

Specification Section 01065S ES&H for Service Contracts

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This document has undergone formal review and approval and been reviewed by a Derivative Classifier and its contents have been deemed unclassified/unlimited release.



**Sandia
National
Laboratories**



U.S. DEPARTMENT OF
ENERGY



SPECIFICATION
SECTION 01065-S
ENVIRONMENT, SAFETY, AND HEALTH
FOR SERVICE CONTRACTS

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Change Log

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Part 1 - General

1.01 Summary

Section Includes: Requirements and guidelines in performance of work concerning protection of environment and property, and the safety and health of Contractors, Sandia National Laboratories (SNL) and Department of Energy (DOE) employees, visitors to SNL, and members of the public. **This Section is applicable only to Service Contracts that do not involve construction or construction-like activities.** Construction and construction-like activities are covered by Section 01065, *ES&H for Construction Contracts*.

1.02 References

- A. American Conference of Governmental Industrial Hygienists (ACGIH®)
 - Threshold Limit Values (TLVs) for Chemical Substances
 - Physical Agents and Biological Exposure Indices (BEIs)
- B. American National Standards Institute (ANSI)
 - Z41 Personal Protection - Protective Footwear
 - Z49.1 Sections 4.3 and E4.3 Welding, Cutting, and Allied Processes
 - Z88.2 Practices for Respiratory Protection
 - Z89.1 Industrial Head Protection
 - Z136.1 Safe Use of Lasers
- C. American Society of Mechanical Engineers (ASME)
 - B30.5 Mobile and Locomotive Cranes
- D. Code of Federal Regulations (CFR)
 - 29 CFR 1910 Title 29-Labor, Part 1910-Occupational Safety and Health Standards
 - 10CFR 851 Worker Safety and Health Program

- E. National Fire Protection Association (NFPA®)
 - 70 National Electrical Code
 - 70-E Standard for Electrical Safety Requirements for Employee Workplaces

1.03 Definitions

Activity Hazard Analysis (AHA)	A documented plan that identifies and plans for the mitigation of hazards associated with activities. Activities are general classes of separately definable construction work (for example excavation, foundations, structural steel, and roofing). Activities are not time- or location-specific. An AHA is a required section of the Contract-Specific Safety Plan (CSSP).
Sandia Contracting Representative (SCR)	Person authorized to act as official representative of SNL for specific purpose of administering Contract, including payment authorization and approval for change orders. The SCR is the only person who may legally obligate SNL for expenditure of funds, change scope, change level of effort, change terms and conditions, negotiate, and sign documents legally binding SNL commitment. Obligations or promises, implied or expressed, by SNL personnel other than the SCR do not bind SNL in any manner.
Inspector	The Sandia Delegated Representative's (SDR) contract field representative to monitor, document, and report on the progress, quality, and safety of construction work in accordance with contract specifications and plans, and applicable codes. The Inspector assists in coordinating outages for construction operations. The Inspector shall not exercise supervision over Contractor's employees.
Sandia-Delegated Representative (SDR)	Person authorized in the Contract who is authorized to act as delegated Sandia representative for the specific purpose of review, inspection, and acceptance of work, and to interpret plans, specifications, codes, and standards. SDR shall not exercise supervision over Contractor's employees.
Sandia Facilities Environmental, Safety & Health Support Team	Persons authorized to act as official representative of SNL for the specific purpose of supporting SCRs, SDRs, and Inspectors with ES&H observations and resolution of issues/concerns associated with Contractor safety performance. The team has representation from Sandia's Safety Engineering, Industrial Hygiene, Environmental, Radiological Protection, and Asbestos programs.
Sandia Project Lead (SPL)	Person responsible for the review and acceptance of the Contract-Specific Safety Plan, coordinating the Preconstruction Meeting, and providing written justification/authorization for energized electrical work. The SPL shall not exercise supervision over Contractor's employees.
Task Hazard Analysis (THA)	A process that may include dialog (such as a pretask plan or tailgate meeting), document (such as checklist or permit), or knowledge (such as training) that identifies and plans for the mitigation of hazards associated with a task. A task is a specific segment of a particular scope of construction work that is time-, condition-,

worker- and/or location-dependent. Documented Task Hazard analysis is required on a graded approach, for example, permits.

1.04 Submittals

- A. **Contract-Specific Safety Plan (CSSP):** Submit in accordance with Quality Assurance requirements for review and approval by the Sandia Project Lead (SPL) prior to commencement of onsite work.
- B. **Safety Plan Addendum:** Submit modification to CSSP if required to address activity hazards not previously identified in the CSSP.
- C. **Pollution Prevention Plan:** Submit in accordance with requirements of the Quality Assurance article when required.
- D. **Fugitive Dust Control Permit:** Submit an application for a *Fugitive Dust Control Permit* when required.

1.05 Quality Assurance

- A. **Regulatory Requirements:** Comply with applicable environmental, safety, and health laws, rules, and regulations (as amended) of the federal, state and local governments, the Department of Energy (DOE), and SNL. Adhere to safety rules and regulations, access restrictions, and emergency egress procedures unique to the Contractor's work at SNL-controlled premises, as defined in the following sections of this specification and Contract documents, and as determined through consultation with the SDR.
- B. **Flow-Down of Requirements (as applicable):** Service Contractor shall flow down the requirements identified in this specification to subcontracts for all tiers. Sandia has the right to validate the work is being performed in accordance with a documented safety plan, and to stop work and resolve any noncompliance with applicable ES&H requirements for this contract and subcontracts for all tiers associated with this contract.
- C. **Worker Hazard Awareness and Training:** The Service Contractor is responsible for ensuring its employees, subcontractors, and suppliers are informed of foreseeable hazards and protective measures associated with the worksite/project.
- D. Service Contractor shall certify on the *Sandia National Laboratories/NM Facilities Contractor Badge/Clearance Request* form that employees have read and understand the CSSP.

1.06 Contract-Specific Safety Plan

- A. General

The CSSP shall state the nature of the work, potential hazards anticipated, and how these hazards will be mitigated or how workers, including Subcontractors, service providers, area/building occupants, site visitors, and/or pedestrians in the vicinity of hazardous activities will be protected from hazards.

