



Microsystems and Engineering Sciences Applications

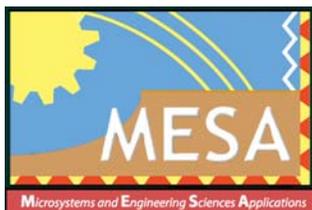
01065-S

ES&H for MESA

Construction Contracts

FINAL Revision 2

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Sandia National Laboratories



**SPECIAL SPECIFICATION  
SECTION 01065-S Rev. 2  
ENVIRONMENT, SAFETY, AND HEALTH  
FOR MESA CONSTRUCTION CONTRACTS**

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**SPECIAL SPECIFICATION  
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**PART 1 - GENERAL**

**1.01 DESCRIPTION OF WORK**

- A. Section Includes: Requirements and guidelines in performance of MESA construction work concerning protection of environment and property, and safety and health of Contractors, Sandia National Laboratories (SNL) and DOE employees, visitors to SNL, and members of the public.
- B. Related Sections: Refer to the following sections for related work:
  - 1. Division 1, Section 01505S "Construction Waste Management."
  - 2. Division 2, Section "Selective Demolition."
  - 3. Division 16, Section 16475-S "Primary System Safety Requirements."

**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
  - Z89.1 Industrial Head Protection
  - Z49.1 Sections 4.3 and E4.3 Welding, Cutting and Allied Processes
  - Z88.2 Practices for Respiratory 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 1926 Title 29-Labor, Part 1926-Safety and Health Regulations for Construction

29 CFR 1910 Title 29-Labor, Part 1910-Occupational Safety and Health Standards

E. Environmental Protection Agency (EPA)

832-R-92-005 Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices

F. National Fire Protection Association (NFPA)

70 National Electrical Code

70-E Standard for Electrical Safety Requirements for Employee Workplaces

### 1.03 DEFINITIONS

- A. 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. 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.
- B. Sandia Delegated Representative (SDR): Person(s) authorized in the Contract to act as delegated Sandia representative of SNL 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.
- C. Sandia Construction Observer (SCO): SDR's 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. SCO shall not exercise supervision over Contractor's employees.
- D. Sandia Facilities Environmental, Safety, & Health Support Team: Person(s) authorized to act as official representative of SNL for the specific purpose of reviewing contractor's safety plans and supporting SCR's, SDR's, and SCO's with ES&H observations and resolution of issues/concerns associated with contractor safety performance. The team shall have representation from Sandia's Safety Engineering, Industrial Hygiene, Environmental, Radiological Protection and Asbestos Programs.

### 1.04 SUBMITTALS

- A. Contract-Specific Safety Plan: Submit in accordance with requirements of Quality Assurance Article (see Part 4, Section 4.0) for review and acceptance by the SNL Project Manager prior to commencement of on-site work.

- B. Safety Plan Addendum: Submit modification to Contract-Specific Safety Plan, or Activity-Specific Safety Plan if required to address hazards not previously identified in Contract-Specific Safety Plan.
- C. Pollution Prevention Plan: Submit for construction sites greater than one (1) acre, in accordance with requirements of Quality Assurance Article.

## **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.
  - 1. Adhere to safety rules and regulations, access restrictions, and emergency egress procedures which are unique to Contractor's work at SNL-controlled premises as defined in the following sections of this specification, Contract documents, and as determined through consultation with SDR.
- B. Flow Down of Requirements: Prime Contractor shall flow down the requirements identified in this specification to subcontracts for all tiers. Sandia has the right to validate that 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. Single-Point-of-Contact: Provide on-site individual authorized to act on behalf of their company, and who has authority to take immediate corrective actions. Single-point-of-contact shall conduct and document daily safety inspections of work site during periods of active construction. Documentation of safety inspections shall be provided to Sandia upon request.
- C. Excavation Permit: Obtain permit from SDR or SCO (see Part 4, Section 11.0).
  - 1. Obtain an excavation permit prior to start of the following activities:
    - a. Digging, saw-cutting, drilling, coring, or trenching into soil, concrete sidewalks, asphalt or other surfaces to depth greater than twelve inches (305 mm),.
    - b. Excavation of soil beneath concrete sidewalks, slabs, or asphalt to a depth greater than 2 inches.
    - c. Excavation into subsurface soil in buildings beneath the slab.
    - 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 Drawing, and identified in the field using white paint. Submit permit requests to Construction Observer no more than 14 days and not less than 6 days prior to start of excavation.

3. Excavation Permit process, involves environmental, cultural, and ecological site review to determine if environmental site impacts will occur due to activities related to performance of Work.
  4. Permit is task-specific. Confine penetration or digging only to those areas identified on permit.
- D. Penetration Permit: Obtain permit from Construction Observer
1. Obtain 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 pre-cast concrete).
    - b) Penetration into underground concrete duct banks including manholes structures
    - 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 Construction Observer no more than 14 days and not less than 6 days prior to the start of penetration.
  3. Permit is task-specific. Confine penetration to those areas identified on permit.
- E. Energized Work Permit: Prior to performing work on or near exposed/live energized equipment, obtain and submit a Request for Contractor Work On or Near Exposed/Live Energized Equipment (see Attachment I)
- F. Hot Work Permit: Prior to cutting, welding, open-flame burning, or use of tar kettles and roof solvents, obtain Hot Work Permit from Fire Protection Engineering. Display issued permit in prominent location at work site. (see Part 4, Section 10.0).
1. 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 annually shall view the training videos and read the accompanying literature provided by Fire Protection Engineering. These videos are approximately one (1) hour in combined length.
  2. 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).
  3. For work, which will impair or inadvertently activate fire protection detection or suppression system, notify the fire protection contact in SNL Fire Protection Engineering prior to the start of activity.
  4. A fire watch shall be provided during hot work activities 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).

5. 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.
  6. Individuals assigned to fire watch duty shall be responsible for the safety of the welders in addition to 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).
- G. Surface Disturbance Permit: For surface disturbance activities affecting land area greater than 3/4 acre, sandblasting and other surface preparation, or demolition of any building containing over 10,000 sq. ft. of total area, comply with requirements of Division 1, Section "Selective Demolition."
- H. Storm Water Control: For construction sites greater than one (1) acre, develop and submit Pollution Prevention Plan to SDR for review prior to construction activities. The Pollution Prevention Plan shall follow EPA National Pollution Discharge Elimination Systems (NPDES), which addresses silt control and other possible storm water impacts. The system requires inspections at least every 14 calendar days and within 24 hours of a storm event of 0.5 inches or greater. Inspections shall continue through the duration of the project. All documents associated with the pollution prevention plan shall be submitted to the SDR upon request for final payment. Further guidance may be obtained from SDR. Contractor shall report spills and accidental releases to storm sewer system immediately to SDR.
- I. Earth Fill and Borrow Areas: If 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.
    - a. 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 soil disturbance permit prior to disturbing the soil.
- J. Sanitary Sewer Discharge: Notify 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 immediately to SDR.
- K. 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.

- L. Underground Storage Tanks (UST): UST installation and maintenance operations shall comply with New Mexico Environment Department (NMED), UST Bureau requirements. NMED UST Bureau-Certified Contractor shall perform work activities on UST's.
  - 1. If unanticipated UST is discovered during construction activity, contact SCO for notification to SNL's Facilities ES&H Team.
- M. Fire Safety: All construction activities in new and existing facilities shall, at a minimum, follow the requirements set forth in the International Fire Code (IFC), ANSI Z49.1, Sections 4.3 and E4.3, and including:
  - 1. Emergency vehicle access shall be provided as follows:
    - a. Minimum 20 foot wide vehicle pathway.
    - b. Must support weight of fire apparatus (70,000 lbs)
    - c. Minimum 13-foot 6-inch vertical clearance
  - 2. A water supply for firefighting must be provided (either fire hydrants or water tanks of sufficient capacity shall be available on-site).
  - 3. Access to fire hydrants: Fire department inlet connections or fire protection system control valves shall not be hampered. A minimum 3-ft 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.
  - 4. Smoking shall be prohibited except in approved areas. Designated smoking areas shall be posted and provided with appropriate containers for disposal of smoking materials.
  - 5. Housekeeping: All debris and trash shall be removed at least once per day at the end of shift or more frequently, if necessary.
  - 6. 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.

#### **1.06 INTEGRATED SAFETY MANAGEMENT SYSTEM (ISMS)**

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

- B. ISMS Guiding Principles: The following guiding principles are the cornerstone of an effective safety management program.
1. Contractor Management Responsibility for Safety: 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 its subcontractors.
  3. Competence Commensurate with Responsibilities. Personnel possess the experience, knowledge, skills, and abilities that are 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 operations to be initiated and conducted are clearly established and agreed upon.
- C. Apply ISMS work cycle shown on the following page at task or activity level for construction or service assignments. Depending on size and complexity of work activity, some elements of work-planning phase may not formally be used.
1. Refer to Section I of the Contract for specific requirements for pre-bid visits and conferences. Contractor has the responsibility to visit the Project site, and submit questions regarding ES&H related issues, which may affect his cost or performance, prior to bid.
  2. 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
<b>Plan Work</b>		
Review of SNL Jobsite Hazard Evaluation Checklist	Understand pre-existing conditions which may affect worker safety and health	Contractor will review JSHE and incorporate pre-existing site hazards into their CSSP.
Pre-Bid Site Visit	Identify potential job and site hazards and hazard combinations	<ul style="list-style-type: none"> <li>• Contractor will review their potential hazards and determine effect on pre-existing SNL hazards.</li> <li>• Contractor will document how the combination of hazards will be controlled in their CSSP.</li> </ul>
Pre-Bid Conference	Resolve emergency preparedness responsibilities and other safety issues not identified in request for quote	Contractor will identify emergency action plan and it will be documented in CSSP.
Bid 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.
<b>Analyze Hazards</b>		
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 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.
<b>Control Hazards</b>		
Safety Program	Identify company safety management policies, processes, and procedures	Contractor's Safety Program will be complete and contain their 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"> <li>• CSSP will incorporate company specific information from their safety program as well as contract-specific requirements.</li> <li>• CSSP will document how the combination of company-specific hazards and contract-specific hazards will be controlled.</li> <li>• Subcontractor's addendums will be incorporated into the Prime Contractor's CSSP.</li> </ul>
Pre-Construction conference (for construction activities)	Participate in pre-construction meeting with intent of understanding conditions / restrictions identified on the hazard evaluation checklist.	Contractor, subcontractors and workers are aware of their responsibility to review the Prime contractor's safety program and the CSSP prior to the start of work and as needed.
Hazard Awareness	Discuss work hazards and controls with employees	<ul style="list-style-type: none"> <li>• Supervisors will be responsible for ensuring that responsibilities,</li> </ul>

	and subcontractors as appropriate prior to initiating new work, and at work site meetings focusing on CSSP and daily work activities.	hazards and work controls flow down to the workers through documented safety meetings, toolbox talks, and pre-task meetings.
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"> <li>• Subcontractors and their workers will be knowledgeable of the Prime's CSSP.</li> <li>• Workers attend documented safety meetings, toolbox talks, and pre-task meetings as required.</li> <li>• Workers are familiar with the responsibilities hazards and work controls that result in safe working conditions.</li> <li>• Contractor will obtain and follow all permits as required by SNL. Permit information will be flowed down to subcontractors and affected workers during documented toolbox talks, pre-task meetings and safety meetings.</li> <li>• Corrective actions will be completed as required.</li> </ul>
<b>Perform Work</b>		
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.
Safety Inspections	Conduct and document daily workplace inspections, with or without SNL personnel, to identify and correct hazardous conditions and instances of noncompliance with safety plan/requirements	Supervisors are responsible for ensuring that daily inspections are documented, and immediate action is taken for all identified noncompliance issues.
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.
<b>Feedback and Improve</b>		
Self-Assessment	Identify opportunities for safety process and work performance improvements	Contractor will review daily inspection reports, 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 SCR.

