

Occupational Safety & Health-Industrial Safety & Health (OSH-ISH)

## Exhibit F Environmental, Safety & Health Requirements for High or Moderate Consequence Work

This document establishes the Environmental, Safety and Health (ES&H), and Waste Management requirements for High or Moderate Consequence Work. To perform subcontract work at LANL, SUBCONTRACTOR shall comply with CONTRACTOR's 10 CFR 851, Worker Safety and Health Program, Environmental Permits, agreements, and orders and Waste Management processes the requirements of which are set forth in this Exhibit. If an ES&H requirement is marked yes in the table below, then SUBCONTRACTOR shall comply with those requirements.

The SUBCONTRACTOR shall perform work safely, in a manner ensuring adequate protection for employees, the public, and the environment and will be held accountable for the safe performance of work. The SUBCONTRACTOR will exercise a degree of care commensurate with the work and the associated hazards. The SUBCONTRACTOR will ensure that management of safety and health functions and activities become an integral and visible part of the SUBCONTRACTOR's work planning and execution process.

SR:	Consequence Level: <input type="checkbox"/> Moderate <input type="checkbox"/> High	Date:
Work Location:	Project Title:	
Type of Subcontract:	<input type="checkbox"/> Stand Alone <input type="checkbox"/> Master Agreement	Task Order #
If for Task Order under a Master Agreement, add Master Agreement #:		#
SUBCONTRACTOR Safety Representative Minimum Level (see F4):		<input type="checkbox"/> Generalist <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> NA
<u>SUBCONTRACTOR Environmental Representative Min Level (see F4)</u>		<input type="checkbox"/> Generalist <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> NA

Safety & Health Requirements for Statement of Work (boxes marked "yes" means mandatory)			
YES		YES	
<input checked="" type="checkbox"/>	1.0 General Requirements	<input type="checkbox"/>	23.0 Laser Safety
<input checked="" type="checkbox"/>	2.0 SUBCONTRACTOR'S Site-Specific S&H Plan	<input type="checkbox"/>	24.0 Firearms Safety
<input checked="" type="checkbox"/>	3.0 SUBCONTRACTOR and Lower-Tier Subcontractor Minimum Performance Eligibility Factors	<input type="checkbox"/>	25.0 Explosives Storage/Use/Disposal
<input checked="" type="checkbox"/>	4.0 SUBCONTRACTOR ESH Representative's Duties and Responsibilities	<input type="checkbox"/>	26.0 Traffic and Pedestrian Control
<input checked="" type="checkbox"/>	5.0 Work Management	<input type="checkbox"/>	27.0 Motor Vehicles and Powered Industrial Equipment
<input checked="" type="checkbox"/>	6.0 Incident Reporting Requirements	<input type="checkbox"/>	28.0 Mechanical Material Handling (MMH)
<input checked="" type="checkbox"/>	7.0 Safety and Environmental Performance Citation	<input type="checkbox"/>	29.0 Cranes, Hoisting and Rigging
<input checked="" type="checkbox"/>	8.0 Employee Training	<input type="checkbox"/>	30.0 Welding, Cutting, Brazing, and Grinding
<input checked="" type="checkbox"/>	9.0 Environment, Safety, and Health Inspections	<input type="checkbox"/>	31.0 Penetrations Operations
<input checked="" type="checkbox"/>	10.0 Housekeeping	<input type="checkbox"/>	32.0 Lockout/Tagout
<input checked="" type="checkbox"/>	11.0 Emergency Preparedness Requirements	<input type="checkbox"/>	33.0 Electrical Safety
<input checked="" type="checkbox"/>	12.0 Occupational Health and First Aid	<input type="checkbox"/>	34.0 Fall Prevention/Protection
<input checked="" type="checkbox"/>	13.0 Fire Protection and Prevention	<input type="checkbox"/>	35.0 Scaffolding
<input checked="" type="checkbox"/>	14.0 Inclement Weather	<input type="checkbox"/>	36.0 Portable Ladders
<input checked="" type="checkbox"/>	15.0 Personal Protective Equipment	<input type="checkbox"/>	37.0 Suspended Personnel Platforms
<input checked="" type="checkbox"/>	16.0 Tools and Equipment	<input type="checkbox"/>	38.0 Aerial Work Platforms (Aerial Lifts)
<input type="checkbox"/>	17.0 Radiation Protection	<input type="checkbox"/>	39.0 Barricades
<input type="checkbox"/>	18.0 Exposure Assessment	<input type="checkbox"/>	40.0 Excavation & Trenching
<input type="checkbox"/>	19.0 Respiratory Protection	<input type="checkbox"/>	41.0 Pressure Safety Including Compressed Gases
<input type="checkbox"/>	20.0 Chemical and Hazardous Materials Management	<input type="checkbox"/>	42.0 Confined Spaces
<input type="checkbox"/>	21.0 Beryllium Activities Not Involving Airborne Beryllium	<input type="checkbox"/>	43.0 Asbestos Work/Abatement/Demolition/Roofing Work
<input type="checkbox"/>	22.0 Biological Safety	<input type="checkbox"/>	44.0 Beryllium Work Activities Involving Airborne Beryllium (Requires OSH-DO Concurrence)

**Environmental Requirements for Statement of Work (boxes marked "yes" means mandatory)**

YES		YES	
<input checked="" type="checkbox"/>	<u>45.0 Pollution Prevention/Waste Minimization</u>	<input type="checkbox"/>	<u>52.0 Biological Resources Protection</u>
<input checked="" type="checkbox"/>	<u>46.0 Waste Management</u>	<input type="checkbox"/>	<u>53.0 Cultural Resources Protection</u>
<input checked="" type="checkbox"/>	<u>47.0 Spill Prevention, Reporting, and Response</u>	<input type="checkbox"/>	<u>54.0 Pesticide and Herbicide Applications</u>
<input type="checkbox"/>	<u>48.0 Work Within Consent Order Site</u>	<input type="checkbox"/>	<u>55.0 Refrigerants</u>
<input type="checkbox"/>	<u>49.0 Wastewater Discharges</u>	<input type="checkbox"/>	<u>56.0 Aboveground Storage Tanks</u>
<input type="checkbox"/>	<u>50.0 Storm Water Management</u>	<input type="checkbox"/>	<u>57.0 Demolition, Remodeling, Renovation</u>
<input type="checkbox"/>	<u>51.0 Air Quality</u>	<input type="checkbox"/>	<u>58.0 Asbestos Work/Abatement/Demolition/Roof Work</u>

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## SAFETY AND HEALTH EXHIBIT F'S

### F1.0 GENERAL REQUIREMENTS

- F1.1 For the purpose of this Exhibit, Environmental, Safety and Health (ES&H) protection encompasses industrial hygiene, safety, environmental protection, environmental compliance, pollution prevention, radiation protection, and waste management.
- F1.2 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.
- F1.3 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 for taking 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
  - American Conference of Governmental Industrial Hygienists (ACGIH), "Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices" (2016), excluding the threshold limit values (TLVs) for beryllium and beryllium compounds, when the ACGIH TLVs are lower (more protective) than permissible exposure limits in 29 CFR part 1910 for general industry and/or 29 CFR part 1926 for construction. When the ACGIH TLVs are used as exposure limits, CONTRACTOR's must comply with the other provisions of any applicable expanded health standard found in 29 CFR parts 1910 and 1926.
  - ANSI/ASSP Z88.2, Respiratory Protection (2015)
  - ANSI Z136.1, Safe Use of Lasers (2014)
  - ANSI Z49.1, Part II Section 10, Oxyfuel Gas Welding and Cutting Safety (2021)
  - NFPA 70, National Electric Code (2026)
  - NFPA 70E, Standard for Electrical Safety in the Workplace (2024)
  - 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:
    - B31.1-2024-Power Piping

