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EXHIBIT F
Environmental, Safety, and Health Requirements for
High or Moderate Consequence Work
Construction, Demolition, Remediation, Maintenance, Repair or Service

RFP 571628 MTOA General Construction
Requisition Number

Subcontract Number

This document establishes the Environmental, Safety, Health, and Waste Management requirements for High or Moderate Consequence Work. To perform subcontract work at LANL, SUBCONTRACTOR is required to comply with CONTRACTOR'S 10 CFR 851, Worker Safety and Health Program, environmental permits, agreements, orders, and waste management processes the requirements of which are set forth in this Exhibit.

Primary Questions

Q1 Does this work include any of the following:

- Construction of a new building
• Structural demolition
• Complex roofing
• Alterations to a building's life safety or related system
• Alterations that introduce possible egress aspects
• Work on live electrical equipment that will require an Energized Electrical Work Permit
• Hoisting and rigging potentially requiring Critical Lifting
• Any other work representing a high hazard/complex (consequence) in P300, Integrated Work Management, Hazard Grading Table B-1, Number 1

Yes No

This Work is High Consequence

Q2 Is this work scope for the installation, maintenance, repair, or warranty work on programmatic R&D equipment?

Yes No

Q3 Will a vendor technician be performing work on vendor-supplied equipment?

Yes No

Q4 Will any of this work be performed outdoors?

Yes No

## GENERAL REQUIREMENTS

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	<b>Attachments</b>

### SPECIAL REQUIREMENTS

The following clauses apply based on the Nature and Scope of Work.

The STR/Requester will answer questions and provide information to the best of their knowledge based on the nature and scope of work.

Where a question is answered Yes, clause language populates and is incorporated into the subcontract as it relates to the scope of work. If the question is answered No, the clause is NOT part of the Subcontract.

**5. Will this work potentially require the use of respirators?**

*Requirement will be based on exposure assessment data or radiation protection mandates.*

- Yes       No

**6. Will this work require the use of hearing protection?**

*Sustained noise levels exceeding 85 dBA.*

- Yes       No

**7. Will this work require the use of government-owned vehicles or powered industrial equipment?**

*Heavy equipment, large vehicles, off-road vehicles, compressors, generators, cranes, hoists, derricks, stationary and portable fuel tanks.*

- Yes       No

**8. Will the subcontractor bring hazardous chemicals on-site?**

- Yes       No

**9. Will the subcontractor use any quantities of lead, asphalt, or mercury?**

- Yes       No

**10. Will this work involve welding, cutting, brazing, or grinding activities?**

- Yes       No

**11. Will this work create sparks or flames?**

- Yes       No

**12. Will this work occur on an elevated work surface?**

*Work above 4 feet (for general industry) or 6 feet (for construction).*

- Yes       No

**13. Will this work require the use of fall protection systems?**

- Yes       No

**14. Will this work require the use of barricades?**

- Yes       No

**15. Will this work involve any excavations or soil disturbances?**

- Yes       No

**16. Will this work involve potholing activities?**

- Yes       No

**17. Will this work involve the creation of or entering any permit-required confined spaces?**

- Yes       No

**18. Will this work require Lockout/Tagout (LOTO)?**

- Yes       No

**19. Will the subcontractor only be involved in LOTO for advisory purposes (i.e., no hands on work)?**

- Yes       No

**20. Will the subcontractor be performing blind penetrations?**

- Yes       No

**21. Will this work require the use of cranes or material handling equipment?**

- Yes       No

**22. Will this work require hoisting, lifting, and rigging operations?**

*In this context, a lift applies to operations that involve:*

- *An attachment of a rigging device (such as a sling or shackle)*
- *An attachment affixed to a lifting device (such as a mobile crane, a bridge crane, a hoist attached to an anchor point, an excavator with a lifting point, or a forklift with a lifting point or attachment)*
- *Any other equipment designed for lifting applications that are used to lift or lower equipment/ materials from one position to another*

- Yes       No

**23. Will this work require the use of any of the following:**

A. Scaffolding

- Yes       No

B. Portable ladders

- Yes       No

C. Suspended personnel platforms

- Yes       No

D. Personnel lifts (aerial work platforms)

- Yes       No

**24. Will this work involve pressure systems more than cylinders of compressed gas?**

- Yes       No

**25. Will the subcontractor bring compressed gases on-site?**

- Yes       No

**26. Will this work be on or near exposed electrical hazards?**

- Yes       No

**27. Will this work involve interaction with equipment that may pose an arc flash hazard?**

- Yes       No

**28. Will this work involve facility electrical installations, equipment, or systems?**

- Yes       No

**29. Will this work obstruct or impede traffic, or require a traffic control plan?**

*This includes both pedestrian and/or vehicular traffic for buildings, sidewalks, and roads.*

- Yes       No

**30. Will this work be within the boundary of any Consent Order Sites?**

- Yes       No

**31. Will the work involve any potential wastewater discharges?**

*Sanitary wastewater, industrial wastewater, potable water, or any other liquid that may pollute the waters of the State of New Mexico.*

- Yes       No

**32. Will this work potentially require the need for storm water management?**

- Yes       No

**33. Will the subcontractor be using equipment on-site that may emit air pollutants?**

*Generators, boilers, hot water heaters, cooling towers, degreasers, refrigerant containing equipment, etc.*

- Yes       No

**34. Will this work require open burning operations?**

- Yes       No

**35. Will the subcontractor be applying any pesticides or herbicides?**

- Yes       No

**36. Will this work directly or indirectly impact threatened or endangered species, migratory birds, or protected habitats?**

- Yes       No

**37. Will this work be conducted in an area which may trigger cultural resources protection requirements?**

- Yes       No

**38. Will this work occur in or near a radiological controlled area or legacy facility?**

- Yes       No

**39. Will this work involve handling nuclear materials, special nuclear materials, radiological materials, or radiological sources?**

- Yes       No

**40. Will the subcontractor bring a radioactive sealed source (RSS) or radiation generating device (RGD) on-site?**

- Yes       No

**41. Will the subcontractor be contacting--but not disturbing--asbestos containing materials?**

- Yes       No

**42. Will the subcontractor be performing asbestos abatement activities?**

- Yes       No

**43. Will the subcontractor be performing activities that likely require an industrial hygiene exposure assessment?**

*Chemical, physical (e.g., noise, thermal stress), and biological hazards.*

- Yes       No

**44. Will the subcontractor be conducting work in beryllium areas and not generating airborne beryllium?**

- Yes       No

**45. Will the subcontractor be using any of the following:**

- High explosives
- Blasting agents or compounds
- Propellants (excluding hand held powder operated tools)
- Chemical use/storage classified as explosives

- Yes       No

**46. Will the subcontractor be using firearms or destructive devices per Title 18 USC Chapter 44?**

*The use of firearms for purposes other than R&D is expressly prohibited under Exhibit F.*

- Yes       No

**47. Will this work involve potential exposure to or handling of etiological agents?**

*Microorganisms or microbial toxins that can cause disease in humans.*

- Yes       No

**48. Will this work potentially involve exposure to any of the following:**

- Wastewater
- Sewage
- Blood
- Potentially infectious materials
- Wildlife, rodents, or their nests and excreta

- Yes       No

**49. Will this work occur in a Biosafety Level (BSL) Laboratory?**

- Yes       No

**50. Will this work involve using a Class 3B or Class 4 laser?**

*Including work that involves disabling interlocks of lower class lasers.*

- Yes       No

**51. Will this work involve any of the following:**

- Service, maintenance, repair, or disposal of refrigeration equipment
- Installation of new equipment containing refrigerants
- Installation of equipment containing flammable refrigerants

Yes       No

**52. Will this work involve structural construction demolition, remodeling, or renovation activities?**

Yes       No

**53. Will this work involve areas with extensive exposed soil?**

*Excavations, earthmoving, well drilling, vegetation control, etc.*

Yes       No

**54. Will this work involve grinding, cutting, drilling, or breaking actions on building or road materials with crystalline silica as a component?**

*Cured concrete, Portland cement, asphalt paving, ceramic tile, stone, masonry bricks, pavers, drywall joint compound, paint, or DriTherm, etc.*

Yes       No

**55. Will this work involve abrasive blasting with silica-containing media or on substrates that contain crystalline silica?**

Yes       No

**Based on the hazards associated with this work, SUBCONTRACTOR is required to produce a Site-Specific ES&H Plan.**

### Required Signatures

**Note:** If Radiation Protection review is not required, place N/A and initials in RP Representative signature block.

### Subcontract Technical Representative/Requester

Printed Name	Signature

### Safety Representative

Jacque McClory (z 166453)	Jacque McClory, CSP <small>Digitally signed by Jacque McClory, CSP Date: 2019.08.29 15:55:51 -06'00'</small>
Printed Name	Signature

### IH Representative

Jacque McClory (z 166453)	Jacque McClory, CSP <small>Digitally signed by Jacque McClory, CSP Date: 2019.08.29 15:56:13 -06'00'</small>
Printed Name	Signature

### RP Representative

RP at the TO level - NA for MTOA per Jacque McClory	Jacque McClory, CSP <small>Digitally signed by Jacque McClory, CSP Date: 2019.08.29 15:56:45 -06'00'</small>
Printed Name	Signature

### Deployed Environmental Professional

Gwen M. Bechtel	Gwen Marie Bechtel <small>Digitally signed by Gwen Marie Bechtel DN: c=US, o=U.S. Government, ou=Department of Energy, ou=Los Alamos National Laboratory, ou=People, serialNumber=316332, cn=Gwen Marie Bechtel Date: 2019.08.29 15:26:31 -06'00'</small>
Printed Name	Signature

# EXHIBIT “F”

## ENVIRONMENTAL, SAFETY, AND HEALTH REQUIREMENTS

**Based on the hazards associated with this work, SUBCONTRACTOR is required to produce a Site-Specific ES&H Plan.**

### PART I: COMMON CLAUSES

**Note: References herein to 10 CFR 851 or subparts thereof refer to Title 10 of the Code of Federal Regulations, Part 851 Worker Safety and Health Program.**

#### F1.0 General Requirements

- 1.1 For the purpose of this Exhibit, environmental, safety, and health (ES&H) protection encompasses industrial hygiene and safety, and environmental protection, compliance, pollution prevention, and waste management.
- 1.2 When performing work at sites controlled/managed by CONTRACTOR or the GOVERNMENT, SUBCONTRACTOR shall comply with all applicable federal, state, and local laws and regulations protecting workers and the environment.
- 1.3 This Exhibit sets forth requirements from CONTRACTOR’S NNSA-approved Worker Safety and Health Program that are applicable to the SUBCONTRACTOR. In addition to complying with the requirements contained herein, SUBCONTRACTOR is responsible to take whatever actions are necessary to protect the safety and health of its workers. Even if not specifically set forth in this Exhibit, the SUBCONTRACTOR is required under 10 CFR 851 to comply with the following regulations and safety and health standards that are applicable to the hazards of its work:
  - 10 CFR 850, Chronic Beryllium Disease Prevention Program
  - 29 CFR Part 1904.4 through 1904.11, 1904.29 through 1904.33, 1904.44 and 1904.46 – Recording and Reporting Occupational Injuries and Illnesses
  - 29 CFR Part 1910, Occupational Safety and Health, excluding 1910.1096, Ionizing Radiation
  - 29 CFR Part 1926, Safety and Health Regulations for Construction
  - 29 CFR Part 1928, Occupational Safety and Health Standards for Agriculture
  - American Conference of Governmental Industrial Hygienists (ACGIH), “Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices” (2016)
  - ANSI Z88.2, Respiratory Protection (2015)
  - ANSI Z136.1, Safe Use of Lasers (2014)
  - ANSI Z49.1, Safety in Welding, Cutting and Allied Processes, Sections 4.3 and E4.3 (2012)
  - NFPA 70, National Electric Code (2017)
  - NFPA 70E, Standard for Electrical Safety in the Workplace (2015)

- American Society of Mechanical Engineers (ASME) Boilers and Pressure Vessel Code, sections I through XII including applicable Code Cases, (2015)
- ASME B31 (ASME Code for Pressure Piping) as follows:
  - B31.1-2016-Power Piping
  - B31.3-2014-Process Piping
  - B31.4-2016-Pipeline Transportation Systems for Liquids and Slurries
  - B31.5-2016-Refrigeration Piping and Heat Transfer Components
  - B31.8-2016-Gas Transmission and Distribution Piping Systems
  - B31.8S-2014-Managing System Integrity of Gas Pipelines
  - B31.9-2015-Building Services Piping
  - B31.11-2002-Slurry Transportation Piping Systems
  - B31G-2012-Manual for Determining Remaining Strength of Corroded Pipelines

- DOE Standard DOE-1212, Explosives Safety, current version

1.4 In accordance with 10 CFR 851.10(a), SUBCONTRACTOR must provide a place of employment that is free from recognized hazards that are causing or have the potential to cause death or serious physical harm.

1.5 SUBCONTRACTOR shall have responsibility for taking action as is necessary to assure compliance with:

- State and federal environmental laws;
- CONTRACTOR environmental and waste management requirements identified in Exhibit D Scope of Work; and
- DOE Orders related to environmental compliance and waste management.

1.6 CONTRACTOR is dedicated to the concept that all accidents are preventable. Accordingly, CONTRACTOR is committed to a goal of zero accidents through continuous improvement practices. This "Zero Accident Performance" goal, including zero non- permitted releases and zero regulatory non-compliance with respect to protection of the environment, is an expectation of all SUBCONTRACTORS in the performance of their work.

- SUBCONTRACTOR workers may report safety, health, or environmental concerns to the LANL Safety Concerns Hotline at 505-665-7233 (email: [safety@lanl.gov](mailto:safety@lanl.gov)) or to the DOE Los Alamos Field Office at 505-667-2866, or to the DOE Albuquerque Employee Concerns Hotline at email: [ecp@doeal.gov](mailto:ecp@doeal.gov) or 1-800-688-5713.
- In accordance with DOE O 442.2 Chg 1, Differing Professional Opinions for Technical Issues involving Environmental, Safety, and Health Technical Concerns, if a SUBCONTRACTOR worker has a differing professional opinion on a technical issue related to environment, safety, and health, it can be reported to the Deputy Associate Administrator for Safety (NA-51/FORS), National Nuclear Security Administration, U.S. Department of Energy, 1000

Independence Avenue, SW Washington, DC 20585. The DPO process and DPO submittal form may be found at <http://www.energy.gov/ehss/doe-differing-professional-opinions>.

**F2.0 Subcontractor's Site-Specific ES&H Plan**

- 2.1 SUBCONTRACTOR shall be solely responsible for implementing its CONTRACTOR-approved, written Site-Specific ES&H Plan as approved by CONTRACTOR. SUBCONTRACTOR shall not commence work on-site until SUBCONTRACTOR'S written Site-Specific ES&H Plan is approved by CONTRACTOR and a Notice to Proceed has been received by SUBCONTRACTOR.
- 2.2 SUBCONTRACTOR will address how it will comply with the specific requirements of clauses contained in this Exhibit during execution of work. Submission of a general safety manual or company ES&H policy unto itself is not adequate to constitute a Site-Specific ES&H Plan. SUBCONTRACTOR shall consolidate such ES&H plan elements and submit the complete SUBCONTRACTOR'S Site-Specific ES&H Plan to CONTRACTOR for review and approval prior to issuance of a Notice to Proceed.
- 2.3 SUBCONTRACTOR is responsible for compliance with the ES&H requirements applicable to this subcontract. SUBCONTRACTOR'S Site-Specific ES&H Plan shall specify how safety and environmental requirements flow down to employees and lower-tier subcontractors. SUBCONTRACTOR will ensure that workers have access to the Site-Specific ES&H Plan at the job-site and that workers comply with the requirements in the plan.
- 2.4 SUBCONTRACTOR'S Site-Specific ES&H Plan shall describe how SUBCONTRACTOR complies with compliance orders, if any, issued by the Secretary of DOE in accordance with 10 CFR 851.4.
- 2.5 Changes to SUBCONTRACTOR'S Site-Specific ES&H Plan require re-submittal to and approval by CONTRACTOR. Upon option year award, SUBCONTRACTOR will coordinate with CONTRACTOR to verify Site-Specific ES&H Plan is still adequate for the work scope.

**F3.0 Subcontractor and Lower-Tier Subcontractor Minimum Performance Eligibility Factors**

- 3.1 SUBCONTRACTOR shall meet the standards contained in Attachment F3-1, *Safety Performance Eligibility Requirements*, and shall complete Attachment F3-2, *Environment, Safety, and Health History Worksheet*. If any of the maximum allowable averages in Attachment F3-1 are exceeded, SUBCONTRACTOR shall provide information that clearly explains the reason for excessive rates and all follow up actions taken to prevent reoccurrences. CONTRACTOR must approve any exceedances prior to the award of a subcontract.
- 3.2 If SUBCONTRACTOR intends to use lower-tier subcontractors to perform elements of the subcontracted Scope of Work (SOW), such lower-tier subcontractors shall have a demonstrated safety performance equal to or lower than the standards contained in Attachment F3-1, and shall complete Attachment F3-2. Any lower-tier subcontractor that does not meet one or more of the maximum allowable average safety performance eligibility requirements must be evaluated and approved by SUBCONTRACTOR and CONTRACTOR, before it may perform work on-site.
- 3.3 SUBCONTRACTOR shall ensure lower-tier subcontractors that perform elements of the

subcontracted SOW adhere to this Exhibit F and SUBCONTRACTOR'S Site-Specific Environment, Safety, and Health Plan. SUBCONTRACTOR is responsible for flowing down to its lower-tier subcontractors all applicable requirements of this subcontract and ensuring compliance with those requirements.

- 3.4 If new or additional lower-tier subcontractors are proposed to be used by SUBCONTRACTOR at any time after the award of the subcontract, SUBCONTRACTOR must notify CONTRACTOR at least 15-calendar days before the proposed start date of the new lower-tier subcontractor and submit eligibility information as provided in paragraph 3.1 above.