**1.07 CONTRACT-SPECIFIC SAFETY PLAN**

- A. General: Submit Contract-Specific Safety Plan (CSSP) that states the nature of work, potential hazards anticipated, and how these hazards will be mitigated, or how workers will be protected from hazards. Contractor shall incorporate sub-contractor's Contract-Specific Safety Plan into a single Contract-Specific Safety Plan/Package and submit for review and acceptance (any differences between the Prime Contractor's Safety Plan and the Sub-contractor's Safety Plan shall be addressed prior to submitting package for review. (see Part 4, Section 4.0).
1. Contract-Specific Safety Plan will be separate, and in addition to Contractor's company Safety Program document on file at Sandia National Laboratories (SNL). Contractor's Safety Program document should provide the information that drives the hazard prevention methods stated in Contract-Specific Safety Plan.
- B. Hazard Mitigation or Protection: Conform to requirements of this specification as applicable to the work activity being performed, as well as accepted methods identified in 29 CFR 1926 and 29 CFR 1910 for construction and service work, respectively. Mitigation or protection shall meet the intent of 29 CFR 1926 and 29 CFR 1910 for construction and service work, respectively. SNL ES&H requirements that exceed the requirements of 29 CFR 1926 or 29 CFR 1910 are identified in this specification.
1. Address hazards that exist at SNL Project site where work will take place. Include hazards identified in SNL Jobsite Hazard Evaluation Checklist (see Attachment A), as well as hazards that are introduced to Project by construction process.
  2. Identify methods (including safety meetings) to inform workers of the nature of work, potential hazards anticipated, and how these hazards will be mitigated, or how workers will be protected from hazards, focusing on Contract-Specific or Activity-Specific Safety Plans, prior to commencement of work activities. Documentation shall be maintained, identifying worker's names, date of communication, activities, hazards, and controls identified. (see Part 4, Section 5.0)
  3. Lock Out/Tag Out (LOTO): Incorporate applicable requirements for the lock out and tag out of energized electrical and pressurized systems from 29 CFR 1926 and 29 CFR 1910 for construction and service work, respectively. At a minimum documentation of LOTO shall also include authorized testing equipment and PPE.
  4. 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 plan (see Part 4, Section 2.0).
  5. Contractor Safety Officer: Identify Contractor Safety Officer and alternates. Safety Officer shall ensure compliance and implementation of requirements in the Contract-Specific Safety Plan. This individual shall be subject to acceptance by SDR based upon the scope of work, anticipated hazards, and training and experience of the designated safety officer. Safety officer may or may not be the designated "competent person" as prescribed by 29 CFR 1926

and 29 CFR 1910 for construction and service work, respectively. (see Part 4, Section 3.1).

6. Accident Scene Preservation: Preservation of the scene shall maintained regardless of whether there is actual injury or damage to materials until Sandia Incident Commander, Safety Engineer, SCO, or SDR arrives on site to assume control of the area.
- C. Submit Contract-Specific Safety Plan for review and acceptance by the MESA Construction Lead, prior to commencement of on-site work.
1. Keep copy of Contract-Specific Safety Plan on site and available to subcontractors, construction observers, and SNL construction safety personnel.
  2. Contractors performing work at SNL facilities shall identify listed carcinogens that may be introduced to the project by the construction or service work.. Listed carcinogens may be identified in the Contract Specific Safety Plan by including a listing of the products, and or a submission of their Material Safety Data Sheets (MSDSs), for products that contain listed carcinogens.
- D. Safety Plan Addendum: Before work activity is performed that involves hazards that were not addressed in original Contract-Specific Safety Plan, submit addendum to Contract-Specific Safety Plan in the form of a modification, or a new Activity-Specific Safety Plan for acceptance. New hazards may result from changes to scope of work or unexpected site conditions. Addendum shall identify mitigation or control for new hazard as described in “Contract-Specific Safety Plan” Article above.

## **1.08 CONTRACTOR INDUSTRIAL HYGIENE PROGRAM**

Contractor Industrial Hygiene Program: Conduct assessment of worker exposure to reduce the risk of work-related disease or illness through workplace monitoring. Monitoring results shall be documented.

1. General: 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).

Comply with applicable OSHA standards in conjunction with ACGIH TVLs.

2. Gases, Vapors, Fumes, Dusts, and Mists: Use engineered, administrative, or personal protective equipment controls to keep employee exposures within prescribed limits.
  - a. Controls must be evaluated to ensure appropriate level of protection to worker.
  - b. Equipment and technical measures used to determine an occupational exposure shall be performed by technically qualified person and conform to current analytical methods.

3. Physical Hazards: Includes noise (sound pressure levels), ergonomics, lasers, non-ionizing 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, laser beam shall not be directed above the horizon, through navigable airspace, or towards aircraft ground operations. Laser beam shall be backstopped with a non-reflective surface that is opaque (non-transparent) to the lasers beam.
  - c. Comply with ANSI Z88.2, Practices for Respiratory Protection.

#### **1.09 PERSONAL PROTECTIVE EQUIPMENT**

- A. General: Provide necessary personal protective equipment (PPE) to be used in performance of work.
- B. Responsibility: Contractor is responsible for safety of personnel on construction job site, and shall ensure that persons visiting job site comply with these requirements. Ensure that Contractor and sub-contractor employees, and visitors on Project job site wear necessary PPE. Contractor has responsibility and authority to deny access to any person entering a construction site if they do not have appropriate PPE.
- C. PPE shall conform to applicable standards, and be in good working condition. PPE shall be appropriate for work hazard to be encountered, and is considered to be the last line of defense against injury or illness.
- D. SNL Site-Specific Requirements (see Part 4, Section 8.0).

#### **1.10 HIDDEN HAZARDS PENETRATION**

- A. General: SNL has adopted a five-step approach in an effort to minimize potential hidden safety hazards from penetrating soil during excavation, saw-cutting concrete slabs and walls, and penetrating surfaces. This process includes: Drawing review, site investigation, detection using instrumentation (as appropriate), use of proper tools, and use of proper PPE (see Part 4, Section 11.0).
- B. Workers engaging in penetration activities shall use tools, which are in good working condition and utilize appropriate PPE (e.g. electrically rated gloves, GFCI protection, double insulated tools).
- C. To mitigate risk a site investigation utilizing methods that would not penetrate hidden hazards (e.g. visual inspection) shall be performed prior to any penetration into floors, ceilings, roofs, or walls constructed of wood, metal, cinderblock (excluding concrete filled), tile, gypsum, or other similar materials. If hidden

hazards cannot be identified through site investigation the SDR shall be notified prior to penetration and appropriate PPE shall be worn during penetration.

- D. To mitigate risk, penetration of poured concrete surfaces shall not proceed:
  - 1. To depth greater than two inches (50 mm) without obtaining an SNL Excavation/Penetration Permit and notifying SCO prior to penetration.
  - 2. Without required PPE including approved gloves (rated 600 V minimum), eye protection, and electrically rated rubber boots, as appropriate.
  - 3. Without using double-insulated, GFCI-protected, and properly grounded tools.

### **1.11 MEDICAL/HEALTH PROTECTION**

- A. Emergency Action: For life-threatening injuries or illnesses, immediately call for medical assistance by dialing 911 on SNL telephone, or (505) 844-0911 on outside/cellular telephone (see Part 4, Section 2.0).
  - 1. Post medical and non-medical emergency telephone numbers conspicuously at Project site. Ensure that all employees are aware of medical and non-medical emergency telephone numbers. Placards with emergency telephone numbers can be obtained from SNL construction office.
  - 2. Transport personnel with non life-threatening injuries or illnesses that require medical attention to Contractor's identified medical facility.
  - 3. Electrical Shock: Accompany any employee receiving electrical shock for immediate medical attention to the SNL Medical facility during standard working hours, no matter how minor the shock appears. For non-standard hours, seek medical attention in off-site facility. Notify SCO or SDR immediately after transporting individual to SNL Medical.
  - 4. Notification of Accidents, Injuries, or Illnesses: Verbal notification to SDR or SCO shall be performed as soon as possible. Submit SF 2050P "Report of Occupational Injury/Illness" to SDR within 24 hours. See Attachment C.
    - a. Non-Emergency Medical Incident: Notify SDR or SCO within 24 hours.
    - b. Serious or Life-Threatening Accident or Illness: Notify SDR or SCO immediately after taking emergency action.
- B. Substance Abuse Prevention and Testing: Use of drugs (including misuse of prescribed substances) or alcohol on site shall be grounds for removal of individual from work site, and may include other corrective action including Contract termination.
- C. Radiological Safety: Employee may not enter 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 SDR or SCO for instructions.
2. For performance of Work in posted radiological areas, ensure the following:
  - a. Jobsite Hazard Evaluation for work activity performed in radiological areas.
  - b. Employees understand and follow Jobsite Hazard Evaluation requirements.
  - c. Obtain Radiation 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 Contract-Specific Safety Plan for work as reviewed by SNL.
3. Dosimetry: Workers with appropriate training, and who 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 Thermo Luminescence Dosimeters (TLDs) are current. TLDs must be returned to SDR for exchange by last day of quarterly expiration date. Failure to exchange in a timely manner may result in loss of the TLD.
4. Each project involving use of accountable radioactive source or radiation generating device (RGD) requires prior approval by SDR and SNL's Radiation Protection Department. Examples of such devices include, but are not limited to, soil testing densometers and XRF analytical devices for lead detection. See Attachment B.

## **1.12 SUSPENSION OF WORK**

- A. General: All employees, contractors, and visitors have 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 work request (oral or written), immediately cease activity, and notify SCO or SDR. Obtain name and telephone number of person requesting suspension, and reason for suspension of work. Work shall not continue on that activity until issue has been resolved.
  1. SCO or SDR may restart activity only after review and approval of oral or written response submitted by Contractor.

- C. Stop Work Order: Stop work order that affects crew for period greater than one (1) hour shall be followed by issuance of formal written Stop Work Order. Work may be restarted only with written work release from SCR. Stop Work Order shall include the following information:
  - 1. Date and time when work was stopped.
  - 2. Reason for work stoppage.
  - 3. Requirements for Contractor to resume work.
  - 4. Date and time when SNL expects corrective actions to be completed, if required.
  
- D. Work Release: 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.

**1.13 WASTE MANAGEMENT AND DISPOSAL (see Part 4 section 4.09)**

- 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 re-used for their intended purpose are not considered waste and shall be managed as U.S. Government Property.
  
- B. Construction Debris: See Special Specification 01505S, Section "Construction Waste Management."
  
- C. Residue Material and Equipment: Intact and dismantled equipment and material removed during the work activity shall remain the property of the 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 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 of following criteria are met:
  - 1. All material has been removed that can be 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 5 gallons or less that meet above criteria may be thrown in trash. Empty containers with capacity of greater than 5 gallons shall be managed as chemical waste. Those containers shall be marked with words "Empty Container".
- E. Fluorescent Lamps: Fluorescent, sodium, and incandescent light bulbs shall be removed from light fixtures and managed as Chemical waste. These items shall be boxed and labeled to identify the contents.
  - F. Light Ballast: Light fixtures with leaking ballasts or evidence of previous leaking ballasts shall be double bagged or wrapped and disposed of as PCB containing chemical waste. Ballasts that are not clearly marked "NON-PCB" shall be removed from the fixtures and managed as PCB containing waste. Non-leaking ballasts that are clearly marked "NON-PCB" may be left in the fixtures and managed as residue material.
  - 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.
  - 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. Coordinate hazardous chemical waste disposal through SNL's Facilities ES&H Team. The procedure for disposal of chemical/hazardous waste is as follows:
    1. Inventory all items
    2. Label all containers (labels shall include contents, project number or name and contact phone number).
    3. Notify SNL Construction Observer that waste is ready for pick-up as soon as possible.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 that is 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.
  - 1. Before removal from the work location, SNL radiation protection technicians shall survey waste generated from Radiological Management Areas.
- K. Mixed Waste: Residue or waste that is 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.
- 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 Construction Observer for further direction.

**1.14 WORK SITE IDENTIFICATION (see Part 4, Section 2.0)**

- A. Construction Safety Bulletin Board: Provide and maintain weather-tight safety bulletin board in visible location, not less than 3 feet by 5 feet in size. Bulletin shall be used only to post official announcements.
  - 1. For MESA projects, post the following documents and signage:
    - a. Equal Opportunity Posters
    - b. Employment Standards
    - c. Project Davis-Bacon Wage Decisions
    - d. DOE Safety Posters
    - e. Contractor's Accident Prevention
    - f. Fire Prevention
    - g. Emergency Phone Numbers
    - h. First Aid Plan.
    - i. Company Name
    - j. Superintendent Name
    - k. SNL Contract Number
    - l. SNL Contact Names and Phone Numbers

2. An SNL-reviewed copy of Contractor's Contract-Specific Safety Plan must be readily available at Project site.
- B. Hazard Identification Signage and Barricades: Provide appropriate hazard identification and barricades in accordance with 29 CFR 1926 and 29 CFR 1910 for construction and service work, respectively, 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 SCO. 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 1926 and 29 CFR 1910 for construction and service work, respectively. Protect unattended sites with applicable signs and barricades at all times.
- C. Documentation: The following documents shall be available for review at each Project site.
- Project plans, specifications, and work authorizations
  - All required permits.
  - Contract-Specific Safety Plan
  - Material safety data sheets for on-site chemicals.

## **PART 2 – PRODUCTS (Not Used)**

## **PART 3 – EXECUTION**

### **3.01 JOBSITE HAZARD EVALUATION**

- A. General: This work site has been evaluated for environmental, safety, and health concerns or conditions that pre-exist, and may impact methods and procedures in performance of work.
- B. Jobsite Hazard Evaluation: Does not include hazards that may be introduced during execution of work necessary to meet Contract "Statement of Work." Hazards introduced in performance of work shall be evaluated and mitigated in accordance with existing federal, state, and local regulations, including 29 CFR 1926 and 29 CFR 1910 for construction and service work, respectively, and applicable provisions of this specification.
  1. Comply with restrictions or conditions specified for each identified hazard. Do not proceed without full knowledge and understanding of these conditions. If the corresponding description, or identified paperwork or permit is not attached for identified hazard, contact SDR or SCO immediately.