1. **CSSP:** Address the Occupational Safety and Health Administration (OSHA) 29 CFR 1910, DOE 10 CFR 851, ACGIH, and SNL-specific requirements. SNL requirements are identified in Section I and Section II (Standard Terms and Conditions) of the Contract, the *Jobsite Hazard Evaluation*, and this Specification. All requirements and recommendations identified in the *Jobsite Hazard Evaluation* shall be considered part of the CSSP unless an alternate hazard control/mitigation for the identified hazard has been submitted by the Contractor and accepted by the SPL.
 2. The Prime Contractor may incorporate Subcontractors' CSSPs into a single CSSP package and submit for review and approval (any differences between the Prime Contractor's safety plan and the subcontractors' safety plans shall be addressed prior to submitting package for review). Example: Contractor may want to include electrical Subcontractors' safety plan sections involving NFPA 70E arc flash and lockout/tagout (LOTO) for electrical hazards.
 3. The Contractor shall submit a completed 01065S-A, *Service Contract Safety Plan Checklist* along with the CSSP. NOTE: A guidance document for completing the form is available (01065S-B). These documents are available on the external Engineering Standards Webpage (http://www.sandia.gov/engstds/spec_index.html).
- B. Hazard Identification and Assessment: Establish procedures to identify existing and potential workplace hazards and assess the risk of associated workers' injuries and illness. Assess worker exposure to chemical, physical biological, and safety workplace hazards using recognized exposure assessment methodologies.
1. Address hazards introduced by service contract work and any known SNL-introduced hazards as communicated in Sandia's *Job Hazard Evaluation*. Additional hazards introduced by SNL for a specific task will be listed in the work orders/releases to the service contractor. It is incumbent upon the service contractor to compare the task hazards with those addressed in the safety plan, and, if the hazard is not addressed, see 1.06B.
 2. Contractors performing work at SNL facilities shall identify carcinogens that may be introduced by the service work. Carcinogens may be identified in the CSSP by including a listing of products or their Material Safety Data Sheets (MSDSs) that contain carcinogens.
 3. Contractors shall provide an inventory of all chemicals or chemical products anticipated for use on the project. The contractor shall describe how the chemical or chemical product will be used and the controls that will be established to ensure they do not present an exposure hazard to construction workers or collocated SNL Members of the Workforce. An exemption to this requirement is consumer products used in the same form, quantity, and concentration as a product packaged for distribution and use by the general public (such as Windex[®], Simple Green[®], and WD-40[®] in packages sold for use by the general public).

4. Task-specific hazard analyses shall be performed and documented for high-hazard activities. High-hazard activities include, but are not limited to confined space entry, critical lifts, hot work, excavation, penetration, energized work, or activities that require respiratory protection.

C. Hazard Prevention and Abatement:

1. Establish and implement a hazard prevention and abatement process to ensure all identified and potential hazards are prevented or abated in a timely manner. Hazard controls must be selected based on the following hierarchy:
 - a. Elimination or substitution of the hazards where feasible and appropriate
 - b. Engineering controls where feasible and appropriate
 - c. Work practices and administrative controls that limit worker exposures
 - d. Personal protective equipment (PPE)
2. Identify methods (including safety meetings) to inform and periodically remind workers of the nature of work, potential hazards anticipated, how these hazards will be mitigated, and how workers will be protected from hazards (focusing on Contract-Specific as well as Task-Specific) prior to commencement of work activities. Documentation shall be maintained which identifies workers' names, date of communication, activities, hazards, and identified controls.

D. Site Control:

Service Contractor is responsible for safety of personnel at the act work site and shall ensure that persons visiting the service contract work site comply with safety requirements identified in the CSSP. Ensure contractor, any subcontractor employees, and visitors on the service contract work site wear the necessary PPE. The contractor has responsibility and authority to deny access to any person entering a service contract work site without appropriate PPE.

E. Address emergency action.

Contractor shall be responsible for transporting personnel with non-life-threatening injuries that require medical attention to local medical facilities identified in the plan.

F. Accident Scene Preservation:

Personnel on the site shall make every effort to preserve the accident scene until a Sandia Incident Commander, Safety Engineer, SPL, or SDR arrives on site to assume control of the area.

G. CSSP Documentation:

Keep an office copy of the approved CSSP and documentation demonstrating personnel have received training on the CSSP to ensure all personnel are informed of foreseeable hazards and the requirement to follow protective measures. The CSSP shall be available to any subcontractors, SNL project managers, and SNL safety personnel.

H. Safety Plan Addendum:

Before performing any work activity that involves hazards not addressed in the original CSSP, submit an addendum to the CSSP (in the form of a new Task-Specific Safety Plan) for acceptance . New hazards may result from changes to the scope of work or unexpected site conditions. The addendum shall identify mitigation or control for new hazard as described in “Contract-Specific Safety Plan” Article above.

1.07 Jobsite Hazard Evaluation

- A. General: The general nature of this service contract work has been evaluated by SNL for nonstandard industrial, environmental, safety, and health concerns or conditions that exist and may impact normal Contractor methods and procedures in performance of the work.
1. A documented *Jobsite Hazard Evaluation* will be included with contract documents for work activities when existing, nonstandard industrial, environmental, safety, and health concerns have been identified. The documented *Jobsite Hazard Evaluation* does not include hazards that may be introduced during execution of work or by the location of the work necessary to meet the contract “Statement of Work.”
 2. Hazards introduced in performance of work shall be evaluated and mitigated in accordance with existing federal, state, and local regulations, including 10 CFR 851 and 29 CFR 1910, and applicable provisions of this specification.
- B. Identified Existing Conditions: Take precautions for existing conditions identified per the *Jobsite Hazard Evaluation* and work orders/releases. Comply with restrictions or conditions specified for each identified hazard. Do not proceed without full knowledge and understanding of these conditions. If corresponding description or identified paperwork or permit is not attached for an identified hazard, contact the SCR immediately. These existing conditions should be addressed initially in the CSSP or in an addendum to the CSSP.
- C. Unidentified Hazard: If an unidentified hazard is encountered during performance of Work contact the SPL or SDR for specific requirements before performing work which may impact condition or concern.

1.08 Event Notification

- A. General: When the contractor becomes aware of an event that could adversely impact workers, the public, or the environment, or unplanned disruptions of normal operations, report it to the SPL or SDR. If in doubt, report the event.