- B31.3-2024-Process Piping
  - B31.4-2022-Pipeline Transportation Systems for Liquids and Slurries
  - B31.5-2022-Refrigeration Piping and Heat Transfer Components
  - B31.8-2025-Gas Transmission and Distribution Piping Systems
  - B31.8S-2025-Managing System Integrity of Gas Pipelines
  - B31.9-2025-Building Services Piping
  - B31G-2023-Manual for Determining Remaining Strength of Corroded Pipelines
  - ASME B30 Series for Cranes and Rigging
  - ASME P30 Lift Planning Considerations
  - DOE Standard DOE-1212, Explosives Safety, current version
- F1.4 In accordance with **10 CFR 851.10(a)**, SUBCONTRACTOR shall 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.
- F1.5 SUBCONTRACTOR shall have responsibility for taking action as is necessary to assure compliance with:
- F1.5.1 State and federal environmental laws such as the Resource Conservation and Recovery Act, Toxic Substances Control Act and Department of Transportation requirements.
  - F1.5.2 CONTRACTOR Environmental and Waste management requirements identified in the Statement of Work
  - F1.5.3 DOE Orders related to Environmental Compliance and Waste Management.
- F1.6 CONTRACTOR has multiple avenues available to express concerns. SUBCONTRACTOR workers may report Environmental, Safety, Health (ESH) concerns to the LANL Safety Concerns Hotline at 505-665-7233 (email [safety@lanl.gov](mailto:safety@lanl.gov)).
- F1.6.1 In accordance with **DOE O 442.2 Chg 1 Differing Professional Opinions for Technical Issues involving Environmental, Safety, and Health Technical Concerns**, if a worker or SUBCONTRACTOR has a differing professional opinion (DPO) on a technical issue with potential significant impact to environment, safety, and health that has not been successfully or adequately addressed through lower-level processes, they can report it to the LANL DPO Administrator at [dpo@lanl.gov](mailto:dpo@lanl.gov) or submit the DPO form found on the Differing Professional Opinion tab of the CONTRACTOR Integrated Safety Management website. All workers also have a right to report their concern directly to DOE, to the Deputy Associate Administrator for Safety (NA-51/GTN) National Nuclear Security Administration, U.S. Department of Energy, 1000 Independence Avenue SW, Washington DC 20585. The DOE DPO process and DPO submittal form may be found at <http://www.energy.gov/ehss/doe->

differing-professional-opinions Laboratory employees and SUBCONTRACTORS have the right to report concerns without fear of retaliation and to have those concerns addressed through an independent, objective evaluation.

F1.6.2 SUBCONTRACTOR workers may escalate concerns to the DOE Los Alamos Field Office at 505-667-5491, or to the DOE Albuquerque Employee Concerns Hotline or email: 800-688-5713 or [epc@nnsa.doe.gov](mailto:epc@nnsa.doe.gov).

**F1 TRAINING:**

None

**F2.0 SUBCONTRACTOR'S SITE-SPECIFIC ESH PLAN**

- F2.1 SUBCONTRACTOR shall be solely responsible for implementing its CONTRACTOR-approved, written Site-Specific ESH Plan (SSESHP). SUBCONTRACTOR shall not commence on-site work until CONTRACTOR approves SUBCONTRACTOR'S JHA/JSA/AHA/IWD and CONTRACTOR issues a Notice to Proceed.
- F2.2 SUBCONTRACTOR shall comply with the specific requirements of the clauses contained in this Exhibit during execution of work.
- F2.3 SUBCONTRACTOR shall comply with the S&H requirements applicable to this subcontract to include compliance orders, if any, issued by the Secretary of DOE in accordance with **10 CFR 851.4**.
- F2.4 SUBCONTRACTOR'S SSESHP shall specify how safety and environmental requirements flow down to employees and lower-tier SUBCONTRACTOR'S. SUBCONTRACTOR shall ensure that workers have access to the SSSH at the jobsite and that workers comply with the requirements in the plan.
- F2.5 Changes to SUBCONTRACTOR'S SSSH require re-submittal to and approval by CONTRACTOR. Upon option year award, SUBCONTRACTOR shall coordinate with CONTRACTOR to verify SSESHP is still adequate for the work scope.

**F2 TRAINING:**

None

**F3.0 SUBCONTRACTOR AND LOWER-TIER SUBCONTRACTOR MINIMUM PERFORMANCE ELIGIBILITY FACTORS**

- F3.1 SUBCONTRACTOR shall meet environmental and safety performance requirements contained in **Attachment F3-2, Environmental, Safety, and Health History Worksheet**, complete the worksheet, and submit the completed **Attachment F3-2** along with supporting information. If any of the performance eligibility factor ceiling rates are exceeded, SUBCONTRACTOR shall complete the Exceedance Explanation and Mitigations Actions form contained in **Attachment F3-2**. CONTRACTOR must approve any exceedance prior to the award of a subcontract.

- F3.2 If SUBCONTRACTOR is a joint venture, association, consortia, or partnership that has fewer than three years of demonstrated environmental and/or safety performance, each entity comprising the joint venture, association, consortia, or partnership shall submit an **Attachment F3-2**, complete with supporting information.
- F3.3 If SUBCONTRACTOR intends to use lower-tier SUBCONTRACTOR's to perform elements of the statement of work, these lower-tier SUBCONTRACTOR's shall also meet environmental and safety requirements contained in **Attachment F3-2**, complete the worksheet, and submit the completed **Attachment F3-2** along with supporting information. If any of the ceiling rates are exceeded, the lower-tier SUBCONTRACTOR shall complete the Exceedance Explanation and Mitigations Actions form contained in **Attachment F3-2**. SUBCONTRACTOR and CONTRACTOR must approve any exceedances before the lower-tier SUBCONTRACTOR may perform work described in the subcontract Statement of Work.
- F3.4 If new or additional lower-tier SUBCONTRACTOR's are proposed to be used by SUBCONTRACTOR at any time after the award of the subcontract, SUBCONTRACTOR shall notify CONTRACTOR at least 15-calendar days before the proposed start date of the new lower-tier SUBCONTRACTOR and submit for CONTRACTOR approval, eligibility information as provided in paragraph 3.2.
- F3.5 When SUBCONTRACTOR's environmental and safety performance exceeds any ceiling rate, CONTRACTOR may require SUBCONTRACTOR to submit a Safety Improvement and Sustainability Plan (SISP) as part of the Site-Specific Environmental, Safety and Health Plan. CONTRACTOR may also mandate a SISP for a SUBCONTRACTOR that has fewer than 3 years demonstrated safety and/or environmental performance. If a lower-tier SUBCONTRACTOR exceeds any environmental or safety performance rate ceiling and CONTRACTOR require a SISP, the prime SUBCONTRACTOR and lower-tier SUBCONTRACTOR shall jointly create and submit the SISP for CONTRACTOR review and approval.