- C. Identified Pre-Existing Conditions: Take precautions for pre-existing conditions identified on job site, per Jobsite Hazard Evaluation checklist attached in Contract documents.
  - 1. 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 identified hazard, contact SCR immediately.
- D. Unidentified Hazard: If hazard is encountered during performance of Work which has not been identified, contact SCO or SDR for specific requirements prior to performing work which may impact condition or concern.

**3.02 GENERAL PROJECT WORK PRACTICES (see Part 4, Sections 4.11 through 4.14)**

- A. 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.
  - 1. Prior to start of activity using mobile crane, notify SDR forty-eight hours in advance of scheduled arrival time. This notification allows the SCO time to review the project documentation, and to conduct an inspection of the crane coming onto SNL property (see Attachment G). Crane inspection by the SCO shall include, but not be limited to verification of license or training, load charts, inspection reports, and physical verification of ropes, slings, undercarriage, outriggers, and boom. Additionally, SCO shall document review of crane placement, and lifting plan or sequence with the Contractor and Contractor's crane operator.
    - a. Provide proof of inspection and load tests in accordance with 29 CFR 1926 and ANSI B30.5.
    - b. Crane operators shall be properly trained and experienced in operation of crane or hoisting device. Crane operator shall have one of the following in possession during crane inspection and operation: Valid State of New Mexico Crane Operator's License or Certification that indicates completion of an industry-recognized, in-house training course based on American National Standards Institute (ANSI) standards for hoisting operators, and who is employed by the entity that taught the training course or contracted to have the training course taught.
  - 2. Documented Lift Plan: All lifts meeting the criteria listing below shall be documented. Documentation shall be onsite during the lifting operation and available for review by SNL PM, SCO, or Safety Engineer. A documented lift plan shall be required for all lifts meeting the following criteria:
    - a. Greater than 75% of manufacturer's load chart capacity.
    - b. Lifts involving field designed and installed lifting points when manufacturer's lifting points can not be utilized.

- c. Lift plans shall include: lift calculations, qualified person in charge (PIC) and method utilized to approve field designed lifting points when manufacturer's lifting points can not be utilized (e.g. qualified engineering review and approval, manufacturer's approval, x-rays, etc.).
  3. Critical Lift Plan: All critical lift plans shall be documented, accepted by the SNL PM, SCO or Safety Engineer and onsite during the lifting operations. A lift shall be designated as a critical lift if collision, upset, or dropping could result in any one of the following:
    - a. Unacceptable risk of personnel injury or significant adverse health impact (onsite or offsite)
    - b. Significant release of radioactive or other hazardous material or other undesirable conditions.
    - c. Undetectable damage that would jeopardize future operations of the safety of a facility.
    - d. The cost to replace or repair the load item or the delay in operations of having the load item damaged would have a negative impact on the project schedule or operation, system, or facility.
    - e. The load requires exceptional care in handling because of size, weight, close-tolerance installation, high susceptibility to damage, multiple pieces of lifting equipment or other unusual factors.
    - f. Critical lift plan shall include: lift calculations, name of PIC, name of qualified crane operator, name of qualified rigger, method utilized to approve field designed lifting points when manufacturer's lifting points can not be utilized, (e.g. qualified engineering review and approval, manufacturer's approval, x-rays, etc.), and rigging configuration including lifting points (e.g., slings, hardware, spreader bars and tag lines).
  4. SNL requires compliance with the Federal Aviation Administration boom height restrictions. Crane boom height restrictions are initiated by the Contractor and based on distance from the runway of the "Albuquerque International Airport." The Contractor shall initiate a "Request for Aeronautical Study" to be completed by the Federal Aviation Administration. Form 7460-1 "Notice of Proposed Construction of Alteration" shall be submitted by the Contractor to the FAA, South West Region, Fort Worth, Texas, 817-222-5534.
- B. Contractor's Staging Area: SDR shall approve staging area locations prior to utilization. Stored vehicles and equipment, intended for use on SNL property, shall be in serviceable and safe operating condition. Immediately repair, or remove defective or unsafe equipment from SNL property until proper repairs are completed.
  1. Staging area shall not be used for storage of hazardous materials not intended for timely use (within 30 days) for work activity. Remove or dispose of excess hazardous material in accordance with "Waste Management and Disposal" Article.

- C. Temporary Buildings/Storage Areas: Obtain approval from SDR for location of temporary buildings and storage areas prior to scheduled delivery of building or material.
- D. Overhead Work: Schedule work required to be performed above occupied areas for non-standard 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. Final approval for work in occupied areas during normal work hours must be received from SDR.
- E. Lock Out/Tag Out (LOTO): Notify SCO minimum of 24 hours in advance of activity requiring utility or equipment shutdown.
- F. Confined Space Entry: Comply with provisions of 29 CFR 1910.146, "Permit-Required Confined Spaces," for access to permit-required confined spaces. Contractors are responsible for developing and issuing confined space entry permits. Confined spaces include, but are not limited to: storage tanks, vessels, vaults, manholes, sewer pipes, boilers, tunnels, and in some instances excavations.
  - 1. Contractor work practices and procedures shall incorporate all applicable regulatory requirement 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.
  - 2. Three types of construction 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.
  - 3. Permit spaces are typically labeled in the following manner: "DANGER Confined Space - Entry by Permit Only," or similar type language. Non-permit spaces are typically labeled in the following manner: "DANGER Confined Space - Entry by Authorized Personnel Only". In questionable areas that appear to qualify as a confined space, the absence of appropriate signage shall not be interpreted to mean that the area is not a confined space.
  - 4. All confined spaces, permit-required and non-permit, at minimum shall be tested first for oxygen, then for combustible gases and vapors, and then for toxic gases and vapors prior to entry. Atmospheric monitoring for the duration of the activity is also required.
  - 5. Personnel making a confined space entry shall follow the procedures established in Attachment D, "Rescue of Personnel in Confined Spaces at SNL/NM" in establishing their confined entry plan. A "Confined Space Permit Sign In/Sign Out Sheet," provided as Attachment E, is used to maintain an accurate, real time tracking of entrants for emergency response. The use of Attachment E 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. Deviation from the procedures shall require an explanation for each deviation.
  - 6. If a "Hazardous Atmosphere" as defined by OSHA (<19.5% oxygen or >23.5%; LEL > 10%; toxics > allowable) is detected through monitoring, **NO ENTRY IS ALLOWED**. Contact the SDR and Construction Inspector immediately.

7. Inspection shall be performed on all equipment prior to use to ensure proper working condition.
  8. Personnel shall perform a function test ("field calibration") on the atmospheric monitoring instrumentation immediately prior to use to ensure proper working condition.
  9. Contractors entering permitted confined spaces shall submit a written copy of their plan that complies with provisions stipulated in 29 CFR 1910.146. The written plan shall also include the following information:
    - a. Specific location of the confined space (building, room, space type; if the space is outside, indicate the direction [NW, SE, etc.] from the closest building)
    - b. Identification of individual or personnel serving as the Entry Supervisor (for purposes of overseeing the entry activity), Entrant, Attendant, and Atmospheric Monitor
    - c. Identification of Competent Person
    - d. Identification of communication equipment used to contact emergency personnel, and, means used to communicate between the Entrant and Attendant
    - e. Identification of retrieval equipment and specific conditions of use
    - f. Method used to coordinate entry operations with the host employer when employees of host employer, Contractor company, and/or additional contractors will be working in or near a permit space
    - g. Method used to communicate the discovery of any hazards encountered in the permit space during operations
- G. Electrical Equipment Safety: Provide Underwriters' Laboratories (UL) or Nationally Recognized Testing Laboratory listed/labeled electrical devices and equipment per NFPA 70 and 70-E, and Occupational Safety and Health Administration requirements.
1. Comply with current National Electric Code provisions, and 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.
  2. Receptacles on ends of listed extension cords are not part of permanent wiring, and shall be protected by GFCI whether or not listed extension cord is plugged into permanent wiring.
  3. Extension cords shall be free of cuts and exposed conductors. Cord caps and receptacle replacements shall be made with approved materials rated for conductors. Provide GFCI protection for extension cords, between power source and employee.

4. Temporary Lighting and Emergency Lighting: Provide adequate lighting to maintain minimum illumination set by 29 CFR 1926.26 and Subpart D. Install emergency illumination (automatic battery-powered lights) in areas that would be dark during power failure (i.e. basements, non-windowed buildings). Lighting systems shall not have GFCI protection.
- H. Electrical Safe Work Practices: Ensure that electrical work activities, 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.
1. Lockout/Tagout: Lockout/tagout procedures shall be documented in Contractor's CSSP. At a minimum, documentation shall include authorized testing equipment and PPE.
  2. 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 hazards/risk category classifications, and 3) care and maintenance of FR clothing, FR flash suits and other PPE.
  3. 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.
  4. 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.
  5. Electrical Outage Requests: Prior to performing work on any live parts that are not placed in an electrically-safe work condition (energized work), Contractor shall contact the Electrical SCO and request an electrical outage. Exemptions to this requirement include tasks such as testing, troubleshooting, voltage measuring, etc., provided appropriate safe work practices and PPE are provided and used in accordance with NFPA 70E.
- I. Electrical Work On or Near Exposed Energized Parts: Applies to work involving installation or alteration of systems such as branch circuits, panelboards, motor control center distribution, distribution transformers, switchboards, bus ducts, disconnects, lighting terminal cabinets, and other building distribution type systems.
1. Exposed energized parts are defined as items located within "limited approach boundary" as defined by NFPA 70E, Table 2-1.3.4.
  2. Working on energized parts is defined as coming in contact with live parts with the hands, feet, or other body parts, with tools, probes, or with test equipment, regardless of the personal protective equipment a person is wearing.
  3. Work near exposed energized parts is any activity inside "limited approach boundary."

4. 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."
5. Do not leave exposed energized parts unattended in area occupied by other than construction or service personnel. Do not leave exposed energized parts without providing working space barrier at the "limited approach boundary."
6. Comply with the following when working on energized electrical parts:
  - a. Fill out request for contractor work on or near exposed / live energized equipment and submit to MESA Construction Safety Lead or designee. (see Attachment I)
  - b. Notify SCO before proceeding with work.
  - c. Electrical work on energized electrical parts shall be performed by qualified individual with second qualified person available.
  - d. As a minimum, individuals performing work on energized electrical parts shall be either New Mexico licensed electricians, or State Certified Apprentice in their last year or journeyman electrician who has been trained by recognized trade or union training program.
  - e. Individual shall be knowledgeable and experienced in working with specific type of electrical circuits on which energized electrical work is to be performed. It is incumbent upon the employer to formally demonstrate, in writing, the qualifications of the individual worker performing energized work including voltage testing @ 50 vac and above. See Division 16 "Primary Systems Safety Requirements" for additional requirements.
  - f. Request authorization from SDR prior to working on exposed energized parts.
  - g. Only use approved insulated tools, including fish tapes, approved for contact with energized parts when distance to exposed energized parts is less than one foot (305 mm).
  - h. Use appropriate personal protective equipment as required. The level of personal protective equipment to be used shall be determined by the requirements identified in NFPA 70-E, Part II, "Safety Related Work Practices," Chapter 3, "Personal and other protective equipment." Equipment may include: safety glasses, face shield, insulated gloves, and fire-resistant clothing such as cotton, denim, flannel or other appropriately rated fire resistant clothing. Clothing shall cover entire body from neck to hands and feet.
  - i. Provide team of two personnel for work on energized parts.

## **PART 4 – MESA SPECIFIC SAFETY AND HEALTH REQUIREMENTS**

### **4.01 INTRODUCTION**

Part 4 of this specification is MESA construction specific. It addresses the following elements in further detail:

- Emergency Readiness, Response and Reporting
- Contractor Safety and Health Program
- Contractor Contract-Specific Safety and Health Plan
- Contractor Hazard Assessment
- Access Badging Requirements
- MESA Site Specific Orientation/Safety and Health Training
- Safety Meetings and Communications
- Personal Protective Equipment
- Hazardous Materials Management
- Fire Prevention
- Excavation, Trenching, and Shoring
- Fall Protection
- Hoisting and Rigging - Crane Safety
- Aerial Lift Training

Following recognition of noncompliance with these safety and health requirements, the MESA SDR shall:

- Notify the contractor of the noncompliance and of the corrective action required. This notice, when delivered to the contractor at the site of the work, shall be deemed sufficient notice of the noncompliance to immediately implement corrective action. (See Attachment H, Sandia Construction Safety Deficiency Notice and Flowchart)
- Exercise the right to issue a suspend-work order stopping all or part of the work if the contractor fails or refuses to take corrective action within the time specified. The order will remain in effect until satisfactory corrective action has been taken.
- SNL/NM and/or DOE has the authority to conduct an accident investigation during and/or after the "stop-work" period, and these stop-work periods may affect some or all portions of the job site.

Event investigations may occur at the discretion of DOE if the criteria of DOE Order 225.1A, Accident Investigation, are met.

- Deny any claim or request from the contractor for equitable adjustment for additional time or money due to a suspend-work order issued under these circumstances.
- Require the removal from the Project Site of any employee or piece of equipment that is deemed to be unsafe. The contractor's superintendent, ES&H officer or other personnel shall be replaced by the contractor at the direction of MESA SCR/SDR for non-

performance of his/her safety duties at no additional cost to the contract. The primary responsibility for safety and health is the Contractor's and Subcontractor's Superintendent(s)/Foreman(s).

