



# **Contractor Safety Manual**

**TD&C and Corporate Resources**

***Revision 11  
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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 Sections 8, 24, 25, 26, Attachment B, Attachment C	P. Smithers
2	6/24/15	Content in section 6.1; 6.6; and 6.8, Updated Index	C. Thomack
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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	2/01/18	The most recent revisions have been highlighted throughout this document.	A.Ott/C.Carns
9	5/18/2018	Update verbiage for Labeling Hazardous Chemicals at APS	A.Ott
10	1/17/2019	Remove sections 1.2 and 1.4 as this information will now be included in contractor/supplier contracts.	A.Ott
11	7/9/2019	Added section 29, Personal Protective Grounding. Updated MAD table in section 25.1. Updated ISN requirement verbiage in 1.2.	C. Thomack

## PREFACE

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 ("Contractor"), 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.

APS considers the standards and rules of the Occupational Safety and Health Administration (OSHA) and Environmental Protection Agency (EPA) (and its state counterparts) to be minimum requirements that must be complied with at all times. Additionally, APS requires its 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, rules, or existing safety programs. 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 you, 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 a 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 Protection 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)

# CONTRACTOR HEALTH AND SAFETY REQUIREMENTS

## 1 DOCUMENTATION AND MONITORING

- 1.1 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 its subcontractor is 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. Specifically OSHA regulation 29 CFR 1910.269 and 29 CFR 1926, Subpart V. Additionally, the Contractor's 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: <http://www.aps.com/en/ourcompany/doingbusinesswithus/suppliers/Pages/supplier-program.aspx>.
- 1.2 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's safety programs, practices and procedures, and monitor the Contractor's 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's federal safety statistics, and (4) acknowledge the APS Contractor Safety Manual. Based on these components, each Contractor will be given a numerical score that will result in a red, yellow or green status within ISNetworld. If a Contractor receives a yellow status, the Contractor may, at APS' sole discretion, continue work. If a Contractor receives a red status, APS, at its sole discretion may stop the Contractor's 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.
- 1.3 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's expectation that all parties cooperate fully with loss control programs implemented by APS. The following loss control components 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.
- 1.4 APS will monitor the Contractor's 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's 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. If work is stopped and APS does not terminate the contract, the Contractor shall provide a written "safety improvement 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.
- 1.5 The Contractor and its subcontractor must:
  - 1.5.1.1 The Contractor shall ensure that all subcontractors are provided, and comply with, this Contractor Safety Manual.
  - 1.5.2 Designate an on-site representative who will serve as the primary liaison and contact for establishing and maintaining communication with APS and the Contractor's subcontractor(s). The Contractor's on-site representative, or its designee, 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(s) regarding safety matters.
- 1.5.3 Maintain and provide information and reports as requested regarding safety, inspections, assessments, audits and investigations.
  - 1.5.4 Ensure Contractor's on-site representative and lead personnel are provided a copy of this manual for their use and reference.
  - 1.5.5 Participate in a pre-work conference and Safety Orientation with an APS Representative after the award of the contract but prior to performing work under that contract. 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.
  - 1.5.6 Ensure Contractor and subcontractor employees participate in regularly scheduled safety meetings conducted by the Contractor leader or foremen. At a minimum said safety meetings will be held on a weekly basis. The safety meetings shall ensure the Contractor and its subcontractors are meeting the obligations under this Contractor Safety Manual.
  - 1.5.7 Immediately notify the APS Representative upon knowledge of any on-site inspection being conducted by any regulatory agency.
  - 1.5.8 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 and/or subcontractor employees.
  - 1.5.9 Require a site visit by the Contractor's Safety Professional initially at the start of the project and at least monthly through the duration of the project.
    - 1.5.9.1 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.
  - 1.5.10 Receive and participate in an APS Contractor Safety Orientation to provide an understanding of the expectations regarding safe work practices.
    - 1.5.10.1 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.
  - 1.5.11 Provide documents showing past safety performance upon APS designated representative's or APS 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.
  - 1.5.12 Provide a written safety program or plan through ISNetworld, for all services prior to the commencement of any work activities. At a minimum, the Contractor's safety and health program or plan must meet or exceed the requirements of the APS programs. Contractor safety plans must include the following:
    - 1.5.12.1 Overall Safety Plan for the job or project;
    - 1.5.12.2 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;
    - 1.5.12.3 Critical lifts and rigging associated with critical lifts;
    - 1.5.12.4 Any high risk work activity (evolutions prompting reasonable concerns regarding serious injury and/or property damage);
    - 1.5.12.5 Plans for high risk activities will include a job hazard analysis, increased observations, presence of Contractor supervision; and

- 1.5.12.6 Significant evolutions such as chemical cleaning, asbestos or lead abatement, or work near or within minimum approach distances to energized overhead lines.
- 1.5.13 Submit (upon APS Designated Representative's request) written verification that all the Contractor's and subcontractor's employees have received and demonstrated competency in the training and refresher training as required by APS and regulatory agencies, as applicable to the services being provided.  
  
