

LAI HAZARD ANALYSIS

Project Number:		Project:				Location:					
Prepared By: Steve Herman			Date:		Reviewed By:				Date:		
Ref. Number	High Potential Consequence Task Steps	POTENTIAL HAZARDS & CONSEQUENCES Include applicable Error Prone Situations and Triggers	Target Check off to indicate Hold Point	Preliminary Risk Assessment			Control Type	SAFEGUARDS (Actions & Physical Safeguards) Eliminate or Mitigate the hazards	Final Risk Assessment		
				H	M	L			H	M	L
1	General work activities (housekeeping) within and around the GOLD project    	Slips, trips, and falls due to poor housekeeping resulting in personnel injury	P ☐		X		D/E /S/ W/A A A/D D	Prior to starting a task, Evaluate the Lifesaving Rules and actions (LSRA) start work Checks (SWC) that may apply to that task review START/STOP work expectations and implement, Verify & Validate (V&V) the appropriate behaviors and or control Safeguards per the ExxonMobil PSMS and site HSE Procedures during the pre-task brief Ensure JSA for specific LAI tasks address proper hazard control methods. Shop work areas shall be set up and organized to minimize the buildup of materials and eliminate slip/trip hazards. Use pre-job stretching and flexing exercises.			X

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				H	M	L			H	M	L
							A/E	Proper waste management receptacles shall be utilized to control trash, debris, and scrap material.			
							A/D	Access/ egress points and walkways shall be kept clear at all times.			
							A/D /E	Extension cords, welding leads, and other cables shall be routed overhead, when possible, in a manner that does not create a slip/trip hazard.			
							A	Regular supervisor walkthroughs should identify and eliminate housekeeping hazards and ensure proper housekeeping methods are being implemented throughout the work shift.			

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				H	M	L			H	M	L
							E/W A A/W/E A/D	All employees are to correct (or notify their supervisor) if they observe uneven walking/working surfaces. Care should be exercised, when surveying overhead areas. All holes/floor opening eliminated or protected with hard barricades Complete a Last Minute Risk Assessment (LMRA) prior to beginning each task			
2	Interfacing with other crafts, contractors, and Customer entities within and around the GOLD project	Injury or event resulting from Miscommunication	P ☐		X		D/E/S/W/A A	Prior to starting a task, Evaluate the Lifesaving Rules and actions (LSRA) start work Checks (SWC) that may apply to that task review START/STOP work expectations and implement, Verify & Validate (V&V) the appropriate behaviors and or control Safeguards per the ExxonMobil PSMS and site HSE Procedures during the pre-task brief		X	

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				H	M	L			H	M	L
	 						A	Ensure JSA for specific LAI tasks address proper hazard control methods.			
							A	Utilize the existing permitting process. Utilize the JSA process and communicate continuously with coworkers, contractors and ExxonMobil personnel and be aware of other work being performed in close proximity.			
							A	Ensure information from regular coordination meetings with unit operators is communicated.			
							A	Ensure work packages are evaluated well in advance to identify any potential SIMOPS with other contractors or planned Unit activities.			
							A	Regular supervisor and management walkthroughs and SIMOPS audits			

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				H	M	L			H	M	L
							A/D	Limit access to shop environments to essential personnel only.			
							A	Utilize work permit process to control work.			
							W	Ensure appropriate signage is in place for flammable materials.			
							S	Ensure appropriate respiratory protection is utilized as necessary.			
							S	Safety guards on all rotating tools and equipment shall be used and in proper condition.			
							D	If possible, substitute hazardous chemicals with less hazardous chemicals.			
							E	Use engineering controls to eliminate/mitigate fumes. Proper ventilation shall be used when fumes are present.			

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							A/D	Complete a Last Minute Risk Assessment (LMRA) prior to beginning each task			
4	Use of electrical tools and hand tools    	Exposure to electrical shock Exposure to flying particles from material being worked or from equipment. Injuries from use hand tools.	P ☐		X		D/E /S/ W/A A S/A	Prior to starting a task, Evaluate the Lifesaving Rules and actions (LSRA) start work Checks (SWC) that may apply to that task review START/STOP work expectations and implement, Verify & Validate (V&V) the appropriate behaviors and or control Safeguards per the ExxonMobil PSMS and site HSE Procedures during the pre-task brief Ensure JSA for specific LAI tasks address proper hazard control methods. Implementation of GFCI requirements and Assured Grounding Program.			X

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				H	M	L			H	M	L
							A	Pre-use Inspection. Prompt removal from service of damaged equipment. A documented inspection will be performed, at least monthly, by a designated competent person.			
							E/A	Use tools according manufacturer's instructions.			
							A	Proper use of safe work practices including barriers, distance and required PPE.			
							E/S	Use appropriate work area barrier screens and PPE. Eye /Face protection Must be z87.1+ rated for high-impact flying particles. Ensure all guards are in place. Do not use damaged equipment.			
							S	Use secondary support handle if equipped.			
							A	Complete a Last Minute Risk Assessment (LMRA) prior to beginning each task			

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				H	M	L			H	M	L
5	Nighttime/ (dark hours) work within and around the GOLD project  	Inadequate illumination	P/F/E ☐		X		D/E /S/ W/A A W/S S/W A	Prior to starting a task, Evaluate the Lifesaving Rules and actions (LSRA) start work Checks (SWC) that may apply to that task review START/STOP work expectations and implement, Verify & Validate (V&V) the appropriate behaviors and or control Safeguards per the ExxonMobil PSMS and site HSE Procedures during the pre-task brief Ensure JSA for specific LAI tasks address proper hazard control methods. Ensure adequate illumination thru use of portable lighting. Ensure safety glasses are clear, clean, and unscratched. Utilize high visibility vests or arm bands. Address visibility hazards daily during safety meetings			X

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				H	M	L			H	M	L	
							D/A	Tool Room Trailers: Tool room personnel will remain outside of the trailers, entering only as needed to retrieve or replace tools and materials.				
7	Erection of temporary break, fabrication facilities around the GOLD project  	Creation of a hazardous situation whereby personnel may be more at risk to exposure to blast overpressure, heat, and or flames resulting from an explosion in a nearby unit than they would be if working in an unconfined area or <ul style="list-style-type: none">Creation of a hazardous situation whereby personnel may be more at risk from exposure to a hazardous or oxygen deficient atmosphere	P ☐		X		D/E /S/ W/A A A/D	Prior to starting a task, Evaluate the Lifesaving Rules and actions (LSRA) start work Checks (SWC) that may apply to that task review START/STOP work expectations and implement, Verify & Validate (V&V) the appropriate behaviors and or control Safeguards per the ExxonMobil PSMS and site HSE Procedures during the pre-task brief Ensure JSA for specific LAI tasks address proper hazard control methods Ensure all break/ fabrication areas are lightly constructed with no solid walls.			X	

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				H	M	L			H	M	L
							A	Ensure proposed break areas are reviewed and approved by the ExxonMobil and Worley HSE department.			
							E/A	Ensure proper ventilation is assessed and proposed break/fabrication areas are evaluated as potential confined spaces.			
8	Work Activities within and around the GOLD project in High Temperature/ Hot Environmental Conditions (Heat Stress)	Personnel exposure to high temperatures/hot environment resulting in heat rash, heat cramps, heat exhaustion or heat stroke.	P ☐	X			D/E /S/ W/A	Prior to starting a task, Evaluate the Lifesaving Rules and actions (LSRA) start work Checks (SWC) that may apply to that task review START/STOP work expectations and implement, Verify & Validate (V&V) the appropriate behaviors and or control Safeguards per the ExxonMobil PSMS and site HSE Procedures during the pre-task brief			X
							A	Ensure JSA for specific LAI tasks address proper hazard control methods			

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				H	M	L			H	M	L
							D/A	Employees and supervisors are trained to understand and recognize Heat Stress Hazards, Signs, symptoms, and preventative measures.			
							A	Employees encouraged to break as often and for as long as necessary to remain fit for duty.			
							D	Adjust work schedules as needed by rotating personnel, monitor work to rest ratio, perform work during cooler hours of the day if possible.			
							E	Provide shelter or shaded areas and fans or A/C to protect personnel during rest periods.			
							S	Provide electrolyte replacement drinks to ensure proper electrolyte balance.			

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				H	M	L			H	M	L
							A	Ensure personnel maintain body fluids at normal level via supervisor monitoring and intervention.			
							A/D /E	Conduct wellness checks, preventative heat stress monitoring in the field whenever the heat index is above 100 degrees and as warranted by task location or PPE conditions.			
							A	Complete a Last Minute Risk Assessment (LMRA) prior to beginning each task <u>Additional References Below</u> Reference: Workplace Exposure Standard PHP-0008-COR-EN as well as MS-AS-STD-0012 Fatigue Management Standard Appendix B. Work Rest Guidelines for Work in Elevated Temperatures. Also Refer to XOM Heat Stress Procedure.			