- These elements, are integrated as part of contract language for these projects, and provide the baseline methodology for managing the hazards inherent to the MESA construction work. It also provides a systematic manner that can be easily integrated into the management of other technical aspects of the MESA project(s).

Construction safety and health deficiencies observed on the MESA construction sites(s) shall be initially documented (see OSHA Safety Deficiency Notice Flow Chart [Attachment H]) using the "Sandia Construction Safety Deficiency Notice," form MCS-3. Issuers of this form will be restricted to the MESA Construction Safety Lead, Specific Construction Management Services staff, Lead Project Inspector, Sandia Construction Observers (SCOs), and the Contractor's ES&H Officers(s). Data gleaned from this effort will be compiled by the MESA Construction Safety Lead, used for trending, identification of problem areas dealing with both personnel and process, and contractor safety and health performance (Safety Incentive/Disincentive). This process will be included in the orientation training (see Section 4.061).

## **4.02 EMERGENCY READINESS RESPONSE AND REPORTING**

Emergency Readiness regarding appropriate response and reporting is addressed in this section. It is imperative that the personnel working on the MESA construction project (s) are prepared to respond to emergency situations including KAFB DELTA evacuation conditions in a timely and pre-defined manner. The objectives of this element are to establish appropriate steps to meet that preparedness requirement. Additionally, the process to appropriately report, review, trend and/or investigate events is identified here.

### **4.021 Emergency/Occurrence Readiness**

Emergency readiness procedures shall be prepared by the contractor and communicated through a written emergency action plan (included as part of Contractor's Contract Specific Safety Plan - See Part 4, Section 4.04) to all employees *prior* to beginning work on the project, *and* whenever an employee's roles and/or responsibilities change *or* new employees join the workforce. This training will be one element of the MESA Site Specific Orientation Training Process. The contractor shall establish within their emergency action plan, types of evacuation, and roles and responsibilities with the names or job titles of persons or departments who can be contacted for further information to be used in emergency circumstances.

Additionally, the contractor shall prepare and post throughout their construction site signage that will identify the following:

- Easily understood Emergency Response Guidance
- Emergency phone numbers
- Actual location of the work site (relative to Kirtland Air Force Base), sign locations, and nearest phone locations (i.e., 3rd floor - West side of Bldg.)

The contractor shall designate and train a sufficient number of personnel to assist in the safe and orderly emergency evacuation of employees. The contractor written plan shall be kept visible at the workplace and made available for employees to review. SNL will provide all MESA construction site employees hardhat decals providing emergency phone numbers.

#### **4.022 Emergency/Occurrence Response**

All MESA contractors shall participate in and/or conduct emergency drills with MESA site personnel annually, at a minimum. If and when an incident occurs, the incident scene must be preserved and the parties involved, except for any that require medical attention, will be retained to ensure a complete and timely accident information analysis. As soon as practically possible, an initial critique of the event will take place. The MESA Construction Safety Lead and the Sandia Delegated Representative (SDR) shall conduct this critique.

For all Medical Emergencies, personnel shall:

1. Call the 24-hour Emergency Health Services Center phone number 844-0911 for serious illness, injuries, or accidents. (SNL/NM Health Services Center is located in Bldg. 831 on F Avenue).
2. Follow the instructions of emergency personnel who respond to the call.
3. Consider every electrical shock to be an emergency and every victim of a shock on SNL/NM premises shall be evaluated by SNL/NM Health Services. (See specific requirements set forth in Part 1, Section 1.10, (A)(3))

In addition, members of the workforce should assist ill or injured persons and be prepared to provide the following information to emergency response personnel:

- Type of emergency (for example: falls, lacerations, illness, electrical shock)
- Location of the emergency (tech area, building, etc)
- Name, age, and sex of person needing assistance
- Apparent medical condition (for example: bleeding, broken limb, breathing difficulties, unconsciousness)

The contractor shall have the names and locations of their industrial medical providers onsite. For first aid and non-emergency medical care the contractor will transport personnel to their industrial medical provider directly.

Onsite telephone service and/or two way radio systems for reporting emergencies, (i.e., fires, falls, confined space recovery, spills, etc) shall be provided by the contractor and be readily available on the construction site premises. Contractor shall install Emergency Signage identifying location of all MESA Construction site communication devices. In no case shall a construction worker be more than one minute away from an emergency means of communication.

#### **4.023 Emergency/Occurrence Reporting**

The contractor shall notify the SDR or SCO as soon as possible but not later than 24 hours of all incidents, injuries, hazards, and/or near misses regardless of how minor. Any additional written

documentation relating to the incident or injury shall be delivered to the SDR immediately upon request. Incidents include those that result in, or could have resulted in, an illness, injury, fire, property damage, or hazardous spill or release while working on the project at this construction site.

The contractor shall be responsible for maintaining documentation of incidents as required by federal, state, and local laws and regulations. The contractor shall provide information to the SDR in order to complete form SF 2050-P, *Report of Occupational Occurrences - Injury/Illness*, (See Attachment C) and shall consult their Industrial health care provider for that documentation.

All MESA project personnel (including contractors and all tiers of subcontractors) shall as a minimum:

- Report any incident that they deem may constitute a problem, concern, failure, malfunction, or deficiency in equipment, process, procedure, or program, or which could result in an adverse affect upon DOE or contractor personnel, the public, property, the environment, or DOE's mission, security, or operations
- Notify the SDR. The SDR is responsible for assuring both the contractor and SNL/NM investigates incidents and identifies root and contributing causes
- Preserve, to the extent feasible, and document evidence of accidents
- Record all first aid cases, OSHA recordable cases, restricted duty cases and lost workday cases, along with the total hours worked on the project (including field labor and office/general/support). These record keeping requirements are directly applicable to all tiers of subcontractors as well, and it is the responsibility of their contractor to assure the responsibility is met.

*Note: Some events will require accident investigation directed by the DOE. The Occurrence Management Categorization matrix is derived from DOE M 231.1-2 and includes graduated thresholds for reporting events.*

The existing SNL/NM Occurrence Reporting process will be followed. Occurrences will be categorized and owned by Center 1900. Center 1920 Project Manager will be responsible for the management and facilitation of this process.

Each contractor shall be responsible for their own ES&H record keeping, documentation and reporting required by the various government agencies as they apply to their scope of work. Records, documents and reports required, as result of work in this project, shall be maintained and made available to the SDR/SCR and MESA Construction Safety Lead upon request.

The following is a sample list (not inclusive) of records, documents and reports that shall be required to be maintained by the contractor on this project:

- OSHA Log of Occupational Injuries and Illnesses (OSHA 300)
- OSHA Training Records
- SNL/NM Equal Opportunity Employer
- Davis Bacon Act
- MSDS Inventory

#### **4.03 CONTRACTOR SAFETY AND HEALTH PROGRAM**

The Contractor's Construction Safety and Health Program shall at a minimum, address the following elements in detail:

- Management leadership and Employee participation
- Hazard identification and assessment
  - Worker Hazard Awareness and Training: Prime Contractor is responsible for ensuring their employees, subcontractors, and suppliers are informed of foreseeable hazards and protective measures associated with the work site/project.
- Hazard prevention and control
- Information and Training
- Periodic evaluations of program effectiveness

The appropriate MESA Construction safety personnel will review the Contractor Safety and Health Program during the Best Value Source Selection Process.

##### **4.031 Contractor Environment, Safety, and Health Officer**

Before beginning any phase of work, each contractor is required to submit the resume(s) of, and name(s) and qualifications of those personnel that will be identified as their Environment Safety and Health (ES&H) officers. These individuals shall be considered "Key Personnel" positions.

Each contractor shall assign ES&H officers to the project, in accordance with the level of the risk associated with their work at the site. A minimum of one fully dedicated ES&H officer shall be required on each MESA building project (i.e., WIF, MicroLab, and MicroFab). The ES&H officer shall have no other responsibilities other than those associated with ES&H. Unless otherwise approved by the SNL-DPM. The ES&H Officer or his/her backup shall be resident to the particular construction site/office during all construction work activities.

It is the expectation of SNL that the ES&H officer shall be on site from the start of the project until released by SNL or the final closeout of the project occurs or when construction activity including punch list resolution ceases.

- Weekend or overtime work is not exempted from this key person position.
- Any designated substitution shall have the same requirements, applied to them.

The contractor ES&H Officer shall be responsible for:

- Daily site visits and the written documentation to support findings, observations, good safety practices, and any corrective action
- Coordination/implementation/documentation of:
  - Contractor Safety and Health Program, which includes all subcontractors tier's Contract Specific Safety and Health Plan
  - Contract Specific Safety and Health Plan
  - Two-week look ahead process
  - Daily Safety-based work plan process

- SNL expectations of daily site visits by ES&H officers includes but is not limited to inspections of:
  - PPE
  - Crane Inspections
  - Good Housekeeping
  - Permits (Dig, Hot work, etc.)
  - Proper setup and use of equipment
  - Direct feedback to workers on safety performance
- Interface with MESA SDR, MESA Construction Safety Lead, Construction Management Personnel, Inspection Lead, Construction Observers, and SNL/NM ES&H personnel.

Contractor ES&H Officers shall have the following minimum qualifications:

- Five (5) years of construction experience, and
  - Three (3) years of construction safety experience (over 50% of time where safety is the primary duty[ies]), and
  - Successful completion of OSHA 30-hour training (or OSHA 500 certified trainer) and
  - Training and knowledge in the following areas:
    - Principles and practices of industry and construction site safety.
    - Safety and occupational health laws and procedures.
    - Methods of assessing safety hazards and controls.
    - Hazardous material storage and transfer procedures.
    - Emergency preparedness activities.
- (or)*
- Certified Safety Professional credential with Construction Safety Specialty Certification

In no case shall this requirement for dedicated project safety and health personnel relieve the contractor construction superintendent of full and complete responsibility for compliance with all project safety and health requirements.

#### **4.04 CONTRACTOR - MESA CONTRACT SPECIFIC SAFETY AND HEALTH PLAN**

After award of contract and prior to commencing any work on the project worksite, the contractor shall prepare and have accepted through the MESA Construction Safety Lead a written contract specific safety and health plan (separate from Contractor Construction Safety Program document), which addresses requirements identified in Part 1, Section 1.07 Additionally it shall include the following:

- Clear identification of the contractor as the “Controlling Contractor” in regards to the OSHA Multi-employer Worksite Policy
- Statement of contractor construction safety and health policy
- Employee rights and responsibilities
- Identity of construction superintendent, the Contractor ES&H officer and other construction contractor personnel to be assigned safety and health duties on the worksite, their

qualifications, and their respective duties. The plan shall also identify any other equally qualified individual(s) the contractor proposes to authorize to act during periods of construction superintendent and ES&H officer absence

- List all anticipated project phases, as well as annotation of those project phases for which SNL-prescribed safety and health standards or the construction contract require that protective measures be designed, inspected, implemented or approved by a Professional Engineer or other qualified person (i.e., fall protection systems)
- Plan and methodology for the oversight of subcontractors and suppliers
- Plan and methodology for incorporation of subcontractor site specific safety plans into this plan
- Proposed format and methodology for performing and documenting Daily Safety-Based Work Plan (See Part 4, Section 4.052)
- Proposed format and methodology for performing hazard analyses
- Plan for worksite safety and health orientation and continued safety training
- Plan for Safety-Based Task/Work Plan Training (See Part 4, Section 4.053)
- Plan and safety methodology for the transportation of workers from SNL/NM designated parking area to the worksite, if required
- Incentive/disincentive programs, processes, and procedures for personnel/subcontractors
- Disciplinary procedures for each level of personnel (superintendent, foreman, supervisor, worker) for noncompliance with this plan
- Alcohol and drug abuse policy
- SNL (Spec 01065) safety and health policies, programs, and procedures applicable to the project (e.g., confined space, lock out/tag out), and methodology for implementation and oversight of subcontractors/suppliers compliance
- Procedures for interfacing with other site contractors on safety and health issues
- Project hazard communications program (refer to 29 CFR 1926.59)
- Project hazards and the applicable policies and procedures for addressing these hazards, and their controls
- Plan and methodology for maintenance and housekeeping of the construction site and laydown areas
- Use, maintenance, and acquisition of personal protective equipment required on the project worksite (e.g., hard hats, eyewear, and protective footwear)
- Emergency Action Plan to include first aid and medical response (See Part 4, Section 4.02)
- Fire prevention and control
- Emergency response procedures to include local warning and evacuation systems (addressing Part 4, Section 4.02 of this document)
- Procedures for formally reporting or correcting unsafe conditions or practices throughout the site
- Procedures for reporting and investigating accidents and incidents
- Project safety and health record keeping procedures
- Maintenance of and employee access to exposure monitoring data and medical records

- Keep on site a copy of CSSP, and documentation demonstrating personnel have received training on the CSSP to ensure all affected personnel are informed of foreseeable hazards and the requirement to follow protective measures. CSSP shall be available to subcontractors, construction observers, and SNL construction safety personnel.

