Enterprise Contractor Safety Plan Management Procedure

Form 2 – Enterprise Contractor Programmatic Safety Plan

Enterprise Contractor Programmatic Safety Plan

PG&E PROJECT	Storm work, Tag work, ED-P&C, EPC, EV		
CONTRACTOR	MGE Underground, Inc.		
LOCATION	816 26th Street Paso Robles, CA 93446	**DOCUMENT DATE:**	10/11/2023
CONTRACT/CWA #:	See Scope Summary below	**ESTIMATED START DATE:**	10/11/2023

INSTRUCTIONS: PG&E contractor project manager, safety representative, requestor etc. will complete this form and provide PG&E with a written safety plan using this attached *Programmatic Safety Plan* Form that will document how the contractor and subcontractor, at any tier, will address any anticipated and/or recognized hazards associated with their program/contract work.

This plan is an important step in the communication process to promote open communication between the contractor / subcontractors and PG&E on health and safety expectations and related issues and/or concerns. Detailed plans such as environmental protection, oil management, lift plan, spill mitigation etc. should be attached to this form separately, if applicable. This form along with its attachments, when completed, must be submitted to and approved by PG&E before starting work.

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1.0 GENERAL INFORMATION

Detailed Program Scope Summary (Be as specific as possible):

MGE provides Overhead and Underground Electrical Distribution services, and Emergency services (routine and major) within various locations for PG&E service territory which includes furnishing all labor, equipment, and materials necessary to complete the work. MGE performs both the Civil (including HDD) and Electrical scope for the Electrical Distribution Services. MGE supports the major work types including Compliance Tags, Capacity and Reliability, 56C, 56A, New Business, WRO, G4E, ED-P&C, EV Charging stations, as well as Pilot Programs such as EPC System Hardening and Undergrounding and EPC Poles.

PG&E Contract Group	CWA #'s						
ED-P&C	C27385	C28970	C29008	C30236	C40102	C47123	C47467
	C45235	C45315	C45409	C45453	C45541	C50747	C51572
	C52094	C23233	C30141	C28970	C29008	C29998	C30530
	C29019	C32212	C30370	C39602	C39826	C40102	C43517
	C43497	C43930	C30356	C44802	C44943	C45217	C45540
	C47832	C47833	C47836				
EPC	C31426	C29680	C31475				
EV	C45786	C44725					

Risk Level of Work	Medium ☒ High

☐

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		Name(s)	Email	Contact #
PG&E Contacts	**Program Lead ED-P&C**	Rob Merrick (Director)	R2mc@pge.com	
	Program Lead EPC	Marcela Fox (Director)	MxVm@pge.com	
	Program Lead ED-CCM	Andie Price (Director)	AKL0@pge.com	
	Safety Supervisor	Paul Morrison	pcm4@pge.com	(559) 333-2325
	Safety Representative	Tyler Long	tclc@pge.com	(559) 290-1952
Contractor Contacts	**Safety Plan Author**	Courtney Newlee	cnewlee@mgeunderground.com	(805) 610-9662
	Safety Director	Ryan Smith	ryan@mgeunderground.com	(805) 423-8014
	VP of Field Operations	Travis Leopard	travis@mgeunderground.com	(805) 674-8259
	Civil Superintendent	Max Conley	max@mgeunderground.com	(805) 674-8183

1.1 FIELD LEADERSHIP AND SAFETY OVERSIGHT PLAN

Clearly identify the person(s) responsible for overseeing employees and subcontractors, including a plan for conducting observations and safety meetings:

Director, Safety & Health - Ryan Smith shall support and implement the Safety Program by fulfilling the following:

Director of Safety, Health, & Claims shall provide multifaceted support to the safety and health department as well as operations as it pertains to the safety and health of the organization. The Director is involved in the design of mechanisms for observing, collecting, and analyzing data. Data is reviewed by the Director and findings are shared and reviewed with Leadership to help drive proactive change. Acting as liaison, the Director interacts with customer representatives, regulatory agencies, and organization leadership. The Director works closely with MGE Underground leadership to address gaps identified by field safety representatives in order to proactively address deficiencies.

- Directs management and supervisorial staff within the Safety, Health & Claims department.
- Develops initiatives focused on gaps identified from trend analysis derived from field observations.
- Directs assets to conduct field observations and inspections as well as validates and coordinates facility inspections conducted by various regulatory agencies.

- Works with operations and administrative team to develop project specific safety plans/programs.
- Develops policies based on identified gaps, regulatory changes, customer requirements, and/or in response to corrective actions necessitated by incidents.
- Stays apprised of regulatory changes and customer requirements.
- Directs investigations and the coordination of incident response procedures between operations, leadership and the safety, health, and claims department.
- Reviews all observational and inspection data and strategizes with management and supervisorial staff.
- Facilitates steering committees to address policy change and manage structural gaps to identify and develop standard operating procedures.
- Ensures corrective actions and improvement opportunities are completed and delt with in a way that supports continuous development.

Manager, Safety & Health – Adam Mata and Christopher Poyner shall support and implement the Safety Program by fulfilling the following:

- Manages all field safety representatives who are responsible for detecting, preventing, and mitigating safety hazards in the field.
- Identifies and coordinates training needs for safety personnel.
- Inspects the facility to identify safety, health, and environmental risks.
- Assist in the development and implementation of inspection policies and procedures.
- Assist in the development of health and safety procedures for all areas of the company.
- Prepares and schedules training to cover emergency procedures, workplace safety, and other relevant topics.
- Monitors compliance of safety procedures for MGE Underground, Inc., NECA, OSHA, PG&E.
- Ensures that material safety data sheets are maintained and readily accessible when needed.
- Oversee incident investigations to ensure all reporting procedures are being followed. (1 hour notification, 8-hour notification and CE reports as required)
- Responsible for reviewing loss prevention observations being conducted in the field and ensuring that any improvement opportunities are shared with Operations along with corrective actions as needed.
- Communicate, coach, and assist the electric and civil construction staff to ensure that all safety expectations are understood and met.
- Ensure that PG&E's 3001S requirements for observing and documenting a crew or project at least once a week are being met by the Safety Department.
- Regularly audit the SMP for compliance and update to ensure the alignment with the company's goals and safety standards.
- Ensure incident corrective actions are followed up on and completed.
- Ensure Project Specific Safety Plans are completed and approved prior to the start of work as required.

Supervisor, Safety & Health – Chrissy Owens shall support and implement the Safety Program by fulfilling the following:

- Assist with incident investigations, report production and corrective action management.
- Aid in the prompt notification of incidents to both PG&E and MGE
- Assist in keeping staff well-informed of most recent PG&E standards and bulletins
- Assist in the creation, updating and distribution of Safety, Health & Claims Department policies

- Support Safety Technicians and Specialists as needed.

Field Safety Specialists – Patrick Slonski and Jarrod Mohr
Electrical Safety Specialists (QEW) – Jerry Moyle, Dave Painter, Grant Estrada, and Michael Morley
Field Safety Technicians – Ivan Ahumada, Shelby Bird, Aaron Castillo, and Mysti Hernandez

Employees are responsible for providing support to MGE Underground's Civil Construction and Electric Construction, Supervisors, Foremen and Crew Members. Field Technicians/Specialists and Electrical Safety Specialists work to detect, prevent, and mitigate safety risks. Provides subject matter expertise on field observations and provides consultation and guidance on corrective actions. Communicate safety trends and recommend corrective actions. Serves as a resource for the development, implementation, and sustainability of company safety initiatives. Safety Specialist and Technicians are responsible in ensuring compliance with health and safety regulations and enforce policies/procedures/protocols as per MGE Underground, Inc. Safety Manual and PG&E's Contractor Safety Program Contract Requirements.

Duties and Responsibilities of these employees to implement the Safety Program:

- Conduct field observations (LPO-Loss Prevention Observations)
- Assist in the coaching, mentoring, and implementation of the HS&E programs in the field.
- Regularly review and be familiar with all applicable legislation, standards, and company policies, to ensure compliance.
- Inform the Manager of any new or conflicting legislative matters that could impact the company.
- Assist in developing a Safety Management Plan (SMP) for the company to ensure a safe work environment for all company employees, contractors, visitors, and the community.
- Provide direction, support, and resource to Civil and Electric Construction Managers, Supervisors, and Foremen.
- Ensure that all incidents are reported immediately to the Safety Manager and/or Director.
- Participate and assist the supervisors, foreman, and Safety Manager & Director in the investigation of incidents to determine root cause, and corrective actions where necessary.
- Validate incident corrective actions are followed up on and completed.
- Review safety obligations of the clients and ensure they are carried out as per the terms of the agreement, and communicated to the Project Managers, Supervisors, Foremen, and Crews.
- Investigate safety incidents that result in employee injury, work procedure error, and damage to the company and third-party property.
- Communicates safety trends and recommends safety corrective actions.

MGE Underground, Inc.'s Field Leadership and Safety Oversight:

Field Leadership:

- The crew(s) General Foreman will be responsible for field leadership oversight and the area safety representative(s) will be responsible for safety oversight.

Safety Observations:

- At a minimum, each crew and/or project shall be visited, and an observation conducted, at least once a week. There are also a range of employees who go out to the field, randomly, to conduct observations on active job sites (i.e., Superintendents, Construction Project Coordinators, Project Managers)

Safety Meetings:

- Each day, every crew/project is to facilitate a tailboard/JSA, discussing various issues and topics. (i.e., hazards/mitigations for task being performed, Fire prevention, heat illness prevention, lifting & rigging, fall protection, excavation protection, working around energized facilities, etc.).
- Each area/region and/or jobsite shall hold a weekly safety meeting. Content that will be shared ranges from; previous hazard recognitions, incidents (Near-misses, MVI's, injuries, WPE's, Dig In's, Good Catches), OSHA compliance (i.e., Silica, Heat illness, Ladder safety, fall protection, Etc.) and/or PG&E mandated safety topics.
- The Safety Department conducts a weekly meeting to discuss previous observation findings, incidents, good catches, and any new information from customers.
- Weekly tailboard content covered YTD 2023: DVIRs, Environmental Hazards, California Specific Driving, PG&E Fire Danger Precautions, Fire Index Map, Poison Oak/Ivy/Sumac, Emergency Evacuation Procedures, Pole Pile Storage Safety, Compaction/Working around trees, Wildfire Smoke Awareness, Ladder Safety, Fire Extinguisher Safety, Vehicle Safety Policy Update, Fire Safety, Confined Spaces, Excavating Near Existing Structures, Situational Awareness, Route Planning, Rollover Prevention, Backing and Spotting Safety, Water Buffalo Towing Awareness, Injury and Hazard Reporting, Distracted Driving, Fatigue/Fit for Duty, Heat Illness, Active Shooter Awareness, Pedestrian Safety.

Behavior Based Safety & Observation Program:

MGE Underground, Inc. employees shall adhere to the Behavior Based Safety & Observation Program. Safety Observations are defined as an interaction between an individual and one or more employees where safety systems, conditions, and behaviors are observed and documented. The primary objective of the program is to recognize and reinforce safe behaviors and conditions in the field and recognize and correct "at-risk" issues in order to help close safety gaps.

Observation Expectations are as follows:

DEPARTMENT	WEEKLY	MONTHLY
Safety Field Representatives	5 LPO's	—-
Superintendents	2 Enhanced Observations	—-
General Foreman	3 Enhanced Observations	—-
Field Engineers/Project Engineers	1 Observation	—-
Project Managers	—-	3 Observations
Managers	—-	3 Observations
Directors	—-	3 Observations
VP's	—-	3 Observations
CEO, CFO, COO, & CIO	—-	2 Observations

**NOTE: This quantity of observations shall be adjusted appropriately based on the current crew count.*

All employees who conduct field observations must complete the required ISN training, be up to date with ISN training, and have an ISN card on hand.

Safety Training, Safety Meetings & On-boarding:

Every employee working on behalf of PG&E will have completed the appropriate personnel on-boarding, as prescribed by PG&E, prior to starting work. Our company will maintain records of this onboarding. No personnel will be assigned to work on behalf of PG&E without having completed the assigned onboarding. All employees and subcontractors participate in planned safety meetings. Management personnel lead these meetings according to their assigned roles and responsibilities.
Specifically, this includes holding an initial contract, pre-start meeting and thereafter requiring (at each worksite) a daily JHA and Job Brief / tailboard. The initial contract pre-start meeting shall review:

- The project scope of work
- All hazards associated with the work and mitigations
- Permit conditions
- Applicable PG&E safety policies

- The emergency response plan
- Applicable Company IIPP sections associated with the work

Special emphasis includes communicating to all our employees and subcontractors:

- The right, obligation, and responsibility to stop unsafe work. (SWA)
- Requirements for completing and documenting a JHA and holding safety tailboards with the entire job crew on a daily basis, at the start of a new shift, or more frequently whenever conditions or the scope of work changes.
- The requirement to keep records of all safety tailboards, JHAs and safety plans and make them available to PG&E upon request.
- An emergency response plan for each project, including providing the closest medical facility. This information will be listed on EAP Magnet.
- The obligation to immediately report to PG&E all safety incidents including those involving the public.

1.2 GENERAL PERSONAL PROTECTIVE EQUIPMENT (PPE) REQUIREMENTS

Contractors are required to provide and ensure that workers use Personal Protective Equipment (PPE) as required by Cal/OSHA (California Code of Regulations [CCR], Title 8, Section 3380) regulatory requirements to perform their work activities safely and when defined in their safety plan, hazard analysis or when required to access a specific PG&E location.

Minimum Personal Protective Equipment required on a jobsite (as required and pertinent to the scope of work):

- Hard hat is rated for the scope of work and conditions. American National Standards Institute or (ANSI Z89)
- Safety glasses with side shields. American National Standards Institute or (ANSI Z87)
- Class 2 or 3 high visibility traffic vest or retroreflective fabric shirt (Arc Rated if appropriate for scope of work)
- Long sleeve shirts and long pants (flame resistant as required & pertinent to scope of work)
- Appropriate footwear. Standard Specification for Performance Requirements for Protective Footwear or (ATSM F2413)
- Gloves (as required & pertinent to task)
- Hearing protection (as required at or above 85 Db)
- COVID-19 face protection (Flame resistant as required & pertinent to task)
- Any additional PPE as required by your company's IIPP, PG&E contract, or pertinent industry regulations not covered in the above bullets.

Additional PPE requirements must be evaluated when performing specific tasks and must be identified in Section 2 of this document.

2.0 RISK ASSESSMENT AND HAZARD IDENTIFICATION

HAZARD IDENTIFICATION: The hazards encountered as part of this scope could include, but are not limited to:

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GENERAL HAZARDS

- Uneven Ground/ Slips/ Trips & Falls
- Confined Spaces
- Driving
- Power Tool / Equipment Use
- Ergonomics
- Loading / Off-loading Equipment and Material
- Unstable Ground Conditions / Slopes / Uneven terrain
- Safety-At-Heights / Scaffolding / Ladders
- Cave-ins/ Excavating / Trenching / Shoring
- Suspended Loads
- Welding / Oxy Acetylene / Grinding
- Hot work
- Aggressive Animals / Dogs / Etc.
- High Crime Areas
- Access
- No Cell Service
- Night Operations
- Wildfire Safety
- Dropped Objects

HEALTH HAZARDS

- Chemical Exposure / Burns
- Noise Exposure
- Pesticides / Fumigation
- PCB / Lead / Mercury
- Asbestos
- Other Soil Contaminants

PUBLIC SAFETY

- Distracted, Impaired, Unsafe Motorists
- Vehicular Traffic (Work Area Protection)
- Pedestrian Traffic
- Proximity to Railroads
- Neighboring Facilities/Homeowner Issues

EXCAVATION

- Access / Proximity to Energized Equipment Proximity to Energized Circuits
- OH/UG Energized Lines
- Overhead Objects
- Appropriate Tools & Equipment
- Equipment Certifications
- Blasting Safety / Certification
- Confined Space
- Open Excavation / Fall Restraint
- Soil Type / Conditions / Shoring / Sloping
- Slopes / Terrain
- Spoil Management
- USAs

GAS HAZARDS

- Oxygen Deficient Atmosphere
- Explosive Atmosphere - Burns / Explosions
- Clearance Procedures / LOTO

CRANE

- Crane Capacity
- Crane Size
- Load Weight
- Lift Plans
- Traffic / Transport
- Setup/Access
- Stability / Terrain
- Rigging
- Cribbing
- Dangerous Operations
- Equipment Certification
- Operational Certification
- Electrical Hazards
- Equipment Grounding
- Clearance
- Environmental issues
- Suspended Loads
- Weather Conditions

TRAFFIC CONTROL / FLAGGING

- Environmental Conditions
- Non-Compliant Drivers
- Pedestrian Safety
- Permits
- Public Safety
- Qualifications / Certifications
- Site Specific Hazards
- Traffic Control Plan
- Low Light Conditions

ELECTRICAL HAZARDS

- Clearance Procedures / LOTO / Grounding
- Underground / Overhead Utilities
- Proximity to Energized Equipment
- Induction
- Energized Work

AVIATION

- External Cargo
- Landing Zone Safety
- Rigging
- Suspended Loads
- Flying in a Wire Environment

ENVIRONMENT HAZARDS

- Weather Conditions
- Poison Oak
- Animals / Insects
- Heat Illness
- Working Near/Over Water

MOTOR VEHICLE SAFETY

- Driving

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• Hazardous Material Transportation • Hazardous Waste Transportation • Radioactive Exposure	• Dig-Ins / Line Strikes • Unmarked or Mismarked Utilities	• Weather • Work Site Protection	• Backing • Mountain Terrain • Rural Roads • Traffic • Transporting Loads/Cargo • Trailering/Towing • Inclement Weather Driving • Impaired Driving • Distracted Driving

HAZARD MITIGATION: Using your Injury and Illness Prevention Program (IIPP) and the above sample tasks/activity table as a guide, please complete the following JHA to capture actual hazards associated with each proposed activity. The specific hazard mitigation measures used on PG&E work will typically include: (Add task, hazard, mitigation and required training below for each medium and/or high-risk major task performed on behalf of PG&E, including tasks performed by Subcontractors):

Task/Activity Description:	*Excavating Near Existing Structures (Poles, Foundations, etc.), Compromised structures, poles, Shallow-set structures, poles*	
	Hazard Description:	*Structural instability, pole falling into excavation, fire risk, electrocution hazard, electric outages, struck by falling objects from above (poles, equipment, conductor, etc.)*
	Contractor's Mitigation Plan:	*All MGE Underground, Inc. employees shall identify hazards associated with working around existing electric distribution and transmission structures and equipment prior to the commencement of work. All employees shall be aware of vehicle and equipment dimensions, operating limits, swing radius and operating height of booms. The EIC shall assess the situation and if required, a QEW shall assist in determining if pole/structure, electric cable, conductor, or equipment is safe to work around and if essential controls need to be put in place prior to beginning work. The EIC and/or QEW will evaluate the conditions of site prior to excavating, evaluate the soil conditions while excavating and ensure pole are stable throughout the entire job. If an excavation is to be left open, the pole needs to be secured or the excavation stabilized with appropriate shoring or other structural devices and the excavation needs to be covered/ protected for the public.* *A training video on stabilizing poles and reinforcing excavations is available to all employees within MGE Underground Inc.'s Learning Management System.* *MGE Underground, Inc. employees shall determine the depth the existing structure is set to as well as the soil stability. When excavating near an existing structure, the Competent Person will identify what soil conditions exist and conduct an evaluation of the type of protection required to ensure safety and stability of the jobsite location, this includes what essential controls need to be in place for the stability of the structure. There needs to be an initial evaluation performed and periodically reevaluate excavation conditions throughout the job, prior to leaving the site the excavation needs to be left safe and secure condition as per OSHA guidelines* *If excavating within 2 feet of an existing pole, the following must take place:* *1. Existing pole must be secured with appropriate means (tie-off or rigging, additional guying, 2nd' digger derrick, etc.)* *OR* *2. Reinforce the new pole hole with shoring or other structural devices (corrugated pipe, Sono tube,*

		etc.) *Excavation will be as deep or deeper than existing pole depth & soil is determined to be stable soil class B (or better) soil & the excavation will be within ½ the distance of the existing pole's depth (or closer). (1 to ½ ratio) (depth to distance)* • *The pole must be supported while excavation takes place. If the excavation will be left open, then the excavation needs to be reinforced or the pole needs to remain supported.* • *Note: if soil is determined to be class C (or worse) soil, the competent person needs to evaluate if controls need to put in place up to a 1/1 ratio.* *Excavation will be half as deep (or less) as existing pole depth & soil is determined to be stable soil class B (or better) soil & the excavation will be within ½ the distance of the existing pole's depth (or closer). (1 to ½ ratio) (depth to distance)* • *The pole may need to be supported while excavation takes place if determined by a competent person. If the excavation will be left open, then the excavation may need to be reinforced or the pole may need to remain supported.* • *Note: if soil is determined to be class C (or worse) soil, the competent person needs to evaluate if controls need to put in place up to a 1/1 ratio.* *Pole Depth Determination: Use pole brand or medallion (disc) and measure from groundline up to brand or medallion (disc). Use Pole Height label on the pole (brand or medallion/ disc) and table 4 in the figure 2 below to determine pole set depth. Pole Date Nail could also be used to determine if pole is shallow set. Refer to figure 50 below. Caution: medallion or brand may not be visible on poles. Brands on older poles may become faded and may not be visible.* *If MGE Underground employees are unable to meet these requirements, the appropriate PG&E supervisor shall be contacted.*
	Required Training:	*All MGE Underground, Inc. employees shall conduct and participate in a group tailboard to discuss depth of excavation and distance from an existing structure as well as job steps, identify hazards and how to eliminate and control those hazards.* *All MGE Underground, Inc. Qualified Electrical Workers shall adhere to the guidelines within the NECA Red Book.* *Refer to PG&E Utility Procedure TD-2325P-01.*
Task/Activity Description:	*At all times while on job site*	

	Hazard Description:	*Fire Safety*
	Contractor's Mitigation Plan:	*All MGE Underground, Inc. employees shall adhere to the guidelines in TD-1464S. The supervisor/GF shall ensure that PG&E's Fire Index is reviewed daily, prior to the start of work. All dry vegetation within close proximity to any ignition sourced, shall be rubbed/removed, prior to introducing said ignition source. Employees shall avoid parking/idling on or near any dry vegetation unless the area has been inspected and grubbed/removed. All crew trucks shall be equipped with a fire extinguisher, shovel, McLeod/Pulaski and a water can/source. All equipment shall have operable firefighting equipment and equipment shall be inspected daily for operational condition.* *NO SMOKING SHALL BE PERMITTED IN "ANY" WILDLAND OR GRASSLAND AREA.*
	Required Training:	*All MGE Underground, Inc. field employees are trained on PG&E's Standard TD-1464S. Employees shall be aware of PG&E's Fire Index daily and follow the guidelines for the area R rating.*

MGE Underground Inc.'s JHAs start on page 19 of this document.

Below are the approved PG&E safety programs MGE Underground, Inc. employees will adhere to that may not be covered in our Job Hazard Analyses. These programs are located within ISNetworld and on our MGE Portal for employees to access.

Program Name
Aerial Lifts
Asbestos Awareness
Behavior Based Safety
Behavior Based Safety and Observation Program
Bloodborne Pathogens
Cal/OSHA Confined Space
Cal/OSHA Electric Welding
Cal/OSHA Electrical - High Voltage
Cal/OSHA Electrical - Low Voltage
Cal/OSHA Excavations / Trenching
Cal/OSHA Fall Protection
Cal/OSHA Gas Systems for Welding
Cal/OSHA Hazard Communication (HazCom)

Cal/OSHA Heat Illness Prevention
Cal/OSHA Rigging
Cal/OSHA Scaffolds
Cranes
Digger Derrick
Disciplinary Program
Driving Safety
Electrical Safety Awareness
Fatigue Management
Fire Protection / Extinguishers
First Aid
Fit For Duty
Forklifts / Powered Industrial Trucks
General Waste Management
Ground Fault Protection / GFCI
Hand and/or Power Tools
Incident Investigation
Injury and Illness Prevention Program (IIPP)
Ladder Safety
Lockout / Tagout
Noise Exposure / Hearing Conservation
Non-DOT Drug & Alcohol Policy (Non-Random)
Non-Ionizing Radiation
Personal Protective Equipment (PPE)
Respiratory Protection
Spill Prevention and Response
Structural Demolition
Subcontractor Management
Traffic Control
Vehicle Rollover Prevention Plan
Vehicle Safety Policy/Safe Driving Program

New Hazards and Hazards not previously recognized must be addressed on discovery. Changes must be added to the Change Log in Section 7 of this document.