- B. Emergency: If the event is an emergency, call 911 on an SNL telephone, or (505) 844-0911 on an outside/cellular telephone. After calling for emergency support, Contractor shall contact the SDR, SCR, or Project Manager as soon as possible.
- C. Nonemergency: If the event is not an emergency, Contractor shall contact the SDR, SCR, or Project Manager as soon as possible.

1.09 Suspension Of Work

- A. General: All employees, contractors, and visitors at SNL have the responsibility and authority to suspend inappropriate or unsafe work activities when those activities present clear and imminent danger to employees, contractors, visitors, the public, or the environment. Personnel may suspend activities they observe or in which they are a participant if they believe the activity presents an imminent danger.
- B. Upon receiving suspension of a work request (oral or written), immediately cease activity and notify the SPL or SDR. Obtain the name and telephone number of person requesting the suspension and the reason for suspension of work. Work shall not continue on that activity until the issue has been resolved. The SPL or SDR may restart activity only after review and approval of oral or written response submitted by Contractor.
- C. Stop Work Order: A Stop Work Order that affects a crew for period greater than one (1) hour shall be followed by issuance of a formal written Stop Work Order. Work may be restarted only with written work release from the SCR. A Stop Work Order shall include the following information:
 - 1. Date and time when work was stopped
 - 2. Reason for stopping work
 - 3. Requirements for Contractor to resume work
 - 4. Date and time when SNL expects corrective actions to be completed, if required
- D. Work Release: The SCR shall provide written work release that includes the following:
 - 1. Reference Stop Work Order
 - 2. Reason for work stoppage
 - 3. Conditions for restart of activity
 - 4. Specified date and time when work may resume

1.10 Integrated Safety Management System (ISMS)

- A. General: SNL is committed to performing work safely and ensuring the protection of employees, the public, and the environment. To support these commitments, SNL employs an integrated safety management system (ISMS), which provides the framework for this specification and the requirements established for contracted service work at SNL.

- B. ISMS Guiding Principles: The following guiding principles are the cornerstone of an effective safety management program.
 - 1. Contractor Responsibility for Safety: The Service Contractor management is accountable for the protection of the public, workers, and environment.
 - 2. Clear Roles and Responsibilities: Clear and unambiguous lines of authority and responsibility for ensuring safety are established and maintained at all organizational levels within the company and any subcontractors.
 - 3. Competence Commensurate with Responsibilities: Personnel possess the experience, knowledge, skills, and abilities necessary to discharge their responsibilities.
 - 4. Balanced Priorities: Resources are effectively allocated to address safety considerations. Protecting the public, workers, and environment is a priority whenever activities are planned and performed.
 - 5. Identification of Safety Standards and Requirements: Before work is performed, associated hazards are evaluated and an agreed-upon set of safety standards and requirements are established, which, if properly implemented, provide adequate assurance that the public, workers, and environment are protected from adverse consequences.
 - 6. Hazard Controls Tailored to Work being Performed: Administrative and engineering controls to prevent and mitigate hazards are tailored to the work and associated hazards.
 - 7. Operations Authorization: Conditions and requirements to be satisfied for work to be initiated and conducted are established and agreed upon.

- C. Apply the ISMS work cycle shown in Figure 1 at task or activity level for service assignments. Depending on size and complexity of the work activity, some elements of work-planning phase may not formally be used.

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- ★ **Plan Work:** Contract requirements are translated into work, expectations are set, tasks are identified and prioritized, and resources are allocated.
- ★ **Analyze Hazards:** Hazards associated with the work are identified, analyzed, and categorized.
- ★ **Control Hazards:** Applicable standards and requirements are identified. Controls to prevent/mitigate hazards are identified; contract-specific safety plans are developed, and controls are implemented.
- ★ **Perform Work:** Contractor's readiness to perform contract work is confirmed and work is performed safely.
- ★ **Feedback and Improve:** Feedback information on the adequacy of controls is gathered, opportunities for improving the definition of planning of work are identified and implemented, oversight is conducted, and when necessary, controls are modified to ensure a safe work environment.

Figure 1 Integrated Safety Management System

Table 1 provides requirements for demonstrating effective safety management during execution phase of this Contract.

Table 1 ISMS Contractor Requirements

Work Cycle Phase	Contractor Requirements	Expectations
Plan Work		
Review of SNL Jobsite Hazard Evaluation Checklist	Understand pre-existing conditions which may affect worker safety and health	Contractor will review JSHE, work order, or release and incorporate pre-existing site hazards into their CSSP or in an Addendum.
Proposal Submission	Commit adequate level of resources for job conditions	Contractor will ensure adequate competency and level of resources is available and provided as submitted in bid.
Analyze Hazards		
Job Safety Analysis	Evaluate job-specific and site-specific work requirements and work hazards	Contractor will review work requirements and hazard controls.
SNL Hazard Information	Request and incorporate hazard identification and hazard control information supplied by SNL	Contractor will ensure that information from JSHE, work order, or release is incorporated into their CSSP.
Job Task Analysis	Resolve job assignment and personnel fitness issues	Contractor will ensure that workers have the appropriate training and skills for the assigned task.
Control Hazards		
Safety Program	Identify company safety management policies, processes, and procedures	Contractor's Safety Program will be complete and contain the company- specific safety information.
Contract-Specific Safety Plan (CSSP)	Address all contract-specific safety requirements and protective measures, including combined requirements and combined controls	<ul style="list-style-type: none"> • CSSP will incorporate company specific information from their safety program as well as contract-specific requirements. • CSSP will document how the combination of company-specific hazards and contract-specific hazards will be controlled. • Subcontractor's addendums will be incorporated into the Contract CSSP.
Hazard Awareness	Discuss work hazards and controls with employees and any subcontractors as appropriate prior to initiating new work, and at work site meetings focusing on CSSP and daily work activities.	<ul style="list-style-type: none"> • The Service Contractor will be responsible for ensuring that responsibilities, hazards and work controls flow down to the workers through documented safety meetings, toolbox talks, and pre-task meetings. • Any subcontractors and their workers will be knowledgeable of the Service Contractor's CSSP. • Workers attend documented safety meetings and pre-job meetings as required. • Workers are familiar with the responsibilities hazards and work controls that result in safe working conditions.
Work Authorization	Ensure that safety plans/corrective action plans are reviewed and work is authorized prior to initiating work or corrective actions	<ul style="list-style-type: none"> • Contractor will obtain and follow all permits as required by SNL. Permit information will be flowed down to subcontractors and affected workers during documented pre-job meetings and safety meetings. • Corrective actions will be completed as required.