#### **4.05 CONTRACTOR HAZARD ASSESSMENT**

- The work site has been evaluated by SNL for non-standard industrial environmental, safety, and health concerns or conditions that pre-exist, and may impact methods and procedures in performance of work.
- A documented Jobsite Hazard Evaluation will be included with contract documents for work activities when pre-existing non-standard industrial, environmental, safety and health concerns have been identified.
- The contractor shall submit for acceptance by the MESA Construction Safety Lead, a schedule driven Hazard Assessment with Identified Controls Plan covering the overall construction project work scope.
- The Contractor's ES&H Officer shall be responsible for the implementation of the Hazard Assessment and Controls Plan. Changes to this plan during construction shall be submitted to the MESA Construction Safety Lead for acceptance. If a change is going to introduce new hazards, then a hazards assessment shall be performed that would identify any control(s) that would be incorporated into the Contractor's Contract Specific Safety Plan. Those controls shall be submitted as an addendum for acceptance by the MESA Construction Safety Lead.

##### **4.051 The Contractor Two-Week Look Ahead Task Specific Hazard Assessment**

- The contractor, sub-contractors, and lower tier sub-contractors are required to prepare a two-week look ahead Task Specific Hazard Assessment based upon their proposed work schedule. This Task Specific Hazard Assessment shall be updated on a weekly basis. The contractor shall maintain this document for review by the MESA Construction Safety Lead. All personnel performing work on the site shall be informed of task specific hazards on a weekly basis.
- The Two-Week Look Ahead Task Specific Hazard Assessment shall break the work scope down into *individual activities* based on the planned schedule.
- Additional hazards may arise or be identified as the work is performed that are not addressed in the Hazard Assessment. Therefore, these hazards along with their corrective actions shall be amended in the Two-Week Look Ahead Task Specific Hazard Assessment.

#### **4.052 Daily Safety-Based Work Plan**

The contractor and subcontractor supervisory personnel on the MESA Project are responsible for completing a daily safety-based work plan prior to any work activity. The Daily Plan shall be updated any time there is a change in the workforce, work condition, scope of work, or work location. Worker involvement shall be evident in this process.

The contractor shall communicate the hazards of the work activity and identify protective measures to the worker and to other personnel that may be affected. After completion of work, the contractor shall make notes on the daily plan about what could have been done better/safer and shall maintain it and implement it in future work planning.

If the work conditions, on which the work activity is based upon, change, task will be suspended until the new scope of work has been identified and amended. The MESA Construction Safety Lead will periodically conduct unannounced reviews of this process.

*Note: The information garnered during the daily safety-based work planning shall be used as part of the Daily Toolbox Training. (See Section 6.3 of this document)*

#### **4.053 Safety Based Task/Work Plan Training**

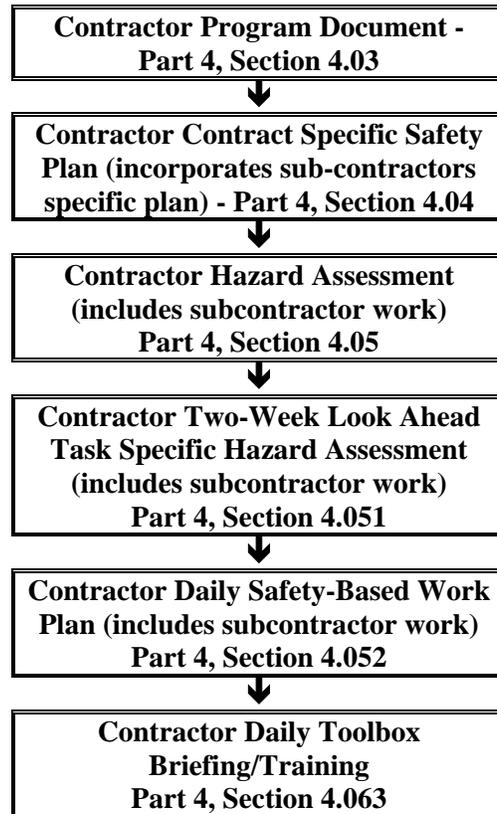
Contractor's who perform work on the MESA Project are required to train anyone performing in a supervisory role (including subcontractors) as to the implementation and preparation of safety based work plans. This training will tie directly to the Daily Safety-Based Work Plan (See Part 4, Section 4.052). The Contractor shall provide the outline for this training and maintain records of its completion for review by the MESA Construction Safety Lead.

Work Plans (WP) are required for all work. All supervisory personnel directing workers shall be trained to apply this process prior to beginning work.

In addition, contractor shall provide a means and/or method of field identification of successful completion of this training. An example of this could be an easy to spot badge, or hardhat sticker or even a distinctively colored hardhat.

The following chart depicts the flow of contractor's required Safety and Health Documentation with referenced sections of this specification.

#### 4.054 Flowdown of Contractor's Required Safety & Health Documentation



The Contractor shall evaluate all tiers of sub-contractors contract specific safety plan and shall update the Contractor's Contract Specific Safety Plan (CCSSP) prior to the subcontractor performing work. The updated plan will be submitted to the SDR within 10 workdays of beginning work. The General Contractor's evaluation criteria shall be accepted as a part of the CCSSP by the MESA Construction Safety Lead.

#### 4.06 ACCESS BADGING REQUIREMENTS

All contracted personnel are required to have access badges. General Contractors are required to assign a specific person to represent and manage Foreign Nationals. Additionally, all onsite workers are required to wear their badge conspicuously, photo side out above the waist and on the front of the body, unless doing so would create a health or safety concern. If the badge is a safety concern, submit a Request for Information (RFI) justifying the type of work and a proposed alternative to make the badge more visible.

To ensure that badges are worn properly while on the jobsite per SNL Security requirements, a three-strike policy has been implemented:

- 1<sup>st</sup> offense, SNL will note the individuals name and location of his/her badge and will ask individual to secure the badge and wear it appropriately
- 2<sup>nd</sup> offense, individual will be asked to leave the site for the day by the Superintendent

- 3<sup>rd</sup> offense, SNL will confiscate the badge permanently and the individual will not be allowed back on SNL premises

#### **4.07 MESA SPECIFIC ORIENTATION / SAFETY & HEALTH TRAINING**

##### **4.071 Site Orientation Training**

All onsite employees will be required to attend and participate in the Contractor developed and delivered SNL/NM Site and MESA Project-specific training. The purpose of the training shall be to provide an overview of the MESA project site, general hazards, access control procedures, emergency procedures, and basic roles and responsibilities.

This is the initial step in the site access process for all personnel performing work on the MESA Project Site. No applications for access badges will be approved without proof of completion of this orientation *and the OSHA issued 10-Hour Construction Safety and Health Card*. The contractor shall maintain documentation of the site orientation training for review by SNL/NM. In addition, all personnel on the project shall be required to participate in the contractor developed and delivered worksite safety and health orientation training. This training will be in part and conjunction with the general MESA site orientation training developed and implemented by the MESA Construction Safety Lead, and is required prior to badging.

##### **4.072 OSHA 10-Hour Training**

All contractor and lower tier subcontractor employees working on the MESA Construction site shall provide proof of the OSHA 10-Hour Outreach training to the SDR. (*Copy of the OSHA issued 10-Hour Construction Safety and Health Card is required for access badge application during the Site Orientation Training*)

The decision to require delivery drivers to have OSHA 10-Hour training shall be based upon the following rationale:

- What is being delivered, where it is being delivered, duration, and frequency of deliveries, role that delivery driver is playing in the unloading of materials, interaction with construction personnel, and most importantly, what hazards the delivery or vendor personnel are being exposed to.

The level of Personal Protective Equipment requirements for delivery personnel shall also be evaluated on the same basis as the OSHA 10-Hour requirements. All non-work suppliers and vendors shall sign in with the General Contractor and review the appropriate safety rules/requirements. Contractor shall address this requirement in their site specific safety documentation.

Training documentation shall be maintained by the contractor for SNL/NM review, and must include date of the training, name of the instructor who performed the training, and length of the training course (i.e., 10-, 30-hr. etc.).

#### 4.073 Daily Toolbox Briefing/Training

All contractor personnel shall participate in a daily toolbox briefing/training exercise to review observed potential jobsite hazards, corrective actions, and general review of the work in progress. The information derived from the MESA daily safety-based work plan shall be used during the toolbox training. (See Daily Safety-Based Work Plan, Part 4, Section 4.052 of this document). This activity shall be conducted by the cognizant superintendent/foreman (contractor or sub-contractor).

#### 4.074 Specific Training

Specific training (i.e., forklift, scaffolding, confined space, trenching, etc.) requirements as requisite by the contractor's contract specific Safety and Health Plan and OSHA shall be documented and subject to audit review by MESA Construction Safety Lead.

The following training matrix indicates milestones for required training.

#### Training Matrix Table

Milestone	Must be completed by:	Verification
Site Orientation Training	Each construction worker <i>prior</i> to beginning work on project site(s)	Contractor ES&H Officer
OSHA 10 Hour Outreach Training	Each construction worker <i>prior</i> to receiving project badge and beginning work on project site(s)	Contractor ES&H Officer
Daily Toolbox Training	Contractor/Subcontractor Foreman/Supervisor - On a daily basis	Sandia Construction Observer, CM, MESA Construction Safety Lead

### 4.08 SAFETY MEETING AND COMMUNICATIONS

#### 4.081 Safety Representatives Meeting

The MESA Construction Safety Lead/MESA Inspection Lead shall conduct Safety Representative Meetings periodically at a minimum, monthly to discuss safety issues that are affecting the project. Each contractor, sub-contractor is responsible for sending at least one representative to this meeting.

Site-specific issues and lessons learned as well as DOE/Industry wide lessons learned would be addressed. Additionally, Safety Star awards and OSHA deficiency notices would be reviewed.

### 4.09 PERSONAL PROTECTIVE EQUIPMENT (PPE)

Protective equipment, including personal protective equipment for eyes, face, head, and extremities, protective clothing, respiratory devices, and protective shields and barriers, shall be provided, used, and maintained in a sanitary and reliable condition.

PPE shall be deemed necessary wherever it is necessary by reason of hazards of processes or environment, chemical hazards, radiological hazards, or mechanical irritants encountered in a manner capable of causing injury or impairment in the function of any part of the body through absorption, inhalation or physical contact.

Personnel working on the MESA project site shall comply with OSHA Standard 29 CFR 1926 Subpart E - *Personal Protective and Life Saving Equipment*. The MESA project construction site specifically requires the following PPE:

1. Head Protection - (Job specific class rating requirements will apply). MESA Construction Sites shall be designated 100% hardhat areas. All hard hats shall be worn bill forward - the **only exceptions** shall be approved by the MESA Construction Safety Lead - American National Standards Institute (ANSI) Z89.1
2. Ankle high, safety-toed footwear - ANSI Z41.
  - 2a. When operating portable soil compaction equipment (Tampers and/or Jumping Jacks) operators shall utilize metatarsal foot protection.
3. Safety glasses with rigid fixed side shields - ANSI Z87.1.
4. Orange reflective safety vests - SNL approved reflective safety vests or shirts (For example, Orange or green in color).
5. Protective gloves, including Kevlar glove-liners under outer leather gloves, when handling sharp materials or equipment and when working in or handling sheet metal (i.e., ductwork), and cutting tools. The MESA Project shall be designated a 100% "glove" project. *Note: Additional PPE may be required dependent upon specific job hazards.*
6. Long pants and sleeved shirts (short pants are not be permitted)
7. Appropriate hearing protection as dictated by the work task

All visitors to the MESA Construction site(s) shall wear:

- Approved hardhats
- Approved safety glasses with side shields
- Sturdy and durable work boots or shoes (high heeled or athletic shoes such as tennis shoes, running shoes, clogs, or sandals are not acceptable)
- Orange reflective safety vests
- Or other PPE as applicable (e.g., hearing protection/attire, etc)

#### **4.10 HAZARDOUS MATERIALS MANAGEMENT**

All hazardous material storage shall, as a minimum comply with OSHA Standard 29 CFR 1926, Subpart H - *Materials Handling, Storage, Use, and Disposal*. In addition, the contractor shall comply with the following requirements:

Each contractor shall submit the following to the MESA Construction Safety Lead who coordinates with the SNL/NM ES&H Industrial Hygienist (IH) contact at least 10 working days prior to delivery of any hazardous materials or chemicals to the project.

The contractor shall use a Chemical-Use form to outline the following:

1. List of hazardous materials or chemicals to be used on the project.
2. Total quantity required for completion of the project.
3. Scheduled delivery dates for each material or chemical.
4. MSDS for each material or chemical.
5. Special storage and handling instructions for each material or chemical.

Hazardous materials and chemicals shall be delivered in quantities to sustain field operations for no more than one week, unless specifically approved in advance by SNL/NM ES&H IH. All hazardous materials and chemical containers shall be marked and properly labeled. (See Part 1, Section 1.12)

#### *Storage*

The MESA Construction Safety Lead shall approve the designation of a hazardous material and chemical storage area. The Contractor ES&H Officer will manage the area. This area will be separated for flammable and non-flammable materials or chemicals.

Additional segregation for materials or chemicals that might react to each other will be provided as necessary.