#### **F4.0 Subcontractor ES&H Representative Duties and Responsibilities**

- 4.1 SUBCONTRACTOR line management is responsible to provide clear and unambiguous lines of authority and responsibility for ES&H representation. This includes managing or supervising employees performing work. SUBCONTRACTOR line management must ensure that its personnel possess the skills, experience, training, and credentials to complete their assigned tasks.
- 4.2 SUBCONTRACTOR will designate an ES&H Representative with the knowledge commensurate to all phases of the scope of work who has written authority to supervise and coordinate with additional competent and/or qualified ES&H representatives as needed for specific tasks in accordance with 10 CFR 851 requirements. SUBCONTRACTOR will submit ES&H Representative qualifications to CONTRACTOR for approval prior to subcontract award.
- 4.3 SUBCONTRACTOR will provide competent and/or qualified personnel as required in applicable sections of 10 CFR 851 and other regulations (e.g., excavations, fall protection, respiratory protection program administrator, NPDES Outfall Permit, cranes and material handling equipment). These personnel will be on the job location as required by the applicable regulation to perform oversight and other required job duties.
- 4.3.1 Competencies and/or qualifications for these individuals must be provided to CONTRACTOR for approval prior to the start of the associated work task.
- 4.3.2 A competent person means one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.
- 4.3.3 A qualified person means one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated the ability to solve or resolve problems and perform required duties relating to the subject matter, the work, or the project.
- 4.4 SUBCONTRACTOR will submit an ES&H Oversight Plan that outlines the designated ES&H representative's responsibilities, identifies all tasks associated with the statement of work that require competent and/or qualified individuals, and specifies how these individuals will provide oversight (e.g., at worksite when erecting scaffolding).
- 4.5 CONTRACTOR reserves the right to require additional SUBCONTRACTOR ES&H representation to account for large scale, complex, or multiple-site projects.

#### **F5.0 Incident Reporting Requirements**

- 5.1 SUBCONTRACTOR must immediately notify CONTRACTOR'S STR verbally, and then in writing (within 24 hours), of any on-site event or condition that adversely affects, or may adversely affect CONTRACTOR, its mission, CONTRACTOR'S or SUBCONTRACTOR'S personnel, the public, property, or the environment. An on-site event or condition includes but is not limited to: employee injury/illness/first aid (including a significant change in severity of the original condition); fire; any accident, incident, or near-miss; property damage to equipment, facilities, or motor vehicles; non-compliance with safety, health, or environmental requirements; non-permitted release to the environment; or any other unplanned event that may be a violation of a regulatory requirement or that may be viewed negatively by the public, CONTRACTOR, or GOVERNMENT.
- 5.2 In situations where any of the conditions mentioned above occur, the scene surrounding or associated with the event shall be preserved for continued investigation unless such actions interfere with establishing a safe condition or CONTRACTOR concurrence is obtained. SUBCONTRACTOR and CONTRACTOR personnel may jointly investigate each injury/illness, accident, incident, near miss, or environmental noncompliance.
- 5.3 SUBCONTRACTOR shall provide a complete written accident/incident investigation report of any incident, outlining the causes, corrective actions, and measures taken to prevent recurrence of similar incidents, to CONTRACTOR'S STR within 2-working days of its occurrence. Furthermore, the SUBCONTRACTOR must cooperate and participate as required with any CONTRACTOR or GOVERNMENT fact finding, learning team, critique, analysis, or investigation for such events/conditions.
- SUBCONTRACTOR must provide an investigation report using DOE Form 5484.3 to the CONTRACTOR.
- 5.4 As required by circumstances and at the discretion of CONTRACTOR, an incident review board (IRB) will be convened. Those involved in selected incidents will be required to present the events surrounding the incident to the IRB as well as what actions have been put in place by the SUBCONTRACTOR to mitigate the incident and to prevent reoccurrence. SUBCONTRACTOR management must attend all IRB meetings.
- 5.5 SUBCONTRACTOR shall analyze related data for trends and lessons learned in accordance with DOE Order 225.1B, Accident Investigations (March 4, 2011).
- 5.6 The SUBCONTRACTOR shall submit a weekly productive man-hours report to the STR every Monday for the preceding week (when work is performed) using Attachment F5-1, Weekly Productive Man-Hour Report.
- 5.7 If SUBCONTRACTOR, or any lower-tier subcontractor, independently either suspends or terminates an employee for unsafe acts resulting from performance of work under this subcontract, SUBCONTRACTOR must immediately provide written notification to the STR with information on that action.

## F7.0 Employee Training

- 7.1 In accordance with 10 CFR 851.25(a), (b) and (c), SUBCONTRACTOR shall ensure workers are properly trained and qualified to safely perform all assigned tasks in accordance the scope of work.

- 7.2 SUBCONTRACTOR shall provide initial, periodic, and supplemental training to workers in order for them to carry out their assigned responsibilities. SUBCONTRACTOR workers shall complete required training prior to start of work associated with the respective training subject.
- 7.3 SUBCONTRACTOR shall resubmit completed training documentation prior to any training expiration date listed in CONTRACTOR'S *Technical Subcontract Management Subcontract Training Matrix*.
- 7.4 SUBCONTRACTOR will conduct or acquire training and maintain records of other specific training required to perform work safely. CONTRACTOR maintains records of any training provided to SUBCONTRACTOR and such records are available to SUBCONTRACTOR upon request.
- 7.5 Training records will be retained on-site for the duration of the contract and made available to CONTRACTOR, upon request.
- 7.6 SUBCONTRACTOR workers must complete facility-specific training required and provided by the CONTRACTOR.

#### **F8.0 ES&H Meetings / Pre-Job Briefings / Daily Briefings**

- 8.1 Prior to the commencement of work SUBCONTRACTOR personnel must attend a site and safety orientation conducted by the CONTRACTOR. The site and safety orientation shall cover, at a minimum, the scope of the subcontract, associated hazards and environmental requirements, and the steps that will be taken to mitigate those hazards and ensure environmental compliance, as well as the roles and responsibilities of CONTRACTOR, SUBCONTRACTOR, and its employees. SUBCONTRACTOR is responsible for providing an orientation to any SUBCONTRACTOR or lower-tier personnel who did not attend CONTRACTOR'S initial orientation. SUBCONTRACTOR is responsible for documenting attendance and this documentation must be available for review by CONTRACTOR upon request.
- 8.2 SUBCONTRACTOR PIC shall conduct and document pre-task planning briefings using IWD Validation and Release Form 2102A, Attachment F20-2, which must involve the actual workers and, as necessary, direct supervisors, and subject matter experts.
- 8.3 SUBCONTRACTOR will conduct a daily briefing for its workers, which specifically addresses the hazards and mitigating controls for work to be performed that day. Additionally, the designated ES&H representative(s) for each task, at each work front (i.e., at each location where active task work occurs) will be called out during this briefing. This daily briefing or pre-task planning briefing documentation shall be available at the work location and provided to CONTRACTOR upon request.
- 8.4 SUBCONTRACTOR will conduct and document employee ES&H meetings. Documentation shall include the topic of said meetings, attendees, questions posed by workers, hazards identified by workers, and responses to worker questions and worker identified hazards by SUBCONTRACTOR'S ES&H Representative or Management.
- 8.5 CONTRACTOR may conduct ES&H forums to focus on current ES&H topics, recognize exceptional performance/compliance, as well as review recent incidents and issues. SUBCONTRACTOR will be required to have a representative attend this forum.

## F9.0 ES&H Inspections

- 9.1 SUBCONTRACTOR shall conduct initial and periodic inspections of the work areas to monitor compliance with ES&H requirements; document such inspections (Exhibit F Attachment F9-1 may be used); and provide a copy of such inspection reports upon request to CONTRACTOR STR.
- 9.2 SUBCONTRACTOR shall promptly initiate action to correct all identified hazards, deficiencies, or compliance issues.
- 9.3 SUBCONTRACTOR shall report all identified hazards, deficiencies, or compliance issues not under the control of SUBCONTRACTOR to CONTRACTOR STR.
- 9.4 SUBCONTRACTOR shall take all necessary steps to ensure the protection of employees, the public, and the environment until the hazards, deficiencies, or compliance issues are corrected.
- 9.5 SUBCONTRACTOR shall ensure that workers have the right without reprisal to request and receive results of investigations and inspections.
- 9.6 CONTRACTOR reserves the right to perform both announced and unannounced inspections and assessments of SUBCONTRACTOR'S operations, equipment, and materials to verify compliance with the requirements of this subcontract. SUBCONTRACTOR shall cooperate and accommodate oversight assessments, audits, and inspections performed by the CONTRACTOR.
- 9.7 Regulatory agencies such as the New Mexico Environment Department (NMED) and the U.S. Environmental Protection Agency (EPA) will make unannounced visits to work areas and perform periodic environmental compliance inspections. SUBCONTRACTOR shall notify CONTRACTOR STR immediately if regulatory agency personnel schedule a visit or an inspection of the site, or arrive at the site unannounced.

## F10.0 Housekeeping

- 10.1 SUBCONTRACTOR shall keep their work areas neat and orderly, implementing the following housekeeping practices as appropriate:
  - Keep tools and materials properly stored when not in use and remove all materials that are no longer needed.
  - Ensure trash, scrap materials, and waste are placed in appropriate containers. Locate containers strategically throughout the work area to promote use.
  - Keep floors clear of trip and slip hazards including hoses, welding leads, electric cords, liquids, and other obstacles. Keep cords, hoses, and leads clear of walkways, roadways, and other locations where possible exposure to damage exists.
  - Properly store and dispose of paint, solvents, oil soaked rags, and debris, etc., in approved containers in accordance with the appropriate waste management regulatory requirements.
  - Ensure protruding nails, screws, staples, and other sharp objects are protected or removed and do not present a hazard.
  - Provide and keep eating and sanitary facilities maintained in a clean and sanitary condition at all times, including adequate washing facilities with soap and disposable towels.

- Provide clean, potable drinking water for employees in a safe, hygienic manner at all worksites.

10.2 Unless specified elsewhere in the subcontract, SUBCONTRACTOR shall provide and maintain its own sanitary toilet facilities for its employees. The cleaning and maintenance of the facilities, and method and location of waste disposal, shall be acceptable to CONTRACTOR.

**F11.0 Emergency Preparedness Requirements**

- 11.1 SUBCONTRACTOR must comply with CONTRACTOR’S site-specific emergency response requirements, which are covered in the General Employee Training and the facility-specific training for the facilities and buildings in which they work. SUBCONTRACTOR shall ensure they understand facility-specific requirements for weather contingencies and incident reporting.
- 11.2 SUBCONTRACTOR is responsible for defining emergency procedures specific to the work scope relative to the site in the SUBCONTRACTOR’S Site-Specific ES&H Plan. These emergency procedures must be written and communicated to the employees. At a minimum, SUBCONTRACTOR will include the following information:
- Notifications
  - Personnel accountability
- 11.3 An annual evacuation drill is required for SUBCONTRACTOR with a sustained presence (e.g., a multi-person team working several continuous months on-site or a multi-person team working for one week on-site eight or more times a year). Documented results available for the CONTRACTOR’S review.
- 11.4 SUBCONTRACTOR must participate in any CONTRACTOR emergency response drills.

**F12.0 Personal Protective Equipment**

- 12.1 SUBCONTRACTOR shall provide, use, and maintain personal protective equipment (PPE) to protect SUBCONTRACTOR personnel from hazards directly related to the work. See 29 CFR 1910.132(a) and NFPA 70E.
- 12.2 SUBCONTRACTOR shall provide training to each employee who is required to use PPE. Each employee shall be trained to know at least the following: when PPE is necessary; what PPE is necessary; how to properly don, doff, adjust, and wear PPE; the limitations of the PPE; and the proper care, maintenance, useful life, and disposal of PPE.
- 12.3 SUBCONTRACTOR shall require all employees to wear long pants and a suitable shirt, with no less than 4-inch sleeves, as the minimum work clothing to be worn at the worksite.
- 12.4 All SUBCONTRACTOR employees working on active construction, demolition, highway, or remediation sites shall wear high visibility, reflective, vests at all times when not in office trailers/buildings. Vests shall comply with Manual of Uniform Traffic Control Devices (MUTCD) Section 6E-3 (High Visibility Clothing). Flagmen and Signalmen shall wear vests complying with 29 CFR 1926.201.

**F15.0 Occupational Health Services**

- 15.1 In accordance with 10 CFR 851 Appendix A, Section 8, SUBCONTRACTOR shall:
- Ensure workers are evaluated by a recognized occupational medical provider, when required, prior to the work being performed. Attachment F15-1 is provided as a guide to determine when medical evaluations is required.
  - Maintain a work history log for each worker who performs work on LANL property. The work history log must include records of the dates and times the individual was on site.
  - Provide access to work-related medical records, work history logs, surveillance and certification records, and employee records as requested by the CONTRACTOR.
  - Collaborate with LANL staff to obtain information on workplace job conditions and issues related to worker's health.
  - Provide workers access to their personal records as required by DOE regulations.
  - Obtain a return to work evaluation from a recognized occupational medical provider after a work related injury or illness or an absence due to any injury or illness lasting 5 or more consecutive days. The SUBCONTRACTOR will provide a copy of the work release to the CONTRACTOR'S STR.
- 15.2 CONTRACTOR'S Occupational Health Office will provide initial treatment (when requested) of any non-emergency work-related injury or illness for SUBCONTRACTOR workers for events that occur on LANL property. The SUBCONTRACTOR supervisor shall accompany SUBCONTRACTOR workers to Occupational Medicine.
- 15.3 SUBCONTRACTOR shall maintain a workers' compensation program for its employees including administration and associated case management.
- 15.4 SUBCONTRACTOR shall ensure that all workers' general health, physical and psychological capacity to perform work are adequate for the work assigned.

## **F16.0 Motor Vehicles and Powered Industrial Equipment**

- 16.1 SUBCONTRACTOR shall develop a Motor Vehicle Safety Program as part of the Site Specific ES&H Plan if using a of CONTRACTOR/GOVERNMENT owned- or leased vehicles or powered industrial equipment (i.e., fork trucks, tractors, platform lift trucks, and other similar specialized equipment powered by an electric motor or an internal combustion engine).
- 16.1.1 The Motor Vehicle Safety Program that includes but is not limited to: seat belt use, rollover protection, back-up alarms, lifting and hauling, scissor points, training, operational use, general vehicle maintenance, and inspections.
- 16.1.2 SUBCONTRACTOR shall report immediately to the STR all mishaps/incidents leading to the damage of a motor vehicle or CONTRACTOR property on official business.
- 16.1.3 SUBCONTRACTOR provided vehicle and mobile equipment operators are responsible for the safety of all passengers and the stability of materials being transported.
- 16.1.4 SUBCONTRACTOR shall ensure that its vehicles and mobile equipment are shut down during refueling.
- 16.1.5 SUBCONTRACTOR shall ensure that parking brakes are set in its vehicles and equipment when unattended.

- 16.1.6 SUBCONTRACTOR shall ensure that truck drivers exit the cab and remain clear while the truck is being loaded by power equipment unless the vehicle is equipped with a vehicle/equipment manufacturer approved cab shield.
- 16.2 SUBCONTRACTOR personnel operating motor vehicles and powered industrial equipment must have a valid driver's or required operators' license; trained for the equipment to be operated; healthy and unimpaired; not use cellular devices or hand held communications equipment while the motor vehicle is in operation and abide by established road regulations and/or jobsite regulations.
- 16.3 SUBCONTRACTOR shall ensure all SUBCONTRACTOR-provided vehicles and mobile equipment is registered/licensed, maintained in road-worthy condition, and operated and maintained in a safe manner in accordance with applicable federal, state, and local laws and ordinances and manufacturer's recommendations.
- 16.4 SUBCONTRACTORS using major SUBCONTRACTOR-provided equipment, including but not limited to heavy equipment, large vehicles, off-road vehicles, compressors, generators, cranes, hoists, derricks, stationary and portable fuel tanks will meet the following requirements.
  - 16.4.1 SUBCONTRACTOR shall inspect all equipment prior to use to ensure compliance with OSHA, ANSI, NFPA requirements and/or manufacturer's recommendations  
SUBCONTRACTOR authorized and qualified inspector shall conduct and document inspection, findings, and corrective actions. SUBCONTRACTOR make available maintenance and inspection records per CONTRACTOR request.
  - 16.4.2 SUBCONTRACTOR shall de-energized, rendered inoperable, tag out of service, or remove from the project location any equipment or machinery that is not in compliance with regulatory requirements.
  - 16.4.3 SUBCONTRACTOR forklift operators must inspect and document a preoperational inspection once during each shift the vehicle is used. In addition, qualified personnel shall inspect forklifts at intervals not greater than 12 months or whenever permanent deformation is suspected. Severe service shall warrant more frequent inspection and shall be performed by trained personnel.
  - 16.4.4 SUBCONTRACTOR shall ensure dozer blades, end loader buckets, forklift forks, or like equipment parts are lowered to the ground before the operator exits such equipment.
  - 16.4.5 Operators of All-Terrain Vehicles (ATVs) shall obtain a Motorcycle Safety Foundation (MSF) or MSF endorsed or similar state-approved ATV training. ATV operators must use the appropriate personal protective equipment for ATV use. Passengers are not allowed on ATVs unless the vehicle is designed by the manufacturer to accommodate multiple occupants.
- 16.5 SUBCONTRACTOR shall complete Attachment F16-1, Major Equipment Declaration, and provide a copy to the STR prior to placing any such SUBCONTRACTOR-provided equipment in service on-site, and prior to performing any activity involving the loading, unloading, and transporting of self-propelled medium or heavy duty construction equipment on-site (i.e., mobilization/demobilization).
  - 16.5.1 SUBCONTRACTOR shall complete the Safety Review Checklist within the Major Equipment Declaration Form and provide a copy to the STR.

