Changing Weather or Road Conditions	3 x 4	12	Before leaving, visually inspect vehicle / trailer, Check weather forecast and road conditions, Drive to the conditions not the speed limit	2 x 1	2
	Radio Controlled Roads	3 x 3	9	Be aware of radio controlled roads; have proper radio and road channels, Obey road signs and laws	2 x 1	2
	Wildlife	3 x 4	12	Be alert and aware of surroundings (wildlife, other vehicles, road conditions)	3 x 1	3
Orientation and Permitting	Site Specific	2 x 2	4	JSHA, Permit	2 x 1	2
Remove Original Flame Arrestor Install New Model	Use of Air Tools	3 x 4	12	Be aware of hand placement (line-of-fire), Wear proper PPE	2 x 1	2
	Pinch Points	3 x 3	9	Maintain proper body positioning (line of fire) and footing, Identify pinch points	2 x 1	2
	Awkward Stance/Position/Posture	3 x 3	9	Maintain proper body positioning , Pre-task stretching	2 x 1	2
	Heavy lifting	3 x 3	9	Get assistance for removal activities, Use picker truck, if/where necessary	2 x 1	2
Install Fire Tube Extension	Hot Surfaces	3 x 4	12	Wear proper PPE	2 x 1	2
	Heavy lifting	3 x 4	12	Get assistance for heavy lifting, Use picker truck, if/where necessary	2 x 1	2
	Awkward Stance/Position/Posture	3 x 3	9	Maintain proper body positioning	2 x 1	2
Install Arrestor Housing	Repetitive movement	3 x 3	9	Wear proper PPE, Use proper tools correctly; review all appropriate SWP's	2 x 1	2

Name: Hazard Assessment C-03 - Flame Arrestor Upgrade
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Install Piping	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	3 x 4	12	Apply soapy water / monitor to ensure no gas leaks, Wear proper PPE	2 x 1	2
Start Up The Burner	Detonation	3 x 4	12	No delay in ignition process, Continuous monitoring of ball valve shut-off (fuel shut off valve)	2 x 2	4
Tuning The Burner	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	3 x 4	12	Continuous gas monitoring, Wear proper PPE	2 x 1	2
	Open Flame	3 x 4	12	Focus on task / Watch line-of-fire, Wear proper PPE	2 x 1	2
	Detonation	3 x 3	9	Continuous monitoring of ball valve shut-off (fuel shut off valve), Maintain proper body positioning , Wear proper PPE	2 x 1	2
	Flashbacks	3 x 4	12	Maintain proper body positioning, Use proper tools for the task, Wear proper PPE	2 x 1	2
	Burns/Hot Surfaces	3 x 4	12	Be aware of surroundings, equipment and others in vicinity, Wear proper PPE, Maintain proper body positioning (line of fire) and footing	2 x 1	2
Test For Flashback	See Task #T-06	3 x 3	9	See Task #T-06	2 x 1	2
Clean Up	Material Handling	3 x 3	9	Use proper lifting techniques, Maintain proper body positioning (line-of-fire)	2 x 1	2
	Loose Material and Debris	3 x 2	6	Housekeeping - Adequate, Keep site and work area tidy and clear, Wear proper PPE	2 x 1	2

Name: Hazard Assessment C-03 - Flame Arrestor Upgrade
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment C-04 - Conversion From Propane to Natural Gas
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Hooking Up Trailer	Heavy lifting	3 x 3	9	Complete daily trailer inspection checklist, Get help for manual lifts and load placement	2 x 1	2
	Pinch Points	3 x 4	12	Wear proper PPE, Identify pinch points, Be aware of position of hands (line-of-fire)	2 x 1	2
	Awkward Stance/Position/Posture	3 x 3	9	Maintain proper body positioning (line-of-fire), Pre-task stretching	2 x 1	2
Driving To Site	Changing Weather or Road Conditions	3 x 4	12	Before leaving, visually inspect vehicle / trailer, Check weather forecast and road conditions, Drive to the conditions not the speed limit	2 x 1	2
	Wildlife	3 x 4	12	Be alert and aware of surroundings (wildlife, other vehicles, road conditions)	2 x 1	2
	Radio Controlled Roads	3 x 4	12	Be aware of radio controlled roads; have proper radio and road channels, Obey road signs and laws	2 x 1	2
Orientation and Permitting	Site Specific	2 x 1	2	JSHA, Permit	1 x 1	1
Capture an Initial Emission Analysis	Potential Drilling and Tapping (Hot Work)	3 x 4	12	Ensure proper body/body part positioning (line of fire) during cut; out of path of potential kick back	2 x 1	2
	Hot Surfaces	3 x 4	12	Be aware of surroundings, equipment and others in vicinity, Wear proper PPE	2 x 1	2
Remove / Dismatle Burner for Inspection Re-install with Union or Tubing	Pinch Points	3 x 3	9	Maintain proper body positioning , Focus on task / Watch line-of-fire	2 x 1	2
	Awkward Stance/Position/Posture	3 x 3	9	Maintain proper body positioning, Pre-task stretching	2 x 1	2
	Heavy lifting	3 x 4	12	Get assistance for removal activities, Use picker truck, if/where necessary	2 x 1	2
	Hot Surfaces	3 x 4	12	Ensure proper body and extremities positioning (line of fire), Wear proper PPE	2 x 1	2
Install Appropriately Sized Orifice	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	3 x 4	12	Continuous monitoring, Use proper chart	2 x 1	2

Name: Hazard Assessment C-04 - Conversion From Propane to Natural Gas
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Improper Installation	3 x 4	12	Manufacturer's Operators Manual, Follow SWP's, Wear appropriate PPE (in good condition)	2 x 1	2
Start Up The Burner	Detonation	3 x 4	12	No delay in ignition process, Continuous monitoring of ball valve shut-off (fuel shut off valve)	2 x 1	2
Tuning The Burner	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	3 x 4	12	Continuous gas monitoring, Continuous monitoring of ball valve shut-off (fuel shut off valve), Wear proper PPE	2 x 1	2
	Burns/Hot Surfaces	3 x 4	12	Be aware of surroundings, equipment and others in vicinity, Wear proper PPE	2 x 1	2
	Flashbacks	3 x 3	9	Maintain proper body positioning, Use proper tools for the task, Wear proper PPE	2 x 1	2
	Detonation	3 x 3	9	Wear proper PPE	2 x 1	2
	Open Flame	3 x 4	12	Wear proper PPE, Focus on task / Watch line-of-fire	2 x 1	2
Capture a Final Emission Analysis	Hot Surfaces	3 x 4	12	Maintain proper body positioning , Wear proper PPE	2 x 1	2
Clean Up	Material Handling	3 x 3	9	Use proper lifting techniques, Maintain proper body positioning (line-of-fire)	2 x 1	2
	Loose Material and Debris	3 x 3	9	Housekeeping - Adequate, Keep site and work area tidy and clear, Wear proper PPE (gloves, safety glasses	2 x 1	2

Name: Hazard Assessment C-04 - Conversion From Propane to Natural Gas
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment C-05 - Consultation
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Hooking Up Trailer	Heavy lifting	3 x 4	12	Get help for manual lifts and load placement, Complete daily trailer inspection checklist, Wear appropriate PPE (in good condition)	2 x 1	2
	Pinch Points	3 x 3	9	Be aware of position of hands (line-of-fire), Identify pinch points, Wear proper PPE	2 x 1	2
	Awkward Stance/Position/Posture	3 x 3	9	Maintain proper body positioning (line-of-fire), Pre-task stretching	2 x 1	2
Driving To Site	Changing Weather or Road Conditions	3 x 4	12	Before leaving, visually inspect vehicle / trailer, Check weather forecast and road conditions, Drive to the conditions not the speed limit	2 x 2	4
	Wildlife	3 x 4	12	Be alert and aware of surroundings (wildlife, other vehicles, road conditions)	2 x 1	2
	Radio Controlled Roads	3 x 4	12	Be aware of radio controlled roads; have proper radio and road channels, Obey road signs and laws	2 x 1	2
Orientation and Permitting	Site Specific	3 x 2	6	JSHA, Permit	2 x 1	2
Visual Assessment of the Appliance	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	3 x 4	12	Continuous gas monitoring, Wear proper PPE	2 x 1	2
Capture an Initital Emission Analysis	Hot Surfaces	3 x 3	9	Focus on task / Watch line-of-fire, Wear proper PPE	2 x 1	2
Remove Burner Internals Re-install if required	Pinch Points	3 x 4	12	Ensure proper body/body part positioning (line of fire) during cut; out of path of potential kick back, Wear proper PPE	2 x 1	2
	Heavy lifting	3 x 4	12	Get help for manual lifts and load placement, Use picker truck, if/where necessary	2 x 1	2
	Awkward Stance/Position/Posture	3 x 3	9	Maintain proper body positioning (line-of-fire), Pre-task stretching	2 x 1	2
	Hot Surfaces	3 x 3	9	Be aware of surroundings, equipment and others in vicinity, Focus on task / Watch line-of-fire, Wear proper PPE	2 x 1	2
	Improper Installation	3 x 3	9	Manufacturer's Operators Manual, Follow SWP's	2 x 1	2

Name: Hazard Assessment C-05 - Consultation
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Measure Fire Tube	Hot Surfaces	3 x 4	12	Purge fire tube atmoshpere with adequate time, 360 degree awareness - surroundings, other, etc., Wear proper PPE	2 x 1	2
	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	3 x 4	12	LO/TO gas source, Continuous gas monitoring, Wear proper PPE	2 x 1	2
Clean Up	Material Handling	3 x 3	9	Use proper lifting techniques, Maintain proper body positioning (line-of-fire)	2 x 1	2
	Loose Material and Debris	3 x 3	9	Housekeeping - Adequate, Keep site and work area tidy and clear, Wear proper PPE	2 x 1	2

Name: Hazard Assessment C-05 - Consultation
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment C-06 - Flashback Arrestor Testing
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Hooking Up Trailer	Heavy lifting	3 x 4	12	Complete daily trailer inspection checklist, Get help for manual lifts and load placement	2 x 1	2
	Pinch Points	3 x 4	12	Identify pinch points, Be aware of position of hands (line-of-fire), Wear proper PPE	2 x 1	2
	Awkward Stance/Position/Posture	3 x 3	9	Maintain proper body positioning (line-of-fire), Pre-task stretching	2 x 1	2
Driving to Site	Changing Weather or Road Conditions	3 x 4	12	Before leaving, visually inspect vehicle / trailer, Check weather forecast and road conditions, Drive to the conditions not the speed limit	2 x 1	2
	Wildlife	3 x 4	12	Be alert and aware of surroundings (wildlife, other vehicles, road conditions)	2 x 1	2
	Radio Controlled Roads	3 x 4	12	Be aware of radio controlled roads; have proper radio and road channels, Obey road signs and laws	2 x 1	2
Orientation and Permitting	Site Specific	3 x 2	6	JSHA, Permit	2 x 1	2
Visual Inspection of Arrestor Determine if safe for flashback test	Falls from Heights	3 x 4	12	Tie off when working above 6 ft., Follow SWP's	2 x 1	2
	Awkward Stance/Position/Posture	3 x 4	12	Maintain proper body positioning (line-of-fire), Pre-task stretching	2 x 1	2
	Missing / Defective Parts Cause Flashback	3 x 4	12	Verify potential combustible material around arrestor, Follow SWP's	2 x 1	2
	Detonation	3 x 4	12	Visual walk around inspection, Wear proper PPE, Continuously monitor atmosphere	2 x 1	2
Set Up Safety Watch & Gear	Material Handling	3 x 4	12	Use proper lifting techniques, Maintain proper body positioning (line-of-fire)	2 x 1	2
Inspect Arrestor Housing	Hot Surfaces	3 x 4	12	Purge fire tube atmosphere with adequate time, Be aware of hand placement (line-of-fire), Wear proper PPE	2 x 1	2
	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	3 x 4	12	LO/TO gas source, Continuous gas monitoring, Wear proper PPE	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Seal Arrestor Re-engage Process	Hot Surfaces	3 x 4	12	Be aware of surroundings, equipment and others in vicinity, Be aware of hand placement (line-of-fire), Wear proper PPE	2 x 1	2
	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	3 x 4	12	Continuous monitoring of ball valve shut-off (fuel shut off valve), Wear proper PPE	2 x 1	2
	Burns	3 x 4	12	No delay in ignition process, Wear proper PPE	2 x 1	2
	Flashbacks	3 x 3	9	Be aware of surroundings, equipment and others in vicinity, Wear proper PPE	2 x 1	2
	Detonation	3 x 4	12	Adequate/proper sealant around arrestor	2 x 1	2
	Open Flame	3 x 4	12	Be aware of surroundings, equipment and others in vicinity, Wear proper PPE	2 x 1	2
Introduce Gas From Outside into Arrestor for Potential Propane Flashback	Open Flame	3 x 4	12	Be aware of surroundings, equipment and others in vicinity, Wear proper PPE	2 x 1	2
	Hot Surfaces	3 x 4	12	Be aware of hand placement (line-of-fire), Focus on task / Watch line-of-fire	2 x 1	2
	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	3 x 4	12	Continuous gas monitoring, Verify atmospheric conditions prior to introduction of gas	2 x 1	2
	Burns	3 x 4	12	Focus on task / Watch line-of-fire, Proper body positioning of performing authority and Safety Watch, Wear proper PPE	2 x 1	2
	Flashbacks	3 x 4	12	Maintain proper body positioning , Wear proper PPE	2 x 1	2
	Detonation	3 x 4	12	Spring loaded ball valve present on wand, Sufficient propane flow rate, Wear proper PPE	2 x 1	2
Clean Up	Material Handling	3 x 4	12	Use proper lifting techniques, Follow materials handling SWP, Get help for manual lifts and load placement	2 x 1	2
	Loose Material and Debris	3 x 3	9	Housekeeping - Adequate, Keep site and work area tidy and clear, Wear proper PPE (gloves, safety glasses	2 x 1	2

Name: Hazard Assessment C-06 - Flashback Arrestor Testing
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment C-07 - Call Out
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Hooking up Trailer	Heavy lifting	3 x 3	9	Get help for manual lifts and load placement, Complete daily trailer inspection checklist	2 x 1	2
	Awkward Stance/Position/Posture	3 x 3	9	Maintain proper body positioning (line-of-fire), Pre-task stretching	2 x 1	2
	Pinch Points	3 x 3	9	Identify pinch points, Be aware of position of hands (line-of-fire), Gloves - Leather	2 x 1	2
Driving to site	Changing Weather or Road Conditions	3 x 4	12	Before leaving, visually inspect vehicle / trailer, Check weather forecast and road conditions, Drive to the conditions not the speed limit	2 x 1	2
	Wildlife	3 x 4	12	Be alert and aware of surroundings (wildlife, other vehicles, road conditions)	2 x 1	2
	Radio Controlled Roads	3 x 4	12	Be aware of radio controlled roads; have proper radio and road channels, Obey road signs and laws	2 x 1	2
Orientation and Permitting	Site Specific	2 x 2	4	JSHA, Permit	1 x 1	1
Start up Burner	Detonation	3 x 4	12	No delay in ignition process, Continuous monitoring of ball valve shut-off (fuel shut off valve)	2 x 1	2
Capture a final emission analysis	Hot Surfaces	3 x 3	9	Maintain proper body positioning, Wear proper PPE	2 x 1	2
Perform duties and tests to solve issues	Varies - Related to Issues	3 x 3	9	Refer to/utilize THA's for guidance, Follow SWP's	2 x 1	2
Troubleshoot shutdown issues	LEL Exposure	3 x 3	9	Continuous monitoring, Wear proper PPE	2 x 1	2
	Pressure Switches	3 x 3	9	Focus, eyes and mind on task, be aware of your surroundings, Follow SWP's	2 x 1	2
	Removal of Burner Internals (Open Flame)	3 x 4	12	Focus, eyes and mind on task, be aware of your surroundings, Follow SWP's	2 x 1	2
Clean up	Loose Material and Debris	3 x 3	9	Housekeeping - Adequate, Keep site and work area tidy and clear, Wear proper required PPE (gloves, glasses)	2 x 1	2
	Material Handling	3 x 3	9	Use proper lifting techniques, Maintain proper body positioning (line-of-fire)	2 x 1	2

Name: Hazard Assessment C-07 - Call Out
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

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4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment C-08 - Commission
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Hooking Up Trailer	Heavy lifting	3 x 3	9	Complete daily trailer inspection checklist, Get help for manual lifts and load placement, Wear proper PPE		0
	Awkward Stance/Position/Posture	3 x 3	9	Maintain proper body positioning (line-of-fire), Pre-task stretching	2 x 1	2
	Pinch Points	3 x 3	9	Identify pinch points, Be aware of position of hands (line-of-fire)	2 x 1	2
Driving to Site	Changing Weather or Road Conditions	3 x 4	12	Before leaving, visually inspect vehicle / trailer, Check weather forecast and road conditions, Drive to the conditions not the speed limit	2 x 1	2
	Wildlife	3 x 4	12	Be alert and aware of surroundings (wildlife, other vehicles, road conditions)	2 x 1	2
	Radio Controlled Roads	3 x 4	12	Be aware of radio controlled roads; have proper radio and road channels, Obey road signs and laws	2 x 1	2
Orientation and Permitting	Site Specific	3 x 2	6	JSHA, Permit	2 x 1	2
Visual Assessment of Unit	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	3 x 4	12	Continuous gas monitoring, LO/TO gas source, Wear proper PPE	2 x 1	2
Commission Unit	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	3 x 4	12	Continuous monitoring of ball valve shut-off (fuel shut off valve), Wear proper PPE	2 x 1	2
	Detonation	3 x 4	12	No delay in ignition process, Ensure proper body and extremities positioning (line of fire), Wear proper PPE	2 x 1	2
Check Function of Components, Devices, etc.	Misjudge Readings	3 x 3	9	Proper mentoring	2 x 1	2
	Missing Readings	3 x 3	9	Follow proper practices	2 x 1	2
Capture Final Emission Analysis	Hot Surfaces	3 x 4	12	Maintain proper body positioning , Wear proper PPE	2 x 1	2
Tuning Burner	Open Flame	3 x 4	12	Focus on task / Watch line-of-fire, Wear proper PPE	2 x 1	2

Name: Hazard Assessment C-08 - Commission
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Burns/Hot Surfaces	3 x 4	12	Continuous monitoring of ball valve shut-off (fuel shut off valve), Be aware of surroundings, equipment and others in vicinity, Wear proper PPE	2 x 1	2
	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	3 x 3	9	Continuous gas monitoring, Wear proper PPE	2 x 2	4
	Flashbacks	3 x 3	9	Use proper tools for the task, Maintain proper body positioning	2 x 2	4
	Detonation	3 x 4	12	Visual walk around inspection, Wear proper PPE	2 x 2	4
Clean Up	Material Handling	3 x 3	9	Use proper lifting techniques, Maintain proper body positioning (line-of-fire)	2 x 1	2
	Loose Material and Debris	3 x 3	9	Housekeeping - Adequate, Keep site and work area tidy and clear, Wear proper PPE (gloves, safety glasses	2 x 1	2

Name: Hazard Assessment C-08 - Commission
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
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4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
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2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment C-10 - Treater Burner PM's
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Using a JLG to analyze the flue gas in the stack Null	Congested Work Area	3 x 5	15	Safety watch	2 x 1	2
	Traffic (Personnel, Equipment, Vehicles)	3 x 5	15	Safety watch	2 x 2	4
	Working at Heights	3 x 5	15	Fall Arrest	2 x 1	2
	JLG use	3 x 5	15	Flag off work area	2 x 1	2
	Burns/Hot Surfaces	3 x 4	12	Gloves - Leather	2 x 1	2
Checking gas lines and controls for leaks	Pinch Points	3 x 4	12	Proper hand placement (line-of-fire)	2 x 1	2
	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	3 x 5	15	Wear personal monitor - calibrate, bump test, record, battery level checked	2 x 1	2
	Slips, Trips, Falls	3 x 4	12	Use sand and solid mechanical protection	2 x 1	2
	Congested Work Area	2 x 4	8	Use of Spotter	2 x 1	2
Checking BMS connections and cables	Pinch Points	3 x 4	12	Proper hand placement (line-of-fire), Wear proper PPE	2 x 1	2
	High Voltage Present	3 x 5	15	Test before you touch, use multimeter, check wiring diagrams	2 x 1	2
	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	3 x 5	15	Wear personal monitor - calibrate, bump test, record, battery level checked	2 x 1	2
Checking fire tube & burner cleaning flame arrestor	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	3 x 5	15	Wear personal monitor - calibrate, bump test, record, battery level checked, Follow LOTO SWP	2 x 1	2
	Pinch Points	3 x 4	12	Proper hand placement (line-of-fire), Wear proper PPE	2 x 1	2
	Heavy lifting	3 x 4	12	Stretching and proper body positioning, Know your limits, obtain assistance from co-workers for heavy lifts, Use mechanical lift where required	2 x 1	2

Name: Hazard Assessment C-10 - Treater Burner PM's
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Compressed Air	3 x 4	12	Verify potential combustible material around arrestor, Maintain proper body positioning (line of fire) and footing, Visualizing gauges	2 x 1	2
Flash testing	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	3 x 5	15	Wear personal monitor - calibrate, bump test, record, battery level checked, Safety watch	3 x 1	3
	Fire / Explosion	3 x 5	15	Safety watch	3 x 1	3
	Slips, Trips, Falls	3 x 4	12	Steel/composite toed work boots are required during entire scope of work, Ensure footing is good and solid	2 x 1	2
Shutdown checks	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	3 x 5	15	Safety watch, Wear personal monitor - calibrate, bump test, record, battery level checked	2 x 1	2
	Fire / Explosion	3 x 5	15	Safety watch	2 x 1	2
	Moving Parts	3 x 5	15	Ensure proper body and extremities positioning (line of fire), Wear proper PPE (leather gloves, glasses)	2 x 1	2
	Slips, Trips, Falls	3 x 4	12	Steel/composite toed work boots are required during entire scope of work, Use caution when walking; ensure proper footing	2 x 1	2
Clean up and final check	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	3 x 5	15	Wear personal monitor - calibrate, bump test, record, battery level checked	2 x 1	2
	Traffic (Personnel, Equipment, Vehicles)	3 x 4	12	Perform 360 walk around check prior to moving any vehicle	2 x 1	2
	Slips, Trips, Falls	3 x 4	12	Steel/composite toed work boots are required during entire scope of work, Use caution when walking; ensure proper footing	2 x 1	2
	Moving Parts	3 x 5	15	Ensure proper body and extremities positioning (line of fire)	2 x 1	2
	Fire / Explosion	3 x 5	15	Get assistance for fire watch, Ensure proper PPE is worn	2 x 1	2

Name: Hazard Assessment C-10 - Treater Burner PM's
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
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2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment C-11 - Cold Start Procedure
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Pre-check Determine that it is safe to work on or around the Burner System	Poor housekeeping; debris in/around task area	3 x 1	3	Perform housekeeping; ensure task areas are clear of debris, equipment, tools, etc	2 x 1	2
	Congested Work Area	4 x 1	4	Plan out route of travel to move equipment through congested area(s) or in close proximity to people , equipment or structures, Use of Spotter	3 x 1	3
	Not Identifying all Existing & Potential Location and Work Site Hazards	3 x 1	3	Clear communication with operations, Verbally communicate when area is clear for testing to commence	2 x 1	2
	Unauthorized Personnel to Enter Hazardous Area	4 x 2	8	Barriers & Flags placed as/where necessary to keep unauthorized personnel away, Ensure that equipment is isolated that is being adjusted, Continuously monitor atmosphere	3 x 1	3
Main Test fire valve Close the Main Test Fire Valve	Pinch Points	4 x 1	4	Keep extremities clear of pinch points	3 x 1	3
	Trapped Pressure	4 x 1	4	Be aware of supply pressure, Ensure pressure has been released, Ensure Correct Pressure Ratings on Fittings, Check drawings for pressure source and isolate pressure source	3 x 1	3
BMS Shutdown Observe and Satisfy burner shutdown	Spark Potential	4 x 2	8		3 x 2	6

Name: Hazard Assessment C-11 - Cold Start Procedure
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
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4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
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2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-01 - Running Cable Tray
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Load tray onto trailer	Lifting, Moving, Loading Material	4 x 3	12	Stretching and proper body positioning, Pre-use inspection of forklift completed, Pre-use inspection of tie-down fasteners and/or lifting lugs, Inspect Tools and Equipment	2 x 1	2
	Sharp Edges – Cuts/Lacerations	4 x 3	12	Wear proper, requied PPE (gloves), Maintain proper body positioning (line-of-fire), Focus; eyes and mind on task	2 x 1	2
	Pinch Points	4 x 3	12	Focus, eyes and mind on task, Be aware of hand placement (line-of-fire), Wear proper, requied PPE (gloves)	2 x 1	2
	Muscle Strain	4 x 3	12	Use proper lifting techniques, Use two people to load tray, Focus; eyes and mind on task, Be aware of surroundings, watch your step	2 x 1	2
Secure load to trailer	Potential tie down release	5 x 4	20	Focus: eyes and mind on tasks, Use only approved tie-down straps, Follow all trailer towing practices	2 x 1	2
	Tray too long for trailer	4 x 4	16	Ensure length that extends beyond trailer's edges are clearly flagged	2 x 1	2
	Tray flying off trailer in transit	5 x 4	20	Stop, re-test load securement a few km's out, Visual walk around inspection	2 x 1	2
Obtain Safe Work Permit from Client	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 4	16	Ensure clear understanding of all assigned workers of the task and/or permit, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	2 x 1	2
	Identify All Existing & Potential Location and Work Site Hazards	4 x 4	16	Ensure all appropriate / required PPE is worn - reassess per each task , Use proper tools, ensure correct operation, Review all hazards involved to do the job, as outlined, Review all JHA's and THA's with workers	2 x 1	2
Unload trailer	Sharp Edges – Cuts/Lacerations	4 x 3	12	Maintain proper body positioning (line-of-fire), Wear proper, requied PPE (gloves), Focus; eyes and mind on task	2 x 1	2
	Pinch Points	4 x 3	12	Be aware of position of hands (line-of-fire), Wear proper PPE (leather gloves) , Be careful lowering tray to ground, Focus; eyes and mind on task	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Muscle Strain	4 x 3	12	Use legs to bear weight of lifts, Be aware of surroundings, watch your step, Maintain proper body positioning (line-of-fire), Use proper lifting techniques, Use two people to lift longer lenghts of tray	2 x 1	2
Set up ladder	Uneven, Slippery Ground Surfaces	5 x 4	20	Be aware of icy conditions and rough terrrain, Use Caution - FOCUS; eyes and mind on task	2 x 2	4
	Awkward Positioning or Reaching	5 x 4	20	Pre-task stretching, Maintain proper body positioning, Use caution - Focus; eyes and mind on task	2 x 2	4
	Falls – Slip/Trips	4 x 5	20	Follow all ladder safety practices, Use proper harness, On ladders, always maintain 3 point contact, Tie ladder off securely	2 x 2	4
Cutting tray to length	Sharp Edges – Cuts/Lacerations	4 x 3	12	Immediately file sharp edges after cuts made, Ensure all proper PPE is worn	2 x 2	4
	Flying Debris	4 x 3	12	Be aware of surroundings and others, Use caution - Focus; eyes and mind on task	2 x 1	2
	Cuts & scrapes from power tool operation	5 x 4	20	Ensure operator has had proper instruction on use of tool and risks associated, Grasp tool, hold firmly/solidly against surface, Ensure guards and shields are in place, hearing protection, monitor for gas, , Use Caution - FOCUS; eyes and mind on task , Wear proper PPE (leather gloves, glasses, face shield), Maintain proper body positioning (line-of-fire)	2 x 2	4
Mounting tray	Falls from Heights	5 x 5	25	Complete a fall protection plan and review with all personnel involved in this task, Follow all ladder safety practices, On ladders, always maintain 3 point contact, Wear safety harness; mandatory tie-off when working above 1.8m / 6 Ft.	2 x 2	4
	Sharp Edges – Cuts/Lacerations	4 x 3	12	Wear appropriate PPE (hand, eye face), Maintain proper body positioning (line-of-fire)	2 x 2	4
	Pinch Points	4 x 3	12	Ensure proper body and extremities positioning (line of fire), Wear proper PPE (leather gloves, glasses)	2 x 1	2

Name: Hazard Assessment E-01 - Running Cable Tray
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Muscle Strain	4 x 3	12	Use legs to bear weight of lifts, Be aware of surroundings, watch your step, Maintain proper body positioning (line-of-fire), Use proper lifting techniques, Use two people to lift longer lenghts of tray	2 x 1	2
Secure tray into place	Dropping Tools /Materials to Ground Below	4 x 4	16	Loose tools / material kept off ladders, Ribbon or barricade off work area, Signage posted; use danger or caution barrier tape, Use proper tool lanyard, bag or pockets to prevent tools etc.., falling or being dropped	2 x 2	4
	Release of Stored Energy (Tool Slips)	4 x 3	12	Use proper tools (eliminate slippage), Ensure stable body positioning prior to tightening, Wear proper PPE	2 x 2	4
	Falls from Heights	5 x 5	25	Follow all ladder safety practices, Maintain proper body positioning (line-of-fire), On ladders, always maintain 3-point contact	2 x 2	4
	Pinch Points	4 x 3	12	Focus; eyes and mind on task, Wear proper PPE (leather gloves, glasses, face shield)	2 x 1	2
Clean up	Material Handling	3 x 3	9	Use proper lifting techniques, Maintain proper body positioning (line-of-fire)	2 x 1	2
	Loose Material and Debris	3 x 3	9	Housekeeping - Adequate, Keep site and work area tidy and clear, Wear proper PPE, (leather gloves, glasses)	2 x 1	2
Communicate completion of task to client Close out permit	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	1 x 1	1

Name: Hazard Assessment E-01 - Running Cable Tray
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

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Name: Hazard Assessment E-02 - Strip Wire & Cable
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit	Potential Exposure to Hazardous Atmosphere	3 x 4	12	Wear gas monitor, calibrate, bump test and record	1 x 4	4
	Idenfity All Existing Location Hazards	3 x 4	12	Exposure Monitoring/Surveillance, Complete PJHA form, Review process concerns crews may have associated within job scope; document on permit, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	1 x 4	4
Hold Pre-Job Tool Box meeting	All workers may not be aware of task hazards	3 x 4	12	Review all job steps and hazards, Complete PJHA form, Use proper tools, ensure correct operation	1 x 1	1
Stripping outer jacket	Sharp Edges – Cuts/Lacerations	4 x 4	16	Use proper knife - cut away from body, Be aware of position of hands (line-of-fire) , Review and follow SWP for knife use , Maintain proper body positioning (line-of-fire)	2 x 2	4
Remove metal jacket	Cuts & Scrapes	4 x 3	12	Cut on stable surface, Utilize another worker's assistance as required	2 x 1	2
	Hacksaw slipping	4 x 3	12	Focus; eyes and mind on task, Watch saw binding, Wear proper PPE, Maintain proper body positioning (line-of-fire)	2 x 2	4
Remove inner jacket	Cuts & Scrapes	4 x 3	12	Focus; eyes and mind on task, Cut on stable surface, Use inner jacket pull string, when provided, Wear proper PPE, Maintain proper body positioning (lineof-fire)	2 x 2	4
Remove plastic and / or inner string	Sharp Edges – Cuts/Lacerations	4 x 3	12	Ensure you are using a sharp knife to avoid mass amounts of stored energy, Use proper knife - cut away from body	2 x 1	2
	Pinch Points	4 x 2	8	Focus; eyes and mind on task, Be aware of pinch points associated with use of hand tools, Wear proper PPE, Maintain proper body positioning (lineof-fire)	2 x 1	2
Keep job site clear & clean up	Loose Material and Debris	4 x 3	12	Perform housekeeping; ensure work area is clear of debris, equipment, tools, etc.	1 x 1	1

Name: Hazard Assessment E-02 - Strip Wire & Cable
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Falls – Slip/Trips	4 x 4	16	Housekeeping - Adequate, Keep site and work area tidy and clear, Maintain proper body positioning (line-of-fire)	2 x 1	2
Communicate completion of task to client Close out permit	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	1 x 1	1

Name: Hazard Assessment E-02 - Strip Wire & Cable
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-03 - Pulling Cable In Tray At Ground Level
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Agreement / Permit from Client	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 4	16	Ensure clear understanding of all assigned workers of the task and/or permit, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	1 x 1	1
	Identify All Existing & Potential Location and Work Site Hazards	4 x 4	16	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools, ensure correct operation, Ensure all appropriate / required PPE is worn - reassess per each task	1 x 1	1
Mount Cable Spools Onto Supports	Sharp Edges – Cuts/Lacerations	4 x 3	12	Focus, eyes and mind on task, be aware of your surroundings, Wear appropriate PPE (in good condition), Maintain proper body positioning (line-of-fire)	2 x 1	2
	Pinch Points	4 x 4	16	Be aware of position of hands (line-of-fire) , Identify pinch points, Wear proper PPE (leather gloves)	2 x 2	4
	Muscle Strain	4 x 4	16	Practice proper lifting tecniques (use legs), Know your limits; obtain assistance from co-workers for heavy lifts	2 x 2	4
Pull Cable From Spool	Muscle Strain	4 x 3	12	Know your limits, obtain assistance from co-workers for heavy lifts, Practice proper lifting/pulling techniques (use legs), Use mechanical pulling assistance if/where necessary	2 x 2	4
	Hand Injuries From Being Pulled Into Obstacles	5 x 3	15	Be aware of position of hands (line-of-fire)	2 x 2	4
	Fatigue from repetitive tasks or working in same position for extended periods	4 x 3	12	Use micro breaks to stretch out muscles	2 x 2	4
Lay Cable Into Tray	Awkward Stance/Position/Posture	4 x 3	12	Stretching and proper body positioning, Use micro breaks to stretch out muscles, Alternate body positioning frequently throughout the task	2 x 1	2
	Hand Injuries From Being Pulled Into Obstacles	4 x 4	16	Housekeeping - Adequate, Pull in rhythm with other workers, With each pull, use required force, Maintain proper body positioning (line-of-fire)	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Falls – Slip/Trips	4 x 4	16	Survey to ensure all debris that could cause a slip, trip or fall has been removed, Ensure access and egress points are available at all times	2 x 1	2
	Cuts or scrapes to hands and/or body	5 x 3	15	Be aware of hand placement (line-of-fire), Wear proper PPE (Kevlar gloves and good high support work boots)	2 x 1	2
Tie-Wrap Cables Into Place	Fall Protection (Ladders, Scaffolds, or JLG	5 x 5	25	Tie off ladder securely, Clean and inspect harness; document inspection on approved form, Thoroughly inspect equipment; document inspection; tag out defective tools, as required, Follow procedures for ladder use / fall protection	2 x 2	4
	Fatigue from repetitive tasks or working in same position for extended periods	4 x 3	12	Use micro breaks to stretch out muscles	2 x 1	2
	Release of stored human energy if tool slips	4 x 3	12	Focus; eyes and mind on task, Twist off tie-wrap, Wear proper PPE (Kevlar gloves), Ensure to always pull tool away from body	2 x 1	2
	Back & muscle strain	4 x 4	16	Use micro breaks to stretch out muscles, No twisting to reach into tray to secure cable, Maintain proper body positioning (line-of-fire)	2 x 1	2
Keep job site clear Clean up	Material Handling	4 x 3	12	Know your limits, obtain assistance from co-workers for heavy lifts	1 x 1	1
	Loose Material and Debris	4 x 3	12	Housekeeping - Adequate, Keep site and work area tidy and clear	1 x 1	1
	Falls – Slip/Trips	4 x 4	16	Watch for slippery and rough terrain, Maintain proper footing, Perform housekeeping;ensure floor areas are clear of debris, equipment, tools, etc.	2 x 1	2

Name: Hazard Assessment E-03 - Pulling Cable In Tray At Ground Level
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Communicate completion of task to client Close out permit	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	1 x 1	1
	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	1 x 1	1

Name: Hazard Assessment E-03 - Pulling Cable In Tray At Ground Level
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-04 - Pulling Cable In Trench
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain safe work permit from client operations Complete Associated PJHA	Identify all hazards & potential hazards	4 x 4	16	Perform only work identified by permit, Review /discuss relevant THA's / JHA's with crews, Review process concerns crews may have associated within job scope; document on permit, Review current and future weather conditions	1 x 1	1
	Lack of experience or knowledge of task	4 x 4	16	Review / discuss relevant PJHA's w/Crew(s), Review all other Safe Work Practices associated or involved with task, Review / discuss all related and relevant Safe Work Practices associated or involved with this task	1 x 2	2
Pre-Job Toolbox Meeting w/ crews	New Workers on Site or With Crew(s)	4 x 3	12	Training/Education, Review / discuss relevant THA's with crew(s), , Review / discuss relevant JHA's with crew(s), Review emergencey response plan, Review all hazards involved to do the job, as outlined,, Review any customer procedures and any other associated with the job or facility	2 x 1	2
	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 4	16	Review Field PJHA with newcomers, Clear, concise communication to review / discuss full scope and order of job duties related to task	2 x 1	2
Mount cable spools onto supports	Heavy lifting	4 x 3	12	Get help for manual lifts and load placement, Team Lift; use proper lifting techniques, Keep extremities clear of pinch points	2 x 2	4
	Muscle Strain	4 x 3	12	Pre-task stretching, Know your limits; obtain assistance from co-workers for heavy lifts	2 x 2	4
	Falls – Slip/Trips	4 x 3	12	Ensure proper footing in slippery conditions	2 x 1	2
	Pinch Points / Crush Type Injury	4 x 4	16	Be aware of surroundings, equipment and others in vicinity, Ensure proper body / extremities positioning (line-of-fire; caution with ground condition and solid footing)	2 x 2	4
	Awkward Stance/Position/Posture	4 x 3	12	Ensure all proper PPE is worn/utilized for task, must be in good condition, Ensure proper body/extremities positioning (line-of-fire); caution with ground condition and solid footing	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Pull cable from spools Prepare cable to be laid in trench	Awkward Stance/Position/Posture	4 x 3	12	Pre-task stretching, Follow material handling SWP for proper lifting; obtain assistance when necessary (co-worker or mechanical pulling)	2 x 1	2
	Heavy lifting	4 x 3	12	Get assistance for heavy lifting	2 x 1	2
	Muscle Strain	4 x 3	12	Warm up / stretch prior to pulling or lifting, Use radios to communicate to pull or stop	2 x 1	2
	Fatigue; performing repetitive tasks in same ergonomic position	4 x 3	12	Take micro breaks as required to reduce strain/fatigue, Alternate body positioning frequently throughout the task	2 x 1	2
	Pinch Points	4 x 3	12	Maintain proper body positioning (line of fire) and footing, Be aware of others and surroundings	2 x 1	2
	Sharp Edges – Cuts/Lacerations	4 x 3	12	Sharp edges removed from material prior to its installation, Ensure all appropriate/required PPE is worn	2 x 1	2
	Uncontrolled Movement of Cable	3 x 3	9	Focus, eyes and mind on task, be aware of your surroundings	2 x 1	2
	Potential To Be Dragged With Cable	3 x 3	9	Maintain proper body positioning (line of fire) and footing	2 x 1	2
Cable laid in trench Where splicing required, cable pulled up/laid beside trench, Cable cut to length, stripped, and completed connections installed	Trench collapse, potential to become trapped	4 x 4	16	Inspect trench; all debris posing tripping hazard identified and/or removed, Follow restricted space entry Safe Work Practice	2 x 2	4
	Poor housekeeping; debris in/around task area	4 x 3	12	Practice extremely diligent housekeeping, String cables away from high traffic areas; if possible - keep off ground. , Tripping hazards , flag areas with ribbon	2 x 1	2
	Awkward heavy lifting, muscle strain	4 x 3	12	Stretching and proper body positioning, Know your limits, obtain assistance from co-workers for heavy lifts	2 x 2	4
	Potential Glass Shards From Exposed Fiber Optic Cable Covering (Cuts, Scrapes, Airborne Fibers)	4 x 3	12	Follow fiber optics manufacturer's specifications for cold weather conditions, Ensure all appropriate PPE is worn (hand, eye) and in good condition	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Cuts / Scrapes /Lacerations / Abrasions	4 x 3	12	Use proper tools correctly; review all appropriate SWP's , Ensure proper tools for task are used correctly; pre-inspect tools to ensure proper working condition	2 x 1	2
Wet or Cold Weather Conditions Require Assembly/Set Up of Splice Tent	Cold / Wet Weather Conditions	4 x 3	12	Follow manufacturer's instructions for set up of splice tent, Allow good ergonomic work positions during assembly of splice tent, Ensure all appropriate/required PPE is worn	2 x 1	2
	Trench collapse, potential to become trapped	4 x 4	16	Ensure access and egress points are available at all times, Proper shoring and sloping of trench	2 x 2	4
	Slips, Trips, Falls	3 x 3	9	Ensure proper body and body parts positioning (line-of-fire) and solid footing, Inspect trench; all debris posing tripping hazard identified and/or removed	2 x 1	2
Manually back fill with sand using shovel Install mechanical protection for cables	Trench collapse, potential to become trapped	4 x 5	20	Focus, eyes and mind on task, be aware of your surroundings, Ensure access and egress points are available at all times, Use sand and solid mechanical protection, Ensure proper body/extremities positioning (line-of-fire); caution with ground condition and solid footing during shoveling of sand	2 x 2	4
	Poor housekeeping; debris in/around task area	4 x 3	12	Inspect trench; all debris posing tripping hazard identified and/or removed	2 x 1	2
	Falls/Slip/Trips	4 x 3	12	Survey to ensure all debris that could cause a slip, trip or fall has been removed, Be aware of surroundings, others, weather conditions and body temperature	2 x 1	2
	Awkward Stance/Position/Posture	4 x 3	12	Alternate body positioning frequently throughout the task	2 x 1	2
	Heavy lifting	4 x 3	12	Use proper lifting/pulling techniques (using legs) no twisting, Obtain assistance from co-workers for heavy/awkward lifts	2 x 2	4
	Muscle Strain	4 x 3	12	Take micro breaks; stretch to improve circulation	2 x 2	4
	Potential heat stroke	3 x 4	12	Ensure all crew members maintain hydration	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Back fill with excavator Install buried cable marker tape	Trench collapse, potential to become trapped	4 x 5	20	Focus, eyes and mind on task, be aware of your surroundings, Ensure mulitple ladders securely placed or stairs cut into trench wall, Place (Buried Cable) marking tape, halfway between installation and finished grade level.	3 x 2	6
	Potential injury working in close proximity to excavator	4 x 5	20	Ensure crews and spotter keep a clear line of sight and constant communication with operators of heavy equipment, Be aware of surroundings, equipment and others in vicinity	3 x 2	6
	No communication with equipment operator	4 x 5	20	Ensure crews and spotter keep a clear line of sight and constant communication with operators of heavy equipment	2 x 1	2
	No designated, knowledgeable spotter	4 x 4	16	Mandatory spotter designated, Appoint a spotter, review signals to be used	2 x 1	2
	Spotter signals not known / understood	4 x 4	16	Review signals to be used between spotter and operator	2 x 1	2
	Falls/Slip/Trips	3 x 3	9	Continually re-assess workplace to identify, control or eliminate all hazards	2 x 1	2
Housekeeping	Awkward Stance/Position/Posture	4 x 3	12	Ensure proper body and body parts positioning (line-of-fire) and solid footing	2 x 1	2
	Muscle strain, fatigue	4 x 4	16	Take micro breaks as required to reduce strain/fatigue, Follow SWP for handling/lifting materials and equipment	2 x 1	2
	Property damage from contact with equipment, tools, vehicles	4 x 3	12	Drive in or back in slowly, when possible use a spotter, Be aware of surroundings and others	2 x 1	2
	Poor housekeeping; debris in/around task area	4 x 3	12	Secure equipment, tools, materials away safely, Perform housekeeping;ensure floor areas are clear of debris, equipment, tools, etc.	2 x 1	2
	Pinch Points	4 x 3	12	Identify pinch points, Be aware of position of hands (line-of-fire)	2 x 1	2
	Potential crush type injury	4 x 4	16	Focus, eyes and mind on task, be aware of your surroundings, After each task, reassess all hazards	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Sharp Edges – Cuts/Lacerations	4 x 3	12	Awareness of surroundings, Ensure all appropriate /required PPE is worn	2 x 1	2
	Potential Glass Shards From Exposed Fiber Optic Cable Covering (Cuts, Scrapes, Airborne Fibers)	3 x 3	9	Ensure all appropriate / required PPE is worn - reassess per each task	1 x 2	2
	Incorrect donning /doffing of PPE, foreign objects contacting skin or eyes	4 x 3	12	Exercise proper donning and doffing of all PPE	2 x 1	2
Communicate completion of task Close out permit	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	2 x 1	2
	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	2 x 1	2

Name: Hazard Assessment E-04 - Pulling Cable In Trench
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-05 - Heater Maintenance
Description:
Last Published: May 17, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain permit from client representative Complete all associated PJHA's and THA's	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 5	20	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly; review all appropriate SWP's, Ensure all appropriate/required PPE is worn, Ensure tools /equipment have current calibration certificates	2 x 1	2
	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 4	16	Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Ensure clear understanding of task / permit of all assigned workers, Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	2 x 1	2
Visual inspection performed Verify which heaters do not work	Tripping	4 x 3	12	Focus; eyes and mind on task, Ensure footing is good and solid, Housekeeping; clear area of hazards	2 x 1	2
	Inhalation / exposure (H2S, LEL)	5 x 5	25	Review potential hazards of Safe work permit with the crew involved. Ensure no hazardous atmospheres are present, Personal monitor turned on - calibrated, bump-tested, recorded with fully charged batteries	2 x 2	4
Isolate EMF (voltage source) Lockout or disconnect breaker	Electricity, Electrical Shock	5 x 5	25	Ensure training /certification is appropriate for task, Follow SWP to complete Lock Out / Tag Out, Use proper meter, test before touch,, Ensure all appropriate / required PPE is worn - reassess per each task	2 x 2	4
	Pinch Points	4 x 4	16	Identify pinch points	2 x 1	2
Set up ladder	Falls from Heights	5 x 5	25	Inspections completed on all harnesses, lanyards, fall arrest equipment and ladders, Ensure ladder is properly tied off, Use proper fall protection where required (3m or above), Review safe practices for ladder use or scaffolds and AWP operation	2 x 1	2
	Slips, Trips, Falls	4 x 4	16	Survey to ensure all debris that could cause a slip, trip or fall has been removed, Spotter to hold ladder, Ensure ladder is secure and tied off; do not stand on top two rungs	2 x 1	2

Name: Hazard Assessment E-05 - Heater Maintenance
Description:
Last Published: May 17, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Working at Heights	4 x 4	16	Tie off when working above 6 ft., Do not use top two rungs, On ladders, always maintain 3 point contact	2 x 1	2
Replace damaged components or remove heater to be repaired	Muscle Strain	3 x 4	12	Practice proper lifting techniques, Do not twist when lifting / handling equipment, Know your limits; obtain assistance from co-workers for awkward or heavy lifts, Wear proper PPE (gloves, glasses)	2 x 1	2
	Falling Objects	4 x 4	16	Ribbon or barricade off work area, Tool lanyards used to safeguard against accidental drops, Maintain proper body positioning (line-of-fire)	2 x 1	2
	Pinch Points	4 x 3	12	Focus; eyes and mind on task, Use proper meter and tools, Ensure proper body and extremities positioning (line of fire)	2 x 1	2
Re-connect power	Electricity, Electrical Shock	4 x 4	16	Focus; eyes and mind on task, Wear proper PPE, Ensure LOTO removal SWP is followed correctly	2 x 2	4
	Potential short circuit current with improper installation	4 x 4	16	Quality Assurance / Quality Control Testing and Verification of installation	2 x 1	2
	Lockout not Removed when Complete	3 x 4	12	Confirm correct Lock Out / Tag Out practice followed for removal, are met and recorded	2 x 1	2
Communicate to Operations when job is complete Close out permit	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	2 x 1	2
	Permit Not Properly Completed/Signed Off	3 x 4	12	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	2 x 1	2

Name: Hazard Assessment E-05 - Heater Maintenance
Description:
Last Published: May 17, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
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1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-06 - Running Conduit
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain site work agreement / permit from client representative	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 4	16	Review all related / relevant Safe Work Practices (SWP's) associated or involved with this task, Ensure clear understanding of task / permit of all assigned workers, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	1 x 1	1
	Identify job location hazards and potential hazards	4 x 4	16	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools correctly; review all appropriate SWP's, Ensure all appropriate / required PPE is worn - reassess per each task	1 x 1	1
Determine location and route of install	Falls/Slip/Trips	3 x 3	9	Focus, eyes and mind on task, be aware of your surroundings, Survey to ensure all debris that could cause a slip, trip or fall has been removed	2 x 1	2
	Working at Heights	4 x 4	16	Ensure ladder is properly tied off, Follow SWP for working at heights	2 x 1	2
	Welding & grinding	3 x 3	9	If welding above ground level, flag off / barricade area below,, Wear proper PPE	2 x 1	2
Set up and check equipment, materials and tools for task	Faulty / incorrect tools	3 x 3	9	Repair / replace with equipment in good condition, Inspection of tools/equipment to be used	1 x 1	1
	Broken ladders	4 x 4	16	Tag / remove faulty equipment from service	1 x 1	1
Cut and install strut or other conduit supports	Burns from contact with hot metal	3 x 3	9	Focus, eyes and mind on task, be aware of your surroundings, Wear appropriate PPE (in good condition), Maintain proper body positioning (line-of-fire)	2 x 1	2
	Pinch Points	3 x 3	9	Be aware of pinch points associated with use of hand tools	2 x 1	2
	Flashes from welding	3 x 3	9	Ensure all appropriate PPE is worn (hand, eye) and in good condition	2 x 1	2
	Drill and bit catching /torquing hands	3 x 3	9	Follow SWP for drill use; use sharp bits, drill away from body	2 x 1	2
	Sparks from saw and grinder	3 x 3	9	Wear face shield while using cut-off saw or grinder	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Cuts / abrasions from tools, material	3 x 3	9	Ensure operator has had proper instruction on use of tool and risks associated, File all sharp edges off strut prior to handling, Wear proper required PPE (gloves, glasses)	2 x 1	2
Measure and bend conduit	Bender support elevates, hitting workers	3 x 2	6	Step on support on bender, Be aware of surroundings, tools, material, equipment and others	2 x 1	2
	Pinch points on benders	3 x 2	6	Use bender as per manufacturer's instructions, Maintain proper body positioning (line-of-fire)	2 x 1	2
Cut and thread conduit	Lack of Training in Equipment's Operation	4 x 4	16	Follow manufacturer's instructions to ensure safe operation, Participate in proper training	2 x 1	2
	Catching on / binding on gloves	3 x 3	9	Do not hold die when threading	2 x 1	2
	Pinch Points	3 x 3	9	Ensure operator has had proper instruction on use of tool and risks associated, Ensure proper body / body parts positioning (line-of-fire)	2 x 1	2
	Sharp metal filings	3 x 2	6	Use cardboard box to collect metal filings, Ensure all appropriate/required PPE is worn	2 x 1	2
	Cutting oil	3 x 2	6	Review MSDS for lubricant, Wear proper, required PPE (gloves)	1 x 1	1
Install conduit (ie mount on supports and thread together)	Confined Space Entry	4 x 5	20	Confined Space training is mandatory, Mandatory spotter designated	2 x 2	4
	Working at Heights	4 x 4	16	Ensure ladder is properly tied off, Follow SWP for working at heights, Ensure area below height work is clear, Ensure tools, equipment are secured at heights, Tool lanyards used to safeguard against accidental drops, Wear fall protection (if necessary)	2 x 1	2
	Release of Stored Energy (Tool Slips)	3 x 3	9	Focus, eyes and mind on task, be aware of your surroundings, Use proper tools (eliminate slippage)	2 x 1	2
	Pinch Points	3 x 3	9	Be aware of pinch points associated with use of hand tools	2 x 1	2

Name: Hazard Assessment E-06 - Running Conduit
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Communicate completion of task Close out permit	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	1 x 1	1
	Lack Of Complete Clear Communication	3 x 4	12	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	1 x 1	1

Name: Hazard Assessment E-06 - Running Conduit
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-07 - Pull Wire Into Conduit
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain safe work permit from client Complete Associated PJHA	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 4	16	Ensure clear understanding of all assigned workers of the task and/or permit, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	1 x 1	1
	Identify all hazards & potential hazards	4 x 4	16	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Ensure all appropriate/required PPE is worn, Use proper tools, ensure correct operation	1 x 1	1
Obtain Ladders (If/where required)	Ladder's structural integrity	4 x 5	20	Visual check of ladder to ensure integrity, Ensure ladder feet and rungs are sound, Only CSA certified/ANSI compliant ladders are to be used, Use ladders made of fiberglass or wood	2 x 1	2
Set up Ladders (If/where required)	Dropping ladders	3 x 3	9	Ensure ladder is properly tied off, Use two man set up, Ensure 1:4 ratio use	2 x 1	2
Set up wire reels	Muscle Strain	4 x 3	12	Know your limits; utilize additional workers as required, Use proper tools and equipment for moving heavy, awkward loads, Wear proper PPE, Maintain proper body positioning (line-of-fire)	2 x 1	2
	Pinch Points	4 x 3	12	Use correctly sized reel bar to fit reel holes, Identify pinch points, Be aware of position of hands (line-of-fire)	2 x 1	2
Climb Ladders	Bumping head during climb	3 x 3	9	Ensure all appropriate/required PPE is worn, Focus, eyes and mind on task, be aware of your surroundings	2 x 1	2
	Working at Heights	4 x 5	20	Use fall protection if working above 3m (6 ft), Follow SWP for working at heights, Top two rungs never used as steps	2 x 2	4
	Falling From Ladder	4 x 5	20	Proper ladder positioning, Spotter to hold ladder, On ladder, maintain 3-Point contact	2 x 2	4
Pull wires through conduit	Sharp Edges – Cuts/Lacerations	3 x 3	9	Wear proper, required PPE (gloves)	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Release of stored human energy	4 x 3	12	Focus, eyes and mind on task, be aware of your surroundings, Maintain proper body positioning (line-of-fire)	2 x 2	4
	Muscle Strain	4 x 3	12	Pull in rhythm with other workers, do not over pull, Communication between pullers and pushers, Warm up / stretch prior to pulling or lifting	2 x 1	2
	Stress - Fatigue	3 x 3	9	Use micro breaks to stretch out muscles	2 x 1	2
	Over Exertion	3 x 3	9	Know your limits; utilize additional workers as required	2 x 1	2
Potential to use Fish Tape Incorrectly	Steel fish tape will conduct electricity	4 x 5	20	DO NOT USE steel fish tape in conduit with live wires	2 x 1	2
	Ends of tape feeding through conduit openings	3 x 3	9	Keep fingers and eyes away from openings, Push Fish Tape through at controlled speed	2 x 1	2
	End of fish tape have sharp edges	3 x 3	9	Ensure ends of Fish Tape are taped off, Bend ends of tape back to blunt sharp edges, Wear proper PPE (gloves, safety glasses	2 x 1	2
Keep job site clear /clean up	Material Handling	3 x 3	9	Follow proper lifting procedures, Know your limits; obtain assistance from co-workers for awkward or heavy lifts, Maintain proper body positioning (line-of-fire)	2 x 1	2
	Loose Material and Debris	3 x 3	9	Housekeeping - Adequate, Keep site and work area tidy / clear of debris	2 x 1	2
	Falls/Slip/Trips	3 x 3	9	Survey to ensure all debris that could cause a slip, trip or fall has been removed, Ensure access and egress points are available at all times, Wear proper PPE (gloves, glasses)	2 x 1	2
Communicate completion of task to client Close out permit	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	1 x 1	1
	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	1 x 1	1

Name: Hazard Assessment E-07 - Pull Wire Into Conduit
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
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1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-08 - Service Installation
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit from client or Control Tech JHA Call Operator to describe work tasks, Complete Associated PJHA	Not Identifying all Existing & Potential Location and Work Site Hazards	5 x 5	25	Ensure tools / equipment have current calibration certificates, Ensure all appropriate / required PPE is worn - reassess per each task , Use proper tools correctly; review all appropriate SWP's, Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined	2 x 1	2
	Not Having Clear Understanding Of Scope of JHA Or Permit	5 x 5	25	Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Ensure clear understanding of all assigned workers of the task and/or permit, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	2 x 1	2
Obtain Ground Disturbance Permit (If/where installation is underground)	Line strike	5 x 5	25	Check site & work area closely for ground condition, obstacles, clearances, etc., Operation's knowledge of procedure, Awareness of all lines in area	2 x 2	4
	Location Of Underground Utilities	5 x 5	25	Hand Dig / Hydro-vac in Hazardous Areas, Prior to any digging, inform local gas company of planned operations, Expose lines prior to digging	2 x 2	4
	Untrained / Uncertified Personnel	5 x 5	25	Ensure ground disturbance permit has been completed by authorized personnel, Ensure all workers involved have appropriate ground disturbance training	2 x 1	2
Dig service cable (Hand dig, hydro-vac, or backhoe)	Muscle Strain	4 x 3	12	Take micro-breaks, stretch out muscles, Maintain proper body positioning, Alternate body positioning frequently throughout the task	2 x 1	2
	Line strike	5 x 5	25	Expose lines prior to digging, Hand Dig / Hydro-vac in Hazardous Areas	2 x 2	4
	Cave in	4 x 4	16	Ensure mulitple ladders securely placed or stairs cut into trench wall, Maintain proper body positioning (line-of-fire), Ensure trench is sloped back at appropriate angle, Follow restricted space entry Safe Work Practice	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Open trench	4 x 4	16	Inspect trench; all debris posing tripping hazard identified and/or removed, Ensure barriers/flags clearly visible, placed as/where necessary around task area	2 x 1	2
	No communication with equipment operator	4 x 5	20	Ensure crews wear Hi-Vis clothing, Use agreed upon hand signals; spotter to maintain visual with equipment operators at all times, Ensure crews and spotter keep a clear line of sight and constant communication with operators of heavy equipment	2 x 2	4
Install cable	Falls/Slip/Trips	4 x 3	12	Ensure proper footing in slippery conditions, Survey to ensure all debris that could cause a slip, trip or fall has been removed	2 x 1	2
	Muscle Strain	4 x 3	12	Take micro breaks; stretch to improve circulation, Maintain proper body positioning (line-of-fire)	2 x 2	4
	Weight of cable	4 x 3	12	Review weight of spools and cable, Use adequate manpower for task, Ensure proper cable identification	2 x 2	4
	Open trench	4 x 4	16	Follow restricted space entry SWP for installation of warning tape, No sand; sand in trench makes footing unstable/difficult to work in	2 x 1	2
Prepare cable for entry	Pinch Points	4 x 3	12	Be aware of pinch points associated with use of hand tools, Ensure all appropriate/required PPE is worn	2 x 1	2
	Cuts, lacerations from knives	4 x 4	16	Ensure proper tools for task are used, (knives, wire strippers, etc.), Wear appropriate PPE (in good condition), Follow SWP for knife use; cut away from body	2 x 2	4
Meggar cable	Electricity, Electrical Shock	4 x 3	12	Ensure good communication between workers, If/where necessary, flag area off, Follow safe Megger test E-50, to verify condition of electrical insulation, Confirm no shorts or opens prior to burial	2 x 2	4
	Horseplay	3 x 3	9	Focus; eyes and mind on task	2 x 1	2
	No Inspection Forms (Documentation)	4 x 3	12	Quality Assurance / Quality Control Testing and Verification of installation	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Terminate cable	Sharp Edges – Cuts/Lacerations	4 x 3	12	Focus, eyes and mind on task, be aware of your surroundings, Wear proper required PPE (gloves, glasses)	2 x 2	4
	Pinch Points	3 x 3	9	Be aware of pinch points associated with use of hand tools	2 x 1	2
	Lack of Training in Specific Task	4 x 3	12	Follow instructions on THA E-09 Terminating, Worker should be trained for specific type of termination	2 x 1	2
Backfill trench	Site Conditions	3 x 3	9	Check site & work area closely for ground condition, obstacles, clearances, etc.	2 x 1	2
	Weather Conditions	3 x 3	9	Be aware of surroundings, others, weather conditions and body temperature, Ensure all appropriate /required PPE is worn - reassess per each task	2 x 1	2
	Heavy equipment	5 x 5	25	Ensure crews and spotter keep a clear line of sight and constant communication with operators of heavy equipment, Supervise equipment operation, Ensure crews wear Hi-Vis clothing	2 x 2	4
	Rocks on lines	3 x 3	9	Use sand and solid mechanical protection, Place (Buried Cable) marking tape, halfway between installation and finished grade level	2 x 1	2
	Shoveling	3 x 3	9	Take micro breaks as required to reduce strain/fatigue, Alternate body positioning frequently throughout the task	2 x 1	2
Communicate completion of task to client Close out permit	No Inspection Forms (Documentation)	4 x 3	12	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	2 x 1	2
	Lack Of Complete Clear Communication	3 x 4	12	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	2 x 1	2

Name: Hazard Assessment E-08 - Service Installation
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
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2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-09 - Terminating (Junction Boxes and MCC's)
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit from Client Operations Identify All Location and Site Hazards	Not Having Clear Understanding Of Scope of JHA Or Permit	5 x 4	20	Ensure clear understanding of all assigned workers of the task and/or permit, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	1 x 1	1
	Not Identifying all Existing & Potential Location and Work Site Hazards	5 x 4	20	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly, Review all appropriate SWP's, Ensure all appropriate /required PPE is worn - reassess per each task, Ensure tools / equipment have current calibration certificates	1 x 1	1
De-Energize Circuits Tag and Lock Out Panels and Disconnects (if/where possible)	Pinch Points	3 x 3	9	Be aware of pinch points associated with use of hand tools, Identify pinch points	2 x 1	2
	Arc Flash /Electrocution	4 x 5	20	Test before you touch, use multimeter, check wiring diagrams, Focus, eyes and mind on task, be aware of your surroundings, Ensure all proper PPE is worn/utilized for task, must be in good condition, Installation of Temporary protective grounds to ensure the safety of workers when required	2 x 2	4
	Line Voltages Present	4 x 5	20	Check circuits are de-energized; use meter rated for measuring voltages, Ensure training /certification is appropriate for task, All workers shall place locks on isolation point; Use scissor lock if required, Wear proper, required PPE (gloves), Go through lockout with client, Place locks on proper isolation points	2 x 1	2
Set Up Ladder to Access Junction Box (if / where required)	Working at Heights	3 x 3	9	Use correct ladder for task, Ensure ladder is secure and tied off; do not stand on top two rungs, Use fall protection if required	2 x 1	2
	Falls from Heights	3 x 3	9	Proper ladder positioning, On ladder, maintain 3-Point contact, Use fall protection if working above 1.8m / 6Ft.	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Drill Holes In Junction Box for Cable Entry null	Drill and bit catching /torquing hands	4 x 4	16	Use solid grip on tools; 2 handles = 2 hands, Follow SWP for drill use; use sharp bits, drill away from body	2 x 1	2
	Falling Debris / Slag	4 x 4	16	Placement of means (tarps blankets, shop vacuum, etc) to gather cutting cast offs (filings, scrap pieces, or other debris)	2 x 1	2
	Poor Housekeeping	3 x 3	9	Practice extremely diligent housekeeping	1 x 1	1
	Contact with Live Wire or Instrument Gas LIne	5 x 4	20	Move wiring or piping from proximity to task area, Implement plan to apply all possible means of temporary protection to guard open/energized equipment, Check in and outside panel	2 x 2	4
	120v Present, LIve Voltages Present	5 x 4	20	Test before you touch, use multimeter, check wiring diagrams, Wear proper PPE (gloves, eye, ear protection)	2 x 2	4
Cut and Strip Cable to Length at JB and MCC	Working at Heights	3 x 3	9	Follow THA E-27 Working At Heights, Ensure material and tools are contained when working at heights; i.e. use tool bags	2 x 1	2
	Muscle Strain	3 x 3	9	Maintain proper body positioning	2 x 1	2
	Sharp Edges – Cuts/Lacerations	4 x 3	12	Ensure knife use SWP followed, Wear proper, required PPE (gloves), Review THA E-02 Strip wire and cable	2 x 1	2
Install Cable Connector and Secure into JB and MCC	Pinch Points	4 x 3	12	Be aware of pinch points associated with use of hand tools, Identify pinch points, Keep extremities clear of pinch points	2 x 1	2
	Falling Objects	3 x 3	9	Ensure material and tools are contained when working at heights; i.e. use tool bags	2 x 1	2
	Live Voltages Present	4 x 4	16	Focus; eyes and mind on task, Check for voltages present, Proper work planning and electrical isolation prior to entering shock approach boundaries	2 x 2	4
Terminate Wiring at JB and MCC Terminal Strip and Tag	Hot and Neutral Mixed Up	4 x 3	12	Test according to wire schematics	2 x 1	2
	Incorrect Wire Terminal Size	3 x 3	9	Use correct terminal blocks for wire size, Use correct crimps and crimping tool	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Incorrect Voltages Present	4 x 4	16	Tag wires from print as they are terminated, Be aware of other voltage sources in the same equipment, Before connecting leads ensure supply voltage is correct, Wear proper, required PPE (gloves)	2 x 1	2
Loop Checks for Wiring Housekeeping	Open Circuits or Shorts	3 x 3	9	Ensure circuit is metered for opens or shorts prior to energizing	2 x 1	2
	Poor housekeeping; debris in/around task area	3 x 3	9	Perform housekeeping; ensure floor areas are clear of debris, equipment, tools, etc.	1 x 1	1
	Lockout not Removed when Complete	3 x 3	9	Ensure everyone is aware that locks are being removed, Ensure LOTO removal SWP is followed to remove Lock and Tag Out, Where necessary, wait for Operations personnel to authorize re-energization of equipment	1 x 1	1
	Failure to Test Equipment	3 x 3	9	Quality Assurance / Quality Control Testing and Verification of installation	1 x 1	1
Communicate completion of task to client Close out permit	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	1 x 1	1
	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	1 x 1	1

Name: Hazard Assessment E-09 - Terminating (Junction Boxes and MCC's)
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
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4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
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2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-10 - Use Of Drill Or Drilling
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit / Hot Work Permit From Client Complete Associated PJHA, Obtain Job Specific Information From Manager	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 4	16	Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Ensure clear understanding of task / permit of all assigned workers, Review Hot Work SWP, if task is to occur within plant site/facility, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	1 x 1	1
	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 4	16	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and equipment correctly, Ensure all appropriate / required PPE is worn - reassess per each task	1 x 1	1
Identify Tool(s) and Equipment Necessary to Perform Task Collect Tool(s) and Equipment Necessary to Perform Task: Inspect All Tools and Equipment	Use of Damaged /Defective Tool	3 x 4	12	Inspect drill, ensure cord not frayed and plug end all intact, Confirm switch / controls work properly, Flag /mark all deficiencies found. If required, decommission for repair or replacement	1 x 1	1
	Electrical Shock	3 x 4	12	Do not use electrical equipment around water, Use GFI (Ground Fault Interrupter) for temporary power supply	1 x 1	1
Before Drilling Inspect Surfaces to be Drilled and Behind Surface To Be Drilled	Potential Shutdown	4 x 5	20	Ensure operator has had proper instruction on use of tool and risks associated, Operation's knowledge of procedure, Proper work planning and electrical isolation prior to entering shock approach boundaries	2 x 2	4
	Contact with Live Wire or Instrument Gas LIne	4 x 5	20	Move wiring or piping from proximity to task area, Implement plan to apply all possible means of temporary protection to guard open, energized equipment, Double check measurements are correct for exact penetration point	2 x 2	4
	Hidden Obstructions	4 x 4	16	Know what material is being drilled into, Check in and outside panel for all hazards	2 x 1	2
Take Position to Drill Hole Drill Pilot Hole (If Necessary)	Pinch Points	3 x 3	9	Use drill handle, if appropriate, Ensure all appropriate PPE is worn (hand, eye, face, hearing) must be in good condition, Be aware of hand placement (line-of-fire)	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Uncontrolled Movement of Material	3 x 3	9	Focus; eyes and mind on task, Secure with clamp prior to all drilling (vice clamps / tri-stand / mechanically secured)	2 x 1	2
	Muscle Strain	3 x 3	9	Maintain proper body positioning	2 x 1	2
	Hidden Obstructions	3 x 3	9	Physically inspect area to identify any hidden obstructions	2 x 2	4
Drill Hole Test Hole Sizing; Use Oil When Drilling Large Diameter Holes	Falling Debris / Slag	3 x 3	9	Placement of means (tarps blankets, shop vacuum, etc) to gather cutting cast offs (filings, scrap pieces, or other debris), Use face shield when working overhead	2 x 1	2
	Uncontrolled Release (As Drill Finishes Hole)	4 x 4	16	Focus; eyes and mind on task, Use proper technique and body positioning, Follow SWP for drill use; use sharp bits, drill away from body	2 x 2	4
	Fatigue; performing repetitive tasks in same ergonomic position	3 x 3	9	Take micro-breaks, stretch out muscles and improve circulation and focus	2 x 1	2
	Pinch Points	3 x 3	9	Proper hand placement (line-of-fire)	2 x 1	2
Housekeeping	Material Handling	3 x 2	6	Use proper lifting & handling techniques, Proper hand placement (line-of-fire), Know your limits, get assistance from co-workers for heavy lifts	2 x 1	2
	Loose Material and Debris	3 x 2	6	Keep job site clear of debris	1 x 1	1
	Falls/Slip/Trips	3 x 3	9	Survey to ensure all debris that could cause a slip, trip or fall has been removed, Be aware of surroundings, others, and potential of exposed hazards, Wear proper PPE (gloves, eye, ear protection)	2 x 1	2
Advise Operations Job is Complete Close out permit	Lack Of Complete Clear Communication	3 x 2	6	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	1 x 1	1

Name: Hazard Assessment E-10 - Use Of Drill Or Drilling
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-11 - Repair Contactor
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit from Client Complete associated JHA's & THA's	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 5	20	Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Ensure clear understanding of task / permit of all assigned workers, Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	1 x 1	1
	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 5	20	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly; review all appropriate SWP's, Ensure all appropriate /required PPE is worn - reassess per each task, Ensure tools / equipment have current calibration certificates	1 x 1	1
Lock Out / Tag Out Electrical Contractor Verify correct equipment	Live Voltages Present	5 x 5	25	Ensure training /certification is appropriate for task, Review current drawings and associated schematics for all power sources, Go through lockout with client. Place locks on proper isolation points, Follow SWP to complete Lock Out / Tag Out	2 x 2	4
Test contactor to confirm de-energized	Fire/Explosion/Burns	4 x 4	16	Read arc flash warning and don appropriate PPE for incident energy at play	2 x 2	4
	Capacitor Charge	3 x 4	12	Ensure all appropriate / required PPE is worn for discharge, Drain to ground	2 x 2	4
	Back feeding	4 x 4	16	Review current drawings and associated schematics for all power sources, Focus; eyes and mind on task	2 x 2	4
	Live Voltages Present	4 x 4	16	Confirm push-buttons or controls do not engage the contactor, Check circuits are de-energized; use meter rated for measuring voltages	2 x 2	4
Confirm contactor ratings (New same as Old)	Incorrect Voltage Ratings	4 x 4	16	Confirm contactor has same control voltage, Focus; eyes and mind on task	2 x 1	2
	Incorrect Current Ratings	4 x 4	16	Contact rated at minimum, same as old one being replaced	2 x 1	2

Name: Hazard Assessment E-11 - Repair Contactor
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Identify existing wiring (Disconnect wiring to old contactor)	Proper Wiring Plan Not Followed	4 x 3	12	Double check wiring layout against plans, Tape ends of wire; ensure wiring and material secure from live equipment	2 x 2	4
Identify existing wiring (Re-connect to contactor)	Proper Wiring Plan Not Followed	3 x 3	9	Ensure wiring is re-terminated and hardware is tightened, Record wiring connections for proper operation after re-connection	2 x 1	2
Test Wiring Ensure replacement is connected to same terminals as previously removed	Workers Not Fully Aware of Task Scope	4 x 4	16	Quality Assurance / Quality Control Testing and Verification of installation, Test equipment before energizing to ensure operational, Ensure training /certification is appropriate for task	2 x 1	2
Remove lock and tag	Electricity, Electrical Shock	3 x 5	15	Confirm correct Lock Out / Tag Out practice followed for removal, are met and recorded	2 x 2	4
	Fire / Explosion	3 x 5	15	Ensure cabinet doors are fully closed and secure	2 x 2	4
	Live Voltages Present	3 x 4	12	Ensure all proper PPE is worn/utilized for task, must be in good condition, Focus; eyes and mind on task	2 x 2	4
Energize contactor Test for correct operation	Failure to Test Equipment	3 x 3	9	Test with multi-meter to confirm proper operation, Use proper tools and testing equipment correctly; review all appropriate SWP's	2 x 2	4
	Rotating or Moving Equipment	3 x 4	12	Ensure all guards are in place, secure and working properly, Ensure barriers/flags clearly visible, placed as/where necessary around task area	2 x 2	4
Advise client that job is complete Close out permit	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	1 x 1	1
	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	1 x 1	1

Name: Hazard Assessment E-11 - Repair Contactor
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-12 - Live Rotating Equipment Service
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain client work permit Complete all associated PJHA's and THA's	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 4	16	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly; review all appropriate SWP's, Ensure all appropriate /required PPE is worn - reassess per each task, Ensure tools / equipment have current calibration certificates	1 x 1	1
	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 4	16	Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Ensure clear understanding of task / permit of all assigned workers, Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	1 x 1	1
Bypass And Devices	Electricity, Electrical Shock	4 x 5	20	Ensure all appropriate/required PPE is worn, Test before you touch, use multimeter, check wiring diagrams	2 x 2	4
	Unit not shutting down	4 x 5	20	Focus; eyes and mind on task, Check circuits are de-energized; use meter rated for measuring voltages	2 x 2	4
	Potential Shutdown	4 x 4	16	Wear appropriate PPE (in good condition), Ensure unit in normal state before bypassing, Complete bypass form c/w all signatures, Review all practices relevant to job (Electrical, Lock Out / Tag Out etc.), Ensure training /certification is appropriate for task	2 x 2	4
	Rotating Equipment	4 x 5	20	Maintain proper body positioning (line-of-fire), Ensure no loose clothing, hair, jewellry, Focus; eyes and mind on task, Install temporary guards, if/where necessary	2 x 2	4
Test pressure end devices	Release of stored energy	4 x 4	16	Be aware of possible stored energy, Bleed switches off slowly	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Fumes / vapour from fuel	4 x 4	16	Personal monitors worn – calibrated, bumptested, recorded, with fully charged batteries, Ventilate area, Ensure that equipment is isolated that is being adjusted, Communicate with others in the area, monitor for H2S & LEL	2 x 1	2
	Electricity, Electrical Shock	4 x 4	16	All devices must be completely isolated, Test before touch to ensure equipment properly de-energized	2 x 2	4
	High Pressure Equipment	4 x 4	16	Check drawings for pressure source and isolate pressure source, Ensure pressure has been released, Carefully monitor pressure and only disconnect fittings when pressure has been relieved, Ensure all appropriate PPE is worn (hand, eye, face, hearing) must be in good condition	2 x 2	4
Test temperature end devices	Burns	4 x 4	16	Focus; eyes and mind on task, Wear all appropriate/required PPE	2 x 1	2
	Rotating Equipment	4 x 5	20	Maintain proper body positioning (line-of-fire), Focus, eyes and mind on task, be aware of your surroundings	2 x 2	4
	High Temperature	4 x 4	16	Be aware of location of hot pipes/switches	2 x 2	4
	Electricity, Electrical Shock	4 x 4	16	Focus; eyes and mind on task, Ensure all appropriate/required PPE is worn	2 x 2	4
Test voltage end devices	Rotating Equipment	4 x 4	16	Maintain proper body positioning (line-of-fire), Be aware of rotating equipment, Focus, eyes and mind on task, be aware of your surroundings	2 x 2	4
	Electricity, Electrical Shock	4 x 5	20	Use proper testing equipment, Wear appropriate PPE (in good condition)	2 x 2	4
Test vibration and level end devices	Rotating Equipment	4 x 4	16	Focus; eyes and mind on task, Be aware of rotating equipment, Maintain proper body positioning (line-of-fire)	2 x 2	4
	High Temperature	4 x 4	16	Be aware of location of hot pipes/switches	2 x 2	4
	Electricity, Electrical Shock	4 x 4	16	Focus; eyes and mind on task, Ensure all appropriate/required PPE is worn	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Falls from Heights	4 x 4	16	Use fall protection if working above 3m (6 ft), Use ladders when necessary, Follow safe ladder use practice, Be aware of location of hot pipes/switches	2 x 1	2
Re-connect all devices	Rotating Equipment	4 x 4	16	Focus; eyes and mind on task, Maintain proper body positioning (line-of-fire), Ensure all guards are in place, secure and working properly	2 x 2	4
	Electricity, Electrical Shock	4 x 4	16	Ensure connections correct / secure, Quality Assurance / Quality Control Testing and Verification of installation, Wear appropriate PPE (in good condition)	2 x 1	2
Remove Bypass	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	1 x 1	1
	Potential Shutdown	4 x 4	16	Where necessary, wait for Operations personnel to authorize re-energization of equipment	2 x 1	2
	Rotating Equipment	4 x 4	16	Focus; eyes and mind on task, Confirm correct Lock Out / Tag Out practice followed for removal, are met and recorded, Maintain proper body positioning (line-of-fire)	2 x 2	4
	Electricity, Electrical Shock	4 x 4	16	Ensure everyone is aware that locks are being removed, Ensure all connections and devices are ready for normal operations, Wear appropriate PPE (in good condition)	2 x 1	2
Inform Operations When Task Complete Close out permit	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	1 x 1	1

Name: Hazard Assessment E-12 - Live Rotating Equipment Service
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-13 - Large RTU Cabinet Transfer
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit from client Complete all associated PJHA's and THA's	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 4	16	Ensure clear understanding of all assigned workers of the task and/or permit	2 x 1	2
	Potential Location Hazards	4 x 4	16	Visual check of location hazards, Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Ensure all appropriate/required PPE is worn	2 x 1	2
Position truck and ATV	Location Terrain	4 x 3	12	Be aware of road conditions (ie flat, slippery)	2 x 1	2
	Movement of equipment / vehicles	4 x 4	16	Be aware of surroundings and others, Use caution - Focus; eyes and mind on task, Place warning reflectors to alert traffic,, Use emergency brake; block tires on truck and trailer, Disconnet trailer from truck	2 x 1	2
Prior to move, evaluate weight of RTU cabinet	Shape not conducive to maneuvering manually	4 x 3	12	Evaluate size / shape of unit for manual handling or need to break down, Are two people needed to maneuver unit?	2 x 2	4
	Heavy, awkward load	4 x 3	12	Check weight of RTU listed on waybill, Prior to lift, re-assess JHA, Stop if limits exceeded; call for lifting equipment where required, Wear appropriate PPE (in good condition), Maintain proper body positioning (line-of-fire), Use safe lifting / handling techniques	2 x 2	4
Move cabinet to rear of truck bed	Over exertion, fatigue	4 x 3	12	Maintain communication between workers	2 x 1	2
	Muscle Strain	4 x 3	12	Use proper lifting/lowering techniques, Pre-task stretching, Know your limits; obtain assistance from co-workers for heavy lifts	2 x 1	2
	Pinch Points	4 x 3	12	Ensure proper body and body parts positioning (line-of-fire) and solid footing	2 x 1	2
	Falls/Slip/Trips	4 x 3	12	Focus; eyes and mind on task, Be aware of surroundings, watch your step	2 x 1	2
Lay cabinet down	Over exertion, fatigue	4 x 3	12	Use less force to move cabinet	2 x 1	2
	Muscle Strain	4 x 4	16	Review escape plan if control of unit being moved is lost	2 x 1	2

Name: Hazard Assessment E-13 - Large RTU Cabinet Transfer
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Pinch Points	4 x 3	12	Focus; eyes and mind on task, Ensure area large enough to lay RTU down, Lay cabinet on cardboard	2 x 1	2
	Sharp Edges – Cuts/Lacerations	4 x 3	12	Ensure all appropriate/required PPE is worn, Maintain proper body positioning (line-of-fire)	2 x 1	2
Push cabinet fully into ATV	Over exertion, fatigue	4 x 3	12	Ensure proper body and body parts positioning (line-of-fire) and solid footing	2 x 1	2
	Muscle Strain	4 x 3	12	Follow proper lifting/handling practices, Lay cabinet down on cardboard, Use less force to move cabinet	2 x 1	2
	Pinch Points	4 x 3	12	Be aware of position of hands (line-of-fire)	2 x 1	2
	Sharp Edges – Cuts/Lacerations	4 x 3	12	Focus; eyes and mind on task, Ensure all appropriate/required PPE is worn	2 x 1	2
Secure The Load	Falls/Slip/Trips	4 x 3	12	Ensure proper body / extremities positioning (line-of-fire; caution with ground condition and solid footing)	2 x 1	2
	Strap Tension	3 x 3	9	Use only approved tie-down straps, Check loaded material to ensure straps are tight so nothing can come loose and fly out of or off of truck	2 x 1	2
	Pinch Points	3 x 3	9	Maintain proper body positioning (line-of-fire), Identify pinch points, Be aware of position of hands (line-of-fire)	2 x 1	2
	Muscle Strain	3 x 3	9	Use safe lifting / handling techniques	2 x 1	2
Inform Operations When Task Complete Close out permit	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	1 x 1	1

Name: Hazard Assessment E-13 - Large RTU Cabinet Transfer
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
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2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-14 - Grounding Grids
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit from Client Complete all associated PJHA's	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 4	16	Ensure clear understanding of all assigned workers of the task and/or permit, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	1 x 1	1
	Potential Location Hazards	4 x 4	16	Visual check of location hazards, Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Ensure all appropriate / required PPE is worn -reassess per each task	2 x 1	2
Test work area for presence of hazardous gases	Inhalation / exposure (H2S, LEL)	4 x 5	20	Continuous gas monitoring, Ensure training /certification is appropriate for task	2 x 1	2
	Explosive Atmosphere	4 x 5	20	Monitor wind direction, Establish ERP and evacuation routes, Wear gas montior, bump test and record	2 x 1	2
Drill, tap and install Servit Posts	Flying Metal Filings	3 x 3	9	Wear appropriate PPE (in good condition) - goggles/mask	2 x 1	2
	Pinch Points	4 x 3	12	Be aware of pinch points associated with use of hand tools, Keep extremities clear of pinch points, Maintain proper body positioning (line-of-fire)	2 x 1	2
	Sharp Edges – Cuts/Lacerations	4 x 3	12	Stay aware of surroundings, Focus, eyes and mind on task, Ensure all appropriate / required PPE is worn - reassess per each task	2 x 1	2
	Power hand tools	4 x 3	12	Follow safe practice for use of power tools, Follow SWP for drill use; use sharp bits, drill away from body	2 x 2	4
Pull, strap, ground wire	Over Exertion	3 x 3	9	Get assistance for installation activities	2 x 1	2
	Falls/Slip/Trips	3 x 3	9	Use fall protection if working above 3m (6 ft), Use proper technique and body positioning, Focus; eyes and mind on task, Be aware of surroundings	2 x 1	2
	Pinch Points	3 x 3	9	Focus; eyes and mind on task, Maintain proper body positioning (line-of-fire)	2 x 1	2
	Muscle Strain	3 x 3	9	Use safe lifting / handling techniques, Ensure all appropriate PPE is worn (hand, eye) and in good condition	2 x 1	2

Name: Hazard Assessment E-14 - Grounding Grids
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Strip Wire (Terminate on posts, C-Tap	Laceration From Incorrect Knife Use	4 x 4	16	Ensure you are using a sharp knife to avoid mass amounts of stored energy, Use proper knife - cut away from body, Review and follow SWP for knife use	2 x 2	4
	Sharp Edges – Cuts/Lacerations	4 x 3	12	Maintain proper body positioning (line-of-fire), Wear proper, requied PPE (gloves), Focus; eyes and mind on task	2 x 1	2
Spray connection (Glyptal), Tape C-Taps	Exposure to paint fumes	3 x 3	9	Ensure sufficient distance from spray, Stay upwind of spray, Wear proper PPE (eye, face, respirator)	1 x 1	1
Inform Operations When Task Complete Close out permit	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	1 x 1	1
	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	1 x 1	1

Name: Hazard Assessment E-14 - Grounding Grids
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
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2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-15- Ground Rod Pounding
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit from Client Complete all associated PJHA's	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 5	20	Ensure clear understanding of all assigned workers of the task and/or permit, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task	2 x 1	2
	Potential Location Hazards	4 x 5	20	Visual check of location hazards, Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Ensure all appropriate/required PPE is worn, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	2 x 1	2
Test work area for presence of hazardous gases	Inhalation / exposure (H2S, LEL)	5 x 5	25	Monitor wind direction, Ensure training /certification is appropriate for task	2 x 1	2
	Explosive Atmosphere	5 x 5	25	Continuous gas monitoring, Establish ERP and evacuation routes, Wear personal gas monitor, calibrated and bump tested	2 x 1	2
Obtain Ground Disturbance permit	Gas / Oil Pipelines	5 x 5	25	Clear communication with permit issuer, Flag oil/gas pipelines and/or site drawings		0
	Buried electrical cables	5 x 5	25	Ensure all workers involved have appropriate ground disturbance training, Locate position of electrical cables and expose around ground rod position	3 x 2	6
Start Generator (If no utility power at site)	Carbon Monoxide Gas	3 x 4	12	Focus; eyes and mind on task, Generator must be outdoors	2 x 1	2
	Muscle Strain	4 x 3	12	Maintain proper body positioning, Use two workers to move generator, Use safe lifting / handling techniques	2 x 1	2
Transport Ground Rod Pounder (GRP) equipment up 12' ladder	Ladder Use	4 x 4	16	Ensure ladder is secure and tied off; do not stand on top two rungs, Use second worker to stabilize ladder, Follow safe ladder use practice	2 x 1	2
	Working at Heights	3 x 4	12	Use fall protection if working above 3m (6 ft), Maintain sure hold of pounder when ascending ladder	3 x 2	6
	Falls/Slip/Trips	4 x 3	12	Clear area of slip/trip hazard, Focus, eyes and mind on task, be aware of your surroundings	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Sharp Edges – Cuts/Lacerations	3 x 4	12	Focus; eyes and mind on task, Ensure all proper PPE is worn/utilized for task, must be in good condition, Wear high support work boots and leather gloves	2 x 1	2
	Pinch Points	4 x 4	16	Maintain proper body positioning (line-of-fire), Focus; eyes and mind on task	2 x 1	2
Insert ground rod into the pounder	Working at Heights	4 x 4	16	Maintain sure hold of pounder when ascending ladder , Use second worker to insert ground rod into socket from below, Use fall protection if working above 3m (6 ft)	2 x 2	4
	Ladder Use	4 x 3	12	Ensure ladder is secure and tied off; do not stand on top two rungs, Use second worker to stabilize ladder, Follow safe ladder use practice	2 x 1	2
	Pinch Points	3 x 3	9	Identify pinch points, Be aware of position of hands (line-of-fire), Watch finger placement to avoid pinching/crushing	2 x 1	2
	Muscle Strain	4 x 3	12	Pre-task stretching, Know your limits; obtain assistance from co-workers for heavy lifts	2 x 1	2
Pound the rod into the ground	Abrasion, puncture of limbs / hands	3 x 4	12	Select safe placement to pound ground rod, Ensure proper body/extremeties positioning (line-of-fire); caution with ground condition and solid footing	2 x 2	4
	Striking Cables or Pipelines	3 x 5	15	Advise Operations of any hazards not listed on permit, observed during tour / inspection, Ensure ground disturbance permit has been completed by authorized personnel	2 x 2	4
	Potential Injury From Tool's Recoil	3 x 3	9	Use solid grip on tools; 2 handles = 2 hands, Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool, Monitor operation of tool(s) or equipment	2 x 2	4

Name: Hazard Assessment E-15- Ground Rod Pounding
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Inform Operations When Task Complete Close our permit	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	2 x 1	2
	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	2 x 1	2

Name: Hazard Assessment E-15- Ground Rod Pounding
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-16 - Oilwell Controller - Trouble Shoot
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit from Client Complete all associated PjHA's	Potential Location Hazards	4 x 4	16	Visual check of location hazards, Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly; review all appropriate SWP's, Ensure all appropriate / required PPE is worn - reassess per each task, Ensure tools / equipment have current calibration certificates	1 x 1	1
	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 4	16	Ensure clear understanding of all assigned workers of the task and/or permit, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	1 x 1	1
Do visual inspection of fuses from power company	Falls/Slip/Trips	3 x 3	9	Be aware of surroundings and others, Use caution - Focus; eyes and mind on task	2 x 1	2
	Trip - Fuse may be blown and not showing "Trip"	4 x 4	16	Test with multi-meter to confirm proper operation, Ensure training /certification is appropriate for task	2 x 2	4
Check power at VOP -line side Check Control Circuit	Potential Energy	4 x 4	16	Confirm positive Lock Out / Tag Out practices met and recorded, Use proper tools and meters, Focus; eyes and mind on task, Be aware of surroundings	2 x 2	4
	Electricity, Electrical Shock	4 x 4	16	Focus; eyes and mind on task, Test before you touch, use multimeter, check wiring diagrams, Use properly rated meter, correctly	2 x 2	4
Replace Damaged Parts	Pinch Points	3 x 2	6	Ensure proper body positioning (line-of-fire) and solid footing, Be aware of pinch points associated with use of hand tools	1 x 1	1
	Sharp Edges – Cuts/Lacerations	3 x 2	6	Focus, eyes and mind on task, be aware of your surroundings	1 x 1	1
	Release of stored energy	3 x 2	6	Test before touch, Follow lockout tag out practice	2 x 1	2

Name: Hazard Assessment E-16 - Oilwell Controller - Trouble Shoot
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Electricity, Electrical Shock	3 x 2	6	Check circuits are de-energized; use meter rated for measuring voltages, Use approved parts, tools and meters correctly, Test according to wiring schematics	2 x 1	2
Close Breaker - Test Components	Release of stored energy	4 x 4	16	Confirm correct Lock Out / Tag Out practice followed for removal, are met and recorded, Where necessary, wait for Operations personnel to authorize re-energization of equipment	2 x 2	4
	Electricity, Electrical Shock	4 x 4	16	Test with multi-meter to confirm proper operation, Focus; eyes and mind on task, Wear all appropriate/required PPE	3 x 2	6
	Live Voltages Present	4 x 4	16	Quality Assurance / Quality Control Testing and Verification of installation, Be aware of others and surroundings		0
Notify Operations unit ready to start Close out permit	Permit Not Properly Completed/Signed Off	3 x 2	6	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	1 x 1	1
	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	1 x 1	1

Name: Hazard Assessment E-16 - Oilwell Controller - Trouble Shoot
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-17 - Screw Pump Motor Change
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit from Client Complete all associated PJHA's	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 5	20	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly; review all appropriate SWP's, Ensure all appropriate /required PPE is worn - reassess per each task, Ensure tools / equipment have current calibration certificates	1 x 1	1
	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 5	20	Ensure clear understanding of all assigned workers of the task and/or permit, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	1 x 1	1
Lock Out / Tag Out Electrical Starter Verify that well and pump are isolated	Screw Pump Backspin	5 x 4	20	Ensure backspin torque is complete; stay clear and safe distance from screw pump	2 x 2	4
	Rotating Equipment	5 x 4	20	Install chain to sheave to prevent backspin, Be aware of surroundings and others, Maintain proper body positioning (line-of-fire)	2 x 2	4
	Inhalation / exposure (H2S, LEL)	3 x 5	15	Keep vehicle between you and the well, Wear personal monitor - calibrate, bump test, record, battery level checked	2 x 1	2
	480 / 600v AC Power Present; Potential Electrical Shock	5 x 4	20	Ensure training /certification is appropriate for task, Confirm push-buttons or controls do not engage the contractor, All workers shall place locks on isolation point; Use scissor lock if required, Correctly follow LOTO safe practice	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Disconnect electrical cables from electric motor on Screw Pump Application Verify New Motor Has Same Rating As One Being Changed Out	Electricity, Electrical Shock	3 x 5	15	Check motor connections, Test Operation, Test before touch, Ensure power cables have positive Lock Out / Tag Out, Be aware of surroundings and others, Use caution -Focus; eyes and mind on task, Use properly rated tools, correctly	2 x 1	2
	Pinch Points	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing, Be aware of pinch points associated with use of hand tools	2 x 1	2
	Back & muscle strain	3 x 4	12	Know your limits; obtain assistance from co-workers for heavy lifts	1 x 2	2
Check wiring to motor for open or shorted leads / wiring Ensure tests are completed	Single Phasing	3 x 3	9	Check for Starter Functionality and Contacts, Check motor connections	2 x 1	2
	Motor Failure	3 x 3	9	Follow safe Megger test E-50 to verify condition of electrical insulation, Confirm with meter, no opens or shorts in equipment	2 x 1	2
	Cable Failure	3 x 3	9	Check continuity, megger cable (follow proper megger SWP), Confirm with meter, no opens or shorts in equipment	2 x 1	2
	Release of stored energy	3 x 3	9	Ensure all appropriate / required PPE is worn for discharge, Discharge equipment (all phases) after test, Focus, eyes and mind on task, be aware of your surroundings	2 x 1	2
	Improper Connections	3 x 3	9	Follow manufacturer's wiring diagram and schematics to ensure proper connections	2 x 1	2
Crew Completes Installation Reconnect Cables To New Motor, Tape Split Bolt / Eyelet Connections, Ins	Back & muscle strain	3 x 3	9	Use proper rigging techniques (refer to Using Cranes & Hoists THA) and rope management, Use mechanical lift where required	2 x 1	2
	Potential Energy	3 x 3	9	Focus, eyes and mind on task, be aware of your surroundings	2 x 1	2
	Electricity, Electrical Shock	3 x 3	9	Follow manufacturer's wiring diagram and schematics to ensure proper connections, Connect to same horse power as removed motor, Use correct, properly rated tools	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Pinch Points	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing, Watch finger placement to avoid pinching/crushing	2 x 1	2
Confirm Rotation of Pump Remove Lock Out / Tag Out to the starter	480 / 600v AC Power Present; Potential Electrical Shock	5 x 4	20	FIRST ensure positive Lock Out/Tag Out removed at well, THEN remove positive Lock Out / Tag Out from starter, Check for rotation, Ensure all appropriate/required PPE is worn	2 x 2	4
	Potential Auto Start Up or Shut Down of Equipment	5 x 4	20	Ensure belts on motor are loose for rotation check, Ensure everyone is aware that locks are being removed, Ensure co-workers understand test procedure	2 x 2	4
Rotation confirmed, tighten belts Lock Out / Tag Out Starter	Live Voltages Present	5 x 4	20	Mandatory to follow Lock Out/Tag Out practice, Use proper meter, test before touch	2 x 1	2
	Pinch Points	3 x 3	9	Ensure belts on motor are properly tightened as per manufacturers spec. prior to operation, Focus; eyes and mind on task, Be aware of surroundings	2 x 1	2
Re-Energize Starter Remove Lock Out / Tag Out to the well, then Put into Service	480 / 600v AC Power Present; Potential Electrical Shock	5 x 4	20	Quality Assurance / Quality Control Testing and Verification of installation, Test voltage and amp draw to confirm operation	2 x 2	4
	Rotating or Moving Equipment	5 x 4	20	Maintain proper body positioning (line of fire) and footing, Focus; eyes and mind on task, Be aware of surroundings	2 x 2	4
	Potential Energy	5 x 4	20	Ensure clear understanding of all assigned workers and workers in vicinity of the task and/or activity plan, Ensure LOTO removal SWP is followed to remove Lock and Tag Out, Inform appropriate personnel of LOTO removal(s), Where necessary, wait for Operations personnel to authorize re-energization of equipment	2 x 2	4
	Damage To Pump	4 x 4	16	Ensure all connections and devices are ready for normal operations	2 x 2	4

Name: Hazard Assessment E-17 - Screw Pump Motor Change
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Notify operations, job completed Close out permit	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	1 x 1	1
	Live Process Equipment, Electrical Lines/Cables	4 x 4	16	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	1 x 1	1

Name: Hazard Assessment E-17 - Screw Pump Motor Change
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-18 - DC Flare Igniter Check
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit from client Complete all associated PjHA's	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 4	16	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly; review all appropriate SWP's, Ensure all appropriate /required PPE is worn - reassess per each task, Ensure tools / equipment have current calibration certificates	2 x 1	2
	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 4	16	Ensure clear understanding of all assigned workers of the task and/or permit, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	2 x 1	2
Turn off Flare Igniter	Live Voltages Present	5 x 4	20	Test before you touch, use multimeter, check wiring diagrams, Ensure LOTO SWP was carefully followed with LOTO correctly in place	2 x 2	4
	Inhalation / exposure (H2S, LEL)	4 x 5	20	Focus; eyes and mind on task, Be aware of surroundings, Wear all appropriate PPE in good condition, Wear personal monitor -calibrate, bump test, record, battery level checked	2 x 2	4
Disconnect Battery & Load Test Re-install Battery When Completed	Electricity, Electrical Shock	4 x 4	16	Test before touch, Be aware of others and surroundings, Focus: eyes and mind on tasks	2 x 2	4
	High Voltages Present; Potential Arc Flash	4 x 4	16	Ensure training /certification is appropriate for task, Ensure all appropriate/required PPE is worn, Use proper tools, ensure correct operation	2 x 2	4
	Spark Potential	4 x 4	16	Ensure co-workers understand test procedure, Wear all appropriate/required PPE	2 x 2	4
Test Spark Duration	Spark Potential	4 x 3	12	Wear all appropriate PPE in good condition	2 x 2	4
	Electricity, Electrical Shock	4 x 3	12	Stay aware of surroundings, Focus, eyes and mind on task	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Inhalation / exposure (H2S, LEL)	4 x 5	20	Wear personal monitor -calibrate, bump test, record, battery level checked	2 x 1	2
Lower Igniter - Measure Gap Check condition of winch	Impact from swinging equipment	4 x 4	16	Keep solid control of hand crank, Be aware of others and surroundings	2 x 2	4
	Pinch Points	4 x 4	16	Wear proper PPE (gloves, eye, ear protection), Watch finger placement to avoid pinching/crushing	2 x 1	2
	Sharp Edges – Cuts/Lacerations	4 x 4	16	Focus, eyes and mind on task, be aware of your surroundings	2 x 1	2
	Release of stored energy	5 x 4	20	Assistance required to control equipment	2 x 2	4
Raise Igniter	Inhalation / exposure (H2S, LEL)	4 x 5	20	Wear personal monitor - calibrate, bump test, record, battery level checked	2 x 1	2
	Release of stored energy	4 x 4	16	Be aware of possible stored energy, Stay aware of surroundings, Focus, eyes and mind on task	2 x 2	4
	Impact from swinging equipment	4 x 4	16	Keep solid control of hand crank, Be aware of others and surroundings	2 x 2	4
Monitor for proper operation Housekeeping	Poor housekeeping; debris in/around task area	3 x 3	9	Housekeeping - Adequate, Keep site and work area tidy / clear of debris	2 x 1	2
	Potential Location Hazards	3 x 3	9	Quality Assurance / Quality Control Testing and Verification of installation, Documentation completed fully /carefully, Focus, eyes and mind on task, be aware of your surroundings, Follow proper LOTO SWP to remove	2 x 1	2
Inform Operations When Task Complete Close out permit	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	2 x 1	2
	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	2 x 1	2

Name: Hazard Assessment E-18 - DC Flare Igniter Check
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-19 - Heat Tracing
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit From Client Complete All Associated PJHA's	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 3	12	Ensure clear understanding of all assigned workers of the task and/or permit, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	2 x 1	2
	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 3	12	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly; review all appropriate SWP's, Ensure all appropriate /required PPE is worn - reassess per each task, Ensure tools / equipment have current calibration certificates	2 x 1	2
Prepare to Install Heat Trace on Piping or Equipment	Pinch Points	3 x 3	9	Be aware of pinch points associated with use of hand tools, Stay aware of surroundings, Focus, eyes and mind on task	2 x 1	2
	Sharp Edges on Unit to be Traced	4 x 4	16	Focus, eyes and mind on task, be aware of your surroundings, Ensure all appropriate / required PPE is worn - reassess per each task	2 x 1	2
	Working at Heights	5 x 5	25	Ensure ladder is properly tied off, Follow SWP for working at heights, Use fall protection if working above 1.8m / 6Ft.	2 x 1	2
	Inhalation / exposure (H2S, LEL)	5 x 5	25	Wear personal monitor - calibrate, bump test, record, battery level checked	2 x 2	4
Install End Kits	Falls/Slip/Trips	4 x 4	16	Maintaing proper body positioning (line of fire) and footing, Focus, eyes and mind on task, be aware of your surroundings	2 x 1	2
	Lacerations, Cuts From Knives	4 x 4	16	Ensure proper tools for task are used, (knives, wire strippers, etc.), Wear proper PPE (Kevlar gloves), Follow SWP for knife use; cut away from body	3 x 2	6
	Sharp Edges	4 x 4	16	Focus, eyes and mind on task, be aware of your surroundings, Wear appropriate PPE (gloves, eye)	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Install Power Kits	Inhalation / exposure (H2S, LEL)	4 x 4	16	Wear personal monitor - calibrate, bump test, record, battery level checked	2 x 2	4
	Cuts, lacerations from knives	4 x 4	16	Focus; eyes and mind on task, Ensure proper tools for task are used, (knives, wire strippers, etc.), Ensure knife use SWP is adhered to, Wear proper PPE (Kevlar gloves)	3 x 2	6
Install Teck Cable or Conduit to Power Kits	Pinch Points	3 x 3	9	Be aware of pinch points associated with use of hand tools, Identify pinch points, Ensure correct tools are used	2 x 1	2
	Sharp Edges – Cuts/Lacerations	3 x 3	9	Wear appropriate PPE (in good condition), Maintain proper body positioning (line-of-fire)	2 x 1	2
Install Teck Cable into MCC	Electricity, Electrical Shock	5 x 5	25	Check voltage rating of heat trace, Ensure compatability, Ensure Lock Out / Tag Out practice has been followed correctly	2 x 2	4
	Sharp Edges – Cuts/Lacerations	4 x 4	16	Ensure all proper PPE is worn/utilized for task, must be in good condition	2 x 1	2
	Pinch Points	3 x 3	9	Keep extremities clear of pinch points, Focus, eyes and mind on task, be aware of your surroundings	2 x 1	2
Energize Circuit	Electrical Short	3 x 4	12	Ensure circuit is metered prior to energizing, for shorts	2 x 1	2
	Cable Failure	4 x 3	12	Check continuity, megger cable (follow proper megger SWP)	2 x 1	2
	Electricity, Electrical Shock	4 x 4	16	Confirm correct Lock Out / Tag Out practice followed for removal, are met and recorded, Correct use of properly rated meter, Wear proper PPE (leather gloves, glasses), Focus; eyes and mind on task, Be aware of surroundings	2 x 2	4
	Improper Installation	3 x 3	9	Quality Assurance / Quality Control Testing and Verification of installation	2 x 1	2
Housekeeping	Poor housekeeping; debris in/around task area	4 x 3	12	Clear area of debris, material, equipment, tools, Perform housekeeping; ensure floor areas are clear of debris, equipment, tools, etc.	2 x 1	2

Name: Hazard Assessment E-19 - Heat Tracing
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Inform Operations of Energized Heat Trace Line Close out permit	Live Electrical Equipment	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	2 x 1	2
	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	1 x 1	1

Name: Hazard Assessment E-19 - Heat Tracing
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-20 - Install Burner Management System (BMS) On Single Well Tank Burners
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit From Client Complete All Associated PJHA's	Identify All Existing & Potential Location and Work Site Hazards	5 x 5	25	Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly; review all appropriate SWP's, Ensure all appropriate / required PPE is worn -reassess per each task, Ensure tools / equipment have current calibration certificates	2 x 1	2
	Not Having Clear Understanding Of Scope of JHA Or Permit	5 x 5	25	Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Ensure clear understanding of all assigned workers and workers in vicinity of the task and/or activity plan, Review /discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	2 x 1	2
Operator To Advise What Gas To Tie In	Hazardous Gas Exposure	5 x 5	25	Clear communication with operations, Ensure training /certification is appropriate for task, Wear all appropriate/required PPE, If required wear SCBA or SABA, Wear gas monitor, calibrate, bump test and record	2 x 2	4
Monitor Work Area For Hazardous Gas Ventilate Area; Open Doors	Potential Ignition of Gases	5 x 5	25	Ventilate area, Use SCBA if/ where required	2 x 2	4
	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	5 x 5	25	Monitor direction of wind (wind sock), Focus; eyes and mind on task, Be aware of surroundings, Wear personal monitor - calibrate, bump test, record, battery level checked, Wear appropriate PPE (in good condition)	2 x 2	4
	Workers not appropriately trained or certified to operate equipment	5 x 5	25	Ensure all workers operating equipment are properly trained or certified, Ensure to follow guidelines for SCBA or SABA as per H2S training	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Pull Cables & Secure	Falls/Slip/Trips	3 x 3	9	Survey to ensure all debris that could cause a slip, trip or fall has been removed	2 x 1	2
	Muscle strain, fatigue	3 x 3	9	No twisting to reach into tray to secure cable, Are two people needed to maneuver unit?, See also THA - T-03 Pulling Cable and E-02 Stripping Cable	2 x 1	2
	Fire Tube Ladder	4 x 3	12	Follow fall protection safe practice plan, Use fall protection system - ladder loops or wear harness	2 x 2	4
	Pinch Points	3 x 3	9	Be aware of pinch points associated with use of hand tools, Keep extremities clear of pinch points, Wear appropriate PPE (gloves, eye)	2 x 1	2
	Sharp Edges – Cuts/Lacerations	3 x 3	9	Focus, eyes and mind on task, be aware of your surroundings, Wear all appropriate PPE in good condition	2 x 1	2
Drill Holes For Connectors	Potential exposure to H2S, LEL's, Live Electrical Cable, Equipment, Live Pressurized Piping	4 x 5	20	Know what material is being drilled into, Double check measurements are correct for exact penetration point, Physically inspect area to identify any hidden obstructions, Check in and outside panel for all hazards	2 x 2	4
	Hot, Flying Filings	4 x 3	12	Review Hot Work SWP, if task is to occur within plant site/facility follow THA E-10 for use of drill and drilling	2 x 1	2
	Potential Electrical Shock	3 x 4	12	Beware working on electrical equipment in wet conditions, Wear all appropriate PPE in good condition	2 x 2	4
Install Electrical Equipment & Terminate	Knowledge of Site Specific Equipment	4 x 4	16	Ensure all workers operating equipment are properly trained or certified	2 x 2	4
	Pinch Points	4 x 3	12	Are two people needed to maneuver unit?, Maintain proper body positioning (line of fire) and footing	2 x 1	2
	Congested Work Area	4 x 3	12	Ensure barriers/flags clearly visible, placed as/where necessary around task area, In tight, congested areas, use a spotter, Be aware of surroundings, others, and potential of exposed hazards	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Sharp Edges – Cuts/Lacerations	4 x 3	12	Focus, eyes and mind on task, be aware of your surroundings, Ensure all proper PPE is worn/utilized for task, must be in good condition	2 x 1	2
System Specific Test Completed Commission System With Operations	Live Electrical Equipment	4 x 4	16	Quality Assurance / Quality Control Testing and Verification of installation	2 x 2	4
	Open Flame	4 x 4	16	Purge fire tube atmoshpere with adequate time, Ensure Fire Extinguisher location is easily accessible, with highly visible (signage) and bright lighting	2 x 2	4
Inform Operations When Task Complete Close out permit	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	2 x 1	2
	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	2 x 1	2

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
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2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-21 - Testing Circuits <750 Volts on Live Equipment
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit from Client Complete all Associated PJHA's	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 5	20	Ensure all appropriate / required PPE is worn - reassess per each task , Use proper tools, ensure correct operation, Review all hazards involved to do the job, as outlined, Review all JHA's and THA's with workers, Ensure tools / equipment have current calibration certificates	1 x 1	1
	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 5	20	Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Ensure clear understanding of task / permit of all assigned workers, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	1 x 1	1
Before Use, Conduct Meter Inspection & Follow Safe Work Practice	Incorrect Readings or Testing Results Can Lead to Arc Flash	4 x 5	20	Complete function test of meter, Check certification date; DO NOT USE any meter that fails any of the prescribed tests, Review practice for pre-use test of meters, Ensure training /certification is appropriate for task, Focus; eyes and mind on task	2 x 1	2
Don All Required PPE, as Per Arc Flash Safe Work Practice	Faulty Equipment	4 x 4	16	Any equipment found faulty, pulled from service and tagged, Ensure meters have proper connections into meter terminals, undamaged insulation on leads, up to date calibration, and proper finger guards on test probes, Review appropriate SWP's for tool(s) and equipment to be used	2 x 1	2
	PPE in Poor Condition	4 x 4	16	Follow Equipment Label or Z-462 Tables for Shock Approach Boundaries and PPE guidelines for working on energized equipment, Ensure FR coveralls are clean and in good condition, Ensure all Arc Flash PPE is in good condition	2 x 1	2
Set Meter to Take Appropriate Readings	Incorrect Voltage Ratings	4 x 5	20	Review current drawings and associated schematics for all power sources, Ensure worker completing inspection or maintenance is competent/qualified	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Incorrect Setting	4 x 4	16	Prior to meter use, confirm correct setting, Follow manufacturer's specifications for use of meter, Focus, eyes and mind on task, be aware of your surroundings	2 x 1	2
Confirm Leads are in Correct Location for Test to be Performed	Improper Connections	4 x 5	20	Focus; eyes and mind on task, Ensure training /certification is appropriate for task, Ensure meters have proper connections into meter terminals, undamaged insulation on leads, up to date calibration, and proper finger guards on test probes	2 x 1	2
Phase to Ground Test Place One Lead to Ground of Equipment, Second Lead to Phase A, Repeat For Each Phase	Potential Arc Flash	4 x 5	20	Be aware of surroundings and others, Use caution - Focus; eyes and mind on task, Be aware of hand placement (line-of-fire), Read arc flash warning and don appropriate PPE for incident energy at play	2 x 2	4
	Meter Failure	3 x 5	15	Wear all appropriate PPE in good condition, Ensure tools /equipment have current calibration certificates	2 x 2	4
	Electricity, Electrical Shock	4 x 4	16	When conducting electrical test, have ground test point positioned as far away from live test point as possible, Ensure proper body positioning (line-of-fire), solid footing and safe distance from live part	2 x 2	4
Phase to Phase Test Conduct test A to B, B to C and C to A	Meter Failure	3 x 5	15	Wear all appropriate PPE in good condition, Use properly rated meter correctly	2 x 2	4
	Electricity, Electrical Shock	4 x 5	20	Be aware of surroundings and others; ensure all unauthorized personnel are kept clear of live test equipment	2 x 2	4
	Potential Arc Flash	4 x 5	20	Be aware of surroundings and others, Use caution - Focus; eyes and mind on task		0
Contact Operations and Advise Job is Complete or Use Working Alone Policy Close out permit	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	1 x 1	1
	Poor Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	1 x 1	1

