



---

## **APS Contractor Safety Manual**

**Preface**

Arizona Public Service Company’s (“APS”) Operations organization is primarily engaged in the generation of electricity using coal, oil and gas, renewable energy, energy storage and other various technologies. The electric service originates in electric generating stations and is eventually distributed through several hundred substations and thousands of miles of overhead and underground transmission and distribution lines until it reaches APS customers for their use. APS’s non generation business unit is primarily engaged in the transmission and distribution of electricity through many substations and thousands of miles of overhead and underground transmission and distribution lines to the point of delivery to its customers.

As an independent Contractor for APS, you must minimize potential safety and health hazards to your employees, to APS employees, or to others who may be on the jobsite, by following applicable governmental regulations and sound work rules for maintaining a safe and healthy workplace and environment. All Contractors’ on-site equipment shall be in good working order, with all safety devices in place and utilized. Contractor shall ensure its employees utilize appropriate personal protective equipment for the task(s) performed.

APS considers the standards and rules of the Occupational Safety and Health Administration (OSHA) and Environmental Protection Agency (EPA) (and their state counterparts) to be minimum requirements that must be complied with at all times. Additionally, APS requires its “High Risk” (as defined in section 1.2) Contractors to subscribe to ISNetworld, to verify and monitor Contractor safety programs. Because each work area is unique in and unto itself, some areas or types of work could require steps that go beyond basic compliance with agency standards and rules. Examples where this may occur involve respiratory, systemic, and dermal hazards, electrical exposures, and excessive noise and/or heat levels.

The following section lists some of the primary *federal* laws affecting the environment, health and safety with which the Contractor must comply, depending upon your contract work scope. In addition, you are required to comply with applicable state, tribal and local rules, regulations, and ordinances addressing the same or similar areas. However, the following list is a guide only and is not intended to be a complete list of laws that may apply to your services. As an independent Contractor, you are required to identify and comply with all applicable laws, rules and regulations.

**PRIMARY ENVIRONMENTAL, HEALTH AND SAFETY ACTS**

Hazardous Materials Transportation Act	DOT (HMTA)
National Environmental Policy Act	EPA (NEPA)
Noise Control Act	EPA (NCA)
Federal Insecticide, Fungicide and Rodenticide Act	EPA (FIFRA)
Resource Conservation and Recovery Act	EPA (RCRA)
Toxic Substances Control Act	EPA (TSCA)
Federal Air Pollution Act (Clean Air Act)	EPA (CAA)
Federal Water Pollution Control Act (Clean Water Act)	EPA (CWA)
Standard for Protection against Radiation	NRC (10CFR20)
Comprehensive Environmental Response, Compensation and Liability Act	EPA (CERCLA)
National Emission Standard for Hazardous Air Pollutants	EPA (NESHAP)
Asbestos Hazard Emergency Response Act	EPA (AHERA)
Occupational Safety and Health Act	DOL (OSHA)

**Table of Contents**

1. DEFINITIONS ..... 5

2. DOCUMENTATION AND MONITORING..... 5

3. CONTRACTOR SAFETY RESPONSIBILITIES ..... 9

4. CONTRACTOR QUALIFIED ELECTRICAL WORKERS ..... 9

5. DESIGNATED SAFETY OBSERVER FOR ELECTRICAL WORK..... 9

6. FITNESS FOR DUTY ..... 10

7. PRE-JOB BRIEF..... 10

8. CONFINED SPACE ENTRY ..... 11

9. LOCKOUT/TAGOUT ..... 11

10. CONDITIONS OF POLES (Transmission and Distribution SPECIFIC) ..... 13

11. EXCAVATION AND TRENCHING ..... 13

12. SCAFFOLDING ..... 14

13. PERSONAL PROTECTIVE EQUIPMENT (PPE)..... 14

14. RESPIRATORY PROTECTION ..... 15

15. FALL PROTECTION..... 15

16. ELEVATED WORK..... 15

17. HOUSEKEEPING..... 16

18. HAZARD COMMUNICATION..... 16

19. PLANT CRITICAL INFRASTRUCTURE PROTECTION (CIP) ACCESS ..... 17

20. DRIVING COMMERCIAL MOTOR VEHICLES..... 18

21. FACILITY ACCESS, DRIVING, MOBILE EQUIPMENT..... 18

22. MOBILE EQUIPMENT SPOTTERS ..... 19

23. WORKING WITH OR NEAR LOCOMOTIVES (GENERATION SPECIFIC)..... 19

24. AERIAL EQUIPMENT..... 19

25. MATERIAL HANDLING EQUIPMENT..... 19

26. FIRST AID AND JOBSITE EMERGENCIES ..... 20

27. FIRE PROTECTION ..... 20

28. EXPLOSIVES ..... 21

29. FLAMMABLE LIQUIDS..... 21

30. TOBACCO/VAPING USE..... 22

31. ELECTRICAL SAFETY..... 22

32. TEMPORARY POWER CORDS ..... 24

33. ARC FLASH PROTECTION AND LIVE ELECTRICAL WORK..... 24

34. SUBSTATION AND SWITCHYARD ENTRY AND EXIT..... 24

35. HIGH VOLTAGE TRANSFORMER..... 26

36. INDUCED VOLTAGE ..... 26

37. PERSONAL PROTECTIVE GROUNDING ..... 26

40. LEAD ..... 27

41. TEMPERATURE EXTREMES..... 27

42. CAUTION AND DANGER DEMARCATION – BARRIER TAPE ..... 28

43. REPORTING INCIDENTS, INJURIES, AND CLOSE CALLS ..... 28

44. GENERAL EQUIPMENT SAFETY ..... 29

45. RADIATION SAFETY (Four Corners Specific)..... 29

46. CONVEYOR SAFETY (Generation Specific) ..... 29

47. COMBUSTIBLE DUST (Generation Specific) ..... 29


48. ELECTRICAL DEVICES..... 29


49. CONTRACTOR’S ENVIRONMENTAL REQUIREMENTS..... 29


ATTACHMENT A OCCUPATIONAL SAFETY & HEALTH QUALIFICATIONS OF CONTRACTORS AND SUBCONTRACTORS..... 32

ATTACHMENT B WOOD POLE MAINTENANCE PRIORITY RATINGS AND TAGGING ..... 33

ATTACHMENT C ARC FLASH CALCULATIONS ..... 35

 Open Air Overhead Secondary Arc Flash

 Secondary\_Meter\_Panel\_Arc\_Flash\_Cal

 ARC Flash\_Metal Clad Switchgear.pdf ..... 35

ATTACHMENT D HIGH RISK MATRIX.....36

## CONTRACTOR HEALTH AND SAFETY REQUIREMENTS

### 1. DEFINITIONS

- 1.1 APS Representative: The APS employee selected by the applicable business unit who is assigned to serve on behalf of APS as the on-site primary contact for a Contractor for a particular Project.
- 1.2 Contractor: An entity that meets each of the following criteria: 3.6.1 Is an independent third-party services Contractor (as defined in SC-BU-PRD-0008), providing services (as opposed to materials) to APS under a contract with a defined scope and set of deliverables and where APS does not control the manner or means by which their day-to-day work is performed.
  - 1.2.1 Is hired (or being considered for hire) by APS, to perform work for T&D, Generation non-nuclear or Corporate Resources,
  - 1.2.2 Is hired to perform work on APS property or APS equipment (not including equipment that a Services Contractor takes back to its place of business for servicing), and 3.6.4 Is not a Staff Augmentation Contractor (as defined in SC-BU-PRD-0008), where APS typically controls the manner and means by which they perform their day-to-day work and assigned tasks. Staff Augmentation Contractors are subject to APS's safety rules and procedures and are not subject to this procedure.
- 1.3 High Risk work:
  - 1.3.1 Work that exposes employees, the public or the environment while operating on APS property or rights of way to High-Risk category work as defined in Appendix F.
  - 1.3.2 Work presents potential harm to public or employee well-being, APS assets or the environment.
  - 1.3.3 Work has high potential for causing a catastrophic operational incident.
  - 1.3.4 Work may impact site operations or business continuity.
- 1.4 Safety Professional: An individual with the primary responsibility of implementing safety management systems, making worksite assessments to determine risks, assessing potential hazards and controls, evaluating risks and hazard control measures, investigating incidents, maintaining and evaluating incident and loss records, and preparing emergency response plans, among other possible duties.
- 1.5 Subcontractor: A Subcontractor is a person or business that takes on some or all of the obligations of the primary contractor.

### 2. DOCUMENTATION AND MONITORING

- 2.1 Safety is the **overriding value** of all aspects of our business. Safety includes protection of personnel from workplace hazards, protection of property from damage or loss, and protection of the environment. Together, we will provide a safe and healthy environment for our collective employees, APS customers and the communities APS serves. The best interest of all parties is served when reasonable and prudent measures are taken to establish and maintain a safe place to work. Each Contractor and Subcontractor are responsible and accountable for the safety and wellbeing of its employees. At a minimum, all activities performed on behalf and in support of APS (and other activities performed on APS property or equipment) by the Contractor and its Subcontractors must comply with applicable federal, state, tribal and/or local laws, ordinances, statutes, rules and regulations, including those promulgated by OSHA, ADOSH, ADEQ, and EPA. Each Contractor and Subcontractor are expected to have and follow their own documented safety programs and procedures. Additionally, the Contractor and Subcontractors safety programs and practices must meet or exceed all APS safety and health policies, procedures and program requirements, including APS' Accident Prevention Manual (APM). The APM can be found at:

<https://www.aps.com/-/media/APS/APSCOM-PDFs/About/Our-Company/Doing-business-with-us/Suppliers/Resources-tab/AccidentPreventionManual.pdf>

- 2.2 APS requires Contractors performing High Risk work based on the APS risk matrix to subscribe to ISNetworld to allow APS to verify and monitor the Contractor safety programs, practices and procedures, and monitor the Contractor performance with respect to safety. When subscribing to ISNetworld, each Contractor must (1) upload copies of their existing safety policies, procedures and program requirements for APS' review, (2) provide responses to a safety questionnaire, (3) provide documentation verifying the Contractor federal safety statistics, and (4) acknowledge the APS Contractor Safety Manual as well as the APM as a pass/fail grade. Based on these components, each Contractor will be given a numerical score that will result in an A, B, C, F status within ISNetworld. If a Contractor receives an "A" or "B" ISN grade status, the Contractor may, at APS' sole discretion, continue work. If a Contractor receives a "C" ISN grade status, the Contractor may, at APS' sole discretion, continue work by having a safety mitigation plan in place approved by APS. If a Contractor receives an "F" ISN grade status, APS, at its sole discretion may stop the Contractor work and, notwithstanding any other contract terms and conditions agreed to between the Contractor and APS to the contrary, APS may, immediately terminate the Contractor's work and the contract under which the work is being performed.
- 2.3 The Contractor and its Subcontractors are responsible and expected to take all reasonable and lawful actions deemed necessary to prevent incidents and losses. It is APS' expectation that all parties cooperate fully with loss control programs implemented by APS. The applicable safety program components included in this manual must be addressed prior to and during all services provided to APS. The Contractor, Subcontractors and its employees who fail to comply with these requirements may be denied access to the APS project, facility or property and risk termination of the contract.
- 2.4 APS will monitor the Contractor safety performance throughout the term of the contract. If, in APS's sole discretion, the Contractor fails to perform the work in a safe and acceptable manner, APS may stop the Contractor work and, notwithstanding any other contract terms and conditions agreed to between the Contractor and APS to the contrary, APS may, for convenience, immediately terminate the Contractor work and the contract under which the work is being performed. If work is stopped and APS does not terminate the contract, the Contractor shall provide a written "mitigation plan" to its APS Representative and the APS site Safety Professional, which details what actions the Contractor will implement to resolve or mitigate the identified unsafe work behaviors or conditions. If, during or after the period of stopped work, the Contractor fails to perform the work in a safe and acceptable manner, APS may terminate the contract as set forth above. In addition, periodic reviews will be performed on certain contracts lasting longer than a year. The review will cover the Contractor safety performance, identification of best practices and a discussion regarding sustaining safety performance or needed improvements. The Contractor will submit a written Safety Improvement Plan to address deficiencies identified in the review to the APS Representative and site Safety.
- 2.5 The Contractor and its Subcontractor shall:
  - 2.5.1 Ensure that all Subcontractors are provided and comply with this Contractor Safety Manual.
  - 2.5.2 Designate an on-site representative who will serve as the primary liaison and contact for establishing and maintaining communication with APS and the Contractor or Subcontractor. The Contractor on-site representative, will take the lead on behalf of the Contractor in the performance of safety inspections, assessments, audits and investigations to represent the interest of the Contractor and its Subcontractor regarding safety matters. A Contractor Designee must be on site during any time the Contractor's personnel performs work.
  - 2.5.3 Maintain and provide information and reports as requested regarding safety, inspections, assessments, audits and investigations.