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				H	M	L			H	M	L
9	Vehicle, UTV, and equipment operation around the GOLD project     	Inattention during vehicle operation resulting in collision and injury to personnel	P ☐		X		D/E /S/ W/A A A A	Prior to starting a task, Evaluate the Lifesaving Rules and actions (LSRA) start work Checks (SWC) that may apply to that task review START/STOP work expectations and implement, Verify & Validate (V&V) the appropriate behaviors and or control Safeguards per the ExxonMobil PSMS and site HSE Procedures during the pre-task brief Ensure JSA for specific LAI tasks address proper hazard control methods Only authorized personnel shall be allowed to operate a vehicle on site. Ensure all employees required to drive have completed defensive driving training.			X

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				H	M	L			H	M	L
							A	All personnel shall be made aware of the site driving rules including the speed limit (10 mph).			
							S/A	Seat belts shall be worn at all times.			
							A	No cell phone or radio use allowed while operating a vehicle.			
							D/S /A	An entry permit (level 1 hot work) will be completed prior to allowing equipment entry into the process units including a gas test and continuous LEL monitoring as required. UTV's and company pickup trucks are not allowed within the unit boundaries.			
10	Vehicle and equipment operation within and around the GOLD project	Vehicle becomes an ignition source within or around the project area due to an unknown product release	P/F ☐		X		D/S /A	An entry permit (level 1 hot work) will be completed prior to allowing equipment entry into the process units including a gas test and continuous LEL monitoring as required. UTV's and company pickup trucks are not allowed within the unit boundaries.			X

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11	Vehicle and equipment operation within and around the GOLD project	Inattention during vehicle operation resulting in collision and damage to facilities and equipment	F/E ☐		X		S/A A/W S	Same as above A spotter shall be used to assist during vehicle movement in congested areas and while backing. Critical equipment should be protected from vehicle traffic.			X
12	Pedestrian Traffic 	Pedestrians being struck by motor vehicle or mobile equipment	P ☐		X		A D A A/W	Controlled speed limit of 10 MPH within all project areas Designated crosswalk/ crossing areas to be evaluated on a regular basis. Limit vehicle and mobile equipment access within pedestrian travel paths A spotter shall be used to assist during vehicle movement in congested areas and while backing.			X

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13	Mobile Equipment Operations within and around the GOLD project   	Personnel struck by mobile equipment.	P ☐		X		A S/W W A/W A/W A	Ensure JSA for specific LAI tasks address proper hazard control methods Area shall be barricaded whenever possible to restrict access to personnel. Personnel shall wear high visibility vest or reflective arm bands around mobile equipment and at night. Designated Flaggers/Spotters shall wear high visibility vest day and night. Utilize spotter when moving, mobilizing, or positioning mobile equipment into place. Complete a Last Minute Risk Assessment (LMRA) prior to beginning each task			X	

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14	Operation of tools, heavy equipment, and Mobil equipment, including crane operations and critical lifts within and around the GOLD project   	Working in close proximity to large mobile equipment. Large equipment working in close proximity to live process systems. Working in close proximity to cranes making lifts overhead. Crush potential from counterweights and fixed objects i.e. permanent structures, near-by equipment, etc.	P/F ☐	X			D/E /S/ W/A A A/W W/A	Prior to starting a task, Evaluate the Lifesaving Rules and actions (LSRA) start work Checks (SWC) that may apply to that task review START/STOP work expectations and implement, Verify & Validate (V&V) the appropriate behaviors and or control Safeguards per the ExxonMobil PSMS and site HSE Procedures during the pre-task brief Ensure JSA for specific LAI tasks address proper hazard control methods Barricade or cone working area of heavy equipment. Have spotter located to direct foot or vehicle traffic around equipment.		X	

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							A	When working in close proximity to live systems, use a spotter when maneuvering equipment.			
							W/A /S	Barricade off area where lifts will be swung over.			
							W/A	Before load is lifted, have a spotter clear the area where the lift is being swung utilize whistles and horns.			
							A/D /W/ S	Barricade area around crane and counterweight swing radius do not get between crane and fixed objects			
15	Overhead Material handling (Crane) within and around the GOLD project 	Personnel exposure to falling objects from overhead work resulting in injury.	P ☐	X			D/E /S/ W/A	Prior to starting a task, Evaluate the Lifesaving Rules and actions (LSRA) start work Checks (SWC) that may apply to that task review START/STOP work expectations and implement, Verify & Validate (V&V) the appropriate behaviors and or control Safeguards per the ExxonMobil PSMS and site HSE		X	

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	   							Procedures during the pre-task brief Ensure JSA for specific LAI tasks address proper hazard control methods Limit access to process unit to essential personnel only. If possible, position crane/swing radius to avoid lifting over occupied buildings, and/or remove personnel for duration of lift. Areas below overhead work areas will be barricaded to prevent personnel exposure. Barricades must be located so that the objects that could fall are contained within the barricade area. When possible, work shall be planned and coordinated to			

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								eliminate work by multiple crews in the same area. Personnel in the construction area are required to wear proper PPE. Tag lines shall be used when handling materials via crane. Ensure that the crane operator is trained and certified to operate equipment. Complete a Last Minute Risk Assessment (LMRA) prior to beginning each task			

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				H	M	L			H	M	L	
16	Overhead Material handling (Crane) within and around the GOLD project	Equipment exposure to falling objects from overhead work resulting in damage to a live process.	F/E ☐		X		A A A A A A	Utilize critical lift plan process to control lift. Limit access to process unit to essential personnel only. Ensure that the crane operator is trained and certified to operate equipment. Ensure that crane has been inspected and in proper working condition. A spotter shall be used to assist when lifting over congested area or when material is being moved out of the operator's line of sight. When possible, work shall be planned and coordinated to eliminate work by multiple crews in the same area.			X	

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LAI HAZARD ANALYSIS												
Project Number:		Project:						Location:				
Prepared By: Steve Herman				Date:		Reviewed By:				Date:		
Ref. Number	High Potential Consequence Task Steps	POTENTIAL HAZARDS & CONSEQUENCES Include applicable Error Prone Situations and Triggers	Target Check off to indicate Hold Point	Preliminary Risk Assessment			Control Type	SAFEGUARDS (Actions & Physical Safeguards) Eliminate or Mitigate the hazards	Final Risk Assessment			
				H	M	L			H	M	L	
								Ensure information from regular coordination meetings with unit operators is communicated.				
17	Critical Lifts     	A hoisting or lifting operation that the Worley, ExxonMobil, project management, or site manager judges to present an increased level of risk beyond normal lifting activities. Such increased risk may relate to personnel injury, damage to property, interruption of production, delays in schedule, release of hazards to the environment, etc.	P/F/E ☐	X			D/E /S/ W/A	<p>Prior to starting a task, Evaluate the Lifesaving Rules and actions (LSRA) start work Checks (SWC) that may apply to that task review START/STOP work expectations and implement, Verify & Validate (V&V) the appropriate behaviors and or control Safeguards per the ExxonMobil PSMS and site HSE Procedures during the pre-task brief</p> <p>A Ensure JSA for specific LAI tasks address proper hazard control methods</p> <p>A All critical lift operations require a complete analysis in order to select the most effective method to be used for the lift.</p>		X		

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				H	M	L			H	M	L
							A	Critical Lift Permit, and Required Critical Lift Attachments			
							A/E	Ground Stability Assessment			
							S	Proper rigging and tag lines			
							A	Equipment inspections (Crane and Rigging)			
							A/W	Barricade area allowing essential personnel only.			
							A	Only Qualified Rigger shall preform rigging operations.			
							A	Pre-Lift Meeting			
							A	Follow requirements of Worley MS-HS-STD-0069-Crane Lift Safety Standard			
							A				

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				H	M	L			H	M	L
								Complete a Last Minute Risk Assessment (LMRA) prior to beginning each task			
18	Crane Suspended Personnel Baskets within and around the GOLD project   	Fall exposure to personnel. Note: The use of Crane Suspended Personnel Baskets is prohibited except when conventional or alternate means of reaching the job site are more hazardous. Special authorizations and a Lift Director are also required.	P ☒	X			D/E /S/ W/A A A A	Prior to starting a task, Evaluate the Lifesaving Rules and actions (LSRA) start work Checks (SWC) that may apply to that task review START/STOP work expectations and implement, Verify & Validate (V&V) the appropriate behaviors and or control Safeguards per the ExxonMobil PSMS and site HSE Procedures during the pre-task brief Ensure JSA for specific LAI tasks address proper hazard control methods Crane Suspended Personnel Basket Pre-Lift Checklist shall be used. The number of employees in the personnel basket must be no		X	

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				H	M	L			H	M	L	
	  							<p>more than is required for the work to be done.</p> <p>A/E The personnel basket shall not be loaded in excess of its rated load capacity or maximum intended load.</p> <p>S Personnel shall wear proper fall protection PPE (harness with double lanyard)</p> <p>E/S /D Access gates, if installed shall not swing outward and must be equipped with a retaining device to prevent accidental opening.</p> <p>E The basket itself, except the guardrail system and fall protection anchorages, must be capable of supporting its own weight and at least five (5) times the maximum intended load.</p> <p>A Before personnel enter or exit a hoisted personnel basket that is not landed, the basket shall be secured to the structure where</p>				

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				H	M	L			H	M	L
								<p>work is to be performed, unless doing so creates an unsafe situation.</p> <p>Personnel shall keep all parts of the body inside the basket during hoisting, lowering, and positioning.</p> <p>The suspension system must be designed to minimize tipping of the basket due to movement of personnel basket.</p> <p>The crane operator shall remain at the controls at all times when the personnel basket is in use.</p> <p>Tag lines shall be used unless their use creates an unsafe situation.</p> <p>The personnel basket must have a guardrail system meeting OSHA requirement and shall be enclosed from the toe board to at least the mid rail with either solid material</p>			

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				H	M	L			H	M	L
								or expanded metal having openings no greater than one-half inch.			
19	Crane Suspended Personnel Baskets within and around the project	Personnel exposure to falling objects from overhead work resulting in injury.	P ☐	X			A S A/S S	Limit access to process unit to essential personnel only. Areas below overhead work areas will be barricaded to prevent personnel exposure. Barricades must be located so that the objects that fall are contained within the barricade area. Work shall be planned and coordinated to eliminate work by multiple crews in the same area. Personnel in the construction area are required to wear proper PPE. Tools shall be tethered to minimize the potential for falling or being dropped. Utilize enclosed tool bags, netting to secure equipment, only take		X	

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				H	M	L			H	M	L
							A	tools/equipment needed. follow project dropped object prevention requirements.			
							A	Ensure that the crane operator is trained and certified to operate equipment.			
							A	The crane operator shall remain at the controls at all times when the personnel basket is in use.			
20	Material handling (manual) within and around the GOLD project	Improper lifting resulting in personnel injury (strains and sprains)	P ☐	X			A	Complete a Last Minute Risk Assessment (LMRA) prior to beginning each task and address proper lifting and material handling methods.		X	
							A	One person will not lift over a maximum of 50 pounds or lift awkward loads without assistance.			
							A/D /S	Two persons will not lift over a maximum of 100 pounds or lift awkward loads without mechanical assistance.			

