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## FOREWORD

National Grid's vision is to be a world-class safety organization with zero injuries every day. This includes working to help ensure the safety of our employees, contractors and the community. National Grid is committed to delivering operational excellence, including excellent levels of safety internally and in cooperation with the external contractors we rely on.

The Executive Safety Committee provides review and input for Safety Policies and Procedures through the Safety Policies and Procedures Subcommittee.

The Safety department is the owner of this procedure and is responsible for maintaining and implementing this procedure, soliciting comments from stakeholders and revising as necessary.

This document, "Contractor Safety Requirements", represents the current contractor safety requirements that are unique to operations and various functional groups at National Grid. This document does not specifically reference actions that are required by OSHA, other laws, rules, or regulations. These are requirements that should be understood by the contractor and contractor compliance with all applicable federal, state and local laws, rules, and regulations is expected by National Grid as a contractual condition.

Questions regarding this procedure should be referred to the National Grid Safety Department.

This document will be updated as necessary to communicate all aspects of National Grid's contractor safety to bidders, current contractors and to reflect changes in National Grid's Safety Policies and Procedures.

Date of Review/Revision:

Revision	Date	Description
1	8/5/2004	Initial
2	3/2/2005	Additions
3	1/30/2007	Additions
4	8/1/2008	Additions
5	8/1/2010	Additions
6	2/1/2011	Audit recommendations included

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Date of Review/Revision Continued:		
Revision	Date	Description
7	9/11/2013	Additions included OH; technical changes; Compliance Monitoring; Ethics; Job Briefs
8	11/2/2015	Additions include Audit & IA recommendations; ISN alignment; technical changes, 1910. 269 updates
9	8/17/2016	Format update and technical changes
10	3/29/2017	Additions to sections 2.2.6 and 6.5
11	2/26/2018	Process Safety, PM&CC Electric and PM&CC Vegetation Additions
12	3/12/2019	Contaminated Site Work Additions
13	10/24/2019	Job brief, Hi-Vis clothing, ladder use, and air gap revisions
14	1/13/2020	Hi-Vis clothing and ladder use revisions; Fatigue Risk Addition in HASPs
15	3/10/2021	EH rated work boot and Dielectric (DI) footwear definitions and requirements; OSHA 1910.136(a) reference; requirement not to wear loose clothing; Hi-Vis vest or garment requirements
16	3/24/2021	One HASP form; HASP revisions; self-assessments; qualifications; and notice of subcontractors
17	6/14/2021	Loose garments/items for heavy equipment operators revision; addition of heavy equipment definition
18	5/4/2022	Removed requirements to upload contractor orientation/pre-construction meeting documents to ISN; Removed requirement to upload forestry training qualifications to ISN; Clarified that medium/high risk contractors acknowledge N1402 requirements by signing the N1402 acknowledgment form in ISN; Added additional examples to the medium/high risk exposure category; Revised the pre-construction meeting/contractor orientation requirement from “may” to “shall”; Changed Corporate Safety team references to Safety Policies & Programs
19	11/16/2022	Changed the lift capacity from 80% to 75% in the critical lift plan
20	3/25/2024	Clarified requirements in Section s 1-4 and 12
21	11/18/2024	Added guidance around incident investigations. Eliminated non-FR vest color requirement for NY only. Added requirements on when HASPs and Lift Plans need to be submitted. Added OH line requested language to Section 6.0. Updated and clarified risk matrix

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## 1.0 CONTRACTOR SAFETY AT NATIONAL GRID

### 1.1 Definitions

#### ***Adverse Public Impact***

Incident that disrupts service to the public or results in adverse public reaction.

#### ***Bulk Commodity Transportation***

Activities involved in the movement of bulk commodities via truck, rail, plane or water vessel onsite and offsite on behalf of National Grid that if released could have safety and / or environmental consequences. Examples include but are not limited to: gasoline, oil, boiler chemicals, LNG, Nitrogen.

#### ***Compliance Assessments (CAs)***

An act of observing and engaging in discussion with employees at a job site or work area locations. Compliance Assessments are documented using the Compliance Assessment checklist for each segment of operation and are not considered anonymous. Compliance Assessments are utilized to comply with internal policy and external regulatory requirements.

#### ***Contracted Services***

Contracted Services refers to any activity that is conducted by an organization or individual under the terms of a purchase order or through other financial arrangements (Procurement Card or credit card) between a National Grid representative and a contractor. Contracted services may include all types of construction and maintenance services, tree trimming, building maintenance and demolition, electrical structure dismantling, site restoration, engineering design, recycling and waste disposal, drilling, rigging, electrical, and utility pole/structure maintenance.

#### ***Contractor***

An independent entity (person or company) that undertakes a contract to provide materials or labor to perform a service or do a job and are responsible for the safety of his/her employees and subcontractors.

#### ***Contractor Orientation***

Contractor orientation is intended to serve as a resource in order to provide the contractor with the tools necessary to educate their employees and subcontractors. The session is not intended to train the contractor management, their employees or subcontractors. The extent and content of the orientation session shall be commensurate with the scope and type of the contractor's activities.

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### ***Dielectric (DI) Footwear***

This term describes either boots or overshoes that are labeled in accordance with ASTM F1117, marked clearly and permanently with the name of the manufacturer or supplier, the size and AC voltage rating. The footwear shall meet dielectric strength testing prescribed in ASTM F1116. Dielectric footwear shall have a minimum rating of 15kV.

### ***Effective Safety Discussion (ESD)***

A discussion with an individual or group about their safety programs, issues or concerns (safety plans, tools, equipment, procedures, etc.). They are safety discussions amongst employees that share similar work environments...office to office, field to field.

### ***EH Rated Work Boot***

ASTM F2413 EH rated work boots are the minimum foot protection standard. This boot protects against impact, compression, and low voltage exposure.

### ***Site-Specific Health & Safety Plan (HASP)***

A formal written plan that identifies site hazards and the controls and work practices required to minimize those hazards.

### ***Hazardous Conditions***

A condition that can and is rectified immediately by the person who identified the hazard.

### ***Heavy Equipment***

Maintenance and construction equipment such as, but not limited to, excavators, compact (mini) excavators, backhoe loaders, towable compact backhoes, front end loaders, skid-steer loaders, compact loaders, digger derricks, boom trucks, cranes and bulldozers.

### ***Incident***

An unplanned event that has a human component and results in or could potentially result in harm to people, damage to property and/or adverse public impact.

### ***Incident Management System (IMS)***

National Grid's online incident management tool that allows the company to report safety, environmental and asset-related incidents, perform incident analysis, generate safety reports and monitor the organization's safety performance.

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***ISNetworld, Inc. (ISN or ISN System)***

Third party contractor that is a global resource for connecting Hiring Clients with safe and reliable contractors and is a contractor information management system currently contracted with National Grid.

***Job Brief***

A planned interactive discussion that covers, but is not limited to, potential hazards associated with the job including situational awareness (assets or other items which may impact the job at hand), work procedures involved, special precautions, and personal protective equipment requirements. The discussion includes all contractor employees, sub-contractors and team members working on a job that occurs just prior to a job, task or project. All job briefs require a written job brief form to be completed.

***Major Hazard Asset (MHA)***

A class of assets at National Grid, including Compressed Natural Gas (CNG), Gas Transmission ( $\geq 125$  psig), Power Generation sites, Liquefied Natural Gas (LNG) plants, and LNG Trucking, in which any condition, or set of conditions, presents potential for a major accident to occur. Also referred to as process safety assets.

***Major Accident***

An event involving the release of potentially dangerous materials, the sudden and uncontrolled release of large amounts of energy (such as fires and explosions), or both. These can have catastrophic effects and can result in multiple injuries and fatalities, as well as substantial reputational, economic, property, and environmental damage.

***Operator Qualification (OQ)***

As defined in the Code of Federal Regulations, Transportation, 49 Subpart 192.801 through 192.809 and/or DOT pipeline qualified for gas contractors doing work at National Grid. Additional state requirements pursuant to the state the contractor is working may be required.

***Process Safety Management***

Method of focusing and mitigating concerns of major hazards impacting safety, environmental damage and business losses. It is an organized effort to identify and analyze the significance of hazardous situations associated with a process or activity to aid management in making critical safety decisions

***Project Representative***

National Grid Owner's Representative or designee who is assigned to certain contracted projects and communicates regularly with the contractor during the course of the contracted service. This person also ensures the work is being performed in accordance with the contract, including the safety requirements.

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#### ***Qualified Electrical Worker***

Those who are knowledgeable in the construction and operation of the electric power generation, transmission and/or distribution equipment involved, along with the associated hazards, and meeting the training a competency requirements of [29 CFR 1910.269 \(a\)\(2\)\(ii\)](#).

#### ***Qualified Gas Worker***

Any contractor who performs covered tasks in accordance with National Grid's Operator Qualification Program and the Northeast Gas Association are required to be knowledgeable and meet all regulatory standards.

#### ***Risk Assessment***

A risk assessment is the process of identifying hazards and calculating or ranking the associated risks according to: the likelihood of occurrence, the severity of the harm from the hazard, and the amount of time of exposure to the hazard.

#### ***Safety Observer***

A person who is responsible for alerting the work team to any potential unsafe conditions or lack of compliance with approved work practices, procedures or guidelines.

#### ***Transportation Advisor***

Third party agency specializing in federal and company mandated drug and alcohol testing programs.

## **1.2 Introduction**

Safety performance is a prime consideration in the selection of contractors. National Grid will stipulate safety performance requirements and responsibilities in our contracts, purchase orders (POs) and will hold the contractor accountable for meeting the contractual requirements.

National Grid's goal is to establish a long-term working relationship with contractors who share the same safety values and demonstrate those values through their work performance.

Contractor safety at National Grid involves three broad areas:

### **1. The Contractor Procurement (Selection) Process**

Contractor safety begins with the selection of contractors who have demonstrated a strong safety record. National Grid will complete a review during the procurement process that involves determining a

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contractors' risk and the scope(s) of work involved. National Grid currently uses ISNetwork, Inc. as a third (3<sup>rd</sup>) party assessment process for assisting with contractor procurement. The 3<sup>rd</sup> party entity will vet and continually monitor individual contractors' compliance with applicable safety and/or risk and insurance program requirements.

## **2. Safety Communication**

Safety communication covers all the avenues and forums in which National Grid and the contractor communicates safety. Communication begins early in the bidding phase and is on-going as an integral part of the contractor-customer relationship. The goal is to ensure clarity, transparency and to limit misunderstandings.

