



*A subsidiary of Pinnacle West Capital Corporation*

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# **APS Contractor Safety Program**

**For all contracts related to work not associated with power  
generation**

**June 10, 2003**



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President, Pinnacle West Capital Corporation, and  
President and CEO, Arizona Public Service Corporation

April 15, 2003

To All Participating APS Non-Generation Contractors:

You have either received a Request for Proposal or have been awarded a contract to perform services for Arizona Public Service Company. The health and safety of your employees, those of your subcontractors, APS employees and members of the public who may be on or near the jobsite is of particular importance to the management and employees of APS. Of equal importance is minimizing negative impacts to the environment where our constituents live and work.

The Agreement you have or will be entering into with APS contains various provisions about your obligation to comply with applicable laws and to conduct your activities in a safe and compliant way. The attached Program is presented to you in furtherance of these contract provisions. Nothing in this document is intended to alter or modify the Agreement.

The project in which you may be involved requires that all reasonable and prudent measures be taken to establish and maintain safe working conditions. We are taking this opportunity to reaffirm that you as an employer must provide your employees a "safe place to work" and that you, as an independent contractor, are responsible for the safety and well being of your employees, as well as others whom your services may impact. At a minimum, your activities and those of your subcontractors must comply with all applicable laws, rules and regulations affecting the environment, public health and work place safety and health.

Prior to your performance of the services called for in the Request for Proposal or Contract, a meeting will be held with APS representatives to discuss and review various contract requirements, including those pertaining to specific site regulations, safety, environmental considerations and potential hazards. APS personnel may bring to your attention applicable laws, rules, and regulations and may assist you in these important areas, but such actions by APS are not a substitute for, nor will they relieve you of, your responsibility to comply with all applicable federal, state, tribal and/or local laws affecting the environment, or the health and safety of your employees and our work place.

To complete this project without injury to your employees, our employees, the public, or damage to any property, equipment or facility, you will be required to identify and maintain an "area of safety" within which your services will be performed in compliance with all laws, ordinances, rules, codes and regulations. Both you and APS have a mutual interest in protecting the environment, the health and safety of our respective employees and the public and in protecting property from damage or loss. I am confident that if we cooperatively use our individual teams' talents to the fullest, we can complete this project safely.

Safety is the overriding value of our company. You are expected to perform your services in complete support of this value.



Jack E. Davis

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## PREFACE

APS' 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 customer delivery.

As an independent contractor for APS, you must minimize potential safety and health hazards to your employees, to APS employees, and to others who may be on the jobsite, by following all applicable laws and regulations and using sound work practices 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 their state counterparts) to be minimum requirements that must be complied with at all times. 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 respirable, systemic and dermal hazards, electrical exposures, 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, as an independent 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.

### **MAJOR ENVIRONMENTAL, HEALTH AND SAFETY ACTS OF CONCERN**

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 (and amendments) (RCRA)	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)
Occupational Safety and Health Act	DOL(OSHA)
Federal Motor Carrier Safety Regulations	DOT (FHA)
Emergency Planning and Community Right-to-Know Act	EPA (EPCRA)

## Contractor Health and Safety Requirements

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 we serve. APS views the health and safety of employees, contractors, subcontractors and members of the public as a core value to our success. 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 is responsible and accountable for the safety and well being 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 contractors and their 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. Additionally, the contractor and subcontractor safety programs and practices must meet all APS safety and health policies, procedures and program requirements.

Contractors and subcontractors are responsible and expected to take all reasonable and lawful actions deemed necessary to prevent accidents and losses. It is the expectation of APS 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 the corporation.