**F17.0 Tools and Equipment**

- 17.1 SUBCONTRACTOR will ensure that all tools provided for use in work are used, inspected, and maintained in accordance with the manufacturers' recommendations and federal regulations.
- 17.2 SUBCONTRACTOR will inspect power tools and equipment prior to use and will inspect quarterly, at a minimum, or more frequently if recommended by the manufacturer. Inspection documentation is to be maintained by SUBCONTRACTOR and made available to CONTRACTOR, upon request.
- 17.3 SUBCONTRACTOR will not use job-made tools of any kind at the jobsite, unless approved in writing by CONTRACTOR.
- 17.4 SUBCONTRACTOR must follow 29 CFR 1910.243(d)(1) and 29 CFR 1926.302(e) if powder-actuated tools will be used. Only properly trained and certified employees shall be permitted to use powder-actuated tools. The powder charges (cartridges) for powder-actuated tools must be controlled, accounted for, and properly stored. Live or spent cartridges must not be left on the ground or disposed of in trashcans or other unauthorized containers.
- 17.5 SUBCONTRACTOR will use ground fault circuit interrupters (GFCI) on all temporary electrical applications, including task lighting.
- 17.6 SUBCONTRACTOR must test and certify all SUBCONTRACTOR-owned ventilated enclosures, confinement systems, and/or local exhaust ventilation systems prior to use and on a routine basis not less than one time per year. This applies to ventilation systems that are intended to minimize employee exposures and prevent occupational diseases caused by the inhalation of hazardous, toxic, or radioactive contaminants. High-efficiency particulate air (HEPA) filtration systems must be certified to verify filtration efficiency prior to initial use, annually thereafter, and after any maintenance that disturbs the HEPA filter. CONTRACTOR Ventilation Team can provide testing and certification.
- 17.7 SUBCONTRACTOR must ensure that portable or vehicle mounted electric generators have the neutral conductor properly bonded to the generator case and all general purpose single phase 15, 20, and 30 amp receptacles are GFCI protected. Generators over 5 kW must be grounded.
- 17.8 All electric power tools utilizing 60 Hz ac power (whether 120 V, 240 V, 480 V, etc..) are required to be listed by a Nationally Recognized Testing Laboratory (NRTL). Such NRTL listing also applies to any extension cords, re-locatable power taps, temporary lighting, or other electrical equipment utilizing or delivering 60 Hz ac power. Any such power tool or other electrical device that is not listed must be approved by CONTRACTOR electrical Authority Having Jurisdiction (AHJ), an Electrical Safety Officer (ESO) prior to use. Any NRTL listed electrical power tool that is repaired must be inspected by an AHJ before reuse.

**F18.0 Inclement Weather**

- 18.1 SUBCONTRACTOR shall establish adequate controls for employee exposure to potential inclement weather conditions including but not limited to heat, cold, wind, lightning, etc.
- 18.2 SUBCONTRACTOR shall ensure that all field employees are trained on the warning signs/symptoms of early heat or cold related disorders, and instructed on the clothing and work methods best suited to avoid heat and/or cold stress. Stay times shall be defined to reduce the

possibility of heat or cold related disorders, if necessary.

- 18.3 SUBCONTRACTOR shall ensure that employees have access to an adequate sanitary potable water supply during all periods of the day and have available plenty of fluids (i.e., water, electrolyte replacement drinks, etc.) when heat stress conditions exist.
- 18.4 SUBCONTRACTOR shall define protective actions for lightning threats and high wind conditions. Actions should include work stoppage and sheltering, when required.

## F19.0 Chemical and Hazardous Materials Management

- 19.1 If any amount of hazardous chemicals as defined by Appendices A and B of the OSHA Hazard Communication Standard (29 CFR 1910.1200) will be brought on site, SUBCONTRACTOR shall develop and implement a written Hazard Communication Program, which must conform to 29 CFR 1910.1200 subsections (e), (f), and (h). The program shall be submitted for approval as part of SUBCONTRACTOR'S Site-Specific ES&H Plan.
- 19.2 SUBCONTRACTOR shall have written approval from CONTRACTOR for hazardous chemicals prior to their introduction into the work site. Copies of Safety Data Sheets (SDS) for each hazardous chemical purchased and/or carried onto a worksite shall be submitted to CONTRACTOR electronically to [safetydatasheets@lanl.gov](mailto:safetydatasheets@lanl.gov) prior to bringing on site. SUBCONTRACTOR shall maintain an accurate and comprehensive inventory of all hazardous chemicals, the quantities of each, location of storage (e.g., Technical Area, building, and room or other designator approved by CONTRACTOR), and the SDS for each at the work location.
- 19.3 Hazardous chemicals shall be stored in appropriate containers and segregated to ensure compatibility. SUBCONTRACTOR shall label all hazardous chemicals that have been transferred from the manufacturer's container into another container with chemical name, creation date, hazard warning, point of contact, and manufacturer.
- 19.4 Upon project completion, or within 30 days of the end of each calendar year, SUBCONTRACTOR will prepare and submit to CONTRACTOR STR Attachment F19-1 for the EPA Annual Toxic Release Inventory Report and Clean Air Act Section 112 applicability determination for all chemicals used on-site in excess of 100 pounds, as well as any quantities of asphalt, lead, or mercury.

## F20.0 Work Management

- 20.1 SUBCONTRACTOR shall perform work in a safe and compliant manner and shall exercise a degree of care commensurate with the work and the associated hazards/risks.
- SUBCONTRACTOR line management is responsible for the protection of employees, the public, and the environment. Line management includes those SUBCONTRACTOR employees managing or supervising employees performing work.
  - SUBCONTRACTOR shall establish and maintain clear and unambiguous lines of authority and responsibility for ES&H matters at all levels, including all lower-tier subcontractors.
- 20.2 SUBCONTRACTOR shall implement a work control process that includes the following items:
- A designated Person in Charge (PIC) who has the responsibility, accountability, and authority to ensure the quality of the Integrated Work Document (IWD) and to manage the work.

- A SUBCONTRACTOR-developed IWD, for each task, that has a consolidated set of clearly defined work tasks/steps linked to hazards and controls. This includes both the primary tasks as well as the secondary tasks (e.g., moving/staging materials).
    - CONTRACTOR may specify the use of Form 2100A (Attachment F20-1) or an alternative format LANL IWD Part 1 Form.
    - Alternative format IWDs must include the following elements:
      - Focus on the information needed by the worker
      - Sufficient detail to ensure the worker can understand the hazards and controls
      - Have the tasks or steps listed sequentially
      - For each task or step, have specific descriptions of hazards and associated controls
      - Address activity and work area hazards
      - Have training, permits, and/or area posted referenced if they are required controls
    - IWDs for or containing electrical work shall be developed in accordance with Guide for Electrical IWDs for LANL Subcontractors and approved by CONTRACTOR'S Electrical Safety Officer.
    - CONTRACTOR will provide site-specific hazard information that must be incorporated in the SUBCONTRACTOR'S IWD. If a PRID is completed for the subcontract, this information must be integrated into the IWD.
  - The SUBCONTRACTOR IWD PIC and ES&H Representative and the CONTRACTOR STR, SMEs, ES&H Representatives, and FOD (as necessary) will complete a field walk-down of the work activity to validate that the IWD tasks/steps, hazards, and controls are in place.
  - The SUBCONTRACTOR and any lower-tier SUBCONTRACTORS will perform work in strict accordance with the IWD.
- 20.3 A completed IWD must be provided to the CONTRACTOR STR for review and concurrence prior to commencement of affected work. SUBCONTRACTOR IWDs will be reviewed for changes whenever a scope change occurs or periodically throughout project as conditions change. SUBCONTRACTOR shall include CONTRACTOR'S Attachment F1-0, *FOD Site Hazard Analysis and Coordination Requirements* with the IWD.
- 20.4 SUBCONTRACTOR must incorporate CONTRACTOR required hold points into the IWD for the project. SUBCONTRACTOR must obtain approval from CONTRACTOR prior to proceeding past each hold point. Mandatory hold points will be included for, but not limited to, the following work tasks:
- Cutting conduit, enclosed or encased systems, or into other potentially energized systems
  - Fall protection safety system verification
  - Elevated work platform compliance verification
  - Electrical work greater than 600 volts
  - Excavations when introducing mechanical excavation equipment and when using barricades

to delineate different work activities

- Moderate or critical lifts

SUBCONTRACTOR must complete Attachment F20-4, *Subcontractor IWD Mandatory Hold Points* for any of the above and attach the completed, associated hold point page to the IWD before proceeding with the work task.

- 20.5 SUBCONTRACTOR shall keep at the work site for CONTRACTOR review documentation to include: the written scope of work, SUBCONTRACTOR'S IWDs, the Exhibit F checklist, Site-Specific ES&H Plan, and daily pre-job briefing documentation.
- 20.6 SUBCONTRACTOR may provide feedback or post job reviews to CONTRACTOR STR via FORM 2104 (Attachment F20-0) Integrated Work Document (IWD) Part 4, Feedback/Post Job Reviews.
- 20.7 SUBCONTRACTOR and CONTRACTOR workers have the right and responsibility to Pause Work, or if necessary, Stop Work without fear of reprisal when:
- Any time the work steps are unclear, there are written questions about the work, or there are any changes to the expected work conditions.
  - Work controls and execution, information, instructions, or worker training is inadequate to execute the work safely and securely.
  - There is a reasonable belief that the work poses a potential uncontrolled environmental risk or violates the requirements of applicable laws or permits.
  - There is a reasonable belief that security of the Laboratory, information, or Government property could be compromised.
  - There is a reasonable belief that the task poses an imminent risk of death, serious physical harm, or other serious hazard to workers where the workers believe there is insufficient time to utilize normal hazard reporting and abatement procedure.

Any time work is paused or stopped, SUBCONTRACTOR must notify the CONTRACTOR STR.

- 20.8 SUBCONTRACTOR shall ensure that work does not resume until the ES&H concerns associated with that activity are resolved.

Restart of paused work activities may not occur unless:

- If work is paused for an ES&H related matter, CONTRACTOR ES&H Representative must approve of resolution.
- If work is paused for other reason, CONTRACTOR STR must approve of resolution.

Restart of stopped work activities may not occur unless:

- SUBCONTRACTOR completes Form 2181, Stop-Work Action Worksheet and CONTRACTOR approves of follow up actions or corrective action plan.

**F59.0 Safety and Environmental Performance Citation**

59.1 A Safety and Environmental Performance Citation (Citation), Attachment F59-1, may be issued to SUBCONTRACTOR by CONTRACTOR'S ES&H organization through CONTRACTOR STR for any safety or environmental violations. A Citation is warranted for, but not limited to, repeated safety or environmental violations, failure to abate any unsafe conditions, serious/ imminent danger safety concerns, failure to report injury/incidents in a timely manner, improper record keeping, and any other violations at the discretion of the STR, CONTRACTOR Safety Representative, and/or the Procurement Specialist. SUBCONTRACTOR application for payments will be placed on hold if any Citation has not been resolved by SUBCONTRACTOR. For every three Citations issued to SUBCONTRACTOR, or at the discretion of the STR, SUBCONTRACTOR shall (at SUBCONTRACTOR'S expense and in a timely manner) conduct a minimum of one-half of a shift safety stand-down with all employees, including lower-tier SUBCONTRACTOR employees engaged in work activities at the LANL.

Note: If the citation was issued because of a lower-tier SUBCONTRACTOR'S failure to comply, the citation will be issued to the prime SUBCONTRACTOR but will be held against the lower-tier for the stand-down purposes. This stand-down time will be dedicated to documented safety and/or environmental briefings and general housekeeping.

59.2 SUBCONTRACTOR shall promptly evaluate and resolve any noncompliance with applicable ES&H requirements. If SUBCONTRACTOR fails to provide resolution or if, at any time, SUBCONTRACTOR'S acts or failure to act causes substantial harm or an imminent danger to the environment or health and safety of employees or the public, CONTRACTOR may issue an order stopping work in whole or in part. Any Stop Work Order issued by CONTRACTOR under this clause (or issued by SUBCONTRACTOR to a lower-tier SUBCONTRACTOR) shall be without prejudice to any other legal or contractual rights of CONTRACTOR. In the event that CONTRACTOR issues a Stop Work Order, an order authorizing the resumption of the work may be issued at the discretion of CONTRACTOR. SUBCONTRACTOR shall not be entitled to an extension of time or additional fee, costs, or damages by reason of, or in connection with, any work stoppage ordered in accordance with this clause.

# EXHIBIT “F”

## ENVIRONMENTAL, SAFETY, AND HEALTH REQUIREMENTS

### PART II: SAFETY, HEALTH, & RADIOLOGICAL CLAUSES

**Note: References herein to 10 CFR 851 or subparts thereof refer to Title 10 of the Code of Federal Regulations, Part 851 Worker Safety and Health Program.**

#### F13.0 Respiratory Protection

- 13.1 If respirators are used, then SUBCONTRACTOR will have a written Respiratory Protection Program plan addressing the required elements in both 29 CFR 1910.134 and ANSI Z88.2. Elements include but are not limited to: designated qualified respirator program administrator, respirator selection, medical evaluation, fit-testing, use, maintenance and care, breathing air quality and use (if supplied-air respirators are required), training, program evaluation, and record keeping. The written plan will be submitted as part of the Site-Specific ES&H Plan.
- 13.2 SUBCONTRACTOR’S designated respirator program administrator must oversee SUBCONTRACTOR respirator program.

#### F14.0 Hearing Conservation Program

- 14.1 When noise associated with work under this subcontract is equal to or exceeds the ACGIH threshold limit values, a noise dose more than 100% (85 dBA for 8-hours with a 3 dB exchange rate) or impulse/impact noise exceeding 140 dB or dBC, SUBCONTRACTOR shall have a written Hearing Conservation Program that meets the requirements of 29 CFR 1910.95 and 29 CFR 1926.52.

#### F21.0 Fire Protection and Prevention

- 21.1 Smoking, use of any tobacco products, or electronic smoking devices (herein referred to as smoking and or smoking materials), is prohibited within any LANL facility. SUBCONTRACTOR shall ensure that workers only smoke in designated CONTRACTOR approved smoking areas outside buildings. SUBCONTRACTOR shall follow any CONTRACTOR designated smoking, smoking materials, and ignition sources restrictions for special areas (explosive areas, flammable liquid/gas areas, etc.). Under extreme and “red flag” wildfire conditions, CONTRACTOR’S Fire Marshall may impose additional restrictions on smoking, spark, and flame-producing activities.
- 21.2 SUBCONTRACTOR shall control the storage and loading of combustible materials within work and office areas to ensure safety and compliance with applicable fire codes. Material must be well arranged, and aisles shall be maintained open and clear of obstructions. Stored material shall be kept away from heaters, lamps, hot pipes, equipment, and machinery and the use of extension cords minimized.
- 21.3 Prior to starting any work, SUBCONTRACTOR shall develop and submit to CONTRACTOR for review and acceptance, a Fire Protection and Prevention Plan specific to the work under this subcontract. The Plan shall be submitted as part of SUBCONTRACTOR’S Site-Specific ES&H Plan. As an element of the plan, the SUBCONTRACTOR shall dial 911 and initiate a Fire Department response for any fire, suspected fire, unexplained smoke in the work area, or the

discharge of a fire extinguisher.

- 21.4 SUBCONTRACTOR shall provide all fire protection and prevention equipment necessary for its operations, including, but not limited to portable fire extinguishers.
- 21.4.1 SUBCONTRACTOR shall provide an adequate number of portable fire extinguishers of the correct size and type for its work activities. Extinguishers shall be maintained per manufacturers' recommendations, inspected monthly, and tested annually.
- 21.4.2 SUBCONTRACTOR shall train employees in the proper use of portable fire extinguishers. See also Section F22, Welding, Cutting, Brazing, and Grinding, of this Exhibit for fire watch and portable fire extinguisher requirements.
- 21.5 SUBCONTRACTOR'S Fire Protection and Prevention Plan shall ensure that fire protection equipment is placed and maintained in proper locations as work progresses.
- 21.6 SUBCONTRACTOR'S Fire Protection and Prevention Plan shall ensure that temporary heating equipment is installed, used, refueled and maintained to minimize the fire hazard posed by these devices. SUBCONTRACTOR shall use listed/approved temporary heating devices in accordance with manufacturer's requirements, shall perform refueling operations in an approved manner, shall locate this equipment with sufficient separation from adjacent combustible materials, and monitor the safe operation of this equipment during use.
- 21.7 SUBCONTRACTOR shall monitor its work and office areas to ensure that all doors, stairwells, aisles, and means of egress are OSHA-compliant and are kept clear and unobstructed at all times.
- 21.8 If SUBCONTRACTOR furnishes portable field offices, SUBCONTRACTOR shall ensure they have appropriate separations from adjacent LANL structures, are secured, all exits are clearly marked and adequately lighted, exit paths are level across door openings, stairs are properly constructed (treads and risers are within acceptable dimensional limitations) and handrails provided where required, exit doors are not provided with exterior locking features that prevent personnel from exiting, and, if equipped, that all emergency lights remain functional.
- 21.9 SUBCONTRACTOR'S Fire Protection and Prevention Plan shall address the requirements for the handling, storage, and use, and disposal of flammable and combustible liquids and gases. SUBCONTRACTOR shall ensure they are stored properly, dispensed in safety cans manufactured to a recognized standard and areas designated for these activities are maintained in an orderly fashion. All hazardous areas shall be posted with appropriate signs and access shall be controlled. SUBCONTRACTOR shall prohibit open flames and smoking in designated storage areas.
- 21.10 SUBCONTRACTOR shall ensure that portable fire extinguishers, staged fire-fighting equipment, fire suppression system control valves, sprinkler system and standpipe fire department connections, fire hydrants, and fire lanes are kept clear and unobstructed.
- 21.11 SUBCONTRACTOR shall maintain a minimum of 18-inches of free space below sprinkler heads when working in facilities having sprinkler systems. Fire sprinkler heads and fire detection and alarm devices shall be appropriately masked and protected during painting and spray-application of fireproofing material operations.
- 21.12 SUBCONTRACTOR shall ensure that combustible waste containers are emptied regularly; equipment, tables, and floors are free from oil or oily rags; and oily rag containers are kept

covered and emptied regularly. Janitor/storage closets shall be maintained in an orderly condition and shall not be used to store quantities of hazardous or toxic chemicals. Electrical, mechanical, and communications rooms shall be kept in order and free of combustible storage materials. Cable trays and raceways shall be free of combustible material, debris, or trash.