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				H	M	L			H	M	L
	  						A/D A A/D A A/D /S	All employees must be trained in proper lifting techniques and how to avoid awkward body positioning. Utilize mechanical lifting equipment when possible. Supervisor walkthroughs should identify potential repetitive motion activities for further analysis. Shop work areas shall be set up and organized to minimize the necessity to move materials around. Ensure JSA address proper hazard control methods and use of mechanical means when the maximum amount of weight that can be lifted, is to be lifted above a height of 4ft, lifted and carried more than 4ft, or lift to			

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				H	M	L			H	M	L
								an elevated platform/ above head, up/down stairways etc.			
21	Material handling (manual) within and around the GOLD project 	Improper lifting and/or material handling resulting in personnel injury (pinch and crush points)	P ☐	X			D/E /S/ W/A A A/S S	Prior to starting a task, Evaluate the Lifesaving Rules and actions (LSRA) start work Checks (SWC) that may apply to that task review START/STOP work expectations and implement, Verify & Validate (V&V) the appropriate behaviors and or control Safeguards per the ExxonMobil PSMS and site HSE Procedures during the pre-task brief Ensure JSA for specific LAI tasks address proper hazard control methods Personnel shall wear proper gloves when handling materials. Tag lines and no touch tools shall be used when handling materials via crane.		X	

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				H	M	L			H	M	L
								Push blocks or other means shall be used when placing or adjusting cribbing under a load. Temporary supports shall be designed to take into consideration uneven weight distribution to eliminate the possibility of shifting, rotating, swinging, etc. Complete a Last Minute Risk Assessment (LMRA) prior to beginning each task			

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				H	M	L			H	M	L
22	Overhead work within and around the GOLD project   	Personnel exposure to falling objects from overhead work resulting in injury	P ☐	X			D/E /S/ W/A A S A/S	Prior to starting a task, Evaluate the Lifesaving Rules and actions (LSRA) start work Checks (SWC) that may apply to that task review START/STOP work expectations and implement, Verify & Validate (V&V) the appropriate behaviors and or control Safeguards per the ExxonMobil PSMS and site HSE Procedures during the pre-task brief Ensure JSA for specific LAI tasks address proper hazard control methods Areas below overhead work areas will be barricaded to prevent personnel exposure. Barricades must be located so that the objects that fall are contained within the barricade area. Personnel in the construction area are required to wear hardhats.		X	

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				H	M	L			H	M	L	
							A	When possible, work shall be planned and coordinated to eliminate work by multiple crews in the same area.				
							A	Tools and materials shall be properly stored when not in use.				
							S	Where appropriate solid work surfaces will be placed over open grating to prevent objects from falling through the grating.				
							A	Rigging equipment for material handling shall be inspected prior to use on each shift and as necessary during its use to ensure that it is safe. Defective rigging equipment shall be removed from service.				
							A	Rigging has permanently affixed, and legible identification markings as prescribed by the manufacturer that indicate the recommended safe working load.				

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				H	M	L			H	M	L
							A A A A A D/E /S/ A	Rigging not be loaded in excess of its recommended safe working load as prescribed on the identification markings by the manufacturer; and Rigging not be used without affixed, legible identification markings. Rigging equipment, when not in use, shall be removed from the immediate work area so as not to present a hazard to employees. Only Qualified Riggers shall preform rigging operations. Only Qualified Signal Persons shall perform signal operations. All employees are trained and aware of the site-specific work requirements for raising and lowering tools and materials via rope.			

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				H	M	L			H	M	L
							D/E /S/ A	All employees are trained and aware of and will implement the site-specific Stop the drop procedure and required controls including the teetering of tools and materials above 4 ft.			
							A	Complete a Last Minute Risk Assessment (LMRA) prior to beginning each task			
23	Overhead work within and around the project 	Falling objects from overhead work resulting in damage to equipment	F/E ☐		X		S/A	Critical equipment below overhead work areas will be protected from potential falling objects.			X
							S	Where appropriate, tools shall be tethered to minimize the potential for falling or being dropped.			
							A	Utilize critical lift plan process to control lifts.			
							A	Limit access to process unit to essential personnel only.			

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				H	M	L			H	M	L
							A	Ensure that crane operators are trained and certified to operate equipment.			
							A	Ensure that crane has been inspected and in proper working condition.			
							A	A spotter shall be used to assist when lifting over congested area or when material is being moved out of the operator's line of sight.			
							A	When possible, work shall be planned and coordinated to eliminate work by multiple crews in the same area.			
							D/E /S/ A	All employees are trained and aware of the site-specific work instruction for raising and lowering tools and materials via rope.			

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				H	M	L			H	M	L
							D/E /S/ A A	All employees are trained and aware of and will implement the site-specific Stop the drop procedure and required controls. Complete a Last Minute Risk Assessment (LMRA) prior to beginning each task			
24	Work at heights or near leading edge of scaffolding, within and around the GOLD project 	Fall exposure to personnel.	P ☐	X			D/E /S/ W/A	Prior to starting a task, Evaluate the Lifesaving Rules and actions (LSRA) start work Checks (SWC) that may apply to that task review START/STOP work expectations and implement, Verify & Validate (V&V) the appropriate behaviors and or control Safeguards per the ExxonMobil PSMS and site HSE Procedures during the pre-task brief		X	

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				H	M	L			H	M	L
							A	Ensure JSA for specific LAI tasks address proper hazard control methods			
							S/A	Fall hazard control shall be provided in the form of fall prevention systems, which includes guardrail systems, scaffolds, aerial lifts, barricades, and hole covers. Fall protection measures include the use of personal fall arrest systems (body harness and SRL's) at or above (6) four feet.			
							S/A	SRL's will be placed on all scaffolding ladders 10 feet and above and will be fitted with swing gates.			
							A	Only Qualified persons shall modify scaffolding			

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				H	M	L			H	M	L
							A	A Scaffolding Competent Person will perform inspections prior to initial use, before each work shift, and upon any occurrence that may affect the structural integrity of the scaffold as required by Worley Scaffolding, Ladders, Stairs and Walkways Standard PHP-0045-COR-EN Employees working from Scaffolding from an elevation of six feet or more, shall use fall protection equipment (harness and double SRL's) Employees who are required to use ladders will be required to complete the Ladders and Stairway Training Program.			
							A/S				
							A				

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				H	M	L			H	M	L
							A	Inspect ladder before use. Use 4:1 ratio for ladder angle. Ensure base area is level. Request assistance if needed.			
							A/S	Use fall protection device when working at elevation greater than 6 ft. Ensure ladder is tied off.			
							D/E	Swing gates will be utilized at all scaffolding ladder points to assure safe entry and egress.			
							E/A	Vertical lifelines will be utilized on all scaffold ladders 10 foot or grater to eliminate fall potential while climbing, descending, or transitioning from ladder to work platform or vice versa.			
							A	Complete a Last Minute Risk Assessment (LMRA) prior to beginning each task			

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				H	M	L			H	M	L
							A/S	Personnel in the construction area are required to wear hardhats.			
							A	When possible, work shall be planned and coordinated to eliminate work by multiple crews in the same area.			
							A	Tools and materials shall be properly stored when not in use.			
							S	Where appropriate solid work surfaces will be placed over open grating to prevent objects from falling through the grating.			
							D/E /S/ A	All employees are trained and aware of the site-specific work requirements for raising and lowering tools and materials via rope.			

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				H	M	L			H	M	L
							D/E /S/ A	All employees are trained and aware of and will implement the site-specific Stop the drop procedure and required controls.			
							S/D	Employees working bellow others during scaffolding dismantling shall wear sealed eye protection (goggles/Spogles) to prevent eye injury due to falling dust or debris.			
							A	Complete a Last Minute Risk Assessment (LMRA) prior to beginning each task			

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LAI HAZARD ANALYSIS

Project Number:		Project:				Location:					
Prepared By: Steve Herman				Date:		Reviewed By:				Date:	
Ref. Number	High Potential Consequence Task Steps	POTENTIAL HAZARDS & CONSEQUENCES Include applicable Error Prone Situations and Triggers	Target Check off to indicate Hold Point ☐	Preliminary Risk Assessment			Control Type	SAFEGUARDS (Actions & Physical Safeguards) Eliminate or Mitigate the hazards	Final Risk Assessment		
				H	M	L			H	M	L
27	Scaffold erection and use within and around the GOLD project	Personnel exposure to damaged or incomplete scaffolding resulting in falls or injury.	P		X		A	A Scaffolding Competent Person will perform inspections prior to initial use, before each work shift, and upon any occurrence that may affect the structural integrity of the scaffold as required by Scaffolding, Ladders, Stairs and Walkways Standard PHP-0045-COR-EN			X
							A/S	Employees working on, Erection or Dismantling Scaffolding from an elevation of six feet or more, shall use fall protection equipment (harness and double SRL's)			
							D/E	Swing gates will be utilized at all scaffolding ladder points to assure safe entry and egress.			
							A	Complete a Last Minute Risk Assessment (LMRA) prior to beginning each task.			

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				H	M	L			H	M	L
28	Isolation of equipment/ hazardous energy for work within and around the GOLD project    	Personnel exposure to hazardous chemicals or electrocution resulting in injury or damage to the environment	P/F/E ☒	X			D/E /S/ W/A A A	Prior to starting a task, Evaluate the Lifesaving Rules and actions (LSRA) start work Checks (SWC) that may apply to that task review START/STOP work expectations and implement, Verify & Validate (V&V) the appropriate behaviors and or control Safeguards per the ExxonMobil PSMS and site HSE Procedures during the pre-task brief Ensure JSA for specific LAI tasks address proper hazard control methods Isolation of equipment shall be coordinated with operations as needed and to ensure compliance with Worley Isolation and Lock-out Standard MS-HS-STD-0081 and ExxonMobil site specific Energy isolation procedures.		X	

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				H	M	L			H	M	L
							A	Electrical equipment shall be tested by an Electrical LOTO Qualified person to ensure de-energization.			
							A/S	Verify lockout procedure performed by unit operators (as necessary) and equipment steamed/cleaned out and tested for hazardous atmospheres and de-energized.			
							A/D	A hold point (Project specific Work instruction W.I -Secondary verification of isolation) will be observed for verification of zero energy/ proper isolation and identification by Worley HSE and management designee prior to any work being started on isolated equipment or systems.			
							A/D	Only trained and authorized employees will complete or work on isolated equipment			

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				H	M	L			H	M	L
							A	Complete a Last Minute Risk Assessment (LMRA) prior to beginning each task.			
29	Line breaks equipment opening and tie-ins for piping and instruments within and around the GOLD project   	Inadvertent exposure of personnel to hazardous materials, high pressure, and/or high temperature resulting in injury or death	P ☒	X			D/E /S/ W/A A A	Prior to starting a task, Evaluate the Lifesaving Rules and actions (LSRA) start work Checks (SWC) that may apply to that task review START/STOP work expectations and implement, Verify & Validate (V&V) the appropriate behaviors and or control Safeguards per the ExxonMobil PSMS and site HSE Procedures during the pre-task brief Ensure JSA for specific LAI tasks address proper hazard control methods Utilize a work permit process for controlling work activities in the unit.		X	

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				H	M	L			H	M	L
	 						A A/S A	Verify lockout procedure performed according to procedures. Follow Requirements of Worley MS-HS-STD-0011-Line and Equipment Opening Standard A hold point (Project specific Work instruction W.I -Secondary verification of isolation) will be observed for verification of zero energy/ proper isolation and identification by Worley HSE and management designee prior to prior to any first line break or Demo work has begun.			