Work Cycle Phase	Contractor Requirements	Expectations
Perform Work		
Job Supervision	Ensure that all workers have appropriate safety supervision by contractor management at all times	Supervisors assume responsibility for the safety of the worksite and workers.
Emergency Response	Ensure that all personnel at work site can recognize off-normal or unsafe conditions, and know how to respond	Train workers to recognize off-normal, unsafe conditions, and understand how to respond to the conditions. Every worker understands worker has the responsibility and authority to suspend an activity if worker believes it presents an imminent danger.
Corrective Actions	Implement interim controls for unsafe or off-normal conditions, including notification to workers and SDR	Contractor has controls in place to immediately address unsafe or off-normal conditions.
Feedback and Improve		
Self-Assessment	Identify opportunities for safety process and work performance improvements	Contractor will review any lessons learned and injury/illness reports to identify areas that require improvement.
Performance Reviews	Discuss performance strengths and weaknesses with employees and subcontractors	Information on strengths and weaknesses will flow down to subcontractors and workers.
SNL Feedback	Communicate suggestions for SNL improvements to the SDR	Contractor will provide updated information and/or suggestions that will add value to ongoing improvement programs to the SDR.

1.11 Work Site Identification

- A. Hazard Identification Signage and Barricades: Provide appropriate hazard identification and barricades in accordance with 29 CFR 1910, to warn Contractor personnel and visitors of specific work hazards. Prior to start of work, ensure personnel on site know and understand SNL signage that may be present on site during performance of work.
 - 1. Use flagging and tape barricades only for temporary (less than 24 hour) protection, unless otherwise accepted by the SPL. Use orange safety fencing or snow fencing around excavations and trenching. Fencing shall be minimum 4 feet- (1.2 m-) high and secured vertically every 10 feet (3 m).
 - 2. Provide signage in compliance with 29 CFR 1910. Protect unattended sites with applicable signs and barricades at all times.

- B. Documentation: The following documents shall be available for review at each work area:
 - 1. Project plans, specifications, and/or work orders/releases
 - 2. All required permits, if applicable
 - 3. Material safety data sheets for onsite chemicals or hazardous materials

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Part 2 – Products (Not Used)

Part 3 – Execution

3.01 Coordination of Work Impacting Ongoing SNL Operations

- A. Overhead Work: Schedule work required to be performed above occupied areas for nonstandard hours, unless specific and approved precautions including signage, barricades, occupant consent, and any other precaution deemed necessary by SNL is provided in advance of operation.
- B. Utility or System Outages: Submit an *Outage Request Worksheet* to the SPL in advance of an activity requiring utility or equipment shutdowns that will impact ongoing SNL operations, observing the advance notice requirements thereon.
- C. Removal of Administrative Tags: SNL personnel may utilize locks and/or tags to prevent unauthorized use of or access to equipment or systems. These locks and/or tags are not used for lockout/tagout purposes (protection during the maintenance and servicing of equipment). Contractor shall obtain permission from the SPL before removing any SNL administrative lock and/or tag.

3.02 Medical/Health Protection

- A. Emergency Action: For life-threatening injuries or illnesses, immediately call for medical assistance by dialing 911 on an SNL telephone, or (505) 844-0911 on an outside/cellular telephone.
 - 1. Transport personnel with non life-threatening injuries or illnesses that require medical attention to Contractor’s identified medical facility.
 - 2. Electrical Shock: Accompany any employee who receives an electrical shock for immediate medical attention to the SNL Medical facility during standard working hours, no matter how minor the shock appears. For nonstandard hours, seek medical attention in an off-site facility. Notify SPL or SDR immediately after transporting the individual to SNL Medical.
 - 3. Notification of Accidents, Injuries, or Illnesses: Verbal notification to SDR or SPL shall be performed as soon as possible. Submit a SF 2050P “Report of Occupational Injury/Illness” to SDR within three days.
 - a. Nonemergency Medical Incident: Notify SDR or SPL within 24 hours.
 - b. Serious or Life-Threatening Accident or Illness: Notify SDR or SPL immediately after taking emergency action.
- B. Contractor’s Industrial Hygiene Program: Contractor’s shall implement an Industrial Hygiene Program that meets the requirements of the *SNL Worker Safety and Health Program Plan* and 10 CFR 851 Appendix A, Section 6. Conduct exposure assessment surveys of all work areas or operations to identify, evaluate, and control potential worker

health risks. Exposure assessments shall be documented through written reports, activity hazard analysis, or exposure monitoring reports.

1. Require that workers acknowledge being informed of the hazards and protective measures associated with assigned work activities. Those workers failing to utilize appropriate protective measures must be subject to the service contractor's disciplinary process.
2. A personal protective equipment hazard analysis, in accordance with 29 CFR 1910.132, shall be completed for each activity. If respiratory protection is determined to be the required control measure for inhalation hazards, comply with 29 CFR 1910.134 Respiratory Protection and ANSI Z88.2, Practices for Respiratory Protection.
3. Comply with the current edition of the ACGIH Threshold Limit Values (TLVs) for Chemical Substances and Physical Agents and Biological Exposure Indices (BEIs) when the ACGIH TLVs and BEIs are lower (more protective) than OSHA Permissible Exposure Limits (PELs).
 - a. Comply with applicable OSHA expanded health standards even when ACGIH TVLs are used.
4. Gases, Vapors, Fumes, Dusts, and Mists: Use the hierarchy of controls: substitution, isolation, engineering, and administrative or PPE to help prevent employee exposures.
 - a. Controls must be evaluated to ensure the appropriate level of protection to worker.
 - b. Professionally and technically qualified industrial hygienists shall be responsible to determine appropriate air monitoring requirements, methods, equipment, and analytical methods to evaluate employee exposures to airborne contaminants. Use American Industrial Hygiene Accredited Laboratories for exposure assessment sample analysis.
 - c. Welding, cutting and brazing operations require an approved *Welding, Cutting and Brazing (WCB) Control Permit* from the Industrial Hygienist supporting FMO service work in addition to the required *Hot Work Permit*.
 - i) Display the approved *WCB Control Permit* in a prominent location near the welding, cutting, or brazing operations.
 - ii) If a permit is approved for more than one day, Contractor shall ensure, and document on the permit that all permit conditions are maintained during those days when welding, cutting, or brazing is performed.
 - iii) Contractor or contractor's qualified health and safety representative shall identify hazards and select and implement effective controls to ensure worker safety and health. Control measures (e.g. full face air-purifying respirators or local exhaust ventilation) may be required.
5. Physical Hazards: Includes noise (sound pressure levels), ergonomics, lasers, nonionizing radiation, and thermal stress.