3.0 CERTIFICATIONS AND LICENSES

All contract employees, including Subcontractors, covered under this Safety Plan are trained and qualified to perform the task(s) that have been assigned.

☒Contractors must ensure that their personnel (including those of Subcontractors) have completed all training required by law and any required PG&E specific courses, including the Contractor Safety Program Orientation (SAFE-0101) and any specific LOB required safety orientations, before conducting work for PG&E.

☒Training qualifications must be provided to PG&E for each contract employee prior to the start of work for PG&E.

☒Workers must carry their ISN ID cards at all times while working for PG&E and display to PG&E on request.

All training materials must be made available to PG&E on request that shall train all Contractor and Subcontractor personnel on all PG&E's Contractor Safety Program, Contractor's safety program, all job-related hazards, and Applicable Laws.

4.0 SITE ORIENTATION

All site personnel, including subcontractors, are required to be introduced and trained on the content and hazard mitigation measures included in this Safety Plan before beginning work on the project. Contractors must document personnel who have completed a review of this Safety Plan, including each worker's name, signature, classification, company name and date. This record must be maintained by the Prime contractor and available by request of PG&E.

5.0 CHANGE LOG

Indicate changes made to the Safety Plan in the table below. For each date a change is made, an additional section, 5.0, will need to be completed and must be added as an additional page to the overall Safety Plan. Multiple changes may be required for each date, *please copy additional pages as needed.*

Date	Reason for Change	Change Description	Section(s) Changed.	PG&E Representative Who Accepted Change

Once the crew has reviewed the changes above, please maintain a signed record that documents the review. This record must be maintained by the Prime contractor and available by request of PG&E.

6.0 ATTACHMENTS

INCLUDED ATTACHMENTS:	
☐	Laydown plans
☐	Maps
☐	Other safety submittals, please specify:

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Removal of concrete & asphalt (demo) and manual material handling.

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Removal of concrete & Asphalt rubble. <u>Required Training</u>: Traffic Control, Driving Safety, Industrial Ergonomics, Personal Protective Equipment, Hearing Conservation, Excavation/Trenching/ Shoring, PG&E Safe Excavation and Dig-In.	Pedestrians	• All locations where concrete and asphalt removal activities are taking place shall be delineated off by the utilization of cones, barricades, cone-bars and/or caution tape. • Traffic control personnel and field operations personnel who shall be trained and committed to monitoring the work zone and ceasing activities when pedestrian proximity exposes them to concrete and asphalt removal related hazards.
	Vehicles	• Traffic control, high-visibility garments and positioning shall be used to mitigate task related hazards regarding vehicular traffic. • Employees shall position themselves in such a way that they have eyes on oncoming traffic and position themselves to have buffer between the activity location and oncoming traffic (e.g., crew truck). • All asphalt and concrete rubble removal shall be executed within the cone zone and should not impact traffic.

	RMI's – Repetitive Motion and soft tissue injuries.	• All employees are encouraged to stretch and flex prior to engaging in activities requiring lifting and movement for any duration which exposes the employee to potential injuries associated with lifting and manual material handling tasks. • Employees shall not lift and twist and shall follow proper lifting techniques.
	Lacerations and abrasions	• Employees shall don long-sleeve shirts and gloves when handling asphalt and concrete rubble, as well as any other material which could cause lacerations and/or abrasions. • Employees should inspect rubble prior to handling, to locate any rebar or other materials embedded in which could cause lacerations and/or abrasions.
	Noise	• All employees handling concrete and asphalt rubble are encouraged to don earplugs. • Hearing protection at a minimum level of earplugs, shall be donned by employees when heavy equipment is being used near the demo and rubble removal operations.
	Flying debris	• All employees involved in the removal of asphalt, concrete or any other rubble shall don, at a minimum, Z87+ eye protection at all times.

	Heavy Lifting	• Employees shall not manually lift any object weighing over 50 lbs.
		  ○ A team lift shall be used for any object over 50 lbs. and up to 100lbs. but not over 100 lbs.
		• All objects weighing over 100 lbs. shall be picked and/or otherwise moved with the use of equipment: backhoe, excavator, skid-steer, crane, etc.
		• Employees shall keep hands, feet, and other extremities away from loads being picked manually or by equipment.
		  ○ At no time shall employees use their extremities as dunnage to perform a pick. Employees shall not lift rubble overhead to load dump trucks or elevated buckets or booms.
		  ○ Employees may manually execute a pick into buckets and/or trailers where the termination height is no greater than the center mass of the employee performing the manual pick.

	Swing Radius, struck-by, pinch points, caught in-between.	• Ground hands working near and in conjunction with heavy equipment shall stay clear of the equipment's swing radius. • The operator shall not allow any employee within the swing radius. ○ If employees need to be in close proximity to the boom or other implement of the equipment to facilitate the loading and handling of rubble, the equipment shall be placed in all off position or otherwise locked out so as to prevent the inadvertent release of energy which could cause significant harm to the ground hand(s) or bystanders. • In addition, equipment of any type shall "NOT" swing any pick over traffic of any type and shall perform the picks within the designated closure or cone zone.
	Extracted rubble	• All concrete and asphalt rubble, as well as any other rubble or material extracted during the demolition process shall be directly loaded into the bucket of equipment, dump truck and/or trailer and hauled off the excavation location no later than close of business day and/or when activities at demo site cease, whichever comes first.

	Existing sub-surface installations	• All locations where backhoes, excavators, loaders or skid-steer loaders are used to extract concrete and asphalt rubble from or near excavations, which contain sub-surface installations and in turn, who's integrity could be compromised by the use of power operated equipment used for the extraction of asphalt and/or concrete pavements, a valid USA ticket shall be in possession and on-site prior to and while activities are taking place.

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Backfill of excavations

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Backfill of excavations, joint trench installations and directional drilling entry and exit pits. <u>Required Training</u>: Traffic Control, Driving Safety, Personal Protective Equipment, Excavation/Trenching/Shoring, Spotter Training, and PG&E Safe Excavation and Dig-in.	Pedestrians	• All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. • All locations where work is taking place, a controlled access zone shall be established. ○ Traffic control devices, cones/barricades, cone bars and employee monitoring shall meet or exceed MUTCD (Manual on Uniformed Traffic Control Devices) regulations to assist in the mitigation.
	Vehicle traffic	• MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. • Employees shall also establish procedures for company vehicle and equipment placement to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. • All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.

	Existing sub-surface installations	• All excavations shall be executed under the guidelines of Title 8-Sub chapter 4: Article 6-Excvations; Standard 1541. • All excavations shall have a valid USA ticket on site, potholed and all existing subsurface installations shall be verified to ensure no conflict with the excavation(s).

	Equipment backing	• Employees shall stand in front of equipment (if not spotting for backing) and vehicles, so the operator has a clear line of site to ground personnel. • Spotters shall be utilized when backing and the spotter shall stand to the side of the vehicle and maintain line of site in driver's side mirror of vehicle. • All vehicles and equipment shall be equipped with a backup alarm.
	Swing radius	• All employees shall remain clear of the swing/ steering / turn radius while vehicles and equipment are dumping and/or otherwise maneuvering backfill materials into the backfill location.
	Cave-ins	• Employees shall stay out of excavations while they are being backfilled, if the backfill operation is occurring near employees working near backfill location. • As such, the vibration of the equipment performing the backfill, surcharge loads, and removal of protective systems during backfill operations greatly reduce cave-in potential and extreme caution, and sound practice shall be executed during backfill operations.
	Compaction equipment	• Employees shall use metatarsal foot protection while operating mechanical tampers. • Mechanical compaction equipment such as whackers, shall require the use of additional equipment, such as backhoe or excavator to maneuver the compaction equipment in and out of excavations.
	Overhead loads & falling debris/material	• Employees shall not stand under or near equipment or dump trucks while said equipment is transferring backfill contents into any excavation.

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Installation of Barrier posts (bollards)

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Installation of Barrier posts (bollards) <u>Required Training</u>: Traffic Control, Spotter Training, Personal Protective Equipment, Hearing Conservation, Industrial Ergonomics, and Vacuum Excavator Safety.	Pedestrians	• All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. • All locations where work is taking place, a controlled access zone shall be established. ○ Traffic control devices, cones/barricades, cone bars and employee monitoring shall meet or exceed MUTCD (Manual on Uniformed Traffic Control Devices) regulations to assist in the mitigation.
	Vehicle traffic	• MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. • Employees shall also establish procedures for company vehicle and equipment placement to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. • All aspects of applicable traffic control plans shall be always adhered to.
	Noise	• Employees operating vacuum equipment or other devices which produce excessive decibels shall don hearing protection. ○ At a minimum, hearing protection shall consist of the ear-plug type.

	Flying debris	• Employees using vacuum equipment and/or core drill devices to facilitate the installation of bollards, shall wear adequate eye protection. • While operating vacuum equipment, employees shall don Z87+ eye protection in conjunction with a full-face shield, or Z87+ rated goggles offering full peripheral protection.
	Moving parts	• Core drills shall be positioned or secured in such a manner so the device cannot lose control and inadvertently strike the operator.
	High pressure	• If a high-pressure water knife is used to excavate the earth for bollard placement, the water-knife shall be always controlled and pointed away from employees or bystanders.
	Heavy lifting	• While handling sack concrete and bollards, employees shall use safe lifting practices and utilize the team-lift method if deemed necessary. • Concrete shall be transferred by equipment of dolly to placement location to reduce and eliminate soft tissue injuries.
	Subsurface installation	• Employees should always utilize vacuum excavation equipment when installing barrier posts because of proximity to energized facilities. • All excavations shall be executed under the guidelines of Title 8-Sub chapter 4: Article 6-Excvations; Standard 1541. • All excavations shall have a valid USA ticket on site, potholed and all existing subsurface installations shall be verified to ensure no conflict with the excavation(s).

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Concrete & Asphalt restoration

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Concrete and Asphalt restoration <u>Required Training</u>: Traffic Control, Driving Safety, Personal Protective Equipment, Excavation/Trenching/Shoring, Silica Exposure Awareness, Industrial Ergonomics, Hand and Power Tools Awareness.	Pedestrians	• All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. ○ As such, all locations where work is taking place, a controlled access zone shall be established. • Traffic control devices, cones/barricades, cone bars and employee monitoring shall meet or exceed MUTCD (Manual on Uniformed Traffic Control Devices) regulations to assist in the mitigation.

	Vehicle traffic	• MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. • Employees shall also establish procedures for company vehicle and equipment placement to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. • All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
	Subsurface installation-staking/forming	• All excavations shall have a valid USA ticket on site, potholed and all existing subsurface installations shall be verified to ensure no conflict with the excavation(s). • All excavations shall be executed under the guidelines of Title 8-Sub chapter 4: Article 6-Excavations; Standard 1541. • Where required, all stakes shall be capped with 4x4 rebar caps.
	Skin exposure-Lacerations, abrasions & chemical exposure	• Employees shall don long-sleeved high-viz garments and gloves to reduce exposure to concrete and asphaltic materials. • SDS of all aggregate or chemicals used, shall be made readily available via hard copy or digital.
	Flying debris and spatter	• Employees shall don required eye protection. – Z87+ - while restoring asphalt and concrete pavements. This shall be done to mitigate employees' eyes to spatter associated with placement of asphalt and concrete pavements.

	Heavy lifting and material moving	• Employees shall stretch and flex prior to placing pavements. • Employees shall maintain a strong working posture and not attempt to lift or move loads which are so heavy that they force the employee(s) to change posture which could cause soft tissue injuries. • Employees shall not manually lift any object weighing over 50 lbs. ○ A team lift shall be used for any object over 50 lbs. and up to 100lbs. but not over 100 lbs. • All objects weighing over 100 lbs. shall be picked and/or otherwise moved with the use of equipment: backhoe, excavator, skid-steer, crane, etc.
	Exposure to knees	• Employees who kneel during concrete and asphalt restoration(s) shall don knee pads to prevent soft tissue damage and other related injuries to the knees of affected employees.
	Residual material	• Employees shall ensure that all residual materials associated with concrete and asphalt restoration operations shall be thoroughly cleaned from the site and shall not be allowed to enter any drain inlets or waterways of any type. ○ If drain inlets or waterways are present, straw waddles or other filter fabrics shall be installed. • Concrete and asphalt transport vehicles shall be cleaned and contained in such a way that residual and cleanup contents are transported off-site for final disposal.

	Concrete trucks, dump trucks, equipment, backing, caught in between, struck by	• Employees shall maintain constant visual contact with all trucks and equipment being used for restoration operations.
		• A spotter shall be designated prior to unloading and/or backing any equipment and no equipment or vehicle operator shall perform any type of movement unless authorized to do so by ground hands or designated spotter.
		  ○ Employees shall stand in the front of equipment (if not spotting for backing) and vehicles, so the operator has a clear line of site to ground personnel.
		  ○ Spotters shall be utilized when backing and the spotter shall stand to the side of the vehicle and maintain line of site in driver's side mirror of vehicle.
		• Backup alarms shall be utilized on all trucks and equipment in order to alert ground personnel that backing is occurring.

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Enclosure and pad installations

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Installations of pad mounts and enclosures. <u>Required Training</u>: Traffic Control, Emergency Action Plan, Arc Flash Training, Electrical Safety Awareness, Electrical Low and High Voltage, Hazardous Energy Control, Mechanical Ops Near Energized, Situational Awareness, Personal Protective Equipment, Fit for Duty, Rigging Safety, Cranes & Derricks in Construction, Slips/Trips/Falls, Respiratory Protection, Hydrogen Sulfide, Silica Exposure Awareness, Rigging Safety, Ladder Safety, Excavation/Trenching/Shoring, Confined Spaces in Construction, Hand and/or Power Tools Awareness.	Pedestrians	• All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. • All locations where work is taking place, a controlled access zone shall be established. ○ Traffic control devices, cones/barricades, cone bars and employee monitoring shall meet or exceed MUTCD (Manual on Uniformed Traffic Control Devices) regulations to assist in the mitigation.
	Vehicle traffic	• MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. • Employees shall also establish procedures for company vehicle and equipment placement to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. • All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.

	Overhead loads	• Employees shall not be permitted to stand under suspended loads for any reason. ○ If employees are witnessed to be standing under elevated loads, work shall be immediately stopped, and the crew shall re-tailboard. • Employees shall also use taglines when assisting in picks and the maneuvering of suspended loads. • All unnecessary equipment, personnel and materials shall be kept away from pick location to keep the walking /working surface free of clutter to prevent employees performing picks from slips, trips and falls while focusing on suspended loads. • Operator, rigger and all employees associated with the task at hand, shall always maintain a 3-way communication with one another.
	Faulty rigging	• All rigging belonging to MGE Underground, subcontractors and suppliers shall be inspected prior to use. • MGE employees shall ensure subcontractors and suppliers perform rigging inspections. • All rigging found to be defective shall be immediately removed from service (red tagged), taken off property and reported to the immediate foreman/supervisor.

	Pinch Points	• Employees shall keep their feet, hands, and fingers from under loads and shall not place any appendages in between suspended loads, earth, or adjacent structures. • Employees shall use dunnage or other instruments to manipulate enclosures and pads into position.
	Swing radius	• Employees shall not stand in the swing radius of any crane or any other piece of equipment performing a pick. • Operators and spotters shall establish and use clear hand signals to safely facilitate the picks. ○ Only one designated spotter shall be used during the pick process. • If employees should need to encroach upon the swing radius, the equipment being used to perform the pick shall be placed into all "OFF" position.
	Falls to lower levels	• Employees shall maintain visual contact of footing while setting enclosures. • Upon completion of the setting of enclosures, employees shall secure the perimeter of the open enclosure(s) with cones, barricades, cone-bars, or other devices which could provide effective indication of potential hazards. • At no time shall any enclosures or excavations be left open and unattended.

	Unqualified operators	• All MGE employees, subcontractors and/or suppliers who are operating a crane of any type shall have their credentials checked and verified to ensure they are qualified to operate the crane being used for the pick. • Any operators found to NOT have a valid crane operators' certification shall NOT be permitted to perform a pick of any type until their credentials can be verified.
	Excessive loads placed on rigging and equipment	• Crane operators shall provide MGE personnel with their daily inspection checklist associated with the crane being used, as well as the load capacity of their crane and shall display the knowledge of the weight of the pick being performed. • If the inspection checklist is not provided or adequate knowledge of weights and limitations is not displayed, work shall be stopped immediately and the EIC shall be contacted.
	Overhead utility structures and other proximal vertical structures	• All overhead utility and nearby vertical structures shall be evaluated by all personnel involved in the pick and minimum approach distances shall be addressed prior to performing the pick. • All crews involved in picks of #6 & #7 enclosures shall conduct a tailboard prior to performing the pick.
	Existing sub-surface installations	• All excavations shall be executed under the guidelines of Title 8-Sub chapter 4: Article 6-Excvations; Standard 1541. • All excavations where backfill operations are taking place shall require a USA ticket to be always on-site.

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Excavation of bore pits

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Excavate entry & exits pits for horizontal directional drilling Operations <u>Required Training:</u> Traffic Control, Driving Safety, Personal Protective Equipment, Excavation/Trenching/Shoring, Excavation operations, Hearing Conservation and Industrial Ergonomics.	Pedestrians	• All locations being excavated for the purpose of facilitating directional drilling operations by creating entry/exit pits for tooling and product installations shall be barricaded by use of cones, cone bars, barricades, traffic control and shall meet or exceed MUTCD (Manual on Uniformed Traffic Control Devices) regulations. ○ This shall be strictly monitored by employees to mitigate pedestrian exposure to HDD operation hazards.
	Vehicle traffic	• Vehicle traffic shall be managed by use of traffic control personnel, cones, signage, and a clearly defined work zone. • Employees shall make every attempt to arrange their work location in such a way that equipment and work-related vehicles are positioned to offer the employees and excavation protection from oncoming traffic and to minimize, if not remove, the potential for vehicles to strike employees and/or inadvertently impact the excavation.
	Existing subsurface installations	• All excavations shall be executed under the guidelines of Title 8-Sub chapter 4: Article 6-Excavations; Standard 1541. • All excavations shall have a valid USA ticket on site, potholed and all existing subsurface installations shall be verified to ensure no conflict with the excavation(s).

	Line of fire, caught in, struck by	• An area shall be designated by utilizing cones or other delineation devices to establish a perimeter and restricted access area which designates a boundary of safe working distance regarding the operation and associated hazards of HDD equipment and open excavations. • Only HDD crew members shall be allowed within the controlled access zone and all non-essential personnel shall be prohibited from the controlled access zone and excavations related to HDD operations.
	Cave-ins	• All excavations over 5 feet in depth shall require a protective system: shoring, shielding, benching and/or sloping. ○ If the competent person determines any excavation less than 5 feet in depth necessitates a protective system, then a protective system shall be installed. • If the soil is NOT of stable rock, then at no time shall any employee be permitted in any excavation over 5 feet in depth without shoring.

	Access / Egress	• Any excavation over 4 feet in depth shall require an adequate means of access/ egress. • If a ladder is used, then the ladder shall be secured or stabilized/held by another employee and extend at least 3 feet out of the top of the excavation. ○ In addition, any excavation less than 4 feet in depth determined to require access / egress shall be installed.
	Hazardous Atmospheres	• Any excavation determined to have the potential for a hazardous atmosphere shall be tested with the use of a 4-gas air monitor and testing results shall be tracked throughout the shift and documented. ○ Some indications that an excavation may contain a hazardous atmosphere are: unusual odors, discoloration of soil, old fuel lines & stations, and discolored or dead vegetation on surface.
	Open excavations	• All joint trench excavations left in an "open" state shall be protected with shoring systems to prevent cave-ins. • Any excavation within 10 feet of a roadway shall be shored and covered with a steel road plate. • Excavations beyond 10 feet of any roadway shall be covered with sheeting with no less than 1 ¼" plywood. • All excavations shall be coned off and otherwise secured to adequately notify pedestrians of the hazard, unless in roadway where steel road plate is in use.

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Removal of concrete & asphalt with use of gas-powered cut-off saw to facilitate gas-powered cut-off saw activities.

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Use of gas-powered cut-off saw <u>Required Training:</u> Traffic Control, Driving Safety, Personal Protective Equipment, Vacuum Excavation Operations, Hand and Power Tools, Silica, Industrial Ergonomics, PG&E Safe Excavation and Dig-In, Hearing Conservation, Fall Protection, Slip Trips and Falls, and Spotter Training.	Pedestrians	• All locations where gas-powered cut-off saw work is taking place, a controlled access zone shall be established. ○ Traffic control devices, cones/barricades, cone bars and employee monitoring shall meet or exceed MUTCD (Manual on Uniformed Traffic Control Devices) regulations to assist in the mitigation.
	Vehicle Traffic	• MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. • Employees shall also establish procedures for company vehicle and equipment placement to create a buffer from vehicles which may inadvertently and suddenly enter the work zone (e.g., crew truck). • All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
	Blades	• All blades shall be inspected prior to use and any blades found to be defective shall be destroyed and removed from the project location. • Employees shall ensure that the manufacturer recommended blades are used for the equipment being used. • Employees shall ensure blades are adequately fastened to the saw prior to use.

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Removal of concrete & asphalt with use of gas-powered cut-off saw to facilitate gas-powered cut-off saw activities.
	Noise	• All employees performing gas-powered cut-off saw activities shall don hearing protection. o At a minimum, this shall consist of ear-plug type hearing protection.
	Flying Debris	• All employees operating a gas-powered cut-off saw shall don a full-face shield in conjunction with Z87+ eye protection. o A face shield is not required for walk behind saws if the blade guard is intact.
	Kick-back/Binding	• Employees shall maintain proper cutting stance and grip of the saw, at all times. o Standing to the side of the saw with both hands on saw at all times. In addition, all guards shall be in place, inspected and placed in the correct orientation prior to use.
	Silica	• Employees using a gas-powered cut-off saw to demo concrete, asphalt or other potentially silica containing materials shall use "wet cut" method to mitigate dust and other particulate matter being generated and expelled into the atmosphere. o The use of the integrated water system shall be used as the "wet cut" method.
	Slurry	• Vacuum equipment and other devices and methods shall be used to contain slurries being generated by saw cutting operations. • All drain inlets and other pathways leading to water ways shall be protected during saw cutting operations and all slurry byproducts shall be thoroughly removed during and upon completion of saw cutting operations at all locations.

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Removal of concrete & asphalt with use of gas-powered cut-off saw to facilitate gas-powered cut-off saw activities.

	Re-fueling	• All employees shall ensure cut-off saws are in the "off" position and thoroughly cooled down prior to re-fueling. • Funnels shall also be used, and any spilled or residual fuel shall be cleaned prior to starting saw. • Refueling shall also be performed in areas away from combustible materials such as flammable liquids and/or dry vegetation.
	Proximal employees	• All non-essential employees shall be kept at a safe distance from saw cutting activities in an effort to mitigate unnecessary exposure.
	Existing sub-surface installations	• All locations containing pavements which require the use of a gas-powered cut-off saw to assist in the extraction of said pavements shall be USA'd and a valid USA ticket shall be on-site prior to the use of any powered equipment, including saws, in the removal of pavement materials.