**F3 TRAINING:**

None

**F4.0 SUBCONTRACTOR ESH REPRESENTATIVE'S DUTIES AND RESPONSIBILITIES**

- F4.1 SUBCONTRACTOR line management shall provide clear and unambiguous lines of authority and responsibility for S&H representation. This includes managing or supervising employees performing work. SUBCONTRACTOR line management shall ensure its personnel possess the skills, experience, training, and credentials to complete their assigned tasks.
- F4.2 SUBCONTRACTOR shall designate one or more ESH Representatives with knowledge commensurate to all phases of the scope of work who have written authority to supervise and coordinate with additional competent and/or qualified persons as

needed. CONTRACTOR will establish minimum qualifications and desired or required professional certifications, if any, for ESH Representatives. SUBCONTRACTOR shall submit qualifications to CONTRACTOR for approval prior to subcontract award. CONTRACTOR minimum qualifications are detailed for SUBCONTRACTOR Safety & Health Representative in **Attachment F4-1, Minimum Qualifications for Subcontractor Safety and Environmental Representatives.**

- F4.3 SUBCONTRACTOR S&H Representatives may serve in more than one role (e.g., Safety Representative and Fall Protection Competent Person) provided they are appropriately qualified and can fulfill each responsibility in a manner that allows them to provide active engagement, regular evaluations of hazards, worksite changes, and pause work as needed.
- F4.4 SUBCONTRACTOR shall submit qualifications of any new or replacement S&H Representative and CONTRACTOR must approve qualifications prior to S&H Representative performing on-site work.
- F4.5 SUBCONTRACTOR shall 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, cranes and material handling equipment). SUBCONTRACTOR competent and/or qualified persons shall be on the job location as required by the applicable regulation to perform oversight and other required job duties.
- F4.6 SUBCONTRACTOR shall submit competencies and/or qualifications for these individuals to CONTRACTOR and receive approval prior to the start of the associated work task.
- F4.7 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.
- F4.8 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.
- F4.9 CONTRACTOR reserves the right to require additional SUBCONTRACTOR ESH representation to account for large scale, complex, or multiple-site projects.

#### **F4 TRAINING:**

None

#### **F5.0 WORK MANAGEMENT**

- F5.1 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.

- F5.2 SUBCONTRACTOR line management shall be responsible for the protection of employees, the public, and the environment. Line management includes those SUBCONTRACTOR employees managing or supervising employees performing work. CONTRACTOR uses the title Responsible Line Manager to refer to line management.
- F5.3 SUBCONTRACTOR shall establish and maintain clear and unambiguous lines of authority and responsibility for ESH matters at all levels, including all lower-tier SUBCONTRACTORS.
- F5.4 SUBCONTRACTOR shall incorporate the five core functions of Integrated Safety Management into their work control process. These core functions are:
- Define the work
  - Identify and analyze hazards
  - Develop and implement hazard controls and preventive measures
  - Perform work safely, securely, and in an environmentally responsible manner
  - Provide feedback and strive for continuous improvement
- F5.5 SUBCONTRACTOR shall implement a work control process that includes the following items:
- F5.5.1 A designated Person in Charge (PIC) who has the responsibility, accountability, and authority to ensure the quality of the work planning and control process and to manage the work.
- F5.5.2 SUBCONTRACTOR shall perform a Job Hazard Analysis (JHA) and develop a JHA document, in coordination with the CONTRACTOR, for each activity. SUBCONTRACTOR JHA will be in a format (e.g. JHA, JSA, AHA, IWD) identified by the STR and shall have 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, safe access for SUBCONTRACTOR and CONTRACTOR inspectors or visitors).
- F5.5.3 The CONTRACTOR Subcontractor Technical Representative (STR) may specify the use of **Attachment F5-1, IWD Subcontract Activity Specific Information, Form 2100A** or use the SUBCONTRACTOR's equivalent alternative format JHA.
- Note:** For the purposes of this Exhibit F document, STR refers to the CONTRACTOR employee appointed in writing as the subcontract technical representative.
- F5.5.4 All SUBCONTRACTOR JHAs shall 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, co-located, on consultation with space occupants, especially for Research and Development spaces.
  - Have training, permits, and/or area postings referenced if they are required controls
  - Review and signature by CONTRACTOR STR, ESH Representative(s), Facilities Operations Director (FOD) Representative, and SUBCONTRACTOR PIC and Line Manager. Authorized delegated representatives are allowed.
- F5.6 SUBCONTRACTOR JHAs 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.
- F5.7 SUBCONTRACTOR shall integrate into the JHA, CONTRACTOR-provided site-specific hazard and environmental information, using **Attachment F5-2, FOD Site Hazard Analysis and Coordination Requirements**. If a Permits & Requirements Identification (PRID) review is completed for the work, SUBCONTRACTOR shall integrate this information into the JHA.
- F5.8 SUBCONTRACTOR shall sign the JHA prior to sending it to the CONTRACTOR for review and approval.
- F5.9 SUBCONTRACTOR'S PIC and ESH Representative, and the CONTRACTOR's STR, subject matter experts (SME), ESH Representatives, and FOD (as necessary) shall complete a field walk-down of the work activity, prior to SUBCONTRACTOR's starting work, to validate that the JHA tasks/steps and hazards are appropriately identified, and controls are in place.
- F5.10 The SUBCONTRACTOR and any lower-tier SUBCONTRACTOR's shall perform work in strict accordance with the JHA.
- F5.11 For work performed by a team, considered as more than one person, the SUBCONTRACTOR PIC shall perform a daily pre-job briefing (interactive discussion) with all workers, including lower-tier SUBCONTRACTOR's, involved in performing the work. At a minimum, SUBCONTRACTOR briefing shall include the work to be performed during the day or shift, hold points, critical steps, environmental requirements and protective measures, hazards involved in the work and applicable hazard controls, pause/stop work responsibility, emergency response actions, and designated ESH Representative(s). SUBCONTRACTOR shall document attendance using **Attachment F5-3, IWD Validation and Release, Form 2103A**, and this documentation shall be available for review by CONTRACTOR upon request.
- F5.12 SUBCONTRACTOR, in coordination with the CONTRACTOR, shall perform an initial pre-job brief, before any work begins, that includes an orientation to the site. In addition

to the daily pre-job briefing topics listed above, the orientation shall include, but is not limited to, site-specific requirements and hazards, site alarms and response, contacts and resources, required notifications, and the roles and responsibilities of CONTRACTOR, SUBCONTRACTOR, and its employees. SUBCONTRACTOR shall provide this initial pre-job brief to any SUBCONTRACTOR or lower-tier personnel who did not attend the initial briefing.

- F5.13 SUBCONTRACTOR shall ensure a completed JHA is provided to the CONTRACTOR STR for review and concurrence prior to commencement of affected work. SUBCONTRACTOR shall revise the JHA whenever a scope change occurs, new hazards are identified, or controls have shown to be ineffective. SUBCONTRACTOR shall submit proposed JHA changes to CONTRACTOR for review and approval before working under the revised JHA. SUBCONTRACTOR shall periodically review the JHA throughout the project duration and revise as needed. SUBCONTRACTOR shall include CONTRACTOR's **Attachment F5-2, FOD Site Hazard Analysis and Coordination Requirements**, with the JHA.
- F5.14 SUBCONTRACTOR shall incorporate CONTRACTOR required hold points into the JHA for the project. Hold points are work instruction steps in the JHA at which workers must wait for the PIC to verify a condition has been met before the work can resume. Mandatory hold points shall 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
  - Aerial lift compliance verification
  - Electrical work greater than 600 volts
  - Excavation activities, such as the introduction of mechanical equipment, the placement of barricades and signage, or entering a new phase of work requiring additional walk downs
  - Moderate or critical lifts
  - Performing any class 2 penetration
  - required sampling/monitoring before breaching contaminated systems
- F5.15 SUBCONTRACTOR shall review **Attachment F5-6, SUBCONTRACTOR IWD Mandatory Hold Points**, for any of the above listed hold points, and attach all applicable hold point pages to the JHA. SUBCONTRACTOR shall identify hold point in the JHA, and other applicable work control documents, in the appropriate sequential step with instructions on actions to be taken.
- F5.16 Once the step with the associated hold point is reached, the SUBCONTRACTOR PIC shall verify all conditions as planned. If not as planned, SUBCONTRACTOR shall pause work and the change control process implemented. If conditions are met, SUBCONTRACTOR PIC shall sign the form, releasing work to be performed. If

SUBCONTRACTOR PIC does not adhere to CONTRACTOR hold points, SUBCONTRACTOR shall replace PIC upon CONTRACTOR's request.