## **3. Safety Compliance**

Safety compliance is the process of ensuring that the necessary technical provisions of the contract are being followed. National Grid will assign a project representative or other designee to provide guidance and oversight. The Contractor is responsible for their employees and subcontractors and shall be held accountable for ensuring compliance with all applicable safety rules while working on National Grid property, rights of way (ROWs) and our assets. Primary contractors are required to notify National Grid of any subcontractors and ensure that there is an appropriate contractual relationship in place in line with the terms and conditions of their contract.

### **1.3 Risk Ranking of Work**

1. National Grid characterizes and ranks risk by the scopes of work performed. The categories are classified as high, medium or low risk. Prior to being considered for work at National Grid, contractors who perform High or Medium Risk work must be pre-qualified in ISN. See Appendix A for more information regarding the National Grid Contractor Risk Matrix.
2. Activities that are designated as "high risk" means that catastrophic event can result if safety measures are not followed. Activities designated as "medium" risk present certain opportunities for moderate to significant injuries, property or reputational damage, and/or loss of service and/or possibly business continuity. Activities designated as "low" risk may still require safety compliance and control measures, although the contractor performing the work does not necessarily need to be enrolled in ISN, if that is the only classification of work that contractor performs for National Grid.

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3. The designation High Risk, Medium Risk, or Low Risk, refers only to the inherent risk associated with the work activity and is not an opinion on the ability of a contractor to work safely.
4. If ,at any time, the risk changes from low to medium/high, per the risk matrix, then the medium/high risk process shall be followed. It's the contractor's responsibility to identify if the risk changed and to escalate to National Grid personnel.
5. The Procurement Agent will notify the bidder/contractor at the beginning of the procurement process if their contracted service has been ranked as high or medium risk.

#### **1.4 Bidder Information Request – High and Medium Risk Work**

1. Any contractor bidding on high or medium risk work shall be required to complete a questionnaire regarding the Contractor's safety program, compliance and history of occupational illnesses and injuries (ISNetworld New Vendor Onboarding application form, located on the ISNetworld website). Contractors will also be required to demonstrate in ISN that all employees, including subcontractors, are qualified to perform the scope of services.
2. ISNetworld then thoroughly reviews contractors' qualifications against a prerequisite list of National Grid criteria. National Grid has established that contractors performing high or medium risk work MUST HAVE and MAINTAIN a grade of "C" or better in the ISN system to perform work and services for National Grid. For active ISN contractors, ISN will request updated information monthly. Contractors who do not have a current PO, contract, or authorized scope of work with National Grid will be considered as a Prospective bidder and will be asked to submit information quarterly. It is understood that insurance may not be maintained within National Grid standards, however, once a contractor is awarded a contract, proper and adequate insurance must be provided to ISNetworld to achieve a passing grade. Lack of insurance or inadequate insurance is an immediate "F" grade in the ISN system per National Grid criteria.
3. Project representatives may request an exemption or variance from requiring a contractor to be placed in ISNetworld for various reasons. A Supplier Exemption Request form (located in the safety policies and procedures section of Grid:home) shall be completed, documented and signed by the business unit VP and Safety Policies & Programs Director prior to contract award.

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4. The information that the Bidder provides National Grid via ISN serves as the basis for assessing safety qualification. For this reason, it is important for contractors to maintain transparency throughout the process. National Grid and ISN will review all submitted information. Any effort in avoiding complete disclosure will disqualify the Bidder from bidding work at National Grid.

## **1.5 Safety Compliance**

1. Medium/high risk contractors certify that they have been informed of National Grid safety requirements, that employees and subcontractors have the appropriate qualifications to perform the work, and agree to comply with all applicable safety requirements. This will be accomplished by the contractor signing the N-1402 Contractor Safety Requirements Acknowledgment Form in ISN annually and when there are revisions to N-1402.
2. National Grid representatives evaluate contractor compliance by conducting routine site visits, Compliance Assessments (CA's), Effective Safety Discussion (ESD) visits and attending periodic contractor safety meetings. Contractors should also perform and document safety self-assessments to ensure compliance to federal, state, local and National Grid regulations. This combined effort enhances, solidifies safety compliance and has the added benefit of quality control / quality assurance of the work performed.
3. Contractors bidding on new work shall provide worker qualifications to the National Grid procurement representative via the "Bidder Information Request" form and/or ISN National Grid On-boarding form.
4. If a safety violation is observed by a National Grid representative, the violation will be discussed with the contractor at the time of discovery.
5. Contractor employees that are involved in any accident, incident or significant near-miss event, will be required to lead an investigation and root cause determination process. In addition, the contractor must implement corrective actions and establish measures to prevent a recurrence through an incident investigation process.
6. Individual contractor personnel who habitually violate any safety rules should be identified, and the contractor should remove the individual(s) from the project. National Grid reserves the right to remove any contractor employee(s) who violate safety rules or procedures; pose a safety risk to themselves, other contractors; our employees; or the general public.



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7. If a contractor is observed to be operating in a manner that creates an imminent danger to persons or property, it is the responsibility of all individuals observing the hazard to cease the hazardous operation impacted until the issue has been resolved to the satisfaction of National Grid, the Owners Representative or Safety Representative.
8. Contracts/POs shall require the contractor to immediately forward any citations, notices, or OSHA reportable cases per 29 CFR 1904.39 from a National Grid project, upon receipt to the appropriate project representative and/or ISN. The project representative shall distribute copies of the citation or notice to senior management, Safety, Procurement, and the Legal Department.
9. Willful and/or repeat violations of safety requirements by the contractor may be considered a breach of the contract and reason for contract termination.
10. If the contractor's overall safety performance is viewed as being unsatisfactory or noncompliant with contract provisions, and if the contractor is unwilling to demonstrate satisfactory program improvement, the result may be considered a breach of the contract and reason for contract termination.
11. National Grid project managers and/or construction supervisors shall document safety compliance by completing a "Contractor Performance Evaluation" for each project. This documents both positive and negative safety performance or behaviors and this feedback will be used in the decision process for awarding future contracts.

## **2.0 GENERAL SAFETY REQUIREMENTS**

### **2.1 Introduction**

1. All contractors are required, and expected to comply with all applicable requirements of the Occupational Safety and Health Administration (OSHA), the Federal Motor Carrier Safety Administration (FMCSA) and all other applicable federal, state and local laws, ordinances, regulations, and other project and site-specific permits unless superseded by identified National Grid procedures.
2. All contractors working for National Grid shall use materials and equipment in accordance with the manufacturing guidelines. It is the contractors' responsibility to understand the manufacturers' limits and prescribed use of their tools and equipment before each use.

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3. This document and relevant National Grid procedures represents policies and safety-related work methods unique to National Grid and they may be more stringent than applicable regulations and manufacturers guidelines. Contractors must follow these requirements as well as their own rules or regulations that meet or exceed regulatory or manufacturer requirements.
4. National Grid will provide more detailed information and guidance regarding specific procedures prior to commencement of work.
5. National Grid reserves the right to perform a safety stand-down with any contractor for purposes including, but not limited to: recent injuries, incidents or near misses; identified hazards at job site or equivalent, and for other reasons to communicate with the contractor crew.

## 2.2 Requirements

*Applies to: All contractors, as needed*

1. A 4:1 pitch shall be maintained when using an extension ladder or the ladder shall be tied off and/or secured and 3 points of contact shall be maintained by the climber. If both hands are needed to perform work, then fall protection is required.
2. National Grid shall monitor contractor compliance to the drug and alcohol regulatory requirements through Transportation Advisor as needed.
3. Contractors who drive regularly in delivery of service for National Grid shall:
  - a. Have a safe motor vehicle operations policy which must be communicated to their employees before they begin driving for company business. The contractor policy is expected to meet the minimum requirements as specified in National Grid's *Safe Motor Vehicle Operations* policy.
  - b. For more information, contact a National Grid representative for a copy of the National Grid Safety Policy *Safe Motor Vehicle Operations*
4. All contractors that require the use of heavy equipment are expected to meet the minimum requirements as specified in National Grid's E-501 Heavy Equipment Procedure. In addition, contractors shall ensure the following:

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- Keep hands, feet, and clothing away from power-driven and moving parts.
- Never carry passengers on heavy equipment or any equipment unless it is equipped to do so.
- Before making a swing, operators shall always look out the windows and mirrors for confirmation that the area is clear. If visual confirmation is impaired or the operator is unsure due to weather, lighting or other interferences, the operator shall cease operation until an independent spotter can check the swing area and confirm it is clear.
- All excavations shall have signs posted, demarcation and controlled to prevent unauthorized persons from entering and falling inadvertently into the excavation. Excavations shall only be opened under the supervision of a competent person for excavation.
- All pot holing/test holing and exploratory excavations shall utilize vacuum excavation whenever near known or the possibility of unknown hazards such as live electrical or gas conveyances. When using vacuum excavation in combination with air blowing/air knife tools, all persons in the immediate area shall be wearing safety glasses in addition to a full face shield.
- Never use a bucket to lift personnel.
- Operators shall not leave heavy equipment running unless the following requirements are met:
  - Parking break is engaged and wheels are chocked (if applicable)
  - Surroundings create no hazard of unqualified personnel entering unattended equipment
  - Vehicles and equipment idling limited to that designated state and local environmental regulations (generally, 3 to 5 minutes maximum). See table below for additional information

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Region	Vehicles	Idling Limit	Exemptions Include
New York	Diesel trucks	5 minutes	<ul style="list-style-type: none"> <li>Traffic conditions</li> <li>Temperatures &lt; 25°F and motionless for two hrs</li> <li>Hybrid electric engine charging battery vehicles</li> <li>To provide power to auxiliary sources</li> </ul>
NYC	All Motor vehicles	3 minutes	<ul style="list-style-type: none"> <li>Emergency vehicles</li> <li>Loading/unloading</li> <li>Temperatures &lt;40°F</li> </ul>
New Hampshire	Diesel/ Gas vehicles	5 minutes >32°F 15 minutes -10°F to 32°F No Limit <-10°F and no nuisance created	<ul style="list-style-type: none"> <li>Traffic conditions</li> <li>Emergency vehicles takeoff power for auxiliary uses</li> <li>Vehicles being serviced or repaired</li> <li>Operated solely to defrost windshield</li> </ul>
Massachusetts	All Motor Vehicles	5 minutes	<ul style="list-style-type: none"> <li>Vehicles being serviced or repaired</li> <li>Vehicles in operation for which associated power is needed</li> <li>Delivery vehicle in which engine power is needed</li> </ul>
Rhode Island	Diesel Motor Vehicles	5 minutes	<ul style="list-style-type: none"> <li>Traffic conditions</li> <li>Operate defrosting, heating, or cooling equipment to ensure health and safety of the driver or passenger.</li> <li>Temperatures between 0 &amp; 32°F - 15 minutes per hour. If &lt; 0°F idling as needed for heat</li> <li>To provide power to auxiliary sources</li> <li>Vehicles being serviced or repaired</li> </ul>
Vermont	All Motor Vehicles	5 minutes within any 60-minute period	<ul style="list-style-type: none"> <li>Emergency/public safety vehicles while engaged in "official operations"</li> <li>Idling necessary to operate safety equipment</li> <li>Vehicles in operation for which associated power is needed</li> <li>Vehicles being serviced or repaired</li> </ul>

5. All temporary, metal fencing installed or located under transmission lines shall be grounded and have signage according to National Grid grounding standards. Contact a National Grid representative for a copy of the Engineering Documents ST 03.05.001ST 03.06.001 and SP 08.00.001.