- 2.5.4 Ensure Contractor on-site representative and lead personnel are provided with a copy of this manual for their use and reference.
- 2.5.5 Participate in a pre-work conference and online safety orientation. The link to the online safety orientation should be provided by an APS representative between the award of the contract but prior to performing work under that contract. The online Safety orientation must be completed on an annual basis. This pre-work conference allows both sides to discuss and review various contract requirements, including those pertaining to site regulations, safety, environmental considerations, and potential hazards. APS personnel may advise of applicable laws, rules, etc., in the areas of importance. However, such actions do not relieve the Contractor of its responsibility to comply with all applicable federal, state, tribal and/or local laws, ordinances, statutes, rules and regulations.
- 2.5.6 Ensure Contractor's and Subcontractor personnel participate in regularly scheduled safety meetings conducted by the Contractor leader or foremen. At a minimum, said safety meetings must be held weekly.
- 2.5.7 Immediately notify the APS Representative upon knowledge of any on-site inspection being conducted by any regulatory agency.
- 2.5.8 Assign a full time Safety Professional to work at the site when the activity or job scope requires an employee base of fifty (50) or more Contractor personnel and/or Subcontractor personnel. Assign an additional full time Safety Professional for each additional one hundred (100) employees.
- 2.5.9 Require a site visit by the Contractor Safety Professional initially at the start of the project and at least monthly throughout the duration of the project.
  - 2.5.9.1 At the sole discretion of the APS Representative and/or the APS site Safety Professional, this requirement may be waived for short-term or minor projects with minimal risk exposure.
- 2.5.10 Ensure each Contractor personnel complete the APS Online Contractor safety orientation to provide an understanding of the expectations regarding safe work practices, prior to performing any work tasks. Contractor safety orientation shall be completed using Red Vector online system.
  - 2.5.10.1 For non-English speaking personnel, Contractor shall have a bilingual supervisor present to translate the orientation to ensure all employees gain an understanding of APS Contractor safety requirements.
  - 2.5.10.2 The orientation is valid for a calendar year and must be renewed on an annual basis at the start of each calendar year.
  - 2.5.10.3 For Generation Contractor and Subcontractors only: No work activities, including offloading of equipment, may take place until the Contractor personnel and any Subcontractor personnel have received the APS Generation Safety Orientation.
  - 2.5.10.4 Proof of APS Contractor safety orientation received at another APS Generating Station within the current calendar year is acceptable. However, site specific requirements still must be covered during contractor safety orientation.
- 2.5.11 Provide documents showing past safety performance upon APS Representative or APS site safety's request. This may include OSHA inspection results and citations, incident rates, Experience Modification Rates, and/or DOT-related inspections and citations. Such documents may be requested prior to commencement of work.
- 2.5.12 Provide a written safety program or plan through ISNetworld (for High-Risk services) for all services prior to the commencement of any work activities. At a minimum, the Contractor' safety and health program or plan must meet or exceed

- the requirements of the APS programs. Safety plans must be prepared regarding any of the following:
- 2.5.12.1 Overall Safety Plan for the job or project.
  - 2.5.12.2 For any project involving dismantling, razing, or wrecking of any fixed building or structures or any part thereof, a demolition plan meeting the requirements of 29 CFR 1926, Subpart T and ANSI A10.6.
  - 2.5.12.3 Critical lifts and rigging associated with critical lifts.
  - 2.5.12.4 Any High-Risk work activity (evolutions prompting reasonable concerns regarding serious injury and/or property damage);
  - 2.5.12.5 Plans for High-Risk activities will include a job hazard analysis, increased observations, presence of Contractor supervision; and
  - 2.5.12.6 Significant evolutions such as chemical cleaning, asbestos or lead abatement, or work near or within minimum approach distances to energized overhead lines.
- 2.5.13 Submit, upon APS' request (APS Representative or APS site safety), written verification that all the Contractor and Subcontractor personnel have received and demonstrated competency in the required training and refresher training of regulatory agencies and APS as applicable to the services being provided. Upon APS' request, provide written documentation of employee safety training records, certifications, etc. A list of potentially applicable training is provided in Attachment A.
- 2.6 The Contractor will provide a workforce adequately trained in safe work practices. Required training for all High-Risk Contractor personnel prior to arriving on site consists of:
- 2.6.1 OSHA 10 Hour Outreach Training for Construction Industry or.
  - 2.6.2 OSHA 10 Hour Outreach Training for General Industry or equivalent.
  - 2.6.3 For a course to be considered equivalent, the course content must meet or exceed the guidelines issued by the Occupational Safety and Health Administration of the United States Department of Labor for an OSHA – 10 Hour Outreach Course, including without limitation, federal safety and health regulatory requirements specific to the industry in which the employer participates.
  - 2.6.4 Submit a copy of all welders' certifications as applicable to the services being provided.
  - 2.6.5 Provide a copy of crane operator certification prior to the use or operation of any crane.
  - 2.6.6 Submit a copy of the crane certification prior to any crane being brought on site. The most recent annual, monthly and pre-use inspection reports for any crane brought on site must be provided.
  - 2.6.7 Provide a copy of the forklift operator certification prior to any forklift operation.
  - 2.6.8 Obtain APS written authorization prior to moving parts off-site.
  - 2.6.9 Abate all safety discrepancies discovered in a timely manner in accordance with regulatory or contract requirements, as applicable and appropriate. APS reserves the right to conduct periodic inspections of the work site to verify compliance with these requirements.
  - 2.6.10 Ensure all employees of Contractor and its Subcontractors, park only in the area(s) designated by APS.
  - 2.6.11 Ensure no photographs are taken on or around the site without prior authorization by a designated APS representative.
- 2.7 The Contractor may be assessed the cost of any fines and/or penalties incurred by APS resulting from the Contractor non-compliance with safety or environmental regulations.



### **3. CONTRACTOR SAFETY RESPONSIBILITIES**

- 3.1 The Contractor, Subcontractor and its employees shall:
  - 3.1.1 Understand and comply with all applicable provisions in its respective written safety programs or plans.
  - 3.1.2 Immediately notify the APS Designated Representative upon discovering any safety or health hazard or defect and shall follow up with the APS Designated Representative until the identified hazard or deficiency is corrected.
  - 3.1.3 Immediately correct any safety or health hazard or defect identified by APS personnel, or others, if under the Contractor control.
  - 3.1.4 Ensure Contractor and sub-Contractor employees are aware of their right and responsibility to stop work due to the identification of any unsafe work practice or unsafe work condition and notify their leaders for correction.
  - 3.1.5 Maintain all on-site equipment in good working order, with all safety devices in place and utilized.

### **4. CONTRACTOR QUALIFIED ELECTRICAL WORKERS**

- 4.1 Contractors must ensure qualified electrical workers are qualified to perform work on APS's systems or its make-up components. The Contractor is responsible for ensuring the qualified electrical workers performing work tasks have the proper knowledge, skills and abilities to safely perform work.
- 4.2 Qualified electrical workers, who in the opinion of APS are not performing competently or safely, will be removed from the job site and prohibited from performing work for APS. If the Contractor disagrees with APS's assessment, a practical evaluation may be performed of the qualified electrical workers' abilities.
- 4.3 If apprentices are used on APS projects, the Contractor is responsible for ensuring that the apprentices only perform work at the step for which they are qualified (i.e. a "cold apprentice" shall not do hot work, etc.)

### **5. DESIGNATED SAFETY OBSERVER FOR ELECTRICAL WORK**

- 5.1 A designated safety observer shall be utilized for the tasks identified below:
  - 5.1.1 Inter-setting a pole in energized primary-more than one phase.
  - 5.1.2 Installing rubber protective equipment
  - 5.1.3 Making up or moving a phase with T-Taps in the span
  - 5.1.4 Installing & removing of initial grounds
  - 5.1.5 When moving any energized phase or when moving overhead conductors near energized phases
  - 5.1.6 Any work that requires breaking the plane of live front pad mounted equipment until all exposed energized parts have been appropriately covered with rubber protective equipment.
  - 5.1.7 Any work performed in the primary position (above the neutral or secondary)
  - 5.1.8 Working within the minimum approach distance of exposed energized circuits or equipment
  - 5.1.9 Substation Maintenance and Construction Activities
    - 5.1.9.1 Installing and removing of the initial grounds on EHV (115kV-500kV)
    - 5.1.9.2 Working on EHV lines or equipment as de-energized where the potential of induced voltage exists
    - 5.1.9.3 When "energized work" is being performed (EHV)
    - 5.1.9.4 Working within minimum approach distance (EHV)

5.1.9.5 Working from an elevated platform or bucket (above 40 ft.) when closer to energized lines or equipment than the Minimum Required Clearances

- 5.2 Designated Safety Observer: means a person deemed competent to observe the task and specifically assigned the duty to provide dedicated attention to the activity being carried out and warning against unsafe approach to electrical equipment or other unsafe conditions.
- 5.3 Not Perform any other work task while acting as a designated safety observer.

**6. FITNESS FOR DUTY**

- 6.1 Contractor personnel are responsible to report to work both emotionally and physically fit to perform the work assigned.
- 6.2 Contractor personnel are to report to their company if they are prescribed or taking any prescription or over the counter medication that could affect their ability to safely perform their job prior to performing any work. Use of intoxicating liquor or drugs by any individual during working hours is forbidden, including prescription, over the counter medication that can affect fitness for duty, and marijuana (even with a medical card)
- 6.3 Any individual demonstrating reasonable grounds to suspect that he/she has reported to work under the influence of intoxicating liquors or drugs shall be prohibited from working until satisfactory medical or other evidence indicating fitness is secured.

**7. PRE-JOB BRIEF**

- 7.1 A written pre-job briefing is required at the start of each shift and before the start of each new job whenever two or more employees perform non-office type work as a group. A Contractor employee working alone need not conduct a job briefing; however, the Contractor shall ensure that the tasks to be performed are planned as if a briefing were required. The pre-job brief is conducted by the affected on-site contract company leader.
  - 7.1.1 Generation requires documented pre-job brief for workers working alone.
- 7.2 In assigning an employee or a group of employees to perform a job, the Contractor shall provide its employees in charge of the job with all available information that relates to the determination of existing characteristics and conditions of the work environment.
- 7.3 If the work or operations to be performed during the workday or shift are repetitive and similar, at least one job briefing shall be conducted before the start of the first job of each day or shift.
- 7.4 Additional job briefings shall be held if significant changes, which might affect the safety of the employees, occur during the course of the work.
- 7.5 A more extensive discussion shall be conducted:
  - 7.5.1 If the work is complicated or particularly hazardous, or
  - 7.5.2 If the Contractor employee cannot be expected to recognize and avoid the hazards involved in the job.
  - 7.5.3 The extent of the briefing may vary, depending upon the experience and training of those involved; however, the following key points must be included in all cases:
    - 7.5.3.1 Task Identification
    - 7.5.3.2 Roles and Responsibilities
    - 7.5.3.3 Communications
    - 7.5.3.4 Hazard Identification
    - 7.5.3.5 Special Precautions
    - 7.5.3.6 Work Criteria
    - 7.5.3.7 Energy Source Controls
    - 7.5.3.8 PPE Requirements
    - 7.5.3.9 Opportunity for Questions and Worker Input

7.5.3.10 Any potential environmental impacts (waste disposal, dust control, used oil, labeling, etc.

- 7.6 A Job Hazard Assessment (JHA) will be performed as part of the pre-job brief for High-Risk tasks. The JHA will identify the hazards for the job and detail what is to be done to eliminate/control the hazards. Pre-job briefs will be documented and available for review by the APS Designated Representative. Upon request by the APS Designated Representative or Safety, Contractor shall provide documented pre-job briefs for review.