21.13 SUBCONTRACTOR shall not permit open fires on the jobsite.

## F22.0 Welding, Cutting, Brazing and Grinding

- 22.1 SUBCONTRACTOR must complete and follow CONTRACTOR-supplied [Form 1563, Spark- or Flame-Producing Operations Permit](#), if the work involves spark or flame producing operations. The permit must be submitted to CONTRACTOR for approval 2-working days prior to the start of work and must be posted in the immediate work area.
- 22.2 SUBCONTRACTOR shall evaluate the housekeeping conditions, fire extinguisher availability, emergency exit locations, and pull alarms for emergency response services prior to starting work involving spark or flame producing operations.
- 22.3 SUBCONTRACTOR shall ensure employees performing welding, cutting, grinding, or other spark-producing activities wear fire retardant clothing as well as other applicable body protection (e.g., leather gloves, sleeves, aprons).
- 22.4 Prior to beginning any spark or flame producing operation, SUBCONTRACTOR shall assess the work area for proper ventilation to prevent the accumulation of fumes, gases, particulates, or conditions that would create an oxygen-deficient or oxygen-enriched atmosphere.
- 22.5 SUBCONTRACTOR employees conducting the spark- or flame-producing operation shall ensure that a fully charged fire extinguisher is in the immediate area and spent welding rods are properly disposed. The work area should be properly shielded with a curtain to protect against incidental exposure by observers. All gases should be shut off at the cylinder valve when the operation is completed.

## F23.0 Fall Prevention / Protection

- 23.1 SUBCONTRACTOR'S Site-Specific ES&H Plan shall include a written Fall Prevention/ Protection Program that complies with 29 CFR 1926 Subpart M and/or 29 CFR 1910 Subpart D, as applicable, and includes maximum use of primary fall protection systems including but not limited to scaffolds, aerial lifts, and personnel hoists, and the inspection of fall protection equipment as required by the manufacturer and prior to each use. The Fall Protection Plan must be approved by a LANL Qualified Person and meet the minimum requirements outlined below:
- 1910 Subpart F - Powered Platforms, Manlifts, and Vehicle-Mounted Work Platforms
  - 1910.132, Personal Protective Equipment
  - 1926 Subpart E - Personal Protective and Life Saving Equipment
    - 1926.104, *Safety Belts, Lifelines, and Lanyards*
    - 1926.105, *Safety Nets*
    - 1926.106, *Working Over or Near Water*

- 1926 Subpart L - Scaffolds
- ANSI Z359.2/ASSE-2007, *Fall Protection Code* hierarchy of controls outlined below for providing protection when encountering falls-from-elevation (>4 feet for general industry, >6 feet for construction) hazards.

## F24.0 Scaffolding

- 24.1 If scaffolds will be used to perform work, SUBCONTRACTOR shall include a written Scaffolding procedure in SUBCONTRACTOR'S Site-Specific ES&H Plan that meets the requirements 29 CFR:
- 1926 Subpart L, *Scaffolds*
  - 1926 Subpart E, *Personal Protective and Life Saving Equipment*
  - 1910.27, *Scaffolds and Rope Descent Systems*
  - 1910.28, *Duty to have fall protection and falling object protection*
    - 1910.28(b)(12), *Scaffolds and rope descent systems*
- 24.2 When scaffolds will be secured to a facility, SUBCONTRACTOR will complete a CONTRACTOR-provided Penetration Permit.
- 24.3 SUBCONTRACTOR will provide scaffold user training to all employees. Training records will be made available to CONTRACTOR.
- 24.4 All scaffolds must be erected, dismantled, moved, and/or altered only under the direction of the Scaffold Competent Person, per 29 CFR 1926.32(f) and only by those trained on that specific type of scaffold.
- 24.5 All wooden scaffolds must have a structural engineer provided engineered drawings, specified material requirements, and down load and/or weight bearing calculations. This information must be present at the scaffold for review at all times.

## F25.0 Portable Ladders

- 25.1 Manufactured ladders must be rated for industrial or heavy-duty work and used only as allowed by the manufacturer. Job-made ladders shall be constructed to conform to 29 CFR 1926.1053, *Ladders* and 1910.23(c), *Portable Ladders*.
- 25.2 SUBCONTRACTOR shall ensure that ladders are visually inspected before each use by the trained ladder user and at least once a year for damage and/or defects in accordance with 29 CFR 1926.1053(b)(15). SUBCONTRACTOR shall mark and remove defective equipment from service immediately in accordance with 29 CFR 1926.1053(b)(16).

## F26.0 Barricades

- 26.1 SUBCONTRACTOR is responsible for properly erecting and maintaining barricades in such a manner that they provide adequate warning/protection and do not impede the work of other

workers. Any exception must be approved in writing by CONTRACTOR STR.

- 26.2 SUBCONTRACTOR shall provide and use one of the following barricade devices appropriate for the nature of the job for all physical hazard areas, including all construction areas.
  - Warning barricades call attention to hazards but offer no physical protection. Yellow and black rope or tape shall be used for warning barricades.
  - Protective barricades (hard barricade) warn as well as provide physical protection from falling. Protective barricades must meet the requirements of 29 CFR 1926.203, and/or 29 CFR 1926.502(b) depending on application.
  - Danger barricades call attention to life hazards but also offer no physical protection. Red and black rope or tape shall be used for danger barricades. Signs will be used on all danger barricades listing the hazard and the person in charge's (PIC) name. Gate signs shall be posed at entrance points.
- 26.3 A protective barricade shall be erected when a warning barricade will not offer adequate protection.
- 26.4 An appropriate barricade shall be erected with a "Warning - No Entry without Permission" or similar tag before work is started. The requirements for access shall be stated on the tag together with identified hazards.
- 26.5 No barricade shall be placed closer than three feet from the edge of the danger point. A rope or tape shall be hung 42 inches plus or minus 3 inches above the floor or ground level.
- 26.6 Tags shall be placed at intervals of up to 30 feet around the entire barricade with at least one tag visible from each approachable side. Where the size of the jobsite prevents such placement, one tag shall be placed on the most common approachable side so long as it is clearly visible from any approachable side.
- 26.7 Barricades must have a designated entrance(s). Entry or exit from an area shall only occur through the designated entrance(s). Stepping over or ducking under the barricade is prohibited.
- 26.8 Ensure any barricade is at least six feet away from an elevation drop of four or more feet. This will provide an ample buffer area from the hazard edge.
- 26.9 Authorization to enter a barricade may only be obtained from the PIC working inside the barricade. In the alternative, personnel that are authorized to permit entry may be listed on the tag attached to the barricade.
- 26.10 When a work area can be completely isolated from all other activities and operations, the area may be designated as such and posted with the appropriate warning and access authorization signs in lieu of extensive barricades and tags. In this case, signs shall be visibly posted at all potential access points. Barricades must still be utilized within the posted area, as appropriate, to provide hazard control of individual tasks within the work area.
- 26.11 Barricades must be promptly removed when no longer required.

**F28.0 Excavations and Trenching**

- 28.1 Excavation and trenching will be conducted in compliance with 29 CFR 1926 Subpart P; the

Appendices to Subpart P; LANL policy P101-17, *Excavation/Fill/Soil Disturbance*; LANL operating procedure OSH-ISH-FSD-OP-003, *Potholing Procedures*; and the provisions of the LANL Excavation/Soil Disturbance Permit issued to SUBCONTRACTOR. SUBCONTRACTOR shall designate a Person in Charge (PIC) of the excavation who is qualified, experienced, and knowledgeable in the hazards associated with excavations. The PIC must be on site whenever excavation work is taking place, including work in an excavation. The competent person identified in 28.16 may also serve as PIC if approved in writing by CONTRACTOR'S STR. Whenever the designated PIC must be changed to another PIC, the following must occur:

- Complete an Excavation/Soil Disturbance permit request.
  - Complete a comprehensive hand-off between the departing PIC and the incoming PIC including field review of the excavation site and briefing SUBCONTRACTOR employees involved in the excavation of the change.
  - Incoming PIC performs a review of the Excavation/Soil Disturbance permit, utility locates, and the potholing plan.
- 28.2 All SUBCONTRACTOR employees, whether craft or supervision, involved in any excavation, fill, soil disturbance/transfer, or trenching work activity, including working in any excavation, are required to complete CONTRACTOR'S Excavation Self-Study Training on an annual basis.
- 28.3 SUBCONTRACTOR shall not commence any excavation, fill, soil disturbance/transfer, trenching work, or drilling until they have obtained written permission from CONTRACTOR STR and complied with the requirements, stipulations, and conditions specified in the Excavation/Soil Disturbance Permit. The permit authority for this subcontract is CONTRACTOR, who will issue the Permit and all stipulations associated with the Permit to SUBCONTRACTOR. Permits shall be kept at the jobsite at all times. SUBCONTRACTOR shall allow 7-working days from written request to receipt of approved permit.
- 28.4 SUBCONTRACTOR shall notify the STR if the excavation, fill, soil disturbance/transfer, or trenching area will change during the project. SUBCONTRACTOR will not excavate, fill, conduct soil disturbance/transfer, or trench in the newly identified area until CONTRACTOR issues a modified or new Permit.
- 28.5 SUBCONTRACTOR shall handle any excavated material removed from a Consent Order Site (i.e., Solid Waste Management Unit or Area of Concern; formerly known as a Potential Release Site) in accordance with the Waste Management Plan or Waste Characterization Strategy Form.
- 28.6 SUBCONTRACTOR shall ensure fill material (soil, concrete, or asphalt) used on CONTRACTOR'S site is free of contamination.
- 28.7 SUBCONTRACTOR shall not transport fill material (soil, concrete or asphalt) from its point of origin to another location at LANL or outside the LANL facility boundary without obtaining written approval from the STR prior to movement of the material.
- 28.8 SUBCONTRACTOR shall not abandon excavated material, debris, or equipment on-site at LANL.
- 28.9 Upon Excavation/Soil Disturbance Permit request, SUBCONTRACTOR shall physically identify the established geographical boundaries of the proposed excavation activity with white

flagging, survey paint, or other means as agreed to by the STR.

- 28.10 CONTRACTOR will perform a non-intrusive underground survey (electromagnetic, gravitational, GPR, etc.) to identify and mark the location of underground interferences, services and/or utilities, and provide an engineered drawing to SUBCONTRACTOR showing the locations and type of services within the surveyed area. SUBCONTRACTOR is responsible for maintenance of utility locate markings. Locate markings are required to be revalidated every 30 days by CONTRACTOR and/or if the utility markings are no longer in place or obliterated.
- 28.11 SUBCONTRACTOR shall pothole (i.e., excavate using hand tools or approved vacuum potholing equipment, etc.) to a sufficient depth and radius to enable visual verification of all identified underground utilities prior to using any mechanical excavation equipment (e.g., backhoe, excavators, etc.). SUBCONTRACTOR shall follow the potholing procedures specified in LANL OSH-ISH-FSD-OP-003, *Potholing Procedures*. Vacuum-, air-, or water-type potholing is not to be conducted by SUBCONTRACTOR in a Consent Order Site without written instruction from CONTRACTOR. CONTRACTOR may at its discretion conduct such potholing using LANL resources. Hazardous Energy Safe condition must be met prior to excavation. Appropriate precautionary PPE (e.g., dielectric glove, chemical protection, etc.) and tools shall be utilized when exposing live or unknown utilities or structures. SUBCONTRACTOR shall notify STR when potholing is complete so locations can be confirmed and updated as required.
- 28.12 SUBCONTRACTOR shall ensure that, while excavations are open, all underground installations are protected, supported, or removed as necessary to protect employees and the utility.
- 28.13 SUBCONTRACTOR shall erect barricades and signage as described in P101-17, Section 3.1.5 around excavation area prior to beginning work activities or ahead of work progress. Barricades shall be installed at least six feet from edge in a manner that prevents accidental entry into the trenched or excavated area. Lesser distance must be approved by CONTRACTOR. Barricades and signage must also be installed to delineate between locations where potholing is occurring and locations where excavation using mechanical equipment has been approved.
- 28.14 Where trenches or excavations will exceed five feet in depth, SUBCONTRACTOR shall use cave-in protection systems acceptable to CONTRACTOR and SUBCONTRACTOR shall ensure no more than 25 feet of lateral travel shall be required in any excavation or trench to reach an acceptable means of egress (e.g., ladder, ramp, etc.).
- 28.15 SUBCONTRACTOR shall evaluate and monitor air quality prior to entry into any excavation that may contain possible hazardous atmospheres. Documented results shall be available at the job site. SUBCONTRACTOR shall submit, with the Excavation/Soil Disturbance permit request, operator qualification records and current calibration records for the monitoring instrument to be utilized.
- 28.16 SUBCONTRACTOR shall provide at the jobsite a competent person whose qualifications shall be made available to CONTRACTOR upon request and who will classify all soils and perform inspections daily and after each rain, snow, freeze, thaw, etc., of all excavations/trenches. These inspections shall be documented, kept on file, and made available to CONTRACTOR upon request.
- 28.17 If required by the Excavation/Soil Disturbance Permit, SUBCONTRACTOR shall develop a potholing plan and perform the following:

- Conduct potholing according to the potholing plan.
- The operator of the mechanical excavation equipment must visually inspect the potholes to verify the location of utilities.
- Prior to introducing mechanical excavation equipment the operator must ensure debris has not covered the exposed utilities within the potholes.
- The excavation equipment operator must obtain approval from the PIC before the use of mechanical excavation equipment begins.

- 28.18 SUBCONTRACTOR shall provide spotter(s) to assist the operator of mechanical excavation equipment during excavation or trenching. The spotter is responsible for guiding the mechanical excavation equipment operator to avoid contact with utilities present within the excavation. The spotter(s) must have no other responsibilities when performing these duties. The spotter must remain at least five feet from any moving excavation equipment.
- 28.19 SUBCONTRACTOR shall stop work and notify the STR immediately should unanticipated utilities, radiological liquid waste lines, and/or infrastructure be exposed, discovered, or damaged. This requirements applies also to cultural resources such as any bones, artifacts, charcoal stains.

## F29.0 Confined Spaces

- 29.1 SUBCONTRACTOR shall have a written permit-required confined space program that meets the requirements of 29 CFR 1910.146. Should SUBCONTRACTOR be executing construction work as set forth in 29 CFR 1926.1201(a), the written permit-required confined space program must meet the requirements of 29 CFR 1926.353, and 29 CFR 1926 Subpart AA, *Confined Spaces in Construction*. The written permit-required confined space program shall be submitted as part of SUBCONTRACTOR'S Site- Specific ES&H Plan.
- 29.2 SUBCONTRACTOR is responsible for air quality evaluation and monitoring in confined spaces. Monitoring equipment shall be provided by SUBCONTRACTOR and shall be calibrated and maintained to manufacturers' recommendations. All instrument calibration and training records shall be made available to CONTRACTOR upon request.
- 29.3 SUBCONTRACTOR shall ensure that all employees have completed training as required by 1910.146(g) or 1926.1207 when engaged in construction. Personnel serving as entrants, attendants and entry supervisors shall be trained in their duties as per 29 CFR 1910.146(h), (i), and (j), or 1926.1208, 1926.1209, and 1926.1210 for construction. When executing construction work, entry supervisors shall also meet the definition of qualified person as defined in 1926.1202.
- 29.4 Prior to each entry into a permit-required confined space, SUBCONTRACTOR shall ensure that a Confined Space Entry Permit meeting all elements of 29 CFR 1910.146 (e), and (f), or 1926.1205 and 1926.1206 for construction, is completed and followed. The permit form shall be submitted to CONTRACTOR'S STR for review and approval prior to initial entry. The permit shall be conspicuously posted or otherwise made available at the confined space and all entrants must sign a log upon entering and exiting the confined space such that persons in the confined space can be determined.
- 29.5 Prior to entry into a permit-required confined space, SUBCONTRACTOR shall develop a

rescue procedure that meets all of the requirements in 29 CFR 1910.146(k), or 1926.1211 if engaged in construction. CONTRACTOR must review and approve SUBCONTRACTOR'S rescue procedure prior to any confined space work requiring a rescue procedure. This procedure shall include an evaluation of a prospective rescuers ability to respond in a timely manner considering the hazard(s) identified.

**Note:** What will be considered timely will vary according to the specific hazards involved in each entry. For example, 29 CFR 1910.134, Respiratory Protection requires employers provide a standby person or persons capable of immediate action to rescue employee(s) wearing respiratory protection while in work areas defined as immediately dangerous to life and health atmospheres. If emergency rescue capabilities are required per 29 CFR 1910.146(k), CONTRACTOR must approve SUBCONTRACTOR'S emergency rescue capabilities prior to any work in specific confined spaces.

- 29.6 SUBCONTRACTOR shall make all arrangements and bear the cost of an emergency rescue team when required.
- 29.7 SUBCONTRACTOR shall not reclassify spaces classified and marked by CONTRACTOR without written approval of the CONTRACTOR. A confined space classified and/or posted as permit-required may only be reclassified as non-permit by SUBCONTRACTOR when the conditions of 29 CFR 1910.146(c)(7) or 1926.1203(g) have also been met. When performing the reclassification, SUBCONTRACTOR must document the basis for determining that all hazards in a permit space have been eliminated or isolated, through a certification that contains the date, the location of the space, and the signature of the person making the determination. Where construction work is being executed, the determination that a space may be reclassified must be performed by a competent person as defined in 1926.1202. The certification shall be made available to each employee entering the space, and to the CONTRACTOR upon request.
- 29.8 At the conclusion of permit entry operations, SUBCONTRACTOR shall inform CONTRACTOR'S STR of any additional hazards confronted or created in the permit space during entry. When executing construction work, debriefings shall be performed in accordance with 29 CFR 1926.1203(h)[5].
- 29.9 When SUBCONTRACTOR and CONTRACTOR employees work simultaneously in a permit-required confined space, or a space that has been temporarily reclassified as non-permit, entry must be coordinated by a CONTRACTOR authorized entry supervisor and CONTRACTOR confined space entry permit form shall be used. For such entries, CONTRACTOR confined space program shall take precedence, with the entry coordinated and performed in a manner that addresses the hazards and protects all entrants equally, regardless of employer.