### 3.0 ADMINISTRATIVE SAFETY REQUIREMENTS

#### 3.1 Worker Qualification Assurance

1. In order to meet National Grid safety requirements, upon request, the contractor must describe how workers, including subcontractors, are qualified. The contractor must supply information concerning the type of skills assessment performed, training programs and how they ensure that employees demonstrate competencies. National Grid reserves the right to review this information and request additional training requirements. For work on process safety assets, the contractor shall ensure all workers and sub-contractors are trained and receive appropriate refresher training to maintain their appropriate level of certification and qualifications needed to perform work safely.

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2. For low-risk contractors who perform activities that require PPE, which excludes office-based contractors and/or consultants, or other low-risk contractors, the contractor is required to watch an on-boarding video annually prior to any jobs starting for that year. The contractor employees and subcontractors are required to watch the video to be clear on safety expectations. Contractor to ensure that any new employees performing services for National Grid watch the on-boarding video if they hadn't watched it in the annual release. A link to the [video](#) can be obtained from the Project Representative. Refer to Appendix A for guidance on determining contractor risk status.
3. Medium/high risk contractors shall complete an annual in-person on-boarding hosted by National Grid supervisor or project manager or a trained contractor representative. The on-boarding shall emphasize required qualifications, HASP requirements, and requirements on revisions to HASPs when changes to the scope of work on the site or changes to risk occur. Refer to Section 3.3 for HASP requirements.
4. Contractors shall conduct their own safety self-assessments. If the contractor identifies that the HASP, or daily job brief, does not cover observed hazards and risk mitigation, the contractor shall stop work until the HASP or job brief is revised, and National Grid approval of the revision occurs. The revision and approval are required before work can continue.
5. The contractor shall provide management personnel qualifications through resumes or other documents. National Grid may interview and/or approve management personnel if considered necessary.
6. For work on Major Hazard Assets (Gas Transmission, Generation, LNG, LNG Transportation and CNG), contractors shall provide a description of their experience in the business asset and specific tasks including similar projects, lists of licenses/certifications, and references from previous similar projects. Contractors shall be made knowledgeable of National Grid process safety requirements that are relevant to their specific work activities by the business hiring them.

### 3.2 Meetings

*Applies to: All contractors; as needed*

1. The pre-bid meeting is coordinated by National Grid Procurement to provide bidders with an opportunity to become acquainted with contractual requirements and specific safety issues concerning the

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project, including company-specific safety rules and known site conditions.

- a. For contractors working on Major Hazard Assets, contractual language including designation of site medical facilities, locker rooms, bathrooms, etc. should be discussed by the project team with the contractor at this time.
2. During the pre-bid meeting Procurement will notify the prospective bidders of the following:
  - a. If bidders are required to submit a project safety plan (HASP) prior to the pre-construction meeting.
  - b. That the cost of specific safety equipment, practices and personal protective equipment shall be factored into the bid/proposal.

### 3.3 Project Health & Safety Plan (HASP)

*Applies to: Contractors performing high or medium risk work*

All HASPs shall be submitted to the National Grid project owner for review and approval before work commences. The National Grid project owner shall review the HASP and ensure the HASP meets National Grid criteria and includes all aspects of the project prior to a review by Field Safety (if applicable). Field Safety shall review the HASP after the project owner conducts their review only if the work is unique, there's a new project manager or supervisor, the work involves PHAs, or there's unfamiliarity with the project or safety standards.

If changes are required, a new HASP shall be created and rereviewed.

If the scope of work on the job site changes from the approved HASP, work shall be stopped. The HASP shall be revised and rereviewed by National Grid Business (Field Safety review as applicable), and work can continue once the revised HASP has been reviewed for risk controls of changed scope. Until the HASP is updated work shall remain stopped. Failure to update the HASP will be considered a violation of safety requirements in line with section 1.5. It's the contractor's responsibility to inform National Grid personnel if the scope changes.

1. Contractors who perform high or medium risk-ranked services shall submit a project-specific HASP plan no later than 5 business days prior to the start of the project and/or at pre-construction meeting.

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The HASP is to be followed by the contractor's employees and its subcontractors.

2. At a minimum, the HASP shall include the following elements:
  - a. Roles and Responsibilities
  - b. Scope of Work
  - c. For contractors working on Major Hazard Assets - List of all equipment contractor is expected to use in work activities and indication that it meets regulatory and National Grid requirements
  - d. For contractors working on Major Hazard Assets - List of contractor materials to be brought onto work site for review and approval by National Grid
  - e. Task and hazard identification and risk assessment of the hazards
  - f. Hazard mitigation/control procedures and work methods
  - g. Incident investigation and reporting
  - h. Compliance and monitoring

For an example of a HASP, a National Grid representative can provide the [Health and Safety Plan Guidance](#) document located on the *Contractor Safety* website in Grid:home.

3. The following requirements shall be included in the HASP for all work at contaminated sites. The HASP shall be site-specific and meet the requirements of 29 CFR 1910.120(b)(4)(ii). The HASP must include at a minimum:
  - a. A safety and health risk or hazard analysis for each site task and operation
  - b. Personal Protective Equipment to be used by employees for each of the site tasks and operations
  - c. Medical surveillance requirements
  - d. Frequency and types of air monitoring and personnel monitoring to be used
  - e. Site control measures

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- f. Decontamination procedures
- g. An emergency response plan for safe and effective responses to emergencies, including the necessary PPE and other equipment

The contractor/National Grid project representative shall contact the Environmental Department for guidance on site requirements and to initiate any required regulatory notifications.

For contractors performing bulk commodity transportation activities, a risk assessment including the potential consequences, frequency and safeguards to be used shall be performed and included in the HASP. If a preexisting National Grid requirement is in place for managing bulk commodity transportation activities, one shall follow those requirements, with no additional risk assessment being required.

Every contracted and subcontracted employee, including those working alone, performing work on the project shall review the HASP to ensure steps in the plan are adhered to in order to mitigate hazards during the pre-job orientation. These mitigation steps shall be incorporated into all work plans and job briefs.

Truck drivers for daily, non-hazardous material deliveries such as stone, gravel, concrete material or porta john cleaning are exempt from completing a job brief unless there are potential hazards associated to the driver or delivery. A National Grid representative shall talk to the driver to determine if a job brief is needed.

In addition, all workers shall sign an attendance sheet during the pre-job orientation that they have reviewed the plan, will adhere to the mitigation steps and they fully understand the plan. This document will be kept at the job site and available for review as needed and if requested by any National Grid representative, or any other parties.

#### **A. Roles and Responsibilities**

The HASP shall identify who is providing project oversight and how they are qualified. For example, if the work requires excavation, there must be someone on-site who is qualified as an excavation competent person.

For multi-employer work-sites, the general contractor is responsible for all their employees and subcontractors. The safety plan shall clearly state this responsibility.



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If requested to do so, Contractors shall designate a competent person to participate in or conduct a process hazard analysis (PHA) regarding a portion or the entirety of the project. National Grid will not be responsible for training the contractor on the PHA methodology.

## **B. Scope of Work**

The Contractor shall clearly and briefly state the scope of work in the HASP as provided by National Grid. The plan must specifically address the project or services requested by National Grid.

## **C. Task and Hazard Identification and Risk Assessment**

The contractor shall perform a risk assessment by identifying all significant tasks, the anticipated hazards and hazard mitigation procedures.

If, at any time, the risk level changes on the job site, the contractor is to stop work until a revised HASP or job brief is created and discussed on site and reviewed by National Grid personnel.

Contractors performing work where their employees are exposed to fatigue, shall assess fatigue risk in their HASPs and identify the mitigations they will take to manage the risk to their employees.

The contractor's cost to provide adequate safety measures and to comply with National Grid requirements must be considered and budgeted in the bid/proposal.

## **D. Hazard Mitigation Procedures and Work Methods**

For each hazard, the contractor shall specify in the HASP measures that will be taken to eliminate, control or mitigate these hazards.

A table below is an example of a method to simply and clearly organize and present the task, hazard, and mitigation steps:

<b>Location: Substation Yard</b>		
<b>Task</b>	<b>Hazard</b>	<b>Mitigation Steps</b>
Material Handling	Contact with overhead energized lines/equipment	Off load in the clear and have a safety observer present

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### **E. Incident Investigation and Reporting**

The HASP shall clearly state that all work-related incidents involving injury or illness to employees, the public or property damage (including contractor vehicle accidents) shall be reported to the National Grid project representative and documented in the ISN system, as required in Section 3.7 of this document.

### **F. Compliance Monitoring**

To ensure that both contractor employees and subcontractors will achieve safety compliance, jobs with over 100 workers at any point in time or in excess of \$1 million will require a full-time safety professional hired by the contractor. This safety professional must be qualified, competent and be on site anytime work is performed. Qualifications of this safety representative must be acceptable to National Grid prior to hire by the contractor. Specific qualification requirements may be defined in applicable bid or contractual documents.

For other jobs that don't meet the above criteria, contractors shall monitor jobs in line with their safety management system.

### **G. Environmental Compliance**

Unless otherwise specified and based on the scope of work, any potential environmental risks shall be determined and addressed in the HASP by the contractor following all applicable National Grid procedures. Contractors are responsible for addressing known or suspected site contaminants or other environmental hazards on site. For more information, contact a National Grid representative regarding Environmental Procedure No.6 *Contracted Services* and Environmental Procedure No.25 Appendix A, *Environmental Screening Checklist*.

## **3.4 Contractor Orientation/Pre-Construction Meeting**

*Applies to: All contractors, as needed*

1. A National Grid project representative, construction supervisor, or other designated National Grid representative that hires the contractor shall hold a pre-construction and a contractor orientation meeting prior to the contractor working for National Grid.
2. The pre-construction meeting is intended to serve as a method to provide the contractor with the tools necessary to educate their employees and

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subcontractors on National Grid's procedures and requirements. The session is not intended to train the contractor management, their employees or subcontractors. Attendees may include: the Safety department, Environmental representatives, as well as contractor management as needed.