- F5.17 SUBCONTRACTOR shall keep the following documentation at the work site, for CONTRACTOR review: the written scope of work, SUBCONTRACTOR's JHAs, the Exhibit F checklist, Site-Specific ES&H Plan, and daily pre-job briefing documentation (if applicable).
- F5.18 SUBCONTRACTOR is encouraged to provide feedback or post job reviews to CONTRACTOR STR via **Attachment 5-4, Integrated Work Document (IWD) Part 4, Feedback/Post Job Reviews, Form 2104**.
- F5.19 SUBCONTRACTOR and CONTRACTOR workers have the right and responsibility to Pause Work, or if necessary, Stop Work without fear of reprisal when:
- Work steps are unclear, there are 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 CONTRACTOR, 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.
- F5.20 A stop-work action is a formal suspension of work activities. A pause-work action is a simple process used to temporarily halt work so that confusions, misunderstandings, work area, work management, authorizations, tool, or equipment issues may be resolved prior to proceeding. The pause work is elevated up the chain if the issue is unresolved or determined by management that the issue requires a formal stop work.
- Any time work is paused or stopped, SUBCONTRACTOR shall notify the CONTRACTOR STR. If the concern or issue that caused the work pause is resolved immediately, and to the mutual satisfaction of the workers involved, SUBCONTRACTOR may proceed with work without CONTRACTOR approval. For concerns or issues beyond those resolved immediately, the SUBCONTRACTOR shall contact the CONTRACTOR STR for approval before work can proceed.
- Any time work is paused or stopped, SUBCONTRACTOR shall ensure that work does not resume until the concerns associated with that activity are resolved. SUBCONTRACTOR shall not resume stopped work activities until SUBCONTRACTOR submits an **Attachment F5-5, Stop-Work Action Worksheet, Form 2181**, and CONTRACTOR approves of follow up actions or corrective action plan.

**F5 TRAINING:**

1. Workers on-site more than 10 workdays during any consecutive 12-month period are required to complete **Integrated Work Management (IWM) – Understanding Your Role and Responsibilities (UTrain 52214 in curricula 14300)** before performing work. For workers on-site for less than 10 workdays, the CONTRACTOR has the discretion to assign the training.
  - [Initial training required and refresher training every three years; provide proof of training if requested by CONTRACTOR]
2. All employees serving as PIC or Alternate PIC are encouraged to complete **Pre-Job Briefing and Post-Job Review (UTrain 51862)** prior to beginning on-site work. Training recommended for all employees.

**F6.0 INCIDENT REPORTING REQUIREMENTS**

- F6.1 All SUBCONTRACTOR employees who will perform work on GOVERNMENT-owned or CONTRACTOR-leased property shall comply with CONTRACTOR'S site-specific emergency response requirements, defined in **P1201-4, LANL Incident Reporting and Protective Actions**, and any facility-specific emergency procedures. SUBCONTRACTOR employees shall complete any emergency preparedness facility-specific training (e.g., Building Emergency Procedure training) related to where they will be performing work
- F6.2 SUBCONTRACTOR shall 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.
- F6.3 In situations where any of the conditions mentioned above occur, SUBCONTRACTOR shall preserve the scene surrounding or associated with the event 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.
- F6.4 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 two (2) working days of its occurrence. Furthermore, the SUBCONTRACTOR shall cooperate and participate as required with any CONTRACTOR or GOVERNMENT fact finding, learning team, critique, analysis, or investigation for such events/conditions.

- SUBCONTRACTOR shall provide to CONTRACTOR an investigation report using **Attachment F6-2a, DOE Individual Accident/Incident Report, Form 5484.3**, and **Attachment F6-2b, LANL Form 5484 Addendum**.
- F6.5 As required by circumstances and at the discretion of CONTRACTOR, an incident review board (IRB) will be convened. SUBCONTRACTOR's involved in selected incidents shall present the events surrounding the incident to the IRB, and detail actions that have been put in place by SUBCONTRACTOR to mitigate the incident and to prevent reoccurrence. SUBCONTRACTOR management shall attend all IRB meetings.
- F6.6 SUBCONTRACTOR shall analyze related data for trends and lessons learned in accordance with **DOE Order 225.1B, Accident Investigations (March 4, 2011)**.
- F6.7 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 F6-1, Weekly Productive Man-Hour Report** or other mechanism directed by CONTRACTOR.
- F6.8 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 shall immediately provide written notification to the CONTRACTOR STR with information on that action.

**F6 TRAINING:**

None

**F7.0 SAFETY AND ENVIRONMENTAL PERFORMANCE CITATION**

- F7.1 **Attachment F7-1 Safety and Environmental Performance Citation** may be issued to SUBCONTRACTOR by CONTRACTOR's ESH 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 shall 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 CONTRACTOR issued citation 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. SUBCONTRACTOR shall use this stand-down time for safety and/or environmental briefings and general

housekeeping.

- F7.2 SUBCONTRACTOR shall promptly evaluate and resolve any noncompliance with applicable ESH 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.

**F7 TRAINING:**

None

**F8.0 EMPLOYEE TRAINING**

- F8.1 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 with the scope of work.
- F8.2 SUBCONTRACTOR shall provide initial, periodic, and supplemental training to workers for them to carry out their assigned responsibilities. SUBCONTRACTOR workers shall complete required training prior to start of work associated with the respective training subjects.
- F8.3 SUBCONTRACTOR shall submit completed training documentation prior to any training expiration date listed in CONTRACTOR's Technical Subcontract Management - Subcontract Training Matrix and/or otherwise included in the Statement of Work.
- F8.4 SUBCONTRACTOR shall 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.
- F8.5 SUBCONTRACTOR shall retain training records on-site for the duration of the contract and make available to CONTRACTOR, upon request.
- F8.6 SUBCONTRACTOR workers shall complete required facility-specific training provided by the CONTRACTOR.

**F8 TRAINING:**

None

**F9.0 ENVIRONMENT, SAFETY, AND HEALTH INSPECTIONS**

- F9.1 SUBCONTRACTOR shall conduct initial and periodic inspections of the work areas to monitor compliance with ESH requirements; document such inspections (**Attachment F9-1** may be used); and provide a copy of such inspection reports upon request to CONTRACTOR STR.
- F9.2 SUBCONTRACTOR shall promptly initiate action to correct all identified hazards, deficiencies, or compliance issues.
- F9.3 SUBCONTRACTOR shall report all identified hazards, deficiencies, or compliance issues not under the control of SUBCONTRACTOR to CONTRACTOR STR.
- F9.4 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.
- F9.5 SUBCONTRACTOR shall ensure that workers have the right without reprisal to request and receive results of investigations and inspections.
- F9.6 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.
- F9.7 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.

**F9 TRAINING:**

None

**F10.0 HOUSEKEEPING**

- F10.1 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 located 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 these items 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.

- Ensure protruding nails, screws, staples, and other sharp objects 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.

F10.2 Unless specified elsewhere in the subcontract, SUBCONTRACTOR shall provide and maintain its own sanitary toilet facilities for its employees. SUBCONTRACTOR shall clean and maintain facilities, and the method and location of waste disposal, shall all be acceptable to CONTRACTOR.