- Participate in a conference with an APS representative between 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.
- Each Contractor and subcontractor shall provide to APS representatives, upon request, evidence of past safety performance. This may include OSHA inspection results and citations, accident rates, Experience Modification Rates, and/or DOT-related inspections and citations. Such evidence may be requested prior to commencement of work.
- Each contractor and subcontractor shall provide, upon request, a written safety program or plan for service to be provided prior to the commencement of any work activities for by an APS representative. At a minimum, the contractor's safety and health program or plan must meet or exceed the requirements of the APS programs.
- The contractor shall submit, upon request, written verification that all contractor and subcontractor employees have received and demonstrated competency in the required training and refresher training of regulatory agencies and APS as applicable to the services being provided. Written documentation of employee safety training records, medical examinations, etc. shall be provided as requested. A list of potentially applicable training is provided in Attachment A.
- APS reserves the right to conduct periodic inspections of the work site to verify compliance with these requirements. All safety discrepancies discovered shall be abated by the contractor in a timely manner in accordance with regulatory or contract requirements, as applicable and appropriate.
- The contractor may be assessed the cost of any fines and/or penalty incurred by APS resulting from the contractor's non-compliance with safety regulations.
- Contractors, subcontractors and their 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.

## Safety Responsibilities

The following section of this Program is separated into two primary parts, which are applicable to:

- All Contractors; or,
- Contracts involving Contractor work on APS Transmission or Distribution Equipment, their makeup components, or within APS rights-of-way or Property.

### All Contractors

Contractors, subcontractors and their employees shall:

- Understand and comply with all applicable provisions in their respective written safety programs or plans.
- Immediately notify the APS Designated Representative upon discovering any safety or health hazard or defect, the correction of which is APS' responsibility, and shall follow up with the APS Designated Representative until the identified hazard or deficiency is corrected.
- Immediately correct any safety or health hazard or defect identified by APS personnel if under the control of the contractor.

### Contracts Involving Contractor Work on APS Transmission or Distribution Equipment or their Makeup Components (the APS system), or within APS rights-of-way or Property

Accident prevention is the most important part of every contractor's job. The contractor shall:

- Provide a qualified electrical worker at all times while contractor or subcontractor employees are working with exposed, energized transmission or distribution equipment. The qualified electrical worker shall be the only person(s) who will perform physical, hands-on work on cables and/or other energized equipment.
- Observe Blue Stake requirements pertaining to all excavation operations in close proximity to underground facilities.
- Use only qualified utility electrical workers when performing hands-on work on energized cables, cables in conduit, manholes, or when excavation requirements necessitate the undermining of energized electrical equipment.
- Provide at least one English-speaking employee per crew at APS job sites. This employee must be bilingual (with appropriate second language skills) when the remaining members of the crew are non-English speaking.
- Designate a "Safety Instructor" to train & test all of the contractor's personnel as required by APS. The "Safety Instructor" shall participate in, and pass, with at least a 90%, an APS Accident Prevention Manual (and its successor manuals) training class.
- Provide required safety training, including a review of the APS Accident Prevention Manual to all contractor employees who perform work on APS facilities. Contractor and subcontractor employees shall be retrained on the expectations of the APS Accident Prevention Manual (APM) prior to beginning work as a part of an APS contract and when the APM is modified if still contracted. Contractor and subcontractor personnel who work on APS jobs shall have successfully passed the APS Accident Prevention Manual training class with a minimum of 75%.
- Provide APS with original documentation (i.e. tests, test results, class rosters including names and job classifications, etc.) indicating each employee's successful completion of the APS Accident Prevention Manual training prior to allowing the employees to work on APS projects.
- Impress upon contractor's employees the need for safety in every job.
- Provide time for and take an active part in safety meetings and discussions. This includes attending joint contractor/APS Safety Meetings coordinated by APS.
- Appoint a special accident investigator to work on an Accident Investigation Committee as needed.
- Periodically evaluate the safety performance of the contractor's employees.

- Provide appropriate responses to safety suggestions and document appropriate action to correct any unsafe conditions.
- Provide original documentation regarding the activities listed above as required by APS.
  
- **Contractor Qualified Electrical Workers**
  - Contractor must ensure qualified electrical workers are qualified to perform work on APS' Transmission and Distribution (T&D) system or it's 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.
  - Contractor must have a written safety program and understand that APS will include the Contractor's Experience Modification (E-Mod) factor along with other performance indicators into selection matrices. The E-Mod factor must be provided annually on the anniversary date of the contract.
  - 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. Should the contractor disagree with APS' assessment, a practical evaluation may be performed of the qualified electrical worker's abilities.
    - This practical evaluation will be conducted as determined by APS and may be witnessed by contractor
    - Contractor will be responsible for all costs related to the practical evaluation.
    - Only one (1) practical evaluation will be allowed per individual.
  - 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.)