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	General Excavations

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
General Excavation Activities <u>Required Training:</u> Traffic Control, Driving Safety, Personal Protective Equipment, Vacuum Excavation Operations, Hand and Power Tools, Industrial Ergonomics, PG&E Safe Excavation and Dig-In, Hearing Conservation, Confined Space, Fall Protection, Slip Trips and Falls, and Spotter Training.	Pedestrians	• All excavations shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. • All locations where work is taking place, a controlled access zone shall be established. ○ Traffic control devices, cones/barricades, cone bars and employee monitoring shall meet or exceed MUTCD (Manual on Uniformed Traffic Control Devices) regulations to assist in the mitigation.
	Vehicle traffic	• Traffic control, high-visibility garments and positioning shall be used to mitigate task related hazards regarding vehicular traffic. • Employees shall make every attempt to arrange their work location in such a way that equipment and work-related vehicles are positioned to offer the employees and excavation protection from oncoming traffic (i.e., crew trucks) and to minimize, if not remove, the potential for vehicles to strike employees and/or inadvertently impact the excavation.
	Existing subsurface installations	• All excavations shall be executed under the guidelines of Title 8-Sub chapter 4: Article 6-Excavations; Standard 1541. • All excavations shall have a valid USA ticket on site, potholed and all existing subsurface installations shall be verified to ensure no conflict with the excavation(s).

	Line of fire, caught in, struck by	• An area shall be designated by utilizing cones or other delineation devices to establish a perimeter and restricted access area which designates a boundary of safe working distance regarding the operation and associated hazards of excavations. • Only employees directly involved in excavation activities shall be allowed within the controlled access zone and all non-essential personnel shall be prohibited from the excavation-controlled access zone. • Employees shall establish signals to be used between spotters and operators and no excavating shall take place without the use of a spotter. • Spotter shall stand in front of the boom and not to the side which would place the employee in the swing radius of the boom.
	Cave-ins	• All excavations over 5 feet in depth shall require a protective system: shoring, shielding, benching and/or sloping. o If the competent person determines any excavation less than 5 feet in depth necessitates a protective system, then a protective system shall be installed. • If the soil is NOT of stable rock, then at no time shall any employee be permitted in any excavation over 5 feet in depth without a protective system.
	Access / Egress	• Any excavation over 4 feet in depth shall require an adequate means of access/ egress. • If a ladder is used, then the ladder shall be secured or stabilized/held by another employee and extend at least 3 feet out of the top of the excavation. o In addition, any excavation less than 4 feet in depth determined to require a safe means of access / egress shall be installed.

	Hazardous Atmospheres	• Any excavation determined to have the potential for a hazardous atmosphere shall be tested with the use of a 4-gas air monitor and testing results shall be tracked throughout the shift and documented. ○ Some indications that an excavation may contain a hazardous atmosphere are: unusual odors, discoloration of soil, old fuel lines & stations, landfills and discolored or dead vegetation on surface.
	Open excavations	• All joint trench excavations left in an "open" state shall be protected with shoring systems to prevent cave-ins. • Any excavation within 10 feet of a roadway shall be shored and covered with a steel road plate. • Excavations beyond 10 feet of any roadway shall be covered with sheeting with no less than 1 ¼" plywood. • All excavations shall be coned off and otherwise secured to adequately notify pedestrians of the hazard, unless in roadway where steel road plate is in use.

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Horizontal Directional Operations

Task Step and	Potential Hazards	Hazard Mitigation Measures
Horizontal Directional Drilling <u>Required Training:</u> Traffic Control, Driving Safety, Personal Protective Equipment, Vacuum Excavation Operations, Hand and Power Tools, Industrial Ergonomics, PG&E Safe Excavation and Dig-In, Hearing Conservation, Fall Protection, Slip Trips and Falls, and Spotter Training.	Existing subsurface installations	• All locations where HDD operations are taking place shall be USA'd, potholed and otherwise located. ○ All provisions of CGC: 4216 shall be strictly adhered to during the course of all HDD operations. • A pothole log which displays the depths and locations of located subsurface installations shall be always retained and shared with the project foreman and any other employee(s) involved in HDD or support functions. • All depths and locations of subsurface installations, in addition to pothole log, shall be clearly marked on pavement(s) nearest to pothole(s) and all employees shall take great care to preserve such marks. • Prior to placing any drill rods in the ground, the HDD crew, along with the foreman shall walk the bore path and cross reference pothole log with marks on ground.
	Cross bore of existing utilities	• Wastewater laterals will be videoed prior to any directional drilling operations, as well as post any HDD operations; assuming the location dictates the need. • As with open cut excavations, all project locations where HDD will be taking place shall be USA'd and all other applicable provisions of 4216 shall be strictly adhered to.

	Malfunctioning / damaged equipment	• Operators of HDD equipment shall perform pre-task/post-task inspections and maintenance.
		  ○ This shall be documented on an equipment inspection form and turned in to the fleet department or EIC, at a minimum, at the end of the week.
		  ○ If the HDD equipment is discovered to be defective, inspection records shall be turned in immediately on the day of and the equipment shall be red tagged so the issues can be promptly corrected.

	Rotating components	• All employees shall stay clear of rotating parts and all areas of the HDD machine shall be effectively barricaded and protected to keep non-essential personnel and pedestrians well away from rotating and moving parts.
	Energized sub-surface installations	• All MGE employees and subcontractors shall utilize underground utility detection equipment (sweep) for power prior to commencing any HDD operations. • All employees involved in HDD operations shall ground the machine and make effective the machine's strike alert system to warn of an unintended electrical strike. • All HDD crews shall have and make readily available di-electric boots and gloves in the event of electrical strike.

	Tooling connections in entry/exit pits/excavations	• While connecting, disconnecting or checking tooling in entry/exit pits, the operator and locator or ground hand shall verify by way of 3-way communication that the HDD machine is in the "ALL OFF" position and there is no way of the machine inadvertently turning on and initiating rotation. • NO employees shall be allowed in any excavation when the HDD machine is in the operational position.
	Drill mud discharge and uncontrolled flow	• Employees involved in HDD operations shall monitor the drill mud flow and establish containment to control flow and residual discharge. • Employees shall also protect any drain inlets and/or paths to waterways to prevent the unintended entry of bore mud and HDD byproducts. • All slurry's, muds and byproducts shall be thoroughly cleaned from each HDD location upon completion of location shot.
	Slippery walking/working surfaces due to polymer-based drilling products	• Employees shall maintain good housekeeping on drill rig and any other subsequent area where polymer-based drill products are used, to prevent exposure of slippery and otherwise compromised walking/working surfaces to employees and pedestrians. • If it is recognized that polymers or other products have presented a slippery and hazardous walking/working surface, the area shall be protected and cleaned immediately to prevent exposure to employees and pedestrians.

	Pedestrians	• All locations where HDD operations are taking place shall be barricaded by use of cones, barricades, cone bars and visual observation. ○ If pedestrian walkways are established and permitted adjacent to HDD operations, HDD operations, moving and hazardous components shall be kept at no less than 15 feet away from pedestrian foot paths.
	Vehicle traffic	• All HDD operations shall be positioned in such a way that they do not impact public transportation, vehicle or any other type of traffic which could be in motion near the HDD operation. • Traffic control personnel and traffic control devices shall be utilized to mitigate traffic exposure and assist in the facilitation of flow. ○ HDD crews shall also position themselves in such a way they are visible and protected from oncoming traffic.

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Pothole Utilities with Hydro Vacuum

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Pothole Utilities with Hydro Vacuum <u>Required Training:</u> Traffic Control, Driving Safety, Personal Protective Equipment, Vacuum Excavation Operations, Hand and Power Tools, Industrial Ergonomics, PG&E Safe Excavation and Dig-In, Hearing Conservation, Fall Protection, Slip Trips and Falls, and Spotter Training.	Pedestrians	• All excavations shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. • All locations where work is taking place, a controlled access zone shall be established. ○ Traffic control devices, cones/barricades, cone bars and employee monitoring shall meet or exceed MUTCD (Manual on Uniformed Traffic Control Devices) regulations to assist in the mitigation.
	Vehicle traffic	• Traffic control, high-visibility garments and positioning shall be used to mitigate task related hazards regarding vehicular traffic. • Employees shall make every attempt to arrange their work location in such a way that equipment and work-related vehicles are positioned to offer the employees and excavation protection from oncoming traffic (i.e., crew trucks) and to minimize, if not remove, the potential for vehicles to strike employees and/or inadvertently impact the excavation.
	Proximal Employees	• All non-essential employees shall be kept at a safe distance from potholing activities to mitigate unnecessary exposure to potholing activities.
	Noise	• All employees performing potholing activities shall don hearing protection. ○ At a minimum, this shall consist of ear-plug type hearing protection.

	High-pressure	• Employees shall retain complete control of the water-knife while in operation and shall not point the water-knife/wand at any employees, structure, vehicle, or pedestrians. • Zip tying and/or attempting to secure the water-knife/wand trigger in the open position is NOT allowed.
	Flying Debris	• All employees involved in potholing activities shall don Z87+ eye protection. This shall consist of Z87+ eye protection in conjunction with a face shield or peripheral level Z87+ goggles.
	Sub-surface installations	• All locations containing pavements which require the use of a gas-powered cut-off saw to assist in the extraction of said pavements shall be USA'd and a valid USA ticket shall be on-site prior to the use of any powered equipment, including saws, in the removal of pavement materials. • All potholing performed by way of vacuum and water-knife shall only be done with a zero-degree nozzle on the water-knife. • Employees shall monitor the pressure, direction, impact and integrity of the water-knife and sub-surface installations while potholing. o This shall be done to ensure the integrity of the sub-surface installation isn't compromised by the pressure and degree of water-knife.
	Unplanned discharge of cuttings	• All vacuum equipment shall be thoroughly inspected before, during and after operation. • The inspection shall be performed to make certain the hydraulic rams on the vacuum tank are engaged and no leaks or unplanned discharges occur during operation and/or during transportation.

	Stored Energy	• Prior to removing any hoses or equipment attached to the vacuum, shall be free of stored energy by bleeding/releasing the pressure on the vacuum. • All employees shall avoid putting their face or body part in the line of fire when disconnecting the hoses or equipment on the vacuum. • Employees shall always retain complete control of the hose(s). ○ As a best practice, it is encouraged that the employee request assistance from another co-worker, to avoid any possible stored energy that may still be in the hose.
	Working at Heights to unplug/unblock debris	• The employee shall utilize a ladder to access the top of the tank, while another employee helps spot/stabilize the ladder. • Once at the top, the employee shall sit on the tank and staddle the hose/tank connection.

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Donning Required PPE – Minimum Requirements

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic. <u>Required Training:</u> Traffic Control, Fall Protection Awareness, Industrial Ergonomics, Slips/Trips/Falls, Driving Safety Awareness.	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Pre-Operational Procedure: JSA / Tailboard

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Crew conducts JSA / Tailboard briefing prior to beginning work <u>Required Training:</u> Traffic Control, Arc Flash Training, Fall Protection Awareness, Industrial Ergonomics, Slips/Trips/Falls, and Driving Safety Awareness.	Vehicle and pedestrian traffic	• JSA / Tailboards shall be conducted in an area where vehicular traffic is not a hazard, as well as an area where pedestrian traffic is not impeded by the meeting. • All MGE field personnel, subcontractors and, when applicable, suppliers, shall engage in pre-operational meetings: JSA (Job Safety Analysis) and Tailboards. • If the job scope changes, then the crew shall stop and update the JSA/Tailboard, before continuing on with the job. • These shall be documented on a hardcopy form and digitally recorded. ○ The completed hard copy JSA/Tailboard shall be kept in the job pack for the entirety of the job and the audio JSA/Tailboard shall be promptly emailed, daily, to jsa@mgeunderground.com.

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Pre-Operational Step: Equipment / Vehicle Inspection

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Employees shall inspect vehicles and equipment prior to each use. <u>Required Training:</u> Traffic Control, Arc Flash Training, Fall Protection Awareness, Industrial Ergonomics, Slips/Trips/Falls, and Driving Safety Awareness.	Pedestrians	• All excavations shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. • All locations where work is taking place, a controlled access zone shall be established. ○ Traffic control devices, cones/barricades, cone bars and employee monitoring shall meet or exceed MUTCD (Manual on Uniformed Traffic Control Devices) regulations to assist in the mitigation.
	Vehicle traffic	• Traffic control, high-visibility garments and positioning shall be used to mitigate task related hazards regarding vehicular traffic. • Employees shall make every attempt to arrange their work location in such a way that equipment and work-related vehicles are positioned to offer the employees and excavation protection from oncoming traffic (i.e., crew trucks) and to minimize, if not remove, the potential for vehicles to strike employees and/or inadvertently impact the excavation.

	Fluid spills and accidental discharge	• At a minimum, universal spill kits shall be maintained on all crew trucks.
		• If a spill were to occur, then employees would immediately respond with absorbent pads and/or waddles.
		• All storm drain inlets shall be promptly protected from harmful entry.
		  ○ If needed, employees shall use soil and or sand to contain and or divert the discharge to protect adjacent waterways and drain inlets.
		• In addition, if the spill is too large to clean up/handle, PSC shall be immediately contacted to respond to the spill and take over the remediation efforts.
		  ○ PSC 24-Hour Spill/ERS# (844) 334-2468.

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Rope, mandrel, & proof duct installations

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Rope, mandrel, & proof duct installations Required Training: Traffic Control, Arc Flash Training, Fall Protection Awareness, Industrial Ergonomics, Slips/Trips/ Falls, Driving Safety Awareness, Electrical Safety Awareness, Confined Space, Electrical High and Low Voltage, Situational Awareness, SAFE101, Electric Operations Safety, Driving Safety, and Vacuum Truck Operations.	Pedestrians	• All excavations shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. • All locations where work is taking place, a controlled access zone shall be established. ○ Traffic control devices, cones/barricades, cone bars and employee monitoring shall meet or exceed MUTCD (Manual on Uniformed Traffic Control Devices) regulations to assist in the mitigation.
	Vehicle traffic	• Traffic control, high-visibility garments and positioning shall be used to mitigate task related hazards regarding vehicular traffic. • Employees shall make every attempt to arrange their work location in such a way that equipment and work-related vehicles are positioned to offer the employees and excavation protection from oncoming traffic (i.e., crew trucks) and to minimize, if not remove, the potential for vehicles to strike employees and/or inadvertently impact the excavation.

	Hazardous atmospheres & Confined spaces	• All enclosures shall be treated as confined spaces and entry into such enclosures shall be treated as such. • Employees shall test and document all enclosures prior to entry to ensure the atmosphere does not present any hazards to entrants. ○ Force air blowers shall be made available to employees should they wish to use them during confined space entries.
	Noise	• All employees using pressurized equipment to facilitate the proofing of installed duct structures shall don hearing protection while working near the pressure vessel. ○ At a minimum, hearing protection shall be ear plug type protection.
	Flying debris	• At a minimum, all employees using pressurized equipment to facilitate the proofing of duct structures shall don Z87+ eye protection.
	High pressure	• All air compressors shall be thoroughly inspected prior to use and if wheeled and detached from a towing vehicle, the compressor shall be chocked and secured. • The compressor shall be evaluated for leaks and other defects.
	Unsecured hoses	• All hoses connected to air compressors shall be secured in such a way that if the connection of a compressor hose were to separate or otherwise fail. • Connections shall be secured with either an engineered type pin and/or a whip-check type device.

	Open enclosures & fall hazards	• All enclosures opened for the purpose of proofing duct structures shall be made safe by installing cones, barricades, cone-bars and other engineered devices to indicate the open enclosure. • No enclosures shall be left unattended at any time.
	Release of pressure	• Employees shall use communication practices to ensure all involved personnel are aware of the release of pressurized air. • Employees shall use three-way communication, cellular device and/or three-way radios to communicate when pneumatic pressure is to be released along with the product in the duct structure. ○ This shall be done to ensure employees positioned at the exit point are not inadvertently struck by materials being jettisoned by pneumatic pressure.

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Pulling wire

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Pulling wire Required Training: Traffic Control, Driving Safety, Personal Protective Equipment, Industrial Ergonomics, Electrical High Voltage, Electrical Safety Awareness, PG&E Electric Operations Safety, Slips Trips and Falls.	Pedestrians	• All excavations shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. • All locations where work is taking place, a controlled access zone shall be established. ○ Traffic control devices, cones/barricades, cone bars and employee monitoring shall meet or exceed MUTCD (Manual on Uniformed Traffic Control Devices) regulations to assist in the mitigation.
	Vehicle traffic	• Traffic control, high-visibility garments and positioning shall be used to mitigate task related hazards regarding vehicular traffic. • Employees shall make every attempt to arrange their work location in such a way that equipment and work-related vehicles are positioned to offer the employees and excavation protection from oncoming traffic (i.e., crew trucks) and to minimize, if not remove, the potential for vehicles to strike employees and/or inadvertently impact the excavation.
	Accidental Contact with Energized Wires or Primary Crossings	• Rubber Primary Crossings. Use Running Ground. Isolate Wire Trailer. Use Bullwheels. • Use Personal Protective Equipment (Gloves, Sleeves) • Keep Public Away. Get a One Shot if Possible. Ground Equipment. De-Energize if Possible. Communications. Install Grounds on New Wire as it is Pulled In.

	Pulling Socks Breaking Apart, Swivels in Poor Condition	• Band Ends of Socks if Necessary. • Tape Both Ends of Socks. • Check Swivels.
	Too Much Slack in Wire or Too Tight	• Set Up Equipment Properly • Set Brake to Right Tension. • Someone to Watch Sock. • Communications. • Use Running Ground. Ground Wires When In.
	Pulling sock caught in Roller, Wire Whipping up into Energized Phases	• Check Rollers. Have Someone Watch Sock as It Goes Through The Rollers. Ensure Constant Communication Between Watchman and Operators of Pulling Equip.
	Wire Trailer Becoming Hot	• Do not lean on wire trailer

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Break apart 200A J

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic Required Training: Traffic Control, Driving Safety, Personal Protective Equipment, Electrical Safety Awareness, Ladder Safety, and Confined Space Awareness.	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Identify cables (phases), tagging and cables destinations.	Cross phasing. De-energizing or energizing wrong cables. Electrocution, electrical flash, circuit interruption.	One of the very first critical steps is to identify the cables to be worked. Checking where the cables are coming from or where the cables are going. Cross checking what you see at the "J" is what's printed on the maps. If the "J" doesn't match the circuit map do not proceed with the task unless positive identification has been made of all cables and their destination. Determination will be made with crew foreman, PG&E inspector and DO. Before separating "J", crew must ring or phone out cables one at a time to determine proper phasing.
Testing all cables (phases).	Electrocution. Electrical flashes. Circuit interruption.	The 2nd most critical step is testing the cables. Test all cables de-energized. Use approved high voltage tester.
Ground all phases.	Electrocution. Electrical flash. Circuit interruption.	The 3rd most critical step is to ground all cables to be worked. Phases shall NOT be grounded until granted permission from DO.
Opening enclosure or manhole.	Presence of poisonous gases or lack of oxygen. Deteriorating enclosure	After opening enclosure or manhole, let it air out for 5 minutes before installing air monitor. If gases or lack of oxygen is detected thru air

	or manholes. Enclosures\manholes filled with debris.	monitor install air blower until air monitor registers permissible levels.

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Break Apart 600A J

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Opening enclosure or manhole	The presence of poisonous gases or lack of oxygen. Deteriorating enclosures or manholes. Enclosures or manholes filled with debris.	After opening enclosure or manhole, let it air out for 5 minutes before installing air monitor. If gases or lack of oxygen is detected through air monitor, install air blower until air monitor registers permissible levels. After equipment has been de-energized and grounded clean around work area to prevent slips, trips and falls.
Identify cables (phases). Identify cable tags and cable destinations.	Cross phasing. De-energizing or energizing wrong cables. Electrocution, electric flash, circuit interruption.	One of the very first steps is to identify the cables to be worked. Verifying cable destination. Cross checking the "J" with the circuit map. If the "J" does not match with what's on the circuit map do not proceed until positive identification has been made on all cables and their destination. Determination will be made with crew foreman, PG&E inspector and DO. Before separating "J" crew must ring or phone out cables one at a time to determine proper phasing.
Testing all cables	Electrocution. Electric flash. Circuit	The 2nd most critical step is testing cables. Test all cables de-energized. Only use an

	interruption.	approved high voltage tester.
Ground all phases	Electrocution. Electrical flash. Circuit interruption.	The 3rd most critical step is to ground all cables to be worked. DO NOT ground cables until permission is given from DO and inspector.
Required Training: Traffic Control, Arc Flash Training, Fall Protection Awareness, Industrial Ergonomics, Personal Protective Equipment, Slips/Trips/Falls, Driving Safety Awareness, Electrical Safety Awareness, Electrical High and Low Voltage, Situational Awareness, SAFE101, Electric Operations Safety, Driving Safety, and Vacuum Truck Operations.		

	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Cut and kick utility pole

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Truck set up (bucket, Digger and material trailer).	Truck access and boom swing radius. Natural vegetation (trees\shrubbery). Uneven ground.	Bucket truck will need to be able to reach all existing components on pole, before and after the pole is cut and kicked. Digger truck will need to be in a position to hold, pick, move old pole, pull old pole butt, pick and set new pole.
Protective cover. Rubber gloves and sleeves. Rubber blankets and line hose. Personal protective equipment.	Electrical contact. Phase to phase contact. Phase to ground contact. Dropping of phases, primary and secondary. Dislodged from bucket truck.	Always install protective cover to prevent phase contact, phases to phase contact, phases to ground contact. Primary and secondary phases. Always attach body harness to safety eyelets on bucket truck.
Inspecting adjacent poles.	Deteriorating cross arms. Changing of wire tension during the cut and kick. Lose equipment. Sagging wire. Dead end shoe or mid-span slice failure. Tie wire failure. Phase to phase, phase to	Visually inspect the integrity of any adjacent poles, cross arms, wire sagging, equipment and clearances to avoid any phase to phase or phase to ground potentials. Verify any mid-span obstructions (trees, buildings or separate crossing circuits).

	ground potential.	
Rigging. Lifting straps. Tag ropes.	Pole control. Losing control during lifting, kicking and setting.	Ensure placement of rigging to avoid pole being top heavy. Add tag lines at top and bottom of pole for opposing side strains.
Tools. Hoists. Chainsaw. Rigging straps. Shackles. Ropes.	Chainsaw failure. Hoist failure. Tag line failure.	Inspection of designated tools before each use. Using the right tool for the task. Verify load and strain limits for hoists, lifting straps, shackles and tag lines.
Setting new pole	Electrocution. Electric flash. Circuit interruption.	Ground wires, guy wires or metallic hardware running the length of the pole shall not be attached to the pole. All persons who handle the butt of the pole shall wear approved rubber gloves. No one shall step on or off the truck or touch any part of the truck or associated equipment from the ground, while the pole is being set, or until it is secured in such a manner that it could not be possible to come in contact with energized conductors or apparatus.
Required Training: Traffic Control, Arc Flash Training, Personal Protective Equipment, Fall Protection Awareness, Industrial Ergonomics, Slips/ Trips/Falls, Driving Safety Awareness, Electrical Safety Awareness, Electrical High and Low Voltage, Situational Awareness, SAFE101, Electric Operations Safety, Driving Safety, and Vacuum Truck Operations.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Cut in secondary bobs

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Bucket truck set up	Truck access. Boom swing radius. Natural vegetation obstruction (trees\shrubbery). Uneven ground.	Bucket truck will need to be able to reach all existing components on pole. Ensure bucket truck out-riggers are placed on solid surfaces.
Apply protective cover. Rubber blankets, line hoes.	Conductor contact. Phase to phase contact. Phase to ground contact.	Always apply protective cover on opposing phases including the neutral phase. Always apply protective cover wherever your bucket truck may come in contact with any conductors, secondary and or primary.
Use of insulated cutting tools, hot hoists, slack blocks and appropriate grips.	Electrocution. Electric flash. Conductor control. Load and strain limits.	Use approved hot cutters for cutting conductors. Use hot hoists or slack blocks for jacking and releasing conductor. Use approved and appropriate grips to accommodate wire size. Tool inspection is required before each use.
Use of proper Personal protective equipment.	Electrocution. Electric flash.	Always use approved secondary hot gloves when handling secondary conductors, approved FR clothing and approved eye protection. Use approved body harness with attached lanyard whenever working out of a bucket truck. Use appropriate and approved

		climbing gear whenever working off of a pole.
Bucket truck set up	Truck access. Boom swing radius. Natural vegetation obstruction (trees\shrubbery). Uneven ground.	Bucket truck will need to be able to reach all existing components on pole. Ensure bucket truck out-riggers are placed on solid surfaces.
Required Training: Traffic Control, Arc Flash Training, Personal Protective Equipment, Fall Protection Awareness, Industrial Ergonomics, Slips/Trips/Falls, Driving Safety Awareness, Electrical Safety Awareness, Electrical High and Low Voltage, Situational Awareness, SAFE101, Electric Operations Safety, and Driving Safety.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Ground De-energized enclosure

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Opening enclosure.	Unstable/uneven ground. Slips, trips and falls. Doors or covers falling into enclosures causing damage to primary\secondary cables.	Ensure footing before beginning work near an open enclosure. Ensure stable ground surface before beginning work near an enclosure. Keep a clean work area around the enclosure. Always use the buddy system when removing enclosure covers. If enclosure is newer and has doors, always ensure the doors are latched with the attached safety pins before beginning work.
Identify cables. Cross reference phase markings, tags and circuit maps.	Missing tags. Mismarked phasing. Cross phasing.	First critical step, always verify correct phasing and cable placement before grounding. Correlate and document cable positions before applying grounds
Testing cables	Electrocution. Electric flash. Circuit interruption.	Second critical step, always test cable de-energized.
Grounding cables	Electrocution. Electric flash. Circuit interruption.	Third most critical step is to ground cables to be worked. DO NOT apply grounds until permission is given from the inspector and DO. DO NOT apply grounds with hot gloves, only with approved hot sticks.