Each contractor is responsible for the unloading, placing in storage, and retrieval from storage, any materials or chemicals that they have had delivered to the project. In addition, each contractor is responsible for the removal and recycling (where possible) of empty containers, and unused materials. **Note: Delivery personnel for hazardous materials are subject to the same PPE requirements as project personnel.**

#### *Recycling of Solid Waste Materials*

Each contractor working on the project will be required to look for opportunities for recycling of waste materials from their operations. The contractor shall incorporate additional requirements identified in the contract addressing sustainable design and the management of construction waste material. (See Special Specification 01505S, *Construction Waste Management*)

### **4.11 FIRE PREVENTION**

An SNL/NM Hot Work Permit is required for all hot work operations. Hot work operations include cutting, welding, brazing, soldering, roofing, or road work using tar pots, torches and hot air guns used in applying roofing, thermal spraying, use of open fires for any purpose, use of portable heaters, or other similar activity. The requirements of the Permit shall be followed without exception. The contractor or SCO shall contact SNL/NM Fire Protection to coordinate, and arrange for obtaining the permits. (See Part 1, Section 1.05 F)

#### 4.111 Smoking

Smoking is strictly prohibited at the construction site or in the vicinity of hazardous operations or combustible or flammable materials. "No Smoking" signs shall be posted in these areas. Smoking shall only be allowed in designated areas, outside the construction site. The contractor shall be responsible for the designation of these areas.

#### 4.12 EXCAVATION, TRENCHING, AND SHORING

The contractor shall provide a trained trenching/excavation competent person. The competent person shall analyze all trenches and excavations **regardless of depth** for potential hazards. The depth of trenches and excavations shall not be a default measurement for hazard evaluation or control. The task being performed in the trench or excavation shall be primary in the evaluation.

All soil conditions on the MESA Project shall be considered Type C (relatively unstable), unless otherwise determined and documented by a professional soil engineer provided by the contractor (at no additional cost to SNL/NM). (OSHA STD 29 CFR 1926, Subpart P - Excavations)

*It is important to note that SNL Emergency Management does not currently have the capability to safely accomplish trench rescue. It is the contractor's responsibility for trenching "rescue" operations.*

#### 4.13 FALL PROTECTION

**Whenever fall hazards exist at heights of 6 feet or more are present, fall protection systems will be required.** There are no exceptions by subcontractor, trade, or work process to this requirement. When connection type systems are employed, the 100% tie off concept shall be employed.

The implementation of the Safety Monitoring fall protection system will only be accepted as a last resort. If used, the contractor shall develop and use a formal written program, and shall submit to the MESA Construction Safety Lead for acceptance. (OSHA STD CFR 29 1926, Subpart M - Fall Protection)

#### 4.14 HOISTING AND RIGGING - CRANE SAFETY

Cranes - Hoisting and Rigging Activities - (See Part 3, Section 3.02)

SNL requires compliance with the Federal Aviation Administration (FAA) boom height restrictions. Crane boom height restrictions are initiated by the contractor and based on distance from the runway of the Albuquerque International Airport. The Contractor shall initiate a 'Request for Aeronautical Study' to be completed by the FAA. Form 7460-1 "Notice of Proposed Construction or Alteration" shall be submitted by the Contractor to the FAA, Southwest Region, Fort Worth, Texas. The SCO shall verify that all FAA requirements are adhered to.

In addition, Sandia Construction Observers (SCO) performing Cranes and Lifts Inspections shall observe compliance with the following requirements by the contractor prior to allowing them to perform lifts at Sandia National Laboratories:

1. Upon arrival of the crane to Sandia National Laboratories, the SCO shall inspect the crane and record the findings of the inspection on the Facilities Construction Acceptance Mobile Crane Periodic Inspection Form. The Contractor shall correct all deficiencies identified on the form prior to commencing the lift.
2. The SCO shall verify that the crane operator has:
  - a) A valid State of New Mexico Construction Industries Division Crane Operator's License, or
  - b) Certification in his possession that he/she has completed an industry-recognized, in-house training course based on American National Standards Institute (ANSI) standards for hoisting operators, and who is employed by the entity that taught the training course or contracted to have the training course taught.
  - c) 10-hour OSHA Card
3. The SCO shall verify if a lift plan was required per the two-week look ahead and Contract Specific Safety Plan performed for the project. If a lift plan is required, the SCO shall review the plan with the crane operator, competent person for the lift, construction superintendent, and any other persons the contractor and SCO deem necessary prior to commencing with the lift.
4. The SCO and crane operator shall review the lift area and crane set-up area for any additional hazards, and shall not proceed until the SCO is satisfied that all hazards have been mitigated following the Integrated Safety Management System (ISMS) guidelines. (See OSHA STD 29 CFR 1926, Subpart N - Cranes, Derricks, Hoists, Elevators, and Conveyors)
5. At a minimum, the SCO shall observe lifts that meet the following criteria:
  - Lifts greater than 85% of the crane's rated capacity, a load of 20 tons or more, or a tandem lift (or revised capacities, if any)
  - Significant risk of the release of radioactive material, chemicals, other hazardous material, or other undesirable conditions
  - Potential risk of personal injury or significant adverse health impact
  - Work in confined areas or sections of the labs where slight miscalculations could jeopardize future operations or the safety of an employee or facility
  - If the lift requires exceptional care in handling because of its size, weight, close tolerance installation, high susceptibility to damage, or other unusual features (see Attachment G).
6. Once the crane leaves Sandia National Laboratories and returns at a later time, the crane shall be re-inspected. If the crane is on site for the duration of a project, the crane should be re-inspected by the contractor weekly as a minimum, and depending on the type of lifting and work activity taking place, the level of inspection may need to be increased.

7. Rigging equipment (slings, fasteners, and attachments) shall be inspected each day before being used, for damage or defects by a competent person designated by the employer. Damaged or defective slings shall be immediately removed from service. Rigging equipment shall be properly stored according to the manufacturer and/or OSHA.

#### **4.15 AERIAL LIFT SAFETY TRAINING**

1. General – SNL/NM requires compliance with ANSI/SIA A92.6 – 1999 “Self Propelled (Mobile) Elevating Work Platforms” (Scissor-lifts). The employer shall ensure that operators of scissor lifts are trained, with formal instruction, practical training and evaluation of operator’s performance in the workplace. All training shall be site and equipment specific. The employer shall also ensure that the vehicles are operated within the manufacturer’s recommended capacity.
2. Equipment Specific – Instruction that enables the trainee to become a qualified person regarding the task at hand, including knowledge of potential hazards associated with the use of specific equipment.
3. Inspection Process – Each employer or operator shall perform a workplace inspection (including visual inspection and functional test) before and during use. The user shall check the area for the following types of hazards: drop-offs or holes, bumps and floor obstructions, debris, overhead obstructions and high-voltage conductors, hazardous locations, inadequate surface and support to withstand all load forces imposed by the lift, wind, and weather conditions, presence of unauthorized personnel, or other possible unsafe conditions.
4. Equipment Acceptance – Acceptance of equipment will be a determination based upon workplace inspection, maintenance records, and functional testing.

#### **4.16 MOTOR VEHICLES**

1. General – Each employer in addition to the requirements set forth in Sandia Corporation’s Standard Terms and Conditions for Commercial Construction Contracts shall abide by all applicable sections of 29CFR1926.601 Motor Vehicles and 49CFR Federal Motor Carrier Safety Regulations.

**ATTACHMENT A: JOBSITE EVALUATION CHECKLIST**

# JOBSITE HAZARD EVALUATION CHECKLIST

## Jobsite Hazard Evaluation

Project Number:

This Project has been evaluated for environmental, safety, and health concerns or conditions which pre-exist on the jobsite, and which may impact the Contractor or subcontractor methods and procedures in the performance of Work.

This evaluation does not include those hazards which may be introduced by the Contractor or his subcontractors during the execution of the Work necessary to meet the Contract "Statement of Work". Hazards introduced by the Contractor in the performance of Work are required to be evaluated and mitigated by the Contractor in accordance with existing federal, state, and local regulations, including OSHA 29 CFR 1926, 29 CFR 1910, and SNL Standard Specification Section 01065, "Environment, Safety, and Health for Construction and Maintenance Service Contracts."

The following pre-existing conditions have been identified on the Project site.

Hazard	Not Evaluated **	Yes *	No	Hazard	Not Evaluated **	Yes *	No
1. <i>Flammable liquids</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10. <i>Confined Spaces</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Lead paint	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11. High Energy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Chemicals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12. Pressurized Gases	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Radiation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	13. PCB's	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Buried utilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	14. Residue Material	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Explosives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	15. Environmental Restoration Site	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Asbestos Containing Materials - permit / work release attached?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16. Environmental Site concerns (UST, soil disturbance, water discharge permits, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Traffic restrictions / lane closures required?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	17. Jobsite Hazard Evaluation forms attached	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Safety	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				

\* If checked **yes**, please see the following corresponding restrictions or conditions for each hazard identified. **DO NOT PROCEED** without full knowledge and understanding of these conditions. If a hazard has been checked, and no corresponding description or identified paperwork/permit is attached, please contact the Sandia Contracting Representative immediately.

\*\* This item was not identified as a concern at the time of the hazard evaluation. If this, or any other hazard is encountered during the performance of Work, contact the Sandia Construction Observer or Sandia Delegated Representative for specific requirements prior to performing any work which may impact the condition or concern.

The Contractor is responsible for ensuring that the identified hazards have been acknowledged in the Contractors' Jobsite-Specific Safety Plan, which includes a method for working within and around the identified hazard. Refer to SNL Standard Specification Section 01065, "Environment, Safety, and Health for Construction and Maintenance Service Contracts."



**ATTACHMENT B: RADIOACTIVE SOURCE ACTIVITIES  
REQUIRING SNL CONTROL**

**TABLE 1**  
**Radioactive Source Activities Requiring SNL Control**

<b>Less than 300 <math>\mu\text{Ci}</math> (<math>1 \times 10^7</math> Bq)</b>							
H-3	Be-7	C-14	S-35	Ca-41	Ca-45	V-49	Mn-53
Fe-55	Ni-59	Ni-63	As-73	Se-79	Rb-87	Tc-99	Pd-107
Cd-113	In-115	Te-123	Cs-135	Ce-141	Gd-152	Tb-157	Tm-171
Ta-180	W-181	W-185	W-188	Re-187	Tl-204		
<b>Less than 30 <math>\mu\text{Ci}</math> (<math>1 \times 10^6</math> Bq)</b>							
Cl-36	K-40	Fe-59	Co-57	Se-75	Rb-84	Sr-85	Sr-89
Y-91	Zr-95	Nb-93m	Nb-95	Tc-97m	Ru-103	Ag-105	In-114m
Sn-113	Sn-119m	Sn-121m	Sn-123	Te-123m	Te-125m	Te-127m	Te-129m
I-125	La-137	Ce-139	PM-143	Pm-145	Pm-147	Sm-145	Sm-151
Eu-149	Eu-155	Gg-151	Gd-153	Dy-159	Tm-170	Yb-169	Lu-173
Lu-174	Lu-174m	Hf-175	Hf-181	Ta-179	Re-184	Re-186m	Ir-192
Pt-193	Au-195	Hg-203	Pb-205	Np-235	Pu-237		
<b>Less than 3 <math>\mu\text{Ci}</math> (<math>1 \times 10^5</math> Bq)</b>							
Be-10	Na-22	Al-26	Si-32	Sc-46	Ti-44	Mn-54	Fe-60
Co-56	Co-58	Co-60	Zn-65	Ge-68	Rb-83	Y-88	Zr-88
Zr-93	Nb-94	Mo-93	Tc-95m	Tc-97	Tc-98	Ru-106	Rh-101
Rh-102	Rh-102m	Ag-108m	Ag-110m	Cd-109	Sn-126	Sb-124	Sb-125
Te-121m	I-129	Cs-134	Cs-137	Ba-133	Ce-144	Pm-144	Pm-146
Pm-148m	Eu-148	Eu-150	Eu-152	Eu-154	Gd-146	Tb-158	Tb-260
Ho-166m	Lu-176	Lu-177m	Hf-172	Ta-182	Re-184m	Os-185	Os-194
Ir-192m	Ir-194m	Hg-194	Pb-202	Bi-207	Bi-210m	Cm-241	
<b>Less than 0.3 <math>\mu\text{Ci}</math> (<math>1 \times 10^4</math> Bq)</b>							
Sr-90	Cd-113m	La-138	Hf-178m	Hf-182	Po-210	Ra-226	Ra-228
Pu-241	Bk-249	Es-254					
<b>Less than 0.03 <math>\mu\text{Ci}</math> (<math>1 \times 10^3</math> Bq)</b>							
Sm-146	Sm-147	Pb-210	Np-236	Cm-242	Cf-248	Fm-257	Md-258
<b>Less than 0.003 <math>\mu\text{Ci}</math> (<math>1 \times 10^2</math> Bq)</b>							
Gd-148	Th-228	Th-230	U-232	U-233	U-234	U-235	U-236
u-238	Np-237	Pu-236	Pu-238	Pu-239	Pu-240	Pu-242	Pu-244
Am-241	Am-242m	Am-243	Cm-243	Cm-244	Cm-245	Cm-246	Cm-247
Bk-247	Cf-249	Cf-250	Cf-251	Cf-252	Cf-254		
<b>Less than 0.0003 <math>\mu\text{Ci}</math> (<math>1 \times 10^1</math> Bq)</b>							
Ac-227	Th-229	Th-232	Ph-231	Cm-248	Cm-250		