**F10 TRAINING:**

None

**F11.0 EMERGENCY PREPAREDNESS REQUIREMENTS**

- F11.1 All SUBCONTRACTOR employees who will perform work on GOVERNMENT-owned or CONTRACTOR-leased property shall comply with CONTRACTOR's site-specific emergency response requirements, defined in **P1201-4, LANL Incident Reporting and Protective Actions**, and any facility-specific emergency procedures. SUBCONTRACTOR employees shall complete any emergency preparedness facility-specific training (e.g., Building Emergency Procedure training) related to where they will be performing work.
- F11.2 SUBCONTRACTOR shall ensure that all SUBCONTRACTOR's employees understand their roles and responsibilities prior to, during, and after emergencies, as defined in **P1201-4** and any facility-specific emergency procedures and related training.
- F11.3 SUBCONTRACTOR's employees shall participate, when requested, in CONTRACTOR emergency preparedness activities, including but not limited to, training, drills, and exercises.
- F11.4 SUBCONTRACTOR shall follow CONTRACTOR mandatory protective measures for emergencies that impact the area in which SUBCONTRACTOR is performing work. CONTRACTOR will communicate the emergency-related protective measures and any subsequent updates or revisions to SUBCONTRACTOR.
- F11.5 SUBCONTRACTOR shall follow CONTRACTOR response to Wildfire Emergency procedures in accordance with **PD1200 Emergency Management Program** and **New Mexico's Ready, Set, Go! Wildfire Safety Program**. SUBCONTRACTOR shall also ensure that during the GO phase, large pieces of equipment are not being transported across LANL roadways. SUBCONTRACTOR's ESH Plan shall include a Comprehensive Emergency Management Plan.
- F11.6 SUBCONTRACTOR is responsible for identifying two key personnel (responsible person and the Person in Charge (PIC) of the work on site) which will receive government issued devices for receiving emergency notifications of events in their area, if working in a secured area, such as Limited Area (LA). SUBCONTRACTOR is responsible for

providing name, mobile number, email and office phone, and to keep CONTRACTOR current on these items.

### F11 TRAINING:

1. All personnel working on GOVERNMENT-owned or CONTRACTOR-leased property regardless of the EHS risk level of work are required to complete **Incident Reporting and Protective Actions (UTrain 10922 or ExTrain 10922)** annually.
  - Personnel are required to take facility-specific emergency preparedness training (e.g., building emergency procedure training) related to where they will be performing work.

## F12.0 OCCUPATIONAL HEALTH AND FIRST AID

F12.1 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 F12-1 Medical Surveillance for Toxic and Hazardous Substance Requirements** is provided as a guide to determine when medical evaluations are required.
- Maintain a work history log for each worker who performs work on CONTRACTOR 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 CONTRACTOR 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 shall provide a copy of the work release to the CONTRACTOR STR.

F12.2 For construction work, SUBCONTRACTOR shall ensure compliance with **29 CFR Subpart D, 1926.50 Medical Services and First Aid**.

F12.3 SUBCONTRACTOR shall have individual certified in CPR/First Aid on site when work occurring.

F12.4 SUBCONTRACTOR shall have precautions in place to protect workers from potential exposure to blood, body fluids or other potentially infectious materials during normal work and emergency situations, to include rendering assistance to sick or bleeding coworkers. For non-construction work, this means SUBCONTRACTOR shall ensure compliance with their company's Exposure Control Plan as mandated in **29 CFR 1910.1030**.

F12.5 SUBCONTRACTOR shall maintain a workers' compensation program for its employees including administration and associated case management.

F12.6 SUBCONTRACTOR shall ensure that all workers' general health, physical and psychological capacity to perform work are adequate for the work assigned.

**F12 TRAINING:**

None

**F13.0 FIRE PROTECTION AND PREVENTION**

F13.1 SUBCONTRACTOR shall be responsible for complying the requirements for safeguarding construction, alteration, and demolition operations within **International Building Code (IBC) Chapter 33, International Fire (IFC) Code Chapter 33, Fire Code (NFPA 1) Chapter 16, and Standard for Safeguarding Construction, Alteration, and Demolition Operations (NFPA 241)**.

F13.2 The applicable editions of the IBC, IFC, and NFPA 1 will be provided in the contract documents. The applicable edition of NFPA 241 is provided in the IFC and NFPA 1.

F13.3 Prior to starting any work, SUBCONTRACTOR shall develop and submit to CONTRACTOR and LANL ES-FPE for review and acceptance, a **Fire Protection and Prevention Plan (FPPP)** specific to the work under this subcontract. The FPPP shall contain the following, as applicable to the work performed:

- Name and contact information of site safety director (defined the IFC).
- Documentation of the training of the site safety director and fire watch personnel.
- Procedures for reporting emergencies per **P1201-4**.
- Fire department vehicle access routes.
- Location of fire protection equipment, including portable fire extinguishers, standpipes, fire department connections, and fire hydrants.
- Smoking and cooking policies, designated areas to be used where approved, and signage locations in accordance with **Section 3305.8**.
- Location and safety considerations for temporary heating equipment.
- Hot work permit plan.
- Plans for control of combustible waste material.
- Locations and methods for storage and use of flammable and combustible liquids and other hazardous materials.
- Provisions for site security.
- Changes that affect this plan.
- Other site-specific information required by the fire code official.
- As an element of the plan, the SUBCONTRACTOR shall dial 911 and 505-667-2400, to report emergencies and initiate a fire department response for any fire, suspected fire, unexplained smoke in the work area, or the discharge of a fire extinguisher.

- SUBCONTRACTOR's FPPP shall address the requirements for the handling, storage, and use, and disposal of flammable and combustible liquids and gases.
  - SUBCONTRACTOR'S FPPP shall address how new fire protection equipment will be placed in service and maintained in proper locations as construction work progresses, and existing fire protection equipment will be preserved during demolition work.
  - SUBCONTRACTOR'S FPPP shall ensure that temporary heating equipment is installed, used, refueled and maintained to minimize the fire hazard posed by these devices.
  - Where site work is performed, the SUBCONTRACTOR's FPPP shall include a Fire Department Access Site Plan for the construction phase, in accordance with the requirements of NFPA 1 and IBC.
- F13.4 The SUBCONTRACTOR's FPPP will be accepted once approved by the CONTRACTOR's fire protection Authority Having Jurisdiction (AHJ).
- F13.5 SUBCONTRACTOR shall be responsible for implementing the accepted FPPP, acting as the site safety director (defined in the IFC) designated by the CONTRACTOR as responsible for the site's fire prevention.
- F13.6 SUBCONTRACTOR shall ensure that fire department vehicle access is provided at the start of the project and maintained until completion for any impacted buildings or construction sites
- F13.7 Smoking, use of any tobacco products, electronic smoking devices (herein referred to as smoking and or smoking materials), is prohibited within any CONTRACTOR facility.
- SUBCONTRACTOR shall ensure that workers only smoke in designated CONTRACTOR-approved smoking areas outside buildings.
  - SUBCONTRACTOR shall follow CONTRACTOR designated smoking, smoking materials, and ignition sources restrictions for special areas (e.g., explosive areas, flammable liquid/gas areas, etc.).
- F13.8 The CONTRACTOR shall request spark and flame permits for all hot work activities. See also Section F33, Welding, Cutting, Brazing, and Grinding, for more information.
- F13.9 Under extreme and "red flag" wildfire conditions, CONTRACTOR'S fire protection AHJ may impose additional restrictions on smoking, spark, and flame-producing activities.
- F13.10 SUBCONTRACTOR shall control the storage and loading of combustible and flammable materials within work and office areas to ensure safety and compliance with the applicable fire codes. Including, but not limited to:
- F13.10.1 SUBCONTRACTOR shall ensure stored material is well arranged, and aisles maintained open and clear of obstructions; stored material is kept away from heaters, lamps, hot pipes, equipment and machinery; and the use of extension cords is minimized.
- F13.10.2 SUBCONTRACTOR-managed janitor/storage closets and sheds/containers

shall be maintained in an orderly condition and shall not be used to store quantities of hazardous or toxic chemicals.