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				H	M	L			H	M	L
30	Hot work (burning, welding, grinding, etc.) within and around the GOLD project   	Open flame and/or sparks around combustible materials within and around the project resulting in a fire, personnel injury (burns including flash burns) and or damage to the facility.	P/F/E ☐	X			D/E /S/ W/A A A A	Prior to starting a task, Evaluate the Lifesaving Rules and actions (LSRA) start work Checks (SWC) that may apply to that task review START/STOP work expectations and implement, Verify & Validate (V&V) the appropriate behaviors and or control Safeguards per the ExxonMobil PSMS and site HSE Procedures during the pre-task brief Ensure JSA for specific LAI tasks address proper hazard control methods Utilize work permit process to control work activities. Ensure personnel are trained in the use of fire extinguishers and in the emergency response to fires.			X

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				H	M	L			H	M	L
							A/S	Keep combustible materials at least 35 feet away from hot work (housekeeping).			
							A/S	Keep flammable materials at least 50 feet away from hot work.			
							A/S	Personnel performing shall wear appropriate protective clothing and gloves to be defined in the JHA.			
							A	Only trained and authorized personnel shall be permitted to perform hot work.			
							A/D	A fire watch will be in place with requires gas monitoring equipment and will remain a minimum of 30 min after hot work has stopped.			
							A	Complete a Last Minute Risk Assessment (LMRA) prior to beginning each task.			

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				H	M	L			H	M	L
31	Elevated Lift (aerial or scissor) use, Egress and Access    	Personnel falling from height to lower elevation resulting in injury or death	P <div>X</div>		X		D/E /S/ W/A A A	Prior to starting a task, Evaluate the Lifesaving Rules and actions (LSRA) start work Checks (SWC) that may apply to that task review START/STOP work expectations and implement, Verify & Validate (V&V) the appropriate behaviors and or control Safeguards per the ExxonMobil PSMS and site HSE Procedures during the pre-task brief Ensure JSA for specific LAI tasks address proper hazard control methods Obtain documented approval from Site Manager and Site HSE Supervisor via FHA process prior to exiting an elevated lift platform.			X

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				H	M	L			H	M	L
							A	The platform must be attended at all times by a lift operator while any personnel are exiting or accessing an elevated platform.			
							A/S	100% tie off must be maintained while exiting or entering the platform. The employee will secure a second lanyard to an anchorage point outside the basket before disconnecting their lanyard from the lift and exiting. When re-entering, secure second lanyard to the lift only after both feet are on the floor of the basket, and then release the lanyard tied to outside anchorage.			
							A	The floor of the basket or lift should be at the same level as the structure to be accessed.			
							A	At no time should employees exit or enter over the lift controls.			

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				H	M	L			H	M	L
							A	Access gates are to be utilized, if at all possible, to exit or enter the elevated platform.			
							A	If the manufacturer prohibits egress and access of an elevated lifting platform, such practices are prohibited unless written approval is obtained from the manufacturer.			
							A	Body harness shall be inspected daily and prior to each use.			
							A	Complete a Last Minute Risk Assessment (LMRA) prior to beginning each task.			

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				H	M	L			H	M	L
32	Finding Unexpected Asbestos/Lead within and around the project	Personnel exposure to a hazardous atmosphere.	P ☒		X		A A A	Awareness training: what to do when suspect material is found, Do not disturb unknown material. Call Worley HSE department ExxonMobil project management for consultation.			X
33	Hydro testing operations within and around the GOLD project  	Working in close proximity to Hydro testing operations resulting in injury or death	P ☐		X		D/E /S/ W/A	Prior to starting a task, Evaluate the Lifesaving Rules and actions (LSRA) start work Checks (SWC) that may apply to that task review START/STOP work expectations and implement, Verify & Validate (V&V) the appropriate behaviors and or control Safeguards per the ExxonMobil PSMS and site HSE Procedures during the pre-task brief			X

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				H	M	L			H	M	L
	  							A Ensure JSA for specific LAI tasks address proper hazard control methods A Ensure only properly trained personnel operate hydro testing equipment. W/A Work areas will be barricaded to Limit access to essential personnel and prevent personnel exposure. S A Z87+ impact resistant face shield will be worn at a minimum by those within the hydrotesting barricaded area. A/E D/S Follow requirements or Worley MS-HS-STD-0104.-Hydrostatic and Pneumatic Pressure Testing Standard A Complete a Last Minute Risk Assessment (LMRA) prior to beginning each task.			

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				H	M	L			H	M	L
							A	Follow requirements or Worley MS-HS-STD-0056.-High Pressure Cutting and Washing Standard			
							A	Complete a Last Minute Risk Assessment (LMRA) prior to beginning each task.			
35	Potential Radiography within and around the GOLD project   	Working in close proximity to Radiography or radiation sources resulting in radiation exposure	P ☐		X		D/E /S/ W/A	Prior to starting a task, Evaluate the Lifesaving Rules and actions (LSRA) start work Checks (SWC) that may apply to that task review START/STOP work expectations and implement, Verify & Validate (V&V) the appropriate behaviors and or control Safeguards per the ExxonMobil PSMS and site HSE Procedures during the pre-task brief Ensure JSA for specific LAI tasks address proper hazard control methods			X

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				H	M	L			H	M	L
							W/A	Work areas will be barricaded to limit access to essential and trained personnel and prevent personnel exposure.			
							A	Only properly trained personnel will be permitted to enter radiation areas.			
							A	Follow requirements or Worley MS-HS-STD-0107-Radiation Protection Program Standard			
							A	Ensure JSA for specific LAI tasks address proper hazard control methods			

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				H	M	L			H	M	L
36	Activities Requiring Supplied Air within and around the GOLD project.	Personnel exposure to hazardous or oxygen deficient atmosphere resulting in injury or death.	P ☐		X		D/E /S/ W/A	Prior to starting a task, Evaluate the Lifesaving Rules and actions (LSRA) start work Checks (SWC) that may apply to that task review START/STOP work expectations and implement, Verify & Validate (V&V) the appropriate behaviors and or control Safeguards per the ExxonMobil PSMS and site HSE Procedures during the pre-task brief			X
	  						A	Ensure JSA for specific LAI tasks address proper hazard control methods			
							A	Ensure information from regular coordination meetings with unit operators is communicated.			
							A/E /D	Ensure that employees are properly fit tested, trained and certified to use supplied air equipment.			

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				H	M	L			H	M	L
							A	Safety Data Sheet shall be reviewed for specific hazards related to the task.			
							S/W	Work areas will be barricaded to limit access to essential personnel and prevent personnel exposure.			
							A	Follow the appropriate LOTO procedures to ensure that all potential gas sources are isolated and locked out.			
							S/W	Utilize a gas monitoring system to assess and monitor the atmosphere.			
							A	Complete a Last Minute Risk Assessment (LMRA) prior to beginning each task.			

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				H	M	L			H	M	L
37	Elevated work inside of energized electrical substations and MMC within and around the GOLD project    	Fall exposure to personnel/ damage to or temporary shutdown of unit, electrical equipment, or facility due to sensitive nature of energized switches and inadequate fall protection/prevention methods	P/F/E ☐		X		D/E /S/ W/A A A	Prior to starting a task, Evaluate the Lifesaving Rules and actions (LSRA) start work Checks (SWC) that may apply to that task review START/STOP work expectations and implement, Verify & Validate (V&V) the appropriate behaviors and or control Safeguards per the ExxonMobil PSMS and site HSE Procedures during the pre-task brief Ensure JSA for specific LAI tasks address proper hazard control methods Due to the sensitive nature of energized switches and electrical equipment, extra consideration must be taken in the choice of fall protection methods within energized substations to protect personnel and equipment.			X

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				H	M	L			H	M	L
38	Confined space entry within and around the GOLD project    	Personnel exposure to hazardous atmosphere resulting in injury or death	P ☒	X			D/E /S/ W/A A A A	Prior to starting a task, Evaluate the Lifesaving Rules and actions (LSRA) start work Checks (SWC) that may apply to that task review START/STOP work expectations and implement, Verify & Validate (V&V) the appropriate behaviors and or control Safeguards per the ExxonMobil PSMS and site HSE Procedures during the pre-task brief Ensure JSA for specific LAI tasks address proper hazard control methods Utilize work permit process for controlling work activities and in the unit. Utilize confined space entry permit process to control entry into and work inside the confined space.		X	

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				H	M	L			H	M	L
							A	Ensure all personnel involved in confined space work have appropriate training.			
							A/W /S	Utilize a gas monitoring system to assess and monitor the atmosphere of the confined space.			
							A	Follow the appropriate lockout procedures to ensure that all potential hazard sources are isolated and locked out.			
							E	Where appropriate utilize positive ventilation to ensure a safe atmosphere.			
							A	Continuously monitor the effectiveness of training through field interviews of project personnel.			
							A	Complete a Last Minute Risk Assessment (LMRA) prior to beginning each task.			