3. All contractors are required to attend a National Grid contractor orientation meeting specific to the type of work they will be performing. Contractor management representation shall also be present meeting and all documentation of attendance shall be kept at the job site and available to any National Grid representative. For visitors and contractors working on Major Hazard Assets, site orientation shall at a minimum include the following:

- General site hazards
- Specific hazards involved in each task the employee may perform
- Safety policies and work rules, including Process Safety policies
- Location of emergency equipment like fire extinguishers, eyewash stations, and first-aid supplies
- Smoking regulations and designated smoking areas if applicable
- Steps to take following an accident or injury
- Proper reporting of emergencies, accidents, and near misses
- Selection, use, and care of personal protective equipment
- Emergency evacuation procedures, routes, and security systems
- Safe housekeeping rules
- Safe use of tools and equipment
- Hazardous materials in use and location of safety data sheets

Site access shall not be granted to contract employees working on Major Hazard Assets until orientation is conducted.

4. The contractor's Project Health & Safety Plan will be discussed at the pre-construction meeting including a final review of the safety hazards checklist to ensure proper hazard identification and mitigation plan has been implemented.

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5. These hazard mitigation measures shall be reviewed and work shall not commence until these hazards have been adequately addressed. The National Grid project representative will discuss the methods by which compliance will be achieved to National Grid safety requirements with the contractor.
6. An Emergency Call List shall be exchanged with the National Grid project representative for high or medium risk projects or as applicable. This list must contain 24-hour contact information for key contractor and project personnel, including the project representative and Safety representatives. This list should be distributed to all concerned, as determined by the project team, prior to the start of work. For contractors working on Major Hazard Assets who have an emergency response role, the emergency response plan shall be updated to clarify the contractor's role in the event of an emergency on site.
7. For routine facilities maintenance services, a review of associated safety issues and specific facility issues, restrictions or practices, such as evacuation procedures, shall be discussed with the contractor upon initial hiring. Any changes in the facility that may affect the safety of contractor or National Grid employees or third parties must be communicated immediately.

### 3.5 Job Safety Briefs

*Applies to: All contractors; as needed*

1. Job safety briefs shall be documented in writing. A new job brief shall be conducted daily before the start of each job or shift using the appropriate job brief form. Written job safety briefs, shall be available at the job site for inspection and retained for 30 days after the job is completed. Permits, and/or plans will be retained for 30 days or as required by regulation/ordinances.
2. The job brief must include all contractor employees, sub-contractors and team members working on a job. When possible and reasonably practical, a National Grid representative should be present at contractor job briefings.
3. Each crew shall conduct these job safety briefs daily prior to commencing work at the job location. A new job brief is required when there are changes to the day's work order or plan, when there are changes in working

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conditions (i.e. weather), when a new worker or company joins the crew, and if the crew members take any extended breaks (i.e. lunch breaks).

4. Each worker must have the opportunity to voice concern. The work cannot begin until each worker signs off on the job safety brief stating that they have discussed the work, raised any questions, and agree with the plan.
5. Visitors to the work site shall be asked to read and sign the job brief acknowledging they understand contents. Contractors shall review the job brief and discuss the elements of the hazards and mitigation steps with each visitor prior to entering the job site. If a visitor refuses to sign, the general foreman will note it on the brief and will not allow the visitor to enter.
6. Working alone: A contractor working alone need not conduct a job brief; however, the contractor must review the hazards associated with the job as if a formal job brief had been performed.
7. Truck drivers for daily, non-hazardous material deliveries such as stone, gravel, concrete material or porta john cleaning are exempt from completing a job brief unless there are potential hazards associated to the driver or delivery. A National Grid representative shall talk to the driver to determine if a job brief is needed.
8. **SITE SIGNAGE:** An assessment of the work site should be conducted by the contractor to determine if site signage will be needed to protect site visitors, the public or any other persons entering the work site. If site signage is required at the site, the signage shall be posted at the main entrance to the work site. The sign shall direct all visitors to check in with the Person in Charge (Construction Supervisor/General Foreman), be escorted to the designated safe area and advised of all work currently in progress. The visitor is expected to comply with all related safety requirements and sign off on the Job Brief before entering the work site.

### **3.6 Safety Meetings**

1. In addition to job safety briefs, the contractor shall have regular safety meetings with their employees and subcontractors. Contractors performing high or medium risk work shall have weekly safety meetings, while low risk contractors, at a minimum, shall have safety meetings monthly and attendance must be documented.
2. The safety meetings shall include the following topics: statistics, incidents, near misses, updates on old business and new business raised. It will include the round table discussion by the workers and the action items

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discussed. Meeting minutes must be documented and shall include specific action items, their due dates, persons responsible and a completion date. This documentation shall be available for inspection during the project period, and for 30 days after the project is completed. For contractors working on Major Hazard Assets , meeting minutes from contractor shall be shared and discussed with National Grid site management.

3. Routine Safety meetings/calls between National Grid and the Contractor shall be coordinated on a regular basis. Safety meetings may include but are not limited to ESD/Compliance Assessments, Safety Briefs, Safety Day discussions and regularly scheduled calls to promote safety and best safety practices. Contractors working on Major Hazard Assets for more than 6 months shall schedule leadership visits to discuss process safety topics.
4. Contractors are to perform their own safety self-assessments.
5. Contractors working on Major Hazard Assets for greater than three (3) months, or as needed, shall hold project planning meetings to discuss short term and long-term work items. Project planning meetings shall include safety performance monitoring against project targets and should include a National Grid process safety representative for jobs on Major Hazard Assets in addition to a National Grid site representative.

### 3.7 Incident Investigation

*Applies to: All contractors (regardless of risk ranking)*

1. All contractors are required to report any work-related incidents immediately (within current shift) involving injury or illness to employees, the public or property damage to the National Grid project representative. The first priority is to ensure that anyone injured receives medical treatment. Examples of incidents may include, but is not limited to: injury, property damage, adverse public impact, near miss, a hazardous condition and all vehicle accidents including road traffic collisions (RTC).
2. Contractors shall track and evaluate any vehicular accidents or incidents experienced by their employees. Corrective actions, such as driver coaching, corrective action driver training and medical/vision tests should be recommended and acted upon where appropriate. All accidents or near misses while performing work for National Grid shall be communicated to the National Grid project representative or designee and documented in the ISN system.

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3. Contractors will then be responsible to perform an incident investigation immediately following the incident and document root cause/corrective actions to the National Grid Project Representative.

### **Incident Response Steps**

In the event of an incident, the contractor shall provide details of the incident to National Grid that follows the steps below.

1. Contractor supervisor collects basic information about the incident from the employee or witnesses:
  - What happened?
  - Who and how many people were injured?
  - What treatment was administered?
  - What was the nature and seriousness of the injury?
  - Where did the incident occur?
  - When did the incident occur (date, time of day)?
  - Were there any witnesses?
2. Contractor supervisor immediately calls the National Grid project representative or other National Grid point of contact.
3. Contractor shall initiate an investigation within 24 hours of the incident that will identify contributing factors and root cause analysis relating to the incident and the corrective actions that will be taken to prevent future occurrence.
4. Contractor should obtain relevant documentation as part of their investigation including, but not limited to:
  - Daily job briefs
  - Site Health and Safety Plan
  - Site photographs
  - Witness statements

### **Other Reporting**

National Grid may periodically request the following annualized data for all work activities limited to National Grid operations:

- Lost Time Incident (LTI) rate for workers
- Restricted Work rate
- OSHA Recordable Incident (ORI) rate

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## 4.0 TECHNICAL SAFETY REQUIREMENTS

### 4.1 Personal Protective Equipment (PPE) Requirements – General

*Applies to: All contractors (regardless of risk ranking)*

1. Basic PPE attire at construction sites and other similar work zones include, at a minimum:
  - ANSI Z89.1 1997, Type I, Class E Hard hat
  - ASTM F2413 EH rated safety shoes
  - ANSI Z87 Safety glasses
  - All contractors who are exposed to vehicular traffic **and** are exposed to energized electrical equipment or live gas are required to wear a hi-vis vest meeting the following standards:
    - ANSI 107, class 3 high visibility
    - ASTM 1506 FR standard with a minimum Arc rating of HRC 1

**Note:** When FR clothing is required the FR vest shall be worn over appropriately rated FR clothing. Please refer to Section 4.2 and the [Gas PPE Matrix](#). Contact the National Grid Representative for a copy of the Gas PPE Matrix.

- All contractors that are exposed to vehicular traffic but will never be exposed to energized electrical equipment or live gas shall wear an ANSI 107 certified class 3 vest or garment at a minimum.
  - Any vest that meets the ASTM 1506, HRC 1 FR standard must be lime green or yellow.
  - **For NE only:** Any vest that does not meet the ASTM 1506, HRC 1 FR standard must be orange.
  - **For NY only:** Vests that do not meet the ASTM 1506, HRC 1 FR standard may be orange, lime green or yellow.
2. Contractors are responsible for assessing the need for additional PPE for their employees and sub-contractors.
  3. Although not preferred, if hard hats are worn backwards, the suspension adjuster must always face the rear. Class E hard hats are required for all electrical work.



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4. In addition, during inclement weather conditions or adverse events, the addition of anti-slip footwear or outer foot-wear may be appropriate.
5. ASTM F1117 Dielectric (DI) footwear is required, including but not limited to, when:
  - Workers on the ground are working within 50' of the master ground connection point to earth.
  - Operating a wire trailer and pulling/tensioning machine.
  - Operating a winch truck or reel trailer with its payout in an energized area that may result in inadvertent contact.
  - Hand digging in close proximity to energized cables within the tolerance zone.
  - Making repairs in a trench to a faulted primary cable without de-energizing any adjacent energized primary cables within close proximity.
  - Using approved live line tools to move energized primary cables in a trench.
  - If removing underground cable rubber covering or arc suppression blankets from an energized cable.
  - Working within minimum approach distance (MAD) of downed electrical wires or foot patrolling for such wires.
  - If setting poles in proximity to energized lines or equipment and using truck controls from the ground.
6. Chaps are required to be worn by ANY person using a chainsaw to make a cut on the ground or assisting in that cut and within striking distance. Other situations where cut off machines are used, chaps designed for the purpose of providing durable protection from abrasion, spatter and sparks from cutting ferrous metals shall be required. Always use proper cutting techniques and push blades away from the body when using tools that may slip or inadvertently make contact with the leg. Never leave any powered hand-held equipment running while not in use and unattended.
7. **Contractors must review the guidance for additional PPE is referenced in discipline related sections of this document.**

## 4.2 Flame Resistant Clothing Requirements

*Applies to: All contractors; as needed*

1. Flame Resistant (FR) clothing shall be worn when personnel work on energized equipment/lines or when distance and position will expose the

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worker to electric arc or flame hazards. FR clothing shall also be worn during live gas work as outlined in the appropriate gas PPE Matrix located in [Gas Work Method SHE01001](#) and within LNG operations locations as required in SAF-01. Contact a National Grid representative for a copy of, or to view, the PPE matrix and LNG SAF-01

2. FR clothing shall be worn as the outermost layer of clothing and when workers measure voltages, test or ground electrical equipment/lines.
3. FR clothing shall be worn when work requires the use of rubber personal protective equipment or the use of insulated live line tools.
4. FR clothing shall be worn when workers are working on electrical equipment over 50 volts at the device location or are within 10 feet of equipment which is being physically operated/ worked on by another worker.
5. FR clothing (excluding FR vests discussed in Section 4.1) shall meet a minimum arc rating of 8 cal/cm<sup>2</sup> (HRC 2) for energized electrical equipment unless otherwise specified based on increased potential exposure as indicated in the Arc Flash Tables in H-807 *Arc Flash Analysis and Mitigation* program.
6. Additional FR clothing protection may be required when performing work at substations in NY North and New England. Contact a National Grid representative for a copy of [H-807 Arc Flash Awareness and Mitigation](#).