- F13.10.3 SUBCONTRACTOR shall keep electrical, mechanical, and communications rooms organized and free of combustible storage materials.
- F13.10.4 SUBCONTRACTOR shall keep cable trays and raceways free of combustible material, debris, or trash.
- F13.10.5 SUBCONTRACTOR shall prohibit open flames and smoking in designated storage areas.
- F13.10.6 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.
- F13.10.7 SUBCONTRACTOR shall ensure flammable and combustible liquids are stored properly, dispensed in safety cans manufactured to a recognized standard, and areas designated for these activities are maintained in an orderly fashion.
- F13.11 SUBCONTRACTOR shall post all hazardous areas with required signs and control access.
- F13.12 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.
- F13.12.1 SUBCONTRACTOR shall not permit open fires on the jobsite.
- F13.13 SUBCONTRACTOR shall monitor its work and office areas to ensure that all doors, stairwells, aisles, and other parts of the means of egress are kept clear and unobstructed at all times per **Life Safety Code (NFPA 101)**.
- F13.13.1 Within areas entirely within the SUBCONTRACTOR's controlled work areas, the means of egress shall comply with **10 CFR 1926** and the contractual requirements and provide adequate means of escape for construction workers.
- F13.13.2 In all buildings over one story in height, SUBCONTRACTOR shall ensure that at least one stairway meeting the requirements of **Life Safety Code (NFPA 101)** is in usable condition at all times.
- F13.13.3 Where SUBCONTRACTOR is working within or adjacent to area occupied or used by CONTRACTOR, the existing conditions and compliance of the means of egress shall be maintained.
- F13.13.4 SUBCONTRACTOR shall not close or obstruct streets, walks, building egress

paths, exits, and other facilities occupied and used by the CONTRACTOR without prior written authorization from the fire protection AHJ.

F13.13.5 SUBCONTRACTOR shall provide an egress/exit closure plan for review and acceptance by CONTRACTOR'S Fire Protection Authority Having Jurisdiction (AHJ).

F13.13.6 Authorization will be granted only after adequate plans and provisions are proposed to meet the egress and emergency response needs of CONTRACTOR's facility occupants.

F13.13.7 SUBCONTRACTOR shall provide the controls and compensatory measures detailed in the accepted egress/exit closure plan.

F13.14 If SUBCONTRACTOR furnishes portable field offices, SUBCONTRACTOR shall ensure they have:

- Required separations from adjacent CONTRACTOR or GOVERNMENT structures in accordance with the IBC and NFPA 241, and NFPA 80A recommended practices;
- Are secure;
- All exits are clearly marked and adequately lighted;
- Exit paths are level across door openings;
- Stairs are properly constructed per **10 CFR 1910** and handrails provided where required;
- Exit doors are not provided with exterior locking features that prevent personnel from exiting; and,
- If equipped, all emergency lights remain functional.

F13.15 CONTRACTOR'S fire protection AHJ has final authority over the compliance of portable field offices and will determine the required building setbacks and advise with respect to other requirements, if there are questions.

F13.16 SUBCONTRACTOR shall provide all fire protection and prevention equipment necessary for its operations, including but not limited to, portable fire extinguishers.

F13.16.1 SUBCONTRACTOR shall provide an adequate number of portable fire extinguishers of the correct size and type for its work activities. SUBCONTRACTOR shall maintain extinguishers per manufacturers' recommendations, inspected monthly, and tested annually.

F13.17 SUBCONTRACTOR shall train employees in the proper use of portable fire extinguishers. See also **Section F33, Welding, Cutting, Brazing, and Grinding**, for fire watch and portable fire extinguisher requirements.

F13.18 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.

F13.18.1 SUBCONTRACTOR shall maintain a minimum of 18-inches of free space below sprinkler heads when working in facilities having sprinkler systems.

F13.18.2 SUBCONTRACTOR shall appropriately mask and protect fire sprinkler heads and fire detection and alarm devices during painting, dust generating activities, and spray-application of fireproofing material operations.

F13.19 SUBCONTRACTOR shall ensure that, in buildings required to have standpipes, at least one standpipe shall be installed for use during construction prior to construction exceeding 40 feet in height above the lowest level of fire department vehicle access.

F13.19.1 Such standpipes shall be extended up with each floor, be securely capped at the top, and have fire department hose connections at accessible locations adjacent to usable stairways.

### **F13 TRAINING:**

1. Workers shall be trained in fire extinguisher awareness when portable fire extinguishers are provided in the workplace.
  - [Initial training required and refresher training required annually; provide proof of training if requested by CONTRACTOR]
2. Workers who have been designated to use fire extinguisher as part of an emergency action (such as those performing hot work, facility operators, certain construction activities, etc.) shall be trained in the use of the appropriate equipment.
  - [Initial training required and refresher training required annually; provide proof of training if requested by CONTRACTOR]

### **F14.0 INCLEMENT WEATHER**

F14.1 SUBCONTRACTOR shall establish adequate controls for employee exposure to potential inclement weather conditions including but not limited to heat, cold, wind, lightning, snow, icy conditions, etc. SUBCONTRACTOR shall capture hazards and controls for tasks related to inclement weather (e.g., snow removal, protection of workers and/or facilities) in IWD. Actions should include work stoppage and sheltering, as appropriate.

F14.2 Depending on the location and nature of work (e.g., in proximity to high explosives), SUBCONTRACTOR shall be subject to CONTRACTOR Lightning Threat Actions requirements and shall follow CONTRACTOR Lightning Threat Actions as directed by CONTRACTOR until the declaration of “all clear.”

F14.3 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 time shall be defined to reduce the possibility of heat or cold-related disorders, if necessary.

F14.4 SUBCONTRACTOR shall ensure that employees have access to an adequate sanitary potable water supply during all periods of the day, especially when heat stress conditions exist.

**F14 TRAINING:**

None

**F15.0 PERSONAL PROTECTIVE EQUIPMENT**

F15.1 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 through 136 and 138, 29 CFR 1926.95 and 102, ANSI Z87.1 and Z89.1, ANSI/ISEA 105 and 107, ASTM F1002, F1506, F2412, and F2413, and NFPA 2112.**

F15.2 SUBCONTRACTOR shall provide training to each employee who is required to use PPE. SUBCONTRACTOR shall train each employee 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.

F15.3 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.

F15.4 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, Section 6C.05, High-Visibility Safety Apparel**. Flagmen and signalmen shall wear vests complying with **29 CFR 1926.201**.

**F15 TRAINING:**

1. Workers that use PPE are required to complete PPE training per **29 CFR 1910.132(f)**. SUBCONTRACTOR provides training; CONTRACTOR will accept **OSHA 10-Hour Training** to meet requirements.
  - [Initial training required and refresher training as needed; provide proof of training if requested by CONTRACTOR]

**F16.0 TOOLS AND EQUIPMENT**

F16.1 SUBCONTRACTOR shall ensure that all work tools are used, inspected, and maintained in accordance with the manufacturers' recommendations and federal regulations, including **29 CFR 1910 Subpart P and 29 CFR 1926 Subpart**.

F16.2 SUBCONTRACTOR shall inspect power tools and equipment prior to use for damage or defects.