Upon APS Designated Representative's request, provide written documentation of employee safety training records, certifications, etc. A list of potentially applicable training is provided in Attachment A.
- 1.6 The Contractor will provide a workforce adequately trained in safe work practices. Required training for all employees prior to arriving on site consists of:
  - 1.6.1 OSHA 10 Hour Outreach Training for Construction Industry or;
  - 1.6.2 OSHA 10 Hour Outreach Training for General Industry or Equivalent;
  - 1.6.3 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.
  - 1.6.4 Submit a copy of all welders' certifications as applicable to the services being provided.
  - 1.6.5 Provide a copy of crane operator certification prior to the use or operation of any crane.
  - 1.6.6 Submit a copy of the crane certification prior to any crane being brought on site.
  - 1.6.7 The most recent annual, monthly and pre-use inspection reports for any crane brought on site must be provided.
  - 1.6.8 Obtain APS written authorization prior to moving parts off-site.
  - 1.6.9 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.
- 1.7 The Contractor may be assessed the cost of any fines and/or penalties incurred by APS resulting from the Contractor's non-compliance with safety or environmental regulations.

## **2 CONTRACTOR'S SAFETY RESPONSIBILITIES**

- 2.1 The Contractor, subcontractor and its employees shall:
  - 2.1.1 Understand and comply with all applicable provisions in its respective written safety programs or plans.
  - 2.1.2 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.
  - 2.1.3 Immediately correct any safety or health hazard or defect identified by APS personnel, or others, if under the Contractor's control.
  - 2.1.4 Ensure Contractor and subcontractor employees are aware of their right & responsibility to stop work due to the identification of any unsafe work practice or unsafe work condition & notify their leaders for correction.
  - 2.1.5 Maintain all on-site equipment in good working order, with all safety devices in place and utilized.

## **3 CONTRACTOR QUALIFIED ELECTRICAL WORKERS**

- 3.1 Contractors must ensure qualified electrical workers are qualified to perform work on APS's Transmission and Distribution (T&D) system 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.

- 3.2 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 worker's abilities
- 3.3 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.)

#### **4 FITNESS FOR DUTY**

- 4.1 Contractors and their employees are responsible to report to work both emotionally and physically fit to perform the work assigned.
- 4.2 Contract employees 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 or over the counter medication that can affect fitness for duty.
- 4.3 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.

#### **5 PRE-JOB BRIEF AND JOB HAZARD ANALYSIS**

- 5.1 A written pre-job briefing is required at the start of each shift and before the start of each new job (except that a Contractor's 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.
- 5.2 In assigning an employee or a group of employees to perform a job, the Contractor shall provide its employee in charge of the job with all available information that relates to the determination of existing characteristics and conditions of the work environment.
- 5.3 If the work or operations to be performed during the work day 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.
- 5.4 Additional job briefings shall be held if significant changes, which might affect the safety of the employees, occur during the course of the work.
- 5.5 A more extensive discussion shall be conducted:
  - 5.5.1 If the work is complicated or particularly hazardous, or
  - 5.5.2 If the Contractor's employee cannot be expected to recognize and avoid the hazards involved in the job.
  - 5.5.3 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:
    - 5.5.3.1 Task Identification
    - 5.5.3.2 Roles and Responsibilities
    - 5.5.3.3 Communications
    - 5.5.3.4 Hazard Identification
    - 5.5.3.5 Special Precautions
    - 5.5.3.6 Work Criteria
    - 5.5.3.7 Energy Source Controls
    - 5.5.3.8 PPE Requirements



#### 5.5.3.9 Opportunity for Questions and Worker Input

- 5.6 A Job Hazard Assessment (JHA) must be performed prior to the pre-job brief. The JHA will identify the hazards for each step of the job, and detail what is to be done to eliminate or control the hazards. Pre-job briefs and JHAs will be documented and available for review by the APS Designated Representative.