## 8. CONFINED SPACE ENTRY

- 8.1 APS contain both non-permit and permit required confined spaces. Throughout APS' facilities, the definition of confined space applies to most tanks, vaults, drums, mills, pulverizers, chutes, silos, pits, boxes, heaters, compartments, and ducts.
- 8.2 Contractor performing any confined space entry is expected to have and follow their own written confined space entry program meeting the requirements of 29 CFR 1926 Subpart AA and employees trained in the requirements of the program. Contractor will inform APS of the confined space program they follow, including any hazards likely to be confronted or created in the confined space.
- 8.3 The Contractor will provide a copy of their written confined space entry program/procedure upon request from the APS representative.
- 8.4 Contractors are to obtain from APS any information concerning a permit confined space's hazards and previous operations, including special precautions needed to enter the space. Contractor is to provide this information to employees entering the space and any additional information the Contractor may have regarding the space, including precautions implemented for the protection of employees in the space. Contractors shall share this information with all of their sub-contractors, including the hazards or potential hazards of the confined space being entered.
- 8.5 Contractors must ensure they designate a competent person to identify all confined spaces in which its employees may work and identify each space that is a permit required space. This is to include evaluation of the elements of the space, work processes and testing as necessary.
- 8.6 Contractor is responsible for providing rescue services when permit-required confined space entries are required. APS requires rescue services to be onsite during entry.
- 8.7 Contractors will inform APS via the APS Designated Representative anytime unexpected hazards are encountered within a confined space and during a debriefing after entry.
- 8.8 Contractor is responsible for providing and for maintaining appropriate confined space inspection/monitoring and rescue equipment and for conducting the required inspections prior to confined space entry by its employees.
- 8.9 Any confined space opening not used as an entry point and not posted with an entry permit shall be barricaded to block access with at a minimum red barrier tape and tags.
- 8.10 The Contractor is responsible for providing and for maintaining appropriate confined space inspection/monitoring and rescue equipment and for conducting the required inspections prior to confined space entry by its employees.

## 9. LOCKOUT/TAGOUT

- 9.1 Generation Specific Requirements
  - 9.1.1 Work shall not be allowed on APS equipment without first obtaining an appropriate Lockout/Tagout (LOTO) through the APS Designated Representative. All servicing or maintenance that is performed on a machine or equipment, where the unexpected energizing, start-up, or release of stored energy could occur and cause injury, requires a LOTO (complete energy isolation).

- 9.1.2 LOTO's exists for the sole purpose of keeping people alive and under no circumstances will a deviation be tolerated.
  - 9.1.3 Non-APS personnel MAY NOT energize, de-energize or operate any plant equipment unless doing so under the explicit instructions of their APS Rep.
  - 9.1.4 Prior to the Contractor supervisor/foreman signing on to a LOTO and placing a lock on the associated lock box, his/her APS Representative shall review the energy isolating devices that have been placed on the equipment, sign onto the LOTO Permit Form and place his/her personal lock on the associated lock box.
  - 9.1.5 Before a Contractor supervisor/foreman prints his/her name on the LOTO Permit Form, he/she must walk down the work area and boundary points and verify energy isolation before starting work. The Contractor supervisor and APS Representative together, must have a thorough review of the scope job and LOTO with the Issuing Authority to ensure boundaries provide adequate protection to cover the job scope. Contractor personnel shall be afforded the opportunity to walk down the work area and boundary points and verify energy isolation prior to starting work to ensure isolation points cover the job scope.
  - 9.1.6 Each Contractor supervisor/foreman shall print his/her name on the LOTO Permit Form and then be issued a Contractor's lock and shall attach that lock and a tag with the contract company's name, company representative's name, and APS Representative name on the lock box designated on the LOTO Permit Form.
  - 9.1.7 The Contractor supervisor/foreman shall maintain a method by which all his/her employees working on the equipment are accounted for.
  - 9.1.8 NOTE: Contractor is to have a written program for the control of hazardous energy meeting the requirements of either 29 CFR 1910.147 or 29 CFR 1910.269(d). APS expects the Contractor to have and utilize a method to meet compliance with these standards and track any employee performing work under LOTO.
  - 9.1.9 The Issuing Authority is responsible for ensuring that all work conducted by the Contractor is at all times in accordance with this Procedure and must provide for a proper Safety Designee when applicable.
  - 9.1.10 At the completion of work the Contractor supervisor/foreman and APS Representative shall verify that all contracted work is completed and that all contract employees are accounted for. The Contractor supervisor/foreman shall remove the issued Contractor's lock from the designated lock box, and then sign off of the LOTO Permit Form.
- 9.2 Transmission and Distribution and Corporate Resources Specific Requirements
- 9.2.1 All servicing or maintenance that is performed on a machine or equipment, whether or not it is associated with the APS transmission or distribution systems, where the unexpected energizing, start-up, or release of stored energy could occur and cause injury, requires a work clearance (complete energy isolation). The APS Designated Representative is the individual who will obtain all work clearances for the Contractor once the Contractor submits the request. All Contractor personnel shall follow APS procedures for group tagout and sign the Group Tagout Work Permit associated with the Group Hold Tag for the clearance prior to beginning any work where an exposure could occur. The authorized APS Designated Representative for the Contractor will maintain the Group Hold Tag and Group Tagout Work
  - 9.2.2 All work to be performed directly on the APS transmission or distribution system, or their make-up components, where the unexpected energizing, start-up, or release of stored or induced energy could cause injury, also requires a work clearance (complete energy isolation). The clearing process often requires Switching Orders for initial clearing of all associated lines and equipment. The

Contractor must request from the APS Designated Representative all work clearances and switching orders for the Contractor; except that, contract company personnel who have been trained and authorized by APS may request and obtain switching orders from APS's Energy Control Center (ECC) for transmission lines, and from APS's Distribution Operations Center (DOC) for distribution lines. All switching of energized conductors or equipment MUST be performed under the direction of the APS Designated Representative, or the APS trained and approved contract company personnel.

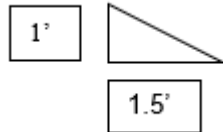
## 10. CONDITIONS OF POLES (TRANSMISSION AND DISTRIBUTION SPECIFIC)

- 10.1 The APS Pole Inspection Program is intended to promote safety, circuit reliability and minimal service interruption as well as reduce overall risk of personal injury, property and fire damage through routine pole inspections. The inspection focus is to ensure compliance with the National Electrical Safety Code (NESC). The pole inspection and documentation of all associated maintenance conditions for the in-service and/or out-of- service overhead pole systems are necessary for this compliance. The inspection documentation is provided for:
  - 10.1.1 Visual Pole Inspection
  - 10.1.2 Groundline Pole Inspection
  - 10.1.3 Pole Sounding Inspection
  - 10.1.4 Internal Wood Boring Inspection
- 10.2 Inspected poles will be tagged on the pole with Condition Results (See Attachment B)
- 10.3 Before climbing, the employee shall first:
  - 10.3.1 Sound all poles with a hammer around the circumference of the pole up to a height of six feet to determine the integrity of the pole.
  - 10.3.2 Dig around the butt of the pole and probe with a screwdriver or drill below ground level unless circumstances do not allow this (exception: Digging and probing or drilling around the butt of the pole may be omitted when the pole is adequately guyed to withstand any change in tension imposed by the work being done); and
  - 10.3.3 Visually inspect the pole for checkering or shelling of the outer layer, excessive cracks, knots, holes from wildlife and any other features that may alter the strength of the pole or contribute to climber cutout.

## 11. EXCAVATION AND TRENCHING

- 11.1 A Contractor that is performing excavation and/or trenching work will ensure the following is performed as required to comply with OSHA regulations:
  - 11.1.1 A trained "Competent Person" to identify predictable hazards surrounding and within all excavations. This person must have the authority to authorize prompt corrective measures to correct identified problems and shall inspect each excavation prior to entrance each work-shift and after any hazard-increasing event such as rain, earthquake, etc.
  - 11.1.2 Underground installations (telephone, gas, electrical, etc.) must be identified in accordance with ARS §40-360.21, et seq., designed to prevent accidental dig- ins prior to opening any excavation or trench. Any accidental dig-in must be reported to your APS Designated Representative.
- 11.2 Soils at Generating Plants shall be considered Class B (previously disturbed) until proven otherwise.
- 11.3 All materials on site that are NOT WOOD, GLASS, or METAL are considered to contain ASBESTOS until tested or shown otherwise. Refer to Asbestos section of this document when Transite® pipe is encountered during excavation and/or trenching.

- 11.4 Store excavated materials no closer than two feet (2') from an excavation. Adequate means of access and egress (ladder, ramp, etc.) shall be maintained no further than twenty feet (20') from all workers working within excavations four feet (4') or deeper in depth.
- 11.5 Protect persons working within an excavation from cave-ins by adequate shoring systems unless (1) the excavation is made in stable rock; (2) the excavation is less than five feet (5') deep and the Competent Person determines there is no possibility of cave-in; or, (3) the walls are sloped and/or benched to an angle not to exceed 34 degrees from horizontal or a 1:1.5 slope.



- 11.6 Protect all excavations, trenches, manholes, etc., opened and/or worked in by using adequate signs, barriers, barricades, lighting and/or flagmen.
- 11.7 Trenches and excavations must be flagged with yellow tape, trenches exceeding 4 feet deep shall use red tape unless a hard barrier is provided.
- 11.8 Blue stake requirements can be found [www.arizona811.com/downloads/Arizona811\\_EXCAVATION\\_GUIDE\\_ver08-English.pdf](http://www.arizona811.com/downloads/Arizona811_EXCAVATION_GUIDE_ver08-English.pdf)

**12. SCAFFOLDING**

- 12.1 Scaffolding, when used by the Contractor, shall be erected in conformance with all applicable OSHA scaffolding standards and a safe means of access or egress must be maintained. It is the Contractor responsibility to ensure that each scaffold utilized by the Contractor has been inspected by a “Competent Person” prior to each shift’s use. Any person using said scaffold must follow the PPE requirements as indicated on the scaffold tag.

**13. PERSONAL PROTECTIVE EQUIPMENT (PPE)**

- 13.1 The Contractor shall provide and ensure its employees utilize all appropriate personal protective equipment for the tasks performed and hazards present. Personal protective equipment is considered tools of the trade, and it is the responsibility of the Contractor to ensure adequate personal protective equipment is provided to their employees. Contractor personnel are to arrive on site with all required PPE and protective clothing.
- 13.2 When working at a Generation Power Plant- PPE shall be worn in all areas except designated break areas, administrative areas, training rooms, and job trailers unless the Contractor is performing a work task or has exposure that would require the use of PPE in these areas.
  - 13.2.1 Hard hats shall meet the requirements of ANSI Z89, and a minimum of Class E (some may be labeled both Class G or E) and a minimum of Type 1. Baseball hats may not be worn under hard hats. Hard hats designed to look like cowboy style hats are prohibited.
  - 13.2.2 All personnel shall wear safety eyewear or goggles meeting the requirements of ANSI Z87.1 or Z87.2 when in work areas. Personnel who wear prescription eyewear must wear goggles over their glasses if they do not have prescription safety eyewear meeting ANSI Z87.1 or Z87.2. Safety eyewear will be worn under welding hoods/shields and face shields unless the work being performed requires chemical splash goggles under the face shield (handling chemicals that could become airborne, such as chemical dusts or chemical splashing). Dark tinted safety glasses (sunglasses) shall not be worn indoors, in areas of poor lighting or at night. Photochromatic lenses are acceptable.