**F30.0 Lockout/Tagout**

- 30.1 SUBCONTRACTOR must assist the CONTRACTOR-designated lead authorized worker to identify all hazardous energy sources associated with the equipment that must be controlled and to identify the energy isolating device(s) for those energy sources.
  - 30.1.1 When SUBCONTRACTOR will only provide advisory services and will not perform work as defined by 29 CFR 1910.147 or 29 CFR 1926.417, sections F30.2 through F30.10 of this clause do not apply.
- 30.2 Where SUBCONTRACTOR will perform work as defined by 29 CFR 1910.147 or 29 CFR 1926.417, the SUBCONTRACTOR will follow CONTRACTOR'S [P101-3, Lockout/Tagout for](#)

Hazardous Energy Control, including use of CONTRACTOR provided locks and tags.

- 30.3 SUBCONTRACTOR workers shall complete CONTRACTOR-required Lockout/Tagout training, UTrain Curriculum 127. CONTRACTOR STR overseeing SUBCONTRACTOR activities shall ensure SUBCONTRACTOR workers are entered in Curricula 127, "LO/TO Authorized Worker" prior to taking CONTRACTOR-required Lockout/Tagout training.
- 30.4 SUBCONTRACTOR must identify all hazardous energy sources associated with the equipment that must be controlled to prevent injury and identify the energy-isolating device(s) for those energy sources. SUBCONTRACTOR will contact the STR, who will consult with the equipment owner-operator and appropriate subject-matter experts, as necessary, to identify the hazardous energy sources in the area.
- 30.5 For a simple Lockout/Tagout, SUBCONTRACTOR shall follow the procedure on the back of the CONTRACTOR-required/supplied tag.
- 30.6 If all of the conditions for a simple Lockout/Tagout are not met, SUBCONTRACTOR must complete a Complex Lockout/Tagout Procedure described in the latest edition of P101-3, Lockout/Tagout for Hazardous Energy Control. SUBCONTRACTOR shall submit the Complex Lockout/Tagout Procedure(s) documented on Form 2244, *Lockout/Tagout (LO/TO) Orders* to CONTRACTOR with 2-working day advance notice for approval.
- 30.7 SUBCONTRACTOR will obtain CONTRACTOR provided locks, tags, and lockout devices from the CONTRACTOR'S Lock Coordinator. SUBCONTRACTOR shall be responsible for informing the CONTRACTOR'S Lock Coordinator of the location of each lock/tag, the workers involved, and the date the locks were applied and removed. SUBCONTRACTOR will return the CONTRACTOR provided locks, tags, and lockout devices to CONTRACTOR'S Lock Coordinator.
- 30.8 SUBCONTRACTOR shall be responsible for obtaining authorization from CONTRACTOR'S equipment owner-operator prior to performing Lockout/Tagout.
- 30.9 For the commission of new facilities, electrical systems, and distribution equipment, or the construction or acceptance testing of new or extensively revised electrical systems, SUBCONTRACTOR must submit Form 3058, Lockout/Tagout Partial Energization Plan to CONTRACTOR Chief Electrical Inspector for review.

**F31.0 Blind Penetrations**

- 31.1 SUBCONTRACTOR shall understand how penetrations are classified and documented on Form 2074, *Penetration Permit*.
  - CONTRACTOR classifies penetrations (an opening made by drilling, cutting, or otherwise piercing a wall, ceiling, roof, floor, or other surface) as either Class 1 (penetrations 1 ½ inches or less), or Class 2 (penetrations greater than 1 ½ inches in depth).
  - Placement of thumbtacks, picture nails, or similar items in a hollow wall or ceiling that do not go beyond the thickness of the external material (sheetrock, wood, etc.) are not considered penetrations.
  - If the penetration is in a homogeneous material with no hollow spaces (e.g., single layer of wood, metal, drywall, or concrete) where the other side of the material is visible or accessible, and it can be visually verified that no utilities are present within the material, it is

not a blind penetration and no permit is necessary. Only normal hazard controls would be required based on the nature of the material (e.g., crystalline silica, asbestos, etc.).

- 31.2 CONTRACTOR and SUBCONTRACTOR shall visually inspect the proposed location of the penetration for any metal studs or hidden utilities by checking both sides of walls (interior and exterior), into false ceilings, and under subflooring systems for any evidence of utility runs within the area to be penetrated (e.g., utilities leading to or from power sources or valves, outlets, gauges, conduits exiting through floor slabs, walls, and roofs, etc.). This visual check must be performed at both sides of the penetration (e.g., interior, exterior, in adjacent rooms, etc.).
- 31.3 CONTRACTOR and SUBCONTRACTOR shall review and sign the completed Penetration Permit along with the workers performing the task in order to confirm that the controls and safeguards are in place prior to penetration operations starting.

### F32.0 Cranes and Material Handling Equipment

- 32.1 All crane and material handling operations shall be performed in accordance with the applicable sections of 29 CFR 1910 and 29 CFR 1926, the American Society of Mechanical Engineers (ASME) B30 series documents, the Department of Energy Hoisting and Rigging Standard 1090-2011 (DOE STD 1090-2011), and the manufacturer's instructions.

**Note:** A lift in the context of this document applies to operations that involve attachment of a rigging devices such as a sling, shackle, or attachment affixed to a lifting devices such as a mobile crane, bridge crane, or hoist attached to an anchor point, excavator with a lifting point, forklift with a lifting point or attachment or any other equipment designed for lifting applications that are used to lift or lower equipment/materials from one position to another.

- 32.2 All mobile crane operators must meet the qualifications identified in DOE STD 1090-2011, have documentation of completion of an Operator training course for the type and classification of crane equipment they are using, and possess a current medical certificate and a State of New Mexico Mobile Crane Operator license. This documentation, which must meet the minimum qualifications in 29 CFR 1926.1400 shall be provided to the CONTRACTOR STR prior to any equipment operations at the project site.

The CONTRACTOR shall serve as the controlling entity and ensure that SUBCONTRACTOR complies with the following ground conditions per 29 CFR 1926.1402.

1. Ensure that ground preparations necessary to meet the requirements in paragraph (b) of 29 CFR 1926.1402 are provided such that the ground conditions are firm, drained, and graded to a sufficient extent so that, in conjunction (if necessary) with the use of supporting materials, the equipment manufacturer's specifications for adequate support and degree of level of the equipment are met.
2. CONTRACTOR will inform the SUBCONTRACTOR, including the operator, the location of hazards beneath the equipment set-up area (such as voids, tanks, utilities) if those hazards are identified in documents (such as site drawings, as built drawings, and soil analysis) that are in the possession of the controlling entity or the hazards are otherwise known to that controlling entity.
3. In the event the operator or assembly director determines that ground conditions do not meet the requirements in 29 CFR 1926.1402, the SUBCONTRACTOR shall contact the

controlling entity regarding ground preparations needed so that suitable supporting materials/devices (if necessary) are in compliance.

- 32.3 Prior to mobilizing any equipment to the project site, the SUBCONTRACTOR shall provide the CONTRACTOR STR with the assembly/disassembly director's qualifications documentation (29 CFR 1926.1403, 1404 & 1405). Assembly/disassembly must be directed by a person who meets criteria specified in 29 CFR 1926.1400. In addition the SUBCONTRACTOR shall comply with 29 CFR 1926.1404 and 1405 assembly/disassembly general requirements (applies to all assembly and disassembly operations) and must be under the direct supervision of a SUBCONTRACTOR assembly/disassembly director.

Where two or more mobile or fixed cranes (such as tower cranes or pedestal cranes) share the same air space when working within a limited or constrained area such as a construction work-site (e.g. where crane booms or loads could potentially collide, collide with structures, or collide with other mobile equipment), the SUBCONTRACTOR shall designate a crane operations superintendent to the STR, in writing.

The crane operations superintendent shall be a qualified person, knowledgeable of mobile crane activities and will be responsible to coordinate the placement and safe operation of cranes to ensure sufficient clearances are maintained between cranes, loads, structures, utilities and other mobile equipment to prevent interference, collision, and mishaps. Unless otherwise agreed upon in writing by the STR, the crane operations superintendent shall have no other duties that would interfere or distract from the primary duty of coordinating and controlling crane movements and operations.

- 32.4 All riggers shall have formal training and experience demonstrating that they are qualified to perform rigging activities and signaling operations. Evidence of training and experience shall be made available to CONTRACTOR STR prior to any rigging operations at the project site. Per 29 CFR 1926.1404 and 1425 the SUBCONTRACTOR shall use a qualified rigger for rigging operations during assembly/disassembly and other activities when employees must be in the fall zone/restricted work area when handling a load. In addition, a signal person must be qualified per 29 CFR 1926.1428.
- 32.5 SUBCONTRACTOR personnel who use CONTRACTOR'S stationary cranes, hoists, lifting devices, and rigging equipment shall be trained and authorized by CONTRACTOR as Incidental Crane Operators and Riggers for ordinary lifts or as Qualified Crane Operators and Riggers for moderate risk or critical lifts (high consequence lifts). SUBCONTRACTOR may request authorization for SUBCONTRACTOR personnel through the CONTRACTOR STR and OSH-ISH Cranes, Hoisting/Rigging Program Leader via documented training equivalent to the CONTRACTOR'S based on evidence of classroom training, experience, and proficiency.
- 32.6 All SUBCONTRACTOR rigging equipment must be tagged as to its capacity, have passed an annual inspection within one year from date of intended use, and have passed a preoperational inspection prior to each use. All rigging shall be stored properly (i.e., on racks or in protected areas). Rigging inspections shall meet minimum requirements at 29 CFR 1926.1400 and inspection records shall be maintained at the project site and provided to the CONTRACTOR STR upon request and at contract closeout.
- 32.7 SUBCONTRACTOR shall ensure that all mobile cranes, overhead cranes, hoists, and mechanized equipment have been thoroughly inspected and performance- tested to

demonstrate the equipment’s ability to safely handle and maneuver rated loads. These tests and inspections must be done prior to initial on-site operation and annually thereafter, as well as following major repairs and modifications. These inspection records shall be provided to the CONTRACTOR STR prior to any equipment operations at the project site. At a minimum, inspection records shall meet the requirements as specified in 29 CFR 1926.1412, *Inspections* and 29 CFR 1926.1413, *Wire Rope-Inspection*. Maintenance must be current per manufacturer’s recommendations. Maintenance shall be performed by a qualified person and provisions for fall protection, if needed, shall be provided consistent with 29 CFR 1926 Subpart M.

- 32.8 SUBCONTRACTOR qualified and competent persons as required must conduct initial and periodic inspections of mobile cranes as defined in 29 CFR 1926.1412, *Inspection requirements*. These inspections shall include pre-shift, monthly and annual inspections. Inspections shall be documented and provided to CONTRACTOR STR each month or upon request.

**Note:** SUBCONTRACTORS may use CONTRACTOR Mobile Crane Inspection Forms for daily/pre-use and monthly inspections: Form 2211, *Mobile Crane Daily/Pre-Use Inspection Checklist* and Form 2212, *Monthly Mobile Crane Inspection Checklist*.

SUBCONTRACTOR qualified and competent persons, as required, must conduct initial and periodic inspections of portable cranes/hoisting equipment they may bring on site as per applicable ASME B30 and 29 CFR 1910.179 requirements.

- 32.9 With the exception of final preoperational inspections performed immediately prior to use, SUBCONTRACTOR shall provide appropriate documentation (i.e., training, licenses, certificates, inspections, qualifications, records, and other documents requested by CONTRACTOR) to the STR for review and approval at least two working days prior to planned use/implementation of crane operations/activities. Cranes or other material handling equipment may not be used prior to SUBCONTRACTOR receipt of written approval from the STR.
- 32.10 SUBCONTRACTOR shall designate a qualified person knowledgeable in crane operations and rigging to determine the methods and develop plans for crane and rigging operations to ensure safe lifts. This shall include, at a minimum, following any manufacturer’s written instructions for lifting/rigging/moving machines and equipment, and completing a documented site-specific walk down to ensure environment/site conditions are incorporated into the lift plan(s) being followed.
- 32.11 All lifts must be classified as either ordinary, moderate risk or critical by the designated SUBCONTRACTOR qualified person and agreed to by the CONTRACTOR qualified person. Any lift meeting one or more of the following criteria shall be considered a Critical Lift:
  - A significant risk of personal injury or property damage.
  - The item being lifted, although perhaps non-critical, is to be lifted in the immediate proximity to a critical item or component.
  - The load item, if damaged or upset, would result in a release into the environment of radioactive or hazardous material exceeding the established permissible environmental or occupational limits.
  - The load item is unique and, if damaged, would be irreplaceable or not repairable and is vital

to a system, facility, or project operation.

- Loss of control of the item being lifted would likely result in the declaration of an emergency as defined by the facility's emergency plan or construction site emergency plan.
- 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 facility, organizational, Laboratory, or National Nuclear Security Administration (NNSA) budgets to the extent that it would affect program commitments.
- Load exceeds or may exceed 75% of the rated capacity of the crane (or hoist) or rigging equipment used. Where boom cranes or mobile cranes are involved, it includes those lifts where greater than 75% of capacity chart for the boom angle(s) and swing radius is required for the full cycle of the lift or any lift in excess of 100,000 lbs.
- Any mobile or industrial boom crane lift in which the crane, hoist, mechanized equipment, or load and line could at any time contact an energized power line or enter the minimum distance specified in 29 CFR 1926.1408, Power Line Safety (Up To 350 kV) Equipment Operations, Table A.
- If mishandling or dropping of the load would cause any of the above- noted consequences to nearby facilities.
- Any lift using two or more mobile cranes.

32.12 Critical Lifts must have a critical lift plan (Attachment F32-1, *Critical Lift Plan for Subcontractors* [LANL Form 2210A]) approved by CONTRACTOR qualified person and the SUBCONTRACTOR'S qualified person and person-in-charge before such lifts are performed. SUBCONTRACTOR shall provide the lift plan to the STR and allow a minimum of three (3) working days for review and approval. SUBCONTRACTOR shall conduct a documented pre-lift meeting to ensure all participants have a clear understanding of the plan and their responsibilities. All critical lift plans shall contain, at a minimum, the following:

- Identification of the designated Person In Charge (PIC)(s) (Name[s] and Z number[s]), along with all planned participants (i.e., operators, riggers, signalers).
- The designated PIC must be present at the lift location when the plan is executed and is responsible for the execution of the critical lift plan.
- The PIC must not operate or rig while performing PIC duties during any portion of a critical lift and shall be trained to a minimum qualified crane.
- Identification of the items to be moved, including weight, dimensions, and center of gravity.
- The transport path of the load or loads and the location of any sensitive, dangerous, mission-critical, high-value, or safety-significant equipment, facilities, or materials relative to the transport path.
- Identification of operating equipment by type and rated capacity.
- Rigging sketches that include (if applicable) the following:
  - Identification and rated capacity of slings, lifting bars, rigging accessories, and below-the-hook lifting devices
  - Load-indicating devices

- Lifting point(s)
  - Sling angles
  - Boom and swing angles
  - Methods of attachment
  - Crane or hoist orientations
  - Other factors affecting equipment capacity
- Operating requirements and special operating instructions, including rigging precautions and safety measures to be implemented.
  - The requirement that only qualified operators who have been trained and instructed to operate the specific equipment assigned are authorized to make the lift.
  - Requirements that ensure only signalers who are designated, qualified, and trained in accordance with this document give signals to the operators (operator will obey a STOP signal at all times, no matter who gives the signal).
  - All rigging equipment (i.e., slings, below-the-hook lifting devices, and rigging hardware) shall be proof load tested and the corresponding written proof test certificates shall be available for all rigging components below the hook as per DOE STD 1090-2011 Section 2.2.4.
  - Load charts for each crane or hoist used in the lift (if applicable).
  - Signatures from the operator, rigger, signaler, and the PIC who review the plan before the lift is made. If the work plan requires multiple lifts or is executed on more than one shift or day, review with the work team before the initial lift of the day or shift.
  - A pre-lift meeting sign-in sheet, signed by all participating personnel, representing that all questions are resolved before a critical lift is initiated.
  - A specific expiration or review and revision date.
  - A statement indicating that the critical lift plan will be available at the location of the lift when lifting is being conducted.
- 32.13 Any moderate risk lift at LANL by a SUBCONTRACTOR requires a completed Form 1611A, *Ordinary/Moderate Risk Lift Procedure for Subcontractors* (Attachment F32-2, *Ordinary/Moderate Risk Lift Procedure* [LANL Form 1611A]). Moderate risk lift examples include:
- Two bridge cranes working together to lift a single load.
  - Mobile Crane activities lifting any object greater than 20,000 pounds.
  - Any work where an employee will be required to get directly underneath a load that is braced/cribbed/supported.
  - Where boom cranes or mobile cranes are involved and lifts are between 70% and 75% of chart for the boom angle and swing radius required for the full cycle of the lift.
  - Any lift that involves the use of customized/site manufactured below-the-hook hardware or devices.
  - Any lift with a mobile crane that involves the lifting of personnel.

Documentation may include SUBCONTRACTOR having copies available of proof documents

for all rigging components below-the-hook demonstrating that the rigging components have been proof tested by the manufacturer as specified by the ASME standard to the DOE required test load or, in the case of specially engineered lifting/rigging fixtures, engineering analysis or proof test data.

SUBCONTRACTOR must submit completed Form 1611A to STR for review and approval by CONTRACTOR qualified person. SUBCONTRACTOR shall provide the Form 1611A to the STR and allow a minimum of three (3) working days for review and approval.