	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Ground De-energized enclosure

Required Training: Traffic Control, Arc Flash Training, Fall Protection Awareness, Industrial Ergonomics, Slips/Trips/ Falls, Confined Spaces in Construction, Gold Shovel Program, Driving Safety Awareness, Electrical Safety Awareness, Electrical High and Low Voltage, Situational Awareness, SAFE101, Safe Excavation Dig-In, Lead Safety in Construction, Electric Operations Safety, Excavation/Trenching/ Shoring and Driving Safety.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Ground energized enclosure

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Opening enclosure.	Unstable\uneven ground. Slips, trips and falls. Doors or covers falling into enclosures causing damage to primary\secondary cables.	Ensure footing before beginning work near an open enclosure. Ensure stable ground surface before beginning work near an enclosure. Keep a clean work area around the enclosure. Always use the buddy system when removing enclosure covers. If enclosure is newer and has doors, always ensure the doors are latched with the attached safety pins before beginning work.
Acquire permission	Electrocution. Electric flash. Circuit interruption.	Do NOT ground until permission is granted by the inspector and the DO.
Identify cables. Cross reference phase markings, tags and circuit maps.	Missing tags. Mismarked phasing. Cross phasing.	First critical step, always verify correct phasing and cable placement before grounding. Correlate and document cable positions before applying grounds
Testing cables	Electrocution. Electric flash. Circuit interruption.	Second critical step. Test all cables to confirm the cables you want to ground are de-energized. Always do a test check on an energized cable to verify your tester is functioning properly. You can alternately do a battery check on your tester to verify the tester

		is functioning.
Grounding	Electrocution. Electric flash. Circuit interruption.	Third most critical step is to ground cables to be worked. DO NOT apply grounds until permission is given from the inspector and DO. DO NOT apply grounds with hot gloves, only with approved hot sticks.
Tools	Electrocution. Electric flash. Circuit interruption.	NEVER use hot gloves for any grounding applications. Always use approved hot sticks for testing and applying grounds. Always inspect hot sticks before each use.
Protective cover	Electrocution. Electric flash. Circuit interruption.	Whenever grounding in close proximity of energized cables or equipment, use protective barriers such as rubber blankets or hoods.
Required Training: Traffic Control, Arc Flash Training, Fall Protection Awareness, Industrial Ergonomics, Slips/Trips/ Falls, Confined Spaces in Construction, Gold Shovel Program, Driving Safety Awareness, Electrical Safety Awareness, Electrical High and Low Voltage, Situational Awareness, SAFE101, Safe Excavation Dig-In, Lead Safety in Construction, Electric Operations Safety, Excavation/Trenching/ Shoring, Driving Safety, Personal Protective Equipment, Situational Awareness, Hand and/or Power Tools Awareness, and Vault Discharge.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Install 2 pot overhead TX bank

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Truck set up (bucket, Digger and material trailer).	Truck access and boom swing radius. Natural vegetation (trees\shrubbery). Uneven ground.	Bucket truck will need to be able to reach all existing components on pole. Digger truck will need to be in a position to assist in picking and setting the transformers on the pole.
Protective cover. Rubber gloves and sleeves. Rubber blankets and line hose. Personal protective equipment.	Electrical contact. Phase to phase contact. Phase to ground contact.	Always install protective cover to prevent phase contact, phases to phase contact, phases to ground contact. Primary and secondary phases. Always wear your PPE.
Rigging	Loss of load	Always inspect and verify load limits on all lifting straps, shackles and attachment points. Use tags ropes for added control of suspended loads. If using a tag rope presents a hazard, do not utilize them.
Communication	Electrocution. Electric flash. Circuit interruption	Digger operator should maintain constant communication with Lineman in the bucket truck for picking and setting directions. The Lineman will observe and direct the task. A

		qualified observer on the ground needs to keep an eye on the task from the ground up.
Tools	Electrocution. Electric flash. Circuit interruption	Always use tested and approved hot sticks for any hot stick work. Inspect all tools before each use.
Lightning arresters	Lightning arrester failure. Electrocution. Electric flash. Circuit interruption.	If lightning arresters are to be hooked up with transformers, always use hot stick (shot gun) when energizing the high side of cutout and arrester.
Clearance spec's	Electrocution. Electric flash. Circuit interruption	Always refer to PG&E Spec book for required clearances between transformers, primary and secondary conductors.
Required Training: Traffic Control, Arc Flash Training, Industrial Ergonomics, Confined Spaces in Construction, Gold Shovel Program, Driving Safety Awareness, Electrical Safety Awareness, Electrical High and Low Voltage, Situational Awareness, SAFE101, Lead Safety in Construction, Electric Operations Safety, Excavation/Trenching/Shoring, Driving Safety, Personal Protective Equipment, Situational Awareness, Hand and/or Power Tools Awareness, and Rigging Safety.		

	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Install 3 pot overhead TX bank

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Truck set up (bucket, Digger and material trailer).	Truck access and boom swing radius. Natural vegetation (trees\shrubbery). Uneven ground.	Bucket truck will need to be able to reach all existing components on pole. Digger truck will need to be in a position to assist in picking and setting the transformers on the pole.
Protective cover. Rubber gloves and sleeves. Rubber blankets and line hose. Personal protective equipment.	Electrical contact. Phase to phase contact. Phase to ground contact.	Always install protective cover to prevent phase contact, phases to phase contact, phases to ground contact. Primary and secondary phases. Always wear your PPE.
Rigging	Loss of load	Always inspect and verify load limits on all lifting straps, shackles, and attachment points. Use tags ropes for added control of suspended loads. If using a tag rope presents a hazard, do not utilize them.
Communication	Electrocution. Electric flash. Circuit interruption	Digger operator should maintain constant communication with Lineman in the bucket truck for picking and setting directions. The Lineman will observe and direct the task. A

		qualified observer on the ground needs to keep an eye on the task from the ground up.
Tools	Electrocution. Electric flash. Circuit interruption	Always use tested and approved hot sticks for any hot stick work. Inspect all tools before each use.
Lightning arresters	Lightning arrester failure. Electrocution. Electric flash. Circuit interruption.	If lightning arresters are to be hooked up with transformers, always use hot stick (shot gun) when energizing the high side of cutout and arrester.
Clearance spec's	Electrocution. Electric flash. Circuit interruption	Always refer to PG&E Spec book for required clearances between transformers, primary and secondary conductors.
Required Training: Traffic Control, Arc Flash Training, Industrial Ergonomics, Confined Spaces in Construction, Gold Shovel Program, Driving Safety Awareness, Electrical Safety Awareness, Electrical High and Low Voltage, Situational Awareness, SAFE101, Lead Safety in Construction, Electric Operations Safety, Excavation/Trenching/Shoring, Driving Safety, Personal Protective Equipment, Situational Awareness, Hand and/or Power Tools Awareness, Forklifts and Industrial Trucks, Rigging Safety, Cranes and Derricks in Constructions, Working Safe Power Lines, Emergency Action Plan, Fit for Duty, Lockout/Tagout and Mechanical Ops Near Energized.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Install 200A splices

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Opening enclosure or manhole	The presence of poisonous gases or lack of oxygen. Deteriorating enclosures or manholes. Enclosures or manholes filled with debris.	After opening enclosure or manhole, let it air out for 5 minutes before installing air monitor. If gases or lack of oxygen is detected through air monitor, install air blower until air monitor registers permissible levels. After equipment has been de-energized and grounded clean around work area to prevent slips, trips, and falls.
Identify cables (phases). Identify cable tags and cable destinations.	Cross phasing. De-energizing or energizing wrong cables. Electrocution, electric flash, circuit interruption.	If cables already exist, always identify cable phase markings, cable tags and destination tags. Always compare with circuit maps. If phase markings and tags are absent you need to go to the opposite ends of your cable to ring or phone out the cables. If using new cables, always splice cable with pre-determined phase markings. “A” phase to “A” phase, “B” phase to “B” phase and so forth. Do not begin terminating cables until phase positioning has been established.
Testing all cables	Electrocution. Electric flash. Circuit interruption.	The 2nd most critical step is testing cables. Test all cables de-energized.

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Install 200A splices

Grounding	Electrocution. Electric flash. Circuit interruption.	Third most critical step is to ground cables to be worked. DO NOT apply grounds until permission is given from the inspector and DO. DO NOT apply grounds with hot gloves, only with approved hot sticks.
Spiking cable	Electrocution. Electric flash. Circuit interruption.	If cable pre-exists, always use hot cutters when separating cables. If hot cutters can not be used, always spike cables before separating.
Required Training: Traffic Control, Emergency Action Plan, Electrical Safety Awareness, Electrical Low and High Voltage, Hazardous Energy Control, Safe Excavation and Dig-In, Personal Protective Equipment, Hydrogen Sulfide, Mechanical Ops Near Energized, Respiratory Protection, Silica Exposure Awareness, Situational Awareness, Slips/Trips/Fall, Fall Protection Awareness and Driving Safety.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Install 200A SW

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Opening enclosure.	Unstable\uneven ground. Slips, trips, and falls. Doors or covers falling into enclosures causing damage to primary\secondary cables. Deteriorating enclosures or manholes. Enclosures or manholes filled with debris.	Ensure footing before beginning work near an open enclosure. Ensure stable ground surface before beginning work near an enclosure. Keep a clean work area around enclosure. Always use the buddy system when removing enclosure covers. If the enclosure is newer and has doors, always ensure the doors are latched with the attached safety pins before beginning work. Clean work area to prevent slips, trips, and falls.
Air quality	Presence of poisonous gases or lack of oxygen.	After opening enclosure or manhole, let it air out for 5 minutes before installing air monitor. If gases or lack of oxygen is detected thru air monitor install air blower until air monitor registers permissible levels.
Identify cables (phases). Identify cable tags and cable destinations.	Cross phasing. De-energizing or energizing wrong cables. Electrocution, electric flash, circuit	If cables already exist, always identify cable phase markings, cable tags and destination tags. Always compare with circuit maps. If phase markings and tags are absent you need to go to the opposite ends of your cable to ring

	interruption.	or phone out the cables. If using new cable, do not begin terminating cables until phasing and cable positioning have been established.
Preexisting cables	Electrocution, electric flash, circuit interruption.	Identifying, testing, and grounding is required before handling existing cables. DO NOT ground until permission is given to the inspector and DO. NEVER apply grounds with hot gloves, only use approved hot sticks.
Required Training: Traffic Control, Arc Flash Training, Industrial Ergonomics, Driving Safety Awareness, Electrical Safety Awareness, Electrical High and Low Voltage, Situational Awareness, SAFE101, Lead Safety in Construction, Electric Operations Safety, Excavation/Trenching/Shoring, Driving Safety, Personal Protective Equipment, Situational Awareness, Emergency Action Plan, Fit for Duty, Lockout/Tagout, and Mechanical Ops Near Energized.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Install 600A slices

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Opening enclosure or manhole	The presence of poisonous gases or lack of oxygen. Deteriorating enclosures or manholes. Enclosures or manholes filled with debris.	After opening enclosure or manhole, let it air out for 5 minutes before installing air monitor. If gases or lack of oxygen is detected through air monitor, install air blower until air monitor registers permissible levels. After equipment has been de-energized and grounded clean around work area to prevent slips, trips, and falls.
Identify cables (phases). Identify cable tags and cable destinations.	Cross phasing. De-energizing or energizing wrong cables. Electrocution, electric flash, circuit interruption.	If cables already exist, always identify cable phase markings, cable tags and destination tags. Always compare with circuit maps. If phase markings and tags are absent you need to go to the opposite ends of your cable to ring or phone out the cables. If using new cables, always splice cable with pre-determined phase markings. “A” phase to “A” phase, “B” phase to “B” phase and so forth. Do not begin terminating cables until phase positioning has been established.
Testing all cables	Electrocution. Electric flash. Circuit interruption.	The 2nd most critical step is testing cables. Test all cables de-energized.

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Install 600A slices

Grounding	Electrocution. Electric flash. Circuit interruption.	The 2nd most critical step is testing cables. Test all cables de-energized.
Spiking cable	Electrocution. Electric flash. Circuit interruption.	If cable pre-exists, always use hot cutters when separating cables. If hot cutters cannot be used, always spike cables before separating.
Required Training: Traffic Control, Arc Flash Training, Industrial Ergonomics, Confined Spaces in Construction, Driving Safety Awareness, Electrical Safety Awareness, Electrical High and Low Voltage, Situational Awareness, SAFE101, Lead Safety in Construction, Electric Operations Safety, Driving Safety, Personal Protective Equipment, Situational Awareness, Emergency Action Plan, Fit for Duty, Lockout/Tagout, Mechanical Ops Near Energized, and Hazardous Energy Control.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Install 600A SW

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Opening enclosure.	Unstable\uneven ground. Slips, trips, and falls. Doors or covers falling into enclosures causing damage to primary\secondary cables. Deteriorating enclosures or manholes. Enclosures or manholes filled with debris.	Ensure footing before beginning work near an open enclosure. Ensure stable ground surface before beginning work near an enclosure. Keep a clean work area around enclosure. Always use the buddy system when removing enclosure covers. If the enclosure is newer and has doors, always ensure the doors are latched with the attached safety pins before beginning work. Clean work area to prevent slips, trips, and falls.
Air quality	Presence of poisonous gases or lack of oxygen.	After opening enclosure or manhole, let it air out for 5 minutes before installing air monitor. If gases or lack of oxygen is detected thru air monitor install air blower until air monitor registers permissible levels.
Identify cables (phases). Identify cable tags and cable destinations.	Cross phasing. De-energizing or energizing wrong cables. Electrocution, electric flash, circuit	If cables already exist, always identify cable phase markings, cable tags and destination tags. Always compare with circuit maps. If phase markings and tags are absent you need to go to the opposite ends of your cable to ring

	interruption.	or phone out the cables. If using new cable, do not begin terminating cables until phasing and cable positioning have been established.
Testing and Grounding existing cable	Electrocution. Electric flash. Circuit interruption	If cables preexist, always identify test and ground cables before handling. DO NOT apply grounds until permission is granted by the DO. NEVER apply grounds with hot gloves. Only use approved hot sticks.
Required Training: Traffic Control, Arc Flash Training, Industrial Ergonomics, Confined Spaces in Construction, Driving Safety Awareness, Electrical Safety Awareness, Electrical High and Low Voltage, Situational Awareness, SAFE101, Lead Safety in Construction, Electric Operations Safety, Driving Safety, Personal Protective Equipment, Situational Awareness, Emergency Action Plan, Fit for Duty, Lockout/Tagout, Mechanical Ops Near Energized, Hazardous Energy Control, Hydrogen Sulfide, and Silica Exposure Awareness.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Install Down Guy

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Truck set up (bucket, Digger and material trailer).	Truck access and boom swing radius. Natural vegetation (trees\shrubbery). Uneven ground. Overhead primary wires. Electrocution, electric flash, and circuit interruption.	Digger truck will need to be set in order to auger hole for down guy anchor. Bucket truck will need to be set in order to hang down guy on pole. Always be aware of overhead primary and secondary conductors. LOOK UP!
Install protective cover.	Electrocution, electric flash or circuit interruption.	Always install protective covers (rubber blankets, line hose) to prevent phase contact, phases to phase contact, phases to ground contact. Primary and secondary phases.
Tools	Electrocution, electric flash or circuit interruption.	Inspect tools before each use. Using the right tool for the task. Verify load and strain limits for hoists, grips and shackles.
Required Training: Traffic Control, Arc Flash Training, Industrial Ergonomics, Confined Spaces in Construction, Driving Safety Awareness, Electrical Safety Awareness, Electrical High and Low Voltage, Situational		

Awareness, SAFE101, Lead Safety in Construction, Electric Operations Safety, Driving Safety, Personal Protective Equipment, Situational Awareness, Emergency Action Plan, Fit for Duty, Lockout/Tagout, Mechanical Ops Near Energized, Hazardous Energy Control, Cranes and Derricks in Construction, Lockout/Tagout, 0320WBT Tools, Personal Protective Equipment, Hand and/or Power Tools Awareness.		

	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Install grounds on dead front PM TX

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Opening equipment	Rodents or other pests startling workers as they open equipment	Use caution while entering existing equipment, check for snakes or rodents. Don't be startled if they exist.
Identify cables. Cross reference phase markings, tags and circuit maps.	Missing tags. Mismarked phasing. Cross phasing.	First critical step, always verify correct phasing and cable placement before grounding. Correlate and document cable positions before applying grounds
Testing cables	Electrocution. Electric flash. Circuit interruption.	Second critical step. Test all cables to confirm the cables you want to ground are de-energized. Always do a test check on an energized cable to verify your tester is functioning properly. You can alternately do a battery check on your tester to verify the tester is functioning.
Grounding	Electrocution. Electric flash. Circuit interruption.	Third most critical step is to ground cables to be worked. Again, do not ground without permission from PG&E inspector and DO. Applying grounds is considered hot work. Always install grounds with approved hot sticks. Grounds should always be applied by two qualified people with a qualified observer. NEVER use hot gloves when

		installing grounds.
Protective cover	Electrocution. Electric flash. Circuit interruption.	Whenever grounding in close proximity of energized cables use protective barriers such as rubber blankets or hoods.
Tools	Electrocution. Electric flash. Circuit interruption.	NEVER use hot gloves for any grounding applications. Always use approved hot sticks for testing and applying grounds. Always inspect hot sticks before each use.
Required Training: Traffic Control, Arc Flash Training, Industrial Ergonomics, Confined Spaces in Construction, Driving Safety Awareness, Electrical Safety Awareness, Electrical High and Low Voltage, Situational Awareness, SAFE101, Lead Safety in Construction, Electric Operations Safety, Driving Safety, Personal Protective Equipment, Situational Awareness, Emergency Action Plan, Fit for Duty, Lockout/Tagout, Mechanical Ops Near Energized, Hazardous Energy Control, Cranes and Derricks in Construction, Forklifts and Industrial Trucks, Lockout/Tagout, 0320WBT Tools, Personal Protective Equipment, Hand and/or Power Tools Awareness, and Habitat Conservation.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Install grounds on Live front PM TX

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Opening equipment	Rodents or other pests startling workers as they open equipment	Use caution while entering existing equipment, check for snakes or rodents. Don't be startled if they exist.
Identify cables. Cross reference phase markings, tags and circuit maps.	Missing tags. Mismarked phasing. Cross phasing.	First critical step, always verify correct phasing and cable placement before grounding. Correlate and document cable positions before applying grounds
Testing cables	Electrocution. Electric flash. Circuit interruption.	Second critical step. Test all cables de-energized. Always do a test check on an energized cable to verify your tester is functioning properly. You can alternately do a battery check on your tester to verify the tester is functioning.
Grounding	Electrocution. Electric flash. Circuit interruption.	Third most critical step is to ground cables before handling. Again, do not ground cables without permission from PG&E inspector and DO.
Protective cover	Electrocution. Electric flash. Circuit interruption.	Whenever grounding in close proximity of energized cables use protective barriers such as rubber blankets and hoods.
Tools	Electrocution. Electric flash. Circuit	NEVER use hot gloves for any grounding applications. Always use approved hot sticks

	interruption.	for testing and applying grounds. Always inspect hot sticks before each use.
Required Training: Traffic Control, Arc Flash Training, Industrial Ergonomics, Confined Spaces in Construction, Driving Safety Awareness, Electrical Safety Awareness, Electrical High and Low Voltage, Situational Awareness, SAFE101, Lead Safety in Construction, Electric Operations Safety, Driving Safety, Personal Protective Equipment, Situational Awareness, Emergency Action Plan, Fit for Duty, Lockout/Tagout, Mechanical Ops Near Energized, Hazardous Energy Control, Cranes and Derricks in Construction, Lockout/Tagout, 0320WBT Tools, Personal Protective Equipment, Hand and/or Power Tools Awareness, and Habitat Conservation.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Install Interrupter or SW in manhole

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Opening manhole	Presence of poisonous gases or lack of oxygen. Deteriorating ceiling\walls in manholes. Manholes filled with debris.	After opening manhole, let it air out for 5 minutes before installing air monitor. If gases or lack of oxygen is detected thru air monitor install air blower until air monitor registers permissible levels. Always clean around work area to prevent slips, trips and falls.
Dewatering	Oil sheen. Rainbow sheen. Discoloration. Chemical order.	After filling out the vault discharge form, sample water and determine if any hazardous substances reside. If determined hazardous, call certified hazmat crew to clean out manhole. If sample appears clear of any oil sheen, attach filter sock and discharge filtered water to storm drain or onto natural terrain.
Access and egress	Falling. Slipping.	Always use ladder for entering and exiting manhole. Always use three points of contact. If manhole is without lighting, use flashlight or head lamp for visibility. Always use barricade around entrance of manhole.
Crane set up	Overhead conductor contact. Obstructions-	Adequate space for maneuvering boom of crane. Always use a spotter for picking,

	buildings, streetlights, trees, swing radius, other equipment.	lowering, and swinging suspended loads. Crane operator and spotter should always have eye to eye contact and utilizing hand and vocal signals.
Rigging	Loss of load	Always inspect and verify load limits on all lifting straps, shackles and attachment points. Use tags ropes for added control of suspended loads. Install anchor points inside manhole for rigging equipment into place.
Protective cover	Electrocution. Electric flash. Circuit interruption.	Whenever in close proximity of energized cables or energized equipment always use protective barriers such as flash blankets and or rubber blankets.
Hole watch	Falling materials. Employee awareness. Air monitor alarm.	Hole watch person shall continuously observe men working in manhole for any safety precautions, such as workers becoming faint, falling materials, surveillance of air blower and air monitor alarms. Relay messages to crew. Detour any curious pedestrians. Calling 911 in an emergency.
Required Training: Traffic Control, Industrial Ergonomics, Confined Spaces in Construction, Driving Safety Awareness, Situational Awareness, SAFE101, Lead Safety in Construction, Driving Safety, Personal Protective Equipment, Situational Awareness, Emergency Action Plan, Cranes and Derricks in Construction, Lockout/Tagout, Personal Protective Equipment, Spotter Training, Ladder Safety, Rigging Safety, Hazardous Comm & Hazard Waste, Slips/Trips/Falls and Fall Protection Awareness.		