#### 4.3 Rubber Gloves and Sleeves

1. Rubber glove use is required for work on all electrical apparatus at 50 Volts or greater. Rubber gloves shall be donned before the worker leaves the ground and shall be worn until the worker returns to the ground (commonly referred to as “ground to ground”, “cradle to cradle”)
2. Class 0 gloves are required for exposures up to 1000 Volts.
3. Class 2 gloves are required for voltages between 1000-15,000 Volts.
4. Rubber sleeves must be worn where work is conducted within the MAD of primary electrical apparatus that is not tested, de-energized and grounded.
5. For voltages 23 kV and above, workers can use specialized equipment or work practices as long as these workers have been appropriately trained and qualified. National Grid may request training records from the contractor.

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6. Rubber glove exceptions for specific jobs (other than those listed in this section) are permitted only with the dated, written approval of a Division Director.
7. It is the contractor's responsibility to wear class 2 rubber gloves when grounding trucks or equipment due to a possible difference in potential.
8. All rubber gloves and sleeves shall be tested in accordance with OSHA regulations.

### **Exceptions**

No rubber gloves are required:

- When working in a properly established equi-potential zone.
- When the operator remains at the same potential as the equipment by being off the ground and on the equipment.
- When a qualified worker performs transmission "hot stick" work on lines 69 kV or greater and no other energized wires are on the pole or structure below the worker.
- When work is performed on transmission structures carrying only energized conductors (115kV and above) and the Live Line Techniques are not being employed. While performing these activities, the worker shall utilize conductive clothing such as conductive gloves, boots, leg straps and/or any other applicable conductive clothing.
- When climbing a steel structure to paint or perform structural reinforcements while maintaining MAD from energized conductors or apparatus.
- When climbing a steel structure to access an area that has been properly grounded.

## **4.4 Isolation of Energized Apparatus**

1. **Non-Reclosing Criteria and Live-Line Maintenance and Construction:**  
The appropriate interrupting devices (breakers, reclosers, circuit switches, etc.) will be placed on NON-RECLOSING in accordance with National Grid tagging procedures.

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## **2. Tagging Out Lines or Apparatus**

The National Grid Construction Supervisor or designee shall coordinate all switching and tagging in accordance with the most current EOP on Clearance and Control.

Upon receipt of Clearance, the project representative will present the Contractor's Person in Charge with the "Contractor Permission to Work Form" (Form NG0060), which states the specific apparatus that has been de-energized and that certain device(s) are tagged in the Protective Position and will remain so until the Contractor's Person in Charge informs the construction supervisor or designee of the completion of the work utilizing the "Contractor Completion of Work" section of the "Contractor Permission to Work" form.

The original transferred copy needs to be returned after the completion of work section is filled out & signed. In some cases the tailboard is outside and is susceptible to elements & damage; a copy shall be utilized in the field instead of the original.

No work will be performed until the "Contractor Permission to Work Form" is received from the Construction Supervisor stating that the equipment has been de-energized and a clearance to work has been given. The Contractors Permission to Work Form and a written grounding plan shall be attached to the crews Job Briefing and be kept at the work location.

After the "clearance" is received from the National Grid Construction Supervisor, the various substation conductor bus and equipment to be worked will be tested and "Grounds" installed. Grounds shall be rated for the fault current of the line/equipment being grounded. (Note: Rubber Gloves and FR clothing are required when installing and removing grounds). The contractors "Person in Charge" shall be responsible for determining the location and number of grounds.

Prior to the application of any personal protective grounds, the circuit to be worked on must be tested for the presence of voltage using an approved potential detector. The worker must verify the detector is in operating order prior to and after testing for voltage. MAD must be maintained during the testing, and appropriate PPE shall be worn. Testing for voltage shall be done at the point where the grounding devices are to be attached. All phases of the circuit to be worked on shall be tested at each location that grounds are installed.

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When an Air Gap is required to create a work zone, the component (a tap) shall be removed in whole from the system unless removal of the component is impracticable or creates an additional hazard as determined by National Grid management in charge of the job. If the component (a tap) is deemed impracticable to be removed in whole it shall be disconnected from one end, isolated from all other conductors and properly secured to ensure accidental energization will not create a hazard. When National Grid switches out lines or apparatus, any grounds that may be installed shall only be considered a visual reference, and shall not be considered a means to protect the Contractor's employees. The Contractor is responsible to install their personal grounds, in accordance with all OSHA, Federal, State and local safety procedures. National Grid may provide guidance on the minimum size of the grounds to be used based on circuit available fault current. Refer to *Electric Operating Procedure D002*, for applicable grounding size. Ground rods shall be fully driven into the earth away from the workers and work area. Contact the National Grid Representative for a copy of EOP D002.

All three phases shall be grounded. (In stations, from each phase to the station ground grid). Grounds shall be placed as close to the work area as reasonably possible, between the work area and all potential sources of inadvertent energization. A copy of the grounding plan shall be kept with the job safety brief.

It is the contractor's responsibility to account for all their grounds. The contractor shall provide, maintain, and enforce a ground tracking program suitable to National Grid. In the instance of a zone expanding/collapsing, remaining grounds shall be listed on the Contractor Permission to Work Form and verbally communicated to the construction supervisor.

### **3. Grounding Mobile Equipment**

When mobile equipment requires grounding, it shall be solidly grounded by means of appropriate sized copper cable while using rubber gloves. The cable shall be fastened to a securely attached clean metallic portion of the equipment, or shall be fastened to a grounding stud provided for the purpose at one end and an adequate ground at the other end.

Vehicles and equipment may utilize a single 4/0 cu for grounding inside the substation. Employees working on de-energized lines and equipment shall always work between grounds.

Non insulated booms such as digger derricks that have the possibility of encroaching the MAD shall be grounded and barricaded. The ground is to

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trip the circuit and the barricade is to protect anyone who may become in contact with the truck during this energization.

#### **4. Minimum Approach Distance (MAD)**

Minimum Approach Distance will be maintained at all times. Refer to OSHA 29 CFR 1910.269 for more information and details regarding qualified and unqualified workers.

#### **4.5 Appointment of a Safety Observer**

A safety observer shall be required if an contractor employee (equipment operator) determines that it is difficult to accurately determine the distance between the equipment (minimum approach distance) and energized parts. The Safety Observer shall never be a substitute for appropriate minimum approach distance (MAD), personal protective equipment (PPE), insulate/isolate techniques or work area identification as a form of employee protection.

It is the responsibility of the contractor to provide that a qualified employee or employees to perform the task of a safety observer and ensure that they are qualified to perform the role when needed. The contractor shall:

1. Ensure a documented job brief is completed and includes the name of the safety observer, additional subjects such as the location of gas lines, energized equipment, in or adjacent to the work area and the limits of any de-energized work area
2. Discuss the scope of work and communication techniques used to warn or notify the equipment operator of hazardous conditions.
3. Communicate any changes to work and job completion to the safety observer
4. Select another safety observer if there is a need for the existing observer to have break in service.

The safety observer is a qualified employee who has been appointed by the person in charge based on the hazard assessment and the job brief. The safety observer shall:

1. Observe the worker performing the task/activity until all hazards have been eliminated or the task/activity has been completed
2. Have shown proficiency in the task/activity being observed and have a full understanding of the job and the hazards associated with the task/activity.

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3. Remain continuously focused on the task/activity being performed and not perform or assist any other job activities while observing the worker performing the task/activity
4. Notify the person in charge if there is a need to have a break in service. Work must stop until a new observer is appointed or the safety observer returns.

A safety observer shall also be required when a critical lift is being performed.

#### **4.6 Work Zone Traffic Control**

1. If work activity is on or near a road, the contractor and their subcontractors shall comply with all applicable parts of the most current US Department of Transportation's Manual on Uniform Traffic Control Devices (MUTCD), state, local Work Zone Traffic Control requirements and the National Grid [Work Zone Traffic Control Manual](#). Please contact your National Grid representative for a copy of the manual found in the Safety Homepage on the Grid:home.
2. If pedestrian traffic is disrupted, pedestrians should be provided with a clearly defined path that is reasonably safe, convenient and accessible. Pedestrians should not be led into conflicts with work site vehicles, equipment or operations.
3. Where contractors are allowed to work under state or municipal permits issued to National Grid, the contractors shall comply with the provisions (work practices and notifications) of the permit language. These permits must be available on the job site upon request.

#### **4.7 Qualified Gas Worker**

*Applies to gas projects/activities*

1. Gas contractor employees will be operator qualified as required and defined according to the Code of Federal Regulations, Transportation, 49, Subpart 192.801 through 192.809.
2. National Grid requires contractors with gas qualified employees to provide documentation on how they qualify their workers.
3. Additionally any qualifications' of contractor personnel shall be in full accordance with the Company's Operator Qualification written plan, (OQ Plan) Refer to the most current list of covered tasks in accordance with National Grids' Operator Qualification Program and the Northeast Gas Association, (NGA).

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#### 4.8 Qualified Electrical Worker

*Applies to electrical projects/activities*

1. Where applicable contractors shall provide Qualified Electrical Workers in accordance with 1910.269(a)(2)(ii).
2. Until these qualified employees have demonstrated proficiency in the work practices involved, they are considered employees undergoing on-the-job training and must be under the direct supervision of a qualified person at all times. According to the definition of a “qualified employee”, the employee also must have demonstrated an ability to perform work safely at his or her level of training.
3. National Grid may require upon request, that contractors provide documentation on how they qualify their workers.

#### 4.9 Non-Electrical Worker

*Applies to: All non-electrical contractors working in the vicinity of electrical equipment where MAD could be encroached; as needed*

1. The contractor shall provide orientation for non-electrically qualified workers entering and working within restricted areas such as a substation and those working near electrical lines and equipment.