- 32.14 Ordinary lifts (i.e., lifts that do not meet the criteria of a moderate risk lift or a critical lift) do not require a written ordinary lift plan. The SUBCONTRACTOR'S qualified person may choose to complete an ordinary lift plan in writing. A written ordinary lift plan should contain the following:
- The team members and responsibilities.
  - The item(s) to be lifted, including the weight and dimensions.
  - The lifting equipment and hardware selected which is certified and in a safe configuration; and
  - Pre-lift meeting and a pre-lift meeting sign-in sheet.
- 32.15 All Critical Lift Plans and Moderate Risk Lift Procedures must be available at the lift site at the time of lift. For all critical lifts, copies of proof documents are required for all rigging components below-the-hook. Proof documents demonstrate that the rigging components have been proof tested by the manufacturer as specified by the ASME standard to the DOE required test load, or, in the case of specially engineered lifting/rigging fixtures, engineering analysis or proof test data.
- 32.16 Where CONTRACTOR qualified person observation of critical lifts is required, SUBCONTRACTOR shall provide at least four (4) working days advance notice to the CONTRACTOR STR for observation.
- 32.17 Elevated loads shall be routed so that no personnel are exposed to the hazards associated with falling objects. The PIC shall establish a restricted work area boundary around all hoisted loads in which personnel and equipment are separated by time and distance from any hoisted load. No personnel shall be permitted directly under suspended loads that are not properly braced, cribbed, or supported.
- 32.18 SUBCONTRACTOR shall ensure all crane operations including assembly and disassembly maintain minimum safe distances and comply with mitigation or abatement requirements from potential contact with all high voltage lines, as required by 29 CFR 1926.1407, and 1408. SUBCONTRACTOR(S) must ensure hazard assessments and precautions inside the work zone comply with the following:
- Identify the work zone and submit the hazard assessment to the STR prior to initializing operations.
  - During the assembly/disassembly process, determine if any part of the equipment, load line or load, if operated up to the equipment's maximum working radius in the work zone, could get closer than 20 feet to a power line. If so the SUBCONTRACTOR must meet the requirements in Option (1) De-energize and ground, Option (2) 20 foot minimum clearance,

or Option (3) Table A Clearance of 29 CFR 1926.1408.

32.19 For SUBCONTRACTOR to utilize special hoisting and rigging application devices such as track-hoes with lifting attachments and forklifts with boom attachments, the following minimum requirements must be met:

- Past year’s maintenance records on the subject equipment and attachment (annual inspection by a qualified person);
- Documented training records of the operator on the specific equipment;
- Equipment and lifting attachment owners’ manuals/specifications to assure of capacity/ application and manufacturer authorization that attachment can be used as an assembly;
- Documented pre-use inspection which requires both a visual and operational check; and
- Lift plan that outlines the procedures, hazards and controls associated with the operation.

**Note:** If the SUBCONTRACTOR uses a forklift with boom attachments, SUBCONTRACTOR must complete Form 2041, *High Consequence Material Handling Activity* (Attachment F32-3, High Consequence Material Handling Activity [LANL Form 2041]).

32.20 SUBCONTRACTOR shall ensure that each signal person meets minimum qualifications as specified at 29 CFR 1926.1428 *Signal Person Qualifications*. This document shall be maintained at the project site and provided to the CONTRACTOR upon request.

32.21 SUBCONTRACTOR shall ensure that each person performing maintenance and repair of equipment on the project site meets minimum qualifications as specified at 29 CFR 1926.1429 *Qualifications of Maintenance & Repair Employee*. Qualifications documentation shall be maintained at the project site and provided to the CONTRACTOR upon request.

32.22 SUBCONTRACTOR shall comply with all applicable sections of 29 CFR 1926.1400, to include but not be limited to special applications such as: 29 CFR 1926.1432 *Multiple-crane/derrick lifts -supplement requirements*, and 29 CFR 1926.1435 *Tower Crane* and 29 CFR 1926.1436 *Derricks*.

**F34.0 Aerial Work Platforms (Aerial Lifts)**

34.1 SUBCONTRACTOR shall operate and maintain machines manufactured and used for elevated personnel platform work in accordance with manufacturers’ instructions and recommendations, and only by trained and qualified individuals. SUBCONTRACTOR shall not exceed lift capacity ratings. Training records shall be made available to CONTRACTOR, upon request. Equipment and operation shall be compliant with 29 CFR 1926.453. SUBCONTRACTOR shall ensure fall protection means and training for its employees is compliant with 29 CFR 1926.502 and 29 CFR 1926.503.

34.2 All persons inside work platforms shall be in 100% fall protection (i.e., wearing a full body harness attached by a compliant connector [lanyard] to the manufacturer’s designated anchor point while standing on the floor of the platform or basket only). SUBCONTRACTOR shall visually inspected equipment and test it before each use. SUBCONTRACTOR shall not climb or sit on the guardrail or enclosure.

34.3 SUBCONTRACTOR shall ensure lifts are not used to rig/suspend items from the boom or

platform.

**F35.0 Pressure Safety Including Compressed Gases**

- 35.5 SUBCONTRACTOR shall notify CONTRACTOR and receive written CONTRACTOR authorization prior to bringing any compressed gases or compression devices on-site. Additionally, for such compressed gases, SUBCONTRACTOR’S ES&H Plan shall include a Gas Cylinder Use and Storage Procedure that meets the requirements of Compressed Gas Association (CGA) Pamphlet P-1. The procedure shall include segregation by type, proper signage, protective isolation of flammable gases from oxygen, provisions to keep cylinder caps in place when cylinders are not in use, positive securing of bottles, and maintenance of safe distances from ignition sources, doors, and windows.
- 35.6 SUBCONTRACTOR shall provide cradles and/or cages for lifting compressed gas cylinders and ensure that transported cylinders are secured. Transportation of compressed gases shall comply with Department of Transportation (49 CFR) requirements.

**F36.0 Electrical Safety**

- 36.1 SUBCONTRACTOR will implement a comprehensive electrical safety program appropriate for the activities at the worksite that meets the requirements listed in F1, General Requirements.
- 36.2 SUBCONTRACTOR will use only electrical equipment that is listed by a Nationally Recognized Testing Laboratory (NRTL), such as Underwriters Laboratory (UL) and will use it as intended per its listing. Any modifications or repairs to such listed equipment, or use of such listed equipment outside of its intended use, must be approved by CONTRACTOR’S electrical Authority Having Jurisdiction (AHJ), an Electrical Safety Officer (ESO). Any unlisted electrical equipment (containing an electrical hazard) must be inspected and approved prior to use by CONTRACTOR’S electrical AHJ.
- 36.3 SUBCONTRACTOR workers must take the appropriate CONTRACTOR electrical safety training or have equivalent training accepted by the CONTRACTOR Chief ESO or designee. CONTRACTOR Approval of equivalent training must be documented using Attachment F36-0, *Electrical Training Documentation for Subcontractors*. Acceptable training records must be provided for each employee.
- 36.4 If SUBCONTRACTOR’S work will involve research and development (R&D) equipment or other special electrical hazards, including direct current, capacitors, inductors, variable frequency drive power supplies and equipment, sub radio frequency (0 – 3 kHz), radio frequency (3 kHz - 100 MHz), storage batteries, custom built lithium ion battery systems, and/or uninterruptible power supplies, SUBCONTRACTOR workers must take the appropriate CONTRACTOR electrical safety training or have equivalent training accepted by the CONTRACTOR Chief ESO or designee. CONTRACTOR Approval of equivalent training must be documented using Attachment F36-0, *Electrical Training Documentation for Subcontractors*.
- 36.5 For work on or near exposed electrical hazards or when the worker interacts with the equipment when conductors or circuit parts are not exposed but an increased likelihood of injury from an exposure to an arc flash hazard, which includes activities such as zero energy checks, adjustments, troubleshooting, and maintaining and/or repairing electrical equipment, SUBCONTRACTOR will perform a risk assessment and document controls for mitigating the electrical hazards in an IWD that meets both the requirements of NFPA 70E and

CONTRACTOR'S requirements. This IWD will be approved by CONTRACTOR'S electrical AHJ (ESO).

- 36.6 If the work involves working on exposed energized electrical conductors or circuit parts for which an electrically safe work condition has not been established, which includes activities such as the replacement of parts, circuit reconfiguration, or the use of tools on an energized hazardous electrical circuit, then SUBCONTRACTOR will develop and follow an Energized Electrical Work Permit (EEWP) that meets both the requirements of NFPA 70E and CONTRACTOR'S requirements. Exemptions to an EEWP include, (1) testing, troubleshooting, and voltage measuring, (2) thermography and visual inspections if the restricted approach boundary is not crossed, (3) access to and egress from an area with energized electrical equipment if no electrical work is performed and the restricted approach boundary is not crossed, (4) general housekeeping and miscellaneous non-electrical tasks if the restricted approach boundary is not crossed, (5) work on batteries, where appropriate controls are documented in an IWD and used to protect the worker against battery electrical hazards.
- 36.7 SUBCONTRACTOR will ensure any worker subject to electrical shock (other than static electricity) is evaluated by medical personnel and CONTRACTOR is notified. Additionally, any possible arc flash or burn to the skin or eyes from proximity to electrical discharge requires CONTRACTOR notification and evaluation by medical personnel.
- 36.8 SUBCONTRACTOR will ensure that all facility electrical installations are inspected by a CONTRACTOR electrical inspector and Authorization to Energize is granted by CONTRACTOR'S Chief Electrical Inspector before energizing.

### **F37.0 Traffic and Pedestrian Control**

- 37.1 SUBCONTRACTOR shall submit, as part of the Site-Specific ES&H Plan, a Traffic Control Plan (TCP) for the worksite in accordance with Federal and State regulations, including the Manual on Uniform Traffic Control Devices (MUTCD). The TCP shall be submitted to the CONTRACTOR Traffic Engineer for approval, and the TCP shall be submitted for each phase of a multi-phase project. Refer to MUTCD, Part 6 for TCP example content.
- 37.2 SUBCONTRACTOR'S TCP shall be developed to provide safety for drivers, bicyclists, pedestrians, workers, enforcement/emergency officials, and equipment, with the following factors being considered:
- The basic safety principles governing the design of permanent roadways and roadsides shall also govern the design of temporary traffic control zones.
  - The traffic control plan shall address public notice, adjacent facilities, emergency service, and local transit.
  - Design drawings shall indicate the disposition of all temporary traffic control devices, including work suspensions.
  - Placement and use of traffic control devices and flaggers.
  - Strategies for traffic operations to include: demand management, corridor or network management, safety management and enforcement, and work zone traffic management.
  - Strategies for how vehicles (including oversize vehicles) and pedestrians will be directed to use traffic paths.

- Instructions addressing the sequence of actions necessary to set up, maintain, operate, and take down traffic control devices.
- 37.3 If using any oversize vehicles, SUBCONTRACTOR must submit Form 2075, *Requirements for Moving Heavy Equipment and Oversized Vehicles* to CONTRACTOR Traffic Engineer for approval.
- 37.4 To provide acceptable levels of operations, routine day and night inspections of temporary traffic control elements shall be performed:
- SUBCONTRACTOR Traffic Control Management shall conform to the New Mexico Department of Transportation, Section 618.
  - SUBCONTRACTOR personnel who are knowledgeable (i.e., International Municipal Signal Association or American Traffic Safety Services Association trained and certified) in the principles of proper temporary traffic control shall be assigned responsibility for safety in temporary traffic control zones.
  - SUBCONTRACTOR shall monitor temporary control zones under varying conditions of road user volumes, light, and weather to check that applicable temporary traffic control devices are effective, clearly visible, clean, and in compliance with the temporary traffic control plan. SUBCONTRACTOR shall submit daily inspection log for review by CONTRACTOR Traffic Engineer.

#### **F49.0 Radiation Protection**

- 49.1 SUBCONTRACTOR shall comply with the requirements of 10 CFR 835, as implemented through the LANL Radiation Protection Program, and as specified in P121 Radiation Protection for work involving radiological hazards. This includes work with radioactive materials, sources, contamination, radiation generating devices, any areas posted for radiological hazards, or anywhere radiological controls are established. SUBCONTRACTOR can obtain the latest version of P121 from CONTRACTOR.
- 49.2 For any work involving radiological hazards, SUBCONTRACTOR shall contact CONTRACTOR deployed safety personnel, prior to beginning work, to ensure radiological work is adequately supported with radiation protection staff and appropriate radiological controls are established.
- 49.3 SUBCONTRACTORS planning to operate a non-CONTRACTOR radioactive sealed source (RSS) or radiation generating device (RGD) (e.g., industrial radiography) shall complete Form 2264, *Radioactive Sealed Source / Radiation Generating Device Authorization for Use on LANL Site* and submit associated documentation, for review and approval by CONTRACTOR group RP-PROG, at least 48 hours before bringing the RSS or RGD onto CONTRACTOR site. CONTRACTOR STR shall notify RP-PROG and Deployed ESH at least 24 hours before use, to include the type of device, location of use, and duration of use.

#### **F51.0 Asbestos Work / Abatement / Demolition / Roofing Work**

- 51.1 SUBCONTRACTOR workers shall receive, at a minimum, asbestos awareness level training for Class IV Asbestos Work (during which employees contact but do not disturb Asbestos Containing Materials, or Presumed Asbestos Containing Materials), and activities to clean up

dust, waste, and debris.

## F52.0 Exposure Assessment

- 52.1 In accordance with 10 CFR 851, SUBCONTRACTOR shall have a process to identify existing and potential workplace hazards and assess worker risk to environmental stressors (e.g., chemical, biological, and physical) to which workers may be exposed to while performing work under this contract.
- 52.2 SUBCONTRACTOR will develop as part of the Site-Specific ES&H Plan, and submit to the STR an Exposure Assessment Plan that details:
- 52.2.1. The task(s) associated with each worker exposure hazard to be evaluated. CONTRACTOR considers the following items to merit special exposure assessment planning, which will be reviewed and approved by CONTRACTOR.
- Welding or cutting work occurring near chlorinated solvents
  - Welding or cutting work involving materials containing cadmium, chromium, lead, mercury, manganese, beryllium, or radioactive materials
  - Welding or cutting operations in a confined space
  - Welding or cutting operations in an areas where explosives have not been removed
- 52.2.2 The names or types of hazards to be evaluated during the course of the subcontracted work.
- 52.2.3 The occupational exposure limit, if available, to be used in evaluating the worker's exposure potential for each environmental stressor identified (e.g., 2016 ACGIH TLV 8-hour TWA, OSHA ceiling).
- 52.2.4 For each environmental stressor that will be evaluated against its occupational exposure limit(s), provide an assessment of the exposure risk and when worker exposure monitoring will be required. This plan will be developed by a SUBCONTRACTOR industrial hygienist qualified through a combination of knowledge, skills, and abilities in the chemical, biological, and physical hazards associated with the work. CONTRACTOR ES&H professional will approve the Exposure Assessment Plan before the Notice to Proceed is issued. Examples of industrial hygienist qualifications include being a Certified Industrial Hygienist (CIH) or having the combination of education and experience that makes him or her eligible to sit for the CIH exam. When appropriate, CONTRACTOR ES&H professional may authorize substitute education and experiences in lieu of a CIH or being CIH-exam eligible.
- 52.3 SUBCONTRACTOR shall complete exposure assessments in accordance with 29 CFR 1910, Subpart Z, Toxic and Hazardous Substances; 29 CFR 1926, Occupational Health and Environmental Controls; and 29 CFR 1926, Subpart Z, Toxic and Hazardous Substances. Depending on the hazard, in accordance with 10 CFR 851, occupational exposure limits may be based on DOE-mandated consensus standards (e.g., 2016 ACGIH TLVs) rather than OSHA permissible exposure limits while the remaining requirements in a given OSHA standard remain (e.g., training, exposure monitoring frequency, medical surveillance, labeling).
- 52.4 SUBCONTRACTOR industrial hygienist will provide oversight of the execution of the exposure assessment plan and interpretation of results. The industrial hygienist is not mandated to be on-site during work activities. Appropriately trained persons may assist with on-site exposure

- assessments (e.g., SUBCONTRACTOR ES&H technician conducting personal monitoring).
- 52.5 SUBCONTRACTOR will provide worker exposure monitoring results and any new exposure assessments completed after the initial plan to the CONTRACTOR. SUBCONTRACTOR will submit exposure monitoring and assessment results to CONTRACTOR within 5-business days from date SUBCONTRACTOR receives final laboratory analytical data.
- 52.6 SUBCONTRACTOR shall ensure workers have the right, without reprisal to be notified, when monitoring results indicate the worker was overexposed to an environmental stressor, observe measuring of stressor, and have the results of their own personal sampling.
- 52.7 SUBCONTRACTOR will incorporate outcome of exposure monitoring results and exposure assessments into task IWD(s).
- 52.8 SUBCONTRACTOR will implement control measures using the hierarchy of controls (i.e., elimination or substitution, engineering controls, work practices and administrative controls, then personal protective equipment) to mitigate worker exposure risks. All routes of entry (e.g., inhalation, contact, absorption, or ingestion) shall be considered when making risk management decisions.

### **F53.0 Beryllium Activities Not Involving Airborne Beryllium**

- 53.1 In accordance with 10 CFR 851.23(a)(1), SUBCONTRACTOR shall comply with CONTRACTORS'S Chronic Beryllium Disease Prevention Program (CBDPP, LANL P101-21) and comply with applicable requirements as specified by CONTRACTOR to include training, personal protective equipment, engagement of CONTRACTOR qualified industrial hygiene and safety professionals, or other program areas. SUBCONTRACTOR can request a copy of the documents from the CONTRACTOR STR.
- 53.2 Prior to entry into posted designated beryllium areas, performing beryllium operations involving beryllium contamination (with no exposure to airborne beryllium), or performing work with beryllium alloy tools, SUBCONTRACTOR shall provide evidence that each worker has completed beryllium awareness level or higher training in accordance with LANL P101-21, Section 6. Additionally, prior to entry into posted designated beryllium areas, each SUBCONTRACTOR worker must receive any required site-specific training.
- 53.3 Prior to performing activities involving beryllium, SUBCONTRACTOR shall obtain CONTRACTOR confirmation that activity is not anticipated to involve generation of airborne beryllium as defined in P101-21. If any SUBCONTRACTOR work activity changes occur which may generate airborne beryllium, SUBCONTRACTOR must pause work and notify CONTRACTOR STR.
- 53.4 Prior to performing activities involving beryllium, SUBCONTRACTOR shall obtain CONTRACTOR concurrence with regard to designated beryllium area postings to be used during the activity. Designated beryllium area postings shall not be added, modified, or removed by SUBCONTRACTOR in non-emergency situations without concurrence of CONTRACTOR. If a designated beryllium area must be established by SUBCONTRACTOR to secure and control an area in an emergency situation CONTRACTOR STR shall be notified as soon as reasonably practicable.