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				H	M	L			H	M	L
39	Excavation within the facility and for the GOLD project     	Personnel exposure to: <ul style="list-style-type: none"> unstable soil associated with excavation work resulting in cave-in or collapse and personnel injury. Fall hazards. Inadequate access/egress. Mobile equipment and traffic. 	P ☐		X		D/E /S/ W/A	Prior to starting a task, Evaluate the Lifesaving Rules and actions (LSRA) start work Checks (SWC) that may apply to that task review START/STOP work expectations and implement, Verify & Validate (V&V) the appropriate behaviors and or control Safeguards per the ExxonMobil PSMS and site HSE Procedures during the pre-task brief Ensure JSA for specific LAI tasks address proper hazard control methods Utilize work permit system to control excavation work. Perform analysis of soil to determine required actions.			X

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				H	M	L			H	M	L
								<p>A Designate a competent person to perform daily inspections of excavations and protective systems.</p> <p>E Use appropriate protective systems (shoring, shields, and/or trench boxes).</p> <p>E Ensure spoil pile and heavy equipment is kept a minimum of 2 feet away from the edge of the excavation if workers are required to be in the excavation.</p> <p>E Excavation shall be sloped and benched appropriately according to the type of soil present.</p> <p>A Adequate means for access to and egress from the excavation shall be provided (access ladders required every 25 feet of lateral travel)</p>			

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				H	M	L			H	M	L
							D/S /A	For excavations deeper than 4 ft, follow Working at Height requirements. Ensure hard barricades are installed if left unattended and personal fall protection equipment is utilized if within 6 ft. of excavation edge.			
							D/S /A	Ensure excavations are barricaded and guarded from vehicle and mobile equipment traffic. No mobile equipment shall be within 2 ft. of unprotected excavation edges.			
							D/A	Ensure all personnel are out of excavation while digging (or lowering in materials / equipment)			

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LAI HAZARD ANALYSIS

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				H	M	L			H	M	L
40	Excavation within the facility and for the GOLD project	Personnel exposure to a hazardous atmosphere while working in an excavation resulting personnel injury. <ul style="list-style-type: none"> (Oxygen deficient, toxic, or flammable atmospheres) 	P		X		A A/D A D/S A/D	Utilize work permit system to control excavation work. Designate a competent person to perform daily inspections of excavations and protective systems. Evaluate potential sources of hazardous gases including nearby storage tanks, pipelines, unloading stations, vehicle traffic, internal combustion engine driven equipment, etc.) Utilize a gas monitor to verify the atmosphere in the excavation prior to personnel entering the area. Coordinate with ExxonMobil site Environmental dept. to verify and conduct soil testing (VOC's) as required.			X

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				H	M	L			H	M	L
							A/D /S	Adequate means for access to and egress from the excavation shall be provided.			
41	Excavation within the facility and for the GOLD project	Damage to underground utilities resulting in damage to or temporary shutdown of the facility.	F/E ☐		X		A A A	Utilize work permit system to control excavation work. Survey of excavation area to determine location of underground utilities. i.e. probing, GPRS Review of underground utility drawings by a competent person.			X

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				H	M	L			H	M	L	
42	Vacuum truck operations within and around the GOLD project    	Inadvertent exposure of personnel to hazardous materials, high pressure, and/or high vacuum resulting in injury Creation of a hazardous situation due to operations inside confined spaces, loud noise, static electrical discharge or congested work areas whereby personnel may be more at risk to exposure of hazardous materials, oxygen deficient atmospheres or physical hazards trips/falls, pinch points.	P ☐		X		D/E /S/ W/A A W/A S/A	Prior to starting a task, Evaluate the Lifesaving Rules and actions (LSRA) start work Checks (SWC) that may apply to that task review START/STOP work expectations and implement, Verify & Validate (V&V) the appropriate behaviors and or control Safeguards per the ExxonMobil PSMS and site HSE Procedures during the pre-task brief Ensure JSA for specific LAI tasks address proper hazard control methods Limit access to process unit to essential personnel only. (barricade) Ensure personnel wear the appropriate PPE (to be defined in the task specific JSA).			X	

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				H	M	L			H	M	L
							A	When possible, work shall be planned and coordinated to eliminate work by multiple crews in the same area.			
							S/A	Ensure double ear protection is used as appropriate.			
							E/A	Where appropriate utilize positive ventilation to ensure a safe atmosphere.			
							S/A /W	Utilize a gas monitoring system to assess and monitor the atmosphere of confined spaces.			
							A/D E/W /S	Ensure all equipment manufacture's requirements are followed. i.e. pre use inspections, vacuum equipment is properly bonded/grounded to prevent static electrical discharge, wheel chocks are in place, safety relief/shutoff for wand/vacuum are in place and operational etc.			

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				H	M	L			H	M	L
							A	Complete a Last Minute Risk Assessment (LMRA) prior to beginning each task.			
43	Demolition of pipe, instrumentation, conduit, or structural supports within the unit/ GOLD project   	Exposure of personnel or damage to environment from asbestos, Lead materials demoed.	P/E ☒		X		D/E /S/ W/A A A A	Prior to starting a task, Evaluate the Lifesaving Rules and actions (LSRA) start work Checks (SWC) that may apply to that task review START/STOP work expectations and implement, Verify & Validate (V&V) the appropriate behaviors and or control Safeguards per the ExxonMobil PSMS and site HSE Procedures during the pre-task brief Ensure JSA for specific LAI tasks address proper hazard control methods Awareness training: what to do when suspect material is found, Do not disturb unknown material.			X

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				H	M	L			H	M	L
							A A A	Call Worley HSE department ExxonMobil project management for consultation. Ensure asbestos containing insulation, lead, or other materials have either been removed or contained by properly trained personnel prior to initiation of demolition Complete a Last Minute Risk Assessment (LMRA) prior to beginning each task.			
44	Demolition of pipe, instrumentation, conduit, or structural supports within the unit/ GOLD project	Pressurized or energized lines and equipment opened or cut resulting in damage to the environment or injury to personnel	P/F/E <div style="border: 1px solid black; padding: 2px; display: inline-block;">X</div>	X			A A	Utilize work permit process for controlling work activities in the unit. Verify lockout procedure performed by unit operators and equipment steamed out and tested for hazardous atmospheres and de-energized.		X	

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				H	M	L			H	M	L
							A	Train personnel to only demo equipment that has been marked at the starting and stopping points.			
							S	Review SDS for any possible chemicals in lines and ensure proper PPE is utilized.			
							A	Follow requirements of Worley MS-HS-STD-0048-Decommission and Demolition HSE Standard			
45	Demolition of pipe, instrumentation, conduit, or structural supports within the unit/ GOLD project	Exposure of personnel to lead fumes from torch cutting painted equipment to be demoed.	P ☒		X		A	Ensure painted areas to be cut have been tested and lead containing paints removed by personnel trained in lead abatement.			X
46	Demolition of pipe, instrumentation, conduit, or structural supports within	Equipment being demoed improperly rigged or supported shifting damaging other equipment or personnel.	P/F ☐	X			A	Only trained and authorized personnel conducting rigging activities.		X	
							A	Monthly inspection of rigging equipment with proper color coding.			

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				H	M	L			H	M	L
	the unit/ GOLD project						A	Ensure JSA for specific LAI tasks address proper hazard control methods			
							A	Complete a Last Minute Risk Assessment (LMRA) prior to beginning each task.			
47	Demolition of pipe, instrumentation, conduit, or structural supports within the unit/ GOLD project	Demoed equipment/material allowed to accumulate creating a congested work area with tripping hazards and obstacles to equipment.	P/F ☐		X		S	Utilize material containers such as scrap metal bins to contain and remove demoed items/materials in a timely manner.			X
							A	Conduct work area inspections with daily clean ups, ensure employees are properly trained to identify housekeeping hazards as they are created.			

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				H	M	L			H	M	L
48	Working within and around process areas (HCU-RHC units) 	While the potential for exposure is limited. During sampling, or in the event of a leak, flammable hydrocarbon, Acid, and hot chemicals may be released. IF the off gas produced contains H2S or acid. skin and eye irritation can occur from contact with product streams.	P ☐	X			D/E /S/ W/A A A D/A	Prior to starting a task, Evaluate the Lifesaving Rules and actions (LSRA) start work Checks (SWC) that may apply to that task review START/STOP work expectations and implement, Verify & Validate (V&V) the appropriate behaviors and or control Safeguards per the ExxonMobil PSMS and site HSE Procedures during the pre-task brief Ensure JSA for specific LAI tasks address proper hazard control methods Limit access to process unit to essential personnel only. Maintain clear paths of travel. Ensure personnel have process unit overview training which addresses unit-specific hazards.		X	

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				H	M	L			H	M	L
							A	Utilize work permit process to control work.			
							A	Ensure information from regular coordination meetings with unit operators is communicated.			
							A	Ensure personnel have reviewed SDS information before work begins.			
							A	Ensure the location of primary /secondary RAA's, nearest emergency eyewash/shower and emergency equipment is identified, documented on the JSA/permit, and communicated to the work team.			
							A	Ensure personnel wear the appropriate PPE (to be defined in the task specific JSA/Permit) and upgrade as required per task hazard analysis, SDS, process requirements.			
							A/S				

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				H	M	L			H	M	L
							A	Complete a Last Minute Risk Assessment (LMRA) prior to beginning each task.			
49	Working within and around process areas (HCU-RHC units)	Exposure to adjacent hazards (other than chemical hazards) Airborne particles, Same level falls such as slips and trips, uneven walking surfaces, Animals, and insects	P ☐	X			A	Limit access to process unit to essential personnel only.		X	
							A	Utilize work permit process to control work and to be aware of other work being performed in close proximity.			
							A	Ensure information from regular coordination meetings with unit operators is communicated.			
							A	Perform walkthrough of work area during JSA development/LMRA to identify adjacent hazards. (SIMOPS)			
							A/D /S	Minimum approved eye protection is safety glasses with hard side shields that are ANSI Z87.1 approved. Certain areas and jobs may require more than minimum eye protection such as a face			

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				H	M	L			H	M	L
								shield or goggles. All face protection must be ANSI Z87.1 approved. A/S When prescription eyewear does not meet safety requirements then an individual shall wear equivalent eye protection over their prescription lenses (i.e., ANSI Z-87.1 glasses or goggles). D/A Survey the project activities to ensure that we are minimizing multiple Grinding/ fab area "hooches", and limiting them to grade, when and to the degree practical to consolidate particle collection areas, support efficient cleaning, and minimize incidental or excessive contact potential. S Provide wet wipe towels and encourage employees to wipe down PPE (eye face protection) before use and before removal (hygiene general)			

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				H	M	L			H	M	L
							S	Provide and promote additional safety glass cleaners, make them more readily accessible and encourage employees to use them often.			
							A	Address proper PPE storage issues and cleaning recommendations with emphasis on proper PPE donning/doffing in mass meetings and toolbox topics.			
							A/S	Make vacuums available for area fine debris cleaning.			
							A/S	Ensure a supply of higher quality PPE (goggles/ spoggles) available to employees for specific tasks that have an elevated risk of atmospheric debris exposure.			
							A	Make available anti fog eyewear / wipes for eye protection to employees to combat weather driven compounded hazards and noncompliance.			