Name: Hazard Assessment E-21 - Testing Circuits <750 Volts on Live Equipment
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
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2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-22 - Catodyne Installation
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit from Operations Complete All Associated PJHA's	Not Identifying all Existing & Potential Location and Work Site Hazards	3 x 3	9	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly; review all appropriate SWP's, Ensure all appropriate /required PPE is worn - reassess per each task, Ensure tools / equipment have current calibration certificates	2 x 1	2
	Not Having Clear Understanding Of Scope of JHA Or Permit	3 x 3	9	Ensure clear understanding of all assigned workers of the task and/or permit, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	2 x 1	2
Locate Most Efficient /Accessible Location For Heater	Pinch Points	3 x 3	9	Focus, eyes and mind on task, be aware of your surroundings	2 x 1	2
	Location of Piping To Work Area	3 x 3	9	Ensure training /certification is appropriate for task, Do not modify catodyne heater	2 x 2	4
	Location of Venting Instruments	3 x 3	9	Do not modify surrounding equipment, Choose most appropriate location for heater	2 x 2	4
Post Caution Signs for Task Occuring Keep work area clear	Hazardous Gas Exposure	5 x 4	20	Areas flagged off, proper signage conspicuously placed, Wear personal monitor - calibrate, bump test, record, battery level checked, Ensure all appropriate PPE is worn (hand, eye) and in good condition	2 x 2	4
	Cuts / Scrapes /Lacerations / Abrasions	4 x 3	12	Focus; eyes and mind on task, Focus, eyes and mind on task, be aware of your surroundings		0
Mount Heater According To Manufacturer's Specifications	Pinch Points	4 x 3	12	Be aware of pinch points associated with use of hand tools	2 x 1	2
	Cuts / Scrapes /Lacerations / Abrasions	4 x 3	12	Focus, eyes and mind on task, be aware of your surroundings	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Drilling, Cutting, Lifting	4 x 3	12	Review appropriate SWP's for tool(s) and equipment to be used, Follow SWP for drill use; use sharp bits, drill away from body, Secure materials before performing cuts	2 x 2	4
	Release of stored energy	4 x 5	20	Focus; eyes and mind on task, Be aware of surroundings, Ensure all appropriate / required PPE is worn - reassess per each task , Wear personal monitor - calibrate, bump test, record, battery level checked	2 x 1	2
	Muscle Strain	4 x 3	12	Use blocks to position heater, Ensure proper body positioning (line-of-fire) and solid footing, Know your limits, get assistance from co-workers for heavy lifts	2 x 1	2
Install Raceway According to CEC	Potential Explosion	4 x 5	20	Continuous gas monitoring where power threaders usded in Hot areas, Wear personal monitor - calibrate, bump test, record, battery level checked	2 x 2	4
	Cuts / Scrapes /Lacerations / Abrasions	4 x 3	12	Ensure proper body and body parts positioning (line-of-fire) and solid footing	2 x 1	2
	Pinch Points	4 x 3	12	Keep extremities clear of pinch points	2 x 1	2
	Release of stored energy	4 x 4	16	Wear appropriate PPE (gloves, eye), Focus; eyes and mind on task	2 x 1	2
	Threading Conduit	5 x 4	20	Secure conduit in vice prior to threading, Use proper tools correctly; review all appropriate SWP's	2 x 2	4
Install Cable and/or Wiring According to CEC	Sharp Edges – Cuts/Lacerations	4 x 3	12	Focus; eyes and mind on task, Wear all appropriate PPE for task (hand protection), Ensure proper body positioning (line-of-fire) and solid footing, Cut away from body	2 x 1	2
	Pinch Points	4 x 3	12	Be aware of others and surroundings	2 x 1	2
	Potential Voltage	4 x 5	20	Mandatory to follow Lock Out/Tag Out practice	2 x 1	2
Terminate and Tag Conductors	Sharp Edges – Cuts/Lacerations	3 x 3	9	Focus, eyes and mind on task, be aware of your surroundings, Follow instructions on THA E-09 Terminating, Wear required PPE (hand protection)	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Muscle Strain	3 x 3	9	Tag wires from print as they are terminated, Maintain proper body positioning (line of fire) and footing	2 x 1	2
Pack and Pour Seals Sealing of Wall Penetrations	Chemical Exposure (Sealing)	4 x 3	12	Be aware of surroundings and others, Use caution - Focus; eyes and mind on task, Follow manufacturer's precautions, Wear appropriate PPE (gloves), Review MSDS	2 x 1	2
	Sharp Edges – Cuts/Lacerations	3 x 3	9	Focus, eyes and mind on task, be aware of your surroundings	2 x 1	2
Clean Up of Work Area Housekeeping	Lifting, Moving, Loading Material	4 x 3	12	Know your limits; obtain assistance from co-workers for awkward or heavy lifts, Wear all appropriate PPE (hands, eye)	2 x 2	4
	Handling Hazardous Waste	3 x 3	9	Placement and use of waste bins for loading and disposal of hazardous waste, Waste container safety secured in vehicle, Ensure all proper PPE is worn/utilized for task, must be in good condition	2 x 1	2
	Cuts / Scrapes /Lacerations / Abrasions	3 x 3	9	Wear all appropriate PPE in good condition	2 x 1	2
Advise Client /Operations Job is Complete Close out permit	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	2 x 1	2
	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	2 x 1	2

Name: Hazard Assessment E-22 - Catodyne Installation
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
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2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-23 - Install / Repair Lights, Receptacles, and Junction Boxes
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit from Client Complete all associated PJHA's	Not Identifying all Existing & Potential Location and Work Site Hazards	3 x 3	9	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools, ensure correct operation, Ensure all appropriate / required PPE is worn - reassess per each task, Ensure tools / equipment have current calibration certificates	1 x 1	1
	Not Having Clear Understanding Of Scope of JHA Or Permit	3 x 3	9	Ensure clear understanding of all assigned workers of the task and/or permit, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	1 x 1	1
Obtain Proper Equipment For Conditions (Ladders, Scaffolds, Aerial Work Platform)	Working at Heights	4 x 5	20	Use fall protection if working above 3m (6 ft), Focus, eyes and mind on task, be aware of your surroundings	2 x 1	2
	Falls from Heights	4 x 5	20	Ensure spotter is in place, with correct signals, Flag off work area, Wear fall protection (if necessary), Wear appropriate PPE (in good condition), Review safe practices for ladder use or scaffolds and AWP operation, Prior to use, inspect ladder, scaffold or AWP	2 x 1	2
	Insufficient Light Source	3 x 2	6	Install temporary lighting; if /where needed	1 x 1	1
	Pinch Points	3 x 3	9	Be aware of pinch points associated with use of hand tools, Ensure proper body/extremeties positioning (line-of-fire); caution with ground condition and solid footing	2 x 1	2
Lock Out / Tag Out	Electricity, Electrical Shock	4 x 5	20	Ensure training /certification is appropriate for task, Follow lockout tag out practice, Wear all required appropriate PPE for task, Use proper meter, test before touch	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Accidental Energize	4 x 5	20	"DO NOT REMOVE" sign posted on lock out, All workers shall place locks on isolation point; Use scissor lock if required, Be aware of surroundings and others, Use caution -Focus; eyes and mind on task	2 x 2	4
Perform Equipment Inspections	Equipment Damage	3 x 3	9	Make repairs where possible, or remove from service	2 x 1	2
	Faulty Equipment	4 x 3	12	Inspect all equipment for any / all defects, If damaged or altered through findings or inspection, take equipment out of service	2 x 1	2
Install Lighting Equipment	Pinch Points	3 x 3	9	Be aware of pinch points associated with use of hand tools, Ensure correct tools are used, Mount equipment properly	2 x 1	2
	Sharp Edges – Cuts/Lacerations	3 x 3	9	Ensure all proper PPE is worn/utilized for task, must be in good condition, Focus; eyes and mind on task	2 x 1	2
	Release of stored human energy	3 x 3	9	Focus, eyes and mind on task, be aware of your surroundings, Ensure proper body positioning (line-of-fire) to use tools correctly	2 x 1	2
	Muscle Strain	3 x 3	9	Know your limits; obtain assistance from co-workers for awkward or heavy lifts, Take micro breaks; stretch to improve circulation	1 x 1	1
	Falls/Slip/Trips	4 x 4	16	Focus; eyes and mind on task, maintain proper body positioning (line of fire) and footing, Secure equipment to prevent falls, Wear all appropriate PPE in good condition	2 x 1	2
Terminate (THA E-09)	Improper Connections	3 x 2	6	Ensure connections correct / secure, Follow manufacturer's wiring diagram and schematics to ensure proper connections, Follow instructions on THA E-09 Terminating	2 x 1	2
Energize Circuit	Electricity, Electrical Shock	4 x 4	16	ONLY authorized personnel can remove Tag, Verbally communicate when area is clear for testing to commence, Wear all appropriate/required PPE	2 x 2	4
	Potential Arc Flash	4 x 4	16	Ensure everyone is aware that locks are being removed, Only authorized, trained personnel to perform testing, Focus; eyes and mind on task	2 x 2	4

Name: Hazard Assessment E-23 - Install / Repair Lights, Receptacles, and Junction Boxes
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Potential For People Or Equipment To Not Be Prepared	4 x 4	16	Confirm with meter, no opens or shorts in equipment, Ensure protection of people and property while removing lockouts	2 x 2	4
Housekeeping	Falls/Slip/Trips	3 x 3	9	Wear appropriate PPE (in good condition), Ensure proper body positioning (line-of-fire) and solid footing	2 x 1	2
	Loose Material and Debris	3 x 3	9	Keep job site clear of debris	2 x 1	2
	Material Handling (Ladders, Scaffolds)	3 x 3	9	Use proper material lifting / handling techniques, Know your limits; utilize additional workers as required	2 x 1	2
Contact Operations and Advise Job is Complete Close out permit	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	1 x 1	1
	Poor Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	1 x 1	1

Name: Hazard Assessment E-23 - Install / Repair Lights, Receptacles, and Junction Boxes
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
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2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-24 - Plant Lighting Maintenance
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit from Client Complete All Associated PJHA's	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 4	16	Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Ensure clear understanding of all assigned workers and workers in vicinity of the task and/or activity plan, Review all practices relevant to job (Electrical, Lock Out / Tag Out etc.), Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	2 x 1	2
	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 4	16	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly; review all appropriate SWP's, Ensure all appropriate /required PPE is worn - reassess per each task, Ensure tools / equipment have current calibration certificates	2 x 1	2
Obtain Proper Equipment for Conditions (Ladders, Scaffolds, and Aerial Work Platform)	Insufficient Light Source	3 x 3	9	Install temporary lighting; if /where needed	2 x 1	2
	Falls from Heights	5 x 5	25	Do not use top two rungs, On ladders, always maintain 3 point contact, Wear fall protection (if necessary), Tie off when working above 6 ft., Review safe practices for ladder use or scaffolds and AWP operation, Prior to use, inspect ladder, scaffold or AWP	2 x 2	4
	Working at Heights	5 x 5	25	Ensure training /certification is appropriate for task, Focus; eyes and mind on task, Wear appropriate / proper PPE for task (fall protection harness, hand, eye)	3 x 2	6
	Awkward Stance/Position/Posture	3 x 3	9	Stretching and proper body positioning	2 x 1	2
	Pinch Points	3 x 3	9	Be aware of pinch points associated with use of hand tools, Keep extremities clear of pinch points, Be aware of surroundings, equipment and others in vicinity, Ensure proper body and body parts positioning (line-of-fire) and solid footing	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Visual Inspections - Identify LIghts Not Working	Inhalation / exposure (H2S, LEL)	5 x 5	25	Evacuation route and muster point location noted on permit, Personal monitors worn – calibrated, bumptested, recorded, with fully charged batteries	2 x 2	4
	Tripping Hazard	3 x 3	9	Survey to ensure all debris that could cause a slip, trip or fall has been removed, Focus; eyes and mind on task, Be aware of others and surroundings	2 x 1	2
	Electricity, Electrical Shock	5 x 5	25	Use proper meter, test before touch, Use Caution - FOCUS; eyes and mind on task	2 x 2	4
	Faulty Equipment	4 x 3	12	Inspect all equipment for any / all defects, If damaged or altered through findings or inspection, take equipment out of service, Wear appropriate PPE (in good condition)	2 x 2	4
Isolate EMF (Voltage Source) Lock Out / Tag Out	Accidental Energize	4 x 5	20	Focus; eyes and mind on task, Be aware of surroundings, equipment and others in vicinity, "DO NOT REMOVE" sign posted on lock out	2 x 2	4
	Sharp Edges – Cuts/Lacerations	3 x 3	9	Ensure all approprirate PPE is worn (hand, eye) and in good condition, Focus; eyes and mind on task	2 x 1	2
	Pinch Points	3 x 3	9	Focus, eyes and mind on task, be aware of your surroundings	2 x 1	2
	Potential Voltage	5 x 4	20	Ensure training /certification is appropriate for task, Follow Electrical Safety and Lock Out/Tag Out practices, Use proper meter, test before touch	2 x 2	4
Replaced Damaged Components	Improper Installation	3 x 3	9	Ensure connections are secure / tightened, Follow manufacturer's wiring diagram and schematics to ensure proper connections	2 x 2	4
	Pinch Points	3 x 3	9	Focus, eyes and mind on task, be aware of your surroundings, Be aware of pinch points associated with use of hand tools	2 x 1	2
	Falling Objects	4 x 5	20	Secure equipment, tools, materials away safely, Be aware of others and surroundings	2 x 2	4
Reconnect Power	Poor housekeeping; debris in/around task area	3 x 3	9	Perform housekeeping; ensure floor areas are clear of debris, equipment, tools, etc.	2 x 1	2

Name: Hazard Assessment E-24 - Plant Lighting Maintenance
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Potential Arc Flash	4 x 5	20	Inform relevant co-workers of Lock Out/Tag Out removal, Be aware of surroundings and others, Use caution -Focus; eyes and mind on task	2 x 2	4
	Electricity, Electrical Shock	4 x 5	20	Close panel, LO/TO correctly removed, per SWP, Wear appropriate PPE (in good condition)	2 x 2	4
Contact Operations and Advise Job is Complete And Ready For Start Up Close out permit	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	2 x 1	2
	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	2 x 1	2

Name: Hazard Assessment E-24 - Plant Lighting Maintenance
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-25 - Install Motor Control Centre
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit From Client Complete All Associated PJHA's	Not Identifying all Existing & Potential Location and Work Site Hazards	3 x 4	12	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly; review all appropriate SWP's, Ensure tools / equipment have current calibration certificates, Ensure all appropriate / required PPE is worn - reassess per each task	2 x 1	2
	Not Having Clear Understanding Of Scope of JHA Or Permit	3 x 4	12	Ensure clear understanding of all assigned workers and workers in vicinity of the task and/or activity plan, Review all related / relevant Safe Work Practices (SWP's) associated or involved with this task, Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	2 x 1	2
Lock Out Power Supply and Verify	Release of stored energy	4 x 5	20	Bleed with grounded containment, Ensure proper identification of feeder, Installation of Temporary protective grounds to ensure the safety of workers when required	2 x 2	4
	Potential Electrical Shock	4 x 5	20	Test before you touch, use multimeter, check wiring diagrams, Focus; eyes and mind on task	2 x 2	4
	Live Voltages Present	5 x 5	25	Ensure training /certification is appropriate for task, Confirm positive Lock Out / Tag Out practices met and recorded, All workers shall place locks on isolation point; Use scissor lock if required, Ensure all appropriate/required PPE is worn	2 x 2	4
Unload MCC	Crushing Hazard	4 x 4	16	Ensure crews and spotter keep a clear line of sight and constant communication with operators of heavy equipment, Be aware of surroundings, equipment and others in vicinity	2 x 2	4
	Muscle Strain	4 x 3	12	Stretch prior to performing heavy, awkward lifts, Know your limits; utilize additional workers as required	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Pinch Points	4 x 4	16	Use safe lifting / handling techniques, Ensure proper body/extremeties positioning (line-of-fire); caution with ground condition and solid footing	2 x 2	4
	Falls/Slip/Trips	4 x 4	16	Be aware of surroundings, watch your step, Check site & work area closely for ground condition, obstacles, clearances, etc..	2 x 2	4
	Top Heavy, Awkward Lift	5 x 5	25	Ensure all personnel in area are aware of large equipment loading, unloading, moving, Use lifting hooks, Ensure load is safely secured, Wear appropriate / proper PPE for task (fall protection harness, hand, eye), Ensure all workers operating equipment are properly trained or certified	3 x 2	6
Place MCC	Crushing Hazard	4 x 4	16	Be aware of others / surroundings, Co-workers assist with stabilizing and securement of gear, Use proper tools and equipment for moving heavy, awkward loads	2 x 2	4
	Release of stored human energy	4 x 3	12	Ensure proper body positioning (line-of-fire) and solid footing	2 x 2	4
	Pinch Points	4 x 4	16	Be aware of hand placement (line-of-fire), Ensure all appropriate/required PPE is worn, Focus; eyes and mind on task	2 x 2	4
	Falls/Slip/Trips	4 x 4	16	Ensure task and floor areas are clear of debris, equipment, tools, etc., Be aware of surroundings, watch your step	2 x 2	4
Secure Unit to Floor	Drilling	4 x 3	12	Ensure proper body positioning (line-of-fire) and solid footing, Follow SWP for drill use; use sharp bits, drill away from body	2 x 1	2
	Pinch Points	4 x 3	12	Wear all required, appropriate PPE for task, Be aware of pinch points associated with use of hand tools, Focus; eyes and mind on task	2 x 1	2
Meggar Power Leads	Release of stored energy	4 x 3	12	Ensure all appropriate / required PPE is worn for discharge, Discharge equipment (all phases) after test, Bleed with grounded containment	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Meggar Shocks	4 x 4	16	Follow safe Megger test E-50, to verify condition of electrical insulation, Verbally communicate when area is clear for testing to commence	2 x 2	4
Connect Feeders Connect Control Circuits	Other Workers In Vicinity	3 x 3	9	Communicate task to all crews in proximity, Be aware of others and surroundings	2 x 1	2
	Pinch Points	3 x 3	9	Be aware of pinch points associated with use of hand tools, Identify pinch points	2 x 1	2
	Electricity, Electrical Shock	3 x 4	12	Check circuits are de-energized; use meter rated for measuring voltages, Focus; eyes and mind on task	2 x 1	2
	Improper Connections	3 x 5	15	Follow manufacturer's prints for installation, Follow wiring diagram and schematics to ensure proper connections, Wear all required / appropriate PPE for task, Ensure proper cable identification	2 x 2	4
Torque Power Conections	Ensure Proper Torque	3 x 4	12	Review manufacturer's instructions, Ensure tools /equipment have current calibration certificates	2 x 1	2
	Pinch Points	3 x 3	9	Wear all required appropriate PPE for task, Ensure proper body positioning (line-of-fire) and solid footing, Focus; eyes and mind on task	2 x 1	2
Clean Cabinet Close Doors	Cuts / Scrapes /Lacerations / Abrasions	4 x 3	12	Focus, eyes and mind on task, be aware of your surroundings, Practice extremely diligent housekeeping, Ensure all appropriate/required PPE is worn	2 x 1	2
	Pinch Points	4 x 3	12	Ensure proper body positioning (line-of-fire) and solid footing, Correctly use proper tools for task, Focus; eyes and mind on task	2 x 1	2
Energize MCC	Arc Flash /Electrocution	5 x 5	25	Quality Assurance / Quality Control Testing and Verification of installation, Ensure all appropriate/required PPE is worn, Review Lock Out/Tag Out and Energized Electrical safe work practice, and any other SWP's associated or involved with this task	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Live Voltages Present	5 x 5	25	Ensure training /certification is appropriate for task, Use proper rated meter correctly, Ensure LOTO removal SWP is followed to remove Lock and Tag Out, Wait for Operations personnel to authorize re-energization of equipment	2 x 2	4
Contact Operations and Advise Job is Complete Close out permit	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	2 x 1	2
	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	2 x 1	2

Name: Hazard Assessment E-25 - Install Motor Control Centre
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-26 - High Voltage Work
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit From Client Complete All Associated PJHA's	Not Having Clear Understanding Of Scope of JHA Or Permit	5 x 4	20	Ensure clear understanding of all assigned workers of the task and/or permit, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope, Refer to Zero Energy Isolation code of practice	2 x 1	2
	Identify All Existing & Potential Location and Work Site Hazards	4 x 5	20	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly; review all appropriate SWP's, Ensure tools / equipment have current calibration certificates, Ensure all appropriate / required PPE is worn - reassess per each task	2 x 1	2
Wear Full Arc Flash Protectin PPE Use full protective measures as per Z462	PPE in Poor Condition	5 x 5	25	Wear required full arc flash appropriate for category of work, Ensure training /certification is appropriate for task, Ensure worker completing inspection or maintenance is competent/qualified, Follow Z-462 PPE guidelines for working on energized equipment, Read arc flash warning and don appropriate PPE for incident energy at play, Ensure gloves and mats are in good shape	2 x 1	2
Lock Out/Tag Out Isolation Switch	Potential Arc Flash	5 x 5	25	Temporary protective grounds should be installed and left in place between the worker and any sources of energy for the duration of the work, Use a hot stick to install ground cables by attaching ground point first followed by the 3 phase points	3 x 2	6
	Potential Electric Shock	5 x 5	25	Wherever possible, visually verify that all blades of the disconnecting devices are fully open or that drawout-type breakers are withdrawn to the fully disconnected position, For applications >750V or more, use non-conductive voltage detector and hot stick to verify zero-energy presence while verifying proper detector operation, Wear required full arc flash appropriate for category of work	3 x 2	6

Name: Hazard Assessment E-26 - High Voltage Work
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	High Voltage Present	5 x 5	25	All workers shall place locks on isolation point; Use scissor lock if required, Only authorized, trained personnel to perform testing, Ask to view meter readings on supply authority's meter, Normally, Supply Authority personnel are present and will do the power isolation, Ensure Lock Out / Tag Out practice has been followed correctly	3 x 2	6
Perform Required Task Refer to the high voltage (HV) THA's for specific tasks	Idenfity All Existing Location Hazards	4 x 4	16	Ensure proper body positioning (line-of-fire) and solid footing, Ensure Zero Energy Isolation completed on all potential hazards in immediate vicinity of penetration area, Be aware of other voltage sources in the same equipment	2 x 2	4
	Pinch Points	3 x 3	9	Be aware of pinch points associated with use of hand tools, Focus, eyes and mind on task, be aware of your surroundings	2 x 1	2
	Use Properly Rated Tools Correctly	4 x 4	16	Ensure tools / equipment have current calibration certificates, Focus; eyes and mind on task, Use insulated, voltage rated tools		0
Task Complete	Inform Supply Authority When Task Completed	4 x 3	12	Confirm correct Lock Out / Tag Out practice followed for removal, are met and recorded, Quality Assurance / Quality Control Testing and Verification of installation, Wait for Operations personnel to authorize re-energization of equipment, Inform appropriate personnel of LOTO removal(s)	2 x 1	2
	Poor housekeeping; debris in/around task area	4 x 3	12	Return equipment and tools to be stored away in safe, neat, orderly fashion, Clean up debris, tools, equipment from testing area, Remove ground cables starting with the 3 phases followed by the ground point	2 x 1	2

Name: Hazard Assessment E-26 - High Voltage Work
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Inform Operations That Job is Complete Close out permit	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	2 x 1	2
	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	2 x 1	2

Name: Hazard Assessment E-26 - High Voltage Work
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-27 - Working At Heights
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit from Client Complete All Associated PJHA's	Identify All Existing & Potential Location and Work Site Hazards	4 x 4	16	Ensure training /certification is appropriate for task, Complete a fall protection plan and review with all personnel involved in this task, Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Wear appropriate PPE (in good condition)	1 x 1	1
	Not Having Clear Understanding Of Scope of JHA Or Permit		0	Review full job scope and responsibilities with Supervisor, Clear, concise communication to review /discuss full scope and order of job duties related to task, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	1 x 1	1
Comply With Safe Work Practices and Policies of Control Tech and Client	Working Overhead from Ladder, Scaffold or Manlift	4 x 4	16	Ensure all workers operating equipment are properly trained or certified, Scaffold use requires approval and may require set up by approved contractor, Follow safe ladder use practice, Tie off when working above 6 ft., Install barricades and flag off work area, if required	2 x 2	4
	Available Space to Safely Work In	4 x 5	20	Follow confined space code of practice (if required), In tight, congested areas, use a spotter	2 x 2	4
Identify Personnel with Fall Protection Training	Falls from Heights	4 x 5	20	Ensure all harnesses fit each individual properly, Ensure training /certification is appropriate for task, Regulations require tie-off points be rated for 4890 lbs, Refer to rescue plan, Inspections completed on all harnesses, lanyards, fall arrest equipment and ladders	2 x 1	2
Use Appropriate Harnesses	Bodily Injury	4 x 5	20	Ensure all harnesses fit each individual properly, Inspections completed on all harnesses, lanyards, fall arrest equipment and ladders	2 x 2	4
Working at heights Working from Ladders, AWP, or Scaffold	Identify All Existing & Potential Location and Work Site Hazards	4 x 4	16	Follow safe ladder use practice (proper tie-offs and 3 point contact maintained at all times), Be aware of surroundings, equipment and others in vicinity	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Pinch Points	3 x 3	9	Focus, eyes and mind on task, be aware of your surroundings, Be aware of pinch points associated with use of hand tools, Identify pinch points, Ensure all appropriate/required PPE is worn	2 x 1	2
	Falling Objects	4 x 4	16	Ensure tools, equipment are secured at heights, Tool lanyards must be used, Ensure material and tools are contained when working at heights; i.e. use tool bags, Review and Follow Prevention of Falling Objects Practice, Stop the Drop, Use Suitable Drop Clothes to prevent Drop, Avoid having tools unsecured in open pockets (radio, etc) while working at heights, Secure equipment to prevent falls, Install barricades and flag off work area, if required	2 x 2	4
	Falls/Slip/Trips	4 x 4	16	Ensure proper body positioning (line-of-fire) and solid footing, Focus, eyes and mind on task, be aware of your surroundings, Ensure 1:4 ratio use, Use two people to set up/tie off each ladder, Survey to ensure all debris that could cause a slip, trip or fall has been removed	2 x 2	4
Inform Operations When Task Complete Close our permit	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	1 x 1	1

Name: Hazard Assessment E-27 - Working At Heights
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-28 - Trouble-Shooting
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit From Client Complete All Associated PJHA's	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 4	16	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly; review all appropriate SWP's, Ensure all appropriate /required PPE is worn - reassess per each task, Ensure tools / equipment have current calibration certificates	1 x 1	1
	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 4	16	Ensure clear understanding of all assigned workers of the task and/or permit, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	1 x 1	1
Identify Nature of Fault Test / Meter Faulty Equipment	Inhalation / exposure (H2S, LEL)	4 x 5	20	Communicate with others in the area, monitor for H2S & LEL, Personal monitor turned on - calibrated, bump-tested, recorded with fully charged batteries	2 x 1	2
	Potential Auto Start Up or Shut Down of Equipment	4 x 4	16	Operation's knowledge of procedure, Review current drawings and associated schematics for all power sources, Be aware of surroundings and others; ensure all unauthorized personnel are kept clear of live test equipment	2 x 2	4
	Faulty Equipment	3 x 3	9	Be aware of time variances related to circuit types and severity of the fault, Ensure tools / equipment have current calibration certificates, Any equipment found faulty, pulled from service and tagged	2 x 2	4
	Lack of experience or knowledge of task	4 x 5	20	Only authorized, trained personnel to perform testing	2 x 2	4
	Live Parts, Potential Electric Shock	4 x 4	16	Focus, eyes and mind on task, be aware of your surroundings, Test before you touch, use multimeter, check wiring diagrams, Use insulated, voltage rated tools, Wear all appropriate/required PPE	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Lock Out / Tag Out Equipment	LO/TO Not Performed Correctly	5 x 5	25	Confirm positive Lock Out / Tag Out practices met and recorded, Test before touch to ensure equipment properly de-energized, All workers shall place locks on isolation point; Use scissor lock if required	2 x 1	2
	Equipment Shut Down Causes Other Equipment to Also Change Operation	4 x 5	20	If necessary, have operations monitor process conditions while alarms bypassed and / or arrange for a safety watch, Review Zero Energy Isolation Code of Practice with Operations, Wait for Operations personnel to authorize de-energization of equipment	2 x 1	2
Replace or Adjust Faulty Equipment	Sharp Edges – Cuts/Lacerations	3 x 3	9	Focus, eyes and mind on task, be aware of your surroundings, Ensure all appropriate/required PPE is worn	2 x 1	2
	Pinch Points	4 x 3	12	Be aware of pinch points associated with use of hand tools, Keep extremities clear of pinch points	2 x 1	2
	Falling Objects	3 x 3	9	Ensure tools, equipment are secured at heights, Tool lanyards must be used, Ensure material and tools are contained when working at heights; i.e. use tool bags, Install barricades and flag off work area, if required	2 x 2	4
	Falls/Slip/Trips	4 x 4	16	Focus, eyes and mind on task, be aware of your surroundings, Survey to ensure all debris that could cause a slip, trip or fall has been removed, Ensure Fall Protection SWP is followed, where applicable, Ensure proper body positioning (line-of-fire) and solid footing	2 x 1	2
	Muscle Strain	3 x 3	9	Use proper lifting techniques, Know your limits; obtain assistance from co-workers for awkward or heavy lifts, Focus; eyes and mind on task	2 x 1	2
Re-Check Work For Errors and Inadequate Finishing	Incorrect Connections	4 x 5	20	Follow manufacturer's wiring diagram and schematics to ensure proper connections, Quality Assurance / Quality Control Testing and Verification of installation		0
	Parts Left Over	3 x 3	9	Perform housekeeping; ensure floor areas are clear of debris, equipment, tools, etc.	2 x 1	2

Name: Hazard Assessment E-28 - Trouble-Shooting
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Live Voltages Present	4 x 4	16	Use tools and materials properly rated for the task, Ensure all appropriate/required PPE is worn, Focus; eyes and mind on task	2 x 2	4
	Lockout not Removed when Complete	4 x 4	16	Ensure everyone is aware that locks are being removed, Ensure LOTO removal SWP is followed to remove Lock and Tag Out, Where necessary, wait for Operations personnel to authorize re-energization of equipment	2 x 1	2
Contact Operations and Advise Job is Complete Close out permit	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	1 x 1	1
	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	1 x 1	1

Name: Hazard Assessment E-28 - Trouble-Shooting
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-29 - Cable Locating
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit From Client Complete All Associated PJHA's	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 5	20	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly; review all appropriate SWP's, Ensure all appropriate /required PPE is worn - reassess per each task, Ensure tools / equipment have current calibration certificates	2 x 1	2
	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 5	20	Ensure clear understanding of all assigned workers and workers in vicinity of the task and/or activity plan, Review all related / relevant Safe Work Practices (SWP's) associated or involved with this task, Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	2 x 1	2
De-Energize Circuits Lock Out / Tag Out Disconnects	Voltages From 120-600v Present	5 x 5	25	Be aware; avoid personal contact, Wear all appropriate/required PPE, Use properly rated meter, correctly	2 x 2	4
	Faulty Equipment	3 x 5	15	Testing equipment checked; in good order, Ensure tools / equipment have current calibration certificates	2 x 1	2
	Live Parts, Potential Electric Shock	5 x 5	25	Focus, eyes and mind on task, be aware of your surroundings, Be aware of other voltage sources in the same equipment	2 x 2	4
	Not following LOTO Procedure to Ensure Zero energy is Maintained during task	5 x 5	25	Confirm positive Lock Out / Tag Out practices met and recorded, Ensure worker completing inspection or maintenance is competent/qualified, Refer to Zero Energy Isolation code of practice	2 x 2	4
Disconnect Wires At The Disconnect Check Voltage At The Junction Box	Potential Electric Shock	5 x 5	25	Focus, eyes and mind on task, be aware of your surroundings, Test before you touch, use multimeter, check wiring diagrams	2 x 2	4
	LO/TO Not Performed Correctly	5 x 5	25	Ensure training /certification is appropriate for task, Review all practices relevant to job (Electrical, Lock Out / Tag Out etc.)	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Inhalation / exposure (H2S, LEL)	4 x 5	20	Wear personal monitor - calibrate, bump test, record, battery level checked	2 x 1	2
Identify Cables Using Cable Locator Mark Locations With Paint or Stakes	Inhalation Of Spray Paint	3 x 3	9	Stay upwind of spray, Review appropriate MSDS, where required	2 x 1	2
	Spark Potential	3 x 3	9	Stay aware of surroundings, Focus, eyes and mind on task, Ensure co-workers understand test procedure	2 x 1	2
	Identify Incorrect Cable or Gas Line	5 x 5	25	Awareness of all lines in area, Expose lines prior to digging, Expose cables by hand, Ensure proper cable identification, Use intrinsically safe (IS) locator, Prior to any digging, inform local gas company of planned operations, Flag oil/gas pipelines and/or site drawings	3 x 2	6
	Inhalation / exposure (H2S, LEL)	4 x 5	20	Wear all appropriate/required PPE, Wear personal monitor - calibrate, bump test, record, battery level checked	2 x 1	2
Dig Trench To Access Buried Cables Remove Mechanical Protection Remove Cables	Potential Trench Cave In	4 x 5	20	Ensure access and egress points are available at all times, Safety watch, Shore sides of trench, where required	2 x 1	2
	Inhalation / exposure (H2S, LEL)	4 x 5	20	Wear personal monitor - calibrate, bump test, record, battery level checked	2 x 1	2
	Location Of Underground Utilities	5 x 5	25	Maintain communication with operation, Ensure all workers involved have appropriate ground disturbance training	3 x 2	6
	Operation Of Heavy Equipment	4 x 5	20	Maintain proper communication (eye contact) with equipment operator, Be aware of heavy equipment operating; keep away, Hand Dig / Hydro-vac in Hazardous Areas	2 x 1	2
	Potential Electrical Shock	4 x 5	20	Identify correct cables(s) using (IS) locator, Expose cables by hand	3 x 2	6
Install New Cables Install New Mechanical Protection Install New Marker Tape	Weight of cable	4 x 4	16	Review weight of spools and cable, Know your limits; utilize additional workers as required	2 x 1	2
	Pinch Points	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing, Wear appropriate / proper PPE (hand protection)	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Slivers, Punctures	3 x 3	9	Focus; eyes and mind on task, Ensure all appropriate / required PPE is worn - reassess per each task	2 x 1	2
	Wires Damaged	3 x 3	9	Remove sharp, large rocks from area, Use sand and solid mechanical protection, Place (Buried Cable) marking tape, halfway between installation and finished grade level.	2 x 1	2
Fill Trench Back In	Heavy Equipment Operating	4 x 5	20	Watch for large, heavy rocks, Maintain proper communication (eye contact) with equipment operator, Be aware of heavy equipment operating; keep away	2 x 2	4
	Potential Trench Cave In	4 x 5	20	Maintain communication with all other trades in same area, Safety watch	2 x 2	4
	Inhalation / exposure (H2S, LEL)	4 x 5	20	Wear personal monitor - calibrate, bump test, record, battery level checked	2 x 1	2
Terminate Cables At Disconnect and JB	Pinch Points	3 x 3	9	Be aware of pinch points associated with use of hand tools, Wear appropriate PPE (gloves), Ensure proper body positioning (line-of-fire) and solid footing	2 x 1	2
	Cuts / Scrapes /Lacerations / Abrasions	3 x 3	9	Watch step and avoid falls; Be mindful of terrain, Always use proper cutting techniques; cutting away from yourself, use a retractable blade, ensure knife remains sharp after each use, maintain constant pressure when cutting and use only approved knife	2 x 1	2
	Inhalation / exposure (H2S, LEL)	4 x 5	20	Wear personal monitor - calibrate, bump test, record, battery level checked	2 x 2	4
Loop Check Wiring	Potential Electrical Shock	4 x 3	12	Follow safe Megger test E-50 to verify condition of electrical insulation, Confirm correct wiring, Quality Assurance / Quality Control Testing and Verification of installation, Check for correct voltages	2 x 1	2
Remove Lock Out / Tag Outs	Voltages From 120-600v Present	4 x 4	16	Ensure everyone is aware that locks are being removed, Confirm correct Lock Out / Tag Out practice followed for removal, are met and recorded, Use properly rated meter, correctly	2 x 2	4
	Potential Arc Flash	4 x 4	16	Focus, eyes and mind on task, be aware of your surroundings, Wear all appropriate/required PPE	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Re-Energize Circuits Housekeeping	Potential Electrical Shock	4 x 4	16	Prior to energizing, meter and visually inspect load side of circuit, Use LEFT hand to energize switch, Look over right shoulder to avoid potential flash, Ensure all appropriate/required PPE is worn, Check for correct voltages	2 x 2	4
	Poor housekeeping; debris in/around task area	4 x 3	12	Clear area of debris, material, equipment, tools, Perform housekeeping; ensure floor areas are clear of debris, equipment, tools, etc., Review / reference Housekeeping THA G-03	2 x 1	2
Inform operations fo job complete Close out permit	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	2 x 1	2
	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	2 x 1	2

Name: Hazard Assessment E-29 - Cable Locating
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-30 - Commissioning
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit From Client Complete All Assocaited PJHA's	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 4	16	Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Ensure clear understanding of all assigned workers and workers in vicinity of the task and/or activity plan, Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	2 x 1	2
	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 4	16	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly; review all appropriate SWP's, Ensure all appropriate /required PPE is worn - reassess per each task, Ensure tools / equipment have current calibration certificates	2 x 1	2
Begin Commissioning Each Device	Lack of Training in Equipment's Operation	5 x 5	25	Ensure training /certification is appropriate for task, Operation's knowledge of procedure	2 x 2	4
	Potential Electrical Shock	5 x 5	25	Review all practices relevant to job (Electrical, Lock Out / Tag Out etc.), Wear all appropriate / required PPE	3 x 2	6
	Working at Heights	4 x 5	20	Adhere to Fall Protection SWP if working at 1.8m / 6Ft. or above, mandatory fall protection tie off	2 x 2	4
	Faulty Equipment	4 x 4	16	Check / inspect testing equipment, Use properly rated meter, correctly	2 x 1	2
	Process Changes	4 x 4	16	If necessary, have operations monitor process conditions while alarms bypassed and / or arrange for a safety watch		0
Test Circuitry / Wiring	Potential Electrical Shock	4 x 4	16	Focus; eyes and mind on task, Ensure training /certification is appropriate for task, Check / inspect testing equipment	2 x 2	4
	Proper Wiring Plan Not Followed	5 x 4	20	Test according to wire schematics, Quality Assurance / Quality Control Testing and Verification of installation, Follow wiring diagram and schematics to ensure proper connections	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Test Motors Test Motor Control	Contact with Control & Measurement Voltages	4 x 4	16	Test before you touch, use multimeter, check wiring diagrams, Be aware of other voltage sources in the same equipment	2 x 2	4
	Rotating or Moving Equipment	5 x 4	20	Review all practices relevant to job (Electrical, Lock Out / Tag Out etc.), No loose clothing, jewelry or hair	2 x 2	4
	Release of stored energy	4 x 4	16	Focus, eyes and mind on task, Be aware of hand placement (line-of-fire), Wear proper, requied PPE (gloves)	2 x 2	4
	High Voltages Present; Potential Arc Flash	4 x 5	20	Use proper meter, test before touch, Ensure all appropriate/required PPE is worn, Confirm positive Lock Out / Tag Out practices met and recorded	2 x 2	4
Test Rotation Test Amperage Etc.	Correct Rotation	5 x 4	20	Test volatage and amp draw to confirm operation, Ensure proper body positioning (line-of-fire) and safe distance, Ensure barriers/flags clearly visible, placed as/where necessary around task area, Ensure belts on motor are loose for rotation check	2 x 2	4
	Release of stored energy	4 x 4	16	Quality Assurance / Quality Control Testing and Verification of installation, Ensure all personnel in area understand process of action to occur	2 x 2	4
Ensure All Covers and Seals are Poured	Falls/Slip/Trips	4 x 3	12	Ensure all appropriate/required PPE is worn, Ensure stepping surfaces dry and clean, Focus, eyes and mind on task, be aware of your surroundings	2 x 1	2
	Working at Heights	4 x 5	20	Adhere to fall protection safe practice where applicable	2 x 1	2
	Dropping Tools /Materials to Ground Below	4 x 3	12	Barricade and flag-off work area, Secure equipment to prevent drops	2 x 1	2
Test Functionality in the Process	Potential Electrical Shock	5 x 4	20	Confirm correct Lock Out / Tag Out practice followed for removal, are met and recorded, Focus; eyes and mind on task	2 x 2	4
	Rotating or Moving Equipment	4 x 4	16	Ensure proper body positioning (line-of-fire), and solid, dry footing and safe distance from live part, Wear proper required PPE (gloves, glasses), Quality Assurance / Quality Control Testing and Verification of installation	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Inhalation / exposure (H2S, LEL)	4 x 4	16	Wear gas monitor, calibrate, bump test and record, Ensure all personnel in area understand process of action to occur	2 x 2	4
Inform Operations of Job Complete Close out permit	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	2 x 1	2
	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	2 x 1	2

Name: Hazard Assessment E-30 - Commissioning
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-31 - Pulling Cable At Heights
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit From Client Complete All Associated PJHA's	Identify All Existing & Potential Location and Work Site Hazards	4 x 4	16	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly; review all appropriate SWP's, Ensure all appropriate/required PPE is worn	2 x 1	2
	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 4	16	Ensure clear understanding of all assigned workers and workers in vicinity of the task and/or activity plan, Review all related / relevant Safe Work Practices (SWP's) associated or involved with this task, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	2 x 1	2
Complete Plan for Fall Protection Emergency	Falls from Heights	5 x 5	25	Ensure clear understanding of task / permit of all assigned workers, Complete comprehensive fall protection plan	2 x 1	2
	Workers Unaware Of Specific Emergency Procedures	5 x 5	25	Review ERP and evacuation routes, Complete emergency procedures in case of fall from heights	2 x 1	2
Ladder(s) Set Up	Falls/Slip/Trips	3 x 3	9	Focus, eyes and mind on task, be aware of your surroundings, Be aware of surroundings, watch your step, Check site & work area closely for ground condition, obstacles, clearances, etc..	2 x 1	2
	Pinch Points	3 x 3	9	Ensure all appropriate PPE is worn (hand), Ensure proper body positioning (line-of-fire) and solid footing	2 x 1	2
	Working at Heights	5 x 4	20	Inspect ladders prior to use, Use two people to set up/tie off each ladder, Ensure 1:4 ratio use, Adhere to Fall Protection SWP if working at 1.8m / 6Ft. or above, mandatory fall protection tie off	2 x 2	4
Reel Stands Set Up	Pinch Points	4 x 3	12	Be aware of position of hands (line-of-fire), Ensure all appropriate PPE is worn (hand)	2 x 2	4
	Falls/Slip/Trips	4 x 3	12	Focus, eyes and mind on task, be aware of your surroundings, Ensure proper body positioning (line-of-fire) and solid footing	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Muscle strain, fatigue	4 x 4	16	Use mechanical lift where required, Warm up / stretch prior to pulling or lifting, Use proper lifting techniques, Know your limits; obtain assistance from co-workers for awkward or heavy lifts	2 x 1	2
Pull Cable	Sharp Edges – Cuts/Lacerations	4 x 4	16	Focus, eyes and mind on task, be aware of your surroundings	2 x 2	4
	Working at Heights	5 x 4	20	Use fall protection if working above 1.8m / 6Ft.	2 x 2	4
	Dropping Tools /Materials to Ground Below	3 x 4	12	Ensure tools, equipment are secured at heights, Tool lanyards must be used, Ensure material and tools are contained when working at heights; i.e. use tool bags, Install barricades and flag off work area, if required	2 x 1	2
	Muscle strain, fatigue	5 x 4	20	Take micro-breaks, stretch out muscles and improve circulation and focus, Warm up / stretch prior to pulling or lifting, Use radios to communicate to pull or stop, Wear appropriate / proper PPE for task (fall protection harness, hand, eye)	2 x 2	4
	Falls/Slip/Trips	4 x 5	20	Do not sit on cable tray, Ensure proper body positioning (line-of-fire) and solid footing	2 x 2	4
Tie-Wrap Cable	Pinch Points	4 x 4	16	Focus; eyes and mind on task, Be aware of pinch points associated with use of hand tools, Wear proper PPE, Maintain proper body positioning (lineof-fire)	2 x 2	4
	Working at Heights	4 x 5	20	Wear fall protection equipment, tighten away from yourself, Use fall restraint (preferably engineered fall arrest system, use double lanyard to transition faces)	2 x 2	4
	Falls/Slip/Trips	4 x 4	16	Focus, eyes and mind on task, be aware of your surroundings	2 x 2	4
	Dropping Tools /Materials to Ground Below	4 x 4	16	Ensure tools, equipment are secured at heights, Tool lanyards must be used, Ensure material and tools are contained when working at heights; i.e. use tool bags, Flag / ribbon off non-entry zones	2 x 1	2
	Sharp Edges – Cuts/Lacerations	4 x 4	16	Twist tie-wrap ends off, Keep "nubs" under tray, wherever possible, Focus; eyes and mind on task, Wear appropriate PPE (in good condition)	2 x 2	4

Name: Hazard Assessment E-31 - Pulling Cable At Heights
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Improper Tool Use	4 x 3	12	Use proper tools, ensure correct operation, Ensure to always pull tool away from body	2 x 1	2
Cutting Cable Housekeeping	Moving Parts	4 x 4	16	Have second competent worker verify correct cable to be cut, Get assistance , Clearly mark appropriate measurements to be cut, Wear appropriate PPE (hand, eye face), Maintain proper body positioning (line-of-fire)	2 x 1	2
	Cuts / Scrapes /Lacerations / Abrasions	4 x 3	12	Follow SWP for knife use; cut away from body	2 x 2	4
	Poor housekeeping; debris in/around task area	3 x 3	9	Follow SWP's for safe lifting, handling of debris, tools, equipment, material, etc., Follow Housekeeping THA G-03	2 x 1	2
Communicate completion of task to client Close out permit	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	2 x 1	2

Name: Hazard Assessment E-31 - Pulling Cable At Heights
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-32 - Wellhead Pressure Switch Replacement
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit from Client Complete All Associated PJHA's	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 5	20	Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Ensure clear understanding of all assigned workers of the task and/or permit, Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	2 x 1	2
	Identify All Existing & Potential Location and Work Site Hazards	4 x 5	20	Ensure all appropriate/required PPE is worn, Use proper tools, ensure correct operation, Ensure tools / equipment have current calibration certificates, Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined	2 x 1	2
Disconnect Cable Feeding Pressure Switch Lock Out Tag Out /Isolate energy source	Falls/Slip/Trips	4 x 3	12	Focus; eyes and mind on task, Be aware of surroundings	2 x 1	2
	Potential Electrical Shock	5 x 5	25	Confirm push-buttons or controls do not engage the contactor, Test before you touch	2 x 2	4
	Voltages From 120-600v Present	5 x 5	25	Ensure training /certification is appropriate for task, Use properly rated meter correctly, Ensure power cable has positive LOTO, Use properly rated tools correctly	2 x 2	4
	Inhalation / exposure (H2S, LEL)	4 x 5	20	Continuous gas monitoring, Personal monitors worn – calibrated, bumptested, recorded, with fully charged batteries	2 x 1	2
	Pinch Points	3 x 3	9	Be aware of pinch points associated with use of hand tools, Identify pinch points, Ensure proper body and extremities positioning (line of fire)	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Ensure Isolation* of Flow Line Pressure from CFP Switch (*Check with Operator) For Some Clients This Will Be Their Responsibility, LOTO and Drain Pressure Off From CFP Switch	Potential Pressure Release	4 x 4	16	Drain pressure SLOWLY into a containment device (grounded metal pail - NO PLASTIC)	2 x 2	4
	Inhalation / exposure (H2S, LEL)	4 x 4	16	Wear personal gas monitor, calibrated and bump tested	2 x 2	4
	Potential Environmental Spills	4 x 3	12	Proper spill kit for the task, Wear appropriate PPE and utilize proper handling techniques and as identified in MSDS	2 x 2	4
	Potential Release of Inhibitors	4 x 3	12	Be aware of others and surroundings	2 x 2	4
	Potential Release of Methanol	4 x 3	12	Ensure all appropriate / required PPE is worn for chemicals present at site	2 x 2	4
	Potential Release of Produced Crude Oil	4 x 3	12	Focus, eyes and mind on task, be aware of your surroundings, Wear appropriate PPE and utilize proper handling techniques and as identified in MSDS	2 x 2	4
	Potential Release of Produced Water	4 x 3	12	Focus, eyes and mind on task, be aware of your surroundings, Advise Operations of any hazards not listed on permit, observed during tour / inspection, Wear appropriate PPE and utilize proper handling techniques and as identified in MSDS	2 x 2	4
CFP Switch - Repair, Remove or Replace * Ensure line is locked out, isolated and de-pressurized	Sharp Edges – Cuts/Lacerations	4 x 3	12	Ensure all appropriate/required PPE is worn, Focus; eyes and mind on task	2 x 1	2
	Pinch Points	3 x 3	9	Be aware of pinch points associated with use of hand tools, Identify pinch points, Ensure proper body positioning (line-of-fire) and solid footing, Ensure all appropriate/required PPE is worn, Use proper tools, ensure correct operation	2 x 1	2
	Inhalation / exposure (H2S, LEL)	4 x 3	12	Wear personal monitor - calibrate, bump test, record, battery level checked	2 x 2	4
	Potential Environmental Spills	4 x 3	12	Proper spill kit for the task, Wear appropriate PPE and utilize proper handling techniques and as identified in MSDS	2 x 2	4
	Potential Release of Inhibitors	4 x 3	12	Be aware of others and surroundings	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Potential Release of Methanol	4 x 3	12	Ensure all appropriate / required PPE is worn for chemicals present at site, Stay upwind of spray, Review appropriate MSDS, where required	2 x 2	4
	Potential Release of Produced Crude Oil	4 x 3	12	Focus, eyes and mind on task, be aware of your surroundings	2 x 2	4
	Potential Release of Produced Water	4 x 3	12	Wear appropriate PPE and utilize proper handling techniques and as identified in MSDS	2 x 2	4
Re-install Switch, Reconnect and Test Ensure replaced switch has same ratings as the removed one	Pinch Points	3 x 3	9	Focus, eyes and mind on task, be aware of your surroundings, Be aware of pinch points associated with use of hand tools, Ensure proper body and extremities positioning (line of fire)	2 x 1	2
	Leaking From Pipe Threads	3 x 4	12	Apply Teflon tape and pipe dope to pipe threads, Quality Assurance / Quality Control Testing and Verification of installation	2 x 1	2
	Wrong Pressure Setting	3 x 4	12	Ensure Correct Pressure Ratings on Fittings, Test pressure setting	2 x 2	4
	Improper Connections	3 x 4	12	Verify terminations, Close cover prior to energizing	2 x 1	2
	Falls/Slip/Trips	4 x 4	16	Focus, eyes and mind on task, be aware of your surroundings	2 x 1	2
Remove Lock Out/Tag Out Put Switch Back Into Service	Potential exposure to H2S, LEL's, Live Electrical Cable, Equipment, Live Pressurized Piping	5 x 5	25	Ensure training /certification is appropriate for task, Quality Assurance / Quality Control Testing and Verification of installation	3 x 2	6
	Pump Jack Could Start Automatically	5 x 5	25	Focus, eyes and mind on task, be aware of your surroundings, Be aware of rotating equipment	2 x 2	4
	Working at Heights	4 x 5	20	Follow Fall Protection SWP	2 x 1	2
	Pinch Points	4 x 4	16	Ensure proper body positioning (line-of-fire) and solid footing	2 x 1	2
	Falls/Slip/Trips	4 x 4	16	Focus, eyes and mind on task, be aware of your surroundings	2 x 1	2
	Voltages From 120-600v Present	4 x 5	20	Follow proper LOTO SWP to remove, Wear all appropriate/required PPE	2 x 2	4

Name: Hazard Assessment E-32 - Wellhead Pressure Switch Replacement
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Communicate with Operations or Site Supervisor That Job is Complete and Well Ready For Startup Close out permit	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	2 x 1	2
	Poor housekeeping; debris in/around task area	3 x 3	9	Perform housekeeping; ensure floor areas are clear of debris, equipment, tools, etc.	2 x 1	2
	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	2 x 1	2

Name: Hazard Assessment E-32 - Wellhead Pressure Switch Replacement
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-33 - UPS Battery Service
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit From Client Complete Associated PJHA	Not Having Clear Understanding Of Scope of JHA Or Permit	5 x 4	20	Ensure clear understanding of all assigned workers of the task and/or permit, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	2 x 1	2
	Not Identifying all Existing & Potential Location and Work Site Hazards	5 x 4	20	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools, ensure correct operation, Ensure all appropriate / required PPE is worn - reassess per each task, Ensure tools /equipment have current calibration certificates	2 x 1	2
Hold Toolbox Meeting	All workers may not be aware of task hazards	5 x 4	20	Ensure supply of neutralizer and fresh water located near at hand, Review all hazards involved to do the job, as outlined, Ensure training /certification is appropriate for task, Ensure worker completing inspection or maintenance is competent/qualified	2 x 1	2
	Workers Unfamiliar With Equipment	4 x 5	20	Complete visual inspection of work area before performing task, Review Manufacturers installation and maintenance manuals, Contact Manufacturer for specific instruction or guidance if task step not covered in manual, If working with others discuss procedures and ensure everyone understands the understand task steps as per manuals	2 x 1	2
Remove/Install Battery Terminal Covers	Potential Electrical Shock	5 x 5	25	Focus, eyes and mind on task, be aware of your surroundings, Remove all metal objects from your person, Use insulated, voltage rated tools, Lock Out/Tag Out where required, Ensure barriers/flags clearly visible, placed as/where necessary around task area	2 x 2	4
	Pinch Points	3 x 3	9	Be aware of pinch points associated with use of hand tools, Ensure proper body positioning (line-of-fire) and solid footing	1 x 2	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Contact With Corrosive Acid	4 x 4	16	Focus; eyes and mind on task, Carefully remove covers, Wear appropriate PPE and utilize proper handling techniques and as identified in MSDS	2 x 2	4
Clean Top Of Batteries	Dust From Corrosion	4 x 4	16	Focus; eyes and mind on task, Be aware of surroundings and others, Ensure all appropriate PPE is worn (rubber gloves, face mask)	2 x 2	4
Take Hydrometer Measurements	Contact With Corrosive Acid	5 x 4	20	Be aware of surroundings and others, Use caution - Focus; eyes and mind on task, Ensure all proper PPE is worn (rubber gloves, goggles, face mask)	2 x 2	4
	Use of Neutralizer	4 x 4	16	Ensure supply of neutralizer and fresh water located near at hand	2 x 2	4
Cell Measurements May include - Cell resistance - Cell Voltage - Cell Temperature - Interstrap Resistance	Potential Electrical Shock	5 x 4	20	Use CAT III meter, Ensure proper setting on meter is used, Use Caution - FOCUS; eyes and mind on task, Quality Assurance / Quality Control Testing and Verification of installation	2 x 2	4
	Poor housekeeping; debris in/around task area	5 x 4	20	Ensure worker completing inspection or maintenance is competent/qualified, Perform housekeeping; ensure floor areas are clear of debris, equipment, tools, etc.	2 x 1	2
Making / Breaking battery connections For load bank equipment connections, cell series connection changes	Arc, Sparks, Shorts	5 x 5	25	Isolate Batteries and Cables from UPS via disconnect switch or by physical disconnections at UPS, Insulate exposed unterminated cable connections with voltage rated Electrical Tape, Secure cables, conductive material and loose items away from work area, Caution not to create shorted positive negative connection	2 x 1	2
Load Test and Service Batteries	Potential Electrical Shock	5 x 4	20	Ensure proper body and body parts positioning (line-of-fire) and solid footing, Use properly rated meter, correctly	2 x 2	4
	Arc, Sparks, Shorts	5 x 5	25	Use proper tools correctly; review all appropriate SWP's , Ensure proper tools for task are used correctly; pre-inspect tools to ensure proper working condition, Use Caution - FOCUS; eyes and mind on task	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	ESD Facility	4 x 4	16	Maintain communication with operation, If necessary, have operations monitor process conditions while alarms bypassed and / or arrange for a safety watch	2 x 2	4
Communicate completion of task to client Close out permit	Lack Of Complete Clear Communication	4 x 4	16	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	2 x 1	2
	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	2 x 1	2

Name: Hazard Assessment E-33 - UPS Battery Service
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-34 - Winch Operation to Lower Flare Ignitor
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit from Client Complete Associated PJHA	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 4	16	Ensure clear understanding of all assigned workers of the task and/or permit, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Perform ONLY work identified by the permit, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	2 x 1	2
	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 4	16	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Ensure all appropriate / required PPE is worn - reassess per each task	2 x 1	2
Bypass Flare Igniter Alarms Ensure all bypasses are in-place	Emergency Shutdown	4 x 4	16	Ensure training /certification is appropriate for task, Ensure worker completing inspection or maintenance is competent/qualified, Have equipment ready for job before alarm bypass as to minimize time without alarms enabled, Complete bypass form c/w all signatures, Wait for Operations personnel to authorize de-energization of equipment, Shutoff fuel-wait 10 minutes to cool down	2 x 1	2
Clear Work Area, Clear Access/Egress null	Falls/Slip/Trips	4 x 3	12	Focus, eyes and mind on task, be aware of your surroundings, Watch step and avoid falls; Be mindful of terrain, Check to see if there are any obstacles that might cause a trip or fall around work area	2 x 1	2
	Gravity / Motion	4 x 3	12	Install barricades and flag off work area, if required, Use proper lifting/lowering techniques, Ensure co-workers understand process of action to occur	2 x 2	4
Inspect Winch - All Components a). Brake - Clean, no oil, assembly tight in place. b). Gear Ratio - gears clean, free of debris, aligned with other gears c). Winch Cable - Clean, not frayed, aligned	Faulty Equipment	4 x 5	20	Inspect all equipment for any / all defects, Ensure worker completing inspection or maintenance is competent/qualified, Check embedded diagram of winch, If winch does NOT match diagram, or is missing components, STOP WORK	2 x 2	4
	Pinch Points	4 x 4	16	Ensure worker completing inspection or maintenance is competent/qualified, Watch finger placement to avoid pinching/crushing	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Lower Igniter to Work Platform When Lowering, ALWAYS Use Smaller Ratio of 5:1	Cable Coming Off Winch Wheel	3 x 4	12	Use Caution - FOCUS; eyes and mind on task	2 x 2	4
	Loose / Spinning Crank Handle	4 x 4	16	Keep solid control of hand crank	2 x 2	4
	Higher Ratio Can Cause Slack in Line	3 x 3	9	Controller to use steady, controlled descent	2 x 1	2
	Damage to Equipment	3 x 3	9	Be aware of surroundings and others, Use caution - Focus; eyes and mind on task	2 x 1	2
	Bodily Injury	4 x 3	12	Ensure proper body positioning (line-of-fire) and solid footing	2 x 2	4
	Uncontrolled Descent of Igniter	4 x 4	16	Controller to use steady, controlled descent, Be aware of surroundings and others, Use caution - Focus; eyes and mind on task, Keep pivot arm closed and secure while lowering, Stop at set intervals to layout the hose, then resecure pivot and continue lowering, Use drill to lower if possible	2 x 2	4
Coil Cable on Platform (as required)	Cable Damage	3 x 2	6	Coil cable for ease of dispersal as and when raising assembly	2 x 1	2
	Trip hazard	4 x 3	12	Do not create a trip hazard	2 x 1	2
Check Assembly Runner Wheels Prior to Raising Flare Igniter Verify correct operation of moving parts	Corrosion of Moving Parts	3 x 3	9	Inspect for presence of rust particles or obstructions	2 x 1	2
	Rotating Parts Seized	3 x 3	9	Inspect for seized parts, lubricate/repair or replace	2 x 1	2
Raising Flare Igniter Change Direction of Ratchet - Gear Reduction Required Ensure Secure Grip on Winch Brake	Cable Damage	3 x 3	9	Coil cable for ease of dispersal as and when raising assembly	2 x 1	2
	Cable Coming Off Winch Wheel	3 x 3	9	Use Caution - FOCUS; eyes and mind on task	2 x 1	2
	Bodily Injury	3 x 4	12	Ensure proper body / extremities positioning (line-of-fire; caution with ground condition and solid footing)	2 x 2	4
	Pinch Points	3 x 4	12	Watch finger placement to avoid pinching/crushing, Use drill to raise/lower mast	2 x 2	4
	Correct Rotation	3 x 3	9	Check after reset, verify proper rotation on drum	2 x 1	2

Name: Hazard Assessment E-34 - Winch Operation to Lower Flare Ignitor
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Loose / Spinning Crank Handle	3 x 4	12	Keep solid control of hand crank	2 x 2	4
Inform Operations When Task Complete Close our permit	Lack Of Complete Clear Communication	4 x 4	16	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed, Where necessary, wait for Operations personnel to authorize re-energization of equipment	2 x 1	2

Name: Hazard Assessment E-34 - Winch Operation to Lower Flare Ignitor
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-35 - Equipment Handling
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit From Client Complete Associated PJHA	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 4	16	Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Ensure clear understanding of all assigned workers and workers in vicinity of the task and/or activity plan, Ensure all workers operating equipment are properly trained or certified	2 x 1	2
	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 4	16	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and equipment for moving heavy, awkward loads, Ensure all appropriate / required PPE is worn - reassess per each task	2 x 1	2
LIfting / Handling Equipment	Rollers Misaligned or Coming Out	3 x 3	9	Follow manufacturer's precautions, Use extra rollers, Ensure continued proper placement of rollers	2 x 2	4
	Use of Chain Fall	3 x 3	9	Ensure operator has had proper instruction on use of tool and risks associated, Check for adequate clearance from top of equipment to chain hoist (Correct chain length), Ensure load is completely stable prior to slackening slings or chains	2 x 2	4
	Falling Objects	3 x 3	9	Complete emergency procedures in case of load securement loosening, Tool Bag	2 x 2	4
	Faulty Lifting Straps	3 x 3	9	Ensure equipment is up to date/current, Assess weight, ensure proper securement of straps, Check weight ratings on all lifting equipment	2 x 1	2
	Muscle strain, fatigue	3 x 3	9	Follow SWP's for safe lifting, handling of debris, tools, equipment, material, etc., Get help for manual lifts and load placement, Ensure proper body positioning (line-of-fire) and solid footing	2 x 1	2
	Live or Operating Equipment Close By	4 x 5	20	Focus; eyes and mind on task, Ensure crews and spotter keep a clear line of sight and constant communication with operators of heavy equipment, Be aware of surroundings, watch your step, Check site & work area closely for ground condition, obstacles, clearances, etc..	2 x 2	4

Name: Hazard Assessment E-35 - Equipment Handling
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Congestion (Work Areas, Access Ways)	4 x 5	20	Establish plan and path to move equipment through congested area(s) using lifting equipment, rollers, etc., In tight, congested areas, use a spotter, Wear all appropriate/required PPE	2 x 2	4
Moving Equipment	Equipment Failure from Improper Loading	4 x 4	16	Ensure all personnel in area are aware of large equipment loading, unloading, moving, Review appropriate SWP's for lifting techniques and load limits on equipment used, Use proper tools and equipment for moving heavy, awkward loads	2 x 2	4
	Muscle strain, fatigue	3 x 3	9	Utilize sliders or rollers to minimize physical strain, Take micro breaks as required to reduce strain/fatigue, Follow safe lifting/handling practice	2 x 1	2
	Pinch Points	3 x 3	9	Focus; eyes and mind on task, Be aware of others and surroundings, Ensure proper body positioning (line-of-fire) and solid footing, Ensure all appropriate/required PPE is worn	2 x 1	2
Inform Operations When Task Complete Close out permit	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels	1 x 1	1

Name: Hazard Assessment E-35 - Equipment Handling
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-36 - Open Breaker Panel - Mechanical Protection
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit from Client Complete Associated PJHA	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 4	16	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Ensure all appropriate / required PPE is worn - reassess per each task	1 x 1	1
	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 4	16	Ensure clear understanding of all assigned workers of the task and/or permit, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Review/discuss Energized Safe Work Practices and all other SWP's associated or involved with this task, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	1 x 1	1
Identify Hazardous Perimeter Around Open Panel	Congestion (Work Areas, Access Ways)	4 x 5	20	Maintain communication with all other trades in same area, Safety watch, All non essential personnel leave area	2 x 2	4
	Live Electrical Equipment	4 x 5	20	Focus, eyes and mind on task, be aware of your surroundings, Ensure training /certification is appropriate for task, Ensure proper body positioning (line-of-fire), solid footing and safe distance from live part, Implement plan to apply all possible means of temporary protection to guard open, energized equipment	2 x 2	4
	Panel Doors Open or Removed	4 x 5	20	Post conspicuous signage for awareness of hazardous area due to open, energized equipment, Follow Z-462 PPE guidelines for working on energized equipment	2 x 2	4
Barricade to Limit Access to Hazardous Work Area	Potential Electrical Shock	3 x 4	12	Install barricades and flag off work area, if required, Proper work planning and electrical isolation prior to entering shock approach boundaries	2 x 1	2
	Untrained / Uncertified Personnel	4 x 4	16	Post conspicuous signage for awareness of hazardous area due to open, energized equipment, Install barricades and flag off work area, if required	2 x 1	2
Wear Arc Flash Gear and All Required PPE	Potential Arc Flash	4 x 5	20	Ensure worker completing inspection or maintenance is competent/qualified, Follow Z-462 PPE guidelines for working on energized equipment, Wear all required PPE (Arc Flash)	2 x 2	4

Name: Hazard Assessment E-36 - Open Breaker Panel - Mechanical Protection
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Electrical Shock	4 x 5	20	Use insulated, voltage rated tools, Focus; eyes and mind on task	2 x 2	4
Inform Operations When Task Complete Close out permit	Lack Of Complete Clear Communication	4 x 4	16	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	1 x 1	1

Name: Hazard Assessment E-36 - Open Breaker Panel - Mechanical Protection
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-37 - Plunger Lift Controls
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit From Client Complete Associated PJHA	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 4	16	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly; review all appropriate SWP's, Ensure all appropriate /required PPE is worn - reassess per each task, Ensure tools / equipment have current calibration certificates	2 x 1	2
	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 4	16	Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Ensure clear understanding of all assigned workers of the task and/or permit, Perform ONLY work identified by permit, Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	2 x 1	2
Mount Sensor on Bottom of Lubricator: Mount Solar Panel on Side of Building Mount Controller Box on side of building: (Or Secure to Structure if not RTU type)	Muscle Strain	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing	2 x 1	2
	Pinch Points	3 x 3	9	Be aware of pinch points associated with use of hand tools	2 x 2	4
	Sharp Edges – Cuts/Lacerations	3 x 3	9	Ensure proper body and body parts positioning (line-of-fire) and solid footing, Ensure all appropriate /required PPE is worn - reassess per each task	2 x 1	2
	Inhalation / exposure (H2S, LEL)	4 x 3	12	Wear all appropriate/required PPE, Wear personal monitor - calibrate, bump test, record, battery level checked	2 x 1	2
	Drilling Through / Into Building Wall	4 x 3	12	Use Caution - FOCUS; eyes and mind on task, Know what material is being drilled into, Follow SWP for drill use; use sharp bits, drill away from body, Ensure accurate reference point to transfer inside measurements to outside of building	2 x 2	4
	Falls from Heights	4 x 4	16	Fall protection plan in place when working at heights, Follow safe ladder practice	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Strap Cables from Wellhead Sensor / Solar Panel, to Controller Box or RTU Cabinet	Falls from Heights	4 x 4	16	Follow safe ladder use practice (proper tie-offs and 3 point contact maintained at all times), Ensure 1:4 ratio use, Use fall protection if required	2 x 2	4
	Insulation Banding and Clips, If Existing	3 x 3	9	Focus; eyes and mind on task, Wear appropriate PPE (hand, eye protection)	2 x 1	2
	Awkward Reaching	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing	2 x 1	2
	Pinch Points	3 x 3	9	Keep extremities clear of pinch points	2 x 1	2
	Cuts / Scrapes /Lacerations / Abrasions	3 x 3	9	Focus, eyes and mind on task, be aware of your surroundings	2 x 1	2
Connect Cables to the Sensor and Solar Panel Verify proper terminations	Awkward Reaching	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing	2 x 1	2
	Falls from Heights	4 x 4	16	Follow safe ladder use practice (proper tie-offs and 3 point contact maintained at all times)	2 x 2	4
	Pinch Points	3 x 3	9	Be aware of pinch points associated with use of hand tools	2 x 1	2
	Cuts / Scrapes /Lacerations / Abrasions		0	Always use proper cutting techniques; cutting away from yourself, use a retractable blade, ensure knife remains sharp after each use, maintain constant pressure when cutting and use only approved knife	2 x 1	2
	Incorrect Connections	3 x 3	9	Follow manufacturer's wiring diagram and schematics to ensure proper connections	2 x 1	2
Connect Sensor and Solar Cables to Controller Box, or RTU Cabinet Verify correct cable and terminations. _ Seal cables where required	Proper Wiring Plan Not Followed	3 x 3	9	Follow manufacturer's wiring diagram and schematics to ensure proper connections, Review results of testing reports; ensure accuracy	2 x 1	2
	Exposure to Chemical Sealant	4 x 3	12	Review the correct MSDS / ensure use of all recommended PPE	2 x 1	2
	Awkward Reaching	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing	2 x 2	4
	Falls from Heights	4 x 4	16	Follow safe ladder use practice (proper tie-offs and 3 point contact maintained at all times)	2 x 2	4

Name: Hazard Assessment E-37 - Plunger Lift Controls
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Pinch Points	3 x 3	9	Focus, eyes and mind on task, be aware of your surroundings	2 x 1	2
	Cuts / Scrapes /Lacerations / Abrasions	4 x 3	12	Review all related/relevant SWP's associated or involved with this task	2 x 2	4
Housekeeping	Falls/Slip/Trips	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing, Wear appropriate PPE (in good condition)	2 x 1	2
	Loose Material and Debris	3 x 3	9	Be aware of surroundings and others, Clear job site of debris	2 x 1	2
	Material Handling	3 x 3	9	Use proper lifting & handling techniques	2 x 1	2
Communicate with Operations Job is Complete and Well Ready For Start Up Close out permit	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	2 x 1	2
	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off, Quality Assurance / Quality Control Testing and Verification of installation	2 x 1	2

Name: Hazard Assessment E-37 - Plunger Lift Controls
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-38 - Securing Vehicle Cargo
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Complete All Associated PJHA's Obtain Safe Work Permit from Client if required	Identify job location hazards and potential hazards	4 x 4	16	Focus, eyes and mind on task, be aware of your surroundings, Ensure all appropriate / required PPE is worn - reassess per each task , Review all hazards involved to do the job, as outlined	1 x 1	1
Hold Pre-Job Meeting w/Crews	Workers Not Fully Aware of Task Scope	3 x 3	9	Ensure clear understanding of all assigned workers of the task and/or permit, Review all JHA's and THA's with workers, Use proper lifting techniques, Follow materials handling SWP, Review all appropriate safe work practices (SWP's) associated or involved with this task, Use proper tools and equipment for moving heavy, awkward loads	1 x 1	1
Plan Out And Position Load	Sharp Edges – Cuts/Lacerations	4 x 3	12	Focus, eyes and mind on task, be aware of your surroundings	2 x 1	2
	Muscle strain, fatigue	4 x 3	12	Utilize proper lifting and transport techniques and ask for assistance, where and if required, Take micro breaks as required to reduce strain/fatigue, Follow safe lifting/handling practice	2 x 1	2
	Awkward Positioning or Reaching	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing	2 x 1	2
	Material Handling	4 x 4	16	Get help for manual lifts and load placement, Complete emergency procedures in case of load securement loosening, load falling etc.	2 x 2	4
	Pinch Points	4 x 3	12	Keep extremities clear of pinch points, Wear appropriate PPE (in good condition)	2 x 1	2
Inspect All Tie-Down Equipment	Equipment Failure (Straps, Cargo Net, Etc.)	4 x 5	20	Flag/ mark all deficiencies found. If required, decommission for repair or replacement, Inspect all equipment for any / all defects, Ensure all workers operating equipment are properly trained or certified, Pre-use inspection of load securement straps	2 x 1	2
Inspect Load and Tie-Down Anchor Points	Improper Load Orientation on Vehicle or Trailer	4 x 5	20	Check orientation of loads for potential shifting, Follow materials handling SWP	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Improper Weight Distribution on Vehicle or Trailer	4 x 4	16	Strict adherance to load limits of vehicle or trailer, Check and ensure load weight is within correct range for equipment	2 x 2	4
	Load Shift During Transport	4 x 5	20	Use only approved tie-down straps, Follow Load Securement SWP, Ensure proper weight distribution of rigging on equipment	2 x 2	4
Re-Adjust / Re-Tighten Securement Straps During Transport	Equipment Failure (Straps, Cargo Net, Etc.)	3 x 3	9	Check loaded material to ensure straps are tight so nothing can come loose and fly out of or off of truck, Periodically check tension / stress on tie-down straps and anchors	2 x 1	2
	Awkward Positioning or Reaching	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing	2 x 1	2
	Muscle strain, fatigue	3 x 3	9	Pre-task stretching	2 x 1	2
	Sharp Edges – Cuts/Lacerations	3 x 3	9	Be aware of surroundings and others	2 x 1	2
	Pinch Points	3 x 3	9	Watch finger placement to avoid pinching/crushing	2 x 1	2
	Potential Load Shift /Unstable Load	3 x 3	9	Periodically check tension / stress on tie-down straps and anchors , Check orientation of loads for potential shifting, Be aware of any change in vehicle handling or performance	2 x 1	2
	Potential Change to Vehicle Handling /Stopping	4 x 5	20	Be aware of road conditions (ie flat, slippery), Be aware of road conditions at all times; monitor local radio reports, Driver defensively; always maintain space cushion	2 x 2	4
Log Trips (Hours of Service)	Not Maintaining Driver's Logbook (entering all changes of status at points (locations) of change)	2 x 2	4	Ensure driver's logbook is always properly and carefully maintained	1 x 1	1
	Fatigue; Loss of focus /attention	3 x 3	9	Focus, eyes and mind on task, be aware of your surroundings, Ensure adherence to Fit For Duty SWP	2 x 1	2

Name: Hazard Assessment E-38 - Securing Vehicle Cargo
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-39 - Operating Switch Gear & Breakers
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit from Client Complete Associated PJHA	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 4	16	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly; review all appropriate SWP's, Ensure all appropriate /required PPE is worn - reassess per each task, Ensure tools / equipment have current calibration certificates	2 x 1	2
	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 4	16	Ensure clear understanding of all assigned workers and workers in vicinity of the task and/or activity plan, Review all related / relevant Safe Work Practices (SWP's) associated or involved with this task, Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	2 x 1	2
Electrical Work Authorization From Client Identify Equipment to be Tested or worked on with Client	Plant Process and Other Equipment Affected by Operation of Switch Gear	5 x 5	25	Review SLD to plan isolation MCC or switchgear from source with client, Ensure training /certification is appropriate for task, If necessary, have operations monitor process conditions while alarms bypassed and / or arrange for a safety watch, Complete correct authorization documents, Check SLD for isolation points	3 x 2	6
Prior to De-Energization of Switch Gear / Breaker Risk Assessment to be Completed	Workers not appropriately trained or certified to operate equipment	5 x 5	25	Ensure worker completing inspection or maintenance is competent/qualified, Ensure all workers operating equipment are properly trained or certified	2 x 2	4
	Condition of Equipment (Poorly maintained, screws-covers missing)	5 x 5	25	Read arc flash warning and don appropriate PPE for incident energy at play, Determine if additional protective measures are required, Determine if the work task will expose you to a shock hazard risk	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Unauthorized Personnel to Enter Hazardous Area	4 x 5	20	Install barricades and flag off work area, if required, Follow Equipment Label or Z-462 Tables for Shock Approach Boundaries and PPE guidelines for working on energized equipment, Proper work planning and electrical isolation prior to entering shock approach boundaries	2 x 2	4
De-Energize Equipment Lockout Tagout, Proof of Zero Energy	Poor Engagement of Switchgear	4 x 5	20	Focus, eyes and mind on task, be aware of your surroundings, Use arm to ensure solid, even transfer to desired switchgear position, Stand on hinged side of enclosure, Ensure proper body and body parts positioning (line-of-fire) and solid footing, Use remote un-racking tool if possible, Otherwise, bomb suit needs to be worn, Use partner to ensure CB lines up with rails upon rack-out / withdrawal	3 x 2	6
	Lock Out / Tag Out SWP Not Followed	5 x 5	25	Confirm positive Lock Out / Tag Out practices met and recorded, Ensure LOTO SWP was carefully followed with LOTO correctly in place, All workers shall place locks on isolation point; Use scissor lock if required	2 x 2	4
	Failure to Test before Touch	5 x 5	25	Use proper testing equipment, Prior to meter use, confirm correct setting, Follow Z-462 PPE guidelines for working on energized equipment, Ensure Zero Energy Isolation completed on all potential hazards in immediate vicinity of penetration area, Check meter or volt tick/detector in use, on a known power source, Wherever possible, visually verify that all blades of the disconnecting devices are fully open, or that drawout-type breakers are withdrawn to the fully disconnected position	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Not understanding Zero Energy isolation process or requirement	5 x 5	25	Ensure training /certification is appropriate for task, Use a hot stick to install ground cables by attaching ground point first followed by the 3 phase points, For applications >750V or more, use non-conductive voltage detector and hot stick to verify zero-energy presence while verifying proper detector operation, Installation of Temporary protective grounds to ensure the safety of workers when required, Refer to Zero Energy Isolation code of practice	2 x 2	4
	Complacency - Lack of Appropriate PPE	5 x 5	25	Follow Z-462 PPE guidelines for working on energized equipment, Read arc flash warning and don appropriate PPE for incident energy at play	2 x 2	4
Perform Authorized Work Scope Work performed to be within the guidelines of the permit.	Tool or Equipment Failure	3 x 3	9	Complete function test of meter, Check certification date; DO NOT USE any meter that fails any of the prescribed tests, Review appropriate SWP's for tool(s) and equipment to be used, Prior to test, isolate any damaged or defective equipment or cable		0
	Pinch Points	3 x 3	9	Be aware of pinch points associated with use of hand tools, Identify pinch points	2 x 1	2
	Cuts / Scrapes /Lacerations / Abrasions	3 x 3	9	Ensure proper body and body parts positioning (line-of-fire) and solid footing, Focus, eyes and mind on task, be aware of your surroundings	2 x 1	2
	Awkward Posture	3 x 3	9	Take micro breaks as required to reduce strain/fatigue, Alternate body positioning frequently throughout the task	2 x 1	2
	Workers Not Fully Aware of Task Scope	4 x 4	16	Ensure training /certification is appropriate for task, Review all other Safe Work Practices associated or involved with task, Review Field PJHA with newcomers, Clear, concise communication to review / discuss full scope and order of job duties related to task	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Prior to Energizing Switch Gear / Breaker Visually Inspect Completed Work, Meter the Load Side of Circuit	Arc Flash /Electrocution	4 x 5	20	Be aware of other voltage sources in the same equipment, Prior to energizing, meter and visually inspect load side of circuit	2 x 2	4
	Equipment Failure	4 x 4	16	Complete function test of meter, Check certification date; DO NOT USE any meter that fails any of the prescribed tests, Test equipment before energizing to ensure operational	2 x 2	4
	Dead Shorts	3 x 5	15	Ensure circuit is metered prior to energizing, for opens or shorts, Go through pre-energization checks for fuse sizes, continuity, shorts to ground and shorts to other fuse terminals	2 x 2	4
	Unprotected Conductors	4 x 3	12	Confirm no dead shorts, or unprotected conductors, Ensure proper replacement of all covers, seals, etc., Use a coworker to place panel covers back onto gear and tighten bolts if necessary	2 x 2	4
	Circuit Fault, Potential Blast	4 x 3	12	Remove ground cables starting with the 3 phases followed by the ground point	2 x 2	4
	Poor housekeeping; debris in/around task area	3 x 3	9	Follow SWP's for safe lifting, handling of debris, tools, equipment, material, etc., Clear area of debris, material, equipment, tools	2 x 1	2
Energize Equipment Lockout Tagout Removal Authorization	Poor Engagement of Switchgear	5 x 5	25	Use remote racking tool to rack , Otherwise, bomb suit needs to be worn, Follow Equipment Label or Z-462 Tables for Shock Approach Boundaries and PPE guidelines for working on energized equipment	3 x 2	6
	Arc Flash /Electrocution	5 x 5	25	Ensure cabinet doors are fully closed and secure, Ensure training /certification is appropriate for task, Ensure all appropriate / required PPE is worn - reassess per each task	2 x 2	4
	Communicate Hazards to Workers and Those in the Area	4 x 5	20	Isolate any possibility of injury to surrounding personnel, Ensure crew members understand communication and action to occur, Be aware of surroundings and others; ensure all unauthorized personnel are kept clear of live test equipment, Where necessary, wait for Operations personnel to authorize re-energization of equipment	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Lock Out / Tag Out SWP Not Followed	4 x 4	16	Test for proper voltages and safe operation, Use arm to ensure solid, even transfer to desired switchgear position, Stand on hinged side of enclosure, Ensure LOTO removal SWP is followed to remove Lock and Tag Out	3 x 2	6
Communicate With Operations All Findings And Actions of Completed Job Close out permit	Lack Of Complete Clear Communication	3 x 4	12	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	2 x 1	2
	No Inspection Forms (Documentation)	4 x 3	12	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	2 x 1	2

Name: Hazard Assessment E-39 - Operating Switch Gear & Breakers
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-40 - Installing Cables Or Wiring In Live Equipment
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit From Client Obtain Hot Work Permit If Required, Complete Associated PJHA	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 4	16	Ensure tools / equipment have current calibration certificates, Ensure all appropriate / required PPE is worn - reassess per each task, Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly; review all appropriate SWP's	1 x 1	1
	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 4	16	Review Hot Work SWP, if task is to occur within plant site/facility, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Ensure clear understanding of all assigned workers of the task and/or permit, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	1 x 1	1
Drilling Into Cabinet(s) Visual inspection of work area	Electrical Shock	4 x 5	20	Ensure all appropriate / required PPE is worn - reassess per each task, Implement plan to apply all possible means of temporary protection to guard open, energized equipment, Ensure training /certification is appropriate for task	2 x 2	4
	Drilling Through / Into Cabinet Walls	4 x 4	16	Review THA E-10 Use of drill and drilling, Check in and outside panel for all hazards, Double check measurements are correct for exact penetration point, Move wiring or piping from proximity to task area	2 x 2	4
	Flying Metal Filings	4 x 4	16	Placement of means (tarps blankets, shop vacuum, etc) to gather cutting cast offs (filings, scrap pieces, or other debris), Use non-conducing barriers to catch drill cuttings	2 x 2	4
	Falls from Heights	3 x 4	12	Follow safe ladder use practice (proper tie-offs and 3 point contact maintained at all times)	2 x 2	4
	Pinch Points	3 x 3	9	Be aware of pinch points associated with use of hand tools, Identify pinch points	2 x 1	2
	Awkward Positioning or Reaching	3 x 3	9	Stretching and proper body positioning, Use micro breaks to stretch out muscles, Alternate body positioning frequently throughout the task	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Cuts / Scrapes /Lacerations / Abrasions	3 x 3	9	Maintaing proper body positioning (line of fire) and footing, Focus, eyes and mind on task, be aware of your surroundings	2 x 1	2
Strip Cable	Stripping / Cutting Cable	3 x 3	9	Review THA E-02 Strip wire and cable	2 x 2	4
Install Connectors and Wiring Into Cabinet	Potential Electric Shock	3 x 3	9	Wear appropriate PPE (hand, eye, arc flash), Be aware of other voltage sources in the same equipment, Follow instructions on THA E-09 Terminating	2 x 2	4
	Potential Arc Flash	3 x 3	9	Secure ends of cables and be sure to keep them far away from any objects / conductive surface, An arc (air breakdown) jumps 1cm at 30 kv., Tape ends of wire; ensure wiring and material secure from live equipment, Install temporary guards, if/where necessary, Focus, eyes and mind on task, be aware of your surroundings	2 x 2	4
	Falling From Ladder	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing, Use fall protection if required, Follow safe ladder use practice (proper tie-offs and 3 point contact maintained at all times)	2 x 1	2
	Falling Objects	4 x 3	12	Ensure tools, equipment are secured at heights, Tool lanyards must be used, Ensure material and tools are contained when working at heights; i.e. use tool bags	2 x 1	2
	Awkward Positioning or Reaching	3 x 3	9	Stretching and proper body positioning, Use micro breaks to stretch out muscles, Alternate body positioning frequently throughout the task	2 x 1	2
	Pinch Points	3 x 3	9	Be aware of pinch points associated with use of hand tools, Identify pinch points	2 x 1	2
	Cuts / Scrapes /Lacerations / Abrasions	3 x 3	9	Maintaing proper body positioning (line of fire) and footing, Focus, eyes and mind on task, be aware of your surroundings	2 x 1	2
Inform Operations When Task Complete Close out permit	No Inspection Forms (Documentation)	3 x 3	9	Quality Assurance / Quality Control Testing and Verification of installation, Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	1 x 1	1

Name: Hazard Assessment E-40 - Installing Cables Or Wiring In Live Equipment
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
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4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
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2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-41 - Install New Starters in (Live MCC)
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit From Client Complete Associated PJHA	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 5	20	Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Ensure clear understanding of all assigned workers and workers in vicinity of the task and/or activity plan, Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	2 x 1	2
	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 5	20	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools correctly; review all appropriate SWP's, Ensure all appropriate /required PPE is worn - reassess per each task, Ensure tools / equipment have current calibration certificates	2 x 1	2
MCC Energized During Starter Change Out Complete an Authorization Energized Electrical Form	Items or Issues Missed; Not Properly Documented	5 x 5	25	Ensure training /certification is appropriate for task, Complete authorization form for Energized Electrical Work, Determine if the work task will expose you to a shock hazard risk, Area Authority / Operations to Authorize Energized Hot Work	2 x 2	4
Complete QA Inspection of Starter Unit Megger Bus Connections on Unit, Ensure No Continuity Between Phases and/or Phases to Ground	Open Circuits or Shorts	4 x 5	20	Follow safe Megger test E-50, to verify condition of electrical insulation, Megger new starter's "LINE SIDE" to ensure no shorts or faults, Go through pre-energization checks for fuse sizes, continuity, shorts to ground and shorts to other fuse terminals	2 x 1	2
	Incorrect Voltage Ratings	4 x 5	20	Verify make and model of unit, Check for correct voltages, Review manufacturer's safety recommendations, Inspect (QA) starter unit for abnormalities	2 x 1	2
Locate / Verify Location for Installation of Starter and Breaker Ensure cubicle location will accommodate starter	Untrained / Uncertified Personnel	4 x 4	16	Post conspicuous signage for awareness of hazardous area due to open, energized equipment, Barriers & Flags placed as/where necessary to keep unauthorized personnel away, Follow Equipment Label or Z-462 Tables for Shock Approach Boundaries and PPE guidelines for working on energized equipment	2 x 1	2

Name: Hazard Assessment E-41 - Install New Starters in (Live MCC)
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Potential For People Or Equipment To Not Be Prepared	4 x 5	20	Ensure proper fit into specified location, Follow Z-462 PPE guidelines for working on energized equipment, Only authorized, trained personnel to perform task	2 x 2	4
Slide Starter Unit Into Cubicle Remove Cubicle Cover, Align and Firmly Push Starter for Solid Contact Into Buss Bar Chutes	Potential Arc Flash	4 x 5	20	Follow Z-462 PPE guidelines for working on energized equipment, Ensure all Arc Flash PPE is in good condition , Read arc flash warning and don appropriate PPE for incident energy at play	2 x 2	4
	Pinch Points	3 x 3	9	Identify pinch points, Be aware of position of hands (line-of-fire), Watch finger placement to avoid pinching/crushing	2 x 1	2
	Awkward Positioning or Reaching	3 x 3	9	Have second worker to assist with full arc flash gear, Second worker to assist with lifting starter into position	2 x 1	2
	Potential Electric Shock	4 x 4	16	Focus, eyes and mind on task, be aware of your surroundings, Use insulated, voltage rated tools	2 x 2	4
Starter Ready to Be Wired And Commissioned Install New Starter Door on MCC	Poor housekeeping; debris in/around task area	3 x 3	9	Clear area of debris, material, equipment, tools	2 x 1	2
	Workers Not Fully Aware of Task Scope	4 x 5	20	Review all other Safe Work Practices associated or involved with task, Clear, concise communication to review / discuss full scope and order of job duties related to task, Quality Assurance / Quality Control Testing and Verification of installation	2 x 2	4
	Not following LOTO Procedure to Ensure Zero energy is Maintained during task	4 x 5	20	Ensure LOTO SWP was carefully followed with LOTO correctly in place	2 x 2	4
Inform Operations When Task Complete Close out permit	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	2 x 1	2
	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	2 x 1	2

Name: Hazard Assessment E-41 - Install New Starters in (Live MCC)
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-42 - Digging And Trenching
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit From Client Complete All Associated PJHA's	Not Having Clear Understanding Of Scope of JHA Or Permit	5 x 5	25	Review process concerns crews may have associated within job scope; document on permit, Ensure clear understanding of task / permit of all assigned workers, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	2 x 1	2
	Not Identifying all Existing & Potential Location and Work Site Hazards	5 x 5	25	Ensure all appropriate / required PPE is worn - reassess per each task, Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Review current and future weather conditions	2 x 1	2
Obtain Ground Disturbance Permit (GDP) Pre- job Hazard Assessment to be Reviewed	Location Of Underground Utilities	5 x 5	25	Review current drawings and associated schematics for accurate locations of underground utilities, Prior to any digging, inform local gas company of planned operations, Flag oil/gas pipelines as per site drawings	3 x 2	6
	Untrained / Uncertified Personnel	5 x 5	25	Operation's knowledge of procedure, Awareness of all lines in area, Ensure all workers involved have appropriate ground disturbance training, Ensure ground disturbance permit has been completed by authorized personnel	2 x 1	2
	Line strike	5 x 5	25	Check site & work area closely for ground condition, obstacles, clearances, etc., Operation's knowledge of procedure, Awareness of all lines in area	3 x 2	6
Test Work Area for Presence of Hazardous Gases ERP required from operations	All workers may not be aware of task hazards	4 x 5	20	Establish ERP and evacuation routes, Review ERP and evacuation routes, Ensure clear understanding of all assigned workers and workers in vicinity of the task and/or activity plan	2 x 1	2
	Potential Exposure to Hazardous Atmosphere	4 x 5	20	Monitor wind direction, Advise Operations of any hazards not listed on permit, observed during tour / inspection, Wear personal monitor - calibrate, bump test, record, battery level checked, Continuous gas monitoring	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Commence Digging Trench Hand dig, Hydro-vac, Backhoe	Open trench	4 x 3	12	Ensure barriers/flags clearly visible, placed as/where necessary around task area, Inspect trench; all debris posing tripping hazard identified and/or removed	2 x 2	4
	Potential Exposure to Hazardous Atmosphere	3 x 4	12	Continuous gas monitoring	2 x 1	2
	Striking Cables or Pipelines	5 x 5	25	Expose lines prior to digging, Hand Dig / Hydro-vac in Hazardous Areas	3 x 2	6
	Flying Debris	3 x 3	9	Wear all required appropriate PPE for task, Maintaing proper body positioning (line of fire) and footing	2 x 2	4
	Splinters From Tool Handles	3 x 3	9	Inspect all tools prior to use, Wear proper, required PPE (gloves)	2 x 1	2
	Muscle strain, fatigue	4 x 3	12	Pre-task stretching, Maintain proper body positioning, Use caution - Focus; eyes and mind on task	2 x 2	4
Working In Close Proximity to Operating Heavy Equipment Communication with Operator	Blind Spots Of Equipment Operators	4 x 5	20	Areas flagged off, proper signage conspicuously placed, Use agreed upon hand signals; spotter to maintain visual with equipment operators at all times, Ensure crews and spotter keep a clear line of sight and constant communication with operators of heavy equipment	3 x 2	6
	Falls/Slip/Trips	4 x 3	12	Watch step and avoid falls; Be mindful of terrain, Survey to ensure all debris that could cause a slip, trip or fall has been removed	2 x 2	4
	Pinch Points	3 x 4	12	Identify pinch points, Be aware of position of hands (line-of-fire)	2 x 2	4
	Contact with/by Equipment	4 x 5	20	Use spotters; verify proper signals used, Wear all appropriate PPE for task, Reflective Vest	3 x 2	6
Working In Trench	Access & Egress Hazards	4 x 3	12	Ensure proper footing in slippery conditions, Follow restricted space entry Safe Work Practice, Ensure mulitple ladders securely placed or stairs cut into trench wall	2 x 2	4
	Falls/Slip/Trips	3 x 3	9	Wear proper footwear with additional slip-on traction devices, Ensure proper body and body parts positioning (line-of-fire) and solid footing	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Cuts / Scrapes /Lacerations / Abrasions	3 x 3	9	Wear appropriate PPE (in good condition), Ensure proper body positioning (line-of-fire) and solid footing	2 x 1	2
	Muscle strain, fatigue	3 x 3	9	Take micro-breaks, stretch out muscles and improve circulation and focus, Know your limits; utilize additional workers as required, Wear proper PPE (gloves, eye, ear protection), Use proper lifting/pulling techniques	2 x 1	2
	Potential Exposure to Hazardous Atmosphere	3 x 4	12	Continuous gas monitoring	2 x 1	2
	Potential for Cave In	3 x 4	12	Ribbon or barricade off work area, Ensure mulitple ladders securely placed or stairs cut into trench wall, Proper shoring and sloping of trench	2 x 2	4
Back-Filling in Trench Laying Planks and Ribbon	Poor housekeeping; debris in/around task area	3 x 3	9	Practice extremely diligent housekeeping, Know your limits, obtain assistance from co-workers for heavy lifts	2 x 1	2
	Shoveling	3 x 3	9	Take micro breaks as required to reduce strain/fatigue, Follow safe lifting/handling practice	2 x 1	2
	Rocks on lines	3 x 4	12	Place (Buried Cable) marking tape, halfway between installation and finished grade level, Remove sharp, large rocks from area, Use sand and solid mechanical protection	2 x 2	4
	Site Conditions	3 x 3	9	Check site & work area closely for ground condition, obstacles, clearances, etc.	2 x 1	2
	Weather Conditions	3 x 3	9	Ensure all appropriate / required PPE is worn - reassess per each task, Be aware of surroundings, others, weather conditions and body temperature	2 x 1	2
	Heavy Equipment Operating	5 x 5	25	Supervise equipment operation, Reflective Vest, Ensure crews and spotter keep a clear line of sight and constant communication with operators of heavy equipment	3 x 2	6

Name: Hazard Assessment E-42 - Digging And Trenching
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Inform Operations When Task Complete Close out Permit	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully /carefully	2 x 1	2
	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	2 x 1	2

Name: Hazard Assessment E-42 - Digging And Trenching
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-43 - Install Capacitors On Oil Well Controllers
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit From Client Complete Associated PJHA	Not Identifying all Existing & Potential Location and Work Site Hazards	3 x 3	9	Review all hazards involved to do the job, as outlined, Review all JHA's and THA's with workers, Use proper tools and testing equipment correctly; review all appropriate SWP's, Ensure tools / equipment have current calibration certificates	1 x 1	1
	Not Having Clear Understanding Of Scope of JHA Or Permit	3 x 3	9	Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Ensure clear understanding of all assigned workers of the task and/or permit, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	1 x 1	1
Shut Down Oil Well Controller Lock Out/Tag Out Electrical Source	Electrical Shock	3 x 3	9	Ensure LOTO SWP was carefully followed with LOTO correctly in place, Focus; eyes and mind on task	2 x 1	2
Ensure Controller is De-Energized	Electrical Shock	3 x 3	9	Wear all appropriate/required PPE (arc flash), Use proper meter, test before touch	2 x 1	2
	Potential Arc Flash	3 x 3	9	Grounding or discharging is recommended when residual voltages maybe present, Wear all appropriate/required PPE (arc flash)	2 x 1	2
Mount Capacitor	Electrical Shock	3 x 3	9	Wear appropriate PPE (hand, eye, arc flash), Follow manufacturer's installation guidelines, Be aware of other voltage sources in the same equipment	2 x 2	4
	Flying Debris	3 x 3	9	Use proper tools correctly; review all appropriate SWP's, Follow SWP for drill use; use sharp bits, drill away from body, Focus; eyes and mind on task	2 x 2	4
	Falling From Ladder	4 x 3	12	Use correct ladder for task, Follow safe ladder use practice	2 x 2	4
	Dropping Tools /Materials to Ground Below	4 x 3	12	Focus; eyes and mind on task, Be aware of surroundings and others, Tool lanyards used to safeguard against accidental drops	2 x 2	4
	Awkward Stance/Position/Posture	4 x 3	12	Ensure proper body positioning (line-of-fire) and solid footing	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Muscle Strain	3 x 3	9	Pre-task stretching	2 x 1	2
	Pinch Points	4 x 3	12	Ensure proper body and extremities positioning (line of fire), Identify pinch points, Be aware of position of hands (line-of-fire)	2 x 1	2
	Sharp Edges – Cuts/Lacerations	3 x 3	9	Be aware of surroundings and others, Only use approved knife	2 x 1	2
Terminate Wires	Stripping / Cutting Cable	4 x 3	12	Review THA E-02 Strip wire and cable, Be aware of surroundings and others, Use caution -Focus; eyes and mind on task, Wear appropriate PPE (hand, eye)	2 x 1	2
	Pinch Points	4 x 3	12	Ensure connections are tight/secure, Ensure proper body and extremities positioning (line of fire)	2 x 1	2
	Sharp Edges – Cuts/Lacerations	4 x 3	12	Be aware of surroundings, tools, materials and others	2 x 1	2
	Awkward Stance/Position/Posture	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing		0
	Muscle Strain	3 x 3	9	Pre-task stretching	2 x 1	2
	Improper Connections	4 x 4	16	Follow manufacturer's wiring diagram and schematics to ensure proper connections	2 x 1	2
Re-Energize and Test For Operation	Electrical Shock	4 x 3	12	Test volatage and amp draw to confirm operation, Wear appropriate PPE (hand, eye, arc flash), Follow SWP for removal of Lock Out/Tag Out	3 x 2	6
	Potential Arc Flash	4 x 3	12	Focus, eyes and mind on task, be aware of your surroundings, Quality Assurance / Quality Control Testing and Verification of installation, Wear properly rated Arc Flash gear	3 x 2	6
	Poor housekeeping; debris in/around task area	3 x 2	6	Practice extremely diligent housekeeping, Review / reference Housekeeping THA G-03	1 x 1	1
Confirm With Operations That Job Is Complete Close out permit	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	1 x 1	1

Name: Hazard Assessment E-43 - Install Capacitors On Oil Well Controllers
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-44 - Working In Congested Areas
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit From Client Complete Associated PJHA	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 4	16	Ensure clear understanding of all assigned workers and workers in vicinity of the task and/or activity plan, Review all related / relevant Safe Work Practices (SWP's) associated or involved with this task, Review all practices relevant to job (Electrical, Lock Out / Tag Out etc.), Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	2 x 1	2
	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 4	16	Ensure tools / equipment have current calibration certificates, Ensure all appropriate / required PPE is worn - reassess per each task, Review all hazards involved to do the job, as outlined, Review all JHA's and THA's with workers, Use proper tools and testing equipment correctly; review all appropriate SWP's	2 x 1	2
Escort Equipment And Crews Into Congested Area	Blind Spots	4 x 3	12	Be aware of surroundings and others, Ensure all personnel in area are aware of large equipment loading, unloading, moving, Use spotter(s) when reversing equipment, Maintain communication between workers	2 x 1	2
	Hidden Obstructions	4 x 3	12	Watch step and avoid falls; Be mindful of terrain, Focus, eyes and mind on task, be aware of your surroundings	2 x 1	2
	Potential Exposure to Hazardous Atmosphere	3 x 4	12			0

Name: Hazard Assessment E-44 - Working In Congested Areas
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-45 - Grounding Neutral Bar on Generator Building
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit from Client Operations Obtain Hot Work Permit If Required, Complete Associated PJHA	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 4	16	Ensure clear understanding of all assigned workers of the task and/or permit, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	2 x 2	4
	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 4	16	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Ensure all appropriate/required PPE is worn, Use proper tools, ensure correct operation	2 x 2	4
Locate Neutral Ground Bar Plan ground cable route	Congested Work Area	4 x 4	16	Use Caution - FOCUS; eyes and mind on task, Maintain communication with all other trades in same area, Safety watch	2 x 2	4
	Obstacles, Debris, Etc. In Immediate Vicinity (Beside, Under, Behind, Ahead)	4 x 4	16	Focus, eyes and mind on task, be aware of your surroundings, Pre-check route of travel; solid ground surface, clear access with enough room, no debris, no overhead obstructions, Watch step and avoid falls; Be mindful of terrain	3 x 2	6
	Potential Exposure to Hazardous Atmosphere	3 x 4	12	Personal monitors worn – calibrated, bumptested, recorded, with fully charged batteries	2 x 2	4
Drill Holes Drill into building /cabinet, to install sleeve / connector for ground wire Review THA E-10 Drill Use	Awkward Stance/Position/Posture	3 x 3	9	Maintain proper body positioning (line of fire) and footing	2 x 1	2
	Pinch Points	4 x 4	16	Be aware of pinch points associated with use of hand tools, Identify pinch points, Ensure all appropriate PPE is worn (hand, eye, face, hearing) must be in good condition	2 x 2	4
	Hidden Obstructions	3 x 4	12	Physically inspect area to identify any hidden obstructions	2 x 2	4
	Falling Debris / Slag	3 x 3	9	Placement of means (tarps blankets, shop vacuum, etc) to gather cutting cast offs (filings, scrap pieces, or other debris)	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Locate Destination Ground Point C- Tap into existing ground grid, or install grounding point Review E-14 Ground Grids or E-15 Ground Rods	Identify all hazards & potential hazards	4 x 4	16	Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task	3 x 2	6
Terminate on Posts, C-Tap Spray Connections (Glyptal, Tape)	Potential Exposure To Aerosol Spray (Inhalation, Ingestion, Dermal Contact)	3 x 3	9	Ensure sufficient distance from spray, Stay upwind of spray, Review appropriate MSDS, where required, Wear proper PPE (eye, face, respirator)	2 x 2	4
	Pinch Points	4 x 4	16	Be aware of pinch points associated with use of hand tools, Keep extremities clear of pinch points	2 x 2	4
	Laceration From Incorrect Knife Use	4 x 4	16	Use proper knife - cut away from body, Be aware of position of hands (line-of-fire) , Review and follow SWP for knife use , Maintain proper body positioning (line-of-fire)	3 x 2	6
Housekeeping	Damage to Property/Tools	3 x 3	9	Perform post use inspection of ladder, drill, etc; document all anomalies, Where necessary, tag out of service for repair/replacement	2 x 1	2
	Falls/Slip/Trips	3 x 3	9	Plan your route, Be aware of surroundings and others	2 x 2	4
	Loose Material and Debris	3 x 3	9	Secure equipment, tools, materials away safely, Perform housekeeping;ensure floor areas are clear of debris, equipment, tools, etc.	2 x 1	2
	Uneven Surfaces	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing	2 x 2	4
	Awkward Stance/Position/Posture	3 x 2	6	Take micro breaks as required to reduce strain/fatigue, Follow SWP for handling/lifting materials and equipment	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Inform Operations When Task Complete Close out Permit	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	2 x 1	2

Name: Hazard Assessment E-45 - Grounding Neutral Bar on Generator Building
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

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4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-46 - Working In Icy Conditions
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit From Client Complete Associated PJHA	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 3	12	Ensure clear understanding of all assigned workers of the task and/or permit, Perform only work identified by permit, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	2 x 2	4
	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 3	12	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Be aware of icy conditions and rough terrrain, Use Caution - FOCUS; eyes and mind on task, Remove snow and ice where possible, Ensure all appropriate /required PPE is worn - reassess per each task	2 x 2	4
Review Conditions of Work Area or Site Access and Egress (Foot Paths, Stairs, Doorways, Ladders, Scaffolding)	Falls/Slip/Trips	3 x 3	9	Survey to ensure all debris that could cause a slip, trip or fall has been removed, Ensure access and egress points are available at all times	2 x 1	2
	Wet Cement Flooring	3 x 3	9	Be aware of surroundings, equipment and others in vicinity	2 x 1	2
	Snow Covered Ice	3 x 3	9	Wear proper footwear with additional slip-on traction devices, Be aware of icy conditions and rough terrrain, Use Caution - FOCUS; eyes and mind on task, Suitable sanding of roads, walkways, footpath, stairs, doorways	2 x 1	2
	Ladder Use	3 x 3	9	Use second worker to stabilize ladder, Follow all ladder safety practices, Maintain proper body positioning (line-of-fire), On ladders, always maintain 3-point contact	2 x 1	2
Eliminate Or Reduce Hazards (Underfoot or Overhead) Null	Objects Buried by Covering of Snow / Ice	3 x 3	9	Care and caution with ground conditions; avoid uneven or slippery areas, Focus, eyes and mind on task, be aware of your surroundings	2 x 1	2
	Overhead Hazards	3 x 3	9	Be aware of overhead hazards/obstructions, Remove ice buildup from doorways, roofs, overhangs	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Falls/Slip/Trips	3 x 3	9	Walk or climb with extreme caution, Ensure ladders and scaffolds are ice-free, Suitable sanding of roads, walkways, footpath, stairs, doorways, Remove snow and ice where possible, Focus; eyes and mind on task	2 x 1	2
Watch For Other Trades Null	Slippery Road Conditions	3 x 3	9	Be aware of road conditions at all times; monitor local radio reports, Drive to Weather Conditions	2 x 1	2
	Driving On Roadways Personnel Are Walking On	3 x 3	9	Be aware of changes to surroundings, Drive in or back in slowly, when possible use a spotter, Be aware of surroundings and others	2 x 1	2
	Walking on Roadways Vehicles Are Travelling On	3 x 3	9	Wear proper footwear with additional slip-on traction devices, Be aware of surroundings and others	2 x 1	2
Secure Tools and Equipment Being Used At Heights	Icy Buildups Around Access/Egress	3 x 3	9	Use of traction control when required, Clear area of slip/trip hazard	2 x 1	2
	Icicles Breaking Off and Falling	3 x 3	9	Remove ice buildup from doorways, roofs, overhangs, Be aware of overhead obstructions	2 x 1	2
	Dropping Tools /Materials to Ground Below	3 x 3	9	Ensure tools, equipment are secured at heights, Tool lanyards used to safeguard against accidental drops	2 x 1	2
Prior To Use, Complete Inspection of Manlift Document Complete Inspection of Man-lift	Items or Issues Missed; Not Properly Documented	3 x 3	9	Documentation completed fully / carefully	1 x 1	1
	Slippery Road / Site Conditions	3 x 3	9	Place gravel on ground around man lift to reduce slippery conditions, Drive to Weather Conditions	2 x 1	2
	Slips, Falls Entering/Exiting LIft	3 x 3	9	Ensure proper footing, Three points of contact	2 x 1	2
	Breakage Of Hydraulic Lines	3 x 3	9	Pre-use Inspection of hydraulic lines, Ensure to allow proper warm up time for equipment	2 x 1	2
	Ice Formation and Buildup	3 x 3	9	Remove all ice build up from man lift	2 x 1	2
Careful Visual Check of Site Work Area Determine If/Where Objects Are Buried or Blanketed By Snow	Low Handrails	3 x 3	9	Adjust height of handrails as needed	2 x 1	2
	Impaling Objects	3 x 3	9	Remove impaling objects before beginning task	2 x 1	2
	Trip hazard	3 x 3	9	Focus, eyes and mind on task, be aware of your surroundings, watch your step	2 x 1	2

Name: Hazard Assessment E-46 - Working In Icy Conditions
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Objects Buried by Covering of Snow / Ice	3 x 3	9	Flag any / all potential hazards	2 x 1	2
	Slippery Stairs, Doorways	3 x 3	9	Walk with small cautious steps, Remove ice buildup from doorways	2 x 1	2
	Open Hand Rail Gate	3 x 3	9	Be cautious around hand railings, Close hand rail gates	2 x 1	2
	Sloped Roof	3 x 3	9	Tie off when working above 6 ft., Ensure proper footing in slippery conditions	2 x 1	2
Inform Operations When Task Complete Close out Permit	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	1 x 1	1