**ATTACHMENT C: SNL FORM SF 2050P "REPORT OF  
OCCUPATIONAL INJURY/ILLNESS"**

# UCI

Sandia National Laboratories

## REPORT OF OCCUPATIONAL INJURY/ILLNESS

(Based on the OSHA definitions and requirements which may or may not be consistent with various state compensation laws)

### NOTICE OF ACCIDENT

(Pursant to Chapter 52, NMSA 1978 section 52-1-29)

FOR MEDICAL USE ONLY							
Date received in Medical _____		Case No. _____		Date received in Safety _____			
Name (Last, First, MI)	Org.	Mail Stop	Sex	Date of Birth	Age	Social Security Number	
Date of Incident	Incident Day of Week	Time of Day	Location of Incident (Bldg/Room)		Incident was:	Service Date	
Job Category (Secretary, electrician, painter, scientist, mechanical tech, etc)				Job experience [(yr(s)mo(s))]	Witness(es)		
Briefly describe the activity you were performing and how the incident occurred _____							
Employee Signature _____			Work Phone _____		Date _____		
CONTRACTOR INFORMATION - PLEASE COMPLETE THE FOLLOWING INFORMATION							
Company Name (Contract Use Only)		Phone	Name of SNL Supervisor /Inspector		Org.	M.S.	Phone
Workdays Lost		Workdays Restricted		Type of Injury			
INVESTIGATION - MANAGER (Foreman, Inspector, etc.)							
A. Was place of Incident or exposure on Sandia's premises					Yes <input type="checkbox"/>	No <input type="checkbox"/>	
B. Was employee sent home due to incident?					Yes <input type="checkbox"/>	No <input type="checkbox"/>	
C. What was the employee doing when incident occurred? Be Specific (Was employee using tools, equipment, handling material?, Name them., What was employee doing with them?) _____							
D. How did the incident occur? What was the cause? Describe the event in full detail. Name any objects or substances involved and tell how they were involved. _____							
E. What has been done to correct conditions causing the incident? _____							
F. What remains to be done to correct such conditions? By what date?							
Manager's Name (print or type) _____							
Manager's Signature _____		Org _____		M.S. _____		Date _____	
			Date _____		Phone _____		

# UCI



**ATTACHMENT D: RESCUE OF PERSONNEL IN CONFINED SPACES AT SNL/NM**

# RESCUE OF PERSONNEL IN CONFINED SPACES AT SNL/NM

## General Requirements and Advance Notification

The Contractor Entry Supervisor (also known as the Supervisor Authorizing Entry) is responsible for the following:

- Providing advance notification of the confined space entry activity to SNL On Duty Incident Commander (IC) **PHONE: 844-4189 (24-hour duty phone)** to verify that rescue services are available. Advance notification must occur by phone on a daily basis for the duration of the entry activity. If additional written information is requested by the SNL/IC, it may be faxed to 844-6533. **NOTE:** Do not fax entry notification, phone contact must be established with the IC prior to work.
- Ensuring that the means for summoning emergency response/rescue personnel is operable and readily available.
- Notifying the IC when the entry activity is terminated. As with notification, termination must occur on a daily basis for the duration of the activity.
- Selecting the retrieval equipment and determining if the use of the equipment would increase the overall risk of entry and would not contribute to the rescue.
- Identify alternate means for the Rescue Service to contact the Entry Supervisor (cellular, pager, radio, etc.) in the event emergency services become unavailable during the entry period.
- Ensuring all equipment and instrumentation is inspected prior to use to ensure proper working condition. Equipment shall be maintained in accordance with manufacturer's requirements.
- Posting the entry permit at the entry site.
- If chemical materials are used in the confined space, the manufacturer's Material Safety Data Sheet (MSDS) must be attached to the permit.

## I. Non-Entry Extraction of Confined Space Entrant(s)

Should it become necessary to extract personnel from a confined space, it is essential that all personnel involved know exactly what to do and what not to do. There have been several instances where persons who were trying to rescue an individual in a confined space also became victims, because of failure to follow the proper procedures. The Attendant may retrieve a victim wearing a retrieval line from a confined space if this is possible without additional help **and does not require entry by the Attendant**. Typical retrieval/extraction equipment includes tripod, wincher (mechanical lifting device), retrieval line, and body harness. Retrieval equipment is not required for Non-Permit Confined Spaces; however, strong consideration should be given to spaces which present unique rescue difficulty due to location (such as remote areas), space configuration, or other elements.

The hazards associated with work in confined spaces include possible exposure to the following:

1. Oxygen deficient atmospheres (Less than 19.5%)
2. Oxygen enriched atmospheres (Greater than 23.5%)
3. Atmospheres containing flammable gas or dust
4. Atmospheres containing toxic substances or biological hazards
5. Mechanical or physical hazards

**II. CONFINED SPACE EMERGENCY: ENTRY RESCUE:** The SNL/Emergency Management Dept. and KAFB Fire Dept. provide entry rescue/responder service for confined spaces at SNL/NM.

- **PRIMARY: Contact: SNL/On Duty Incident Commander** (service during standard working hours, Monday-Friday) **PHONE: 844-4189; or 844-0911 from a cellular phone; or 911 from an SNL phone**
- **SECONDARY: Contact: Kirtland Air Force Base** (service after standard hours and weekends) **PHONE: 846-8069; FAX: 846-6569.** Also notify the SNL/IC.

**NOTE:** In Technical Areas or "limited access" areas where the use of cellular phones is prohibited, communication radios suitable for contacting emergency response services, are available from the Construction Inspection and Acceptance Group. Instructions for radio use are also available from the Construction Group.

**ATTACHMENT E: CONFINED SPACE PERMIT SIGN-IN/SIGN-OUT SHEET**



**ATTACHMENT F: LIST OF ACRONYMS**

## LIST OF ACRONYMS

A/E	Architect/Engineer
ANSI	American National Standards Institute
ASME	American Society of Mechanical Engineers
CM	Construction Management
CPR	Cardio-Pulmonary Resuscitation
CSP	Certified Safety Professional
CSPP	Construction Safety Program Plan
CST	Customer Support Team
CUB	Central Utility Building
CFR	Code of Federal Regulations
DOE	Department of Energy
DOT	Department of Transportation
DPM	Deputy Project Manager
EOC	Emergency Operations Center
EPA	Environmental Protection Agency
ES&H	Environment, Safety and Health
FAA	Federal Aviation Administration
FESH	Facilities Environment, Safety and Health
FM	Factory Mutual
FP	Fire Protection
FPM	Federal Project Manager
GC	General Contractor
GFCI	Ground Fault Circuit Interrupter
IBC	International Building Code
IC	Incident Commander
ICS	Incident Command System
IH	Industrial Hygiene
ISM	Integrated Safety Management
ISMS	Integrated Safety Management System
JHA	Job Hazards Analysis
JSHE	Job Site Hazard Evaluation
KAFB	Kirtland Air Force Base
MDL	Microelectronics Development Laboratory
MESA	Microsystems and Engineering Sciences Applications
MEWP	Mobile Elevated Work Platform
MSDS	Material Safety Data Sheet
NEC	National Electrical Code
NEPA	National Environmental Policy Act
NFPA	National Fire Protection Association
NRTL	National Recognized Testing Laboratory
OKSO	Office of Kirtland Site Operations
OSHA	Occupational Safety and Health Administration
PA	Project Assurance
PIC	Person in Charge

## LIST OF ACRONYMS

PM	Project Manager
POC	Point of Contact
QA	Quality Assurance
PPE	Personal Protective Equipment
RFI	Request for Information
SCO	Sandia Construction Observer
SCR	Sandia Contracting Representative
SDR	Sandia Delegated Representative
SME	Subject Matter Expert
SNL	Sandia National Laboratories
SNL/NM	Sandia National Laboratories/New Mexico
SOP	Standard Operating Procedure
SSO	Site Safety Officer
TSR	Technical Safety Requirement
UL	Underwriters Laboratory
WIF	Weapons Integration Facility
WP	Work Plan
01065	SNL Standard Specification Section 01065, "Environment, Safety, and Health for Construction and Service Contracts"
01065-S	SNL Special Specification Section 01065, "Environment, Safety, and Health for Construction and Service Contracts"

**ATTACHMENT G: MOBILE CRANE INSPECTION FORM**



**PERIODIC INSPECTION**

Completion of this inspection does not relieve the Crane Owner and/or Crane Operator from complying with all applicable Safety and Inspection requirements as referenced in: 29 CFR 1926.550, .251, .600, .601  
ANSI B30.5  
ANSI B30.9  
ANSI B30.10

**This form must be kept with the unit while in operation**

Dave Hendrix	235-9674	Mike Pacheco	259-4362
Jerry Smith	235-9677	Paul Silva	235-9646
Chuck Kearns	235-9688		

Follow-up Inspection: \_\_\_\_\_  
Date \_\_\_\_\_

Contract Number: \_\_\_\_\_  
Bldg./Site: \_\_\_\_\_  
Contractor: \_\_\_\_\_  
Crane Owner: \_\_\_\_\_  
Crane Manufacturer: \_\_\_\_\_  
Model Number: \_\_\_\_\_  
Serial Number: \_\_\_\_\_  
Inspected By: \_\_\_\_\_  
Signature \_\_\_\_\_ Date \_\_\_\_\_  
Signature \_\_\_\_\_ Date \_\_\_\_\_

LIFT PLAN REQUIRED: YES \_\_\_ NO \_\_\_

**BOOM** : Hydraulic \_\_\_ Lattice: \_\_\_ **ACCEPTED** \_\_\_ **REJECTED** \_\_\_

Model #: \_\_\_\_\_  
Damage/Repairs: Chords (ANSI B30.5-2.1.3) \_\_\_\_\_  
Picture Frames: (ANSI B30.5-2.1.3) \_\_\_\_\_  
Lacings: (ANSI B30.5-2.1.3) \_\_\_\_\_  
Cable Guides: (ANSI B30.5-2.1.3 (d)) \_\_\_\_\_  
Assembly Sequences: (ANSI B30.5-3.1.3 (k)) \_\_\_\_\_  
Stops: (ANSI 30.5-1.9.1) \_\_\_\_\_  
Angle Indicator: (ANSI B30.5-2.1.9 (c)) \_\_\_\_\_  
Length Indicator: (ANSI B30.5-2.1.9 (e)) \_\_\_\_\_

**FRAME**

Damage/Repairs: (ANSI B30.5-2.3.3) \_\_\_\_\_  
Turntable: (ANSI B30.5-2.1.3 (d&e)) \_\_\_\_\_  
Counterweight: (ANSI B30.5-3.4.2) \_\_\_\_\_  
Outriggers: (ANSI B30.5-1.9.3) \_\_\_\_\_  
Dogs: (ANSI B30.5-1.9.3) \_\_\_\_\_  
Pistons: (ANSI B30.5-2.1.3 (l) (1-4)) \_\_\_\_\_  
Pads: (ANSI B30.5-1.9.3 (d)) \_\_\_\_\_

**WIRE ROPE**

Main Hoist: (ANSI B30.5-2.4.3 (a); ANSI B30.5-2.4.3 (b) (1-6(e))) \_\_\_\_\_  
Auxiliary Line: (ANSI B30.5-2.4.3 (a); ANSI B30.5-2.4.3 (b) (1-6(e))) \_\_\_\_\_  
Boom Hoist: (ANSI B30.5-1.3.1 (b) (1)) \_\_\_\_\_  
Boom Pendants: (ANSI B30.5-2.4.3 (b) (7)) \_\_\_\_\_  
Drums: (ANSI B30.5-2.1.3 (c); ANSI B30.5-1.3.1 (b) (1-2)) \_\_\_\_\_  
Brakes: (ANSI B30.5-2.1.3 (e)) \_\_\_\_\_

Sheaves (ANSI B30.5-2.1.3 (c); ANSI B30.5-1.7.4 (a-d)) \_\_\_\_\_  
Block: (ANSI B30.5-1.7.6) \_\_\_\_\_  
Reeving: (ANSI B30.5-1.7.3) \_\_\_\_\_  
Headache Ball: (ANSI B30.10-1.1) \_\_\_\_\_  
Hook: (ANSI B30.10b-1.1; ANSI B30.10-2.2.1.1) \_\_\_\_\_  
End Connections: (ANSI B30.5-2.4.3 (b) (7)) \_\_\_\_\_