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				H	M	L			H	M	L
							A/W	Plan your walking path to avoid walking through wet or slippery surfaces, material storage, housekeeping exposures, and ground level piping. Utilize designated walking paths when appropriate. Always keep your eyes and mind on path. Ensure he use of adequate footwear to help prevent twisting/rolling ankle.			
							A	If possible, avoid contact with wild animals, and do not attempt to capture or coerce. Report the discovery of animals or harmful insects such as bees/wasps on the construction site immediately, so that the handling or removal can be arranged with an appropriate party.			

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				H	M	L			H	M	L
50	Working within and around process areas (HCU-RHC units)	Personnel exposure to fire and/or explosion and/or chemical release due to a failure in the unit Note: A medium preliminary risk assessment is based on the following: •Robust ExxonMobil PSM program in place	P ☐		X		A A A D A A	Limit access to process unit to essential personnel only. Ensure personnel have emergency response training. Limit access to site/unit to essential personnel only. Conduct non-essential project meetings outside hazardous zone. Ensure temporary occupied facilities (offices, break areas Etc.) are Located Out of the hazardous zone as verified by a facility siting analysis. Project orientation shall include overview of chemicals in the plant as well as those in and units adjacent to the construction area. Permission must be obtained by operations prior to entering any process area.			X

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				H	M	L			H	M	L
							A/W	Review individual unit alarms where applicable and associated entry procedures.			
51	Operate fuel truck/truck with fuel cell throughout the GOLD project to fuel equipment and vehicles.   	Permit violations. Unqualified operator / driver Falls when accessing and exiting the cab of the truck. Truck malfunction due to mechanical failure. Fire / Explosion	P/F/E ☐		X		D/E /S/ W/A A A	Prior to starting a task, Evaluate the Lifesaving Rules and actions (LSRA) start work Checks (SWC) that may apply to that task review START/STOP work expectations and implement, Verify & Validate (V&V) the appropriate behaviors and or control Safeguards per the ExxonMobil PSMS and site HSE Procedures during the pre-task brief Ensure JSA for specific LAI tasks address proper hazard control methods Employees will receive permits utilizing the Permitting Process with atmospheric testing as required.			X

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				H	M	L			H	M	L
							A	Operator / driver must be properly qualified and have valid driver's license with him.			
							A/D	Maintain three points of contact while accessing and exiting the cab of the truck.			
							A	Daily vehicle inspections will be conducted, and inspection forms filled out at start of shift, any problems will be reported.			
							A/S	A 20# ABC fire extinguisher is required on fuel truck at all times. All equipment will be shut down while fueling.			
							A	Hot work within 50 feet of the fueling will be shut down.			
							A	Equipment must be grounded to the fuel truck during fueling to reduce the risk of static spark.			

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				H	M	L			H	M	L	
							A	Site Fueling requirements will be reviewed daily and a refueling checklist will be completed prior to beginning fueling activities.				
							A	Site Fueling procedure, SDS's, Checklists, and fulling equipment operator's manual will be kept with the fulling truck and at the stationary fuel tank area.				
52	Managing Human Performance	Failure, injury, property damage, or harm to the environment due to Error traps -Performance Influencing Factors (PIF's)	P/F/E ☐	X			D	<p>Performance influencing factors (PIFs) are the characteristics of the job, the individual and the organization that influence human performance. Optimizing PIFs reduces the likelihood of all types of human failure and improves human performance.</p> <p>All employees will be trained to understand PIFs, their influence on human performance as well as strategies and controls to keep them optimal, daily focus on PIF's is achieve though integrated PIF evaluation during daily JSA process, Supervisory auditing,</p>		X		

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				H	M	L			H	M	L
								and assessment of PIFs integrated into the safety observation report SOR process.			
53	Removal of any Component Creating a Risk of Falling   	Injury from falls or dropped objects	P ☐		X		E/S /W/ A A S/W S	Prior to the removal of any part of any access walkway or handrail, Authorization is required. Follow site-specific requirements. i.e. a floor grating / handrail removal approval form shall be completed and approved, and prior to the work commencing: A hazard checklist and JSA shall be completed. A substantial barricade with appropriate signage shall be erected at all approaches to the area where the grating will be removed. Any personnel working inside the barricaded area shall wear appropriate fall protection; and			X

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				H	M	L			H	M	L
							A/S	The area below the intended opening that may be affected by overhead hazards shall be barricaded and sign-posted to prevent access. After work has been completed and prior to the barricade being removed, all grating or floor plates and handrails are to be checked and approved to verify that all clamps and clips have been secured.			
54	Hydraulic oil, Lube oil, or chemical clean /flush of systems	Energized equipment, slips. trips, falls, heated equipment, chemical hazards, elevated work, high. noise levels, other workers/equipment operating in area, plant specific hazards, accidental contact with equipment/personnel, uncontrolled movement of equipment, \hose rupture, leaks, cuts	P/E/F ☐		X		A/W /S A	Prior to use, Check all equipment. Inspect hoses/gaskets for cracks or other damage. Inspect hoses and fittings for proper fit and condition of threads. Obtain copies of SDS for every chemical to be used review SDS requirements with involve/ effected personnel and wear all required PPE.			X

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LAI HAZARD ANALYSIS											
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				H	M	L			H	M	L
55	Exothermic Welding (Cadweld)  	Skin/ bodily Burns, temperatures in excess of 2500 degrees Fahrenheit, Fire, Exposition, Flash burns, inhalation of smoke/fumes	P/F ☐		X		D/E /S/ W/A A A/D	Prior to starting a task, Evaluate the Lifesaving Rules and actions (LSRA) start work Checks (SWC) that may apply to that task review START/STOP work expectations and implement, Verify & Validate (V&V) the appropriate behaviors and or control Safeguards per the ExxonMobil PSMS and site HSE Procedures during the pre-task brief Ensure JSA for specific LAI tasks address proper hazard control methods GENERAL AND SAFETY INSTRUCTIONS: A. Only ERICO manufactured equipment and materials should be used to make CADWELD® connections. B. Do not connect items except as detailed in instruction sheets. Failure to comply with these instructions.			X

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				H	M	L			H	M	L
								may result in improper and unsafe connections, damage to items being connected, bodily injury and property damage. C. Do not use worn or broken equipment which could cause leakage. D. Do not alter equipment or material without ERICO authorization. E. When using CADWELD® do not use welding material package if damaged or not fully intact. When using CADWELD® PLUS, do not tamper with or disassemble the welding material unit. F. Make connections in conformance with CADWELD instructions and all governing codes.			

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				H	M	L			H	M	L	
							D/E	1. Personnel should be properly trained in the use of this product and must wear safety glasses, Face shield, Welding gloves, and FRC clothing 2. Avoid contact with hot materials. 3. Advise nearby personnel of welding operations in the area. 4. Ensure there is no SIMOPS, fueling activities or other potential gas within 50ft of the welding activity. 5. Utilize a 4 gas Meter to verify 0% LEL in the area. Properly barricade the area with Danger Tape/Barricade 6. Remove or protect fire hazards in the immediate area. Ensure That there is a 20# ABC fire extinguisher and Sand filled bucket at hand.				
							A/S	7. Provide adequate ventilation to the work area. Do not use cadweld indoors or inside of confined spaces.				

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				H	M	L			H	M	L
								<p>8. Review the SDS for the product and comply with all required PPE and controls</p> <p>9. Do not smoke when handling starting material.</p> <p>10. Avoid direct eye contact with "flash" of light from ignition of starting material.</p> <p>Welding material is an exothermic mixture and reacts to produce hot molten material with temperatures in excess of 1400°C (2500°F) and a localized release of smoke.</p> <p>These materials are not explosive. Ignition temperatures are in excess of 900°C (1650°F) for welding material.</p>			
							D	Make sure there is proper mold fit and assembly of equipment.			

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				H	M	L			H	M	L
							D/A	Avoid moisture and contaminants in mold and materials being welded. Contact between hot molten metal and moisture or contaminants may result in spewing of hot material.			
							D/E	Base material thickness must be sufficient for the size and type of connection being made to prevent melt-through and leakage of hot molten metal.			
56	Use of Powder actuated Tools 	Personnel exposure to high velocity projectiles or debris resulting in injury. Damage to Equipment or process	P/F ☐		X		S/W /A	Follow requirements in accordance with Worley Hand and Power Tool Safety Standard MS-HS-STD-0054			X
							A	Personnel shall receive training and have certification of training prior to using powder activated tools.			