### **Accident Prevention Manual (and its successor manuals)**

The APS Accident Prevention Manual sets forth the minimum requirements for safety-related training and workplace safety expectations. **It is the responsibility of all personnel of those entities contracting with APS to know and comply with all rules in the APS Accident Prevention Manual while performing work under the contract.** We share a role in developing and maintaining an effective safety program. The rules in this manual serve as the foundation for our safety program. Safety awareness and compliance with these rules, in concert with good common sense, are vital if all employees are to remain accident free.

**NOTE:** The safe working rules contained within the Accident Prevention Manual were originally prepared for use by APS employees. Accordingly, the use of the terms "employee", "employee of the Company", "employee in charge", "supervisor", "foreman", and similar terms, characterizations or classifications shall, in all instances, mean the employee, supervisor, foreman, etc. of the Contractor. Nothing contained in the manual is intended to create or imply that there exists an employer/employee relationship between the Contractor's employees and APS.

### **Confined Space Entry**

A confined space is a space that:

1. Is large enough for a person to enter and perform work;
2. Has limited, or restricted, means for entry or exit; and
3. Is not designed for continuous occupancy.

Throughout APS facilities, that definition applies to most tanks, vaults, manholes, drums, silos, pits, boxes, heaters, compartments, ducts, etc.

The APS Confined Space Entry Program consists of conducting pre-entry inspections of any potential 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.

“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:

- know the hazards that may be faced during entry including the anticipated reactions of people to those exposures;
- verify that the Entry Permit and/or Checklist is accurate;
- verify that a means to summon the appropriate rescue team is available and operable;
- remove unauthorized personnel from the confined space;
- determine that acceptable entry conditions exist and are maintained for the duration of an entry; and
- terminate the entry and cancel the permit when the job is completed or a condition is encountered that is not allowed in the space.

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.

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.

## Lockout/Tagout

All servicing or maintenance that is performed on a **machine or equipment NOT 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 will obtain all work clearances for the contractor. 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 contract will maintain the Group Hold Tag and Group Tagout Work Permit.

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 APS Designated Representative will obtain all work clearances and switching orders for the contractor except that specially APS trained and authorized contract company personnel may request and obtain switching orders. 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.



## Excavation and Trenching

Contractors performing excavation and/or trenching work will ensure the following is performed as required to comply with OSHA regulations.

A trained "Competent Person" will be designated by the contractor 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.

Underground installations (telephone, gas, electrical, etc.) must be identified in accordance with Arizona Administrative Code requirements (included at A.A.C. Rule R14-2) 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. **NOTE:** Refer to Asbestos section of this document when Transite® pipe is encountered during excavation and/or trenching.

Excavated materials shall not be stored closer than 2 feet to an excavation. Adequate means of access and egress (ladder, ramp, etc.) shall be maintained no further than 25 feet from all workers working within excavations 4 feet or more in depth.

Persons working within an excavation must be protected from cave-ins by adequate shoring systems unless (1) the excavation is made in stable rock, the excavation is less than 5 feet deep, **and** the "Competent Person" determines there is no possibility of cave-in; or (2) the walls are sloped and/or benched to an angle not to exceed 34 degrees from horizontal.

All excavations, trenches, manholes, etc. opened and/or worked in must be protected using adequate signs, barriers, barricades, lighting and/or flagmen.

## Scaffolding

Scaffolding, when used by the contractor, shall be erected in conformance with all applicable OSHA scaffolding standards and a safe means of access and egress must be maintained. Contractors shall not use scaffolds erected by others without first obtaining permission through the APS Designated Representative; and completing a thorough inspection of the scaffold to ensure that it meets OSHA requirements.

## Personal Protective Equipment

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 as directed in the APS Accident Prevention Manual. Hearing and respiratory protection in compliance with OSHA standards are required when dictated by environmental conditions or the work being performed. Substantial work shoes appropriate for the work being performed are mandatory in work areas. ANSI approved steel or fiberglass-toed safety shoes (or steel-toe shoe attachments) are required to be worn by employees who are exposed to substantial drop, compression or puncture hazards.

## Housekeeping

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.

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.

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.