Name: Hazard Assessment E-46 - Working In Icy Conditions
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-47 - Install Cables Into Live MCC
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit From Client Complete Associated PJHA	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 5	20	Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Ensure clear understanding of all assigned workers and workers in vicinity of the task and/or activity plan, Perform ONLY work identified by permit, Review /discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	2 x 1	2
	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 5	20	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly; review all appropriate SWP's, Ensure all appropriate /required PPE is worn - reassess per each task, Ensure tools / equipment have current calibration certificates	2 x 1	2
Energized Electrical Work Authorization Visual inspection of work area. Test For Voltage	Potential Electric Shock	4 x 5	20	Implement plan to apply all possible means of temporary protection to guard open, energized equipment, Where possible de-energize equipment	3 x 2	6
	Potential Arc Flash	5 x 5	25	Ensure worker completing inspection or maintenance is competent/qualified, Follow Z-462 PPE guidelines for working on energized equipment, Read arc flash warning and don appropriate PPE for incident energy at play	3 x 2	6
	Potential for Untrained, Unauthorized Personnel to Enter Hazardous Area	5 x 5	25	Ensure training /certification is appropriate for task, Complete authorization form for Energized Electrical Work, Determine if the work task will expose you to a shock hazard risk, Barriers & Flags placed as/where necessary to keep unauthorized personnel away	3 x 2	6
Test For Voltage Use properly rated meter for task	Arc Flash /Electrocution	3 x 4	12	Ensure all proper PPE is worn/utilized for task, must be in good condition, Ensure co-workers understand test procedure, Use Caution - FOCUS; eyes and mind on task	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Meter Failure	4 x 4	16	Complete function test of meter, Check certification date; DO NOT USE any meter that fails any of the prescribed tests, Complete function test of meter, Only authorized, trained personnel to perform testing, Wear appropriate PPE (hand, eye, arc flash)	2 x 2	4
Working On Energized Equipment Null	Awkward Stance/Position/Posture	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing	2 x 1	2
	Potential Arc Flash	3 x 5	15	Ensure all proper PPE is worn/utilized for task, must be in good condition, Be aware of surroundings and others	3 x 2	6
	Electricity, Electrical Shock	3 x 5	15	Inspect inside cabinet for layout, etc., Wear appropriate PPE (hand, eye, arc flash), Be aware of surroundings and others, Use caution -Focus; eyes and mind on task	3 x 2	6
Drill Holes In MCC Review THA E-10 Use of drill or Drilling Install Connectors In MCC	Sharp Edges – Cuts/Lacerations	3 x 3	9	Ensure proper body/body part positioning (line of fire) during cut; out of path of potential kick back	2 x 1	2
	Pinch Points	3 x 3	9	Be aware of pinch points associated with use of hand tools, Identify pinch points	2 x 1	2
	Muscle Strain	3 x 3	9	Pre-task stretching	2 x 1	2
	Awkward Stance/Position/Posture	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing	2 x 1	2
	Dropping Tools /Materials to Ground Below	3 x 3	9	Tool lanyards used to safeguard against accidental drops	2 x 1	2
	Ladder Use	3 x 4	12	Proper ladder for the task, Follow all ladder safety practices, Maintain proper body positioning (line-of-fire), On ladders, always maintain 3-point contact	2 x 1	2
	Flying Metal Filings	3 x 3	9	Practice extremely diligent housekeeping, Wear appropriate PPE (hand, eye, face)	2 x 1	2
	Drilling Through / Into Cabinet Walls	3 x 4	12	Double check measurements are correct for exact penetration point, Use proper tools for the task, Review THA E-10 Use of drill and drilling	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Potential Arc Flash	3 x 4	12	Wear gloves and all appropriate PPE, Be aware of surroundings and others, Use caution -Focus; eyes and mind on task, Check in and outside panel for all hazards	2 x 2	4
	Electricity, Electrical Shock	3 x 4	12	Use non-conducing barriers to catch drill cuttings, Use insulated, voltage-rated tools	2 x 2	4
Pull Cable Into MCC, Cut Cable	Electricity, Electrical Shock	4 x 5	20	Move other wires out of line-of-fire, Wear appropriate PPE (hand, eye, arc flash), See also THA - T-03 Pulling Cable and E-02 Stripping Cable	3 x 3	9
	Sharp Edges – Cuts/Lacerations	4 x 3	12	Wear proper PPE (Kevlar gloves), Be aware of surroundings, tools, materials and others	2 x 2	4
	Pinch Points	4 x 3	12	Be aware of position of hands (line-of-fire)	2 x 2	4
	Awkward Stance/Position/Posture	4 x 3	12	Ensure proper body positioning (line-of-fire) and solid footing, Pre-task stretching	2 x 2	4
	Dropping Tools /Materials to Ground Below	4 x 3	12	Tool lanyards used to safeguard against accidental drops	2 x 2	4
	Potential Arc Flash	4 x 5	20	Use Caution - FOCUS; eyes and mind on task, Ensure barriers/flags clearly visible, placed as/where necessary around task area, Tape ends of wire; ensure wiring and material secure from live equipment	3 x 3	9
	Falls from Heights	4 x 4	16	Ensure proper body positioning (line-of-fire) and solid footing, Wear safety harness; mandatory tie-off when working above 1.8m / 6 Ft.	2 x 2	4
Run Wires To Terminals Inside MCC Lock Out/Tag Out source termination points /bucket	Arc, Sparks, Shorts	4 x 4	16	Review all practices relevant to job (Electrical, Lock Out / Tag Out etc.), Confirm positive Lock Out / Tag Out practices met and recorded, Test before touch to ensure equipment properly de-energized, Use Caution - FOCUS; eyes and mind on task	3 x 2	6
	Pinch Points	4 x 3	12	Ensure proper body/body part positioning (line of fire) during cut; out of path of potential kick back	3 x 2	6
	Sharp Edges – Cuts/Lacerations	4 x 4	16	Ensure proper body and extremities positioning (line of fire), Reference THA E-30 Terminating	3 x 2	6

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Awkward Stance/Position/Posture	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing, Pre-task stretching	2 x 1	2
	Muscle Strain	3 x 3	9	Pre-task stretching	2 x 1	2
	Ladder Use	4 x 3	12	Wear safety harness; mandatory tie-off when working above 1.8m / 6 Ft., Follow ladder use SWP; select proper ladder for task	2 x 2	4
Commissioning Remove Lockout Tagout	Refer to THA E-30 Commissioning	4 x 4	16	Follow proper LOTO SWP to remove, Wear all appropriate/required PPE	2 x 2	4
	Unexpected energization of unrelated equipment	4 x 4	16	Inform relevant co-workers of Lock Out/Tag Out removal, Erect red flagging and attach tags with test information and contact information	2 x 2	4
Record All Updates On As-Built Drawings Housekeeping	Eliminate Future Hazards of Out of Date Schematics	4 x 3	12	Complete all necessary updates and revisions to as-built drawings	2 x 1	2
	No Inspection Forms (Documentation)	4 x 3	12	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	2 x 1	2
	Poor housekeeping; debris in/around task area	3 x 4	12	Perform housekeeping; ensure floor areas are clear of debris, equipment, tools, etc.	2 x 1	2
Inform Operations When Task Complete Close out Permit	Lack Of Complete Clear Communication	4 x 4	16	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	1 x 1	1

Name: Hazard Assessment E-47 - Install Cables Into Live MCC
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-48 - Install Temporary Power To Construction Trailers
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit From Client Complete Associated PJHA	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 4	16	Ensure clear understanding of all assigned workers of the task and/or permit, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Perform ONLY work identified by permit, Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	1 x 1	1
	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 4	16	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly; review all appropriate SWP's, Ensure all appropriate /required PPE is worn - reassess per each task, Ensure tools / equipment have current calibration certificates	1 x 1	1
Power Source Location Verified De-energize, Perform Lock Out/Tag Out, Test before Touch	Falls/Slip/Trips	4 x 3	12	Watch for slippery and rough terrain, Maintain proper footing, Perform housekeeping;ensure floor areas are clear of debris, equipment, tools, etc.	2 x 1	2
	Damage to Property, Facilities, Equipment	4 x 5	20	Ensure correct Lockout/Tagout practice and location , Test before touch to ensure equipment properly de-energized, Verify supply voltage prior to connecting leads, Ensure all fuses/switches are disconnected	2 x 2	4
	Arc Flash /Electrocution	4 x 5	20	Complete authorization form for Energized Electrical Work, Determine if the work task will expose you to a shock hazard risk, Check certification date; DO NOT USE any meter that fails any of the prescribed tests, Use proper testing equipment, Prior to meter use, confirm correct setting, Follow Z-462 PPE guidelines for working on energized equipment, Barriers & Flags placed as/where necessary to keep unauthorized personnel away, Only authorized, trained personnel to perform testing	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Field Connections of Trailers Ensure Proper Connection	Loose or Faulty Connections	4 x 4	16	Ensure tight terminations, Use correct terminal blocks for wire size, Follow wiring diagram and schematics to ensure proper connections	2 x 2	4
	Improper Installation	4 x 4	16	Follow instructions on THA E-09 Terminating, Check continuity, megger cable (follow proper megger SWP)	2 x 2	4
	Sharp Edges – Cuts/Lacerations	4 x 3	12	Maintaing proper body positioning (line of fire) and footing, Review THA E-02 Strip wire and cable	2 x 1	2
	Pinch Points	3 x 3	9	Be aware of pinch points associated with use of hand tools, Maintain proper body positioning (line-of-fire)	2 x 1	2
	Falls from Heights	3 x 4	12	Ensure proper body positioning (line-of-fire) and solid footing, Follow all ladder safety practices, Use proper harness, On ladders, always maintain 3 point contact, Tie ladder off securely, Tie off when working above 6 ft.	2 x 1	2
	Falls/Slip/Trips	4 x 3	12	Survey to ensure all debris that could cause a slip, trip or fall has been removed, Watch for slippery and rough terraingh terrain	2 x 1	2
Terminate to Existing Panel/MCC	Improper Connections	4 x 5	20	Ensure connections correct / secure, Follow instructions on THA E-09 Terminating	2 x 2	4
	Sharp Edges – Cuts/Lacerations	3 x 3	9	Maintain proper body positioning (line of fire) and footing, Review THA E-02 Strip wire and cable, Use of approved knife	2 x 1	2
	Pinch Points	3 x 3	9	Be aware of pinch points associated with use of hand tools, Maintain proper body positioning (line-of-fire)	2 x 1	2
	Awkward Stance/Position/Posture	3 x 3	9	Stretching and proper body positioning	1 x 1	1
	Dropping Tools /Materials to Ground Below	3 x 4	12	Tool lanyards used to safeguard against accidental drops	2 x 2	4
	Falls from Heights	3 x 4	12	Ensure proper body positioning (line-of-fire) and solid footing, Follow all ladder safety practices, Use proper harness, On ladders, always maintain 3 point contact, Tie ladder off securely, Tie off when working above 6 ft.	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Potential Arc Flash	4 x 5	20	Wear properly rated Arc Flash gear, Wear appropriate PPE (in good condition), Correctly use proper tools for task, Review E-47 Install cables into Live MCC	2 x 2	4
	Potential Electric Shock	4 x 5	20	Use insulated, voltage rated tools, Test before touch to ensure equipment properly de-energized, Use proper PPE (arc flash kit with hand, eye protection)	2 x 2	4
Energize Equipment Remove Locks and Tags	Defective Equipment	3 x 4	12	Pre use inspection	2 x 1	2
	Potential Arc Flash	4 x 5	20	Ensure protection of people and property while removing lockouts, Ensure LOTO removal SWP is followed correctly, Ensure all Arc Flash PPE is in good condition	2 x 2	4
	Potential Electric Shock	4 x 5	20	Test multi-meter, Test equipment before energizing to ensure operational, Wear appropriate PPE (hand, eye, arc flash)	2 x 2	4
	Sharp Edges – Cuts/Lacerations	3 x 3	9	Use Caution - FOCUS; eyes and mind on task, Wear proper gloves	2 x 1	2
	Pinch Points	3 x 3	9	Maintain proper body positioning (line of fire) and footing, Identify pinch points	2 x 1	2
	Awkward Stance/Position/Posture	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing	2 x 1	2
	Dropping Tools /Materials to Ground Below	3 x 4	12	Tool lanyards used to safeguard against accidental drops	2 x 1	2
	Falls from Heights	3 x 3	9	Tie off when working above 6 ft., Tie off ladder securely	2 x 1	2
Housekeeping	Material Handling	3 x 3	9	Use proper lifting techniques, Know your limits; obtain assistance from co-workers for awkward or heavy lifts	2 x 1	2
	Poor housekeeping; debris in/around task area	3 x 3	9	Housekeeping - Adequate, Keep site and work area tidy / clear of debris	2 x 1	2
	Falls/Slip/Trips	3 x 3	9	Remove flags and barriers, Wear appropriate PPE (hand, eye), Ensure proper body positioning (line-of-fire) and solid footing	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Inform Operations When Task Complete Close out Permit	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels	1 x 1	1
	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	1 x 1	1

Name: Hazard Assessment E-48 - Install Temporary Power To Construction Trailers
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
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2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-49 - Working With Welder
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit From Client Complete Associated PJHA -Obtain Hot Work Permit	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 4	16	Ensure clear understanding of all assigned workers of the task and/or permit, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Ensure all work planned is documented on required permit(s); perform ONLY work Identified by permit, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	2 x 1	2
	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 4	16	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Ensure all appropriate / required PPE is worn - reassess per each task	2 x 1	2
Test For Hazardous Atmosphere	Explosive Atmosphere	3 x 4	12	Monitor wind direction, Establish ERP and evacuation routes	2 x 1	2
	Inhalation / exposure (H2S, LEL)	3 x 4	12	Continuous gas monitoring, Wear personal monitor - calibrate, bump test, record, battery level checked	2 x 1	2
Back Up Welding Unit Into Position	Blind Spots	3 x 3	9	Prior to backing welding unit into position, physically inspect area to identify any hidden obstructions, Use spotter to back welder into position	2 x 1	2
Set Up Welder and Equipment	Pinch Points	3 x 3	9	Focus; eyes and mind on task, Wear appropriate PPE (hand, eye, arc flash)	2 x 1	2
	Falls/Slip/Trips	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing, Use of traction control	2 x 1	2
	Rotating or Moving Equipment	3 x 3	9	Use Caution - FOCUS; eyes and mind on task , Be aware of surroundings and others	2 x 1	2
	Hidden Obstructions	3 x 2	6	Clear area of obstructions, Use of spotter	2 x 1	2
Preparing Materials Required For Welder	Falling Debris / Slag	3 x 3	9	Use of face shield and safety glasses, Focus; eyes and mind on task, Be aware of surroundings and others	2 x 1	2
	Working With Power Tools	3 x 3	9	Ensure proper use of tools and equipment, Wear appropriate PPE (hands, face, hearing)	2 x 1	2
Cutting Materials Required For Welder	Explosive Atmosphere	3 x 4	12	Continuous gas monitoring	2 x 1	2
	Inhalation / exposure (H2S, LEL)	3 x 3	9	Wear personal monitor - calibrate, bump test, record, battery level checked	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Noise Exposure	3 x 3	9	Hearing Protection	2 x 1	2
	Sharp Edges – Cuts/Lacerations	3 x 3	9	Ensure all guards are in place, secure and working properly, Be alert and aware of surroundings (wildlife, other vehicles, road conditions)	2 x 1	2
	Pinch Points	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing, Identify pinch points	2 x 1	2
	Spark Potential	3 x 2	6	Be aware of surroundings and coworkers; NEVER point a tool at anyone/body/parts, Ensure all proper PPE is worn/utilized for task, must be in good condition	2 x 1	2
Working With Welding Equipment	Falls/Slip/Trips	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing, Use of traction control	2 x 1	2
	Falls from Heights	3 x 4	12	Follow ladder use SWP; select proper ladder for task, Wear safety harness; mandatory tie-off when working above 1.8m / 6 Ft.	2 x 1	2
	Welding Flash	3 x 3	9	If welding above ground level, flag off / barricade area below,, Maintain communication with welder, Ensure all appropriate /required PPE is worn - reassess per each task	2 x 1	2
	Burns	3 x 4	12	Review THA G-11 - Structural Welding, Wear appropriate PPE (hands, face, hearing)	2 x 1	2
	Potential Electric Shock	3 x 4	12	Ensure proper ground for welder	2 x 1	2
	Sharp Edges – Cuts/Lacerations	3 x 3	9	Immediately file sharp edges after cuts made, Ensure all proper PPE is worn	2 x 1	2
	Pinch Points	3 x 3	9	Ensure proper body and extremities positioning (line of fire)	2 x 1	2
	Awkward Stance/Position/Posture	3 x 3	9	Be aware of overhead hazards/obstructions, Ensure proper body positioning (line-of-fire) and solid footing, Follow SWP's for lifting and handling material	2 x 1	2
	Flammable/Combustible Materials	3 x 4	12	Keep fire blankets and proper number of functioning fire extinguishers in close proximity to work area, Be aware of potentially combustible materials	2 x 1	2

Name: Hazard Assessment E-49 - Working With Welder
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Housekeeping; Clean Work Area	Sharp Edges – Cuts/Lacerations	3 x 3	9	Wear appropriate PPE (in good condition)	2 x 1	2
	Pinch Points	3 x 3	9	Maintaing proper body positioning (line of fire) and footing	2 x 1	2
	Falls/Slip/Trips	3 x 3	9	Plan your route, Remove flags and barriers, Use of traction control	2 x 1	2
	Muscle Strain	3 x 3	9	Stretching and proper body positioning, Use micro breaks to stretch out muscles, Alternate body positioning frequently throughout the task, Use proper lifting / handling techniques	2 x 1	2
	Dropping Tools /Materials to Ground Below	3 x 4	12	Tool lanyards used to safeguard against accidental drops	2 x 1	2
	Flying Debris	3 x 3	9	Clear job area / site of all debris; dispose in proper designated areas/bins	2 x 1	2
Fire Watch	Fire/Explosion/Burns	3 x 4	12	Stay to maintain fire watch for minimum one (1) hour after completion of welding, Wear appropriate PPE (gloves, eye), Keep fire blankets and proper number of functioning fire extinguishers in close proximity to work area, Be aware of potentially combustible materials	2 x 1	2
Inform Operations When Task Complete Close out permit	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	1 x 1	1

Name: Hazard Assessment E-49 - Working With Welder
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-50 - Megger Testing
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit From Client Complete Associated PJHA	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 5	20	Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Ensure clear understanding of all assigned workers and workers in vicinity of the task and/or activity plan, Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	2 x 1	2
	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 5	20	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly; review all appropriate SWP's, Ensure all appropriate /required PPE is worn - reassess per each task, Ensure tools / equipment have current calibration certificates	2 x 1	2
Testing within Energized Equipment Energized Electrical Work Authorization	Potential Electric Shock	4 x 4	16	Installation of Temporary protective grounds to ensure the safety of workers when required	2 x 1	2
	Potential Arc Flash / Arc Blast	4 x 4	16	Ensure LOTO SWP was carefully followed with LOTO correctly in place, All workers shall place locks on isolation point; Use scissor lock if required, Verify zero-energy using proper meter or voltage detector, Read arc flash warning and don appropriate PPE for incident energy at play	2 x 1	2
	Not understanding Zero Energy isolation process or requirement	4 x 5	20	Wait for Operations personnel to authorize de-energization of equipment, Complete correct authorization documents, Check SLD for isolation points, Area Authority / Operations to Authorize Energized Hot Work, Only authorized, trained personnel to perform task	2 x 2	4
	Incorrect Readings or Testing Results Can Lead to Arc Flash	4 x 4	16	Ensure training /certification is appropriate for task, Check certification date; DO NOT USE any meter that fails any of the prescribed tests, Complete function test of meter	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Flag Off Work Area Involved in Testing	Potential for Untrained, Unauthorized Personnel to Enter Hazardous Area	4 x 4	16	Be aware of surroundings and others; ensure all unauthorized personnel are kept clear of live test equipment, Ensure testing area all around MCC or switchgear is clear of personnel, Erect red flagging and attach tags with test information and contact information, Ensure testing areas on both ends of cable are flagged off, Attach tags explaining test and include contact information	2 x 1	2
Strip End of Cable To Be Tested Review E-02 Strip Wire & Cable	Flying Debris	3 x 3	9	Wear all required, appropriate PPE for task	2 x 1	2
	Pinch Points	3 x 3	9	Be aware of pinch points associated with use of hand tools, Identify pinch points	2 x 1	2
	Sharp Edges – Cuts/Lacerations	3 x 3	9	Use Caution - FOCUS; eyes and mind on task, Wear appropriate PPE (hand, eye, face), Ensure proper body positioning (line-of-fire) and solid footing, Use of traction control	2 x 1	2
Prepare For Megger Test Testing Equipment Checked	Improper Connections	3 x 3	9	Ensure meters have proper connections into meter terminals, undamaged insulation on leads, up to date calibration, and proper finger guards on test probes	2 x 1	2
	Incorrect Setting	3 x 3	9	Ensure proper setting on meter is used	2 x 1	2
	Meter Failure	3 x 3	9	Prior to meter use, confirm correct setting, Follow manufacturer's specifications for use of meter, Complete function test of meter, Only authorized, trained personnel to perform testing	2 x 1	2
	Faulty Equipment	3 x 3	9	Prior to test, isolate any damaged or defective equipment or cable	2 x 1	2
	Faulty Cable	3 x 3	9	Secure ends of cables and be sure to keep them far away from any objects / conductive surface	2 x 1	2
Complete All Meggar Tests Verify and record readings	Items or Issues Missed; Not Properly Documented	3 x 3	9	Quality Assurance / Quality Control Testing and Verification of installation, Review NETA ATS for proper voltages to use, and acceptable readings of test	1 x 1	1
	Unauthorized Personnel Entering Testing Area	4 x 4	16	Be aware of surroundings and others; ensure all unauthorized personnel are kept clear of live test equipment	2 x 1	2

Name: Hazard Assessment E-50 - Megger Testing
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Shock Hazard; Energized Test Leads	4 x 4	16	Connect current and voltage lead - use gloves, DO NOT TOUCH LIVE PART, Before connecting leads, ensure supply voltage is correct	2 x 2	4
Drain Residual Voltage From Equipment or Cables Remove lockout, if used	Lock Out / Tag Out SWP Not Followed	4 x 4	16	Ensure everyone is aware that locks are being removed, Inform relevant co-workers of Lock Out/Tag Out removal, Ensure LOTO removal SWP is followed to remove Lock and Tag Out, Where necessary, wait for Operations personnel to authorize re-energization of equipment		0
	Potential Electric Shock	4 x 4	16	Discharge equipment (all phases) after test, Ensure all appropriate / required PPE is worn for discharge	2 x 1	2
Remove Barricades and /or Flagging Null	Awkward Stance/Position/Posture	3 x 3	9	Pre-task stretching, Ensure proper body positioning (line-of-fire) and solid footing	2 x 1	2
	Dropping Tools /Materials to Ground Below	3 x 4	12	Tool lanyards used to safeguard against accidental drops, Wear appropriate PPE (hand, eye, arc flash)	2 x 1	2
	Sharp Edges – Cuts/Lacerations	3 x 4	12	Use Caution - FOCUS; eyes and mind on task, Wear all required / appropriate PPE for task	2 x 1	2
	Pinch Points	3 x 3	9	Be alert and aware of surroundings (wildlife, other vehicles, road conditions), Maintain proper body positioning	2 x 1	2
Inform Operations When Task Complete Close out Permit	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	1 x 1	1
	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	1 x 1	1

Name: Hazard Assessment E-50 - Megger Testing
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
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2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-51 - Moving Switchgear
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit from Client Complete Associated PJHA	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 4	16	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools correctly; review all appropriate SWP's, Ensure all appropriate / required PPE is worn - reassess per each task	2 x 1	2
	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 4	16	Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Ensure clear understanding of all assigned workers and workers in vicinity of the task and/or activity plan, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	2 x 1	2
Spot Switch Gear on Platform - Work with Forklift Operator - Ratchet Strap to Secure Gear to Forklift	Poor housekeeping; debris in/around task area	3 x 3	9	Survey to ensure all debris that could cause a slip, trip or fall has been removed, Ensure access and egress points are available at all times	2 x 1	2
	Incorrect PPE Worn	3 x 3	9	Ensure all appropriate / required PPE is worn - reassess per each task	2 x 1	2
	Poor Communication Within Crews	4 x 3	12	Pre-use inspection of forklift completed, Utilize spotter for ALL moves, Spotter must understand standard signals, positioning and techniques of proper signaling, Only qualified personnel operate forklift	2 x 1	2
	Misunderstanding Action To Occur	4 x 3	12	Ensure all personnel in area understand process of action to occur	2 x 2	4
	Falls/Slip/Trips	3 x 3	9	Ensure proper body and body parts positioning (line-of-fire) and solid footing, Use of traction control	2 x 1	2
	Property Damage (Unbalanced Gear Tips or Falls Over)	3 x 4	12	Install barricades and flag off work area, if required, Use Caution - FOCUS; eyes and mind on task, Secure equipment to prevent falls, Ensure proper loading SWP is followed to load forklift, Isolate any possibility of injury to surrounding personnel	2 x 2	4
	Pinch Points	3 x 4	12	Watch finger placement to avoid pinching/crushing, Keep extremities clear of pinch points	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Remove Ratchet Strap Securing Gear to Forklift - Gear Released from Forklift. - Forklift Backs away from Skid.	Equipment Failure (Straps, Cargo Net, Etc.)	3 x 4	12	Isolate any possibility of injury to surrounding personnel, Ensure proper use of ratchet strap	2 x 2	4
	Uncontrolled Movement of Gear	3 x 4	12	Ensure gear is sitting level / stable	2 x 2	4
	Operating Forklift in Close Quarters to Facilities, Equipment, Personnel	4 x 4	16	Communication with forklift operator, spotter and crew, Use agreed upon hand signals; spotter to maintain visual with equipment operators at all times	2 x 2	4
Move Gear (On Pallet) From Outside Platform to Inside Building Where gear arrives already secured to pallet, use pallet jack to move gear	Pinch Points	3 x 4	12	Watch finger placement to avoid pinching/crushing	2 x 2	4
	Property Damage (Unbalanced Gear Tips or Falls Over)	3 x 4	12	Where required, use a knowledgeable spotter, Be aware of surroundings and others	2 x 2	4
	Uneven Surfaces	3 x 4	12	Perform housekeeping;ensure floor areas are clear of debris, equipment, tools, etc.	2 x 1	2
	Awkward Stance/Position/Posture	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing	2 x 1	2
	Awkward heavy lifting, muscle strain	4 x 3	12	Pre-task stretching, Know your limits; obtain assistance from co-workers for heavy lifts	2 x 2	4
	Poor Communication	3 x 3	9	Ensure co-workers understand process of action to occur, Constant communication with all personnel involved and in immediate area	2 x 1	2
Place Gear on Rollers (If Required) 1) Place Jacks in Each Corner of Gear 2) Raise ONLY One Side (2 Corners) of gear at a Time 3) Use Jacks to Lift Gear Place rollers Under Gear Release Pressure from Jacks Rest Gear on rollers 4) Repeat for other side.	Pinch Points	3 x 4	12	Maintaing proper body positioning (line of fire) and footing, Wear all appropriate/required PPE	2 x 1	2
	Property Damage (Unbalanced Gear Tips or Falls Over)	3 x 4	12	Never Leave Jacks Unattended	2 x 1	2
	Uneven Surfaces	3 x 4	12	Ensure gear is sitting level / stable, Perform housekeeping;ensure floor areas are clear of debris, equipment, tools, etc.	2 x 1	2
	Poor housekeeping; debris in/around task area	3 x 3	9	Perform housekeeping;ensure floor areas are clear of debris, equipment, tools, etc.	2 x 1	2
	Awkward Stance/Position/Posture	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Awkward heavy lifting, muscle strain	3 x 3	9	Pre-task stretching, Get help for manual lifts and load placement	2 x 1	2
	Poor Communication	3 x 3	9	Constant communication with all personnel involved and in immediate area, Use Caution - FOCUS; eyes and mind on task	2 x 1	2
Repeat Step 4 Move Gear Into Building Carefully roll gear into building	Complacency - Lack of Review of Appropriate Safe Work Information	3 x 3	9	Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task	2 x 2	4
#1 Use of (Hydraulic Rams) for Final Placement of Gear Weld Angle Iron to Floor Refer to THA G-11	Pinch Points / Crush Type Injury	3 x 3	9	Maintain proper body positioning (line of fire) and footing, Wear proper PPE (eye, face, respirator)	2 x 1	2
	Equipment Malfunction	3 x 4	12	Pre-use inspection of hydraulic ram, Ensure correct /proper use of hydraulic ram	2 x 1	2
	Release of stored energy	3 x 3	9	Follow procedure, Be aware of possible stored energy	2 x 2	4
	Welding Flash	3 x 3	9	Get assistance for fire watch, PPE glasses	2 x 2	4
	Fumes	3 x 3	9	Wear proper PPE (eye, face, respirator)	2 x 1	2
	Flying Debris	3 x 3	9	PPE respirator , Mandatory PPE must be worn, including any additional site specific (face shield, hearing etc.)	2 x 1	2
	Uneven Surfaces	3 x 3	9	Perform housekeeping; ensure work area is clear of debris, equipment, tools, etc.	2 x 1	2
	Awkward Stance/Position/Posture	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing, Pre-task stretching	2 x 1	2
	Awkward heavy lifting, muscle strain	3 x 3	9	Pre-task stretching, Get help for manual lifts and load placement	2 x 1	2
	Poor Communication	3 x 3	9	Constant communication with all personnel involved and in immediate area, Flag / ribbon off non-entry zones	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Gear Correctly Positioned Remove Rams Clear Area, Grind Weld from Angle Iron, Refer to THA G-11, Remove from Floor/Area	Pinch Points	3 x 4	12	Maintain proper body positioning (line of fire) and footing, Wear all appropriate PPE in good condition	2 x 1	2
	Flying Debris	3 x 3	9	Review THA G-11 referencing grinding, Wear all appropriate PPE (hands, eye)	2 x 1	2
	Fire / Explosion	3 x 3	9	Get assistance for fire watch , Have fire extinguisher ready	2 x 1	2
	Fumes	3 x 3	9	Ventilate area	2 x 1	2
	Sharp Edges	3 x 4	12	Immediately file sharp edges after cuts made, Ensure all proper PPE is worn, Be aware of surroundings, equipment and others in vicinity, Ensure proper removal / disposal of angle iron and debris	2 x 2	4
	Equipment Malfunction	3 x 3	9	Ensure proper storage of hydraulic ram, Pre-use inspection	2 x 2	4
	Awkward Stance/Position/Posture	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing, Pre-task stretching	2 x 2	4
	Awkward heavy lifting, muscle strain	3 x 3	9	Pre-task stretching, Get help for manual lifts and load placement	2 x 2	4
	Poor Communication	3 x 3	9	Constant communication with all personnel involved and in immediate area	2 x 1	2
#2 Use of (Hoisting) for Final Placement of Gear Plan / Check All Aspects of Lift,- Prepare Equipment to be lifted.- Proper installation of Beam Clamp on Beam,- Attach chain hoist to beam clamp OR Highest structural point.	Awkward heavy lifting, muscle strain	3 x 3	9	Pre-task stretching, Know your limits; obtain assistance from co-workers for heavy lifts	2 x 2	4
	Poor Communication	4 x 3	12	Constant communication with all personnel involved and in immediate area	2 x 2	4
	Inadequate Clearance	3 x 4	12	Check for adequate clearance from top of equipment to chain hoist (Correct chain length)	2 x 1	2
	Pinch Points / Crush Type Injury	3 x 4	12	Constant communication with all personnel involved and in immediate area, Identify pinch points, Wear all appropriate / required PPE	2 x 2	4
	Cuts / Scrapes /Lacerations / Abrasions	3 x 4	12	Use proper knife - cut away from body, Be aware of position of hands (line-of-fire) , Review and follow SWP for knife use , Maintain proper body positioning (line-of-fire), Wear proper PPE	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Falls/Slip/Trips	4 x 3	12	Focus, eyes and mind on task, be aware of your surroundings	2 x 1	2
	Equipment Malfunction	3 x 4	12	Pre use inspection, Use equipment properly	2 x 2	4
	Chain hoists not secured correctly	3 x 4	12	Ensure training /certification is appropriate for task, Follow SWP for installation of beam clamp and hoist	2 x 2	4
	Awkward Stance/Position/Posture	4 x 3	12	Ensure proper body positioning (line-of-fire) and solid footing, Pre-task stretching	2 x 2	4
Prepare Equipment for Lift Prepare Landing Area for Equipment Attach Clevis & Sling & Chain Hoist to Highest Point Above Center of Gravity of Gear	Poor Communication	3 x 3	9	Areas flagged off, proper signage conspicuously placed, Constant communication with all personnel involved and in immediate area	2 x 1	2
	Pinch Points / Crush Type Injury	3 x 4	12	Constant communication with all personnel involved and in immediate area, Keep extremities clear of pinch points, Wear all appropriate/required PPE, Watch finger placement to avoid pinching/crushing	2 x 2	4
	Cuts / Scrapes /Lacerations / Abrasions	4 x 3	12	Focus; eyes and mind on task, maintain proper body positioning (line of fire) and footing, Wear all appropriate/required PPE	2 x 2	4
	Falls/Slip/Trips	3 x 3	9	Survey to ensure all debris that could cause a slip, trip or fall has been removed, Ensure access and egress points are available at all times	2 x 1	2
	Equipment Malfunction	3 x 4	12	Follow manufacturer's instructions to ensure safe operation, Prior to lift, inspect all tools & equipment	2 x 2	4
	Chain hoists not secured correctly	3 x 4	12	Follow SWP for proper installation of clevis & sling to gear, Ensure load ratings of crane or hoist are sufficient for load (clearly marked on equipment), Use proper rigging techniques; refer to Using Cranes & Hoists THA	2 x 2	4
	Awkward Stance/Position/Posture	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing, Stretching and proper body positioning	2 x 1	2
	Awkward heavy lifting, muscle strain	3 x 3	9	Get help for manual lifts and load placement, Use proper ergonomics	2 x 1	2
Lift Gear with Chain Hoist Ensure load rating of all equipment is correct	Gear in Motion	3 x 4	12	Tag line connected; ground crews assist to steady loads, Co-workers assist with stabilizing and securement of gear	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Potential Load Shift /Unstable Load	3 x 4	12	Constant communication with all personnel involved and in immediate area, Tag line connected; ground crews assist to steady loads	2 x 2	4
	Pinch Points / Crush Type Injury	4 x 3	12	Use Caution - FOCUS; eyes and mind on task, Identify pinch points, Wear all required / appropriate PPE for task	2 x 2	4
	Damage to Property/Tools	3 x 3	9	Ensure proper use of tools and equipment, Be aware of surroundings, tools, materials and others, Perform housekeeping; ensure work area is clear of debris, equipment, tools, etc.	2 x 1	2
	Tight Working Spaces	3 x 3	9	In tight congested areas use a spotter	2 x 2	4
	Awkward Stance/Position/Posture	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing	2 x 1	2
	Awkward heavy lifting, muscle strain	3 x 3	9	Get help for manual lifts and load placement	2 x 1	2
Remove Pallet(s) from Underneath Gear Use Caution working around suspended loads	Lifting Equipment Failure; Dropped Equipment	3 x 3	9	Ensure equipment is lifted/suspended at minimum height to safety remove pallets from underneath, Co-workers assist with stabilizing and securement of gear	2 x 2	4
	Pinch Points / Crush Type Injury	4 x 3	12	Identify pinch points, Use Caution - FOCUS; eyes and mind on task, Wear all appropriate/required PPE	2 x 2	4
	Damage to Property/Tools	3 x 3	9	Be aware of surroundings, others, and potential of exposed hazards	2 x 1	2
	Tight Working Spaces	3 x 3	9	Constant communication with all personnel involved and in immediate area, Ensure proper body positioning (line-of-fire) and solid footing	2 x 2	4
	Awkward Stance/Position/Posture	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing	2 x 1	2
	Awkward heavy lifting, muscle strain	3 x 3	9	Two people required to remove pallet(s) from underneath suspended gear, Take micro breaks as required to reduce strain/fatigue, Follow SWP for handling/lifting materials and equipment	2 x 1	2

Name: Hazard Assessment E-51 - Moving Switchgear
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Housekeeping	Poor housekeeping; debris in/around task area	4 x 3	12	Follow SWP's for safe lifting, handling of debris, tools, equipment, material, etc., Return equipment and tools to be stored away in safe, neat, orderly fashion, Clear floor or job/site area; properly dispose of debris, etc.	2 x 1	2
Inform Operations When Task Complete Close out Permit	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	1 x 1	1

Name: Hazard Assessment E-51 - Moving Switchgear
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

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4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-52 - Generator Change / Swap
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit from Client Complete Associated PJHA	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 4	16	Ensure clear understanding of all assigned workers of the task and/or permit, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	2 x 1	2
	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 4	16	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly; review all appropriate SWP's, Ensure all appropriate /required PPE is worn - reassess per each task, Ensure tools / equipment have current calibration certificates	2 x 1	2
Check Rotation /Voltage / Load Rating Ensure rotation of supplied equipment is pre-checked and recorded. Ensure supplied voltage and load rating is correct	Verified load rating not confirmed	4 x 4	16	Test voltage and amp draw to confirm operation, Confirm voltage and load rating of replaced generator is correct	2 x 1	2
	Incorrect Voltage Ratings	4 x 4	16	Use properly rated meter, correctly, Before connecting leads, ensure supply voltage is correct	2 x 1	2
	Proper Rotation Not Checked	4 x 4	16	Check current rotation of connected 3 phase equipment	2 x 1	2
	Potential Arc Flash	4 x 5	20	Ensure worker completing inspection or maintenance is competent/qualified, Wear required full arc flash appropriate for category of work	2 x 2	4
Ensure Isloation Lock Out (if / where Required) -Disconnect Battery -Lockout Fuel Supply	Not understanding Zero Energy isolation process or requirement	4 x 5	20	Ensure training /certification is appropriate for task, Be aware of possible stored energy	2 x 2	4
	Potential Arc Flash	4 x 5	20	Ensure LOTO SWP was carefully followed with LOTO correctly in place, Ensure Zero Energy Isolation completed on all potential hazards in immediate vicinity of penetration area, Wait for Operations personnel to authorize de-energization of equipment	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Disconnect Existing Generator	Falls from Heights	3 x 4	12	Use fall protection if working above 3m (6 ft), Do not use top two rungs, On ladders, always maintain 3 point contact	2 x 2	4
	Awkward Stance/Position/Posture	3 x 3	9	Maintain proper body positioning (line of fire) and footing, Pre-task stretching	2 x 1	2
	Scarring of cables	4 x 3	12	Ensure proper cable identification , Follow proper procedure	2 x 1	2
	Pinch Points	4 x 3	12	Be aware of pinch points associated with use of hand tools, Be aware of position of hands (line-of-fire) , Identify pinch points, Wear proper PPE (leather gloves)	2 x 2	4
Re-connect Generator Torque of Lugs - Verify correct equipment data	Incorrect Connections	4 x 4	16	Ensure connections are secure / tightened, Ensure proper connection on all aspect of loads, Quality Assurance / Quality Control Testing and Verification of installation	2 x 2	4
	Falls from Heights	3 x 4	12	Use fall protection if working above 3m (6 ft), Do not use top two rungs, On ladders, always maintain 3 point contact	2 x 2	4
	Awkward Stance/Position/Posture	3 x 3	9	Maintaing proper body positioning (line of fire) and footing	2 x 1	2
	Scarring of cables	3 x 3	9	Follow proper procedures, Check for cracked or broken clamps and ferrules, exposed strands, cuts and kinks to cable, jacket condition and bolts in clamp	2 x 1	2
	Pinch Points	4 x 3	12	Be aware of pinch points associated with use of hand tools, Be aware of position of hands (line-of-fire) , Identify pinch points, Wear proper PPE (leather gloves)	2 x 2	4
Remove Isolation Lock Removal - Remove lock from fuel supply -Re-Connect Battery	Fuel Leaks/Spills	3 x 3	9	Clean up spills as they happen, Proper spill kit for the task, Wear appropriate PPE and utilize proper handling techniques and as identified in MSDS	2 x 1	2
	Exposure to Battery Acid	3 x 3	9	Wear appropriate PPE and utilize proper handling techniques and as identified in MSDS	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Potential Arc Flash	4 x 4	16	Use proper rated meter correctly, Ensure LOTO removal SWP is followed to remove Lock and Tag Out, Wait for Operations personnel to authorize re-energization of equipment, Inform appropriate personnel of LOTO removal(s)	2 x 2	4
Start Generator Ensure generator maintenance checks are completed	Rotating Equipment	3 x 4	12	Be aware of surroundings, equipment and others in vicinity, Be aware of rotating equipment, Maintaing proper body positioning (line of fire) and footing	2 x 1	2
	Noise Exposure	3 x 2	6	Wear proper PPE (gloves, eye, ear protection)	2 x 1	2
	Potential For People Or Equipment To Not Be Prepared	4 x 3	12	Ensure crew members understand communication and action to occur, Follow manufacturer's instructions to ensure safe operation	2 x 2	4
	Loose Material and Debris	3 x 3	9	Clean up debris, tools, equipment from testing area	2 x 1	2
Site Commissioning Verify proper voltage and frequency - Verify proper rotation	Proper Rotation Not Checked	4 x 4	16	Check current rotation of connected 3 phase equipment	2 x 1	2
	Incorrect Load Rating	3 x 4	12	Test voltage and amp draw to confirm operation	2 x 2	4
	Incorrect Voltage Ratings	3 x 4	12	Test for proper voltages and safe operation, Follow Z-462 PPE guidelines for working on energized equipment	2 x 2	4
	Knowledge of Site Specific Equipment	3 x 3	9	Operation's knowledge of procedure, Quality Assurance / Quality Control Testing and Verification of installation	2 x 1	2
Inform Operations When Task Complete Close out Permit	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	2 x 1	2
	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	2 x 1	2

Name: Hazard Assessment E-52 - Generator Change / Swap
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-53 - Installing Strut
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit from Client Complete Associated PJHA	Idenfity All Existing Location Hazards	3 x 3	9	Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Review / discuss relevant JHA's with crew(s), Review emergencey response plan, Review all hazards involved to do the job, as outlined,, Wear appropriate PPE (in good condition)	2 x 1	2
Cut Strut To Required Lengths	Pinch Points	3 x 3	9	Maintain proper body positioning (line-of-fire), Be aware of surroundings, equipment and others in vicinity, Be aware of pinch points associated with use of hand tools, Identify pinch points	2 x 1	2
	Incorrect PPE Worn	3 x 3	9	Ensure all required PPE is worn (hand, eye, face shield)	2 x 1	2
	Flying Debris	3 x 3	9	Perform housekeeping; ensure work area is clear of debris, equipment, tools, etc., Wear appropriate PPE (in good condition)	2 x 1	2
	Damage to Property/Tools	3 x 2	6	Be aware of surroundings, equipment and others in vicinity	2 x 1	2
	Sharp Edges – Cuts/Lacerations	3 x 3	9	Secure strut prior to cutting and prior to drilling pilot holes for mounting strut, File all sharp edges off strut prior to handling, Inspect all tools, ensure guards are in place	2 x 1	2
Mount Strut	Muscle Strain	3 x 3	9	Pre-task stretching	2 x 1	2
	Awkward Stance/Position/Posture	3 x 3	9	Maintain proper body positioning (line-of-fire)	2 x 1	2
	Falls from Heights	3 x 3	9	Use Caution - FOCUS; eyes and mind on task , Be aware of surroundings and others, Follow SWP for working at heights, Follow SWP for ladder use (maintain 3 pt. contact), Inspect ladders and scaffolding prior to use	2 x 1	2
	Dropping Tools /Materials to Ground Below	3 x 3	9	Tool lanyards used to safeguard against accidental drops, Use Caution - FOCUS; eyes and mind on task	2 x 1	2
	Damage to Property/Tools	3 x 2	6	Be aware of surroundings, equipment and others in vicinity	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Sharp Edges – Cuts/Lacerations	3 x 3	9	File all sharp edges off strut prior to handling, Ensure all appropriate/required PPE is worn	2 x 1	2
	Pinch Points	3 x 3	9	Be aware of surroundings, equipment and others in vicinity, Be aware of pinch points associated with use of hand tools, Identify pinch points, Wear appropriate PPE (in good condition)	2 x 1	2
	Stress - Fatigue	3 x 2	6	Take micro-breaks, stretch out muscles	2 x 1	2
	Loose Material and Debris	3 x 2	6	Ensure all parts are secured and stable during installation, Tighten and torque bolted connections	2 x 1	2
Housekeeping	Stress - Fatigue	3 x 3	9	Take micro breaks; stretch to improve circulation	2 x 1	2
	Muscle Strain	3 x 2	6	Use proper lifting & handling techniques, Pre-task stretching	2 x 1	2
	Awkward Stance/Position/Posture	3 x 3	9	Maintain proper body positioning (line-of-fire)	2 x 1	2
	Falls/Slip/Trips	3 x 3	9	Use of traction control when required, Maintain proper body positioning (line-of-fire)	2 x 1	2
	Uneven Surfaces	3 x 2	6	Clear area of debris, material, equipment, tools, Plan your route, Be aware of surroundings and others	2 x 1	2
	Sharp Edges – Cuts/Lacerations	3 x 3	9	Focus; eyes and mind on task	2 x 1	2
	Pinch Points	3 x 3	9	Keep extremities clear of pinch points, Wear appropriate PPE (in good condition)	2 x 1	2
Inform Operations When Task Complete Close out Permit	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	1 x 1	1

Name: Hazard Assessment E-53 - Installing Strut
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-54 Cable Identification For Demolition
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain permit from client Complete Associated PJHA	Identify All Existing & Potential Location and Work Site Hazards	4 x 4	16	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Ensure all appropriate / required PPE is worn - reassess per each task	2 x 1	2
	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 4	16	Ensure clear understanding of all assigned workers of the task and/or permit, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope, Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task	2 x 1	2
Identifying Cable	Pinch Points / Crush Type Injury	3 x 3	9	Be aware of surroundings and coworkers; NEVER point a tool at anyone/body/parts, Be aware of pinch points associated with use of hand tools, Identify pinch points, Maintain proper body positioning (line of fire) and footing	2 x 1	2
	Unsure of site layout	3 x 2	6	Inspect work areas before work begins, Advise Operations of any hazards not listed on permit, observed during tour / inspection	2 x 1	2
	Uneven Surfaces	3 x 3	9		2 x 1	2
	Falls/Slip/Trips	3 x 3	9	Follow SWP for ladder use (maintain 3 pt. contact), Use of traction control	2 x 1	2
	Incorrect Cable	4 x 5	20	Have second competent worker verify correct cable to be cut, Ensure proper cable identification	2 x 2	4
Lock Out / Tag Out	Lock Out / Tag Out SWP Not Followed	4 x 5	20	Mandatory to follow Lock Out/Tag Out practice, Ensure LOTO SWP was carefully followed with LOTO correctly in place	2 x 2	4
	Potential Arc Flash	4 x 5	20	Test before you touch, use multimeter, check wiring diagrams, Follow Z-462 PPE guidelines for working on energized equipment	2 x 2	4
Cut Cable	Incorrect Cable	3 x 4	12	Have second competent worker verify correct cable to be cut	2 x 1	2

Name: Hazard Assessment E-54 Cable Identification For Demolition
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Potential Energy	3 x 3	9	Verify LO/TO , Point-to-point test and install visual aid	2 x 1	2
	Cuts / Scrapes /Lacerations / Abrasions	4 x 3	12	Use correct tool for each job, Pre-inspect hydraulic cutter for proper working operation, Ensure proper body/body part positioning (line of fire) during cut; out of path of potential kick back	2 x 2	4
	Falls/Slip/Trips	4 x 4	16	Follow ladder use SWP; select proper ladder for task, Check to see if there are any obstacles that might cause a trip or fall around work area	2 x 2	4
Inform Operations When Task Complete Housekeeping, - Close out Permit	Poor housekeeping; debris in/around task area	3 x 3	9	Follow SWP's for safe lifting, handling of debris, tools, equipment, material, etc., Return equipment and tools to be stored away in safe, neat, orderly fashion, Perform housekeeping; ensure work area is clear of debris, equipment, tools, etc.	2 x 1	2
	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	1 x 1	1

Name: Hazard Assessment E-54 Cable Identification For Demolition
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-56 - Working in Live PLC or RTU Panel
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit from Client Complete Associated PJHA, - Monitor atmosphere	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 4	16	Ensure clear understanding of all assigned workers of the task and/or permit, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Ensure all work planned is documented on required permit(s); perform ONLY work Identified by permit, Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	2 x 1	2
	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 4	16	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly; review all appropriate SWP's, Ensure all appropriate /required PPE is worn - reassess per each task, Ensure tools / equipment have current calibration certificates	2 x 1	2
Review panel IFC or As-built drawings and shutdown key before starting Review ISO schematics for new connection points available	Significant process upsets that can cause a site or plant shut down	4 x 4	16	Ensure training /certification is appropriate for task, Read drawings carefully, Verify terminal numbers and wire tagging	2 x 1	2
Working in Live Process Panel Note the status of the panel and process equipment being controlled before maintenance begins i.e. valve positions, motor and pump status, etc.	Tripping of Power Supply	3 x 3	9	Implement plan to apply all possible means of temporary protection to guard open, energized equipment	2 x 1	2
	Significant process upsets that can cause a site or plant shut down	3 x 3	9	Clear communication with operations, If necessary, have operations monitor process conditions while alarms bypassed and / or arrange for a safety watch, Ensure all personnel in area understand process of action to occur	2 x 1	2
	Lack of experience or knowledge of task	3 x 5	15	Only authorized, trained personnel to perform testing, Focus, eyes and mind on task, be aware of your surroundings	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Confirm Panel Voltages Caution more than one power supply (maybe) present	Live Parts, Potential Electric Shock	3 x 4	12	Complete authorization form for Energized Electrical Work, Use properly rated meter to check voltage, Review current drawings and associated schematics for all power sources, Review THA E-21 Testing Circuits <750 Volts	2 x 1	2
Drilling into Cabinets Install Connectors and Wiring into Cabinets, - Housekeeping to be done	Drilling Through / Into Cabinet Walls	3 x 4	12	Review THA E-10 Use of drill and drilling	2 x 2	4
	Stripping / Cutting Cable	3 x 3	9	Review THA E-02 Strip wire and cable	2 x 2	4
	Poor housekeeping; debris in/around task area	3 x 2	6	Practice extremely diligent housekeeping	2 x 1	2
Ensure Connection Point is De-Energized Pull fuses or Open mini-breaker, - Ensure correct point is used for terminations	Potential Shutdown	3 x 3	9	Verify terminations, Verify supply voltage prior to connecting leads	2 x 1	2
	Incorrect Connections	3 x 3	9	Follow instructions on THA E-09 Terminating, Verify terminal numbers and wire tagging, Wait for Operations personnel to authorize de-energization of equipment	2 x 1	2
Test new wiring and End Device Meter to confirm proper installation and operation, - Replace fuse and Put Device into Service, - Verify proper operation of new device	Lack of Training in Equipment's Operation	3 x 3	9	Ensure training /certification is appropriate for task, Ensure worker completing inspection or maintenance is competent/qualified, Where necessary, wait for Operations personnel to authorize re-energization of equipment	2 x 1	2
	Failure to Test Equipment	3 x 3	9	Tag wires from print as they are terminated, Refer to THA E-30 Commissioning, Quality Assurance / Quality Control Testing and Verification of installation, Go through pre-energization checks for fuse sizes, continuity, shorts to ground and shorts to other fuse terminals	2 x 1	2
Inform Operations When Task Complete Close out Permit	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	1 x 1	1

Name: Hazard Assessment E-56 - Working in Live PLC or RTU Panel
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-59 - Installing Ground Plates
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit Complete all associated PJHA's	Not Identifying all Existing & Potential Location and Work Site Hazards	5 x 5	25	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Ensure all appropriate / required PPE is worn - reassess per each task , Use tools and materials properly rated for the task	2 x 2	4
	Not Having Clear Understanding Of Scope of JHA Or Permit	5 x 5	25	Ensure clear understanding of all assigned workers and workers in vicinity of the task and/or activity plan, Review all related / relevant Safe Work Practices (SWP's) associated or involved with this task, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	2 x 2	4
Obtain Ground Disturbance Permit Scan area for all hazards, check plans for site services	Untrained / Uncertified Personnel	4 x 4	16	Ensure training /certification is appropriate for task	2 x 2	4
	Location Of Underground Utilities	5 x 5	25	Review current drawings and associated schematics for accurate locations of underground utilities, Clear communication with permit issuer	3 x 2	6
	Explosive Atmosphere	3 x 5	15	Personal monitor turned on - calibrated, bump-tested, recorded with fully charged batteries, Continuous gas monitoring, Establish ERP and evacuation routes	3 x 2	6
Mark Out Location for Ground Plate Hole Mark location with stakes or paint	Potential Exposure To Aerosol Spray (Inhalation, Ingestion, Dermal Contact)	3 x 2	6	Ensure all appropriate/required PPE is worn, Stay upwind of spray, Review appropriate MSDS, where required	2 x 1	2
	Pinch Points	3 x 3	9	Be aware of pinch points associated with use of hand tools, Identify pinch points	2 x 2	4
	Uneven, Slippery Ground Surfaces	4 x 3	12	Use caution when walking; ensure proper footing	2 x 2	4
Remove Top Layer of Soil with Shovel Hand dig	Repetitive movement	3 x 3	9	Take micro breaks; stretch to improve circulation	2 x 2	4
	Other People/Workers In Area	3 x 2	6	Ensure good communication between workers	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Open trench	4 x 3	12	Install barricades and flag off work area, if required, Focus; eyes and mind on task, maintain proper body positioning (line of fire) and footing	2 x 2	4
Break up Compact Ground Use of pick-axe and or jack hammer	Fatigue from repetitive tasks or working in same position for extended periods	4 x 3	12	Take micro-breaks, stretch out muscles and improve circulation and focus	2 x 2	4
	Awkward heavy lifting, muscle strain	4 x 3	12	Stretch prior to performing heavy, awkward lifts, Know your limits; utilize additional workers as required	2 x 2	4
	Working With Power Tools	4 x 3	12	Ensure proper use of tools and equipment, Perform pre-use inspection of power tools, Hearing Protection	2 x 2	4
	Flying Debris	4 x 3	12	Ensure all appropriate PPE is worn (hand, eye, face, hearing) must be in good condition	2 x 2	4
Prepare Ground Wire and Ground Plate Strip wire and attach to ground plate, lay in hole	Stripping / Cutting Cable	4 x 3	12	Follow SWP for knife use; cut away from body, Review THA E-02 Strip wire and cable	2 x 2	4
	Uncontrolled Movement of Material, Equipment, Tools	4 x 3	12	Ensure connections are secure / tightened, Use proper tools (eliminate slippage)	2 x 2	4
	Uneven Surfaces	3 x 3	9	Ensure proper body and body parts positioning (line-of-fire) and solid footing	2 x 2	4
Back-fill Hole Proper compaction required, Housekeeping	Fatigue; performing repetitive tasks in same ergonomic position	4 x 3	12	Take micro-breaks, stretch out muscles and improve circulation and focus	2 x 2	4
	Uneven Surfaces	3 x 3	9	Use caution when walking; ensure proper footing	2 x 2	4
	Other People/Workers In Area	3 x 3	9	Be aware of surroundings, equipment and others in vicinity	2 x 2	4
	Poor housekeeping; debris in/around task area	3 x 3	9	Perform housekeeping; ensure work area is clear of debris, equipment, tools, etc.	2 x 2	4

Name: Hazard Assessment E-59 - Installing Ground Plates
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Inform Operations When Task Complete Close out permit	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	2 x 1	2

Name: Hazard Assessment E-59 - Installing Ground Plates
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-60 Replacement and Installing Batteries on Well-site
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit from Client Hold Toolbox Meeting, Complete Associated PJHA	Identify all hazards & potential hazards	2 x 1	2	Review any customer procedures and any other associated with the job or facility	1 x 1	1
Remove Battery Terminal Covers	Contact With Corrosive Acid	3 x 4	12	Maintain proper body positioning (line-of-fire), Wear proper, requied PPE (gloves), Focus; eyes and mind on task	1 x 1	1
	Pinch Points	3 x 3	9	Maintain proper body positioning (line of fire) and footing, Identify pinch points, Wear all appropriate/required PPE	1 x 1	1
	Potential Electrical Shock	3 x 3	9	Ensure all appropriate/required PPE is worn, Review all appropriate safe work practices (SWP's) associated or involved with this task	1 x 1	1
Confirm Voltage of system and batteries - Check name plates - Take note how the old batteries are configured and hooked up	Potential Electrical Shock	3 x 3	9	Ensure all appropriate/required PPE is worn, Review all appropriate safe work practices (SWP's) associated or involved with this task	1 x 1	1
	Muscle Strain	3 x 3	9	Use proper lifting techniques, Maintain proper body positioning (line-of-fire), Know your limits, obtain assistance from co-workers for heavy lifts, Ensure all appropriate/required PPE is worn	1 x 1	1
	Contact With Corrosive Acid	3 x 3	9	Ensure all appropriate/required PPE is worn, Follow installation procedure from manufacturer	1 x 1	1
	Pinch Points	3 x 3	9	Maintain proper body positioning (line of fire) and footing, Keep extremities clear of pinch points	1 x 1	1
Replace / Install new batteries	Back & muscle strain	3 x 3	9	Use proper lifting techniques, Maintain proper body positioning (line-of-fire), Know your limits, obtain assistance from co-workers for heavy lifts	1 x 1	1
	Contact With Corrosive Acid	3 x 3	9	Ensure all appropriate/required PPE is worn	1 x 1	1
	Pinch Points	3 x 3	9	Maintain proper body positioning (line of fire) and footing, Ensure all appropriate/required PPE is worn	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Potential Electrical Shock	3 x 3	9	Review all appropriate safe work practices (SWP's) associated or involved with this task, Ensure all appropriate/required PPE is worn	1 x 1	1
Test to ensure correct battery voltage is obtained (12 V vs 24 V)	Potential Electrical Shock	3 x 3	9	Follow manufacturer's wiring diagram and schematics to ensure proper connections, Ensure all appropriate/required PPE is worn	1 x 1	1
Reinstall battery terminal covers	Potential Electrical Shock	3 x 3	9	Follow manufacturer's wiring diagram and schematics to ensure proper connections, Ensure all appropriate/required PPE is worn	1 x 1	1
	Contact With Corrosive Acid	3 x 3	9	Ensure all appropriate/required PPE is worn	1 x 1	1
Re-energize system – verify voltage and current from batteries	ESD Facility	3 x 4	12	Use correct test meters properly, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	1 x 1	1
	Pinch Points	3 x 3	9	Maintain proper body positioning (line of fire) and footing, Ensure all appropriate/required PPE is worn	1 x 1	1
	Arc, Sparks, Shorts	3 x 3	9	Use correct test meters properly, Use Caution - FOCUS; eyes and mind on task	1 x 1	1
	Potential Electrical Shock	3 x 3	9	Use correct test meters properly, Ensure all appropriate/required PPE is worn	1 x 1	1
Verify solar voltages (open and closed fused)	Pinch Points	3 x 3	9	Maintain proper body positioning (line of fire) and footing, Ensure all appropriate/required PPE is worn	1 x 1	1
	Arc, Sparks, Shorts	3 x 3	9	Use Caution - FOCUS; eyes and mind on task, Ensure all appropriate/required PPE is worn	1 x 1	1
	Potential Electric Shock	3 x 3	9	Use Caution - FOCUS; eyes and mind on task, Use correct test meters properly	1 x 1	1
Close fuses to solar – check charging current	Pinch Points	3 x 3	9	Maintain proper body positioning (line of fire) and footing, Ensure all appropriate/required PPE is worn	1 x 1	1
	Arc, Sparks, Shorts	3 x 3	9	Use correct test meters properly, Ensure all appropriate/required PPE is worn	1 x 1	1
	Potential Electric Shock	3 x 3	9	Use correct test meters properly, Ensure all appropriate/required PPE is worn	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Complete appropriate QA/QC documentation	Repetitive movement	2 x 2	4	Maintain proper body positioning	1 x 1	1

Name: Hazard Assessment E-60 Replacement and Installing Batteries on Well-site
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
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2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-61 - Well Site Install
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Driving Driving from shop to site, and return from site	Changing Weather or Road Conditions	3 x 4	12	Check weather forecast and road conditions, Drive to the conditions not the speed limit	2 x 2	4
	Obstacles, Debris, Etc. In Immediate Vicinity (Beside, Under, Behind, Ahead)	3 x 3	9	Be aware of surroundings, others, and potential of exposed hazards	2 x 2	4
	Improper Weight Distribution on Vehicle or Trailer	3 x 4	12	Check loaded material to ensure straps are tight so nothing can come loose and fly out of or off of truck	2 x 2	4
	Associated Vehicle Hazards (Equipment Breakdown or Failure)	3 x 4	12	Ensure proper, current maintenance of equipment	2 x 2	4
	Potential Traffic Collision with Other Vehicles or Workers (Pedestrians)	4 x 4	16	360 degree awareness - surroundings, other, etc.	2 x 2	4
	Wildlife	3 x 3	9	Monitor sides of roads for wildlife; watch ditches and stay attentive at all times, Use horn to startle animals to run away from sound	2 x 2	4
	Fatigue; Loss of focus /attention	3 x 4	12	Ensure adherence to Fit For Duty SWP	2 x 2	4
Obtain Permit Receive permit from client for work to be conducted	Poor Communication	3 x 3	9	Clear communication with permit issuer	2 x 2	4
	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 3	12	Review all hazards involved to do the job, as outlined, Review any customer procedures and any other associated with the job or facility	2 x 2	4
Pre Job Safety Meeting Pre Job Meeting to discuss hazads	Not Identifying all Existing & Potential Location and Work Site Hazards	3 x 3	9	Visual check of location hazards	2 x 2	4
	Changing Conditions or Work Environment	3 x 3	9	Continually re-assess workplace to identify, control or eliminate all hazards	2 x 2	4
Unload Material and Tools	Heavy lifting	3 x 3	9	Practice proper lifting tecniques (use legs), Know your limits; obtain assistance from co-workers for heavy lifts	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Falls/Slip/Trips	3 x 3	9	Focus, eyes and mind on task, be aware of your surroundings	2 x 2	4
	Other People/Workers In Area	3 x 3	9	Ensure good communication between workers	2 x 2	4
Use of Manlift	Uneven Surfaces	3 x 3	9	Check site & work area closely for ground condition, obstacles, clearances, etc.	2 x 2	4
	Wind Conditions and Direction	3 x 3	9	Monitor changing weather / conditions paying close attention to wind and lightening strikes	2 x 2	4
	Congested Work Area	3 x 3	9	Use spotters; verify proper signals used, Good Communication	2 x 2	4
	Use of Equipment	4 x 4	16	Ensure all required inspections have been successfully completed, submitted, recorded and retained	2 x 2	4
Pull out cables	Pinch Points	3 x 3	9	Ensure proper body and body parts positioning (line-of-fire) and solid footing, Identify pinch points	2 x 2	4
	Falls/Slip/Trips	3 x 3	9	Be aware of surroundings, watch your step	2 x 2	4
	Potential Exposure to Hazardous Atmosphere	3 x 3	9	Exposure Monitoring/Surveillance	2 x 2	4
	Other People/Workers In Area	3 x 3	9	Ensure good communication between workers	2 x 2	4
	Heavy lifting	3 x 3	9	Pre-task stretching, Use proper lifting techniques, Maintain proper body positioning (line-of-fire)	2 x 2	4
Mount VFD	Heavy lifting	3 x 3	9	Use proper lifting techniques, Maintain proper body positioning (line-of-fire), Pre-task stretching	2 x 2	4
	Pinch Points	3 x 3	9	Identify pinch points, Focus, eyes and mind on task, be aware of your surroundings	2 x 2	4
	Congested Work Area	3 x 3	9	Use spotters; verify proper signals used, Good Communication	2 x 2	4
	Welding & grinding	3 x 3	9	Maintain communication with welder	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Cut in Cables Cut in cables to VFD cabinet	Awkward Stance/Position/Posture	3 x 3	9	Maintain proper body positioning (line of fire) and footing, Pre-task stretching	2 x 2	4
	Pinch Points	3 x 3	9	Maintain proper body positioning (line of fire) and footing, Identify pinch points	2 x 2	4
	Cuts / Scrapes /Lacerations / Abrasions	3 x 3	9	Wear approved ANSI cut level 5 resistant gloves	2 x 2	4
Ty Wrap Ty wrap cables	Pinch Points	3 x 3	9	Maintain proper body positioning (line of fire) and footing, Identify pinch points	2 x 2	4
	Cuts / Scrapes /Lacerations / Abrasions	3 x 3	9	Wear approved ANSI cut level 5 resistant gloves	2 x 2	4
Grounding Ground electrical components	Cuts / Scrapes /Lacerations / Abrasions	3 x 3	9	Wear approved ANSI cut level 5 resistant gloves	2 x 2	4
	Falling Debris / Slag	3 x 3	9	Ensure all appropriate PPE is worn (hand, eye, face, hearing) must be in good condition	2 x 2	4
Heat Trace Install Heat Trace	Awkward Stance/Position/Posture	3 x 3	9	Maintain proper body positioning (line of fire) and footing, Pre-task stretching	2 x 2	4
	Repetitive movement	3 x 3	9	Take micro breaks as required to reduce strain/fatigue, Alternate body positioning frequently throughout the task	2 x 2	4
	Uneven Surfaces	3 x 3	9	Focus, eyes and mind on task, be aware of your surroundings	2 x 2	4
Enviro Traps Install Enviro Traps	Live Site	3 x 3	9	Continuous gas monitoring where power threaders used in Hot areas	2 x 2	4
	Pinch Points	3 x 3	9	Focus, eyes and mind on task, be aware of your surroundings, Identify pinch points	2 x 2	4
Energize Site Turn on Power and test voltage	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels	2 x 2	4
	Live Parts; Potential Electrical Shock	3 x 3	9	Test before you touch, use multimeter, check wiring diagrams	2 x 2	4

Name: Hazard Assessment E-61 - Well Site Install
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

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2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-62 - Junction Box Replacement
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Loading and securing of materials	Unsecure Loads	4 x 5	20	Secure load with ratchet straps, Stop, re-test load securement a few km's out, All loads carefully checked for proper securement	1 x 2	2
	Awkward heavy lifting, muscle strain	3 x 4	12	Use proper lifting techniques, Use two people to load tray, Focus; eyes and mind on task, Be aware of surroundings, watch your step, Reduce distance of carry/lift, Ensure clear pathway while lifting / carrying	2 x 2	4
	Pinch Points	3 x 5	15	Ensure proper body and extremities positioning (line of fire), Wear proper, required PPE (gloves)	2 x 2	4
Drive to Site May include hooking up trailer, loading material	Driving Vehicle	3 x 5	15	Driver defensively; always maintain space cushion	3 x 1	3
	Wildlife	3 x 5	15	Be alert and aware of surroundings (wildlife, other vehicles, road conditions)	2 x 1	2
Receive Work Permit Null	Not Obtaining Permit	3 x 4	12	Perform ONLY work identified by permit	2 x 3	6
	Poor Communication	3 x 4	12	Ensure good communication between workers	2 x 1	2
	Lack Of Complete Clear Communication	3 x 5	15	Ensure clear understanding of all assigned workers of the task and/or permit, Clear communication with permit issuer	2 x 2	4
Complete Pre-Job Hazard Assessment	Risk Assessment Not Completed	4 x 5	20	Review THA and review hazards associated with job	2 x 1	2
	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 5	20	Review all steps and related hazards	2 x 1	2
Locate junction box to be replaced Identify size of junction box	Sharp Edges – Cuts/Lacerations	3 x 2	6	Wear gloves and all appropriate PPE	1 x 1	1
	Falls from Heights	3 x 4	12	Use correct ladder for task, Visual check of ladder to ensure integrity, Follow all ladder safety practices	2 x 1	2
	Live Parts; Potential Electrical Shock	4 x 5	20	Use non-conductive voltage detector and hot stick to verify zero-energy presence while verifying proper detector operation	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Potential Shutdown	3 x 5	15	Review current drawings and associated schematics for all power sources, Use non-conductive voltage detector and hot stick to verify zero-energy presence while verifying proper detector operation, Correctly follow LOTO safe practice	2 x 1	2
Identify Circuits/Voltages	Equipment or wiring mislabeled	3 x 5	15	Verify and test circuits	2 x 1	2
Identify Alarms & Faults Null	Potential Shutdown	3 x 5	15	Verify and test circuits	2 x 1	2
Identify Bypass in Place	Potential Shutdown	4 x 5	20	Use non-conductive voltage detector and hot stick to verify zero-energy presence while verifying proper detector operation, Good Communication	2 x 2	4
Document Terminations, Junction Box Number and Location	Poor Communication	4 x 5	20	Review current drawings and associated schematics for all power sources, Good Communication, Updated & Accurate Drawings and Shutdown Key	1 x 1	1
Remove Terminations, cables, and connectors	Pinch Points / Crush Type Injury	4 x 3	12	Ensure proper body and extremities positioning (line of fire)	2 x 1	2
	Property Damage	4 x 5	20	Check circuits are de-energized; use meter rated for measuring voltages	2 x 1	2
	Arc Flash /Electrocution	4 x 5	20	Wear proper PPE and Arc Flash gear, Check circuits are de-energized; use meter rated for measuring voltages	1 x 1	1
Remove Junction Box	Property Damage	3 x 3	9	Follow material handling SWP for proper lifting, obtain assistance when necessary	2 x 1	2
	Pinch Points / Crush Type Injury	3 x 3	9	Maintain proper body positioning (line of fire) and footing	2 x 1	2
Install Junction Box & Supports	Pinch Points	3 x 4	12	Maintain proper body positioning (line of fire) and footing	2 x 1	2
	Muscle Strain	3 x 2	6	Maintain proper body positioning , Pre-task stretching	2 x 1	2
	Potential Exposure to Hazardous Atmosphere	3 x 5	15	Continuous gas monitoring	2 x 1	2

Name: Hazard Assessment E-62 - Junction Box Replacement
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Property Damage	3 x 3	9	Maintain proper body positioning (line of fire) and footing, Follow material handling SWP for proper lifting, obtain assistance when necessary	2 x 1	2
Gland & Terminate Cables, Bond Junction Box & Cables	Pinch Points / Crush Type Injury	3 x 4	12	Maintain proper body positioning (line of fire) and footing	2 x 1	2
	Repetitive movement	3 x 3	9	Use micro breaks to stretch out muscles	2 x 1	2
	Laceration From Incorrect Knife Use	3 x 4	12	Gloves (Kevlar), Proper hand placement (line-of-fire)	2 x 1	2
	Poor Communication	3 x 4	12		2 x 1	2
Energize Equipment & Place Back into Service	Unexpected energization of unrelated equipment	3 x 5	15	Verify and test circuits, Test for proper voltages and safe operation	3 x 1	3
	Poor Communication	3 x 4	12	Ensure crew members understand communication and action to occur	2 x 1	2
	Equipment Damage	3 x 4	12	Good Communication, Be aware of surroundings, others, and potential of exposed hazards	2 x 1	2

Name: Hazard Assessment E-62 - Junction Box Replacement
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

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1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-63 - Testing Circuits< 750 Volts to Confirm Zero Energy
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit from Client Complete all Associated PJHA's	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 5	20		1 x 1	1
	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 5	20	Review all related / relevant Safe Work Practices (SWP's) associated or involved with this task, Ensure clear understanding of task / permit of all assigned workers, Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	1 x 1	1
Before Use, Conduct Meter Inspection	Incorrect Readings or Testing Results Can Lead to Arc Flash	4 x 5	20	Ensure training /certification is appropriate for task, Review practice for pre-use test of meters, Check certification date; DO NOT USE any meter that fails any of the prescribed tests, Complete function test of meter	2 x 1	2
Don All Required PPE Follow Arc Flash Safe Work Practice	Faulty Equipment	4 x 4	16	Ensure meters have proper connections into meter terminals, undamaged insulation on leads, up to date calibration, and proper finger guards on test probes, Any equipment found faulty, pulled from service and tagged, Review appropriate SWP's for tool(s) and equipment to be used	2 x 1	2
	PPE in Poor Condition	4 x 4	16	Ensure all Arc Flash PPE is in good condition , Ensure FR coveralls are clean and in good condition, Follow Equipment Label or Z-462 Tables for Shock Approach Boundaries and PPE guidelines for working on energized equipment	2 x 1	2
Isolate Energy Source Example - breaker, disconnect	Faulty Equipment	2 x 4	8	Wear proper PPE and Arc Flash gear	2 x 2	4
	Line of Fire	3 x 4	12	Ensure proper body positioning (line-of-fire) to use tools correctly, Mandatory donning of Arc Flash suit, face shield, gloves (per required Cal rating); in good condition	3 x 2	6
	Equipment or wiring mislabeled	3 x 3	9	Review of single line schematics, communicate with operations	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Not following LOTO Procedure to Ensure Zero energy is Maintained during task	3 x 4	12	Correctly follow LOTO safe practice	3 x 2	6
Bump Test Equipment Bump test - attempt to power on equipment locked out on previous step; ex. - start button, hand off auto, forward /reverse buttons. Look for visual indicators equipment is de-energized and isolated	Rotating or Moving Equipment	3 x 4	12	Maintain proper body positioning (line of fire) and footing, Maintain communication with all other trades in same area, Safety watch	2 x 2	4
	Energized Equipment	3 x 4	12	Ensure proper body and extremities positioning (line of fire)	3 x 2	6
Set Meter to Take Appropriate Readings	Incorrect Voltage Ratings	4 x 5	20	Ensure worker completing inspection or maintenance is competent/qualified, Review current drawings and associated schematics for all power sources	2 x 2	4
	Incorrect Setting	4 x 4	16	Prior to meter use, confirm correct setting, Follow manufacturer's specifications for use of meter	2 x 1	2
Confirm Leads are in Correct Location for Test to be Performed	Improper Connections	4 x 5	20	Ensure meters have proper connections into meter terminals, undamaged insulation on leads, up to date calibration, and proper finger guards on test probes, Training/Education	2 x 1	2
Phase to Ground Test Place One Lead to Ground of Equipment, Second Lead to Phase A, Repeat For Each Phase Confirm Zero Energy	Potential Arc Flash	4 x 5	20	Be aware of surroundings and others, Use caution - Focus; eyes and mind on task, Read arc flash warning and don appropriate PPE for incident energy at play, Be aware of hand placement (line-of-fire)	2 x 2	4
	Meter Failure	3 x 5	15	Wear all appropriate/required PPE, Ensure tools /equipment have current calibration certificates	2 x 2	4
	Electricity, Electrical Shock	4 x 4	16	When conducting electrical test, have ground test point positioned as far away from live test point as possible, Ensure proper body positioning (line-of-fire) solid footing and safe distance from live part	2 x 2	4

Name: Hazard Assessment E-63 - Testing Circuits< 750 Volts to Confirm Zero Energy
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Phase to Phase Test Conduct test A to B, B to C and C to A - Confirm Zero Energy	Meter Failure	3 x 5	15	Wear all appropriate/required PPE, Ensure tools /equipment have current calibration certificates, Use properly rated meter correctly	2 x 2	4
	Electricity, Electrical Shock	4 x 5	20	Be aware of surroundings and others; ensure all unauthorized personnel are kept clear of live test equipment	2 x 2	4
	Potential Arc Flash	4 x 5	20	Be aware of surroundings and others, Use caution - Focus; eyes and mind on task	2 x 2	4
Contact Operations and Advise Job is Complete or Use Working Alone Policy Close out permit	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	1 x 1	1
	Poor Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	1 x 1	1

Name: Hazard Assessment E-63 - Testing Circuits< 750 Volts to Confirm Zero Energy
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-64 - KFS Hot Oil Heater Replacement
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Secure Vehicle Cargo	Awkward heavy lifting, muscle strain	3 x 3	9	Wear all appropriate/required PPE, Pre-task stretching, Follow material handling SWP for proper lifting; obtain assistance when necessary (co-worker or mechanical pulling)	2 x 1	2
	Pinch Points	3 x 3	9	Ensure proper body and extremities positioning (line of fire)	2 x 1	2
	Equipment Failure (Straps, Cargo Net, Etc.)	4 x 4	16	Repair / replace with equipment in good condition, Inspection of tools/equipment to be used	2 x 1	2
	Improper Weight Distribution on Vehicle or Trailer	3 x 5	15	Secure load with ratchet straps, Stop, re-test load securement a few km's out, All loads carefully checked for proper securement	2 x 1	2
Driving to Work Area	Changing Weather or Road Conditions	3 x 4	12	Be alert and aware of surroundings (wildlife, other vehicles, road conditions), Check weather forecast and road conditions, Drive to the conditions not the speed limit	2 x 1	2
	Obstacles, Debris, Etc. In Immediate Vicinity (Beside, Under, Behind, Ahead)	3 x 3	9	Walk 360 degrees around vehicle; complete external visual check of vehicle and immediate area	1 x 1	1
	Condition of Vehicle	3 x 3	9	Be aware of any change in vehicle handling or performance, Clean vehicle for safe operation	2 x 1	2
Mobilization	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 4	16	Review all hazards involved to do the job, as outlined, Review any customer procedures and any other associated with the job or facility, Orientation	2 x 1	2
	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 4	16	Review all job steps and hazards, Advise Operations of any hazards not listed on permit, observed during tour / inspection, Clear communication with permit issuer	2 x 1	2
	Unsure of site layout	3 x 3	9	Complete all required site orientations, Refer to site layout information for appropriate designated site access and parking location	2 x 1	2
	Changing Conditions or Work Environment	3 x 4	12	Monitor changing weather / conditions paying close attention to wind and lightening strikes, Review hazards again after each break	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Pinch Points / Crush Type Injury	3 x 5	15	Identify pinch points, Maintain proper body positioning (line of fire) and footing	2 x 1	2
	Uneven, Slippery Ground Surfaces	3 x 4	12	Care and caution with ground conditions; avoid uneven or slippery areas, Uneven surfaces flattened	2 x 1	2
	Falls/Slip/Trips	3 x 3	9	Watch for slippery and rough terrain, Ensure proper footing	2 x 1	2
Job Hazard Assessment	Deviation from THA	3 x 5	15	Review all appropriate SWP's, Update Field PJHA as conditions change, Review process concerns crews may have associated within job scope; document on permit	2 x 1	2
	Changing Conditions or Work Environment	3 x 5	15	Monitor changing weather / conditions paying close attention to wind and lightening strikes, Update Field PJHA as conditions change	2 x 1	2
Safe Work Permit	Not Obtaining Permit	4 x 5	20	Obtain appropriate permit	2 x 1	2
	Permit Not Properly Completed/Signed Off	3 x 4	12	Advise Operations of any hazards not listed on permit, observed during tour / inspection, Close out permit and ensure all conditions have been followed and documented as completed	2 x 1	2
	Not Having Clear Understanding Of Scope of JHA Or Permit	3 x 4	12	Clear communication with permit issuer, Ensure clear understanding of all assigned workers of the task and/or permit	2 x 1	2
Emergency Preparedness	Access & Egress Hazards	3 x 5	15	Establish ERP and evacuation routes, Review ERP and evacuation routes, Evacuation route and muster point location noted on permit, Review potential hazards of Safe work permit with the crew involved. Ensure no hazardous atmospheres are present	2 x 1	2
Housekeeping	Falls/Slip/Trips	4 x 4	16	Focus; eyes and mind on task, Ensure footing is good and solid, Housekeeping; clear area of hazards	2 x 1	2
	Airborne Dust, Debris, Fumes	3 x 3	9	Wear all appropriate/required PPE	2 x 1	2
	Heavy lifting	4 x 4	16	Follow SWP's for safe lifting, handling of debris, tools, equipment, material, etc., Know your limits, obtain assistance from co-workers for heavy lifts	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Cuts / Scrapes /Lacerations / Abrasions	4 x 4	16	Ensure all appropriate/required PPE is worn	1 x 1	1
Congested Work Area	Falling Objects	4 x 5	20	Maintain communication with all other trades in same area, Safety watch, Ensure tools, equipment are secured at heights, Tool lanyards must be used, Ensure material and tools are contained when working at heights; i.e. use tool bags, Ensure all appropriate/required PPE is worn	2 x 1	2
	Congested Work Area	4 x 5	20	Maintain communication with all other trades in same area, Safety watch, In tight, congested areas, use a spotter	2 x 1	2
	Other Workers In Vicinity	4 x 5	20	Be aware of surroundings, equipment and others in vicinity, Maintain communication with all other trades in same area, Safety watch	2 x 1	2
Portable Power Tools	Pinch Points	3 x 3	9	Ensure all appropriate/required PPE is worn	2 x 1	2
	Potential Electrical Shock	4 x 5	20	Review Hot Work SWP, if task is to occur within plant site/facility, Ensure all appropriate/required PPE is worn	2 x 1	2
	Use of Damaged /Defective Tool	4 x 5	20	Monitor operation of tool(s) or equipment, Inspect all tools and equipment to ensure guards in place prior to use, Review all practices relevant to job (Electrical, Lock Out / Tag Out etc.)	2 x 1	2
Demolition	Potential Electrical Shock	3 x 5	15	Flag off work area, Verbally communicate when area is clear for testing to commence	1 x 1	1
	Damage to electronics	3 x 4	12	Ensure all fuses/switches are disconnected	1 x 1	1
	Sharp Edges – Cuts/Lacerations	4 x 4	16	Ensure proper tools for task are used, (knives, wire strippers, etc.), Follow SWP for knife use; cut away from body, Gloves - Kevlar	2 x 1	2
	Pinch Points	4 x 4	16	Wear all appropriate/required PPE, Be aware of pinch points associated with use of hand tools	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Incorrect Voltages Present	4 x 5	20	Use correct test meters properly, Test equipment before energizing to ensure operational, Be aware of surroundings and others; ensure all unauthorized personnel are kept clear of live test equipment, Wear all appropriate/required PPE	1 x 1	1
	Stored Energy	4 x 5	20	Block and Bleed Process	2 x 1	2
Working with Chop Saw	Incorrect PPE Worn	3 x 5	15	Wear all appropriate/required PPE	2 x 1	2
	Lack of Training in Equipment's Operation	3 x 5	15	Only competent worker should be assigned for this task, Training/Education	2 x 1	2
	Sparks from saw and grinder	3 x 5	15	Ensure clear understanding of all assigned workers of the task and/or permit, Perform ONLY work identified by permit, Review Hot Work SWP, if task is to occur within plant site/facility	2 x 1	2
	Possible kick back of material	3 x 5	15	Ensure proper body / body parts positioning (line-of-fire)	2 x 2	4
	Incorrect cutting disk of material and chop saw	4 x 4	16	Check label on saw and disk for identity of speed material	2 x 1	2
Working with Grinding Tool	Disk fragmentation	3 x 5	15	Ensure all guards are in place, secure and working properly	2 x 1	2
	Improperly installed disk	3 x 5	15	Follow installation procedure from manufacturer, Review all appropriate safe work practices (SWP's) associated or involved with this task	2 x 1	2
	Fire/Explosion/Burns	3 x 5	15	Get assistance for fire watch , Have fire extinguisher ready	2 x 1	2
	Sharp Edges – Cuts/Lacerations	3 x 4	12	Wear all appropriate/required PPE	3 x 1	3
	Fumes	3 x 4	12	Wear proper PPE (eye, face, respirator)	1 x 1	1
	Flying Debris	3 x 4	12	Ensure all required PPE is worn (hand, eye, face shield)	2 x 1	2
	Possible kick back of material	3 x 4	12	Ensure proper body/body part positioning (line of fire) during cut; out of path of potential kick back, Use solid grip on tools; 2 handles = 2 hands	2 x 1	2
	Untested disk	3 x 5	15	Disk must be tested in a clear area	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Other People/Workers In Area	4 x 4	16	Maintain communication with all other trades in same area, Safety watch	2 x 1	2
	Lighting (poor or excessive)	3 x 4	12	Install temporary lighting; if /where needed	2 x 1	2
	Noise Exposure	4 x 4	16	Ensure crew members understand communication and action to occur, Hearing Protection	2 x 1	2
Ladder Use	Ladder's structural integrity	3 x 5	15	Visual check of ladder to ensure integrity, Ensure ladder feet and rungs are sound, Ensure ladder positioned properly/securely	2 x 1	2
	Awkward Stance/Position/Posture	4 x 5	20	Ensure ladder positioned properly/securely, Maintain proper body positioning	2 x 1	2
	Falling Objects	3 x 5	15	Ensure tools, equipment are secured at heights, Tool lanyards used to safeguard against accidental drops	1 x 1	1
	Falls from Heights	3 x 4	12	Follow Fall Protection SWP, where applicable	2 x 1	2
	Falls/Slip/Trips	3 x 5	15	Survey to ensure all debris that could cause a slip, trip or fall has been removed	2 x 1	2
Working at Heights or AWP	Falls from Heights	3 x 5	15	Review fall protection rescue plan with all workers /crews, Wear appropriate / proper PPE for task (fall protection harness, hand, eye), Complete a fall protection plan and review with all personnel involved in this task, Ensure all workers operating equipment are properly trained or certified, Inspections completed on all harnesses, lanyards, fall arrest equipment and ladders, Ensure tools, equipment are secured at heights	2 x 1	2
Installing Cable Tray	Cuts / Scrapes /Lacerations / Abrasions	4 x 4	16	Ensure all guards are in place, secure and working properly, Wear all appropriate/required PPE, Wear proper PPE (leather gloves, glasses, face shield), Ensure proper use of tools and equipment, Perform pre-use inspection of power tools	2 x 1	2
	Back & muscle strain	4 x 4	16	Follow SWP's for safe lifting, handling of debris, tools, equipment, material, etc.	2 x 1	2
	Pinch Points / Crush Type Injury	4 x 4	16	Maintain proper body positioning (line of fire) and footing, Gloves - Leather	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Falls from Heights	3 x 4	12	Follow Fall Protection SWP, where applicable	1 x 1	1
Install End Devices	Cuts / Scrapes /Lacerations / Abrasions	4 x 4	16	Wear all appropriate/required PPE, File sharp edges	2 x 1	2
	Back & muscle strain	4 x 4	16	Use proper lifting techniques, Maintain proper body positioning (line-of-fire)	3 x 1	3
	Falls from Heights	3 x 5	15	Inspections completed on all harnesses, lanyards, fall arrest equipment and ladders, Complete a fall protection plan and review with all personnel involved in this task	2 x 1	2
Install Instrument Tubing	Pinch Points / Crush Type Injury	4 x 4	16	Be aware of pinch points associated with use of hand tools, Identify pinch points	2 x 1	2
	Back & muscle strain	4 x 4	16	Follow material handling SWP for proper lifting, obtain assistance when necessary	2 x 1	2
	Release of stored energy	4 x 5	20	Always use the right tool for the job	2 x 1	2
	Cuts / Scrapes /Lacerations / Abrasions	4 x 4	16	Ensure proper tools for task are used, (knives, wire strippers, etc.), Ensure all apprpriate PPE is worn (hand, eye) and must be in good condition	2 x 1	2
Transport Reels by Zoom Boom & Set up Reel Stands	Heavy lifting	4 x 4	16	Follow SWP for handling / lifting materials and equipment, Follow SWP for proper installation of clevis & sling to gear, Visual inspection of slings / clevises; NO rips, tears or fraying of fabric	2 x 1	2
	Pinch Points / Crush Type Injury	4 x 4	16	Wear proper, required PPE (gloves)	2 x 1	2
	Congested Work Area	4 x 5	20	Communicate task to all crews in proximity, Be aware of others and surroundings, Ensure crews and spotter keep a clear line of sight and constant communication with operators of heavy equipment, Check travel path for conditions, obstacles, clearances, environmental concerns, etc.	2 x 1	2
	Uneven, Slippery Ground Surfaces	3 x 4	12	Be aware of surroundings, equipment and others in vicinity	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Pulling Cable in Cable Tray	Back & muscle strain	4 x 4	16	Use proper lifting/pulling techniques (using legs) no twisting, Pull in rhythm with other workers, do not over pull	2 x 1	2
	Repetitive movement	4 x 4	16	Take micro breaks as required to reduce strain/fatigue, Alternate body positioning frequently throughout the task, Use mechanical pulling assistance if/where necessary	2 x 1	2
	Cuts / Scrapes /Lacerations / Abrasions	3 x 4	12	Wear all appropriate/required PPE	2 x 1	2
	Falls/Slip/Trips	3 x 4	12	Ensure proper body / extremities positioning (line-of-fire; caution with ground condition and solid footing), Ensure task and floor areas are clear of debris, equipment, tools, etc.	2 x 1	2
	Dragged by Cable	3 x 3	9	Ensure access and egress points are available at all times, Pull in rhythm with other workers, do not over pull, Wear all appropriate/required PPE, Identify pinch points	2 x 1	2
Pulling Wire into Conduit	Pinch Points	4 x 4	16	Identify pinch points, Be aware of position of hands (line-of-fire)	2 x 1	2
	Awkward Stance/Position/Posture	4 x 4	16	Wear all appropriate PPE for task (hand protection), Pull in rhythm with other workers, do not over pull	2 x 1	2
	Cuts / Scrapes /Lacerations / Abrasions	4 x 4	16	Wear all appropriate/required PPE	2 x 1	2
	End of fish tape have sharp edges	3 x 4	12	Ensure ends of Fish Tape are taped off, Bend ends of tape back to blunt sharp edges, Push Fish Tape through at controlled speed	2 x 1	2
Strip Wire & Cable	Cuts / Scrapes /Lacerations / Abrasions	3 x 4	12	Wear all appropriate/required PPE	2 x 1	2
	Pinch Points	3 x 4	12	Identify pinch points, Be aware of position of hands (line-of-fire)	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Falls/Slip/Trips	3 x 4	12	Watch for slippery and rough terrain, Maintain proper footing, Perform housekeeping;ensure floor areas are clear of debris, equipment, tools, etc.	2 x 1	2
	Stripping / Cutting Cable	3 x 4	12	Ensure proper tools for task are used, (knives, wire strippers, etc.), Wear all appropriate/required PPE, Maintain proper body positioning (line of fire) and footing	2 x 1	2
	Flying Metal Filings	3 x 4	12	Wear all appropriate/required PPE	2 x 1	2
	Hacksaw slipping	3 x 5	15	Watch saw binding, Cut on stable surface	2 x 1	2
Megger Testing	Megger Shocks	4 x 5	20	Two workers required to barricade and flag off work area and / or any equipment	2 x 1	2
	Damage to electronics	3 x 5	15	Ensure all fuses/switches are disconnected	1 x 1	1
	Incorrect Voltages Present	3 x 4	12	Check test equipment prior to testing, Clear area while testing, Wear all appropriate/required PPE	2 x 1	2
	Falls/Slip/Trips	3 x 4	12	Watch for slippery and rough terrain, Maintain proper footing, Perform housekeeping;ensure floor areas are clear of debris, equipment, tools, etc.	2 x 1	2
	Pinch Points	3 x 4	12	Wear all appropriate/required PPE, Identify pinch points	2 x 1	2
	Flying Metal Filings	3 x 4	12	Wear all appropriate/required PPE	2 x 1	2
	Cuts / Scrapes /Lacerations / Abrasions	3 x 4	12	Ensure correct tools are used, Wear all appropriate/required PPE	2 x 1	2
Terminating	Live Voltages Present	3 x 5	15	Check circuits are de-energized; use meter rated for measuring voltages, Review all practices relevant to job (Electrical, Lock Out / Tag Out etc.)	1 x 1	1
	Pinch Points	3 x 4	12	Wear all appropriate/required PPE, Ensure correct tools are used, Identify pinch points	2 x 1	2
	Incorrect wire terminals	3 x 5	15	Use correct terminal blocks for wire size, Tag wires from print as they are terminated	2 x 1	2
	Hot and Neutral Mixed Up	3 x 5	15	Tag wires from print as they are terminated	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Flying Debris	3 x 4	12	Tool lanyards used to safeguard against accidental drops, Housekeeping - Adequate, Keep site and work area tidy and clear, Wear all appropriate/required PPE	2 x 1	2

Name: Hazard Assessment E-64 - KFS Hot Oil Heater Replacement
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-65 - Electrical Isolation of Instrument Devices
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Receive Permit from Operations	Not Understanding Permit Requirements	3 x 4	12	Ensure clear understanding of all assigned workers of the task and/or permit, Perform ONLY work identified by permit, Review process concerns crews may have associated within job scope; document on permit, Evacuation route and muster point location noted on permit	3 x 1	3
Create JHA for Job	Not Having Clear Understanding Of Scope of JHA Or Permit	3 x 4	12	Review JHA with operations prior to signing, Review PJHA with newcomers to area	3 x 1	3
Review Emergency Response Plan	Workers Unaware Of Specific Emergency Procedures	3 x 5	15	Review ERP and evacuation routes	3 x 1	3
Locate Device	Unable to locate device	3 x 4	12	Put bypass on	3 x 1	3
Isolate Instrument	Over pressure of system	3 x 5	15	Ensure piping is depressurized, Ensure all appropriate/required PPE is worn	3 x 1	3
	Pressurized lines	3 x 5	15	Block and Bleed Process, Ensure all appropriate/required PPE is worn	3 x 1	3
	Not understanding Zero Energy isolation process or requirement	3 x 4	12	Go through lockout with client. Place locks on proper isolation points, Follow SWP to complete Lock Out / Tag Out, Ensure all appropriate/required PPE is worn	3 x 1	3
Bleed off Instrument	De-pressuring to Atmosphere	3 x 5	15	Ensure all appropriate/required PPE is worn	3 x 1	3
	Leaking Isolation Valve	3 x 4	12	Open valve slowly monitoring guage on regulator and fitting for leaks, Place instrument back into service, notify operations & submit a PMF	3 x 1	3
	Inhalation / exposure (H2S, LEL)	3 x 5	15	Wear appropriate PPE such as SCBA if necessary	3 x 1	3
	Improper/ No Bleed off point	3 x 5	15	Ensure full bleed down until no pressure passing, Block and Bleed Process	3 x 1	3
Perform Required Maintenance	Strains/Sprains	3 x 4	12	Stretching and proper body positioning	3 x 1	3
	Potential Environmental Spills	3 x 4	12	Ensure all appropriate/required PPE is worn, Clean up spills as they happen	3 x 1	3

Name: Hazard Assessment E-65 - Electrical Isolation of Instrument Devices
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Over energized instrument	3 x 5	15	Do not exceed the instruments upper range	3 x 1	3
	Unit doesn't calibrate	3 x 4	12	Follow manufacturer's precautions, Review manufacturer's instructions	3 x 1	3
Put instrument back into service Null	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	3 x 5	15	Ensure all appropriate/required PPE is worn, Use SCBA if/ where required, Ensure zero energy (LO/TO)	3 x 1	3
Test For Leaks	De-pressuring to Atmosphere	3 x 4	12	Review breaking containment procedure, Ensure all appropriate/required PPE is worn	3 x 1	3
	Potential Exposure to Hazardous Atmosphere	3 x 5	15	Ensure all appropriate/required PPE is worn, Use SCBA if/ where required, Ensure bleed port fully closed	3 x 1	3
Verify HMI Readings	Misjudge Readings	3 x 4	12	Training/Education, Ask to view meter readings on supply authority's meter	3 x 1	3
Hand in Safe Work Permit to Operations	Permit Not Properly Completed/Signed Off	3 x 4	12	Ensure all work planned is documented on required permit(s); perform ONLY work Identified by permit	3 x 1	3

Name: Hazard Assessment E-65 - Electrical Isolation of Instrument Devices
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

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2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-66 - Moving Live Low Voltage Cables
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Identify cables to be moved and the source voltage Where does the cable come from, can the cable be disconnected before work starts, what is the nominal voltage?	Uneven Surfaces	4 x 3	12	Survey to ensure all debris that could cause a slip, trip or fall has been removed, Ensure access and egress points are available at all times	2 x 1	2
	Working at Heights	5 x 5	25	Inspections completed on all harnesses, lanyards, fall arrest equipment and ladders, Wear appropriate / proper PPE for task (fall protection harness, hand, eye)	2 x 1	2
	Live Process Equipment, Electrical Lines/Cables	4 x 5	20	Be aware of surroundings and others; ensure all unauthorized personnel are kept clear of live test equipment, Exercise proper donning and doffing of all PPE	2 x 1	2
	Lighting (poor or excessive)	4 x 4	16	Install temporary lighting; if /where needed	2 x 1	2
	Air Quality	3 x 4	12	Don specialized PPE - Face shield, safety glasses, half mask respirator with P100 filters, disposable gloves, and coveralls for immediate removal post job	2 x 1	2
Review method of reaching the area in which the cables are to be moved	Poor Communication	4 x 5	20	Ensure crew members understand communication and action to occur	2 x 1	2
	Working at Heights	3 x 5	15	Wear appropriate /proper PPE for task (fall protection harness, hand, eye)	2 x 1	2
	Uneven Surfaces	3 x 5	15	Survey to ensure all debris that could cause a slip, trip or fall has been removed, Ensure access and egress points are available at all times	2 x 1	2
	Lighting (poor or excessive)	3 x 4	12	Install temporary lighting; if /where needed	2 x 1	2
	Lack of tie off points	3 x 4	12	Follow Ladder Use and Scaffold SWP's, Determine proper 5000lbs tie off	2 x 1	2
	Noise Exposure	3 x 5	15	Wear all appropriate PPE (hearing), Maintain communication between workers	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Complete visual inspection of cables to ensure no cuts or breaks in the cable	Potential Electrical Shock	3 x 5	15	Wear required full arc flash appropriate for category of work	2 x 1	2
	Working at Heights	3 x 5	15	Ensure harness fits properly, Clean and inspect harness; document inspection on approved form, Use proper harness	2 x 1	2
	Lighting (poor or excessive)	3 x 4	12	Install temporary lighting; if /where needed	2 x 1	2
	Noise Exposure	3 x 4	12	Wear all appropriate PPE (hearing)	2 x 1	2
	PPE in Poor Condition	3 x 5	15	Inspect PPE before use	2 x 1	2
	Tight Working Spaces	3 x 4	12	Maintain proper body positioning , Pre-task stretching	2 x 1	2
	Caught In/On/Between Equipment	3 x 4	12	Use Caution - FOCUS; eyes and mind on task , Be aware of surroundings and others	2 x 1	2
	Fatigue from repetitive tasks or working in same position for extended periods	3 x 4	12	Take micro breaks as required to reduce strain/fatigue, Pre-task stretching	2 x 1	2
Discuss the hazards with the team completing the work Including but not limited to the method of support once removed from the tray	Ladder Placement /Tipping	3 x 5	15	Reposition of platform	2 x 1	2
	Improper support methods	3 x 4	12	Use non-conductive material with adequate diameter for cable size	2 x 1	2
	Old Cables	3 x 4	12	Handle with care as instructed by Foreman	2 x 1	2
	Poor Communication	3 x 4	12	Ensure good communication between workers	2 x 1	2
Access the work area to install support for cable once tray is removed to temporary location Set up ladders or move to scaffolds	Working at Heights	3 x 5	15	Clean and inspect harness; document inspection on approved form, Ensure harness fits properly, Wear appropriate / proper PPE for task (fall protection harness, hand, eye)	2 x 1	2
	Noise Exposure	3 x 4	12	Hearing Protection	2 x 1	2
	Potential Electrical Shock	3 x 5	15	Wear all appropriate/required PPE (arc flash)	2 x 1	2
	Falls/Slip/Trips	3 x 5	15	Secure equipment, tools, materials away safely, Perform housekeeping;ensure floor areas are clear of debris, equipment, tools, etc.	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Install temporary supports for cable	Pinch Points	3 x 5	15	Be aware of pinch points associated with use of hand tools, Identify pinch points, Ensure proper body and extremities positioning (line of fire)	2 x 1	2
	Lighting (poor or excessive)	3 x 4	12	Install temporary lighting; if /where needed	2 x 1	2
	Working at Heights	3 x 5	15	Inspections completed on all harnesses, lanyards, fall arrest equipment and ladders, Ensure all harnesses fit each individual properly, Use proper harness	2 x 1	2
	Awkward Stance/Position/Posture	3 x 4	12	Use micro breaks to stretch out muscles	2 x 1	2
Don task specific gloves, procedure wooden stick or rope to lift cables Place wood or rope under cable, lift to gain grip around cable completely	Complacency - Lack of Appropriate PPE	3 x 4	12	Ensure all appropriate/required PPE is worn, Inspect PPE before using	2 x 1	2
	Potential Electric Shock	3 x 5	15	Wear all appropriate/required PPE (arc flash)	2 x 1	2
	Pinch Points	3 x 4	12	Be aware of surrounding, tools, materials, and others, Ensure proper body and extremities positioning (line of fire), Identify pinch points	2 x 1	2
	Working at Heights	3 x 5	15	Ensure harness fits properly, Clean and inspect harness; document inspection on approved form, Use proper harness	2 x 1	2
Lift & secure cable in temporary location Place cable into the rope, lift to temporary position, secure to support; Confirm cable has adequate support throughout the length	Potential Electric Shock	3 x 5	15	Wear proper PPE and Arc Flash gear	2 x 1	2
	Heavy lifting	3 x 4	12	Take micro breaks as required to reduce strain/fatigue, Follow SWP for handling/lifting materials and equipment	2 x 1	2
	Awkward Stance/Position/Posture	3 x 4	12	Maintain proper body positioning (line-of-fire), Pre-task stretching	2 x 1	2
	Damage To Cable or Connectors	3 x 4	12	Prior to test, isolate any damaged or defective equipment or cable	2 x 1	2
	Noise Exposure	3 x 4	12	Hearing Protection	2 x 1	2
	Working at Heights	3 x 5	15	Inspections completed on all harnesses, lanyards, fall arrest equipment and ladders, Ensure all harnesses fit each individual properly, Use proper harness	2 x 1	2

Name: Hazard Assessment E-66 - Moving Live Low Voltage Cables
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-67 - Completing a Knockout
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Receive work permit Complete PJHA/FLHA	Not Identifying all Existing & Potential Location and Work Site Hazards	3 x 3	9	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools correctly; review all appropriate SWP's, Perform ONLY work identified by the permit	1 x 1	1
	Poor Communication	3 x 3	9	Maintain communication with operations	1 x 1	1
Scope out area of Knockout Scope out area to ensure the proper procedure and tool is selected for task	Hidden Obstructions	4 x 4	16	Review THA G-22 Use of power tools to penetrate walls	1 x 1	1
	Relay of Incomplete or Incorrect Information	3 x 4	12	Ensure crew members understand communication and action to occur, Read drawings	1 x 1	1
Drill hole for draw stud	Cuts / Scrapes /Lacerations / Abrasions	3 x 3	9	Wear approved ANSI cut level 5 resistant gloves, Ensure proper body and extremities positioning (line of fire)	1 x 1	1
	Pinch Points	3 x 3	9	Ensure proper body and extremities positioning (line of fire), Identify pinch points	1 x 1	1
	Property Damage	3 x 4	12	Review THA G-22 Use of power tools to penetrate walls, Make sure existing wires are out of the line of fire	1 x 1	1
	Working With Power Tools	3 x 3	9	Follow safe practice for use of power tools, Manufacturer's Operators Manual	1 x 1	1
	Faulty / incorrect tools	3 x 3	9	Ensure proper use of tools and equipment, Perform pre-use inspection of power tools	1 x 1	1
Pick proper tool for knockout Discuss with supervisor the proper tool to complete the specific knockout	Improper Tool Use	4 x 4	16	Ensure proper use of tools and equipment, Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool	1 x 1	1
	Faulty / incorrect tools	4 x 4	16	Inspect tools prior to use, Ensure worker completing inspection or maintenance is competent/qualified	1 x 1	1
Assemble tool	Cuts / Scrapes /Lacerations / Abrasions	4 x 4	16	Ensure power is off when fastening/removing bits, Wear approved ANSI cut level 5 resistant gloves	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Complete knockout The draw stud and die should be removed from the hole and the drill/impact once the cut is completed	Pinch Points	4 x 4	16	Identify pinch points, Wear approved ANSI cut level 5 resistant gloves, Be aware of position of hands (line-of-fire)	1 x 1	1
	Cuts / Scrapes /Lacerations / Abrasions	4 x 4	16	Keep hands out of potential line of fire of tool, Wear approved ANSI cut level 5 resistant gloves	1 x 1	1
	Property Damage	4 x 3	12	Read drawings, Ensure proper tools for task are used correctly, Ensure to use steady pressure during entire cut, Make sure existing wires are out of the line of fire	1 x 1	1
	Lack of Training in Equipment's Operation	4 x 4	16	Only competent worker should be assigned for this task, Manufacturer's Operators Manual, Ensure proper use of tools and equipment, Perform pre-use inspection of power tools, Review THA and review hazards associated with job	1 x 1	1
	Muscle Strain	3 x 3	9	Pre-task stretching, Maintain proper body positioning, Use caution - Focus; eyes and mind on task	1 x 1	1
	Sharp Edges – Cuts/Lacerations	3 x 4	12	Wear approved ANSI cut level 5 resistant gloves, File sharp edges	1 x 1	1
Disassemble Tool The assembly can then be tapped/dropped onto a solid surface (floor, table, trim-stand etc) to loosen the cutting die from the draw stud. Unthread the cutting die from the draw stud and dispose of the metal cuttings/shards accordingly. Can also setup draw stud and cutting die in a vice or tri-stand	Cuts / Scrapes /Lacerations / Abrasions	4 x 4	16	Ensure power is off when fastening or removing bit, Remove battery before putting hands in the line of fire, Wear approved ANSI cut level 5 resistant gloves	1 x 1	1

Name: Hazard Assessment E-67 - Completing a Knockout
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Clean up area	Cuts / Scrapes /Lacerations / Abrasions	2 x 3	6	Wear approved ANSI cut level 5 resistant gloves, File sharp edges	1 x 1	1

Name: Hazard Assessment E-67 - Completing a Knockout
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

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4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
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2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-68 UPS Battery Installation
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit from Client Hold Toolbox Meeting Complete Associated PJHA	Not Identifying all Existing & Potential Location and Work Site Hazards	2 x 1	2	Review any customer procedures and any other associated with the job or facility, Ribbon or barricade off work area, Safety watch	1 x 1	1
Remove Battery Terminal Covers	Contact With Corrosive Acid	3 x 4	12	Carefully remove covers, Ensure proper body and extremities positioning (line of fire), Ensure all appropriate/required PPE is worn, Have baking soda available in case of acid spill/contact	1 x 1	1
	Pinch Points	3 x 3	9	Maintain proper body positioning (line of fire) and footing, Wear all appropriate/required PPE	1 x 1	1
	Potential Electrical Shock	3 x 3	9	Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Wear proper PPE and Arc Flash gear	1 x 1	1
	Live Voltages Present	3 x 4	12	Flag / ribbon off non-entry zones, Safety watch	1 x 1	1
Confirm Voltage of system and batteries - Check name plates - Take note how the old batteries are configured and hooked up	Potential Electrical Shock	3 x 3	9	Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Test each individual cell prior to connection	1 x 1	1
	Muscle Strain	3 x 3	9	Practice proper lifting tecniques (use legs), Know your limits; obtain assistance from co-workers for heavy lifts, Maintain proper body positioning (line of fire) and footing, Ensure all appropriate/required PPE is worn	1 x 1	1
	Contact With Corrosive Acid	3 x 4	12	Follow installation procedure from manufacturer, Ensure all appropriate/required PPE is worn, Gloves - Chemical Resistant, Eye wash station	1 x 1	1
	Pinch Points	3 x 3	9	Maintain proper body positioning (line of fire) and footing, Identify pinch points, Ensure all appropriate/required PPE is worn	1 x 1	1
Replace / Install new batteries	Muscle Strain	3 x 3	9	Practice proper lifting tecniques (use legs), Know your limits; obtain assistance from co-workers for heavy lifts	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Contact With Corrosive Acid	3 x 3	9	Ensure all appropriate/required PPE is worn, Eye wash station, Have baking soda available in case of acid spill/contact	1 x 1	1
	Pinch Points	3 x 3	9	Maintain proper body positioning (line of fire) and footing, Ensure all appropriate/required PPE is worn	1 x 1	1
	Potential Electrical Shock	3 x 3	9	Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Ensure all appropriate/required PPE is worn	1 x 1	1
Install brackets for covers Install battery jumpers, torque battery jumpers	Live Voltages Present	4 x 4	16	Only connect 6 batteries at a time, in order to keep exposure as low as possible for a short duration, Refer to manual for correct orientation of bolt up, Use proper tools correctly; review all appropriate SWP's, Use crow foot attachment or torque wrench to limit exposure, Use insulated, voltage rated tools	2 x 2	4
Test to ensure correct battery voltage is obtained (12 V vs 24 V)	Potential Electrical Shock	3 x 4	12	Follow manufacturer's wiring diagram and schematics to ensure proper connections, Ensure all appropriate/required PPE is worn	1 x 1	1
Reinstall battery terminal covers	Potential Electrical Shock	3 x 3	9	Follow manufacturer's wiring diagram and schematics to ensure proper connections, Ensure all appropriate/required PPE is worn	1 x 1	1
	Contact With Corrosive Acid	3 x 3	9	Ensure all appropriate/required PPE is worn	1 x 1	1
Cover up UPS Ensure to place "STAY OUT, Danger" signage	ESD Facility	3 x 4	12	Use correct test meters properly, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	1 x 1	1
	Pinch Points	3 x 3	9	Maintain proper body positioning (line of fire) and footing, Ensure all appropriate/required PPE is worn	1 x 1	1
	Arc, Sparks, Shorts	3 x 3	9	Use correct test meters properly, Use Caution - FOCUS; eyes and mind on task	1 x 1	1
	Potential Electrical Shock	3 x 3	9	Use correct test meters properly, Ensure all appropriate/required PPE is worn	1 x 1	1
Verify solar voltages (open and closed fused)	Pinch Points	3 x 3	9	Maintain proper body positioning (line of fire) and footing, Ensure all appropriate/required PPE is worn	1 x 1	1

Name: Hazard Assessment E-68 UPS Battery Installation
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Arc, Sparks, Shorts	3 x 3	9	Use Caution - FOCUS; eyes and mind on task, Ensure all appropriate/required PPE is worn	1 x 1	1
	Potential Electric Shock	3 x 3	9	Use Caution - FOCUS; eyes and mind on task, Use correct test meters properly	1 x 1	1
Close fuses to solar – check charging current	Pinch Points	3 x 3	9	Maintain proper body positioning (line of fire) and footing, Ensure all appropriate/required PPE is worn	1 x 1	1
	Arc, Sparks, Shorts	3 x 3	9	Use correct test meters properly, Ensure all appropriate/required PPE is worn	1 x 1	1
	Potential Electric Shock	3 x 3	9	Use correct test meters properly, Ensure all appropriate/required PPE is worn	1 x 1	1
Complete appropriate QA/QC documentation	Repetitive movement	2 x 2	4	Maintain proper body positioning (line of fire) and footing	1 x 1	1

Name: Hazard Assessment E-68 UPS Battery Installation
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
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2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-69 - Highline Cable Pull
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit From Client Complete All Associated PJHA's. Hold Toolbox Meeting	Identify All Existing & Potential Location and Work Site Hazards	4 x 4	16	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools, ensure correct operation, Ensure all appropriate / required PPE is worn - reassess per each task	2 x 1	2
	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 4	16	Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Ensure clear understanding of all assigned workers of the task and/or permit	2 x 1	2
	Workers Not Fully Aware of Task Scope	4 x 4	16	After each break, reassess all hazards	2 x 1	2
Complete Plan for Fall Protection Emergency	Falls from Heights	5 x 5	25	Complete comprehensive fall protection plan, Ensure clear understanding of task / permit of all assigned workers	2 x 1	2
	Workers Unaware Of Specific Emergency Procedures	5 x 5	25	Complete emergency procedures in case of fall from heights, Review ERP and evacuation routes	2 x 1	2
Ladder(s) Set Up	Falls/Slip/Trips	3 x 3	9	Check to see if there are any obstacles that might cause a trip or fall around work area, Be aware of surroundings, watch your step, Check site & work area closely for ground condition, obstacles, clearances, etc..	2 x 1	2
	Pinch Points	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing, Ensure all appropriate/required PPE is worn	2 x 1	2
	Working at Heights	5 x 4	20	Follow all ladder safety practices, On ladders, always maintain 3 point contact, Wear safety harness; mandatory tie-off when working above 1.8m / 6 Ft., Inspect ladders prior to use, Use two people to set up/tie off each ladder, Ensure 1:4 ratio use	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Maneuver AWP into position	Working at Heights	3 x 3	9	Complete pre-use inspection of AWP to ensure in good working order, 100% tie-off to anchor point when operating or working out of AWP, Use fall protection if working at or in excess of 6' or 1.8 meters	2 x 1	2
	Contact with equipment, personnel, vehicles or structure	3 x 3	9	Ensure crews and spotter keep a clear line of sight and constant communication with operators of heavy equipment, Check travel path for conditions, obstacles, clearances, environmental concerns, etc.	1 x 3	3
Installation of rollers	Pinch Points	3 x 2	6	Focus, eyes and mind on task, Be aware of hand placement (line-of-fire), Wear proper, requied PPE (gloves)	2 x 1	2
	Falls from Heights	3 x 3	9	Complete a fall protection plan and review with all personnel involved in this task, Use fall protection if working at or in excess of 6' or 1.8 meters	2 x 1	2
	Awkward Stance/Position/Posture	3 x 2	6	Use micro breaks to stretch out muscles	2 x 2	4
Reel Stands Set Up Null	Pinch Points	4 x 3	12	Identify pinch points, Be aware of position of hands (line-of-fire), Ensure all appropriate PPE is worn (hand)	2 x 2	4
	Falls/Slip/Trips	4 x 3	12	Ensure proper body positioning (line-of-fire) and solid footing, Focus, eyes and mind on task, be aware of your surroundings	2 x 1	2
	Muscle strain, fatigue	4 x 4	16	Use mechanical lift where required, Know your limits; obtain assistance from co-workers for awkward or heavy lifts, Pre-task stretching	2 x 1	2
Pull Cable	Sharp Edges – Cuts/Lacerations	4 x 4	16	Focus, eyes and mind on task, be aware of your surroundings	2 x 2	4
	Working at Heights	5 x 4	20	Use fall protection if working at or in excess of 6' or 1.8 meters	2 x 2	4
	Falling Objects	4 x 4	16	Ensure tools, equipment are secured at heights, Install barricades and flag off work area, if required	2 x 1	2