- a. Noise: Comply with ACGIH TLVs.
- b. Lasers: Comply with ANSI Z136.1, Safe Use of Lasers.
 - i) Class 1, 2 and 3a lasers may be used.
 - ii) Do not use Class 3b or Class 4 lasers without the written approval of the SNL/NM site Laser Safety Officer.
 - iii) When used for activities such as leveling floors, roads, and sidewalks, a laser beam shall not be directed above the horizon, through navigable airspace, or towards aircraft ground operations. Laser beams shall be backstopped with a nonreflective surface opaque (nontransparent) to the beam.
- C. Substance Abuse Prevention and Testing: Use of drugs (including misuse of prescribed substances) or alcohol on the site shall be grounds for removal of an individual from the work site, and may include other corrective action, including contract termination.
- D. Radiological Safety: Employees may not enter an area that contains posted radiological sign, signified by radiation symbol on yellow background with black or magenta markings, without prior authorization and SNL-provided training appropriate for radiological hazard.
 - 1. If work is required in posted area, and specific written instructions have not been issued, do not enter area. Contact the SDR or SPL for instructions.
 - 2. For performance of work in posted radiological areas, ensure the following:
 - a. Obtain a Jobsite Hazard Evaluation for work activity performed in radiological areas.
 - b. Employees understand and follow Jobsite Hazard Evaluation requirements.
 - c. Obtain Radiological Work Permit (RWP), when required by Sandia Radiation Protection Department, and understand and follow provisions and requirements.
 - d. Employees shall be current on radiological training required for site or activity (e.g. General Employee Radiation Training - GERT, RAD Worker I, RAD Worker II).
 - e. Employee shall be 18 years of age or older.
 - f. Comply with Contract requirements for work in radiological areas.
 - g. Comply with CSSP for work as reviewed by SNL.
 - 3. Dosimetry: Workers who have appropriate training and have elected to work in radiological areas may be required to participate in SNL's external and internal dosimetry monitoring program. Contractors participating in the Dosimetry Monitoring Program shall ensure that their Thermoluminescent Dosimeters (TLDs) are current. TLDs must be returned to the SDR for exchange by last day of quarterly expiration date. Failure to accomplish the exchange in a timely manner may result in loss of the TLD.

4. Each project involving the use of accountable radioactive source or radiation generating device (RGD) requires prior approval by the SDR and SNL's Radiation Protection Department. Examples of such devices include, but are not limited to soil testing densitometers and XRF analytical devices for lead detection.

3.03 Waste Management And Disposal

- A. General Requirements: Waste generated during work activities is considered solid waste and may be regulated as hazardous waste. Property items and equipment that may be reused for their intended purpose are not considered waste and shall be managed as U.S. Government Property and coordinated with the SDR.
- B. Service Contract Work Debris: Lumber, wallboard, nonasbestos insulation, clean concrete, and similar debris shall be transported to a landfill authorized to receive such waste. Personnel trash such as papers and food containers should be bagged, removed from the site, and properly disposed of by the Contractor.
- C. Residue Material and Equipment: Intact and dismantled equipment and material removed during the work activity shall remain the property of the U. S. Government. If the equipment and material is not reused in the performance of the project, the Contractor shall manage it as residue material and equipment. All residue material and equipment shall be staged by the contractor and evaluated for hazardous and radioactive contamination by SNL personnel before being coordinated with the SDR and delivered to the reapplication yard.
- D. Empty Containers: A container that held any chemical (including cleaning products) or hazardous material, except a substance identified as an acute hazardous waste, is defined as an empty container if both following criteria are met:
 1. All material that can be removed has been removed using the practices commonly employed to remove material from that type of container, such as pumping, pouring, or aspirating, and
 2. No more than 3% by weight of the total capacity of the container remains in the container.
 3. Containers with capacity of five gallons or less that meet the above criteria may be thrown in trash. Empty containers with capacity of greater than five gallons shall be managed as chemical waste. Those containers shall be marked with the words "Empty Container" and disposal shall be coordinated with the SDR.
- E. Fluorescent Lamps: Fluorescent, sodium, and incandescent lamps shall be removed from light fixtures and managed as chemical waste. These items shall be boxed and labeled to identify the contents.
- F. Light Ballasts: Remove ballasts from all light fixtures and submit a residue material form for characterization by the Facilities ES&H Team.
 1. Ballast clearly labeled "No-PCBs" shall be placed in a container for disposal.

2. Ballasts that are NOT clearly marked “No-PCB” shall be managed as PCB Chemical Waste.
 3. Light fixtures installed prior to 1980 and that have evidence of ballasts leaks shall be removed and treated as PCB Chemical Waste.
 4. All PCB Chemical Waste must be double-bagged or double-wrapped with the words “Removed From Service _____ (date)”.
- G. Oil-Containing Equipment: Equipment containing oil or other petroleum products shall be drained of oil and managed as residue material. Drained oil shall be managed as chemical waste by the Contractor.
- H. Chemical Waste/Hazardous Waste: SNL manages chemical wastes as regulated wastes. This designation applies to all chemical wastes, used oil, asbestos- containing wastes, and PCB-containing wastes as examples. Due to regulatory liability, SNL assumes responsibility for management and disposal of chemical wastes. Chemical wastes shall be managed as hazardous waste unless specific guidance is provided in Contract. If applicable, Contractor will coordinate hazardous chemical waste disposal through SNL’s Facilities ES&H Team and the SDR. The following procedure describes coordinated disposal of chemical/hazardous waste:
1. Inventory all items.
 2. Label all containers (labels shall include contents, project number or name, and contact phone number).
 3. Notify SNL Project Manager that waste is ready for pick-up as soon as possible.
 4. SNL personnel will pick-up the waste and determine the appropriate disposal method.
- I. NORM Materials: Naturally-occurring radioactive materials (NORM) used in commercial products that have measurable radioactivity above SNL established policy (which includes State of New Mexico established limits), shall be managed as radioactive waste when declared waste, and is not deemed for Reapplication. Some examples are:
1. Chemicals with naturally-occurring radioactive material
 2. Ceramic insulators (with some exceptions)
 3. Glass-containing thorium or uranium for coloring purposes
 4. Smoke detectors
- J. Radioactive Waste: Material found to have detectable radioactivity above SNL free-release limits shall be managed as radioactive waste. Store and dispose of radioactive waste in accordance with applicable federal, state, and local regulations to minimize impact of waste on personnel, public, and environment. Before removal from the work location, SNL radiation protection technicians shall survey waste generated from Radiological Management Areas.