### **F57.0 Biological Safety**

- 57.1 When work scope involves potential exposure to or actual handling of etiological agents, SUBCONTRACTOR shall comply with 10 CFR 851 Appendix A, Section 7 (a).
- 57.2 SUBCONTRACTOR shall ensure each worker must have received an awareness briefing and site-specific training provided by CONTRACTOR prior to entry into buildings or facilities where biological hazards exist.
- 57.3 Where work scope involves potential exposure to wastewater, blood, sewage, or other potentially infectious materials; or wildlife or rodents, their nests and excreta, the SUBCONTRACTOR shall develop and implement a site specific written exposure control plan (ECP) in accordance with 29 CFR 1910.1030, Bloodborne Pathogens. The ECP shall be incorporated into the SUBCONTRACTOR'S Site Specific ES&H Plan. For blood and other potentially infectious materials, SUBCONTRACTOR must perform post-exposure evaluations and offer of Hepatitis B Vaccination to its workers.
- 57.4 SUBCONTRACTOR shall provide Bloodborne Pathogen training to workers, and the content of this training shall be approved by CONTRACTOR'S Biological Safety Officer where work involves contact with blood or other potentially infectious materials. When approved by CONTRACTOR'S Biological Safety Officer, SUBCONTRACTOR may take CONTRACTOR'S Bloodborne Pathogen course (UTrain 7292 initially, then UTrain 11776 can be taken as an annual refresher).
- 57.5 Where SUBCONTRACTOR provides equipment service maintenance in a BSL-1 or BSL-2 laboratory (e.g., biosafety cabinet certification, autoclave maintenance and calibration, other equipment maintenance or repair) SUBCONTRACTOR will be briefed on the hazards they may encounter in these laboratories, and the requirements in 57.6 do not apply.
- 57.6 SUBCONTRACTOR shall comply with the requirements below regarding programmatic or research work at a Biosafety Level (BSL) Laboratory.
- 57.6.1 Work at BSL-1 and BSL-2 Laboratories must be approved by CONTRACTOR'S Institutional Biosafety Committee (IBC), via the CONTRACTOR'S Biosafety Officer.
- 57.6.2 SUBCONTRACTOR'S workers must have completed CONTRACTOR course 31701, Principles of Biosafety (live) and CONTRACTOR course 37023, Principles of Biosafety On-Line Refresher (annually thereafter).
- 57.6.3 SUBCONTRACTOR must perform specific medical surveillance as dictated by specific BSL-1 and 2 laboratory entry requirements.

## F61.0 Demolition, Remodeling, or Renovation

- 61.1 The SUBCONTRACTOR shall follow 29 CFR 1926.Subpart T, *Demolition*. Prior to the start of demolition or remodeling work, SUBCONTRACTOR shall follow 29 CFR 1926.850, *Preparatory Operations*. SUBCONTRACTOR shall have in writing evidence that the outlined OSHA steps were followed.
- 61.2 Where walkways represent a fall hazard of 6 feet or greater, the walkways shall be equipped with guardrails meeting the requirements of 29 CFR 1926.502, *Fall Protection Systems Criteria and Practices*, or individuals accessing the walkway are provided with compliant fall arrest protective equipment. Demolition of floor arches shall not be started until they, and the surrounding floor area for a distance of 20 feet, have been cleared of debris.

- 61.3 If mechanical equipment is used to remove walls, floors, and materials, the SUBCONTRACTOR shall ensure it meets the requirements of 29 CFR 1926 Subpart N, *Helicopters, Hoists, Elevators, and Conveyors* and Subpart O, *Motor Vehicles, Mechanized Equipment, and Marine Operations* and 29 CFR 1926.150, *Cranes and Derricks* and Subpart DD, *Cranes and Derricks Used in Demolition and Underground Construction*.
- 61.4 SUBCONTRACTOR acknowledges that any renovations that may disturb greater than threshold quantities of asbestos-containing material, all roofing work, and all demolition work require advance notification to New Mexico Environment Department, Air Quality Bureau even if no asbestos is present. SUBCONTRACTOR shall prepare and submit all required NMED notification forms/letters to CONTRACTOR STR at least 15-working days before any work begins, in accordance with New Mexico Administrative Code 20.2.78 and 40 CFR 61.145. CONTRACTOR will submit the required information to NMED 10-working days before any work begins.
- 61.5 SUBCONTRACTOR shall implement the CONTRACTOR provided Waste Characterization Strategy Form before waste is generated from construction, demolition, decontamination, and decommissioning activities, and manage the waste accordingly.

**F62.0 Respirable Crystalline Silica**

62.1 For work that involves:

- Earthmoving, excavation, well drilling, vegetation control, or activities at sites that have been cleared and have extensive exposed soil.
- Grinding, cutting, drilling, breaking, and other similar actions performed on building and road materials with crystalline silica as a component, such as: cured concrete, dry concrete components (e.g., Portland cement, aggregate), asphalt paving, ceramic tile, stone, masonry blocks, bricks, pavers, drywall joint compound, paint, or DriTherm™, and similar silica-bearing pourable products.
- Abrasive blasting with silica containing media or on substrates that contain crystalline silica.

SUBCONTRACTOR shall submit, as part of the Site-Specific ES&H Plan, a Respirable Crystalline Silica Exposure Control Program that shall follow the requirements of either:

1. Table 1:

<b>Table 1: Respirable Crystalline Silica Program Triggers by Exposure Level</b>	
Action Level (worker medical surveillance and training required if exposed at action level 30 days or more per year)	25 µg/m <sup>3</sup> 8-Hour TWA
Occupational Exposure Limit (OEL)	25 µg/m <sup>3</sup> 8-Hour TWA
Controlled Work Zone Required	50 µg/m <sup>3</sup> 8-Hour TWA

2. Or provide proof of scheduled monitoring, or a combination of sampling and objective data to accurately characterize worker exposure to respirable crystalline silica.

# EXHIBIT “F”

## ENVIRONMENTAL, SAFETY, AND HEALTH REQUIREMENTS

### PART III: ENVIRONMENTAL & WASTE MANAGEMENT CLAUSES

**Note: References herein to 10 CFR 851 or subparts thereof refer to Title 10 of the Code of Federal Regulations, Part 851 Worker Safety and Health Program.**

#### F38.0 Pollution Prevention / Waste Minimization

- 38.1 SUBCONTRACTOR shall manage all work activities in a manner that practices source reduction, as defined by the Pollution Prevention Act of 1990 to minimize the generation of waste.
- 38.2 SUBCONTRACTOR shall purchase and use materials and products that provide for pollution prevention. Requirements for purchase of materials and products are as follows:
  - 38.2.1 Recycled Construction Products and Materials – *Resource Conservation and Recovery Act* requires designated products to be purchased with the highest recovered (recycled) material content level practicable. *Comprehensive Procurement Guidelines* for products designated by the U.S. Environmental Protection Agency for purchase with recovered materials may be found at <http://www2.epa.gov/greenerproducts>.
  - 38.2.2 Bio-based Materials and Products – *The Farm Security and Rural Investment Act* requires preferential purchase of products certified by the U.S. Department of Agriculture to contain bio-based content. Bio-based Industrial Products certified by the U.S. Department of Agriculture may be found at <http://www.biopreferred.gov/BioPreferred/>.
  - 38.2.3 Energy Efficient Products – 48 CFR Part 23.203 require the purchase of energy efficient products labeled “Energy Star”. For energy efficient products, go to <http://www.eere.energy.gov>. *Building for Environmental and Economic Sustainability (BEES)* tool may be accessed to weight the environmental and economic performance of building products and materials at <https://www.nist.gov/services-resources/software/bees>.

#### F39.0 Waste Management/Disposal

- 39.1 CONTRACTOR follows P409, *LANL Waste Management* to implement its waste management program. SUBCONTRACTOR shall follow the direction of the CONTRACTOR Waste Management Coordinator as authorized by CONTRACTOR STR for implementing P409.
- 39.2 SUBCONTRACTOR shall be provided a CONTRACTOR generated Waste Characterization Strategy Form that identifies all waste streams potentially generated by the project. CONTRACTOR shall provide waste characterization, packaging, storage and disposal for each potential waste stream, as applicable. SUBCONTRACTOR shall pause any activity where a waste stream not identified in the Waste Characterization Strategy Form is potentially generated. SUBCONTRACTOR shall notify the CONTRACTOR STR and Waste Management Coordinator, in writing, of any waste stream encountered or potentially generated which is not included in CONTRACTOR provided Waste Characterization Strategy Form. Work involving the

new waste stream shall not proceed until CONTRACTOR provides an amended/approved Waste Characterization Strategy Form which addresses waste management of the new waste stream.

- 39.3 SUBCONTRACTOR shall ensure project waste containers, are closed, except when waste is being added, removed or consolidated. Roll-off bins containing material for recycling, construction/demolition debris or other waste material must be covered, except when adding, removing or consolidating material, with the exception of containers (e.g., drums, bins, or a lined pit) holding concrete washout. Waste, including non-regulated Construction and Demolition (C&D) debris, must not be transported to Santa Fe County transfer stations or landfills.
- 39.4 SUBCONTRACTOR shall not abandon or leave waste without written CONTRACTOR approval (e.g., e-mail notification or memo from Waste Management Programs). When such approval is granted, SUBCONTRACTOR shall coordinate with CONTRACTOR Waste Management Coordinator and STR to communicate the waste location and approximate volume at the time approval is granted.

**F40.0 Work Within the Boundary of a Consent Order Site**

- 40.1 SUBCONTRACTOR shall comply with F39, Waste Management, for the management of waste generated and removed from within the boundary of a Consent Order Site [i.e., Solid Waste Management Unit (SWMU) or Area of Concern (AOC)]. CONTRACTOR will mark boundaries at the site, as necessary.
- 40.2 CONTRACTOR will provide SUBCONTRACTOR with information regarding potential contaminants present in soils and other materials at the site and the potential hazards and controls associated with those contaminants in or near a Consent Order Site.
- 40.3 SUBCONTRACTOR will manage all excavated soil, fill, and other materials (i.e., concrete, asphalt, drain lines, etc.) within the boundary of the Consent Order Site. While staged within the SWMU or AOC boundary, SUBCONTRACTOR will stabilize the excavated soil, fill, and other materials to ensure the soil or other materials are not dispersed off-site by wind, storm water runoff, vehicle or pedestrian traffic, etc. Upon completion of the project, all excavated soil and fill must be returned to the point and depth of origin within the excavation unless otherwise specified by CONTRACTOR.
- 40.4 SUBCONTRACTOR may use mechanical/vacuum potholing methods within the boundary of a SWMU or AOC when approved by CONTRACTOR. All potholing liquids, fluids, and sediment generated from mechanical/vacuum potholing within the boundary of a SWMU or AOC shall be characterized, containerized, and managed in accordance with F39, Waste Management, once removed from within the SWMU or AOC boundary.
- 40.5 SWMU or AOC boundaries will be identified in SUBCONTRACTOR'S Storm Water Pollution Prevention Plan (SWPPP) and shall meet the following, as applicable:
  - 40.5.1 SUBCONTRACTOR shall not locate washout pits, potholing water pits, or storm water retention ponds within the boundary of a SWMU or AOC.
  - 40.5.2 Prior to the start of any soil disturbing activities, SUBCONTRACTOR shall install and maintain BMPs (i.e., erosion controls) in the manner and sequence specified in the SUBCONTRACTOR'S SWPPP for the project to prevent storm water running onto a

SWMU or AOC or runoff from a SWMU or AOC impacted by the planned work activities.

40.5.3 SUBCONTRACTOR shall stabilize any disturbed areas within a SWMU or AOC boundary as soon as practicable. To the extent practicable, stabilization activities shall be timed, to take advantage of climatic conditions.

Note: To prevent contaminant transport and the invalidation of site characterization data, discing or grading the surface of a SWMU or AOC is prohibited, except as approved by the CONTRACTOR.

Note: Projects greater than 1 acre, or part of a larger common plan that is greater than 1 acre, will have a SWPPP.

**F41.0 Wastewater Discharges**

41.1 SUBCONTRACTOR shall comply with all federal, state, and local laws and regulations regarding wastewater management and discharges. Wastewater includes sanitary wastewater, industrial wastewater, potable water, or any other liquid, in any amount, which may pollute waters of the State of New Mexico. Wastewater shall not be discharged to the environment without coverage under an approved discharge permit or an approved Notice of Intent (NOI) to discharge. Wastewater shall not be discharged to the subsurface without coverage under an approved groundwater discharge plan. SUBCONTRACTOR shall contact CONTRACTOR STR prior to any wastewater discharges from the project. CONTRACTOR shall provide the permit or discharge plan when required.

41.2 SUBCONTRACTOR shall comply with all requirements for on-site sanitary wastewater storage and disposal as established by the New Mexico Ground Water Discharge Permits 857 and 1589. CONTRACTOR shall obtain the required permits from the New Mexico Environment Department (NMED) for the use of proposed sanitary holding tanks and septic tank/leach field systems prior to the start of work.

41.3 SUBCONTRACTOR shall capture all stucco, paint, concrete, form release oils, curing compounds, potholing, and other washout materials in on-site, impervious containment areas for dewatering/evaporation/hardening at locations designated by CONTRACTOR STR. Potholing washout materials shall be stabilized and left on site or shall be characterized, containerized, and managed in accordance with F39, Waste Management.

Note: For potholing conducted within a Consent Order Site, refer to F40, Work Within the Boundary of a Consent Order Site.

41.4 For wastewater discharges into Laboratory treatment facilities, SUBCONTRACTOR shall demonstrate compliance with the applicable Waste Acceptance Criteria (WAC) and receive approval from CONTRACTOR STR prior to any such wastewater discharges. Compliance with the WAC may be demonstrated through existing water quality data or through sampling and analysis by SUBCONTRACTOR, as may be required by CONTRACTOR to demonstrate compliance.

**F42.0 Spill Prevention, Reporting, and Response**

42.1 SUBCONTRACTOR shall provide immediate notification to CONTRACTOR STR of any spilling, leaking, pumping, pouring, discharging (including wastewater), emitting or dumping of materials to the environment, regardless of quantity and will have spill kits available to aid in

spill remediation. CONTRACTOR STR will make immediate on-site notification to Environmental Compliance (EPC-CP Spills Pager 664-7722) of the release occurrence and will contact Emergency Operations (667-2400) in the event of an emergency. Releases that are reportable to the NMED and EPA may require additional documentation. CONTRACTOR STR will supply necessary forms to document spills. SUBCONTRACTOR shall report any other incident relative to material/waste handling, storage, transportation, spills, or disposal to CONTRACTOR STR and shall take immediate and appropriate steps to protect human health and the environment. SUBCONTRACTOR agrees to remediate and complete corrective actions in response to any spills, leaks, or unpermitted discharges. Sampling and analyzing environmental media, liquid releases and/or spill residues may be required for remediation verification and to ensure waste generated is managed in accordance with F39, Waste Management.

- 42.2 SUBCONTRACTOR shall develop and maintain spill prevention control and countermeasures for chemicals, petroleum, and waste products used and stored on the work site. The sites where these storage areas are established must be inspected by the CONTRACTOR before storage begins. The following Best Management Practices (BMP) shall be used for such spill prevention and countermeasures:
- Establish secondary containment, diversionary structures, or equipment to prevent the products from contaminating the environment should a spill or leak occur.
  - Locate storage facilities away from low-lying areas such as ditches, streams, and storm drains, facility drains, and storm sewers.
  - Maintain nearby spill control equipment (i.e., spill kit).
  - Effectively containerize and label all products. Storage containers must be in good working order. Ensure material and waste storage bins on the project site are covered to prevent contact with storm water and off site contaminant migration.
  - Aboveground fuel storage tanks designed for stationary use may not be used as mobile tanks.
- 42.3 Prior to the start of work, the SUBCONTRACTOR shall supply CONTRACTOR STR with an inventory of chemicals, petroleum, and other products to be brought to any LANL property/facility and those to be stored at the worksite or elsewhere on LANL property.
- 42.4 SUBCONTRACTOR shall not store or use Clean Air Act Section 112r toxic or flammable chemicals in excess of the threshold quantities that would require CONTRACTOR to have a Risk Management Plan. In accordance with Clause 42.3, SUBCONTRACTOR shall provide a list of all chemicals planned to be stored or used over the duration of the project. SUBCONTRACTOR shall indicate in the submittal of all chemicals those that will be stored or used in quantities in excess of 500 pounds.
- 42.5 SUBCONTRACTOR shall comply with the Spill Prevention Control and Countermeasure (SPCC) Rule set forth in 40 CFR 112, including development or modification of a SPCC Plan for facilities that have an aggregate aboveground storage capacity of 1,320 gallons, or greater, of oil or other petroleum products. The SPCC Plan shall be submitted by the SUBCONTRACTOR as part of its Site-Specific ES&H Plan or coordinated with EPC-CP for oil handling work on existing facilities subject to the SPCC Rule. Any work to install, replace, repair, or modify an Aboveground Storage Tank (AST) system must comply with the regulations

promulgated in 20.5 NMAC. An AST is defined as a single tank or combination of manifold tanks, including pipes connected thereto, that is 1,320 gallons or more, and less than 55,000 gallons, is permanently installed, and is used to contain oil.