Name: Hazard Assessment E-69 - Highline Cable Pull
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Muscle strain, fatigue	5 x 4	20	Warm up / stretch prior to pulling or lifting, Use radios to communicate to pull or stop, Wear appropriate /proper PPE for task (fall protection harness, hand, eye), Take micro-breaks, stretch out muscles and improve circulation and focus	2 x 2	4
	Falls/Slip/Trips	4 x 5	20	Do not sit on cable tray, Ensure proper body positioning (line-of-fire) and solid footing	2 x 2	4
Tie-Wrap Cable	Pinch Points	4 x 4	16	Be aware of pinch points associated with use of hand tools, Ensure proper body positioning (line-of-fire) to use tools correctly	2 x 2	4
	Working at Heights	4 x 5	20	Wear fall protection equipment, tighten away from yourself, Use fall restraint (preferably engineered fall arrest system, use double lanyard to transition faces), Use fall protection if working at or in excess of 6' or 1.8 meters	2 x 2	4
	Falls/Slip/Trips	4 x 4	16	Focus, eyes and mind on task, be aware of your surroundings	2 x 2	4
	Falling Objects	4 x 4	16	Ensure tools, equipment are secured at heights	2 x 1	2
	Sharp Edges – Cuts/Lacerations	4 x 4	16	Focus; eyes and mind on task, Be aware of surroundings and others, Twist tie-wrap ends off, Keep "nubs" under tray, wherever possible, Wear all appropriate PPE for task	2 x 2	4
	Improper Tool Use	4 x 3	12	Use proper tools, ensure correct operation, Ensure to always pull tool away from body	2 x 1	2
Cutting Cable Housekeeping	Moving Parts	4 x 4	16	Have second competent worker verify correct cable to be cut, Get assistance , Clearly mark appropriate measurements to be cut, Wear appropriate PPE (hand, eye), Ensure proper body positioning (line-of-fire)	2 x 1	2
	Cuts / Scrapes /Lacerations / Abrasions	4 x 3	12	Follow SWP for knife use; cut away from body, Only use approved knife, Wear all appropriate PPE for task (hand protection)	2 x 2	4
	Poor housekeeping; debris in/around task area	3 x 3	9	Follow SWP's for safe lifting, handling of debris, tools, equipment, material, etc., Follow Housekeeping THA G-03	2 x 1	2

Name: Hazard Assessment E-69 - Highline Cable Pull
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Communicate completion of task to client Close out permit	Lack Of Complete Clear Communication	3 x 3	9	Documentation completed fully / carefully, Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	2 x 1	2

Name: Hazard Assessment E-69 - Highline Cable Pull
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

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Name: Hazard Assessment E-71 - 480 Volt Testing
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Prepare for task Review work order with standby. Check all needed tools and PPE	Faulty meter or leads	4 x 5	20	Check testing devices and leads for damage and calibration/inspection	1 x 1	1
	Potential Arc Flash	3 x 5	15	Ensure proper testing device for voltage levels	1 x 1	1
	Complacency - Lack of Appropriate PPE	3 x 5	15	Inspect PPE for any damage, leaks in gloves, etc., Wear proper PPE and Arc Flash gear	1 x 2	2
Obtain "HOT WORK" permit with description of specific equipment	Meter provides and ignition source	2 x 4	8	Clear communication with permit issuer	1 x 1	1
	Incorrect Voltage Ratings	3 x 4	12	Confirm equipment number and voltage level to be tested	1 x 1	1
Prepare work area	Potential Arc Flash / Arc Blast	3 x 5	15	Ensure barriers/flags clearly visible, placed as/where necessary around task area, Discuss with standby person how to control the area, Be aware of rescue plan and exit route, Use rubber floor mat inside substations	1 x 1	1
Utilize the "Thee step voltage check"	Improper test or faulty meter could give incorrect readings resulting in a loss	3 x 4	12	Prove the integrity of the meter with a known source, Ensure potential is at the appropriate value, Reprove the voltage tester	1 x 1	1
Close Permit	Incomplete paperwork and communication could be a factor in a loss	3 x 4	12	Return to permit issuer and sign off permit and communicate with operations status of equipment	1 x 1	1

Name: Hazard Assessment E-71 - 480 Volt Testing
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-72 - 480 Volt Disconnects
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Verify correct equipment ID Once confirmed, complete the Lock, Tag, and Try procedure	Arc Flash /Electrocution	5 x 5	25	Ensure the correct equipment is isolated according to the Lock, Tag & Try procedure, Verify by confirming equipment ID through WO, permit, field operator and console communications, reading physical markings (stickers, lamacoids, cable tags, ect…) in substations and in the field	1 x 2	2
	Unit or process upset from isolating wrong equipment	3 x 4	12	Verify by confirming equipment ID through WO, permit, field operator and console communications, reading physical markings (stickers, lamacoids, cable tags, ect…) in substations and in the field	1 x 1	1
Opening access to motor terminations at point of disconnection	Bodily Injury	3 x 3	9	Use correctly sized wrenches (combination wrenches or sockets), nut drivers or screwdrivers to remove motor terminal boxes or panel covers, Pull towards oneself when using hand tools when possible, Be aware of obstacles that may be present when either pushing or pulling hand tools, Ensure body and head is out of line of fire if tools are to slip or break, Use knee mats/pads if kneeling is required, Use ladders or step-ups to gain better access to terminations, Use a second person to assist holding and lowering heavy and awkward covers	1 x 1	1
Perform potential test with meter	Live Voltages Present	4 x 5	20	Ensure correct equipment is isolated; This includes trying the start button and pinning the stop button, Setup control zone for exposed electrical parts, Inspect arc flash protective gear rated for the voltage and calorie rating for the equipment according to rating on switchgear, Use 3 step voltage check to prove energy isolation, Verify dates are valid on equipment requiring calibration, Prove batteries in test equipment are sufficient	1 x 2	2
Disconnect motor	Cuts / Scrapes /Lacerations / Abrasions	3 x 3	9	Use correct wrenches and screwdrivers to avoid slippage or wearing down of nuts, bolts or screws, Cut away from self and others when removing tape or boots, Wear appropriate PPE (in good condition)	1 x 1	1

Name: Hazard Assessment E-72 - 480 Volt Disconnects
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Clearly tag cables/wires and protect them, once they have been disconnected	Cuts / Scrapes /Lacerations / Abrasions	3 x 2	6	Place protective boots or wire marettes over ends	1 x 1	1
	Loss of maintenance time due to poor tagging and protection	3 x 4	12	Include pertinent information (including date equipment ID, contact name, etc.) to prevent any confusion or time wasted looking for answer if questions arise., Cover connector hole, cable/wire ends and secure to prevent damage due to weather conditions, foot traffic in area and other workers	1 x 2	2

Name: Hazard Assessment E-72 - 480 Volt Disconnects
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
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2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-73 - RBV Disconnection
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Verify correct equipment ID Once confirmed, complete the Lock, Tag and Try procedure	Cables/wires not clearly tagged and protected	3 x 4	12	Ensure the correct equipment is isolated according to the Lock, Tag & Try procedure, Verify by confirming equipment ID through WO, permit, field operator and console communications, reading physical markings (stickers, lamacoids, cable tags, ect…) in substations and in the field, Use all drawings available to identify ID and ALL voltage sources calibration	1 x 1	1
Perform potential test with meter	Arc Flash /Electrocution	4 x 5	20	Ensure proper equipment is isolated using SWP's, Use 3 step voltage check to prove energy isolation, Verify dates are valid on equipment requiring calibration	1 x 2	2
RBV disconnect in field	Operating the wrong RBV	4 x 4	16	Verify RBV identification number in the field and then try to operate the RBV locally, Verify with operations if required	1 x 1	1
	Secondary voltage/Breaker malfunction/Testing device malfunction	4 x 5	20	Use 3 step voltage check to prove energy isolation	1 x 1	1
	Incorrect documentation of disconnect sheet	3 x 3	9	Fill out an RBV disconnection form to assist with the RBV reconnection, Apply a detailed tag on isolation equipment	1 x 1	1
Clearly tag cables/wires and protect them, once they have been disconnected	Loss of maintenance time due to poor tagging and protection	3 x 3	9	Include pertinent information (including date, equipment ID, contact name, etc.)	1 x 1	1
	Improperly protected cables	3 x 3	9	Cover connector hole, cable/wire ends and secure	1 x 1	1

Name: Hazard Assessment E-73 - RBV Disconnection
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
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2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-74 - EHT Repair
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Preparation of work area	Open Flame/Flammables/Open Sewer	3 x 4	12	Watch torch placement, inspect area for flammables, cover sewers if possible	1 x 1	1
	Falls/Slip/Trips	3 x 3	9	Store tools and material away from access, Keep work area clean	1 x 1	1
	Other People/Workers In Area	3 x 3	9	Develop control zone, Set up flagging and tag all 4 sides and us barricades as needed	1 x 1	1
Isolation/Removal of EHT	Strains/Sprains	3 x 3	9	Mechanical Assist Devices	1 x 1	1
	Working at Heights	3 x 5	15	Tool lanyards used to safeguard against accidental drops, Wear safety harness; mandatory tie-off when working above 1.8m / 6 Ft., Follow THA E-27 Working At Heights	1 x 1	1
	Cuts / Scrapes /Lacerations / Abrasions	3 x 3	9	Gloves worn at all times working with EHT, refer to PPE policy for appropriate gloves	1 x 1	1
	Potential Electric Shock	4 x 5	20	All Isolation points identified and tagged and LOTO, Qualified personnel perform Voltage check	1 x 1	1
Repair, Splice and reinstall EHT	Cuts / Scrapes /Lacerations / Abrasions	3 x 3	9	Keep hands clear of stripping tool and sand paper	1 x 1	1
	Gases/Vapors	3 x 4	12	Leathers worn at all times while using torch, fire blanket used to cover material and surroundings from heat, Wear appropriate PPE and utilize proper handling techniques and as identified in MSDS, Review SDS, Turn off bottle when unattended and during breaks; remove regulator when not in use	1 x 1	1
	Fire/Explosion/Burns	3 x 4	12	Remove flammable material if possible, if not cover with fire blanket and insure sewers are covered and keep fire extinguisher at the work area	1 x 1	1
	Chemical Exposure	3 x 4	12	Review SDS for MGO and Flux, avoid contact with skin and clean after use	1 x 1	1
	Potential Electric Shock	3 x 5	15	Develop control zone, Set up flagging and tag all 4 sides and us barricades as needed, Review SWP for testing electrical equipment	1 x 1	1

Name: Hazard Assessment E-74 - EHT Repair
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Electrocution	3 x 5	15	Test trace to ground and record readings, Correctly follow LOTO safe practice, Wear proper, required PPE (gloves)	1 x 1	1
Housekeeping Clean up work area	Tripping Hazard	3 x 3	9	Remove tools and materials that we are not using, Ensure work area is always clear of obstructions before, during, and after task in complete	1 x 1	1

Name: Hazard Assessment E-74 - EHT Repair
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

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2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-75 - Building and Installing New Brackets
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Preparation of work area	Other People/Workers In Area	2 x 4	8	Flag / ribbon off non-entry zones, Red ribbon is to be used where permission is required to enter control zone; Yellow ribbon is to be used where following identified precautions is sufficient	1 x 1	1
	Falls/Slip/Trips	2 x 3	6	Store tools and material away from access, Keep work area clean	1 x 1	1
Taking measurements	Awkward Positioning or Reaching	3 x 3	9	Pre-task stretching, While extending arms to reach with the tape measurer remember where feet are and do not break plain at heights, Keep limbs in comfortable positions to avoid pulling muscles	1 x 1	1
Cutting Steel	Flying Debris	5 x 4	20	Wear face shield while using cut-off saw or grinder, Use double eye protection, both spoggles and face shields, Isolate area of sparks/debris (i.e. curtain)	1 x 1	1
Welding Steel	Refer to Welding Hazard Assessment		0			0
Painting, hoisting to location and installing brackets (drilling and holding)	Exposure to paint fumes	4 x 3	12	Ventilate area	1 x 1	1
	Dropping Tools /Materials to Ground Below		0	Red ribbon area to control drop zone, Use proper rigging techniques; refer to Using Cranes & Hoists THA, Tool lanyards used to safeguard against accidental drops		0
	Flying Metal Filings	5 x 4	20	Do not let people stand under work area while drilling, If overhead drilling, make sure to wear a face shield to avoid eye injuries	1 x 1	1
	Awkward Stance/Position/Posture	3 x 3	9	If needed, use a helper to help hold brackets in place while installing to avoid injuries	1 x 1	1

Name: Hazard Assessment E-75 - Building and Installing New Brackets
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-76 - Electrical Heat Tracing PM's
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Preparation of work area	Other People/Workers In Area	3 x 4	12	Install barricades and flag off work area, if required, Red ribbon is to be used where permission is required to enter control zone; Yellow ribbon is to be used where following identified precautions is sufficient	1 x 1	1
	Falls/Slip/Trips	3 x 3	9	Store tools and material away from access, Keep work area clean	1 x 1	1
Accessing Heat Tracing	Working at Heights	3 x 5	15	Wear safety harness; mandatory tie-off when working above 1.8m / 6 Ft, Clean and inspect harness; document inspection on approved form, Complete a fall protection plan and review with all personnel involved in this task, Ensure training /certification is appropriate for task, Complete/review FLHA	1 x 2	2
	Breaking the plane (ladder or step up use)	3 x 4	12	At any time a ladder or step-up must be used and you will be at an elevation of 6' or more or breaking the plane of a hand rail 100% tie-off is required	1 x 2	2
	Ladder Use	3 x 4	12	Follow safe ladder use practice (proper tie-offs and 3 point contact maintained at all times)	1 x 1	1
Lockout panel to tighten terminals	Live Electrical Equipment	4 x 5	20	Ensure all isolation points are identified, tagged and locked open as per IOL "LOTO" procedure and work permit process, Ensure all circuits have been identified, Ensure all circuits have been identified, Perform voltage checks prior to starting work at all times and when returning to task for any reason, Wear arc flash gear when working on 480 V circuits, Voltage rated insulated gloves must be worn when testing and working on circuits or parts 50 V or higher, Test instruments must be rated for the circuits and equipment they will be testing and must be designed for the environment in which they will be used, Ensure all test equipment is inspected prior to each use, Tighten all terminals and contactors re-energize pan to do EHT PM tests	1 x 1	1

Name: Hazard Assessment E-76 - Electrical Heat Tracing PM's
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Performing current voltage test	Live Electrical Equipment	3 x 5	15	Establish a control zone as per limits of approach for the voltage present and whenever a panel or junction box is left open or exposed to other personnel, Ensure only a qualified person is performing work in live panels, Avoid lifting or moving energized conductors and ensure movement is kept to a minimum	1 x 1	1
	Falling Objects	3 x 4	12	Use the positive hand-to-hand transfer of materials and tools to ensure co-workers have control before releasing your grip, Use canvas bags to move materials/tools into place when hand-to-hand transfer is not possible, Tool lanyards used to safeguard against accidental drops, Red ribbon and tag drop zones	1 x 1	1
Housekeeping Cleanup work area	Trip hazard	3 x 3	9	Keep work area clean, Remove tools and materials that are not being used	1 x 1	1

Name: Hazard Assessment E-76 - Electrical Heat Tracing PM's
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
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3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment E-77 - Cable Tugger Use
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Preparation of work area	Other People/Workers In Area	3 x 3	9	Develop control zone, Set up flagging and tag all 4 sides and us barricades as needed	1 x 1	1
	Congested Work Area		0	Identified traffic control personnel are to be used to warn vehicles entering the work area of the hazards in the area and the pre-cautions to be taken, All traffic control personnel are to wear high visibility vests		0
	Falls/Slip/Trips	3 x 3	9	Store tools and material away from access, Keep work area clean, Remove snow and ice where possible, Ice melt and sand to be used on icy areas as needed, Winter cleats are to be worn where slip hazards exist, Be aware of uneven surfaces and changing conditions	1 x 1	1
	Lighting (poor or excessive)	3 x 3	9	Install temporary lighting; if /where needed	1 x 1	1
Cable Tugger installation/mounting	Pinch Points / Crush Type Injury	4 x 4	16	Identify pinch points, Maintain proper body positioning (line of fire) and footing, Ensure good communication between workers, Gloves - Leather	1 x 1	1
	Mobile Equipment	4 x 5	20	Wheels of forklift to be blocked, emergency brake on, Forklift must be shut off and in gear to prevent forklift movement, The keys must be removed and forklift tagged "Do Not Operate, Pre-use inspection of forklift completed	1 x 1	1
	Muscle Strain	4 x 3	12	Practice proper lifting techniques, Stretching and proper body positioning	1 x 1	1
	Airborne Dust, Debris, Fumes		0	Use of face shield and safety glasses		0
	Live Electrical Equipment	4 x 5	20	Keep power cords clear of the Tugger., Power cords feeding Tugger must be protected from damage by stringing cables overhead (7'), tied off to mid-rails or if placed along the ground, they must be mechanically protected	1 x 1	1

Name: Hazard Assessment E-77 - Cable Tugger Use
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Tugger operation	Overloading the cable Tugger	3 x 3	9	Tugger is to be used as per manufactures specifications, Do not exceed Tugger maximum load ratings	1 x 1	1
	Stressing cable	3 x 3	9	Maximum stress load on the cable shall not exceed the manufacturers specifications, Load stress gauge must be monitored at all times and pull stopped if stress is within 80% of the manufacturers guidelines	1 x 1	1
	Pinch Points / Crush Type Injury	3 x 4	12	Be aware of position of hands (line-of-fire) , Identify pinch points, Wear proper PPE (leather gloves), Disconnect power prior to working on the Tugger, Ensure good communication between workers	1 x 1	1
	Lack of communication causing continuation of pull during a hazardous situation	3 x 3	9	Radios to be used at both ends of the cable pull as well as at identified locations along the route to ensure task is performed safely and task can be halted immediately upon identification of a hazardous situation	1 x 1	1
Demobilization	Pinch Points / Crush Type Injury	3 x 4	12	Stay alert and aware of body and limb positioning when executing task, Maintain proper body positioning (line-of-fire), Disconnect power prior to working on the Tugger, Communicate and coordinate with all workers in the vicinity to eliminate crush points, Use appropriate tools to eliminate crush points, Gloves - Leather	1 x 1	1
	Strains/Sprains	3 x 3	9	Practice proper lifting tecniques (use legs), Know your limits; obtain assistance from co-workers for heavy lifts, Take micro breaks; stretch to improve circulation, Pre-task stretching	1 x 1	1
Housekeeping Clean up work area	Trip hazard	3 x 3	9	Remove tools and materials that are not being used, Flag off work area, Keep work area clean	1 x 1	1

Name: Hazard Assessment E-77 - Cable Tugger Use
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

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2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment G-01 - Working Alone
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit From Client	Not Obtaining Permit	2 x 2	4	Ensure clear understanding of all assigned workers of the task and/or permit	1 x 1	1
	Not Understanding Permit Requirements	3 x 3	9	Ensure clear understanding of task / permit of all assigned workers	1 x 1	1
Obtain Full Job Specific Information From Manager	Not Identifying all Existing & Potential Location and Work Site Hazards	3 x 3	9	Review full job scope and responsibilities with Supervisor	1 x 1	1
Contact and Advise Working Alone Administrator (WAA) Specifics: Job Location, Date, Times, Reporting Intervals, Detailed Route to Site, Potential /Existing Hazards	Not Identifying all Existing & Potential Location and Work Site Hazards	3 x 3	9	Review full job scope and responsibilites w/ Working Alone Administrator	1 x 1	1
	Relay of Incomplete or Incorrect Information	3 x 4	12	Ensure clear understanding of job task, location, date, time, reporting intervals with method of communication established (cell phone or 2 way radio)	1 x 1	1
Arrival at Job Site Contact (WAA) - Advise of Safe Arrival, Advise Start Time of Assigned Job	If Emergency Does Occur, WAA May Not Know Employee's Exact Location	2 x 3	6	Contact WAA, Verify/confirm all previously discussed information	1 x 1	1
Carry Out Activities Required to Complete Job	Potential For Incident to go Unnoticed by WAA	3 x 3	9	Continuously contact WAA according to the previously discussed/set up intervals to report	1 x 1	1
Completed Job Contact WAA To Advise WAA of expected departure From Site	If Emergency Does Occur, WAA May Not Know Employee's Exact Location	2 x 3	6	Contact WAA, Verify and confirm all previously discussed information (route home and ETA)	1 x 1	1
Safe Arrival at Home Contact & Advise WAA and Manager	Potential For Motor Vehicle Collision On Drive Home To Go Unnoticed	2 x 3	6	Contact WAA and manager, Verify and confirm safe arrival at home	1 x 1	1

Name: Hazard Assessment G-01 - Working Alone
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

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5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
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2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment G-02 - Driving
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Develop Pre-Trip Route Plan Once completed, Pre-Trip Route Plan Reviewed/Approved	Changing Weather or Road Conditions	3 x 3	9	Check weather forecast and road conditions	1 x 1	1
	Not Identifying all Existing & Potential Location and Work Site Hazards	3 x 3	9	Review all hazards involved to do the job, as outlined	1 x 1	1
Pre-Trip Inspection Before leaving, visually inspect vehicle/trailer	Low Tires, Poor Tread	4 x 4	16	Inspect all tires for proper inflation/air pressure and good tread condition (not bald)	2 x 2	4
	Potential Load Shift /Unstable Load	4 x 4	16	Secure load with ratchet straps, Stop, re-test load securement a few km's out, All loads carefully checked for proper securement	1 x 1	1
	Dirty Windshield, Glass, Mirrors, Lights	4 x 4	16	Clean vehicle for safe operation	2 x 1	2
	Obstacles, Debris, Etc. In Immediate Vicinity (Beside, Under, Behind, Ahead)	3 x 4	12	Walk 360 degrees around vehicle; complete external visual check of vehicle and immediate area	1 x 1	1
Enter the Vehicle's Driver Side/Seat	Pinch Points	3 x 3	9	Be aware of hand placement (line-of-fire)	1 x 1	1
	Swinging Doors	2 x 2	4	Open and close doors in slow, controlled fashion	1 x 1	1
Pull/Extend Seat Belt and Fasten Closed	Operating Vehicle Without Wearing Seat Belt	4 x 5	20	Follow/adhere to Control Tech's policy and all applicable and appropriate laws	2 x 2	4
	Pinch Points	3 x 3	9	Be aware of hand placement (line-of-fire)	1 x 1	1
Commence Driving/Operating Vehicle	Fatigue; Loss of focus /attention	4 x 5	20	Take micro breaks as required to reduce strain/fatigue	2 x 2	4
	Wildlife	3 x 4	12	Monitor sides of roads for wildlife; watch ditches and stay attentive at all times, Use horn to startle animals to run away from sound	2 x 1	2
	Changing Weather or Road Conditions	4 x 4	16	Winter Tires, Check weather forecast and road conditions, Drive to the conditions not the speed limit	2 x 2	4
	Other Drivers	4 x 5	20	Drive defensively AT ALL TIMES; Scan, identify, predict, determine, execute	2 x 2	4

Name: Hazard Assessment G-02 - Driving
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Parking	Misjudging Clearance Around Vehicle	5 x 2	10	Use of Spotter, Guide in when backing up	1 x 1	1
	Rolling Vehicle	4 x 3	12	Employ hill parking techniques (procedures) when parking, Use proper blocking and wheel chocking methods	1 x 1	1

Name: Hazard Assessment G-02 - Driving
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment G-03 - Housekeeping
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Review Safe Work Permit from Client Assess Site Requiring Clean Up Obtain Job Specific Information from Manager	Not Identifying all Existing & Potential Location and Work Site Hazards	3 x 3	9	Review MSDS, Review / discuss relevant PJHA's w/Crew(s), Review all other Safe Work Practices associated or involved with task, Review / discuss all related and relevant Safe Work Practices associated or involved with this task	1 x 1	1
	Changing Weather or Road Conditions	3 x 2	6	Review relevant Driving THA G-02 associated with this task	1 x 1	1
	Not Understanding Permit Requirements	3 x 3	9	Ensure clear understanding of all assigned workers of the task and/or permit, Review full job scope and responsibilities with Supervisor, Clear, concise communication to review /discuss full scope and order of job duties related to task	1 x 1	1
Collect / Pick Up Major Garbage Materials & Debris Dispose of Major Garbage Materials	Incorrect PPE Worn	4 x 3	12	Ensure all appropriate/required PPE is worn, Inspect PPE before using	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	4 x 3	12	Wear appropriate PPE (in good condition)	1 x 1	1
	Pinch Points / Crush Type Injury	4 x 3	12	Wear appropriate PPE (in good condition), Identify pinch points, Be aware of position of hands (line-of-fire)	1 x 1	1
	Awkward heavy lifting, muscle strain	4 x 3	12	Use mechanical lift where required, Use proper lifting techniques	1 x 1	1
	Falls/Slip/Trips	4 x 3	12	Ensure proper body positioning (line-of-fire) and solid footing, Use of traction control, Remove tripping hazards	1 x 1	1
	Obstacles, Debris, Etc. In Immediate Vicinity (Beside, Under, Behind, Ahead)	4 x 2	8	Perform housekeeping;ensure floor areas are clear of debris, equipment, tools, etc., 360 degree awareness - surroundings, other, etc.	1 x 1	1
	Poor Communication Within Crews	3	3	Where required, use a knowledgeable spotter, Be aware of surroundings and others	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Collect / Pick Up Major Materials Store in Safe/Neat/Orderly Fashion	Falls/Slip/Trips	4 x 3	12	Ensure proper body positioning (line-of-fire) and solid footing, Use of traction control, Remove tripping hazards	2 x 1	2
	Awkward heavy lifting, muscle strain	4 x 3	12	Use mechanical lift where required, Ensure proper body positioning (line-of-fire) and solid footing, Use proper lifting techniques	1 x 1	1
	Pinch Points / Crush Type Injury	3 x 5	15	360 degree awareness - surroundings, other, etc., Use of Spotter, Be aware of others and surroundings	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	3 x 3	9	Wear appropriate PPE (in good condition), Maintaing proper body positioning (line of fire) and footing	1 x 1	1
	Obstacles, Debris, Etc. In Immediate Vicinity (Beside, Under, Behind, Ahead)	3 x 3	9	Store equipment and tools away in safe, neat, orderly fashion away from debris, Perform housekeeping;ensure floor areas are clear of debris, equipment, tools, etc.	1 x 1	1
	Poor Communication Within Crews	3 x 3	9	Be aware of surroundings and others, Ensure good communication between workers	1 x 1	1
	Incorrect PPE Worn	3 x 3	9	Ensure all appropriate/required PPE is worn, Inspect PPE before using	1 x 1	1
Collect / Pick Up Minor Material & Debris Dispose / Deposit to Appropriate Containers etc.	Awkward heavy lifting, muscle strain	3 x 3	9	Utilize proper lifting and transport techniques and ask for assistance, where and if required, Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1
	Pinch Points	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing, Wear appropriate PPE (in good condition)	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	3 x 3	9	Wear appropriate PPE (in good condition), Maintaing proper body positioning (line of fire) and footing	1 x 1	1
	Incorrect PPE Worn	3 x 2	6	Ensure all appropriate/required PPE is worn	1 x 1	1
	Obstacles, Debris, Etc. In Immediate Vicinity (Beside, Under, Behind, Ahead)	3 x 3	9	Perform housekeeping;ensure floor areas are clear of debris, equipment, tools, etc., Safely dispose of debris into proper, approved containers	1 x 1	1
	Falls/Slip/Trips	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing, Clear area of slip/trip hazard, Be aware of surroundings and others	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Collect / Pick Up Major Equipment Store in Safe/Neat/Orderly Fashion	Incorrect PPE Worn	3 x 3	9	Ensure all appropriate/required PPE is worn, Inspect PPE before using	1 x 1	1
	Poor Communication Within Crews	3 x 4	12	Be aware of surroundings and others, Ensure good communication between workers	1 x 1	1
	Obstacles, Debris, Etc. In Immediate Vicinity (Beside, Under, Behind, Ahead)	3 x 3	9	Store equipment and tools away in safe, neat, orderly fashion away from debris, Be aware of surroundings and others	1 x 1	1
	Falls/Slip/Trips	3 x 3	9	360 degree awareness - surroundings, other, etc., Wear proper footwear with additional slip-on traction devices	1 x 1	1
	Awkward heavy lifting, muscle strain	3 x 3	9	Ensure proper body / extremities positioning (line-of-fire; caution with ground condition and solid footing), Use proper lifting techniques, Use mechanical lift where required	1 x 1	1
	Pinch Points / Crush Type Injury	3 x 3	9	Wear appropriate PPE (in good condition), Identify pinch points	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	3 x 3	9	Wear appropriate PPE (in good condition), Maintaing proper body positioning (line of fire) and footing	1 x 1	1
Collect / Pick Up Minor Equipment & Tools Store in Safe/Neat/Orderly Fashion	Incorrect PPE Worn	3 x 3	9	Ensure all appropriate/required PPE is worn	1 x 1	1
	Obstacles, Debris, Etc. In Immediate Vicinity (Beside, Under, Behind, Ahead)	3 x 3	9	Store equipment and tools away in safe, neat, orderly fashion away from debris, Separate debris from equipment and tools	1 x 1	1
	Falls/Slip/Trips	3 x 3	9	360 degree awareness - surroundings, other, etc., Wear proper footwear with additional slip-on traction devices	1 x 1	1
	Awkward heavy lifting, muscle strain	3 x 3	9	Use proper lifting techniques, Use mechanical lift where required, Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1
	Pinch Points	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing, Identify pinch points, Ensure all appropriate/required PPE is worn	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Sharp/Pointed Objects/Cuts & Punctures	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing, Wear appropriate PPE (in good condition)	1 x 1	1
Sweep Up & Dispose of Debris & Garbage	Incorrect PPE Worn	3 x 2	6	Ensure all appropriate/required PPE is worn		0
	Falls/Slip/Trips	3 x 2	6	Ensure proper body positioning (line-of-fire) and solid footing, Use of traction control, Wear appropriate PPE (in good condition)	1 x 1	1
	Awkward heavy lifting, muscle strain	3 x 3	9	Use proper lifting techniques, Use mechanical lift where required	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	3 x 3	9	Wear appropriate PPE (in good condition), Maintaing proper body positioning (line of fire) and footing	1 x 1	1
	Dusts	3 x 2	6	Wear appropriate PPE (in good condition)	1 x 1	1
Wash Floor, Where Required Store All Floor Mopping Equipment in Safe/Neat/Orderly Fashion	Falls/Slip/Trips	3 x 3	9	Use caution moving around wet floors, Post Signage if available and where necessary, Store floor mopping equipment & supplies properly away in safe, neat, orderly fashion, Be aware of others and surroundings, Ensure proper footing in slippery conditions	1 x 1	1
	Chemical Inhalation	3 x 2	6	Review MSDS for soap	1 x 1	1
	Awkward Stance/Position/Posture	2 x 2	4	Stretching and proper body positioning	1 x 1	1

Name: Hazard Assessment G-03 - Housekeeping
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment G-04 - Working With Portable Power Tools
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work And/Or Hot Work Permit From Client	Not Understanding Permit Requirements	2 x 2	4	Perform ONLY work identified by permit, Ensure clear understanding of all assigned workers of the task and/or permit	1 x 1	1
Obtain Job Specific Information From Manager	Relay of Incomplete or Incorrect Information	2 x 2	4	Review full job scope and responsibilities with Supervisor	2 x 2	4
Complete Associated PJHA	Not Identifying all Existing & Potential Location and Work Site Hazards	2 x 2	4	Review / discuss relevant THA's with crew(s), Review / discuss relevant JHA's with crew(s), Review all related / relevant Safe Work Practices (SWP's) associated or involved with this task	2 x 2	4
Identify Tool(s) and Equipment Necessary To Perform Task	Incorrect PPE Worn	3 x 3	9	Ensure all appropriate PPE is worn (hand, eye, face, hearing) must be in good condition	1 x 1	1
Collect Tools & Equipment Necessary To Perform Task Inspect All Tools And Equipment Before Use	Obstacles, Debris, Etc. In Immediate Vicinity (Beside, Under, Behind, Ahead)	2 x 2	4	Perform housekeeping;ensure floor areas are clear of debris, equipment, tools, etc.	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	3 x 3	9	Maintaing proper body positioning (line of fire) and footing, Wear appropriate PPE (in good condition)	1 x 1	1
	Poor Communication Within Crews	2 x 2	4	Be aware of surroundings and others	1 x 1	1
	Awkward heavy lifting, muscle strain	3 x 3	9	Use proper lifting techniques, Maintain proper body positioning (line-of-fire)	1 x 1	1
Lock Out / Tag Out Deficient Tool(s) or Equipment	Use of Damaged/Defective Tools or Equipment	2 x 2	4	Where required, consult operator's manual, Inspect all tools and equipment prior to use	1 x 1	1
Take Tool(s) and Equipment To Task Area	Falls – Slip/Trips	3 x 3	9	Wear proper footwear with additional slip-on traction devices, Review appropriate SWP's for tool(s) and equipment to be used,	1 x 1	1
	Pinch Points / Crush Type Injury	3 x 3	9	Ensure all appropriate/required PPE is worn, Use proper tools and equipment correctly	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Extension Cord Appropriate For Task Inspect Extension Cord Before Use	Use Of Damaged /Defective Cord	2 x 3	6	Inspect cord and receptacle for any signs of damage	1 x 1	1
	Electricity, Electrical Shock	3 x 4	12	Ensure all appropriate PPE is worn (hand, eye) and in good condition	1 x 1	1
Identify Source Of Power For Plug Extension Cord	Obstacles, Debris, Etc. In Immediate Vicinity (Beside, Under, Behind, Ahead)	2 x 2	4	Clear area of slip/trip hazard, Be aware of surroundings and others	1 x 1	1
Plug Extension Cord Into Power Source	Falls/Slip/Trips	3 x 3	9	Wear proper footwear with additional slip-on traction devices, Be aware of surroundings and others, Use caution -Focus; eyes and mind on task	1 x 1	1
Use Proper Tool(s) or Equipment for Required Task	Sharp Edges – Cuts/Lacerations		0	Maintaing proper body positioning (line of fire) and footing, Wear appropriate PPE (in good condition)		0
	Use of Damaged/Defective Tools or Equipment	2 x 2	4	Monitor operation of tool(s) or equipment	1 x 1	1
	Incorrect PPE Worn	3 x 3	9	Ensure all appropriate PPE is worn (hand, eye, face, hearing) must be in good condition, Exercise proper donning and doffing of all PPE	1 x 1	1
	Dusts	2 x 2	4	Wear appropriate PPE (in good condition) - goggles/mask	1 x 1	1
	Moving Parts	3 x 3	9	Focus; eyes and mind on task, Be aware of surroundings and others, Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Heated Material	2 x 2	4	Ensure all appropriate/required PPE is worn, Inspect PPE before using, Maintaing proper body positioning (line of fire) and footing	1 x 1	1
	Pinch Points	3 x 3	9	Ensure proper body and body parts positioning (line-of-fire) and solid footing, Wear appropriate PPE (in good condition)	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Prepare Tool(s) and Equipment For Return To Proper Storage Place	Dropping tools or equipment	2 x 2	4	360 degree awareness - surroundings, other, etc.	1 x 1	1
	Cuts / abrasions from tools, material	3 x 3	9	Wear appropriate PPE (in good condition), Maintaing proper body positioning (line of fire) and footing, Return equipment and tools to be stored away in safe, neat, orderly fashion	1 x 1	1
	Falls – Slip/Trips	3 x 3	9	Ensure proper body and body parts positioning (line-of-fire) and solid footing, Wear proper footwear with additional slip-on traction devices	1 x 1	1
	Obstacles, Debris, Etc. In Immediate Vicinity (Beside, Under, Behind, Ahead)	3 x 2	6	Separate debris from equipment and tools, Be aware of surroundings and others, Perform housekeeping;ensure floor areas are clear of debris, equipment, tools, etc.	1 x 1	1
	Poor Communication Within Crews	2 x 2	4	Ensure good communication between workers	1 x 1	1
	Incorrect PPE Worn	2 x 2	4	Ensure all appropriate PPE is worn (hand, eye, face, hearing) must be in good condition	1 x 1	1
Unplug Extension Cord (at Receptacle) From Power Source	Incorrect PPE Worn	2 x 2	4	Ensure all appropriate PPE is worn (hand, eye, face, hearing) must be in good condition	1 x 1	1
	Electricity, Electrical Shock	2 x 2	4	Inspect extension cord for any external damage from use, If required, decommission for repair or replacement	1 x 1	1
Prepare Extension Cord to be Rolled Up	Sharp/Pointed Objects/Cuts & Punctures	3 x 3	9	Ensure all appropriate/required PPE is worn, Inspect PPE before using, Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Pinch Points	3 x 3	9	Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Awkward Stance/Position/Posture	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1
	Falls – Slip/Trips	3 x 3	9	Wear appropriate PPE (in good condition), Wear proper footwear with additional slip-on traction devices	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Obstacles, Debris, Etc. In Immediate Vicinity (Beside, Under, Behind, Ahead)	2 x 2	4	Store properly wrapped extension cord and tools away in safe, neat, orderly fashion, Perform housekeeping; ensure floor areas are clear of debris, equipment, tools, etc.	1 x 1	1
Return Extension Cord to Proper Storage Place	Falling Objects	2 x 2	4	Heavy parts should be stored on lower shelves/floor	1 x 1	1
	Falls – Slip/Trips	2 x 2	4	Wear proper footwear with additional slip-on traction devices	1 x 1	1

Name: Hazard Assessment G-04 - Working With Portable Power Tools
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment G-05 - Loading & Unloading Trucks (Shop and Field)
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Job Specific Information From Manager	Not Identifying all Existing & Potential Location and Work Site Hazards	2 x 2	4	Ensure all appropriate/required PPE is worn, Inspect PPE before using, Review full job scope and responsibilities with Supervisor	1 x 1	1
	Relay of Incomplete or Incorrect Information	3 x 2	6	Ensure clear understanding of all assigned workers of the task and/or permit	1 x 1	1
Moving Trucks In Yard Compound	Congestion (Work Areas, Access Ways)	3 x 3	9	Use Caution - FOCUS; eyes and mind on task, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task	1 x 1	1
	Contact with equipment, personnel, vehicles or structure		0	Drive in or back in slowly, when possible use a spotter, Be aware of surroundings and others		0
Maneuver Truck(s) to Ramps or Areas To Make Drop or Unload	No designated, knowledgeable spotter	4 x 3	12	Review standard signals to be used to direct movement, Use of Spotter	1 x 1	1
Placing Stanchion	Awkward heavy lifting, muscle strain	3 x 2	6	Utilize proper lifting and transport techniques and ask for assistance, where and if required	1 x 1	1
	Traffic (Personnel, Equipment, Vehicles)	3 x 4	12	Review signals to be used between spotter and operator, Use of Spotter	1 x 1	1
Loading or Unloading Truck(s)	Awkward heavy lifting, muscle strain	3 x 3	9	Ensure proper body and body parts positioning (line-of-fire) and solid footing, Practice proper lifting techniques, Use mechanical lift where required	1 x 1	1
	Pinch Points / Crush Type Injury	4 x 3	12	Wear all appropriate/required PPE, Maintain proper body positioning (line of fire) and footing, Be aware of surroundings and others	1 x 1	1
	Sharp Edges – Cuts/Lacerations	4 x 3	12	Maintain proper body positioning (line of fire) and footing, Ensure all appropriate/required PPE is worn, Inspect PPE before using	1 x 1	1
	Operating Crane or Forklift in Close Quarters	3 x 4	12	Be aware of surroundings and others, If/where necessary, flag area off	1 x 1	1
	Overhead Hazards	3 x 2	6	Watch for overhead obstructions	1 x 1	1
	Incorrect PPE Worn	3 x 3	9	Ensure all appropriate PPE is worn (hand, eye, face, hearing) must be in good condition	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Poor Communication Within Crews	3 x 3	9	Ensure good communication between workers	1 x 1	1
	Obstacles, Debris, Etc. In Immediate Vicinity (Beside, Under, Behind, Ahead)	4 x 4	16	Perform housekeeping; ensure work area is clear of debris, equipment, tools, etc.	1 x 1	1
	Falls – Slip/Trips	3 x 3	9	Wear proper footwear with additional slip-on traction devices, Ensure proper footing in slippery conditions	1 x 1	1
Leaving With Load on Truck	Unsecure Loads	3 x 4	12	Secure load with ratchet straps, Stop, re-test load securement a few km's out, All loads carefully checked for proper securement, Ensure proper body and body parts positioning (line-of-fire) and solid footing, Inspect approved tie-down fasteners and/or lifting lugs for any signs of damage	1 x 1	1

Name: Hazard Assessment G-05 - Loading & Unloading Trucks (Shop and Field)
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
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2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment G-06 - Working In Confined Space
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Confined Space Safe Work Permit From Client	Not Understanding Permit Requirements	2 x 1	2	Ensure clear understanding of all assigned workers of the task and/or permit	1 x 1	1
	Not Identifying all Existing & Potential Location and Work Site Hazards	2 x 3	6	Review full job scope and responsibilities with Supervisor, Ensure all appropriate/required PPE is worn, Inspect PPE before using	1 x 1	1
Obtain Job-Specific Information From Manager	Personnel in Area	2 x 3	6	Review/discuss evacuation plans and exits with crew(s)	1 x 1	1
	Relay of Incomplete or Incorrect Information	2 x 3	6	Review / discuss relevant THA's with crew(s), Review / discuss relevant JHA's with crew(s), Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Confined Space training is mandatory, Use spotters; verify proper signals used	2 x 1	2
Complete Associated PJHA	Not Identifying all Existing & Potential Location and Work Site Hazards	3 x 4	12	Review all hazards involved to do the job, as outlined	1 x 1	1
Plan And Document The Rescue Plan	Confined Space Entry	3 x 4	12	Hold tailgate meeting, Observe Layout of Confined Space Entrance/Opening, Work Area, Ceilings, Adverse Temperatures	1 x 1	1
	Ventilation	3 x 4	12	Ensure proper ventilation, Confined Space training is mandatory, Follow SWP's	1 x 1	1
	Electrical Shock	3 x 4	12	Confined Space training is mandatory, Follow SWP's	1 x 1	1
	Any Other Recognized Serious Safety or Health Hazard (Loud Ambient Noise, Slips, Falls, Poor LIghting	3 x 3	9	360 degree awareness - surroundings, other, etc., Confined Space training is mandatory, Follow SWP's, Review/discuss hazards identified, dangers, and options for best rescue plan	1 x 1	1
	Interruptions in Communication Within Crews	3 x 4	12	Review options for maintaining communication when loud ambient noise present	1 x 1	1
	Not Understanding Resuce Plan or Execution	3 x 3	9	Review/discuss evacuation plans and exits with crew(s)	1 x 1	1
Air Quality Testing By Qualified Personnel	Potential Exposure to Hazardous Atmosphere	3 x 4	12	Continuous gas monitoring, Confined Space training is mandatory	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Faulty Monitor	3 x 4	12	Wear personal monitor - calibrate, bump test, record, battery level checked	1 x 1	1
	Configuration of CS Area Prevents Adequate Purging	3 x 4	12	Ensure layout of CS area is reviewed and well known to all personnel involved, including spotter	1 x 1	1
Put On Lifeline Harness and SCBA / SABA (if required)	Unfamiliarity With Harness Use	4 x 4	16	Ensure to follow guidelines for SCBA or SABA as per H2S training, Participate in proper training, Ensure all appropriate PPE is worn (hand)	1 x 1	1
	Faulty Equipment	4 x 4	16	Continuous gas monitoring, Inspect all equipment prior to use, Ensure to follow SWP for ladder use, Inspect ladder prior to use	1 x 1	1
	Improper Harness	4 x 4	16	Ensure to follow guidelines for SCBA or SABA as per H2S training, Thoroughly inspect equipment; document inspection; tag out defective tools, as required	1 x 1	1
Enter Confined Space	Electricity, Electrical Shock	3 x 4	12	Ensure all appropriate/required PPE is worn, Ensure correct Lockout/Tagout practice and location	1 x 1	1
	Pipes/Lines/Flanges/Valves In Area	3 x 3	9	Ensure to follow guidelines for SCBA or SABA as per H2S training, Continuously monitor atmosphere, Wear personal monitor - calibrate, bump test, record, battery level checked	1 x 1	1
	Rotating or Moving Equipment	4 x 4	16	Ensure that equipment is isolated that is being adjusted, Communicate with others in the area, monitor for H2S & LEL, Ensure proper body and extremities positioning (line of fire), Wear all appropriate/required PPE	1 x 1	1
	Loud Ambient Noise	4 x 3	12	Ensure all appropriate PPE is worn (hand, eye, face, hearing) must be in good condition	1 x 1	1
	Engulfment Hazards	4 x 5	20	Confined Space training is mandatory, Ensure all proper PPE is worn/utilized for task, must be in good condition	1 x 1	1
	Falls – Slip/Trips	3 x 4	12	Wear proper footwear with additional slip-on traction devices	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Uneven Surfaces	3 x 4	12	Ensure proper footing in slippery conditions, Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	3 x 4	12	360 degree awareness - surroundings, other, etc., Wear all appropriate/required PPE	1 x 1	1
	Tight Working Spaces	3 x 4	12	360 degree awareness - surroundings, other, etc., Ensure layout of CS area is known to all personnel involved, including spotter	1 x 1	1
Accomplish Task, As Specified	Identify all hazards & potential hazards	2 x 2	4	Outlined in THA and JHA for specified task, reviewed at start of THA	1 x 1	1
	Confined Space Entry	3 x 3	9	Confined Space training is mandatory, Follow confined space code of practice and THA	1 x 1	1
Exit Confined Space Area	Pipes/Lines/Flanges/Valves In Area	3 x 3	9	Confined Space training is mandatory, Wear personal monitor - calibrate, bump test, record, battery level checked, Continuously monitor atmosphere, Maintaing proper body positioning (line of fire) and footing	1 x 1	1
	Electricity, Electrical Shock	3 x 4	12	Ensure correct Lockout/Tagout practice and location	1 x 1	1
	Moving Parts	3 x 4	12	Be aware of pinch points associated with use of hand tools, 360 degree awareness - surroundings, other, etc.	1 x 1	1
	Loud Ambient Noise	3 x 3	9	Wear appropriate PPE (in good condition)	1 x 1	1
	Tight Working Spaces	3 x 4	12	Ensure layout of CS area is known to all personnel involved, including spotter	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	3 x 4	12	360 degree awareness - surroundings, other, etc., Use Caution - FOCUS; eyes and mind on task	1 x 1	1
	Uneven Surfaces	2 x 4	8	Watch for slippery and rough terrain, Ensure proper footing, Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1
	Falls – Slip/Trips	3 x 4	12	Wear proper footwear with additional slip-on traction devices, 360 degree awareness - surroundings, other, etc.	1 x 1	1

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment G-07 - Using Cranes and Hoists
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit from Client Obtain Job Specific Information from Manager Complete Associated PJHA	Not Identifying all Existing & Potential Location and Work Site Hazards	3 x 4	12	Review / discuss relevant JHA's with crew(s), Review / discuss relevant THA's with crew(s)	1 x 1	1
	Not Having Clear Understanding Of Scope of JHA Or Permit	2 x 3	6	Ensure all appropriate/required PPE is worn, Be aware of others and surroundings, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task	1 x 1	1
	Relay of Incomplete or Incorrect Information	4 x 4	16	Spotter must understand standard signals, positioning and techniques of proper signaling, Ensure spotter is properly identified to all personnel involved, Ensure clear understanding of all assigned workers of the task and/or permit	1 x 1	1
	Potential for Untrained, Unauthorized Personnel to Enter Hazardous Area	4 x 4	16	Install barricades and flag off work area, if required, Be aware of others and surroundings	1 x 1	1
Obtain Appropriate Rigging Equipment	Incorrect PPE Worn	4 x 4	16	Ensure all appropriate/required PPE is worn, Inspect PPE before using	1 x 1	1
	Poor Communication Within Crews	4 x 4	16	Signage posted as clear alert of danger, One Supervisor for Lift Operation, Lift area must be roped or flagged off	1 x 1	1
	Crews Misunderstanding Action to Occur	4 x 4	16	Ensure clear and concise instructions can be heard, if not use two way radios with good signal strength, Mandatory spotter designated	1 x 1	1
	Pinch Points / Crush Type Injury	4 x 4	16	Wear appropriate PPE (in good condition), Maintain proper body positioning (line of fire) and footing, Be aware of surroundings, equipment and others in vicinity	1 x 1	1
	Property Damage (Unbalanced Gear Tips or Falls Over)	4 x 4	16	Inspect all eyelets and lifting rings; must be sound & strong, All lifting hooks must be equipped with most clasps safety latches, Visual inspection of slings /clevises; NO rips, tears or fraying of fabric	1 x 1	1
	Slips, Trips, Falls	4 x 4	16	Wear proper footwear with additional slip-on traction devices, Be aware of surroundings and others, Use caution -Focus; eyes and mind on task	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Poor housekeeping; debris in/around task area	4 x 4	16	Perform housekeeping; ensure task areas are clear of debris, equipment, tools, etc	1 x 1	1
Connect Rigging to Equipment	Pinch Points / Crush Type Injury	4 x 4	16	Wear appropriate PPE (in good condition), Maintain proper body positioning (line of fire) and footing, Ensure equipment is free to access or move	1 x 1	1
	Sharp Edges – Cuts/Lacerations	4 x 4	16	Wear appropriate PPE (in good condition)	1 x 1	1
	Property Damage (Unbalanced Gear Tips or Falls Over)	4 x 4	16	Ensure all personnel in area understand process of action to occur, Tag line connected; ground crews assist to steady loads, communication with crane operator, spotter, and crew, ensure proper weight distribution of rigging on equipment, Ensure correct utilization of equipment; adhere to SWP	1 x 1	1
	Slips, Trips, Falls	3 x 4	12	Be aware of surroundings and others, Wear proper footwear with additional slip-on traction devices	1 x 1	1
	Awkward Stance/Position/Posture	4 x 4	16	Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1
Connect Rigging to Crane or Hoist	Poor Communication Within Crews	4 x 4	16	Use Caution - FOCUS; eyes and mind on task, Maintain proper communication (eye contact) with crane or hoist operator & spotter, Wear all appropriate/required PPE	1 x 1	1
	Awkward Stance/Position/Posture	4 x 4	16	Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1
	Crane or hoist load ratings not adhered to	5 x 4	20	Ensure load ratings of crane or hoist are sufficient for load (clearly marked on equipment)	1 x 1	1
	Equipment Failure	5 x 5	25	Pre use inspection, thoroughly inspect equipment; document inspection; tag out defective equipment as required	1 x 1	1
	Sling or clevis strap failure	4 x 4	16	Ensure proper use of sling or clevis strapping, Pad sharp corners on load to prevent sling damage	1 x 1	1
	Uncontrolled release of straps (Stored Energy)	4 x 4	16	Mandatory review of Crane Safety, Rigging Safety and Hoisting & Rigging Safe Work Practices (SWP's) associated or involved with this task	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Uncontrolled Movement of Material	4 x 4	16	Tag line connected; ground crews assist to steady loads, Use proper rigging techniques; refer to Using Cranes & Hoists THA	1 x 1	1
Lift/Move Load	Property Damage (Unbalanced Gear Tips or Falls Over)	4 x 4	16	Tag line connected; ground crews assist to steady loads	1 x 1	1
	Equipment Failure	4 x 4	16	Signage posted as clear alert of danger, One Supervisor for Lift Operation, Lift area must be roped or flagged off, Pre use inspection, thoroughly inspect equipment; document inspection; tag out defective equipment as required	1 x 1	1
	Sling or clevis strap failure	4 x 4	16	Ensure proper connection on all aspect of loads	1 x 1	1
	Uncontrolled release of straps (Stored Energy)	4 x 4	16	Mandatory review of Crane Safety, Rigging Safety and Hoisting & Rigging Safe Work Practices (SWP's) associated or involved with this task	1 x 1	1
	Uncontrolled Movement of Material	4 x 4	16	Lift area must be roped or flagged off, Crews maintain proper clearance around boom or hoist while in motion	1 x 1	1
	Uneven Surfaces	4 x 3	12	Be aware of surroundings and others, Use caution - Focus; eyes and mind on task, Housekeeping - ensure route is clear of obstructions with clear path to lift through	1 x 1	1
	Slips, Trips, Falls	4 x 3	12	Be aware of surroundings and others, Maintain proper footing	1 x 1	1
	Pinch Points / Crush Type Injury	3 x 4	12	Wear all appropriate/required PPE, Maintain proper body positioning (line of fire) and footing, Beware of the cranes swing radius, stay out of the crush zone, maintain focus at all times	1 x 1	1
	Awkward Stance/Position/Posture	4 x 4	16	Ensure proper body positioning (line-of-fire) and solid footing, Be aware of surroundings, equipment and others in vicinity	1 x 1	1
	Poor Communication Within Crews	4 x 4	16	Maintain proper communication (eye contact) with crane or hoist operator & spotter	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Set Load Down	Leaving load suspended while crane or hoist unattended	4 x 5	20	Mandatory review of Crane Safety, Rigging Safety and Hoisting & Rigging Safe Work Practices (SWP's) associated or involved with this task, Use proper rigging techniques (refer to Using Cranes & Hoists THA) and rope management, Crane operator must maintain control of load whenever it is suspended and never leave the controls until load is in a safe, secured and stable location	1 x 1	1
	Pinch Points / Crush Type Injury	4 x 4	16	Mandatory review of Crane Safety, Rigging Safety and Hoisting & Rigging Safe Work Practices (SWP's) associated or involved with this task, Ensure all appropriate/required PPE is worn, Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Property Damage (Unbalanced Gear Tips or Falls Over)	5 x 5	25	Housekeeping - ensure landing zone is a clear, obstruction-free, even surfaces, Ensure load is completely stable prior to slackening slings or chains	1 x 1	1
	Uneven Surfaces	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1
	Awkward Stance/Position/Posture	3 x 5	15	Maintain proper body positioning (line-of-fire), Be aware of surroundings, equipment and others in vicinity	1 x 1	1
	Awkward heavy lifting, muscle strain	3 x 3	9	Utilize proper lifting and transport techniques and ask for assistance, where and if required	1 x 1	1
	Poor Communication Within Crews	4 x 4	16	Ensure all personnel in area are aware of large equipment loading, unloading, moving, Ensure all personnel in area understand process of action to occur	1 x 1	1
Unhooking Load	Pinch Points / Crush Type Injury	3 x 3	9	Wear appropriate PPE (in good condition), Be aware of hand placement (line-of-fire), Be aware of potential load shifting	1 x 1	1
	Property Damage (Unbalanced Gear Tips or Falls Over)	3 x 4	12	Unhook all slings, ropes, lines, clevis, shackles, Carefully inspect all parts of slings & rigging after each use; remove any with deficiencies from service	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Uneven Surfaces	3 x 3	9	Take down/dismantle roped/flagged area and store ropes, flagging, signage properly, Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1
	Poor housekeeping; debris in/around task area	2 x 2	4	Store slings, rigging, hooks, shackles, etc. properly, Perform housekeeping;ensure floor areas are clear of debris, equipment, tools, etc.	1 x 1	1
	Awkward Stance/Position/Posture	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1
	Awkward heavy lifting, muscle strain	3 x 3	9	Utilize proper lifting and transport techniques and ask for assistance, where and if required, Follow proper lifting procedures	1 x 1	1
	Poor Communication	3 x 3	9	Good Communication	1 x 1	1

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment G-08 - Work Site Inspection
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Travel To Site	Other Vehicles	2 x 3	6	Drive defensively AT ALL TIMES; Scan, identify, predict, determine, execute	2 x 2	4
	Wildlife	2 x 4	8	Monitor sides of roads for wildlife; watch ditches and stay attentive at all times, Use horn to startle animals to run away from sound	2 x 2	4
	Changing Weather or Road Conditions	3 x 4	12	Check weather forecast and road conditions, Drive to the conditions not the speed limit	1 x 1	1
	Driving Vehicle	2 x 4	8	Review Driving and Working Alone SWP's associated or involved with this task, Before leaving, visually inspect vehicle / trailer, Review relevant Driving THA G-02 associated with this task	1 x 1	1
	Getting Lost/Disoriented	3 x 3	9	Ensure adherence to Fit For Duty SWP, Review relevant Driving THA G-02 associated with this task	1 x 1	1
Arrival At Site, Park Vehicle	Congested Roadways Or Access Gates	3 x 3	9	Drive in or back in slowly, when possible use a spotter, Be aware of surroundings and others, Refer to site layout information for appropriate designated site access and parking location, Display appropriate Client Site access tag in vehicle windshield	1 x 1	1
	Fixed Object Hazards	3 x 3	9	Drive in or back in slowly, when possible use a spotter, Be aware of surroundings and others	1 x 1	1
	Potential Traffic Collision with Other Vehicles or Workers (Pedestrians)	3 x 4	12	Be aware of surroundings and others, Be observant for vehicle traffic while walking through parking area; follow marked pedestrian paths where ever possible	1 x 1	1
Check In With Client Operations	Not Carrying Appropriate Identification	2 x 2	4	Determine appropriate identification and certifications required for site access, Complete all required site orientations, Determine evacuation route and muster point	1 x 1	1
Obtain Safe Work Permit From Client	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 4	16	Review full job scope and responsibilities with Supervisor, Evacuation route and muster point location noted on permit	1 x 1	1
Obtain Job- Specific Information From Manager	Not Reviewing and Discussing All Related/Relevant SWP's	3 x 3	9	Follow SWP's, Ensure all appropriate PPE is worn (hand)	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Complete Associated PJHA	Not Identifying all Existing & Potential Location and Work Site Hazards	3 x 3	9	Wear appropriate PPE (in good condition), Ensure clear understanding of all assigned workers of the task and/or permit, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	1 x 1	1
Tour Site	Construction	2 x 3	6	Use Caution - FOCUS; eyes and mind on task , Be aware of surroundings and others	1 x 1	1
	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	3 x 5	15	Wear personal monitor - calibrate, bump test, record, battery level checked	1 x 1	1
	Live Site	3 x 4	12	Ensure that you are familiar with equipment being tested, Isloate energy sources to valves before testing, Personal monitors worn – calibrated, bumptested, recorded, with fully charged batteries, Ensure all appropriate/required PPE is worn, Inspect PPE before using	1 x 1	1
	Other Trades	2 x 2	4	Maintain communication with all other trades in same area, Safety watch	1 x 1	1
	Restricted Areas	2 x 2	4	Respect and obey posted signage	1 x 1	1
Turn In Permit To Client Site Operations	Failure To Report Any Additional Hazards or Incidents	2 x 3	6	Report any/all incidents and hazards	1 x 1	1
Return to Home Branch/Location	Getting Lost/Disoriented	2 x 3	6	Ensure adherence to Fit For Duty SWP, Check cellphone operation and fully charge battery	1 x 1	1
	Driving Vehicle	4 x 4	16	Perform 360 walk around check prior to moving any vehicle, Review relevant Driving THA G-02 associated with this task	1 x 1	1
	Other Traffic	4 x 4	16	Driver defensively; always maintain space cushion	1 x 1	1
	Wildlife	4 x 4	16	Monitor sides of roads for wildlife; watch ditches and stay attentive at all times, Use horn to startle animals to run away from sound	1 x 1	1
	Changing Weather or Road Conditions	3 x 4	12	Check weather forecast and road conditions, Drive to the conditions not the speed limit	1 x 1	1

Name: Hazard Assessment G-08 - Work Site Inspection
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Fixed Object Hazards	3 x 3	9	Drive in or back in slowly, when possible use a spotter, Be aware of surroundings and others	1 x 1	1

Name: Hazard Assessment G-08 - Work Site Inspection
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
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2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment G-09 - Use of Powder Actuated Tools
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit from Client	Not Understanding Permit Requirements	3 x 3	9	Ensure clear understanding of all assigned workers of the task and/or permit, Maintain communication with operations, Perform ONLY work identified by the permit	1 x 1	1
Obtain Job-Specific Information from Manager	Relay of Incomplete or Incorrect Information	3 x 4	12	Ensure clear understanding of all assigned workers of the task and/or permit, Review full job scope and responsibilities with Supervisor	1 x 1	1
Complete Associated PJHA	Not Identifying all Existing & Potential Location and Work Site Hazards	3 x 3	9	Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Ensure all appropriate/required PPE is worn, Inspect PPE before using	1 x 1	1
	Potential Exposure to Hazardous Atmosphere	3 x 4	12	Personal monitors worn – calibrated, bumptested, recorded, with fully charged batteries, Test for presence of combustible gases	1 x 1	1
Identify Tool(s) and Equipment Necessary to Perform Task	Congestion (Work Areas, Access Ways)	3 x 3	9	Perform housekeeping; ensure work area is clear of debris, equipment, tools, etc.	1 x 1	1
	Poor Communication Within Crews	3 x 3	9	Communicate task to all crews in proximity, Be aware of others and surroundings	1 x 1	1
	Incorrect PPE Worn	2 x 2	4	Exercise proper donning and doffing of all PPE, Ensure all apprpriate PPE is worn, (hand, eye) and must be in good condition	1 x 1	1
Collect Tool(s) and Equipment Necessary to Perform Task	Sharp Edges – Cuts/Lacerations	3 x 3	9	Ensure proper body and body parts positioning (line-of-fire) and solid footing, Wear appropriate PPE (in good condition)	1 x 1	1
	Pinch Points	3 x 3	9	Maintain proper body positioning (line of fire) and footing, Wear appropriate PPE (in good condition)	1 x 1	1
	Heavy lifting	3 x 3	9	Utilize proper lifting and transport techniques and ask for assistance, where and if required	1 x 1	1
	Falls – Slip/Trips	3 x 3	9	Wear proper footwear with additional slip-on traction devices, Use Caution - FOCUS; eyes and mind on task	1 x 1	1
Competency Check of Worker(s) for Use of	Potential Exposure to Hazardous Atmosphere	3 x 4	12	Personal monitors worn – calibrated, bumptested, recorded, with fully charged batteries	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Not Identifying all Existing & Potential Location and Work Site Hazards	3 x 3	9	Visual check of location hazards, Personal monitors worn – calibrated, bumptested, recorded, with fully charged batteries	1 x 1	1
	Lack of Training in Equipment's Operation	3 x 3	9	Ensure operator has had proper instruction on use of tool and risks associated, Mandatory PPE must be worn, including any additional site specific (face shield, hearing etc.)	1 x 1	1
Review Manufacturer's Manual	Workers Unfamiliar With Equipment	3 x 3	9	Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool	1 x 1	1
Inspect All Tool(s) and Equipment	Tools Require Cleaning or Repair	3 x 3	9	Clean tool prior to use	1 x 1	1
	Barrel Plugged or Clogged	4 x 3	12	Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool	1 x 1	1
	Tools Already Loaded	3 x 3	9	Where tool is verified not loaded, visually inspect all tools and equipment prior to use, Assume tool is 'loaded' until inspection completed by qualified personnel	1 x 1	1
	Tool or Equipment Failure	3 x 3	9	Be aware of surroundings and coworkers; NEVER point a tool at anyone/body/parts, If tool requires disassembly for repair or maintenance; review manufacturer's manual, Review appropriate SWP's for tool(s) and equipment to be used	1 x 1	1
	Wrong Style of Pins and Shot for Task	4 x 3	12	Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool	1 x 1	1
Lock Out Tag Out Deficient Tool(s) or	Use of Damaged /Defective Tool	4 x 3	12	Malfunctioning equipment requires "out of service" tagging; segregate for repair, maintenance or destruction	1 x 1	1
Take Tool(s) and Equipment to Task Area	Slips, Trips, Falls	3 x 3	9	Ensure proper footing in slippery conditions, Wear proper footwear with additional slip-on traction devices	1 x 1	1
Alert All Workers in Proximity to Task of Job	Potential Temporary Hearing Loss	3 x 2	6	Wear all appropriate PPE (hearing)	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Incorrect PPE Worn	3 x 3	9	Ensure all appropriate PPE is worn (hand, eye, face, hearing) must be in good condition	1 x 1	1
	Poor Communication Within Crews	3 x 3	9	Ensure clear understanding of all assigned workers and workers in vicinity of the task and/or activity plan	1 x 1	1
	Congestion (Work Areas, Access Ways)	3 x 3	9	Ensure crew members understand communication and action to occur	1 x 1	1
	Falls – Slip/Trips	3 x 3	9	Wear proper footwear with additional slip-on traction devices	1 x 1	1
	Pinch Points	3 x 3	9	Proper hand placement (line-of-fire), Wear appropriate PPE (in good condition)	1 x 1	1
	Sharp Edges – Cuts/Lacerations	3 x 3	9	Proper hand placement (line-of-fire), Wear appropriate PPE (in good condition)	1 x 1	1
	Line of Fire (Extremities, Body)	3 x 4	12	Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Noise Exposure	3 x 2	6	Wear all appropriate PPE (hearing)	1 x 1	1
Ensure Solid Footing and Balanced Body	Congestion (Work Areas, Access Ways)	3 x 3	9	Be aware of others and surroundings, Good Communication	1 x 1	1
	Potential Injury From Tool's Recoil	4 x 3	12	Use proper tools correctly; review all appropriate SWP's, Bend arms slightly to prevent jarring to absorb recoil	1 x 1	1
	Awkward Stance/Position/Posture	3 x 3	9	Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Pinch Points	4 x 3	12	Ensure all proper PPE is worn/utilized for task, must be in good condition, Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Sharp Edges – Cuts/Lacerations	3 x 3	9	Ensure all appropriate/required PPE is worn	1 x 1	1
	Line of Fire (Extremities, Body)	4 x 3	12	Maintain proper body positioning (line of fire) and footing	1 x 1	1
Load Tool	Equipment Failure from Improper Loading	3 x 3	9	Consult operator's manual - carefully read detailed instructions on hazards and/or safe loading protocol for tool	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Potential Injury from Improper Loading	3 x 3	9	Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool	1 x 1	1
	Incorrect PPE Worn	3 x 3	9	Wear appropriate PPE (in good condition), Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool	1 x 1	1
	Dusts	3 x 3	9	Wear appropriate PPE (in good condition)	1 x 1	1
	Moving Parts	4 x 3	12	Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Pinch Points	4 x 3	12	Maintain proper body positioning (line of fire) and footing, Wear appropriate PPE (in good condition)	1 x 1	1
	Sharp Edges – Cuts/Lacerations	3 x 3	9	Wear appropriate PPE (in good condition)	1 x 1	1
	Use of Damaged/Defective Tools or Equipment	3 x 3	9	Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool	1 x 1	1
Position Tool Firmly Against Material	Potential Injury From Tool's Recoil	3 x 3	9	Bend arms slightly to prevent jarring to absorb recoil, Grasp tool, hold firmly/solidly against surface, Position tool perpendicular to material surface	1 x 1	1
	Flying Debris	3 x 3	9	Position tool perpendicular to material surface, Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool	1 x 1	1
	Potential Injury from Complete Penetration of Fastener Through Material	4 x 3	12	Only competent worker should be assigned for this task, Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool	1 x 1	1
Give Loud, Verbal Warning 3-5 Seconds	Incorrect PPE Worn	4 x 2	8	Wear proper PPE (gloves, eye, ear protection)	1 x 1	1
	Poor Communication Within Crews	3 x 3	9	Be aware of others and surroundings, Good Communication	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Firing of Tool	Potential Injury from Misfired Cartridge	3 x 3	9	Monitor operation of tool(s) or equipment, Be aware of potential delayed fire of cartridge, Where misfire occurs, keep tool firmly pressed to surface for minimum 30 seconds	1 x 1	1
	Potential Delayed Fire from Misfired Cartridge	3 x 3	9	Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool	1 x 1	1
	Dusts	3 x 2	6	Wear appropriate PPE (in good condition)	1 x 1	1
	Moving Parts	4 x 3	12	Maintain proper body positioning (line of fire) and footing, Wear appropriate PPE (in good condition)	1 x 1	1
	Pinch Points	4 x 3	12	Maintain proper body positioning (line of fire) and footing, Wear appropriate PPE (in good condition)	1 x 1	1
	Sharp Edges – Cuts/Lacerations	3 x 3	9	Wear appropriate PPE (in good condition)	1 x 1	1
	Malfunctioning Equipment	3 x 3	9	Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool	1 x 1	1
	Line of Fire (Extremities, Body)	4 x 3	12	Maintain proper body positioning (line of fire) and footing, Wear appropriate PPE (in good condition), Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool	1 x 1	1
	Noise Exposure	3 x 3	9	Wear appropriate PPE (in good condition), Before every firing, yell "SHOT" or "FIRE"	1 x 1	1
	Potential Temporary Hearing Loss	3 x 3	9	Mandatory PPE must be worn, including any additional site specific (face shield, hearing etc.), Before every firing, yell "SHOT" or "FIRE"	1 x 1	1
Mandatory Cleaning of Tool	Unfamiliar with Protocol for Cleaning Tool	3 x 3	9	If tool requires disassembly for repair or maintenance, review manufacturer's manual, Flag/mark all deficiencies found, If required, decommission for repair or replacement, Clean thoroughly after each use	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Potential Injury from Still-Loaded Tool	3 x 3	9	Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool	1 x 1	1
	Potential Injury from Misfire of Plugged Tool	3 x 3	9	Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool	1 x 1	1
Housekeeping	Heated Material	2 x 2	4	Wear appropriate PPE (in good condition), Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool	1 x 1	1
	Pinch Points	3 x 3	9	Maintain proper body positioning (line of fire) and footing, Wear appropriate PPE (in good condition)	1 x 1	1
	Sharp Edges – Cuts/Lacerations	3 x 3	9	Wear appropriate PPE (in good condition), Focus; eyes and mind on task	1 x 1	1
	Awkward Stance/Position/Posture	3 x 3	9	Pre-task stretching, Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool	1 x 1	1
	Congestion (Work Areas, Access Ways)	2 x 2	4	Review / reference Housekeeping THA G-03, Separate debris from equipment and tools, Return equipment and tools to be stored away in safe, neat, orderly fashion, Follow SWP's for safe lifting, handling of debris, tools, equipment, material, etc.	1 x 1	1
	Falls – Slip/Trips	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing, Wear proper footwear with additional slip-on traction devices	1 x 1	1
	Incorrect PPE Worn	3 x 3	9	Wear appropriate PPE (in good condition), Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool	1 x 1	1
	Dusts	2 x 2	4	Wear appropriate PPE (in good condition)	1 x 1	1

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

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Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit from Client Operations Obtain Job Specific Information from Manager	Not Understanding Permit Requirements	3 x 3	9	Review full job scope and responsibilities with Supervisor, Ensure clear understanding of all assigned workers of the task and/or permit, Perform only work identified by permit, Ensure all planned work is documented on required permit(s)	1 x 1	1
Complete Pre-Job Hazard Assessment (PJHA)	Not Identifying all Existing & Potential Location and Work Site Hazards	3 x 3	9	Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Review / discuss relevant THA's with crew(s)	1 x 1	1
	Relay of Incomplete or Incorrect Information	3 x 3	9	Review / discuss relevant PJHA's w/Crew(s), Continually reassess workplace to identify, control or eliminate all hazards	1 x 1	1
Competency Check of Worker(s) for Use of Specific Tool	Unfamiliarity with SWP or correct process	4 x 4	16	Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task	1 x 1	1
	Lack of Experience Using Tool	4 x 4	16	Only competent worker should be assigned for this task	1 x 1	1
	Lack of Training in Tool's Operation	3 x 4	12	Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool, Ensure operator has had proper instruction on use of tool and risks associated, Only competent worker should be assigned for this task	1 x 1	1
	Incorrect PPE Worn	3 x 4	12	Ensure all appropriate/required PPE is worn	1 x 1	1
Review Manufacturer's Manual Safe Operating Procedure Inspection Protocol	Workers Unfamiliar With Equipment	3 x 4	12	Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Inspect Tool or Equipment Prior to Use Lock Out Tag Out Deficient Tool(s) or Equipment	Sharp/Pointed Objects/Cuts & Punctures	4 x 3	12	Inspect machine guards, Appropriate gloves, hearing protection, face shield, safety glasses and coveralls	1 x 1	1
	Pinch Points / Crush Type Injury	4 x 4	16	Wear appropriate PPE (in good condition), Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Accidental Triggering	3 x 4	12	Only competent worker should be assigned for this task, Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool	1 x 1	1
	Lack of Experience Using Tool	4 x 4	16	Inspect cord and receptacle for any signs of damage, Use proper tools and equipment correctly, Where defects identified, follow Lock Out/ Tag Out SWP, Only competent worker should be assigned for this task	1 x 1	1
	Lack of Training in Tool's Operation	4 x 4	16	Inspect all tools and equipment prior to use, Where required, consult operator's manual, Review appropriate SWP's for tool(s) and equipment to be used	1 x 1	1
	Incorrect PPE Worn	3 x 3	9	Inspect all tools and equipment prior to use, Ensure all apprpriate PPE is worn, (hand, eye) and must be in good condition	1 x 1	1
Inspect and Place Material to be Cut	Pinch Points / Crush Type Injury	3 x 3	9	Appropriate gloves, hearing protection, face shield, safety glasses and coveralls, Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1
	Previously used material having foreign material attached (e.g. clamps)	2 x 2	4	Check for, locate, remove any foreign materials in the cut zone	1 x 1	1
	Defective Material	3 x 3	9	Ensure task and floor areas are clear of debris, equipment, tools, etc., Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool, Only competent worker should be assigned for this task	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	3 x 4	12	Ensure all appropriate/required PPE is worn	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Squeeze Trigger Switch Lower Arm, Apply Pressure, Make Cut	Incorrect PPE Worn	3 x 3	9	Ensure all appropriate/required PPE is worn	1 x 1	1
	Poor Communication Within Crews	3 x 3	9	Good Communication, Be aware of surrounding, tools, materials, and others	1 x 1	1
	Obstacles, Debris, Etc. In Immediate Vicinity (Beside, Under, Behind, Ahead)	3 x 3	9	Where necessary during cut, get assistance maneuvering, balancing, stabilizing material	1 x 1	1
	Slips, Trips, Falls	2 x 2	4	Wear proper footwear with additional slip-on traction devices, Ensure proper footing in slippery conditions	1 x 1	1
	Awkward heavy lifting, muscle strain	3 x 3	9	Firmly hold saw, carefully controlling cut, Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task	1 x 1	1
	Pinch Points / Crush Type Injury	3 x 3	9	Wear appropriate PPE (in good condition), Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	3 x 3	9	Wear appropriate PPE (in good condition), Focus; eyes and mind on task	1 x 1	1
	Burns/Hot Surfaces	3 x 2	6	Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool, Wear appropriate PPE (in good condition)	1 x 1	1
	Potential Kick Back of Material being Cut	3 x 3	9	Ensure proper body/body part positioning (line of fire) during cut; out of path of potential kick back, Brace for tool's power surge when trigger squeezed	1 x 1	1
	Exposure to Sparks, Noise, Dust, Fumes	4 x 4	16	Review Hot Work SWP, if task is to occur within plant site/facility	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Equipment, Guard or Switch Failure	3 x 3	9	Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool, Malfunctioning equipment requires "out of service" tagging; segregate for repair, maintenance or destruction	1 x 1	1
	Airborne Dust, Debris, Fumes	2 x 2	4	Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool, Wear appropriate PPE (in good condition)	1 x 1	1
Unplug Saw from Power Source Wrap and Secure Cords Inspect Tool	Pinch Points / Crush Type Injury	2 x 2	4	Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool, Wear appropriate PPE (in good condition), Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	2 x 3	6	Ensure all appropriate/required PPE is worn	1 x 1	1
	Burns/Hot Surfaces	2 x 2	4	Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool, Wear appropriate PPE (in good condition)	1 x 1	1
	Electrical Shock	2 x 2	4	Inspect tools prior to use, Where defects identified, follow Lock Out/ Tag Out SWP	1 x 1	1
	Slips, Trips, Falls	2 x 2	4	Ensure task and floor areas are clear of debris, equipment, tools, etc., Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1
Removal of Material	Obstacles, Debris, Etc. In Immediate Vicinity (Beside, Under, Behind, Ahead)	2 x 2	4	Ensure task and floor areas are clear of debris, equipment, tools, etc.	1 x 1	1
	Falls/Slip/Trips	2 x 2	4	Ensure task and floor areas are clear of debris, equipment, tools, etc., Ensure proper footing in slippery conditions	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Awkward heavy lifting, muscle strain	2 x 2	4	Follow SWP's for safe lifting, handling of debris, tools, equipment, material, etc., Get assistance for heavy lifting, Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1
	Burns/Hot Surfaces	2 x 2	4	Ensure all appropriate/required PPE is worn	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	2 x 2	4	Ensure all appropriate/required PPE is worn	1 x 1	1
	Pinch Points / Crush Type Injury	2 x 2	4	Focus; eyes and mind on task, Wear appropriate PPE (in good condition), Maintain proper body positioning (line of fire) and footing	1 x 1	1
Housekeeping	Incorrect PPE Worn	2 x 2	4	Ensure all appropriate/required PPE is worn	1 x 1	1
	Awkward Stance/Position/Posture	2 x 2	4	Follow SWP's for safe lifting, handling of debris, tools, equipment, material, etc.	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	2 x 2	4	Ensure all appropriate/required PPE is worn	1 x 1	1
	Pinch Points / Crush Type Injury	2 x 2	4	Focus; eyes and mind on task, Be aware of surroundings, Wear all appropriate/required PPE	1 x 1	1
	Burns/Hot Surfaces	2 x 2	4	Wear all appropriate/required PPE	1 x 1	1
	Moving Parts	2 x 2	4	Focus; eyes and mind on task, Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Dusts	2 x 2	4	Separate debris from equipment and tools, Ensure all appropriate/required PPE is worn	1 x 1	1
	Falls/Slip/Trips	2 x 2	4	Perform housekeeping; ensure work area is clear of debris, equipment, tools, etc., Wear proper footwear with additional slip-on traction devices	1 x 1	1
	Obstacles, Debris, Etc. In Immediate Vicinity (Beside, Under, Behind, Ahead)	2 x 2	4	Return equipment and tools to be stored away in safe, neat, orderly fashion, Review / reference Housekeeping THA G-03	1 x 1	1

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Description:
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Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment G-10 - Chop Saws
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Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit from Client Operations Obtain Job Specific Information from Manager	Not Understanding Permit Requirements	3 x 3	9	Review full job scope and responsibilities with Supervisor, Ensure clear understanding of all assigned workers of the task and/or permit, Perform only work identified by permit, Ensure all planned work is documented on required permit(s)	1 x 1	1
Complete Pre-Job Hazard Assessment (PJHA)	Not Identifying all Existing & Potential Location and Work Site Hazards	3 x 3	9	Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Review / discuss relevant THA's with crew(s)	1 x 1	1
	Relay of Incomplete or Incorrect Information	3 x 3	9	Review / discuss relevant PJHA's w/Crew(s), Continually reassess workplace to identify, control or eliminate all hazards	1 x 1	1
Competency Check of Worker(s) for Use of Specific Tool	Unfamiliarity with SWP or correct process	4 x 4	16	Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task	1 x 1	1
	Lack of Experience Using Tool	4 x 4	16	Only competent worker should be assigned for this task	1 x 1	1
	Lack of Training in Tool's Operation	3 x 4	12	Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool, Ensure operator has had proper instruction on use of tool and risks associated, Only competent worker should be assigned for this task	1 x 1	1
	Incorrect PPE Worn	3 x 4	12	Ensure all appropriate/required PPE is worn	1 x 1	1
Review Manufacturer's Manual Safe Operating Procedure Inspection Protocol	Workers Unfamiliar With Equipment	3 x 4	12	Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Inspect Tool or Equipment Prior to Use Lock Out Tag Out Deficient Tool(s) or Equipment	Sharp/Pointed Objects/Cuts & Punctures	4 x 3	12	Inspect machine guards, Appropriate gloves, hearing protection, face shield, safety glasses and coveralls	1 x 1	1
	Pinch Points / Crush Type Injury	4 x 4	16	Wear appropriate PPE (in good condition), Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Accidental Triggering	3 x 4	12	Only competent worker should be assigned for this task, Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool	1 x 1	1
	Lack of Experience Using Tool	4 x 4	16	Inspect cord and receptacle for any signs of damage, Use proper tools and equipment correctly, Where defects identified, follow Lock Out/ Tag Out SWP, Only competent worker should be assigned for this task	1 x 1	1
	Lack of Training in Tool's Operation	4 x 4	16	Inspect all tools and equipment prior to use, Where required, consult operator's manual, Review appropriate SWP's for tool(s) and equipment to be used	1 x 1	1
	Incorrect PPE Worn	3 x 3	9	Inspect all tools and equipment prior to use, Ensure all apprpriate PPE is worn, (hand, eye) and must be in good condition	1 x 1	1
Inspect and Place Material to be Cut	Pinch Points / Crush Type Injury	3 x 3	9	Appropriate gloves, hearing protection, face shield, safety glasses and coveralls, Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1
	Previously used material having foreign material attached (e.g. clamps)	2 x 2	4	Check for, locate, remove any foreign materials in the cut zone	1 x 1	1
	Defective Material	3 x 3	9	Ensure task and floor areas are clear of debris, equipment, tools, etc., Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool, Only competent worker should be assigned for this task	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	3 x 4	12	Ensure all appropriate/required PPE is worn	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Squeeze Trigger Switch Lower Arm, Apply Pressure, Make Cut	Incorrect PPE Worn	3 x 3	9	Ensure all appropriate/required PPE is worn	1 x 1	1
	Poor Communication Within Crews	3 x 3	9	Good Communication, Be aware of surrounding, tools, materials, and others	1 x 1	1
	Obstacles, Debris, Etc. In Immediate Vicinity (Beside, Under, Behind, Ahead)	3 x 3	9	Where necessary during cut, get assistance maneuvering, balancing, stabilizing material	1 x 1	1
	Slips, Trips, Falls	2 x 2	4	Wear proper footwear with additional slip-on traction devices, Ensure proper footing in slippery conditions	1 x 1	1
	Awkward heavy lifting, muscle strain	3 x 3	9	Firmly hold saw, carefully controlling cut, Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task	1 x 1	1
	Pinch Points / Crush Type Injury	3 x 3	9	Wear appropriate PPE (in good condition), Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	3 x 3	9	Wear appropriate PPE (in good condition), Focus; eyes and mind on task	1 x 1	1
	Burns/Hot Surfaces	3 x 2	6	Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool, Wear appropriate PPE (in good condition)	1 x 1	1
	Potential Kick Back of Material being Cut	3 x 3	9	Ensure proper body/body part positioning (line of fire) during cut; out of path of potential kick back, Brace for tool's power surge when trigger squeezed	1 x 1	1
	Exposure to Sparks, Noise, Dust, Fumes	4 x 4	16	Review Hot Work SWP, if task is to occur within plant site/facility	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Equipment, Guard or Switch Failure	3 x 3	9	Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool, Malfunctioning equipment requires "out of service" tagging; segregate for repair, maintenance or destruction	1 x 1	1
	Airborne Dust, Debris, Fumes	2 x 2	4	Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool, Wear appropriate PPE (in good condition)	1 x 1	1
Unplug Saw from Power Source Wrap and Secure Cords Inspect Tool	Pinch Points / Crush Type Injury	2 x 2	4	Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool, Wear appropriate PPE (in good condition), Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	2 x 3	6	Ensure all appropriate/required PPE is worn	1 x 1	1
	Burns/Hot Surfaces	2 x 2	4	Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool, Wear appropriate PPE (in good condition)	1 x 1	1
	Electrical Shock	2 x 2	4	Inspect tools prior to use, Where defects identified, follow Lock Out/ Tag Out SWP	1 x 1	1
	Slips, Trips, Falls	2 x 2	4	Ensure task and floor areas are clear of debris, equipment, tools, etc., Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1
Removal of Material	Obstacles, Debris, Etc. In Immediate Vicinity (Beside, Under, Behind, Ahead)	2 x 2	4	Ensure task and floor areas are clear of debris, equipment, tools, etc.	1 x 1	1
	Falls/Slip/Trips	2 x 2	4	Ensure task and floor areas are clear of debris, equipment, tools, etc., Ensure proper footing in slippery conditions	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Awkward heavy lifting, muscle strain	2 x 2	4	Follow SWP's for safe lifting, handling of debris, tools, equipment, material, etc., Get assistance for heavy lifting, Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1
	Burns/Hot Surfaces	2 x 2	4	Ensure all appropriate/required PPE is worn	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	2 x 2	4	Ensure all appropriate/required PPE is worn	1 x 1	1
	Pinch Points / Crush Type Injury	2 x 2	4	Focus; eyes and mind on task, Wear appropriate PPE (in good condition), Maintain proper body positioning (line of fire) and footing	1 x 1	1
Housekeeping	Incorrect PPE Worn	2 x 2	4	Ensure all appropriate/required PPE is worn	1 x 1	1
	Awkward Stance/Position/Posture	2 x 2	4	Follow SWP's for safe lifting, handling of debris, tools, equipment, material, etc.	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	2 x 2	4	Ensure all appropriate/required PPE is worn	1 x 1	1
	Pinch Points / Crush Type Injury	2 x 2	4	Focus; eyes and mind on task, Be aware of surroundings, Wear all appropriate/required PPE	1 x 1	1
	Burns/Hot Surfaces	2 x 2	4	Wear all appropriate/required PPE	1 x 1	1
	Moving Parts	2 x 2	4	Focus; eyes and mind on task, Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Dusts	2 x 2	4	Separate debris from equipment and tools, Ensure all appropriate/required PPE is worn	1 x 1	1
	Falls/Slip/Trips	2 x 2	4	Perform housekeeping; ensure work area is clear of debris, equipment, tools, etc., Wear proper footwear with additional slip-on traction devices	1 x 1	1
	Obstacles, Debris, Etc. In Immediate Vicinity (Beside, Under, Behind, Ahead)	2 x 2	4	Return equipment and tools to be stored away in safe, neat, orderly fashion, Review / reference Housekeeping THA G-03	1 x 1	1

Name: Hazard Assessment G-10 - Chop Saws
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment G-11 Structural Welding
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit from Client Operations Obtain Job Specific Information from Manager	Not Understanding Permit Requirements	3 x 3	9	Ensure clear understanding of all assigned workers of the task and/or permit, Perform only work identified by permit, Ensure all planned work is documented on required permit(s)	1 x 1	1
	Relay of Incomplete or Incorrect Information	3 x 3	9	Review full job scope and responsibilities with Supervisor	1 x 1	1
Complete Pre-Job Hazard Assessment	Not Identifying all Existing & Potential Location and Work Site Hazards	3 x 3	9	Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Review / discuss relevant THA's with crew(s), Review / discuss relevant PJHA's w/Crew(s)	1 x 1	1
	Not Identifying Potential Hazards as Job Progresses	3 x 3	9	Continually reassess workplace to identify, control or eliminate all hazards	1 x 1	1
Competency Check of Worker(s) for Use of Welding Unit	Incorrect PPE Worn	3 x 3	9	Ensure all appropriate/required PPE is worn	1 x 1	1
	Lack of Training in Tool's Operation	3 x 3	9	Only competent worker should be assigned for this task, Ensure operator has had proper instruction on use of tool and risks associated, Ensure good communication between workers	1 x 1	1
	Lack of Experience Using Tool	4 x 3	12	Only competent worker should be assigned for this task	1 x 1	1
	Unfamiliarity with SWP, or correct process	4 x 3	12	Only competent worker should be assigned for this task, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Review Lock Out /Tag Out Safe Work Practice, and any other SWP's associated or involved with this task	1 x 1	1
Driving To/From Work Site (see Driving THA G-02)	Malfunctioning Equipment	3 x 4	12	Perform 360 walk around check prior to moving any vehicle, Before leaving, visually inspect vehicle / trailer	1 x 1	1
	Other Drivers	4 x 4	16	Pedestrians & Heavy Haulers have R-o-W, Drive defensively AT ALL TIMES; Scan, identify, predict, determine, execute	1 x 1	1
	Changing Weather or Road Conditions	3 x 4	12	Check weather forecast and road conditions, Drive to the conditions not the speed limit	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Wildlife	4 x 4	16	Monitor sides of roads for wildlife; watch ditches and stay attentive at all times, Use horn to startle animals to run away from sound	1 x 1	1
	Stress - Fatigue	4 x 4	16	Ensure adherence to Fit For Duty SWP, Drive defensively; obey ALL posted road signs	1 x 1	1
Assess Site & Work Area Assess Welding Rig's Path of Travel Driving to/Positioning Welding Rig at Task Location	Obstacles, Debris, Etc. In Immediate Vicinity (Beside, Under, Behind, Ahead)	2 x 2	4	Park rig to not conflict with other workers and prevent rig's exhaust fumes entering work area	1 x 1	1
	Lack of Appointed Spotter or Guide	3 x 3	9	Maintain communication with all other trades in same area, Safety watch, Use spotter to maneuver / back welding rig into position in close proximity to task area	1 x 1	1
	Not Identifying all Existing & Potential Location and Work Site Hazards	3 x 3	9	Check site & work area closely for ground condition, obstacles, clearances, etc.	1 x 1	1
	Congested Roadways Or Access Gates	3 x 3	9	Check travel path for conditions, obstacles, clearances, environmental concerns, etc.	1 x 1	1
	Poor Ground Condition	2 x 2	4	Determine optional travel path if/where there are issues with ground condition or access, Perform housekeeping; ensure work area is clear of debris, equipment, tools, etc.	1 x 1	1
	Lack of Appropriate Access or Clearance for Welding Rig to Manuever	3 x 3	9	Complete a 360 degree check of area around unit	1 x 1	1
Setting Welding Unit Up For Work	Use of Damaged/Defective Tools or Equipment	3 x 3	9	Thoroughly inspect equipment; document inspection; tag out defective tools, as required	1 x 1	1
	Obstacles, Debris, Etc. In Immediate Vicinity (Beside, Under, Behind, Ahead)	3 x 3	9	Be aware of surroundings and others	1 x 1	1
	Slips, Trips, Falls	3 x 3	9	Focus; eyes and mind on task, Practice extremely diligent housekeeping, String cables away from high traffic areas; if possible - keep off ground.	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Uneven, Slippery Ground Surfaces	3 x 3	9	Uneven surfaces flattened, Wear proper footwear with additional slip-on traction devices	1 x 1	1
	Pinch Points / Crush Type Injury	4 x 3	12	Wear appropriate PPE (in good condition), Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	3 x 3	9	Ensure all appropriate/required PPE is worn	1 x 1	1
	Awkward heavy lifting, muscle strain	3 x 3	9	Use proper lifting/pulling techniques (using legs) no twisting, Obtain assistance from co-workers for heavy/awkward lifts, Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1
Welding at Site	Pinch Points / Crush Type Injury	4 x 4	16	Stay aware of surroundings, Focus, eyes and mind on task, Prior to backing welding unit into position, physically inspect area to identify any hidden obstructions, Use spotter to back welder into position, Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	3 x 3	9	Ensure all appropriate/required PPE is worn	1 x 1	1
	Awkward heavy lifting, muscle strain	3 x 3	9	Take micro breaks as required to reduce strain/fatigue, Follow SWP for handling/lifting materials and equipment, Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1
	Dusts	3 x 2	6	Proper respirators worn; welder must have respirator training with full knowledge of care and fit of respirator	1 x 1	1
	Burns	3 x 3	9	Spark watcher utilized with fire extinguisher training, Fire extinguisher must be in close proximity, Where necessary during welds, get assistance maneuvering, balancing or stabilizing materials, Wear appropriate PPE (in good condition)	1 x 1	1
	Welding Flash	4 x 2	8	Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Wear appropriate PPE (in good condition)	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Potential inhalation of fumes	3 x 2	6	Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Wear appropriate PPE (in good condition)	1 x 1	1
	Fire/Explosion/Burns	4 x 3	12	Use fire blanket, as required, Set up spark shields in high traffic areas, Spark watcher utilized with fire extinguisher training, Fire extinguisher must be in close proximity	1 x 1	1
Cutting, Grinding, Buffing Completed Welds	Tool or Equipment Failure	2 x 2	4	Inspect Tools and Equipment	1 x 1	1
	Grinder Wheel Breaks	2 x 4	8	Inspect Tools and Equipment, Ensure all apprpriate PPE is worn (hand, eye) and must be in good condition	1 x 1	1
	Falling Debris / Slag	3 x 3	9	Spark watcher utilized with fire extinguisher training, Fire extinguisher must be in close proximity, Proper guards must be in place per manufacturer's specifications	1 x 1	1
	Pinch Points / Crush Type Injury	3 x 3	9	Wear appropriate PPE (in good condition), Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	3 x 3	9	Sharp edges removed from material prior to its installation, Ensure all appropriate/required PPE is worn	1 x 1	1
	Potential inhalation of fumes	3 x 2	6	Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Wear appropriate PPE (in good condition)	1 x 1	1
	Dusts	3 x 2	6	Proper respirators worn; welder must have respirator training with full knowledge of care and fit of respirator	1 x 1	1
	Potential Fire	4 x 3	12	Spark watcher utilized with fire extinguisher training, Fire extinguisher must be in close proximity, Use fire blanket, as required	1 x 1	1
	Burns/Hot Surfaces	3 x 3	9	Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Spark watcher utilized with fire extinguisher training, Fire extinguisher must be in close proximity, Wear appropriate PPE (in good condition)	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Cutting with Oxygen /Acetylene	Falling Debris / Slag	3 x 3	9	Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Spark watcher utilized with fire extinguisher training, Fire extinguisher must be in close proximity, Wear appropriate PPE (in good condition)	1 x 1	1
	Potential inhalation of fumes	3 x 2	6	Proper respirators worn; welder must have respirator training with full knowledge of care and fit of respirator, Oxygen / Acetylene stored securely in upright position, Ensure all appropriate/required PPE is worn	1 x 1	1
	Equipment Failure	4 x 3	12	Pre-inspection of all tools and equipment to ensure proper working condition	1 x 1	1
	Potential Fire	4 x 3	12	Spark watcher utilized with fire extinguisher training, Use fire blanket, as required, Fire extinguisher must be in close proximity	1 x 1	1
	Burns/Hot Surfaces	4 x 3	12	Wear appropriate PPE (in good condition), Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1
Pack / Return Equipment & Tools to Welding Rig	Tripping	3 x 2	6	Practice extremely diligent housekeeping, String cables away from high traffic areas; if possible - keep off ground. , Tripping hazards , flag areas with ribbon	1 x 1	1
	Uneven Surfaces	4 x 3	12	Wear proper footwear with additional slip-on traction devices	1 x 1	1
	Access / Egress Box of Truck	3 x 3	9	Utilize 3-point contact when accessing box of truck	1 x 1	1
	Pinch Points / Crush Type Injury	3 x 3	9	Be aware of surroundings and others	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	3 x 3	9	Wear all appropriate/required PPE	1 x 1	1
	Awkward Stance/Position/Posture	3 x 3	9	Use proper lifting methods of equipment, as required; use lifting equipment where necessary, Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Housekeeping	Obstacles, Debris, Etc. In Immediate Vicinity (Beside, Under, Behind, Ahead)	2 x 2	4	Return equipment and tools to be stored away in safe, neat, orderly fashion, Separate debris from equipment and tools	1 x 1	1
	Falls/Slip/Trips	2 x 2	4	Perform housekeeping; ensure work area is clear of debris, equipment, tools, etc.	1 x 1	1
	Incorrect PPE Worn	3 x 3	9	Ensure all appropriate/required PPE is worn	1 x 1	1
	Dusts	2 x 1	2	Wear appropriate PPE (in good condition)	1 x 1	1
	Moving Parts	3 x 3	9	Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Burns/Hot Surfaces	3 x 2	6	Focus; eyes and mind on task, Wear appropriate PPE (in good condition)	1 x 1	1
	Pinch Points / Crush Type Injury	3 x 3	9	Wear appropriate PPE (in good condition), Identify pinch points, Be aware of position of hands (line-of-fire)	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	3 x 3	9	Wear appropriate PPE (in good condition)	1 x 1	1
	Awkward heavy lifting, muscle strain	3 x 3	9	Follow SWP's for safe lifting, handling of debris, tools, equipment, material, etc., Utilize proper lifting and transport techniques and ask for assistance, where and if required	1 x 1	1
Driving Welding Rig Out of/from Task Location Assess Rig's Path of Travel	Not Identifying all Existing & Potential Location and Work Site Hazards	2 x 3	6	Review signals to be used between spotter and operator	1 x 1	1
	Congested Work Area	3 x 3	9	Check travel path for conditions, obstacles, clearances, environmental concerns, etc., Determine optional travel path if/where there are issues with ground condition or access	1 x 1	1
	Poor Ground Condition	3 x 3	9	Perform housekeeping; ensure work area is clear of debris, equipment, tools, etc.	1 x 1	1
	Lack of Appropriate Access or Clearance for Welding Rig to Manuever	4 x 3	12	Review signals to be used between spotter and operator, Ensure crews and spotter keep a clear line of sight and constant communication with operators of heavy equipment	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Obstacles, Debris, Etc. In Immediate Vicinity (Beside, Under, Behind, Ahead)	3 x 3	9	Complete 360 degree check of area around unit	1 x 1	1
	Poor Communication Within Crews	3 x 3	9	Maintain communication with all other trades in same area, Safety watch	1 x 1	1
	Lack of Appointed Spotter or Guide	4 x 4	16	Use spotter(s) to maneuver welding rig safely out of parked position into travel path and to site exit	1 x 1	1

Name: Hazard Assessment G-11 Structural Welding
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment G-12 - Cutting Foam Insulation And Shipping Cardboard
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Assess Work Area For Activity To Be Performed	Sharp/Pointed Objects/Cuts & Punctures	3 x 3	9	Ensure all appropriate PPE is worn (hand, eye, face, hearing) must be in good condition	1 x 1	1
	Awkward heavy lifting, muscle strain	2 x 2	4	Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task	1 x 1	1
	Falls – Slip/Trips	2 x 2	4	Ensure proper footing in slippery conditions, Wear proper footwear with additional slip-on traction devices	1 x 1	1
	Obstacles, Debris, Etc. In Immediate Vicinity (Beside, Under, Behind, Ahead)	2 x 2	4	Visual check and walk down of location hazards	1 x 1	1
	Changing Conditions or Work Environment	3 x 3	9	Ensure all appropriate PPE is worn (hand, eye, face, hearing) must be in good condition	1 x 1	1
Complete PJHA	Not Identifying all Existing & Potential Location and Work Site Hazards	2 x 2	4	Review / discuss relevant THA's with crew(s), Review / discuss relevant JHA's with crew(s), Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Visual check of location hazards	1 x 1	1
Housekeeping	Obstacles, Debris, Etc. In Immediate Vicinity (Beside, Under, Behind, Ahead)	2 x 2	4	Separate debris from equipment and tools, Perform housekeeping; ensure work area is clear of debris, equipment, tools, etc.	1 x 1	1
	Falls – Slip/Trips	2 x 2	4	Return equipment and tools to be stored away in safe, neat, orderly fashion	1 x 1	1
	Incorrect PPE Worn	3 x 2	6	Ensure all appropriate PPE is worn (hand, eye, face, hearing) must be in good condition	1 x 1	1
	Dusts	2 x 1	2	Wear appropriate PPE (in good condition)	1 x 1	1
	Burns/Hot Surfaces	2 x 2	4	Wear appropriate PPE (in good condition)	1 x 1	1
	Pinch Points / Crush Type Injury	3 x 2	6	Maintain proper body positioning (line of fire) and footing, Wear appropriate PPE (in good condition)	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	2 x 3	6	Wear appropriate PPE (in good condition)	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Awkward Stance/Position/Posture	2 x 2	4	Follow SWP's for safe lifting, handling of debris, tools, equipment, material, etc., Utilize proper lifting and transport techniques and ask for assistance, where and if required	1 x 1	1
Placement Of Material On Table	Potential Property Damage To Table	3 x 1	3	Prior to cutting, ensure table top is clear	1 x 1	1
	Incorrect PPE Worn	3 x 3	9	Ensure all appropriate PPE is worn (hand, eye, face, hearing) must be in good condition	1 x 1	1
	Dusts	2 x 2	4	Wear appropriate PPE (in good condition)	1 x 1	1
	Awkward Stance/Position/Posture	2 x 2	4	Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1
Measure Insulation (Use T-Square)	Sharp/Pointed Objects/Cuts & Punctures	3 x 3	9	Wear approved ANSI cut level 5 resistant gloves, Ensure all appropriate PPE is worn (hand, eye, face, hearing) must be in good condition, Inspect T-Square and measuring tape prior to use, Follow SWP for use of T-Square, Clearly mark appropriate measurements to be cut	1 x 1	1
Cut Insulation	Misuse Of Knife	3 x 3	9	Ensure all appropriate PPE is worn (hand, eye, face, hearing) must be in good condition, Always use proper cutting techniques; cutting away from yourself, use a retractable blade, ensure knife remains sharp after each use, maintain constant pressure when cutting and use only approved knife	1 x 1	1
	Awkward Stance/Position/Posture	2 x 2	4	Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	2 x 3	6	Wear appropriate PPE (in good condition)	1 x 1	1
	Potential Property Damage To Table	2 x 1	2	Protect surface of table with cardboard or cut insulation / shipping cardboard on concrete floor, Stack cast off cuttings away from cutting surface/area for recycle purposes	1 x 1	1
	Knife Or Blade Failure	3 x 3	9	Wear approved ANSI cut level 5 resistant gloves	1 x 1	1
Housekeeping	Awkward heavy lifting, muscle strain	2 x 2	4	Follow SWP's for safe lifting, handling of debris, tools, equipment, material, etc.	1 x 1	1

Name: Hazard Assessment G-12 - Cutting Foam Insulation And Shipping Cardboard
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Sharp/Pointed Objects/Cuts & Punctures	2 x 3	6	Wear appropriate PPE (in good condition)	1 x 1	1
	Pinch Points	2 x 3	6	Wear appropriate PPE (in good condition)	1 x 1	1
	Dusts	2 x 2	4	Wear appropriate PPE (in good condition)	1 x 1	1
	Incorrect PPE Worn	2 x 2	4	Ensure all appropriate PPE is worn (hand, eye, face, hearing) must be in good condition	1 x 1	1
	Obstacles, Debris, Etc. In Immediate Vicinity (Beside, Under, Behind, Ahead)	2 x 2	4	Return equipment and tools to be stored away in safe, neat, orderly fashion, Perform housekeeping; ensure work area is clear of debris, equipment, tools, etc., Separate debris from equipment and tools, Follow Housekeeping THA G-03	1 x 1	1

Name: Hazard Assessment G-12 - Cutting Foam Insulation And Shipping Cardboard
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment G-13 - Mobilization / Demobilization
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Where Necessary, Obtain A Safe Work Permit from Client Complete All Associated Pre-Job Hazard Assessments (PJHA's) of Site, Location, & Work Areas	Pinch Points / Crush Type Injury	3 x 3	9	Ensure all appropriate/required PPE is worn, Identify pinch points, Be aware of position of hands (line-of-fire)	1 x 1	1
	Unsure of site layout	2 x 2	4	During daylight, or with good lighting, make visual check of location site during walk around	1 x 1	1
	Not Understanding Requirements of Task or Permit Requirements	2 x 3	6	Review / discuss relevant THA's with crew(s), Review / discuss relevant JHA's with crew(s), Review all related / relevant Safe Work Practices (SWP's) associated or involved with this task	1 x 1	1
	Uneven, Slippery Ground Surfaces	2 x 3	6	Care and caution with ground conditions; avoid uneven or slippery areas	1 x 1	1
Identify Locations of All openings in Floors (Equipment Holes)	Potential inhalation of fumes	3 x 3	9	Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Wear appropriate PPE (in good condition)	1 x 1	1
	Burns	3 x 3	9	Wear appropriate PPE (in good condition)	1 x 1	1
	Potential Arc Flash	4 x 4	16	Review Zero Energy Isolation Code of Practice with Operations, Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Potential falls through floor openings	3 x 3	9	Ensure barriers/flags clearly visible, placed as/where necessary around task area	1 x 1	1
	New Workers on Site or With Crew(s)	3 x 3	9	Barriers & Flags placed as/where necessary to keep unauthorized personnel away, Ensure clear understanding of all assigned workers and workers in vicinity of the task and/or activity plan, Ensure all workers operating equipment are appropriately trained or certified, Complete all required site orientations	1 x 1	1
Fit, Secure, and Weld Plates Over All Floor Openings Grind All Welding Protrusions Down Flush	Fumes	2 x 2	4	Wear appropriate PPE (in good condition)	1 x 1	1
	Burns	3 x 3	9	Follow THA Structural Welding G-11, Wear appropriate PPE (in good condition)	1 x 1	1
	Potential Arc Flash	3 x 3	9	Ensure proper grounding of welder, Ensure all appropriate/required PPE is worn, Review Zero Energy Isolation Code of Practice with Operations	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Slips, Trips, Falls	3 x 3	9	Grind off protrusions to limit tripping hazards, Maintain proper body positioning (line of fire) and footing, Be aware of others and surroundings	1 x 1	1
	Potential falls through floor openings	3 x 3	9	Ensure barriers/flags clearly visible, placed as/where necessary around task area, Fit engineered plates over floor openings, Weld engineered plates securely over openings	1 x 1	1
	Pinch Points / Crush Type Injury	2 x 3	6	Wear appropriate PPE (in good condition), Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Awkward Stance/Position/Posture	2 x 2	4	Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1
	Lighting (poor or excessive)	2 x 2	4	Install temporary lighting; if /where needed	1 x 1	1
Set Up Temporary Power Set Up Temporary Lighting	Falls from Heights	3 x 3	9	Ensure proper body and body parts positioning (line-of-fire) and solid footing, Follow procedures for ladder use / fall protection	1 x 1	1
	Potential Electrical Shock	3 x 4	12	Review Zero Energy Isolation Code of Practice with Operations, Review Lock Out/Tag Out and Energized Electrical safe work practice, and any other SWP's associated or involved with this task	1 x 1	1
	Dropping tools or equipment	2 x 2	4	Tool lanyards used to safeguard against accidental drops	1 x 1	1
	Pinch Points / Crush Type Injury	3 x 3	9	Wear appropriate PPE (in good condition)	1 x 1	1
	Ladder Placement /Tipping	2 x 3	6	Follow ladder use SWP; select proper ladder for task, Be aware of surroundings and others	1 x 1	1
	No Inspection Forms (Documentation)	2 x 2	4	Pre-use inspections performed & documented (ladder, tools, equipment), Pre-task plan; determine work task location	1 x 1	1
Move Job Box In & Place In Task Area Move Print Table In & Place in Task Area	Unknown Route for Moving Equipment /Table	2 x 2	4	Pre-determine path or route to be traveled, Walk route; pick a well traveled path with good ground condition	1 x 1	1
	Poor Communication Within Crews	2 x 2	4	Ensure good communication between workers	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Obstructions to Lifting /Moving Equipment & Print Table	2 x 2	4	Utilize proper lifting and transport techniques and ask for assistance, where and if required, Perform housekeeping; ensure work area is clear of debris, equipment, tools, etc.	1 x 1	1
	Uneven Surfaces	2 x 2	4	Wear proper footwear with additional slip-on traction devices	1 x 1	1
	Tripping	2 x 2	4	Use caution when walking; ensure proper footing, Remove tripping hazards	1 x 1	1
	Pinch Points / Crush Type Injury	2 x 3	6	Ensure all appropriate/required PPE is worn	1 x 1	1
	Awkward heavy lifting, muscle strain	2 x 3	6	Get help for manual lifts and load placement, Team Lift; use proper lifting techniques, Keep extremities clear of pinch points, Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1
	Property Damage; Potential Contact with Structure(s) and/or Equipment	3 x 3	9	Use of Spotter, Be aware of surroundings and others	1 x 1	1
Remove All Excess Equipment, Material, Tools Use Forklift & Personnel (As Required)	Untrained / Uncertified Personnel	3 x 3	9	Complete pre-use inspection of fork lift & load securement straps, Forklift headlights on at all times, Only qualified personnel operate forklift, Review/Adhere to forklift SWP	1 x 1	1
	No Inspection Forms (Documentation)	2 x 2	4	Inspect Tools and Equipment	1 x 1	1
	Poor Communication Within Crews	2 x 2	4	Be aware of surroundings and others, Ensure good communication between workers	1 x 1	1
	Obstructions to Lifting /Moving Equipment & Print Table	2 x 3	6	Ensure spotter is in place, with correct signals, Ensure crews and spotter keep a clear line of sight and constant communication with operators of heavy equipment, Be aware of surroundings, equipment and others in vicinity, All loads properly secured to forks always keeping loads centered	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Uneven Surfaces	2 x 3	6	Uneven surfaces flattened, Ensure all proper PPE is worn/utilized for task, must be in good condition, Ensure proper body/extremities positioning (line-of-fire); caution with ground condition and solid footing	1 x 1	1
	Falls – Slip/Trips	2 x 3	6	Clear area of slip/trip hazard	1 x 1	1
	Pinch Points / Crush Type Injury	3 x 3	9	Wear appropriate PPE (in good condition), Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Awkward heavy lifting, muscle strain	2 x 3	6	Utilize proper lifting and transport techniques and ask for assistance, where and if required	1 x 1	1
	Property Damage; Potential Contact with Structure(s) and/or Equipment	2 x 3	6	Ensure spotter is in place, with correct signals, Drive in or back in slowly, when possible use a spotter, Be aware of surroundings and others	1 x 1	1
Platform Loaded on Fork Lift Moved / Off-Loaded / Placed at Doorway to Skid	Awkward heavy lifting, muscle strain	2 x 3	6	Ensure all proper PPE is worn/utilized for task, must be in good condition, Ensure proper body/extremities positioning (line-of-fire); caution with ground condition and solid footing	1 x 1	1
	Pinch Points / Crush Type Injury	2 x 3	6	Wear appropriate PPE (in good condition), Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Falls – Slip/Trips	2 x 2	4	Focus; eyes and mind on task, Ensure footing is good and solid, Housekeeping; clear area of hazards	1 x 1	1
	Uneven Surfaces	3 x 3	9	Use 3 point contact entering or exiting vehicle	1 x 1	1
	Walking Under Suspended Load	2 x 4	8	Mandatory review of Crane Safety, Rigging Safety and Hoisting & Rigging Safe Work Practices (SWP's) associated or involved with this task	1 x 1	1
	Poor Communication Within Crews	3 x 4	12	Be aware of surroundings and others, Ensure crews and spotter keep a clear line of sight and constant communication with operators of heavy equipment, Ensure all appropriate/required PPE is worn, Inspect PPE before using	1 x 1	1
	No Inspection Forms (Documentation)	2 x 2	4	Pre-use inspections performed & documented (ladder, tools, equipment), Pre-task plan; determine work task location	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Obstructions to Lifting /Moving Equipment & Materials	4 x 4	16	Spotter used to place equipment safely within task area	1 x 1	1
	Electrical Shock	4 x 4	16	Ensure Zero Energy Isolation completed on all potential hazards in immediate vicinity of penetration area, Ensure all proper PPE is worn/utilized for task, must be in good condition	2 x 2	4
	Overhead Line Strike	4 x 4	16	Ensure crews and spotter keep a clear line of sight and constant communication with operators of heavy equipment, Be aware of surroundings, equipment and others in vicinity, Pre-determine path or route to be traveled, Walk route; pick a well traveled path with good ground condition	2 x 2	4
	Dropping Tools /Materials to Ground Below	3 x 3	9	Drop zone tagged / flagged to outside radius of equipment, forks, etc.	1 x 1	1
	Equipment Malfunction	3 x 3	9	Inspect all tools and equipment prior to use	1 x 1	1
	Misjudging Clearance	3 x 3	9	Ensure spotter is in place, with correct signals, Platform lifted onto forks; ensure sufficient ground clearance	1 x 1	1
	Poor Visibility	3 x 3	9	Ensure spotter is in place, with correct signals	1 x 1	1
	Potential Load Shift /Unstable Load	4 x 3	12	Pre-use inspection of load securement straps, Operate loaded fork lift carefully, at appropriate speed to limit damage	1 x 1	1
	Load Weight Over Equipment Maximum	3 x 3	9	Ensure load weight is within correct range for equipment	1 x 1	1
	Untrained/Uncertified Personnel Operating Fork Lift / Equipment	4 x 4	16	Parking brake OFF before moving, Parking brake on prior to exiting, Only competent worker should be assigned for this task	1 x 1	1
Stairs Loaded on Fork Lift Moved / Off Loaded /Attached to Platform	Uneven Surfaces	2 x 3	6	Care and caution with ground conditions; avoid uneven or slippery areas	1 x 1	1
	Walking Under Suspended Load	2 x 3	6	Ensure all personnel in area are aware of large equipment loading, unloading, moving	1 x 1	1
	Poor Communication Within Crews	3 x 3	9	Ensure good communication between workers	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Awkward heavy lifting, muscle strain	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1
	Pinch Points / Crush Type Injury	2 x 3	6	Ensure all appropriate/required PPE is worn	1 x 1	1
	Falls – Slip/Trips	2 x 2	4	Clean up slip/trip hazards	1 x 1	1
	No Inspection Forms (Documentation)	2 x 2	4	Pre-use inspection of load securement straps	1 x 1	1
	Malfunctioning Equipment	3 x 3	9	Visual walk around inspection	1 x 1	1
	Dropping Tools /Materials to Ground Below	2 x 3	6	Operate loaded fork lift carefully, at appropriate speed to limit damage	1 x 1	1
	Line strike	4 x 4	16	Only competent worker should be assigned for this task, Ensure all workers involved have appropriate ground disturbance training, Use of Spotter	1 x 1	1
	Obstructions to Lifting /Moving Equipment & Materials	2 x 3	6	Housekeeping; clear area of hazards	1 x 1	1
	Misjudging Clearance	2 x 3	6	Pre-determine path or route to be traveled, Walk route; pick a well traveled path with good ground condition, Stairs lifted onto forks; ensure sufficient ground clearance	1 x 1	1
	Poor Visibility	3 x 3	9	Spotter used to place equipment safely within task area	1 x 1	1
	Unsecure Loads	3 x 4	12	Complete pre-use inspection of fork lift & load securement straps, Follow SWP for lifting/handling materials	1 x 1	1
	Load Weight Over Equipment Maximum	3 x 4	12	Ensure load weight is within correct range for equipment	1 x 1	1
	Untrained / Uncertified Personnel	3 x 4	12	Only competent worker should be assigned for this task, Parking brake OFF before moving, Parking brake on prior to exiting, Use 3 point contact entering or exiting vehicle	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Driving To / Positioning /Placement of: Platform at Skid Door Opening Stairs to Platform at Task Location at Skid	Other Tasks Taking Place Within Area With Workers Present	3 x 4	12	Be aware of surroundings and others, Good Communication	1 x 1	1
	Property Damage; Potential Contact with Structure(s) and/or Equipment	3 x 3	9	Use spotters; verify proper signals used	1 x 1	1
	Dropping Tools /Materials to Ground Below	2 x 3	6	Operate loaded fork lift carefully, at appropriate speed to limit damage	1 x 1	1
	Loaded forklift dragging loads	2 x 3	6	Follow Load Securement SWP	1 x 1	1
	Roadway Conditions (Uneven, Rutted, Soft)	3 x 3	9	Drive defensively and courteous at all times, Platform and/or stairs to be shimmed or braced with blocks where landing area uneven	1 x 1	1
	Awkward Stance/Position/Posture	2 x 2	4	Use 3 point contact entering or exiting vehicle	1 x 1	1
	Equipment Moving in Close Proximity to Overhead Hazards	3 x 4	12	Mandatory spotter designated, Review signals to be used between spotter and operator	1 x 1	1
	Operating Equipment with Boom Extended	3 x 3	9	Only competent worker should be assigned for this task, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool	1 x 1	1
	Walking Under Suspended Load	3 x 4	12	Review signals to be used between spotter and operator, Ensure crews and spotter keep a clear line of sight and constant communication with operators of heavy equipment, Be aware of surroundings, equipment and others in vicinity	1 x 1	1
	Poor Communication	3 x 4	12	Ensure operator has clear visibility to/with spotter at all times, Spotters communicating with other vehicles and/or equipment; use approved/understood hand signals	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Sharp/Pointed Objects/Cuts & Punctures	3 x 3	9	Wear appropriate PPE (in good condition)	1 x 1	1
	Pinch Points / Crush Type Injury	3 x 3	9	Wear appropriate PPE (in good condition), Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Misjudging Clearance	3 x 3	9		1 x 1	1
	Poor / Blocked Visibility by Load to Landing Area	2 x 3	6	Use spotters; verify proper signals used, Forklift headlights on at all times	1 x 1	1
	Obstructions In / Near Roadway (Path Of Travel)	2 x 3	6	Use spotters; verify proper signals used, Be aware of surroundings and others	1 x 1	1