	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Install new Live front TX

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Crane set up	Obstructions- buildings, streetlights, trees, swing radius, other equipment.	Adequate space for maneuvering boom of crane. Always use a spotter for picking, lowering, and swinging suspended loads. Crane operator and spotter should always have eye to eye contact and utilizing hand and vocal signals.
Rigging	Loss of load	Always inspect and verify load limits on all lifting straps, shackles and attachment points. Use tags ropes for added control of suspended loads.
House keeping	Slips, trips and falls.	Always keep work area clear of tools and materials.
Terminating	Cross phasing. Circuit interruption.	Always correlate phasing and phase placement before terminating. Verify name plate voltage matches voltage applied, for the desired voltage out-put.
Cable identification, testing and grounding	Electrocution. Electric flash. Circuit interruption.	Positive cable identification in relation to circuit maps. Cables being worked should always be grounded at opposing ends of your work location. Always test cables before applying grounds. NEVER ground without DO's permission.

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Install new Live front TX

		NEVER apply grounds with hot gloves, use approved hot sticks to install grounds.
Tools	Electrocution. Electric flash. Circuit interruption.	Always inspect grounds and hot sticks before each use.
Required Training: Traffic Control, Emergency Action Plan, Electrical Safety Awareness, Electrical Low and High Voltage, Hazardous Energy Control, Mechanical Ops Near Energized, Situational Awareness, Slips/Trips/Fall, Fall Protection Awareness, Driving Safety, Cranes & Derricks in Construction, and Rigging Safety.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Install new overhead conductor

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Clearances	Electrocution. Electric flash. Circuit interruption.	When stringing new conductors, appropriate clearance from surrounding energized wires and equipment shall be established and maintained.
Protective cover	Electrocution. Electric flash. Circuit interruption.	Whenever in close proximity of energized wire or equipment, always install rubber blankets and or line hose.
Integrity of poles and cross arms.	Broken cross arms. Hollowed pole tops.	Always inspect poles and cross arms before attaching conductors to existing structures.
Running (rolling) ground	Electrocution. Electric flash. Circuit interruption.	Always install a running (rolling) ground on each conductor being pulled at the tensioner.
Spotter	Wire snagging. Wire sagging.	Always use a spotter to follow the head of wire being pulled until it reaches the end of the pull.
Radio communication	Wire snagging. Wire sagging.	Three-way radio communications shall be used on each end of the wire pull, including the spotter.
Required Training: Traffic Control, Emergency Action Plan, Electrical Safety Awareness, Electrical Low and High Voltage, Personal Protective Equipment, Hazardous Energy Control,		

Mechanical Ops Near Energized, Situational Awareness, Slips/Trips/Fall, Fall Protection Awareness, Safe Excavation and Dig-In and Vault Discharge.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Install new SS interrupter

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Opening enclosure.	Unstable\uneven ground. Slips, trips and falls. Doors or covers falling into enclosures causing damage to primary\secondary cables. Deteriorating enclosures or manholes. Enclosures or manholes filled with debris.	Ensure footing before beginning work near an open enclosure. Ensure stable ground surface before beginning work near an enclosure. Keep a clean work area around enclosure. Always use the buddy system when removing enclosure covers. If enclosure is newer and has doors, always ensure the doors are latched with the attached safety pins before beginning work. Clean work area to prevent slips, trips and falls.
Air quality	Presence of poisonous gases or lack of oxygen.	After opening enclosure or manhole, let it air out for 5 minutes before installing air monitor. If gases or lack of oxygen is detected thru air monitor install air blower until air monitor registers permissible levels.
Identify cables (phases). Identify cable tags and cable destinations.	Cross phasing. De-energizing or energizing wrong cables. Electrocution, electric flash, circuit	If cables already exist, always identify cable phase markings, cable tags and destination tags. Always compare with circuit maps. If phase markings and tags are absent you need to go to the opposite ends of your cable to ring

		or phone out the cables. If using new cable, do not begin terminating cables until phasing and cable positioning have been established.
Ground existing cable	Electrocution. Electric flash. Circuit interruption	If cables preexist, always identify test and ground cables before handling. DO NOT apply grounds until permission is granted by the DO. DO NOT apply grounds with hot gloves. Only use approved hot sticks.
Required Training: Traffic Control, Emergency Action Plan, Electrical Safety Awareness, Electrical Low and High Voltage, Confined Space, Personal Protective Equipment, Hazardous Energy Control, Mechanical Ops Near Energized, Situational Awareness, Slips/Trips/Fall, Fall Protection Awareness, Safe Excavation and Dig-In and Vault Discharge.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Install new SS TX 50-300KVA

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Opening enclosure	Unstable\uneven ground. Slips, trips and falls. Doors or covers falling into enclosures causing damage to primary\secondary cables. Deteriorating enclosures or manholes. Enclosures or manholes filled with debris.	Ensure footing before beginning work near an open enclosure. Ensure stable ground surface before beginning work near an enclosure. Keep a clean work area around enclosure. Always use the buddy system when removing enclosure covers. If enclosure is newer and has doors, always ensure the doors are latched with the attached safety pins before beginning work. Clean work area to prevent slips, trips and falls.
Air quality	Presence of poisonous gases or lack of oxygen.	After opening enclosure or manhole, let it air out for 5 minutes before installing air monitor. If gases or lack of oxygen is detected thru air monitor install air blower until air monitor registers permissible levels.
Crane set up	Overhead conductor contact. Obstructions-buildings, streetlights, trees, swing radius, other equipment.	Adequate space for maneuvering boom of crane. Always use a spotter for picking, lowering, and swinging suspended loads. Crane operator and spotter should always have eye to eye contact and utilizing hand and

		vocal signals.
Rigging	Loss of load	Always inspect and verify load limits on all lifting straps, shackles and attachment points. Use tags ropes for added control of suspended loads. Install anchor points inside manhole for rigging equipment into place.
Identify cables (phases). Identify cable tags and cable destinations.	Cross phasing. De-energizing or energizing wrong cables. Electrocution, electric flash, circuit	If cables already exist, always identify cable phase markings, cable tags and destination tags. Always compare with circuit maps. If phase markings and tags are absent you need to go to the opposite ends of your cable to ring or phone out the cables. If using new cable, do not begin terminating cables until phasing and cable positioning have been established.
Ground existing cable	Electrocution. Electric flash. Circuit interruption	If cables preexist, always identify test and ground cables before handling. DO NOT apply grounds until permission is granted by the DO. NEVER install grounds with hot gloves. Only use approved hot sticks.
Required Training: Traffic Control, Emergency Action Plan, Electrical Safety Awareness, Personal Protective Equipment, Electrical Low and High Voltage, Hazardous Energy Control, Mechanical Ops Near Energized, Situational Awareness, Slips/Trips/Fall, Fall Protection Awareness, Safe Excavation and Dig-In, Vault Discharge, Rigging Safety, Cranes & Derricks in Construction.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Install new SS TX 300-750KVA

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Opening enclosure.	Unstable\uneven ground. Slips, trips and falls. Doors or covers falling into enclosures causing damage to primary\secondary cables. Deteriorating enclosures or manholes. Enclosures or manholes filled with debris.	Ensure footing before beginning work near an open enclosure. Ensure stable ground surface before beginning work near an enclosure. Keep a clean work area around enclosure. Always use the buddy system when removing enclosure covers. If enclosure is newer and has doors, always ensure the doors are latched with the attached safety pins before beginning work. Clean work area to prevent slips, trips and falls.
Air quality	Presence of poisonous gases or lack of oxygen.	After opening enclosure or manhole, let it air out for 5 minutes before installing air monitor. If gases or lack of oxygen is detected thru air monitor install air blower until air monitor registers permissible levels.
Crane set up	Overhead conductor contact. Obstructions-buildings, streetlights, trees, swing radius, other equipment.	Adequate space for maneuvering boom of crane. Always use a spotter for picking, lowering, and swinging suspended loads. Crane operator and spotter should always have eye to eye contact and utilizing hand and

		vocal signals.
Rigging	Loss of load	Always inspect and verify load limits on all lifting straps, shackles and attachment points. Use tags ropes for added control of suspended loads. Install anchor points inside manhole for rigging equipment into place.
Identify cables (phases). Identify cable tags and cable destinations.	Cross phasing. De-energizing or energizing wrong cables. Electrocution, electric flash, circuit	If cables already exist, always identify cable phase markings, cable tags and destination tags. Always compare with circuit maps. If phase markings and tags are absent you need to go to the opposite ends of your cable to ring or phone out the cables. If using new cable, do not begin terminating cables until phasing and cable positioning have been established.
Testing cables	Electrocution. Electric flash. Circuit interruption.	Second most critical step. Test all cables to confirm the cables you want to ground are de-energized. Always do a test check on an energized cable to verify your tester is functioning properly. You can alternately do a battery check on your tester to verify the tester is functioning.
Ground existing cable	Electrocution. Electric flash. Circuit interruption	If cables preexist, always identify test and ground cables before handling. DO NOT apply grounds until permission is granted by the DO. NEVER apply grounds with hot gloves. Only use approved hot sticks.
Required Training: Traffic Control, Emergency Action Plan, Electrical Safety Awareness, Electrical Low and High Voltage, Hazardous Energy Control, Mechanical Ops Near Energized, Situational Awareness, Slips/Trips/Fall, Fall Protection Awareness, Safe Excavation and Dig-In, Vault Discharge, Confined Spaces, Rigging Safety, Cranes & Derricks in Construction.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Install new SS TX 750+ KVA

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Opening enclosure.	Unstable\uneven ground. Slips, trips and falls. Doors or covers falling into enclosures causing damage to primary\secondary cables. Deteriorating enclosures or manholes. Enclosures or manholes filled with debris.	Ensure footing before beginning work near an open enclosure. Ensure stable ground surface before beginning work near an enclosure. Keep a clean work area around enclosure. Always use the buddy system when removing enclosure covers. If enclosure is newer and has doors, always insure the doors are latched with the attached safety pins before beginning work. Clean work area to prevent slips, trips and falls.
Air quality	Presence of poisonous gases or lack of oxygen.	After opening enclosure or manhole, let it air out for 5 minutes before installing air monitor. If gases or lack of oxygen is detected thru air monitor install air blower until air monitor registers permissible levels.
Crane (Digger) set up	Overhead conductor contact. Obstructions-buildings, streetlights, trees, swing radius, other equipment.	Adequate space for maneuvering boom of crane. Always use a spotter for picking, lowering, and swinging suspended loads. Crane operator and spotter should always have eye to eye contact and utilizing hand and

		vocal signals.
Rigging	Loss of load	Always inspect and verify load limits on all lifting straps, shackles and attachment points. Use tags ropes for added control of suspended loads. Install anchor points inside manhole for rigging equipment into place.
Identify cables (phases). Identify cable tags and cable destinations.	Cross phasing. De-energizing or energizing wrong cables. Electrocution, electric flash, circuit	If cables already exist, always identify cable phase markings, cable tags and destination tags. Always compare with circuit maps. If phase markings and tags are absent you need to go to the opposite ends of your cable to ring or phone out the cables. If using new cable, do not begin terminating cables until phasing and cable positioning have been established.
Testing cables	Electrocution. Electric flash. Circuit interruption.	Second most critical step. Test all cables to confirm the cables you want to ground are de-energized. Always do a test check on an energized cable to verify your tester is functioning properly. You can alternately do a battery check on your tester to verify the tester is functioning.
Ground existing cable	Electrocution. Electric flash. Circuit interruption	If cables preexist, always identify test and ground cables before handling. DO NOT apply grounds until permission is granted by the DO. NEVER install grounds with hot gloves, only use approved hot sticks.
Required Training: Traffic Control, Emergency Action Plan, Electrical Safety Awareness, Electrical Low and High Voltage, Personal Protective Equipment, Hazardous Energy Control, Mechanical Ops Near Energized, Situational Awareness, Slips/Trips/Fall, Fall Protection Awareness, Safe Excavation and Dig-In, Vault Discharge, Rigging Safety, Cranes & Derricks in Construction.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Install new underground Scada SW

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Opening enclosure.	Unstable\uneven ground. Slips, trips and falls. Doors or covers falling into enclosures causing damage to primary\secondary cables. Deteriorating enclosures or manholes. Enclosures or manholes filled with debris.	Ensure footing before beginning work near an open enclosure. Ensure stable ground surface before beginning work near an enclosure. Keep a clean work area around enclosure. Always use the buddy system when removing enclosure covers. If enclosure is newer and has doors, always ensure the doors are latched with the attached safety pins before beginning work. Clean work area to prevent slips, trips and falls.
Air quality	Presence of poisonous gases or lack of oxygen.	After opening an enclosure, let it air out for 5 minutes before installing air monitor. If gases or lack of oxygen is detected by air monitor install air blower until the air monitor registers permissible levels.
Identify cables (phases). Identify cable tags and cable destinations.	Cross phasing. De-energizing or energizing wrong cables. Electrocution, electric flash, circuit	If cables already exist, always identify cable phase markings, cable tags and destination tags. Always compare with circuit maps. If phase markings and tags are absent you need to go to the opposite ends of your cable to ring

		or phone out the cables. If using new cable, do not begin terminating cables until phasing and cable positioning have been established.
Testing cables	Electrocution. Electric flash. Circuit interruption.	Second most critical step. Test all cables to confirm the cables you want to ground are de-energized. Always do a test check on an energized cable to verify your tester is functioning properly. You can alternately do a battery check on your tester to verify the tester is functioning.
Ground existing cable	Electrocution. Electric flash. Circuit interruption	If cables preexist, always identify test and ground cables before handling. DO NOT apply grounds until permission is granted by the DO. DO NOT apply grounds using hot gloves. Always use approved hot sticks.
Required Training: Traffic Control, Emergency Action Plan, Electrical Safety Awareness, Personal Protective Equipment, Electrical Low and High Voltage, Hazardous Energy Control, Mechanical Ops Near Energized, Situational Awareness, Slips/Trips/Fall, Fall Protection Awareness, Safe Excavation and Dig-In and Vault Discharge.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Install overhead grounds

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Identify	Electrocution. Electric flash. Circuit interruption.	1st most critical step is identifying which wires you need to apply grounds. There may be more than one circuit per pole.
Test	Electrocution. Electric flash. Circuit interruption.	2nd most critical step is to test each wire you need to ground. Only use an approved tester. Always check your tester before and after each use to insure its true reading. Always use an approved hot stick with attached tester.
Grounding	Electrocution. Electric flash. Circuit interruption.	3rd most critical step is grounding. Grounding is considered hot work. Only approved grounding devices shall be used. Protective grounding equipment shall be capable of conducting the maximum fault current that could flow at the point of grounding for the time necessary to clear the fault. This equipment shall have an ampacity greater than or equal to that of NO.2 AWG copper. NEVER apply grounds with hot gloves. Only use approved hot sticks to apply grounds. NEVER apply grounds until permission is granted by the DO.
Protective cover.	Electrocution. Electric	Whenever in close proximity of energized

	flash. Circuit interruption.	wire or equipment, always install rubber blankets and or line hose.
Bracket grounding	Electrocution. Electric flash. Circuit interruption. Back feed.	A grounding method in which temporary protective grounding is installed on both sides of a work site.
Equipotential grounding	Electrocution. Electric flash. Circuit interruption. Back feed.	An identical state of electrical potential for two or more items.
Equipotential zone	Electrocution. Electric flash. Circuit interruption. Back feed.	Applying personal protective grounds, which provide a workspace where all material and hardware within the worker's reach, is energized at the same potential.
Personal protective grounds	Electrocution. Electric flash. Circuit interruption. Back feed.	A cluster bar installed on the pole below the work position, and a grounding pumper installed between the neutral and the cluster bar. The objective of personal protective grounds is to create an equipotential zone.
Required Training: Traffic Control, Emergency Action Plan, Electrical Safety Awareness, Electrical Low and High Voltage, Hazardous Energy Control Mechanical Ops Near Energized, Situational Awareness and Personal Protective Equipment.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Install overhead Scada SW

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Truck set up (bucket, Digger and material trailer).	Truck access and boom swing radius. Natural vegetation (trees\shrubbery). Uneven ground.	Bucket truck will need to be able to reach all existing components on pole. Digger truck will need to be in a position to assist in picking and setting the Scada switch on the pole.
Protective cover. Personal protective equipment.	Electrical contact. Phase to phase contact. Phase to ground contact.	Whenever in close proximity of energized wire or equipment, always install rubber blankets and or line hose.
Inspecting adjacent poles.	Deteriorating cross arms. Changing of wire tension during the cut in of the switch. Loose hard wear and equipment. Sagging\drooping wire. Dead end shoe or mid-span slice failure. Tie wire failure. Phase to phase, phase to ground potential.	Visually inspect the integrity of any adjacent poles, cross arms, wire sagging, equipment and clearances to avoid any phase to phase or phase to ground potentials. Verify any mid-span obstructions (trees, buildings or crossing circuits).
Rigging	Loss of load control	Always inspect and verify load limits on all lifting straps, shackles and attachment points.

		Use tags ropes for added control of suspended loads. If using a tag rope presents a hazard, do not utilize them.
Communication	Electrocution. Electric flash. Circuit interruption	Digger operator should maintain constant communication with Lineman in the bucket truck for picking and setting directions. The Lineman will observe and direct the task. A qualified observer on the ground needs to keep an eye on the task from the ground up.
Tools	Electrocution. Electric flash. Circuit interruption	Always use approved hot sticks, hot hoists, grips, link sticks and rigging straps for cutting in Scada switch. Inspect all tools before each use.
Clearance spec's	Electrocution. Electric flash. Circuit interruption	Always refer to PG&E Spec book for correct clearances between Scada Switch, primary and secondary conductors.
Required Training: Traffic Control, Emergency Action Plan, Electrical Safety Awareness, Electrical Low and High Voltage, Hazardous Energy Control, Mechanical Ops Near Energized, Situational Awareness, Slips/Trips/Fall, Fall Protection Awareness, Safe Excavation and Dig-In, Vault Discharge, Rigging Safety, Personal Protective Equipment, 0320WBT Tools, Hand and/or Power Tools Awareness and Lockout/Tagout.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Install overhead SW

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Truck set up (bucket, Digger and material trailer).	Truck access and boom swing radius. Natural vegetation (trees\shrubbery). Uneven ground.	Bucket truck will need to be able to reach all existing components on pole. Digger truck will need to be in a position to assist in picking and setting the switch on the pole.
Protective cover. Rubber gloves and sleeves. Rubber blankets and line hose. Personal protective equipment.	Electrical contact. Phase to phase contact. Phase to ground contact.	Always install protective cover to prevent phase contact, phases to phase contact, phases to ground contact. Primary and secondary phases. Always wear your PPE.
Inspecting adjacent poles.	Deteriorating cross arms. Changing of wire tension during the cut in of the switch. Lose hard wear and equipment. Sagging\drooping wire. Dead end shoe or mid-span slice failure. Tie wire failure. Phase to	Visually inspect the integrity of any adjacent poles, cross arms, wire sagging, equipment and clearances to avoid any phase to phase or phase to ground potentials. Verify any mid-span obstructions (trees, buildings or crossing circuits).

	phase, phase to ground potential.	
Rigging	Loss of load control	Always inspect and verify load limits on all lifting straps, shackles and attachment points. Use tags ropes for added control of suspended loads. If using a tag rope presents a hazard, do not utilize them.
Communication	Electrocution. Electric flash. Circuit interruption	Digger operator should maintain constant communication with Lineman in the bucket truck for picking and setting directions. The Lineman will observe and direct the task. A qualified observer on the ground needs to keep an eye on the task from the ground up.
Tools	Electrocution. Electric flash. Circuit interruption	Always use approved hot sticks, hot hoists, grips, link sticks and rigging straps for cutting in switch. Inspect all tools before each use.
Required Training: Traffic Control, Emergency Action Plan, Electrical Safety Awareness, Electrical Low and High Voltage, Hazardous Energy Control, Mechanical Ops Near Energized, Situational Awareness, Slips/Trips/Fall, Fall Protection Awareness, Safe Excavation and Dig-In, Vault Discharge, Rigging Safety, Personal Protective Equipment, 0320WBT Tools, Hand and/or Power Tools Awareness and Lockout/Tagout.		

	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Install overhead TX

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Truck set up (bucket, Digger and material trailer).	Truck access and boom swing radius. Natural vegetation (trees\shrubbery). Uneven ground.	Bucket truck will need to be able to reach all existing components on pole. Digger truck will need to be in a position to assist in picking and setting the transformer on the pole.
Protective cover. Rubber gloves and sleeves. Rubber blankets and line hose. Personal protective equipment.	Electrical contact. Phase to phase contact. Phase to ground contact.	Always install protective cover to prevent phase contact, phases to phase contact, phases to ground contact. Primary and secondary phases. Always wear your PPE.
Rigging	Loss of load	Always inspect and verify load limits on all lifting straps, shackles and attachment points. Use tags ropes for added control of suspended loads. If using a tag rope presents a hazard, do not utilize them.
Communication	Electrocution. Electric flash. Circuit interruption	Digger operator should maintain constant communication with Lineman in the bucket truck for picking and setting directions. The Lineman will observe and direct the task. A

		qualified observer on the ground needs to keep an eye on the task from the ground up.
Tools	Electrocution. Electric flash. Circuit interruption	Always use tested and approved hot sticks for any hot stick work. Inspect all tools before each use.
Lightning arresters	Lightning arrester failure. Electrocution. Electric flash. Circuit interruption.	If a lightning arrester is to be hooked up with transformer, always use hot stick (shot gun) when energizing the high side of cutout and arrester.
Clearance spec's	Electrocution. Electric flash. Circuit interruption	Always refer to PG&E Spec book for required clearances between transformer, primary and secondary conductors.
Required Training: Traffic Control, Emergency Action Plan, Electrical Safety Awareness, Electrical Low and High Voltage, Hazardous Energy Control - AF&AU, Mechanical Ops Near Energized, Situational Awareness, Slips/Trips/Fall, Fall Protection Awareness, Safe Excavation and Dig-In, Vault Discharge, Rigging Safety, Personal Protective Equipment, 0320WBT Tools, Hand and/or Power Tools Awareness and Driving Safety.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Install Pad Mounted TX 100-300KVA

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Crane set up	Obstructions- buildings, streetlights, trees, swing radius, other equipment.	Adequate space for maneuvering boom of crane. Always use a spotter for picking, swinging, lowering and setting suspended loads.
Rigging	Loss of load	Always inspect and verify load limits on all lifting straps, shackles and attachment points. Use tags ropes for added control of suspended loads. If using a tag rope presents a hazard, do not utilize them.
Communication	Crushing, pinch points. Equipment damage.	Digger operator should maintain constant communication with spotter for picking and setting directions. The spotter will observe and direct the task thru hand and vocal signals.
House keeping	Slips, trips and falls.	Always keep work area clear of tools and materials.
Identify cables (phases). Identify cable tags and cable destinations.	Cross phasing. De-energizing or energizing wrong cables. Electrocution, electric flash, circuit	If cables already exist, always identify cable phase markings, cable tags and destination tags. Always compare with circuit maps. If phase markings and tags are absent you need to go to the opposite ends of your cable to ring

		or phone out the cables. If using new cable, do not begin terminating cables until phasing and cable positioning have been established.
Testing and Grounding existing cable	Electrocution. Electric flash. Circuit interruption	If cables preexist, always identify test and ground cables before handling. DO NOT apply grounds until permission is granted by the DO. NEVER use hot gloves when installing grounds, only approved hot sticks.
Terminating	Cross phasing. Circuit interruption.	Always correlate phasing and phase placement with circuit maps before terminating.
Required Training: Traffic Control, Emergency Action Plan, Electrical Safety Awareness, Electrical Low and High Voltage, Hazardous Energy Control, Mechanical Ops Near Energized, Situational Awareness, Rigging Safety, Personal Protective Equipment, Cranes & Derricks in Construction.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Install Pad Mounted Interrupter

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Crane set up	Obstructions- buildings, streetlights, trees, swing radius, other equipment.	Adequate space for maneuvering boom of crane. Always use a spotter for picking, lowering, and swinging suspended loads. Crane operator and spotter should always have eye to eye contact and utilizing hand and vocal signals.
Rigging	Loss of load	Always inspect and verify load limits on all lifting straps, shackles and attachment points. Use tags ropes for added control of suspended loads.
House keeping	Slips, trips and falls.	Always keep work area clear of tools and materials.
Terminating	Cross phasing. Circuit interruption.	Always correlate phasing and phase placement with circuit maps before terminating.
Identify cables (phases). Identify cable tags and cable destinations.	Cross phasing. De-energizing or energizing wrong cables. Electrocution, electric flash, circuit	If cables already exist, always identify cable phase markings, cable tags and destination tags. Always compare with circuit maps. If phase markings and tags are absent you need to go to the opposite ends of your cable to ring or phone out the cables.