### **6 CONFINED SPACE ENTRY**

- 6.1 Contractors performing any confined space entry are expected to have a 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 will follow, including any hazards likely to be confronted or created in the confined space.
  - 6.1.1 The Contractor will provide a copy of their written confined space entry program/procedure upon request from the APS Representative.
- 6.2 A confined space is a space that:
  - 6.2.1 Is large enough for a person to enter and perform work;
  - 6.2.2 Has limited, or restricted, means for entry or exit; and
  - 6.2.3 Is not designed for continuous occupancy.
  - 6.2.4 Throughout APS facilities, that definition applies to tanks, vaults, manholes, drums, silos, pits, boxes, heaters, compartments, ducts, etc.
- 6.3 The APS Confined Space Entry Program consists of conducting pre-entry inspections of any potential confined space prior to entry to determine whether the space is either a non-permit or a permit-required confined space. The pre-entry inspection must determine that the energy sources (electrical, hydraulic, pneumatic, kinetic) within the confined space are neutralized; that the confined space is “cleaned” as appropriate to minimize hazards; and to determine that the atmosphere within the space is considered and known from a safety and health standpoint.
- 6.4 “Entry Supervisors” certify confined spaces to be either non-permit or permit-required spaces for the expected duration of an entry into the space based upon the measured contaminants found, or that may be encountered, within the space. “Entry Supervisors” must:
  - 6.4.1 Know the hazards that may be faced during entry including the anticipated reactions of people to those exposures;
  - 6.4.2 Verify that the Entry Permit and/or Checklist is accurate;
  - 6.4.3 Verify that a means to summon the appropriate rescue team is available and operable;
  - 6.4.4 Remove unauthorized personnel from the confined space;
  - 6.4.5 Determine that acceptable entry conditions exist and are maintained for the duration of an entry; and
  - 6.4.6 Terminate the entry and cancel the permit when the job is completed or a condition is encountered that is not allowed in the space.
- 6.5 If determined to be a permit-required space, a trained attendant must be stationed outside the space to monitor for problems, summon rescue assistance if appropriate, maintain an accurate accounting of who is within the space, monitor activities outside the space that may affect employees within the space, and, if necessary, order evacuation of the space.
- 6.6 If local emergency service are utilized for confined space rescue from permit required spaces, the Contractor must arrange for the responders to give the Contractor notice immediately if they will be unable to respond for a period of time due to another event or emergency. If the local emergency service becomes unavailable, entry and work in the space will be suspended until the designated emergency services advises Contractor of their ability to respond.
- 6.7 As an independent Contractor, you are obligated to utilize a Confined Space Entry Program similar to

what has been outlined above and that complies with OSHA regulations. This includes determining hazards, designating an “Entry Supervisor”, and informing APS via the APS Designated Representative anytime unexpected hazards are encountered within a Confined Space.

- 6.8 The Contractor is responsible for providing and for maintaining appropriate confined space inspection/monitoring & rescue equipment and for conducting the required inspections prior to confined space entry by its employees.

## **7 LOCKOUT/TAGOUT**

- 7.1 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 Permit.
- 7.2 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.
- 7.3 Work Supporting APS’s Manager of Real Estate and Facilities
  - 7.3.1 Any Contractor who will work alongside APS Facilities craft members or under the direct supervision of APS company management, must follow the requirements covered by Corporate Shared Services Facilities Energy Control Procedure (LOTO) Section 9. All other Contractors who will be required to perform a LOTO activity, must send a copy of their procedure to their APS Designated Representative.

## **8 CONDITION OF POLES**

- 8.1 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 is necessary for this compliance. The inspection documentation is provided for:
  - 8.1.1 Visual Pole Inspection
  - 8.1.2 Groundline Pole Inspection
  - 8.1.3 Pole Sounding Inspection
  - 8.1.4 Internal Wood Boring Inspection
- 8.2 Inspected poles will be tagged on the pole with Condition Results (See Attachment B).
- 8.3 Before climbing, the employee shall first:
  - 8.3.1 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;
  - 8.3.2 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

- 8.3.3 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.

## 9 EXCAVATION AND TRENCHING

- 9.1 Contractors performing excavation and/or trenching work will ensure the following is performed as required to comply with OSHA regulations:
  - 9.1.1 A trained “Competent Person” will be designated by the Contractor to identify predictable hazards surrounding and within all excavations. This person must be present on the work site, 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.
  - 9.1.2 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
- 9.2 (Refer to Asbestos section of this document when Transite® pipe is encountered during excavation and/or trenching).
- 9.3 Excavated materials shall not be stored closer than two feet to an excavation. Adequate means of access and egress (ladder, ramp, etc.) shall be maintained no further than 20 feet from all workers working within excavations four feet or more in depth.
- 9.4 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 four feet (4 ft.) 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.



- 9.5 Protect all excavations, trenches, manholes, etc., opened and/or worked in by using adequate signs, barriers, barricades, lighting and/or flagmen.
- 9.6 Trenches and excavations must be flagged with yellow tape unless over four feet deep, then the flagging shall be red unless a hard barrier is provided.

## 10 SCAFFOLDING

- 10.1 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’s responsibility to ensure that each scaffold utilized by the Contractor has been inspected by a “Competent Person” prior to each shift’s use.

## 11 PERSONAL PROTECTIVE EQUIPMENT (PPE)

- 11.1 The Contractor shall ensure that its employees utilize appropriate personal protective equipment for the tasks performed. All Contractor employees shall be required to wear hard hats and safety glasses equipped with full side-shields.
- 11.2 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. Contractors and their employees are to arrive on site with all required PPE and protective clothing.
- 11.3 Hard hats shall meet the requirements of ANSI Z89, and a minimum of Class E and Type 1. Baseball

hats may not be worn under hard hats. Hard hats designed to look like cowboy style hats are prohibited.

- 11.4 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.)
- 11.5 Substantial footwear appropriate for the work being performed is mandatory in work areas. All contract personnel shall wear safety toe footwear, meeting ASTM F2413-05, ASTM F2413-11, or safety toe caps are required to be worn by employees who are exposed to substantial drop, compression or puncture hazards.
- 11.6 Appropriate gloves shall be worn when handling rough or sharp objects such as rough lumber, glass, sheet metal with unfinished edges, metal slivers, etc. Acid/caustic proof gloves shall be worn when handling acids or caustics. Chemical resistant gloves, as recommended by the product MSDS, shall be worn when handling chemicals. Electricians working with high voltages will wear the appropriate gloves.