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment G-14 - Wildlife
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Job Sepcific Specialized Safety Awareness	No Tools to Provide Protection During Wildlife Event	3 x 3	9	Review full job scope and responsibilities with Supervisor, Assess provision of tools required for specific protection during completion of task	2 x 1	2
	Not Knowing What To Do in Event of Sighting, or Close Proximity Contact with Wildlife	3 x 3	9	Read, review, and understand Wildlife Awareness information	2 x 2	4
	Lack of Wildlife Awareness (Signs, Daily and Seasonal Habits, Feeding Locations, Etc.)	3 x 2	6	Post Wildlife Awareness information in conspicuous areas	2 x 1	2
Obtain Safe Work Permit from Client	Identify All Existing & Potential Location and Work Site Hazards	4 x 2	8	Review / discuss relevant THA's with crew(s), Review / discuss relevant JHA's with crew(s), Review all related / relevant Safe Work Practices (SWP's) associated or involved with this task	2 x 1	2
	Changing Conditions or Work Environment	3 x 3	9	Continually reassess workplace to identify, control, or eliminate all hazards, Review current and future weather conditions	2 x 1	2
	Not Understanding Permit Requirements	3 x 3	9	Ensure clear understanding and adherence to all client site-specific animal deterrents provided or required	2 x 1	2
	Wildlife	3 x 3	9	Follow SWP's	2 x 1	2
Develop Pre-Trip Route Plan	Changing Weather or Road Conditions	3 x 3	9	Before leaving, visually inspect vehicle / trailer, Check weather forecast and road conditions, Drive to the conditions not the speed limit	2 x 1	2
	Wildlife	3 x 2	6	Monitor sides of roads for wildlife; watch ditches and stay attentive at all times, Use horn to startle animals to run away from sound	2 x 1	2
	Other Drivers	3 x 3	9	Be aware of surroundings and others, Ensure adherence to Fit For Duty SWP, Drive defensively; obey ALL posted road signs	2 x 1	2
	Associated Vehicle Hazards (Equipment Breakdown or Failure)	4 x 3	12	Review relevant Driving THA G-02 associated with this task	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Hold Pre-Job Toolbox Meeting	No Escape or Evacuation Plan	2 x 3	6	Update Field PJHA as conditions change, Review Field PJHA with new workers, Review pre-determined escape or evacuation plan with all workers / crews, Identify location of muster point, Ensure clear understanding and adherence to all client site-specific animal deterrents provided or required	2 x 1	2
	New Workers on Site or With Crew(s)	3 x 3	9	Complete all required site orientations	2 x 1	2
	Not Understanding Requirements of Task or Permit Requirements	3 x 3	9	Review all job steps and related hazards	2 x 1	2
Assess Site / Area Where Task To Be Completed	Potential for Wildlife to Enter Trailers or Vehicles	3 x 3	9	Perform housekeeping; clean as you go, NO FOOD or BEVERAGES on work site, Keep vehicles clean; stow refuse in air tight containers away from work area	2 x 1	2
	Feeding Wildlife		0	Do not feed wildlife, Keep lunch trailer windows closed at all times		0
	Unaware of What Attracts Wildlife	3 x 3	9	Investigate area closely for presence of smells of cooked or stored food, or discarded/spilled food items (empty containers, dumped liquids, or food wrappers, etc.)	2 x 1	2
	Unaware of / Oblivious to Signs Indicating Presence of Wildlife	3 x 3	9	Follow SWP's, Be aware of surroundings and others, Check area closely for animal sign (tracks/prints, droppings, torn up trees / logs, rocks upended and dug up)	2 x 1	2
	Locked Vehicles	3 x 3	9	Maintain UNLOCKED doors (ALL vehicles, trailers, etc.) for potential emergency protection	1 x 1	1
Wildlife Sighting(s) - Preparation	Potential Attacks by Wildlife	3 x 3	9	Ensure close, quick access to whistle(s), bear spray, etc.	2 x 1	2
	Potential Close Proximity of Wildlife	3 x 3	9	Ensure close, quick access to whistle(s), bear spray, etc.	2 x 1	2
	Sightings/Evidence of Wildlife in Immediate Area	4 x 3	12	Frequently make loud noise to alert wildlife in area to presence of workers, Ensure clear understanding and adherence to all client site-specific animal deterrents provided or required	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Worker(s) Unaware of Location of Air Horns or Whistles, etc.	3 x 3	9	Workers to follow pre-determined escape plan, Ensure close, quick access to radio communication device(s) and instructions for use	2 x 1	2
Commence Work Task per Scope of Work	Potential Attacks by Wildlife	3 x 3	9	Cease work immediately where wildlife sightings occur; leave area quietly, Practice continuous prevention and protection of wildlife habitat/territory, Be aware of surroundings and others, Ensure close, quick access to whistle(s), bear spray, etc.	2 x 1	2
	Sightings/Evidence of Wildlife in Immediate Area	3 x 3	9	Consult client HSE representative for further instruction when safe to proceed, When far enough away, sound air horn warning, Workers to follow pre-determined escape plan, No eye contact, Cease work immediately; quietly, carefully leave area backing away	2 x 1	2

Name: Hazard Assessment G-14 - Wildlife
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment G-15 - Operation of Forklift or Zoom Boom
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Where Necessary, Obtain a Safe Work Permit From Client Complete All Associated Pre-Job Hazard Assessments (PJHA's) of Site, Location & Work Areas	Not Identifying all Existing & Potential Location and Work Site Hazards	3 x 4	12	Review / discuss relevant THA's with crew(s), Review / discuss relevant JHA's with crew(s), Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Care and caution with ground conditions; avoid uneven or slippery areas	1 x 1	1
	Not Understanding Requirements of Task or Permit Requirements	2 x 3	6		1 x 1	1
	Changing Conditions or Work Environment	2 x 3	6	During daylight, or with good lighting, make visual check of location site during walk around	1 x 1	1
Hold a Pre-Job Meeting	All workers may not be aware of task hazards	3 x 4	12	Review all steps and related hazards, Complete/review FLHA	1 x 1	1
	New Workers on Site or With Crew(s)	3 x 3	9	Review JHA with operations prior to signing, Review PJHA with newcomers to area, Communicate task to all crews in proximity, Be aware of others and surroundings	1 x 1	1
	Workers not appropriately trained or certified to operate equipment	3 x 4	12	Only drivers properly licensed, trained & certified are allowed to operate equipment	1 x 1	1
Assess Site & Work Area Assess Equipment's Path of Travel	Obstructions In / Near Roadway (Path Of Travel)	2 x 3	6	Pre-task plan; determine work task location	1 x 1	1
	Poor Ground Condition	2 x 3	6	Ensure all appropriate/required PPE is worn, Use caution with ground conditions when stepping into or out of vehicle/equipment	1 x 1	1
	Unknown Route Of Travel	2 x 2	4	Pre-determine path or route to be traveled, Walk route; pick a well traveled path with good ground condition	1 x 1	1
	Poor/Blocked Visibility to Operating Equipment	3 x 3	9	Be aware of surroundings and others, Use caution - Focus; eyes and mind on task, Mandatory spotter designated, Appoint a spotter, review signals to be used	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Potential Traffic Collision with Other Vehicles or Workers (Pedestrians)	3 x 4	12	Drive defensively AT ALL TIMES, Focus; eyes and mind on task	1 x 1	1
	Contact with equipment, personnel, vehicles or structure	3 x 3	9	Be aware of potential exposed hazards, Ensure good communication between workers, Communication with forklift operator, spotter and crew, Use agreed upon hand signals; spotter to maintain visual with equipment operators at all times	1 x 1	1
Pre-Use Equipment Inspection Document Inspection Results	No Inspection Forms (Documentation)	3 x 3	9	Perform pre-use inspection and properly document	1 x 1	1
	Equipment Malfunction	3 x 2	6	Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool, Malfunctioning equipment requires "out of service" tagging; segregate for repair, maintenance or destruction	2 x 1	2
	Slips, Trips, Falls	2 x 3	6	Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1
Driving To/Re-positioning Equipment at Task Location	Roadway Conditions (Uneven, Rutted, Soft)	2 x 3	6	Ensure spotter is in place, with correct signals, Drive defensively and courteous at all times	1 x 1	1
	Poor/Blocked Visibility to Operating Equipment	3 x 4	12	Forklift headlights on at all times, Ensure operator has clear visibility to/with spotter at all times	1 x 1	1
	Obstructions In / Near Roadway (Path Of Travel)	2 x 2	4	Ensure spotter is in place, with correct signals	1 x 1	1
	Other Tasks Taking Place Within Area With Workers Present	3 x 3	9	Be aware of surroundings, others, and potential of exposed hazards	1 x 1	1
	Traffic (Personnel, Equipment, Vehicles)	3 x 4	12	Use 3 point contact entering or exiting vehicle, Spotter communicating with other vehicles and / or equipment; use approved / understood hand signals	1 x 1	1
	Operating Equipment with Boom Extended	3 x 3	9	Only competent worker should be assigned for this task, Ensure adherence to Fit For Duty SWP	1 x 1	1
	Equipment Moving in Close Proximity to Overhead Hazards	3 x 4	12	Ensure operator has clear visibility to/with spotter at all times, Use agreed upon hand signals; spotter to maintain visual with equipment operators at all times	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Placing Loads on Equipment Carrying Loads on Moving Equipment	Load Weight Over Equipment Maximum	3 x 4	12	Review signals to be used between spotter and operator, Mandatory spotter designated, Complete/review FLHA, Check and ensure load weight is within correct range for equipment	1 x 1	1
	Unsecure Loads	3 x 3	9	Loads must be secured with rated straps, Ensure all appropriate/required PPE is worn	1 x 1	1
	Load Blocking Driver's Vision	3 x 4	12	Spotter used to place equipment safely within task area, Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1
	Misjudging Clearance	3 x 4	12	Mandatory spotter designated, Appoint a spotter, review signals to be used, Communicate task to all crews in proximity, Be aware of others and surroundings	1 x 1	1
	Equipment Moving/Being Utilized Within 3 M of an Overhead Live Line Striking Structures With Forks, Boom, Bumpers, Doors or Tires, etc.	4 x 4	16	Only competent worker should be assigned for this task, Utilize a spotter; must wear hi-vis vest, Equipment moving / being utilized within 3 m of an above ground live process line requires supervision from a foreman or superintentent	1 x 1	1
	Dropping Tools /Materials to Ground Below	3 x 3	9	Ensure presence of qualified ground person for ground control safety, Parking brake OFF before moving, Parking brake on prior to exiting	1 x 1	1
	Pedestrian Traffic	2 x 4	8	Be aware of surroundings and others	1 x 1	1
	Walking Under Suspended Load	2 x 4	8	Drop zone tagged / flagged to outside radius of equipment, forks, etc.	1 x 1	1
	Electrical Shock	3 x 4	12	Use spotters; verify proper signals used, Critical lift procedure required for crew when working above live process line	1 x 1	1
Parking Equipment Unloading Loads from Equipment	Load Blocking Driver's Vision	3 x 3	9	Use spotters; verify proper signals used, Ensure operator has clear visibility to/with spotter at all times	1 x 1	1
	Misjudging Clearance	3 x 3	9	Use spotters; verify proper signals used, Be aware of surroundings and others, Use caution -Focus; eyes and mind on task, Check landing area for potential hazards; ensure clear path and good clearance	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Property Damage; Potential Contact with Structure(s) and/or Equipment	3 x 3	9	Use spotters; verify proper signals used, Be aware of surroundings and others	1 x 1	1
	Dropping Tools /Materials to Ground Below	3 x 3	9	Follow SWP's for safe lifting, handling of debris, tools, equipment, material, etc.	1 x 1	1
	Pedestrian or Vehicle Traffic	3 x 3	9	Drive defensively and courteous at all times	1 x 1	1
	Equipment parked on slope	2 x 3	6	Parking brake on prior to exiting vehicle, Use 3 point contact entering or exiting vehicle	1 x 1	1
	Changing Weather or Road Conditions	3 x 3	9	Be aware of and drive to road & weather conditions, Care and caution with ground conditions; avoid uneven or slippery areas, Forklift headlights on at all times	1 x 1	1
	Pinch Points / Crush Type Injury	3 x 4	12	Maintain proper body positioning (line of fire) and footing, Ensure adherence to Fit For Duty SWP	1 x 2	2
	Sharp/Pointed Objects/Cuts & Punctures	3 x 3	9	Wear appropriate PPE (in good condition)	1 x 1	1
	Awkward heavy lifting, muscle strain	2 x 3	6	Utilize proper lifting and transport techniques and ask for assistance, where and if required	1 x 1	1
Turn Off and Exit Equipment	Lighting (poor or excessive)	2 x 2	4	Good Visibility of area; use daylight, flashlight or headlamp	1 x 1	1
	Slips, Trips, Falls	2 x 3	6	Care and caution with ground conditions; avoid uneven or slippery areas, Wear proper footwear with additional slip-on traction devices	1 x 1	1
	Uneven Surfaces	2 x 2	4	Use 3 point contact entering or exiting vehicle	1 x 1	1
Housekeeping	Dusts	2 x 2	4	Wear appropriate PPE (in good condition)	1 x 1	1
	Pinch Points / Crush Type Injury	2 x 3	6	Wear appropriate PPE (in good condition), Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	2 x 3	6	Wear appropriate PPE (in good condition)	1 x 1	1
	Awkward heavy lifting, muscle strain	2 x 3	6	Follow SWP's for safe lifting, handling of debris, tools, equipment, material, etc.	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Obstacles, Debris, Etc. In Immediate Vicinity (Beside, Under, Behind, Ahead)	2 x 2	4	Return equipment and tools to be stored away in safe, neat, orderly fashion, Separate debris from equipment and tools	1 x 1	1
	Trip hazard	2 x 2	4	Perform housekeeping;ensure floor areas are clear of debris, equipment, tools, etc.	1 x 1	1
	Incorrect PPE Worn	3 x 3	9	Ensure all appropriate/required PPE is worn, Inspect PPE before using	1 x 1	1

Name: Hazard Assessment G-15 - Operation of Forklift or Zoom Boom
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment G-16- Using a Power Grinder
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit As/Where Required Null	Not Understanding Permit Requirements	2 x 3	6	Ensure clear understanding of all assigned workers of the task and/or permit	1 x 1	1
Obtain Job-Specific Informatoin from Manager	Relay of Incomplete or Incorrect Information	3 x 3	9	Review full job scope and responsibilities with Supervisor, Ensure clear understanding of all assigned workers of the task and/or permit, Perform ONLY work identified by permit	1 x 1	1
Complete Associated PJHA	Potential Exposure to Hazardous Atmosphere	2 x 3	6	Ensure all appropriate/required PPE is worn, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Test for presence of combustible gases, Review / discuss relevant THA's w/Crew(s)	1 x 1	1
	Not Identifying all Existing & Potential Location and Work Site Hazards	3 x 3	9	Review / discuss relevant PJHA's w/Crew(s), Review all other Safe Work Practices associated or involved with task, Review / discuss all related and relevant Safe Work Practices associated or involved with this task	1 x 1	1
Identify and Collect Tool(s) and Equipment Necessary to Perform Task	Sharp/Pointed Objects/Cuts & Punctures	2 x 3	6	Wear appropriate PPE (in good condition)	1 x 1	1
	Pinch Points	2 x 3	6	Wear appropriate PPE (in good condition), Identify pinch points	1 x 1	1
	Awkward heavy lifting, muscle strain	2 x 3	6	Utilize proper lifting and transport techniques and ask for assistance, where and if required	1 x 1	1
	Falls – Slip/Trips	2 x 2	4	Ensure proper body and body parts positioning (line-of-fire) and solid footing, Wear proper footwear with additional slip-on traction devices	1 x 1	1
	Blocked Aisle Ways	2 x 1	2	Review ERP and evacuation routes, Ensure task and floor areas are clear of debris, equipment, tools, etc.	1 x 1	1
	Congestion (Work Areas, Access Ways)	2 x 3	6	Be aware of surroundings and others, Perform housekeeping; ensure floor areas are clear of debris, equipment, tools, etc.	1 x 1	1
	Poor Communication Within Crews	2 x 3	6	Be aware of surroundings and others	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Incorrect PPE Worn	2 x 3	6	Ensure all appropriate PPE is worn (hand, eye) and in good condition	1 x 1	1
Competency Check of Worker(s) for Use of Specific Tool	Potential Exposure to Hazardous Atmosphere	2 x 4	8	Mandatory PPE must be worn, Test for presence of combustible gases	1 x 1	1
	Not Identifying all Existing & Potential Location and Work Site Hazards	2 x 2	4	Identify location hazards and address each one	1 x 1	1
	Lack of Training in Equipment's Operation	2 x 3	6	Ensure operator has had proper instruction on use of tool and risks associated, Only competent worker should be assigned for this task	1 x 1	1
Review Manufacturer's Manual (Safe Operating Procedure, Inspection Protocol)	Unfamiliarity with Equipment	3 x 3	9	Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool, Only competent worker should be assigned for this task	1 x 1	1
Inspect All Tool(s) and Equipment	Wrong Disc for Task; cracked, broken, dull	3 x 3	9	If unsure, have supervisor check if disc is appropriate to task and/or installed correctly, Only competent worker should be assigned for this task, Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool	1 x 1	1
	Disc Fragmantation	2 x 3	6	Test every disc in clear area, Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool	1 x 1	1
	Improperly Installed or Untested Disc	2 x 3	6	Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool, Wear proper, required PPE (gloves)	1 x 1	1
	Improper Guarding	2 x 3	6	Inspect machine guards, Malfunctioning equipment requires "out of service" tagging; segregate for repair, maintenance or destruction	1 x 1	1
	Guards Have Been Modified	3 x 3	9	Guard(s) properly/securely attached to grinder; not modified	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Tools Require Cleaning or Repair	2 x 3	6	Assume tool is "live" until inspection completed by qualified personnel, If tool requires disassembly for repair or maintenance; review manufacturer's manual, Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool	1 x 1	1
	Malfunctioning Equipment	2 x 3	6	Where tool is verified not live, visually inspect all tools and equipment prior to use, Review all SWP's for tool(s) and equipment to be used, NEVER point a tool at anyone/body parts	1 x 1	1
Lockout Tag Out Deficient Tool(s) or Equipment	Sharp/Pointed Objects/Cuts & Punctures	3 x 3	9	Wear appropriate PPE (in good condition)	1 x 1	1
	Pinch Points	3 x 3	9	Wear appropriate PPE (in good condition), Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Awkward heavy lifting, muscle strain	2 x 3	6	Utilize proper lifting and transport techniques and ask for assistance, where and if required	1 x 1	1
	Falls – Slip/Trips	2 x 2	4	Care and caution with ground conditions; avoid uneven or slippery areas, Route cables away from walkways	1 x 1	1
	Blocked Aisle Ways	3 x 2	6	Perform housekeeping; ensure floor areas are clear of debris, equipment, tools, etc.	1 x 1	1
	Poor Communication Within Crews	3 x 3	9	Ensure clear understanding of all assigned workers and workers in vicinity of the task and/or activity plan	1 x 1	1
	Lighting (poor or excessive)	2 x 2	4	Install temporary lighting; if /where needed	1 x 1	1
	Line of Fire (Extremities, Body)	2 x 3	6	Exercise proper donning and doffing of all PPE, Personal monitors worn – calibrated, bumptested, recorded, with fully charged batteries, Welder to place welding screens	1 x 1	1
	Congestion (Work Areas, Access Ways)	2 x 2	4	Barriers and flags placed as/where necessary to keep unauthorized personnel away, Watch for pedestrians, Use hand signals to communicate, Fire extinguisher charged and in close proximity to task area	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Use of Damaged/Defective Tools or Equipment	4 x 3	12	Malfunctioning equipment requires "out of service" tagging; segregate for repair, maintenance or destruction	1 x 1	1
Cutting, Grinding, Buffing	Disc Fragmentation	3 x 3	9	Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool, Ensure all apprpriate PPE is worn (hand, eye) and must be in good condition	1 x 1	1
	Incorrect PPE Worn	2 x 2	4	Use respirator where required (ie exposure to zinc), Ensure all appropriate PPE is worn (hand, eye, face, hearing) must be in good condition	1 x 1	1
	Potential Temporary Hearing Loss	2 x 1	2	Mandatory PPE must be worn, including any additional site specific (face shield, hearing etc.)	1 x 1	1
	Noise Exposure	3 x 1	3	Hearing protection required, noise levels can exceed 100dBA	1 x 1	1
	Fire/Explosion/Burns	2 x 2	4	Wear proper, required PPE (gloves)	1 x 1	1
	Improperly Installed or Untested Disc	3 x 3	9	Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool, Only competent worker should be assigned for this task	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	2 x 3	6	Wear proper, required PPE (gloves), Use caution handling metal burrs or sharp waste	1 x 1	1
	Airborne Dust, Debris, Fumes	2 x 1	2	Wear all appropriate PPE in good condition	1 x 1	1
	Lighting (poor or excessive)	2 x 2	4	Install temporary lighting; if /where needed	1 x 1	1
	Kickback from Tool	2 x 3	6	If tool requires disassembly for repair or maintenance; review manufacturer's manual, Use solid grip on tools; 2 handles = 2 hands	1 x 1	1
Housekeeping	Electricity, Electrical Shock	2 x 3	6	Review Zero Energy Isolation Code of Practice with Operations	1 x 1	1
	Noise Exposure	2 x 1	2	Mandatory PPE must be worn, including any additional site specific (face shield, hearing etc.)	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Awkward Stance/Position/Posture	3 x 3	9	Follow SWP's for safe lifting, handling of debris, tools, equipment, material, etc.	1 x 1	1
	Disposal Bins are Full	2	2	Ensure supervisory personnel are alerted if disposal bins are full	1 x 1	1
	Active Welding or Grinding in Area	2 x 2	4	Maintain communication with welder	1 x 1	1
	Welding Flash	2 x 2	4	Ensure all appropriate/required PPE is worn, Inspect PPE before using	1 x 1	1
	Fumes	2 x 2	4	Wear appropriate PPE (in good condition)	1 x 1	1
	Task Incomplete	2 x 2	4	If task not completed; remove all hazards from area and ensure area safe for re-entry next day	1 x 1	1
	Congestion (Work Areas, Access Ways)	2 x 2	4	Separate debris from equipment and tools, Perform housekeeping; ensure work area is clear of debris, equipment, tools, etc., Return equipment and tools to be stored away in safe, neat, orderly fashion, Securely wrap all cords and cables; store in safe location, Protect tools, equipment, material from changing conditions or damage	1 x 1	1
	Falls – Slip/Trips	2 x 2	4	Care and caution with ground conditions; avoid uneven or slippery areas, Be aware of surroundings and others	1 x 1	1
	Incorrect PPE Worn	2 x 2	4	Prior to removal of PPE, conduct a 360 degree check of area to identify any others working, Exercise proper donning and doffing of all PPE, Ensure all appropriate PPE is worn (hand, eye) and in good condition	1 x 1	1
	Airborne Dust, Debris, Fumes	2 x 1	2	Wear all appropriate/required PPE	1 x 1	1
	Hot Surfaces	2 x 2	4	Wear all appropriate/required PPE	1 x 1	1
	Pinch Points	2 x 2	4	Wear all appropriate/required PPE	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	2 x 3	6	Wear all appropriate/required PPE	1 x 1	1

Name: Hazard Assessment G-16- Using a Power Grinder
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment G-17 - Aerial Work Platform
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit From Client	Not Understanding Permit Requirements	2 x 2	4	Review full job scope and responsibilities with Supervisor, Clear, concise communication to review /discuss full scope and order of job duties related to task, Follow SWP's	1 x 1	1
Complete All Associated Pre-Job Hazard Assessments	Not Identifying all Existing & Potential Location and Work Site Hazards	2 x 2	4	Review / discuss relevant THA's with crew(s), Review / discuss relevant JHA's with crew(s), Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Ensure all proper PPE is worn/utilized for task, must be in good condition, Continually reassess workplace to identify, control or eliminate all hazards	1 x 1	1
	Changing Conditions or Work Environment	2 x 2	4	Visual check and walk down of location hazards	1 x 1	1
Hold a Pre-Job Toolbox Meeting	Workers Unaware Of Location Hazards	2 x 2	4	Complete Field PJHA	1 x 1	1
	Workers Unaware Of Hazards Of Task	2 x 2	4	Review / discuss relevant THA's with crew(s)	1 x 1	1
	New Workers on Site or With Crew(s)	2 x 2	4	Complete all required site orientations, Review Field PJHA with newcomers	1 x 1	1
Assess Site and Work Area	Electrical Shock	2 x 2	4	Refer to Zero Energy Isolation code of practice	1 x 1	1
	Live Process Equipment, Electrical Lines/Cables	3 x 3	9	Be aware of surroundings and others	1 x 1	1
	Property Damage; Potential Contact with Structure(s) and/or Equipment	3 x 3	9	Use spotters; verify proper signals used, Be aware of potential exposed hazards	1 x 1	1
Assess Equipment's Path of Travel	Obstructions In / Near Roadway (Path Of Travel)	3 x 3	9	Be alert and aware of surroundings (wildlife, other vehicles, road conditions)	1 x 1	1
	Poor Ground Condition	2 x 3	6	Pre-determine path or route to be traveled, Walk route; pick a well traveled path with good ground condition	1 x 1	1
	Potential Traffic Collision with Other Vehicles or Workers (Pedestrians)	2 x 3	6	Be alert and aware of surroundings (wildlife, other vehicles, road conditions), In tight, congested areas, use a spotter	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Pre-Use Equipment Inspection	No Inspection Forms (Documentation)	2 x 2	4	Perform pre-use inspection and properly document	1 x 1	1
	Equipment Malfunction	2 x 3	6	Malfunctioning equipment requires tagged "out of service", Licensed mechanic must review	1 x 1	1
	Lighting (poor or excessive)	2 x 2	4	Perform pre-use inspection under bright lighting	1 x 1	1
	Falls – Slip/Trips	2 x 2	4	Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1
	Cold Weather Start Up	3 x 2	6	Units to be plugged in when not in use and/or over night	1 x 1	1
Identify Required Fall Arrest or Fall Restraint System To Be Utilized	Dropping Tools /Materials to Ground Below	3 x 4	12	Use proper tool lanyard, bag or pockets to prevent tools etc., falling or being dropped, Stop the Drop, Use Suitable Drop Clothes to prevent Drop, Avoid having tools unsecured in open pockets (radio, etc) while working at heights, Secure equipment to prevent falls	1 x 1	1
	Incorrect Fall Arrest System Used	3 x 4	12	Follow THA E-27 Working At Heights	1 x 1	1
	Failure Of Fall Arrest /Restraint System	2 x 4	8	Clean and inspect harness; document inspection on approved form	1 x 1	1
	Damaged Fall Arrest /Restraint System	3 x 4	12	Inspect all equipment for any / all defects, If damaged or altered through findings or inspection, take equipment out of service	1 x 1	1
	Working at Heights	3 x 4	12	Review fall protection rescue plan with all workers /crews, Mandatory 100% tied off	1 x 1	1
	Falls from Heights	3 x 4	12	Fall protection plan required when working at heights, Mandatory 100% tied off, Use fall protection if working at or in excess of 6' or 1.8 meters, Fall protection is mandatory when operating an AWP	1 x 1	1
Driving To /Repositioning Equipment at Task Location	Roadway Conditions (Uneven, Rutted, Soft)	2 x 2	4	Ensure crews and spotter keep a clear line of sight and constant communication with operators of heavy equipment	1 x 1	1
	Obstructions In / Near Roadway (Path Of Travel)	2 x 2	4	Be aware of surroundings, others, and potential of exposed hazards	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Other Tasks Taking Place Within Area With Workers Present	2 x 4	8	Spotter used while wheels are in motion, Spotter communicating to workers	1 x 1	1
	Traffic (Personnel, Equipment, Vehicles)	3 x 4	12	Spotter used while wheels are in motion, Spotter communicating to workers	1 x 1	1
	Operating AWP While Extended	2 x 3	6	Only competent worker should be assigned for this task, Ensure operator is tied off to engineered tie-off point, Review safe practices for ladder use or scaffolds and AWP operation	1 x 1	1
	Equipment Moving Within 3m Of A Live Process Line	3 x 4	12	Ensure crews and spotter keep a clear line of sight and constant communication with operators of heavy equipment, Be aware of surroundings, equipment and others in vicinity, Equipment moving within 3 m of a live process line - foreman, superintendent, or a HSE rep (contractor or CPC) are required to supervise move, Review safe practices for ladder use or scaffolds and AWP operation	1 x 1	1
Setting / Settling Aerial Work Platform Into Position	Misjudging Clearance	4 x 4	16	Spotter used to place basket within task area	1 x 1	1
	Striking Structure With Basket, Jib Or Boom	3 x 3	9	Ensure crews and spotter keep a clear line of sight and constant communication with operators of heavy equipment, Be aware of surroundings, equipment and others in vicinity, Drop zone must be tagged / flagged to outside radius of basket	1 x 1	1
	Pinch Points	3 x 4	12	Be aware of position of hands (line-of-fire), Keep all body parts inside basket when positioning lift	1 x 1	1
Commence Scope Of Work	Dropping Tools /Materials to Ground Below	3 x 4	12	Ensure presence of qualified ground person for ground control safety, Tool lanyards used to safeguard against accidental drops	1 x 1	1
	Walking Under Suspended Load	2 x 4	8	Review safe practices for ladder use or scaffolds and AWP operation	1 x 1	1
	Hazards Identified From Field PJHA	3 x 4	12	Follow THA E-27 Working At Heights	1 x 1	1
	Electricity, Electrical Shock	4 x 4	16	Lock-out/Tag-out Program, Review Zero Energy Isolation Code of Practice with Operations	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Equipment Moving Within 3m Of A Live Process Line	4 x 4	16	Ensure crews and spotter keep a clear line of sight and constant communication with operators of heavy equipment, Critical lift procedure required for crew when working above live process line, Equipment moving / being utilized within 3 m of an above ground live process line requires supervision from a foreman or superintentent	1 x 1	1
	Equipment Moving Within 7.5m Of A Live Process Line	4 x 4	16	Ensure crews and spotter keep a clear line of sight and constant communication with operators of heavy equipment, Equipment moving / being utilized within 7.5m of an above ground live process line requires completion of Safe Work Plan - Working Near Live Systems, Signatures identified are required before SWP is deemed complete	1 x 1	1

Name: Hazard Assessment G-17 - Aerial Work Platform
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment G-18 - Ladder Use
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Choose Appropriate Ladder Complete pre-use inspection	No Inspection Forms (Documentation)	2 x 3	6	Complete pre-use inspection of ladder	1 x 1	1
	Paint Concealing Potential Flaws or Damage	3 x 4	12	Follow safe ladder use practice, Malfunctioning equipment requires "out of service" tagging; segregate for repair, maintenance or destruction	1 x 1	1
	Faded, Unreadable Labelling	3 x 4	12	Complete pre-use inspection of ladder, Malfunctioning equipment requires "out of service" tagging; segregate for repair, maintenance or destruction	1 x 1	1
Set Up Ladder	Congestion (Work Areas, Access Ways)	2 x 3	6	Set up ladder in low traffic zone in work area, Areas flagged off, proper signage conspicuously placed	1 x 1	1
	Ladder Placement /Tipping	2 x 3	6	Check site & work area closely for ground condition, obstacles, clearances, etc.	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	3 x 3	9	Ensure all appropriate/required PPE is worn, Ensure proper body and extremities positioning (line of fire)	1 x 1	1
	Pinch Points	3 x 3	9	Ensure all apprpriate PPE is worn (hand, eye) and must be in good condition, Ensure proper body and extremities positioning (line of fire)	1 x 1	1
	Falls – Slip/Trips	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing; ensure caution with ground conditions	1 x 1	1
	Awkward Stance/Position/Posture	2 x 2	4	Ensure proper body positioning (line-of-fire) and solid footing, Ensure 1:4 ratio use	1 x 1	1
	Dropping Tools /Materials to Ground Below	2 x 2	4	Loose tools / material kept off ladders, Ribbon or barricade off work area, Signage posted; use danger or caution barrier tape, Use proper tool lanyard, bag or pockets to prevent tools etc.., falling or being dropped	1 x 1	1
	Falling From Ladder	2 x 3	6		1 x 1	1
Use Of Ladder	Misjudging Clearance; Overhead Hazards	3 x 3	9	Be aware of surroundings and others, Ensure all appropriate PPE is worn (hand, eye, face, hearing) must be in good condition	1 x 1	1
	Ladder Placement /Tipping	3 x 2	6	Ensure ladder base is on firm, level surface	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Dropping Tools /Materials to Ground Below	3 x 3	9	Keep ladder rungs free of debris, Pass tools /equipment up ladder with a Kuney's tool bag	1 x 1	1
	Falling From Ladder	3 x 3	9	Follow safe ladder use practice (proper tie-offs and 3 point contact maintained at all times), Firmly grasp both side rails during ascent	1 x 1	1
	Congestion (Work Areas, Access Ways)	3 x 3	9	Set up ladder in low traffic zone in work area, Ensure barriers/flags clearly visible, placed as/where necessary around task area	1 x 1	1
	Awkward Stance/Position/Posture	2 x 2	4	Ensure proper body positioning (line-of-fire) and solid footing, Get securely positioned at task area level	1 x 1	1
	Pinch Points	2 x 3	6	Ensure all appropriate PPE is worn (hand, eye, face, hearing) must be in good condition, Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	2 x 3	6	Wear proper, required PPE (gloves), Ensure proper body and extremities positioning (line of fire)	1 x 1	1
Job Completion	Misjudging Clearance	3 x 2	6	Be aware of surroundings and others, Wear all appropriate/required PPE	1 x 1	1
	Pinch Points	3 x 3	9	Wear all appropriate/required PPE, Ensure proper body and extremities positioning (line of fire)	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	3 x 3	9	Maintain proper body positioning (line of fire) and footing, Ensure all appropriate/required PPE is worn	1 x 1	1
	Ladder Placement /Tipping	2 x 2	4	Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1
	Dropping Tools /Materials to Ground Below	2 x 2	4	Keep ladder rungs free of debris, Pass tools /equipment up ladder with a Kuney's tool bag	1 x 1	1
	Awkward Stance/Position/Posture	3 x 3	9	Ensure proper body and body parts positioning (line-of-fire) and solid footing, Follow safe ladder use practice (proper tie-offs and 3 point contact maintained at all times)	1 x 1	1
	Falling From Ladder	3 x 3	9	Scan ground area for solid landing spot prior to stepping down from bottom rung, Firmly grasp both side rails during descent	1 x 1	1

Name: Hazard Assessment G-18 - Ladder Use
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Post-Use Equipment Inspection	No Inspection Forms (Documentation)	2 x 2	4	Documentation completed fully /carefully	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	3 x 3	9	Wear appropriate PPE (in good condition)	1 x 1	1
	Pinch Points	3 x 3	9	Wear appropriate PPE (in good condition), Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Falls – Slip/Trips	2 x 2	4	Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1
	Lighting (poor or excessive)	2 x 2	4	Perform post use inspection under bright lighting	1 x 1	1
	Broken ladders	2 x 2	4	Inspect ladder, Malfunctioning equipment requires tagged "out of service"	1 x 1	1

Name: Hazard Assessment G-18 - Ladder Use
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment G-19 - Fire Extinguisher Inspection
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Collect / Compile Appropriate Documentation to Complete Inspection	No Inspection Forms (Documentation)	2 x 2	4	Ensure all required inspections have been successfully completed, submitted, and recorded	1 x 1	1
Identify/Locate Fire Extinguisher Requiring Inspection	Not Identifying all Existing & Potential Location and Work Site Hazards	2 x 2	4	Identify location hazards and address each one	1 x 1	1
	Pinch Points	3 x 2	6	Wear appropriate PPE (in good condition), Proper hand placement (line-of-fire)	1 x 1	1
	Changing Conditions or Work Environment	2 x 2	4	Review full scope of inspection items listed on documentation, During daylight, or with good lighting, make visual check of location site during walk around	1 x 1	1
	Obstacles, Debris, Etc. In Immediate Vicinity (Beside, Under, Behind, Ahead)	2 x 2	4	Ensure Fire Extinguisher location is easily accessible, with highly visible signage and bright lighting	1 x 1	1
	Slips, Trips, Falls	2 x 2	4	Ensure proper footing in slippery conditions	1 x 1	1
Pre-Use Inspection of Equipment Hose, Nozzle, Pressure Gauge, Tank, Pin, Seal, Mount	Awkward Stance/Position/Posture	2 x 2	4	Be aware of hand placement (line-of-fire), Ensure proper body positioning (line-of-fire) and solid footing, Pre-task stretching	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	2 x 2	4	Wear appropriate PPE (in good condition), Proper hand placement (line-of-fire)	1 x 1	1
	Pinch Points	2 x 2	4	Be aware of hand placement (line-of-fire), Wear appropriate PPE (in good condition)	1 x 1	1
	Pressure Has Been Discharged	2 x 2	4	Ensure worker completing inspection or maintenance is competent/qualified, CO2 cartridge gauge shows green "SAFE" (full) - not discharged; secure to cylinger and free of any visible external damage	1 x 1	1
	Faded, Unreadable Labelling	2 x 2	4	Tags must be current	1 x 1	1
	Flaws/Cracks/Damage; Nozzle, Hose, Cylilnder	2 x 2	4		1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Potential For Nozzle to be Jammed w/ Debris, or Hindered by Mount	2 x 2	4	Visually inspect nozzle;free of particles of debris, etc. and rubber hose for cracking, pinches or flat spots	1 x 1	1
	Paint Concealing Potential Flaws or Damage	2 x 2	4	If unfamiliar with regulator, contact manufacturer or supervisor for instructions	1 x 1	1
	Lighting (poor or excessive)	2 x 2	4	Perform pre-use inspection under bright lighting	1 x 1	1
	Equipment Malfunction	2 x 2	4	Handle properly secured w/pin and plastic tie wrap	1 x 1	1
	No Inspection Forms (Documentation)	2 x 2	4	Inspection Program, Review full scope of inspection items listed on documentation	1 x 1	1
Document Complete Inspection Results	No Inspection Forms (Documentation)	1 x 2	2	Malfunctioning equipment requires "out of service" tagging; segregate for repair, maintenance or destruction, Record current locations of all fire extinguishers, Document any/all anomalies on approved form; advise supervisory personnel, Location of inspection documentation should be in close proximity, clearly marked and available to all personnel	1 x 1	1
	Items or Issues Missed; Not Properly Documented	2 x 2	4	Follow up on any/all corrective actions noted and ensure completion, Review and approval by HSE personnel; incomplete documentation returned to inspector	1 x 1	1

Name: Hazard Assessment G-19 - Fire Extinguisher Inspection
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment G-20 - Fueling Gen Sets or Air Compressors
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
If & Where Necessary, Obtain Safe Work Permit Complete Associated Pre-Job Hazard Assessments (PJHA's) of Site, Location, and/or Work Areas; Review Equipment Manufacturer's Manuals for Safe Fueling	Changing Conditions or Work Environment	2 x 2	4	Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Review / discuss relevant THA's with crew(s), Review / discuss relevant PJHA's w/Crew(s)	1 x 1	1
	Awkward Posture /Positioning Required to Access for Inspection	2 x 2	4	Review appropriate SWP's for tool(s) and equipment to be used	1 x 1	1
	Not Identifying all Existing & Potential Location and Work Site Hazards	2 x 2	4		1 x 1	1
	Obstacles, Debris, Etc. In Immediate Vicinity (Beside, Under, Behind, Ahead)	2 x 2	4	Perform housekeeping; ensure work area is clear of debris, equipment, tools, etc.	1 x 1	1
	Slips, Trips, Falls	2 x 2	4	Wear appropriate PPE (in good condition)	1 x 1	1
	Pinch Points	2 x 3	6	Wear appropriate PPE (in good condition)	1 x 1	1
Pre-Use Inspection of Equipment General Overall, Start/Off/Auto Switch, Batteries, Fuel System (Filter), Lubrication System, Cooling System, Exhaust System (Venting), Gas Can, Spout or Funnel	No Inspection Forms (Documentation)	2 x 2	4	Pre-use inspections performed & documented (ladder, tools, equipment), Pre-task plan; determine work task location, Where required, consult operator's manual	1 x 1	1
	Awkward Stance/Position/Posture	2 x 2	4	Ensure proper body positioning (line-of-fire) and solid footing, Stretch prior to performing heavy, awkward lifts, Know your limits; utilize additional workers as required	1 x 1	1
	Equipment Malfunction	2 x 3	6	Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool	1 x 1	1
	Pinch Points	2 x 3	6	Ensure all proper PPE is worn/utilized for task, must be in good condition, Identify pinch points, Be aware of position of hands (line-of-fire)	1 x 1	1
	Faded, Unreadable Labelling	2 x 2	4	Where defects identified, follow Lock Out/ Tag Out SWP, Tags must be current	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Flaws/Cracks/Damage; Nozzle, Hose, Cylilnder	2 x 3	6	Ensure equipment is off & fully cooled down before refueling; gasoline spilled on hot engine parts could ignite	1 x 1	1
	Potential For Nozzle to be Jammed w/ Debris, or Hindered by Mount	3 x 2	6	Visually inspect gas can, spout and funnel free of particles of debris, cracking, pinches, holes, etc.	1 x 1	1
	Paint Concealing Potential Flaws or Damage	2 x 2	4	Visually inspect unit for rust, cracks, dents, leaks, or any noticeable wear and tear	1 x 1	1
	Lighting (poor or excessive)	2 x 2	4	Perform pre-use inspection under bright lighting	1 x 1	1
Document Complete Inspection Results	Lighting (poor or excessive)	2 x 2	4	Install temporary lighting; if /where needed	1 x 1	1
	No Inspection Forms (Documentation)	2 x 2	4	Document any/all anomalies on approved form; advise supervisory personnel	1 x 1	1
	Defective Units Not Tagged Out-Of-Service; Repairs Not Completed	2 x 3	6	Malfunctioning equipment requires "out of service" tagging; segregate for repair, maintenance or destruction	1 x 1	1
	Improper Identification Handling	2 x 1	2	Documentation completed fully /carefully	1 x 1	1
Set Up Fill, Carry and Place Fuel Cans Proper/Adequate Spout or Funnel	Potential Exposure to Hazardous Atmosphere	2 x 4	8	Test for presence of combustible gases	1 x 1	1
	Potential Fire	2 x 3	6	Ensure Fire Extinguisher location is easily accessible, with highly visible signage and bright lighting, No Smoking within 10M of Fueling operation	1 x 1	1
	Equipment Not Shut Down; Left Running	2 x 1	2	Ensure all equipment in immediate proximity is turned off/shut down	1 x 1	1
	Unfamiliarity with Equipment	2 x 2	4	Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool, Only competent worker should be assigned for this task	1 x 1	1
	Lack of Training in Specific Task	2 x 2	4	Only competent worker should be assigned for this task	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Poor Communication Within Crews	2 x 2	4	Good Communication, Be aware of others and surroundings	1 x 1	1
	Incorrect PPE Worn	2 x 3	6	Ensure all appropriate/required PPE is worn	1 x 1	1
	Awkward heavy lifting, muscle strain	2 x 2	4	Follow SWP for lifting/handling materials	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	2 x 3	6	Wear appropriate PPE (in good condition)	1 x 1	1
	Pinch Points	2 x 3	6	Wear appropriate PPE (in good condition), Proper hand placement (line-of-fire)	1 x 1	1
	Slips, Trips, Falls	2 x 2	4	Ensure proper body and body parts positioning (line-of-fire) and solid footing	1 x 1	1
	Obstacles, Debris, Etc. In Immediate Vicinity (Beside, Under, Behind, Ahead)	2 x 2	4	Ensure truck's box is clear of clutter, tools, equipment, etc. prior to entry	1 x 1	1
	Electrical Shock	2 x 3	6	Review Zero Energy Isolation Code of Practice with Operations	1 x 1	1
Filling Equipment Units with Fuel	Sharp/Pointed Objects/Cuts & Punctures	2 x 3	6	Wear appropriate PPE (in good condition)	1 x 1	1
	Pinch Points	2 x 3	6	Wear appropriate PPE (in good condition), Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Slips, Trips, Falls	2 x 3	6	Be aware of surroundings and others, Use caution - Focus; eyes and mind on task	1 x 1	1
	Obstacles, Debris, Etc. In Immediate Vicinity (Beside, Under, Behind, Ahead)	2 x 2	4	Ensure truck's box is clear of clutter, tools, equipment, etc. prior to entry	1 x 1	1
	Electrical Shock	2 x 3	6	Review Zero Energy Isolation Code of Practice with Operations	1 x 1	1
	Potential Exposure to Hazardous Atmosphere	3 x 4	12	Personal monitors worn – calibrated, bumptested, recorded, with fully charged batteries	1 x 1	1
	Fuel Leaks/Spills	3 x 3	9	Clean up spills as they happen, Avoid over-filling tanks; closely monitor fuel gauge during fill	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Potential Explosion	2 x 4	8	Test for presence of combustible gases	1 x 1	1
	Potential Fire	2 x 3	6	Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool, Ensure Fire Extinguisher location is easily accessible, with highly visible signage and bright lighting, Ensure equipment is off & fully cooled down before refueling; gasoline spilled on hot engine parts could ignite	1 x 1	1
	Equipment Not Shut Down; Left Running	2 x 2	4	Ensure all equipment in immediate proximity is turned off/shut down	1 x 1	1
	Incorrect PPE Worn	2 x 2	4	Ensure all appropriate/required PPE is worn	1 x 1	1
	Awkward heavy lifting, muscle strain	2 x 2	4	Follow SWP for lifting/handling materials, Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1
Housekeeping	Incorrect PPE Worn	2 x 2	4	Ensure all appropriate/required PPE is worn, Exercise proper donning and doffing of all PPE	1 x 1	1
	Awkward heavy lifting, muscle strain	2 x 2	4	Follow SWP's for lifting and handling material	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	2 x 3	6	Ensure all appropriate/required PPE is worn	1 x 1	1
	Pinch Points	2 x 2	4	Maintain proper body positioning (line of fire) and footing, Ensure all appropriate/required PPE is worn	1 x 1	1
	Slips, Trips, Falls	2 x 3	6	Ensure proper footing in slippery conditions, Wear proper footwear with additional slip-on traction devices	1 x 1	1
	Obstacles, Debris, Etc. In Immediate Vicinity (Beside, Under, Behind, Ahead)	2 x 2	4	Return equipment and tools to be stored away in safe, neat, orderly fashion, Separate debris from equipment and tools, Perform housekeeping; ensure work area is clear of debris, equipment, tools, etc.	1 x 1	1
	Electrical Shock	2 x 2	4	Review Zero Energy Isolation Code of Practice with Operations	1 x 1	1
	Potential Exposure to Hazardous Atmosphere	2 x 3	6	Personal monitors worn – calibrated, bumptested, recorded, with fully charged batteries	1 x 1	1

Name: Hazard Assessment G-20 - Fueling Gen Sets or Air Compressors
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment G-21 - Portable Circular Saws
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain a Safe Work Permit Obtain a Hot Work Permit from Operations	Not Identifying all Existing & Potential Location and Work Site Hazards	2 x 3	6		1 x 1	1
	Not Having Clear Understanding Of Scope of JHA Or Permit	2 x 3	6	Ensure all work planned is documented on required permit(s); perform ONLY work Identified by permit	1 x 1	1
Complete Associated Pre-Job Hazard Assessments (PJHA's) of Site, Location, and/or Work Areas	Obstacles, Debris, Etc. In Immediate Vicinity (Beside, Under, Behind, Ahead)	2 x 2	4	Ensure all identified hazards have been controlled or eliminated	1 x 1	1
	Changing Conditions or Work Environment	2 x 2	4	Continually reassess workplace to identify, control, or eliminate all hazards	1 x 1	1
	Pinch Points	3 x 3	9	Wear appropriate PPE (in good condition), Proper hand placement (line-of-fire)	1 x 1	1
	Slips, Trips, Falls	3 x 3	9	Ensure proper footing in slippery conditions, Wear proper footwear with additional slip-on traction devices	1 x 1	1
Ensure Worker(s) Competency	Lack of experience or knowledge of task	4 x 3	12	Only competent worker should be assigned for this task, Review all other Safe Work Practices associated or involved with task, Ensure worker(s) is/are aware of all risks	1 x 1	1
Ensure All Appropriate PPE is Worn, and in Good Condition	Worker(s) Not Familiar with PPE or Process of Use	3 x 3	9	PPE required includes safety glasses, face shield, cut resistance gloves, steel toed boots and hearing protection, Mandatory PPE must be worn, including any additional site specific (face shield, hearing etc.)	1 x 1	1
	PPE in Poor Condition	2 x 3	6	PPE inspected, to be in good condition	1 x 1	1
	Identify all hazards & potential hazards	2 x 3	6	Ensure all appropriate / required PPE is worn - reassess per each task	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Pre-Use Inspection of Equipment General Overall Start/Off/Auto Switch Blade Guards Power Cord & Plug In Deck	Trigger Locks Not Present	3 x 3	9	Malfunctioning equipment requires "out of service" tagging; segregate for repair, maintenance or destruction, Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing, Ensure all appropriate/required PPE is worn	1 x 1	1
	Pinch Points	3 x 3	9	Be aware of hand placement (line-of-fire), Wear appropriate PPE (in good condition)	1 x 1	1
	Flaws/Cracks/Damage to Blade	3 x 3	9	Change out blade, if required, Visually inspect blade for rust, cracks, dents, or any noticeable wear & tear	1 x 1	1
	Paint Concealing Potential Flaws or Damage	2 x 3	6	Inspect all equipment for any / all defects	1 x 1	1
	Lighting (poor or excessive)	2 x 2	4	Install temporary lighting; if /where needed	1 x 1	1
	Equipment Malfunction	3 x 3	9	Visually inspect power cord, plug to be free of cracking, pinches, cuts, holes, etc., Ensure equipment is off & fully cooled down before refueling; gasoline spilled on hot engine parts could ignite	1 x 1	1
	No Inspection Forms (Documentation)	2 x 2	4	Where defects identified, follow Lock Out/ Tag Out SWP, Inspection Program	1 x 1	1
Document Complete inspection Results	Improper type of cutting blade installed/used	3 x 3	9	Only competent worker should be assigned for this task, Check label on saw and disk for identity of speed material, If unsure if a blade is appropriate or installed correctly, check w/supervisor	1 x 1	1
	Defective Units Not Tagged Out-Of-Service; Repairs Not Completed	3 x 3	9	Malfunctioning equipment requires "out of service" tagging; segregate for repair, maintenance or destruction	1 x 1	1
	Faded, Unreadable Labelling	2 x 2	4	Ensure documentation is fully and clearly completed; submitted to HSE Department for review, recording and retention, Tags must be current	1 x 1	1
	Not following operator's manual; blade installed wrong	3 x 3	9	Refer to operators manual for proper removal /installation of blade, Refer to operator's manual for blade selection and care	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Saw body not securely positioned	3 x 3	9	Ensure saw body is properly secured prior to blade removal	1 x 1	1
	Equipment Not Shut Down; Left Running	3 x 3	9	Ensure zero energy (LO/TO)	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	3 x 3	9	Ensure all appropriate/required PPE is worn	1 x 1	1
	Pinch Points	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1
	Lighting (poor or excessive)	2 x 2	4	Install temporary lighting; if /where needed	1 x 1	1
	No Inspection Forms (Documentation)	2 x 2	4	Document any/all anomalies on approved form; advise supervisory personnel	1 x 1	1
Inspect and Place Material to be Cut	Material Not Placed or Situated Securely	2 x 3	6	Material to be cut is placed and secured; follow SWP for material lifting and handling	1 x 1	1
	Previously used material having foreign material attached (e.g. clamps)	2 x 2	4	Check for, locate, remove any foreign materials in the cut zone	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	3 x 3	9	Ensure all appropriate/required PPE is worn	1 x 1	1
	Pinch Points	3 x 2	6	Wear appropriate PPE (in good condition), Proper hand placement (line-of-fire)	1 x 1	1
Perform Cut of Material Place Saw on Strut /Tray; Pull Trigger Switch; Push Saw Forward; Blade Clears Material; Release Trigger Switch	Incorrect PPE Worn	4 x 4	16	Ensure all apprpriate PPE is worn, (hand, eye) and must be in good condition	1 x 1	1
	Lack of Training in Specific Task	4 x 4	16	Only competent worker should be assigned for this task, Ensure to follow proper cut lines to avoid saw's binding in material during cut, Ensure to use steady pressure during entire cut	1 x 1	1
	Unfamiliarity with Equipment	2 x 3	6	Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool	1 x 1	1
	Potential Fire	3 x 4	12	Spark watcher utilized with fire extinguisher training, Fire extinguisher must be in close proximity	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Airborne Dust, Debris, Fumes	2 x 1	2	Wear appropriate PPE (in good condition)	1 x 1	1
	Electrical Shock	2 x 2	4	Review Zero Energy Isolation Code of Practice with Operations	1 x 1	1
	Obstacles, Debris, Etc. In Immediate Vicinity (Beside, Under, Behind, Ahead)	2 x 2	4	Survey to ensure all debris that could cause a slip, trip or fall has been removed	1 x 1	1
	Slips, Trips, Falls	2 x 3	6	Be aware of surroundings and others	1 x 1	1
	Pinch Points	3 x 3	9	Wear appropriate PPE (in good condition), Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	3 x 3	9	Wear appropriate PPE (in good condition)	1 x 1	1
	Awkward heavy lifting, muscle strain	2 x 2	4	Utilize proper lifting and transport techniques and ask for assistance, where and if required	1 x 1	1
	Material Falling or Kicking Out During Cut	3 x 3	9	During cut, ensure proper body positioning to avoid line of fire w/extremities; w/solid footing during cut, Ensure material is properly secured for type of cut, Be cognizant of potential kick back of material being cut	1 x 1	1
Filing of Cut Edges	Pinch Points	3 x 3	9	Wear appropriate PPE (in good condition), Maintain proper body positioning (line of fire) and footing, Follow Housekeeping THA G-03	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	3 x 3	9	Use proper tools correctly; review all appropriate SWP's , Ensure proper tools for task are used correctly; pre-inspect tools to ensure proper working condition, Wear appropriate PPE (in good condition)	1 x 1	1
	Airborne Dust, Debris, Fumes	2 x 2	4	Placement of means (tarps blankets, shop vacuum, etc) to gather cutting cast offs (filings, scrap pieces, or other debris)	1 x 1	1
	Awkward heavy lifting, muscle strain	2 x 2	4	Utilize proper lifting and transport techniques and ask for assistance, where and if required, Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1

Name: Hazard Assessment G-21 - Portable Circular Saws
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Housekeeping	Pinch Points	2 x 2	4	Wear appropriate PPE (in good condition), Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	2 x 3	6	Wear appropriate PPE (in good condition)	1 x 1	1
	Awkward Stance/Position/Posture	3 x 3	9	Follow SWP's for safe lifting, handling of debris, tools, equipment, material, etc.	1 x 1	1
	Incorrect PPE Worn	2 x 2	4	Wear appropriate PPE (in good condition), Exercise proper donning and doffing of all PPE	1 x 1	1
	Potential Exposure to Hazardous Atmosphere	2 x 4	8	Personal monitors worn – calibrated, bumptested, recorded, with fully charged batteries	1 x 2	2
	Electrical Shock	2 x 2	4	Review Zero Energy Isolation Code of Practice with Operations	1 x 1	1
	Obstacles, Debris, Etc. In Immediate Vicinity (Beside, Under, Behind, Ahead)	2 x 2	4	Return equipment and tools to be stored away in safe, neat, orderly fashion, Separate debris from equipment and tools	1 x 1	1
	Slips, Trips, Falls	3 x 2	6	Perform housekeeping;ensure floor areas are clear of debris, equipment, tools, etc.	1 x 1	1

Name: Hazard Assessment G-21 - Portable Circular Saws
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment G-22 Use of Power Tools to Penetrate Building Wall(s)
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work and/or Hot Work Permit from Client Obtain Job-Specific Information from Manager Complete Associated PJHA	Not Having Clear Understanding Of Scope of JHA Or Permit	2 x 2	4	Review full job scope and responsibilities with Supervisor, Ensure clear understanding of all assigned workers of the task and/or permit, Perform ONLY work identified by permit	1 x 1	1
	Lack Of Complete Clear Communication	2 x 2	4	Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Review / discuss relevant THA's with crew(s), Review / discuss relevant PJHA's w/Crew(s)	1 x 1	1
	Relay of Incomplete or Incorrect Information	2 x 2	4	Adherence to continuous monitoring	1 x 1	1
	Not Identifying all Existing & Potential Location and Work Site Hazards	2 x 2	4	Ensure all appropriate/required PPE is worn, Use proper tools, ensure correct operation	1 x 1	1
Scope Out & Review All Aspects of Area of Wall(s) to be Penetrated	Obstacles or Hazards inside or outside building for potential contact during task	3 x 2	6	Identify Obstacles; note all on FLHA card	1 x 1	1
	Slips, Trips, Falls	3 x 3	9	Use caution when walking; ensure proper footing	1 x 1	1
	Congested Work Area	3 x 2	6	360 degree awareness - surroundings, other, etc.	1 x 1	1
Take & Document Precise Measurements to Identify Exact, Correct Penetration Point of Wall(s) Clearly Mark Exact Penetration Point of Wall(s)	Awkward Stance/Position/Posture	3 x 4	12	Consider alternate penetration point if hazards are within immediate vicinity or if there is difficulty taking precise measurements	1 x 1	1
	Damage to Property, Facilities, Equipment	3 x 4	12	Ensure accurate reference point to transfer inside measurements to outside of building	1 x 1	1
	Pinch Points	3 x 3	9	Wear all appropriate/required PPE, Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1
	Property Damage	4 x 4	16	Clearly mark appropriate measurements to be cut, Ensure accurate reference point to transfer inside measurements to outside of building	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	4 x 3	12	Ensure all appropriate/required PPE is worn, Inspect PPE before using, Maintain proper body positioning (line of fire) and footing	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Ensure Zero Energy Isolation Completed on All Hazards in Immediate Vicinity of Penetration Area of Wall(s)	Sharp/Pointed Objects/Cuts & Punctures	3 x 3	9	Ensure proper body and extremities positioning (line of fire), Wear proper PPE (gloves, eye, ear protection)	1 x 1	1
	Property Damage	3 x 4	12	In tight, congested areas, use a spotter, Review Zero Energy Isolation Code of Practice with Operations	1 x 1	1
	Not understanding Zero Energy isolation process or requirement	4 x 4	16	Ensure Zero Energy Isolation completed on all potential hazards in immediate vicinity of penetration area, If possible; shutdown site and depressurize before penetrating building, Refer to Zero Energy Isolation code of practice, Follow lockout tag out practice	1 x 1	1
	Not following LOTO Procedure to Ensure Zero energy is Maintained during task	5 x 4	20	Lock-out/Tag-out Program, Review Zero Energy Isolation Code of Practice with Operations	1 x 1	1
	Congested Work Area	3 x 2	6	360 degree awareness - surroundings, other, etc.	1 x 1	1
	Loose Material and Debris	2 x 3	6	Perform housekeeping; ensure work area is clear of debris, equipment, tools, etc.	1 x 1	1
	Awkward Stance/Position/Posture	3 x 4	12	Ensure proper body and extremities positioning (line of fire)	1 x 1	1
	Damage to Property, Facilities, Equipment	4 x 4	16	Use of Spotter, Ensure zero energy (LO/TO)	1 x 1	1
	Pinch Points	3 x 3	9	Wear all appropriate PPE in good condition, Wear approved ANSI cut level 5 resistant gloves	1 x 1	1
Penetrate Building Wall(s) By using Proper Tools for Task	Potential exposure to H2S, LEL's, Live Electrical Cable, Equipment, Live Pressurized Piping	3 x 4	12	Continuous monitoring	2 x 3	6
	Airborne Dust, Debris, Fumes	3 x 4	12	Wear appropriate PPE (in good condition), Wear personal monitor - calibrate, bump test, record, battery level checked	2 x 1	2
	Damage to Property, Facilities, Equipment	4 x 4	16	360 degree awareness - surroundings, other, etc., Use of Spotter, Double check measurements are correct for exact penetration point	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Pinch Points	3 x 3	9	Wear all appropriate PPE in good condition, Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	3 x 3	9	Ensure all guards are in place, secure and working properly, Wear approved ANSI cut level 5 resistant gloves	1 x 1	1
	Noise Exposure	4 x 3	12	Mandatory PPE must be worn, including any additional site specific (face shield, hearing etc.)	1 x 1	1
	Awkward Stance/Position/Posture	3 x 3	9	Ensure proper body and extremities positioning (line of fire)	1 x 1	1
	Property Damage	2 x 1	2	In tight, congested areas, use a spotter, Verify measurements with spotter or supervisor	1 x 1	1
	Falls from Heights	3 x 3	9	Follow safe ladder use practice (proper tie-offs and 3 point contact maintained at all times)	1 x 1	1
	Dropping Tools /Materials to Ground Below	3 x 3	9	Where possible, begin work from the inside of building, Use proper tool lanyard, bag or pockets to prevent tools etc., falling or being dropped	1 x 1	1
Housekeeping	Awkward Stance/Position/Posture	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing, Follow SWP for handling / lifting materials and equipment	1 x 1	1
	Damage to Property, Facilities, Equipment	3 x 3	9	360 degree awareness - surroundings, other, etc.	1 x 1	1
	Pinch Points	3 x 3	9	Wear appropriate PPE (in good condition), Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Sharp/Pointed Objects/Cuts & Punctures	3 x 3	9	Ensure crews and spotter keep a clear line of sight and constant communication with operators of heavy equipment, Wear appropriate PPE (in good condition)	1 x 1	1
	Uneven Surfaces	3 x 3	9	Ensure proper footing in slippery conditions, Follow safe ladder use practice (proper tie-offs and 3 point contact maintained at all times)	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Loose Material and Debris	2 x 2	4	Return equipment and tools to be stored away in safe, neat, orderly fashion, Perform housekeeping; ensure work area is clear of debris, equipment, tools, etc., Perform post use inspection of ladder, drill, etc; document all anomalies, Where necessary, tag out of service for repair/replacement	1 x 1	1
	Slips, Trips, Falls	3 x 3	9	Ensure proper footing in slippery conditions, Wear proper footwear with additional slip-on traction devices	1 x 1	1
	Property Damage	2 x 1	2	Perform housekeeping; ensure work area is clear of debris, equipment, tools, etc.	1 x 1	1

Name: Hazard Assessment G-22 Use of Power Tools to Penetrate Building Wall(s)
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
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2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment G-27 - Winch Operation to Lower Mast
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit from Client Complete Associated PJHA	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 4	16	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Ensure all appropriate / required PPE is worn - reassess per each task	2 x 1	2
	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 4	16	Ensure clear understanding of all assigned workers of the task and/or permit, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Perform ONLY work identified by the permit, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	2 x 1	2
Clear Work Area, Clear Access/Egress	Slips, Trips, Falls	4 x 3	12	Focus, eyes and mind on task, be aware of your surroundings, Watch step and avoid falls; Be mindful of terrain	2 x 1	2
	Gravity / Motion	4 x 3	12	Install barricades and flag off work area, if required, Use proper lifting/lowering techniques, Ensure co-workers understand process of action to occur	2 x 2	4
Inspect Winch - All Components a). Brake - Clean, no oil, assembly tight in place. b). Gear Ratio - gears clean, free of debris, aligned with other gears c). Winch Cable - Clean, not frayed, aligned	Pinch Points	4 x 4	16	Ensure worker completing inspection or maintenance is competent/qualified, Keep extremities clear of pinch points, Watch finger placement to avoid pinching/crushing	2 x 2	4
	Faulty Equipment	4 x 5	20	Inspect all equipment for any / all defects, Ensure worker completing inspection or maintenance is competent/qualified, Check embedded diagram of winch, If winch does NOT match diagram, or is missing components, STOP WORK	2 x 2	4
Visual Check: Track Clear of Debris and/or Obstruction	Controlled stop	3 x 3	9	Use Caution - FOCUS; eyes and mind on task , Be aware of surroundings and others, Ensure all appropriate / required PPE is worn -reassess per each task	1 x 1	1
Lower Mast to Work Platform When Lowering, ALWAYS Use Smaller Ratio of 5:1	Equipment Damage	3 x 3	9	Be aware of surroundings and others	2 x 1	2
	Uncontrolled Descent of Igniter	4 x 4	16	Ensure slow, steady, controlled descent, Use caution -FOCUS; eyes and mind on task	2 x 2	4
	Higher Ratio Can Cause Slack in Line	3 x 3	9	Controller to use steady, controlled descent	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Loose / Spinning Crank Handle	4 x 4	16	Keep solid control of hand crank	2 x 2	4
	Cable Coming Off Winch Wheel	3 x 4	12	Use Caution - FOCUS; eyes and mind on task	2 x 2	4
	Bodily Injury	4 x 3	12	Ensure proper body positioning (line-of-fire) and solid footing	2 x 2	4
Coil Cable on Platform (as required)	Cable Damage	3 x 2	6	Coil cable for ease of dispersal as and when raising assembly	2 x 1	2
	Trip hazard	4 x 3	12	Clear area of slip/trip hazard	2 x 1	2
Lower to Working Height Be Aware End is Open	Cable Coming Off Winch Wheel	4 x 3	12		1 x 1	1
	Loose / Spinning Crank Handle	3 x 3	9	Keep solid control of hand crank	1 x 1	1
	Uncontrolled Descent	3 x 3	9	Maintain proper body positioning (line of fire) and footing	1 x 1	1
Check Assembly Runner Wheels Prior to Raising Mast Verify correct operation of moving parts	Corrosion of Moving Parts	3 x 3	9	Inspect for presence of rust particles or obstructions	2 x 1	2
	Rotating Parts Seized	3 x 3	9	Inspect for seized parts, lubricate/repair or replace	2 x 1	2
Change Direction of Ratchet	No Action	2 x 3	6	Check after reset, verify proper rotation on drum	1 x 1	1
	Equipment Damage	2 x 4	8	Be aware of surroundings and others, Use caution - Focus; eyes and mind on task, Check embedded diagram of winch, If winch does NOT match diagram, or is missing components, STOP WORK	1 x 1	1
	Pinch Points	3 x 3	9	Wear all appropriate/required PPE, Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Missing Parts	3 x 3	9	Check embedded diagram of winch, If winch does NOT match diagram, or is missing components, STOP WORK	1 x 1	1
	Misaligned Parts	2 x 4	8	Check embedded diagram of winch, If winch does NOT match diagram, or is missing components, STOP WORK	1 x 1	1

Name: Hazard Assessment G-27 - Winch Operation to Lower Mast
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Raising Mast Change Direction of Ratchet - Gear Reduction Required Ensure Secure Grip on Winch Brake	Loose / Spinning Crank Handle	3 x 4	12	Keep solid control of hand crank	2 x 2	4
	Correct Rotation	3 x 3	9	Check after reset, verify proper rotation on drum	2 x 1	2
	Pinch Points	3 x 4	12	Identify pinch points, Be aware of position of hands (line-of-fire), Watch finger placement to avoid pinching/crushing	2 x 2	4
	Bodily Injury	3 x 4	12	Ensure proper body / extremities positioning (line-of-fire; caution with ground condition and solid footing)	2 x 2	4
	Cable Coming Off Winch Wheel	3 x 3	9	Use Caution - FOCUS; eyes and mind on task	2 x 1	2
	Cable Damage	3 x 3	9	Coil cable for ease of dispersal as and when raising assembly	2 x 1	2
Inform Operations When Task Complete Close out permit	Lack Of Complete Clear Communication	4 x 4	16	Where necessary, wait for Operations personnel to authorize re-energization of equipment, Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	2 x 1	2

Name: Hazard Assessment G-27 - Winch Operation to Lower Mast
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment G-28 - Pneumatic Drilling in Hazardous Area
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Get Permit and Communicate with Operations Drill in Hazardous Areas	Driving Vehicle	4 x 4	16	Ensure adherence to Fit For Duty SWP, Drive defensively; obey ALL posted road signs	2 x 3	6
	Poor Communication Within Crews	3 x 4	12	Clear communication with permit issuer	3 x 3	9
Complete Pre Job Hazard Assessment Assess the steps and hazards associated with the job - put controls in place	Incomplete Hazard Identification	3 x 3	9	Training/Education, Review / discuss relevant THA's with crew(s), Review / discuss relevant JHA's with crew(s), Review emergencey response plan	2 x 1	2
Inspect Equipment Inspect all equipment/tools	Flaws/Cracks/Damage	3 x 4	12	Pre-use inspections performed & documented (ladder, tools, equipment), Pre-task plan; determine work task location, Clean tool prior to use, Repair / replace with equipment in good condition	2 x 3	6
Ensure air compressor is working properly and is in a safe location where exhaust can vent.	Leaks oil/water/gas	3 x 3	9	Verify / fill oil levels, Clean up spills as they happen	2 x 2	4
	Fumes	3 x 3	9	Ensure exhaust is vented away from work, Wear all appropriate PPE in good condition	2 x 2	4
Inspect all PPE before packing up to go into hazardous area	PPE in Poor Condition	3 x 3	9	Wear all appropriate PPE in good condition, Inspect PPE before use	2 x 2	4
Continuous gas monitoring	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	3 x 3	9	Continuous monitoring	2 x 2	4
Pack up with harness /SABA / SCBA and string out pneumatic hose to where the drilling will be done	Working at Heights	5 x 4	20	Keep ladder rungs free of debris, Pass tools /equipment up ladder with a Kuney's tool bag, Follow fall protection safe practice plan, Use proper tool lanyard, bag or pockets to prevent tools etc., falling or being dropped	2 x 2	4
	Heavy lifting	3 x 3	9	Follow proper lifting procedures	2 x 2	4
	Freezing up of regulators	3 x 3	9	Confirm operating temperature of regulators of equipment	2 x 2	4

Name: Hazard Assessment G-28 - Pneumatic Drilling in Hazardous Area
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Tripping Hazard	3 x 3	9	Practice extremely diligent housekeeping, Clear area of slip/trip hazard	1 x 1	1
Ensure drill is in low speed before connecting to air hose	Sparking drill bits in hazardous area	3 x 3	9	Brass socket if available, Drilling in low speed should eliminate sparking	2 x 2	4
	Line of Fire (Extremities, Body)	3 x 3	9	Maintain proper body positioning (line-of-fire)	2 x 2	4
When drilling is complete, disconnect drill and wrap up air hose	Falling Objects	3 x 3	9	Use of tag line to lift / lower tools, Use of tool bag	2 x 2	4
	Poor housekeeping; debris in/around task area	3 x 3	9	Housekeeping - Adequate, Keep site and work area tidy / clear of debris	2 x 2	4
Clean up metal shavings and oil from drilling locations	Poor Housekeeping	2 x 3	6	Housekeeping - Adequate, Keep site and work area tidy / clear of debris	2 x 2	4
Communicate with operations that job is complete	Lack Of Complete Clear Communication	3 x 3	9	Clear communication with operations	2 x 2	4

Name: Hazard Assessment G-28 - Pneumatic Drilling in Hazardous Area
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
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4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment G-29 - Workplace Violence Prevention
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Complete Hazard Assessment including threat of workplace violence	Physical attack or aggression	4 x 3	12	Understanding that this Behavior is not tolerated - review of Workplace Violence Prevention Policy, Remove yourself from the threat	3 x 2	6
	Threatening behavior	4 x 3	12	Training/Education	3 x 2	6
	Verbal or Written threats	4 x 3	12	Re-enforcement by means of communication annually/as needed that this is unacceptable behavior	3 x 2	6
	Domestic Violence		0	Reporting this behavior when identified-as per Workplace Violence Prevention Policy		0
	Sexual Violence	4 x 3	12	Investigating complaints of such behavior	2 x 2	4
	Psychological Injury or Harm	4 x 3	12	Upon completion of the investigation - discipline where determined	2 x 1	2

Name: Hazard Assessment G-29 - Workplace Violence Prevention
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment G-30 - Workplace Harassment Prevention
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Complete Hazard Assessment Include threat of workplace harassment	Unwelcome conduct, comments, gestures or contact causes offense or humiliation (name calling, harassing phone calls, spreading rumors)	4 x 3	12	Understanding this behavior is not tolerated – review of Workplace Harassment Prevention Policy	3 x 2	6
	Deliberate misgendering (referring to a person using terms or pronouns that do not align with the person's preferred gender)	4 x 3	12	Training/Education	3 x 2	6
	Physical or Psychological bullying which creates fear, mistrust, ridicules, or devalues the individual (e.g. fist shaking, yelling)	4 x 3	12	Re-enforcement by means of communication annually/as needed that this is unacceptable behavior	3 x 2	6
	Exclusion or isolation of individuals	4 x 3	12	Reporting this behavior when identified – as per the Workplace Harassment Prevention Policy	3 x 2	6
	Intimidation (i.e. standing too close or making inappropriate gestures/comments)	4 x 3	12	Reporting this behavior when identified – as per the Workplace Harassment Prevention Policy	3 x 2	6
	Cyber Bullying (e.g. posting or sending offensive or intimidating messages through social media or email)	4 x 3	12	Investigating complaints of such behavior	3 x 2	6
	Deliberately setting the individual up to fail (e.g. making unreasonable demands, setting impossible deadlines, interfering with work)	4 x 3	12	Upon completion of the investigation - discipline where determined	3 x 2	6

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Intentionally withholding information or giving out the wrong information	4 x 3	12	Understanding this behavior is not tolerated – review of Workplace Harassment Prevention Policy	3 x 2	6
	Taking away work or responsibility without just cause	4 x 3	12	Understanding this behavior is not tolerated – review of Workplace Harassment Prevention Policy	3 x 2	6
	Displaying or circulating offensive pictures or materials in print or electronic form	4 x 3	12	Understanding this behavior is not tolerated – review of Workplace Harassment Prevention Policy	3 x 2	6

Name: Hazard Assessment G-30 - Workplace Harassment Prevention
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment G-31 - Working on Frozen Body of Water
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Complete an ice safety orientation Have a plan to work safely, maintaining communication and rescue	Potential to break through the ice, frost bite, hypothermia or drowning	4 x 5	20	An online ice safety orientation is available at https://work.alberta.ca/elearning/icesafety/index.htm	2 x 5	10
PPE Tools Ensure you have appropriate tools and PPE	Potential to break through the ice, frost bite, hypothermia or drowning	4 x 5	20	Use appropriate tools and PPE for the task and conditions, PPE Required: Standard PPE, Additional PPE Warm, layered clothing, winter boots, winter hand and head protection, tinted safety glasses, whistle, life jacket, rope, ice picks	2 x 5	10
Ice Thickness Assess the quality and thickness of the ice over a body of water of unknown depth	Weak or thin ice may not withstand pressure of people or equipment	4 x 5	20	Check weather conditions at the site - temperature, wind speed, prior weather history and current forecast, Look and listen for cracks and other signs of stress on the ice, Complete ice cover checklist	2 x 5	10
	Potential to break through the ice, frost bite, hypothermia or drowning	4 x 5	20	PPE Required: Standard PPE, Additional PPE Warm, layered clothing, winter boots, winter hand and head protection, tinted safety glasses, whistle, life jacket, rope, ice picks	2 x 5	10
Test Holes Determine size and spacing for the test holes, make the holes using appropriate tools and measure the thickness of the ice	Weak or thin ice may not withstand pressure of people or equipment	4 x 5	20	Look and listen for cracks and other signs of stress on the ice, Use axe, ice chisel or ice auger to check the ice thickness and quality, Check the ice in various locations to determine the quality and thickness of ice in the area, Look at ice thickness, snow thickness, ice type, water depth and current in the water beneath the ice, Ensure ice thickness of 10 cm	2 x 5	10
	Potential to break through the ice, frost bite, hypothermia or drowning	4 x 5	20	PPE Required: Standard PPE, Additional PPE Warm, layered clothing, winter boots, winter hand and head protection, tinted safety glasses, whistle, life jacket, rope, ice picks	2 x 5	10

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Ice Capacity Determine load bearing capacity of the ice	Weak or thin ice may not withstand pressure of people or equipment	4 x 5	20	Confirm your GVW (gross vehicle weight) if you plan to drive vehicles onto the ice, To walk on ice you need 10-15 cm or 4-6 inches of clear, good quality ice, A snowmobile (GVW less than 500 kg) needs at least 18 cm or 7 inches, a light truck (GVW less than 5000 kg) needs at least 38 cm or 15 inches, vehicle, equipment and cargo you need approximately 55 cm or 22 inches, Keep vehicles a safe distance from each other and drive slowly	2 x 5	10
	Potential to break through the ice, frost bite, hypothermia or drowning	4 x 5	20	PPE Required: Standard PPE, Additional PPE Warm, layered clothing, winter boots, winter hand and head protection, tinted safety glasses, whistle, life jacket, rope, ice picks	2 x 5	10
Rescue plan Determine who is your safety team, work in pairs, maintain contact and have a rescue plan in the event it is needed	Loss of communication in event of emergency can cost lives	5 x 5	25	Prior to starting your day, determine your safety team, discuss communication requirements and review rescue plan, Communicate with a spotter on land	1 x 5	5

Name: Hazard Assessment G-31 - Working on Frozen Body of Water
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

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2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment G-32 - Covid-19 Work Place Assessment
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Self assessment Determining your fitness for duty - Covid-19 questionnaire, if answer yes to any, must contact HSE immediately	Worker may have Covid-19 or infuenza symptoms	3 x 3	9	Complete Covid-19 questionnaire prior to arriving to work, Contact Supervisor/HSE if exhibiting symptoms of Covid-19, Self isolating if exhibiting symptoms	2 x 1	2
Travel to work site How to manage more than one person in vehicle to travel to site	Cleanliness of vehicle - potential for contamination	3 x 3	9	Staff to be familiar with SDS before use of product with SDS available at worksite, Approved cleaning products to be utilized before and after use, Vehicle Sanitation - Refer to COVID-19 Pandemic Preparedness Practice	2 x 1	2
	Exposure during travel	4 x 3	12	Refer to COVID-19 Pandemic Preparedness Practice	2 x 1	2
Assessment of occupants in work space Complete a Covid-19 verbal assessment of occupants prior to entering a work space	Number of people in the workspace	3 x 3	9	Assess the number of people in space and ensure you can meet the 6' physical distance guidance	2 x 2	4
	Unknown contaminated surfaces	3 x 3	9	Limit the number of times entering/exiting dwelling and limit your tools to the required ones to complete the job, Sanitize surfaces (work surfaces, tools, high touch areas etc) outlined in the COVID-19 Pandemic Preparedness Practice, Refer to Pandemic Preparedness Practice, Use PPE to mitigate hazards - Masks, Safety glasses, gloves	1 x 1	1
	Occupants may have signs or symptoms that could be related to Covid-19	3 x 3	9	Verbally assess occupants utilizing the Covid-19 questionnaire prior to work place entry to identify signs or symptoms relate to Covid-19	1 x 1	1
Number of occupants in work space Do occupants visually appear to be in good health	Unable to maintain the required 6' physical distance from others	4 x 3	12	Refer to Pandemic Preparedness Practice, Use PPE to mitigate hazards - Masks, Safety glasses, gloves	2 x 2	4
	Distance to occupants in work space	3 x 3	9	Utilize physical distancing of minimum 6 feet	2 x 1	2
Contamination of tools, equipment, vehicles, job trailers, etc.	Unknown biological contamination on tools and coveralls	3 x 3	9	Staff to be familiar with SDS before use of product with SDS available at worksite, Approved cleaning products to be utilized before and after use, Wipe down tools with disinfecting wipes and use disposable coveralls	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Exposure to contamination of common touch surfaces	4 x 4	16	Employees responsible for sanitation of common high touch areas after use, Discontinue use of fabric upholstered chairs in shop floor; plastic chairs in place to provide surfaces to be easily and repeatedly disinfected after use, Within lunchroom, if microwave to be used it must be cleaned before and after use, Discontinue use of staff water coolers; individual water bottles to be used, Facility to be cleaned at regular intervals (third party), specifically frequently touched surfaces (handrails, door knobs, etc)	1 x 2	2
Cleaning and Replacement of PPE	Potential contamination of PPE	4 x 4	16	Replace disposable masks as appropriate, minimum once per day, Cloth masks to be laundered each day after use	2 x 1	2

Name: Hazard Assessment G-32 - Covid-19 Work Place Assessment
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

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1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment G-33 - Portable Band Saw Operation
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work and/or Hot Work Permit from Client	Not Identifying all Existing & Potential Location and Work Site Hazards	3 x 5	15	Identify location hazards and address each one, Ensure proper communication with all personnel in area, Review process concerns crews may have associated within job scope; document on permit	2 x 1	2
	Identify Area Classification Hazards	3 x 5	15	Identify work area classifications, Ensure all work planned is documented on required permit(s); perform ONLY work Identified by permit	2 x 1	2
Complete Pre-Job Hazard Assessment (PJHAs) of site, location and work areas	Changing Conditions or Work Environment	3 x 4	12	Ensure all identified hazards have been controlled or eliminated, Perform housekeeping; ensure work area is clear of debris, equipment, tools, etc., As conditions change, update Field PJHA	2 x 1	2
	Lighting (poor or excessive)	3 x 4	12	Install temporary lighting; if /where needed	2 x 1	2
	Poor housekeeping; debris in/around task area	3 x 4	12	Perform housekeeping; ensure work area is clear of debris, equipment, tools, etc.	2 x 1	2
	Pinch Points / Crush Type Injury	3 x 4	12	Ensure all appropriate/required PPE is worn, Inspect PPE before using, Maintain proper body positioning (line of fire) and footing, Identify pinch points	2 x 1	2
	Slips, Trips, Falls	3 x 4	12	Ensure all appropriate/required PPE is worn, Survey to ensure all debris that could cause a slip, trip or fall has been removed	2 x 1	2
Ensure Worker Competency	Lack of experience or knowledge of task	3 x 4	12	Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Only competent worker should be assigned for this task, Ensure training /certification is appropriate for task	2 x 1	2
Ensure all appropriate PPE is worn & in good condition	Worker(s) Not Familiar with PPE or Process of Use	3 x 4	12	Excercise proper donning & doffing of all PPE, Ensure all appropriate/required PPE is worn, Training/Education	2 x 1	2
	Not Identifying all Existing & Potential Location and Work Site Hazards	3 x 5	15	Wear all appropriate/required PPE, Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined	2 x 1	2
	PPE in Poor Condition	3 x 4	12	Ensure all proper PPE is worn/utilized for task, must be in good condition	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Pre-Use Inspection of Equipment	Trigger Locks Not Present	3 x 4	12	Malfunctioning equipment requires "out of service" tagging; segregate for repair, maintenance or destruction, Follow lockout tag out practice, Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool	2 x 1	2
	Sharp/Pointed Objects/Cuts & Punctures	3 x 4	12	Wear all appropriate/required PPE, Maintain proper body positioning (line of fire) and footing	2 x 1	2
	No Inspection Forms (Documentation)	3 x 4	12	Manufacturer's Operators Manual, Perform pre-use inspection and properly document, Follow lockout tag out practice	2 x 1	2
	Equipment Damage	3 x 4	12	Ensure equipment is off & fully cooled down before refueling; gasoline spilled on hot engine parts could ignite, Perform pre-use inspection and properly document	2 x 1	2
	Lighting (poor or excessive)	3 x 4	12	Install temporary lighting; if /where needed	2 x 1	2
	Paint Concealing Potential Flaws or Damage	3 x 4	12	Advise Operations of any hazards not listed on permit, observed during tour / inspection, Pre-inspection of all tools and equipment to ensure proper working condition	2 x 1	2
	Flaws/Cracks/Damage to Blade	3 x 4	12	Visually inspect blade for rust, cracks, dents, or any noticeable wear & tear, Change out blade, if required	2 x 1	2
Document complete inspection results	Defective Units Not Tagged Out-Of-Service; Repairs Not Completed	3 x 5	15	Pre-inspection of all tools and equipment to ensure proper working condition, Where defects identified, follow Lock Out/ Tag Out SWP	2 x 1	2
	Faded, Unreadable Labelling	3 x 4	12	Perform pre-use inspection and properly document, Ensure equipment is off & fully cooled down before refueling; gasoline spilled on hot engine parts could ignite	2 x 1	2
	Lighting (poor or excessive)	3 x 4	12	Install temporary lighting; if /where needed	2 x 1	2
	No Inspection Forms (Documentation)	3 x 4	12	Pre-inspection of all tools and equipment to ensure proper working condition, Inspection must be documented	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Complete Replacement of Blade (if required)	Equipment Not Shut Down (Left Running, Still Hot)	3 x 4	12	Ensure zero energy (LO/TO)	2 x 1	2
	Saw body not securely positioned	3 x 4	12	Use proper tools correctly; review all appropriate SWP's , Ensure proper tools for task are used correctly; pre-inspect tools to ensure proper working condition, Ensure saw body is properly secured prior to blade removal	2 x 1	2
	Not following operator's manual; blade installed incorrectly	3 x 4	12	Ensure saw body is properly secured prior to blade removal, Refer to operators manual for proper removal / installation of blade, Ensure all appropriate/required PPE is worn	2 x 1	2
	Pinch Points / Crush Type Injury	3 x 4	12	Identify pinch points, Be aware of position of hands (line-of-fire), Wear all appropriate/required PPE	2 x 1	2
	Sharp/Pointed Objects/Cuts & Punctures	3 x 4	12	Ensure all appropriate/required PPE is worn	2 x 1	2
	Improper type of cutting blade installed/used	3 x 4	12	Ensure worker completing inspection or maintenance is competent/qualified, Use proper tools correctly; review all appropriate SWP's , Ensure proper tools for task are used correctly; pre-inspect tools to ensure proper working condition, Refer to operator's manual for blade selection and care	2 x 1	2
Inspect & Place Material to be Cut	Sharp/Pointed Objects/Cuts & Punctures	3 x 4	12	Ensure all appropriate/required PPE is worn	2 x 1	2
	Previously used material having foreign material attached (e.g. clamps)	3 x 4	12	Check for, locate, remove any foreign materials in the cut zone, Wear all appropriate/required PPE	2 x 1	2
	Material Not Placed or Situated Securely	3 x 4	12	Use proper material lifting / handling techniques, Secure materials before performing cuts	2 x 1	2
	Pinch Points / Crush Type Injury	3 x 4	12	Wear all appropriate/required PPE, Ensure proper body and extremities positioning (line of fire)	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Perform Cut of Materials Place saw on strut/tray, Push safety lock & pull trigger switch, Push saw forward, Blade clears materials, Release trigger switch	Incorrect PPE Worn	3 x 4	12	Ensure all appropriate/required PPE is worn, Inspect PPE before using	2 x 1	2
	Lack of Training in Specific Task	3 x 4	12	Only competent worker should be assigned for this task, Ensure to follow proper cut lines to avoid saw's binding in material during cut, Ensure to use steady pressure during entire cut	2 x 1	2
	Unfamiliarity with Equipment	3 x 4	12	Ensure operator has had proper instruction on use of tool and risks associated, Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool	2 x 1	2
	Potential Fire	3 x 5	15	Spark watcher utilized with fire extinguisher training, Fire extinguisher must be in close proximity, Wear all appropriate/required PPE	2 x 1	2
	Airborne Dust, Debris, Fumes	3 x 4	12	Ensure all appropriate/required PPE is worn, Inspect PPE before using	2 x 1	2
	Potential Electrical Shock	3 x 5	15	Review Zero Energy Isolation Code of Practice with Operations, Ensure all proper PPE is worn/utilized for task, must be in good condition	2 x 1	2
	Obstacles, Debris, Etc. In Immediate Vicinity (Beside, Under, Behind, Ahead)	3 x 4	12	Housekeeping - Adequate, Keep site and work area tidy and clear, Ensure all appropriate/required PPE is worn, Inspect PPE before using	2 x 1	2
	Slips, Trips, Falls	3 x 4	12	Wear all appropriate/required PPE, Perform housekeeping; ensure task areas are clear of debris, equipment, tools, etc	2 x 1	2
	Pinch Points / Crush Type Injury	3 x 4	12	During cut, ensure proper body positioning to avoid line of fire w/extremities; w/solid footing during cut, Ensure all appropriate/required PPE is worn, Inspect PPE before using	2 x 1	2
	Material Falling or Kicking Out During Cut	3 x 5	15	Ensure proper body/body part positioning (line of fire) during cut; out of path of potential kick back, Ensure all appropriate/required PPE is worn	2 x 1	2
	Awkward heavy lifting, muscle strain	3 x 4	12	Take micro breaks as required to reduce strain/fatigue, Follow SWP for handling/lifting materials and equipment	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Sharp/Pointed Objects/Cuts & Punctures	3 x 4	12	Wear all appropriate/required PPE	2 x 1	2
Filing of Cut Edges	Awkward heavy lifting, muscle strain	3 x 4	12	Take micro breaks as required to reduce strain/fatigue, Follow SWP for handling/lifting materials and equipment	2 x 1	2
	Airborne Dust, Debris, Fumes	3 x 4	12	Ensure all appropriate/required PPE is worn, Inspect PPE before using, Placement of means (tarps blankets, shop vacuum, etc) to gather cutting cast offs (filings, scrap pieces, or other debris)	2 x 1	2
	Sharp/Pointed Objects/Cuts & Punctures	3 x 4	12	Use proper tool/equipment for application, Ensure all proper PPE is worn/utilized for task, must be in good condition, Use proper tools correctly; review all appropriate SWP's , Ensure proper tools for task are used correctly; pre-inspect tools to ensure proper working condition	2 x 1	2
	Pinch Points / Crush Type Injury	3 x 4	12	During cut, ensure proper body positioning to avoid line of fire w/extremities; w/solid footing during cut, Wear all appropriate/required PPE	2 x 1	2
Housekeeping	Pinch Points / Crush Type Injury	3 x 4	12	Ensure all appropriate/required PPE is worn, Maintain proper body positioning (line-of-fire)	2 x 1	2
	Sharp/Pointed Objects/Cuts & Punctures	3 x 4	12	Ensure all appropriate/required PPE is worn	2 x 1	2
	Awkward heavy lifting, muscle strain	3 x 4	12	Take micro breaks as required to reduce strain/fatigue, Follow safe lifting/handling practice	2 x 1	2
	Incorrect PPE Worn	3 x 4	12	Training/Education, Ensure all appropriate/required PPE is worn, Excercise proper donning & doffing of all PPE	2 x 1	2
	Obstacles, Debris, Etc. In Immediate Vicinity (Beside, Under, Behind, Ahead)	3 x 4	12	Return equipment and tools to be stored away in safe, neat, orderly fashion, Separate debris from equipment and tools, Perform housekeeping; ensure work area is clear of debris, equipment, tools, etc.	2 x 1	2
	Slips, Trips, Falls	3 x 4	12	Perform housekeeping; ensure work area is clear of debris, equipment, tools, etc., Ensure all appropriate/required PPE is worn	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Potential Exposure to Hazardous Atmosphere	3 x 5	15	Wear personal monitor - calibrate, bump test, record, battery level checked, Continuously monitor atmosphere, Ensure all appropriate/required PPE is worn	2 x 1	2
	Potential Electrical Shock	3 x 5	15	Review Zero Energy Isolation Code of Practice with Operations	2 x 1	2

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
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Control Tech Risk Matrix

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1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment G-34 - Loading & Unloading Vehicles Curbside
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Load material into vehicle through rear door	Pedestrians & cyclists (curbside)	3 x 4	12	Place cone or delinator to make it apparent loading or unloading materials is taking place, Wear Hi-Vis vest	2 x 1	2
	Moving traffic (roadside)	3 x 5	15	Do not load vehicle from side door on roadside as impedes oncoming traffic, Open door so it impedes into the sidewalk, Wear Hi-Vis vest	2 x 1	2
Load material into vehicle through side door	Door impeding sidewalk	3 x 4	12	Place cone or delinator to make it apparent loading or unloading materials is taking place, Wear Hi-Vis vest	2 x 1	2
	Moving traffic (roadside)	3 x 5	15	Do not load vehicle from side door on roadside as impedes oncoming traffic, Open door so it impedes into the sidewalk, Wear Hi-Vis vest	2 x 1	2

Name: Hazard Assessment G-34 - Loading & Unloading Vehicles Curbside
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
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2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment G-35 - Work Site Sanitization
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Set up work area Prior to cleaning any surface, remove all excess material from area	Potential Environmental Spills	3 x 2	6	Proper spill kit for the task, Wear appropriate PPE and utilize proper handling techniques and as identified in MSDS, If mixing supplies ensure mixing occurs in a well ventilated area (preferably outdoors) and utilize spill pan, See SDS prior to mixing any supplies to ensure it is safe to do so	2 x 1	2
	Chemical Exposure	3 x 4	12	Read SDS prior to using cleaning supplies, Wear required PPE as per SDS	2 x 1	2
Cleaning surfaces	Slips, Trips, Falls	3 x 4	12	Remove obstacles from area that needs to be swept or mopped, Do not walk backwards when sweeping/mopping	2 x 1	2
	Damage to electronics from cleaning supplies	3 x 3	9	Spray cleaning supply onto rag/paper towel when cleaning electronic surfaces to prevent any damage	2 x 1	2
	Chemical Exposure	3 x 4	12	If cleaning vehicles, point air vents to have air flow blowing to the back of the vehicle, Work in well ventilated area (open windows if in a trailer for air flow)	2 x 1	2
	Strains/Sprains	3 x 4	12	Take micro breaks as required to reduce strain/fatigue, Pre-task stretching	2 x 1	2
	Other workers in the area of cleaning	3 x 4	12	If working within 1.8m/6ft of other workers, don face mask/face shield, Maintain 1.8m from other workers, Wait for area to be cleared of other workers, before cleaning area	2 x 1	2
	Incomplete disinfection due to less than adequate contact time	3 x 4	12	Review THA throughout the day, Follow manufacturer recommended contact times	2 x 1	2

Name: Hazard Assessment G-35 - Work Site Sanitization
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment G-36 - Low Energy Cutting
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Equipment Inspection & Job Set-up	Improper Tool Use	3 x 5	15	Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool, Review appropriate SWP's for tool(s) and equipment to be used, Use proper rated tools	2 x 1	2
	Cut in the wrong location and result in structure collapse, limbs being crushed & loss of time with excessive cuts performed	3 x 5	15	Clearly mark appropriate measurements to be cut	2 x 1	2
Saw Use (reciprocating saw, portable band saw)	Blade partially exposed at all times may result in cuts or abrasions	3 x 5	15	Pick up saw by handles & store properly, Wear appropriate PPE (in good condition)	2 x 1	2
	Loss of control, hand slipping or saw bucking could result in abrasions or cuts to limbs	3 x 5	15	Ensure proper body and body parts positioning (line-of-fire) and solid footing, Focus; eyes and mind on task, Wear proper PPE (leather gloves, glasses, face shield)	2 x 1	2
	Incorrect positioning result in blade bending & exploding causing cuts & abrasions	3 x 5	15	Begin & execute the cut with stable straight positioning throughout the duration of the cut minimizing the bend in the blade	2 x 1	2
	Flying Debris	3 x 4	12	Mandatory PPE must be worn, including any additional site specific (face shield, hearing etc.)	2 x 1	2
	Noise Exposure	3 x 2	6	Hearing Protection	2 x 1	2
	Changing or installing blade tools could accidentally engage resulting in cuts or abrasions	3 x 5	15	Wear appropriate PPE (in good condition), Refer to operators manual for proper removal /installation of blade, Refer to operator's manual for blade selection and care, When changing or installing blades always remove battery or disconnect from power source	2 x 1	2
Post Cut Inspection	Sharp/Pointed Objects/Cuts & Punctures	3 x 4	12	Immediately file sharp edges after cuts made, Ensure all proper PPE is worn	2 x 1	2

Name: Hazard Assessment G-36 - Low Energy Cutting
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment G-37 - Entering/Exiting a Manbasket at Height
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Complete AWP Pre Use Paperwork Complete inspection of AWP, Complete inspection of Harness, Complete Fall Protection Rescue Plan	Incomplete fall protection rescue plan	3 x 5	15	Complete a fall protection plan and review with all personnel involved in this task, Worker trained and certified in fall protection	1 x 1	1
	Missing Something During Inspection	3 x 3	9	Inspect all equipment for any / all defects, If damaged or altered through findings or inspection, take equipment out of service, Perform pre-use inspection of mobile powered equipment (AWP, JLG, etc), Employee trained and certified to operate a AWP	1 x 1	1
	Lack of Training in Equipment's Operation	5 x 4	20	Ensure training /certification is appropriate for task, Ensure worker completing inspection or maintenance is competent/qualified, Employee trained and certified to operate a AWP	1 x 1	1
Positioning the lift The boom lift shall be within 3 degrees of level, or manufacturer's recommendations shall be followed if they are more stringent; When positioning the machine for entry/exit, the platform should be situated within 1 ft. of the working surface	Hitting the structure with the Manbasket	3 x 4	12	Employee trained and certified to operate a AWP, Pre-job hazard assessment, Spotter used to place basket within task area	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Exiting the Manbasket Workers should not enter/exit the elevated platform in winds exceeding 32 km (or manufacturer's recommendations); Workers MUST enter or exit the platform only through the sliding mid-rail entry or gate provided, and should never climb over the platform guardrails	Wind Conditions and Direction	3 x 5	15	Monitor wind and all environmental conditions	2 x 1	2
	Falls from Heights	3 x 5	15	Stay connected to the manbasket with fall protection equipment, Ensure to remain a safe distance away from the edge	2 x 1	2
	Uneven Surfaces	3 x 4	12	Ensure to maintain 3 point contact and visually inspect the surface you are transferring to for tripping hazards	3 x 1	3
Remain 100% tie-off at all times while exiting/entering the manbasket An approved full body harness and appropriate lanyard must be worn at all times while working inside or exiting the platform; If a self-retracting lifeline/lanyard is used, it cannot allow more than 6 ft. of free fall; The operator must ensure 100% tie-off using two lanyards when entering/exiting	Falls from Heights	3 x 5	15	Worker trained and certified in fall protection, Inspections completed on all harnesses, lanyards, fall arrest equipment and ladders	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Confirm 100 % tie-off to structure before disconnecting or connecting to the manbasket An approved full body harness and appropriate lanyard must be worn at all times while working inside or exiting the platform; If a self-retracting lifeline/lanyard is used, it cannot allow more than 6 ft. of free fall. The operator must ensure 100% tie-off using two lanyards when entering/exiting	Falls from Heights	3 x 5	15	Worker trained and certified in fall protection, Inspections completed on all harnesses, lanyards, fall arrest equipment and ladders, Ensure all harnesses fit each individual properly, Use proper harness	1 x 1	1

Name: Hazard Assessment G-37 - Entering/Exiting a Manbasket at Height
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

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2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment G-38 - Panel Fabrication Covid-19 Work Place Assessment
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Self assessment Determining your fitness for duty - Covid-19 questionnaire, if answer yes to any, must contact HSE Immediately	Worker may have Covid-19 or infuenza symptoms	3 x 3	9	Complete Covid-19 questionnaire prior to arriving to work, Contact Supervisor/HSE if exhibiting symptoms of Covid-19, Self isolating if exhibiting symptoms	2 x 1	2
Travel to work site	Exposure during travel	4 x 3	12	Ensure staff travel alone to and from the worksite	2 x 1	2
	Cleanliness of vehicle - potential for contamination	3 x 3	9	Staff to be familiar with SDS before use of product with SDS available at worksite, Approved cleaning products to be utilized before and after use, Vehicle Sanitation - Refer to COVID-19 Pandemic Preparedness Practice	2 x 1	2
Assessment of occupants in work space Complete a Covid-19 verbal assessment of occupants prior to entering a work space	Occupants may have signs or symptoms that could be related to Covid-19	3 x 3	9	If individual identifies someone to be showing or developing symptoms, they must communicate to Supervisor/HSE immediately, Individual developing or showing symptoms to immediately leave work place and communicate to supervisor/HSE for further direction	2 x 1	2
	Unknown contaminated surfaces	3 x 3	9	Seek all opportunities to limit the number of times you need to enter/exit dwelling, Refer to Pandemic Preparedness Practice, Use PPE to mitigate hazards - Masks, Safety glasses, gloves, Only take the tools that are required to complete the job	1 x 1	1
	Number of people in the workspace	3 x 3	9	Floor markings (X) placed in high traffic areas - main entrance, locker area, meeting area to identify 8' spacing required, Assess the number of people in workspace and ensure 8' physical distancing is maintained	2 x 3	6
Number of occupants in work space Do occupants visually appear to be in good health	Unable to maintain the required 8' physical distance from others	4 x 3	12	For short duration (max. 10 minutes) task (ex. 2 person panel lift) that require more than one person to complete will follow a lift plan and be supervised, Evaluate need to adjust physical distancing requirement due to nature of task, Donning of specialized PPE - mask, face shield, safety glasses, disposable gloves, and coveralls for immediate removal	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Distance to occupants in work space	3 x 3	9	Staff utilizing personal vehicles or space outside for break times, Work break times segregated for employees to reduce number of people traveling through workplace at a given time, Signage to be posted conspicuously around worksite to remind workers of physical distancing and occupancy requirements, Access to lunchroom and washrooms limited to one individual at a time with removal or identification of extra chairs, tables or equipment not to be used, Utilizing physical distancing to limit contact and lower the risk of possible contamination	2 x 1	2
Contamination of surfaces such as tools, equipment, vehicles, job trailers, etc.	Exposure to contamination of common touch surfaces	4 x 4	16	Discontinue use of fabric upholstered chairs in shop floor; plastic chairs in place to provide surfaces to be easily and repeatedly disinfected after use, Within lunchroom, if microwave to be used it must be cleaned before and after use, Discontinue use of staff water coolers, individual water bottles to be used, Facility to be cleaned at regular intervals (third party), specifically frequently touched surfaces (handrails, door knobs, etc)	2 x 3	6
	Exposure to contamination from tools, equipment and materials	4 x 4	16	Approved cleaning products to be utilized before and after use, Staff to be familiar with SDS before use of product with SDS available at worksite, Immediately dispose of contaminated/used cleaning supplies and wash hands, Daily toolbox meeting minutes have been revised to be completed by one person to reduce handling and exposure	2 x 3	6

Name: Hazard Assessment G-38 - Panel Fabrication Covid-19 Work Place Assessment
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
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1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment HV-01 - Hi-Pot For Cable
Description:
Last Published: May 17, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit From Client Completed Associated PJHA	Not Having Clear Understanding Of Scope of JHA Or Permit	5 x 5	25	Ensure clear understanding of all assigned workers of the task and/or permit, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope, Review Lock Out/Tag Out and Energized Electrical safe work practice, and any other SWP's associated or involved with this task, Ensure tools / equipment have current calibration certificates	3 x 2	6
	Not Identifying all Existing & Potential Location and Work Site Hazards	5 x 5	25	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly; review all appropriate SWP's, Ensure all appropriate /required PPE is worn - reassess per each task	2 x 2	4
Identify Equipment To Be Tested Null	Awkward Stance/Position/Posture	3 x 3	9	Take micro breaks as required to reduce strain/fatigue	2 x 1	2
	Pinch Points	4 x 2	8	Focus, eyes and mind on task, be aware of your surroundings, Maintain proper body positioning (line of fire) and footing	2 x 1	2
	Not Following Drawings Correctly	4 x 5	20	Ensure training /certification is appropriate for task, Review current drawings and associated schematics for all power sources, Electrical Supply Authority is present to isolate power	3 x 2	6
Lock Out/Tag Out Identified Equipment	Unexpected energization of unrelated equipment	5 x 5	25	Use non-conductive voltage detector and hot stick to verify zero-energy presence while verifying proper detector operation, Use a hot stick to install ground cables by attaching ground point first followed by the 3 phase points, Check calibration information on non-conductive voltage detector and hot stick as well as checking for any damages on them	3 x 3	9
	Potential Arc Flash / Arc Blast	5 x 5	25	Ensure training /certification is appropriate for task, Mandatory donning of Arc Flash suit, face shield, gloves (per required Cal rating); in good condition	3 x 3	9