		If using new cable, do not begin terminating cables until phasing and cable positioning have been established.
Ground existing cable	Electrocution. Electric flash. Circuit interruption	If cables preexist, always identify test and ground cables before handling. DO NOT apply grounds until permission is granted by the DO. NEVER apply grounds with hot gloves, only using approved hot sticks.
Communication	Crushing, pinch points. Equipment damage.	Digger operator should maintain constant communication with spotter for picking and setting directions. The spotter will observe and direct the task thru hand and vocal signals.
Required Training: Traffic Control, Emergency Action Plan, Electrical Safety Awareness, Electrical Low and High Voltage, Hazardous Energy Control - AF&AU, Mechanical Ops Near Energized, Situational Awareness, Rigging Safety, Personal Protective Equipment, Forklifts & Industrial Trucks, Cranes & Derricks in Construction.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Install pad mounted SW

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Crane set up	Obstructions- buildings, streetlights, trees, swing radius, other equipment.	Adequate space for maneuvering boom of crane. Always use a spotter for picking, lowering, and swinging suspended loads. Crane operator and spotter should always have eye to eye contact and utilizing hand and vocal signals.
Rigging	Loss of load	Always inspect and verify load limits on all lifting straps, shackles and attachment points. Use tags ropes for added control of suspended loads. If using a tag rope presents a hazard, do not utilize them.
House keeping	Slips, trips and falls.	Always keep work area clear of tools and materials.
Terminating	Cross phasing. Circuit interruption.	Always correlate phasing and phase placement with circuit maps before terminating.
Identify cables (phases). Identify cable tags and cable destinations.	Cross phasing. De-energizing or energizing wrong cables. Electrocution, electric	If cables already exist, always identify cable phase markings, cable tags and destination tags. Always compare with circuit maps. If phase markings and tags are absent you need

	flash, circuit	to go to the opposite ends of your cable to ring or phone out the cables. If using new cable, do not begin terminating cables until phasing and cable positioning have been established.
Ground existing cable	Electrocution. Electric flash. Circuit interruption	If cables preexist, always identify test and ground cables before handling. DO NOT apply grounds until permission is granted by the DO. NEVER apply grounds with hot gloves, only use approved hot sticks.
Communication	Crushing, pinch points. Equipment damage.	Digger operator should maintain constant communication with spotter for picking and setting directions. The spotter will observe and direct the task thru hand and vocal signals.
Required Training: Traffic Control, Emergency Action Plan, Electrical Safety Awareness, Electrical Low and High Voltage, Hazardous Energy Control - AF&AU, Mechanical Ops Near Energized, Situational Awareness, Rigging Safety, Personal Protective Equipment, Forklifts & Industrial Trucks, Cranes & Derricks in Construction, and Fit for Duty.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Install Pad Mounted TX 0-100KVA

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Crane set up	Obstructions- buildings, streetlights, trees, swing radius, other equipment.	Adequate space for maneuvering boom of crane. Always use a spotter for picking, swinging, lowering and setting suspended loads.
Rigging	Loss of load	Always inspect and verify load limits on all lifting straps, shackles and attachment points. Use tags ropes for added control of suspended loads. If using a tag rope presents a hazard, do not utilize them.
Communication	Crushing, pinch points. Equipment damage.	Digger operator should maintain constant communication with spotter for picking and setting directions. The spotter will observe and direct the task thru hand and vocal signals.
House keeping	Slips, trips and falls.	Always keep work area clear of tools and materials.
Identify cables (phases). Identify cable tags and cable destinations.	Cross phasing. De-energizing or energizing wrong cables. Electrocution, electric flash, circuit	If cables already exist, always identify cable phase markings, cable tags and destination tags. Always compare with circuit maps. If phase markings and tags are absent you need to go to the opposite ends of your cable to ring

		or phone out the cables. If using new cable, do not begin terminating cables until phasing and cable positioning have been established.
Testing and Grounding existing cable	Electrocution. Electric flash. Circuit interruption	If cables preexist, always identify test and ground cables before handling. DO NOT apply grounds until permission is granted by the DO. NEVER apply grounds with hot gloves, only use approved hot sticks.
Terminating	Cross phasing. Circuit interruption.	Always correlate phasing and phase placement with circuit maps before terminating.
Required Training: Traffic Control, Emergency Action Plan, Electrical Safety Awareness, Electrical Low and High Voltage, Hazardous Energy Control - AF&AU, Mechanical Ops Near Energized, Situational Awareness, Rigging Safety, Personal Protective Equipment, Forklifts & Industrial Trucks, Cranes & Derricks in Construction and Fit for Duty.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Install Pad Mounted TX 300-750KVA

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Crane set up	Obstructions- buildings, streetlights, trees, swing radius, other equipment.	Adequate space for maneuvering boom of crane. Always use a spotter for picking, swinging, lowering and setting suspended loads.
Rigging	Loss of load	Always inspect and verify load limits on all lifting straps, shackles and attachment points. Use tags ropes for added control of suspended loads. If using a tag rope presents a hazard, do not utilize them.
Communication	Crushing, pinch points. Equipment damage.	Digger operator should maintain constant communication with spotter for picking and setting directions. The spotter will observe and direct the task thru hand and vocal signals.
House keeping	Slips, trips and falls.	Always keep work area clear of tools and materials.
Identify cables (phases). Identify cable tags and cable destinations.	Cross phasing. De-energizing or energizing wrong cables. Electrocution, electric flash, circuit	If cables already exist, always identify cable phase markings, cable tags and destination tags. Always compare with circuit maps. If phase markings and tags are absent you need to go to the opposite ends of your cable to ring

		or phone out the cables. If using new cable, do not begin terminating cables until phasing and cable positioning have been established.
Testing and Grounding existing cable	Electrocution. Electric flash. Circuit interruption	If cables preexist, always identify test and ground cables before handling. DO NOT apply grounds until permission is granted by the DO. NEVER apply grounds with hot gloves, only use approved hot sticks.
Terminating	Cross phasing. Circuit interruption.	Always correlate phasing and phase placement with circuit maps before terminating.
Required Training: Traffic Control, Emergency Action Plan, Electrical Safety Awareness, Electrical Low and High Voltage, Hazardous Energy Control - AF&AU, Mechanical Ops Near Energized, Situational Awareness, Rigging Safety, Personal Protective Equipment, Forklifts & Industrial Trucks, Cranes & Derricks in Construction and Fit for Duty.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Install Pad Mounted TX 750+ KVA

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Crane set up	Obstructions- buildings, streetlights, trees, swing radius, other equipment.	Adequate space for maneuvering boom of crane. Always use a spotter for picking, swinging, lowering and setting suspended loads.
Rigging	Loss of load	Always inspect and verify load limits on all lifting straps, shackles and attachment points. Use tags ropes for added control of suspended loads. If using a tag rope presents a hazard, do not utilize them.
Communication	Crushing, pinch points. Equipment damage.	Digger operator should maintain constant communication with spotter for picking and setting directions. The spotter will observe and direct the task thru hand and vocal signals.
House keeping	Slips, trips and falls.	Always keep work area clear of tools and materials.
Identify cables (phases). Identify cable tags and cable destinations.	Cross phasing. De-energizing or energizing wrong cables. Electrocution, electric flash, circuit	If cables already exist, always identify cable phase markings, cable tags and destination tags. Always compare with circuit maps. If phase markings and tags are absent you need to go to the opposite ends of your cable to ring

		or phone out the cables. If using new cable, do not begin terminating cables until phasing and cable positioning have been established.
Testing and Grounding existing cable	Electrocution. Electric flash. Circuit interruption	If cables preexist, always identify test and ground cables before handling. DO NOT apply grounds until permission is granted by the DO. NEVER apply grounds with hot gloves, only use approved hot sticks.
Terminating	Cross phasing. Circuit interruption.	Always correlate phasing and phase placement with circuit maps before terminating.
Required Training: Traffic Control, Emergency Action Plan, Electrical Safety Awareness, Electrical Low and High Voltage, Hazardous Energy Control - AF&AU, Mechanical Ops Near Energized, Situational Awareness, Rigging Safety, Personal Protective Equipment, Forklifts & Industrial Trucks, Cranes & Derricks in Construction and Fit for Duty.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Install primary line openers

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Apply protective cover. Rubber blankets, line hoes.	Conductor contact. Phase to phase contact. Phase to ground contact.	Always apply protective cover on opposing phases including the neutral phase. Always apply protective cover wherever your bucket truck may come in contact with any conductors, secondary and or primary.
Use of insulated cutting tools, hot hoists and appropriate grips.	Electrocution. Electric flash. Conductor control. Load and strain limits.	Use approved hot cutters for cutting conductors. Use hot hoists for jacking and releasing conductor. Use approved and appropriate grips to accommodate wire size. Tool inspection is required before each use.
Use of proper Personal protective equipment.	Electrocution. Electric flash.	Always use approved primary hot gloves when handling conductors, approved FR clothing and approved eye protection. Use approved body harness with attached lanyard whenever working out of a bucket truck.
Use correct dead-end shoes to accommodate wire size	Loss of wire control. Electrocution. Electric flash. Circuit interruption.	Ensure proper size dead end shoes when installing openers. Always use primary hot gloves when handling primary wire. Always use approved hot cutters when cutting in openers.
Required Training: Traffic Control, Emergency Action Plan, Electrical Safety Awareness, Electrical Low and High Voltage,		

	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Install primary line openers

Hazardous Energy Control - AF&AU, Mechanical Ops Near Energized, Situational Awareness, Rigging Safety, Personal Protective Equipment, Forklifts & Industrial Trucks, Cranes & Derricks in Construction and Fit for Duty.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Install secondary line openers

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Apply protective cover. Rubber blankets, line hoes.	Conductor contact. Phase to phase contact. Phase to ground contact.	Always apply protective cover on opposing phases including the neutral phase. Always apply protective cover wherever your bucket truck may come in contact with any conductors, secondary and or primary.
Use of insulated cutting tools, hot hoists and appropriate grips.	Electrocution. Electric flash. Conductor control. Load and strain limits.	Use approved hot cutters for cutting conductors. Use hot hoists for jacking and releasing conductor. Use approved and appropriate grips to accommodate wire size. Tool inspection is required before each use.
Use of proper Personal protective equipment.	Electrocution. Electric flash.	Always use approved primary hot gloves when handling conductors, approved FR clothing and approved eye protection. Use approved body harness with attached lanyard whenever working out of a bucket truck.
Use correct dead-end shoes to accommodate wire size	Loss of wire control. Electrocution. Electric flash. Circuit interruption.	Ensure proper size dead end shoes when installing openers. Always use secondary hot gloves when handling secondary wire. Always use approved hot cutters when cutting in openers.
Required Training: Traffic Control, Emergency Action Plan, Electrical Safety Awareness, Electrical		

Low and High Voltage, Hazardous Energy Control, Mechanical Ops Near Energized, Situational Awareness, Personal Protective Equipment, Fit for Duty, 0320WBT Tools, Hand and/or Power Tools Awareness, and Lockout/Tagout.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Install slack span

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Truck set up (bucket, Digger and material trailer).	Truck access and boom swing radius. Natural vegetation (trees\shrubbery). Uneven ground.	Bucket truck will need to be able to reach all existing components on pole. Ensure bucket truck out-riggers are placed on solid surfaces.
Protective cover. Rubber gloves and sleeves. Rubber blankets and line hose. Personal protective equipment.	Electrical contact. Phase to phase contact. Phase to ground contact. Dropping of phases, primary and secondary. Dislodged from bucket truck.	Always install protective cover to prevent phase contact, Primary and secondary. Always attach body harness to safety eyelets on bucket truck.
Tools	Wire control. Electrocution. Electric flash. Circuit interruption.	Always inspect hot hoists, link sticks and slings before each use.
Integrity of poles and cross arms.	Broken cross arms. Hollowed pole tops.	Always inspect poles and cross arms before attaching conductors to existing structures.
Required Training: Traffic Control, Emergency Action Plan, Electrical Safety Awareness, Electrical Low and High Voltage, Hazardous Energy Control, Mechanical Ops Near Energized, Situational Awareness, Personal Protective Equipment, Fit for Duty, 0320WBT Tools,		

Hand and/or Power Tools Awareness, and Lockout/Tagout.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Install span guy

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Protective cover. Rubber gloves and sleeves. Rubber blankets and line hose. Personal protective equipment.	Electrical contact. Phase to phase contact. Phase to ground contact.	Always install protective cover to prevent phase contact, Primary and secondary. Always wear your PPE.
Integrity of poles and cross arms.	Broken cross arms. Hollowed pole tops.	Always inspect poles and cross arms before attaching conductors to existing structures.
Pulling up span guy	Electrocution. Electric flash. Circuit interruption. Mid-span obstructions.	Always install protective blankets and line hose when pulling span guy through or close to any secondary or primary wires or equipment. To prevent snagging or catching any obstructions always use a qualified spotter (observer) while pulling span guy into position.
Tools	Wire control. Electrocution. Electric flash. Circuit interruption.	Always inspect hoists, slings and grips before each use.
Communication	Electrocution. Electric flash. Circuit	Always use three-way communication when pulling span guy into position.

	interruption	
Required Training: Traffic Control, Emergency Action Plan, Electrical Safety Awareness, Electrical Low and High Voltage, Hazardous Energy Control - AF&AU, Mechanical Ops Near Energized, Situational Awareness, Personal Protective Equipment, Fit for Duty, 0320WBT Tools, Hand and/or Power Tools Awareness, and Lockout/Tagout.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Install TX in manhole

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Opening manhole	Presence of poisonous gases or lack of oxygen. Deteriorating ceiling\walls in manholes. Manholes filled with debris.	After opening manhole, let it air out for 5 minutes before installing air monitor. If gases or lack of oxygen is detected through air monitor, install air blower until air monitor registers permissible levels. Always clean around work area to prevent slips, trips and falls.
Dewatering	Oil sheen. Rainbow sheen. Discoloration. Chemical order.	After filling out the vault discharge form, sample water and determine if any hazardous substances reside. If determined hazardous, call certified hazmat crew to clean out manhole. If sample appears clear of any oil sheen, attach filter sock and discharge filtered water to storm drain or onto natural terrain.
Access and egress	Falling. Slipping.	Always use ladder for entering and exiting manhole. Always use three points of contact. If manhole is without lighting, use flashlight or head lamp for visibility. Always set up a barricade at the entrance of the manhole.
Crane set up	Overhead conductor contact. Obstructions-	Adequate space for maneuvering boom of crane. Always use a spotter for picking,

	buildings, streetlights, trees, swing radius, other equipment.	lowering, and swinging suspended loads. Crane operator and spotter should always have eye to eye contact and utilizing hand and vocal signals.
Rigging	Loss of load	Always inspect and verify load limits on all lifting straps, shackles and attachment points. Use tags ropes for added control of suspended loads. Install anchor points inside manhole for rigging equipment into place.
Protective cover	Electrocution. Electric flash. Circuit interruption.	Whenever in close proximity of energized cables or energized equipment always use protective barriers such as flash blankets and or rubber blankets.
Hole watch	Falling materials. Employee awareness. Air monitor alarm.	Hole watch person shall continuously observe men working in manhole for any safety precautions, such as workers becoming faint, falling materials, surveillance of air blower and air monitor alarms. Relay messages to crew. Detour any curious pedestrians. Calling 911 in an emergency.
Required Training: Traffic Control, Emergency Action Plan, Electrical Safety Awareness, Electrical Low and High Voltage, Hazardous Energy Control - AF&AU, Mechanical Ops Near Energized, Situational Awareness, Personal Protective Equipment, Fit for Duty, 0320WBT Tools, Hand and/or Power Tools Awareness, Lockout/Tagout., Rigging Safety, Excavation/Trenching/Shoring, Fall Protection Awareness, Spotter Training, Slips/Trips/Falls, Safe Excavation and Dig-In, Ladder Safety, Confined Spaces in Construction.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Install underground grounds

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Opening enclosure.	Unstable\uneven ground. Slips, trips and falls. Doors or covers falling into enclosures causing damage to primary\secondary cables. Deteriorating enclosures or manholes. Enclosures or manholes filled with debris.	Ensure footing before beginning work near an open enclosure. Ensure stable ground surface before beginning work near an enclosure. Keep a clean work area around enclosure. Always use the buddy system when removing enclosure covers. If enclosure is newer and has doors, always insure the doors are latched with the attached safety pins before beginning work. Clean work area to prevent slips, trips and falls.
Air quality	Presence of poisonous gases or lack of oxygen.	After opening an enclosure, let it air out for 5 minutes before installing air monitor. If gases or lack of oxygen is detected by air monitor install air blower until the air monitor registers permissible levels.
Dewatering	Oil sheen. Rainbow sheen. Discoloration. Chemical order.	After filling out the vault discharge form, sample water and determine if any hazardous substances reside. If determined hazardous, call certified hazmat crew to clean out manhole. If sample appears clear of any oil

		sheen, attach filter sock and discharge filtered water to storm drain or onto natural terrain.
Access and egress	Falling. Slipping.	Always use ladder for entering and exiting manhole. Always use three points of contact. If manhole is without lighting, use flashlight or head lamp for visibility. Always set up a barricade at the entrance of the manhole.
Identify cables (phases). Identify cable tags and cable destinations.	Cross phasing. De-energizing or energizing wrong cables. Electrocution, electric flash, circuit	First most critical step, always identify cable phase markings, cable tags and destination tags. Always compare with circuit maps.
Testing cables	Electrocution. Electric flash. Circuit interruption.	Second most critical step. Test all cables to confirm the cables you want to ground are de-energized. Always do a test check on an energized cable to verify your tester is functioning properly. You can alternately do a battery check on your tester to verify the tester is functioning.
Grounding	Electrocution. Electric flash. Circuit interruption.	Third most critical step is to ground cables to be worked. Again, do not ground without permission from PG&E inspector. Applying grounds is considered hot work. Always install grounds with approved hot sticks. Grounds should only be applied by two qualified people with a qualified observer. NEVER use hot gloves when installing grounds.
Required Training: Traffic Control, Emergency Action Plan, Electrical Safety Awareness, Electrical Low and High Voltage, Hazardous Energy Control Mechanical Ops Near Energized, Situational Awareness, Personal Protective Equipment, Fit for Duty, 0320WBT Tools, Hand and/or Power Tools Awareness, Lockout/Tagout., Rigging Safety, Excavation/Trenching/Shoring, Fall Protection Awareness, Spotter Training, Slips/Trips/Falls, Safe		

	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Install underground grounds

Excavation and Dig-In, Ladder Safety., Silica Awareness, Respiratory Protection, Hydrogen Sulfide.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Install Pad Mounted TX 100-300KVA

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Crane set up	Obstructions- buildings, streetlights, trees, swing radius, other equipment.	Adequate space for maneuvering boom of crane. Always use a spotter for picking, swinging, lowering and setting suspended loads.
Rigging	Loss of load	Always inspect and verify load limits on all lifting straps, shackles and attachment points. Use tags ropes for added control of suspended loads. If using a tag rope presents a hazard, do not utilize them.
Communication	Crushing, pinch points. Equipment damage.	Digger operator should maintain constant communication with spotter for picking and setting directions. The spotter will observe and direct the task thru hand and vocal signals.
House keeping	Slips, trips and falls.	Always keep work area clear of tools and materials.
Identify cables (phases). Identify cable tags and cable destinations.	Cross phasing. De-energizing or energizing wrong cables. Electrocution, electric flash, circuit	If cables already exist, always identify cable phase markings, cable tags and destination tags. Always compare with circuit maps. If phase markings and tags are absent you need to go to the opposite ends of your cable to ring

		or phone out the cables. If using new cable, do not begin terminating cables until phasing and cable positioning have been established.
Testing and Grounding existing cable	Electrocution. Electric flash. Circuit interruption	If cables preexist, always identify test and ground cables before handling. DO NOT apply grounds until permission is granted by the DO. NEVER install grounds with hot gloves, only approved hot sticks.
Terminating	Cross phasing. Circuit interruption.	Always correlate phasing and phase placement with circuit maps before terminating.
Required Training: Traffic Control, Emergency Action Plan, Electrical Safety Awareness, Electrical Low and High Voltage, Hazardous Energy Control - AF&AU, Mechanical Ops Near Energized, Situational Awareness, Personal Protective Equipment, Fit for Duty, Cranes & Derricks in Construction, Excavation/Trenching/Shoring, Fall Protection Awareness, Spotter Training, Slips/Trips/Falls, Safe Excavation and Dig-In, Ladder Safety.		

	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Install underground Scada pack on existing SW

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Opening enclosure.	Unstable\uneven ground. Slips, trips and falls. Doors or covers falling into enclosures causing damage to primary\secondary cables. Deteriorating enclosures or manholes. Enclosures or manholes filled with debris.	Ensure footing before beginning work near an open enclosure. Ensure stable ground surface before beginning work near an enclosure. Keep a clean work area around enclosure. Always use the buddy system when removing enclosure covers. If enclosure is newer and has doors, always ensure the doors are latched with the attached safety pins before beginning work. Clean work area to prevent slips, trips and falls.
Air quality	Presence of poisonous gases or lack of oxygen.	After opening enclosure or manhole, let it air out for 5 minutes before installing air monitor. If gases or lack of oxygen is detected thru air monitor install air blower until air monitor registers permissible levels.
De-energize existing SW	Electrocution. Electric flash. Circuit interruption.	After isolating existing switch, always test switch de-energized before proceeding with work.
Cable identification, testing and	Electrocution. Electric flash. Circuit	After isolating existing switch, test and ground all cables to and from work area. DO

grounding	interruption.	NOT apply grounds until permission is granted by the DO. NEVER install grounds with hot gloves, only approved hot sticks.
Scada pack placement	Short circuiting. Pinched cables.	Ensure doors have adequate room for closing. Ensure pack placement allows proper primary cable racking. Ensure cables feeding packs do not obstruct switch handles.
Scada pack wiring	Electrocution. Electric flash. Circuit interruption.	If unsure or unfamiliar with wiring Scada packs, ask questions. No shortcuts. Always refer to PG&E spec book.
Required Training: Traffic Control, Emergency Action Plan, Electrical Safety Awareness, Electrical Low and High Voltage, Hazardous Energy Control - AF&AU, Mechanical Ops Near Energized, Situational Awareness, Personal Protective Equipment, Fit for Duty, 0320WBT Tools, Hand and/or Power Tools Awareness, Lockout/Tagout., Rigging Safety, Excavation/Trenching/Shoring, Fall Protection Awareness, Spotter Training, Slips/Trips/Falls, Safe Excavation and Dig-In, Ladder Safety., Silica Awareness, Respiratory Protection, Hydrogen Sulfide.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Operate 200A SSSw

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Opening enclosure.	Unstable\uneven ground. Slips, trips and falls. Doors or covers falling into enclosures causing damage to primary\secondary cables. Deteriorating enclosures or manholes. Enclosures or manholes filled with debris.	Ensure footing before beginning work near an open enclosure. Ensure stable ground surface before beginning work near an enclosure. Keep a clean work area around enclosure. Always use the buddy system when removing enclosure covers. If enclosure is newer and has doors, always ensure the doors are latched with the attached safety pins before beginning work. Clean work area to prevent slips, trips and falls.
Air quality	Presence of poisonous gases or lack of oxygen.	After opening enclosure or manhole, let it air out for 5 minutes before installing air monitor. If gases or lack of oxygen is detected thru air monitor install air blower until air monitor registers permissible levels.
Switching	Electrocution. Electric flash. Circuit interruption.	All switching in manholes, vaults or similar structures shall be done from outside the structure, if at all possible. Always compare switch number with circuit map before switching.