## **Hazard Communication**

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 Material Safety Data Sheet (MSDS). 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 MSDS's, for review and approval prior to bringing such chemicals onto company premises or rights-of-way.

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.

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.

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.

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.

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.

## **Driving Commercial Motor Vehicles**

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.

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:

- 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
- Is designed to transport 16 or more passengers for hire, including the driver; or
- 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.

CMV operators/drivers must accurately complete a Driver's Daily Inspection Report (DDIR) (vehicle inspection report) each day a CMV is driven.

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

**HOURS OF SERVICE LIMITATIONS**

Type	Limitation
Daily On-Duty <b>Driving Hours:</b>	No greater than 10 hours (aggregated) without having 8 consecutive hours off-duty.
Daily <b>On-Duty</b> (driving and non-driving) <b>Hours:</b>	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 <b>Hours of Service</b>	No greater than 60 (70) accumulated on-duty hours during the proceeding 7 (8) days. Hours of availability can be reset to 60 (70) hours following any 24 consecutive hour period off-duty.

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

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

**Facility Access/Driving/Mobile Equipment**

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

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.

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

**Aerial Equipment**

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

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.

## First Aid and Jobsite Emergencies

As required by your contract with APS, contractors must maintain proper first-aid readiness at the jobsite for their employees. Facility Clinics (where available) will **not** provide first-aid treatment or supplies to Contractor employees. Facility Clinic or emergency response personnel **may** be available for significant Contractor emergencies. 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. You should review your contract with APS to confirm the availability of first aid and emergency resources. Any questions should be addressed to the APS Designated Representative.

## Fire Protection

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".

Contractor personnel must strictly adhere to all rules and regulations pertaining to the use, handling, transportation and storage of compressed gases and liquids.

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.

## Electrical Safety

The Contractor must provide, and require personnel to use, only non-metallic ladders near electrical facilities.

Contractors are 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.

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.

Non-electrically-qualified contract personnel must adhere to the *circle of 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):

Required Clearances for Overhead high-voltage Lines	
Voltage (Phase-to-Phase)	Minimum Required Clearances (Ft)
750 - 50,000	10
over 50,000 - 75,000	11
over 75,000 - 125,000	13
over 125,000 - 175,000	15
over 175,000 - 250,000	17
over 250,000 - 370,000	21

over 370,000 - 550,000	27
The above clearances apply in any direction, vertical or horizontal	

## Substation Entry & Exit

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:

- 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:
  - (a) The recognition of potentially energized components
  - (b) The proper use of electrical protective equipment that will be required by the work being performed
  - (c) The safety work practices to be utilized while performing specific work assignments within the substation
  - (d) What is safe to approach and what is unsafe to approach
  - (e) The maximum voltages involved within the substation
  - (f) The Minimum Approach Distances (MAD) to apply
  
- 2 - Any contractor employee who is under the direct (i.e. visual observation) supervision of a qualified worker who has successfully completed and demonstrated proficiency in the training listed above.

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:

- **To perform work within 30 feet of electrical structures** (i.e. transformers, lolly columns, control houses, overhead bus, reactors, transmission lines, towers, poles, etc.);
- **To work using any type of aerial equipment;**
- **To perform trenching and/or excavation services.**
- **Any work or access of an EHV substation or switchyard rated at 235 kV or higher.**

The APS Designated Representative shall issue each contractor who is not continuously escorted by an APS employee a completed "*APS Substation Unescorted Access Permit*", a copy of which shall be maintained on-site during any substation entry.

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.

**Note:** Some substations are monitored and alarmed for security purposes. Your APS Designated Representative must pre-arrange unescorted contract work within these substations/switchyards by contacting Pinnacle West Corporate Security at 602-250-2222 and approve access prior to entering these substations. Should multi-day access be required, you may be instructed to notify Pinnacle West Corporate Security prior to each entry of certain substations/switchyards.

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.

Contractor personnel must not enter a substation control house unless permission is granted by the APS Designated Representative AND the work being performed requires access to it.

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.

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 its property.

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.

## **Asbestos**

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 his/her personnel must adhere to these standards.