## **12 RESPIRATORY PROTECTION**

- 12.1 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 test, within the last 12 months, on the specific respirator being worn. The Contractor is responsible to provide employees training, medical evaluation and fit tests if respiratory protection is used.
- 12.2 Dust masks are not considered tight fitting air purifying respirators and are convenience items only and not part of this requirement.

## **13 FALL PROTECTION**

- 13.1 Contractor's employees working from unprotected elevated positions in excess of **four feet (4 ft.)** from the surface below shall wear and utilize appropriate fall arrest equipment. The Contractor shall have a written fall protection/fall arrest program.
- 13.2 Tie off anchor points must be able to withstand a minimum of a 5000 pound load.
- 13.3 Handrails, guardrails, conduit, and uni-strut are not tie off points!
- 13.4 Contractor employees performing these tasks shall receive adequate training and fall arrest equipment from their employer.




## **14 HOUSEKEEPING**

- 14.1 The Contractor's 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.
- 14.2 Additionally, hoses, welding leads, power cords, etc. must be protected against accidental tripping or shall be suspended above or below the walkway to avoid the creation of tripping hazards.
- 14.3 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 overcurrent protection panels, emergency vehicles, first aid equipment, eye/body wash stations, etc., with equipment, vehicles or supplies.

## **15 GLOBALLY HARMONIZED SYSTEM (GHS)**

- 15.1 APS facilities may utilize some products classified as hazardous under OSHA's Hazard Communication Standard. The APS Designated Representative will, upon request, 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). In accordance with your contract with APS, the Contractor shall provide the

APS Designated Representative with a list of all chemical, asbestos and/or radioactive products proposed to be brought on site, in addition to their respective SDSs, for review and approval prior to bringing such chemicals onto company premises or rights-of-way.

- 15.2 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 Contractors during project work. Contractors are expected to maintain readily accessible SDS documents for all materials being used during project work.
- 15.3 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 drainage systems, or placed in regular trash receptacles.
- 15.4 Toxic chemicals (e.g., PCB's, sodium hydroxide, sulfuric acid, ammonium hydroxide, etc.) and/or radioactive substances may be found within some APS facilities. Contractor personnel must become familiar with the applicable DOT, environmental, health and safety rules governing such substances prior to performing any work in the vicinity of these substances. Specific guidelines are available from the APS Designated Representative upon request.
- 15.5 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.
- 15.6 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.
- 15.7 All hazardous products not used before the end of the shift, or replaced in their 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 provide appropriate hazard warnings.
  - 15.7.1 Manufacturers, distributors and importers of hazardous chemicals are required to fully label their packaging prior to shipment. These labels have to include:
    - The name of the material
    - A signal word (i.e. Danger or Warning)
    - A hazard statement
    - Pictograms (    , etc.)
    - Precautions
    - Their name, address and phone number
  - 15.7.2 After chemicals are received they are able to be transferred out of their original containers and into a second container, but it is required by Federal Law and APS Procedure to label the new containers.

These "secondary containers" require:

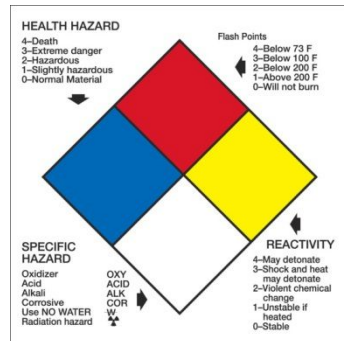
    1. The Product Identifier [Name]
    2. Words, pictures, symbols, or combination thereof, which provide at least general information regarding the hazardsSee Federal OSHA 29 CFR 1910.1200(f)(6)(i) and 29 CFR 1926.59
  - 15.7.3 Exception:

Containers that will be immediately used by the contractor employee 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 (see 15.7 details)

#### 15.7.4 APS Internal Procedure:

APS uses the NFPA diamond on internal secondary containers:

“Use the National Fire Protection Association (NFPA) hazard coding system to label chemicals that are transferred from their original containers” (APM, sect 5-2 C.1)



## 16 DRIVING COMMERCIAL MOTOR VEHICLES

- 16.1 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 at all times while driving a CMV.
- 16.2 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:
  - 16.2.1 Has a gross vehicle weight rating (GVWR) or a gross combination weight rating (GCWR) of 18,001 lb. (AZ Intrastate) (10,001 lb. Interstate) or more; or
  - 16.2.2 Is designed to transport 16 or more passengers for hire, including the driver; or
  - 16.2.3 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.
- 16.3 CMV operators/drivers must accurately complete a Driver’s Daily Inspection Report (DDIR) (vehicle inspection report) each day a CMV is driven.