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				H	M	L			H	M	L
								<p>Approval shall be obtained from project Management prior to the use of an explosive powered tool.</p> <p>Warning signs shall be posted to ensure personnel are aware that an explosive powered tool is being used. The sign shall read: "POWDER-ACTIVATED TOOL IN USE IN THIS AREA".</p> <p>Additional Required PPE</p> <ul style="list-style-type: none"> • High impact face shield. • Double Hearing protection commensurate with high impact noise. <p>Explosive powered tools shall not be used in the vicinity of other personnel unless specific safety precautions are identified within the JSA, documented, and implemented.</p>			

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				H	M	L			H	M	L
								<p>Explosive powered tools are not to be used in situations where flammable or explosive gas, liquid or dust is present.</p> <p>Use the tool at least 100mm away from edges of concrete.</p> <p>Ensure the surface used is not hard or brittle.</p> <p>Do not use in existing holes.</p> <p>Do not use on soft or brittle substances/materials which allows the projectiles to pass through.</p> <p>Storage Tools and cartridges shall not be stored or used in explosive or flammable atmospheres.</p> <p>No explosive powered tool shall be stored in a loaded condition. Cartridges shall be stored in suitable metal containers which shall be kept locked.</p>			

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				H	M	L			H	M	L
								Charges and nails shall not be stored in the same container unless a proper divider/compartiment is provided to separate the charges. Charges shall not be carrier loose in the operators' pocket.			
57	Extended work shifts and hours for Outage, nightshift, and high priority work- Fatigue Management	Extended work shift hours, durations and nightshifts resulting in incidents, or injury due to fatigue.	P/F ☐		X		E/D /W/ A	<p>The project team will implement the Worley Fatigue Management Standard MS-AS-STD-0012. as well as ExxonMobil requirements outlined below.</p> <p>Planned work hours, shifts and shift durations have been aligned to incorporate these Fatigue Management Standards including:</p> <p>Personnel Hours of work limits are as follows:</p> <ul style="list-style-type: none"> •No more than 13 consecutive days. •After 13 consecutive shifts, grant a minimum of 24 hours off prior to returning for another shift. 			X

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				H	M	L			H	M	L
		Mental demands of work, Physical demands of work, resulting in incidents, or injury due to fatigue.			X			<ul style="list-style-type: none"> •Extended shifts (greater than 13 hours including shift turnover time) should occur only when necessary to avoid an open safety critical position. •Use plant, machinery, and equipment to eliminate or reduce the excessive physical demands of job. •Eliminate source of risks that might exacerbate fatigue (e.g., lack of job control, manual handling, extremes of temperature). •Ensure safe and efficient shift hand-over. •Ensure adequate breaks during shifts to allow recovery. •Ensure work demands gradually increase towards the middle of the shift and decrease towards the end. 			X

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				H	M	L			H	M	L
								<ul style="list-style-type: none"> •Promote use of Self-Assessments. •LMRA / JSAs to take fatigue risk into account. •Allow for sufficient inter-shift breaks. (Time between each shift) •Set shift rosters ahead of time and avoid sudden changes of shifts to allow employees/workers to plan leisure time. •Prevent working back-to back shifts of more than 14hrs gross length. •Provide more and/or longer breaks to allow for recovery within work periods, and provide resources to cover those breaks •Where possible based on fatigue levels schedule fatigue-critical work outside of 2pm to 4pm. 			

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				H	M	L			H	M	L
								<ul style="list-style-type: none"> •Provide rest days; (opportunity for two consecutive night sleeps). •Carry out random fatigue assessments. •Regular auditing of controls implemented. •Schedule fatigue-critical work for daytime or at worst early evening. Avoid 2am - 6am. •Avoid scheduling higher risk tasks on the first night of a night shift cycle. If unavoidable, when planning the task consider additional controls such as job rotation or additional rest breaks. •Ensure that rosters allow for at least two full nights' sleep after the last night shift •Ensure employees are sufficiently rested and alert prior to travel. 			

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				H	M	L			H	M	L
								<ul style="list-style-type: none"> •Use heating and cooling to control ambient temperatures to support alertness. •Ensure the workplace and surroundings are well lit, safe, and secure. •Provide Project teams with Fatigue Management Info Packs. •Encourage open reporting of non-work factors that might affect fatigue management. •Implement 'buddy' monitoring within work team. •Rotate personnel onto non-fatigue-critical tasks as required. 			

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				H	M	L			H	M	L
58	Use of propane fueled "weed Burner" torch, "rosebud" and/or Oxy-Fuel torch for preheating of welds.  	Fire, gas leaks, thermal burns, explosion, hazardous/ toxic fumes, oxygen deficiency	P/F ☐		X		D/E /S/ W/A A A A	Prior to starting a task, Evaluate the Lifesaving Rules and actions (LSRA) start work Checks (SWC) that may apply to that task review START/STOP work expectations and implement, Verify & Validate (V&V) the appropriate behaviors and or control Safeguards per the ExxonMobil PSMS and site HSE Procedures during the pre-task brief Ensure JSA for specific LAI tasks address proper hazard control methods Only trained and authorized employees will operate propane fueled "weed Burner" torch, "rosebud" and/or Oxy-Fuel torch for preheating of welds. Read and understand owner/ operator manual and SDS for equipment/fuel being used.			X

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				H	M	L			H	M	L
							A	Ensure proper permit(s) are in place.			
							A	Ensure all Hot work controls as required by MS-HS-STD-0083 Hot Work Standard, and MS-HS-STD-0057 Welding and Gas Cutting Health and Safety Standard are in place prior to starting work.			
							A	Complete pre use checklist/ evaluation verified by Worley HSE representative prior to starting task.			
							A	Inspect the work location and ensure that hazards associated with SIMOPS have been mitigated.			
							A	Advise nearby personnel of torch operations in the area.			
							A/W	Ensure there is no fueling activities or other potential gas within 50ft of the torch activity.			

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				H	M	L			H	M	L
							W/S	Properly barricade the area with Danger Tape/Barricade			
							A	Inspect all tools, parts, and components prior to each use.			
							A	Inspect fuel tank(s) for and cracking, rust, signs of wear such as bulges / dents, separation of welds.			
							D	Check the hoses for cracks, cuts, thin areas, where the hose connects to the head and to the fittings to the valve and regulator. Check the torch head/ handle for any damage.			
							A	Snoop all fitting to ensure there is no leakage.			
							S/A	All proper PPE including safety glasses, Face shield or welding hood, Welding gloves, and FRC clothing shall be worn at all times.			

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				H	M	L			H	M	L
								Secure cylinders in a level, upright position. Do not invert or lay cylinders on their sides. Do not apply flame to cylinders to check for leaks or to increase gas pressure. Keep torches, open flame, and sources of ignition away from cylinders, regulators, and hose. Do not operate torches or any equipment if the odor of LP-Gas is evident. Immediately shut off all valves and, using soapy water, check all equipment again for leaks. Cylinder valves must be protected. Do not hoist a cylinder by the valve. Do not leave the torch unattended while in operation.			

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				H	M	L			H	M	L
								Maintain a fire watch for 30 minutes after the completion of hot work. Do not stand or prop the torch on the burner end while in operation. Equipment is for outdoor use only with adequate ventilation. Have a 20lb type ABC fire extinguisher at the use location, easily accessible to the person. operating the torch. Never direct torch flame toward any person, animal, flammable surface, or material. Do not use torch to remove paint. Oxy-Fuel Torches Torches must be lit with a friction lighter or other approved device and not by matches, cigarette lighters, or from hot work.			

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				H	M	L			H	M	L
								<p>As a minimum, suitable flashback arrestor which prevents flame flashbacks to be fitted at the pressure regulator outlet of each gas cylinder and manifold which supplies air, oxygen, or fuel gas to cutting torch, in accordance with the manufacturer's instructions.</p> <p>A suitable check valve, non-return valve or any similar device which prevents the backflow of the gas into the hose, should be fitted between each gas torch inlet and gas hose, in accordance with the manufacturers' instruction</p> <p>Should a flashback occur, immediately turn off the oxygen and fuel gas valve at the torch and at the cylinders.</p>			

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				H	M	L			H	M	L
								Purge hose lines individually every time before lighting the torch. This will ensure that no oxy-fuel gas mixture is present in the hoses, which could cause an explosion. Keep oxygen cylinders and fittings away from oil or grease. Oil or grease may ignite violently in presence of oxygen under pressure. Keep oily or greasy substances away from cylinders, cylinder valves, couplings, regulators, hose, and apparatus. Do not handle oxygen cylinders or related apparatus with oily hands or gloves.			

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				H	M	L			H	M	L
								<p>Oxygen cylinders should not be handled on the same platform with oil or be placed in a position where oil or grease from overhead cranes or belts may fall upon them.</p> <p>Regulators shall be removed, and valve protection caps shall be put in place hand tight when cylinders are not in use or when they are being transported.</p> <p>Acetylene must never be operated at pressures greater than 15 psig.</p> <p>Do not allow an oxygen cylinder's pressure to fall below 50 psig. If the oxygen cylinder becomes empty, it will lose its positive pressure, and fuel gas may enter the oxygen equipment, which has the potential to produce an explosion.</p>			

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				H	M	L			H	M	L
								<p>For non-fuel gas cylinders, e. g., oxygen, the cylinder valve should be opened fully. Failure to open the valve completely may cause leaks around the valve packing because of the design of the valve.</p> <p>For fuel gas cylinders (example: acetylene, MAPP Gas, Propane) open the valve approximately $\frac{3}{4}$ turn. Under no circumstances may the valve be opened more than 1 $\frac{1}{2}$ turns. This is to allow for rapid closing should an emergency situation occur.</p>			

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Ref. Number	High Potential Consequence Task Steps	POTENTIAL HAZARDS & CONSEQUENCES Include applicable Error Prone Situations and Triggers	Target Check off to indicate Hold Point	Preliminary Risk Assessment			Control Type	SAFEGUARDS (Actions & Physical Safeguards) Eliminate or Mitigate the hazards	Final Risk Assessment		
				H	M	L			H	M	L
59	Bull Rigging  	Equipment Damage and Injury due to improper rigging technique or inappropriate/damaged equipment, failure due to overload or loss of control of load	P/F/E ☐	X			D/E /S/ W/A A D/A	Prior to starting a task, Evaluate the Lifesaving Rules and actions (LSRA) start work Checks (SWC) that may apply to that task review START/STOP work expectations and implement, Verify & Validate (V&V) the appropriate behaviors and or control Safeguards per the ExxonMobil PSMS and site HSE Procedures during the pre-task brief Ensure JSA for specific LAI tasks address proper hazard control methods Only certified riggers will perform rigging tasks.		X	

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				H	M	L			H	M	L
							S	Inspect all rigging prior to each use and ensure that proper color code is in place. check the weight capacity of all rigging being used before lift takes place. Any damaged rigging or rigging components must be removed from service.			
							D/A A/W	All Support Structure must be inspected for defect prior to use.			
							A	Shackles will be used when 2 or more slings are attached to a single hook or to prevent sling angle from being greater than 90°.			
							A	Control hand and body placement. Keep hands and body from between material and rigging equipment.			
							A/D /S	Use a tagline or 2 tag-lines if necessary and no touch tools to control load throughout movement and placement.			

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				H	M	L			H	M	L
							A/W	Post hazard watch and/or set up a barricade around lift area.			
							A/D	Keep any traffic from under suspended load and do not allow load to be lifted over any personnel.			
							D	Make sure load is securely slung and properly balanced to prevent shifting.			
							A/D	Only attempt to shift or lift items that are free to move with only their own weight as resistance. Should the item to be moved be "stuck", other controlled mechanical means must be used to free the component prior to the rigging being attached.			
							A	ensure that all movement of the load happens in a controlled manner.			