- 13.2.2.1 Where deemed necessary by plant management, advanced safety eyewear (spoggles) may be required gate to gate or turnstile to turnstile (i.e., Four Corners). Advanced eyewear provides a sealing surface, such as foam or rubber, against the face of the user to keep dust or small particles out of the eye. Advanced safety eyewear shall be equipped with a band or strap to ensure positive contact is made with the sealing surface.
- 13.2.3 Hearing and respiratory protection are required when dictated by environmental conditions or the work being performed. (Note: The Contractor will ensure that its employees who wear respirators, as a requirement of OSHA, maintain a face-to-respirator seal that is free of facial hair or other obstructions.)
- 13.2.4 Protective footwear, appropriate for the work being performed, is mandatory in work areas where the work exposes them to foot injuries. All safety toe footwear must meet ASTM F2413-05, or safety toe caps are required to be worn by employees who are exposed to substantial drop, compression or puncture hazards.
- 13.2.5 Contractor personnel are required to wear flame resistant clothing when working within twenty-five feet (25') of any energized "high voltage" transformer.
- 13.2.6 Minimum clothing required includes long sleeve non-melting shirts and long pants. Contract employees performing arc-based tasks shall wear arc rated clothing appropriate for the arc potential they are exposed to.
  - 13.2.6.1 Note: Long sleeves are not required when working on or near rotating equipment such as operating a mill or lathe.
- 13.2.7 Contract personnel shall have gloves in their possession at all times. Appropriate gloves shall be worn when handling rough or sharp objects such as rough lumber, glass, sheet metal with unfinished edges, metal slivers, etc. Chemical resistant gloves, as recommended by the product SDS, shall be worn

**14. RESPIRATORY PROTECTION**

- 14.1 For any work tasks that require the use of tight-fitting air purifying respirators, the Contractor must have a written respiratory protection plan. The workers must have completed respiratory protection training meeting the requirements of the OSHA Standard, have received medical clearance to wear a respirator, and have passed a fit tests on the specific respirator being worn within the last 12 months. The Contractor is responsible for providing employees with training, medical evaluation, and fit tests if respiratory protection is used.
- 14.2 Dust masks are not considered tight fitting air purifying respirators and are convenience items only and not part of this requirement.

**15. FALL PROTECTION**

- 15.1 Contractor personnel working from unprotected elevated positions over four feet (4') from the surface below shall wear and utilize appropriate fall arrest equipment. The Contractor shall have a written fall protection/fall arrest program.
- 15.2 Tie off/anchor points must be able to withstand a minimum of a 5000-pound load.
- 15.3 Handrails/guardrails, conduit, and uni-strut are not tie off points and shall not be used for anchorage for fall protection.
- 15.4 Contractor employees performing these tasks shall receive adequate training and fall arrest equipment from their employer.

**16. ELEVATED WORK**

- 16.1 Contractor shall implement adequate measures when working from any elevated position to avoid events that could result in injury or property damage due to a dropped item. Some measures to consider include:

- 16.1.1 Using weld blankets or plywood to prevent items from falling through grating.
- 16.1.2 Using plywood or other solid barriers to keep material from falling through guardrails.
- 16.1.3 Hoisting small objects in canvas bags.
- 16.1.4 Installing barriers below that is large enough to prevent others from entering a potential drop zone.
- 16.2 If any of the conditions below are met, a dropped item prevention plan must be created and reviewed prior to commencement of work.
  - 16.2.1 Erecting/Dismantling scaffolding
  - 16.2.2 Performing work from scaffolding
  - 16.2.3 When working with materials that are small enough to pass through grating, includes cutting of material
  - 16.2.4 When working within close proximity to unprotected/uncovered penetrations. Floor holes or wall holes
  - 16.2.5 Hoisting/lowering material tools
  - 16.2.6 Removing or dismantling of any component while working at an elevated position
  - 16.2.7 Where potential exists to drop tool(s), material(s), or equipment to a lower level

## 17. HOUSEKEEPING

- 17.1 The Contractor interest in environmental, health and safety matters can often be predicted by the degree to which housekeeping is performed at staging and work areas. APS does not tolerate poor housekeeping practices as they result in employee injuries and reflect poorly upon our public image. The Contractor shall ensure that debris is contained and removed as often as required to prevent it from interfering with the safety of employees and/or the general public. In any event, containment and removal of debris shall be performed at least daily.
- 17.2 Hoses, welding leads, power cords, etc., must not be strung across established walkways, but shall be suspended above or below the walkway to avoid the creation of tripping hazards. Any hoses, welding leads, power cords, etc. strung overhead must provide a minimum of seven (7) foot clearance.
- 17.3 The Contractor must ensure that personnel never create a hazardous condition by blocking access to emergency equipment such as fire hydrants, fire hose stations, fire extinguishers, electrical switching panels, ambulances, first aid equipment, eye/body wash stations, etc., with equipment, vehicles or supplies.

## 18. HAZARD COMMUNICATION

- 18.1 APS facilities may utilize some products classified as hazardous under OSHA's Hazard Communication Standard. Upon request, the APS Designated Representative will provide the Contractor with a list of those products in use at the facility, in addition to providing access to each product's corresponding Safety Data Sheet (SDS).
- 18.2 The Contractor shall provide the APS Designated Representative with a list of all chemicals, asbestos and/or radioactive products proposed to be brought on-site, in addition to its respective SDSs, for review and approval at least one (1) week in advance of bringing such materials onto APS' premises. This list must include the quantity of each product or chemical to be used. The amount of each product or chemical used [on this service] must be provided with the final invoice or at the end of each calendar year (whichever occurs first).
- 18.3 Each proposed material SDS provided by the Contractor for project use will go through the APS chemical review process and only approved materials shall be utilized on APS projects and in accordance with any specific directives or stipulations provided by any member of the APS chemical review team. Only the approved materials shall be used, and no substitutions



will be accepted during project work. APS Designated Representatives will perform periodic project reviews to ensure only approved materials are in use by Contractor during project work. Contractor is expected to maintain readily accessible SDS documents for all materials being used during project work.

- 18.4 All solvents and other chemical cleaning agents, when used, must be collected, contained and properly labeled as directed by the APS Designated Representative. Under no circumstances are waste solvents and/or other chemicals to be dumped on the ground, down plants drainage systems, or placed in regular trash receptacles.
- 18.5 Toxic chemicals (e.g., PCBs, sodium hydroxide, sulfuric acid, ammonium hydroxide) and/or radioactive substances may be found within some APS facilities. Contractor's personnel must become familiar with the applicable environmental, health and safety rules governing such substances before performing any work near them. Specific guidelines are available from the APS Designated Representative upon request.
- 18.6 Opened drums, bags and other chemical containers to be disposed of must be completely emptied by pumping and/or pouring any remaining contents into an appropriate waste receptacle. After emptying, both the empty container and any waste receptacle used to contain chemical residuals must be properly labeled and placed in an area dictated by the APS Designated Representative.
- 18.7 The Contractor must immediately report any accidental spillage of hazardous substances, solvents or cleaning agents to the APS Designated Representative. The spillage must be contained and removed as directed by the APS Designated Representative.
- 18.8 All hazardous products not used before the end of the shift, or replaced in its original, labeled, primary containers before the end of that shift, must be placed in secondary containers and labeled to identify the container's contents and appropriate hazard warnings.
  - 18.8.1 Manufacturers, distributors, and importers of hazardous chemicals are required to fully label their packaging prior to shipment. These labels have to include:
    - 18.8.1.1 The name of the material
    - 18.8.1.2 A signal word (i.e. danger or warning)
    - 18.8.1.3 A hazard statement
    - 18.8.1.4 Pictograms
    - 18.8.1.5 Precautions
    - 18.8.1.6 Their name, address, and phone number.
  - 18.8.2 After chemicals are received, they can be transferred out of their original containers and into a second container, but Federal Law and APS Procedure requires them to label the new containers.
    - 18.8.2.1 The "secondary containers" require:
      - 18.8.2.1.1 The product identifier (name)
      - 18.8.2.1.2 Words, pictures, symbols or combination thereof, which provide at least general information regarding the hazards. See Federal OSHA 29 CFR 1910.1200(f)(6)(i) and 29 CFR 1926.59
    - 18.8.2.2 Exception:
      - 18.8.2.2.1 Containers that will be immediately used by Contractor personnel performing the transfer do not need to be labeled if the contents are used up or returned to the original container by the end of the shift.

## 19. PLANT CRITICAL INFRASTRUCTURE PROTECTION (CIP) ACCESS

- 19.1 Critical Infrastructure Protection (CIP) is in place to meet FERC standard to help secure the electric grid from cyber and physical attacks that would disrupt generation and/or transmission. APS Fossil facilities contain both CIP Low and CIP Medium equipment.

These assets are protected by a Physically Secured Perimeter (PSP) and / or an Electronically Secured Perimeter (ESP). The following must be complied with by Contractor's personnel:

- 19.1.1 All work performed on a CIP asset or in a PSP must be coordinated with the APS Representative.
- 19.1.2 Contractor All non-authorized Contractors must be escorted by an authorized employee in a PSP.
- 19.1.3 Medium PSP's require escorted personnel to be logged in and out with Corporate Security.
- 19.1.4 Contractor personnel must coordinate with APS Representative to verify proper approvals and authorizations have been obtained to perform work on any CIP asset.
- 19.1.5 Any Programmable Electronic Devices (PED) temporarily connected to a CIP asset must have prior approval.

## 20. DRIVING COMMERCIAL MOTOR VEHICLES

- 20.1 Prior to driving a Commercial Motor Vehicle (CMV), the Contractor's personnel shall have in their possession the required driver's license necessary for the type of CMV and the cargo or passengers being transported. Also, for non-CDL CMV equipment, a driver currently licensed with a Class D driver's license shall maintain a copy of the Road Test certificate in his/her possession for the type of CMV being driven. All CMV operators/drivers shall also have a current DOT Medical Certification card in their possession while driving a CMV.
- 20.2 A CMV means any licensed, self-propelled or towed vehicle used on a highway in interstate and/or intrastate commerce to transport passengers or property when the vehicle:
  - 20.2.1 Has a gross vehicle weight rating (GVWR) or a gross combination weight rating (GCWR) of 26,001 lb. (AZ Intrastate) or more; or
  - 20.2.2 Is designed to transport 16 or more passengers for hire, including the driver; or
  - 20.2.3 Is of any size and is used in the transportation of materials found to be hazardous for the purpose of the Hazardous Materials Transportation Act and which require the motor vehicle to be placarded under the Hazardous Materials Regulations.
- 20.3 CMV operators/drivers must accurately complete a Driver's Vehicle Inspection Report (DVIR) each day a CMV is driven
- 20.4 Contractor personnel are restricted from operating a CMV beyond the following limitations. [Hours of Service Regulations \(dot.gov\)](https://www.dot.gov/hqs/041313/041313main.htm)
- 20.5 Contractor personnel who operate a CMV must maintain the proper records of duty status documentation as required by Federal Motor Carrier Safety Regulations.
- 20.6 All CMVs must have the required emergency equipment, registration, proof of insurance, and annual federal vehicle inspection certificate stored on-board at all times.

## 21. FACILITY ACCESS, DRIVING, MOBILE EQUIPMENT

- 21.1 Contractor personnel must observe posted speed limits within the facility (special conditions may warrant even lower speeds).
- 21.2 Contractor personnel are not permitted to ride on any type of mobile equipment unless proper cages, seats, seatbelts or other personnel-securing devices are provided and used. At no time are contract personnel to ride in/on the bed of a truck or utility vehicle. Additionally, vehicles and mobile equipment with partially obstructed rear views shall be equipped with working backup alarms.
- 21.3 Special attention must be given to crane safety and OSHA regulations requiring minimum clearances from power lines when materials yards or set-up yards are located near power lines. A signalman must be used when warranted due to proximity to overhead conductors.