### F43.0 Storm Water Management

- 43.1 SUBCONTRACTOR shall comply with all federal, state, and local laws and regulations regarding storm water runoff and control of potential pollutants that could result from SUBCONTRACTOR activities at construction sites, National Pollutant Discharge Elimination System (NPDES) permitted industrial facilities and NPDES permitted solid waste management units (SWMUs). SUBCONTRACTOR'S compliance with NPDES controls and conditions are subject to inspection by the CONTRACTOR at any time.
- 43.2 SUBCONTRACTOR shall use appropriate storm water management, sediment, and erosion control Best Management Practices (BMPs) in accordance with LANL Engineering Standards, Chapter 3 Civil, G10GEN, 6.0, A, the [LA-UR-11-10371](#), construction specifications, good engineering practices, and industry standards.
- 43.3 SUBCONTRACTOR shall initiate stabilization measures whenever earth-disturbing activities have permanently or temporarily ceased on any portions of the site. Stabilization activities will be completed within 7-calendar days for sites that discharge to an impaired watercourse.
- 43.4 For activities subject to the NPDES Construction General Permit (CGP), SUBCONTRACTOR is required to comply with the requirements of the Permit as published on EPA's website. (<https://www.epa.gov/npdes/epas-2017-construction-general-permit-cgp-and-related-documents>)
- 43.4.1 SUBCONTRACTOR shall assist CONTRACTOR with development of a Storm Water Pollution Prevention Plan (SWPPP) in accordance with the NPDES CGP. SUBCONTRACTOR and CONTRACTOR shall properly certify the SWPPP and SUBCONTRACTOR shall implement the SWPPP.
- 43.4.2 SUBCONTRACTOR, through submission to the Environmental Protection Agency of a Notice of Intent (NOI), shall obtain NPDES CGP coverage separate from that obtained by CONTRACTOR, and shall require, as necessary, all lower-tier subcontractors, whose day-to-day operational control of subcontract activities fall under the purview of the NPDES regulations, to obtain separate permits. SUBCONTRACTOR shall provide documentation of a proper NOI submittal to CONTRACTOR STR prior to the start of work requiring CGP permit coverage.
- 43.4.3 SUBCONTRACTOR shall complete all CONTRACTOR-required storm water training prior to the commencement of earth-disturbing or pollutant-generating activities. (e.g., clearing, grading, or other earth-disturbing activity, stockpiling of fill material, or staging of pollutants or other raw materials at the site).
- 43.4.4 SUBCONTRACTOR will correct deficiencies, both self-identified and noted by CONTRACTOR during SWPPP inspections within the time frame specified in the CGP and as noted on the inspection reports.
- 43.4.5 SUBCONTRACTOR shall initiate, maintain, and complete the record keeping requirements as identified in the CGP.
- 43.5 For work within a watercourse, subject to regulation by the US Army Corp of Engineers, SUBCONTRACTOR shall comply with all terms and conditions of the applicable 404 Permit

and the related New Mexico Section 401 Water Quality Certification.

- 43.6 For activities subject to the NPDES Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity (MSGP), SUBCONTRACTOR is required to comply with the requirements of the Permit as published on EPA's website, <https://www.epa.gov/npdes/2017-construction-general-permit-cgp>.
- 43.6.1 For activities within facilities subject to the NPDES Multi-Sector General Permit (MSGP), SUBCONTRACTOR shall obtain, through CONTRACTOR, a copy of the facility MSGP SWPPP and shall comply with the site specific MSGP requirements as identified in the facility MSGP SWPPP.
- 43.6.2 For activities subject to the NPDES MSGP, SUBCONTRACTOR shall ensure workers are trained to the CONTRACTOR MSGP Storm Water Pollution Prevention Plan and understand specific requirements in the MSGP relative to their work responsibilities prior to starting work within the boundary of an MSGP facility.
- 43.6.3 SUBCONTRACTOR shall provide the CONTRACTOR with project information sufficient to amend the facility MSGP SWPPP, as needed.
- 43.6.4 SUBCONTRACTOR shall stabilize disturbed areas whenever earth-disturbing activities have permanently or temporarily ceased on any portions of the site.
- 43.6.5 Upon identification of a condition requiring corrective action, as specified in the MSGP, SUBCONTRACTOR shall notify the STR, document conditions in accordance with MSGP requirements, take immediate corrective action, and complete final corrective action within 14-calendar days.
- 43.7 SUBCONTRACTOR shall ensure workers required to carry out compliance activities associated with the NPDES CGP or MSGP understand the requirements and their specific responsibilities with respect to those requirements. SUBCONTRACTOR shall designate ES&H Representatives responsible for the implementation of NPDES CGP or MSGP requirements in the ES&H Oversight Plan. SUBCONTRACTOR will submit these individuals experience and/or certifications for approval prior to start of associated work activities.
- 43.8 For activities resulting in a ground disturbance of 5000 ft<sup>2</sup> or more, SUBCONTRACTOR shall comply with Section 438 of the Energy Independence and Security Act (EISA 438) and utilize low impact development features to maintain or restore pre-development site hydrology in accordance with LANL Engineering Standards, Chapter 3 Civil, G20GEN, 1.0, B.
- 43.9 For activities that potentially impact designated wetlands or 100-year floodplains, SUBCONTRACTOR shall provide CONTRACTOR with project information sufficient to develop and process a wetland and/or floodplain assessment to meet the requirements of 10 CFR Part 1022 - Compliance with Floodplain and Wetland Environmental Review Requirements.

#### F44.0 Air Quality

- 44.1 SUBCONTRACTOR shall be responsible for obtaining all necessary air quality permits required by federal, state, and local regulations for their own equipment. SUBCONTRACTOR shall assure that all documentation, including, but not limited to, permits, relocation notices, etc., applicable to their operations and equipment are filed and approved by the New Mexico Environment Department (NMED) (20.2.72 NMAC). Copies of permits, relocation notices, etc. shall be provided to CONTRACTOR.

- 44.2 SUBCONTRACTOR shall provide in Attachment F16-1, *Major Equipment Declaration*, a list of equipment that may emit air pollutants to be used for the duration of the project and proposed equipment to be installed in buildings on a temporary basis. Equipment includes, but is not limited to: generators, boilers, hot water heaters, cooling towers, storage vessels or tanks, degreasers, parts washers, refrigerant containing equipment, rock crushers, asphalt plants, concrete plants, plug mills, etc.
- 44.3 For all open burning operations, SUBCONTRACTOR shall comply with the Open Burning and Smoke Management requirements of New Mexico Administrative Code Sections 20.2.60 and 20.2.65 as well as LANL's Title V Operating Permit.

#### **F45.0 Biological Resources Protection**

- 45.1 SUBCONTRACTOR and all lower-tier subcontractors shall comply with all work restrictions required for compliant biological resources protection that are identified by CONTRACTOR STR. Such actions are identified by: CONTRACTOR biological SME work plan review, PRID comments, and/or excavation permit comments. These actions may include restrictions that impact work schedule or locations.
- 45.2 Action required for compliant biological resources protection (e.g., timing restrictions, biological assessment, mitigation requirements, location restrictions, etc.) must be included in SUBCONTRACTOR'S Site-Specific ES&H Plan.

#### **F46.0 Cultural Resources Protection**

- 46.1 SUBCONTRACTOR and all lower-tier subcontractors shall comply with all work restrictions required for compliant cultural resources protection that are identified by the STR. Such actions are identified by: CONTRACTOR cultural SME work plan review, PRID comments, and/or excavation permit comments. These actions may include restrictions that impact work location.
- 46.2 SUBCONTRACTOR and all lower-tier subcontractors shall not enter the marked boundaries of archaeological sites without written authorization from CONTRACTOR STR.
- 46.3 SUBCONTRACTOR shall immediately stop work if, for example, any bones (possible burials), clusters or alignments of rocks above bedrock (possibly masonry walls), charcoal stains (possible hearths or burned wooden structures), clusters of artifacts such as pottery or pieces of chipped stone, etc. are encountered. SUBCONTRACTOR must notify CONTRACTOR STR immediately. SUBCONTRACTOR shall not resume work in the area of the discovery until authorized to do so in writing by CONTRACTOR STR.
- 46.4 Actions required for compliant cultural resources protection (e.g., marking and avoidance of archaeological sites, protection of significant historic buildings and structures, etc.) must be included in SUBCONTRACTOR'S Site-Specific ES&H Plan.

#### **F60.0 Refrigerants**

- 60.1 SUBCONTRACTOR shall use only appropriate level EPA-certified technicians for the type of equipment being serviced. CONTRACTOR STR shall contact LANL's Meteorology and Air Quality Team at [refrigerants@lanl.gov](mailto:refrigerants@lanl.gov) to ensure all EPA-certified SUBCONTRACTOR technicians performing service, maintenance, repair, and disposal activities are properly trained to applicable procedures prior to working on LANL refrigeration equipment. CONTRACTOR

must approve of technicians prior to work beginning.

- 60.2 SUBCONTRACTOR shall use only EPA certified recovery/recycle units.
- 60.3 SUBCONTRACTOR shall not install new equipment at LANL that use refrigerants classified as Ozone Depleting Substances (ODS) including R-22 and R-123. Additionally, STR shall contact the Meteorology and Air Quality Team prior to the installation of any new equipment that uses flammable refrigerants.
- 60.4 SUBCONTRACTOR shall coordinate with CONTRACTOR to ensure all refrigerants to be sent off-site are offered to Department of Defense prior to considering any other disposal or recycle options. STR must contact EPC-CP ([refrigerants@lanl.gov](mailto:refrigerants@lanl.gov)) on behalf of SUBCONTRACTOR to ensure this takes place.
- 60.5 SUBCONTRACTOR shall complete the STR-supplied LANL Refrigerant Service Record Form from the most current version of LANL's *Air Quality Requirements During Maintenance, Service, Repair, and Disposal of Refrigeration Appliances* procedure and return said form to the STR for each service, repair, maintenance or installation of refrigerant containing equipment. STR will forward the form to the Meteorology and Air Quality Team.
- 60.6 SUBCONTRACTOR shall fill out STR-supplied Refrigeration Appliance Inventory Form provided from the most current version of LANL's Refrigeration Appliance Inventory procedure and return said form to STR who will forward it to the Meteorology and Air Quality Team when installing new refrigerant containing equipment.

**Attachments**

Attachment F1-0	FOD Exhibit F Site Hazard Analysis and Coordination Requirements <a href="http://int.lanl.gov/safety/exhibit-f/downloads/Attachment-F1-0.pdf">http://int.lanl.gov/safety/exhibit-f/downloads/Attachment-F1-0.pdf</a>
Attachment F3-1	Safety Performance Eligibility Requirements <a href="http://int.lanl.gov/safety/exhibit-f/downloads/Attachment-F3-1.pdf">http://int.lanl.gov/safety/exhibit-f/downloads/Attachment-F3-1.pdf</a>
Attachment F3-2	Environment, Safety and Health History Worksheet <a href="http://int.lanl.gov/safety/exhibit-f/downloads/Attachment-F3-2.pdf">http://int.lanl.gov/safety/exhibit-f/downloads/Attachment-F3-2.pdf</a>
Attachment F5-1	Weekly Productive Man-Hour Report <a href="http://int.lanl.gov/safety/exhibit-f/downloads/Attachment-F5-1.pdf">http://int.lanl.gov/safety/exhibit-f/downloads/Attachment-F5-1.pdf</a>
	DOE Individual Accident/Incident Report, F-5484 <a href="http://int.lanl.gov/safety/exhibit-f/downloads/DOE-Form-5484.pdf">http://int.lanl.gov/safety/exhibit-f/downloads/DOE-Form-5484.pdf</a>
	Form 5484 Addendum <a href="http://int.lanl.gov/safety/exhibit-f/downloads/DOE-Form-5484-Addendum.pdf">http://int.lanl.gov/safety/exhibit-f/downloads/DOE-Form-5484-Addendum.pdf</a>
Attachment F9-1	Samples of Inspection Checklist for Subcontractors <a href="http://int.lanl.gov/safety/exhibit-f/downloads/Attachment-F9-1.pdf">http://int.lanl.gov/safety/exhibit-f/downloads/Attachment-F9-1.pdf</a>
Attachment F10-1	Safety/Housekeeping Inspection Checklist <a href="http://int.lanl.gov/safety/exhibit-f/downloads/Attachment-F10-1.pdf">http://int.lanl.gov/safety/exhibit-f/downloads/Attachment-F10-1.pdf</a>
Attachment F15-1	Medical Surveillance for Toxic & Hazardous Substance Requirements <a href="http://int.lanl.gov/safety/exhibit-f/downloads/Attachment-F15-1.pdf">http://int.lanl.gov/safety/exhibit-f/downloads/Attachment-F15-1.pdf</a>
Attachment F16-1	Major Equipment Declaration <a href="http://int.lanl.gov/safety/exhibit-f/downloads/Attachment-F16-1.pdf">http://int.lanl.gov/safety/exhibit-f/downloads/Attachment-F16-1.pdf</a>
Attachment F19-1	Environmental Reporting Data for EPA Annual Toxic Release Inventory Report <a href="http://int.lanl.gov/safety/exhibit-f/downloads/Attachment-F19-1.pdf">http://int.lanl.gov/safety/exhibit-f/downloads/Attachment-F19-1.pdf</a>
Attachment F20-0	Integrated Work Document (IWD) Part 4, Post Job Review, Form 2104 <a href="http://irm.lanl.gov/forms/Shared/2104.pdf">http://irm.lanl.gov/forms/Shared/2104.pdf</a>
Attachment F20-1	Integrated Work Document (IWD) Subcontract Activity Specific Information, Form 2100A <a href="http://int.lanl.gov/safety/exhibit-f/downloads/Attachment-F20-1.pdf">http://int.lanl.gov/safety/exhibit-f/downloads/Attachment-F20-1.pdf</a>
Attachment F20-2	Integrated Work Document (IWD) Validation and Release, Form 2102A <a href="http://int.lanl.gov/safety/exhibit-f/downloads/Attachment-F20-2.pdf">http://int.lanl.gov/safety/exhibit-f/downloads/Attachment-F20-2.pdf</a>
Attachment F20-3	Stop-Work Action Worksheet, Form 2181 <a href="http://irm.lanl.gov/forms/Shared/2181.pdf">http://irm.lanl.gov/forms/Shared/2181.pdf</a>
Attachment F20-4	Subcontractor Integrated Work Document (IWD) Mandatory Hold Points <a href="http://int.lanl.gov/safety/exhibit-f/downloads/Attachment-F20-4.pdf">http://int.lanl.gov/safety/exhibit-f/downloads/Attachment-F20-4.pdf</a>
Attachment F22-1	Spark- or Flame-Producing Operations Permit, Form 1563 <a href="http://irm.lanl.gov/forms/Shared/1563.pdf">http://irm.lanl.gov/forms/Shared/1563.pdf</a>
Attachment F30-2	Specific Written Procedure for Lockout/Tagout [Sample] <a href="http://int.lanl.gov/safety/exhibit-f/downloads/Attachment-F30-2.pdf">http://int.lanl.gov/safety/exhibit-f/downloads/Attachment-F30-2.pdf</a>

## LO/TO Orders—Attachment B

[http://int.lanl.gov/safety/industrial\\_hygiene\\_and\\_safety/lockout-tagout/\\_assets/docs/Attachment-B-LOTO-PDF-Form.pdf](http://int.lanl.gov/safety/industrial_hygiene_and_safety/lockout-tagout/_assets/docs/Attachment-B-LOTO-PDF-Form.pdf)

Attachment F30-3	Subcontractor Lockout/Tagout Record for Simple Lockout/Tagouts <a href="http://int.lanl.gov/safety/exhibit-f/downloads/Attachment-F30-3.pdf">http://int.lanl.gov/safety/exhibit-f/downloads/Attachment-F30-3.pdf</a>
Attachment F30-4	Required Reading for Contractor-Supervised Lockout/Tagout <a href="http://int.lanl.gov/safety/exhibit-f/downloads/Attachment-F30-4.pdf">http://int.lanl.gov/safety/exhibit-f/downloads/Attachment-F30-4.pdf</a>
Attachment F31-1	Penetration Permit, Form 2074 <a href="http://irm.lanl.gov/forms/Shared/2074.pdf">http://irm.lanl.gov/forms/Shared/2074.pdf</a>
Attachment F32-1	Ordinary/Moderate Risk Lift Procedure for Subcontractors, Form 1611A <a href="http://irm.lanl.gov/forms/Shared/1611A.pdf">http://irm.lanl.gov/forms/Shared/1611A.pdf</a>
Attachment F32-2	LANL Critical Lift Plan for Subcontractors, Form 2210A <a href="http://irm.lanl.gov/forms/Shared/2210A.pdf">http://irm.lanl.gov/forms/Shared/2210A.pdf</a>
Attachment F32-3	High Consequence Material Handling Activity, Form 2041 <a href="http://irm.lanl.gov/forms/Shared/2041.pdf">http://irm.lanl.gov/forms/Shared/2041.pdf</a>
Attachment F36-0	Electrical Training Documentation for Subcontractors <a href="http://int.lanl.gov/safety/exhibit-f/downloads/Attachment-F36-0.pdf">http://int.lanl.gov/safety/exhibit-f/downloads/Attachment-F36-0.pdf</a>
Attachment F41-1	Heating Ventilation and Air Conditioning (HVAC) Systems Maintenance Water Quality Guidance <a href="http://int.lanl.gov/safety/exhibit-f/downloads/Attachment-F41-1.pdf">http://int.lanl.gov/safety/exhibit-f/downloads/Attachment-F41-1.pdf</a>
Attachment F42-1	Environmental Compliance Programs (EPC-CP) Non-Reportable Release Form <a href="http://int.lanl.gov/environment/water/flst/docs/forms/EPC-CP-Form-1009.pdf">http://int.lanl.gov/environment/water/flst/docs/forms/EPC-CP-Form-1009.pdf</a>
Attachment F59-1	Safety and Environmental Performance Citation <a href="http://int.lanl.gov/safety/exhibit-f/downloads/Attachment-F59-1.pdf">http://int.lanl.gov/safety/exhibit-f/downloads/Attachment-F59-1.pdf</a>