- K. Mixed Waste: Residue or waste found to be both hazardous and radioactive shall be managed as mixed waste through Sandia Radioactive and Mixed Waste Management Organization. Mixed waste can only be generated with written SNL approval.
- L. Transportation of Hazardous Waste: Facilities contractors are prohibited from transporting hazardous waste. Disposal of Hazardous Waste should be coordinated with the SDR.
- M. Bird Nesting Sites: Bird nesting sites are not to be disturbed. If nesting sites are discovered during the course of operations, contact the SNL Project Manager for further direction.
- N. Paved and Graded Roads: Contractors shall keep vehicles on paved or graded roads at all times unless prior approval has been obtained to travel into previously undisturbed areas.

3.04 General Project Work Practices

A. Hidden Hazards Penetration

- 1. General: SNL has adopted a five-step approach in an effort to minimize impact to hidden hazards when performing penetration or excavation activities. This process includes: (1) drawing review, (2) site investigation, (3) detection using instrumentation (as appropriate), (4) use of appropriate tools and (5) use of appropriate PPE.
- 2. Workers engaging in excavation or penetration activities shall use tools that are in good working condition, and use PPE, electrically-rated gloves, GFCI protection, and double-insulated tools as appropriate.
- 3. To mitigate risk the contractor shall ensure that adequate site investigation, using methods that would not penetrate hidden hazards (e.g. visual inspection, detection using instrumentation) is performed prior to any excavation or penetration activity. If hidden hazards cannot be identified through site investigation the SDR shall be notified prior to excavation or penetration activities and appropriate PPE shall be worn during the work activity.

B. Excavation Permit: Obtain a permit from the SNL SPL.

- 1. Obtain an excavation permit prior to start of the following activities:
 - a. Digging, saw-cutting, drilling, coring, or trenching into soil or concrete sidewalks, or asphalt to a depth greater than 12 inches.
 - b. Excavation of soil beneath concrete sidewalks, slabs, or asphalt to a depth greater than two inches.
 - c. Excavation into subsurface soil beneath the slab under buildings.
 - d. Scraping, blading, or excavation of any area previously undisturbed or that appears to be undisturbed, such as areas covered by native vegetation, and blading or improvements to previously-unimproved roads or paths.

2. Area to be excavated shall be shown on the Drawing and identified in the field using white paint. Submit permit requests to SPL no more than 14 days and no less than six days before excavation.
 3. The excavation permit process involves environmental, cultural, and ecological site review to determine whether environmental site impacts will occur due to activities related to performance of work.
 4. The permit is task-specific. Confine excavation activities to those areas identified on permit.
- C. Penetration Permit: Obtain a permit from the SNL SPL.
1. Obtain a penetration permit prior to start of the following activities:
 - a. Penetration into concrete slabs, floors, ceilings, roofs, or walls greater than 2 inches (50mm) in depth (does not include precast concrete).
 - b. Penetration into underground concrete duct banks. All duct bank penetrations shall be reviewed by FMOC for high voltage hazards. If high voltage hazards are identified on the penetration permit, Supervisor authorizing the duct bank penetration shall ensure that 1) a task-specific (each duct bank penetration is considered a task) procedure is written and submitted to the SPL for review and acceptance, and 2) Supervisor authorizing the duct bank penetration shall attend and ensure attendance of the Penetrator at the pretask meeting, which will be scheduled by the Project Manager. The task-specific procedure shall be reviewed at the meeting.
 - c. Penetrations where a site investigation cannot identify possible hidden hazards.
 2. Area to be penetrated shall be shown on Drawing. Submit permit requests to the Project Manager no more than 14 days and no less than 6 days prior to start of penetration.
 3. Permit is task-specific. Confine penetration to those areas identified on the permit.
- D. Fire Safety: All service contract work activities shall, at a minimum, follow the requirements set forth in the International Fire Code (IFC) and ANSI Z49.1, Sections 4.3 and E4.3, including:
1. Emergency vehicle access shall be provided as follows:
 - a. Minimum 20-foot-wide vehicle pathway
 - b. Must support the weight of fire apparatus (75,000 lbs)
 - c. Minimum 13-foot, 6-inch vertical clearance
 2. Access to fire hydrants: Fire department inlet connections or fire protection system control valves shall not be hampered. A minimum 3-foot clearance must be maintained around fire hydrants. Storage, vehicles, trash, or other materials or objects shall not be placed or kept near fire hydrants, fire department inlet connections, or fire protection

system control valves. Any temporary fencing installed near fire hydrants or fire protection equipment shall be provided with a gate to allow emergency access.

3. Smoking shall be prohibited.
 4. Housekeeping: All debris and trash shall be removed at least once per day at the end of a shift, or more frequently if necessary.
 5. Flammable and combustible materials shall be stored in accordance with the IFC. These materials may not be stored near existing facilities, egress routes, emergency vehicle access points or fire protection equipment.
 6. Fire Protection Impairment Permit (FPIP): Notify the SPL or SDR if work will impair or inadvertently activate a fire protection detection or suppression system already in service. Contractor shall submit a FPIP for any fire protection system impairments.
- E. Hot Work Permit: Prior to cutting, welding, open-flame burning, or use of tar kettles and roof solvents, obtain a Hot Work Permit from SNL Fire Protection Engineering. Display the issued permits in a prominent location at the work site.
1. If welding, brazing, or thermal cutting is performed, obtain a *Welding, Cutting, and Brazing Control Permit* from the Industrial Hygienist supporting FMOC construction and service operations prior to obtaining a *Hot Work Permit*.
 2. Prior to receiving a site-specific *Hot Work Permit*, operator(s) responsible for performing the hot work and personnel responsible for performing the fire watch duties shall view the training videos and read the accompanying literature provided by Fire Protection Engineering annually. These videos are approximately one (1) hour in combined length.
 3. The operator(s) responsible for performing the hot work and the personnel responsible for performing the fire watch duties shall be trained in the use of portable fire extinguishers annually and shall have demonstrated proficiency (through certification).
 4. Hot work operations shall be suspended if in an area where a fire suppression system is impaired.
 5. A fire watch shall be provided during hot work operations and shall continue for a minimum of 30 minutes after the conclusion of the work. Fire Protection Engineering or the SDR is authorized to extend the time required for the fire watch based on the hazards or work being performed (i.e., tar kettle roofing operations).
 6. The fire watch shall include the entire hot work area. Hot work conducted in areas with vertical or horizontal fire exposures that are not observable by a single individual shall have additional personnel assigned to fire watches to ensure that exposed areas are monitored.