- F16.3 SUBCONTRACTOR shall not use job-made tools of any kind at the jobsite, unless approved in writing by CONTRACTOR.
- F16.4 SUBCONTRACTOR shall be aware of all hazardous signage, as well as recognize and identify hazardous conditions in the workplace that may result in contamination of tools and equipment.
- F16.5 SUBCONTRACTOR shall ensure that employees are trained in recognition of workplace contaminant hazards, decontamination and disposal procedures.
- F16.6 SUBCONTRACTOR shall ensure that the use of proper decontamination methods is utilized when tools and equipment are contaminated.
- F16.7 SUBCONTRACTOR shall ensure tools that require calibration are up to date with proper labels and dates.
- F16.8 SUBCONTRACTOR shall follow **29 CFR 1910.243(d)** and **29 CFR 1926.302(e)** if powdered-actuated tools will be used. Only properly trained and certified employees shall be permitted to use powdered-actuated tools. SUBCONTRACTOR shall control, account for, and properly store the powdered charges (cartridges) for powdered-actuated tools. SUBCONTRACTOR shall not leave live or spent cartridges on the ground or dispose of them in trashcans or other unauthorized containers.
- F16.9 SUBCONTRACTOR shall use ground fault circuit interrupters (GFCI) on all temporary electrical applications, including task lighting.
- F16.10 SUBCONTRACTOR shall certify general use high-efficiency particulate air (HEPA) filtration systems (portable and in-place) to **DOE-STD-3020-2015** to verify filtration efficiency prior to initial use, annually thereafter, and after any maintenance or disruption that disturbs the HEPA filter. SUBCONTRACTOR shall certify portable HEPA filtration systems biannually for use on radioactive contamination. CONTRACTOR Ventilation Team can provide testing and certification.
- F16.11 SUBCONTRACTOR shall 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.
- F16.12 SUBCONTRACTOR shall 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.
- F16.13 SUBCONTRACTOR shall ensure electric power tools using 60 Hz AC power (whether 120 V, 240 V, 480 V, etc.) are listed by a Nationally Recognized Testing Laboratory (NRTL). Such NRTL listing also applies to extension cords, re-located power taps, temporary lighting, or other electrical equipment utilizing or delivering 60 Hz ac

power. For any such power tools or other electrical devices that are not listed, SUBCONTRACTOR shall request approval from CONTRACTOR electrical Authority Having Jurisdiction (AHJ), an Electrical Safety Officer, prior to use. SUBCONTRACTOR shall request an AHJ inspection of any NRTL listed electrical power tool that has been repaired before reuse.

**F16 TRAINING:**

1. Workers that use powdered-actuated tools (e.g., blank-firing nail guns) shall be trained. SUBCONTRACTOR provides training and submits certification card to CONTRACTOR.
  - [Initial training required and refresher training as needed; provide proof of training if requested by CONTRACTOR]

**F17.0 RADIATION PROTECTION**

- F17.1 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.
- F17.2 For any work involving radiological hazards, SUBCONTRACTOR shall contact CONTRACTOR deployed radiation protection personnel through the STR, prior to beginning work, to ensure radiological work is adequately supported with radiation protection staff and appropriate radiological controls are established.
- F17.3 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 to CONTRACTOR STR associated documentation, for review and approval by CONTRACTOR, at least 48 hours before bringing the RSS or RGD onto CONTRACTOR site.

**F17 TRAINING:**

**Note:** **P121 chapter 8** provides detailed requirements for radiological training, summarized below.

**Note:** An escort may be used in lieu of training under conditions specified in **P121 chapter 8**.

**Note:** Additional radiological training may be required as indicated through area posting, work control documents, or direction from CONTRACTOR radiation protection staff.

1. Workers that enter radiological controlled areas are required to complete **General Employee Radiological Training (UTrain 46614.)**
  - [initial training required and refresher training every two years; provide proof of training if requested by CONTRACTOR]

2. Workers that enter radiological buffer areas and radiological areas or perform radiological work as defined in **P121** are required to complete radiological worker training, which consists of **Radiological Worker 2 training (UTrain 20301)**, **Radiological Worker 2 practical evaluation (UTrain 12910)**, and **Radiological Worker 2 examination (UTrain 12909)**.
  - [initial training required and refresher training and retesting every two years; provide proof of training if requested by CONTRACTOR]
3. Workers operating accountable Radioactive Sealed Sources (RSS) are required to complete **RSS Safety (UTrain 15907)** and Radiological Worker Training. SUBCONTRACTOR's performing service and maintenance work on CONTRACTOR devices containing RSS are not required to take RSS Safety as long as they are not operating the RSS-containing device as a user.
  - [initial training required; provide proof of training if requested by CONTRACTOR]
4. Operators of certain types of **Radiation Generating Devices (RGD) (see P121 table 18-2)** are required to complete **RGD Safety (UTrain 44626)** and **Radiological Worker Training**. SUBCONTRACTOR's performing service and maintenance work on CONTRACTOR RGD's are not required to take RGD safety as long as they are not operating the RGD as a user.
  - [initial training required and refresher training every two years; provide proof of training if requested by CONTRACTOR]
5. Facility-specific training or orientation is required to work in certain facilities.
  - [initial training required and refresher training as deemed by facility]
6. Activity-specific training may be required for certain activities.
  - [initial training required and refresher training as deemed by activity team]

## **F18.0 EXPOSURE ASSESSMENT**

F18.1 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. In addition, CONTRACTOR considers the following items to merit special exposure assessment planning, which will be reviewed and approved by CONTRACTOR.

- Welding, grinding, and torch cutting operations
  - Sound levels exceeding a noise dose of 100% (85 dBA for 8-hours with a 3 dB exchange rate or impulse/impact noise exceeding 140 dB or dBC)
  - Tasks exposing workers to respirable crystalline silica (pervasive in the soil at CONTRACTOR site) and beryllium.
  - Operations involving cryogens or compressed gases.

F18.2 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 standards [e.g., 2016 ACGIH Threshold Limit Value (TLV)] rather than OSHA permissible exposure limits when TLV's are more stringent; however, the remaining requirements in a given OSHA standard remain (e.g., training, exposure monitoring frequency, medical surveillance, labeling).

F18.3 SUBCONTRACTOR shall describe in the Site-Specific SH Plan the exposure assessment process that will be used to develop task-specific Exposure Assessment Plans. SUBCONTRACTOR shall ensure a SUBCONTRACTOR industrial hygienist qualified through a combination of knowledge, skills, and abilities in the anticipation, recognition, evaluation, and control of chemical, biological, and physical hazards associated with the work activities creates the task-specific Exposure Assessment Plans.

**Note:** Examples of industrial hygienist qualifications include being a Certified Industrial Hygienist (CIH) or having the combination of education and experience that makes them eligible to sit for the CIH exam. When appropriate, CONTRACTOR ESH professional may authorize substitute education and experiences in lieu of a CIH or being CIH-exam eligible.

F18.4 Prior to starting tasks where workers are potentially exposed to chemical, biological, and/or physical hazards, SUBCONTRACTOR shall submit to CONTRACTOR for approval, a task-specific Exposure Assessment Plan prior to task work beginning. The Exposure Assessment Plan shall detail:

- The anticipated or identified chemical, biological, and/or physical hazard to be evaluated during the subcontracted work.
- The subcontract work task(s) resulting in each chemical, biological, and/or physical hazard.
- The occupational exposure limit, if available, to be used in evaluating the worker's exposure potential for each chemical, biological, and/or physical hazard (e.g., 2016 ACGIH TLV 8-hour Time-Weighted Averages, OSHA ceiling, etc.).
- For each chemical, biological, or physical hazard 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. If no occupational exposure limit is available, SUBCONTRACTOR shall consult CONTRACTOR S&H professional for guidance on evaluating worker exposure risk.