## **22. MOBILE EQUIPMENT SPOTTERS**

- 22.1 When operating mobile equipment, a spotter is required while:
  - 22.1.1 Operator's line of sight is obstructed during operation or transit;
  - 22.1.2 Area is congested due to work activities or heavy traffic (vehicle or pedestrian);
  - 22.1.3 Operating or moving mobile equipment where any part of equipment or load has potential of being within minimum approach distances to energized overhead electrical lines.
  - 22.1.4 Anytime the potential is identified for equipment damage or personal injury exists based on the Job Hazard Assessment or Pre-Job Brief discussion.
- 22.2 Equipment cannot be moved without a spotter if any of the above conditions exist.
- 22.3 Some conditions may warrant the use of more than one spotter.
- 22.4 Mobile equipment movement will stop immediately if a distraction occurs, or the operator loses sight of the spotter.
- 22.5 High visibility vest (ANSI/ISEA 107) will be worn by spotters unless spotting for passenger vehicle.
- 22.6 The spotter is responsible for observing the mobile equipment in motion, communicating directions, and giving warning to the operator of obstructions or hazards in the path of travel.
- 22.7 Communication must be maintained between the operator and spotter during the equipment movement.
- 22.8 The operator and the spotter shall walk down the job/travel route before moving the equipment to assess any hazards, obstructions, unusual surfaces or special conditions. The operator of the equipment assumes ultimate responsibility for the safe movement and operation of the equipment.

## **23. WORKING WITH OR NEAR LOCOMOTIVES (GENERATION SPECIFIC)**

- 23.1 Any work performed within nine (9) feet of railroad track centerline requires the Contractor to obtain a track clearance permit.
- 23.2 Contractor personnel must stop, look and listen for train traffic before crossing railroad tracks, regardless of whether on mobile equipment, on foot or on a bicycle.
- 23.3 Contractor personnel Contractor shall not cross railroad tracks after a horn signal warning has been sounded by an oncoming train or if a train is approaching.
- 23.4 Vehicles shall cross the railroad tracks ONLY at designated crossings.
- 23.5 Contractor personnel Contractor on foot shall use the designated crossings.
- 23.6 When crossing in front or behind a stopped train, Contractor employees shall be no closer than twenty feet (20') from the end car.
- 23.7 Contractor personnel Contractor are strictly forbidden to cross over, between or under locomotives or railroad cars at any time.

## **24. AERIAL EQUIPMENT**

- 24.1 Only personnel who have been specially trained and authorized shall be aloft.
- 24.2 Mechanical platform boom tests must be conducted at least every 90 days and boom dielectric tests must be completed at least every 180 days. The date of the next test must be shown on a label and posted in the vehicle where it is visible to the operator or employee in charge of the aerial equipment.
- 24.3 The operator of the equipment assumes ultimate responsibility for the safe movement and operation of the equipment.

## **25. MATERIAL HANDLING EQUIPMENT**

- 25.1 When a crane is to be used, the Contractor shall provide the APS Designated Representative with a copy of the crane certification and crane operator's certification prior to bringing the crane on site. The most recent annual, monthly and pre-use inspection reports for any crane brought on site must be provided. All Riggers, Crane Operators and Signal Persons shall be qualified to meet the requirements of the OSHA Crane Standard (29 CFR 1926 Subpart CC).
- 25.2 The lifting zone must be protected prior to making a lift.
  - 25.2.1 The preferred and most effective method for controlling a lifting zone is with the use of RED barrier tape. If the use of red barrier tape is not feasible contact your APS Representative and alternative methods can be evaluated if necessary.
  - 25.2.2 Alternative methods may include the use of barrier tape, spotters, horns, or other effective means to prevent personnel from being under a suspended load.
  - 25.2.3 NO ONE MAY BE UNDER A SUSPENDED LOAD.
  - 25.2.4 All rigging will be inspected prior to use.
  - 25.2.5 Riggers must be qualified.
  - 25.2.6 Any and all critical lifts shall require the preparation and submittal of a lift plan to the designated APS Representative and site APS Safety.
  - 25.2.7 Free rigging from the forks of a forklift is prohibited.

**26. FIRST AID AND JOBSITE EMERGENCIES**

- 26.1 Contractor must maintain proper first-aid readiness at the jobsite for its employees. APS facility clinics (where available) will *not* provide first-aid treatment or supplies to Contractor's employees. Facility clinic or emergency response personnel *may* be available to address significant emergencies for Contractor personnel Contractor. The Contractor must be aware of the location of the nearest emergency medical facility as well as the facility's Emergency Evacuation Procedure, if established. Any questions should be addressed to the APS Designated Representative.

**27. FIRE PROTECTION**

- 27.1 Contractor must recognize all potential fire hazards, become familiar with on-site fire protection systems and enforce applicable fire regulations prior to beginning "hot work" (cutting, welding, brazing, soldering, etc.). A fire watch will be necessary following "hot work" that requires a permit to detect and extinguish resultant smoldering or fires. The Contractor must maintain the proper size and type of fire extinguisher in the immediate work area during any "hot work". Extinguishers brought on site will meet the following requirements:
  - 27.1.1 Each fire extinguisher must be in good working order
  - 27.1.2 Each fire extinguisher shall have up to date and documented inspections
  - 27.1.3 A record of required extinguisher inspections must be maintained by the Contractor and made available upon the request of APS.
  - 27.1.4 Each extinguisher must have labels or tags displaying the required inspection dates.
- 27.2 Hot work shall be permitted only in areas that are or have been made fire safe.
- 27.3 Hot work performed outside of any designated hot work area will require a permit.
- 27.4 Hot work shall not be permitted in the following areas:
  - 27.4.1 In areas not authorized by management
  - 27.4.2 In sprinklered buildings where sprinklers are impaired unless a permit is issued.
  - 27.4.3 In the presence of explosive atmospheres.
  - 27.4.4 In the presence of un-cleaned or improperly prepared equipment, drums, tanks, or other containers that have previously contained materials that could develop explosive atmospheres.

- 27.4.5 In areas with an accumulation of combustible dust that could develop explosive atmospheres.
- 27.4.6 In areas near running conveyors or ventilation ducts that may carry sparks to distant combustibles.
- 27.4.7 During elevated fire conditions and Red Flag Warnings or Fire Weather Watches additional review with the local Fire Department is required to ensure there are not any restrictions to the location or times that permits are being issued during these conditions. NOTE: This will also notify the Local Jurisdiction of hot work being conducted in their area.
- 27.5 A fire watch shall be required when hot work is performed in a location requiring a hot work permit or where the following conditions exist:
  - 27.5.1 Combustible materials in building construction or contents are closer than 35 ft. to the point of operation.
  - 27.5.2 Combustible materials are more than 35 ft. away from the point of operation but are easily ignited by sparks.
  - 27.5.3 Wall or floor openings within 35 ft. radius expose combustible materials in adjacent areas, including concealed spaces in walls of floors.
  - 27.5.4 Combustible materials are adjacent to the opposite side of partitions, walls, ceilings, or roofs and are likely to be ignited.
- 27.6 A fire watch shall be maintained for at least 60 minutes after completion of hot work operations in order to detect and extinguish smoldering fires. The duration of the fire watch shall be extended if plant operations determine the fire hazards warrant the extension.
- 27.7 Contractor personnel must strictly adhere to all rules and regulations pertaining to the use, handling, transportation and storage of compressed gases and liquids.
- 27.8 Contractors performing any work within APS facilities that could potentially set off fire alarm and fire protection systems (including but not limited to work creating dust, work creating disruption near sprinkler heads, work disturbing fire alarm devices, etc.) must safeguard these systems to avoid inadvertent activation of these systems.
- 27.9 Contractor personnel must strictly adhere to all rules and regulations pertaining to the use, handling, transportation and storage of compressed gases and liquids.
- 27.10 Contractor personnel must strictly adhere to fire prevention and fire safety activities while in the field, including State Forestry and US Forest Service Wildfire Preparedness Levels and Elevated Fire Conditions, the Urban Wildland Interface Code, Company requirements, and regulations and or requirements from regulatory agencies (e.g., State Fire Marshal's Office, State Land Office, State Forester's Office, and local/federal agencies)
- 27.11 Contractor personnel must also be aware that many ducts, vessels and pipes used within generating plants are lined with combustible liners and that welding and cutting must be avoided until adequate precautions are taken to eliminate the risk of a fire within the equipment.

## **28. EXPLOSIVES**

- 28.1 Explosives shall not be used in the performance of the services unless specifically authorized in writing by APS. In case such authorization is granted, Contractor shall be responsible for the proper handling, transporting, storage and use of explosives; and shall give APS at least two (2) days advance notice of any intended use of explosives and shall coordinate and receive approval from APS as to actual time and place of said usage.

## **29. FLAMMABLE LIQUIDS**

- 29.1 Flammable liquids such as gasoline and diesel in two (2) and five (5) gallon quantities shall be stored and used only in UL or FM approved safety cans. Gasoline shall be stored and

used in red containers marked properly and diesel shall be in yellow containers marked properly.

- 29.2 Overnight & long-term storage of flammable liquids shall meet the requirements of either 29 CFR 1926.152 or 29 CFR 1910.106.

### **30. TOBACCO/VAPING USE**

- 30.1 Tobacco use and/or vaping is only allowed in designated areas with signage.
- 30.2 Per state law, no smoking is allowed within 25 feet in any direction from doors, windows and/or ventilation systems of any building.
- 30.3 No smoking is allowed near H2 tanks, fuel oil supply and fuel tank areas, cooling towers, coal handling areas, generator seal oil systems, and turbine decks when hydrogen is in the generators.
- 30.4 Smokeless tobacco must be disposed of in a closed container. Spitting of tobacco is not allowed within any plant areas. Sunflower seeds shall be treated the same as smokeless tobacco.

### **31. ELECTRICAL SAFETY**

- 31.1 Contractor must provide and require personnel to use only non-metallic portable ladders near electrical facilities. No portable conductive ladders are allowed on APS facilities
- 31.2 Contractor is responsible for determining the location of underground and overhead energized conductors that exist within the work area prior to beginning work. The Contractor must take the necessary safeguards to ensure the integrity of these systems as well as the proper separation of personnel, materials and equipment from these systems, where appropriate.
- 31.3 Clearance (between objects) for overhead high/low voltage lines must be observed and applies to any direction, vertical or horizontal. Tailboard meetings must emphasize these issues continuously.

- 31.4 Qualified electrical workers shall maintain the following “Minimum Approach Distance” (separation) between exposed energized circuits and themselves. The MAD applies not only to the individual’s body and clothes, but also it applies to all conductive items, tools equipment and materials withing their control.

AC Voltage		Clearance				
50 V – 300 V		Avoid Contact				
301 V – 750 V		1 ft. 1 in.				
2.1 kV – 15 kV		2 ft. 6 in.				
15.1 kV – 35 kV		3 ft. 0 in.				
Elevation in feet	69 kVAC	115 kVAC	161 kVAC	230 kVAC	345 kVAC	500 kVAC
0 - 3,000	3 ft. 4 in.	3 ft. 6 in.	4 ft. 6 in.	5 ft. 3 in.	7 ft. 1 in.	8 ft. 9 in.
3,001 - 4,000	3 ft. 5 in.	3 ft. 7 in.	4 ft. 8 in.	5 ft. 4 in.	7 ft. 3 in.	8 ft. 11 in.
4,001 - 5,000	3 ft. 6 in.	3 ft. 8 in.	4 ft. 9 in.	5 ft. 6 in.	7 ft. 5 in.	9 ft. 2 in.
5,001 - 6,000	3 ft. 7 in.	3 ft. 9 in.	4 ft. 10 in.	5 ft. 8 in.	7 ft. 8 in.	9 ft. 5 in.
6,001 - 7,000	3 ft. 8 in.	3 ft. 10 in.	4 ft. 11 in.	5 ft. 10 in.	7 ft. 10 in.	9 ft. 9 in.
7,001 - 8,000	3 ft. 9 in.	3 ft. 11 in.	5 ft. 0 in.	6 ft. 0 in.	8 ft. 1 in.	10 ft. 0 in.
8,001 - 9,000	3 ft. 11 in.	4 ft. 0 in.	5 ft. 2 in.	6 ft. 2 in.	8 ft. 4 in.	10 ft. 3 in.
9,001 - 10,000	4 ft. 0 in.	4 ft. 1 in.	5 ft. 4 in.	6 ft. 4 in.	8 ft. 6 in.	10 ft. 6 in.
Transient Overvoltage	N/A	3.5	3.5	3.0	2.6	2.0

**Note:** The above distances shall not be construed to mean workers can work at those distances without protective guards and devices. Adequate clearance shall be maintained so that protruding tools will not come in contact with conductors, limbs or other obstructions..