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				H	M	L			H	M	L	
60	Towing and Loading or Unloading of Materials or equipment from large trucks and flatbed trailers 	Equipment or property damage and Injury due to inadequate planning, communication, or technique. I.E Load shifts, rolls, or moves during unbinding process, Load is unstrapped in an unplanned manner causing load to move. Falls from flatbed or while accessing/egressing from flatbed or truck.	P/F/E ☐	X			A A/D A A/D D/E /S	Follow all requirements of the Worley Loading and unloading standard MS-HS-STD-0062 Utilize the Worley Trailer Towing Pre-Trip Safety Inspection Checklist prior to towing trailers, welding machines or other equipment within or around the GOLD project. Develop a task/ load specific JSA prior to loading/unloading. Identify and avoid any crush points. Ensure all crew members aware of their respective responsibilities including driver. Determine who will unbind the load. If unlading with equipment (crane/Forklift) Safeguards must be in place to prevent load from being pushed or shifted off trailer.		X		

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				H	M	L			H	M	L
								(Chocks, pipe stands, second piece of equipment, etc.) A A Spotter will always be in constant communication with operator to ensure safe delivery of material to staging location. A/S Ensure load is secure before accessing trailer to rig material. Use trailer access ladder or portable ladder to gain access to trailer deck. Face the ladder and maintain 3-point contact. If fall potential is > 6' the fall hazard must be evaluated by a competent person and appropriately mitigated. S Ensure tag lines are attached as appropriate when rigging is performed.			

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				H	M	L			H	M	L	
							A/D	Barricade the affected area as appropriate to ensure unauthorized individuals are protected from overhead lifts.				
							A/D	Drivers are to be in the cab or always escorted by spotter / safety watch during unloading operations.				
61	Abrasive blasting with bucket blaster and approved blast medium 	Equipment failure Potential air hose blowout or damage to couplings / connections resulting in injury. Accidental blasting of self or others. Respiratory and skin irritation due to dust in area when blasting. Housekeeping of buildup sand Environmental/ excess dust High noise over 100DB Eye injuries and irritation from flying debris.	P/E ☐		X		D/E /S/ W/A	Prior to starting a task, Evaluate the Lifesaving Rules and actions (LSRA) start work Checks (SWC) that may apply to that task review START/STOP work expectations and implement, Verify & Validate (V&V) the appropriate behaviors and or control Safeguards per the ExxonMobil PSMS and site HSE Procedures during the pre-task brief			X	
							A	Ensure JSA for specific LAI tasks address proper hazard control methods				

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				H	M	L			H	M	L
		Elevated levels of air contaminants when using blast hood Line of Fire, pinch point: when setting grit bulk bags on top of auto blasters using forklift or moving equipment with truck					A A/D A/D /W A/S D	Only trained and authorized employees will operate bucket blaster/ abrasive blasting equipment. Read and understand owner/ operator manual and SDS for equipment/blast medium being used. Ensure proper permit(s) are in place. Including potential confined space permit/ facility sitting due to containment area configuration and coverage and continuous air monitoring with a calibrated 4 gas meter Keep all unauthorized personnel out of area using safety watch/ standby with bright colored vest, flag, and air horn when forklift is moving/ lifting bags and equipment. Have a clear walkway from work area to equipment, maintain good housekeeping, flag hoses with bright colored tape,			

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				H	M	L			H	M	L
								barricade area to keep unauthorized personnel out of work area. Inspection of all hoses, cupplings, connections prior to each use. Color code equipment monthly. When not in use store hoses out of sunlight in dry clean area. To climb pot to pull cord wear harness with 100% tie off to proper eyelet anchor points. Ensure all equipment air compressor/ breathing air compressor are properly grounded and bonded to prevent static electricity. Pot watch will be within reach of pot in case of any failure he/she will shut the pot off manually. Pot will also have a daily inspection form filled out prior to each use.			

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				H	M	L			H	M	L
							D/A	Identify potential pinch points, keep all body parts out of moving equipment or when setting trailers on hitch, wear appropriate hand protection. Follow provisions of loading/ unloading and towing JHA. Only trained and authorized persons shall connect/ disconnect or tow trailers.			
							A/E /S	All person's blasting will use NIOSH/MSA approved Class "C" air supplied respirators with hood and dust collar, properly fitted and worn. Employee will be equipped with blasting gloves, apron, and leather or heavy canvas protective sleeves.			
							A/D	Ensure breathing air compressor intake has an area barricaded a minimum of 25ft. and that no ICE or other gas powered equipment is allowed within the compressor intake zone.			

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				H	M	L			H	M	L
							E/S /W	A CO monitor will be connected to the air line between the air hood and air supply. A CO watch will keep constant watch of monitor. CO monitor will be inspected before each use and calibrated monthly with documentation at each monitor.			
							A/D	Air hoses will be inspected prior to each use and color-coded month. If a hose is damaged it will be taken out of service immediately. Hoses will be secured with whip checks and pins.			
							A/S	Ear plugs with earmuffs (double hearing protection) will be worn when blasting or within 10ft. of equipment/ containment. Red danger tape will be in place to prevent others from entering the regulate area with signs noting			

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				H	M	L			H	M	L
								<p>the double herring protection requirement.</p> <p>A/D /E</p> <p>D</p> <p>D/S</p> <p>A containment will be set up to control dust. A dust sock connected to exhaust fan will be in place as a secondary dust contained will be placed outside of the containment to collect excessive dust.</p> <p>Keep nozzle pointed down or towards work area. Always wait until equipment is completely shut down. Inspect all equipment prior to each use.</p> <p>Keep all body parts out of moving equipment, no loose clothing when operating equipment, wear face shield and goggles when operating tools, never remove or modify safety guards, keep two hands on the tool when operating, wear appropriate gloves when operating, power down and disconnect the tool before any</p>			

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				H	M	L			H	M	L
								maintenance is done on tools. Use a layer of plastic on the ground to collect falling dust. Always disconnect tools when not in use. A/S Pot watch/ Loading personnel to maintain PPE requirements while within the work area to include face shield and goggles when bucket blasting or pouring grit in bucket. half face respirator with P-100 filters when blasting or working with abrasive sand. double hearing protection. A Maintain good personal hygiene. Wash hands and face prior to eating/drinking and the like after task.			

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				H	M	L			H	M	L
62	Installation or Removal of Insulation and metal Cladding activities  	Insulation dust can cause eye, skin and throat/lung irritation and could impact others nearby. Cuts to hands or body from sharp metal and tools/knife Pinch points to hand/fingers if caught between snips, grips, nippers, hog cutter plier, crimpers, benders, rollers, etc. Note: installed insulation Materials must be tested to determine hazards, prior to removal/starting work.	P ☐	X			D/E /S/ W/A A A A/W	Prior to starting a task, Evaluate the Lifesaving Rules and actions (LSRA) start work Checks (SWC) that may apply to that task review START/STOP work expectations and implement, Verify & Validate (V&V) the appropriate behaviors and or control Safeguards per the ExxonMobil PSMS and site HSE Procedures during the pre-task brief Ensure JSA for specific LAI tasks address proper hazard control methods Ensure only properly trained personnel operate cladding and insulation tools and equipment. Work areas will be barricaded to Limit access to essential personnel and prevent personnel exposure.		X	

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				H	M	L			H	M	L
							A	Review the SDS for insulation material to be installed/removed to determine hazards and additional controls.			
							D/A	Wear sealed eyewear at all times when installing and removing insulation. Wear appropriate clothing for the task (if installing and removing moisture barrier mastics, foam glass, mineral wool, cellular glass, kaowool, fiberglass, or Pyrogel insulation, disposable coveralls must be worn).			
							S	Wear half face respirator with P100 filters within the barricaded area when installing or removing insulation.			
							S	Wear appropriate minimum cut 6 level resistant gloves and protective sleeves.			

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				H	M	L			H	M	L
							D/A	Inspect tools prior to use. Cut away from the body. Keep tools in pouch/ sleeve when not in use. Keep fingers and body parts out of the line of fire and away from tool and equipment pinch points.			
							D/A	Keep free hand a minimum of 4" away from saw/ knife blades. Twist, tuck and cut wire to eliminate sharp edges.			
								Do not pull/slide metal bands through your hands. Tuck band ends into clips.			
								Do not spread calking with fingers. Utilize a calking spreading tool when applying calking.			
								Keep all material properly secured to prevent it from becoming windblown			

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				H	M	L			H	M	L
63	Removal/ installation of multiple radioactive instruments	Personnel exposure to radioactive material. Mishandling of radioactive material resulting in environmental impact	P/E		X		A/D	<p>All activities at the ExxonMobil facility with the potential for exposures to ionizing radiation or radioactive contamination in excess of normal background levels shall be conducted in accordance with a written radiation protection plan that implements the existing ExxonMobil RPP and applicable contractual, regulatory and statutory requirements</p> <p>General Employee Radiological Training (GERT) -is required for all employees who enter or work adjacent to controlled or restricted areas but are not authorized for unescorted entry into DOE Radiological Buffer Areas or Contamination, Radioactive Material, Airborne Radioactivity, or Radiation Areas. (Note: 40-hour and 8-hour refresher HAZWOPER training together with a site-specific orientation may satisfy this requirement)</p>			X

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				H	M	L			H	M	L	
								Radiological Worker I (RW I) training - required for all employees designated as radiological workers who are authorized for unescorted entry into DOE Radiological Buffer Areas, or Radioactive Material Areas and Radiation Areas. Radiological Worker II (RW II) training - required for all Company employees designated as radiological workers who are authorized for unescorted access into and hands-on work in DOE Radiological Buffer Areas, Radioactive Material Areas, Radiation Areas, Airborne Radioactivity Areas, High and Very High Radiation Areas, or DOE Contamination (including Soil or High) Areas.				

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				H	M	L			H	M	L	
								Site-specific radiological emergency procedures commensurate with the level of hazard shall be developed or customer procedures adopted prior to the initiation of work. Reference: Radiation Protection Program Standard MS-HS-STD- 0107 Management of Naturally Occurring Radioactive Material (NORM) Standard MS-HS-STD- 0103				

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