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	High Voltage Present	5 x 5	25	Focus; eyes and mind on task, Ensure LOTO SWP was carefully followed with LOTO correctly in place, Request to view meter reading shown on Supply Authority's meter	2 x 2	4
Erect Physical / Visual Barricades Post Watchman At All Access Points	Unauthorized Personnel Entering Testing Area	5 x 5	25	Erect barricades, Post signage; use danger or caution carrier tape, Ensure proper communication with all personnel in area, Post watchmen at all access point to test area	2 x 1	2
Conduct Hi-Pot Testing	Applying Test Currents for Excessive Durations	3 x 3	9	Be aware of surroundings and others, Use caution - Focus; eyes and mind on task, Prior to meter use, confirm correct setting, Follow manufacturer's specifications for use of meter	2 x 1	2
	Awkward Stance/Position/Posture	3 x 2	6		2 x 1	2
	Dropping Tools /Materials to Ground Below	3 x 3	9	Tool lanyards used to safeguard against accidental drops, Ensure material and tools are contained when working at heights; ie use tool bags	2 x 1	2
	Working at Heights	3 x 3	9	Ensure Ladder Use SWP is followed, where applicable, Ensure Fall Protection SWP is followed, where applicable	2 x 1	2
	Pinch Points	3 x 2	6	Ensure proper body and extremities positioning (line of fire)	2 x 1	2
	Electrical Shock	3 x 4	12	Discharge all phase after test completed, Wear all appropriate/required PPE (arc flash)	2 x 1	2
	High Voltage Present	3 x 4	12	Use Caution - FOCUS; eyes and mind on task, Keep watch on test timing	2 x 1	2
	Induced Voltages in Other Conductors; Stray Voltage	3 x 4	12	Temporary grounding of untested conductors with test leads, Apply required voltage and current	2 x 1	2
	Equipment Incorrectly Grounded	3 x 5	15	Verify proper grounding back to earth, Verify proper grounding of all test equipment, Prior to applying ground, check voltage using non-conductive voltage sensor	2 x 1	2
	Testing Equipment Failure	3 x 4	12	Ensure training /certification is appropriate for task, Ensure all appropriate/required PPE is worn	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Discharge Tested Conductor Test Leads Removed	Working at Heights	4 x 5	20	Ensure Ladder Use SWP is followed, where applicable, Use fall protection if required	2 x 1	2
	Shock Hazard; Post Hi-Pot Latent Capacitive Charge	4 x 4	16	Ensure all appropriate / required PPE is worn for discharge, Grounding or discharging is recommended when residual voltages maybe present	2 x 2	4
	Potential Burns From Heat From High Test Currents	4 x 3	12	Focus; eyes and mind on task, Ensure all appropriate/required PPE is worn, Be aware of surroundings and others; ensure all unauthorized personnel are kept clear of live test equipment	2 x 2	4
	Awkward Stance/Position/Posture	3 x 3	9	Take micro breaks as required to reduce strain/fatigue	2 x 1	2
	Dropping Tools /Materials to Ground Below	4 x 3	12	Keep ladder rungs free of debris, Pass tools /equipment up ladder with a Kuney's tool bag	2 x 1	2
Housekeeping Task Complete	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	2 x 1	2
	Live Voltages Present	5 x 5	25	Ensure everyone is aware that locks are being removed, Where necessary, wait for Operations personnel to authorize re-energization of equipment	2 x 1	2
	Lockout not Removed when Complete	4 x 4	16	Follow SWP for removal of Lock Out/Tag Out	2 x 1	2
	Poor housekeeping; debris in/around task area	4 x 3	12	Ensure cabinet doors are fully closed and secure, Ensure proper replacement of all covers, seals, etc., Perform housekeeping; ensure floor areas are clear of debris, equipment, tools, etc.	2 x 1	2
Inform Operations When Task Complete Close out Permit	Lack Of Complete Clear Communication	3 x 4	12	Documentation completed fully / carefully, Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	2 x 1	2

Name: Hazard Assessment HV-01 - Hi-Pot For Cable
Description:
Last Published: May 17, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
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2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment HV-02 - Transformer Testing
Description:
Last Published: May 18, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit From Client Complete Associated PJHA	Not Identifying all Existing & Potential Location and Work Site Hazards	5 x 5	25	Ensure training /certification is appropriate for task, Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools, ensure correct operation, Ensure all appropriate / required PPE is worn - reassess per each task	2 x 2	4
	Not Having Clear Understanding Of Scope of JHA Or Permit	5 x 5	25	Review all related / relevant Safe Work Practices (SWP's) associated or involved with this task, Ensure clear understanding of task / permit of all assigned workers, Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Use proper tools and testing equipment correctly, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	3 x 2	6
Lock Out / Tag Out Isolation Switch	Awkward Stance/Position/Posture	3 x 3	9	Ensure proper body and body parts positioning (line-of-fire) and solid footing	2 x 1	2
	High Voltage Present	5 x 5	25	Electrical Supply Authority is present to isolate power, Request to view meter reading shown on Supply Authority's meter, Go through lockout with client. Place locks on proper isolation points, Follow SWP to complete Lock Out / Tag Out	2 x 3	6
	Potential Arc Flash / Arc Blast	5 x 5	25	Mandatory donning of Arc Flash suit, face shield, gloves (per required Cal rating); in good condition	2 x 3	6
	Pinch Points	3 x 3	9	Be aware of hand placement (line-of-fire)	2 x 1	2
Apply Grounds on Secondary (Load) Side of Isolation Switch Isolate and ground load side of transformer if required	High Voltage Present	5 x 5	25	Test with non-conductive voltage sensor, Mandatory donning of Arc Flash suit, face shield, gloves (per required Cal rating); in good condition, Use a hot stick to install ground cables by attaching ground point first followed by the 3 phase points, Temporary protective grounds should be installed and left in place between the worker and any sources of energy for the duration of the work	3 x 3	9
	Electrical Shock	4 x 4	16	Use Caution - FOCUS; eyes and mind on task, Ensure training /certification is appropriate for task	3 x 3	9

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Working at Heights	3 x 3	9	Ensure Fall Protection SWP is followed, where applicable, Review safe practices for ladder use or scaffolds and AWP operation	2 x 1	2
	Dropping Tools /Materials to Ground Below	3 x 3	9	Ensure tools, equipment are secured at heights, Tool lanyards must be used, Ensure material and tools are contained when working at heights; i.e. use tool bags	2 x 1	2
	Awkward Stance/Position/Posture	3 x 3	9	Stretching and proper body positioning	2 x 1	2
Performing Transformer Testing	Failure to Test Equipment	3 x 4	12	Ensure test equipment is grounded at all times, Only authorized, trained personnel to perform testing, Ensure meters have proper connections into meter terminals, undamaged insulation on leads, up to date calibration, and proper finger guards on test probes	2 x 2	4
	Charges Trapped	4 x 4	16	Grounding or discharging is recommended when residual voltages maybe present	2 x 2	4
	High Voltage Present	4 x 5	20	Be aware of surroundings and others; ensure all unauthorized personnel are kept clear of live test equipment, Ensure all appropriate/required PPE is worn	2 x 2	4
	Electrical Shock	4 x 5	20	Be aware of surroundings and others, Use caution - Focus; eyes and mind on task, Signage posted; use danger or caution barrier tape	2 x 2	4
	Unexpected energization of unrelated equipment	4 x 5	20	Watch for other voltage source in same equipment, Discharge equipment under test, Use GFI (Ground Fault Interrupter) for temporary power supply	2 x 2	4
	Working at Heights	3 x 3	9	Ensure Fall Protection SWP is followed, where applicable	2 x 1	2
	Dropping Tools /Materials to Ground Below	3 x 3	9	Ensure material and tools are contained when working at heights; ie use tool bags	2 x 1	2
	Awkward Stance/Position/Posture	3 x 3	9	Ensure proper body positioning (line-of-fire), and solid, dry footing and safe distance from live part	2 x 1	2
	Muscle Strain	3 x 3	9	Take micro breaks; stretch to improve circulation	2 x 1	2

Name: Hazard Assessment HV-02 - Transformer Testing
Description:
Last Published: May 18, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Completion Of Testing Removal Of Testing Equipment	Working at Heights	3 x 3	9	Follow Fall Protection SWP, where applicable	2 x 1	2
	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	2 x 1	2
	High Voltage Present	4 x 4	16	Ensure tools, equipment carefully checked, packed up and safely stored away, Isolate, discharge and ground all test equipment, Ensure all appropriate/required PPE is worn, Inspect PPE before using	2 x 2	4
	Electrical Shock	4 x 4	16	Use Caution - FOCUS; eyes and mind on task	2 x 2	4
Removal of Grounding Housekeeping	Equipment Put Away, Worksite Clear & Safe	4 x 4	16	Ensure cabinet doors are fully closed and secure, Ensure proper replacement of all covers, seals, etc., Follow SWP for removal of ground from primary and secondary side of transformer	2 x 2	4
	Poor housekeeping; debris in/around task area	4 x 3	12	Perform housekeeping; ensure floor areas are clear of debris, equipment, tools, etc.	2 x 1	2
	Hand tools left behind, not accounted for	4 x 3	12	Return equipment and tools to be stored away in safe, neat, orderly fashion	2 x 1	2
When Task Complete remove LOTO Re-energization	Electrical Shock	4 x 5	20	Where necessary, wait for Operations personnel to authorize re-energization of equipment	2 x 1	2
	Unexpected energization of unrelated equipment	5 x 5	25	Follow proper communication / reporting channels, Inform appropriate personnel of LOTO removal(s)	2 x 1	2
	High Voltage Present	4 x 5	20	Confirm correct Lock Out / Tag Out practice followed for removal, are met and recorded, Electrical Supply Authority to check meter reading; request view of results shown on ESA's meter	2 x 1	2
Inform Operations When Task Complete Close out permit	Lack Of Complete Clear Communication	3 x 4	12	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	2 x 1	2
	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	2 x 1	2

Name: Hazard Assessment HV-02 - Transformer Testing
Description:
Last Published: May 18, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment HV-03 - Transformer Oil Sample
Description:
Last Published: May 23, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit From Client Complete Associated PJHA	Not Having Clear Understanding Of Scope of JHA Or Permit	5 x 5	25	Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope, Review all related / relevant Safe Work Practices (SWP's) associated or involved with this task, Ensure clear understanding of all assigned workers of the task and/or permit	2 x 2	4
	Not Identifying all Existing & Potential Location and Work Site Hazards	5 x 5	25	Ensure all appropriate / required PPE is worn - reassess per each task , Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined	2 x 2	4
Visual Inspection of Transformer	Slips, Trips, Falls	3 x 2	6	360 degree awareness - surroundings, other, etc.	2 x 1	2
	Potential Arc Flash	4 x 5	20	Mandatory donning of Arc Flash suit, face shield, gloves (per required Cal rating); in good condition, GFCI to detect leakage current in electrical circuit and trip circuit whenever leakage is too great, Check wiring diagram to confirm any door interlock	2 x 1	2
	High Voltage Present	4 x 5	20	Be aware of the limits of approach, Check weather conditions and vacuum level, Ensure training /certification is appropriate for task	2 x 1	2
Oil Sample Taken	Slips, Trips, Falls	3 x 2	6	Ensure proper body positioning (line-of-fire) and solid footing	2 x 1	2
	Awkward Stance/Position/Posture	3 x 2	6	Stretching and proper body positioning, Kneeling mat/knee pads	2 x 1	2
	Potential Exposure to PCB's	3 x 3	9	Review the correct MSDS / ensure use of all recommended PPE	2 x 1	2
	Spills	3 x 3	9	Review the correct MSDS / ensure use of all recommended PPE, Ensure area clean after oil sample collected, Use oil sample kit and proper can to dump waste oil, Clean up spills as they happen	2 x 1	2
Housekeeping	Potential Exposure to PCB's	3 x 3	9	Review the correct MSDS / ensure use of all recommended PPE	2 x 1	2
	Spills	3 x 3	9	Ensure all proper PPE is worn/utilized for task, must be in good condition, Close all valves and reinstall plugs, Use proper containers and lids	2 x 1	2

Name: Hazard Assessment HV-03 - Transformer Oil Sample
Description:
Last Published: May 23, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Inform Operations When Task Complete	No communication with equipment operator	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	2 x 1	2

Name: Hazard Assessment HV-03 - Transformer Oil Sample
Description:
Last Published: May 23, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment HV-04 - Entering Into Substations
Description:
Last Published: May 19, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit from Client Obtain Full Job Specific Information from Manager or Operator Complete Associated PJHA	Not Identifying all Existing & Potential Location and Work Site Hazards	5 x 5	25	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Ensure all appropriate / required PPE is worn - reassess per each task	2 x 1	2
	Not Having Clear Understanding Of Scope of JHA Or Permit	5 x 5	25		2 x 1	2
Identify Substation To Be Entered Ground Substation Perimeter Fence; Unlock / Open Gate in Perimeter Fence; Lock Out/ Tag Out Correct Equipment	Potential Arc Flash / Arc Blast	5 x 5	25	Use non-conductive voltage detector and hot stick to verify zero-energy presence while verifying proper detector operation, Mandatory donning of Arc Flash suit, face shield, gloves (per required Cal rating); in good condition, Installation of Temporary protective grounds to ensure the safety of workers when required	3 x 3	9
	Testing Equipment Failure	4 x 4	16	Use proper tools correctly; review all appropriate SWP's, Only authorized, trained personnel to perform testing, Ensure meters have proper connections into meter terminals, undamaged insulation on leads, up to date calibration, and proper finger guards on test probes	2 x 1	2
	High Voltage Present	5 x 5	25	Entry to Substation areas allowed only to authorized, trained, certified personnel, Ensure LOTO SWP was carefully followed with LOTO correctly in place, Proper work planning and electrical isolation prior to entering shock approach boundaries	3 x 3	9
	Awkward Stance/Position/Posture	3 x 3	9	Ensure proper body positioning (line-of-fire), solid footing and safe distance from live part	2 x 1	2
	Dropping Tools /Materials to Ground Below	4 x 3	12	Ensure tools, equipment are secured at heights	2 x 1	2
	Pinch Points	3 x 3	9	Focus, eyes and mind on task, be aware of your surroundings, Ensure proper body and extremities positioning (line of fire)	2 x 1	2
	Working at Heights	3 x 4	12	Follow SWP for working at heights	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Visual Inspection of Power or Instrument Transformer /Capacitor / Isolator Approach Transformer /Capacitor / Isolator	Potential Falling Objects from Exploding Equipment	4 x 5	20	Focus, eyes and mind on task, be aware of your surroundings, Ensure proper body positioning (line-of-fire), solid footing and safe distance from live part, Maintain touch and step potential	2 x 2	4
	Fire / Explosion	4 x 5	20	Entry to Substation areas allowed only to authorized, trained, certified personnel, Perform visual inspection of equipment, Perform check to determine proper maintenance has been conducted	2 x 2	4
Approach Outdoor Structure	Slips, Trips, Falls	3 x 3	9	Focus; eyes and mind on task, Maintain touch and step potential, Ensure proper body positioning (line-of-fire), and solid, dry footing and safe distance from live part	2 x 1	2
	Potential Projectiles from Explosion; Shrapnel from Shattered Equipment	4 x 5	20	Entry to Substation areas allowed only to authorized, trained, certified personnel, Post caution signage /tape conspicuously to alert all personnel to potential contact with conductor	2 x 2	4
	Potential Arcing	4 x 5	20	Check for proper earthing	2 x 2	4
	Fire / Explosion	4 x 5	20	Ensure proper, current maintenance of equipment, Ensure availability of working fire extinguishers and first aid equipment in Substation	2 x 2	4
	Burns	4 x 5	20	Wear all appropriate / required PPE (hand, eye, arc flash with correct CAL rating)	2 x 2	4
	Electrical Shock from Charged Structure	4 x 5	20	Verify proper grounding back to earth, Careful visual inspection of surroundings / equipment /environment, Ensure all appropriate/required PPE is worn	2 x 1	2
Approach Outdoor Structure Inside Perimeter Fencing	Potential Arcing	4 x 4	16	Verify proper grounding back to earth	2 x 2	4
	Fire / Explosion	4 x 5	20	Ensure proper, current maintenance of equipment, Ensure availability of working fire extinguishers and first aid equipment in Substation	2 x 2	4
	Burns	4 x 5	20	Focus; eyes and mind on task	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Electrical Shock from Charged Structure	4 x 5	20	Ensure all appropriate/required PPE is worn, Careful visual inspection of surroundings / equipment /environment, Verify proper grounding back to earth	2 x 1	2
	Slips, Trips, Falls	3 x 3	9	Ensure proper body positioning (line-of-fire), and solid, dry footing and safe distance from live part, Maintain touch and step potential	2 x 1	2
	Potential Projectiles from Explosion; Shrapnel from Shattered Equipment	4 x 5	20	Post caution signage / tape conspicuously to alert all personnel to potential contact with conductor, Entry to Substation areas allowed only to authorized, trained, certified personnel	2 x 2	4
Traversing Substation	Slips, Trips, Falls	3 x 3	9	Care and caution with ground conditions; avoid uneven or slippery areas, Conduct visual inspection of Substation area and grounding, Pre-check route of travel; solid ground surface, clear access with enough room, no debris, no overhead obstructions	2 x 1	2
Inform Operations When Task Complete Close out permit	Lack Of Complete Clear Communication	3 x 4	12	Close out permit and ensure all conditions have been followed and documented as completed, Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels	2 x 1	2

Name: Hazard Assessment HV-04 - Entering Into Substations
Description:
Last Published: May 19, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment HV-05 - Infrared Scanning
Description:
Last Published: May 19, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit From Client Obtain Full Job Specific Information From Manager or Operator, Complete Associated PJHA	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 5	20	Ensure clear understanding of all assigned workers of the task and/or permit, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	2 x 1	2
	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 5	20	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly; review all appropriate SWP's, Ensure all appropriate /required PPE is worn - reassess per each task, Ensure tools / equipment have current calibration certificates	2 x 1	2
Secure testing area	Unauthorized Personnel Entering Testing Area	4 x 5	20	Install barricades and flag off work area, if required	2 x 2	4
Opening / Closing Electrical Panel	Muscle Strain	3 x 2	6	Take micro-breaks, stretch out muscles and improve circulation and focus	2 x 1	2
	Awkward Stance/Position/Posture	3 x 2	6	Ensure proper body positioning (line-of-fire) and solid footing; ensure caution with clearance of extremities	2 x 1	2
	Pinch Points	3 x 2	6	Focus, eyes and mind on task, be aware of your surroundings	1 x 1	1
	Nuisance Tripping	3 x 3	9	Check wiring diagram to confirm any door interlock	1 x 1	1
	Potential Arc Flash	4 x 5	20	Ground fault circuit interrupter to detect any leakage current in electrical circuit; to trip circuit whenever leakage is too great, Ensure proper body positioning (line-of-fire), and solid, dry footing and safe distance from live part	2 x 2	4
	High Voltage Present	4 x 5	20	Ensure training /certification is appropriate for task, Complete authorization form for Energized Electrical Work, Mandatory donning of Arc Flash suit, face shield, gloves (per required Cal rating); in good condition	2 x 2	4

Name: Hazard Assessment HV-05 - Infrared Scanning
Description:
Last Published: May 19, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Use of Infrared Camera	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	1 x 1	1
	Muscle Strain	3 x 2	6	Take micro-breaks, stretch out muscles and improve circulation and focus	1 x 1	1
	Awkward Stance/Position/Posture	3 x 2	6	Ensure proper body positioning (line-of-fire) and solid footing; ensure caution with clearance of extremities	1 x 1	1
	Falling Objects	4 x 4	16	Focus, eyes and mind on task, be aware of your surroundings, Inspect work areas before work begins	2 x 1	2
	Slips, Trips, Falls	3 x 3	9	Care and caution with ground conditions; avoid uneven or slippery areas	1 x 1	1
	Electrical Shock	4 x 5	20	Ensure proper body positioning (line-of-fire), solid footing and safe distance from live part, Ensure all appropriate / required PPE is worn -reassess per each task, Use proper tools and equipment correctly	2 x 1	2
Inform Operations When Task Complete Close out permit	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	1 x 1	1

Name: Hazard Assessment HV-05 - Infrared Scanning
Description:
Last Published: May 19, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment HV-06 - Relay Testing & Commissioning
Description:
Last Published: May 19, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit from Client Obtain Full Job-Specific Information from Manager or Operator; Complete Associated PJHA	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 5	20	Ensure clear understanding of all assigned workers of the task and/or permit, Review / discuss Lock Out/Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Ensure tools / equipment have current calibration certificates, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	2 x 2	4
	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 5	20	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools correctly; review all appropriate SWP's, Ensure all appropriate /required PPE is worn - reassess per each task	2 x 2	4
Identify Equipment to Test Lock Out / Tag Out Correct Equipment	Nuisance Tripping	4 x 4	16	Review current drawings and associated schematics for all power sources	1 x 1	1
	Potential Arc Flash / Arc Blast	4 x 5	20	Use non-conductive voltage detector and hot stick to verify zero-energy presence while verifying proper detector operation, Mandatory donning of Arc Flash suit, face shield, gloves (per required Cal rating); in good condition, Temporary protective grounds should be installed and left in place between the worker and any sources of energy for the duration of the work	2 x 2	4
	High Voltage Present	4 x 5	20	Ensure training /certification is appropriate for task, Electrical Supply Authority to be present to isolate power, Request to view meter reading shown on Supply Authority's meter	2 x 2	4
	Awkward Stance/Position/Posture	3 x 2	6	Ensure proper body positioning (line-of-fire) and solid footing; ensure caution with clearance of extremities	1 x 1	1
	Dropping Tools /Materials to Ground Below	3 x 3	9	Use proper tool lanyard, bag or pockets to prevent tools etc., falling or being dropped	2 x 1	2
	Pinch Points	3 x 2	6	Focus, eyes and mind on task, be aware of your surroundings, Ensure proper body and body parts positioning (line-of-fire) and solid footing	1 x 1	1
	Working at Heights	3 x 3	9	Follow SWP for working at heights	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Testing Equipment Failure	4 x 3	12	Ensure meters have proper connections into meter terminals, undamaged insulation on leads, up to date calibration, and proper finger guards on test probes	1 x 1	1
Visual Inspection Record Relay Setting(s)	Awkward Stance/Position/Posture	3 x 2	6	Take micro-breaks, stretch out muscles and improve circulation and focus	1 x 1	1
	Slips, Trips, Falls	3 x 2	6	Ensure proper body positioning (line-of-fire), and solid, dry footing and safe distance from live part	2 x 1	2
	Unexpected energization of unrelated equipment	3 x 3	9	Isolate, discharge and ground all test equipment, Read manufacturer's manual for relay; use proper techniques to read relay setting	2 x 1	2
	Electrical Shock	3 x 4	12	Test with non-conductive voltage sensor, Ensure LOTO SWP was carefully followed with LOTO correctly in place, Ensure all appropriate/required PPE is worn	2 x 2	4
Use Secondary Injection Test	Awkward Stance/Position/Posture	3 x 2	6	Stretching and proper body positioning	1 x 1	1
	Pinch Points	3 x 2	6	Focus; eyes and mind on task, Keep extremities clear of pinch points	1 x 1	1
	Electrical Shock	4 x 4	16	Watch for other voltage source in same equipment, Be aware of surroundings and others; ensure all unauthorized personnel are kept clear of live test equipment, Use GFI (Ground Fault Interrupter) for temporary power supply, Wear low voltage gloves	2 x 1	2
	Nuisance Tripping	3 x 3	9	Trip setting on a test set; activate, then shut down test set, Ensure CT's are short-circulated when testing a live system	2 x 1	2
	Unexpected energization of unrelated equipment	3 x 4	12	Discharge equipment under test, Ensure test equipment is grounded at all times, Only authorized, trained personnel to perform testing	2 x 2	4
Clean Relay Auxiliary Contact Check Relay Auxiliary Contact	Unexpected energization of unrelated equipment	3 x 3	9	Read wiring diagram carefully	2 x 1	2
	Nuisance Tripping	3 x 3	9	Check tripping contact against wiring diagram	2 x 1	2
	Electrical Shock	3 x 3	9	Check wiring diagram against auxiliary contact, Ensure all appropriate/required PPE is worn	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Airborne Dust, Debris, Fumes	3 x 3	9	Wear all proper/required PPE (hand, eye, face shield), Wear respiratory protection; when excessive amounts of dust are present and for airborne exposures above normal limits	1 x 1	1
Completion of task Housekeeping	Working at Heights	3 x 3	9	Ensure area below height work is clear, Follow SWP for working at heights	2 x 2	4
	Slips, Trips, Falls	3 x 2	6	Perform housekeeping;ensure floor areas are clear of debris, equipment, tools, etc.	1 x 1	1
	Awkward Stance/Position/Posture	3 x 2	6	Ensure proper body positioning (line-of-fire), solid footing and safe distance from live part, Pre-task stretching, Maintain proper body positioning, Use caution - Focus; eyes and mind on task	1 x 1	1
	Pinch Points	3 x 2	6	Focus, eyes and mind on task, be aware of your surroundings, Ensure proper replacement of all covers, seals, etc.	1 x 1	1
	Potential Arc Flash	4 x 4	16	Ensure LOTO removal SWP is followed to remove Lock and Tag Out, Request to view meter reading shown on Supply Authority's meter, Where necessary, wait for Operations personnel to authorize re-energization of equipment	2 x 2	4
	Electrical Shock	4 x 4	16	Inform relevant co-workers of Lock Out/Tag Out removal, Ensure all appropriate/required PPE is worn, Remove ground cables starting with the 3 phases followed by the ground point	2 x 2	4
Inform Operations When Task Complete Close out permit	Lack Of Complete Clear Communication	4 x 4	16	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	1 x 1	1
	No Inspection Forms (Documentation)	3 x 2	6	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	1 x 1	1

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment HV-07 - Breaker Testing (HV/MV/LV)
Description:
Last Published: May 22, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit from Client Obtain Full Job-Specific Information from Manager or Operator Complete Associated PJHA	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 5	20	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly; review all appropriate SWP's, Ensure all appropriate /required PPE is worn - reassess per each task	2 x 2	4
	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 5	20	Ensure clear understanding of all assigned workers of the task and/or permit, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope, Review / discuss Lock Out/Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Ensure tools / equipment have current calibration certificates	2 x 2	4
Identify Equipment to be Tested Lock Out / Tag Out Identified Equipment	Pinch Points	3 x 2	6	Focus, eyes and mind on task, be aware of your surroundings, Ensure proper body and extremities positioning (line of fire)	1 x 1	1
	Awkward Stance/Position/Posture	3 x 2	6	Pre-task stretching, Ensure proper body and extremities positioning (line of fire)	1 x 1	1
	High Voltage Present	4 x 5	20	Ensure training /certification is appropriate for task, Ensure LOTO SWP was carefully followed with LOTO correctly in place, Request to view meter reading shown on Supply Authority's meter, Electrical Supply Authority to be present to isolate power	2 x 2	4
	Potential Arc Flash / Arc Blast	4 x 5	20	Use non-conductive voltage detector and hot stick to verify zero-energy presence while verifying proper detector operation, Mandatory donning of Arc Flash suit, face shield, gloves (per required Cal rating); in good condition, Use a hot stick to install ground cables by attaching ground point first followed by the 3 phase points	2 x 2	4
	Unexpected energization of unrelated equipment	4 x 4	16	Barriers & Flags placed as/where necessary to keep unauthorized personnel away	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Visual Inspection	High Voltage Present	4 x 4	16	Test with non-conductive voltage sensor, Ensure LOTO SWP was carefully followed with LOTO correctly in place, Ensure all appropriate/required PPE is worn	2 x 2	4
	Potential Electric Shock	4 x 4	16	Focus, eyes and mind on task, be aware of your surroundings, Follow Z-462 PPE guidelines for working on energized equipment	2 x 2	4
	Working at Heights	3 x 3	9	Ensure Fall Protection SWP is followed, where applicable	2 x 1	2
	Dropping Tools /Materials to Ground Below	3 x 3	9	Ensure tools, equipment are secured at heights	1 x 1	1
	Awkward Stance/Position/Posture	3 x 2	6	Maintain proper body positioning (line-of-fire)	1 x 1	1
	Chipped / Broken Porcelain	3 x 2	6	Use Caution - FOCUS; eyes and mind on task	1 x 1	1
	Sharp Edges – Cuts/Lacerations	3 x 2	6	Focus, eyes and mind on task, be aware of your surroundings, Ensure all appropriate/required PPE is worn	1 x 1	1
	Exposure to Hazardous Substances (Insulating Oil)	3 x 3	9	Review the correct MSDS / ensure use of all recommended PPE	1 x 1	1
Conduct Insulation Resistance or Hi-pot	Awkward Stance/Position/Posture	3 x 2	6	Use proper technique and body positioning	1 x 1	1
	Testing Equipment Failure	4 x 3	12	Ensure all workers operating equipment are properly trained or certified, Ensure tools / equipment have current calibration certificates	1 x 1	1
	Charges Trapped	4 x 3	12	Discharge equipment (all phases) after test	2 x 2	4
	High Voltage Present	4 x 3	12	Watch for other voltage source in same equipment, Be aware of surroundings and others; ensure all unauthorized personnel are kept clear of live test equipment	2 x 2	4
	Potential Electric Shock	4 x 3	12	Use GFI (Ground Fault Interrupter) for temporary power supply, Signage posted; use danger or caution barrier tape	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Working at Heights	3 x 3	9	Ensure Fall Protection SWP is followed, where applicable, Focus; eyes and mind on task	1 x 1	1
	Dropping tools or equipment	3 x 3	9	Secure equipment, tools, materials away safely, Be aware of others and surroundings	1 x 1	1
Contact Resistance	Potential Burns From Heat From High Test Currents	3 x 3	9	Focus, eyes and mind on task, be aware of your surroundings, Allow Enough Time for Proper Cool Down	2 x 2	4
	Applying Test Currents for Excessive Durations	3 x 3	9	Apply required voltage and current	2 x 2	4
	Testing Equipment Failure	3 x 3	9	Be aware of surroundings and others; ensure all unauthorized personnel are kept clear of live test equipment, Keep watch on test timing, Verify test equipment is grounded at all times	2 x 1	2
	Charges Trapped	3 x 3	9	Discharge equipment (all phases) after test, Watch for other voltage source in same equipment	2 x 2	4
	High Voltages Present; Potential Arc Flash	3 x 4	12	Mandatory donning of Arc Flash suit, face shield, gloves (per required Cal rating); in good condition	2 x 2	4
	Potential Electric Shock	3 x 3	9	Use GFI (Ground Fault Interrupter) for temporary power supply	2 x 2	4
	Dropping tools or equipment	3 x 3	9	Focus; eyes and mind on task	1 x 1	1
	Awkward Stance/Position/Posture	3 x 2	6		1 x 1	1
Timing of Tripping Timing of Closing	Contact with Control & Measurement Voltages	3 x 3	9	Reduce or remove voltage sources before adjusting or moving test leads	2 x 1	2
	Testing Equipment Failure	3 x 3	9	Discharge equipment (all phases) after test, Be aware of surroundings and others; ensure all unauthorized personnel are kept clear of live test equipment	2 x 1	2
	Charges Trapped	3 x 3	9	Isolate, discharge and ground all test equipment, Ensure all appropriate / required PPE is worn for discharge	2 x 2	4
	High Voltages Present; Potential Arc Flash	3 x 3	9	Follow SWP's	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Potential Electric Shock	3 x 3	9	Wear all appropriate/required PPE	2 x 2	4
	Pinch Points	3 x 2	6	Focus; eyes and mind on task	1 x 1	1
	Dropping tools or equipment	3 x 2	6		1 x 1	1
	Awkward Stance/Position/Posture	3 x 2	6	Ensure proper body positioning (line-of-fire), solid footing and safe distance from live part	1 x 1	1
Check Manual Operation of Breaker Closing; Opening; Spring Charge	High Voltages Present; Potential Arc Flash	3 x 3	9	Be aware of surroundings and others; ensure all unauthorized personnel are kept clear of live test equipment	2 x 2	4
	Electrical Shock	3 x 3	9	Wear all appropriate/required PPE	2 x 2	4
	Pinch Points	3 x 2	6		1 x 1	1
	Noise Exposure	3 x 2	6	Before spring charge or open/close, advise all personnel in area of actions, Wear all appropriate PPE (hearing)	1 x 1	1
	Dropping tools or equipment	3 x 2	6	Focus; eyes and mind on task, Be aware of surroundings and others, Ensure material and tools are contained when working at heights; ie use tool bags	1 x 1	1
	Awkward Stance/Position/Posture	3 x 2	6	Ensure proper body positioning (line-of-fire), solid footing and safe distance from live part	1 x 1	1
Completion of Task Housekeeping	High Voltage Present	3 x 3	9	Follow proper LOTO SWP to remove, Wear all appropriate/required PPE, Follow proper communication / reporting channels, Ensure proper replacement of all covers, seals, etc.	2 x 2	4
	Potential Arc Flash / Arc Blast	3 x 3	9	Ensure LOTO removal SWP is followed to remove Lock and Tag Out, Inform appropriate personnel of LOTO removal(s), Request to view meter reading shown on Supply Authority's meter, Where necessary, wait for Operations personnel to authorize re-energization of equipment	2 x 2	4
	Poor housekeeping; debris in/around task area	3 x 2	6	Perform housekeeping; ensure floor areas are clear of debris, equipment, tools, etc.	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Awkward Stance/Position/Posture	3 x 2	6	Warm up / stretch prior to pulling or lifting	1 x 1	1
Inform Operations When Task Complete Close out permit	No Inspection Forms (Documentation)	3 x 2	6	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	1 x 1	1
	Lack Of Complete Clear Communication	4 x 4	16	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels	1 x 1	1

Name: Hazard Assessment HV-07 - Breaker Testing (HV/MV/LV)
Description:
Last Published: May 22, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment HV-08 - Low Resistance Ohmmeter, Cable VLF Testing
Description:
Last Published: May 22, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit From Client Obtain Full Job Specific Information From Manager or Operator, Complete Associated PJHA	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 5	20	Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Ensure clear understanding of all assigned workers of the task and/or permit, Review / discuss Lock Out/Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	2 x 2	4
	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 5	20	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools correctly; review all appropriate SWP's, Ensure all appropriate /required PPE is worn - reassess per each task	2 x 2	4
Identify Equipment To Be Tested Lock Out/Tag Out Identified Equipment	Potential Arc Flash / Arc Blast	4 x 5	20	Use non-conductive voltage detector and hot stick to verify zero-energy presence while verifying proper detector operation, Mandatory donning of Arc Flash suit, face shield, gloves (per required Cal rating); in good condition, Installation of Temporary protective grounds to ensure the safety of workers when required	2 x 2	4
	High Voltage Present	4 x 5	20	Ensure training /certification is appropriate for task, Electrical Supply Authority to be present to isolate power, Ensure LOTO SWP was carefully followed with LOTO correctly in place, Request to view meter reading shown on Supply Authority's meter	2 x 2	4
	Awkward Stance/Position/Posture	3 x 2	6	Stretching and proper body positioning	1 x 1	1
	Pinch Points	3 x 2	6		1 x 1	1
	Unexpected energization of unrelated equipment	3 x 3	9	Be aware of other voltage sources in the same equipment	2 x 2	4
Erect Physical / Visual Barricades	Unauthorized Personnel Contacting Energized Equipment	4 x 4	16	Ensure proper communication with all personnel in area, Be aware of surroundings and others; ensure all unauthorized personnel are kept clear of live test equipment	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Unauthorized Personnel Entering Work Area	4 x 4	16	Post signage; use danger or caution carrier tape, Erect barricades	2 x 1	2
Conduct Resistance Testing	Falls from Heights	3 x 3	9	Ensure Fall Protection SWP is followed, where applicable	2 x 1	2
	Dropping Tools /Materials to Ground Below	3 x 3	9	Ensure tools, equipment are secured at heights	2 x 1	2
	Awkward Stance/Position/Posture	3 x 2	6	Maintain proper body positioning , Take micro breaks as required to reduce strain/fatigue	1 x 1	1
	Applying Test Currents for Excessive Durations	3 x 3	9	Ensure all workers operating equipment are properly trained or certified	2 x 1	2
	Potential Electric Shock	3 x 4	12	Watch for other voltage source in same equipment	2 x 2	4
	High Voltage Present	3 x 4	12	Use Caution - FOCUS; eyes and mind on task, Wear all required appropriate PPE for task	2 x 2	4
	Induced Voltages in Other Conductors; Stray Voltage	3 x 3	9	Temporary grounding of untested conductors with test leads, Apply required voltage and current	2 x 1	2
	Equipment Incorrectly Grounded	3 x 4	12	Temporary grounding of untested conductors with test leads, Verify proper grounding back to earth, Verify proper grounding of all test equipment	2 x 1	2
	Testing Equipment Failure	3 x 3	9	Ensure all workers operating equipment are properly trained or certified, Ensure tools / equipment have current calibration certificates	1 x 1	1
Discharge tested equipment Test Leads Removed	Shock Hazard; Energized Test Leads	3 x 3	9	Prior to lead removal, ensure test equipment in OFF position	2 x 1	2
	Testing Equipment Failure	3 x 3	9	Verify test equipment is grounded at all times, Discharge equipment (all phases) after test	2 x 1	2
	Burns	3 x 3	9	Allow Enough Time for Proper Cool Down, Be aware of surroundings and others; ensure all unauthorized personnel are kept clear of live test equipment	2 x 1	2
	Awkward Stance/Position/Posture	3 x 2	6	Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Dropping Tools /Materials to Ground Below	3 x 3	9	Follow SWP's for safe lifting, handling of debris, tools, equipment, material, etc.	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Falls from Heights	3 x 3	9	Follow SWP for working at heights	2 x 1	2
	Potential Electric Shock	3 x 3	9	Ensure all appropriate/required PPE is worn	2 x 2	4
	High Voltage Present	3 x 3	9		2 x 2	4
Completion of Task Housekeeping, Remove Lockout	Awkward Stance/Position/Posture	3 x 2	6	Take micro-breaks, stretch out muscles	1 x 1	1
	Poor housekeeping; debris in/around task area	3 x 2	6	Remove flags and barriers, Clean up debris, tools, equipment from testing area	1 x 1	1
	Electrical Shock	4 x 4	16	Electrical Supply Authority to check meter reading; request view of results shown on ESA's meter	2 x 2	4
	Unexpected energization of unrelated equipment	4 x 4	16	Inform appropriate personnel of LOTO removal(s), Ensure LOTO removal SWP was followed correctly, Remove ground cables starting with the 3 phases followed by the ground point	2 x 2	4
	High Voltage Present	4 x 4	16	Ensure proper replacement of all covers, seals, etc., Where necessary, wait for Operations personnel to authorize re-energization of equipment	2 x 2	4
Inform Operations When Task Complete Close out permit	Lack Of Complete Clear Communication	4 x 4	16	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	1 x 1	1
	No Inspection Forms (Documentation)	3 x 2	6	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	1 x 1	1

Name: Hazard Assessment HV-08 - Low Resistance Ohmmeter, Cable VLF Testing
Description:
Last Published: May 22, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment HV-09 - VLF AC Hi-Pot Testing
Description:
Last Published: May 22, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit From Client Obtain Full Job Specific Information From Manager or Operator, Complete Associated PJHA	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 5	20	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly; review all appropriate SWP's, Ensure all appropriate /required PPE is worn - reassess per each task	2 x 2	4
	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 5	20	Ensure clear understanding of all assigned workers of the task and/or permit, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Ensure tools /equipment have current calibration certificates, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	2 x 2	4
Identify Equipment To Be Tested Lock Out / Tag Out Identified Equipment	Unexpected energization of unrelated equipment	4 x 4	16	Be aware of other voltage sources in the same equipment	2 x 2	4
	High Voltage Present	4 x 5	20	Use non-conductive voltage detector and hot stick to verify zero-energy presence while verifying proper detector operation, Installation of Temporary protective grounds to ensure the safety of workers when required	2 x 2	4
	Potential Arc Flash / Arc Blast	4 x 5	20	Ensure training /certification is appropriate for task, Electrical Supply Authority to be present to isolate power, Ensure LOTO SWP was carefully followed with LOTO correctly in place, Request to view meter reading shown on Supply Authority's meter, Mandatory donning of Arc Flash suit, face shield, gloves (per required Cal rating); in good condition	2 x 2	4
	Awkward Stance/Position/Posture	3 x 2	6	Stretching and proper body positioning	1 x 1	1
	Pinch Points	3 x 2	6	Ensure proper body positioning (line-of-fire), solid footing and safe distance from live part	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Erect Physical / Visual Barricades Post Watchmen at All Access Points	Unauthorized Personnel Contacting Energized Equipment	4 x 4	16	Use caution -FOCUS; eyes and mind on task, Ensure proper communication with all personnel in area, Be aware of surroundings and others; ensure all unauthorized personnel are kept clear of live test equipment	2 x 1	2
	Unauthorized Personnel Entering Testing Area	4 x 4	16	Erect barricades, Post signage; use danger or caution carrier tape, Post watchmen at all access point to test area	2 x 1	2
Conduct VLF Testing	Applying Test Currents for Excessive Durations	3 x 3	9	Ensure all workers operating equipment are properly trained or certified	2 x 1	2
	Awkward Stance/Position/Posture	3 x 2	6	Take micro-breaks, stretch out muscles and improve circulation and focus	1 x 1	1
	Dropping tools or equipment	3 x 3	9	Ensure tools, equipment are secured at heights	2 x 1	2
	Working at Heights	3 x 3	9	Ensure Ladder Use SWP is followed, where applicable, Ensure Fall Protection SWP is followed, where applicable	2 x 1	2
	Pinch Points	3 x 2	6	Ensure proper body positioning (line-of-fire), solid footing and safe distance from live part	1 x 1	1
	Electrical Shock	3 x 4	12	Watch for other voltage source in same equipment, Discharge all phase after test completed, Ensure all appropriate / required PPE is worn for discharge	2 x 2	4
	High Voltage Present	3 x 4	12	Wear all appropriate PPE for task, Keep watch on test timing	2 x 2	4
	Induced Voltages in Other Conductors; Stray Voltage	3 x 3	9	Temporary grounding of untested conductors with test leads, Apply required voltage and current	2 x 1	2
	Equipment Incorrectly Grounded	3 x 4	12	Verify proper grounding back to earth, Verify proper grounding of all test equipment	2 x 1	2
	Testing Equipment Failure	3 x 3	9	Ensure all workers operating equipment are properly trained or certified, Ensure tools / equipment have current calibration certificates	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Discharge Tested Conductor Test Leads Removed	Shock Hazard; Post VLF Latent Capacitive Charge	3 x 3	9	Ensure all appropriate / required PPE is worn for discharge	2 x 2	4
	Testing Equipment Failure	3 x 3	9	Discharge equipment (all phases) after test	2 x 1	2
	Burns	3 x 3	9	Allow Enough Time for Proper Cool Down, Ensure all appropriate/required PPE is worn, Be aware of surroundings and others; ensure all unauthorized personnel are kept clear of live test equipment	2 x 2	4
	Awkward Stance/Position/Posture	3 x 2	6	Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Dropping Tools /Materials to Ground Below	3 x 3	9	Follow SWP's for safe lifting, handling of debris, tools, equipment, material, etc.	2 x 1	2
	Working at Heights	3 x 3	9	Follow SWP for working at heights	2 x 1	2
	High Voltage Present	3 x 3	9	Ensure all appropriate/required PPE is worn	2 x 2	4
Completion of Task Housekeeping, Remove Lockout	Awkward Stance/Position/Posture	3 x 2	6	Take micro breaks as required to reduce strain/fatigue	1 x 1	1
	Poor housekeeping; debris in/around task area	3 x 2	6	Remove flags and barriers, Clean up debris, tools, equipment from testing area	1 x 1	1
	Electrical Shock	4 x 4	16	Electrical Supply Authority to check meter reading; request view of results shown on ESA's meter	2 x 2	4
	Unexpected energization of unrelated equipment	4 x 4	16	Inform appropriate personnel of LOTO removal(s), Ensure LOTO removal SWP is followed correctly, Remove ground cables starting with the 3 phases followed by the ground point	2 x 2	4
	High Voltage Present	4 x 4	16	Ensure proper replacement of all covers, seals, etc., Where necessary, wait for Operations personnel to authorize re-energization of equipment	2 x 2	4
Inform Operations When Task Complete Close out permit	Lack Of Complete Clear Communication	4 x 4	16	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	No Inspection Forms (Documentation)	3 x 2	6	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	1 x 1	1

Name: Hazard Assessment HV-09 - VLF AC Hi-Pot Testing
Description:
Last Published: May 22, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment HV-10 - PDMA Testing (Off Line)
Description:
Last Published: Jul 07, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit From Client Obtain Full Job Specific Information From Manager Or Operator, Complete Associated PJHA	Not Identifying all Existing & Potential Location and Work Site Hazards	5 x 5	25	Ensure all appropriate / required PPE is worn - reassess per each task, Ensure tools / equipment have current calibration certificates, Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools correctly; review all appropriate SWP's	2 x 2	4
	Not Having Clear Understanding Of Scope of JHA Or Permit	5 x 5	25	Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope, Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Ensure clear understanding of all assigned workers and workers in vicinity of the task and/or activity plan, Review all related / relevant Safe Work Practices (SWP's) associated or involved with this task	2 x 2	4
Identify Equipment To Be Tested Lock Out / Tag Out Identified Equipment, Erect barricades if required	Unexpected energization of unrelated equipment	4 x 5	20	Be aware of other voltage sources in the same equipment, Review current drawings and associated schematics for all power sources	2 x 3	6
	Potential Arc Flash / Arc Blast	5 x 5	25	Installation of Temporary protective grounds to ensure the safety of workers when required, Use non-conductive voltage detector and hot stick to verify zero-energy presence while verifying proper detector operation, Install barricades and flag off work area, if required	3 x 2	6
	High Voltage Present	5 x 5	25	Mandatory donning of Arc Flash suit, face shield, gloves (per required Cal rating); in good condition, Request to view meter reading shown on Supply Authority's meter, Ensure LOTO SWP was carefully followed with LOTO correctly in place, Electrical Supply Authority to be present to isolate power, Ensure training /certification is appropriate for task	3 x 2	6
	Awkward Stance/Position/Posture	3 x 3	9	Stretching and proper body positioning	2 x 1	2
	Pinch Points	3 x 3	9	Ensure proper body positioning (line-of-fire), solid footing and safe distance from live part, Focus, eyes and mind on task, be aware of your surroundings	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Visual Inspection of Unit Record Motor Data	High Voltage Present	4 x 3	12	Test before touch to ensure equipment properly de-energized	2 x 1	2
	Electrical Shock	4 x 3	12	Ensure all appropriate / required PPE is worn - reassess per each task	2 x 2	4
	Unexpected energization of unrelated equipment	4 x 3	12	Review current drawings and associated schematics for all power sources, Use Caution - FOCUS; eyes and mind on task	2 x 2	4
	Pinch Points	3 x 3	9	Be aware of pinch points associated with use of hand tools	2 x 1	2
	Awkward Stance/Position/Posture	3 x 3	9	Maintain proper body positioning (line of fire) and footing	2 x 1	2
	Slips, Trips, Falls	3 x 3	9	Focus, eyes and mind on task, be aware of your surroundings	2 x 1	2
	Working at Heights	4 x 3	12	Follow Fall Protection SWP, where applicable	2 x 2	4
Connect PDMA Equipment to Motor Panel Perform PDMA testing	Awkward Stance/Position/Posture	3 x 3	9	Use proper technique and body positioning	1 x 1	1
	Working at Heights	3 x 3	9	Complete a fall protection plan and review with all personnel involved in this task, Follow safe ladder use practice (proper tie-offs and 3 point contact maintained at all times)	2 x 1	2
	Unexpected energization of unrelated equipment	4 x 4	16	Review of single line schematics, communicate with operations, Ensure all workers operating equipment are properly trained or certified, Verify proper grounding of all test equipment	2 x 2	4
	Potential Electric Shock	4 x 4	16	Verbally communicate when area is clear for testing to commence, Verify supply voltage prior to connecting leads	2 x 2	4
	High Voltage Present	2 x 2	4	Install barricades and flag off work area, if required, Ensure training /certification is appropriate for task, Maintain communication between workers, Ensure all appropriate / required PPE is worn -reassess per each task	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Testing Equipment Failure	4 x 4	16	Ensure all workers operating equipment are properly trained or certified, Ensure tools / equipment have current calibration certificates	2 x 2	4
Disconnect PDMA Equipment to motor panel Remove lockout, Housekeeping	High Voltage Present	4 x 3	12	Remove ground cables starting with the 3 phases followed by the ground point	2 x 2	4
	Potential Electric Shock	4 x 3	12	Isolate, discharge and ground all test equipment, Wear all appropriate PPE for task	2 x 2	4
	Awkward Stance/Position/Posture	3 x 3	9	Take micro-breaks, stretch out muscles and improve circulation and focus, Perform housekeeping; ensure floor areas are clear of debris, equipment, tools, etc.	2 x 1	2
	Dropping Tools /Materials to Ground Below	3 x 3	9	Install barricades and flag off work area, if required, Pass tools / equipment down to ground; use a Kuney's tool bag	2 x 1	2
	Working at Heights	3 x 3	9	Follow Fall Protection SWP, where applicable	2 x 2	4
	Unexpected energization of unrelated equipment	4 x 3	12	Inform relevant co-workers of Lock Out/Tag Out removal, Ensure LOTO removal SWP is followed to remove Lock and Tag Out, Where necessary, wait for Operations personnel to authorize re-energization of equipment	2 x 2	4
Inform Operations When Task Complete Close out permit	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	1 x 1	1
	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	1 x 1	1

Name: Hazard Assessment HV-10 - PDMA Testing (Off Line)
Description:
Last Published: Jul 07, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment HV-11 - PDMA Testing (On Line)
Description:
Last Published: Jul 07, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit From Client Obtain Full Job Specific Information From Manager or Operator, Complete Associated PJHA	Not Having Clear Understanding Of Scope of JHA Or Permit	5 x 5	25	Review all related / relevant Safe Work Practices (SWP's) associated or involved with this task, Ensure clear understanding of task / permit of all assigned workers, Implement plan to apply all possible means of temporary protection to guard open, energized equipment, Review/discuss Energized Safe Work Practices and all other SWP's associated or involved with this task, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	2 x 2	4
	Not Identifying all Existing & Potential Location and Work Site Hazards	5 x 5	25	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly; review all appropriate SWP's, Ensure all appropriate /required PPE is worn - reassess per each task, Ensure tools / equipment have current calibration certificates	2 x 2	4
Identify Equipment To Be Tested Record Motor Data	Unexpected energization of unrelated equipment	4 x 5	20	Be aware of other voltage sources in the same equipment, Review current drawings and associated schematics for all power sources	2 x 3	6
	Potential Arc Flash / Arc Blast	5 x 5	25	Be aware of surroundings and others; ensure all unauthorized personnel are kept clear of live test equipment	3 x 2	6
	High Voltage Present	5 x 5	25	Ensure training /certification is appropriate for task, Mandatory donning of Arc Flash suit, face shield, gloves (per required Cal rating); in good condition, Review SLD to identify correct cell	2 x 2	4
	Working at Heights	3 x 4	12	Follow SWP for working at heights	2 x 2	4
	Slips, Trips, Falls	3 x 3	9	Focus, eyes and mind on task, be aware of your surroundings, Clean up slip/trip hazards	2 x 1	2
	Awkward Stance/Position/Posture	3 x 3	9	Ensure proper body and body parts positioning (line-of-fire) and solid footing	2 x 1	2
	Pinch Points	3 x 3	9	Be aware of pinch points associated with use of hand tools	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Erect Physical / Visual Barricades	Communicate Hazards to Workers and Those in the Area	4 x 4	16	Ensure clear understanding of all assigned workers and workers in vicinity of the task and/or activity plan	2 x 2	4
	Unauthorized Personnel Contacting Energized Equipment	4 x 5	20	Be aware of surroundings and others; ensure all unauthorized personnel are kept clear of live test equipment	2 x 2	4
	Unauthorized Personnel Entering Work Area	4 x 4	16	Erect barricades, Post signage; use danger or caution carrier tape, Ensure proper communication with all personnel in area	2 x 2	4
Connect PDMA Equipment to LIVE Motor Panel CT and PT Perform PDMA Testing	Awkward Stance/Position/Posture	3 x 3	9	Ensure proper body positioning (line-of-fire), solid footing and safe distance from live part	2 x 1	2
	Unexpected energization of unrelated equipment	5 x 4	20	Be aware of surroundings and others; ensure all unauthorized personnel are kept clear of live test equipment, Verify CT's are short-circulated when testing a live system	3 x 2	6
	Potential Electric Shock	5 x 5	25	Verify supply voltage prior to connecting leads, Connect current and voltage lead - use gloves, DO NOT TOUCH LIVE PART, Before connecting leads, ensure supply voltage is correct, Ensure all appropriate/required PPE is worn	3 x 3	9
	High Voltage Present	5 x 5	25	Only competent worker should be assigned for this task, Before connecting leads, ensure supply voltage is correct, Verify proper grounding of all test equipment	3 x 3	9
	Testing Equipment Failure	3 x 4	12	Verbally communicate when area is clear for testing to commence, Ensure all workers operating equipment are properly trained or certified, Ensure meter specifications are suitable for application, Ensure meters have proper connections into meter terminals, undamaged insulation on leads, up to date calibration, and proper finger guards on test probes	2 x 1	2
Disconnect PDMA Equipment Housekeeping	Awkward Stance/Position/Posture	3 x 3	9	Stretching and proper body positioning	2 x 1	2
	Pinch Points	3 x 3	9	Keep extremities clear of pinch points	2 x 1	2

Name: Hazard Assessment HV-11 - PDMA Testing (On Line)
Description:
Last Published: Jul 07, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Unexpected energization of unrelated equipment	4 x 5	20	Use Caution - FOCUS; eyes and mind on task , Be aware of surroundings and others	3 x 2	6
	Potential Electric Shock	5 x 5	25	Ensure proper body positioning (line-of-fire), solid footing and safe distance from live part, Prior to lead removal, ensure test equipment in OFF position, Ensure testing area all around MCC or switchgear is clear of personnel	3 x 2	6
	High Voltage Present	5 x 5	25	Isolate, discharge and ground all test equipment, Ensure all appropriate / required PPE is worn for discharge	3 x 2	6
	Poor housekeeping; debris in/around task area	3 x 3	9	Follow SWP's for safe lifting, handling of debris, tools, equipment, material, etc., Perform housekeeping; ensure floor areas are clear of debris, equipment, tools, etc.	2 x 1	2
Inform Operations When Task Complete Close out permit	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	1 x 1	1
	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	1 x 1	1

Name: Hazard Assessment HV-11 - PDMA Testing (On Line)
Description:
Last Published: Jul 07, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment HV-12 -Neutral Grounding Resistors (NGR) Maintenance
Description:
Last Published: Jul 07, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain safe work permit from client Complete all associated PJHA's	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 4	16	Ensure clear understanding of task / permit of all assigned workers, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	2 x 1	2
	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 4	16	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly; review all appropriate SWP's, Ensure tools / equipment have current calibration certificates, Ensure all appropriate / required PPE is worn - reassess per each task	2 x 1	2
Inspect PPE / Non Contact Voltage Detector	Testing Equipment Failure	4 x 4	16	Test non-contact voltage detector on low power mode on a known low voltage source, Any equipment found faulty, pulled from service and tagged	2 x 2	4
	PPE in Poor Condition	5 x 5	25	Visually inspect all equipment, Air test gloves for pin holes	2 x 2	4
Open Main Breaker/Switch Confirm Supply Company has Isolated Equipment from Source, Application of Lock Out / Tag Out to Identified Equipment	Poor Communication	4 x 3	12	Ensure proper communication with all personnel in area, Confirm with operations that breaker / switch is ready to be open, Wear all appropriate/required PPE	2 x 2	4
	Lock Out / Tag Out SWP Not Followed	5 x 5	25	Confirm positive Lock Out / Tag Out practices met and recorded	2 x 2	4
	Potential Arc Flash / Arc Blast	5 x 5	25	Mandatory donning of Arc Flash suit, face shield, gloves (per required Cal rating); in good condition, For application 1000V or more, use non-conductive voltage detector and hot stick to verify zero-energy presence while verifying proper detector operation, Installation of Temporary protective grounds to ensure the safety of workers when required	2 x 2	4
	Electrical Shock	4 x 5	20	Be aware of surroundings, others, and potential of exposed hazards	2 x 3	6

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	High Voltage Present	4 x 5	20	Ensure training /certification is appropriate for task, Electrical Supply Authority to check meter reading; request view of results shown on ESA's meter, Electrical Supply Authority to be present to isolate power, Ensure LOTO SWP was carefully followed with LOTO correctly in place	3 x 2	6
	Unauthorized Personnel Contacting Energized Equipment	5 x 5	25	Be aware of surroundings and others; ensure all unauthorized personnel are kept clear of live test equipment	2 x 2	4
	Unauthorized Personnel Entering Work Area	5 x 5	25	Install barricades and flag off work area, if required	2 x 2	4
	Testing Equipment Failure	4 x 3	12	Ensure all workers operating equipment are properly trained or certified, Ensure tools / equipment have current calibration certificates	2 x 2	4
Perform Required Maintenance Task	Induced Voltages in Other Conductors; Stray Voltage	4 x 4	16	Grounding or discharging is recommended when residual voltages maybe present	3 x 2	6
	Live Voltages Present	4 x 4	16	Be aware of potential presence of other voltages; test, if/where applicable	3 x 2	6
	Dropping Tools /Materials to Ground Below	4 x 3	12	Ensure tools, equipment are secured at heights	2 x 2	4
	Working at Heights	3 x 4	12	Follow Fall Protection SWP, Ensure Ladder Use SWP is followed, where applicable	2 x 2	4
	Slips, Trips, Falls	3 x 3	9	Clear area of slip/trip hazard, Ensure proper body and body parts positioning (line-of-fire) and solid footing	2 x 1	2
	Cuts & Scrapes	3 x 3	9	Focus, eyes and mind on task, be aware of your surroundings, Ensure proper body / body parts positioning (line-of-fire)	2 x 1	2
	Pinch Points / Crush Type Injury	3 x 3	9	Use correct equipment / tools properly	2 x 1	2
	Awkward heavy lifting, muscle strain	3 x 3	9		2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Completion of Maintenance Task Housekeeping	Awkward heavy lifting, muscle strain	3 x 3	9	Follow SWP's for safe lifting, handling of debris, tools, equipment, material, etc.	2 x 1	2
	Awkward Stance/Position/Posture	3 x 3	9	Ensure proper body and body parts positioning (line-of-fire) and solid footing, Take micro breaks as required to reduce strain/fatigue	2 x 1	2
	Cuts & Scrapes	3 x 3	9	Focus, eyes and mind on task, be aware of your surroundings	2 x 2	4
	Pinch Points / Crush Type Injury	3 x 3	9	Watch finger placement to avoid pinching/crushing	2 x 2	4
	Contact with equipment or tools	3 x 3	9	Return equipment and tools to be stored away in safe, neat, orderly fashion, Be aware of surroundings, equipment and others in vicinity	2 x 1	2
	Poor housekeeping; debris in/around task area	3 x 3	9	Perform housekeeping; ensure floor areas are clear of debris, equipment, tools, etc., Ensure all tools are removed to be securely and safely stored away	2 x 1	2
	Induced Voltages in Other Conductors; Stray Voltage	4 x 3	12	Discharge equipment (all phases) after test, Remove ground cables starting with the 3 phases followed by the ground point	2 x 2	4
	Loose or Faulty Connections	3 x 3	9	Ensure connections are secure / tightened, Ensure all connections and devices are ready for normal operations	2 x 1	2
Removal of Lock Out /Tag Out Re-Energize	Unexpected energization of unrelated equipment	4 x 3	12	Use Caution - FOCUS; eyes and mind on task, Inform appropriate personnel of LOTO removal(s)	2 x 2	4
	Potential Arc Flash / Arc Blast	4 x 3	12	Ensure LOTO removal SWP is followed to remove Lock and Tag Out, Inform appropriate personnel of LOTO removal(s), Electrical Supply Authority to check meter reading; request view of results shown on ESA's meter, Where necessary, wait for Operations personnel to authorize re-energization of equipment	2 x 2	4
	High Voltage Present	4 x 3	12	Ensure proper replacement of all covers, seals, etc., Ensure all appropriate/required PPE is worn, Remove ground cables starting with the 3 phases followed by the ground point	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Inform Operations When Task Complete Close out permit	Lack Of Complete Clear Communication	4 x 3	12	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	2 x 1	2
	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	2 x 1	2

Name: Hazard Assessment HV-12 -Neutral Grounding Resistors (NGR) Maintenance
Description:
Last Published: Jul 07, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment HV-13 - Ground Grid Resistance Testing
Description:
Last Published: Jul 07, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Permit from Client THA and call operator to describe work to be performed. Complete PJHA	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 4	16	Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Ensure clear understanding of all assigned workers and workers in vicinity of the task and/or activity plan	2 x 2	4
	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 4	16	Ensure tools / equipment have current calibration certificates, Ensure all appropriate /required PPE is worn - reassess per each task, Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly; review all appropriate SWP's	2 x 2	4
Plan Testing Route	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	4 x 4	16	Personal monitors worn – calibrated, bumptested, recorded, with fully charged batteries, Monitor direction of wind (wind sock)	3 x 2	6
	Wildlife	3 x 5	15	Have proper bear awareness training and carry bear spray, Be alert and aware of surroundings (wildlife, other vehicles, road conditions)	3 x 2	6
	Potential Electric Shock	4 x 5	20	Locate position of electrical cables, Be mindful of underground cables / pipes so as not to hammer test probe in and cause damage or personal injury	3 x 3	9
	Location Of Underground Utilities	4 x 5	20	Be mindful of underground cables / pipes so as not to hammer test probe in and cause damage or personal injury, Ensure all planned work is documented on required permit(s)	3 x 3	9
	Slips, Trips, Falls	4 x 3	12	Ensure path is clear of rocks and keep test probes tidy and trip hazard free, Care and caution with ground conditions; avoid uneven or slippery areas, Watch for slippery and rough terraingh terrain	2 x 2	4
	Moving vehicles in area	4 x 4	16	Ensure path is far away from moving vehicles, Pick easiest path to run test probes, Focus, eyes and mind on task, be aware of your surroundings	2 x 2	4

Name: Hazard Assessment HV-13 - Ground Grid Resistance Testing
Description:
Last Published: Jul 07, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Carry out testing	Pinch Points / Crush Type Injury	4 x 4	16	Be mindful of hand placement when hammering test probes into ground	2 x 2	4
	Potential Electric Shock	4 x 4	16	Ensure all proper PPE is worn/utilized for task, must be in good condition, Do not touch current pole, Ensure training /certification is appropriate for task	2 x 2	4
Close out work & clean up Housekeeping	Slips, Trips, Falls	4 x 3	12	Coil up test leads properly, Care and caution with ground conditions; avoid uneven or slippery areas, Clean up debris, tools, equipment from testing area	2 x 2	4
Inform Operations When Task Complete Close out permit	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	1 x 1	1
	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	1 x 1	1

Name: Hazard Assessment HV-13 - Ground Grid Resistance Testing
Description:
Last Published: Jul 07, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment HV-14 - Load Break Disconnect Switch Testing
Description:
Last Published: Jul 07, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Permit from Client THA and call operator to describe work to be performed, Complete Associated PJHA	Not Having Clear Understanding Of Scope of JHA Or Permit	5 x 5	25	Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Ensure clear understanding of all assigned workers and workers in vicinity of the task and/or activity plan, Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	2 x 2	4
	Not Identifying all Existing & Potential Location and Work Site Hazards	5 x 5	25	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly; review all appropriate SWP's, Ensure all appropriate /required PPE is worn - reassess per each task, Ensure tools / equipment have current calibration certificates	2 x 2	4
Discuss lockout with client Proof of zero-energy, Place locks at proper lockout points	Potential Arc Flash / Arc Blast	5 x 5	25	Mandatory donning of Arc Flash suit, face shield, gloves (per required Cal rating); in good condition, Use a hot stick to install ground cables by attaching ground point first followed by the 3 phase points, Temporary protective grounds should be installed and left in place between the worker and any sources of energy for the duration of the work	3 x 2	6
	Electrical Shock	5 x 5	25	Review SLD to plan isolation MCC or switchgear from source with client, Isolate MCC or switchgear from source, All workers shall place locks on isolation point; Use scissor lock if required, Use non-conductive voltage detector and hot stick to verify zero-energy presence while verifying proper detector operation	3 x 2	6
Flag off area	Potential for Untrained, Unauthorized Personnel to Enter Hazardous Area	4 x 4	16	Be aware of surroundings and others; ensure all unauthorized personnel are kept clear of live test equipment, Ensure testing area all around MCC or switchgear is clear of personnel, Move excess material (ladders, etc.) away from test area, Erect red flagging and attach tags with test information and contact information	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Inspect Switch	Loose or Faulty Connections	3 x 4	12	Tag / remove faulty equipment from service, Follow manufacturer's manuals, diagrams - ensure proper connections	2 x 2	4
	Pinch Points	4 x 3	12	Ensure training /certification is appropriate for task, Use Caution - FOCUS; eyes and mind on task, Be mindful of finger placement while inspecting interlocks, screen window, insulator and barriers, blade and jaw, cleanliness, and overall mechanical operation of switch	2 x 2	4
Perform Hi-pot test, at PROPER voltage setting	Potential Arc Flash	4 x 4	16	Ensure all appropriate / required PPE is worn for discharge, Use NETA ATS Table 100.2 for proper voltage application	2 x 2	4
	Potential Electric Shock	5 x 4	20	Focus, eyes and mind on task, be aware of your surroundings, Ensure all workers operating equipment are properly trained or certified, Ensure all appropriate / required PPE is worn - reassess per each task	2 x 2	4
Perform contact resistance and insulation resistance tests	Potential Electric Shock	4 x 4	16	Use proper tools and testing equipment correctly; review all appropriate SWP's , Ensure test area is isolated from upstream and downstream systems, Ensure connections are secure / tightened, Maintain a tidy test area	2 x 2	4
Disconnect test equipment and close out work Housekeeping	Poor housekeeping; debris in/around task area	3 x 3	9	Perform housekeeping; ensure floor areas are clear of debris, equipment, tools, etc.	2 x 1	2
	Pinch Points	4 x 3	12	Focus, eyes and mind on task, be aware of your surroundings, Keep extremities clear of pinch points, Watch finger placement to avoid pinching/crushing	2 x 1	2
	Lock Out / Tag Out SWP Not Followed	5 x 5	25	Ensure everyone is aware that locks are being removed, Inform relevant co-workers of Lock Out/Tag Out removal, Ensure LOTO removal SWP is followed to remove Lock and Tag Out, Where necessary, wait for Operations personnel to authorize re-energization of equipment, Remove ground cables starting with the 3 phases followed by the ground point	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	High Voltage Present	4 x 3	12	Discharge equipment (all phases) after test, Ensure all appropriate / required PPE is worn for discharge, Use a coworker to place panel covers back onto gear and tighten bolts if necessary	2 x 2	4
Inform Operations When Task Complete Close out permit	Lack Of Complete Clear Communication	4 x 4	16	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	2 x 1	2
	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	1 x 1	1

Name: Hazard Assessment HV-14 - Load Break Disconnect Switch Testing
Description:
Last Published: Jul 07, 2023

Control Tech Risk Legend

Calculation	Score		Score		Score		Score		Score	
L x C		1 - 5		6 - 10		11 - 15		16 - 20		21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment HV-15 - Load Break Elbow Installation
Description:
Last Published: Jul 07, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Permit from Client THA and call operator to describe work to be performed, Complete Associated PJHA	Not Having Clear Understanding Of Scope of JHA Or Permit	5 x 5	25	Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Ensure clear understanding of all assigned workers of the task and/or permit, Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	2 x 2	4
	Not Identifying all Existing & Potential Location and Work Site Hazards	5 x 5	25	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly; review all appropriate SWP's, Ensure all appropriate /required PPE is worn - reassess per each task, Ensure tools / equipment have current calibration certificates	2 x 2	4
De-energize system and verify zero-energy Null	Potential Arc Flash / Arc Blast	5 x 5	25	Use non-conductive voltage detector and hot stick to verify zero-energy presence while verifying proper detector operation, Mandatory donning of Arc Flash suit, face shield, gloves (per required Cal rating); in good condition, Installation of Temporary protective grounds to ensure the safety of workers when required	3 x 2	6
	Lock Out / Tag Out SWP Not Followed	5 x 5	25	Ensure LOTO SWP was carefully followed with LOTO correctly in place, Complete correct authorization documents, Check SLD for isolation points, Go through lockout with client, Place locks on proper isolation points	3 x 2	6
Ensure all cable termination kit inventory is present Check MSDS	Missing / Defective Parts Cause Flashback	3 x 4	12	All parts are required to ensure a safe termination that prevents arcing and overheating of cable during operation	2 x 1	2
	Chemical Exposure	3 x 3	9	Wear appropriate PPE and utilize proper handling techniques and as identified in MSDS, If using lubricants provided by manufacturer of termination kit, ensure the MSDS is available to and understood by worker	2 x 1	2

Name: Hazard Assessment HV-15 - Load Break Elbow Installation
Description:
Last Published: Jul 07, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Cable Preparation Wearing proper gloves, Housekeeping, Ensure worker is trained	Damage To Cable or Connectors	3 x 4	12	Worker should be trained for specific type of termination	2 x 1	2
	Slips, Trips, Falls	3 x 3	9	Ensure work area is continuously free of debris so as to not fall or damage equipment	2 x 1	2
	Cuts / Scrapes /Lacerations / Abrasions	3 x 4	12	Follow Knife Use SWP, Wear proper cutting gloves if using knife to score jacket, semiconductor, insulation, etc.	2 x 2	4
Use 8' hotstick to loadmake	Potential Arc Flash	3 x 3	9	Most manufacturers recommend using an 8' hotstick to abruptly push elbow into bushing so that a proper elbow to bushing seal is created	2 x 2	4
	Potential Electric Shock	3 x 3	9	Don appropriate class of PPE for live installations	2 x 2	4
Completion of Task Dispose of excess material	Environmental Damage	3 x 3	9	Ensure to follow regional / municipal or client's material disposal criteria to avoid damage to environment	2 x 1	2
	Poor housekeeping; debris in/around task area	3 x 3	9	Perform housekeeping; ensure floor areas are clear of debris, equipment, tools, etc.	2 x 1	2
	Potential Arc Flash / Arc Blast	4 x 4	16	Ensure LOTO removal SWP is followed to remove Lock and Tag Out, Wait for Operations personnel to authorize re-energization of equipment, Inform appropriate personnel of LOTO removal(s)	2 x 2	4
	High Voltage Present	4 x 4	16	Take off all ground cables from bus, Ensure proper replacement of all covers, seals, etc., Follow proper communication / reporting channels	2 x 2	4
Inform Operations When Task Complete Close out permit	Lack Of Complete Clear Communication	3 x 3	9	Close out permit and ensure all conditions have been followed and documented as completed, Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels	1 x 1	1
	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	1 x 1	1

Name: Hazard Assessment HV-15 - Load Break Elbow Installation
Description:
Last Published: Jul 07, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment HV-16 - MCC Bus Hi-Pot Testing
Description:
Last Published: Jul 07, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain safe work permit from client THA and call operator to describe work to be performed, Complete PJHA	Not Identifying all Existing & Potential Location and Work Site Hazards	5 x 5	25	Ensure tools / equipment have current calibration certificates, Ensure all appropriate /required PPE is worn - reassess per each task, Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly; review all appropriate SWP's	2 x 2	4
	Not Having Clear Understanding Of Scope of JHA Or Permit	5 x 5	25	Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope, Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Ensure clear understanding of all assigned workers and workers in vicinity of the task and/or activity plan	2 x 2	4
Discuss lockout with client Proof of zero energy, Place locks at proper lockout points	Potential Arc Flash / Arc Blast	5 x 5	25	Temporary protective grounds should be installed and left in place between the worker and any sources of energy for the duration of the work, Use a hot stick to install ground cables by attaching ground point first followed by the 3 phase points, Mandatory donning of Arc Flash suit, face shield, gloves (per required Cal rating); in good condition	3 x 2	6
	Electrical Shock	5 x 5	25	Use non-conductive voltage detector and hot stick to verify zero-energy presence while verifying proper detector operation, All workers shall place locks on isolation point; Use scissor lock if required, Isolate MCC or switchgear from source, Review SLD to plan isolation MCC or switchgear from source with client	3 x 2	6
Flag off Area	Potential for Untrained, Unauthorized Personnel to Enter Hazardous Area	4 x 4	16	Erect red flagging and attach tags with test information and contact information, Move excess material (ladders, etc.) away from test area, Ensure testing area all around MCC or switchgear is clear of personnel, Be aware of surroundings and others; ensure all unauthorized personnel are kept clear of live test equipment	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Removal of MCC Bus covers / Disconnect all Loads	Pinch Points	4 x 3	12	Collect panel covers and bolts and place them somewhere clear of MCC or bus, Use partner to ensure not to drop panel covers on foot	2 x 2	4
	Potential Electric Shock	3 x 4	12	Disconnect all loads from bus, Test before touch to ensure equipment properly de-energized, Ensure training /certification is appropriate for task	2 x 2	4
	Cuts / Scrapes /Lacerations / Abrasions	4 x 3	12	Ensure all appropriate/required PPE is worn, Focus, eyes and mind on task, be aware of your surroundings	2 x 2	4
Inspect Hi-pot High Voltage equipment for any damage and ground the chassis	Potential Electric Shock	3 x 4	12	Ensure all workers operating equipment are properly trained or certified, Ensure chassis is grounded if it has a dedicated ground, Ensure meters have proper connections into meter terminals, undamaged insulation on leads, up to date calibration, and proper finger guards on test probes	2 x 1	2
Ground phases NOT under test	Potential Electric Shock	3 x 4	12	Use HV ground cables to ground phases not under test at one end of bus bar	2 x 2	4
Perform Hi-pot test at PROPER voltage setting Discharge tested phase before moving to the next phase test	Potential Electric Shock	4 x 4	16	Focus, eyes and mind on task, be aware of your surroundings, Ensure all appropriate / required PPE is worn - reassess per each task	2 x 2	4
	High Voltages Present; Potential Arc Flash	4 x 4	16	Use Caution - FOCUS; eyes and mind on task, Apply required voltage and current, Use NETA ATS Table 100.2 for proper voltage application	2 x 2	4
	Induced Voltages in Other Conductors; Stray Voltage	4 x 4	16	Ensure all appropriate / required PPE is worn for discharge, Grounding or discharging is recommended when residual voltages maybe present	2 x 2	4
Repeat steps for next two phases	Potential Electric Shock	4 x 3	12	Discharge equipment after test, Be sure to move ground cables as needed and leave phase being tested ungrounded	2 x 2	4
Disconnect test equipment and close out work Housekeeping	Poor housekeeping; debris in/around task area	3 x 3	9	Return equipment and tools to be stored away in safe, neat, orderly fashion, Perform housekeeping; ensure floor areas are clear of debris, equipment, tools, etc.	2 x 1	2

Name: Hazard Assessment HV-16 - MCC Bus Hi-Pot Testing
Description:
Last Published: Jul 07, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Pinch Points	3 x 3	9	Focus; eyes and mind on task, Keep extremities clear of pinch points, Watch finger placement to avoid pinching/crushing	2 x 1	2
	Lock Out / Tag Out SWP Not Followed	5 x 5	25	Ensure everyone is aware that locks are being removed, Ensure LOTO removal SWP is followed to remove Lock and Tag Out, Wait for Operations personnel to authorize re-energization of equipment, Inform appropriate personnel of LOTO removal(s), Remove ground cables starting with the 3 phases followed by the ground point	2 x 2	4
	High Voltage Present	4 x 3	12	Discharge equipment (all phases) after test, Ensure all appropriate / required PPE is worn for discharge, Use a coworker to place panel covers back onto gear and tighten bolts if necessary, Go through reconnecting loads to bus with client, Take off all connections from equipment tested	2 x 2	4
Inform Operations When Task Complete Close out permit	Lack Of Complete Clear Communication	4 x 3	12	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	2 x 1	2
	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	1 x 1	1

Name: Hazard Assessment HV-16 - MCC Bus Hi-Pot Testing
Description:
Last Published: Jul 07, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment HV-17 - Primary Injection Testing
Description:
Last Published: Jul 07, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Permit from client THA and call operator to describe work to be performed. Complete PJHA	Not Having Clear Understanding Of Scope of JHA Or Permit	5 x 5	25	Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope, Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Ensure clear understanding of task / permit of all assigned workers, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task	2 x 2	4
	Not Identifying all Existing & Potential Location and Work Site Hazards	5 x 5	25	Ensure tools / equipment have current calibration certificates, Ensure all appropriate /required PPE is worn - reassess per each task, Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly; review all appropriate SWP's	2 x 2	4
Discuss lockout with client Proof of zero-energy, Place locks at proper lockout points	Potential Arc Flash / Arc Blast	5 x 5	25	Installation of Temporary protective grounds to ensure the safety of workers when required, Use a hot stick to install ground cables by attaching ground point first followed by the 3 phase points, Mandatory donning of Arc Flash suit, face shield, gloves (per required Cal rating); in good condition	3 x 2	6
	Live Parts; Potential Electrical Shock	5 x 5	25	Use non-conductive voltage detector and hot stick to verify zero-energy presence while verifying proper detector operation, All workers shall place locks on isolation point; Use scissor lock if required, Isolate MCC or switchgear from source, Review SLD to plan isolation MCC or switchgear from source with client	3 x 2	6
Flag off area	Potential for Untrained, Unauthorized Personnel to Enter Hazardous Area	4 x 4	16	Erect red flagging and attach tags with test information and contact information, Move excess material (ladders, etc.) away from test area, Ensure testing area all around MCC or switchgear is clear of personnel, Be aware of surroundings and others; ensure all unauthorized personnel are kept clear of live test equipment	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Removal of MCC Bus covers / Disconnect all loads Ensure complete isolation from system	Cuts / Scrapes /Lacerations / Abrasions	4 x 3	12	Ensure all appropriate/required PPE is worn, Inspect PPE before using, Focus, eyes and mind on task, be aware of your surroundings	2 x 2	4
	Pinch Points	4 x 3	12	Collect panel covers and bolts and place them somewhere clear of MCC or bus, Use partner to ensure not to drop panel covers on foot	2 x 2	4
	Potential Electric Shock	3 x 4	12	Disconnect all loads from bus, Test before touch to ensure equipment properly de-energized, Ensure training /certification is appropriate for task	2 x 2	4
Inspect the injection set's leads for any damage	Potential Electric Shock	3 x 4	12	Ensure all workers operating equipment are properly trained or certified, Ensure chassis is grounded if it has a dedicated ground, Ensure meters have proper connections into meter terminals, undamaged insulation on leads, up to date calibration, and proper finger guards on test probes	2 x 1	2
Perform Injection	Potential Electric Shock	4 x 4	16	Only authorized, trained personnel to perform testing, Perform test for necessary time and stop injection when it is not needed	2 x 2	4
Disconnect test equipment and close out work Housekeeping	Poor housekeeping; debris in/around task area	3 x 3	9	Ensure tools, equipment carefully checked, packed up and safely stored away, Perform housekeeping; ensure floor areas are clear of debris, equipment, tools, etc.	2 x 1	2
	Pinch Points	4 x 3	12	Use caution -FOCUS; eyes and mind on task, Keep extremities clear of pinch points, Watch finger placement to avoid pinching/crushing	2 x 1	2
	Lock Out / Tag Out SWP Not Followed	5 x 5	25	Ensure everyone is aware that locks are being removed, Ensure LOTO removal SWP is followed to remove Lock and Tag Out, Wait for Operations personnel to authorize re-energization of equipment, Inform appropriate personnel of LOTO removal(s), Remove ground cables starting with the 3 phases followed by the ground point	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	High Voltage Present	4 x 3	12	Ensure all appropriate / required PPE is worn for discharge, Use a coworker to place panel covers back onto gear and tighten bolts if necessary, Go through reconnecting loads to bus with client, Take off all connections from equipment tested, Grounding or discharging is recommended when residual voltages maybe present	2 x 2	4
Inform Operations When Task Complete Close out permit	Lack Of Complete Clear Communication	4 x 3	12	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	2 x 1	2
	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	2 x 1	2

Name: Hazard Assessment HV-17 - Primary Injection Testing
Description:
Last Published: Jul 07, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment HV-18 - Site Mobilization / Demobilization
Description:
Last Published: Jul 07, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Permit from client THA and call operator to describe work to be performed, Complete PJHA	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 3	12	Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Ensure clear understanding of all assigned workers and workers in vicinity of the task and/or activity plan	2 x 1	2
	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 3	12	Ensure tools / equipment have current calibration certificates, Ensure all appropriate /required PPE is worn - reassess per each task, Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly; review all appropriate SWP's	2 x 1	2
Mobilization Lifting of heavy equipment	Poor Communication Within Crews	3 x 3	9	Spotter communicating with other vehicles and / or equipment; use approved / understood hand signals	2 x 1	2
	Damage to Property, Facilities, Equipment	3 x 3	9	Be aware of surroundings and others, Use caution - Focus; eyes and mind on task, Use of Spotter	2 x 1	2
	Falling From Ladder	4 x 3	12	Ensure ladder is secure and tied off; do not stand on top two rungs, Follow safe ladder use practice (proper tie-offs and 3 point contact maintained at all times), Clear area of slip/trip hazard	2 x 2	4
	Falling Objects	3 x 3	9	Ensure tools, equipment are secured at heights	2 x 1	2
	Pinch Points / Crush Type Injury	4 x 3	12	Watch finger placement to avoid pinching/crushing, Focus; eyes and mind on task, Be aware of pinch points associated with use of hand tools, Wear proper PPE, Maintain proper body positioning (lineof-fire)	2 x 1	2
	Congestion (Work Areas, Access Ways)	3 x 3	9	Ensure crews and spotter keep a clear line of sight and constant communication with operators of heavy equipment	2 x 2	4
	Awkward heavy lifting, muscle strain	3 x 3	9	Take micro breaks; stretch to improve circulation, Pre-task stretching, Know your limits; obtain assistance from co-workers for heavy lifts, Use proper lifting techniques, Maintain proper body positioning (line-of-fire)	2 x 2	4

Name: Hazard Assessment HV-18 - Site Mobilization / Demobilization
Description:
Last Published: Jul 07, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Performing testing	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off, Ensure all connections and devices are ready for normal operations	1 x 1	1
	Live Parts; Potential Electrical Shock	4 x 4	16	Ensure all connections are tight and away from conductive surfaces, Ensure all appropriate/required PPE is worn, Ensure all workers operating equipment are properly trained or certified, Follow SWP to complete Lock Out / Tag Out	2 x 2	4
	Slips, Trips, Falls	4 x 3	12	Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Focus, eyes and mind on task, be aware of your surroundings, Ensure cords are tidy, untangled and trip hazard free	2 x 2	4
	Lack of Training in Specific Task	4 x 4	16	Review appropriate SWP's for tool(s) and equipment to be used, Ensure training /certification is appropriate for task	2 x 2	4
Demobilization Review item #2 Mobilization Hazards	Poor housekeeping; debris in/around task area	3 x 3	9	Review / reference Housekeeping THA G-03, Perform housekeeping; ensure floor areas are clear of debris, equipment, tools, etc.	2 x 1	2
	Congestion (Work Areas, Access Ways)	3 x 3	9	Ensure all testing equipment is disconnected, Follow SWP's for safe lifting, handling of debris, tools, equipment, material, etc., Return equipment and tools to be stored away in safe, neat, orderly fashion	2 x 1	2
Inform Operations When Task Complete Close out permit	Lack Of Complete Clear Communication	3 x 4	12	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	2 x 1	2

Name: Hazard Assessment HV-18 - Site Mobilization / Demobilization
Description:
Last Published: Jul 07, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
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4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
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2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment HV-19 - Stress Cone Installation
Description:
Last Published: Jul 07, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain permit from client THA and call operator to describe work to be performed. Complete PJHA	Not Having Clear Understanding Of Scope of JHA Or Permit	5 x 5	25	Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope, Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Ensure clear understanding of all assigned workers and workers in vicinity of the task and/or activity plan	2 x 2	4
	Not Identifying all Existing & Potential Location and Work Site Hazards	5 x 5	25	Ensure tools /equipment have current calibration certificates, Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools, ensure correct operation, Ensure all appropriate / required PPE is worn - reassess per each task	2 x 2	4
De-energize system and verify zero-energy	Potential Arc Flash / Arc Blast	5 x 5	25	Mandatory donning of Arc Flash suit, face shield, gloves (per required Cal rating); in good condition, Installation of Temporary protective grounds to ensure the safety of workers when required, Use non-conductive voltage detector and hot stick to verify zero-energy presence while verifying proper detector operation	3 x 2	6
	Lock Out / Tag Out SWP Not Followed	5 x 5	25	Ensure LOTO SWP was carefully followed with LOTO correctly in place, Place locks on proper isolation points, Go through lockout with client, Complete correct authorization documents, Check SLD for isolation points	3 x 2	6
Ensure all cable termination kit inventory is present Check MSDS	Missing / Defective Parts Cause Flashback	3 x 4	12	All parts are required to ensure a safe termination that prevents arcing and overheating of cable during operation	2 x 1	2
	Chemical Exposure	3 x 3	9	Wear appropriate PPE and utilize proper handling techniques and as identified in MSDS, If using lubricants provided by manufacturer of termination kit, ensure the MSDS is available to and understood by worker	2 x 1	2

Name: Hazard Assessment HV-19 - Stress Cone Installation
Description:
Last Published: Jul 07, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Cable Preparation Wearing proper gloves, Housekeeping, Ensure worker is trained	Damage To Cable or Connectors	3 x 4	12	Worker should be trained for specific type of termination	2 x 1	2
	Slips, Trips, Falls	3 x 3	9	Ensure work area is continuously free of debris so as to not fall or damage equipment	2 x 1	2
	Cuts / Scrapes /Lacerations / Abrasions	3 x 4	12	Wear proper cutting gloves if using knife to score jacket, semiconductor, insulation, etc., Follow Knife Use SWP	2 x 2	4
Completion of Task Dispose of excess material	Environmental Damage	3 x 3	9	Ensure to follow regional / municipal or client's material disposal criteria to avoid damage to environment	2 x 1	2
	Poor housekeeping; debris in/around task area	3 x 3	9	Perform housekeeping; ensure floor areas are clear of debris, equipment, tools, etc.	2 x 1	2
	Potential Arc Flash / Arc Blast	4 x 4	16	Ensure LOTO removal SWP is followed to remove Lock and Tag Out, Wait for Operations personnel to authorize re-energization of equipment, Inform appropriate personnel of LOTO removal(s)	2 x 2	4
	High Voltage Present	4 x 4	16	Take off all ground cables from bus, Ensure proper replacement of all covers, seals, etc., Follow proper communication / reporting channels	2 x 2	4
Inform Operations When Task Complete Close out permit	Lack Of Complete Clear Communication	3 x 3	9	Close out permit and ensure all conditions have been followed and documented as completed, Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels	1 x 1	1
	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	1 x 1	1

Name: Hazard Assessment HV-19 - Stress Cone Installation
Description:
Last Published: Jul 07, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment HV-20 - Dissipation Factor (Tan Delta) Testing
Description:
Last Published: Jul 07, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain permit from client THA and call operator to describe work to be performed. Complete PJHA	Not Having Clear Understanding Of Scope of JHA Or Permit	5 x 5	25	Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope, Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Ensure clear understanding of all assigned workers and workers in vicinity of the task and/or activity plan	2 x 2	4
	Not Identifying all Existing & Potential Location and Work Site Hazards	5 x 3	15	Ensure tools / equipment have current calibration certificates, Ensure all appropriate /required PPE is worn - reassess per each task, Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly; review all appropriate SWP's	2 x 2	4
Discuss lockout with client Proof of zero-energy, Place locks at proper lockout points	Electrical Shock	5 x 5	25	Use non-conductive voltage detector and hot stick to verify zero-energy presence while verifying proper detector operation, All workers shall place locks on isolation point; Use scissor lock if required, Isolate MCC or switchgear from source, Review SLD to plan isolation MCC or switchgear from source with client	3 x 2	6
	Potential Arc Flash / Arc Blast	5 x 5	25	Temporary protective grounds should be installed and left in place between the worker and any sources of energy for the duration of the work, Use a hot stick to install ground cables by attaching ground point first followed by the 3 phase points, Mandatory donning of Arc Flash suit, face shield, gloves (per required Cal rating); in good condition	3 x 2	6
Flag off area	Potential for Untrained, Unauthorized Personnel to Enter Hazardous Area	4 x 4	16	Ensure testing areas on both ends of cable are flagged off, Attach tags explaining test and include contact information, Move excess material (ladders, etc.) away from test area, Ensure testing area all around MCC or switchgear is clear of personnel, Be aware of surroundings and others; ensure all unauthorized personnel are kept clear of live test equipment	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Inspect Hi-Pot High Voltage equipment for any damage and ground the chassis	Potential Electric Shock	3 x 4	12	Ensure meters have proper connections into meter terminals, undamaged insulation on leads, up to date calibration, and proper finger guards on test probes, Ensure chassis is grounded if it has a dedicated ground, Ensure all workers operating equipment are properly trained or certified	2 x 2	4
Ground phases NOT under test and secure cables	Potential Electric Shock	3 x 3	9	Use HV ground cables to ground phases not under test at one end of cable, An arc (air breakdown) jumps 1cm at 30 kv., Secure ends of cables and be sure to keep them far away from any objects / conductive surface	2 x 1	2
Perform VLF Tan Delta test at PROPER voltage setting Discharge tested phase before moving to the next phase test	Induced Voltages in Other Conductors; Stray Voltage	4 x 3	12	Ensure all appropriate / required PPE is worn for discharge, Grounding or discharging is recommended when residual voltages maybe present	2 x 2	4
	Potential Electric Shock	4 x 4	16	Focus, eyes and mind on task, be aware of your surroundings, Ensure all appropriate / required PPE is worn - reassess per each task	2 x 2	4
	High Voltages Present; Potential Arc Flash	4 x 4	16	Apply required voltage and current, Use NETA ATS Table 100.19 for proper voltage application, Use Caution - FOCUS; eyes and mind on task	2 x 2	4
Repeat steps for next two phases	Potential Electric Shock	4 x 3	12	Discharge equipment after test, Be sure to move ground cables as needed and leave phase being tested ungrounded	2 x 2	4
Disconnect test equipment and close out work Housekeeping	Pinch Points	3 x 3	9	Focus; eyes and mind on task, Keep extremities clear of pinch points, Watch finger placement to avoid pinching/crushing	2 x 1	2
	Poor housekeeping; debris in/around task area	3 x 3	9	Return equipment and tools to be stored away in safe, neat, orderly fashion, Perform housekeeping; ensure floor areas are clear of debris, equipment, tools, etc.	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Lock Out / Tag Out SWP Not Followed	5 x 5	25	Ensure everyone is aware that locks are being removed, Ensure LOTO removal SWP is followed to remove Lock and Tag Out, Wait for Operations personnel to authorize re-energization of equipment, Inform appropriate personnel of LOTO removal(s), Remove ground cables starting with the 3 phases followed by the ground point	2 x 2	4
	High Voltage Present	4 x 3	12	Discharge equipment (all phases) after test, Ensure all appropriate / required PPE is worn for discharge, Use a coworker to place panel covers back onto gear and tighten bolts if necessary, Go through reconnecting loads to bus with client, Take off all connections from equipment tested	2 x 2	4
Inform Operations When Task Complete Close out permit	Lack Of Complete Clear Communication	4 x 3	12	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	1 x 1	1
	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	1 x 1	1

Name: Hazard Assessment HV-20 - Dissipation Factor (Tan Delta) Testing
Description:
Last Published: Jul 07, 2023

Control Tech Risk Legend

Calculation	Score		Score		Score		Score		Score	
L x C		1 - 5		6 - 10		11 - 15		16 - 20		21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment HV-21 - Temporary Control Power Install and Removal
Description:
Last Published: Jul 07, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain permit from client THA and call operator to describe work to be performed. Complete PJHA	Not Having Clear Understanding Of Scope of JHA Or Permit	4 x 3	12	Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope, Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Ensure clear understanding of all assigned workers of the task and/or permit, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task	2 x 1	2
	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 3	12	Ensure tools / equipment have current calibration certificates, Ensure all appropriate /required PPE is worn - reassess per each task, Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly; review all appropriate SWP's	2 x 1	2
Plan connection point	Potential Electric Shock	4 x 3	12	Ensure there is no chance of back-feeding PT's or feeding other external circuits, Thoroughly look at control schematic to identify connection point, Confirm correct Lock Out / Tag Out practice followed for removal, are met and recorded	2 x 2	4
	Equipment Damage	4 x 3	12	Go through pre-energization checks for fuse sizes, continuity, shorts to ground and shorts to other fuse terminals, Verify supply voltage prior to connecting leads	2 x 2	4
Connect power supply leads to planned connection point	Potential Electric Shock	3 x 3	9	Ensure all fuses/switches are disconnected, Attach power supply to leads to connection points and ensure they are secured, Before connecting leads, ensure supply voltage is correct		0
	Damage to Property, Facilities, Equipment	3 x 3	9	Turn power supply on and then close fuses / switches starting from upstream point and move downstream, Remove locks, Test voltage and amp draw to confirm operation	2 x 2	4
Turn power supply off when finished Housekeeping	Potential Electric Shock	4 x 3	12	Follow lockout tag out practice, Use proper meter and test before touch, Open fuses back up after power supply is turned off, Take off the dead power supply leads, Reinstall all original wiring	2 x 2	4

Name: Hazard Assessment HV-21 - Temporary Control Power Install and Removal
Description:
Last Published: Jul 07, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Poor housekeeping; debris in/around task area	3 x 3	9	Perform housekeeping; ensure floor areas are clear of debris, equipment, tools, etc., Follow SWP's for safe lifting, handling of debris, tools, equipment, material, etc.	2 x 1	2
Inform Operations When Task Complete Close out permit	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	1 x 1	1

Name: Hazard Assessment HV-21 - Temporary Control Power Install and Removal
Description:
Last Published: Jul 07, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment HV-22 - Temporary Ground Installation and Removal
Description:
Last Published: Jul 07, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain permit from client THA and call operator to describe work to be performed. Complete PJHA	Not Having Clear Understanding Of Scope of JHA Or Permit	5 x 5	25	Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope, Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Ensure clear understanding of all assigned workers of the task and/or permit, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task	2 x 2	4
	Not Identifying all Existing & Potential Location and Work Site Hazards	5 x 5	25	Ensure all appropriate /required PPE is worn - reassess per each task, Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly; review all appropriate SWP's, Ensure tools / equipment have current calibration certificates	2 x 2	4
Discuss lockout with client Place locks at proper lockout points, Prove zero energy	Potential Electrical Shock	5 x 5	25	Use non-conductive voltage detector and hot stick to verify zero-energy presence while verifying proper detector operation, All workers shall place locks on isolation point; Use scissor lock if required, Use Caution - FOCUS; eyes and mind on task, Ensure training /certification is appropriate for task, Review SLD to plan isolation MCC or switchgear from source with client	3 x 2	6
Inspect ground cables and their specifications	Potential Arc Flash / Arc Blast	3 x 4	12	Check calibration information on non-conductive voltage detector and hot stick as well as checking for any damages on them, Check for any dirt, grease, oil or rust on conductive parts	2 x 1	2
	Potential Electrical Shock	3 x 4	12	Follow proper procedures, Check for cracked or broken clamps and ferrules, exposed strands, cuts and kinks to cable, jacket condition and bolts in clamp, Verify which grounding cable class is required for application using ASTM F 855	2 x 1	2

Name: Hazard Assessment HV-22 - Temporary Ground Installation and Removal
Description:
Last Published: Jul 07, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Install Temporary Grounds Proof of Zero Energy	Potential Arc Flash / Arc Blast	4 x 4	16	Use a hot stick to install ground cables by attaching ground point first followed by the 3 phase points	3 x 2	6
	Potential Electrical Shock	4 x 4	16	Use a voltage ticker after testing on a separate live source to verify zero-energy and retest ticker, Find proper ground installation point in MCC or switchgear, Mandatory donning of Arc Flash suit, face shield, gloves (per required Cal rating); in good condition	3 x 2	6
Removal and storage of Temporary Grounds Housekeeping, LOTO removal	Potential Arc Flash / Arc Blast	3 x 3	9	Inform appropriate personnel of LOTO removal(s), Ensure LOTO removal SWP is followed to remove Lock and Tag Out, Return equipment and tools to be stored away in safe, neat, orderly fashion	2 x 2	4
	Potential Electrical Shock	3 x 3	9	Remove ground cables starting with the 3 phases followed by the ground point, Isolate, discharge and ground all test equipment	2 x 1	2
	Poor housekeeping; debris in/around task area	3 x 3	9	Follow SWP's for safe lifting, handling of debris, tools, equipment, material, etc., Perform housekeeping; ensure floor areas are clear of debris, equipment, tools, etc.	2 x 1	2
Inform Operations When Task Complete Close out permit	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	2 x 1	2

Name: Hazard Assessment HV-22 - Temporary Ground Installation and Removal
Description:
Last Published: Jul 07, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment HV-23 - Temporary Power Quality Meter Installation (On Line)
Description:
Last Published: Jul 07, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit From Client Obtain Full Job Specific Information From Manager or Operator, Complete Associated PJHA	Not Having Clear Understanding Of Scope of JHA Or Permit	5 x 5	25	Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope, Review/discuss Energized Safe Work Practices and all other SWP's associated or involved with this task, Implement plan to apply all possible means of temporary protection to guard open, energized equipment, Ensure clear understanding of all assigned workers of the task and/or permit, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task	2 x 2	4
	Not Identifying all Existing & Potential Location and Work Site Hazards	5 x 5	25	Ensure tools / equipment have current calibration certificates, Ensure all appropriate /required PPE is worn - reassess per each task, Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly; review all appropriate SWP's	2 x 2	4
Identify Equipment To Be Tested Locate correct cell to monitor	Pinch Points	3 x 3	9	Be aware of pinch points associated with use of hand tools	2 x 1	2
	Potential Arc Flash / Arc Blast	5 x 5	25	Be aware of surroundings and others; ensure all unauthorized personnel are kept clear of live test equipment	3 x 2	6
	High Voltage Present	5 x 5	25	Review SLD to identify correct cell, Mandatory donning of Arc Flash suit, face shield, gloves (per required Cal rating); in good condition, Review current drawings and associated schematics for all power sources, Ensure training /certification is appropriate for task	2 x 2	4
	Awkward Stance/Position/Posture	3 x 3	9	Ensure proper body and body parts positioning (line-of-fire) and solid footing	2 x 1	2
	Slips, Trips, Falls	3 x 3	9	Clean up slip/trip hazards, Focus, eyes and mind on task, be aware of your surroundings	2 x 1	2
	Working at Heights	3 x 4	12	Follow SWP for working at heights	2 x 2	4
Erect Physical / Visual Barricades	Unauthorized Personnel Entering Work Area	4 x 4	16	Ensure proper communication with all personnel in area, Post signage; use danger or caution carrier tape, Erect barricades	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Unauthorized Personnel Contacting Energized Equipment	4 x 5	20	Be aware of surroundings and others; ensure all unauthorized personnel are kept clear of live test equipment, Use Caution - FOCUS; eyes and mind on task	2 x 2	4
	Communicate Hazards to Workers and Those in the Area	4 x 4	16	Ensure clear understanding of all assigned workers and workers in vicinity of the task and/or activity plan	2 x 2	4
Connect PQM Equipment to LIVE Panel Perform Power Quality Testing	Testing Equipment Failure	3 x 4	12	Verbally communicate when area is clear for testing to commence, Ensure all workers operating equipment are properly trained or certified, Ensure meter specifications are suitable for application, Ensure meters have proper connections into meter terminals, undamaged insulation on leads, up to date calibration, and proper finger guards on test probes	2 x 1	2
	High Voltage Present	5 x 5	25	Only competent worker should be assigned for this task, Before connecting leads, ensure supply voltage is correct, Verify proper grounding of all test equipment	3 x 2	6
	Potential Electric Shock	5 x 5	25	Verify terminations, Verify supply voltage prior to connecting leads, Connect current and voltage lead - use gloves, DO NOT TOUCH LIVE PART, Ensure all appropriate/required PPE is worn	3 x 2	6
	Awkward Stance/Position/Posture	3 x 3	9	Ensure proper body positioning (line-of-fire), solid footing and safe distance from live part	2 x 1	2
Disconnect PQM Testing Equipment Housekeeping	Poor housekeeping; debris in/around task area	3 x 3	9	Follow SWP's for safe lifting, handling of debris, tools, equipment, material, etc., Perform housekeeping; ensure floor areas are clear of debris, equipment, tools, etc.	2 x 2	4
	Awkward Stance/Position/Posture	3 x 3	9	Stretching and proper body positioning	2 x 1	2
	Pinch Points	3 x 3	9	Keep extremities clear of pinch points	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Potential Electric Shock	5 x 5	25	Ensure proper body positioning (line-of-fire), solid footing and safe distance from live part, Prior to lead removal, ensure test equipment in OFF position, Ensure testing area all around MCC or switchgear is clear of personnel	3 x 2	6
	High Voltage Present	5 x 5	25	Isolate, discharge and ground all test equipment, Ensure all appropriate / required PPE is worn for discharge	3 x 2	6
Inform Operations When Task Complete Close out permit	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	1 x 1	1
	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	1 x 1	1

Name: Hazard Assessment HV-23 - Temporary Power Quality Meter Installation (On Line)
Description:
Last Published: Jul 07, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment HV-24 - Vacuum Bottle Integrity
Description:
Last Published: Jul 07, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Permit from client THA and call operator to describe work to be performed. Complete PJHA	Not Having Clear Understanding Of Scope of JHA Or Permit	5 x 5	25	Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope, Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Ensure clear understanding of all assigned workers and workers in vicinity of the task and/or activity plan	2 x 2	4
	Not Identifying all Existing & Potential Location and Work Site Hazards	5 x 5	25	Ensure tools / equipment have current calibration certificates, Ensure all appropriate /required PPE is worn - reassess per each task, Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly; review all appropriate SWP's	2 x 2	4
Discuss lockout with client / Identify Equipment to be Tested Proof of zero-energy, Place locks at proper lockout points	Potential Arc Flash / Arc Blast	5 x 5	25	Mandatory donning of Arc Flash suit, face shield, gloves (per required Cal rating); in good condition, Use non-conductive voltage detector and hot stick to verify zero-energy presence while verifying proper detector operation	3 x 2	6
	High Voltage Present	5 x 5	25	Review SLD to identify correct cell, All workers shall place locks on isolation point; Use scissor lock if required, Ensure LOTO SWP was carefully followed with LOTO correctly in place, Ensure training /certification is appropriate for task, Review SLD to plan isolation MCC or switchgear from source with client	3 x 2	6
Flag off area Erect Physical / Visual Barricades	Unauthorized Personnel Contacting Energized Equipment	4 x 4	16	Be aware of surroundings and others; ensure all unauthorized personnel are kept clear of live test equipment, Use Caution - FOCUS; eyes and mind on task	2 x 1	2
	Unauthorized Personnel Entering Work Area	4 x 4	16	Erect red flagging and attach tags with test information and contact information, Ensure proper communication with all personnel in area	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Communicate Hazards to Workers and Those in the Area	4 x 4	16	Move excess material (ladders, etc.) away from test area, Ensure clear understanding of all assigned workers and workers in vicinity of the task and/or activity plan	2 x 1	2
Rack-out / Withdrawal of Circuit Breaker Null	Cuts / Scrapes /Lacerations / Abrasions	4 x 3	12	Ensure all proper PPE is worn/utilized for task, must be in good condition, Ensure proper body positioning (line-of-fire) and solid footing; ensure caution with clearance of extremities	2 x 2	4
	Pinch Points	4 x 3	12	Watch finger placement to avoid pinching/crushing, Use partner to ensure CB lines up with rails upon rack-out / withdrawal, Use remote un-racking tool if possible; otherwise, bomb suit needs to be worn, Ensure all workers operating equipment are properly trained or certified	2 x 2	4
Inspect hi-pot High Voltage lead for any damage due to Corona and ground the chassis	Potential Electric Shock	3 x 4	12	Ensure chassis is grounded in case it gets energized, Ensure meters have proper connections into meter terminals, undamaged insulation on leads, up to date calibration, and proper finger guards on test probes	2 x 1	2
Perform VLF Hi-pot test for one minute at PROPER voltage setting applied to line side of opened CB	Arc Flash /Electrocution	3 x 4	12	Ground load side of phase under test as well as line and load side of other 2 phases	2 x 2	4
	Potential Electric Shock	3 x 4	12	Use Caution - FOCUS; eyes and mind on task, Use NETA ATS Table 100.19 for proper voltage application	2 x 2	4
Ground phase that was tested for an adequate time to drain any excess charges on bus phase	Potential Electric Shock	4 x 3	12	Isolate, discharge and ground all test equipment, Ensure all appropriate / required PPE is worn for discharge, Use ground chain from other 2 phases to discharge excess charges for a few seconds	2 x 1	2
Repeat steps for next two phases	Potential Electric Shock	4 x 3	12	Be sure to move ground cables as needed and leave phase being tested ungrounded	2 x 2	4
Disconnect test equipment, rack CB in and close out work Housekeeping, LOTO removal	Lockout not Removed when Complete	3 x 4	12	Ensure everyone is aware that locks are being removed, Ensure all connections and devices are ready for normal operations, Ensure LOTO removal SWP is followed to remove Lock and Tag Out, Where necessary, wait for Operations personnel to authorize re-energization of equipment, Take off all ground cables from bus	2 x 1	2

Name: Hazard Assessment HV-24 - Vacuum Bottle Integrity
Description:
Last Published: Jul 07, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Poor housekeeping; debris in/around task area	3 x 3	9	Perform housekeeping; ensure floor areas are clear of debris, equipment, tools, etc.	2 x 1	2
	Potential Electric Shock	4 x 3	12	Discharge equipment (all phases) after test	2 x 2	4
	Cuts / Scrapes /Lacerations / Abrasions	3 x 3	9	Be aware of position of hands (line-of-fire), Ensure all tools or material are removed from gear panels	2 x 2	4
	Pinch Points	3 x 3	9	Keep extremities clear of pinch points, Use a coworker to push CB back into place, Use remote racking tool to rack CB in. Otherwise, bomb suit needs to be worn	2 x 2	4
Inform Operations When Task Complete Close out permit	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	2 x 1	2
	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	2 x 1	2

Name: Hazard Assessment HV-24 - Vacuum Bottle Integrity
Description:
Last Published: Jul 07, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment HV-25 - Vacuum Starter Testing
Description:
Last Published: Jul 07, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain permit from client THA and call operator to describe work to be performed, Complete PJHA	Not Having Clear Understanding Of Scope of JHA Or Permit	5 x 5	25	Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope, Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Ensure clear understanding of all assigned workers and workers in vicinity of the task and/or activity plan, Review all related / relevant Safe Work Practices (SWP's) associated or involved with this task	2 x 2	4
	Not Identifying all Existing & Potential Location and Work Site Hazards	5 x 5	25	Ensure tools / equipment have current calibration certificates, Ensure all appropriate /required PPE is worn - reassess per each task, Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly; review all appropriate SWP's	2 x 2	4
Discuss lockout with client Proof of zero-energy, Place locks at proper lockout points	Potential Arc Flash / Arc Blast	5 x 5	25	Mandatory donning of Arc Flash suit, face shield, gloves (per required Cal rating); in good condition, Use non-conductive voltage detector and hot stick to verify zero-energy presence while verifying proper detector operation	3 x 2	6
	High Voltage Present	5 x 5	25	Review SLD to identify correct cell, All workers shall place locks on isolation point; Use scissor lock if required, Ensure LOTO SWP was carefully followed with LOTO correctly in place, Ensure training /certification is appropriate for task, Review SLD to plan isolation MCC or switchgear from source with client	3 x 2	6
Flag off area Erect Physical / Visual Barricades	Unauthorized Personnel Entering Work Area	4 x 4	16	Erect red flagging and attach tags with test information and contact information, Ensure proper communication with all personnel in area	2 x 1	2
	Communicate Hazards to Workers and Those in the Area	4 x 4	16	Move excess material (ladders, etc.) away from test area, Ensure clear understanding of all assigned workers and workers in vicinity of the task and/or activity plan	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Unauthorized Personnel Contacting Energized Equipment	4 x 4	16	Be aware of surroundings and others; ensure all unauthorized personnel are kept clear of live test equipment, Use Caution - FOCUS; eyes and mind on task	2 x 1	2
Inspect Mechanical Switch	Release of stored energy	5 x 4	20	Be mindful of finger placement while inspecting interlocks, screen window, insulator and barriers, blade and jaw, cleanliness, and overall mechanical operation of switch, Before spring charge or open/close, advise all personnel in area of actions, Only authorized, trained personnel to perform testing, Be aware of spring action	3 x 2	6
	Cuts / Scrapes /Lacerations / Abrasions	4 x 3	12	Ensure proper body positioning (line-of-fire) and solid footing; ensure caution with clearance of extremities	2 x 2	4
	Pinch Points	4 x 3	12	Focus, eyes and mind on task, be aware of your surroundings, Keep extremities clear of pinch points	2 x 2	4
Perform contact resistance and insulation resistance tests	Electrical Shock	3 x 4	12	Ensure test area is isolated from upstream and downstream systems, Ensure connections are on tightly, Maintain a tidy test area	2 x 2	4
	Burns	3 x 3	9	Focus, eyes and mind on task, be aware of your surroundings, Allow Enough Time for Proper Cool Down, Ensure all appropriate/required PPE is worn	2 x 2	4
Perform VLF Hi-Pot test for one minute at PROPER voltage setting	Arc Flash /Electrocution	3 x 4	12	Ensure all appropriate / required PPE is worn for discharge, Be sure to move ground cables as needed and leave phase being tested ungrounded, Use ground chain from other 2 phases to discharge excess charges for a few seconds	2 x 2	4
	Potential Electric Shock	3 x 4	12	Use Caution - FOCUS; eyes and mind on task, Ensure all workers operating equipment are properly trained or certified, Use NETA ATS Table 100.19 for proper voltage application	2 x 2	4
	Faulty Equipment	3 x 4	12	Ensure chassis is grounded in case it gets energized, Ensure meters have proper connections into meter terminals, undamaged insulation on leads, up to date calibration, and proper finger guards on test probes	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Disconnect test equipment and close out work Housekeeping	Lockout not Removed when Complete	3 x 4	12	Ensure everyone is aware that locks are being removed, Ensure all connections and devices are ready for normal operations, Ensure LOTO removal SWP is followed to remove Lock and Tag Out, Where necessary, wait for Operations personnel to authorize re-energization of equipment	2 x 1	2
	Poor housekeeping; debris in/around task area	3 x 3	9	Perform housekeeping; ensure floor areas are clear of debris, equipment, tools, etc.	2 x 1	2
	Potential Electric Shock	4 x 3	12	Discharge equipment (all phases) after test	2 x 2	4
	Cuts / Scrapes /Lacerations / Abrasions	3 x 3	9	Be aware of position of hands (line-of-fire), Ensure all tools or material are removed from gear panels	2 x 2	4
	Pinch Points	3 x 3	9	Focus; eyes and mind on task, Use a coworker to place panel covers back onto gear and tighten bolts if necessary	2 x 2	4
Inform Operations When Task Complete Close out permit	Lack Of Complete Clear Communication	3 x 3	9	Close out permit and ensure all conditions have been followed and documented as completed, Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels	2 x 1	2
	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	2 x 1	2