7. Individuals assigned to fire watch duty shall be responsible for the safety of the welder(s) in addition to that of the property, extinguishing spot fires, and communicating an alarm. Individuals assigned fire watch duties must remain in the hot work area until hot work is completed and for thirty (30) minutes afterwards, and shall not have any other duties (e.g., not a runner).
- F. Fugitive Dust Control Permit: Obtain from SNL SPL for surface disturbance activities affecting land area greater than $\frac{3}{4}$ acre, sandblasting and other surface preparation.
- G. Storm Water Control: For work areas greater than one (1) acre, develop and submit Pollution Prevention Plan to the SDR for review prior to service contract work activities. The Pollution Prevention Plan shall follow the EPA National Pollution Discharge Elimination System (NPDES). This system addresses silt control and other possible storm water impacts. EPS's NPDES requires inspections at least every fourteen (14) calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater. Inspections shall continue through the duration of the project. Contractors shall report spills and accidental releases to storm sewer system immediately to SDR. All documents associated with the Pollution Prevention Plan, including inspection documents and reports, shall be submitted to the SDR upon request of final payment.
- H. Earth Fill and Borrow Areas: If the contractor has written authorization from the SNL Project Manager or contract documents to utilize a designated borrow or fill area in a location other than the project site, Contractor shall:
1. Ensure that Contract-Specific Safety Plan adequately addresses hazards identified in the designated area. If the designated area is located within the boundaries of a project site controlled by another contractor, visiting Contractor shall coordinate access with the controlling project site contractor and comply with all requirements for that site.
 2. Obtain required fugitive dust control permit prior to disturbing the soil.
- I. Sanitary Sewer Discharge: Notify the SDR of planned discharges to sanitary sewer system, other than routine sewage, prior to discharge. SDR will review planned discharge, and coordinate authorization from the Sandia Water Quality organization. Report spills and accidental releases to sanitary sewer system to SDR immediately.
- J. Surface Discharge: Notify SDR of planned surface discharges, prior to discharge. SDR will review planned discharge and coordinate authorization from Sandia Water Quality organization. Report spills and accidental releases immediately to SDR.
- K. Hoisting & Rigging: This section applies to all hoisting and rigging lifting operations involving but not limited to chain falls, bridge cranes, mobile cranes, forklifts, and all-terrain lifts. A hazard analysis shall be conducted to ensure compliance to OSHA, ASME and the DOE 1090 specification.
- Crane lifts are not anticipated in service work. If the need arises the Contractor shall notify the SDR and the Facilities ES&H organization and work will be conducted in accordance with the above requirements.

- L. Confined Space Entry: Contractor work practices and procedures shall incorporate all applicable regulatory requirements and SNL specifications, and knowledge of the content of applicable regulatory standards should be considered fundamental for any contractor who proposes to engage in confined space operations at SNL.
1. Three types of service contract work involving confined-space entry are recognized at SNL/NM: Permit-required, non-permit, and telecommunications. Contractors are responsible for developing confined space entry programs and issuing confined space permits.
 2. Signage: In areas that appear to qualify as a confined space absence of appropriate signage shall not be interpreted to mean that the area is not a confined space.
 - a. Permit Required Confined Space signs state, “**DANGER – CONFINED SPACE - ENTER BY PERMIT ONLY**” or other similar language.
 - b. Non-Permit confined space signs state, “**DANGER - CONFINED SPACE ENTRY BY AUTHORIZED PERSONNEL ONLY**” or other similar language.
 3. Permit Required Confined Space: Entry shall comply with:
 - a. 29 CFR 1910.146
 - b. Personnel making a confined space entry shall follow SNL procedures contained in "Rescue of Personnel in Confined Spaces at SNL/NM" in order to establish their confined entry plan. Please contact the SDR for the latest version.
 - c. Notification requirements include the following:
 - i) Communication must be established with the Incident Commander (IC) at the jobsite prior to entry. This can be accomplished via cell phone, if working outside of Limited Areas, or two-way radio. SNL Project Managers have radios that can be loaned to the contractor for a confined space entry.
 - ii) Contractor shall identify the specific location of the confined space (for example, building, room, or space type; if the space is outside, indicate the direction [NW, SE, etc.] from the closest building).
 - iii) Contractor shall identify the individual serving as the Entry Supervisor (for purposes of overseeing the entry activity), the company name, and number of entrants and attendants.
 - iv) Contractor shall identify the communication equipment used to contact emergency personnel (IC) and means used to communicate between the attendant and entrants.
 - d. SNL *Confined Space Permit Sign In/Sign Out Sheet* is used to maintain an accurate, real-time tracking of entrants for emergency response. Use of this sheet only becomes necessary when the permit extends beyond a single day, or different entrants other than those initially identified on the permit are involved in the entry activity. Contact the SDR for the latest version of this sheet.