16.4 Contractor personnel are restricted from operating a CMV beyond the following limitations:

<b>HOURS OF SERVICE LIMITATIONS</b>	
<b>Type</b>	<b>Limitation</b>
Daily On-Duty Driving Hours	No greater than 10 hours (aggregated) without having 8 consecutive hours off-duty.
Daily On-Duty (driving and non-driving) Hours) Hours:	No greater than 15 hours (aggregated) (12 consecutive hours if logging under the 100 air-mile exemption) without having 8 consecutive hours off-duty.
Accumulated Hours of Service	No greater than 60 (70) [Note from Bruce: this section is a bit ambiguous and needs some clarification] accumulated on-duty hours during the preceding 7 (8) days. Hours of availability can be reset to 60 (70) hours following any 24 consecutive hour period off-duty.

16.5 Contractor employees who operate a CMV must maintain the proper records of duty status documentation as required by Federal Motor Carrier Safety Regulations.

16.6 All CMVs must have the required emergency equipment, registration, proof of insurance, and annual federal vehicle inspection certificate stored on-board at all times.

**17 FACILITY ACCESS; DRIVING; MOBILE EQUIPMENT**

17.1 Contractor personnel must observe posted speed limits within the facility (special conditions may warrant even lower speeds).

17.2 Contractor personnel must not be permitted to ride on any type of mobile equipment unless proper cages, seats, seatbelts or other personnel-securing devices are provided and used. Additionally, vehicles and mobile equipment with partially obstructed rear views shall be equipped with working backup alarms.

17.3 Special attention must be given to crane safety and OSHA regulations requiring minimum clearances from power lines when material yards or set-up yards are located near power lines. A signalman must be used when warranted due to proximity to overhead conductors.

**18 AERIAL EQUIPMENT**

18.1 Only personnel who have been specially trained and authorized shall be carried aloft.

18.2 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.

18.3 The operator of the equipment assumes ultimate responsibility for the safe movement and operation of the equipment.

**19 MATERIALS HANDLING EQUIPMENT**

19.1 The lifting zone must be protected prior to making a lift.

19.2 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 Designated Representative. Alternative

methods can be evaluated if necessary.

- 19.3 Alternative methods may include the use of barrier tape, spotters, horns, or other effective means to prevent personnel from being under a suspended load.
- 19.4 NO ONE MAY BE UNDER A SUSPENDED LOAD.
- 19.5 All rigging must be inspected prior to use.
- 19.6 Riggers must be qualified.
- 19.7 When a forklift is to be used, the Contractor shall provide the APS Designated Representative with a copy of the forklift operator's certification.
- 19.8 Free rigging from the forks of a forklift is prohibited.

## **20 FIRST AID AND JOBSITE EMERGENCIES**

- 20.1 Contractor must maintain proper first-aid readiness at the jobsite for its employees. 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's employees. 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. The Contractor should review its contract with APS to confirm the availability of first aid and emergency resources. Any questions should be addressed to the APS Designated Representative.
- 20.2 For field work involving two or more employees at a work location, at least two persons trained in first aid and CPR must be available.

## **21 FIRE PROTECTION**

- 21.1 Contractors must recognize all potential fire hazards, become familiar with on-site fire protection systems, and enforce applicable fire regulations prior to beginning and during "hot work" (cutting, welding, brazing, soldering, etc.). A fire watch may be necessary following "hot work" to detect and extinguish resultant smoldering or fires. The Contractor must maintain the proper size and type of fire extinguisher(s) in the immediate work area during any "hot work".
- 21.2 Contractor personnel must strictly adhere to all rules and regulations pertaining to the use, handling, transportation and storage of compressed gases and liquids.
- 21.3 Contractor personnel must also be aware that many ducts, vessels and pipes found within APS facilities 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.
- 21.4 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).

## **22 FLAMMABLE LIQUIDS**

- 22.1 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.
- 22.2 Overnight and long term storage of flammable liquids shall meet the requirements of either 29 CFR 1926.152 or 29 CFR 1910.106.

## **23 ELECTRICAL SAFETY**

- 23.1 The Contractor must provide, and require personnel to use only non-metallic ladders near electrical facilities. No portable conductive ladders are allowed on APS facilities.
- 23.2 The Contractor is also 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.

- 23.3 Clearance (between objects) for overhead high/low voltage lines must be observed and applies to any direction, vertical or horizontal. Pre-job brief meetings must emphasize these issues continuously.

**24 ARC FLASH PROTECTION - LIVE ELECTRICAL WORK**

- 24.1 Prior to performing any work tasks on energized electrical equipment, Contractor will coordinate with its APS Designated Representative in obtaining any required Clearances from the ECC and/or DOC.
- 24.2 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.
- 24.3 Contractors that will be performing work on electrical equipment shall provide adequate arc flash apparel to their employees while performing arc based related tasks. **See Attachment C for Arc-Rated PPE calculations.**
- 24.4 Contractors assigned to perform work on or around energized facilities or equipment are required to wear a minimum of HRC2 (Hazard Risk Category 2) clothing.
- 24.5 Contractors performing arc based related task on energized metal clad switch gear or network protectors, without remote operations, shall wear clothing or clothing systems with a minimum arc rating of HRC3 (25 cal/cm<sup>2</sup>). Contractors shall wear arc rated clothing rated to the hazard risk clothing category indicated on the equipment label where provided.
- 24.6 Contractors performing work on energized equipment supplied by a 12kV 1000 kVa (or greater) underground system “arc-in-a-box”, or any work on a 21kV 100 kVa (or greater) over head system “arc-in-a-box” must wear a clothing system with a minimum arc rating of HRC3 (25 cal/cm<sup>2</sup>).
- 24.7 Under no circumstances shall a non-qualified employee be allowed in the proximity of areas where potential Arc Flash is possible.