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Operate 200A SSSw

Hot stick. Switch sticks.	Electrocution. Electric flash. Circuit interruption.	All underground hot work will only be performed with hot sticks (switch stick, shot gun).
Required Training: Traffic Control, Emergency Action Plan, Electrical Safety Awareness, Electrical Low and High Voltage, Hazardous Energy Control - AF&AU, Mechanical Ops Near Energized, Situational Awareness, Personal Protective Equipment, Fit for Duty, 0320WBT Tools, Hand and/or Power Tools Awareness, Lockout/Tagout., Rigging Safety, Excavation/Trenching/Shoring, Fall Protection Awareness, Spotter Training, Slips/Trips/Falls, Safe Excavation and Dig-In, Ladder Safety., Silica Awareness, Respiratory Protection, Hydrogen Sulfide., Hand and/or Power Tools Awareness, 0320WBT Tools.		

	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Operating a 600A SSSW

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Opening enclosure.	Unstable\uneven ground. Slips, trips and falls. Doors or covers falling into enclosures causing damage to primary\secondary cables. Deteriorating enclosures or manholes. Enclosures or manholes filled with debris.	Ensure footing before beginning work near an open enclosure. Ensure stable ground surface before beginning work near an enclosure. Keep a clean work area around enclosure. Always use the buddy system when removing enclosure covers. If enclosure is newer and has doors, always ensure the doors are latched with the attached safety pins before beginning work. Clean work area to prevent slips, trips and falls.
Air quality	Presence of poisonous gases or lack of oxygen.	After opening enclosure or manhole, let it air out for 5 minutes before installing air monitor. If gases or lack of oxygen is detected thru air monitor install air blower until air monitor registers permissible levels.
Switching	Electrocution. Electric flash. Circuit interruption.	All switching in manholes, vaults or similar structures shall be done from outside the structure, if at all possible. Always compare switch number with circuit map before switching.

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Operating a 600A SSSW

Hot stick. Switch sticks.	Electrocution. Electric flash. Circuit interruption.	All underground hot work will only be performed with hot sticks (switch stick, shot gun).
Required Training: Traffic Control, Emergency Action Plan, Electrical Safety Awareness, Electrical Low and High Voltage, Hazardous Energy Control - AF&AU, Mechanical Ops Near Energized, Situational Awareness, Personal Protective Equipment, Fit for Duty, 0320WBT Tools, Hand and/or Power Tools Awareness, Lockout/Tagout., Rigging Safety, Excavation/Trenching/Shoring, Fall Protection Awareness, Spotter Training, Slips/Trips/Falls, Safe Excavation and Dig-In, Ladder Safety.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Replace existing 600A sw

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Opening enclosure.	Unstable\uneven ground. Slips, trips and falls. Doors or covers falling into enclosures causing damage to primary\secondary cables. Deteriorating enclosures or manholes. Enclosures or manholes filled with debris.	Ensure footing before beginning work near an open enclosure. Ensure stable ground surface before beginning work near an enclosure. Keep a clean work area around enclosure. Always use the buddy system when removing enclosure covers. If enclosure is newer and has doors, always insure the doors are latched with the attached safety pins before beginning work. Clean work area to prevent slips, trips and falls.
Air quality	Presence of poisonous gases or lack of oxygen.	After opening enclosure or manhole, let it air out for 5 minutes before installing air monitor. If gases or lack of oxygen is detected thru air monitor install air blower until air monitor registers permissible levels.
De-energize existing SW	Electrocution. Electric flash. Circuit interruption.	After isolating existing switch, always test switch de-energized before proceeding with work.
Crane set up	Obstructions- buildings, streetlights, trees, swing	Adequate space for maneuvering boom of crane. Always use a spotter for picking,

	radius, other equipment.	swinging, lowering and setting suspended loads.
Rigging	Loss of load	Always inspect and verify load limits on all lifting straps, shackles and attachment points. Use tags ropes for added control of suspended loads. If using a tag rope presents a hazard, do not utilize them.
Communication	Crushing, pinch points. Equipment damage.	Digger operator should maintain constant communication with spotter for picking and setting directions. The spotter will observe and direct the task thru hand and vocal signals.
House keeping	Slips, trips and falls.	Always keep work area clear of tools and materials.
Identify cables (phases). Identify cable tags and cable destinations.	Cross phasing. De-energizing or energizing wrong cables. Electrocution, electric flash, circuit	If cables already exist, always identify cable phase markings, cable tags and destination tags. Always compare with circuit maps. If phase markings and tags are absent you need to go to the opposite ends of your cable to ring or phone out the cables. If using new cable, do not begin terminating cables until phasing and cable positioning have been established.
Testing and Grounding existing cable	Electrocution. Electric flash. Circuit interruption	If cables preexist, always identify test and ground cables before handling. DO NOT apply grounds until permission is granted by the DO. Never install grounds with hot gloves, only use approved hot sticks.
Terminating	Cross phasing. Circuit interruption.	Always correlate phasing and phase placement with circuit maps before terminating.
Required Training: Traffic Control, Emergency Action Plan, Electrical Safety Awareness, Electrical Low and High Voltage, Hazardous Energy Control - AF&AU, Mechanical Ops Near Energized, Situational Awareness, Personal Protective Equipment, Fit for Duty, 0320WBT Tools, Hand and/or Power Tools Awareness, Lockout/Tagout.,		

	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Replace existing 600A sw

Rigging Safety, Excavation/Trenching/Shoring, Fall Protection Awareness, Spotter Training, Slips/Trips/Falls, Safe Excavation and Dig-In, Ladder Safety. Cranes & Derricks in Construction.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Pull cable in Live front TX

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
	Electrocution. Electrical flash. Circuit interruption.	IT'S DEEMED ABSOLUTELY UNSAFE TO PULL CABLE AT A LIVE FRONT TRANSFORMER.
		Minimum approach distances cannot be met or maintained for this task.
Required Trainings: Electrical High and Low Voltage, First Aid Basic Annual, Emergency Action Plan, Injury and Illness Prevention, Electric Operations Safey, Situational Awareness, Hazardous Energy Control-AF&AU.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Pull cable in new conduit.

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Equipment Positioning	Pinch points. Cable damage. Property damage.	During the tailboard discuss the best possible position for the wire reels and the pulling machine. When positioning equipment always use a spotter to prevent backing into buildings, fences, poles, cars or ditches. Always inspect the area for any underground utility boxes, before backing into position.
Rigging	Pinch points. Cable damage. Property damage.	Position equipment so the cable pull is as straight as possible. Create a smooth path by using duct rollers and lip rollers to prevent cable snagging or lodging. Use a suspended cable roller to fairlead the wire over any obstacles. Use an overabundance of cable pulling soap to reduce pulling friction inside the new conduit.
Radio communication	Personal injury. Cable damage.	Always use two-way radio communication at both ends of the wire during the pull in order stop the pull for any reason.
Cable tagging (phase taping).	Cross phasing	Before the wire pull begins, designate phases with colored tape marks. At the end of the pull ring or phone out cables to verify phasing on both ends of the cable.

	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Pull cable in new conduit.

Required Training: Traffic Control, Emergency Action Plan, Arc Flash Training, Electrical Safety Awareness, Electrical Low and High Voltage, Hazardous Energy Control - AF&AU, Mechanical Ops Near Energized, Situational Awareness, Personal Protective Equipment, Fit for Duty, Rigging Safety, Cranes & Derricks in Construction, Slips/Trips/Falls, Rigging Safety, Excavation/Trenching/Shoring, Hand and/or Power Tools Awareness.		

	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Pull cable into Dead front PM TX

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Opening equipment	Rodents or other pests startling workers as they open equipment	Use caution while entering existing equipment, check for snakes or rodents. Don't be startled if they exist.
Protective cover	Electrocution. Electric flash. Circuit interruption.	Whenever in close proximity of energized cables or energized equipment always use protective barriers such as flash blankets and or rubber blankets.
Equipment Positioning	Pinch points. Cable damage. Property damage.	During the tailboard discuss the best possible position for the wire reels and the pulling machine. When positioning equipment always use a spotter to prevent backing into buildings, fences, poles, cars or ditches. Always inspect the area for any underground utility boxes, before backing into position.
Rigging	Pinch points. Cable damage. Property damage.	Position equipment so the cable pull is as straight as possible. Create a smooth path by using duct rollers and lip rollers to prevent cable snagging or lodging. Use a suspended cable roller to fairlead the wire over any obstacles. Use an overabundance of cable pulling soap to reduce pulling friction inside the conduit.

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Pull cable into Dead front PM TX

Radio communication	Personal injury. Cable damage.	Always use two-way radio communication at both ends of the wire during the pull in order stop the pull for any reason.
Cable tagging (phase taping).	Cross phasing	Before the wire pull begins, designate phases with colored tape marks. At the end of the pull ring or phone out cables to verify phasing on both ends of the cable.
Required Training: Traffic Control, Emergency Action Plan, Arc Flash Training, Electrical Safety Awareness, Electrical Low and High Voltage, Hazardous Energy Control - AF&AU, Mechanical Ops Near Energized, Situational Awareness, Personal Protective Equipment, Fit for Duty, Rigging Safety.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Pull in underground secondary service

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Opening equipment	Rodents or other pests startling workers as they open equipment	Use caution while entering existing equipment, check for snakes or rodents. Don't be startled if they exist.
Protective cover	Electrocution. Electric flash. Circuit interruption.	Whenever in close proximity of energized cables or energized equipment always use protective barriers such as flash blankets and or rubber blankets.
Equipment Positioning	Pinch points. Cable damage. Property damage.	During the tailboard discuss the best possible position for the wire reels and the pulling machine. When positioning equipment always use a spotter to prevent backing into buildings, fences, poles, cars or ditches. Always inspect the area for any underground utility boxes, before backing into position.
Rigging	Pinch points. Cable damage. Property damage.	Position equipment so the cable pull is as straight as possible. Create a smooth path by using duct rollers and lip rollers to prevent cable snagging or lodging. Use a suspended cable roller to fairlead the wire over any obstacles. Use an overabundance of cable pulling soap to reduce pulling friction inside the conduit.

	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Pull in underground secondary service

Radio communication	Personal injury. Cable damage.	Always use two-way radio communication at both ends of the wire during the pull in order stop the pull for any reason.
Cable tagging (phase taping).	Cross phasing	Before the wire pull begins, designate phases with colored tape marks. At the end of the pull ring or phone out cables to verify phasing on both ends of the cable.
Energizing service	Electrocution. Electric flash. Circuit interruption.	Always verify through communication everyone is in the clear before energizing service. After energizing service, check for desired voltage with approved tester.
Personal Protective equipment	Electrocution. Electric flash. Circuit interruption.	Always wear secondary gloves when handling secondary wires\cables.
Required Training: Traffic Control, Emergency Action Plan, Arc Flash Training, Electrical Safety Awareness, Electrical Low and High Voltage, Hazardous Energy Control, Mechanical Ops Near Energized, Situational Awareness, Personal Protective Equipment, Fit for Duty, and Rigging Safety.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Pull in overhead secondary services

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Protective cover. Personal protective equipment.	Electrical contact. Phase to phase contact. Phase to ground contact.	Always install protective cover to prevent Primary and secondary conductor contact. NEVER handle energized secondary without wearing secondary gloves. Always wear your PPE.
Integrity of poles and cross arms.	Broken cross arms. Hollowed pole tops.	Always inspect poles and cross arms before attaching secondary services to existing structures.
Pulling up secondary services.	Electrocution. Electric flash. Circuit interruption. Mid-span obstructions.	Always install protective blankets and line hose when pulling span guy through or close to any secondary or primary wires or equipment. To prevent snagging or catching any obstructions always use a qualified spotter (observer) while pulling span guy into position.
Communication	Electrocution. Electric flash. Circuit interruption	Always use three-way communication when pulling service into position. Always verify through communication everyone is in the clear before energizing service. After energizing service, check for desired voltage with approved tester.

Required Training: Traffic Control, Emergency Action Plan, Arc Flash Training, Electrical Safety		

	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Pull in overhead secondary services

Awareness, Electrical Low and High Voltage, Hazardous Energy Control - AF&AU, Mechanical Ops Near Energized, Situational Awareness, Personal Protective Equipment and Fit for Duty.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Pull new cable in CIC

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Opening equipment	Rodents or other pests startling workers as they open equipment	Use caution while entering existing equipment, check for snakes or rodents. Don't be startled if they exist.
Protective cover	Electrocution. Electric flash. Circuit interruption.	Whenever in close proximity of energized cables or energized equipment always use protective barriers such as flash blankets and or rubber blankets.
Equipment Positioning	Pinch points. Cable damage. Property damage.	During the tailboard discuss the best possible position for the wire reels and the pulling machine. When positioning equipment always use a spotter to prevent backing into buildings, fences, poles, cars or ditches. Always inspect the area for any underground utility boxes, before backing into position.
Rigging	Pinch points. Cable damage. Property damage.	Position equipment so the cable pull is as straight as possible. Create a smooth path by using duct rollers and lip rollers to prevent cable snagging or lodging. Use a suspended cable roller to fairlead the wire over any obstacles. Use an overabundance of cable pulling soap to reduce pulling friction inside the conduit.

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Pull new cable in CIC

Radio communication	Personal injury. Cable damage.	Always use two-way radio communication at both ends of the wire during the pull in order stop the pull for any reason.
Cable tagging (phase taping).	Cross phasing	Before the wire pull begins, designate phases with colored tape marks. At the end of the pull ring or phone out cables to verify phasing on both ends of the cable.
Required Training: Traffic Control, Emergency Action Plan, Arc Flash Training, Electrical Safety Awareness, Electrical Low and High Voltage, Hazardous Energy Control, Mechanical Ops Near Energized, Situational Awareness, Personal Protective Equipment, Fit for Duty, and Rigging Safety.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Pull new cable in existing conduit

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Equipment Positioning	Pinch points. Cable damage. Property damage.	During the tailboard discuss the best possible position for the wire reels and the pulling machine. When positioning equipment always use a spotter to prevent backing into buildings, fences, poles, cars or ditches. Always inspect the area for any underground utility boxes, before backing into position.
Rigging	Pinch points. Cable damage. Property damage.	Position equipment so the cable pull is as straight as possible. Create a smooth path by using duct rollers and lip rollers to prevent cable snagging or lodging. Use a suspended cable roller to fairlead the wire over any obstacles. Use an overabundance of cable pulling soap to reduce pulling friction inside the new conduit.
Radio communication	Personal injury. Cable damage.	Always use two-way radio communication at both ends of the wire during the pull in order stop the pull for any reason.
Proving integrity of conduit	Cable damage. Cable lodging.	Always pull a proper sized mandrel thru existing conduit to prove conduit hasn't been altered and has adequate space for conductors.
Cable tagging (phase	Cross phasing	Before the wire pull begins, designate phases

taping).		with colored tape marks. At the end of the pull ring or phone out cables to verify phasing on both ends of the cable.
Required Training: Traffic Control, Emergency Action Plan, Arc Flash Training, Electrical Safety Awareness, Electrical Low and High Voltage, Hazardous Energy Control, Mechanical Ops Near Energized, Situational Awareness, Personal Protective Equipment, Fit for Duty, Rigging Safety.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Overhead re-conductor

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Clearances	Electrocution. Electric flash. Circuit interruption.	When stringing new conductors, appropriate clearance from surrounding energized wires and equipment shall be established and maintained.
Protective cover	Electrocution. Electric flash. Circuit interruption.	Whenever in close proximity of energized wire or equipment, always install rubber blankets and or line hose.
Integrity of poles and cross arms.	Broken cross arms. Hollowed pole tops.	Always inspect poles and cross arms before attaching conductors to existing structures.
Spotter	Wire snagging. Wire sagging.	Always use a spotter to follow the head of wire being pulled, until it reaches the end of the pull.
Radio communication	Wire snagging. Wire sagging.	Three-way radio communications shall be used on each end of the wire pull, including the spotter.
Required Training: Traffic Control, Emergency Action Plan, Arc Flash Training, Electrical Safety Awareness, Electrical Low and High Voltage, Hazardous Energy Control - AF&AU, Mechanical Ops Near Energized, Situational Awareness, Personal		

Protective Equipment, Fit for Duty, Rigging Safety, Spotter Training.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Remove cable from CIC

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Opening equipment	Rodents or other pests startling workers as they open equipment	Use caution while entering existing equipment, check for snakes or rodents. Don't be startled if they exist.
Protective cover	Electrocution. Electric flash. Circuit interruption.	Whenever in close proximity of energized cables or energized equipment always use protective barriers such as flash blankets and or rubber blankets.
Equipment Positioning	Pinch points. Cable damage. Property damage.	During the tailboard discuss the best possible position for the pulling machine. When positioning equipment, always use a spotter to prevent backing into buildings, fences, poles, cars or ditches. Always inspect the area for any underground utility boxes, before backing into position.
Rigging	Pinch points. Property damage.	Position equipment so the cable pull is as straight as possible. Create a smooth path by installing duct rollers and lip rollers to prevent cable snagging or lodging.
Radio communication	Personal injury.	Always use two-way radio communication at both ends of the wire pull in order stop the pull for any reason.
Required Training: Traffic Control, Emergency Action Plan, Arc Flash Training, Electrical Safety		

	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Remove cable from CIC

Awareness, Electrical Low and High Voltage, Hazardous Energy Control - AF&AU, Mechanical Ops Near Energized, Situational Awareness, Personal Protective Equipment, Fit for Duty, Rigging Safety, Habitat Conservation.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Remove cable from conduit

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Opening equipment	Rodents or other pests startling workers as they open equipment	Use caution while entering existing equipment, check for snakes or rodents. Don't be startled if they exist.
Protective cover	Electrocution. Electric flash. Circuit interruption.	Whenever in close proximity of energized cables or energized equipment always use protective barriers such as flash blankets and or rubber blankets.
Equipment Positioning	Pinch points. Cable damage. Property damage.	During the tailboard discuss the best possible position for the pulling machine. When positioning equipment, always use a spotter to prevent backing into buildings, fences, poles, cars or ditches. Always inspect the area for any underground utility boxes, before backing into position.
Rigging	Pinch points. Property damage.	Position equipment so the cable pull is as straight as possible. Create a smooth path by installing duct rollers and lip rollers to prevent cable snagging or lodging.
Radio communication	Personal injury.	Always use two-way radio communication at both ends of the wire pull in order stop the pull for any reason.
Required Training: Traffic Control, Emergency Action Plan, Arc Flash		

Training, Electrical Safety Awareness, Electrical Low and High Voltage, Hazardous Energy Control - AF&AU, Mechanical Ops Near Energized, Situational Awareness, Personal Protective Equipment, Fit for Duty, Rigging Safety, Habitat Conservation, Injury & Illness Prevention.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Remove equipment from manhole

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Opening manhole	Presence of poisonous gases or lack of oxygen. Deteriorating ceiling\walls in manholes. Manholes filled with debris.	After opening manhole, let it air out for 5 minutes before installing air monitor. If gases or lack of oxygen is detected through air monitor, install air blower until air monitor registers permissible levels. Always clean around work area to prevent slips, trips and falls.
Dewatering	Oil sheen. Rainbow sheen. Discoloration. Chemical order.	After filling out the vault discharge form, sample water and determine if any hazardous substances reside. If determined hazardous, call certified hazmat crew to clean out manhole. If sample appears clear of any oil sheen, attach filter sock and discharge filtered water to storm drain or onto natural terrain.
Access and egress	Falling. Slipping.	Always use ladder for entering and exiting manhole. Always use three points of contact. If manhole is without lighting, use flashlight or head lamp for visibility. Always set up barricade around the entrance of the manhole.
Crane set up	Overhead conductor contact. Obstructions-	Adequate space for maneuvering boom of crane. Always use a spotter for picking,

	buildings, streetlights, trees, swing radius, other equipment.	lowering, and swinging suspended loads. Crane operator and spotter should always have eye to eye contact and utilizing hand and vocal signals.
Rigging	Loss of load	Always inspect and verify load limits on all lifting straps, shackles and attachment points. Use tags ropes for added control of suspended loads. Install anchor points inside manhole for rigging equipment into place.
Protective cover	Electrocution. Electric flash. Circuit interruption.	Whenever in close proximity of energized cables or energized equipment always use protective barriers such as flash blankets and or rubber blankets.
Hole watch	Falling materials. Employee awareness. Air monitor alarm.	Hole watch person shall continuously observe men working in manhole for any safety precautions, such as workers becoming faint, falling materials, surveillance of air blower and air monitor alarms. Relay messages to crew. Detour any curious pedestrians. Calling 911 in an emergency.
Required Training: Traffic Control, Emergency Action Plan, Arc Flash Training, Electrical Safety Awareness, Electrical Low and High Voltage, Hazardous Energy Control - AF&AU, Mechanical Ops Near Energized, Situational Awareness, Personal Protective Equipment, Fit for Duty, Rigging Safety, Cranes & Derricks in Construction, Slips/Trips/Falls, Respiratory Protection, Hydrogen Sulfide, Silica Exposure Awareness, Spotter Training.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Remove oil filled Transformer from manhole

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Opening manhole	Presence of poisonous gases or lack of oxygen. Deteriorating ceiling\walls in manholes. Manholes filled with debris.	After opening manhole, let it air out for 5 minutes before installing air monitor. If gases or lack of oxygen is detected through air monitor, install air blower until air monitor registers permissible levels. Always clean around work area to prevent slips, trips and falls.
Dewatering	Oil sheen. Rainbow sheen. Discoloration. Chemical order.	After filling out the vault discharge form, sample water and determine if any hazardous substances reside. If determined hazardous, call certified hazmat crew to clean out manhole. If sample appears clear of any oil sheen, attach filter sock and discharge filtered water to storm drain or onto natural terrain.
Access and egress	Falling. Slipping.	Always use ladder for entering and exiting manhole. Always use three points of contact. If manhole is without lighting, use flashlight or head lamp for visibility. Always set up a barricade around the entrance of the manhole.
Crane set up	Overhead conductor contact. Obstructions-	Adequate space for maneuvering boom of crane. Always use a spotter for picking,

	buildings, streetlights, trees, swing radius, other equipment.	lowering, and swinging suspended loads. Crane operator and spotter should always have eye to eye contact and utilizing hand and vocal signals.
Rigging	Loss of load	Always inspect and verify load limits on all lifting straps, shackles and attachment points. Use tags ropes for added control of suspended loads. Install anchor points inside manhole for rigging equipment into place.
Protective cover	Electrocution. Electric flash. Circuit interruption.	Whenever in close proximity of energized cables or energized equipment always use protective barriers such as flash blankets and or rubber blankets.
Hole watch	Falling materials. Employee awareness. Air monitor alarm.	Hole watch person shall continuously observe men working in manhole for any safety precautions, such as workers becoming faint, falling materials, surveillance of air blower and air monitor alarms. Relay messages to crew. Detour any curious pedestrians. Calling 911 in an emergency.
Required Training: Traffic Control, Emergency Action Plan, Arc Flash Training, Electrical Safety Awareness, Electrical Low and High Voltage, Hazardous Energy Control - AF&AU, Mechanical Ops Near Energized, Situational Awareness, Personal Protective Equipment, Fit for Duty, Rigging Safety, Cranes & Derricks in Construction, Slips/Trips/Falls, Respiratory Protection, Hydrogen Sulfide, Silica Exposure Awareness, Spotter Training.		