The non-electrically qualified workers must be informed of:

- What is safe and not safe to touch in the specific areas they will be entering;
- The maximum voltage of the area;
- The MAD for the maximum voltage within the area;
- Proper use of personal protective equipment and in the work practices necessary for performing their specific work assignments within the area.

#### 4.10 Asbestos, Lead and other Hazardous Materials

1. Where asbestos and other hazardous material is present and likely to be disturbed, the National Grid project representative and contractor shall coordinate how the asbestos, lead or other hazardous materials will be managed and shall consult National Grid's Safety & Environmental



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department as appropriate. Asbestos and lead materials associated with electrical and gas equipment may include, but is not limited to:

- cement-type cable covering,
  - cable wrap,
  - wire coatings,
  - coal tar pipe wrap,
  - transite panels and conduits.
2. Asbestos and lead materials may also be present in building materials including but not limited to:
- paint,
  - mastics,
  - caulking,
  - insulation,
  - roofing materials.
3. Removal of this material must be done by individuals specifically trained and qualified to handle asbestos and lead. Refer to National Grid Safety Procedures, F-615, F-617, F-619 and F-621 for guidance on asbestos and lead handling and removals. For more information, contact a National Grid representative for a copy of these procedures.

**Note:** Contractors who will encounter asbestos or lead as part of their work shall reference in their safety plan how they will address this hazard and how workers will be trained.

#### 4.11 Lift Plans

1. All lifts that occur on National Grid properties, ROWs or near critical assets require lifting plans developed by the contractor. Lift plans will need to be provided to National Grid upon request. Some lifts will also require formal critical lifting plans developed by the contractor and reviewed with the National Grid project representative. Critical lift plans may include PE or geotechnical assessments to ensure a stable lifting base for the crane or other apparatus. Critical lift plans need to be submitted for review no later than 5 business days prior to the start of the scheduled lift.
2. All lifts (not limited to materials and equipment) shall be planned and rigged by a competent person.

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3. As a minimum lift plans shall include the following:
  - a. Designated Operator and Signal person
  - b. Detailed travel and flight path that ensures the boom and material being raised is controlled 100% of the time and will maintain the appropriate clearance
  - c. Designated cover up and isolation to ensure employee and equipment safety in the event of an unplanned action or failure
  - d. Emergency action plan with detailed instructions to respond to unplanned/uncontrolled event during the lift or positioning of the lifting equipment.
  - e. Documented load weight and equipment lifting limits
  - f. Rigging equipment and methods that will be used during the lifting. Sign off/approval from the management official responsible for the work
4. *All work involving hoists, cranes or other lifting equipment **within 10' of energized electrical equipment** must have a detailed lift plan/procedure*
5. A critical lift plan shall be required during the following circumstances:
  - a. An object is lifted over energized apparatuses or assets where a failure of the lifting equipment or rigging could result in a significant safety hazard or cause significant disruption in service to National Grid customers.
  - b. The crane or other lifting apparatus is anticipated to be operated above 75% of its rated capacity for the specific load chart for the lift.
  - c. A man basket (pinned or suspended) is to be utilized. All fall protection rules shall be followed when in a man basket.
  - d. Two cranes will be used in concert to lift a single object.
  - e. Internal substation construction involving all power transformers, control houses, capacitor banks and transmission breakers.
  - f. Lifts in LNG or Gas plants where a hazard assessment or job brief identifies a significant risk.

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- g. The lifted load will be less than twice the minimum approach distance (MAD) of the nearest energized part. Until a qualified electrical worker confirms the MAD, loads and equipment shall maintain a 20 foot distance. Once nominal voltage is established, the MAD will be according to OSHA tables.
- h. The lifted load is hoisted over buildings or the general public.

#### 4.12 Fall Protection

1. Fall protection or fall restriction devices shall be used when working at heights over 4 feet, , unless lower heights are specified in subsequent sections of this document.
2. *When using portable straight and extension ladders, three points of contact shall be maintained. If 3 points of contact cannot be maintained a work positioning belt is required.*
3. *Step ladders shall be set up on level and stable surfaces, fully open with braces locked. Work positioning belts are not required for properly set up step ladders.*
4. *All fall protection shall be inspected before use each day to determine if equipment is in good working condition. Defective equipment shall not be used and shall be removed from service.*
5. A worker may enter or exit an aerial lift (at heights above four (4) feet) provided that fall protection such as guardrails or a fall arrest system is used while the worker moves between the lift and the working surface. Before any such transfer is made, the employee shall be properly tied-off to an adequate support, the pole or structure prior to and in the direction of the transfer.

Exceptions to fall protection shall be in accordance with Federal & State requirements.

#### 4.13 Herbicide Application

1. Vegetation spraying shall be conducted unescorted only by contractor employees who have been designated as a Qualified Electrical Worker, where applicable.
2. The spray applicator shall have ID cards issued by Security with background checks available from the contractor.

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3. National Grid management shall require a schedule of the spraying in their areas.
4. Once spraying begins, the contractor must contact local management on a daily basis to inform them of progress or changes to the schedule.
5. The contractor shall post all substations with dated signs indicating when the substation was sprayed. These signs should not inhibit access to the substation.
6. The contractor shall ensure that any stored materials and equipment do not get covered with “overspray”. Overspray represents a substantial safety hazard and cannot be allowed.
7. When applying herbicides, contractor employees shall wear appropriate PPE in accordance with product labels.

## **5.0 UNDERGROUND OPERATIONS WORK**

In addition to the other requirements referenced in this document, this section covers requirements that are specific to underground operations work.

### **5.1 PPE Requirements**

All contractors shall comply with the applicable PPE and WZTC requirements referenced in Section 4.0.

### **5.2 Enclosed Space Assessment, Ventilation, Entry and Rescue for Underground Work**

All contractors shall comply with the National Grid [EOP-UG006 Underground Inspection and Maintenance](#) and National Grid Safety [Procedure I-902 Enclosed Space Procedure](#).

Contractors, including contractors who are qualified electrical workers, are required to follow these procedures when entering enclosed spaces (manholes, sidewalk vaults, etc.), including assessment, ventilation, entry and rescue. Contact a National Grid representative for a copy of the policies and for more information regarding enclosed space requirements.

### **5.3 Equipment Safety Inspection**

1. Inspect underground facilities (manholes, vaults, hand holes, splice boxes, junction boxes, pad mount transformers, switchgear and submersible equipment, etc.) each time a crew performs work at one of these facilities.

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2. All separable components in these facilities shall be inspected by infrared instrumentation. A National Grid representative can provide details from the National Grid EOP-UG001 *Infrared – Non-Contact Thermometer Inspection Requirement for Underground Equipment* for more information.
3. The infrared (IR) thermometer or camera shall, at a minimum, have a range of -25°F to 1400°F with a plus or minus 1% accuracy. For more details and current operating procedures, contact a National Grid representative regarding EOP UG001.
4. “Touch Potential” testing of metal street lighting poles is required as a part of any maintenance work. For more information, a National Grid representative can provide a copy of the National Grid EOP G016 *Elevated Equipment Voltage Testing* and National Grid Work Methods Bulletin #04-26 *Touch Potential Testing of Metal Street Lighting Poles*.
5. Touch Potential testing results shall be recorded on the job safety brief and the manhole inspection form which shall be given to the National Grid Construction Supervisor or designee.
6. When preparing to cut UG cable, cable needs to be tested, deenergized, grounded and positively identified, and contractor shall guillotine the cable if needed from outside the hole. Rubber gloves shall be worn at all times while performing this task. a National Grid representative can provide a copy of the National Grid EOP G013, *Positive identification of Deenergized UG cables* for more information.
7. For contractor who perform inspections for Inspections and Maintenance, the format for data collected shall follow the National Grid EOP UG006 *Underground Inspection and Maintenance* requirements. Please contact a National Grid representative for more information

## 6.0 OVERHEAD LINE WORK

In addition to the other requirements referenced in this document, this section covers requirements that are specific to overhead line work.

### 6.1 PPE Requirements

All contractors shall comply with the applicable PPE and WZTC requirements referenced in Section 4.0. In addition, contractors working distribution will follow ground-to-ground and cradle-to-cradle use of rubber gloves while performing work

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on energized overhead lines. Any foreign wire, including those on a pole or structure constitutes an energized source and requires the use of rubber gloves (ex: Cable TV, telephone, fire alarm wire, etc.). Refer to arc flash tables to determine PPE required during switching tasks.

## 6.2 Fall Protection

All contractors who climb structures such as wood poles or transmission towers shall utilize enhanced fall protection equipment (fall arrest devices) and techniques (ex: *Buckingham Buck-Squeeze*, *Miller StopFall* or *Jelco Pole Choker*). When working on wooden and steel structures, a full body harness and lanyard shall provide 100% fall protection at all times (100% tie off, Shepperd's Hook, etc.). Climbers shall never be allowed to drop or slide down a pole or structure more than two feet.

## 6.3 Pole/Structure Inspection and Sets

Contractor shall ascertain the structural integrity of the pole or other structure prior to installation, removal, repair or modification of the equipment on the structure.

1. Prior to climbing any pole, an inspection and test of the condition of any pole being climbed shall be performed. The weight of the employee, the equipment being installed and other working stresses (such as the removal or re-tensioning of conductors) can lead to the failure of a defective pole or one that is not designed to handle the additional stresses. For more information contact a National Grid representative for a copy of National Grid EOP G028 *Wood Pole Condition Assessment*.
2. If the pole is found to be unsafe to climb or to work from, it must be secured per 29 CFR 1910.269 Appendix D so that it does not fail while an employee is on it. If measures cannot secure the pole, the contractor must cease operations and notify the National Grid Construction Supervisor or designee.
3. Pole sets in energized areas of 1000 volts or greater that have the potential to encroach on minimum approach distance should have a pole guard (rated for system voltage) or the line shall be covered properly using approved insulate/insulate work practices.
4. Pole sets that are not transferred the same day, the working contractor crew shall insure pole guards are secured and/or cover up is installed to ensure the pole will be isolated from the conductor or any equipment until the transfer takes place.

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#### 6.4 Electrical Work Methods

1. Jumpers of any type shall not be used to keep transformers, risers or transformer banks energized for the purpose of changing potted porcelain cutouts. A National Grid representative can provide information regarding National Grid Electric Operation Procedure (EOP) D001 *Cutouts – Open Type* and Bulletin 21-07 *Temporary Jumpers* for more information.
2. Potted porcelain cutouts must be changed out when work is being completed on a pole even if this is not planned in the scope of the work provided.
3. Properly rated and inspected slings, chains or tongs shall be utilized to move poles and equipment. Winch lines must not be wrapped around poles or looped around transformer ears to lift without a sling or chain.