Name: Hazard Assessment HV-25 - Vacuum Starter Testing
Description:
Last Published: Jul 07, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment HV-26 - Voltage Testing
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain permit from client THA and call operator to describe work to be performed. Complete PJHA	Not Having Clear Understanding Of Scope of JHA Or Permit		0	Ensure clear understanding of all assigned workers of the task and/or permit, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Review / discuss Lock Out/ Tag Out and Energized Safe Work Practices and all other SWP's associated or involved with this task, Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope		0
	Not Identifying all Existing & Potential Location and Work Site Hazards	4 x 5	20	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools and testing equipment correctly; review all appropriate SWP's, Ensure all appropriate /required PPE is worn - reassess per each task, Ensure tools / equipment have current calibration certificates	2 x 2	4
Inspect Testing Equipment	Potential Electric Shock	4 x 5	20	Only authorized, trained personnel to perform testing, Ensure meters have proper connections into meter terminals, undamaged insulation on leads, up to date calibration, and proper finger guards on test probes, Ensure leads are connected to proper voltmeter terminals and not ammeter terminals of multimeter and unsure multimeter dial is turned to Vdc or Vac, Check calibration information on non-conductive voltage detector and hot stick as well as checking for any damages on them, Check meter or ticker in use on a known source	1 x 1	1
	Potential Arc Flash / Arc Blast	4 x 5	20	Check certification date; DO NOT USE any meter that fails any of the prescribed tests, Use properly rated meter to check voltage, Use CAT III meter, Ensure proper setting on meter is used, Ensure meter specifications are suitable for application	1 x 1	1
Determine voltage level as well as meter and PPE requirements	Potential Electric Shock	4 x 5	20	Read arc flash warning and don appropriate PPE for incident energy at play, Inspect PPE for any damage, leaks in gloves, etc., If using a multimeter, see if insulation categories apply to where voltage is to be measured	2 x 2	4

Name: Hazard Assessment HV-26 - Voltage Testing
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Potential Arc Flash	4 x 5	20	Ensure all appropriate / required PPE is worn - reassess per each task, For applications >750V or more, use non-conductive voltage detector and hot stick to verify zero-energy presence while verifying proper detector operation	2 x 2	4
Check environment /surroundings	Fumes	4 x 4	16	Personal monitors worn – calibrated, bumptested, recorded, with fully charged batteries	2 x 2	4
	Slips, Trips, Falls	4 x 3	12	Survey to ensure all debris that could cause a slip, trip or fall has been removed, Check to see if there are any obstacles that might cause a trip or fall around work area, Use of Spotter	2 x 1	2
De-energize circuit if possible Operations to be involve with any shutdowns	Potential Electric Shock	4 x 4	16	Review Zero Energy Isolation Code of Practice with Operations, Wherever possible de-energize equipment, Ensure proper body positioning (line-of-fire), and solid, dry footing and safe distance from live part, De-energize circuit unless only checking voltage of control power	2 x 1	2
	Equipment Shut Down Causes Other Equipment to Also Change Operation	4 x 4	16	Assess any consequences of bypassing alarms, Wait for Operations personnel to authorize de-energization of equipment	2 x 1	2
	Potential Arc Flash	4 x 4	16	Test before you touch, use multimeter, check wiring diagrams, Use Caution - FOCUS; eyes and mind on task, Review/discuss Energized Safe Work Practices and all other SWP's associated or involved with this task	2 x 1	2
Inform Operations When Task Complete Close out permit, Housekeeping	Poor housekeeping; debris in/around task area	3 x 2	6	Perform housekeeping; ensure floor areas are clear of debris, equipment, tools, etc.	1 x 1	1
	Lack Of Complete Clear Communication	3 x 3	9	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels, Close out permit and ensure all conditions have been followed and documented as completed	1 x 1	1
	No Inspection Forms (Documentation)	3 x 3	9	Documentation completed fully / carefully, Ensure applicable QA/QC is completed and signed-off	1 x 1	1

Name: Hazard Assessment HV-26 - Voltage Testing
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment I-01 - Work on Combustion Engine
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain all Associated JHA's & THA's	Not Understanding Permit Requirements	3 x 2	6	Ensure clear understanding of task / permit of all assigned workers	2 x 1	2
	Not Identifying all Existing & Potential Location and Work Site Hazards	3 x 2	6	Review JHA with operations prior to signing, Review JHA's and THA's with workers	2 x 1	2
	Not Obtaining Permit	1 x 3	3	Obtain appropriate permit	1 x 1	1
Lockout/tagout fuel gas supply	Inhalation / exposure (H2S, LEL)	3 x 3	9	Wear appropriate PPE (in good condition), If required wear SCBA or SABA, Wear gas monitor, calibrate, bump test and record	2 x 1	2
	Leaking Isolation Valve	3 x 2	6	Wear proper monitor	2 x 1	2
Depressure fuel system	Leaking Isolation Valve	3 x 2	6	Continuous gas monitoring	2 x 1	2
	Inhalation / exposure (H2S, LEL)	3 x 2	6	Wear appropriate PPE (in good condition), If required wear SCBA or SABA, Wear gas monitor, calibrate, bump test and record	2 x 1	2
Remove Flame Arrestor	Back & muscle strain	3 x 2	6	Stretching and proper body positioning	2 x 1	2
	Falls from Heights	3 x 2	6	Follow safe ladder use practice (proper tie-offs and 3 point contact maintained at all times)	2 x 1	2
	Thermal Burns	3 x 2	6	Consult user manual for proper removal of flame arrestor, Wear appropriate PPE (in good condition)	2 x 1	2
	Pinch Points	3 x 2	6	Wear appropriate PPE (in good condition), Keep extremities clear of pinch points	2 x 1	2
Remove Burner Assembly	Falls from Heights	3 x 2	6	Follow safe ladder use practice (proper tie-offs and 3 point contact maintained at all times)	2 x 1	2
	Thermal Burns	3 x 2	6	Consult user manual for proper repair of burner, Wear appropriate PPE (in good condition)	2 x 1	2
	Pinch Points	3 x 2	6	Wear appropriate PPE (in good condition), Keep extremities clear of pinch points	2 x 1	2
Repair Burner	Thermal Burns	3 x 2	6	Wear appropriate PPE (in good condition), Ensure proper body / extremities positioning (line-of-fire; caution with ground condition and solid footing)	2 x 1	2

Name: Hazard Assessment I-01 - Work on Combustion Engine
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Pinch Points	3 x 2	6	Consult user manual for proper repair of burner, Wear appropriate PPE (in good condition), Identify pinch points, Be aware of position of hands (line-of-fire)	2 x 1	2
Install Burner Assembly	Back & muscle strain	3 x 2	6	Stretching and proper body positioning	2 x 1	2
	Falls from Heights	3 x 2	6	Follow safe ladder use practice (proper tie-offs and 3 point contact maintained at all times)	2 x 1	2
	Thermal Burns	3 x 2	6	Consult user manual for proper repair of burner, Wear appropriate PPE (in good condition)	2 x 1	2
	Pinch Points	3 x 2	6	Ensure proper body / extremities positioning (line-of-fire; caution with ground condition and solid footing), Wear appropriate PPE (in good condition)	2 x 1	2
Install Flame Arrestor	Back & muscle strain	2 x 2	4	Take micro-breaks, stretch out muscles and improve circulation and focus	2 x 1	2
	Falls from Heights	2 x 2	4	Follow safe ladder use practice (proper tie-offs and 3 point contact maintained at all times)	2 x 1	2
	Thermal Burns	2 x 2	4	Wear appropriate PPE (in good condition)	2 x 1	2
	Pinch Points	2 x 2	4	Consult user manual for proper removal of flame arrestor, Wear appropriate PPE (in good condition)	2 x 1	2
Remove lock/tag	Inhalation / exposure (H2S, LEL)	2 x 2	4	Wear personal monitor - calibrate, bump test, record, battery level checked	1 x 1	1
Notify Operations that Task is Complete	Lack Of Complete Clear Communication	2 x 2	4	Clear communication with operations	2 x 1	2

Name: Hazard Assessment I-01 - Work on Combustion Engine
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment I-02 - Start Up & Commission Equipment
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain all Associated JHA's and Permits	Not Having Clear Understanding Of Scope of JHA Or Permit	3 x 3	9	Clear communication with permit issuer, Review the THA with workers and other relevant JHA's	2 x 1	2
Check Tubing and Pipe Connections	Loose connections	3 x 2	6	Check drawings for pressure source and isolate pressure source	2 x 1	2
Check Valves for Proper Positioning	Spring tension on actuators, gas or air pressure	3 x 2	6	Ensure that you are familiar with equipment being tested, Isloate energy sources to valves before testing, Communicate with others in the area, monitor for H2S & LEL	2 x 1	2
Loop checks From PLC to End Devices	Electricity, Electrical Shock	3 x 2	6	Test before you touch, use multimeter, check wiring diagrams	2 x 1	2
Set regulators to proper pressures Valves opening/closing, gas or air pressure	Valves opining/closing, gas or air pressure	3 x 2	6	Ensure that equipment is isolated that is being adjusted, Communicate with others in the area, monitor for H2S & LEL	2 x 1	2
Check For Equipment That is Bypassed	Electrical shock, gas or air pressure	3 x 2	6	Check drawings for pressure and electrical sources, Communicate with others in the area, monitor for H2S & LEL	2 x 1	2
Remove lockout from equipment	Equipment starting automatically	3 x 3	9	Ensure everyone is aware that locks are being removed	2 x 1	2
Start equipment	Rotating equipment, noise, leaks in the process	3 x 3	9	Ensure guards and shields are in place, hearing protection, monitor for gas	2 x 1	2
Tagging and devices	Heights, positioning		0	Follow SWP for ladder use (maintain 3 pt. contact)		0
Communicate with operations that the job is done and ready for startup	Lack Of Complete Clear Communication	3 x 2	6	Clear communication with operations	2 x 1	2

Name: Hazard Assessment I-02 - Start Up & Commission Equipment
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment I-03 - Installation of Instruments
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain all Associated JHA's and Permits	Not Having Clear Understanding Of Scope of JHA Or Permit	2 x 2	4	Clear communication with permit issuer	1 x 1	1
Isolate Process	Gas Release	4 x 2	8	Continuous Monitoring, Block and Bleed Process, Wear all appropriate PPE in good condition	2 x 1	2
	High Pressure	3 x 2	6	Block and Bleed Process	2 x 1	2
	H2S	3 x 3	9	Wear all appropriate PPE in good condition, Wear gas monitor, calibrate, bump test and record	2 x 1	2
Follow Recommended Installation Procedure	Pinch Points	3 x 2	6	Wear all appropriate PPE in good condition, Inspect tools prior to use, Identify pinch points	2 x 1	2
	Sharp Edges – Cuts/Lacerations	3 x 2	6	Wear approved ANSI cut level 5 resistant gloves	2 x 1	2
	Eye Injury	3 x 3	9	Wear proper PPE (gloves, safety glasses	2 x 1	2
Commission Instrument	Spark Potential	3 x 3	9	Wear proper PPE (gloves, safety glasses	2 x 1	2
	Potential Pressure Release	3 x 2	6	Wear gloves if required, Inspect Tools and Equipment	2 x 1	2
Repressurize System	Pressurized Leaks	3 x 2	6	Pressurize slowly, Tighten all connections	2 x 1	2
Housekeeping	Falls/Slip/Trips	3 x 2	6	Perform housekeeping; ensure work area is clear of debris, equipment, tools, etc.	2 x 1	2
	Heavy lifting	3 x 2	6	Utilize proper lifting and transport techniques and ask for assistance, where and if required	2 x 1	2
Communicate with Operations that the Job is Done and Ready for Startup	Lack Of Complete Clear Communication	3 x 2	6	Clear communication with operations	2 x 1	2

Name: Hazard Assessment I-03 - Installation of Instruments
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment I-04 - Remove & Repair Switches
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain all associated JHA's and permits	Not Having Clear Understanding Of Scope of JHA Or Permit	3 x 3	9	Clear communication with permit issuer	2 x 1	2
	Not Identifying all Existing & Potential Location and Work Site Hazards	3 x 3	9	Review THA with workers and any procedures associated with this job or facility	2 x 1	2
Determine cause of failure	Produced water and oil	3 x 2	6	Gloves - Latex	2 x 1	2
	Inhalation / exposure (H2S, LEL)	3 x 2	6	Personal monitors worn – calibrated, bumptested, recorded, with fully charged batteries	2 x 1	2
	Sharp Edges – Cuts/Lacerations	3 x 2	6	Be aware of surroundings and others, Use caution - Focus; eyes and mind on task	2 x 1	2
Remove switch or repair in place	Electricity, Electrical Shock	3 x 2	6	Put bypass on	2 x 1	2
	Sharp Edges – Cuts/Lacerations	3 x 2	6	Use caution, reuse existing tubing, Gloves - Leather	2 x 1	2
	Produced water and oil	3 x 2	6	Use proper tools and meters	2 x 1	2
	Inhalation / exposure (H2S, LEL)	3 x 2	6	Personal monitors worn – calibrated, bumptested, recorded, with fully charged batteries	2 x 1	2
Repair switch	Improper operation	3 x 2	6	Only competent worker should be assigned for this task, Be prepared to shut down	2 x 1	2
	Electricity, Electrical Shock	3 x 2	6	Use Caution - FOCUS; eyes and mind on task	2 x 1	2
	Sharp Edges – Cuts/Lacerations	3 x 2	6	Use proper tools and meters, Gloves - Leather	2 x 1	2
	Produced water and oil	3 x 2	6	Gloves - Rubber	2 x 1	2
	Inhalation / exposure (H2S, LEL)	3 x 2	6	Personal monitors worn – calibrated, bumptested, recorded, with fully charged batteries	2 x 1	2
Install switch and check setpoints	Electricity, Electrical Shock	3 x 2	6	Ensure all appropriate/required PPE is worn	2 x 1	2
	Sharp Edges – Cuts/Lacerations	3 x 2	6	Gloves - Leather	2 x 1	2

Name: Hazard Assessment I-04 - Remove & Repair Switches
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Produced water and oil	3 x 2	6	Gloves - Latex	2 x 1	2
	Inhalation / exposure (H2S, LEL)	3 x 2	6	Personal monitors worn – calibrated, bumptested, recorded, with fully charged batteries	2 x 1	2
	Improper operation	3 x 2	6	Only competent worker should be assigned for this task, Keep bypass on while testing switches	2 x 1	2
Remove bypass	Electricity, Electrical Shock	3 x 2	6	Use Caution - FOCUS; eyes and mind on task, Make sure all shutdowns are clear	2 x 1	2
Communicate with operations that job is complete	Lack Of Complete Clear Communication	3 x 2	6	Maintain communication with operations	2 x 1	2

Name: Hazard Assessment I-04 - Remove & Repair Switches
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment I-05 - Supplied Instrument Air, Process, Tubing Additions or Changes
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain all Associated JHA's	Identify all hazards & potential hazards	3 x 3	9	Review / discuss relevant JHA's with crew(s)	2 x 1	2
	Not Having Clear Understanding Of Scope of JHA Or Permit	3 x 3	9	Clear communication with permit issuer, Review of THA with workers and any procedures associated with this job / facility	2 x 1	2
LOTO Required Verify Zero Energy; Follow L.O.T.O procedure, utilizing double isolation if applicable; Blow down tubing line to safe area, ensuring worker isn't in the line of fire	Not following LOTO Procedure to Ensure Zero energy is Maintained during task	3 x 3	9	Visually check that gauges /transmiters, high and low point drains are at zero and are clear, Ensure LOTO SWP was carefully followed with LOTO correctly in place, Clear understanding of LOTO process	2 x 1	2
	Incomplete Operational Walk down	3 x 3	9	Walk down with operator	2 x 1	2
Remove Existing Tubing Slowly untighten tube fitting half way, then lightly pull and shake tubing until you feel the Ferrule separate from the body. If the tubing will not move by hand use a wrench and gently tap the inside of a bend in the tubing to assist.	Potential Environmental Spills	3 x 2	6	Use containment to catch or absorb any trapped fluids	2 x 1	2
	Trapped pressure / fluids	3 x 3	9	Ensure proper body and body parts positioning (line-of-fire) and solid footing, Block and Bleed Process, Ensure supply and return lines are isolated	2 x 1	2
	Cuts / Scrapes /Lacerations / Abrasions	3 x 2	6	Ensure proper body and body parts positioning (line-of-fire) and solid footing, Gloves - Leather	2 x 1	2
	Pinch Points	3 x 2	6	Ensure proper body / extremities positioning (line-of-fire; caution with ground condition and solid footing), Gloves - Leather , Identify pinch points		0
	Inhalation / exposure (H2S, LEL)	4 x 5	20	Clear communication with permit issuer, If required wear SCBA or SABA, Ensure to follow guidelines for SCBA or SABA as per H2S training	2 x 1	2
Install New Tubing	Cuts / Scrapes /Lacerations / Abrasions	3 x 2	6	Wear proper required PPE (gloves, glasses)	2 x 1	2
	Pinch Points	3 x 2	6	Ensure proper body / extremities positioning (line-of-fire; caution with ground condition and solid footing), Wear proper required PPE (gloves, glasses)	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Pressure Test if Required	Lack of Training in Specific Task	3 x 3	9	Ensure training /certification is appropriate for task, Refer to Hydro Checklist for confirmation of Quality	2 x 1	2
	Pressurized lines	3 x 2	6	Visualizing gauges, Refer to Hydro Checklist for confirmation of Quality	2 x 1	2
	Improper/ No Bleed off point	3 x 2	6	Install bleed off valve at high/low points	2 x 1	2
	Congested Work Area	3 x 2	6	Install barricades and flag off work area, if required, Ensure good communication between workers	2 x 1	2
	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	3 x 3	9	Continuous gas monitoring, Drain pressure SLOWLY into a containment device (grounded metal pail - NO PLASTIC)	2 x 1	2
	Leaking fittings	3 x 3	9	Continuous Monitoring, Gap Check, Depressurize lines to tighten fittings	2 x 1	2
Communicate with Operations job completed	Lack Of Complete Clear Communication	3 x 2	6	Clear communication with operations	2 x 1	2

Name: Hazard Assessment I-05 - Supplied Instrument Air, Process, Tubing Additions or Changes
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment I-06 - Calibrating Rental Pressure Recorders
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain All Associated JHA's and Permits	Identify all hazards & potential hazards	3 x 2	6	Review THA with workers and any procedures associated with this job or facility	2 x 1	2
	Not Having Clear Understanding Of Scope of JHA Or Permit	3 x 2	6	Clear communication with permit issuer	2 x 1	2
Place Recorder on Bench	Heavy lifting	3 x 2	6	Follow proper lifting procedures	2 x 1	2
Replace Static Element	Pinch Points		0	Focus; eyes and mind on task, Be aware of hand placement (line-of-fire), Gloves - Leather		0
Calibrate Static Element	Pressure	3 x 2	6	Ensure Correct Pressure Ratings on Fittings, Test pressure setting	2 x 1	2
Calibrate Temperature Element	Temperature	3 x 2	6	Wear gloves if temperature ranges are hazardous	2 x 1	2
Place Recorder on Floor and Prepare for the Customer	Heavy lifting	3 x 2	6	Utilize proper lifting and transport techniques and ask for assistance, where and if required	2 x 1	2
	Sharp/Pointed Objects/Cuts & Punctures	3 x 2	6	Gloves - Leather	2 x 1	2

Name: Hazard Assessment I-06 - Calibrating Rental Pressure Recorders
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment I-07 - Calibrate Dri Flow Meters
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain All Associated JHA's and Permits	Identify all hazards & potential hazards	3 x 2	6	Review THA with workers and any procedures associated with this job or facility	2 x 1	2
	Not Having Clear Understanding Of Scope of JHA Or Permit	3 x 2	6	Clear communication with permit issuer	2 x 1	2
Equalize High and Low Side Pressures, Isolate Meter	Inhalation / exposure (H2S, LEL)	3 x 5	15	Wear personal monitor - calibrate, bump test, record, battery level checked, If required wear SCBA or SABA	2 x 1	2
	Loose Fittings	3 x 2	6	Tighten and seal all loose and leaking fittings	2 x 1	2
Hook Up Calibration	LEL Exposure	3 x 4	12	Monitor for LEL gas, be aware if equipment is non intrinsic	2 x 1	2
Calibrate Meter	High Pressure	3 x 3	9	Ensure equipment, hoses and pressure fittings are in proper working condition	2 x 1	2
Check Orifice Plate	High Pressure	3 x 3	9	Isolate upstream valve; isolate downstream valve, Blow down meter tube, LOTO, Stand to the side (line of fire)	2 x 2	4
	Inhalation / exposure (H2S, LEL)	3 x 4	12	Wear personal monitor - calibrate, bump test, record, battery level checked, Monitor for LEL gas, be aware if equipment is non intrinsic	2 x 2	4
Disconnect CAL Equipment and Reconnect Meter	High Pressure	2 x 3	6	Ensure pressure has been released	2 x 1	2
Bring Meter Back Online	Inhalation / exposure (H2S, LEL)	2 x 5	10	Wear personal monitor - calibrate, bump test, record, battery level checked, Wear appropriate PPE (in good condition), Continuously monitor atmosphere	2 x 1	2
	Loose Fittings	2 x 4	8	Tighten and seal all loose and leaking fittings	2 x 1	2
Report Back to Operations that Job is Complete	Poor Communication	2 x 2	4	Maintain communication with operations	2 x 1	2

Name: Hazard Assessment I-07 - Calibrate Dri Flow Meters
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment I-08 - Plant Switch Maintenance
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain All Associated JHA's and Permits	Incomplete Hazard Identification	3 x 3	9	Review / discuss relevant THA's with crew(s)	2 x 1	2
	Not Having Clear Understanding Of Scope of JHA Or Permit	3 x 3	9	Clear communication with permit issuer	2 x 1	2
Jumper or Bypass Switch to be Tested	Electricity, Electrical Shock	3 x 2	6	Use proper meter to verify right switch, Use Caution - FOCUS; eyes and mind on task	2 x 1	2
	Emergency Shutdown	3 x 2	6		2 x 1	2
Test Switch	Electricity, Electrical Shock	3 x 2	6	Use proper meter and tools, Wear appropriate PPE (in good condition)	2 x 1	2
	Emergency Shutdown	3 x 2	6	Use intrinsically safe 2 way radio for communication, Wear personal monitor - calibrate, bump test, record, battery level checked	2 x 1	2
	Falls/Slip/Trips	3 x 2	6	Follow safe ladder use practice, Perform housekeeping; ensure floor areas are clear of debris, equipment, tools, etc.	2 x 1	2
	Inhalation / exposure (H2S, LEL)	3 x 2	6	Personal monitors worn – calibrated, bumptested, recorded, with fully charged batteries	2 x 1	2
Replace Switch	Inhalation / exposure (H2S, LEL)	3 x 2	6	Personal monitors worn – calibrated, bumptested, recorded, with fully charged batteries	2 x 1	2
	High Pressure	3 x 2	6	Release pressure slowly, Use proper tools for the job	2 x 1	2
	Falls/Slip/Trips	3 x 2	6	Perform housekeeping; ensure floor areas are clear of debris, equipment, tools, etc.	2 x 1	2
	Electricity, Electrical Shock	3 x 2	6	Double block and bleed, Have grounded secondary containment in place	2 x 1	2
Test Switch	Falls/Slip/Trips	3 x 2	6	Follow safe ladder use practice, Perform housekeeping;ensure floor areas are clear of debris, equipment, tools, etc., Use Caution - FOCUS; eyes and mind on task	2 x 1	2
	Inhalation / exposure (H2S, LEL)	3 x 2	6	Personal monitors worn – calibrated, bumptested, recorded, with fully charged batteries	2 x 1	2

Name: Hazard Assessment I-08 - Plant Switch Maintenance
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Electricity, Electrical Shock	3 x 2	6	Use proper meter and tools, Wear appropriate PPE (in good condition)	2 x 1	2
	Emergency Shutdown	3 x 2	6	Use intrinsically safe 2 way radio for communication, Wear personal monitor - calibrate, bump test, record, battery level checked	2 x 1	2
Remove Bypass or Jumper	Inhalation / exposure (H2S, LEL)	3 x 2	6	Personal monitors worn – calibrated, bumptested, recorded, with fully charged batteries	2 x 1	2
	Electricity, Electrical Shock	3 x 2	6	Wear appropriate PPE (in good condition), Focus; eyes and mind on task	2 x 1	2
	Emergency Shutdown	3 x 2	6	Final check all switches are clear	2 x 1	2
Communicate with Operations that job is complete and ready for startup	Poor Communication	3 x 2	6	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels	2 x 1	2

Name: Hazard Assessment I-08 - Plant Switch Maintenance
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment I-09 - Control Panel Calibrate / Maintenance
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain all associated JHA's and permits	Not Having Clear Understanding Of Scope of JHA Or Permit	3 x 3	9	Clear communication with permit issuer	2 x 1	2
	Identify all hazards & potential hazards	3 x 3	9	Review THA with workers and any procedures associated with this job or facility	2 x 1	2
Monitor for hazardous gases	Potential Ignition of Gases	3 x 2	6	Continuous gas monitoring	2 x 1	2
	Inhalation / exposure (H2S, LEL)	3 x 2	6	Wear personal monitor - calibrate, bump test, record, battery level checked	2 x 1	2
Note the status of the panel before maintenance begins ie guages, temperatures, etc.	Property Damage	3 x 2	6	Monitor status of the panel during the maintenance procedure to prevent damage to the compressor	2 x 1	2
Install a pneumatic bypass (horse shoe)	Electricity, Electrical Shock	3 x 2	6	Be prepared to shut down, Wear all appropriate PPE in good condition	2 x 1	2
	Gas Release	3 x 2	6	Continuous gas monitoring, Maintain communication with operations	2 x 1	2
	Property Damage	3 x 2	6	Only competent worker should be assigned for this task	2 x 1	2
Test all devices that can be tested	Inhalation / exposure (H2S, LEL)	3 x 2	6	Personal monitors worn – calibrated, bumptested, recorded, with fully charged batteries	2 x 1	2
	Pressure	3 x 2	6	Good working condition of hand pump, hoses, fittings	2 x 1	2
Remove pneumatic bypass	Property Damage	3 x 2	6	Ensure worker completing inspection or maintenance is competent/qualified	2 x 1	2
	Gas Release	3 x 2	6	Continuous gas monitoring, Attend to bypass	2 x 1	2
Check status of panel	N/A		0			0
Sign and return permits, communicate with operations that job is complete	Poor Communication	2 x 2	4	Good Communication	1 x 1	1

Name: Hazard Assessment I-09 - Control Panel Calibrate / Maintenance
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment I-10 - Pump Repairs
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain all associated JHA's & Permits	Not Having Clear Understanding Of Scope of JHA Or Permit	3 x 2	6	Clear communication with permit issuer, Clear communication with operations	2 x 1	2
	Identify all hazards & potential hazards	3 x 2	6	Review THA with workers and any procedures associated with this job or facility	2 x 1	2
Clean excess dirt off pump	Chemical Exposure	3 x 2	6	Review MSDS, Gloves - Rubber, Ventilate area, Wear appropriate PPE including chemical resistant gloves	2 x 1	2
Relieve spring tension if possible	Spring tension on actuators, gas or air pressure	3 x 2	6	Be aware of spring action	2 x 1	2
Remove old seals, diaphragms, etc. This may require the use of picks, screwdrivers, etc.	Sharp Edges – Cuts/Lacerations	3 x 2	6	Point tools away from body parts, Wear all appropriate PPE in good condition	2 x 1	2
	Eye Injury		0	Stand to the side (line of fire), Eye Protection		0
Install new components according to manufacturer's instructions	Hand Injury	3 x 2	6	Wear all appropriate/required PPE	2 x 1	2
Inspect the rest of the pump and replace any components required	Hand Injury	3 x 2	6	Wear all appropriate/required PPE	2 x 1	2
Reassemble the pump and re-apply spring tension (if applicable)	Hand Injury	3 x 2	6	Wear all appropriate/required PPE	2 x 1	2
Apply instrument air to the pump for a function test	High liquid pressure	3 x 4	12	Wear proper PPE (gloves, eye, ear protection)	2 x 2	4
	Air pressure	3 x 3	9	Carefully monitor pressure and only disconnect fittings when pressure has been relieved, Wear proper PPE (gloves, eye, ear protection)	2 x 2	4

Name: Hazard Assessment I-10 - Pump Repairs
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment I-11 - Working With Chemicals
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain All Associated JHA's and Permits	Not Having Clear Understanding Of Scope of JHA Or Permit	2 x 1	2	Clear, concise communication to review / discuss full scope and order of job duties related to task, Wear appropriate PPE and utilize proper handling techniques and as identified in MSDS	1 x 1	1
	Identify all hazards & potential hazards	2 x 1	2	Review THA with workers and any procedures associated with this job or facility	1 x 1	1
Identify the Chemical That You will Be Working With or Around	Chemical Exposure	3 x 2	6	Review the correct MSDS / ensure use of all recommended PPE	2 x 1	2

Name: Hazard Assessment I-11 - Working With Chemicals
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment I-12 - Fire & Gas Calibrations
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain all associated JHA's & permits	Not Having Clear Understanding Of Scope of JHA Or Permit	3 x 3	9	Clear communication with permit issuer	2 x 1	2
	Identify all hazards & potential hazards	3 x 2	6	Review THA with workers and any procedures associated with this job or facility	2 x 1	2
Put fire and gas detection on bypass	Inhalation / exposure (H2S, LEL)	3 x 2	6	Wear personal monitor - calibrate, bump test, record, battery level checked, Ensure proper bypass is used and monitor timer, Prepare a plan of action should process conditions call for an alarm while bypassed, Assess any consequences of bypassing alarms, Complete bypass form c/w all signatures	2 x 1	2
Test fire eyes	Non-Ionizing: UV Light	3 x 2	6	Use caution when aiming light at fire eye, Focus; eyes and mind on task	2 x 1	2
Test gas detection, apply cal gas	Cuts / Scrapes /Lacerations / Abrasions	3 x 2	6	Dispose of ampoules in appropriate container, Wear gloves while handling ampoules	2 x 1	2
	Inhalation / exposure (H2S, LEL)	3 x 2	6	Wear personal monitor - calibrate, bump test, record, battery level checked, Dispose of ampoules in appropriate container	2 x 1	2
Check and adjust all set points	Process Disruption	3 x 2	6	Monitor bypass timers	2 x 1	2
Clear any alarms	Emergency Shutdown	3 x 2	6	If necessary, have operations monitor process conditions while alarms bypassed and / or arrange for a safety watch, Ensure other workers in the area are aware that work is complete and alarms will be enabled, Clear, concise communication to review /discuss full scope and order of job duties related to task	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Inhalation / exposure (H2S, LEL)	3 x 2	6	Prepare a plan of action should process conditions call for an alarm while bypassed, If necessary, have operations monitor process conditions while alarms bypassed and / or arrange for a safety watch, Ensure other workers in the area are aware that work is complete and alarms will be enabled, Clear, concise communication to review / discuss full scope and order of job duties related to task	2 x 1	2
Turn off bypass timers	Electrical shutdown	3 x 2	6	Monitor bypass timers, Focus; eyes and mind on task	2 x 1	2
Notify operations that job is complete	Lack Of Complete Clear Communication	3 x 2	6	Follow proper communication / reporting channels	2 x 1	2

Name: Hazard Assessment I-12 - Fire & Gas Calibrations
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment I-13 - Regulator or Valve Changeout
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain all associated JHA's & permits	Not Having Clear Understanding Of Scope of JHA Or Permit	3 x 2	6	Clear communication with permit issuer	2 x 1	2
	Identify all hazards & potential hazards	3 x 3	9	Review THA with workers and any procedures associated with this job or facility	2 x 1	2
Block in valve or regulator	Produced water and oil	3 x 3	9	Block in upstream or downsteam of regulator or valve	2 x 1	2
	Air pressure	3 x 3	9	Double block and bleed, Use SCBA if/ where required	2 x 1	2
	Inhalation / exposure (H2S, LEL)	3 x 4	12	Wear personal monitor - calibrate, bump test, record, battery level checked	2 x 1	2
Bleed off pressure	Produced water and oil	3 x 3	9	Use properly grounded containment, Wear proper PPE (gloves, safety glasses	2 x 1	2
	Air pressure	3 x 3	9	Wear proper PPE (gloves, safety glasses	2 x 1	2
	Inhalation / exposure (H2S, LEL)	3 x 4	12	Wear personal monitor - calibrate, bump test, record, battery level checked	2 x 1	2
Remove valve or regulator	Falls/Slip/Trips	3 x 2	6	Clean up spills as they happen, Ensure proper body and extremities positioning (line of fire)	2 x 1	2
	Heavy lifting	3 x 2	6	Ensure proper body and extremities positioning (line of fire), Know your limits; obtain assistance from co-workers for heavy lifts	2 x 1	2
	Cuts / Scrapes /Lacerations / Abrasions	3 x 2	6	Ensure proper body and extremities positioning (line of fire), Ensure all appropriate/required PPE is worn	2 x 1	2
	Pinch Points	3 x 2	6	Ensure proper body and extremities positioning (line of fire), Identify pinch points, Ensure all appropriate/required PPE is worn	2 x 1	2
	Pipe strain	3 x 3	9	Wear safety glasses c/w side shields and gloves, Maintain proper body positioning (line of fire) and footing, Use proper tools for the job	2 x 1	2
Install new or repaired valve or regulator	Falls/Slip/Trips	3 x 2	6	Clean up spills as they happen, Ensure proper body and extremities positioning (line of fire)	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Heavy lifting	3 x 2	6	Ensure proper body and extremities positioning (line of fire), Know your limits; obtain assistance from co-workers for heavy lifts	2 x 1	2
	Cuts / Scrapes /Lacerations / Abrasions	3 x 2	6	Ensure proper body and extremities positioning (line of fire), Ensure all appropriate/required PPE is worn	2 x 1	2
	Pinch Points	3 x 2	6	Ensure proper body and extremities positioning (line of fire), Ensure all appropriate/required PPE is worn	2 x 1	2
	Pipe strain	3 x 3	9	Wear safety glasses c/w side shields and gloves, Maintain proper body positioning (line of fire) and footing, Use proper tools for the job	2 x 1	2
Install new or repaired valve or regulator	Falls/Slip/Trips	3 x 2	6	Clean up spills as they happen, Ensure proper body and extremities positioning (line of fire)	2 x 1	2
	Heavy lifting	3 x 2	6	Ensure proper body and extremities positioning (line of fire), Know your limits; obtain assistance from co-workers for heavy lifts	2 x 1	2
	Cuts / Scrapes /Lacerations / Abrasions	3 x 2	6	Ensure proper body and extremities positioning (line of fire), Ensure all appropriate/required PPE is worn	2 x 1	2
	Pinch Points	3 x 2	6	Ensure proper body and extremities positioning (line of fire), Wear proper PPE (gloves, eye, ear protection)	2 x 1	2
	Pipe strain	3 x 2	6	Ensure proper body and extremities positioning (line of fire), Ensure all apprpriate PPE is worn, (hand, eye) and must be in good condition, Use proper tools for the job	2 x 1	2
Re-pressure system	Produced water and oil	3 x 2	6	Have grounded secondary containment in place, Personal monitors worn – calibrated, bumptested, recorded, with fully charged batteries, Wear all appropriate/required PPE	2 x 1	2
	Air pressure	3 x 2	6	Open valves slowly, Check for leaks, Ensure all appropriate/required PPE is worn, Personal monitors worn – calibrated, bumptested, recorded, with fully charged batteries	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Inhalation / exposure (H2S, LEL)	3 x 3	9	Personal monitors worn – calibrated, bumptested, recorded, with fully charged batteries, Ensure all appropriate/required PPE is worn	2 x 1	2
Test operatioin of valve or regulator	Produced water and oil	3 x 2	6	Have grounded secondary containment in place, Ensure all appropriate/required PPE is worn	2 x 1	2
	Air pressure	3 x 2	6	Open valves slowly, Check for leaks, Ensure all appropriate/required PPE is worn, Personal monitors worn – calibrated, bumptested, recorded, with fully charged batteries	2 x 1	2
	Inhalation / exposure (H2S, LEL)	3 x 4	12	Ensure all appropriate/required PPE is worn, Personal monitors worn – calibrated, bumptested, recorded, with fully charged batteries	2 x 1	2
Notify operations that job is complete	Lack Of Complete Clear Communication	3 x 3	9	Clear communication with permit issuer, Clear communication with operations	2 x 1	2

Name: Hazard Assessment I-13 - Regulator or Valve Changeout
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment I-14 - Bypass Plant Alarms
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain all associated JHA's and permits	Identify all hazards & potential hazards	3 x 3	9	Review THA with workers and any procedures associated with this job or facility	2 x 1	2
	Not Having Clear Understanding Of Scope of JHA Or Permit	3 x 2	6	Clear, concise communication to review / discuss full scope and order of job duties related to task	2 x 1	2
Pre-job meeting, notify operations that alarm must be bypassed	Communicate Hazards to Workers and Those in the Area	3 x 2	6	Be aware of other workers in the area, Prepare a plan of action should process conditions call for an alarm while bypassed, Assess any consequences of bypassing alarms	2 x 1	2
Plan out job	Safety equipment required	3 x 2	6	Have equipment ready for job before alarm bypass as to minimize time without alarms enabled	2 x 1	2
Fill out bypass form with Operations	Ensure protection of people and property while bypassing alarms	3 x 2	6	Clear, concise communication to review / discuss full scope and order of job duties related to task	2 x 1	2
Ensure process & operating conditions are withn tolerances before bypassing alarms	Potential Exposure to Hazardous Atmosphere	3 x 2	6	Atmospheric Testing	2 x 1	2
Install necessary Lockout / Tagouts & bypass alarms	High Voltage Present	3 x 3	9	Clear communication with operations, If necessary, have operations monitor process conditions while alarms bypassed and / or arrange for a safety watch	2 x 1	2
	Pinch Points	3 x 2	6	Proper hand placement (line-of-fire), Gloves - Leather	2 x 1	2
Perform work required	Pinch Points	3 x 2	6	Identify pinch points, Use properly rated tools correctly	2 x 1	2
	Inhalation / exposure (H2S, LEL)	3 x 2	6	Personal monitors worn – calibrated, bumptested, recorded, with fully charged batteries	2 x 1	2
	Falls/Slip/Trips	3 x 2	6	Use fall protection if required	2 x 1	2
Ensure equipment put together properly, no process leaks etc.	Pinch Points	3 x 2	6	Ensure all process connections are back together, Gloves - Leather , Proper hand placement (line-of-fire)	2 x 1	2
	Inhalation / exposure (H2S, LEL)	3 x 2	6	May require supplied air depending on application, Personal monitors worn – calibrated, bumptested, recorded, with fully charged batteries	2 x 1	2

Name: Hazard Assessment I-14 - Bypass Plant Alarms
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Falls/Slip/Trips	3 x 2	6	Use Caution - FOCUS; eyes and mind on task	2 x 1	2
Remove any Lockouts /Tagouts and alarm bypasses	High Voltage Present	3 x 3	9		2 x 1	2
	Pinch Points	3 x 2	6	Proper hand placement (line-of-fire), Gloves - Leather	2 x 1	2
Notify Operations that work is complete	Poor Communication	3 x 2	6	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels	2 x 1	2

Name: Hazard Assessment I-14 - Bypass Plant Alarms
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment I-15 - Working With Compressed Air
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain permits from Operations (If working in Field or Customer location)	Identify all hazards & potential hazards	3 x 2	6	Review all hazards involved to do the job, as outlined	2 x 1	2
	Not Having Clear Understanding Of Scope of JHA Or Permit	3 x 2	6	Clear communication with permit issuer, Review any customer procedures and any other associated with the job or facility	2 x 1	2
Ensure trained and approved personnel Check air supply pressure and volume	Lack of Training in Specific Task	3 x 2	6	Only competent worker should be assigned for this task	2 x 1	2
Connect hose / tools	Malfunctioning Equipment	3 x 2	6	Be aware of supply pressure	2 x 1	2
	Falls/Slip/Trips	3 x 2	6	Awareness of all lines in area, Be aware of others and surroundings	2 x 1	2
Test or clean with supplied air	Loose particles / over pressure	3 x 2	6	Be aware of supply pressure, Be sure equipment /fittings / tools are rated for the pressures used, Wear proper PPE (gloves, eye, ear protection), Ensure training /certification is appropriate for task, Good Communication, Inform other workers in area	3 x 1	3
Removing air hose/fittings/tools	Loose particles / high pressure / hose across floor	3 x 2	6	Focus; eyes and mind on task, Caution sign or tape for trip hazards, Wear proper PPE (gloves, eye, ear protection)	2 x 1	2
Wrap up hose / put tools away	Tripping	3 x 2	6	Inform other workers in area, Perform housekeeping; ensure floor areas are clear of debris, equipment, tools, etc.	2 x 1	2

Name: Hazard Assessment I-15 - Working With Compressed Air
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment I-16 - Bending Tubing
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain permits from Operations (If working in Field or Construction location)	Not Having Clear Understanding Of Scope of JHA Or Permit	3 x 3	9	Clear communication with permit issuer, Review any customer procedures and any other associated with the job or facility	2 x 1	2
	Identify all hazards & potential hazards	3 x 2	6	Review all hazards involved to do the job, as outlined	2 x 1	2
Determine location and best route for tubing	Pinch Points	3 x 3	9	Ensure all appropriate/required PPE is worn, Inspect PPE before using	1 x 1	1
	Falls/Slip/Trips	3 x 2	6	Ensure all appropriate/required PPE is worn, Inspect PPE before using, Clean up slip/trip hazards	2 x 1	2
Organized tubing and fittings required	Pinch Points	3 x 2	6	Ensure proper body and body parts positioning (line-of-fire) and solid footing, Wear proper, required PPE (gloves)	2 x 1	2
	Falls/Slip/Trips	3 x 2	6	Keep parts organized, out of high traffic area, Use Caution - FOCUS; eyes and mind on task	2 x 1	2
Run tubing	Muscle Strain	3 x 2	6	Use Caution - FOCUS; eyes and mind on task, Ensure proper body and body parts positioning (line-of-fire) and solid footing, Take micro-breaks, stretch out muscles	2 x 1	2
	Pinch Points	3 x 2	6	Use bender as per manufacture instructions and previous training, Ensure proper body positioning (line-of-fire) to use tools correctly, Wear proper, required PPE (gloves)	2 x 1	2
Check fitting connections	Leaks oil/water/gas	3 x 2	6	Wear personal gas monitor, calibrated and bump tested, Ensure all appropriate/required PPE is worn, Use Caution - FOCUS; eyes and mind on task	2 x 1	2
Band tubing or secure tubing	Pinch Points	2 x 2	4	Wear proper, required PPE (gloves), Ensure proper body and body parts positioning (line-of-fire) and solid footing	2 x 1	2
Put into service	Leaks oil/water/gas	2 x 3	6	Wear appropriate PPE (in good condition), Wear personal gas monitor, calibrated and bump tested	2 x 1	2
Report to Operations that job is complete	Poor Communication	2 x 2	4	Follow proper communication / reporting channels	2 x 1	2

Name: Hazard Assessment I-16 - Bending Tubing
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment I-17 - Meter Proving - Sour Location
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain permits from Operations (If working in Field or Customer location)	Identify all hazards & potential hazards	3 x 3	9	Review all hazards involved to do the job, as outlined	2 x 1	2
	Not Having Clear Understanding Of Scope of JHA Or Permit	3 x 3	9		2 x 1	2
Walk around Sep Building before entering with equipment	Location Terrain	3 x 2	6	Be aware of icy conditions and rough terrrain, Use Caution - FOCUS; eyes and mind on task	2 x 1	2
Place air packs in appropriate upwind area donning when required	Slips, Trips, Falls	3 x 2	6	Be aware of icy conditions and rough terrrain, Use Caution - FOCUS; eyes and mind on task	2 x 1	2
	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	3 x 2	6	Wear personal monitor - calibrate, bump test, record, battery level checked	2 x 1	2
Disconnect truck from prover for emergency evacuation and communications	Moving Prover	3 x 2	6	Use proper blocking and wheel chocking methods, When possible use a spotter	2 x 1	2
	Pinch Points	3 x 2	6	Ensure proper body and extremities positioning (line of fire), Ensure all appropriate/required PPE is worn	2 x 1	2
Determine configuration of hosing and perform tie ins	Trapped pressure in valving	3 x 3	9	Loosen bull plugs slowly, check for pressure	2 x 1	2
	Slips, Trips, Falls	3 x 2	6	Be aware of icy conditions and rough terrrain, Use Caution - FOCUS; eyes and mind on task	2 x 1	2
	Wind direction with venting	3 x 3	9	Monitor wind direction, Wear personal monitor - calibrate, bump test, record, battery level checked	2 x 1	2
Pressure up prover from high pressure hose from sep.	Leaky connections, escaping gas	3 x 3	9	Perform leak check, Safety watch at designated air pack station, Depressure and re-tighten fittings, Wear personal monitor - calibrate, bump test, record, battery level checked	2 x 1	2
De-presssuring meter for check and repair	Depressuring to atmosphere	3 x 3	9	Don air packs when required, Vent to non hazardous / combustible area, Wear personal monitor - calibrate, bump test, record, battery level checked, Wear appropriate PPE (in good condition)	2 x 1	2
	Spills	3 x 2	6	Use grounded drip trays	2 x 1	2

Name: Hazard Assessment I-17 - Meter Proving - Sour Location
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Pressure meter back up	Leaks oil/water/gas	3 x 2	6	Perform leak check, Use grounded drip trays, Slowly pressure up system, Wear appropriate PPE (in good condition), Wear personal monitor - calibrate, bump test, record, battery level checked	2 x 1	2
Perform final calibration	Depressuring to atmosphere	3 x 3	9	Use grounded drip trays, Wear appropriate PPE (in good condition), Wear personal monitor - calibrate, bump test, record, battery level checked	2 x 1	2
	Wind Conditions and Direction	3 x 2	6	Vent to non comubstible area	2 x 1	2
Rig out prover and re-attach truck	Slips, Trips, Falls	3 x 2	6	Ensure proper footing in slippery conditions, Use proper lifting techniques, Ensure all appropriate/required PPE is worn	2 x 1	2
	Spills	3 x 2	6	Use grounded drip trays, Contain liquids in the hoses using plugs	2 x 1	2
	Moving Prover	3 x 2	6	Use proper blocking and wheel chocking methods	2 x 1	2
	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	3 x 2	6	Use properly grounded containment, Personal monitors worn – calibrated, bumptested, recorded, with fully charged batteries	2 x 1	2
Report to Operations that job is complete	Identify all hazards & potential hazards	3 x 2	6	Clear communication with operations	2 x 1	2
	Not Understanding Permit Requirements	3 x 2	6	Clear communication with operations	2 x 1	2

Name: Hazard Assessment I-17 - Meter Proving - Sour Location
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment I-18 - Meter Proving - Sweet Location
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain permits from Operations (If working in Field or Customer location)	Identify all hazards & potential hazards	3 x 3	9	Review all hazards involved to do the job, as outlined	2 x 1	2
	Not Having Clear Understanding Of Scope of JHA Or Permit	3 x 3	9	Review any customer procedures and any other associated with the job or facility	2 x 1	2
Walk around Sep. Building before entering with equipment	Location Terrain	3 x 3	9	Focus, eyes and mind on task, be aware of your surroundings	2 x 1	2
Disconnect truck from Prover for emergency evacuation and communications	Moving Prover	3 x 3	9	Use proper blocking and wheel chocking methods, Guide in when backing up	2 x 1	2
	Pinch Points	3 x 2	6	Maintain proper body positioning (line of fire) and footing, Gloves - Leather , Identify pinch points	2 x 1	2
Determine configuration of hosing and perform tie ins	Trapped pressure in valving	3 x 3	9	Ensure proper body and body parts positioning (line-of-fire) and solid footing, Loosen bull plugs slowly, check for pressure	2 x 1	2
	Slips, Trips, Falls	3 x 2	6	Watch for slippery and rough terrain, Ensure proper footing	2 x 1	2
	Wind direction with venting	3 x 2	6	Monitor wind direction, Wear personal monitor - calibrate, bump test, record, battery level checked	2 x 1	2
Pressure up Prover fromhigh pressure hose from separator	Leaky connections, escaping gas	3 x 3	9	Ensure proper body and body parts positioning (line-of-fire) and solid footing, Perform leak check, Depressure and re-tighten fittings, Wear personal monitor - calibrate, bump test, record, battery level checked	2 x 1	2
Depressuring meter for check and repair	Depressuring to atmosphere	3 x 2	6	Ensure proper body and body parts positioning (line-of-fire) and solid footing, Vent to non hazardous / combustible area, Wear appropriate PPE (in good condition), Wear personal monitor - calibrate, bump test, record, battery level checked	2 x 1	2
	Spills	3 x 2	6	Use grounded drip trays, Use properly grounded containment	2 x 1	2

Name: Hazard Assessment I-18 - Meter Proving - Sweet Location
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Pressure meter back up	Leaks oil/water/gas	3 x 3	9	Wear appropriate PPE (in good condition), Wear personal monitor - calibrate, bump test, record, battery level checked, Slowly pressure up system, Use grounded drip trays, Perform leak check, Ensure proper body and body parts positioning (line-of-fire) and solid footing	2 x 1	2
Perform final calibration	De-pressuring to Atmosphere	3 x 2	6	Wear personal monitor - calibrate, bump test, record, battery level checked, Wear appropriate PPE (in good condition), Use grounded drip trays, Ensure proper body and body parts positioning (line-of-fire) and solid footing	2 x 1	2
	Wind Conditions and Direction	3 x 2	6	Vent to non comubstible area	2 x 1	2
Rig out Prover and re-attach truck	Slips, Trips, Falls	3 x 2	6	Take micro-breaks, stretch out muscles and improve circulation and focus, Use proper lifting techniques, Ensure proper footing in slippery conditions	2 x 1	2
	Spills	3 x 2	6	Have grounded secondary containment in place	2 x 1	2
	Moving Prover	3 x 3	9	Guide in when backing up	2 x 1	2
	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	3 x 2	6	Use grounded drip trays, Contain liquids in the hoses using plugs, Use proper blocking and wheel chocking methods, Wear personal monitor - calibrate, bump test, record, battery level checked	2 x 1	2
Report to Operations that job is complete	Lack Of Complete Clear Communication	3 x 2	6	Clear communication with operations	2 x 1	2

Name: Hazard Assessment I-18 - Meter Proving - Sweet Location
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment I-19 - Install H2S Sensor on Casing Vent
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain permits from Operations (If working in Field or Customer location)	Not Having Clear Understanding Of Scope of JHA Or Permit	3 x 2	6	Review any customer procedures and any other associated with the job or facility	2 x 1	2
	Not Identifying all Existing & Potential Location and Work Site Hazards	3 x 2	6	Review all hazards involved to do the job, as outlined	2 x 1	2
Ensure client representative or consultant performs appropriate gas test (sniff) of site Park vehicle up wind	Wind Conditions and Direction	3 x 2	6	Monitor wind direction	2 x 1	2
	Inhalation / exposure (H2S, LEL)	3 x 2	6	Wear personal monitor - calibrate, bump test, record, battery level checked	2 x 1	2
Confirm with operator that pop valve can be removed Discuss installation of sensor	H2S	3 x 2	6	Wear proper PPE, One person to wear B/A for Safety Watch	2 x 1	2
Shut well down (if permitted) and isolate vent line	Wind Conditions and Direction	3 x 2	6	Monitor wind direction	2 x 1	2
	H2S	3 x 3	9	Wear proper PPE, Sniff 30" below valve, One person to wear B/A for Safety Watch	2 x 1	2
Install sensor Null	Ensure Proper Torque	3 x 3	9	Secure all fittings	2 x 1	2
Open valve	H2S	3 x 3	9	Wear proper PPE, Position Upwind	2 x 1	2
Start well	H2S	3 x 2	6	Wear proper PPE, Maintain communication with operations	2 x 1	2
Report to Operations that job is complete	Poor Communication	3 x 2	6	Maintain communication with operations	2 x 1	2

Name: Hazard Assessment I-19 - Install H2S Sensor on Casing Vent
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment I-20 - Instrumentation Control Loop Maintenance (High Press, Nitrogen)
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain permits from Operations (If working in Field or Customer location)	Not Having Clear Understanding Of Scope of JHA Or Permit	3 x 2	6	Review any customer procedures and any other associated with the job or facility	2 x 1	2
	Identify all hazards & potential hazards	3 x 3	9	Review all hazards involved to do the job, as outlined, Ensure clear understanding of all assigned workers of the task and/or permit	2 x 1	2
Observe initial set up, look for proper sizing of regulators Also look for presence of safety relief downstream of high press	No safety relief valve, regulator not properly sized, possibility of over pressure of system	3 x 3	9	If system and associated equipment is not adequately installed to eliminate overpresssure hazard, stop job and consult Operations before continuing	2 x 1	2
Close main valve on nitrogen bottle	High pressure cylinder	3 x 2	6	Maintain proper body positioning (line-of-fire), Check press guage on cylinder and close valve slowly, Ensure cylinder is properly secured	2 x 1	2
Lower setting of main regulator on nitrogen bottle	High pressure cylinder, improper adjustment	3 x 2	6	If unfamiliar with regulator, contact manufacturer or supervisor for instructions, Turn adjusting handle on regulator counter clockwise to lower setting	2 x 1	2
Slowly bleed off pressure downsteam of main valve on nitrogen bottle	High presure cylinder, high pressure gas	3 x 2	6	Wear safety glasses c/w side shields and gloves, Keep hands and body away from escaping gas	2 x 1	2
Remove control system from nitrogen	Trapped pressure in valving	3 x 3	9	Use Caution - FOCUS; eyes and mind on task, Ensure proper body positioning (line-of-fire) and solid footing	2 x 1	2
	Pinch Points	3 x 2	6	Maintain proper body positioning (line-of-fire) and footing / stay safe distance from screw pump, Wear safety glasses c/w side shields and gloves	2 x 1	2
Remove and replace bottle	Weight, size and shape of bottle	3 x 2	6	Get assistance to move bottle, Lift with your legs, Always have safety cap on bottle when moving full or empty bottles, Plan route taken to get bottle to and from truck	2 x 1	2
Attach control system and check fittings	Pinch points, trapped pressure	3 x 3	9	Focus; eyes and mind on task, Wear safety glasses c/w side shields and gloves	2 x 1	2

Name: Hazard Assessment I-20 - Instrumentation Control Loop Maintenance (High Press, Nitrogen)
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Slowly open valve on nitrogen bottle	High pressure, leaks	3 x 2	6	Maintain proper body positioning (line-of-fire), Wear appropriate PPE (in good condition), Open valve slowly monitoring guage on regulator and fitting for leaks	2 x 1	2
Adjust regulator to match system components	High pressure, equipment failure	3 x 3	9	Maintain proper body positioning (line-of-fire), Adjust regulator to appropriate setting, Check ratings of components of the system	2 x 1	2
Check system operation	High pressure, leaks	3 x 2	6	Use soapy H2O as necessary, Don't use bare hands to feel for escaping gas, Listen for leaks, Wear appropriate PPE (in good condition)	2 x 1	2
Communicate with Operations that job is complete, well ready for startup	If it is unsafe to proceed (improper tools, material or conditions), STOP immediately and call Operator	3 x 2	6	Ensure cylinder is secured to prevent movement	2 x 1	2

Name: Hazard Assessment I-20 - Instrumentation Control Loop Maintenance (High Press, Nitrogen)
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment I-21 - Orifice Plate Inspection
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain all associated JHA's and Permits	Not Having Clear Understanding Of Scope of JHA Or Permit	3 x 2	6	Review THA with workers and any procedures associated with this job or facility	2 x 1	2
	Identify all hazards & potential hazards	3 x 2	6	Ensure all work planned is documented on required permit(s); perform ONLY work Identified by permit	2 x 1	2
Bypass site or plant fire & gas detection as per THA	Communicate Hazards to Workers and Those in the Area	3 x 2	6	Be aware of simultaneous operations, In a gas plant ensure operations continually monitors the gas detection attentively in other areas while the orifice plate is inspected, Install barricades and flag off work area, if required	2 x 1	2
Confirm with operations or in RTU if meter run is programmed for flow control	Significant process upsets that can cause a site or plant shut down	3 x 3	9	Clear communication with operations, If applicable freeze flow rates and document time on EFM/Orifice plate report that flow rate was frozen	2 x 1	2
Configure meter run 5 way manifold for orifice plate removal Ensure manifold vent is closed, Fully open both equalizing valves	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	3 x 3	9	Wear personal monitor - calibrate, bump test, record, battery level checked, Continuously monitor atmosphere, If H2S is present a SCBA / SABA is to be worn per manufacturer specifications with designated personnel also equipped with an SCBA /SABA observing from a safe distance required until full procedure is complete and confirmed no H2S is present.	2 x 1	2
	Trapped Pressure	3 x 3	9	Maintain proper body positioning (line-of-fire), Ensure all appropriate / required PPE is worn - reassess per each task, Verify tube fittings and packing nuts on manifold are tight	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Remove Orifice Plate from Changer 1. Equalize Pressure 2. Raise Orifice Plate 3. Bleed upper chamber & lubricate valve seat 4. Remove Orifice Plate 5. Clean & Inspect Orifice Plate	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	3 x 3	9	Wear personal monitor - calibrate, bump test, record, battery level checked, Continuously monitor atmosphere, If H2S is present a SCBA / SABA is to be worn per manufacturer specifications with designated personnel also equipped with an SCBA /SABA observing from a safe distance required until full procedure is complete and confirmed no H2S is present.	2 x 1	2
	Trapped Pressure	3 x 2	6	Verify venting location is a safe location where no personnel are present, Ensure venting has stopped completely before proceeding with removing clamp bar, When removing clamping bar do so cautiously loosening outer bolts first slowly and working your way to center bolts ensuring there is no trapped pressure behind bar, Before removal of clamp bar, seal bar and gasket, use the upper gear mechanism to roll the plate carrier into the bar after loosening bolts slightly, which will loosen gasket off head assembly while safely being able to observe confirmation of no trapped pressure in head unit	2 x 1	2
Return orifice plate into changer ensuring proper direction of flow	Line of Fire (Extremities, Body)	3 x 2	6	Gloves - Leather , Stand to the side (line of fire)	2 x 1	2
	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	3 x 3	9	Personal monitors worn – calibrated, bumptested, recorded, with fully charged batteries, If H2S is present a SCBA / SABA is to be worn per manufacturer specifications with designated personnel also equipped with an SCBA /SABA observing from a safe distance required until full procedure is complete and confirmed no H2S is present.	2 x 1	2
	Trapped Pressure	3 x 2	6	Ensure proper body / extremities positioning (line-of-fire; caution with ground condition and solid footing), Ensure Zero Energy Isolation completed on all potential hazards in immediate vicinity of penetration area, Gloves - Leather	2 x 1	2

Name: Hazard Assessment I-21 - Orifice Plate Inspection
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Return meter run 5 way manifold back into service Close both equalization valves, Open Vent	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	3 x 2	6	Personal monitors worn – calibrated, bumptested, recorded, with fully charged batteries, If H2S is present a SCBA / SABA is to be worn per manufacturer specifications with designated personnel also equipped with an SCBA /SABA observing from a safe distance required until full procedure is complete and confirmed no H2S is present.	2 x 1	2
Return site or plant gas detection back in service Unfreeze meter valves if applicable, Document all as found information	Significant process upsets that can cause a site or plant shut down	3 x 3	9	Clear communication with operations, Confirm all shutdowns and alarms are cleared before removing gas detection bypass to avoid a site or plant shutdown, Confirm flow rate is similar to what it was frozen as to attempt to achieve bump less transfer from manual to auto control	2 x 1	2

Name: Hazard Assessment I-21 - Orifice Plate Inspection
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment I-22 - Removing Level Switches From Vessels
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain safe work permit Complete Pre Job Hazard Assessment	Not Having Clear Understanding Of Scope of JHA Or Permit	2 x 2	4	Review THA with Crew(s)	1 x 1	1
Confirm process variable in vessel	Poor Communication	3 x 4	12	Clear communication with operations	2 x 2	4
	Pinch points, trapped pressure	3 x 3	9	Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Corrosive Materials	3 x 3	9	Review the correct MSDS / ensure use of all recommended PPE	2 x 1	2
	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	3 x 3	9	Wear personal monitor - calibrate, bump test, record, battery level checked, Ensure all appropriate/required PPE is worn	2 x 1	2
Depressure vessel Double block and bleed, upstream and downstream utilizing LOTO procedure	Poor Communication	4 x 4	16	Clear communication with operations	1 x 1	1
	Pinch Points	3 x 4	12	Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Corrosive Materials	3 x 4	12	Wear appropriate PPE and utilize proper handling techniques and as identified in MSDS	1 x 1	1
	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	4 x 4	16	Ensure training /certification is appropriate for task, Wear personal monitor -calibrate, bump test, record, battery level checked	1 x 1	1
Purge if possible to eliminate sour gas potential if sour process	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	4 x 4	16	Ensure training /certification is appropriate for task, Wear personal monitor - calibrate, bump test, record, battery level checked	1 x 1	1
Remove pneumatic or electric connections from level switch for switch removal	Pinch Points	3 x 4	12	Maintain proper body positioning (line of fire) and footing, Ensure all appropriate / required PPE is worn - reassess per each task	1 x 2	2
	Corrosive Materials	4 x 3	12	Review the correct MSDS / ensure use of all recommended PPE	1 x 1	1
	Electrical Shock	4 x 4	16	Ensure all appropriate/required PPE is worn, Correctly follow LOTO safe practice	2 x 2	4

Name: Hazard Assessment I-22 - Removing Level Switches From Vessels
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Verify at two pressure sensing points that the vessel is depressured with no trapped pressure	Inhalation / exposure (H2S, LEL)	4 x 4	16	Review the correct MSDS / ensure use of all recommended PPE, Use SCBA if/ where required	1 x 1	1
	Gas Release	4 x 4	16	Review the correct MSDS / ensure use of all recommended PPE, Use SCBA if/ where required	2 x 2	4
	Pinch Points	3 x 4	12	Maintain proper body positioning (line of fire) and footing, Ensure all appropriate/required PPE is worn	1 x 1	1
Loosen level switch Remove switch slowly to confirm no pressure behind while standing to the side out of line of fire, Have containment ready in case of spill	Corrosive Materials	4 x 3	12	Review the correct MSDS / ensure use of all recommended PPE	1 x 1	1
	Pinch Points	3 x 4	12	Maintain proper body positioning (line of fire) and footing, Use containment to catch or absorb any trapped fluids, Identify pinch points	1 x 1	1
	Trapped pressure / fluids	4 x 4	16	Maintain proper body positioning (line of fire) and footing, Review the correct MSDS / ensure use of all recommended PPE	1 x 1	1
	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	4 x 4	16	Personal monitors worn – calibrated, bumptested, recorded, with fully charged batteries, Review the correct MSDS / ensure use of all recommended PPE	1 x 1	1
Test/Replace level switch Ensure Loctite is applied to float threads to prevent float or displacer from falling off into vessel	Electrical Shock	4 x 4	16	Ensure training /certification is appropriate for task, Correctly follow LOTO safe practice	2 x 1	2
	Corrosive Materials	3 x 3	9	Review the correct MSDS / ensure use of all recommended PPE	1 x 1	1
	Pinch Points	3 x 3	9	Ensure proper body/body part positioning (line of fire) during cut; out of path of potential kick back, Ensure all appropriate/required PPE is worn	1 x 1	1

Name: Hazard Assessment I-22 - Removing Level Switches From Vessels
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
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2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment I-23 - Cleaning & Calibrating Drexel
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Work Permit	Not Identifying all Existing & Potential Location and Work Site Hazards	3 x 3	9	Review all hazards involved to do the job, as outlined	2 x 2	4
	Lack Of Complete Clear Communication	3 x 3	9	Clear communication with permit issuer	2 x 1	2
Prepare Clear surrounding area, set up ladder on flat steady surface, Don PPE	PPE in Poor Condition	3 x 3	9	Inspect PPE before use, Excercise proper donning & doffing of all PPE	2 x 2	4
	Ladder Placement /Tipping	3 x 3	9	Proper ladder positioning	2 x 2	4
De-energize Operations/workers to ensure shut down of equipment that will be affected by working on probe, turn on maintenance probe	Unable to shut down all /incorrect equipment	3 x 3	9	Walk through withh operations to ensure the correct equipment has been shut down	2 x 2	4
Insulation Remove any insulation on unit	Removal of Insulation (particulate)	3 x 3	9	Wear Proper PPE (gloves, face mask)	2 x 2	4
	Falls from Heights	3 x 3	9	Proper ladder positioning	2 x 2	4
	Tight Working Spaces	3 x 3	9	Have equipment nearby for ease of access	2 x 2	4
	Extreme Temperatures/Heat Stress	3 x 3	9	Excercise proper donning & doffing of all PPE	2 x 2	4
Remove Probe Standing clear of the instrument, back out the retention set screws only a few turns	Line of Fire (Extremities, Body)	3 x 3	9	Ensure proper body and extremities positioning (line of fire)	2 x 2	4
Remove Probe Loosen packing nut at the slider gland cautiously about one turn, only enough so unit will pull out	Pinch Points	3 x 3	9	Keep extremities clear of pinch points	2 x 2	4
	Trapped Pressure	3 x 3	9	Ensure pressure has been released	2 x 2	4

Name: Hazard Assessment I-23 - Cleaning & Calibrating Drexel
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Remove Probe While holding onto unit firmly, finish loosening set screws until unit can be slid out	Trapped Pressure	3 x 3	9	Ensure pressure has been released	2 x 2	4
Remove Probe Close main isolation valve, open up bleed port on probe verifying main valve is not passing	Trapped pressure / fluids	3 x 3	9	Ensure proper body and extremities positioning (line of fire)	2 x 2	4
	Valve doesn't hold / close	3 x 3	9	Ensure full bleed down until no pressure passing	2 x 2	4
Remove Probe Remove probe from main block valve, clean instrument as well as possible	Controlled Substances on Probe	3 x 3	9	Review SDS	2 x 2	4
	Probe doesn't fully eject from location	3 x 3	9	Review manufacturer's safety recommendations	2 x 2	4
Calibrate Calibrate as per recommended by manufacturer. Follow calibration procedure as outlined by manufacturer	Unit doesn't calibrate	3 x 3	9	Manufacturer's Operators Manual	2 x 2	4
Test Test unit to make sure it is working properly before installing back in vessel	Unit doesn't calibrate	3 x 3	9	Manufacturer's Operators Manual	2 x 2	4
Re-Install Close bleed port and spin main collar back into main valve	Burns	3 x 3	9	Ensure all appropriate/required PPE is worn	2 x 2	4
	Bleed port doesn't close	3 x 3	9	Ensure bleed port fully closed	2 x 2	4
Re-Install Make sure packing is tight enough to stop fluid from coming through but still able to slide probe through	Packing to tight	3 x 3	9	Ensure training /certification is appropriate for task	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Energize Put probe back into service	Lack Of Complete Clear Communication	3 x 3	9	Maintain communication with operations	2 x 2	4

Name: Hazard Assessment I-23 - Cleaning & Calibrating Drexel
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment I-24 - Gas Detection Shutdown Checks
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Contact operator/obtain permit	Lack Of Complete Clear Communication	2 x 2	4	Clear communication with permit issuer	1 x 1	1
	Not Having Clear Understanding Of Scope of JHA Or Permit	2 x 2	4	Clear communication with permit issuer	1 x 1	1
Complete PJHA	Not Identifying all Existing & Potential Location and Work Site Hazards	3 x 3	9	Clear communication with operations, Ensure all appropriate /required PPE is worn - reassess per each task	1 x 1	1
Fill out bypass logs Complete logs and bypass as required	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	4 x 4	16	Ensure all appropriate/required PPE is worn, Use SCBA if/ where required	1 x 1	1
	Lack Of Complete Clear Communication	4 x 4	16	Clear communication with permit issuer, Clear communication with operations	1 x 1	1
Check shutdowns Check shutdowns following manufactures procedures	Chemical Absorption	3 x 3	9	Wear appropriate PPE and utilize proper handling techniques and as identified in MSDS	1 x 1	1
	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	4 x 4	16	Ensure all appropriate/required PPE is worn, Use SCBA if/ where required	1 x 1	1
Remove bypass	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	4 x 4	16	Ensure all appropriate/required PPE is worn, Use SCBA if/ where required	1 x 1	1
	Lack Of Complete Clear Communication	4 x 4	16	Clear communication with operations	1 x 1	1
	Chemical Absorption	3 x 3	9	Wear appropriate PPE and utilize proper handling techniques and as identified in MSDS	1 x 1	1
Complete paperwork and notify operations	Lack Of Complete Clear Communication	4 x 4	16	Clear communication with operations	1 x 1	1

Name: Hazard Assessment I-24 - Gas Detection Shutdown Checks
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment I-25 - H2S Analyzer PM's
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Contact operator/obtain permit	Not Having Clear Understanding Of Scope of JHA Or Permit	2 x 2	4	Clear communication with permit issuer	1 x 1	1
	Lack Of Complete Clear Communication	2 x 3	6	Clear communication with permit issuer	1 x 1	1
Complete PJHA	Not Identifying all Existing & Potential Location and Work Site Hazards	3 x 3	9	Clear communication with operations, Ensure all appropriate /required PPE is worn - reassess per each task	1 x 1	1
	Complacency - Lack of Appropriate PPE	4 x 4	16	Ensure all appropriate/required PPE is worn	1 x 1	1
Fill out bypass logs Complete logs and bypass as required	Lack Of Complete Clear Communication	4 x 4	16	Clear communication with permit issuer, Clear communication with operations	1 x 1	1
	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	4 x 4	16	Ensure all appropriate/required PPE is worn, Use SCBA if/ where required	1 x 1	1
Isolate Sample system and ensure depressurized	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	4 x 4	16	Ensure all appropriate/required PPE is worn, Use SCBA if/ where required	1 x 1	1
	Chemical Absorption	3 x 3	9	Wear appropriate PPE and utilize proper handling techniques and as identified in MSDS	1 x 1	1
	Rotating or Moving Equipment	4 x 4	16	Follow manufacturer's instructions to ensure safe operation, Manufacturer's Operators Manual, Ensure proper body and extremities positioning (line of fire)	1 x 1	1
	Temperature	4 x 4	16	Clear communication with operations, Ensure all appropriate/required PPE is worn	1 x 1	1
Leak Test - ensure system is running correctly	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	4 x 4	16	Ensure that you are familiar with equipment being tested, Isloate energy sources to valves before testing, Communicate with others in the area, monitor for H2S & LEL, Ensure to follow guidelines for SCBA or SABA as per H2S training, Ensure all appropriate/required PPE is worn	1 x 1	1

Name: Hazard Assessment I-25 - H2S Analyzer PM's
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Rotating or Moving Equipment	4 x 4	16	Maintain proper body positioning (line of fire) and footing, Ensure all appropriate/required PPE is worn	1 x 1	1
	Chemical Absorption	4 x 4	16	Wear appropriate PPE and utilize proper handling techniques and as identified in MSDS	1 x 1	1
Remove bypass	Lack Of Complete Clear Communication	4 x 4	16	Clear communication with operations	1 x 1	1
	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	4 x 4	16	Ensure all appropriate/required PPE is worn, Use SCBA if/ where required	1 x 1	1
	Chemical Absorption	3 x 3	9	Wear appropriate PPE and utilize proper handling techniques and as identified in MSDS	1 x 1	1
Complete paperwork and notify operations	Lack Of Complete Clear Communication	4 x 4	16	Clear communication with operations	1 x 1	1

Name: Hazard Assessment I-25 - H2S Analyzer PM's
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment I-26 - Well Site Shutdown Checks
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Contact operator/obtain permit	Lack Of Complete Clear Communication	2 x 3	6	Clear communication with permit issuer	1 x 1	1
	Not Having Clear Understanding Of Scope of JHA Or Permit	2 x 2	4	Clear communication with permit issuer	1 x 1	1
Complete PJHA	Not Identifying all Existing & Potential Location and Work Site Hazards	3 x 3	9	Clear communication with operations, Ensure all appropriate /required PPE is worn - reassess per each task	1 x 1	1
Fill out bypass logs Complete logs and bypass as required	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	4 x 4	16	Ensure all appropriate/required PPE is worn, Use SCBA if/ where required	1 x 1	1
	Lack Of Complete Clear Communication	4 x 4	16	Clear communication with permit issuer, Clear communication with operations	1 x 1	1
Check shutdowns Check shutdowns following manufactures procedures	Temperature	4 x 4	16	Clear communication with operations, Ensure all appropriate/required PPE is worn	1 x 1	1
	Rotating or Moving Equipment	4 x 4	16	Ensure proper body and extremities positioning (line of fire)	1 x 1	1
	Chemical Absorption	3 x 3	9	Wear appropriate PPE and utilize proper handling techniques and as identified in MSDS	1 x 1	1
	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	4 x 4	16	Ensure all appropriate/required PPE is worn, Use SCBA if/ where required	1 x 1	1
Remove bypass	Chemical Absorption	3 x 3	9	Wear appropriate PPE and utilize proper handling techniques and as identified in MSDS	1 x 1	1
	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	4 x 4	16	Ensure all appropriate/required PPE is worn, Inspect PPE before using, Use SCBA if/ where required	1 x 1	1
	Lack Of Complete Clear Communication	4 x 4	16	Clear communication with operations	1 x 1	1

Name: Hazard Assessment I-26 - Well Site Shutdown Checks
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Complete paperwork and notify operations	Lack Of Complete Clear Communication	4 x 4	16	Clear communication with operations	1 x 1	1

Name: Hazard Assessment I-26 - Well Site Shutdown Checks
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment I-27 - Electronic Flow Measurement (EFM) Calibrations
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Contact operator/obtain permit	Trapped Pressure	4 x 4	16	Ensure proper body and extremities positioning (line of fire), Ensure all appropriate/required PPE is worn	1 x 1	1
	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	4 x 4	16		1 x 1	1
	Not Having Clear Understanding Of Scope of JHA Or Permit	2 x 2	4	Clear communication with permit issuer	1 x 1	1
	Lack Of Complete Clear Communication	2 x 3	6	Clear communication with permit issuer	1 x 1	1
Complete PJHA	Not Identifying all Existing & Potential Location and Work Site Hazards	3 x 3	9	Clear communication with operations, Ensure all appropriate /required PPE is worn - reassess per each task	1 x 1	1
Fill out bypass logs Complete logs and bypass as required	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	4 x 4	16	Ensure all appropriate/required PPE is worn, Use SCBA if/ where required	1 x 1	1
	Lack Of Complete Clear Communication	4 x 4	16	Clear communication with permit issuer, Clear communication with operations	1 x 1	1
Depressure System Depressure System following manufactures procedures	Chemical Absorption	3 x 3	9	Wear appropriate PPE and utilize proper handling techniques and as identified in MSDS	1 x 1	1
	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	4 x 4	16	Ensure all appropriate/required PPE is worn, Use SCBA if/ where required	1 x 1	1
	Temperature	4 x 4	16	Ensure all appropriate/required PPE is worn, Clear communication with operations	1 x 1	1
	Rotating or Moving Equipment	4 x 4	16	Ensure proper body and extremities positioning (line of fire)	1 x 1	1
Calibrate EFM	Inhalation / exposure (H2S, LEL)	4 x 4	16	Ensure all appropriate/required PPE is worn, Use SCBA if/ where required	1 x 1	1

Name: Hazard Assessment I-27 - Electronic Flow Measurement (EFM) Calibrations
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Line of Fire (Extremities, Body)	4 x 4	16	Ensure all appropriate/required PPE is worn, Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Relay of Incomplete or Incorrect Information	3 x 3	9	Follow manufacturer's instructions to ensure safe operation	1 x 1	1
Remove bypass	Lack Of Complete Clear Communication	4 x 4	16	Clear communication with operations	1 x 1	1
	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	4 x 4	16	Ensure all appropriate/required PPE is worn, Use SCBA if/ where required	1 x 1	1
	Chemical Absorption	3 x 3	9	Wear appropriate PPE and utilize proper handling techniques and as identified in MSDS	1 x 1	1
Complete paperwork and notify operations	Lack Of Complete Clear Communication	4 x 4	16	Clear communication with operations	1 x 1	1

Name: Hazard Assessment I-27 - Electronic Flow Measurement (EFM) Calibrations
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment I-28 - Compressor Shutdown Checks
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Contact operator/obtain permit	Not Having Clear Understanding Of Scope of JHA Or Permit	2 x 2	4	Clear communication with permit issuer	1 x 1	1
	Lack Of Complete Clear Communication	2 x 3	6	Clear communication with permit issuer	1 x 1	1
Complete PJHA	Not Identifying all Existing & Potential Location and Work Site Hazards	3 x 3	9	Clear communication with operations, Ensure all appropriate /required PPE is worn - reassess per each task	1 x 1	1
Fill out bypass logs Complete logs and bypass as required	Lack Of Complete Clear Communication	4 x 4	16	Clear communication with permit issuer, Clear communication with operations	1 x 1	1
	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	4 x 4	16	Ensure all appropriate/required PPE is worn, Use SCBA if/ where required	1 x 1	1
Ensure all conditions are monitored while bypassed by competent person Ensure person has knowledge of what to do if anything changes and if compressor is running	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	4 x 4	16	Clear communication with permit issuer, Ensure all appropriate/required PPE is worn	1 x 1	1
Check shutdowns Check shutdowns following manufacturer's procedures	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	4 x 4	16	Ensure all appropriate/required PPE is worn, Use SCBA if/ where required	1 x 1	1
	Chemical Absorption	3 x 3	9	Wear appropriate PPE and utilize proper handling techniques and as identified in MSDS	1 x 1	1
	Rotating or Moving Equipment	4 x 4	16	Ensure proper body and extremities positioning (line of fire)	1 x 1	1
	Temperature	4 x 4	16	Clear communication with operations, Ensure all appropriate/required PPE is worn	1 x 1	1
Remove bypass	Lack Of Complete Clear Communication	4 x 4	16	Clear communication with operations	1 x 1	1

Name: Hazard Assessment I-28 - Compressor Shutdown Checks
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	4	4	Ensure all appropriate/required PPE is worn, Use SCBA if/ where required	1 x 1	1
	Chemical Absorption	3 x 3	9	Wear appropriate PPE and utilize proper handling techniques and as identified in MSDS	1 x 1	1
Complete paperwork and notify operations	Lack Of Complete Clear Communication	4 x 4	16	Clear communication with operations	1 x 1	1

Name: Hazard Assessment I-28 - Compressor Shutdown Checks
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment I-29 - Orifice Plate Checks
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Contact operator and obtain permits	Permit Not Properly Completed/Signed Off	3 x 3	9	Clear communication with permit issuer	1 x 1	1
Complete pre-job hazard assessment	Not Identifying all Existing & Potential Location and Work Site Hazards	3 x 3	9	Visual check of location hazards	1 x 1	1
	Incorrect PPE Worn	4 x 4	16	Ensure all appropriate/required PPE is worn, Inspect PPE before using	1 x 1	1
Fill out bypass log	Relay of Incomplete or Incorrect Information	3 x 4	12	Clear communication with operations	1 x 1	1
Bypass LEL and H2S Detection	Inhalation / exposure (H2S, LEL)	4 x 4	16	Wear personal monitor - calibrate, bump test, record, battery level checked, Use SCBA if/ where required	1 x 1	1
Remove orifice plate Follow manufacturer's procedures to remove and reinstall orifice plate	Inhalation / exposure (H2S, LEL)	4 x 4	16	Ensure to follow guidelines for SCBA or SABA as per H2S training, Use SCBA if/ where required	1 x 1	1
	Pinch Points	3 x 3	9	Maintain proper body positioning (line of fire) and footing, Identify pinch points	1 x 1	1
Remove bypass	Inhalation / exposure (H2S, LEL)	4 x 4	16	Ensure all appropriate/required PPE is worn, Use SCBA if/ where required	1 x 1	1
	Pinch Points	2 x 3	6	Ensure all appropriate/required PPE is worn, Identify pinch points	1 x 1	1
Complete paperwork and notify operations job is complete	Lack Of Complete Clear Communication	3 x 3	9	Clear communication with permit issuer, Clear communication with operations	1 x 1	1

Name: Hazard Assessment I-29 - Orifice Plate Checks
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment I-30 - 5-Way Manifold Operation
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Confirm Instrument to be Isolated from Service With Operations High pressure block valve Low pressure block valve Equalizing valves Bleed valve	Slips, Trips, Falls	3 x 4	12	Perform housekeeping; ensure work area is clear of debris, equipment, tools, etc., Wear all appropriate/required PPE	2 x 1	2
	Awkward Stance/Position/Posture	3 x 4	12	Maintain proper body positioning (line of fire) and footing	2 x 1	2
	Burns	3 x 4	12	Ensure adequate lighting to properly identify valves, entify process fluid with operations, possible hi-temp fluids, Wear all appropriate/required PPE	2 x 1	2
Isolate from Pressure Close high pressure & low pressure block valves Open equalizing valves	Awkward Stance/Position/Posture	3 x 3	9	Know your limits; obtain assistance from co-workers for awkward or heavy lifts, Maintain proper body positioning (line of fire) and footing	2 x 1	2
	Cuts / Scrapes /Lacerations / Abrasions	3 x 4	12	Ensure all appropriate/required PPE is worn	2 x 1	2
Open bleed valve to vent to atmosphere Manifold should vent briefly. If venting persists, manifold may need replacement. Close vent & inform operations prior to placing meter back in service.	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	4 x 5	20	Continuously monitor atmosphere, Ensure all appropriate/required PPE is worn, Use SCBA if/ where required, Place container under vent line to contain any fluids	2 x 1	2
	Spills	3 x 4	12	Perform housekeeping; ensure work area is clear of debris, equipment, tools, etc., Maintain proper body positioning (line of fire) and footing, Clean up spills as they happen, Wear all appropriate/required PPE	2 x 1	2
	Slips, Trips, Falls	3 x 4	12	Maintain proper body positioning (line of fire) and footing, Perform housekeeping; ensure work area is clear of debris, equipment, tools, etc.	2 x 1	2
	Burns	3 x 5	15	Ensure all appropriate/required PPE is worn, Use proper body positioning to remove yourself from “line of fire” in event of hi-temp fluids	2 x 1	2
Return to Service Check all high pressure & low pressure valves. Bleed the valve & equalizing valves are closed.	Slips, Trips, Falls	3 x 4	12	Perform housekeeping; ensure task areas are clear of debris, equipment, tools, etc, Install temporary lighting; if /where needed, Wear all appropriate/required PPE	2 x 1	2
	Strains/Sprains	3 x 4	12	Wear all appropriate/required PPE, Maintain proper body positioning (line of fire) and footing	2 x 1	2

Name: Hazard Assessment I-30 - 5-Way Manifold Operation
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Open the Equalizing Valves	Slips, Trips, Falls	3 x 4	12	Perform housekeeping; ensure task areas are clear of debris, equipment, tools, etc, Install temporary lighting; if /where needed, Wear all appropriate/required PPE	2 x 1	2
	Strains/Sprains	3 x 4	12	Ensure all appropriate/required PPE is worn, Maintain proper body positioning (line of fire) and footing	2 x 1	2
Open High Pressure Block Valve Slowly open, check for leakage from high pressure & low pressure side of transmitter	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	3 x 5	15	Continuous gas monitoring, Ensure all appropriate/required PPE is worn, Place container under vent line to contain any fluids	1 x 1	1
	Spills	3 x 4	12	Perform housekeeping; ensure work area is clear of debris, equipment, tools, etc., Wear all appropriate/required PPE	2 x 1	2
	Strains/Sprains	3 x 4	12	Maintain proper body positioning (line of fire) and footing	2 x 1	2
Close Equalizing Valves This locks the pressure on both sides of the transmitter	Slips, Trips, Falls	3 x 4	12	Maintain proper body positioning (line of fire) and footing, Perform housekeeping; ensure work area is clear of debris, equipment, tools, etc.	2 x 1	2
	Strains/Sprains	3 x 4	12	Maintain proper body positioning (line of fire) and footing, Perform housekeeping; ensure work area is clear of debris, equipment, tools, etc.	2 x 1	2
Open Low Pressure Block Valve Apply process pressure to low pressure side of transmitter & establish working differential pressure.	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	3 x 5	15	Continuous gas monitoring, Wear all appropriate/required PPE	2 x 1	2
	Spills	3 x 4	12	Test for Leaks, Wear all appropriate/required PPE, Perform housekeeping; ensure work area is clear of debris, equipment, tools, etc.	2 x 1	2
	Strains/Sprains	3 x 4	12	Wear all appropriate/required PPE, Maintain proper body positioning (line of fire) and footing	2 x 1	2

Name: Hazard Assessment I-30 - 5-Way Manifold Operation
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment I-31 - Block and Bleed (Instrument Calibration)
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Isolate Instrument from Process Identify with Operations, Instrument to be Isolated. Isolate Instrument from Process using Block Valve	Operational shutdown	4 x 5	20	Maintain communication with operations, Confirm with operations prior to isolating instrument	2 x 1	2
	Slips, Trips, Falls	3 x 4	12	Perform housekeeping; ensure work area is clear of debris, equipment, tools, etc., Wear all appropriate/required PPE	2 x 1	2
	Awkward Positioning or Reaching		0	Maintain proper body positioning (line of fire) and footing		0
	Cuts / Scrapes /Lacerations / Abrasions	3 x 4	12	Ensure proper body positioning (line-of-fire), Wear all appropriate/required PPE	2 x 1	2
	Burns	4 x 5	20	Wear all appropriate/required PPE	2 x 1	2
Removed Bleed Cap & Open Bleed Valve Slowly to Vent Process Fluids to a Safe Location If block valve is leaking, close bleed valve, install bleed cap & inform operations that block valve needs to be replaced	High Pressure	4 x 5	20	Maintain proper body positioning (line of fire) and footing, Wear all appropriate/required PPE	2 x 1	2
	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	4 x 5	20	Continuous gas monitoring, Place container under vent line to contain any fluids, Wear all appropriate/required PPE, Use SCBA if/ where required	2 x 1	2
	Spills	3 x 4	12	Test for Leaks, Ensure all appropriate/required PPE is worn, Use containment to catch or absorb any trapped fluids	2 x 1	2
	Strains/Sprains	3 x 4	12	Ensure proper body and extremities positioning (line of fire)	2 x 1	2
	Cuts / Scrapes /Lacerations / Abrasions	3 x 4	12	Wear all appropriate/required PPE, Ensure proper body and extremities positioning (line of fire)	2 x 1	2
	Burns	3 x 4	12	Wear all appropriate/required PPE	2 x 1	2

Name: Hazard Assessment I-31 - Block and Bleed (Instrument Calibration)
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Return Instrument to Process once Calibration is Complete Tighten bleed cap & close bleed valve. Slowly open block valve, monitor for leaks.	High Pressure	3 x 5	15	Tighten bleed valve and bleed cap if required, Maintain proper body positioning (line of fire) and footing	2 x 1	2
	Spills	3 x 4	12	Use containment to catch or absorb any trapped fluids, Wear all appropriate/required PPE	2 x 1	2
	Slips, Trips, Falls	3 x 4	12	Perform housekeeping; ensure work area is clear of debris, equipment, tools, etc., Wear all appropriate/required PPE	2 x 1	2
	Burns	3 x 4	12	Ensure all appropriate/required PPE is worn, Use proper body positioning to remove yourself from “line of fire” in event of hi-temp fluids	2 x 1	2

Name: Hazard Assessment I-31 - Block and Bleed (Instrument Calibration)
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment I-32 - Chemical Pump Maintenance
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Permit	Not Obtaining Permit	3 x 5	15	Clear communication with permit issuer	2 x 1	2
	Not Understanding Permit Requirements	3 x 5	15	Ensure clear understanding of all assigned workers of the task and/or permit, Perform ONLY work identified by permit, Review process concerns crews may have associated within job scope; document on permit, Review all job steps and hazards, Advise Operations of any hazards not listed on permit, observed during tour / inspection	2 x 1	2
Isolate instrument from process Identify with operations instrument to be isolated. Isolate instrument from process using block valve.	Operational shutdown	3 x 5	15	Confirm positive Lock Out / Tag Out practices met and recorded, Confirm with operations prior to isolating instrument, Ensure work area is clear of obstructions	2 x 1	2
	Slips, Trips, Falls	3 x 5	15	Ensure work area is clear of obstructions, Ensure all appropriate/required PPE is worn	3 x 1	3
	Awkward Positioning or Reaching	3 x 4	12	Take micro-breaks, stretch out muscles, Maintain proper body positioning	3 x 1	3
	Cuts / Scrapes /Lacerations / Abrasions	3 x 4	12	Be aware of pinch points associated with use of hand tools, Inspect tools prior to use	3 x 1	3
	Burns	3 x 5	15	Identify process fluid with operations, possible hi-temp fluids	3 x 1	3
Remove bleed cap & open bleed valve closely to vent process fluids to a safe location If block valve is leaking, close bleed valve, install bleed cap & inform operations that block valve needs to be replaced	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	3 x 5	15	Continuous gas monitoring, Ensure all appropriate/required PPE is worn, Use SCBA if/ where required	2 x 1	2
	High Pressure	3 x 5	15	Block and Bleed Process, Review Zero Energy Isolation Code of Practice with Operations	3 x 1	3
	Spills	3 x 4	12	Proper spill kit for the task, Clean up spills as they happen, Ensure all appropriate/required PPE is worn	3 x 1	3
	Strains/Sprains	3 x 4	12	Take micro-breaks, stretch out muscles, Ensure proper body and extremities positioning (line of fire)	3 x 1	3
	Cuts / Scrapes /Lacerations / Abrasions	3 x 4	12	During cut, ensure proper body positioning to avoid line of fire w/extremities; w/solid footing during cut, Ensure all appropriate/required PPE is worn	3 x 1	3

Name: Hazard Assessment I-32 - Chemical Pump Maintenance
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Burns	3 x 5	15	Ensure all appropriate/required PPE is worn, Maintain proper body positioning (line of fire) and footing	3 x 1	3
Return instrument to process once calibration is complete Tighten bleed cap & close bleed valve. Slowly open block valve, monitor for leaks.	Spills	3 x 5	15	Place container under vent line to contain any fluids, Continuous gas monitoring, Tighten bleed valve and bleed cap if required, Proper spill kit for the task	2 x 1	2
	Slips, Trips, Falls	3 x 4	12	Maintain proper body positioning (line of fire) and footing, Proper spill kit for the task	3 x 1	3
	High Pressure	3 x 5	15	Block and Bleed Process, Maintain proper body positioning (line of fire) and footing	3 x 1	3
	Burns	3 x 5	15	Ensure all appropriate/required PPE is worn, Ensure proper body and extremities positioning (line of fire)	3 x 1	3

Name: Hazard Assessment I-32 - Chemical Pump Maintenance
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment I-33 - Isolation of Instruments
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Receive Permit from Operations	Misunderstanding Action To Occur	3 x 5	15	Clear communication with permit issuer, Ensure clear understanding of all assigned workers of the task and/or permit, Perform ONLY work identified by permit, Review process concerns crews may have associated within job scope; document on permit	2 x 1	2
Complete walk through with Operations & complete THA	Not Identifying all Existing & Potential Location and Work Site Hazards	3 x 5	15	Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope, Review the THA with workers and other relevant JHA's, Review appropriate SWP's for tool(s) and equipment to be used	2 x 1	2
	Incorrect PPE Worn	3 x 4	12	Ensure all proper PPE is worn/utilized for task, must be in good condition	2 x 1	2
Find device & identify energy sources	Equipment or wiring mislabeled	3 x 5	15	Check with control room to ensure correct device, Confirm wire tag numbers, Check HMI to ensure correct device	2 x 1	2
Isolate device	Meter Failure	3 x 5	15	Test with multi-meter to confirm proper operation, Confirm correct Lock Out / Tag Out practice followed for removal, are met and recorded	2 x 1	2
	Loose or Faulty Connections	3 x 5	15	Check device power at controller, PLC & end device	2 x 1	2
	Plant Shutdown	3 x 5	15	Check with Operations on what the device will shut down, Inform Operations if shut down is possible	2 x 1	2
	Potential Exposure to Hazardous Atmosphere	3 x 5	15	Continuously monitor atmosphere, Wear all appropriate PPE for task	2 x 1	2
Repair, calibrate or replace device	Trapped Pressure	3 x 5	15	Follow SWP's	2 x 1	2
	Incorrect device	3 x 5	15	All devices must be completely isolated	2 x 1	2
	Busted fittings	3 x 4	12	Don't over torque devices or piping	2 x 1	2
	Pinch Points	3 x 4	12	Be aware of hand placement (line-of-fire)	2 x 1	2
	Slips, Trips, Falls	3 x 4	12	Perform housekeeping; ensure floor areas are clear of debris, equipment, tools, etc., Use caution when walking; ensure proper footing	2 x 1	2

Name: Hazard Assessment I-33 - Isolation of Instruments
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Confirm replacement parts	3 x 4	12	Where required, consult operator's manual	2 x 1	2
Put device back in service	Test device	3 x 5	15	Re-energise power and process, Review all practices relevant to job (Electrical, Lock Out / Tag Out etc.)	2 x 1	2
	Device shut down when putting back in service	3 x 5	15	Ensure correct device is powered back up & reading correctly before by-pass is removed, If device is not reading correctlly do not put back in service	2 x 1	2
Turn back to Operations & clean up area	Valve in wrong position	3 x 5	15	Walk through with operations to ensure the corret equipment has been shut down	2 x 1	2
	By-passes not removed	3 x 4	12	Check all valve and bypass positions	2 x 1	2
	Loose Fittings	3 x 5	15	Check for leaks	2 x 1	2
	Slips, Trips, Falls	3 x 4	12	Ensure all appropriate/required PPE is worn, Use caution when walking; ensure proper footing, Perform housekeeping; ensure work area is clear of debris, equipment, tools, etc.	2 x 1	2

Name: Hazard Assessment I-33 - Isolation of Instruments
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
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4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment I-35 - Valve Repairs
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Contact operator and obtain permit	Not Understanding Requirements of Task or Permit Requirements	3 x 3	9	Ensure clear understanding of all assigned workers of the task and/or permit, Maintain communication with operations	1 x 1	1
Complete PJHA	Not Identifying all Existing & Potential Location and Work Site Hazards	2 x 4	8	Review with client - PJHA and any site specific hazards or process concerns they may have associated with job scope	1 x 1	1
	Incorrect PPE Worn	3 x 5	15	Wear personal monitor - calibrate, bump test, record, battery level checked, Ensure all appropriate/required PPE is worn	1 x 1	1
Lockout and depressure valve	Lock Out / Tag Out SWP Not Followed	3 x 4	12	Ensure LOTO SWP was carefully followed with LOTO correctly in place	1 x 1	1
	Not verifying Zero Energy	2 x 4	8	Review Zero Energy Isolation Code Of Practice with Operations, Ensure zero energy (LO/TO)	1 x 1	1
	Inhalation / exposure (H2S, LEL)	3 x 5	15	Ensure training /certification is appropriate for task, If H2S is present a SCBA / SABA is to be worn per manufacturer specifications with designated personnel also equipped with an SCBA /SABA observing from a safe distance required until full procedure is complete and confirmed no H2S is present.	1 x 1	1
Remove and repair as per manufactures instructions	Not following manual	3 x 4	12	Follow manufacturer's instructions to ensure safe operation	1 x 1	1
	Lifting Equipment Failure; Dropped Equipment	2 x 3	6	Utilize proper lifting and transport techniques and ask for assistance, where and if required, Identify pinch points	1 x 1	1
Reinstall valve and leak check	Pinch Points	2 x 3	6	Identify pinch points, Maintain proper body positioning (line of fire) and footing, Ensure all appropriate/required PPE is worn	1 x 1	1
	High Pressure	2 x 4	8	Follow installation procedure from manufacturer, Monitor for leaks	1 x 1	1
	Inhalation / exposure (H2S, LEL)	3 x 4	12	Personal monitors worn – calibrated, bumptested, recorded, with fully charged batteries, Ensure training /certification is appropriate for task, Perform under supplied air if site is sour (H2S)	1 x 1	1

Name: Hazard Assessment I-35 - Valve Repairs
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Awkward heavy lifting, muscle strain	2 x 3	6	Utilize proper lifting and transport techniques and ask for assistance, where and if required	1 x 1	1
Put back into service	Inhalation / exposure (H2S, LEL)	3 x 4	12	Ensure training /certification is appropriate for task, Ensure all appropriate/required PPE is worn, Wear personal monitor - calibrate, bump test, record, battery level checked	1 x 1	1
	Incorrect PPE Worn	2 x 4	8	Wear all appropriate/required PPE (arc flash), Personal monitors worn – calibrated, bumptested, recorded, with fully charged batteries	1 x 1	1
Notify operations of job completion	Lack Of Complete Clear Communication	3 x 4	12	Communicate completion of task to client operations personnel; use proper / correct communication techniques and reporting channels	1 x 1	1

Name: Hazard Assessment I-35 - Valve Repairs
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment I-36 - Testing Level Switches
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Receive Permit	Not Having Clear Understanding Of Scope of JHA Or Permit	3 x 3	9	Clear communication with permit issuer	1 x 1	1
Complete PJHA / FLHA	Not Identifying all Existing & Potential Location and Work Site Hazards	3 x 3	9	Ensure all identified hazards have been controlled or eliminated	1 x 1	1
	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	4 x 5	20	If H2S is present a SCBA / SABA is to be worn per manufacturer specifications with designated personnel also equipped with an SCBA /SABA observing from a safe distance required until full procedure is complete and confirmed no H2S is present., Isloate energy sources to valves before testing, Communicate with others in the area, monitor for H2S & LEL	1 x 2	2
Verify Switch to Test	Lack Of Complete Clear Communication	3 x 4	12	Clear communication with operations, Review full scope and responsibilities with supervisor	1 x 1	1
Verify Isolation between level chamber and vessel	Not understanding Zero Energy isolation process or requirement	3 x 4	12	Review Zero Energy Isolation Code of Practice with Operations	1 x 1	1
	Leaking Isolation Valve	3 x 4	12	Inspect all equipment for any / all defects	1 x 1	1
Connect ground line to pump trailer	Chemical Exposure	3 x 4	12	Wear appropriate PPE and utilize proper handling techniques and as identified in MSDS, Review MSDS	1 x 2	2
	Pinch Points	3 x 3	9	Keep hands out of potential line of fire of tool, Wear appropriate PPE (in good condition)	1 x 1	1
	Back & muscle strain	3 x 3	9	Stretching and proper body positioning, Use micro breaks to stretch out muscles, Alternate body positioning frequently throughout the task	1 x 1	1
Connect pressure line to fill point Ensure pressure is 1-way from pump to level chamber, Ensure there is a way to bleed/drain level chamber after	Chemical Exposure	3 x 3	9	Wear appropriate PPE and utilize proper handling techniques and as identified in MSDS	1 x 1	1
	Pinch Points	3 x 4	12	Ensure all appropriate/required PPE is worn, Inspect PPE before using, Identify pinch points, Be aware of position of hands (line-of-fire)	1 x 2	2

Name: Hazard Assessment I-36 - Testing Level Switches
Description:
Last Published: May 16, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Fill until switch trips or pressure gauge on pump starts to climb	Poor Communication	4 x 4	16	Ensure good communication between workers, Review all hazards involved to do the job, as outlined, Review full job scope and responsibilities with Supervisor	1 x 2	2
	Inexperience and unfamiliarity with specific machine's operation/controls	4 x 4	16	Only competent worker should be assigned for this task	1 x 1	1
	Chemical Exposure	3 x 4	12	Wear appropriate PPE and utilize proper handling techniques and as identified in MSDS	1 x 1	1
Check that switch rang back to PLC as required	Relay of Incomplete or Incorrect Information	3 x 4	12	Maintain communication with operations, Only competent worker should be assigned for this task	1 x 1	1
Drain level chamber as needed	Chemical Exposure	3 x 4	12	Wear appropriate PPE and utilize proper handling techniques and as identified in MSDS	1 x 1	1
	Lack of experience or knowledge of task	4 x 4	16	Only competent worker should be assigned for this task	1 x 1	1
Disconnect pressure line from fill point	Pinch Points	4 x 4	16	Identify pinch points, Be aware of position of hands (line-of-fire), Ensure all appropriate/required PPE is worn, Inspect PPE before using	1 x 1	1
	Chemical Exposure	3 x 3	9	Ensure all appropriate/required PPE is worn, Inspect PPE before using	1 x 1	1
Ensure proper valve positions as required when finished.	Valve in wrong position	4 x 4	16	Check all valve and bypass positions, Only competent worker should be assigned for this task	1 x 1	1

Name: Hazard Assessment I-36 - Testing Level Switches
Description:
Last Published: May 16, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment S-01 - Overhead Crane & Lifting Devices
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit from Client Obtain Job Specific Information from Manager Complete Associated PJHA	Not Identifying all Existing & Potential Location and Work Site Hazards	3 x 4	12	Review all JHA's and THA's with workers, Review all hazards involved to do the job, as outlined, Use proper tools, ensure correct operation, Ensure all appropriate / required PPE is worn - reassess per each task	1 x 1	1
	Not Having Clear Understanding Of Scope of JHA Or Permit	2 x 3	6	Be aware of others / surroundings, Ensure good communication between workers, Mandatory review of Crane Safety, Rigging Safety and Hoisting & Rigging Safe Work Practices (SWP's) associated or involved with this task	1 x 1	1
	Relay of Incomplete or Incorrect Information	4 x 4	16	Ensure clear understanding of all assigned workers of the task and/or permit, If spotter is required for safe completion of task, the spotter must understand standard signals, positioning, and techniques of proper signalling, Spotter must be adequately identified to all personnel involved in task	1 x 1	1
	Potential for Untrained, Unauthorized Personnel to Enter Hazardous Area	4 x 4	16	Be aware of others / surroundings, Ensure training /certification is appropriate for task	1 x 1	1
Obtain Appropriate Rigging Equipment	Incorrect PPE Worn	4 x 4	16	Ensure all proper PPE is worn/utilized for task, must be in good condition, Ensure competent person inspects all rigging equipment before use	1 x 1	1
	Crews Misunderstanding Action to Occur	4 x 4	16	Utilize spotter for ALL moves, Designate a lead caller for consistent communication to operators, when using more than one crane	1 x 1	1
	Awkward heavy lifting, muscle strain	4 x 4	16	Utilize proper lifting and transport techniques and ask for assistance, where and if required, Use engineered lifting devices instead of manually lifting whenever possible	1 x 1	1
	Poor housekeeping; debris in/around task area	4 x 4	16	Perform housekeeping; ensure task areas are clear of debris, equipment, tools, etc	1 x 1	1
	Slips, Trips, Falls	4 x 4	16	Focus, eyes and mind on task, be aware of your surroundings, Wear proper footwear with additional slip-on traction devices	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Property Damage (Unbalanced Gear Tips or Falls Over)	4 x 4	16	All rigging and lifting devices are to be inspected by competent person before use, Any deviation or concern to the condition of the equipment will render the equipment unfit for use, Equipment to be replaced before task commencement, All lifting hooks must be equipped with safety latches or are not to be used	1 x 1	1
	Pinch Points / Crush Type Injury	4 x 4	16	Wear all appropriate PPE for task (hand protection), Maintain proper body positioning (line of fire) and footing	1 x 1	1
Connect Rigging to Equipment	Awkward heavy lifting, muscle strain	4 x 4	16	Utilize proper lifting and transport techniques and ask for assistance, where and if required	1 x 1	1
	Line of Fire (Extremities, Body)	4 x 4	16	Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Slips, Trips, Falls	4 x 4	16	Focus, eyes and mind on task, be aware of your surroundings, Ensure proper body positioning (line-of-fire) and solid footing, Use of traction control	1 x 1	1
	Property Damage (Unbalanced Gear Tips or Falls Over)	4 x 4	16	All rigging and lifting devices are to be inspected by competent person before use, Any deviation or concern to the condition of the equipment will render the equipment unfit for use, Equipment to be replaced before task commencement, Ensure crew members understand communication and action to occur, Use a tag line properly attached to load to control it, Ensure crew and spotter and/or lead caller maintain clear line of sight with load, and maintain control of load at all times, Ensure proper weight distribution of rigging on equipment, Ensure correct utilization of equipment; adhere to SWP	1 x 1	1
	Cuts / Scrapes /Lacerations / Abrasions	4 x 4	16	Wear appropriate PPE (in good condition), Practice safe handling techniques	1 x 1	1
	Pinch Points / Crush Type Injury	4 x 4	16	Wear all appropriate PPE for task (hand protection), Maintain proper body positioning (line of fire) and footing, Focus, eyes and mind on task, be aware of your surroundings	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Connect Rigging to Crane or Hoist	Awkward heavy lifting, muscle strain	4 x 4	16	Utilize proper lifting and transport techniques and ask for assistance, where and if required	1 x 1	1
	Pinch Points / Crush Type Injury	4 x 4	16	Wear appropriate / required PPE and practice safe handling techniques, Maintain proper body positioning (line of fire) and footing, Ensure equipment is free to access or move, Focus, eyes and mind on task, be aware of your surroundings	1 x 1	1
	Uncontrolled Movement of Material	4 x 5	20	Use a tag line properly attached to load to control it, Verify clear path of travel for load before task commencement, Communicate lift to be performed to all nearby or affected personnel	1 x 1	1
	Equipment Failure	4 x 5	20	Ensure crew members understand communication and action to occur, All rigging and lifting devices are to be inspected by competent person before use, Any deviation or concern to the condition of the equipment will render the equipment unfit for use, Equipment to be replaced before task commencement	1 x 1	1
	Line of Fire (Extremities, Body)	4 x 4	16	Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Poor Communication Within Crews	4 x 4	16	Focus, eyes and mind on task, be aware of your surroundings, Maintain proper communication (eye contact) with crane or hoist operator & spotter	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Lift / Move Load	Property Damage (Unbalanced Gear Tips or Falls Over)	4 x 4	16	Ensure crew members understand communication and action to occur, Use a tag line properly attached to load to control it, Ensure crew and spotter and/or lead caller maintain clear line of sight with load, and maintain control of load at all times, Ensure proper weight distribution of rigging on equipment, Ensure correct utilization of equipment; adhere to SWP, If spotter is required for safe completion of task, the spotter must understand standard signals, positioning, and techniques of proper signalling, Spotter must be adequately identified to all personnel involved in task, Perform a test lift of the load by lifting the load by only a few inches from its resting position, before beginning load travel, Ensure the load lifts evenly and as desired, If any deviation during test lift, set load back down and re-evaluate task, repositioning rigging as required	1 x 1	1
	Crane or hoist load ratings not adhered to	5 x 5	25	Ensure load ratings of crane or hoist are sufficient for load (clearly marked on equipment), If unable to verify capacity or load ratings of equipment, do NOT perform task and communicate immediately to supervisor	1 x 1	1
	Poor Communication Within Crews	4 x 4	16	Maintain proper communication (eye contact) with crane or hoist operator & spotter, Focus, eyes and mind on task, be aware of your surroundings, Ensure crew and spotter and/or lead caller maintain clear line of communication while performing task, If communication is lost or distorted during task, STOP and discontinue with task to reevaluate / discuss within crew	1 x 1	1
	Pinch Points / Crush Type Injury	4 x 4	16	Maintain proper body positioning (line of fire) and footing, Ensure equipment is free to access or move, Focus, eyes and mind on task, be aware of your surroundings, If spotter is required for safe completion of task, the spotter must understand standard signals, positioning, and techniques of proper signaling, Spotter must be adequately identified to all personnel involved in task	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Slips, Trips, Falls	4 x 4	16	Focus, eyes and mind on task, be aware of your surroundings, Wear proper footwear with additional slip-on traction devices, Perform housekeeping; ensure work area is clear of debris, equipment, tools, etc.	1 x 1	1
	Uncontrolled Movement of Material	4 x 5	20	Use a tag line properly attached to load to control it, Verify clear path of travel for load before task commencement, Communicate lift to be performed to all nearby or affected personnel, Controls of lifting and hoisting equipment must be secured from unintentional operation when equipment is not in use, When an overhead crane has a load attached via rigging, the Emergency Stop must be engaged, unless being operated, The control pendant must remain free-hanging, and not tied to any item or placed within rigging	1 x 1	1
	Equipment Failure	4 x 5	20	All rigging and lifting devices are to be inspected by competent person before use, Any deviation or concern to the condition of the equipment will render the equipment unfit for use, Equipment to be replaced before task commencement, Ensure crew members understand communication and action to occur	1 x 1	1
Set Load Down	Pinch Points / Crush Type Injury	4 x 4	16	Maintain proper body positioning (line of fire) and footing, Ensure equipment is free to access or move, Focus, eyes and mind on task, be aware of your surroundings, If spotter is required for safe completion of task, the spotter must understand standard signals, positioning, and techniques of proper signaling, Spotter must be adequately identified to all personnel involved in task	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Property Damage (Unbalanced Gear Tips or Falls Over)	4 x 4	16	If spotter is required for safe completion of task, the spotter must understand standard signals, positioning, and techniques of proper signaling, Spotter must be adequately identified to all personnel involved in task, Ensure crew members understand communication and action to occur, Use a tag line properly attached to load to control it, Ensure crew and spotter and/or lead caller maintain clear line of communication while performing task, If communication is lost or distorted during task, STOP and discontinue with task to reevaluate / discuss within crew, Ensure proper weight distribution of rigging on equipment, Ensure correct utilization of equipment; adhere to SWP	1 x 1	1
	Unintended operation due to leaving load suspended from lifting or hoisting equipment while unattended	4 x 5	20	Controls of lifting and hoisting equipment must be secured from unintentional operation when equipment is not in use, When an overhead crane has a load attached via rigging, the Emergency Stop must be engaged, unless being operated, The control pendant must remain free-hanging, and not tied to any item or placed within rigging, Suspended loads are never to be left unattended, If additional work is to be completed while load suspended, the load should be safely lowered to ground level and not left suspended	1 x 1	1
	Poor Communication Within Crews	4 x 4	16	Maintain proper communication (eye contact) with crane or hoist operator & spotter, Focus, eyes and mind on task, be aware of your surroundings, Ensure crew and spotter and/or lead caller maintain clear line of communication while performing task, If communication is lost or distorted during task, STOP and discontinue with task to reevaluate / discuss within crew	1 x 1	1