**25 MINIMUM APPROACH DISTANCE (MAD) FOR QUALIFIED ELECTRICAL WORKERS**

- 25.1 Qualified electrical workers shall maintain the following “Minimum Approach Distance” (separation) between exposed energized circuits and themselves. This MAD applies not only to the individual’s body and clothing, but it also applies to all conductive items, tools, equipment, and materials within his or her control.

AC Voltage		Clearance				
50 V – 300 V		Avoid Contact				
301 V – 750 V		1 ft. 4 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.

## 26 MINIMUM APPROACH DISTANCES (MAD) FOR NON-QUALIFIED WORKERS

- 26.1 Non-electrically qualified workers shall maintain the following “Minimum Approach Distance” (separation) between exposed energized circuits (including overhead power lines), and themselves (including any tools, equipment, machinery, items or materials).

<b><i>Voltage (kV)</i></b>	<b><i>Minimum Clearance Distance (Ft.)</i></b>
Up to 50	10 ft.
over 50 - 200	15 ft.
over 200 - 350	20 ft.
over 350 - 500	25 ft.

## 27 SUBSTATION AND SWITCHYARD ENTRY AND EXIT

- 27.1 Contractor personnel may enter the energized sections of APS substations (or substations operated by APS) only after receiving permission and meeting one of the following two conditions:
- 27.1.1 The Contractor’s employees have successfully completed and demonstrated proficiency in an APS training class provided by the APS Designated Representative or his/her designee that covers:
- 27.1.1.1 The recognition of potentially energized components
  - 27.1.1.2 The proper use of electrical protective equipment that will be required by the work being performed
  - 27.1.1.3 The safety work practices to be utilized while performing specific work assignments within the substation
  - 27.1.1.4 What is safe to approach and what is unsafe to approach

- 27.1.1.5 The maximum voltages involved within the substation
- 27.1.1.6 The Minimum Approach Distances (MAD) to apply
- 27.1.1.7 Condition of grounds
- 27.1.2 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.
- 27.2 Entry into any substation or switchyard for the following reasons must be reported to the APS Energy Control Center (ECC) at 602-250-1070 prior to entry:
  - 27.2.1 To perform work within 30 feet of electrical structures (i.e. transformers, lolly columns, control houses, overhead bus, reactors, transmission lines, towers, poles, etc.);
  - 27.2.2 To work using any type of aerial equipment;
  - 27.2.3 To perform trenching and/or excavation services.
  - 27.2.4 Any work or access of an EHV substation or switchyard rated at 235 kV or higher.
- 27.3 If a Contractor employee enters 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 Designated Representative.
- 27.4 The 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.
- 27.5 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 Pinnacle West Corporate Security at 602-250-2222 to obtain the approval. If multi-day access is required, you may be instructed to notify Pinnacle West Corporate Security prior to each entry of certain substations and switchyards.
- 27.6 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.
- 27.7 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 Designated Representative.
- 27.8 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.
- 27.9 Contractor personnel must not store mobile equipment, materials or supplies within a substation without prior approval by the APS Designated Representative. Note: APS assumes no responsibility for the safekeeping or damage of Contractor materials stored on APS's property.
- 27.10 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.

## **28 INDUCED VOLTAGE**

- 28.1 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.

## **29 PERSONAL PROTECTIVE GROUNDING**

- 29.1 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.
- 29.2 The principle of developing an EPZ is the process of bonding all conductive objects within the worksite together with very low resistive jumpers. This includes bonding the de-energized conductors, system neutral, pole ground, pole and all pole hardware together.
- 29.3 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.
- 29.4 Specific information about grounding rules and practices for electrical lines and related equipment are compiled in the APS Personal Protective Grounding Manual. Contractor grounding practices must meet or exceed the rules and practices found in the APS Personal Protective Grounding Manual.

## **30 ASBESTOS**

- 30.1 Some APS Facilities have asbestos-containing materials in use. These materials may be present in the form of thermal system insulation (piping, 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 personnel shall not disturb any such materials at any time unless directed to do so by the APS Designated Representative (after consultation with appropriate APS EHS personnel) AND your employees have met the training requirements imposed upon handlers of asbestos and other asbestos containing materials (see applicable OSHA regulations). You must notify the APS Designated Representative anytime you or your employees encounter thermal system insulation or surfacing materials which have been disturbed and could potentially release fibers into the work area. OSHA and EPA have enacted rigid health and safety standards designed to minimize exposure to asbestos and the Contractor and its personnel must adhere to these standards.