#### 6.5 Transmission Overhead Lines

1. For work on transmission circuits, red or orange tape, flags or similar shall be placed around any energized pole, pole structure, or tower adjacent to the de-energized line.
2. When one circuit of a double circuit pole or tower line is de-energized for work, a red or orange tape, flags or similar shall be placed on the energized side of the pole or tower nine feet below the lowest energized conductor. In addition, a red or orange tape, flags or similar shall be placed on the lower cage on the side toward the energized circuit at each arm level as employees work on them or pass them.
3. All contractors using ATV's, UTV's or RTV's for transmission or forestry work, are required to follow all Federal, State and manufacturer requirements for PPE and driving safety.
  - a. Operator training is required and shall include classroom and in-field instruction as well as a formal driving assessment, on an annual basis, for each type of vehicle planned for use: i.e. UTV specific training for UTV's and ATV specific training for ATV use.
  - b. All contractor employees must be fully trained and qualified before use. Proof of individual operator training certifications for each operator shall be available at all times.
  - c. US DOT rated helmets and safety glasses/goggles are required for any vehicle that does not have a seatbelt and a roll cage.

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- d. In equipment with a roll cage and seatbelt, operators shall comply with all applicable State regulations and manufacturers recommendations regarding helmet use.
4. At the end of each day, unless other arrangements have been made for an extended outage, grounds will be removed and the National Grid project representative will be notified that all personnel are “clear” of the conductor bus work and equipment.
5. Wherever transmission line workers are working in a de-energized environment, a personal ground shall be installed at the work area to establish an equipotential zone, unless workers are engaged in live-line barehand work per 29 CFR 1926.964(q).

## 7.0 SUBSTATIONS

In addition to the other requirements referenced in this document, this section covers requirements that are specific to substations work.

For additional information, a National Grid representative can provide a copy of the National Grid Substation Maintenance Procedure [SMP 499.01.2 Protective Grounding Procedure](#) under the Substation Work Methods Grid:home page for specifics regarding substation grounding practices.

1. Grounding plans for substation, major distribution and transmission projects will be submitted to the National Grid construction supervisor a minimum of 1 week prior to construction for review. This plan will show the steps, work area limits and ground cable size and amount. Once reviewed with the National Grid and prior to starting the job, the plan will be reviewed by the contractors with all employees and subcontractors on the project.
2. The use of an “Equipotential” step/platform or a conductive mat is required for access and egress from the following:
  - a. Crane or any other equipment, including aerial lift equipment, that is connected to the substation ground grid and/or bonded to transmission line conductors when working outside of the station fence,
  - b. In the rights-of-way,
  - c. In areas inside the substation where there is no ground grid present.
3. When work is performed inside the substation and there is a ground grid available, the “Equipotential” step/platform or conductive mat is not necessary.

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4. All vehicles shall be grounded and barricaded per OSHA standards and the National Grid Electric Operating Procedure [G026 Mechanized Equipment Grounding](#). Contact a National Grid representative for a copy of the procedure.
5. Proper clearances shall be maintained from adjacent energized substation bus, energized portions of substation equipment and other transmission lines at all times.
6. Use of proper insulated tooling (shotguns and sticks) shall be utilized per the [National Electric Contractors Association \(NECA\)](#) best practices standards for maintaining MAD.
7. Contractors who perform any groundbreaking activities in a substation within a pre-marked area will require Dig Safe/UDig marks to be in place; otherwise, the job must be suspended and the National Grid construction supervisor or project representative shall be notified of the condition.

## 7.1 PPE Requirements

1. All contractors shall comply with the applicable PPE and WZTC requirements referenced in Section 4.0.
2. When using man-lifts a secure point of attachment for fall limiting devices shall be utilized, independent of the means to support or suspend the employee. Workers feet shall also always remain on the floor.

## 7.2 Notification of Control Authority When Entering a Substation

1. When a contractor enters and exits a National Grid substation, the contractor shall ensure that the System Control Center is notified. While work is being conducted, gates must be monitored at all times or the gates shall be locked. For more information, contact a National Grid representative regarding National Grid EOPG022 *Substation Security*.
2. Unescorted entry in substations can only be provided to contractors who provide assurance that their employees and subcontractors are electrically qualified as specified in 29 CFR 1910.269. Refer to Section 4.0 of this document
3. All National Grid specifically identified bulk power stations will require NERC-CIP training, certification and approval prior to entry to those sites.

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### 7.3 Substation Work Area Identification (SWAI)

1. Contractors who will be working in substations shall follow the SWAI procedure. For more information, contact a National Grid representative regarding National Grid SMP499.10.2 *Substation Work Area Identification Procedure*.
2. Qualified contractors as referenced in section 4.8 of this document shall install their own work area identification. National Grid shall arrange work area identification for non-qualified workers as required.
3. Designated storage areas for items not being used will be posted in the yard and should be the only place these items are kept.

## 8.0 GAS OPERATIONS WORK

In addition to the other requirements referenced in this document, this section covers requirements that are specific to Gas operations work. For more information, contact a National Grid representative regarding National Grid General Safety Requirements SHE1001 *Gas Policy*. The document is also available on the Gas Work Methods site: <http://dc-gasweb1/MelSite/WMSafetyAll.asp>.

### 8.1 PPE Requirements

1. All contractors shall comply with the applicable PPE and WZTC requirements referenced in Section 4.0.
2. The contractor shall wear all appropriate PPE and Class 2 rubber gloves for personal protection when digging or probing within 2 feet of known electrical conductors and when the location of energized conductors is unknown.

### 8.2 Gas Operations

1. Any contractor who performs covered tasks shall be operator qualified (OQ) as defined in the DOT Title 49 CFR, Subpart N and all applicable state requirements pursuant to the state the contractor is working in. Additionally, any qualifications of contractor employees shall be in full accordance with National Grids Operator Qualification written plan, (OQ Plan) Refer to the most current list of covered tasks in accordance with National Grids' Operator Qualification Program and the Northeast Gas Association, (NGA).
  - a. The Operator Qualified status of contractor employees must be regularly updated and accessible through the ISN system. This

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listing must detail employees' current tasks they are qualified for, the next recertification date, associated documentation and a documented annual acknowledgement in ISN on their qualified workers as referenced in section 3.1 of this document.

- b. Contractor personnel involved with covered tasks may require certification by National Grid and an orientation of the involved tasks and National Grid Company standards. National Grid reserves the right to validate contractor qualifications prior to performing Live Gas work.
- c. Atmospheres are to be tested with a properly calibrated Combustion Gas Indicator (CGI) or Gas Measurement Instrument (GMI) in accordance with National Grid excavation procedures as required. For more information, contact a National Grid representative regarding applicable National Grid procedures.
- d. All excavation activities will be conducted in accordance with all applicable regulatory standards and National Grid Safety Procedure M-1301 *Standards for Working in Excavations*. Contact a National Grid representative for the most recent version of National Grid Safety Procedure M-1301 *Standards for Working in Excavations*.

## 9.0 FORESTRY AND VEGETATION MANAGEMENT

In addition to the other requirements referenced in this document, this section covers requirements that are specific to vegetation management work.

### 9.1 PPE Requirements

- 1. All contractors shall comply with the applicable PPE and WZTC requirements referenced in Section 4.0.
- 2. Additionally ,forestry contractors shall utilize fall protection systems in accordance with in the most current version of ANSI Z.133 or 29 CFR 1910.269 whichever is more stringent.
- 3. Tree crews will not be allowed to fly their buckets in between the primary and secondary cables if the MAD will be violated in process of doing so.

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## 9.2 Equipment and Work Methods

1. Forestry contractors shall utilize fiberglass sticks and stick saws for work around energized equipment. Additionally, integrity tests shall be performed and documented annually. Test results and expirations shall be available on each vehicle as needed.
2. Forestry contractors shall perform and document dielectric testing of all aerial units annually. Test results and expirations shall be available on each vehicle as needed.

## 9.3 Training

1. Forestry contractors shall be able to provide documentation relative to OSHA 29 CFR 1910.269 training and certification requirements upon request by National Grid.
2. Forestry contractors shall provide an updated HASP by April 1<sup>st</sup> of each year for all work being conducted at National Grid. National Grid may require a site-specific HASP and/or PHAs for certain forestry projects or work locations.
3. All contractors using ATV's, UTV's and RTV's for transmission or Forestry work are required to follow all the requirements in Section 6.5.3.

## 10.0 LNG PRODUCTION, TRANSPORT AND HANDLING

In addition to the other requirements referenced in this document, this section covers requirements that are specific to LNG Production facilities.

All contractors working at LNG plants will sign in and out of plants daily in the Plant logbook. For work at all other gas supply facilities contractors require authorization from the applicable National Grid Contractor Management representative. If required by the project, trained National Grid plant personnel shall initially, and as needed, review and re-issue as needed, a work permit process which shall describe the work being performed, valves with their locations and Lock-out/Tag-out numbers.

## 10.1 PPE Requirements

1. All contractors shall comply with the applicable PPE and WZTC requirements referenced in Section 4.0 and shall include FR outer clothing

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in accordance with US LNG Policy SAF01 *Personal Protective Equipment*. Contact the National Grid Representative for a copy of US LNG Policy SAF01.

2. Cryogenic protective gloves/gauntlets and face shields are required when making connections to load / unload LNG.
3. National Grid retains the right to enhance PPE requirements as conditions warrant. The use of additional PPE shall be based on the task performed and the US LNG Policy SAF01 PPE matrix for work in production plants.

## 10.2 Training

1. Contractors who transport LNG at National Grid facilities are required to be certified in first aid/CPR and are required to complete frostbite awareness training. Documentation of training records shall be maintained in the ISN system.
2. National Grid expects contractors working at LNG plants to meet the requirements of 49 CFR 193 Subpart H for health, training or experience and/or any applicable National Grid procedures that supersede the above requirements. Contractors shall provide documentation on their qualified workers, as referenced in section 3.1 of this document.
4. All Contractor personnel performing work in LNG plants must meet the requirements of the National Fire Protection Association (NFPA), part 59 *Utility LP-Gas Plant Code*.

## 11.0 ELECTRIC GENERATION

In addition to the other requirements referenced in this document, this section covers requirements that are specific to Electric Generation.

### 11.1 PPE Requirements

1. All contractors shall comply with the applicable PPE requirements referenced in Section 4.0
2. Hearing protection is required when working anywhere inside a generation plant and/or outside the plant where noise may be excessive. Acoustic barriers shall be maintained by the contractor as needed.
3. Safety shoes with a minimum height of six-inches are required in Generation plants.