## **Caution and Danger Demarcation**

Contractors must ensure that their personnel are completely familiar with, and follow the warning implications behind, the various colored barrier tapes used to denote caution and danger areas. Red barrier tape with DANGER tags attached indicates a dangerous condition within the taped area. 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.** 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. The lack of DANGER or CAUTION tags does not change the meaning of the colored barrier tape. Barrier tape is to be removed immediately upon removal or correction of the hazardous condition.

## **Reporting Accidents**

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 shall 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.

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.

### **Radiation Safety**

Contractors must be aware that APS utilizes radiation sources in some density and level gauges located within some facilities. These areas are marked with the 'radiation propeller' universal symbol as well as labeling warning personnel to remain a minimum of 3 feet away. Work necessary within 3 feet of a source, or damage to a radiation source, requires the Contractor to notify the APS Designated Representative prior to such work.

## Contractor Environmental Requirements

Some of the environmental programs to be addressed by Contractors include:

**AIR QUALITY** - Contractor activities must minimize the creation of dust (including road dust and asbestos dust) and Volatile Organic Compound (VOC) emissions. Additionally, the open venting of CFC's (freons) and HFC-134A is prohibited.

**WATER QUALITY** - Contractors must understand that lakes, nearby washes (wet or dry), etc., may be considered Waters of the United States and, in some cases, may be the source of drinking water for the facility or persons or businesses neighboring the facility. 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 your APS Designated Representative.

**WASTE MANAGEMENT** - APS practices waste minimization principles and requires the same of its contractors. Activities that potentially create waste must 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 leftover products. These principles should be adhered to for both solid and hazardous waste materials generated at a given facility.

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. 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.

Contractors must properly discard solid wastes that do not qualify as special or hazardous wastes in appropriate waste receptacles. The APS Designated Representative must be consulted for specific directions concerning proper disposal of solid wastes.

Special wastes are solid wastes that are subject to additional management standards and disposal restrictions. For example, 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.

Hazardous wastes are also subject to very restrictive and complex management standards. Contractors are responsible for familiarity with these standards. Hazardous wastes must be managed, disposed of in accordance with all applicable laws, and as specified by the APS Designated Representative or his/her designee. In the event of a spill, release or discharge of hazardous waste, the contractor shall immediately notify the APS Designated Representative.



**Arizona Public Service Company  
Occupational Safety & Health Qualifications of  
Contractors and Subcontractors**

**Potential Safety & Health Training Requirements Applicable To Contractor / Subcontractor**

**OSHA 10 Hour Topics - General Industry**

- Introduction to OSHA/OSHA Act/General Duty
- Accident Reporting and Recordkeeping
- Walking Working Surfaces
- Means of Egress
- Fire Protection
- Electrical Safety
- Flammable and combustible Liquids
- Personal Protective Equipment
- Machine Guarding
- Hazard Communication
- Industrial Hygiene
- Bloodborne Pathogens
- Ergonomics
- Accident Prevention Manual
- Power Generation (Utility)
- Confined Space Entry {Utility}

**OSHA 10 Hour Topics - Construction Industry**

- Introduction to OSHA/OSHA Act/General Duty
- Accident Reporting and Recordkeeping
- Electrical Safety
- Fall Protection
- Personal Protective Equipment
- Material Handling, Storage, Use Disposal
- Tools - Hand and Power
- Scaffolding
- Cranes, Derricks, Hoists, Elevators & Conveyors
- Excavations
- Construction Stairways and Ladders

**Facility or Task Specific Required Training**

- Vehicle Safety / Driving CMV's / Forklift Operations
- Facility Safety / Mobile Equipment
- Aerial Equipment
- Mobile Crane & Rigging Practices
- Housekeeping
- Caution & Danger Demarcation
- Respiratory Protection
- Fall Protection
- Hazardous Energy Control / Lockout - Tagout
- Excavation & Trenching
- Materials Handling
- Equipment Safety
- Tool Safety
- Chemical Control
- Hazardous Waste Operations
- Asbestos Awareness
- Radiation Safety
- Fire & Emergency Evacuations
- First Aid & Emergencies
- Construction Ladders and Stairways
- Scaffolding
- Safety Related Work Practices - Working with energized equipment
- Hearing Conservation
- Lead Awareness
- Lead Removal
- Asbestos Handling