## **31 TEMPERATURE EXTREMES**

- 31.1 Prior to the commencement of work during hot weather, leaders and workers must determine if heat will potentially affect workers when performing a task including tasks performed in areas where the ambient temperature exceeds 100°F. This includes tasks performed outdoors when the temperature exceeds 100°F.

## **32 CAUTION AND DANGER DEMARCATION – BARRIER TAPE**

- 32.1 The Contractor must ensure that its personnel are completely familiar with, and follow, the meaning of the various colored barrier tapes.
- 32.2 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 must be properly disposed of immediately after use.
- 32.3 Barrier tape shall completely enclose the hazard, with 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 its employees do not have a job or task in the enclosed area, entry should not be made.
- 32.4 The lack of DANGER or CAUTION tags does not change the meaning of the colored barrier tape.
- 32.5 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 considered to be a serious safety violation and will not be tolerated.** 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.

- 32.6 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 its employees do not have a job or task in the enclosed area, and if there is an alternate route, entry should not be made.

### **33 REPORTING INCIDENTS, INJURIES AND CLOSE CALLS**

- 33.1 Contractors must report all personal injury accidents and those accidents that result in property damage that involve work performed for APS, or at APS work areas, to their APS Designated Representative in writing as soon as practical and, in any case, prior to the end of the day's work. APS may assess the incident and will provide any necessary reporting to the Arizona Corporation Commission. 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 notification.
- 33.2 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.
- 33.3 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.
- 33.4 The Contractor will provide the APS Designated Representative with a log of all OSHA recordable injuries and illnesses that occur to Contractor's personnel while performing work at APS, along with the OSHA recordable injury rate for its employees during the work.

### **34 CONTRACTOR'S ENVIRONMENTAL REQUIREMENTS - ISO 14001**

- 34.1 APS is working towards achieving ISO 14001 certification at APS' Deer Valley complex and is striving to maintain it. The following policy statement depicts our goals:

Be Environmentally S.M.A.R.T

**Strive For Continuous Improvement**  
**Manage All Environmental Risk**  
**Always Communicate**  
**Reduce Environmental Footprint**  
**Target Beyond Compliance**

- 34.2 APS in Arizona are regulated by ADEQ and EPA & some must comply with additional county & city requirements. The APS Fossil Generation plant in New Mexico is regulated by the EPA.
- 34.3 All APS facilities must protect the aquifer, navigable water ways and river waters from any contamination. Do not allow any discharges to the water or drains without approval from the Environmental Department
- 34.4 Some of the Environmental programs to be addressed by the Contractor include:
- 34.4.1 AIR QUALITY – The Contractor's activities must minimize the creation of dust and Volatile Organic Compound (VOC) emissions. Additionally, the open venting of CFC's (Freon) is prohibited.
- 34.4.2 WATER QUALITY – The Contractor must understand that cooling water lakes, nearby washes (wet or dry), etc., may be considered Waters of the United States and, in some cases, are the source of facility drinking water. No discharges or spills at the facilities are allowed unless permitted by the EPA. NPDES (National Pollutant Discharge Elimination System) permits are very specific about what may be

discharged. Spills or other material discharges into any drainage systems must be responded to quickly and efforts to minimize or eliminate discharges must be implemented as soon as possible. Questions should be referred to the APS Designated Representative.

- 34.4.3 CHEMICALS - Contractor shall provide a list of the amount of Persistent- Bioaccumulative and Toxic (PBT) chemicals and Toxic Release Inventory (TRI) chemicals to be brought on site. Once the Service has been performed, Contractor must provide the amount, in pounds, of the actual PBT and TRI chemicals used.
- 34.4.4 UNIVERSAL WASTE - Batteries (Ni-Cd, lithium, and lead-acid), fluorescent bulbs, and mercury-vapor lamps cannot be disposed of in the solid waste roll-off containers. Contact the APS Designated Representative for details.
- 34.4.5 CHEMICAL SPILLS - Contractor is responsible to notify the APS Designated Representative, or APS's Environmental Manager or representative, immediately of all spills of chemicals. Environmental laws under the Clean Water Act, CERCLA, SARA and/or RCRA require immediate notification to state and federal agencies when a listed substance is released to the environment in amounts exceeding the Reportable Quantities (RQ). APS Management is responsible to ensure that proper release notifications are made to National Response Center (NRC), local and state emergency response committee (LEPC & SERC) and EPA and ADEQ.
- 34.4.6 WASTE MANAGEMENT - APS practices waste minimization principles and requires the same of its Contractors. Activities that potentially create waste should include recognition of waste minimization, reuse, and recycling principles. This includes proper use of materials during the job as well as after the job is completed in addition to an analysis of how to minimize the waste of left-over products. These principles should be adhered to for both solid and hazardous waste materials generated at a given facility.
  - 34.4.6.1 Solid wastes include any used or unused materials that are intended to be discarded. Solid wastes can include debris, scrap materials, broken or unusable equipment, empty containers and packaging, chemicals, solvents and any other material that can no longer be used for its originally intended purpose.
  - 34.4.6.2 Some solid wastes may qualify as special or hazardous wastes, and the Contractor and APS are jointly responsible for properly identifying and managing solid, special and hazardous wastes.
  - 34.4.6.3 Solid wastes that do not qualify as special or hazardous wastes must be properly discarded by the Contractor in designated dumpsters or other appropriate waste receptacles. The APS Designated Representative must be consulted for specific directions concerning proper disposal of solid wastes.
  - 34.4.6.4 Special wastes are solid wastes that are subject to additional management standards and disposal restrictions. In particular, asbestos and potentially asbestos containing wastes are subject to a variety of state and federal laws, and must be handled and disposed of by trained APS personnel.
  - 34.4.6.5 Hazardous wastes are also subject to very restrictive and complex management standards. The Contractor is responsible for familiarity with these standards. Hazardous wastes must be managed and disposed of in accordance with all applicable laws, and as specified by the APS Designated Representative. In the event of a spill, release or discharge of hazardous waste, the Contractor shall immediately notify the APS Designated Representative.
  - 34.4.6.6 Aerosol cans (full or empty) must never be put in a dumpster. Aerosol cans must be placed in the proper "Aerosol Waste Cans" container. Contact the APS Designated Representative for further information.