**CAB**

Seat Belts: (ANSI B30.5-1.8.1 (e)) \_\_\_\_\_  
Safety Glass: (ANSI B30.5-1.8.1(b)) \_\_\_\_\_  
Fire Extinguisher: (ANSI B30.5-3.4.9 (a-b)) \_\_\_\_\_  
Level: (ANSI B30.5-1.2.2 (e)) \_\_\_\_\_  
Boom Angle Indicator: (ANSI B30.5-2.1.9 (c)) \_\_\_\_\_  
Anti-2-Block Device: (ANSI B30.5-1.3.2 (d)) \_\_\_\_\_  
Hand Holds: (ANSI B30.5-1.8.2 (b)) \_\_\_\_\_  
Anti-Skid Surface: (ANSI B30.5-1.8.2 (a)) \_\_\_\_\_  
Lubrication: (ANSI B30.5-1.9.9; ANSI B30.5-2.3.4 (a)) \_\_\_\_\_  
Exhaust: (ANSI B30.5-1.9.2) \_\_\_\_\_  
Load Test Certification: (ANSI B30.5-2.2.2 (a) Yes:\_\_\_\_ No:\_\_\_\_)  
Operator's Manual: (OSHA 1910.180 (d)(6) Yes:\_\_\_\_ No:\_\_\_\_)

\*\*\*\*\*

N. M. Operator's License \_\_\_\_\_ (Name) \_\_\_\_\_ (Class) \_\_\_\_\_ (License Expiration Date)  
OSHA 10-Hour Construction Safety and Health Card Yes:\_\_\_\_ No:\_\_\_\_

**SIGNAGE**

Hand Signals: (ANSI B30.5-3.3.2) \_\_\_\_\_  
Electrocution Hazard: (ANSI B30.5-3.4.5 (f); 29CFR 1910.180 (j)(l)) \_\_\_\_\_  
Cab Swing: \_\_\_\_\_  
Load Chart: (ANSI B30.5-1.1.3 (a-b)) \_\_\_\_\_

**SLING**

Wire Rope: (ANSI B30.9) \_\_\_\_\_  
Chain:\_\_\_\_ Synthetic\_\_\_\_\_

**VEHICLE**

Seat Belts: (49 CFR 392.16) \_\_\_\_\_  
Tires: (49 CFR 393.75) \_\_\_\_\_  
Safety Glass: (49 CFR 393.60 (b)) \_\_\_\_\_  
Lights: (49 CFR 393.24) \_\_\_\_\_  
Signals: (49 CFR 393.19) \_\_\_\_\_  
Horn: (49 CFR 393.81) \_\_\_\_\_  
Backup Warning: (29 CFR 1926.601(a)(3)) \_\_\_\_\_

**DEFICIENCIES** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

# LIFT CALCULATION CHECKLIST



**Sandia National Laboratories  
Facilities Construction Acceptance  
Mobile Crane Inspection**

Completion of this inspection does not relieve the Crane Owner and/or Crane Operator from complying with all applicable Safety and Inspection requirements as referenced in: 29 CFR 1926.550, .251, .600, .601  
ANSI B30.5  
ANSI B30.9  
ANSI B30.10

**This form must be kept with the unit while in operation**

Dave Hendrix	235-9674	Mike Pacheco	259-4362
Jerry Smith	235-9677	Paul Silva	235-9646
Chuck Kearns	235-9688		

Follow-up Inspection: \_\_\_\_\_  
Date

Contract Number: \_\_\_\_\_  
Bldg./Site: \_\_\_\_\_  
Contractor: \_\_\_\_\_  
Crane Owner: \_\_\_\_\_  
Crane Manufacturer: \_\_\_\_\_  
Model Number: \_\_\_\_\_  
Serial Number: \_\_\_\_\_  
Inspected By: \_\_\_\_\_  
Signature \_\_\_\_\_ Date \_\_\_\_\_  
Signature \_\_\_\_\_ Date \_\_\_\_\_

FAA AERONAUTICAL STUDY REQUIRED: YES \_\_\_ NO \_\_\_

## LIFT CALCULATIONS

LOAD WEIGHT \_\_\_\_\_

PLUS

DEDUCTIONS: \_\_\_\_\_

MAIN BLOCK \_\_\_\_\_

AUX. BALL \_\_\_\_\_

ATTACHMENTS \_\_\_\_\_

JIB – ERECTED/STOWED \_\_\_\_\_

LIFT BARS \_\_\_\_\_

RIGGING \_\_\_\_\_

OTHER \_\_\_\_\_

TOTAL LOAD WEIGHT \_\_\_\_\_ **EQUALS** \_\_\_\_\_

LOAD CHART CAPACITY \_\_\_\_\_

LONG RADIUS \_\_\_\_\_

CHART PERCENTAGE \_\_\_\_\_

TO FIND THE LOAD CHART PERCENTAGE DEVIDE THE LOAD WEIGHT INTO THE CRANE CAPACITY AND THEN MOVE THE DECIMAL POINT TO THE RIGHT TO TWO PLACES.

EXAMPLE:	60,000	DIVIDED BY	70,000	= 0.857	= 85.7%
	LOAD WT.		CRANE CAP.		% OF CHART

\*\*\*\*\* N. M. Operator's Signature \_\_\_\_\_  
(Name)

**TO BE COMPLETED ON A DAILY BASIS FOR ALL LIFTS OVER 10,000LBS. USING A WORST CASE SCENARIO PICK FOR THAT DAY.**

**ATTACHMENT H: SANDIA CONSTRUCTION SAFETY DEFICIENCY NOTICE  
AND FLOW CHART**

# SANDIA CONSTRUCTION SAFETY DEFICIENCY NOTICE

Contract Number: \_\_\_\_\_

7531

Prime Contractor: \_\_\_\_\_

Subcontractor (if applicable): \_\_\_\_\_

Name: \_\_\_\_\_

The above person / site was observed in violation of established safety rules regulations, policies, and / or procedures.

Deficiency Summary: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

OSHA Reference: \_\_\_\_\_

\_\_\_\_\_

Inspector Signature

\_\_\_\_\_

Date

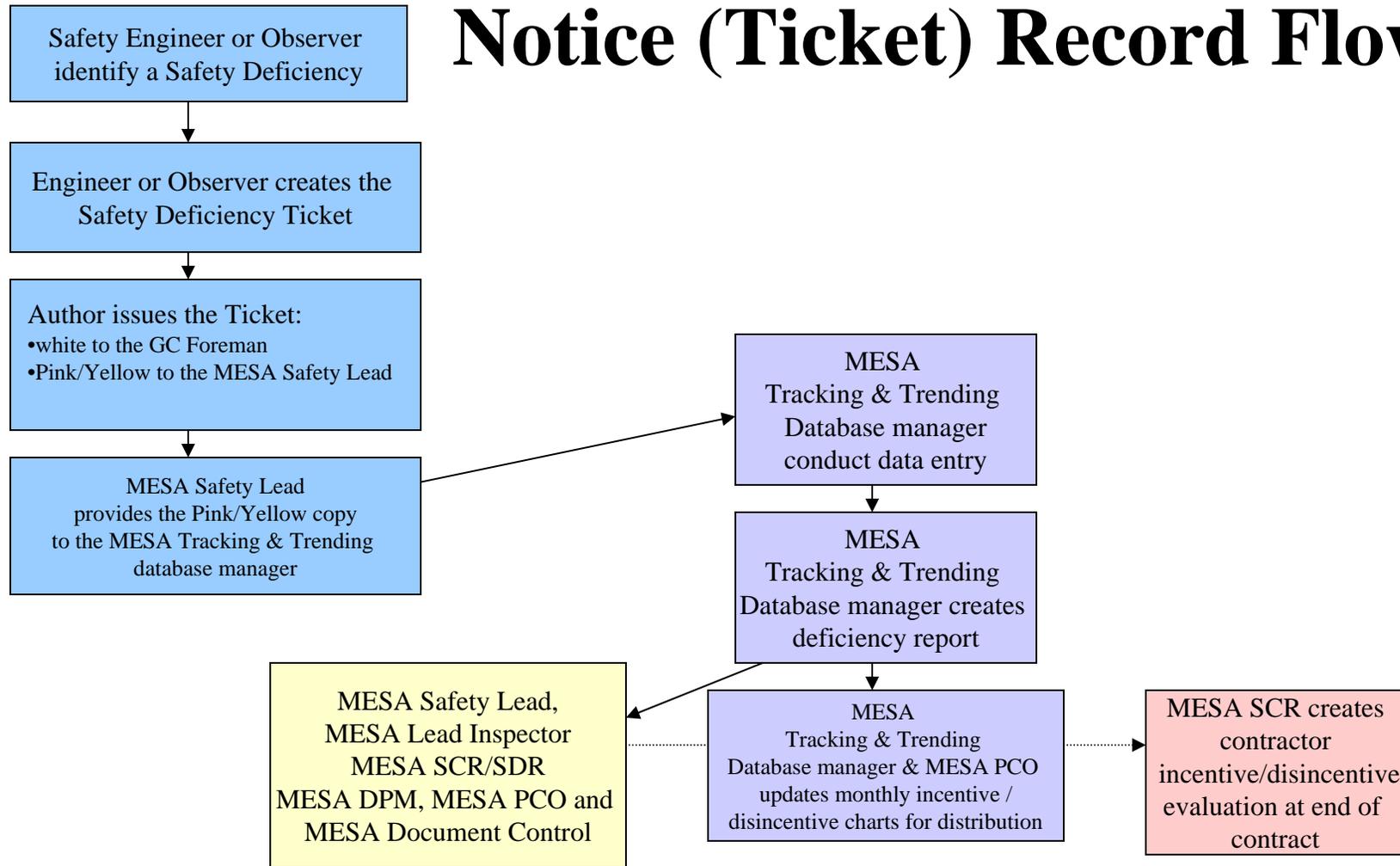
Site Superintendent Signature (if available)

Deficiency Corrected

Date: \_\_\_\_\_



# MESA Safety Deficiency Notice (Ticket) Record Flow



**ATTACHMENT I: REQUEST FOR CONTRACTOR WORK ON/OR NEAR EXPOSED/  
LIVE ENERGIZED EQUIPMENT**

**REQUEST FOR CONTRACTOR WORK ON OR NEAR EXPOSED/LIVE ENERGIZED EQUIPMENT**

**EQUIPMENT/SYSTEM INFORMATION; SYSTEM DESCRIPTION:**

Building Number: \_\_\_\_\_ Room Number (s): \_\_\_\_\_

Panel Name/Number: \_\_\_\_\_ Circuit Number: \_\_\_\_\_

**PART A: USER SIGN OFF PORTION**

Can work be completed with an outage on Standard hours? Yes \_\_\_ No \_\_\_

If no, can work be completed with an outage on Non Standard hours? Yes \_\_\_ No \_\_\_ if both are no, continue...

Please describe the extenuating circumstance that will not allow qualified craftsman to de-energize the system:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

The contractor will be employing best known safe work practices as described in NFPA 70 E and 29 CFR 1910.269 to prevent injury to personnel or damage or down-time to equipment/systems. However these best known work practices cannot guarantee that while performing this work there may not be an inadvertent incident that may cause injury to personnel, or cause damage or down-time to equipment/systems.

By signing below you acknowledge that the programmatic equipment is of such importance that it cannot be de-energized to perform this work and you understand the risks of doing this work on an energized system and except these risks.

Programmatic System Owner Name: \_\_\_\_\_ Phone #: \_\_\_\_\_ Organization #: \_\_\_\_\_

(Please print)

Programmatic System Owner (signature): \_\_\_\_\_ Date: \_\_\_\_\_

Manager Programmatic System Owner (signature): \_\_\_\_\_ Date: \_\_\_\_\_

**PART B: FACILITIES MANAGEMENT & OPERATIONS CENTER PORTION**

Signing below documents your acknowledgement of this work being performed.

FMOC Building Manager: \_\_\_\_\_ Date: \_\_\_\_\_ Org: \_\_\_\_\_

FMOC Construction Observer: \_\_\_\_\_ Date: \_\_\_\_\_ Org: \_\_\_\_\_

\_\_\_\_ Electrical Team Supervisor notified \_\_\_\_\_ Building Electrical System Engineer notified

**PART C: SAFETY ENGINEER REVIEW PORTION**

Signing below documents that you reviewed the contractor's Job-specific safety work practices and agree that the work can be performed safely following this Job-specific safety work practices.

SNL Safety Engineer: \_\_\_\_\_ Date: \_\_\_\_\_ Org: \_\_\_\_\_

**PART D: CONTRACTOR PORTION**

Job-specific safety work practices are developed by the contractor and attached to this form. Signing below documents that the contractor's personnel: 1) have visited the site in question and agree that the work can be done safely, 2) have reviewed and agree that the job specific safety work practices are appropriate, 3) will follow the job specific safety work practices, 4) wear all appropriate PPE, and 5) control the work area at all times.

Risk Category: \_\_\_\_\_ (If questions on the AIC contact the SNL Systems Engineer responsible for this building.)

If WORKING CONDITIONS OR CIRCUMSTANCES CHANGE STOP WORK, MAKE THE AREA SAFE AND CONTACT YOUR FOREMAN. (Print and Sign Below)

Qualified Craftsman: \_\_\_\_\_ Date: \_\_\_\_\_ Company: \_\_\_\_\_

Signature: \_\_\_\_\_

Qualified Craftsman: \_\_\_\_\_ Date: \_\_\_\_\_ Company: \_\_\_\_\_

Signature: \_\_\_\_\_

Contractor Foreman: \_\_\_\_\_ Date: \_\_\_\_\_ Company: \_\_\_\_\_

Signature: \_\_\_\_\_