- 31.5 Non-electrically-qualified contract personnel must adhere to the safety requirements as identified in the Minimum Approach Distance (MAD) chart below when using conductive equipment near energized sources (qualified electrical workers use distances listed in the appropriate MAD chart contained in APM):

MINIMUM CLEARANCE BETWEEN ENERGIZED LINE AND NON-ELECTRICALLY QUALIFIED WORKERS AND/OR EQUIPMENT	
Energized Line Voltage	Minimum Clearance
2.1 kV to 35 kV	10 ft.
69 kV	11 ft.
115 kV	13 ft.
161 kV	14 ft.
230 kV	16 ft.
345 kV	20 ft.
500 kV	25 ft.

- 31.6 Crane operations must adhere to the Minimum Clearance Distance (MCD) identified in the chart below:

<b>MCD for Overhead high-voltage Lines – Crane Operation</b>	
<i>Voltage (Nominal kV, AC)</i>	<i>Minimum Clearance Distance (Ft)</i>
Up to - 50,000	10
over 50 - 200	15
over 200 - 350	20
over 350 - 500	25
over 500 - 750	35
over 750 – 1,000	45
over 1,000	As established by power line owner/operator

**32. TEMPORARY POWER CORDS**

- 32.1 Regardless of voltage, the following applies to all temporary power cords:
- 32.1.1 Temporary power cords/extension cords may not be used as a source of permanent power.
  - 32.1.2 Do not plug an extension cord into another.
  - 32.1.3 Temporary power cords in service beyond one (1) shift shall have a tag attached, showing the installer’s name, supervisor’s name/company, contact phone number and date of installation (MM/DD/YYYY).
  - 32.1.4 Temporary power cords may not be in service beyond ninety (90) days.

**33. ARC FLASH PROTECTION AND LIVE ELECTRICAL WORK**

- 33.1 Prior to performing any work tasks on energized Generation electrical equipment, Contractor will coordinate with their APS Designated Representative in obtaining any required Energized Work Permit (EWP) from Generation operations.
- 33.2 At voltage levels 50 volts or greater, shock and arc flash protection is required when doing electrical work that exposes personnel to energized electrical parts within the prohibited approach boundary.
- 33.3 When performing work on, or associated with, exposed energized equipment at 50 volts or more, the Contractor shall ensure an adequate number of employees are First Aid/CPR trained to meet the requirements of either 1910.269 (b) or 1926.951.
- 33.4 Contractors that will be performing work on electrical equipment shall provide adequate arc flash apparel to their employees while performing arc related activities.
- 33.5 Under no circumstances will a non-qualified employee be allowed in the proximity of areas where potential Arc Flash is likely.
- 33.6 During arc related work, signs will be posted, or barricades installed to warn personnel of the potential hazard.
- 33.7 Contractors that are required to remain clear of the area and obey all posted signs and barriers related to arc related activities.
- 33.8 Contractors performing arc related work are required to place adequate barricades or signage to warn of hazards present.

**34. SUBSTATION AND SWITCHYARD ENTRY AND EXIT**

- 34.1 Unescorted Contractor personnel may enter a plant switchyard area only after receiving permission and meeting ONE of the following requirements:



- 34.1.1 Be recognized as “Qualified” person and successfully completed the APS “Switchyard Entry/Exit” training course. OR
- 34.1.2 Shall be escorted/supervised by a “Qualified” person(s) who has successfully completed the training above during their performance of all assigned work activities.
- 34.2 A plant radio shall be available at all times while performing work within a power plant switchyard.
- 34.3 When entering any plant switchyard areas the following notifications are required:
  - 34.3.1 Plant Control Room – This notification should be done by at least one member of the work party and shall include the following information:
    - 34.3.1.1 Individual’s name
    - 34.3.1.2 Contractor Name
    - 34.3.1.3 Reason for entry
    - 34.3.1.4 Estimated time in area
    - 34.3.1.5 Contact number or radio channel (cell, control house, or radio)
- 34.4 Contractor personnel shall not enter Control Blockhouse buildings unless permission is granted by an APS authorized employee and the tasks require access inside the structure.
- 34.5 Contractor personnel shall immediately notify the Plant Control Room, if any safety or reliability related concerns are detected once inside the switchyard areas.
- 34.6 When leaving any switchyard area, the designated person in charge of the work is required to notify the Control Room and the APS Business Unit Representative.
- 34.7 Permission must be obtained from the APS Business Unit Representative when wishing to store a vehicle or any material for a job in any switchyard areas.
- 34.8 Contractor personnel may enter the energized sections of the APS Substation (or substation operated by APS) only after receiving permission and meeting one of the following conditions:
  - 34.8.1 Contractor personnel have successfully completed and demonstrated proficiency in an APS training class provided by the APS Designated Representatives or his/her designee that covers:
    - 34.8.1.1 The recognition of potentially energized components
    - 34.8.1.2 The proper use of electrical protective equipment that will be required by the work being performed.
    - 34.8.1.3 The safety work practices to be utilized while performing specific work assignments within the substation.
    - 34.8.1.4 What is safe to approach and what is unsafe to approach
    - 34.8.1.5 The maximum voltages involved within the substation
    - 34.8.1.6 The minimum Approach Distances (MAD) to apply
    - 34.8.1.7 Condition of grounds.
  - 34.8.2 Any Contractor employee who is under the direct (i.e. visual observation) supervision of a qualified electrical worker who has successfully completed and demonstrated proficiency in the training listed above.
- 34.9 Entry into a substation ECC (Energy Control Center 602-250-1070) – This notification shall be made by the APS authorized representative for ANY of the following:
  - 34.9.1 Performance of work within thirty feet (30) of electrical structures that could have a potential to interrupt operations (i.e., transformers, lolly columns, control houses, overhead bus, transformers, towers, lines)
  - 34.9.2 Work using any type of aerial equipment
  - 34.9.3 Performance of trenching and/or excavation

34.9.4 Performance of work near EHV equipment (rated 325kV and above)

- 34.10 If Contractor personnel enter an energized section of an APS substation and is not continuously escorted by an APS employee, the Contractor employee must have a completed “APS Substation Unescorted Access Permit,” a copy of which shall be maintained on site during any substation entry. The permit may be obtained from the APS business unit Designated Representative.
- 34.11 Contractor personnel Contractor must ensure that a contact number (cellular telephone number) is provided for contact purposes and the phone must be on and maintained onsite while Contractor employees remain within the substation.
- 34.12 Some substations and switchyards are monitored and alarmed for security purposes. Before you enter these substations and switchyards to perform unescorted contract work, you must pre-arrange access approval through your APS Designated Representative, who will contact APS Corporate Security at 602-250-2222 to obtain the approval. If multi-day access is required, you may be instructed to notify APS Corporate Security prior to each entry of certain substations and switchyards.
- 34.13 Persons entering or exiting the substation must immediately lock the gate behind them to prevent an unauthorized entry. Access gates shall be attended (within 20 feet) or locked at all times.
- 34.14 Contractor personnel must not enter a substation control house unless the work being performed requires access to it AND permission is granted by the APS Business Unit Designated Representative.
- 34.15 Contractor personnel must be instructed to immediately notify ECC at 602-250-1070 if they observe any safety-related condition (such as leaks, damaged fencing, damaged gates, unauthorized entry, etc.). They must also understand that they are not to leave an unsecured substation until it has been secured or until they are relieved by APS personnel
- 34.16 Contractor personnel must not store mobile equipment, materials or supplies within a substation without prior approval by the APS Business Unit Designated Representative.  
Note: APS assumes no responsibility for the safekeeping or damage of Contractor materials stored on APS’s property.
- 34.17 Contractor personnel must ensure that the worksite is secured, and the gates are locked upon leaving. If ECC was notified upon initial entry, it must be contacted upon exit and informed that “all gates are secured, and all personnel are out of the substation”.

**35. HIGH VOLTAGE TRANSFORMER**

- 35.1 If working within 25 feet of an energized transformer, you are required to wear flame resistant clothing.
- 35.2 If you have the need to be closer, contact your APS Representative.

**36. INDUCED VOLTAGE**

- 36.1 The potential of induced voltage exists anytime lines or equipment are worked as de-energized. Induced voltage potential occurs when de-energized lines run parallel to energized lines. The induction site can occur miles away from the work location and may not be obvious or visible. Always test and ground before commencing work to protect against the possibility of induced voltage.

**37. PERSONAL PROTECTIVE GROUNDING**

- 37.1 When temporary protective grounds are utilized, they shall create an “Equipotential Zone” (EPZ) by installing them in such locations and arranged in such a manner as to prevent each worker from being exposed to hazardous differences in potential. This requires the temporary grounds to be of very low resistance and connected to the best available ground source, and an EPZ for all workers at the worksite, and in the work, area must be established.

- 37.2 The principle of developing an EPZ is the process of bonding all conductive objects within the worksite together with very low resistance jumpers. This includes bonding the de-energized conductors, system neutral, pole ground, pole and all pole hardware
  - 37.3 The development of a proper personal protective grounding procedure creates an EPZ and will provide the best protection for workers involved in construction, operations and maintenance of de -energized lines or equipment
- 38.** Specific information about grounding rules and practices for electrical lines and related equipment are compiled in the APS Personal Protective Grounding Manual. When working on a Generation Power Plant you must follow the Generation grounding rules. Contractor grounding practices must meet or exceed the APS grounding rules.

**39. ASBESTOS**

- 39.1 Some APS Facilities have asbestos containing materials in use. These materials may be present in the form of thermal system insulation (piping, boiler walls, etc.), gasketing, duct expansion joints, Transite pipe, Transite cooling tower panels, ceiling panels, roofing materials, and asphalt or vinyl flooring. Products of this or similar types must be assumed to contain asbestos until proven otherwise. Contractor is hereby informed of this potential and notified that Contractor is not to disturb any such materials at any time unless directed to do so by the APS Designated Representative. The Contractor is also required to notify the APS Designated Representative anytime it encounters thermal system insulation or surfacing materials which have been disturbed and can potentially release fibers into the work area. OSHA and EPA have enacted rigid health and safety standards designed to minimize exposure to asbestos and these standards must be adhered to by the Contractor and its personnel.
- 39.2 Gaskets, packing material (in pumps, valves, motors, etc.) that Contractor supplies with its services (either as a separate item or already installed in equipment) must be non-asbestos containing and provide the product verification.
- 39.3 If performing asbestos abatement Contractor may be required to submit a work plan and previous air monitoring used for any negative exposure assessment, which is to be reviewed by site Safety. All abatement activities will meet the requirements of 29 CFR 1926.1101.

**40. LEAD**

- 40.1 The Contractor shall comply with 29 CFR 1926.62 while performing lead abatement work activities. Contractor may be required to submit a work plan and any previous air monitoring to be used for a negative exposure assessment.