- e. Atmospheric Monitoring: Perform atmospheric monitoring on a continuous basis for the duration of the entry activity. If monitoring indicates the presence of atmospheric contaminants above acceptable concentrations, NO ENTRY IS ALLOWED. If entry has already occurred when contaminants are detected, exit the space immediately and contact the SPL, SDR and Incident Commander.
- 4. Non-permit Confined Space: Fits the definition of a confined space, but lacks any inherent or introduced hazards. Entry into this type of space includes:
 - a. Atmospheric Monitoring: Perform atmospheric monitoring on a continuous basis for the duration of the entry activity. If monitoring indicates the presence of atmospheric contaminants above acceptable concentrations, NO ENTRY IS ALLOWED. If entry has already occurred when contaminants are detected, exit the space immediately and contact the SPL, SDR and Incident Commander.
 - b. If activities performed within and/or in close proximity to the confined space will create additional hazards that will impact safeguards and entry procedures, space shall be treated as a Permit-Required Confined Space.
- 5. Commissioned Telecommunication manholes and vaults shall comply with:
 - a. 29 CFR 1910.268
 - b. Telecommunication manholes and vaults that have been newly constructed and are part of an ongoing construction project are not considered commissioned, and shall comply with 29 CFR 1910.146.
- M. Electrical Safe Work Practices: Ensure that electrical work, equipment, and installations are in compliance with the National Electric Code (NEC), National Electric Safety Code (NESC), NFPA 70E, *Standard for Electrical Safety in the Workplace*, and OSHA standards. When conflicts exist between OSHA and NFPA 70E, the contractor shall review the affected work with the Sandia team prior to operations.
 - 1. Training: Employees who face a risk of electrical hazard that is not reduced to a safe level by the applicable electrical-installation requirements shall be trained to understand the specific hazards of electrical energy and to identify and understand the relationship between electrical hazards and possible injury. Retraining is required for qualified workers every three years [110.2(D)(3)].
 - 2. Documentation: The Contractor shall document that each employee has received the training on electrical hazards and controls necessary for his/her safety. Records shall be maintained for the duration of the employee's employment and shall contain each employee's name and dates of training.
 - 3. Lockout/Tagout: Lockout/tagout procedures shall be documented in Contractor's CSSP. The procedures shall be appropriate for the experience and training of the employees and conditions as they exist in the workplace. The procedure shall address employee and management responsibilities associated with LOTO, training, system/hazard communication, and energy control methods (for example, types of

locking devices, authorized testing equipment, and PPE). A lock must always be applied (article 120) NFPA70E.

4. Arc Flash Protection: Arc flash protection procedures shall be documented in Contractor's CSSP. At a minimum, documentation shall include requirements for: 1) developing arc flash boundaries, 2) requirements for protective clothing, hard hats, eye protection, face shields, hand and foot protection, and hearing protection based on hazard/risk category classifications, and 3) care and maintenance of ARC-Rated, (AR)-Rated (AR) clothing, AR flash suits, and other PPE.

If the SNL electrical equipment/system to be worked on has an Arc-Flash Hazard (AFH) warning label, contract employees will wear PPE and establish flash boundaries specified in their employer's CSSP for the hazard level/category identified on the label. If the electrical equipment is not provided with an AFH warning label, contract employees will implement controls, wear PPE, and establish flash boundaries as identified in their employer's CSSP for the hazard/risk categories specified below.

- a. **Hazard Risk Category Zero:** Circuits operating between 50 and 208 volts single-phase. A 4-foot arc-flash boundary will be established.
 - b. **Hazard Risk Category One and Two:** Circuits operating between 120 and 600 volts, excluding circuits operating at 50 and 208 volts single-phase (see above), Category Three and Four (see below), three-phase service entrance equipment and switchgear (see below), and equipment identified with a Level V AFH label (see below).
 - c. **Hazard Risk Categories Three and Four:** Three-phase service entrance equipment and switchgear operating between 120 and 600 volts, excluding those systems with a RED, Level V Arc Flash Hazard label (see below). Only persons identified as Qualified Electrical Craftspersons may perform work activity on switchgear or service entrance equipment/systems.
 - d. **Hazard Risk above Forty Calories:** All three-phase equipment operating between 208 and 600 volts and identified with a Level V (red) Arc-Flash Hazard label, reflecting an Incident Energy level in excess of forty cal/cm², shall be deenergized prior to performing any work. Contractor personnel shall contact their SDR, CO, or SPL to obtain documented location-specific arc-flash hazard information, PPE requirements, and instructions for verifying electrical safe work controls.
 - e. **Hazard Risk Category for High Voltage Electrical Work (over 600 volts):** Contractors shall obtain an arc-flash hazard analysis for all work performed on systems operating above 600 volts, excluding work in 15 kV power manholes. - 15 kV Power Manholes: Category 2 PPE shall be worn for work performed in 15 kV power manholes excluding cable terminations. Category 2 head, face, and glove protection may be removed during cable terminations if no other work is being performed in the manhole.
5. Shock Protection: Procedures shall be documented in Contractor's CSSP. At a minimum, documentation shall include requirements for: 1) developing limited shock

approach boundaries, 2) requirements for voltage-rated gloves and insulated tools, and 3) maintenance and testing of PPE.

6. Electrical Outage Requests: Prior to performing work on any live parts that are not placed in an electrically safe work condition (that is, prior to performing energized work), Contractor shall contact the Electrical Inspector, and request an electrical outage. Exemptions to this requirement include tasks such as testing, troubleshooting, and voltage measuring, provided appropriate safe work practices and PPE are provided and used in accordance with NFPA 70E.
7. GFCI Protection: Provide listed ground-fault circuit interrupter (GFCI) protection for 120-volt, single-phase, 15- and 20-ampere receptacle outlets on work sites which are not part of permanent wiring of building or structure, and which are in use by employees. N.
8. Energized Electrical Work: Work performed on live parts that are not placed in an electrically-safe work condition.
 - a. Energized work shall not proceed without written justification/authorization from the SNL Project Manager, and Contractor's written permit. Permit and authorization shall be available on site during energized work activity. Contractor's written permit shall include at a minimum all items required by NFPA 70 E.
 - b. When working on or near energized parts in hallway, corridors, or other area used for passage, maintain working space barrier with caution tape and signage. Working space boundary for barriers shall be as defined at the "limited approach boundary."
 - c. Do not leave exposed energized parts unattended in area occupied by other than service personnel. Do not leave exposed energized parts without providing working space barrier at the "limited approach boundary."
 - d. Comply with the following when working on energized electrical parts:
 - i) Notify the SPL before proceeding with work.
 - ii) Electrical work on energized electrical parts shall be performed by qualified individual with second qualified person available.
 - iii) Individual shall be knowledgeable and experienced in working with specific type of electrical circuits on which energized electrical work is to be performed. See Division 16 Section 16475, "Primary Systems Safety Requirements" for additional requirements.

END OF SECTION