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4. Contractors working in generation plants are required to wear 8 cal/cm<sup>2</sup> (HRC) clothing protection. For additional guidance, a National Grid Ventures contract management representative can provide Electric Generation's Policies and Procedures EGO-028 *Personal Protective Clothing* & EGO-029 *Personal Protective Equipment*.

## 11.2 Training

1. Required training may include, but is not limited to; PCB's, asbestos, mercury, confined space awareness and excavation competent person requirements. HAZCOM is required by contractors working in generation plants as applicable.
2. Contractors who work at a National Grid Generation site shall attend an orientation regarding plant safety and as required, US Coast Guard Maritime Security (MARSEC) policies.
3. Equipment training is required per federal, state and local regulations and National Grid Ventures electric generation operating (EGO) procedures. Operators of any powered industrial vehicle must be qualified, and documentation shall be documented.

## 11.3 Equipment & Excavations

1. All excavations shall be performed in accordance with EGO-0005 *Procedure for Excavation in National Grid Generation Facilities*. For additional information, contact a National Grid Ventures contract management representative for a copy.
2. Gasoline and diesel-powered fork trucks shall NOT be used inside the plant or other enclosed facility. Only propane/electric fork trucks are permitted except where additional hazards may exist.
3. All wood products necessary for the work must be made of flame-retardant material.

## 11.4 Equipment Isolation

For isolation of hazardous energy sources while working in Generation plants, please contact a National Grid Ventures contract management representative regarding EGO-0010, *Control of Hazardous Energy Sources-Work Permit System*.

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## 12.0 CIVIL CONSTRUCTION

In addition to the other requirements referenced in this document, this section covers requirements that are specific to civil construction work.

### 12.1 PPE Requirements

1. All contractors shall comply with the applicable PPE and WZTC requirements referenced in Section 4.0, and all applicable federal, State and local requirements.
2. Rated rubber gloves shall be worn while carrying out work, including grounding, in and around energized or identified direct buried lines, live duct banks, transformer enclosures, manholes, switch gear and other electrical apparatus when performing civil investigations, installations or repairs.
3. ANSI CL3 gloves as required in NY for those under PM&C or when laceration or exposure is present.

### 12.2 Confined Space Assessment

All contractors shall comply with All contractors will comply with the National Grid Safety Procedure I-901 Permit Required Confined Space Entry Procedure. Contractors entering confined space will also:

1. Check for stray voltage in covers or lids,
2. Utilize IR thermometer to check for temperature anomalies in splices,
3. Contact the National Grid Representative for any anomalies found regrading voltage or temperature.

Contact a National Grid project representative for a copy of this policy or for more information regarding confined space requirements.

### 12.3 Equipment Safety Inspection

All contractors shall comply with the applicable equipment safety inspection procedures referenced in Section 5.3

### 12.4 Excavation Requirements

All excavations be performed in accordance with [OSHA 1926.651](#), EGO-0005 *Procedure for Excavation in National Grid Generation Facilities* and National

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Grid Safety Procedure [M-1301, Standards for Working in Excavations](#), with the following exceptions:

1. All soils in National Grid territories are to be considered unstable and classified as class “C” soils.
2. Crews that are performing Excavations shall include an excavation log with their job brief that states the soil type, expected depth and length as well as final depth and length. All required steps need to prevent collapse will be documented on this form as well prior to entry.
3. Protective systems shall be used for certain manhole installations, including:
  - When the hazard assessment, competent person and/or National Grid supervisor deems it necessary,
  - If an excavation for a manhole in a roadway is completed and installation of manhole and backfill is not able to be done before the day is complete, a protective system will be required before road plating,
  - During the installation of any manhole 3 way or greater in size.
4. Where protective systems are required to be built on site, the contractor shall submit a design that has been reviewed and stamped by a civil PE in the state of record. The location of the protective system shall be designated on the excavation drawings.
5. All lifts shall be conducted in compliance with Section 4.11.
6. All edges of trenches and excavations shall be appropriately demarcated, clearly posted and controlled to prevent unauthorized persons from entering and inadvertently falling into the excavation.
7. All trenches and excavations shall be closed as soon as practical/possible.
8. All excavations shall be fully controlled for the duration of the exposure by adequately substantial means to withstand the environment and conditions expected to be present.
9. All pot holing/test holing and exploratory excavations shall utilize vacuum excavation whenever near known underground utilities or hazards, and when the potential for unknown hazards such as live electrical or gas conveyances exist.



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10. When using vacuum extraction in combination with air blowing/air knife tools, all persons in the immediate area shall be wearing safety glasses in addition to a full-face shields.

For more information, and a copy of applicable documents contact a National Grid project representative.

## **12.5 Cable fault finding and replacements**

For excavation work needed to support faulted cables and emergency cable locates, the use of Cable Avoidance Tooling (CAT) shall be used in addition to Dig Safe requirements as an added safeguard to further pin point unidentified buried cables.

For excavations within the tolerance zone, all hand digging in and around direct buried cables shall require basic PPE, non-metallic handled shovels, rubber gloves, FR clothing and EH rated work boots with Dielectric (DI) over shoes.

All excavation equipment shall be grounded in accordance with NG EOP G026. For additional information, contact a National Grid representative.

The use of GPR (Ground Penetrating Radar) shall also be required to verify the Dig Safe/811 locates after award of the project and prior to excavation. This shall include electric URD, UCD and Substation projects.

## **13.0 CONSTRUCTION PROJECTS AT CONTAMINATED SITES**

In addition to other requirements referenced in this document, all work on contaminated sites must be conducted per the requirements of the OSHA Hazardous Waste Operations and Emergency Response standard, 29 CFR 1910.120, including the worker qualification and training requirements of 1910.120(e).

## **14.0 AERIAL SERVICES**

Contractors providing aerial services for National Grid will comply with National Grid EOP T012 *Helicopter Utilization & Notifications* and National Grid EOP T016 *Unmanned Aircraft System Utilization & Notification* as applicable. Contact a National Grid representative for the most recent versions of EOP T012 and EOP T016.

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## 15.0 TRANSPORTATION RISKS

Contractor shall confirm with relevant business area to determine if transportation related activities have potential process safety consequences. National Grid shall determine if additional risk assessment is needed and contractor shall participate in the assessment. Contractor shall modify their process to mitigate risk that is determined to be intolerable.

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## APPENDIX A: NATIONAL GRID CONTRACTOR RISK MATRIX

National Grid Contractor Risk Matrix			
Category	Description of Work	Impact of Work	Examples to be included in this category (including, but not limited to)
<b>Medium / High Risk Exposure</b> <b>Tier I</b> <u><a href="#">Inclusion in ISN Program is Required</a></u>	<p>Physical work, activity, or service that is performed on behalf of, or for the benefit of National Grid.</p> <p>Includes, but is not limited to, any activity requiring confined space entry, elevated work, work on operating systems involving hazardous energy, work on contaminated sites, and most work requiring a general work permit, hot work permit, or confined space permit.</p>	<p>Work, activity, or service having:</p> <ul style="list-style-type: none"> <li>• A potential for causing a catastrophic operational incident;</li> <li>• Access to operations; and/or</li> <li>• A direct role in site operations or maintenance, where failure could result in serious harm to employee or public well-being, company assets, or the environment</li> </ul> <p>Also includes any Contractor personnel's job function which has no direct or very limited supervision for operational checks.</p>	<ul style="list-style-type: none"> <li>• Maintenance, Construction and demolition contractors</li> <li>• Chemical cleaning, tank cleaning</li> <li>• Electricians and Instrumentation Technicians</li> <li>• Movers</li> <li>• Welding</li> <li>• Heavy equipment operations</li> <li>• Well drilling and testing</li> <li>• Environmental investigation, remediation, monitoring activities</li> <li>• Hazardous waste handling and/or transport</li> <li>• Excavation</li> <li>• Food service and handling</li> <li>• Equipment Inspection (e.g., X-ray &amp; other NDT)</li> <li>• On-site sampling / gauging activities (not including escorted storm water sampling)</li> <li>• Common carriers transporting National Grid-owned LNG or petroleum products</li> <li>• Landscaping services</li> <li>• Snow Removal</li> </ul>

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			<ul style="list-style-type: none"> <li>• Janitorial services</li> <li>• Vacuum truck affecting/involving process operations</li> <li>• Oil Spill Response Organizations (OSRO)</li> <li>• Work conducted in a high-risk area (i.e. substations, etc.)</li> <li>• Work in LNG Process Areas</li> <li>• Unescorted work in an LNG plant</li> <li>• Working at elevations greater than 4 ft (includes, but is not limited to): <ul style="list-style-type: none"> <li>○ Working in buckets (includes technical advisors)</li> </ul> </li> <li>• Working on ladders (straight ladders, extension ladders or step ladders taller than 4ft)</li> <li>• Equipment repair services (other than office equipment specified below)</li> </ul>
<p><b>Low Risk Exposure</b></p> <p><b>Tier II</b></p> <p><b><u>Inclusion in ISN Program is NOT Required</u></b></p>	<p>Work that is office based such as:</p> <ul style="list-style-type: none"> <li>• Consultants that do not perform work or activities as described in the Medium/High Risk exposure category</li> <li>• Offsite services</li> </ul>	<p>Work, activity, or service having an indirect role and no, or limited, access to operations or maintenance where failure could result in serious harm to employee or public well-being, company assets, or the environment.</p>	<ul style="list-style-type: none"> <li>• Mail/package/part delivery or pick-up (e.g. UPS, Fed EX, vendor-specific)</li> <li>• Samples pick-up by laboratory/courier</li> <li>• Office machine servicing (copiers, printer, computer, etc.)</li> <li>• Laboratory apparatus servicing</li> <li>• Storm water Sampling Labs/Contractors (When Escorted by National Grid personnel)</li> </ul>

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<ul style="list-style-type: none"> <li>On-site vendor pick-up/delivery and office repair services (see example in last column)</li> <li>Work performed by public and private utilities</li> <li>Personnel on-site with Visitor Status, when escorted</li> </ul>	<ul style="list-style-type: none"> <li>Deliver/supply services (vending machine, bottled water, laundry)</li> <li>Municipal waste pick-up</li> <li>General trash removal services</li> <li>Off-site repair/fabrication shops (such as pump, safety valve, piping, vehicle)</li> <li>Telephone, electric, local municipal utility services</li> <li>Regulatory representatives</li> <li>Technical representatives (not performing medium or high risk activities)</li> <li>Engineering services (when escorted by National Grid)</li> <li>Auditors (when escorted by National Grid)</li> <li>Pick-up or deliveries of materials to work sites where haulers only need to remove or install chains, ratchet strap or tarps for their loadings.</li> </ul>
<b>A SHE VP can require any contractor to be part of ISN when deemed as a potential risk to National Grid</b>	