**41. TEMPERATURE EXTREMES**

- 41.1 The Contractor will have a prevention program in place to address the effects of temperature extremes.
- 41.2 Prior to work (including training) Contractor supervisors will ensure;
  - 41.2.1 Contractor personnel are properly acclimated and identify conditions relative to weather-related hazards prior to the start of work.
  - 41.2.2 Contractor personnel have access to sufficient hydration, rest breaks and a shaded area for heat.
  - 41.2.3 Contractor personnel have access to sufficient temporary heaters, and temporary shelters to shield from elements.
  - 41.2.4 Contractor personnel have opportunity to identify personal heat illness risk factors.
  - 41.2.5 Contractor personnel monitor the heat index and schedule work appropriately.
- 41.3 During cold weather, Contractor leaders and employees will determine if work activities present the risk of hypothermia and take appropriate actions to reduce the risk of cold stress illnesses.

## **42. CAUTION AND DANGER DEMARCATION – BARRIER TAPE**

- 42.1 The Contractor must ensure that its personnel are completely familiar with, and follow, the meaning of the various colored barrier tapes.
- 42.2 It is the responsibility of the individual who puts up the barrier tape and tags to ensure they are maintained during the work activities and removed immediately upon completion of the work or removal of the hazard. Barrier tape is not to be left in place for convenience. Barrier tape and tags will be properly disposed of immediately after use.
- 42.3 Barrier tape shall completely enclose the hazard; tags filled out properly and placed on all sides of the hazard, so they are easily recognized. Barrier tape must be readily visible, approximately chest level. Tags must be read each time entry is made to recognize and take appropriate measures for protection from the hazard(s). If the Contractor or their employees do not have a job or task in the enclosed area, entry should not be made.
- 42.4 The lack of DANGER or CAUTION tags does not change the meaning of the colored barrier tape.
- 42.5 Red barrier tape with DANGER tags attached indicates a dangerous condition within the taped area and entrance to the taped area is prohibited without the authorization of the individual whose name appears on the DANGER tag. Unauthorized entrance into a red barrier taped area is prohibited. If permission to enter is granted, one must first evaluate the hazards and take all measures needed to protect themselves from the hazards prior to entry.
- 42.6 Yellow, or yellow and black, barrier tape with CAUTION tags attached indicates that caution is necessary within the taped area. Entrance is permitted as long as personnel take the necessary precautions to protect themselves from the hazardous condition(s). These precautions may include waiting to enter the taped area until the hazard is corrected or the hazardous operation is completed. If the Contractor or their employees do not have a job or task in the enclosed area, and if there is an alternate route, entry should not be made.

## **43. REPORTING INCIDENTS, INJURIES, AND CLOSE CALLS**

- 43.1 The Contractor shall immediately report all, no matter how minor, close call, personal injury/illness incidents and any incident that results in property or vehicle damage to their APS Designated Representative. A written report shall be submitted to the APS BU Designated Representative within 24 hours. The written report shall identify corrective actions, will detail the Contractor's plan to minimize the chance of a similar event from recurring. The Contractor will complete an investigation for any serious event and provide to APS when completed. Contractors are responsible for communicating with all other regulators as required after an accident but shall notify the APS Designated Representative prior to any such communication.
- 43.2 APS will assess the incident and provide any necessary reporting to the Arizona Corporation Commission.
- 43.3 APS reserves the right to conduct and/or facilitate event investigations as deemed necessary. APS expects, and requires, the full cooperation of contracting companies and their employees and Subcontractors with those conducting the investigation.
- 43.4 For serious incidents (medical attention or damage that requires replacement or reconstruction), a meeting will take place between APS and the Contractor to fully understand and communicate the results of the investigation. APS may require a joint investigation to ensure all facts, findings and corrective actions are addressed in a final report.
- 43.5 The Contractor will provide the APS Designated Representative and site APS Safety with a log of all OSHA recordable injuries/illnesses that occur to their personnel while performing work at APS, along with the OSHA recordable Incident Rate and DART Rate for their employees during the work. Reporting of the Incident and DART Rates will occur on a monthly basis or end of project, whichever occurs first.

- 43.6 If a Contractor experiences an employee fatality, even while not performing work on behalf of APS, the fatality must be reported in writing to the contract company's Designated Representative and to APS Corporate Safety. If a fatality occurs outside of APS, the Contractor is responsible to report the fatality in writing to the APS Business Unit Designated Representative and Corporate.

#### **44. GENERAL EQUIPMENT SAFETY**

- 44.1 Where equipment has a manufacturer-specified weight capacity, the Contractor must:
- 44.1.1 Ensure Contractor and Subcontractor's employees do not exceed the capacity of the equipment with manufacturer-specified weight limits
  - 44.1.2 Provide verification of Contractor's and Subcontractor's employees' weights when requested to ensure compliance with APS's weight management requirements for meeting specified equipment weight limits. This may be required for APS or Contractor equipment on an APS site.
  - 44.1.3 Verify or attest to Contractor's and Subcontractor's employees' ability to use the equipment safely and meet all equipment weight restrictions.

#### **45. RADIATION SAFETY (FOUR CORNERS SPECIFIC)**

- 45.1 The Contractor must be aware that APS utilizes radiation sources in density and level gauges located throughout its facilities. These areas are marked with the 'radiation propeller' universal symbol as well as labeling warning personnel to remain a minimum of three feet (3') away. Work necessary within three feet (3') of a source, or damage to a radiation source, requires the Contractor to contact the facility's Radiation Safety Officer via the APS Designated Representative.

#### **46. CONVEYOR SAFETY (GENERATION SPECIFIC)**

- 46.1 Conveyor Safety Training is required for all contract employees prior to being assigned to work on or around any conveyor equipment. This training is intended to provide information about the hazards and precautions associated with working on and around moving belts.

#### **47. COMBUSTIBLE DUST (GENERATION SPECIFIC)**

- 47.1 Combustible dust hazards exist in enclosed coal handling and processing areas of the coal plants. If work is to be performed in these areas, special precautions shall be taken to prevent ignition or explosion of combustible dust.
- 47.2 Use Hot Work Procedure to prevent ignition of combustibles.
- 47.3 No smoking or open flame while working within coal processing areas.
- 47.4 Electrical equipment shall be Class II (Dust Proof)
- 47.5 Contractor personnel are required to obey all signage posted at the entrances to confined areas such as, coal reclaim tunnels, bottom ash enclosures, or any building within the coal processing area that coal dust can accumulate.
- 47.6 If there are questions related to working in areas containing combustible dust, contact your APS Designated Representative.

#### **48. ELECTRICAL DEVICES**

- 48.1 No personal electronic devices (such as cell phones, iPod, MP3 players, etc.) shall be used while operating any piece of mobile equipment or performing a work task.

#### **49. CONTRACTOR'S ENVIRONMENTAL REQUIREMENTS**

- 49.1 APS expects Contractors and Subcontractors to act as responsible corporate citizens and take a positive, proactive approach to protecting the environment. APS Contractors and Subcontractors must comply with all federal, state, and local laws and regulations as well as site specific environmental requirements that apply to their work. Failure to comply with

environmental regulations can lead to significant environmental impacts, violations, and both civil and criminal penalties.

- 49.2 The following is APS' environmental policy statement:
- 49.2.1 Be Environmentally S.M.A.R.T
  - 49.2.2 Strive for continuous improvement
  - 49.2.3 Manage all environmental risk
  - 49.2.4 Always communicate
  - 49.2.5 Reduce environmental footprint
  - 49.2.6 Target beyond compliance
- 49.3 Environmental compliance is best achieved when everyone has a questioning attitude and the willingness to identify potential environmental issues. The environmental impacts and aspects of a Contractor and Subcontractor's work should be covered in detail during the pre-job brief. Contractor and Subcontractors should be aware of the following environmental requirements:
- 49.4 AIR QUALITY – The Contractor activities must minimize the creation of dust and visible emissions. Painting, abrasive sand blasting, welding, and cutting and grinding are common sources of visible emissions. If your work produces visible emissions, cease operations, and notify your APS representative.
- 49.5 Any time a project involves the moving or handling of material likely to produce dust, precautions must be taken to not create visible dust emissions. Practices such as controlling the drop height of material, water suppression, minimizing track out, etc. should be used to ensure that visible dust emissions are not created.
- 49.6 Additionally, the open venting of CFC's (Freon) is prohibited.
- 49.7 WATER QUALITY – All APS facilities must protect groundwater and surface water from contamination. Do not allow any discharges to a waterway or drain without approval from the Environmental Department. This includes water, wastewater, or any other waste material into storm drains. Spills or other accidental discharges into any drainage system must be responded to quickly and efforts to stop and clean up the discharge must be implemented as soon as possible. Contractor will take measures to avoid tracking dirt or mud onto paved roads, as much as practical. Contractor will store hazardous materials under cover and away from storm drains.
- 49.8 CHEMICALS – Paints and solvents must be reviewed by APS Safety and Environmental, via Sphera, before use on site. Containers must be labeled and kept closed when not in use. (also see Section 17)
- 49.9 Contractor is responsible for notifying the APS representative immediately of all spills of chemicals. Immediate notification to state and federal agencies is required when a listed substance is released to the environment in amounts exceeding the Reportable Quantity (RQ). APS is responsible for ensuring that proper notifications are made to the National Response Center (NRC) and other regulatory agencies, e.g., EPA, ADEQ, etc., as required.
- 49.10 WASTE MANAGEMENT - APS practices waste minimization principles and requires the same of its Contractors. Activities with the potential to create waste should include waste minimization, reuse, and recycling principles. This includes proper use of materials during and after the job is completed in addition to an analysis of how to minimize the waste of left-over products.
- 49.11 All waste is required to be placed in the appropriate container with the appropriate labeling. If there is uncertainty regarding how to handle a waste material, contact your APS representative.
- 49.12 Many APS sites strive to recycle materials whenever possible. Scrap metal, aluminum, copper wire, used oil, batteries and paper are examples of recyclable materials. Contact the Environmental representative at the site for site specific recycling options.

49.13 Hazardous and universal wastes are highly regulated and must be managed with oversight from the site Environmental representative. Hazardous wastes exhibit properties that are harmful to human health or the environment, e.g., flammable, corrosive, reactive, etc. Universal wastes include batteries (Ni-Cd, lithium, and lead-acid), mercury containing equipment, lamps, and aerosol cans. Aerosol cans must be placed in the proper "Aerosol Waste Cans" container. Contact your APS representative if your project will be producing hazardous or universal wastes. Unused excess materials shall not be left at an APS facility without prior approval.

## ATTACHMENT A OCCUPATIONAL SAFETY & HEALTH QUALIFICATIONS OF CONTRACTORS AND SUBCONTRACTORS

Potential Safety & Health Training Requirements Applicable to Contractor / Subcontractors

### OSHA 10 Outreach Training Courses

OSHA 10 Hour Outreach Topics – General Industry	OSHA 10 Hour Topics – Construction Industry
Introduction to OSHA - Mandatory	Introduction to OSHA - Mandatory
Walking & Working Surfaces, including fall protection – Mandatory	OSHA Focus Four Hazards (Falls, Electrocutation, Struck-By, Caught-In or Between) – Mandatory
Exit Routes, Emergency Action Plan, Fire Prevention Plans & Fire Protection – Mandatory	Personal Protective and Lifesaving Equipment – Mandatory
Electrical – Mandatory	Health Hazards in Construction – Mandatory
Personal Protective Equipment – Mandatory	Cranes, Derricks, Hoists, Elevators, & Conveyors
Hazard Communication – Mandatory	Excavations
Hazardous materials	Materials Handling, Storage, Use and Disposal
Materials Handling	Scaffolds
Machine Guarding	Stairways and Ladders
Introduction to Industrial Hygiene	Tools – Hand and Power
Bloodborne Pathogens	
Ergonomics	
Safety and Health Program	
Fall Protection	

### Facility or Task Specific Training

Confined Space Entry	Hazardous Energy Control – Lockout/Tagout
Mobile Crane & Rigging Practices	Respiratory Protection
Safety Related Work Practices-Working with Energized equipment	Hexavalent Chromium (Chrome/stainless steel cutting and welding)
Fall Protection	Aerial Equipment – Manlifts
Vehicle Safety/Driving CMV/Forklift Operation	Excavation and Trenching
Facility Safety/Mobile Equipment	Materials Handling
Hearing Conservation	Scaffolding
Caution and Danger Demarcation	Chemical Control
First Aid and Emergencies	Fire and Emergency Evacuation
Asbestos Awareness	Asbestos Handling/Removal
Lead Awareness	Lead Removal
Tool Safety	Equipment Safety
Construction Ladders and Stairways	Housekeeping
Hazardous Waste Operations	Arsenic Awareness (Boiler Slag)
Radiation Safety	Temperature Extremes



## ATTACHMENT B

### WOOD POLE MAINTENANCE PRIORITY RATINGS AND TAGGING

**Priority 3 – Maintenance Schedule – Within 365 Days**

- **Truss: Priority 3** = Inspection Year Tag, Chemical Treatment Tag, One Yellow Tag and Three Wraps of Orange Ribbon Stapled,
- **Replacement: Priority 3** = Inspection Year Tag, One Silver Tag and Three Wraps of Pink Ribbon Stapled.