	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Remove overhead conductors

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Bucket truck set up	Truck access. Boom swing radius. Natural vegetation obstruction (trees\shrubbery). Uneven ground.	Bucket truck will need to be able to reach all existing components on pole. Ensure bucket truck out-riggers are placed on solid surfaces.
Protective cover	Electrocution. Electric flash. Circuit interruption.	Whenever in close proximity of energized wires or energized equipment always use protective barriers such as rubber blankets and line hoes.
Clearances	Electrocution. Electric flash. Circuit interruption.	When removing overhead conductors, appropriate clearance from surrounding energized wires and equipment shall be established and maintained.
Integrity of poles and cross arms.	Broken cross arms. Hollowed pole tops.	Always inspect poles and cross arms before attaching rigging to existing structures.
Tools	Wire control. Electrocution. Electric flash. Circuit interruption.	Always inspect hot sticks, hot hoists, link sticks and slings before each use.
Communication	Electrocution. Electric flash. Circuit interruption	Always use three-way communication when removing overhead conductors. Always verify thru communication, everyone

		and everything is in the clear before letting down conductors. Only let down one conductor at a time. There should always be a qualified observer when letting down conductors.
Required Training: Traffic Control, Emergency Action Plan, Arc Flash Training, Electrical Safety Awareness, Electrical Low and High Voltage, Hazardous Energy Control - AF&AU, Mechanical Ops Near Energized, Situational Awareness, Personal Protective Equipment, Fit for Duty, Forklifts and Industrial Trucks, Lockout/Tagout, 0320WBT Tools, Hand and/or Power Tools Awareness.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Remove utility pole

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Truck set up (bucket, Digger and material trailer).	Truck access and boom swing radius. Natural vegetation (trees\shrubbery). Uneven ground.	Bucket truck will need to be able to reach all existing components on pole. Digger truck will need to be in a position to assist in picking parts of the pole as it is cut down. All outriggers should place on stable ground.
Protective cover.	Electrocution. Electric flash. Circuit interruption.	Always install protective cover, rubber blankets, line hoes and pole guard to prevent phase contact, phases to phase contact, phases to ground contact. Primary and secondary phases. Always wear your PPE.
Rigging	Loss of load control	Always inspect and verify load limits on all lifting straps, chains and shackles. Use tags ropes for added control of suspended loads. If using a tag rope presents a hazard, do not utilize them.
Cutting pole	Loss of load. Electrocution. Electric flash. Circuit interruption.	Always place rigging strap on pole high enough to insure it will not be top heavy after cutting. After topping pole, insure there is enough room for the Digger truck to pull the

		pole butt without risk of digger boom coming in contact with secondary of primary phases.
Remaining pole hole	Slips, trips and falls	After pulling pole butt, tamp soil while back filling, leaving it at grade level.
Required Training: Traffic Control, Emergency Action Plan, Arc Flash Training, Electrical Safety Awareness, Electrical Low and High Voltage, Hazardous Energy Control - AF&AU, Mechanical Ops Near Energized, Situational Awareness, Personal Protective Equipment, Fit for Duty, Forklifts and Industrial Trucks, Rigging Safety, Slips/Trips/Falls.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Remove-install TX in sub-basement of buildings

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Protective cover	Electrocution. Electric flash. Circuit interruption.	Whenever in close proximity of energized cables or energized equipment always use protective barriers such as flash blankets and or rubber blankets.
Rigging	Loss of load	Always inspect and verify load limits on all lifting straps, shackles and attachment points. Use tags ropes for added control of suspended loads. Install anchor points inside basement for rigging and lifting equipment into place
Moving and lifting equipment.	Loss of load. Pinch points. Body strain.	Utilize straps, hoists or wenches for moving equipment inside basement. Always insure hoists, straps and wenches are rated for the weight of the equipment being moved.
Crane set up	Overhead conductor contact. Obstructions-buildings, streetlights, trees, swing radius, other equipment.	Adequate space for maneuvering boom of crane. Always use a spotter for picking, lowering, and swinging suspended loads. Crane operator and spotter should always have eye to eye contact and utilize hand and vocal signals. If crane operator cannot see his spotter, utilize radio communication for picking or setting equipment.

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Remove-install TX in sub-basement of buldings

Communication	Overhead conductor contact. Obstructions- buildings, streetlights, trees, swing radius, other equipment.	Crane operator and spotter should always have eye to eye contact and utilizing hand or vocal signals. If crane operator cannot see his spotter, utilize radio communication for picking and setting equipment.
Required Training: Traffic Control, Emergency Action Plan, Situational Awareness, Personal Protective Equipment, Fit for Duty, Forklifts and Industrial Trucks, Rigging Safety, Injury and Illness Prevention, Cranes & Derricks in Constructions, Spotter Training.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Replace existing 200A SW

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Opening enclosure.	Unstable\uneven ground. Slips, trips and falls. Doors or covers falling into enclosures causing damage to primary\secondary cables. Deteriorating enclosures or manholes. Enclosures or manholes filled with debris.	Ensure footing before beginning work near an open enclosure. Ensure stable ground surface before beginning work near an enclosure. Keep a clean work area around enclosure. Always use the buddy system when removing enclosure covers. If enclosure is newer and has doors, always ensure the doors are latched with the attached safety pins before beginning work. Clean work area to prevent slips, trips and falls.
Air quality	Presence of poisonous gases or lack of oxygen.	After opening enclosure or manhole, let it air out for 5 minutes before installing air monitor. If gases or lack of oxygen is detected thru air monitor install air blower until air monitor registers permissible levels.
De-energize existing SW	Electrocution. Electric flash. Circuit interruption.	After isolating existing switch, always test switch de-energized before proceeding with work.
Crane set up	Obstructions- overhead power lines, buildings,	Adequate space for maneuvering boom of crane. Always use a spotter for picking,

	streetlights, trees, swing radius, other equipment.	swinging, lowering and setting suspended loads.
Rigging	Loss of load	Always inspect and verify load limits on all lifting straps, shackles and attachment points. Use tags ropes for added control of suspended loads. If using a tag rope presents a hazard, do not utilize them.
Communication	Crushing, pinch points. Equipment damage.	Digger operator should maintain constant communication with spotter for picking and setting directions. The spotter will observe and direct the task thru hand and vocal signals.
House keeping	Slips, trips and falls.	Always keep work area clear of tools and materials.
Identify cables (phases). Identify cable tags and cable destinations.	Cross phasing. De-energizing or energizing wrong cables. Electrocution, electric flash, circuit	If cables already exist, always identify cable phase markings, cable tags and destination tags. Always compare with circuit maps. If phase markings and tags are absent you need to go to the opposite ends of your cable to ring or phone out the cables. If using new cable, do not begin terminating cables until phasing and cable positioning have been established.
Testing and Grounding existing cable	Electrocution. Electric flash. Circuit interruption	If cables preexist, always identify test and ground cables before handling. DO NOT apply grounds until permission is granted by the DO.
Terminating	Cross phasing. Circuit interruption.	Always correlate phasing and phase placement with circuit maps before terminating.
Required Training: Traffic Control, Emergency Action Plan, Arc Flash Training, Electrical Safety Awareness, Electrical Low and High Voltage, Hazardous Energy Control - AF&AU, Mechanical Ops Near Energized, Situational Awareness, Personal Protective Equipment, Fit for Duty, Rigging Safety, Cranes & Derricks in Construction,		

	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Replace existing 200A SW

Slips/Trips/Falls, Respiratory Protection, Hydrogen Sulfide, Silica Exposure Awareness, Spotter Training, Rigging Safety, Ladder Safety, Excavation/Trenching/Shoring, and Confined Spaces in Construction.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Replace existing equipment enclosure

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Opening enclosure.	Unstable\uneven ground. Slips, trips and falls. Doors or covers falling into enclosures causing damage to primary\secondary cables. Deteriorating enclosures or manholes. Enclosures or manholes filled with debris.	Ensure footing before beginning work near an open enclosure. Ensure stable ground surface before beginning work near an enclosure. Keep a clean work area around enclosure. Always use the buddy system when removing enclosure covers. If enclosure is newer and has doors, always ensure the doors are latched with the attached safety pins before beginning work. Clean work area to prevent slips, trips and falls.
Air quality	Presence of poisonous gases or lack of oxygen.	After opening enclosure or manhole, let it air out for 5 minutes before installing air monitor. If gases or lack of oxygen is detected thru air monitor install air blower until air monitor registers permissible levels.
De-energize enclosed equipment	Electrocution. Electric flash. Circuit interruption.	After isolating existing equipment, always test de-energized before proceeding with work.
Crane set up	Obstructions- buildings, streetlights, trees, swing	Adequate space for maneuvering boom of crane. Always use a spotter for picking,

	radius, other equipment.	swinging, lowering and setting suspended loads.
Digging out enclosure	Gas explosion. Electrocution. Electric flash. Circuit interruption.	Before digging out enclosure verify any Utility Service Alert (USA) markings. DO NOT dig until all utilities have been located and marked.
Removing and replacing enclosure.	Gas explosion. Electrocution. Electric flash. Circuit interruption.	During the removal, ensure all gas lines, water lines, phone\fiber lines and existing power cables are in the clear and won't be damaged.
Rigging	Loss of load	Always inspect and verify load limits on all lifting straps, shackles and attachment points. Use tags ropes for added control of suspended loads. If using a tag rope presents a hazard, do not utilize them.
Communication	Crushing, pinch points. Equipment damage.	Digger operator should maintain constant communication with spotter for picking and setting directions. The spotter will observe and direct the task thru hand and vocal signals.
House keeping	Slips, trips and falls.	Always keep work area clear of tools and materials.
Identify cables (phases). Identify cable tags and cable destinations.	Cross phasing. De-energizing or energizing wrong cables. Electrocution, electric flash, circuit	Always identify cable phase markings, cable tags and destination tags. Always compare with circuit maps. If phase markings and tags are absent you need to go to the opposite ends of your cable to ring or phone out the cables. If using new cable, do not begin terminating cables until phasing and cable positioning have been established.
Testing and Grounding existing cable	Electrocution. Electric flash. Circuit interruption	If cables preexist, always identify test and ground cables before handling. DO NOT apply grounds until permission is granted by the DO.
Terminating	Cross phasing. Circuit interruption.	Always correlate phasing and phase placement with circuit maps before terminating.
Required Training: Traffic Control, Emergency Action Plan, Arc Flash Training, Electrical Safety Awareness, Electrical Low and High Voltage, Hazardous Energy Control - AF&AU, Mechanical Ops Near Energized, Situational		

	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Replace existing equipment enclosure

Awareness, Personal Protective Equipment, Fit for Duty, Rigging Safety, Cranes & Derricks in Construction, Slips/Trips/Falls, Respiratory Protection, Hydrogen Sulfide, Silica Exposure Awareness, Spotter Training, Rigging Safety, Ladder Safety, Excavation/Trenching/Shoring, Confined Spaces in Construction.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Replace pole riser

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Bucket truck set up	Truck access. Boom swing radius. Natural vegetation obstruction (trees\shrubbery). Uneven ground.	Bucket truck will need to be able to reach all existing components on pole. Ensure bucket truck out-riggers are placed on solid surfaces.
Protective cover	Electrocution. Electric flash. Circuit interruption.	Whenever in close proximity of energized wires or energized equipment always use protective barriers such as rubber blankets and line hoes.
Clearances	Electrocution. Electric flash. Circuit interruption.	When removing overhead conductors, appropriate clearance from surrounding energized wires and equipment shall be established and maintained.
Integrity of poles, cross arms and equipment.	Broken cross arms. Hollowed pole tops. Loose or cracked equipment (cut-outs)	Always inspect poles cross arms and equipment before de-energizing and removing riser.
De-energize riser	Electrocution. Electric flash. Circuit interruption. Back feed.	After riser is de-energized and the other end of the cable is isolated, test and ground the riser before removal.
Ground help	Falling materials or tools	Always stay clear of the work being done overhead. Stay out of the hole.

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Replace pole riser

Lowering and raising riser materials	Falling materials or tools	When lowering or raising U-guard, riser pipe and cables, always use a hand line or tag rope.
Re-energizing replaced riser.	Electrocution. Electric flash. Circuit interruption. Back feed.	After installing new riser and permission is granted to remove grounds, insure all protective devices and men are in the clear before re-energizing.
Required Trainings: Traffic Control, Driving Safety, Electrical Safety Awareness, Electrical Low and High Voltage, Hazardous Energy Control - AF&AU, Mechanical Ops Near Energized, Situational Awareness, Personal Protective Equipment, Fit for Duty, Emergency Action Plan, Forklifts and Industrial Trucks.		

	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Replace SS interrupter

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Opening enclosure.	Unstable\uneven ground. Slips, trips and falls. Doors or covers falling into enclosures causing damage to primary\secondary cables. Deteriorating enclosures or manholes. Enclosures or manholes filled with debris.	Ensure footing before beginning work near an open enclosure. Ensure stable ground surface before beginning work near an enclosure. Keep a clean work area around enclosure. Always use the buddy system when removing enclosure covers. If enclosure is newer and has doors, always insure the doors are latched with the attached safety pins before beginning work. Clean work area to prevent slips, trips and falls.
Air quality	Presence of poisonous gases or lack of oxygen.	After opening enclosure or manhole, let it air out for 5 minutes before installing air monitor. If gases or lack of oxygen is detected thru air monitor install air blower until air monitor registers permissible levels.
De-energize existing Interrupter	Electrocution. Electric flash. Circuit interruption.	After isolating existing interrupter, always test de-energized before proceeding with work.
Testing and Grounding existing	Electrocution. Electric flash. Circuit	If cables preexist, always identify test and ground cables before handling. DO NOT

cable	interruption	apply grounds until permission is granted by the DO.
Crane set up	Obstructions- buildings, streetlights, trees, swing radius, other equipment.	Adequate space for maneuvering boom of crane. Always use a spotter for picking, swinging, lowering and setting suspended loads.
Rigging	Loss of load	Always inspect and verify load limits on all lifting straps, shackles and attachment points. Use tags ropes for added control of suspended loads. If using a tag rope presents a hazard, do not utilize them.
Communication	Crushing, pinch points. Equipment damage.	Digger operator should maintain constant communication with spotter for picking and setting directions. The spotter will observe and direct the task thru hand and vocal signals.
House keeping	Slips, trips and falls.	Always keep work area clear of tools and materials.
Identify cables (phases). Identify cable tags and cable destinations.	Cross phasing. De-energizing or energizing wrong cables. Electrocution, electric flash, circuit	If cables already exist, always identify cable phase markings, cable tags and destination tags. Always compare with circuit maps. If phase markings and tags are absent you need to go to the opposite ends of your cable to ring or phone out the cables. If using new cable, do not begin terminating cables until phasing and cable positioning have been established.
Terminating	Cross phasing. Circuit interruption.	Always correlate phasing and phase placement with circuit maps before terminating.
Required Training: Traffic Control, Emergency Action Plan, Arc Flash Training, Electrical Safety Awareness, Electrical Low and High Voltage, Hazardous Energy Control - AF&AU, Mechanical Ops Near Energized, Situational Awareness, Personal Protective Equipment, Fit for Duty, Rigging Safety, Cranes & Derricks in Construction, Slips/Trips/Falls, Respiratory Protection,		

	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Replace SS interrupter

Hydrogen Sulfide, Silica Exposure Awareness, Rigging Safety, Ladder Safety, Excavation/Trenching/Shoring, Confined Spaces in Construction, Lockout/Tagout, 0320WBT Tools, Hand and/or Power Tools Awareness.		

	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Set utility pole

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Truck set up, Bucket and Digger	Truck access. Boom swing radius. Natural vegetation obstruction (trees\shrubbery). Uneven ground.	Bucket truck will need to be able to reach all existing components on pole. Digger truck will need to be in position to auger pole hole, pick and set pole. Ensure Bucket and Digger trucks out-riggers are placed on solid surfaces.
Protective cover	Electrocution. Electric flash. Circuit interruption.	Whenever in close proximity of energized wires or energized equipment always use protective barriers such as rubber blankets, line hoes and pole guards.
Spreading phases	Electrocution. Electric flash. Circuit interruption.	If setting a pole in line with existing poles with energized wires, always spread wires creating a hole to raise new pole. Again, always apply protective cover.
Setting pole	Electrocution. Electric flash. Circuit interruption.	Ground wires, guy wires or metallic hardware running the length of the pole shall not be attached to the pole. All persons who handle the butt of the pole shall wear approved rubber gloves. No one small step on or off the truck, or touch any part of the truck or associated equipment from the ground, while the pole is being set,

		or until it is secured in such a manner that it could not be possible to come in contact with energized conductors or apparatus.
Back fill	Slips trips and falls	After pole is set, tamp soil while back filling, leaving it at grade level.
Required Training: Traffic Control, Emergency Action Plan, Arc Flash Training, Electrical Safety Awareness, Electrical Low and High Voltage, Hazardous Energy Control - AF&AU, Mechanical Ops Near Energized, Situational Awareness, Personal Protective Equipment, Fit for Duty, Forklifts and Industrial Trucks.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Top utility pole

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Truck set up (bucket, Digger and material trailer).	Truck access and boom swing radius. Natural vegetation (trees\shrubbery). Uneven ground.	Bucket truck will need to be able to reach all existing components on pole. Digger truck will need to be in a position to assist in picking parts of the pole as it is cut down. All outriggers should place on stable ground.
Protective cover.	Electrocution. Electric flash. Circuit interruption.	Always install protective cover, rubber blankets, line hoes and pole guard to prevent phase contact, phases to phase contact, phases to ground contact. Primary and secondary phases. Always wear your PPE.
Rigging	Loss of load control	Always inspect and verify load limits on all lifting straps, chains and shackles. Use tags ropes for added control of suspended loads. If using a tag rope presents a hazard, do not utilize them.
Cutting pole	Loss of load. Electrocution. Electric flash. Circuit interruption.	Always place rigging strap on pole high enough to insure it will not be top heavy after cutting. After topping pole, insure there is enough room for the Digger truck to pull the

		pole butt without risk of digger boom coming in contact with secondary of primary phases.
Required Training: Traffic Control, Emergency Action Plan, Arc Flash Training, Electrical Safety Awareness, Electrical Low and High Voltage, Hazardous Energy Control - AF&AU, Mechanical Ops Near Energized, Situational Awareness, Personal Protective Equipment, Fit for Duty, Forklifts and Industrial Trucks, Rigging Safety.		

	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Transfer services on utility pole

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Bucket truck set up	Truck access. Boom swing radius. Natural vegetation obstruction (trees\shrubbery). Uneven ground.	Bucket truck will need to be able to reach all existing components on pole. Ensure bucket truck out-riggers are placed on solid surfaces.
Protective cover	Electrocution. Electric flash. Circuit interruption.	Whenever in close proximity of energized wires or energized equipment always use protective barriers such as rubber blankets and line hoes.
Personal protective equipment	Electrocution. Electric flash. Circuit interruption.	Always use approved secondary gloves whenever handling secondary services.
Integrity of poles and cross arms.	Broken cross arms. Hollowed pole.	Always inspect poles and cross arms before attaching secondary services to existing structures.
Tools	Electrocution. Electric flash. Circuit interruption.	Always use approved tools for transferring services. Hot hoists, slings and grips. Always inspect tools before each use. Always carry a hand line with you for transferring tools and materials, also for safety reasons.
Communication	Electrocution. Electric	Always communicate with your pole buddy

	flash. Circuit interruption.	your actions for added awareness. Before energizing services, ensure all men and equipment are in the clear.
Required Training: Traffic Control, Emergency Action Plan, Arc Flash Training, Electrical Safety Awareness, Electrical Low and High Voltage, Hazardous Energy Control - AF&AU, Mechanical Ops Near Energized, Situational Awareness, Personal Protective Equipment, Fit for Duty, Forklifts and Industrial Trucks, Hand and/or Power Tools Awareness, Lockout/Tagout, 0320 WBT Tools.		

MGE UNDERGROUND	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Transition splicing

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Opening enclosure.	Unstable\uneven ground. Slips, trips and falls. Doors or covers falling into enclosures causing damage to primary\secondary cables. Deteriorating enclosures or manholes. Enclosures or manholes filled with debris.	Ensure footing before beginning work near an open enclosure. Ensure stable ground surface before beginning work near an enclosure. Keep a clean work area around enclosure. Always use the buddy system when removing enclosure covers. If enclosure is newer and has doors, always ensure the doors are latched with the attached safety pins before beginning work. Clean work area to prevent slips, trips and falls.
Air quality	Presence of poisonous gases or lack of oxygen.	After opening enclosure or manhole, let it air out for 5 minutes before installing air monitor. If gases or lack of oxygen is detected thru air monitor install air blower until air monitor registers permissible levels.
House keeping	Slips, trips and falls.	Always keep work area clear of tools and materials.
Identify cables (phases). Identify cable tags and cable	Cross phasing. De-energizing or energizing wrong cables.	If cables already exist, always identify cable phase markings, cable tags and destination tags. Always compare with circuit maps. If

destinations.	Electrocution, electric flash, circuit	phase markings and tags are absent you need to go to the opposite ends of your cable to ring or phone out the cables. If using new cable, do not begin splicing cables until phasing and cable positioning have been established.
Protective cover	Electrocution. Electric flash. Circuit interruption.	Whenever in close proximity of energized cables or energized equipment always use protective barriers such as flash blankets and or rubber blankets.
Testing and Grounding existing cable	Electrocution. Electric flash. Circuit interruption	If cables preexist, always identify test and ground cables before handling. DO NOT apply grounds until permission is granted by the DO.
Required Training: Traffic Control, Emergency Action Plan, Arc Flash Training, Electrical Safety Awareness, Electrical Low and High Voltage, Hazardous Energy Control - AF&AU, Mechanical Ops Near Energized, Situational Awareness, Personal Protective Equipment, Fit for Duty, Forklifts and Industrial Trucks, Hand and/or Power Tools Awareness, Hazardous Comm & Hazard Waste, Lockout/Tagout, and 0320 WBT Tools.		

	SUBJECT:	Job Hazard Analysis
	PROJECT:	
	ACTIVITY:	Working in an energized manhole

Task Step and Description	Potential Hazards	Hazard Mitigation Measures
Setting up and securing work location to make safe for pedestrian traffic	Pedestrians	All project activities shall take public safety into consideration and mitigate hazard exposure to pedestrians, as well as mitigate pedestrian related hazards to MGE personnel and its subcontractors. As such, all locations where work is taking place, a controlled access zone shall be established. Traffic control devices, cones, barricades, cone bars and employee monitoring shall be employed to assist in the mitigation of pedestrian related hazards.
Set up traffic control	Vehicle traffic	MGE shall use traffic control subcontractors to assist in the mitigation of traffic-related hazards. Employees shall also establish procedures for company vehicle and equipment placement in an effort to create a buffer from vehicles which may inadvertently and suddenly enter the work zone. All aspects of applicable traffic control plans shall be strictly adhered to during all phases of project execution.
Opening manhole	Presence of poisonous gases or lack of oxygen. Deteriorating ceiling\walls in manholes. Manholes filled with debris.	After opening manhole, let it air out for 5 minutes before installing air monitor. If gases or lack of oxygen is detected through air monitor, install air blower until air monitor registers permissible levels. Always clean around work area to prevent slips, trips and falls.
Dewatering	Oil sheen. Rainbow sheen. Discoloration. Chemical order.	After filling out the vault discharge form, sample water and determine if any hazardous substances reside. If determined hazardous, call certified hazmat crew to clean out manhole. If sample appears clear of any oil sheen, attach filter sock and discharge filtered water to storm drain or onto natural terrain.
Access and egress	Falling. Slipping.	Always use a barricade around manhole entrance. Always use ladder for entering and exiting manhole. Always use three points of contact. If manhole is without lighting, use flashlight or head lamp for visibility.
Dewatering	Oil sheen. Rainbow sheen. Discoloration. Chemical order.	After filling out the vault discharge form, sample water and determine if any hazardous substances reside. If determined hazardous,

		call certified hazmat crew to clean out manhole. If sample appears clear of any oil sheen, attach filter sock and discharge filtered water to storm drain or onto natural terrain.
Protective cover	Electrocution. Electric flash. Circuit interruption.	Whenever in close proximity of energized cables or energized equipment always use protective barriers such as flash blankets and or rubber blankets.
Hole watch	Falling materials. Employee awareness. Air monitor alarm. Pedestrians.	Hole watch person shall continuously observe men working in manhole for any safety precautions, such as workers becoming faint, falling materials, surveillance of air blower and air monitor alarms. Relay messages to crew. Detour any curious pedestrians. Calling 911 in an emergency.
Required Training: Traffic Control, Arc Flash Training, Fall Protection Awareness, Industrial Ergonomics, Slips/Trips/Falls, Confined Spaces in Construction, Electrical Safety Awareness, Electrical High and Low Voltage, Situational Awareness, SAFE101, Electric Operations Safety, Personal Protective Equipment, Situational Awareness, and Vault Discharge.		