Name: Hazard Assessment S-01 - Overhead Crane & Lifting Devices
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment T-01 - Cable Manufacturing
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit From Client Null	Poor Communication Within Crews	2 x 2	4	Clear communication with permit issuer	1 x 1	1
Complete Associated PJHA	Not Identifying all Existing & Potential Location and Work Site Hazards	2 x 2	4	Complete detailed PJHA, Review / discuss relevant THA's with crew(s), Review / discuss relevant JHA's with crew(s), Review all safe work practices (SWP's) associated or involved with this task, Ensure all appropriate/required PPE is worn	2 x 1	2
Cutting And Stripping of Wiring	Misunderstanding Action To Occur	3 x 3	9	Ensure good communication between workers	2 x 1	2
	Poor Communication Within Crews	3 x 3	9	Ensure good communication between workers	2 x 1	2
	Incorrect PPE Worn	3 x 3	9	Ensure all required PPE is worn (hand, eye, face shield)	2 x 1	2
	Poor housekeeping; debris in/around task area	3 x 3	9	Perform housekeeping; ensure work area is clear of debris, equipment, tools, etc.	2 x 1	2
	Slips, Trips, Falls	3 x 3	9	Ensure proper body and body parts positioning (line-of-fire) and solid footing, Plan your route, Be aware of surroundings and others	2 x 1	2
	Property Damage	3 x 3	9	Focus, eyes and mind on task, be aware of your surroundings	2 x 1	2
	Cuts / Scrapes /Lacerations / Abrasions	3 x 4	12	Ensure proper tools for task are used, (knives, wire strippers, etc.), Follow Knife Use SWP	2 x 1	2
Pre-Tinning and Soldering of Wires to Cable Ends	Awkward Positioning or Reaching	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing, Focus; eyes and mind on task, Be aware of surroundings	2 x 1	2
	Property Damage	3 x 3	9	Inspect all tools and equipment prior to use, Focus, eyes and mind on task, be aware of your surroundings	2 x 1	2
	Burns	3 x 3	9	Ensure co-workers understand process of action to occur, Ensure proper use of clamps, Ensure all appropriate/required PPE is worn	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Exposure to Fumes, Smoke	3 x 3	9	Ensure fan is running during operation, Wear all appropriate/required PPE (hand, eye, face)	2 x 1	2
Trimming Cable Ends for Cap Installation	Muscle strain, fatigue	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing, Pre-task stretching	2 x 1	2
	Sharp Edges – Cuts/Lacerations	3 x 4	12	Be aware of surroundings and others, Use caution - Focus; eyes and mind on task, Ensure proper use of tools and equipment, Follow SWP for knife use; cut away from body	2 x 1	2
	Poor Communication	3 x 3	9	Ensure good communication between workers	2 x 1	2
	Uncontrolled Movement of Cable	3 x 3	9	Ensure all appropriate/required PPE is worn	2 x 1	2
Heat Shrink Cable Protectors	Slips, Trips, Falls	3 x 3	9	Plan your route, Be aware of surroundings and others	2 x 1	2
	Property Damage	3 x 3	9	360 degree awareness - surroundings, other, etc.	2 x 1	2
	Pinch Points / Crush Type Injury	3 x 3	9	Focus; eyes and mind on task, Ensure all tools and equipment in proper working condition	2 x 1	2
	Exposure to Fumes, Smoke	3 x 3	9	Wear all appropriate/required PPE (hand, eye, face)	2 x 1	2
	Burns	3 x 3	9	Wear all appropriate/required PPE (hand, eye, face)	2 x 1	2
	Poor Communication	3 x 3	9	Ensure good communication between workers	2 x 1	2
	Awkward Positioning or Reaching	3 x 3	9	Keep hands away from barrel of gun, Ensure proper body positioning (line-of-fire) and solid footing	2 x 1	2
Housekeeping	Muscle strain, fatigue	3 x 3	9	Stretching and proper body positioning, Follow SWP for lifting/handling materials	2 x 1	2
	Awkward Stance/Position/Posture	3 x 3	9	Stretching and proper body positioning, Ensure proper body positioning (line-of-fire) and solid footing	2 x 1	2
	Tight Working Spaces	3 x 3	9	Stretching and proper body positioning	2 x 1	2
	Loose Material and Debris	3 x 3	9	Be aware of surroundings, tools, material, equipment and others, Clear job area/site; properly dispose of debris	2 x 1	2
	Property Damage	3 x 3	9	360 degree awareness - surroundings, other, etc.	2 x 1	2

Name: Hazard Assessment T-01 - Cable Manufacturing
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Pinch Points / Crush Type Injury	3 x 3	9	360 degree awareness - surroundings, other, etc., Wear all appropriate/required PPE (hand, eye, face)	2 x 1	2

Name: Hazard Assessment T-01 - Cable Manufacturing
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

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2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment T-02 - Control Panel Fabrication
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit From Client	Not Identifying all Existing & Potential Location and Work Site Hazards	3 x 3	9	Review / discuss relevant THA's with crew(s), Review / discuss relevant JHA's with crew(s), Review all safe work practices (SWP's) associated or involved with this task, Ensure all appropriate/required PPE is worn	2 x 1	2
	Poor Communication	3 x 4	12	Review JHA with operations prior to signing, Review PJHA with newcomers to area	1 x 1	1
Prepare for Panel Layout	Incorrect PPE Worn	3 x 3	9	Ensure all appropriate/required PPE is worn, Inspect PPE before using	2 x 1	2
Measure and Cut DIN Rails	Property Damage	3 x 3	9	360 degree awareness - surroundings, other, etc.	2 x 1	2
	Slips, Trips, Falls	3 x 3	9	Plan your route, Be aware of surroundings and others, 360 degree awareness - surroundings, other, etc.	2 x 1	2
	Poor housekeeping; debris in/around task area	3 x 3	9	Perform housekeeping; ensure work area is clear of debris, equipment, tools, etc.	2 x 1	2
	Poor Communication Within Crews	3 x 3	9	Ensure good communication between workers	2 x 1	2
	Misunderstanding Action To Occur	3 x 3	9	Follow manufacturer's instructions to ensure safe operation	2 x 1	2
	Cuts / Scrapes /Lacerations / Abrasions	3 x 3	9	Ensure all proper PPE is worn/utilized for task, must be in good condition	2 x 1	2
	Uncontrolled Movement of DIN Rails	3 x 3	9	All fittings secure, Ensure proper body and body parts positioning (line-of-fire) and solid footing	2 x 1	2
	Equipment Failure	3 x 3	9	Pre-inspect hydraulic cutter for proper working operation, Ensure proper tools for task are used correctly	2 x 1	2
Measure And Cut Panduit	Equipment Failure	3 x 3	9	Read manual, Follow manufacturer's instructions to ensure safe operation	2 x 1	2
	Saw Use - Mitre, Skill, Jig	3 x 3	9	Inspect all tools and equipment to ensure guards in place prior to use, Wear all appropriate/required PPE (hand, eye, face)	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Property Damage	3 x 3	9	Ensure good communication between workers, 360 degree awareness - surroundings, other, etc.	2 x 1	2
	Pinch Points	3 x 3	9	Cutting/trimming motion ALWAYS away from fingers or body, Be aware of surroundings and others	2 x 1	2
	Uncontrolled Movement of Hydraulic Panduit Cutter	3 x 3	9	Focus; eyes and mind on task, Ensure co-workers understand process of action to occur	2 x 1	2
	Loose Clothing	3 x 3	9	No loose clothing, jewelry or hair	2 x 1	2
	Awkward Stance/Position/Posture	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing	2 x 1	2
Back Pan Layout	Muscle strain, fatigue	3 x 3	9	Stretching and proper body positioning	2 x 1	2
	Pinch Points	3 x 3	9	Ensure proper tools and equipment used correctly, 360 degree awareness - surroundings, other, etc.	2 x 1	2
	Poor Communication	3 x 3	9	Ensure good communication between workers	2 x 1	2
	Drilling	3 x 3	9	Ensure proper tools and equipment used correctly, Focus; eyes and mind on task, Pre-inspection of tool to ensure proper working operation	2 x 1	2
	Uncontrolled Movement of Material, Equipment, Tools	3 x 3	9	Wear all proper/required PPE (hand, eye, face shield), Ensure proper body positioning (line-of-fire) and solid footing, Ensure proper tools and equipment used correctly	2 x 1	2
Cabinet Preparation Cut Outs for HMI's, Buttons, and Other Cabinet Penetrations	Fumes	3 x 3	9	Ensure all proper PPE is worn/utilized for task, must be in good condition	2 x 1	2
	Flying Debris	3 x 3	9	360 degree awareness - surroundings, other, etc., Ensure all proper PPE is worn/utilized for task, must be in good condition	2 x 1	2
	Pinch Points	3 x 4	12	Focus; eyes and mind on task, Check and note interior layout of cabinet, Ensure all proper PPE is worn/utilized for task, must be in good condition	2 x 1	2
	Slips, Trips, Falls	3 x 3	9	Plan your route, Be aware of surroundings and others	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Incorrect Use of Skill Saw	3 x 4	12	Follow SWP's during all phases of saw use, Use proper tools correctly; review all appropriate SWP's , Ensure proper tools for task are used correctly; pre-inspect tools to ensure proper working condition	2 x 1	2
	Incorrect Use of Drill	3 x 4	12	Use proper tools correctly; review all appropriate SWP's , Ensure proper tools for task are used correctly; pre-inspect tools to ensure proper working condition	2 x 1	2
	Awkward Stance/Position/Posture	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing	2 x 1	2
	Muscle strain, fatigue	3 x 3	9	Stretching and proper body positioning	2 x 1	2
	Poor Communication	3 x 3	9	Ensure good communication between workers	2 x 1	2
	Property Damage	3 x 3	9	360 degree awareness - surroundings, other, etc.	2 x 1	2
Tubing Of End Devices	Pinch Points	3 x 3	9	Handle tubing with care, Properly dispose of tube remnants and debris, Ensure all appropriate/required PPE is worn, Inspect PPE before using	2 x 1	2
	Slips, Trips, Falls	3 x 4	12	Plan your route, Be aware of surroundings and others	2 x 1	2
	Awkward Stance/Position/Posture	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing	2 x 1	2
	Muscle strain, fatigue	3 x 3	9	Stretching and proper body positioning	2 x 1	2
Wiring of End Devices (Including Use of Flexible Conduit)	Pinch Points	3 x 4	12	Focus; eyes and mind on task, Ensure all proper PPE is worn/utilized for task, must be in good condition, Use proper tools correctly; review all appropriate SWP's , Ensure proper tools for task are used correctly; pre-inspect tools to ensure proper working condition	2 x 1	2
	Slips, Trips, Falls	3 x 4	12	Plan your route, Be aware of surroundings and others	2 x 1	2
	Awkward Stance/Position/Posture	3 x 3	9	Stretching and proper body positioning, Ensure proper body positioning (line-of-fire) and solid footing	2 x 1	2
	Muscle strain, fatigue	3 x 3	9	Stretching and proper body positioning	2 x 1	2
Wiring To Terminal Blocks	Relay of Incomplete or Incorrect Information	3 x 3	9	Read drawings carefully and follow drawings exactly	1 x 1	1

Name: Hazard Assessment T-02 - Control Panel Fabrication
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Point-to-Point Testing of Wiring	Proper Wiring Plan Not Followed	3 x 3	9	Follow SWP for panel testing, Double check wiring layout against plans	2 x 1	2
	Equipment Malfunction (Multi-Meter)	3 x 3	9	Ensure proper tools and equipment used correctly, Pre-inspection of tool to ensure proper working operation	2 x 1	2
	Hit By Wires Coming Loose	3 x 3	9	Proper use of terminating screw driver, Inspect multi-meter, in good working order, Wear all proper PPE (hand, eye, face shield)	2 x 1	2
	Pinch Points	3 x 4	12	Focus; eyes and mind on task	2 x 1	2
	Awkward Stance/Position/Posture	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing	2 x 1	2
	Muscle strain, fatigue	3 x 3	9	Stretching and proper body positioning	2 x 1	2
Housekeeping	Pinch Points	3 x 4	12	360 degree awareness - surroundings, other, etc.	2 x 1	2
	Property Damage	3 x 3	9	360 degree awareness - surroundings, other, etc.	2 x 1	2
	Loose Material and Debris	3 x 3	9	Clear job area/site; properly dispose of debris	2 x 1	2
	Tight Working Spaces	3 x 3	9	Stretching and proper body positioning, Take micro breaks as required to reduce strain/fatigue	2 x 1	2
	Awkward Stance/Position/Posture	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing	2 x 1	2
	Muscle strain, fatigue	3 x 3	9	Stretching and proper body positioning, Follow SWP for lifting/handling materials	2 x 1	2

Name: Hazard Assessment T-02 - Control Panel Fabrication
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment T-03 - Field Programming
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit From Client Complete Associated PJHA	Lack Of Complete Clear Communication	3 x 4	12	Ensure proper communication with all personnel in area	1 x 1	1
	Not Identifying all Existing & Potential Location and Work Site Hazards	2 x 2	4	Review / discuss relevant THA's with crew(s), Review / discuss relevant JHA's with crew(s), Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Review Lock Out /Tag Out Safe Work Practice, and any other SWP's associated or involved with this task, Ensure all appropriate/required PPE is worn, Wear personal gas monitor, calibrated and bump tested	2 x 1	2
Field Programming w/Laptop and Multi-Meters	Potential Injury From Pressurized Fittings, Transducers, etc.	3 x 3	9	360 degree awareness - surroundings, other, etc., Communicate sequence of events of task	2 x 1	2
	Potential Exposure to Hazardous Atmosphere	3 x 4	12	Wear personal monitor - calibrate, bump test, record, battery level checked	2 x 1	2
	Faulty Laptop Programming	2 x 2	4	Laptop in good working order for tasks	2 x 1	2
	Laptop Connector Cords Faulty	3 x 2	6	Connector cords in good working order	2 x 1	2
	Faulty Equipment	3 x 3	9	Testing equipment checked; in good order	2 x 1	2
	Live Parts, Potential Electric Shock	3 x 4	12	Wear all appropriate/required PPE, Be aware of surroundings and others	2 x 1	2
	Potential Auto Start Up or Shut Down of Equipment	3 x 3	9	Lock Out/Tag Out where required	2 x 1	2
End Devices Lock Out / Tag Out Performed Pressure Bled Off Visual Inspection Test / Meter Faulty Equipment Calibrate, Re-Test	LO/TO Not Performed Correctly	3 x 4	12	Confirm LO/TO SWP followed, as/where required	2 x 1	2
	Potential Injury From Pressurized Fittings, Transducers, etc.	3 x 3	9	Pressure transducer fully blocked prior to removal, Compressor fully blown down to atmospheric pressure	2 x 1	2
	Potential Exposure to Hazardous Atmosphere	3 x 4	12	Wear personal monitor - calibrate, bump test, record, battery level checked	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Equipment Shut Down Causes Other Equipment to Also Change Operation	3 x 3	9	Communicate sequence of events of task, Clear communication with operations	2 x 1	2
	Potential Auto Start Up or Shut Down of Equipment	3 x 4	12	Focus; eyes and mind on task, Be aware of surroundings and others	2 x 1	2
	Electricity, Electrical Shock	3 x 4	12	Wear all appropriate/required PPE (arc flash), Use properly rated tools correctly, 360 degree awareness - surroundings, other, etc.	2 x 1	2
	Airborne Dust, Debris, Particles, etc.	3 x 3	9	Ensure all appropriate / required PPE is worn - reassess per each task	2 x 1	2
Testing Performed In Live Panels Test, Meter Faulty Equipment Calibrate, Re-Test	LO/TO Not Performed Correctly	3 x 4	12	Review Zero Energy Isolation Code of Practice w/Operations, Confirm LO/TO SWP followed, as/where required	2 x 1	2
	Equipment Shut Down Causes Other Equipment to Also Change Operation	3 x 3	9	Communicate sequence of events of task, Clear communication with operations	2 x 1	2
	Potential Auto Start Up or Shut Down of Equipment	3 x 3	9	Be aware of surroundings and others, Clear communication with operations	2 x 1	2
	Low Amperage Devices	2 x 2	4	Follow manufacturer's manuals, diagrams - ensure proper connections	1 x 1	1
	Low Voltages (24DC)	3 x 2	6	Test before touch	2 x 1	2
	Live Parts, Potential Electric Shock	3 x 4	12	Test before you touch, Ensure all appropriate / required PPE is worn - reassess per each task	2 x 1	2
General Troubleshooting	Sharp Edges – Cuts/Lacerations	3 x 4	12	360 degree awareness - surroundings, other, etc., Ensure all proper PPE is worn/utilized for task, must be in good condition	2 x 1	2
	Dropping Tools /Materials to Ground Below	3 x 4	12	Flag off work area, Tool lanyards used to safeguard against accidental drops	2 x 1	2
	Slips, Trips, Falls	3 x 4	12	Plan your route, Be aware of surroundings and others	2 x 1	2
	Working at Heights	3 x 4	12	Follow SWP for ladder use (maintain 3 pt. contact)	2 x 1	2
	Awkward Stance/Position/Posture	3 x 3	9	Focus; eyes and mind on task, Pre-task stretching, Ensure proper body positioning (line-of-fire) and solid footing, Use proper lifting & handling techniques	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Live Parts, Potential Electric Shock	3 x 4	12	Ensure all appropriate / required PPE is worn - reassess per each task	2 x 1	2
Replace or Adjust Faulty Equipment	Potential Injury From Pressurized Fittings, Transducers, etc.	3 x 4	12	LO/TO correctly removed, per SWP, Follow manufacturer's manuals, diagrams - ensure proper connections	2 x 1	2
	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	3 x 4	12	360 degree awareness - surroundings, other, etc., Wear personal monitor - calibrate, bump test, record, battery level checked	2 x 1	2
	Airborne Dust, Debris, Particles, etc.	3 x 4	12	Ensure all proper PPE is worn/utilized for task, must be in good condition	2 x 1	2
Re-Check Work For Errors or Inadequate Finishing	Incorrect Connections	3 x 4	12	Follow procedure	2 x 1	2
	Potential Injury From Pressurized Fittings, Transducers, etc.	3 x 4	12	Ensure proper body positioning (line-of-fire) and solid footing, 360 degree awareness - surroundings, other, etc.	2 x 1	2
	Potential Exposure To Hazardous Gases (H2S, LEL, CO, Propane, Casing Gas	3 x 4	12	Ensure all appropriate / required PPE is worn - reassess per each task, Personal monitors worn – calibrated, bumptested, recorded, with fully charged batteries	2 x 1	2
	Potential Auto Start Up or Shut Down of Equipment	3 x 4	12	Focus; eyes and mind on task	2 x 1	2
	Electrical Shock	3 x 4	12	Wear required full arc flash appropriate for category of work	2 x 1	2
Housekeeping	Pinch Points / Crush Type Injury	3 x 4	12	Wear all required PPE (hand, eye protection), Be aware of surroundings, tools, material, equipment and others	2 x 1	2
	Property Damage	3 x 2	6	360 degree awareness - surroundings, other, etc.	2 x 1	2
	Loose Material and Debris	3 x 3	9	Clear job area/site; properly dispose of debris	2 x 1	2
	Tight Working Spaces	3 x 3	9	Stretching and proper body positioning	2 x 1	2
	Awkward Stance/Position/Posture	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing, Use micro breaks to stretch out muscles	2 x 1	2

Name: Hazard Assessment T-03 - Field Programming
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Muscle strain, fatigue	3 x 3	9	Follow SWP for lifting/handling materials, Stretching and proper body positioning	2 x 1	2

Name: Hazard Assessment T-03 - Field Programming
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
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2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment T-04 - Material Movement
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit From Client	Lack Of Complete Clear Communication	3 x 4	12	Clear communication with operations	1 x 1	1
Complete Associated PJHA	Not Having Clear Understanding Of Scope of JHA Or Permit	3 x 2	6	Review JHA with operations prior to signing, Review JHA's and THA's with workers	2 x 1	2
	Not Identifying all Existing & Potential Location and Work Site Hazards	3 x 2	6	Focus, eyes and mind on task, be aware of your surroundings, Review / discuss relevant THA's with crew(s), Review / discuss relevant JHA's with crew(s), Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Perform ONLY work identified by the permit, Ensure all appropriate / required PPE is worn - reassess per each task	2 x 1	2
Forklift Operation	Congestion from Other Vehicles or Equipment or Materials	3 x 3	9	Focus, eyes and mind on task, be aware of your surroundings	2 x 1	2
	Potential Auto Start Up or Shut Down of Equipment	3 x 3	9	Pre-use inspection of forklift completed, Operator must be properly certified	2 x 1	2
	Overhead Hazards	3 x 3	9	Review PJHA with other workers, Focus, eyes and mind on task, be aware of your surroundings, Use of Spotter	2 x 1	2
	Not Using Spotter, Not Using Standard Hand Signals	3 x 3	9	Use of Spotter, Review standard signals to be used to direct movement	2 x 1	2
	Personnel Moving Through Area, Not Paying Attention	3 x 3	9	Use caution w/ground conditions stepping into or out of forklift, Be aware of surroundings and others, Use caution -Focus; eyes and mind on task	2 x 1	2
	Personnel in Proximity to Moving Equipment	3 x 3	9	Ensure all appropriate / required PPE is worn - reassess per each task, Use Caution - FOCUS; eyes and mind on task , Be aware of surroundings and others	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Relay of Incomplete or Incorrect Information	3 x 3	9	Review all related / relevant Safe Work Practices (SWP's) for lifting techniques and load limits on equipment used, Ensure clear understanding of all assigned workers of the task and/or permit	2 x 1	2
Lifting, Moving, Relocating Panels and Raw Equipment	Sharp/Pointed Objects/Cuts & Punctures	3 x 3	9	Follow proper procedures, Ensure all appropriate /required PPE is worn - reassess per each task	2 x 1	2
	Pinch Points / Crush Type Injury	3 x 3	9	Ensure proper body and extremities positioning (line of fire), Focus, eyes and mind on task, be aware of your surroundings	2 x 1	2
	Awkward heavy lifting, muscle strain	3 x 3	9	Get help for manual lifts and load placement, Team Lift; use proper lifting techniques, Keep extremities clear of pinch points	2 x 1	2
	Slips, Trips, Falls	3 x 3	9	Plan your route, Be aware of surroundings and others, Ensure proper body positioning (line-of-fire) and solid footing	2 x 1	2
	Overhead Hazards	3 x 3	9	Use of Spotter, Focus, eyes and mind on task, be aware of your surroundings	2 x 1	2
	Operating Forklift in Close Quarters to Facilities, Equipment, Personnel	3 x 3	9	Use of Spotter, Pre-check route of travel; solid ground surface, clear access with enough room, no debris, no overhead obstructions	2 x 1	2
	Not Maintaining Eye Contact	3 x 3	9	Be aware of others; keep them in clear view, Make eye contact with operator	2 x 1	2
	Not Using Spotter, Not Using Standard Hand Signals	3 x 3	9	Review standard signals to be used to direct movement, Use of Spotter	2 x 1	2
	Damage to Property, Facilities, Equipment	3 x 3	9	Use of Spotter, Focus, eyes and mind on task, be aware of your surroundings	2 x 1	2
	Failure of Tie-Down Fasteners and/or Lifting Lugs	3 x 3	9	Follow Load Securement SWP, Pre-use inspection of tie-down fasteners and/or lifting lugs	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Forks, Incorrectly Loaded; Material Shifting, Being Dropped	3 x 3	9	Secure equipment to prevent falls, Ensure proper loading SWP is followed to load forklift, Isolate any possibility of injury to surrounding personnel, Ensure proper body and extremities positioning (line of fire)	2 x 1	2
Opening Shipping Containers, Boxes, Etc.	Laceration From Incorrect Knife Use	3 x 3	9	Follow proper procedures, Ensure all appropriate /required PPE is worn - reassess per each task	2 x 1	2
	Sharp/Pointed Objects/Cuts & Punctures	3 x 3	9	Review and follow SWP for knife use, Perform housekeeping; ensure work area is clear of debris, equipment, tools, etc.	2 x 1	2
	Pinch Points / Crush Type Injury	3 x 3	9	Ensure proper body and body parts positioning (line-of-fire) and solid footing, Focus; eyes and mind on task, Be aware of surroundings, Ensure tie-down straps are inspected after use, packed up and safetly stowed away	2 x 1	2
Housekeeping	Muscle strain, fatigue	3 x 3	9	Stretching and proper body positioning, Follow SWP for lifting/handling materials	2 x 1	2
	Awkward Stance/Position/Posture	3 x 3	9	Use micro breaks to stretch out muscles, Ensure proper body positioning (line-of-fire) and solid footing	2 x 1	2
	Tight Working Spaces	3 x 3	9	Use micro breaks to stretch out muscles	2 x 1	2
	Loose Material and Debris	3 x 3	9	Perform housekeeping; ensure work area is clear of debris, equipment, tools, etc., Ensure tools, equipment carefully checked, packed up and safely stored away, Be aware of surroundings, tools, materials, equipment and others	2 x 1	2
	Property Damage	3 x 3	9	Focus, eyes and mind on task, be aware of your surroundings	2 x 1	2
	Pinch Points / Crush Type Injury	3 x 3	9	Focus, eyes and mind on task, be aware of your surroundings, Ensure all appropriate /required PPE is worn - reassess per each task	2 x 1	2

Name: Hazard Assessment T-04 - Material Movement
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment T-05 - Lamacoid Engraver Operation
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain All Applicable And/Or Appropriate Permits Required For Operation And/Or Maintenance	Not Having Clear Understanding Of Scope of JHA Or Permit	2 x 2	4	Ensure clear understanding of all assigned workers of the task and/or permit, Perform only work identified by permit	1 x 1	1
Complete Associated JHA	Lack of Training in Equipment's Operation	4 x 3	12	Ensure training /certification is appropriate for task	1 x 1	1
	Not Identifying all Existing & Potential Location and Work Site Hazards	2 x 2	4	Review / discuss relevant THA's with crew(s), Review / discuss relevant JHA's with crew(s), Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Ensure all appropriate/required PPE is worn, Review Lock Out/Tag Out and Energized Electrical safe work practice, and any other SWP's associated or involved with this task	1 x 1	1
Create Layout of Labels in Software Program On Computer	Eye Strain	2 x 1	2	Ensure all appropriate/required PPE is worn, Change computer visuals to reduce eye strain	1 x 1	1
	Computer Use	2 x 2	4	Follow manufacturer's instructions to ensure safe operation	2 x 1	2
	Awkward Stance/Position/Posture	3 x 2	6	Ensure proper body positioning (line-of-fire)	1 x 1	1
Review Finished Diagram For Accuracy	Relay of Incomplete or Incorrect Information	3 x 3	9	Read drawings carefully and follow drawings exactly	1 x 1	1
Guages Placed in Corners of Bed To Determine Measurement (Thickness) of Material To Be Used	Contact With Open Cabinet Doors	3 x 2	6	Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Pinch Points	2 x 2	4	Ensure all appropriate PPE is worn (hand, eye, face, hearing) must be in good condition, Perform housekeeping; ensure work area is clear of debris, equipment, tools, etc.	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Determine Appropriate Cutters To Be Used Change Out Cutters When Necessary	Cuts / Scrapes /Lacerations / Abrasions	3 x 3	9	Pre-inspect cutting bed and laser cutter, Ensure proper material is used for each task required, Use proper tools correctly; review all appropriate SWP's , Ensure proper tools for task are used correctly; pre-inspect tools to ensure proper working condition, Wear appropriate PPE (in good condition), Follow manufacturer's instructions to ensure safe operation	1 x 1	1
Plastic Blanks Secured Into Bed Of Epilog Machine Preparing For Laser Engraving	Potential Energization Of Laser Engraver	3 x 3	9	Focus; eyes and mind on task	1 x 1	1
	Pinch Points	3 x 3	9	Pre-use inspection of laser tip/maneuvering arem, safety cover, securing vice, etc.	1 x 1	1
	Cuts / Scrapes /Lacerations / Abrasions	3 x 3	9	Select and place proper materials for task	1 x 1	1
	Airborne Dust, Debris, Particles, etc.	4 x 2	8	Wear respiratory protection; when excessive amounts of dust are present and for airborne exposures above normal limits	1 x 1	1
	Potential Contact With Burns; Hool Tool /Material	3 x 3	9	Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1
	Contact With Open Cabinet Doors	3 x 2	6	Be aware of position of hands (line-of-fire)	1 x 1	1
Where Metal Blanks Used: Surface To Be Prepared w/Paint Secured Into Engraving Bed With Vice	Potential Exposure To Airborne Metal Spray Paint	3 x 2	6	Review instructions for use of spray paint, Focus; eyes and mind on task, Wear proper PPE (leather gloves, glasses, face shield), Pre-use review MSDS for paint to be used on metal tag surfaces	1 x 1	1
	Sharp Edges – Cuts/Lacerations	3 x 3	9	Focus; eyes and mind on task, Ensure material to be engraved is properly secured, Ensure proper body positioning (line-of-fire) and solid footing, Ensure proper tools and equipment used correctly	1 x 1	1
	Contact With Open Cabinet Doors	2 x 2	4	Focus; eyes and mind on task, Be aware of surroundings, Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Start Computer Program To Run Laser Engraver And Cut Tags Out	Potential Fire; Sparks From Laser Heated Material or Metal	2 x 2	4	Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1
	Cabinet Door Safety Mechanism Fails To Lock Closed; Laser Cutting Beam Not Contained	2 x 3	6	Ensure top cabinet door is securely shut while laser engraving program is running, Do not attempt to open top while laser is operating	1 x 1	1
	Exhaust Fan System Failure; Exposure To Smoke / Fumes	1 x 2	2	Be aware of surroundings and others	1 x 1	1
Completion Of Engraving; Machine Shut Off and Removal Of Completed Tags	Exhaust Fan System Failure; Exposure To Smoke / Fumes	1 x 2	2	Wear all appropriate / required PPE	1 x 1	1
	Awkward Stance/Position/Posture	3 x 2	6	Focus, eyes and mind on task, be aware of your surroundings, Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1
	Cabinet Door Failure; Locked Shut	1 x 1	1	Loosening vices holding plastic or metal labels or tablets; safe extraction from bed of Epilog, Transfer to surface for application of double-sided tape	1 x 1	1
Double Sided Tape Cut And Applied To Back Of Finished Tags	Sharp Edges – Cuts/Lacerations	3 x 3	9	Focus; eyes and mind on task, Follow Knife Use SWP, Wear all proper PPE (hand, eye, face shield), Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1
Removal Of Residual Metal Marking Spray	Potential Exposure To Aerosol Spray (Inhalation, Ingestion, Dermal Contact)	3 x 2	6	Review instructions for safe removal of spray, Wear all proper PPE (hand, eye, face shield), Review MSDS for spray	1 x 1	1
	Sharp Edges – Cuts/Lacerations	3 x 3	9	Focus; eyes and mind on task, Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1
Maintenance Of Epilog Engraver Machine: Housekeeping, Cleaning Changing Out Cutters Changing Out Laser Pointer	Airborne Dust, Debris, Particles, etc.	2 x 2	4	Wear all appropriate PPE in good condition, Secure equipment, tools, materials away safely, Perform housekeeping;ensure floor areas are clear of debris, equipment, tools, etc.	1 x 1	1
	Sharp Edges – Cuts/Lacerations	3 x 2	6	Be aware of position of hands (line-of-fire), Wear approved ANSI cut level 5 resistant gloves	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Pinch Points	3 x 2	6	Perform post-use inspection of all emements of Epilog maching; document all anomalies, Where necessary, tag out-of-service for repair/replacement	1 x 1	1
	Muscle strain, fatigue	3 x 2	6	Use proper ergonomics	1 x 1	1
	Contact With Open Cabinet Doors	2 x 2	4	Focus; eyes and mind on task	1 x 1	1
	Uneven Surfaces	2 x 2	4	Focus; eyes and mind on task	1 x 1	1
	Property Damage	2 x 2	4	Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool	1 x 1	1

Name: Hazard Assessment T-05 - Lamacoid Engraver Operation
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

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Name: Hazard Assessment T-06 - Flashback Arrestor Testing
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Orientation and Permitting	Lack of Training in Specific Task	3 x 4	12	Ensure training /certification is appropriate for task	1 x 1	1
	Lack Of Complete Clear Communication	3 x 4	12	Clear communication with permit issuer	1 x 1	1
Visual Inspection of Arrestor and Surrounding Area to Ensure a Safe Propane Flashback Test	Falls from Heights	2 x 4	8	Fall Protection Equipment	1 x 1	1
	Awkward Stance/Position/Posture	2 x 3	6	Stretching and proper body positioning	1 x 1	1
	Possible Flashback During Inspection Due to Missing or Defective Parts	2 x 3	6	Atmospheric Testing, Following Procedures, Verify for combustable material around the arrestor	2 x 1	2
Set Up Safety Watch and Gear	Material Handling	3 x 3	9	Practice proper lifting techniques, Follow proper material storage practice	1 x 1	1
Inspection Within Arrestor Cover	Hot Surfaces	3 x 3	9	Wear appropriate PPE (gloves)	1 x 1	1
	LEL Exposure	3 x 5	15	Purge fire tube atmosphere with adequate time	1 x 1	1
	Harmful Gases	3 x 5	15	LO/TO gas source	1 x 1	1
Seal Arrestor and Re-Engage Process	Detonation	2 x 5	10	No delay in ignition of gas, Continuous Monitoring of Ball Valve Shut Off (fuel shut off valve)	1 x 1	1
	Flashbacks	3 x 3	9	Proper sealing around arrestor	1 x 1	1
Propane Flashback Introduce Gas From the Outside Into the Arrestor to See if Flame Will Propogate Into the Exterior Atmosphere	Detonation	2 x 5	10	Ensure propane flow rate is sufficient, Proper body placement of performing authority and Safety Watch, Re-verify atmospheric conditions prior to introduction of gas	1 x 1	1
	Flashbacks	3 x 3	9	Ensure spring loaded ball valve is present on wand, Wear appropriate PPE (in good condition)	1 x 1	1
Clean Up	Material Handling	2 x 3	6	Follow proper material storage practice, Practice proper lifting techniques	1 x 1	1
	Poor Housekeeping	2 x 1	2	Use proper lifting techniques, Maintain proper body positioning , Perform housekeeping; ensure task areas are clear of debris, equipment, tools, etc	1 x 1	1

Name: Hazard Assessment T-06 - Flashback Arrestor Testing
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment T-08 - Climbing Towers
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit From Client	Not Identifying all Existing & Potential Location and Work Site Hazards	2 x 1	2	Visual check of location hazards, Review all safe work practices (SWP's) associated or involved with this task, Perform ONLY work identified by permit	1 x 1	1
Check Weather And Conditions	Weather Conditions	2 x 1	2	Monitor changing weather / conditions paying close attention to wind and lightening strikes	1 x 1	1
Check All Safety Equipment	Sharp Edges – Cuts/Lacerations	2 x 2	4	Maintain proper body positioning (line-of-fire)	1 x 1	1
	Pinch Points	2 x 1	2	Wear all appropriate PPE for task	1 x 1	1
	No Inspection Forms (Documentation)	2 x 1	2	Document all findings; maintain log book	1 x 1	1
Inspect Fall Arrest Equipment	Muscle strain, fatigue	1 x 2	2	Use a 'buddy check' to see any anomalies	1 x 1	1
	Pinch Points	2 x 1	2	Ensure harness fits properly, Clean and inspect harness; document inspection on approved form, Use proper harness	1 x 1	1
Climb Tower To Working Task Height	Muscle strain, fatigue	3 x 3	9	Ensure proper hydration maintained, Use micro breaks to stretch out muscles, Stretching and proper body positioning	2 x 2	4
	Falls from Heights	3 x 5	15	Mandatory 100% tied off, Use fall restraint (preferably engineered fall arrest system, use double lanyard to transition faces)	1 x 3	3
Working At Heights	Pinch Points	3 x 3	9	Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Fatigue, Disorientation /Dizziness	3 x 5	15	Take breaks, Ensure proper hydration maintained	2 x 1	2
	Falls from Heights	3 x 5	15	Maintain communication with ground crew, Mandatory 100% tied off, Use fall restraint (preferably engineered fall arrest system, use double lanyard to transition faces)	1 x 3	3
Descend To Ground	Fatigue, Disorientation /Dizziness	2 x 5	10	Use fall restraint (preferably engineered fall arrest system, use double lanyard to transition faces), Ensure proper hydration maintained	1 x 1	1
	Muscle Strain	3 x 3	9	Maintain proper body positioning (line of fire) and footing	2 x 1	2

Name: Hazard Assessment T-08 - Climbing Towers
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Falls from Heights	3 x 5	15	Mandatory 100% tied off	1 x 3	3
Remove Any Rigging & Gear	Falling Objects	3 x 5	15	Tool lanyards used to safeguard against accidental drops, Use proper rigging techniques (refer to Using Cranes & Hoists THA) and rope management	1 x 1	1
Remove Fall Arrest Equipment	Muscle Strain	3 x 3	9	Stretching and proper body positioning	1 x 1	1
	Pinch Points	3 x 3	9	Proper hand placement (line-of-fire)	1 x 1	1

Name: Hazard Assessment T-08 - Climbing Towers
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

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Control Tech Risk Matrix

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2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment T-09 - Terminating (Fiber Optic Cable At Patch Panels, JB's)
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Safe Work Permit From Client Operations	Not Identifying all Existing & Potential Location and Work Site Hazards	2 x 2	4	Ensure clear understanding of all assigned workers of the task and/or permit, Perform only work identified by permit, Review / discuss relevant THA's with crew(s), Review / discuss relevant JHA's with crew(s), Review all related / relevant Safe Work Practices (SWP's) associated or involved with this task, Wear appropriate PPE (in good condition), Review Lock Out/Tag Out and Energized Electrical safe work practice, and any other SWP's associated or involved with this task	1 x 1	1
De-Energize Circuits	Live Voltages Present	3 x 3	9	Check circuits are de-energized; use meter rated for measuring voltages, Complete authorization form for Energized Electrical Work, Ensure correct Lockout/Tagout practice and location, Wear appropriate PPE (in good condition), Wherever possible de-energize equipment	1 x 1	1
	Pinch Points	3 x 3	9	Be aware of hand placement (line-of-fire), Ensure all appropriate/required PPE is worn, Inspect PPE before using	1 x 1	1
Tag and Lock Out Panels and Disconnects (if/where required)	Pinch Points	3 x 3	9	Be aware of hand placement (line-of-fire), Ensure all appropriate/required PPE is worn, Inspect PPE before using	1 x 1	1
Set Up Ladder to Access Junction Box (if/where required)	Awkward Stance/Position/Posture	2 x 3	6	Focus; eyes and mind on task, Take micro breaks as required to reduce strain/fatigue, Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Ground Conditions	3 x 3	9	Follow ladder use SWP; select proper ladder for task, Use caution when walking; ensure proper footing	1 x 1	1
	Property damage from contact with equipment, tools, vehicles	2 x 2	4	Focus; eyes and mind on task, Review any customer procedures and any other associated with the job or facility, Spotter to hold ladder	1 x 1	1
	Pinch Points	3 x 3	9	Wear appropriate PPE (in good condition), Be aware of hand placement (line-of-fire)	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Falls from Heights	3 x 3	9	Follow ladder use SWP; select proper ladder for task, If working above 1.8m, use correct fall protection, Do not use top two rungs, On ladders, always maintain 3 point contact, Fall protection plan required when working at heights, Pre-use ladder inspection	1 x 1	1
Drill Holes In Junction Box for Fiber Optic Cable Entry	Contact With Open Cabinet Doors	3 x 2	6	Be aware of hand placement (line-of-fire), Ensure all appropriate/required PPE is worn	1 x 1	1
	Burns/Hot Surfaces	4 x 3	12	Ensure all appropriate/required PPE is worn, Proper hand placement (line-of-fire)	1 x 1	1
	Falling Debris / Slag	3 x 3	9	Ensure all appropriate/required PPE is worn	1 x 1	1
	Cuts / Scrapes /Lacerations / Abrasions	3 x 3	9	Maintain proper body positioning (line of fire) and footing, Follow SWP for drill use; use sharp bits, drill away from body, Ensure all appropriate/required PPE is worn	1 x 1	1
	Contact with Live Wire or Instrument Gas LIne	4 x 4	16	Focus; eyes and mind on task, Ensure proper use of tools and equipment, Perform pre-use inspection of power tools, Move wiring or piping from proximity to task area, Consider alternate penetration point if hazards are within immediate vicinity or if there is difficulty taking precise measurements, Follow SWP for drill use; use sharp bits, drill away from body	1 x 1	1
	Secondary Voltage	4 x 3	12	Ground out cable, Wear all appropriate PPE in good condition, Check in and outside panel	1 x 1	1
Cut and Strip Fiber Optic Cable to Length at Patch Panel, JB	Electricity, Electrical Shock	4 x 4	16	Lock-out/Tag-out Program, Review all related/relevant Safe Work Practices (SWP's) associated or involved with this task, Wear all appropriate/required PPE	1 x 1	1
	Dropping Tools /Materials to Ground Below	4 x 3	12	Tool lanyards used to safeguard against accidental drops, Ensure material and tools are contained when working at heights; ie use tool bags, Install barricades and flag off work area, if required	1 x 1	1
	Falls From Ladders	4 x 4	16	Complete a fall protection plan and review with all personnel involved in this task, Follow safe ladder use practice, Follow SWP for working at heights, Ensure all appropriate/required PPE is worn	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Working at Heights	4 x 4	16	Follow SWP for working at heights, Complete a fall protection plan and review with all personnel involved in this task, Ensure all appropriate/required PPE is worn	1 x 1	1
	Muscle strain, fatigue	3 x 3	9	Take micro breaks as required to reduce strain/fatigue	1 x 1	1
	Awkward Stance/Position/Posture	3 x 2	6	Maintain proper body positioning (line-of-fire), Wear proper, requied PPE (gloves), Focus; eyes and mind on task	1 x 1	1
	Sharp Edges – Cuts/Lacerations	4 x 3	12	Use proper knife - cut away from body, Be aware of position of hands (line-of-fire) , Review and follow SWP for knife use , Maintain proper body positioning (line-of-fire)	1 x 1	1
	Extreme Temperatures/Cold Stress	3 x 3	9	Follow fiber optics manufacturer's specifications for cold weather conditions	1 x 1	1
Install Fiber Optic Cable Connector and Secure Into Patch Panel, JB	Extreme Temperatures/Cold Stress	2 x 2	4	Follow fiber optics manufacturer's specifications for cold weather conditions	1 x 1	1
	Electricity, Electrical Shock	4 x 4	16	Lock-out/Tag-out Program, Continued vigilance for potential secondary voltage	1 x 1	1
	Dropping Tools /Materials to Ground Below	3 x 3	9	Install barricades and flag off work area, if required, Tool lanyards used to safeguard against accidental drops, Ensure material and tools are contained when working at heights; ie use tool bags	1 x 1	1
	Falls From Ladders	4 x 4	16	Use fall protection if working above 1.8m / 6Ft., Follow SWP for ladder use, placement and secure tie-off	1 x 1	1
	Working at Heights	3 x 4	12	Follow safe ladder use practice, Follow THA E-27 Working At Heights, Ensure all appropriate/required PPE is worn, Fall protection plan in place when working at heights	1 x 1	1
	Awkward Stance/Position/Posture	2 x 2	4	Maintain proper body positioning (line of fire) and footing, Use micro breaks to stretch out muscles	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Sharp Edges – Cuts/Lacerations	3 x 3	9	Focus; eyes and mind on task, Ensure all appropriate/required PPE is worn, Inspect PPE before using	1 x 1	1
	Pinch Points	3 x 3	9	Be aware of position of hands (line-of-fire), Wear all appropriate PPE in good condition	1 x 3	3
Strip Fibers	Awkward Stance/Position/Posture	2 x 2	4	Take micro breaks as required to reduce strain/fatigue, Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Sharp Edges – Cuts/Lacerations	3 x 3	9	Be aware of hand placement (line-of-fire), Ensure proper tools for task are used, (knives, wire strippers, etc.), Ensure all appropriate/required PPE is worn	1 x 1	1
	Pinch Points	3 x 3	9	Focus; eyes and mind on task, Wear all appropriate PPE in good condition	1 x 1	1
	Airborne Debris From Fiber Tubes	2 x 2	4	Follow manufacturer's precautions	1 x 1	1
	Extreme Temperatures/Cold Stress	2 x 3	6	Follow fiber optics manufacturer's specifications for cold weather conditions	1 x 1	1
	Electricity, Electrical Shock	3 x 4	12	Lock-out/Tag-out Program, Continued vigilance for potential secondary voltage, As wires are terminated, use print to tag correctly / accurately	1 x 1	1
	Dropping Tools /Materials to Ground Below	2 x 3	6	Ensure barriers/flags clearly visible, placed as/where necessary around task area, Tool lanyards used to safeguard against accidental drops	1 x 1	1
	Falls From Ladders	3 x 3	9	Follow safe ladder use practice	1 x 1	1
	Working at Heights	3 x 3	9	Ensure ladder is properly tied off, Follow SWP for working at heights, Fall protection plan in place when working at heights, Wear appropriate PPE (in good condition)	1 x 1	1
Terminate Fibers at Patch Panel, JB	Pinch Points	3 x 3	9	Maintain proper body positioning (line of fire) and footing, Wear all appropriate/required PPE	1 x 1	1
Tag Fibers	Complacency - Lack of Review of Appropriate Safe Work Information	3 x 3	9	Review all related / relevant Safe Work Practices (SWP's) associated or involved with this task	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Pinch Points	3 x 3	9	Maintain proper body positioning (line of fire) and footing, Wear all appropriate/required PPE	1 x 1	1
Remove Terminated Fibers	Contact With Open Cabinet Doors	2 x 2	4	360 degree awareness - surroundings, other, etc.	1 x 1	1
	Electricity, Electrical Shock	3 x 3	9	Continued vigilance for potential secondary voltage	1 x 1	1
	Falls from Heights	3 x 3	9	Follow THA E-27 Working At Heights, Ensure all proper PPE is worn/utilized for task, must be in good condition, Fall protection plan required when working at heights	1 x 1	1
	Awkward Stance/Position/Posture	2 x 2	4	Maintain proper body positioning (line of fire) and footing	1 x 1	1
	Sharp Edges – Cuts/Lacerations	3 x 3	9	Focus; eyes and mind on task, Ensure all proper PPE is worn/utilized for task, must be in good condition	1 x 1	1
	Connector Damage; Airborne Debris	2 x 2	4	Follow fiber optics manufacturer's specifications for cold weather conditions	1 x 1	1
	Working at Heights	3 x 4	12	Follow safe ladder use practice (proper tie-offs and 3 point contact maintained at all times), Review all related / relevant Safe Work Practices (SWP's) associated or involved with this task, Ensure ladder is properly tied off, Use proper fall protection where required (3m or above)	1 x 1	1
	Failure Of Test Equipment	3 x 4	12	Review results of testing reports; ensure accuracy, Wear all appropriate PPE in good condition	1 x 1	1
Test Fibers - Use OTDR	Potential Electrical Shock	4 x 4	16	Follow manufacturer's wiring diagram and schematics to ensure proper connections, Check certification date; DO NOT USE any meter that fails any of the prescribed tests, Ensure all appropriate/required PPE is worn	1 x 1	1
Housekeeping	Property Damage	3 x 2	6	Perform post-use inspection of ladder, drill, etc; document all anamalies, Where necessary; tag out-of-service for repair / replacement	1 x 1	1
	Slips, Trips, Falls	2 x 2	4	Use caution when walking; ensure proper footing	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Loose Material and Debris	2 x 2	4	Perform housekeeping;ensure floor areas are clear of debris, equipment, tools, etc., Secure equipment, tools, materials away safely, Be aware of others and surroundings	1 x 1	1
	Uneven Surfaces	2 x 2	4	Use caution when walking; ensure proper footing	1 x 1	1
	Sharp Edges – Cuts/Lacerations	2 x 3	6	Wear all appropriate/required PPE	1 x 1	1
	Pinch Points	2 x 3	6	Maintain proper body positioning (line of fire) and footing, Wear all appropriate/required PPE	1 x 1	1
	Awkward Stance/Position/Posture	2 x 2	4	Take micro breaks as required to reduce strain/fatigue, Follow safe lifting/handling practice, Wear appropriate PPE (in good condition), Ensure proper body positioning (line-of-fire) and solid footing	1 x 1	1

Name: Hazard Assessment T-09 - Terminating (Fiber Optic Cable At Patch Panels, JB's)
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

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L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

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1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment V-01 - A.V.K In-Situ Testing
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Obtain Permit for PRV Testing Null	Slips, Trips, Falls	3 x 3	9	Wear all appropriate PPE in good condition, Wear proper footwear with additional slip-on traction devices	2 x 1	2
	Lack Of Complete Clear Communication	3 x 3	9	Consider use of open-ended questions and back briefing/repeat to check understanding as a control for poor communication	2 x 1	2
Transport Equipment to PRV	Poor Ground Condition	3 x 2	6	Use caution when walking; ensure proper footing	2 x 1	2
	Temperature	3 x 3	9	If inside a boiler room dress lightly and take cool down breaks, Dress for the weather conditions; if working outside in winter dress warmly and take warm up breaks as required	2 x 1	2
	Working from truck bed	4 x 3	12	Maintain proper body positioning (line of fire) and footing, Be aware of others and surroundings	3 x 1	3
	Awkward heavy lifting, muscle strain	4 x 4	16	Get help for manual lifts and load placement, Team Lift; use proper lifting techniques, Keep extremities clear of pinch points, Use customer supplied lifting mechanism if available, Use proper material lifting / handling techniques	2 x 2	4
	Varies depending on location	4 x 3	12	Be alert and aware of surroundings (wildlife, other vehicles, road conditions), Wear all appropriate PPE in good condition, 360 degree awareness - surroundings, other, etc.	2 x 2	4
Remove PRV Cap and Install "Top Works"	Awkward heavy lifting, muscle strain	3 x 2	6	Pre-task stretching, Know your limits; obtain assistance from co-workers for awkward or heavy lifts	2 x 1	2
	Slips, Trips, Falls	3 x 3	9	Wear proper footwear with additional slip-on traction devices, Use designated walkways when possible	2 x 1	2
	Pinch Points	3 x 3	9	Be aware of position of hands (line-of-fire) , Identify pinch points, Wear proper PPE (leather gloves)	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Exposure to Heat/Pressure/Chemicals	3 x 4	12	Wear all appropriate PPE in good condition, Communicate with operations to know current pressures/temperatures of valve and piping, carefully move and be aware of surroundings, Ensure all work planned is documented on required permit(s); perform ONLY work Identified by permit	2 x 2	4
Connect Pump to "Top Works" and Connect Computer	Pinch Points	3 x 2	6	Be aware of hand placement (line-of-fire)	2 x 1	2
	Chemical Exposure	3 x 3	9	Maintain communication with operations, Wear all appropriate/required PPE	2 x 1	2
	Hydraulic Pump Pressure	3 x 3	9	Maintain communication with operations, Ensure hydraulic pump vent is open during connection of hoses to verify zero pressure, Verify current temperature and pressure with operators of plant	2 x 2	4
	Repetitive movement	2 x 2	4	Take micro breaks as required to reduce strain/fatigue	1 x 1	1
Test PRV	Trapped Pressure	3 x 4	12	Operate device as per O.E.M. Operations Manual and Procedures, Ensure all appropriate/required PPE is worn, Utilize the 25' connection wire/hoses, Complete valve test as far from the PRV as Possible while still able to hear the operation	2 x 1	2
	Noise Exposure	3 x 3	9	Hearing Protection	1 x 1	1
Remove Device, Install Cap and Seal PRV	Awkward Stance/Position/Posture	3 x 2	6	Know your limits; obtain assistance from co-workers for awkward or heavy lifts, Pre-task stretching	2 x 1	2
	Slips, Trips, Falls	3 x 3	9	Use designated walkways when possible, Wear proper footwear with additional slip-on traction devices	2 x 1	2
	Pinch Points	3 x 3	9	Ensure proper body and extremities positioning (line of fire), Be aware of position of hands (line-of-fire) , Identify pinch points, Wear proper PPE (leather gloves)	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Exposure to Heat/Pressure/Chemicals	3 x 4	12	Ensure all work planned is documented on required permit(s); perform ONLY work Identified by permit, Wear all appropriate PPE in good condition, Communicate with operations to know current pressures/temperature of valve and piping, carefully move and be aware of surroundings	2 x 1	2
Remove equipment from area and submit completed permit to operations	Working from truck bed	3 x 3	9	Maintain proper body positioning (line of fire) and footing, Be aware of others and surroundings	2 x 1	2
	Awkward heavy lifting, muscle strain	4 x 2	8	Use customer supplied lifting mechanism if available, Get help for manual lifts and load placement, Team Lift; use proper lifting techniques, Keep extremities clear of pinch points, Use an appropriately sized rope for the task with the assistance of a co-worker to lift and lower items to the platform	2 x 1	2
	Temperature	3 x 3	9	Dress for the weather conditions; if working outside in winter dress warmly and take warm up breaks as required, If inside a boiler room dress lightly and take cool down breaks	2 x 1	2
	Poor Ground Condition	3 x 2	6	Use caution when walking; ensure proper footing	2 x 1	2
	Slips, Trips, Falls	3 x 3	9	Wear proper footwear with additional slip-on traction devices, Use designated walkways when possible	2 x 1	2
	Varies depending on location	4 x 3	12	360 degree awareness - surroundings, other, etc., Wear all appropriate/required PPE, Be alert and aware of surroundings (wildlife, other vehicles, road conditions)	2 x 1	2

Name: Hazard Assessment V-01 - A.V.K In-Situ Testing
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

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1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment V-02 - Basic Repair of PRV
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Review document package from end user	Misunderstanding instructions	3 x 2	6	Read all manuals and documentation thoroughly and ask questions when something is not clear or understood, ask supervision if questions remain unanswered	1 x 1	1
	Awkward Stance/Position/Posture	3 x 2	6	Get help for manual lifts and load placement, Team Lift; use proper lifting techniques, Keep extremities clear of pinch points, Pre-task stretching	1 x 1	1
	Chemical Exposure	3 x 3	9	Review the correct MSDS / ensure use of all recommended PPE	2 x 2	4
	Repetitive movement	2 x 2	4	Take micro breaks as required to reduce strain/fatigue	1 x 1	1
Inspect work area, tooling and equipment	Use of Damaged/Defective Tools or Equipment	3 x 3	9	Ensure all proper PPE is worn/utilized for task, must be in good condition, Ensure proper tools for task are used correctly, Inspect all tools, ensure guards are in place	2 x 1	2
	Slips, Trips, Falls	2 x 2	4	Use designated walkways when possible, Ensure path is clear of debris	1 x 1	1
Disassembly/Re-assembly (completed as per OEM specifications)	Dropping tools or equipment	3 x 3	9	Ensure parts/valves are tightly secured when disassembling, Ensure any loose parts are placed in an area and way in which they cannot easily move/fall, Identify fall/movement hazards, remain out of line of fire whenever possible	2 x 1	2
	Pinch Points	3 x 3	9	Focus, eyes and mind on task, Be aware of hand placement (line-of-fire), Wear proper, requied PPE (gloves), Identify pinch points	2 x 1	2
	Cuts / Scrapes /Lacerations / Abrasions	3 x 3	9	Avoid contact with wrench areas when possible, as metal slivers are common, Use of cut resistant gloves is required	1 x 1	1

Name: Hazard Assessment V-02 - Basic Repair of PRV
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Back & muscle strain	3 x 3	9	If bolts/parts are seized, source a better tool to limit strain and potential damage to tools (ie use an impact wrench instead of a combination wrench), Ensure adequate size and length of tool is being used to avoid unnecessary strain, Get help for manual lifts and load placement, Pre-task stretching, Practice proper lifting techniques	2 x 1	2
	Release of Stored Energy (Tool Slips)	3 x 3	9	Stay out of line of fire, always loosen bolts at an angle in line with vice when possible, Ensure the proper size of wrench/tool is being used for the application, Ensure PRV is secured using a properly mounted vice between waist and shoulder height or using a table designed to mount a flange for larger PRVs, Ensure all proper PPE is worn/utilized for task, must be in good condition	2 x 1	2
	Exposure to trapped chemical/pressure in valve body (disassembly only)	3 x 3	9	Review SDS prior to disassembling of any part of valve, Minimum PPE required: coveralls, safety boots, safety glasses, cut resistant gloves (other PPE may be required as per OEM manual, customer site requirements, special tooling being used and SDS PPE section, Remove bolts in a star pattern to avoid potential trapped chemical/pressure from being released suddenly/unevenly	2 x 2	4
Basic Repair (cleaning parts, lap and polish seating areas, use of specialized tools/equipment)	Repetitive movement	3 x 3	9	Take micro-breaks, stretch out muscles and improve circulation and focus	1 x 1	1
	Cuts / Scrapes /Lacerations / Abrasions	3 x 3	9	Use proper tools correctly; review all appropriate SWP's , Ensure proper tools for task are used correctly; pre-inspect tools to ensure proper working condition, Ensure all appropriate/required PPE is worn, Inspect PPE before using	2 x 1	2
	Airborne Dust, Debris, Fumes	3 x 2	6	Eye Protection, If particles contact eyes, rinse thoroughly with water or eye wash solution, DO NOT RUB EYES	1 x 1	1

Name: Hazard Assessment V-02 - Basic Repair of PRV
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Chemical Exposure	3 x 3	9	Use PPE appropriate to chemical/compound/lubricant SDS over and above basic PPE requirements, Review SDS before using chemicals, compounds or lubricants	2 x 2	4
	Additional hazards specific to specialized tools/equipment	3 x 3	9	Review any and all applicable manufacturer manuals/specifications and additional THAs for specialized tools/equipment, Additional PPE may be required per manufacturer manual/specifications	2 x 1	2
	Pinch Points	3 x 3	9	Focus, eyes and mind on task, Be aware of hand placement (line-of-fire), Wear proper, requied PPE (gloves), Identify pinch points	2 x 1	2

Name: Hazard Assessment V-02 - Basic Repair of PRV
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment V-03 - PRV Testing (Water)
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Inspect system	Air pressure	3 x 3	9	Only qualified, competent staff (as outlined in our PSV QMS) shall inspect/use the valve testing system and attachments, Thoroughly inspect pressure vessels, over-pressure protection and piping periodically to ensure proper/safe operation, Check test adapter/port for debris and remove what may become a projectile during testing prior to installing valve, Verify supply pressure and test pressure lines are open to display current pressure to operator, Ensure all appropriate/required PPE is worn	2 x 2	4
	Slips, Trips, Falls	3 x 3	9	Water will be present on the floor during filling and use of the liquid test stand, Clean up spills as they happen, The area around the vessel shall be treated as a "wet area" at all times and proper caution must be used at all times when in the area, Ensure all appropriate/required PPE is worn	2 x 1	2
Install valve to be tested	Awkward heavy lifting, muscle strain	3 x 3	9	Get help for manual lifts and load placement, Use proper lifting techniques, Maintain proper body positioning (line-of-fire), Pre-task stretching, Ensure all appropriate/required PPE is worn	2 x 1	2
	Use of Damaged/Defective Tools or Equipment	2 x 2	4	Ensure all appropriate/required PPE is worn, Give special attention to all adapters/flanges/gaskets being used (must conform to OEM specifications, applicable codes/standards and be proper material/pressure rating), Use proper tool/equipment for application, Inspect all tools/equipment prior to each use to ensure that they are in good working condition	1 x 1	1
	Cuts / Scrapes /Lacerations / Abrasions	3 x 3	9	Ensure all appropriate/required PPE is worn, Chase/repair any sharp/damaged threads prior to installing tape to threaded valves, Wear approved ANSI cut level 5 resistant gloves	2 x 1	2
	Pinch Points	3 x 3	9	Focus, eyes and mind on task, Be aware of hand placement (line-of-fire), Wear proper, requied PPE (gloves)	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Potential projectiles in valve inlet outlet/ loose parts	2 x 3	6	Ensure all appropriate/required PPE is worn, Point in the direction of the floor drain or water catch if applicable, Install valve in a manner that it is properly mounted and the outlet is pointed in a safe direction, away from people/loose objects and equipment, Visually inspect valve, remove or secure any loose parts and ensure no items are in the outlet or inlet that may pass through or exit the valve under pressure	1 x 1	1
Testing valve Must be done per QMS procedures, OEM specifications, applicable codes/standards and regulations	Noise Exposure	3 x 3	9	When testing in shop, all personnel in building must be notified, either verbally or via testing alarm activation and warning light near testing system, Hearing protection required for all personnel in shop/MVU during testing, Hearing Protection	1 x 1	1
	High pressure air/High pressure water	3 x 3	9	Ensure all appropriate/required PPE is worn, Only qualified personnel may be present in test area when system is under pressure	2 x 2	4
	Debris from valve/splash back	3 x 3	9	If using a water catch, there is a potential for splash back - safety glasses must be worn at all times; For high pressure liquid media valves, a face shield may be appropriate, Ensure all appropriate/required PPE is worn, Maintain adequate distance from outlet release area	2 x 2	4
	Over pressure of system	3 x 3	9	System is regulated from air supply (compressor) and has multiple PRVs protecting it in the event of an over pressure, tester shall not leave control station or area while testing equipment is pressurized, Ensure all appropriate/required PPE is worn	2 x 2	4
Testing complete Close off supply pressure, vent accumulated pressure control stand and valve -remove PRV	Slips, Trips, Falls	3 x 3	9	Floor will be wet, exercise extreme caution, Ensure all appropriate/required PPE is worn	2 x 1	2
	Pinch Points	3 x 3	9	Focus, eyes and mind on task, Be aware of hand placement (line-of-fire), Wear proper, requied PPE (gloves), Identify pinch points	2 x 2	4
	High pressure air	3 x 3	9	Only qualified personnel may be present in test area when venting, Ensure all appropriate/required PPE is worn	2 x 2	4

Name: Hazard Assessment V-03 - PRV Testing (Water)
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Noise Exposure	3 x 3	9	Hearing protection required for all personnel in shop/MVU during venting	1 x 1	1
Seal valve as per OEM specifications	Skin contact with lead seals	3 x 3	9	Gloves must be worn at all times while handling lead seals, Ensure all appropriate/required PPE is worn	1 x 1	1
	Projectile debris (metal fragments from cutting sealing wire)	3 x 3	9	Wear appropriate PPE (hand, eye protection)	1 x 2	2
	Cuts / Scrapes /Lacerations / Abrasions	3 x 3	9	Wear approved ANSI cut level 5 resistant gloves, Ensure all appropriate/required PPE is worn	2 x 2	4

Name: Hazard Assessment V-03 - PRV Testing (Water)
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment V-04 - PRV Testing (Air)
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Inspect system	High pressure air	2 x 2	4	Ensure all appropriate/required PPE is worn, Only qualified, competent staff (as outlined in our PSV QMS) shall inspect/use the valve testing system and attachments, Thoroughly inspect pressure vessels, over-pressure protection and piping periodically to ensure proper/safe operation, Check test adapter/port for debris and remove what may become a projectile during testing prior to installing valve, Verify supply pressure and test pressure lines are open to display current pressure to operator	1 x 1	1
Install valve to be tested	Potential projectiles in valve inlet outlet/ loose parts	2 x 3	6	Ensure all appropriate/required PPE is worn, Visually inspect valve, remove or secure any loose parts and ensure no items are in the outlet or inlet that may pass through or exit the valve under pressure, Install valve in a manner that it is properly mounted and the outlet is pointed in a safe direction, away from people/loose objects and equipment, Point in the direction of the floor drain or water catch if applicable	1 x 1	1
	Awkward heavy lifting, muscle strain	3 x 3	9	Ensure all appropriate/required PPE is worn, Use proper lifting techniques, Follow materials handling SWP, Use proper lifting techniques, Pre-task stretching, Get help for manual lifts and load placement	2 x 2	4
	Use of Damaged/Defective Tools or Equipment	2 x 2	4	Inspect all tools/equipment prior to each use to ensure that they are in good working condition, Use proper tool/equipment for application, Give special attention to all adapters/flanges/gaskets being used (must conform to OEM specifications, applicable codes/standards and be proper material/pressure rating), Ensure all appropriate/required PPE is worn	1 x 1	1
	Cuts / Scrapes /Lacerations / Abrasions	3 x 3	9	Wear approved ANSI cut level 5 resistant gloves, Chase/repair any sharp/damaged threads prior to installing tape to threaded valves, Ensure all appropriate / required PPE is worn - reassess per each task	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Pinch Points	3 x 3	9	Ensure all appropriate/required PPE is worn, Identify pinch points	2 x 1	2
Testing valve (must be done per QMS procedures, OEM specifications, applicable codes/standards and regulations)	Noise Exposure	3 x 3	9	Hearing protection required for all personnel in shop/MVU during testing, When testing in shop, all personnel in building must be notified, either verbally or via testing alarm activation and warning light near testing system, Hearing Protection	1 x 1	1
	High pressure air	2 x 3	6	Only qualified personnel may be present in test area when system is under pressure, Maintain adequate distance from outlet release area, Ensure all appropriate/required PPE is worn	1 x 2	2
	Debris from valve	3 x 3	9	Maintain required distance from outlet area, Ensure all appropriate/required PPE is worn	1 x 2	2
	Over pressure of system	3 x 3	9	System is regulated from air supply (compressor) and has multiple PRVs protecting it in the event of an over pressure, tester shall not leave control station or area while testing equipment is pressurized, Ensure all appropriate/required PPE is worn	2 x 2	4
Testing complete Close off supply pressure, vent accumulated pressure, control stand and valve - remove PRV	High pressure air	3 x 3	9	Only qualified personnel may be present in test area when venting, Ensure all appropriate/required PPE is worn	2 x 2	4
	Noise Exposure	3 x 3	9	Hearing protection required for all personnel in shop/MVU during venting, Hearing Protection	1 x 1	1
	Pinch Points	3 x 3	9	Ensure all appropriate/required PPE is worn, Identify pinch points	2 x 2	4
Seal valve per OEM specifications	Skin contact with lead seals	3 x 2	6	Gloves must be worn at all times while handling lead seals	1 x 1	1
	Projectile debris (metal fragments from cutting sealing wire)	3 x 3	9	Wear proper PPE (gloves, safety glasses	2 x 1	2
	Cuts / Scrapes /Lacerations / Abrasions	3 x 3	9	Ensure all appropriate/required PPE is worn, Wear approved ANSI cut level 5 resistant gloves	2 x 2	4

Name: Hazard Assessment V-04 - PRV Testing (Air)
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment V-05 - Metal Lathe Work
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Review OEM operation manual, check guards & inspect lathe prior to us	Inexperience and unfamiliarity with specific machine's operation/controls	3 x 3	9	Only personnel deemed competent and have been made familiar with the specific equipment being used may inspect and operate the lathe, Review the Operating Manual for the equipment for basic operational and safety information, It is required that the operator be familiar with the specific lathe's proper start up and shut down devices, hazard points, rotating parts and movement while turned on	2 x 1	2
	Flying Metal Filings	3 x 3	9	Ensure lathe bed has been cleared of debris prior to each use, as such debris can easily become projectile while machine is in operation, Use all basic PPE during entire scope of work involving lathe (Consult operating manual for further information)	2 x 1	2
	Accidental start up of horizontal lathe	2 x 3	6	Ensure chuck guard is up (safety limit switch should prevent machine from power up) and check that the emergency off switch is engaged, There should be at least two types of power off options used while performing initial inspection, Ensure all proper PPE is worn/utilized for task, must be in good condition	1 x 1	1
	Machine may not work properly due to poor maintenance, low oils/seized gears	2 x 2	4	Perform a visual inspection of pulleys, belts, gears and fluid levels, Ensure all proper PPE is worn/utilized for task, must be in good condition	1 x 1	1
Mount chuck, lathe plate or lathe centers on spindle	Improper placement of attachment	3 x 3	9	If using current chuck installed, ensure it is secured properly and all bolts are aligned per OEM specifications, If changing/mounting chuck, lathe plate, or lathe centers on spindle, ask a co-worker to assist or utilize a lifting device to steady the attachment while aligning i, Ensure all attachments being used or placed on the lathe bed are secure from unintentional movement	1 x 1	1
	Awkward heavy lifting, muscle strain	3 x 3	9	Utilize proper lifting and transport techniques and ask for assistance, where and if required, Pre-task stretching	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Release of Stored Energy (Tool Slips)	3 x 2	6	Use correct tool to secure chuck, lathe plate or lathe centers to spindle, Wear proper, requied PPE (gloves), Maintain proper body positioning (line-of-fire), Focus; eyes and mind on task	1 x 1	1
	Damage to chuck, lathe plate, lathe centers, spindle, work piece from metal debris/dirt wedged between chuck, lathe plate or lathe centers and spindle	3 x 3	9	Correct mounting of machine parts requires that all mating parts to be clean, Thoroughly clean metal debris/dirt from spindle and chuck, lathe plate or lathe centers with clean rag/brush	1 x 1	1
	Dropping tools or equipment	3 x 2	6	Steel/composite toed work boots are required during entire scope of work	1 x 1	1
	Slips, Trips, Falls	2 x 2	4	Ensure floor and overall work area is clean prior to commencing work	1 x 1	1
Set spindle speed	Damage to cutting tool/spindle drive system	3 x 3	9	Refer to cutting speed table on horizontal lathe and set proper spindle speed for material type/diameter to be machined	2 x 1	2
Set lathe feed	Bodily injury/damage to work piece due to incorrect feed rate	3 x 3	9	Refer to thread and feed table, OP sheet/shop order for correct feed rate	2 x 1	2
Set piece to be worked on in chuck, lathe plate or lathe centers	Projectile or object propelled towards operator/others	3 x 4	12	Use installed guard on mounted on lathe, Only have required workers in work area	2 x 3	6
	Awkward Positioning or Reaching	3 x 2	6	Pre-task stretching, Maintain proper body positioning, Use caution - Focus; eyes and mind on task	2 x 1	2
	Awkward heavy lifting, muscle strain	3 x 3	9	Utilize proper lifting and transport techniques and ask for assistance, where and if required, Use crane or ask for assitance when fastening large or awkward items	2 x 2	4
	Release of Stored Energy (Tool Slips)	3 x 2	6	Use crane or ask for assistance when fastening large or awkward items, Wear all appropriate/required PPE	2 x 1	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Damage to work piece due to loose/off center installation into chuck	3 x 3	9	Properly fasten object within chuck, Remove chuck key	2 x 1	2
Mount part-off/knurling tool on lathe tool post if required	Release of Stored Energy (Tool Slips)	3 x 3	9	When handling tools or sharp items use proper hand protection	2 x 2	4
	Damage to work piece from using incorrect part-off/knurling tool	3 x 4	12	Use proper tools and equipment correctly	2 x 1	2
Start horizontal lathe	Damage to work piece/horizontal lathe due to overheating	3 x 3	9	Be very aware of machine speed to prevent overheating, watch for signs of excessive heat	1 x 1	1
	Bodily injury/damage to tool/work piece due to tool grabbing work piece	3 x 3	9	Keep body parts away from lathe when operating, Do not wear long or loose clothing while operating, If your have long hair, tuck into a cap or alternate method to ensure it doesn't get caught in the moving parts of lathe	2 x 2	4
Drill/ream/knurl/bore/part E off work piece	Noise Exposure	3 x 3	9	Hearing protection required for all personnel in shop/MVU	1 x 1	1
	Cuts / Scrapes /Lacerations / Abrasions	3 x 3	9	Focus, eyes and mind on task, Be aware of hand placement (line-of-fire), Wear proper, requied PPE (gloves)	1 x 1	1
	Airborne Dust, Debris, Fumes	3 x 3	9	Wear all appropriate/required PPE	2 x 1	2
	Tool shattering	3 x 4	12	Inspect all tools, ensure guards are in place	2 x 2	4
	Damage to work piece/tool from overheating/catching	3 x 3	9	Perform small cuts with tool, do not rush task or overuse tooling	2 x 1	2
	Damage/breakage of tool from catching/binding	3 x 3	9	Inspect tools prior to use	2 x 2	4
	Bodily injury from work piece becoming airborne/projectile	3 x 5	15	Ensure all guards are in place, secure and working properly, Have only required workers in work area, Ensure all appropriate/required PPE is worn	2 x 2	4

Name: Hazard Assessment V-05 - Metal Lathe Work
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Measurement/alignment of work piece	Bodily injury if contact is made with rotating parts of horizontal lathe	3 x 5	15	Stop operation of horizontal lathe to perform any measurements/alignment	2 x 2	4
Remove work piece and scrap material from lathe Null	Sharp Edges – Cuts/Lacerations	3 x 3	9	Ensure machine is fully stopped with emergency stop engaged prior to removing work piece or scrap metal/debris, Wear approved ANSI cut level 5 resistant gloves, Ensure all appropriate/required PPE is worn	2 x 1	2
	Burns from contact with hot metal	3 x 3	9	Allow work piece to cool prior to handling, Wear proper, requied PPE (gloves), Maintain proper body positioning (line-of-fire), Focus; eyes and mind on task	2 x 1	2
Transport work piece to inspection area	Slips, Trips, Falls	2 x 2	4	Exercise extreme caution at all times while working on or near a lathe, Clean up spills as they happen	1 x 1	1
	Awkward heavy lifting, muscle strain	3 x 3	9	Utilize proper lifting and transport techniques and ask for assistance, where and if required, Pre-task stretching	2 x 1	2
	Sharp Edges – Cuts/Lacerations	3 x 3	9	Wear approved ANSI cut level 5 resistant gloves, Ensure all appropriate/required PPE is worn	2 x 1	2

Name: Hazard Assessment V-05 - Metal Lathe Work
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment V-06 - Painting (Aerosol)
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Review SDS	Exposure to paint fumes	4 x 2	8	Review the correct SDS / ensure use of all recommended PPE, Review medical treatment section of SDS and ensure any treatment options required are available and accessible	3 x 1	3
Inspect Paint Booth and Surrounding Area	Slips, Trips, Falls	3 x 2	6	360 degree awareness - surroundings, other, etc., Place any garbage or debris in garbage containers, Keep walkways clear and unobstructed, Footwear (good traction)	2 x 1	2
	Potential Exposure To Aerosol Spray (Inhalation, Ingestion, Dermal Contact)	3 x 2	6	Ensure that venting is operating properly, Visually inspect the filters' condition and ensure that they are installed properly	2 x 1	2
	Flammable/Combustible Materials	3 x 2	6	Ensure that only the paint being used is in the paint booth, All other flammables should be stored in an approved flammable storage cabinet, Ensure that an open flame or ignition source are not in the vicinity of of the paint booth when in use	1 x 1	1
Place Part/Object to be Painted in Booth	Awkward heavy lifting, muscle strain	3 x 2	6	Pre-task stretching, Utilize proper lifting and transport techniques and ask for assistance, where and if required	2 x 1	2
	Pinch Points / Crush Type Injury	3 x 2	6	Be aware of position of hands (line-of-fire) , Identify pinch points, Wear proper PPE (leather gloves)	2 x 1	2
Operation of Booth and Painting	Repetitive movement	3 x 1	3	Take micro breaks; stretch to improve circulation	1 x 1	1
	Awkward Stance/Position/Posture	3 x 1	3	Pre-task stretching, Maintain proper body positioning, Use caution - Focus; eyes and mind on task, Use ergonomic trigger handle secured to top of aerosol can	1 x 1	1
	Lighting (poor or excessive)	3 x 1	3	Install temporary lighting; if /where needed	1 x 1	1
	Noise Exposure	3 x 1	3	Hearing Protection	1 x 1	1

Name: Hazard Assessment V-06 - Painting (Aerosol)
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Exposure to paint fumes	3 x 3	9	Review medical treatment section of SDS and ensure any treatment options required are available and accessible, Review SDS, Use proper handling techniques as identified by SDS, Ensure all appropriate/required PPE is worn, Always point the spray can nozzle away from yourself and never put yourself between the item being painted and the exhaust fan at the back of the booth, Respiratory Protection	1 x 1	1

Name: Hazard Assessment V-06 - Painting (Aerosol)
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

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5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment V-07 - Pressure Washer
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Read/Review Operating Manual for Pressure Washer and SDS for cleaning agents	Misunderstanding instructions	3 x 2	6	Consult operator's manual - carefully read for detailed information on hazards and/or safe use protocol for tool, Ask questions if there is anything that is not understood in the manual or SDS	2 x 1	2
Inspect Equipment Null	Incorrect PPE Worn	3 x 3	9	Wear all appropriate/required PPE	1 x 1	1
	Slips, Trips, Falls	3 x 3	9	360 degree awareness - surroundings, other, etc., Place any garbage or debris in garbage containers, Keep walkways clear and unobstructed	1 x 1	1
	Exposure to hot/high pressure water	3 x 3	9	Inspect equipment, hoses and wand for wear, damage and loose connections	2 x 1	2
	Chemical Exposure	3 x 4	12	Wear appropriate PPE and utilize proper handling techniques in SDS	2 x 1	2
	Electrical Shock	3 x 4	12	Remove all electrical tools and other potential hazards from the wash area, Ensure that all electrical sources in the area have weatherproof rated covers, Ensure that the pressure washer is electrically protected by a GFCI circuit or device	1 x 1	1
Operation/Use of Equipment	Slips, Trips, Falls	3 x 3	9	Wear adequate footwear, Always exercise extreme caution when working on wet floors, Direct/push water on floor towards drain as frequently as possible, Ensure path of travel is free of debris and the hose is straightened as much as possible throughout duration of use	2 x 1	2
	Uncontrolled movement of item being cleaned	3 x 3	9	Wear all appropriate/required PPE, Secure item being washed to prevent unwanted/uncontrolled movement when water pressure is applied	2 x 1	2
	Noise Exposure	3 x 3	9	Wear adequate hearing protection anytime the equipment is being used	1 x 1	1

Name: Hazard Assessment V-07 - Pressure Washer
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Debris/splash back from part/tool/vehicle/material being cleaned	3 x 3	9	When pointing wand, aim in a location of the item being washed that will provide the least amount of splash back and in a way that any debris removed from object while cleaning is pushed away from operator, Be prepared when starting to use equipment that the water pressure will often force the wand up and towards the operator, Wear all appropriate PPE in good condition, Ensure that wand is secured at all times when not in use, When using equipment, always hold wand firmly with both hands and ensure stable footing	2 x 1	2
	Exposure to hot/high pressure water	3 x 3	9	Consider that Rain Gear, Face Shield, Rubber Gloves and Rubber Boots may also be required, Wear all appropriate/required PPE	2 x 1	2
Shut Down Equipment	Slips, Trips, Falls	3 x 3	9	Use extreme caution when walking on wet surfaces, Use floor squeegee to push any sitting water towards floor drain, Clear hose and wand of water pressure by holding down the nozzle trigger for approximately five seconds aimed at the floor towards the drain, Store cords,wand and hoses properly, hung up on storage hooks where possible, Ensure path of travel is free of debris	2 x 1	2
	Electrical Shock	2 x 3	6	Use extreme caution near electrical outlets and any electrically energized equipment, as they may have come in contact with water, Turn off power and water supply, Wear all appropriate/required PPE	1 x 1	1

Name: Hazard Assessment V-07 - Pressure Washer
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
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2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment V-08 - Hoist / Crane
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Inspection of Crane/Hoist Null	Incorrect PPE Worn	3 x 3	9	Ensure all appropriate/required PPE is worn, Inspect PPE before using	1 x 1	1
	Outdated Certifications	2 x 3	6	Verify crane formal inspection certifications are up to date, If not current/valid do not use and tag out of service until certifications are valid	1 x 1	1
	Broken Parts	3 x 3	9	Visually inspect hook and safety latch to ensure that they are in good working condition, a "stretched" hook will not allow the safety latch to operate properly, Inspect hoist line for wear or frayed strands, Visually check hoisting chains for signs of "stretching", Inspect sheaves for proper alignment	2 x 1	2
	Mechanical Failure	3 x 4	12	Complete inspection sheets in log book, Complete visual inspection of crane/hoist components, Complete function test of all crane/hoist actions , Verify that the crane/hoist can handle the weight being lifted	2 x 1	2
Inspect Lift Area Null	Incorrect PPE Worn	3 x 2	6	Wear appropriate PPE (in good condition)	1 x 1	1
	Slips, Trips, Falls	3 x 2	6	Pre plan route before starting lift	1 x 1	1
	Poor housekeeping; debris in/around task area	3 x 3	9	Ensure all walkways, are clear and unobstructed along path of travel for crane operations	1 x 1	1
Inspect Rigging	Incorrect PPE Worn	3 x 3	9	Wear appropriate PPE (in good condition)	1 x 1	1
	Undersized Rigging		0	Verify rigging tags to ensure that it is appropriately rated for weight being lifted, Know the weight of what is being lifted		0
	Damaged rigging	2 x 4	8	Inspect all rigging for wear, rips, knots, chemical damage, stretching and misuse	1 x 1	1
Install Rigging	Incorrect PPE Worn	3 x 3	9	Wear appropriate PPE (in good condition)	1 x 1	1
	Property Damage	3 x 4	12	Use caution when installing rigging as to not damage the load when being lifted, Use softeners to pad sharp corners on the load to prevent sling damage	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Pinch Points / Crush Type Injury	3 x 5	15	Focus, eyes and mind on task, Be aware of hand placement (line-of-fire), Wear proper, requied PPE (gloves), Be aware of potential load shifting, Ensure that no one can operate the controls while the rigging is being installed	1 x 1	1
Attach rigging to crane/hoist and move/lift load	Slips, Trips, Falls	3 x 3	9	Ensure proper body and body parts positioning (line-of-fire) and solid footing, Use pre planned route when moving about controlling the load	1 x 1	1
	Personnel in Area	3 x 3	9	Red flag and tag work area where applicable, Ensure that all workers not involved in the lift are clear of the area and not in the path of travel	1 x 2	2
	Incorrect PPE Worn	3 x 3	9	Wear appropriate PPE (in good condition)	1 x 1	1
	Poor Communication	3 x 3	9	Use only one person to signal crane/hoist operator, Use agreed upon hand signals, Maintain proper communication with all involved in lift, Ensure everyone involved in the lift knows there individual tasks and responsibilities	2 x 1	2
	Damage to Property, Facilities, Equipment	3 x 4	12	Use more than one tag line if required, Use a tag line properly attached to load to control it, Use only approved rigging practices verified by person in charge of lift, Use only certified, competent, trained crane/hoist operators	1 x 2	2
	Potential Load Shift /Unstable Load	3 x 5	15	Use only approved rigging practices verified by person in charge of lift	2 x 2	4
	Leaving load suspended while crane or hoist unattended	2 x 4	8	Crane operator must maintain control of load whenever it is suspended and never leave the controls until load is in a safe, secured and stable location	1 x 2	2
	Unqualified crane/hoist operator	3 x 5	15	Use only certified, competent, trained crane/hoist operators	1 x 1	1
	Load falling	3 x 5	15	Use only approved rigging practices verified by person in charge of lift, Have one trained, competent person in charge of lift, Use only certified, competent, trained crane/hoist operators	1 x 2	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Disconnecting load and Remove rigging	Load tipping over	3 x 4	12	Secure load with proper weight rated straps when base is not secure or there is a risk of the load tipping over, Place load down on a secure, stable base capable of handling the weight of the load	2 x 2	4
	Incorrect PPE Worn	3 x 3	9	Wear appropriate PPE (in good condition)	1 x 1	1
	Lack Of Complete Clear Communication	3 x 3	9	Ensure that all rigging is completely removed from load, the hook is not attached to the load, and all workers are clear of load before raising the hook	2 x 1	2
	Pinch Points / Crush Type Injury	3 x 2	6	Ensure proper body and hand placement, being aware of load shifting, stay out of line of fire, Do not position yourself between load and stationary objects	2 x 1	2
Clean up work area	Slips, Trips, Falls	3 x 2	6	Ensure that all tools, garbage, dunnage and lift equipment are removed from lift area and cleaned up, Remove all flagging when work is complete, Ensure all rigging is returned back to its proper storage location	1 x 1	1
	Faulty rigging	3 x 4	12	Inspect all rigging after lift is complete to ensure that no damage has happened to the rigging	2 x 2	4
	Lack Of Complete Clear Communication	3 x 2	6	Inform all individuals affected by the lift that it is complete	1 x 1	1
	Incorrect PPE Worn	3 x 3	9	Wear appropriate PPE (in good condition)	1 x 1	1

Name: Hazard Assessment V-08 - Hoist / Crane
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
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2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment V-09 - Basic Valve Repair & Testing
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Complete Permit, JSA, PJHA Prior to beginning: Review work scope, complete documentation required per location of work	Not Having Clear Understanding Of Scope of JHA Or Permit	3 x 4	12	Review / discuss relevant PJHA's w/Crew(s), Review all other Safe Work Practices associated or involved with task, Review / discuss all related and relevant Safe Work Practices associated or involved with this task, Review manufacturer's instructions, Ask further questions if anything is not completely understood after reviewing manual, Good Communication	1 x 1	1
	Walkdown inspection of equipment & work area	3 x 3	9	Clear communication with operations, Focus, eyes and mind on task, be aware of your surroundings, Ensure Proper PPE is worn at each stage of the scope, re-assess if conditions change & obtain the proper PPE before continuing, Ensure that all workers have a clear understanding of the tasks & permit	1 x 1	1
	Chemical Exposure	3 x 3	9	Review SDS, Wear Additional PPE (possible chemical resistant gloves, coveralls & a face shield)	1 x 1	1
	Tool or Equipment Failure	3 x 3	9	Prior to starting work ensure all tools & equipment being used are in good working condition, Any tooling or equipment that is not acceptable for use must be tagged out, placed in hold area & notify supervisor for replacement	1 x 1	1
Place actuator/valve in desired position for removal Prior to lock out, place actuator/valve in desired location for removal	Safe Removal of Actuator & Controls	3 x 3	9	Review THA for 'Valve Actuator Repair' for all tasks that include the actuator or supporting accessories	1 x 1	1
	Pinch Points / Crush Type Injury	2 x 3	6	Identify potential points and stay out of line of fire, Maintain proper body positioning (line of fire) and footing, Keep all body parts & equipment away from valve internals or actuator/stem connection if actuation/movement is possible	1 x 1	1
	Uncontrolled Movement of Gear	3 x 4	12	Follow manufacturer's maintenance manual/directions throughout scope, Lead crew member shall be trained/familiar with expected scope of work, Focus, eyes and mind on task, be aware of your surroundings, Clear communication with operations	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Stored Energy	3 x 4	12	Ensure the least amount of pressure/torque is being applied to valve stem, Clear communication with operations, If spring return design: ensure actuator is left in a position that applies the least amount of spring compression	1 x 1	1
Service Valve Disassembly, Inspection, Repair & Reassembly of Actuator & Supporting Accessories	Unknown Hazards /Troubleshooting	2 x 3	6	Follow manufacturer's precautions, Review manufacturer's instructions, Reduce speed and continually inspect changes as you work, If available, use specialized tooling to maintain control in case of part failure when inspecting (like a stem clamp, jacks, holding some weight on crane, etc.)	2 x 2	4
	Awkward heavy lifting, muscle strain	4 x 3	12	Use proper rigging techniques; refer to Using Cranes & Hoists THA, Use proper lifting techniques, Maintain proper body positioning (line-of-fire), Wear helmet for any overhead work or lifts (even in shop), Training/Education	1 x 2	2
	Working at Heights	3 x 3	9	Ensure all tools and equipment in proper working condition, Complete a fall protection plan and review with all personnel involved in this task, Use fall protection if required	1 x 2	2
	Trapped Pressure	3 x 3	9	Slowly remove any caps or plugs to the actuator during disassembly in case of built up pressure, Communicate with operations to know current pressures/temperatures of valve and piping, carefully move and be aware of surroundings	2 x 1	2
	Chemical Exposure	3 x 3	9	Review SDS, Some designs of actuators have oils internally, ensure methods & equipment are in place to capture during draining, Wear Additional PPE (possible chemical resistant gloves, coveralls & a face shield), Only discard used oils in proper receptacle for disposal	1 x 1	1
	Cuts / Scrapes /Lacerations / Abrasions	3 x 2	6	Wear approved ANSI cut level 5 resistant gloves, Focus, eyes and mind on task, be aware of your surroundings	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Pinch Points	2 x 2	4	Be aware of surroundings, equipment and others in vicinity, Ensure proper body / extremities positioning (line-of-fire; caution with ground condition and solid footing), Use tooling to pry or ropes to pull equipment rather than placing hands in possible pinch point areas	1 x 1	1
	Muscle strain, fatigue	3 x 3	9	Use the proper tool for the job, obtain extensions or assistance if load is too great (wrenching/torquing), Ensure proper body and body parts positioning (line-of-fire) and solid footing	2 x 1	2
	Unsafe Work Area	3 x 3	9	Create a safe work area prior to beginning repairs, Ensure all nearby workers are aware of your scope & how it may affect them, Ensure all proper PPE is worn/utilized for task, must be in good condition, Ensure equipment being repaired can be safely secured before repair, Housekeeping - Adequate, Keep site and work area tidy and clear	1 x 1	1
	Improper Tool Use	3 x 3	9	Only use the proper tool per task & ensure it is in good condition	1 x 1	1
	Failure to follow maintenance procedure	3 x 3	9	Always obtain & follow the specific maintenance manual & procedures from manufacturer, Ensure site specific mechanical procedures are adhered to, Must be competent to perform the repair or have supervision present to guide & train, Manufacturer may provide additional PPE requirements & safety warnings, If no brand specific manual is available, do not start repair until a competent technician supplies guidance based on experience servicing similar design of actuator	1 x 1	1
Test Valve If possible, function test & inspect seal areas prior to installing on valve	Improper Operation of Actuator	2 x 2	4	Follow the manufacturer's specifications & procedures, Refer to THA for Actuator Repair	1 x 1	1
	Rotating or Moving Equipment	4 x 3	12	Keep hands & body away from exposed moving parts while connected to power	1 x 1	1
	Pinch Points / Crush Type Injury	3 x 3	9	Ensure valve being tested is secured from moving during test, Keep safely away from pressurized connections during increase of testing pressure	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Exposure to leaking air/gas or oil at joints	3 x 3	9	Ensure all proper PPE is worn/utilized for task, must be in good condition, Visually inspect actuator for leaks after assembly & during operation, Ensure proper spill containment is on hand for potential leaks, Increase supply pressure at stages & use hold points to safely verify seal integrity	2 x 1	2
	Equipment Failure	3 x 3	9	Ensure testing equipment & all hoses/lines meet or exceed expected test pressures (MAWP), Ensure all equipment is inspected prior to use and is in good working condition, Verify calibrated gauges in good working order are being used	1 x 1	1
	Slips, Trips, Falls	3 x 2	6	Adequate Signage & Warnings in test area, Ensure all proper PPE is worn/utilized for task, must be in good condition, Flag any / all potential hazards, Ensure proper drainage at testing location	1 x 1	1
	Exposure to high pressures & temperatures	3 x 3	9	Ensure the correct media for testing is being utilized, Select PPE based on expected exposure to water, steam, gas, other media, Properly fasten all connections to valve being tested, secure lines as required prior to applying pressure, Utilize block & bleed valves to safety vent test pressures	1 x 2	2
	Energy Connection	3 x 3	9	See De-energize & Energize Tasks/Steps, If in shop, ensure proper supply is used per manufacturer specifications (we have multiple electrical power voltages available on test system, high pneumatic & hydraulic ranges - be careful to not over power equipment or exceed MAWP)	1 x 1	1
Function Test Completed Assembly Function Test Completed Assembly	Rotating or Moving Equipment	3 x 3	9	Keep hands & body away from exposed moving parts while connected to power, Clear communication with operations, Plan expected movement with crew prior to beginning	1 x 1	1
	Poor Communication	3 x 3	9	Ensure constant & clear communication with operations while cycling the valve, Ensure good communication between workers	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Incorrect Connections or Operation	3 x 3	9	Always follow the manufacturer's specifications for maintenance & operation, Plan on a failure & be ready to act or stop testing immediately, Secure Valve prior to function testing	1 x 1	1
	Not following procedure prior to shipping	2 x 2	4	Ensure the valve position is left at the open/closed point required for transport prior to disconnecting valve, Ensure there is no unwanted trapped pressure or liquids in the valve/actuator before shipping, If valve must be shipped with chemicals or pressure remaining, ensure it is properly blocked, capped & communicated	1 x 1	1

Name: Hazard Assessment V-09 - Basic Valve Repair & Testing
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

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4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
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1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment V-10 - Boiler Area
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Entering Area Prior to Entering Boiler Area	Pressurized Equipment/Piping/Tools	4 x 4	16	Wear all appropriate/required PPE, Communicate with operations to know current pressures/temperatures of valve and piping, carefully move and be aware of surroundings, Signage/Posters/Labels	2 x 3	6
	Noise Exposure	3 x 3	9	Hearing Protection, Audible Alarm provides notice that a valve is soon to be tested, System Operator may verbally provide notice to each affected worker that testing will be in progress, Signage is present notifying all of the area dangers	1 x 1	1
	Potential Pressure Release	3 x 4	12	Clear communication with operations, Ensure proper body and body parts positioning (line-of-fire) and solid footing	1 x 2	2
	Exposure to Heat/Pressure/Chemicals	4 x 4	16	Must be under direct supervision of qualified boiler operator while in area of operating boiler	2 x 2	4
Install/Remove PRVs Assisting operator by placing valves on the system to be tested or removing completed PRVs	Exposure to Heat/Pressure/Chemicals	4 x 4	16	Must be under direct supervision of qualified boiler operator while in area of operating boiler, Do not touch piping or valves unless boiler operator has discussed hazards of each task	1 x 2	2
	Awkward heavy lifting, muscle strain	4 x 3	12	Utilize proper lifting and transport techniques and ask for assistance, where and if required, Use crane or ask for assitance when fastening large or awkward items	1 x 1	1
	Trapped Pressure	5 x 4	20	Close test vessel gate valve & open bypass vent fully before unbolting	2 x 1	2
	Extreme Temperatures/Heat Stress	5 x 4	20	Wear proper PPE (gloves, safety glasses); use gloves appropriate for task	1 x 1	1
	Changing Equipment Conditions (Example: cold when you first entered area may change to very hot during operation)	4 x 4	16	Clear communication with operations	2 x 2	4

Name: Hazard Assessment V-10 - Boiler Area
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Misc Duties in Area Must be accompanied by Boiler Operator	Unknown Hazards	3 x 4	12	Do not complete any additional work or troubleshooting in area other than the approved tasks from Boiler Operator, Communicate with Boiler Operator any concerns immediate, Notify Boiler Operator when task is complete & are leaving the area	1 x 1	1

Name: Hazard Assessment V-10 - Boiler Area
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

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4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
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2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment V-11 - Valve Actuator Repair
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Complete Permit, JSA, PJHA Prior to beginning: Review work scope, complete documentation required per location of work	Tool or Equipment Failure	3 x 3	9	Any tooling or equipment that is not acceptable for use must be tagged out, placed in hold area & notify supervisor for replacement, Prior to starting work ensure all tools & equipment being used are in good working condition	1 x 1	1
	Chemical Exposure	3 x 3	9	Wear Additional PPE (possible chemical resistant gloves, coveralls & a face shield), Review all Safety Data Sheets from operations for chemicals in valve application/installation & any additional items being used in the repair process	2 x 2	4
	Walkdown inspection of equipment & work area	3 x 3	9	Ensure that all workers have a clear understanding of the tasks & permit, Ensure Proper PPE is worn at each stage of the scope, re-assess if conditions change & obtain the proper PPE before continuing, Focus, eyes and mind on task, be aware of your surroundings, Clear communication with operations	1 x 1	1
	Not Having Clear Understanding Of Scope of JHA Or Permit	3 x 4	12	Review / discuss relevant THA's with crew(s), Review / discuss relevant JHA's with crew(s), Review all related / relevant Safe Work Practices (SWP's) associated or involved with this task, Review manufacturer's instructions, Ask further questions if anything is not completely understood after reviewing manual, Clear communication with operations, Constant communication with all personnel involved and in immediate area	1 x 1	1
Place actuator in desired position Prior to lock out, place actuator/valve in desired location for removal	Uncontrolled Movement of Gear	3 x 4	12	Clear communication with operations, Focus, eyes and mind on task, be aware of your surroundings, Lead crew member shall be trained/familiar with expected scope of work, Follow manufacturer's maintenance manual/directions throughout scope	1 x 1	1
	Pinch Points / Crush Type Injury	2 x 3	6	Keep all body parts & equipment away from valve internals or actuator/stem connection if actuation/movement is possible, Maintain proper body positioning (line of fire) and footing, Identify potential points and stay out of line of fire	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Stored Energy	3 x 4	12	If spring return design: ensure actuator is left in a position that applies the least amount of spring compression, Clear communication with operations, Ensure the least amount of pressure/torque is being applied to valve stem	1 x 1	1
Working with Energized Actuator If actuator must remain energized to properly remove, install or troubleshoot *No Maintenance to Actuator when energized - Ever*	Unintentional Disconnect or Damaged Controls	3 x 4	12	Plan actuator lift or movement prior to beginning, Ensure adequate length of power supply line based on intended travel (electrical line or hose/piping), For Electric Actuators: visually inspect the cable & connector/gland at the cable entry port of the actuator housing to ensure any resistance from moving the cable will not disconnect wires at terminal, When possible, terminate connection during any movement	2 x 1	2
	Spring tension on actuators, gas or air pressure	3 x 4	12	Be aware: venting or removal of pressure source that is applied to compress springs will cause actuator to operate until spring expansion limit is reached (spring will expand without the compression force), Slowly & carefully reduce pressure used to compress spring, Communicate with all in area before actuating	1 x 1	1
	Pinch Points	3 x 3	9	Ensure good communication between workers, Maintain proper body positioning (line of fire) and footing, Use tooling to pry or ropes to pull equipment rather than placing hands in possible pinch point areas, Focus, eyes and mind on task, be aware of your surroundings	1 x 1	1
	Potential Exposure to Energy Source (Pneumatic/Hydraulic/Electrical)	3 x 4	12	Allowing actuator to be energized during scope is only to troubleshoot, remove or install actuator onto stem, Never disassemble or attempt to repair an actuator while powered (must fully lockout & disconnect power source)	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Uncontrolled Movement During Handling	3 x 4	12	Lockout Tagout of any 'remote' actuator control options, only allow CT actuator technician control of actuator during scope, Only allow 'local control' for electrical powered, CT controlled manifold & supply for pneumatic/hydraulic controls, or hand wheel operator to be options for powered actuator movement, Maintain communication with crew at each step of the scope	1 x 2	2
De-Energize & Remove Power Supply LOTO, physical disconnection of power sources to actuator	Potential Exposure to Pnuematic or Hydraulic Pressure	3 x 3	9	Ensure all pressure is blocked at source, and properly vented prior to removing connections, Inspect assembly for possible locations of trapped pressure remaining after disconnection of main supply (solenoids, boosters, check valve locations, etc.)	1 x 1	1
	Not verifying Zero Energy	3 x 4	12	Regardless of power source, verify zero energy at actuator connections prior to any physical contact or removal of lines/hoses	2 x 1	2
	Disconnecting Wires, Hoses or Piping	3 x 3	9	Use proper tools correctly; review all appropriate SWP's, Slowly disconnect instrumentation points at stages to ensure controlled release of any unknown trapped pressure after isolation, Tag wires from print as they are terminated, Tape ends of wire; ensure wiring and material secure from live equipment	1 x 1	1
	Exposure to hydraulic fluid, grease, fuel or other harmful substances	4 x 4	16	Communicate with Operations & review their SDS of any chemical in the actuator, Wear Additional PPE (possible chemical resistant gloves, coveralls & a face shield)	2 x 2	4
	Spills	3 x 3	9	Ensure proper spill containment measures & equipment are on hand at location of hydraulic line disconnection, Hydraulic actuators will leak when connection is broken, place containment pails and direct flow, Only discard used oils in proper receptacle for disposal	1 x 1	1
	Not following site specific disconnect procedure	3 x 4	12	End User location vary in LOTO & Disconnection Procedures, ensure you are following the site specific requirements before beginning	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Poor Communication Within Crews	3 x 4	12	Ensure good communication between workers, Clear communication with permit issuer	1 x 1	1
Removal or Install of Actuator Any action that moves the actuator on or off of the valve stem	Removing/Installing while energized	3 x 3	9	Spring Assist Actuators may require some pressure to partially compress spring while removing from stem - see 'Working with Energized Actuator' Step 3	1 x 3	3
	Pinch Points	2 x 2	4	Ensure proper body / extremities positioning (line-of-fire; caution with ground condition and solid footing), Use tooling to pry or ropes to pull equipment rather than placing hands in possible pinch point areas	1 x 1	1
	Awkward Stance/Position/Posture	3 x 2	6	Use the proper tool for the job, obtain extensions or assistance if load is too great (wrenching/torquing)	1 x 1	1
	Heavy lifting	3 x 3	9	Use crane when lifting heavy items, ensure load is properly rigged, Know your limits, obtain assistance from co-workers for heavy lifts, Create lift plan prior to beginning lift - communicate with all affected	1 x 1	1
	Incorrect Material	2 x 2	4	Ensure all material (bolting, adapters, sealants...etc.) are suited for the intended use (design, material, rating...etc.) per manufacturer's specifications	1 x 1	1
Service Actuator Disassembly, Inspection, Repair & Reassembly of Actuator & Supporting Accessories	Failure to follow maintenance procedure	3 x 3	9	Always obtain & follow the specific maintenance manual & procedures from manufacturer, Ensure site specific mechanical procedures are adhered to, Must be competent to perform the repair or have supervision present to guide & train, Manufacturer may provide additional PPE requirements & safety warnings, If no brand specific manual is available, do not start repair until a competent technician supplies guidance based on experience servicing similar design of actuator	1 x 1	1
	Improper Tool Use	3 x 3	9	Only use the proper tool per task & ensure it is in good condition, Specialized Tooling may be required - see manufacturer's manual for list of required tools or designs to fabricate	1 x 1	1

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Unsafe Work Area	3 x 3	9	Create a safe work area prior to beginning repairs, Ensure all nearby workers are aware of your scope & how it may affect them, Ensure all proper PPE is worn/utilized for task, must be in good condition, Ensure equipment being repaired can be safely secured before repair, Continue to organize & store parts as removed in a safe manner	1 x 1	1
	Awkward Positioning or Reaching	3 x 2	6	Use the proper tool for the job, obtain extensions or assistance if load is too great (wrenching/torquing)	1 x 1	1
	Pinch Points	2 x 2	4	Ensure proper body / extremities positioning (line-of-fire; caution with ground condition and solid footing), Use tooling to pry or ropes to pull equipment rather than placing hands in possible pinch point areas	1 x 1	1
	Cuts / Scrapes /Lacerations / Abrasions	3 x 2	6	Focus, eyes and mind on task, be aware of your surroundings, Wear appropriate PPE (in good condition), Maintain proper body positioning (line-of-fire)	1 x 1	1
	Chemical Exposure	3 x 3	9	Review SDS for chemicals or equipment involved, Some designs of actuators have oils internally, ensure methods & equipment are in place to capture during draining, Wear Additional PPE (possible chemical resistant gloves, coveralls & a face shield), Only discard used oils in proper receptacle for disposal	1 x 1	1
	Trapped Pressure	2 x 2	4	Slowly remove any caps or plugs to the actuator during disassembly in case of built up pressure	2 x 1	2
	Hazards Specific to Spring Assist Actuators	4 x 4	16	Only competent, experienced technicians may supervise or complete disassembly/reassembly, May require additional tooling to safely complete (long threaded rods, additional nuts or fasteners, clamps), Carefully review stickers/tags on actuator & all of the warnings found in manufacturer's maintenance manual specific to that model/design of actuator, If option is present, decompress spring using adjusting screw, Maintain proper body positioning (line of fire) and footing	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Test Actuator If possible, function test & inspected seal areas prior to installing on valve	Energy Connection	3 x 3	9	See De-energize & Energize Tasks/Steps, If in shop, ensure proper supply is used per manufacturer specifications (we have multiple electrical power voltages available on test system, high pneumatic & hydraulic ranges - be careful to not over power equipment or exceed MAWP)	1 x 1	1
	Improper Operation of Actuator	2 x 2	4	Follow the manufacturer's specifications & procedures	1 x 1	1
	Rotating or Moving Equipment	4 x 3	12	Keep hands & body away from exposed moving parts while connected to power	1 x 1	1
	Pinch Points / Crush Type Injury	3 x 3	9	Ensure equipment being repaired can be safely secured before operating	1 x 1	1
	Exposure to leaking air/gas or oil at joints	3 x 3	9	Ensure all proper PPE is worn/utilized for task, must be in good condition, Visually inspect actuator for leaks after assembly & during operation, Ensure proper spill containment is on hand for potential leaks, Increase supply pressure at stages & use hold points to safely verify seal integrity	2 x 1	2
	Equipment Failure	3 x 3	9	Ensure testing equipment & all hoses/lines meet or exceed expected test pressures (MAWP), Ensure all equipment is inspected prior to use and is in good working condition	1 x 1	1
Reconnect Power Supply Reconnect Actuator to End User Power Supply - See Task/Step# 4 of this THA	Isolation Removed	1 x 3	3	Ensure end user isolations remain in place prior to reconnecting (LOTO still valid), Clear communication with operations, Verify zero energy at actuator connections prior to any physical contact	1 x 1	1
	Not Following Site Specific Requirements	3 x 3	9	Ensure competent technician/trade completes connection, Ensure site procedures for connecting & verification of completed connections are followed	1 x 1	1
	Unidentified hazards per task	3 x 3	9	See previous tasks regarding de-energizing and disconnecting for additional dangers & controls	1 x 1	1

Name: Hazard Assessment V-11 - Valve Actuator Repair
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Function Test Completed Assembly Ensure Valve Operates as Designed after repaired actuator is installed	Rotating or Moving Equipment	3 x 3	9	Keep hands & body away from exposed moving parts while connected to power	1 x 1	1
	Poor Communication	3 x 3	9	Ensure constant & clear communication with operations while cycling the valve, Ensure good communication between workers	1 x 1	1

Name: Hazard Assessment V-11 - Valve Actuator Repair
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

Calculation	Score	Score	Score	Score	Score
L x C	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25

Control Tech Risk Matrix

Rating	Likelihood	Rating	Frequency	Rating	Consequence	Health and Safety	Environment	Property	Reputation
5	Almost Certain	5	Continuous or many times per day	5	Catastrophic	Fatality, grievous bodily injury or permanent disability	Very Serious and potentially irreversible effect on the environment	Loss greater then $1M	Very serious incident - Very negative national media coverage
4	Likely	4	Frequently / Weekly	4	Major	Disabling injury resulting in lost time. Reportable dangerous occurrence or chronic illness	Major Long term damage to environment, reportable to regulatory authorities	Loss of $100k - $1M	Serious Incident - Negative regional media coverage
3	Possible	3	Occasionally / Monthly	3	Serious	Medical aid with lost time	Serious medium term environmental effect	Loss of $10k - $100k	Moderate incident - Minor loss of confidence with public/customers
2	Unlikely	2	Infrequently / Quarterly	2	Moderate	Medical aid with no Lost Time	Short term effects to the environment	Loss of $1k - $10k	Minor incident - Concerns arise with stakeholders
1	Practically Impossible	1	Rarely / Annually	1	Minor	First Aid	Temporary effects to the environment, easily reversible	Near miss or loss of less than $1K	No public relations impact

Name: Hazard Assessment V-12 - Process Valve Lubrication
Description:
Last Published: Jul 06, 2023

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Discussion of Stop Work Authority	Fear of repercussion for stopping the job	4 x 4	16	Thorough discussion and understanding that everyone has the right to Stop the Job at any time if something does not look right, or someone is unsure of there job duties, without any fear of repercussion	2 x 3	6
Complete/Review Permit, JSA, PJHA, Greasing procedures Complete Documentation before starting Job required per location	Not Having Clear Understanding Of Scope of JHA Or Permit	3 x 3	9	Review - Any/All Appropriate Safe Work Material, Review JHA's and THA's with workers, Visual walk around inspection, Review Greasing Procedure present in each greasing vehicle, Review entire document with team, discussing MAWP's and each step	2 x 2	4
Rig Up Tools and Equipment Assemble high pressure grease apparatus and truck for pumping	Uneven Surfaces	2 x 3	6	Focus; eyes and mind on task, Ensure footing is good and solid, Housekeeping; clear area of hazards	1 x 2	2
	Rigging up lines that will be under pressure	4 x 4	16	Inspect all equipment for any / all defects, Use safety cables on all connections	2 x 2	4
	Pinch Points	3 x 3	9	Focus, eyes and mind on task, Be aware of hand placement (line-of-fire), Wear proper, requied PPE (gloves)	2 x 2	4
Pre-Job Line-up Verification Notate valve alignment to ensure proper alignment when job is complete	Opening a "Normal Open Valve", resulting in sending pressure to the wrong place	3 x 5	15	Valves that are "Normal Closed" can be extremely dangerous, take extra care to verify why these valves are closed and if they can be opened	1 x 3	3
	Closing a "Normal Open Valve", resulting in blow out	3 x 4	12	Situational awareness	2 x 2	4
	Improper line up after job is complete, resulting in blow out	4 x 5	20	Double check line up after completion with witness if possible	2 x 3	6
Remove Vent Cap Remove cap from check valve grease fitting located on valve body	Trapped Pressure	3 x 3	9	Inspect fitting for damage, leakage before approach	2 x 2	4
	Check valve fitting can fail, releasing grease, oil, and/or gas	3 x 3	9	If discharge is noticed when removing cap, install cap back immediately and tap on fitting slightly to seat ball in check valve; If continues to leak, tighten vent cap and notify supervisor	2 x 2	4

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
	Can back out fitting from valve body, resulting in releasing pressure from wellhead	4 x 5	20	Always use back up wrench on fitting when removing vent cap (do not take this step for granted; this can be catastrophic if not followed), If cap does not come off easily, notify supervisor immediately; this may be a sign of a damaged fitting and may need to be replaced	2 x 2	4
Install Grease Apparatus Install grease gun on check valve grease fitting	Muscle Strain	3 x 3	9	Use proper lifting/pulling techniques (using legs), no twisting	1 x 1	1
	Slips, Trips, Falls	3 x 3	9	Maintain proper body positioning (line of fire) and footing	1 x 3	3
Verify Proper Line Up Verify line up from air compressor to valve being greased	Incorrect line up of pump hoses and piping can result in blow out	3 x 4	12	Trace line from air compressor to valve, verifying valves that should be open are open and valves that should be closed are closed, Discuss this line up with another team member if possible	1 x 2	2
Inject Grease Into Valve	High Pressure Equipment	3 x 4	12	Monitor operation of tool(s) or equipment, Monitor gauge and shut down operation if pressure exceeds MAWPs	1 x 3	3
Manipulate Valve if Applicable	Muscle Strain	2 x 3	6	Slow and steady rotation, if tension is consistently to hard, alert supervision, may be an issue	1 x 2	2
Turn Off Grease Apparatus Close valve on grease gun, remove from grease fitting and move to next valve	Muscle Strain	3 x 3	9	Practice proper lifting/pulling techniques (use legs)	1 x 1	1
	Pressure/Grease leaking from grease fitting	3 x 3	9	If discharge is noticed when removed apparatus, install nut back immediately and tap on fitting slightly to seat ball; repeat process, If fitting continues to leak, tighten nut again and notify supervision	1 x 1	1
	Pressure build up in lines and at pump	3 x 4	12	Keep attention on lines and truck for leaks or blow out, Situational awareness	2 x 2	4
Install Vent Cap Install vent cap on check valve grease fitting	Damage to threads and fitting if exposed to elements, resulting in unexpected failure	3 x 3	9	Double check all caps are installed, snug and cleaned	1 x 2	2
Disassemble Grease Apparatus Break down grease gun assembly, truck and tools	Pinch Points	3 x 3	9	Focus, eyes and mind on task, Be aware of hand placement (line-of-fire), Wear proper, requied PPE (gloves)	1 x 2	2

Task	Hazard	Pre-Control Risk Rating		Existing Controls	Post-Control Risk Rating	
		L x C	Total		L x C	Total
Close Out Paperwork	Leaving work unfinished, and affected personnel unaware that the job was complete/incomplete	3 x 3	9	Close out permit and ensure all conditions have been followed and documented as completed, Notify affected parties	1 x 3	3

Name: Hazard Assessment V-12 - Process Valve Lubrication
Description:
Last Published: Jul 06, 2023

Control Tech Risk Legend

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