## Attachment A – Arizona Public Service Company Occupational Safety & Health Administration Qualifications of Contractors and Subcontractors

### Potential Safety and Health Training Requirements Applicable To Contractors and Subcontractors

#### OSHA 10 Hour 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, Electrocution, 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

General Industry	Construction Industry
Confined Space Entry	Hazardous Energy Control – Lockout/Tagout
Mobile Crane & Rigging Practices	Respiratory Protection
Safety Related Work Practices-Working with Energized equipment	Housekeeping
Fall Protection	Aerial Equipment – Man lifts
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	Temperature Extremes
Hazardous Waste Operations	

## 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:

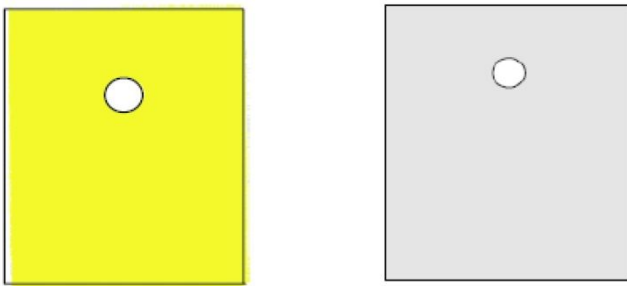
- PRIORITY 1 = COMPLETE WITHIN 24 HOURS
- PRIORITY 2 = COMPLETE WITHIN 60 DAYS
- PRIORITY 3 = COMPLETE WITHIN 365 DAYS

#### 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:

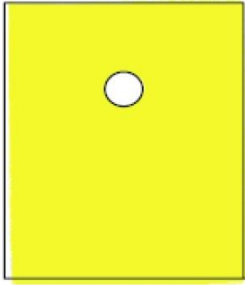
- YELLOW – INDICATES THE POLE IS SCHEDULED TO BE TRUSSED OR FIBER WRAPPED
- SILVER – INDICATES THE POLE IS SCHEDULED TO BE REPLACED



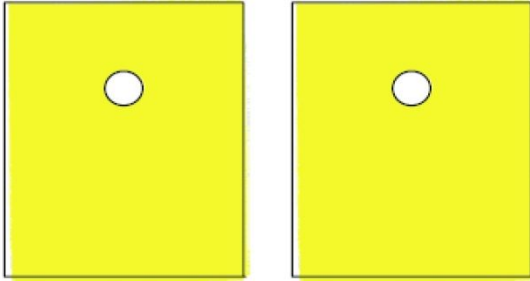
#### PRIORITY DESIGNATION FOR REJECTED POLES ARE AS FOLLOWS:

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

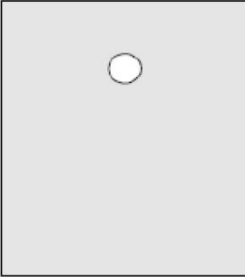




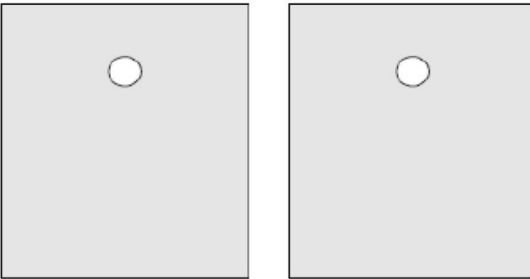
**2 YELLOW TAGS – PRIORITY 1 OR 2 POLE CAN BE TRUSSED OR FIBER WRAPPED – DANGER POLE - DO NOT CLIMB**



**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    ARC Flash Metal Clad    Secondary\_Meter\_Pa  
Secondary Arc Flash C    Switchgear.pdf    nel\_\_Arc\_Flash\_Calc