**Priority 2 – Maintenance Schedule – Within 60 Days**

- **Truss: Priority 2** = Inspection Company Tag, Internal Treatment Tag, and External Paste Tag, Two Yellow Tag and Three Wraps of Orange Ribbon Stapled,
- **Replacement: Priority 2** = Inspection Company Tag, Two Silver Tag and Three Wraps of Pink Ribbon Stapled.

**Priority 1 – Immediate Call In To Company Representative**

Call in to APS and wait for APS's representative to arrive, unless given other instruction.

#### Reject Pole Priority Rating and Tagging Summary

**REJECTED POLES ARE DESIGNATED AS A:**

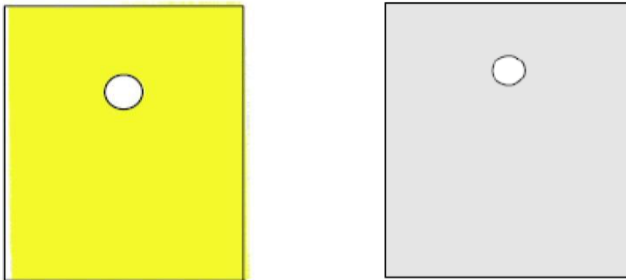
- PRIORITY 1 = COMPLETE WITHIN 24 HOURS
- PRIORITY 2 = COMPLETE WITHIN 60 DAYS
- PRIORITY 3 = COMPLETE WITHIN 365 DAYS

**THE MAINTENANCE ACTIONS FOR REJECTED POLES ARE:**

- REPLACE
- STEEL TRUSS
- REPAIR (STRUCTURAL FILLER, FIBER WRAP)

**THERE ARE TWO TYPES OF TAGS USED TO DESIGNATE A REJECTED POLE:**

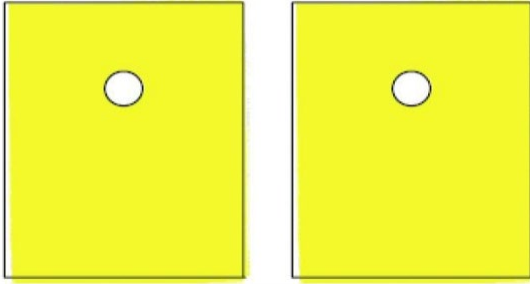
- YELLOW – INDICATES THE POLE IS SCHEDULED TO BE TRUSSED OR FIBER WRAPPED
- SILVER – INDICATES THE POLE IS SCHEDULED TO BE REPLACED



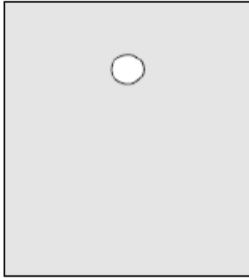
**PRIORITY DESIGNATION FOR REJECTED POLES ARE AS FOLLOWS:**

1 YELLOW TAG – PRIORITY 3 (MODERATE) POLE CAN BE TRUSSED OR FIBER WRAPPED – **DANGER POLE - DO NOT CLIMB**

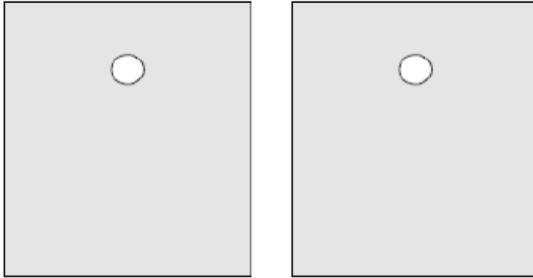
2 YELLOW TAGS – PRIORITY 1 OR 2 POLE CAN BE TRUSSED OR FIBER WRAPPED – **DANGER POLE - DO NOT CLIMB**



1 SILVER TAG – PRIORITY 3 (MODERATE) POLE IS SCHEDULED TO BE REPLACED – **DANGER POLE - DO NOT CLIMB**



2 SILVER TAGS – PRIORITY 1 OR 2 POLE IS SCHEDULED TO BE REPLACED – **DANGER POLE – DO NOT CLIMB**



## ATTACHMENT C ARC FLASH CALCULATIONS



Open Air Overhead  
Secondary Arc Flash



Secondary\_Meter\_P  
anel\_Arc\_Flash\_Cal



ARC Flash\_Metal  
Clad Switchgear.pdf

Attachment D Supplier High Risk Matrix

<b>Supplier Safety Program Risk Matrix</b>		
<b>Risk Category</b>	<b>Example Descriptions of Work</b>	<b>Example Impacts of Work</b>
<p><b>HIGH RISK – ISN SUBSCRIPTION REQUIRED</b></p> <ul style="list-style-type: none"> <li>• Work presents potential harm to public or employee well-being, APS assets or the environment.</li> <li>• Work has a high potential for causing a catastrophic operational incident</li> <li>• Work may impact site operations or business continuity</li> </ul>	<ul style="list-style-type: none"> <li>• Excavation and trenching, including hand digging</li> <li>• Heavy equipment operation Aviation operations</li> <li>• Utility tree trimming, clearance work</li> <li>• Vegetation management</li> <li>• Environmental remediation or abatement</li> <li>• Environmental sampling and testing</li> <li>• Hazardous material disposal, treatment and transportation</li> <li>• General construction activities such as framing, sawing, cutting, welding, boring, blasting, coating, grinding, roofing, commercial painting, electrical &amp; gas installation, scaffolding, civil, structural erection, demolition</li> <li>• Traffic control</li> <li>• Pesticide or herbicide application</li> <li>• Armed security services</li> <li>• Energized electrical work</li> <li>• Fault protection and grounding</li> <li>• Conductor installation or removal</li> <li>• Hazardous chemicals or materials transport, handling and delivery on company property which includes the physical offloading of chemicals or materials</li> <li>• Pick-up, delivery and supply services where physical offloading/loading of materials and supplies is conducted by the supplier/delivery company and would be considered a high risk activity</li> <li>• Geotechnical investigation, potholing, drilling or boring</li> <li>• Hydro-blasting</li> <li>• Confined space entry or rescue</li> <li>• Rail track or locomotive repair</li> <li>• Diving</li> <li>• Use of fall arrest systems</li> <li>• Elevator maintenance and repair</li> <li>• Turbine or generator maintenance</li> <li>• Safety relief valve maintenance</li> <li>• Conveyor maintenance</li> <li>• Work on pressurized systems</li> <li>• Electrical breaker repair/maintenance</li> <li>• Electrical breaker construction</li> </ul>	<ul style="list-style-type: none"> <li>• Work requires advanced or specialized PPE, beyond hard hat, safety boots, safety glasses and reflective vest</li> <li>• Work requires specialized training, licensing, certification or qualification</li> <li>• Work directly exposes contract employees to the hazards associated with other work</li> <li>• Work has no direct or very limited supervision available to provide operational checks</li> </ul>
	<ul style="list-style-type: none"> <li>• Transformer oil processing</li> <li>• Overhead door maintenance</li> <li>• Stack monitoring equipment, inspection and repair</li> <li>• Helicopter Patrol (Pilot)</li> <li>• Well drilling</li> <li>• Solar / renewable energy construction and maintenance</li> </ul>	
<b>Supplier Safety Program Risk Matrix</b>		
<b>Risk Category</b>	<b>Example Descriptions of Work</b>	<b>Example Impacts of Work</b>
<p><b>LOW RISK – ISN SUBSCRIPTION NOT REQUIRED</b></p> <ul style="list-style-type: none"> <li>• Work presents no potential harm to public or employee well-being, APS assets or the environment.</li> <li>• Work activities not included in High Risk category.</li> </ul>	<ul style="list-style-type: none"> <li>• Consultants not performing high risk work</li> <li>• Pick-up, delivery and supply services where physical offloading of materials and supplies is not conducted by the supplier/delivery company or off-loading is considered low risk</li> <li>• Off-site manufacturing, repair and fabrication shops</li> <li>• Training services and instructors</li> <li>• Public or private utility – by and for others</li> <li>• Basic landscaping services that do not include trenching or tree trimming</li> <li>• Off-site manufacturing</li> </ul>	<ul style="list-style-type: none"> <li>• Business services such as accounting or engineering</li> <li>• Off-site maintenance or manufacturing</li> <li>• Off-site testing services</li> <li>• Materials-only suppliers</li> <li>• General offloading of materials and supplies by hand or hand truck</li> </ul>
<p><b>EXEMPTION FROM SUBSCRIPTION REQUIREMENT</b></p> <p>Issued under exceptional circumstances by the Business Unit Director or Power Plant Manager and Business Unit Safety Professional</p>	<ul style="list-style-type: none"> <li>• Determined on case by case basis</li> </ul>	<ul style="list-style-type: none"> <li>• Low exposure contractors</li> <li>• Work performed on an emergency basis</li> <li>• Cases where special skill is needed on a limited basis</li> </ul>

Revision	Date	Changes	Approved
1	3/6/15	Overall Formatting, Content in sections 1.4.1; 1.4.5; 1.4.6; 1.4.10;5.1 thru 5.5; 8.1 thru 8.3.3, 20.2; 24.1 thru 24.4, 25.1; 26.1; 27.2.7; 28.1, Added Section 8, 24,25,26 Attachment B, Attachment C.	P. Smithers
2	6/24/2015	Content in section 6.1; 6.6; and 6.8, Updated Index	C. Thomack
3	07/10/2015	Content – Subpart V	P. Smithers
4	10/15/2015	Content in section 15.1 (reformatted to 15.1 and 15.2)	A.Ott
5	03/09/2016	Content in Section 21.4 (added section)	A.Ott
6	04/17/2017	Add minor update to section 1.4.10.1 (added section)	A.Ott
7	10/31/2017	Updated section 1.4.12 – to add ISN contractor qualification details	A.Ott
8	02/01/2018	The most recent revisions have been highlighted throughout this document.	A.Ott/C. Carns
9	05/18/2018	Update verbiage for Labeling Hazardous Chemicals at APS	A.Ott
10	01/17/2019	Remove sections 1.2 and 1.4 as this information will now be included in contractor/supplier contracts.	A.Ott
11	07/09/2019	requirement verbiage in 1.2.	C. Thomack
12	02/03/2020	Updated section 1.2 , contractor safety grading.	S. Mauch
13	04/13/2021	Added fire alarm systems to equipment contractors must become familiar with in 21.1. Added 21.2 requiring contractors to safeguard fire alarm and protection systems from inadvertent set them off. Added section 34 General Equipment Safety, specifying weight capacities requirements (which moved contractor's Environmental Requirements – ISO 14001 to Section 35)	L. Brisson
14	01/09/2023	Updated section 1.5 to add online verbiage for safety orientation. Updated section 33.5 Added a requirement for fatality reporting.	S.Mauch
15	09/30/2024	Combined Generation and TD&C& Corporate Manuals, added definitions, and added attachment D	S. Mauch