#### **F18 TRAINING:**

1. SUBCONTRACTORS are required to train employees per applicable OSHA general industry and construction standards.
  - [Initial and refresher training as required in OSHA standards; provide proof of training if requested by CONTRACTOR]

## F19.0 RESPIRATORY PROTECTION

- F19.1 If respirators are to be used, then SUBCONTRACTOR shall have a written Respiratory Protection Program Plan addressing the required elements in both **29 CFR 1910.134** and **ANSI Z88.2**. The elements required to be included are but not limited to:
- designated qualified respirator program administrator,
  - respirator selection process,
  - medical evaluation process,
  - fit testing,
  - use,
  - maintenance and care,
  - breathing air quality and use (if supplied-air respirators or self-contained breathing apparatus respirators are required),
  - training requirements,
  - program evaluation,
  - record keeping.
- F19.2 SUBCONTRACTOR shall submit their plan as part of the Site-Specific ES&H Plan. Task-specific respiratory protection will be determined through exposure assessment(s) performed by a qualified IH staff.
- F19.3 SUBCONTRACTOR shall document required respiratory protection in task-specific hazard planning and control documents.
- F19.4 SUBCONTRACTOR's designated respirator program administrator shall oversee SUBCONTRACTOR respirator program.
- F19.5 If SUBCONTRACTOR is required to use CONTRACTOR respirators in areas where there are no adequate means to use their own respirators, CONTRACTOR can provide the needed respirator, fit testing, and training.
- F19.5.1 SUBCONTRACTOR must adhere to and participate in all CONTRACTOR respirator requirements.
- F19.5.2 SUBCONTRACTOR will submit a Form 1465 – Request for Respiratory Protection Evaluation and Use requesting respiratory protection to [respiratorteam@lanl.gov](mailto:respiratorteam@lanl.gov)
- F19.5.3 SUBCONTRACTOR will become medically cleared for respirator use through a qualified community medical care professional using the Respirator Medical Clearance Verification Form included as an attachment.
- F19.6 SUBCONTRACTOR will participate in all trainings and maintain an up-to-date LANL respirator use authorization card to be received after passing fit-test. To maintain the authorization card SUBCONTRACTOR must complete required training and fit testing

for appropriate respirators required to be used by SUBCONTRACTOR.

**F19 TRAINING:**

1. Workers that are required to use respirators shall be trained per **29 CFR 1910.134** and **ANSI Z88.2**. SUBCONTRACTOR provides training.
  - Initial training required, and refresher training required annually; provide proof of training if requested by CONTRACTOR.

**F20.0 CHEMICAL AND HAZARDOUS MATERIALS MANAGEMENT**

- F20.1 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 that conforms to **29 CFR 1910.1200 subsections (e), (f), and (h)**. SUBCONTRACTOR shall submit plan for approval as part of SUBCONTRACTOR's Site-Specific S&H Plan.
- F20.2 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 via ***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.
- F20.3 If a Toxic Substances Controlled Act (TSCA) chemical or product containing a TSCA chemical is to be used by a LANL SUBCONTRACTOR, the use must be approved prior to being brought onsite and LANL requirements shall be abided by. SUBCONTRACTOR shall store hazardous chemicals in appropriate containers and segregated to ensure compatibility.
- F20.4 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.
- F20.5 SUBCONTRACTOR shall complete and submit **Attachment F20-1 Environmental Reporting Data for EPA Annual Toxic Release Inventory Report** to CONTRACTOR for 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, for review and approval, by January 31st of each year for multi-year projects, and upon project completion for all projects.

**F20 TRAINING:**

1. Workers conducting work in areas with hazardous chemicals shall be trained on work area hazardous chemicals per the requirements of **29 CFR 1910.1200**.
  - [Initial training required, and refresher training as needed; provide proof of training if requested by CONTRACTOR]

## **F21.0 BERYLLIUM ACTIVITIES NOT INVOLVING AIRBORNE BERYLLIUM**

- F21.1 In accordance with **10 CFR 851.23(a)(1)**, SUBCONTRACTOR shall comply with CONTRACTORS's Chronic Beryllium Disease Prevention Program (CBDPP) and applicable requirements as specified by CONTRACTOR. The CONTRACTOR shall provide a copy of the CBDPP upon the SUBCONTRACTORS request.
- F21.2 The STR shall engage a CONTRACTOR Qualified Industrial Hygiene and Safety Professional (QIHSP) any time beryllium is identified as a hazard to determine the applicable CBDPP requirements the SUBCONTRACTOR must follow. Requirements may include LANL beryllium training, personal protective equipment, sampling, and protocols for release of material and supplies from a designated beryllium area.
- F21.3 The STR shall ensure that a CONTRACTOR QIHSP participates in all Hazard Analyses (HA) for work in beryllium areas or work with beryllium items or tools. The CONTRACTOR QIHSP who participated in the HA shall be identified on the IWD or work control document. The SUBCONTRACTOR shall follow the recommendations of the CONTRACTORS QIHSP. The SUBCONTRACTOR shall identify workers, safety personnel, and or management to participate in the HA to ensure that work methods and controls identified will function as intended.
- F21.4 The HA process shall determine if it is anticipated beryllium activities will generate airborne beryllium. If it is determined airborne beryllium may be generated, the SUBCONTRACTOR shall pause work until controls can be put in place to prevent it. SUBCONTRACTOR employees shall not perform tasks anticipated to generate airborne beryllium.
- F21.5 Designated beryllium area postings shall not be added, modified, or removed by SUBCONTRACTOR without concurrence of CONTRACTOR. CONTRACTOR STR shall be notified as soon as reasonably practicable if a change in postings is required.

### **F21 TRAINING:**

**NOTE:** CONTRACTOR Industrial Hygiene personnel will specify the level of beryllium training required for the work and location. Work which may involve airborne beryllium as defined in **P101-21** may not be performed under this clause.

1. Workers entering into posted designated beryllium areas, performing operations involving beryllium contamination (non-airborne), and/or working with beryllium alloy tools shall complete **Beryllium Awareness Level Training (UTrain Curriculum 9360)**, which consists of a self-study course.

- [Initial training required and refresher training required every two years; provide proof of training if requested by CONTRACTOR].
- 2. Workers may optionally complete **Beryllium Worker Training (UTrain Curriculum 117)**, which consists of an instructor-led course and self-study refresher training.
  - [Initial training and refresher training every two years; provide proof of training if requested by CONTRACTOR]
- 3. Other SUBCONTRACTOR workers that work on site who are not defined as Beryllium Workers or Beryllium Awareness Level Workers must take **Beryllium: General Employee Overview (UTrain Curriculum 118/Course 55173)**.
  - [Initial training required and refresher training required every two years; provide proof of training if requested by CONTRACTOR]

## **F22.0 BIOLOGICAL SAFETY**

- F22.1 When the scope of work involves potential exposure to or actual handling of etiological agents, SUBCONTRACTOR shall comply with **10 CFR 851 Appendix A, Section 7(a)(2)**.
- F22.2 SUBCONTRACTOR shall ensure each worker completes an awareness briefing and site-specific training provided by CONTRACTOR prior to entering buildings or facilities where biological hazards exist.
- F22.3 Where the scope of work 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 Bloodborne Pathogen Exposure Control Plan (BBPECP) in accordance with **29 CFR 1910.1030 Bloodborne Pathogens**. SUBCONTRACTOR shall incorporate the BBPECP into the SUBCONTRACTOR's Site-Specific S&H Plan. For blood and other potentially infectious materials, SUBCONTRACTOR shall perform post-exposure evaluations and offer of Hepatitis B vaccination to its workers.
- F22.4 SUBCONTRACTOR shall provide Bloodborne Pathogen training to workers, and the content of this training shall be approved by CONTRACTOR'S Biological Safety Officer where the scope of 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 as an annual refresher**).
- F22.5 Where SUBCONTRACTOR provides equipment service maintenance in a Biosafety Level (BSL-1 or BSL-2) Laboratory (e.g., biosafety cabinet certification and maintenance or repair, autoclave maintenance and calibration, other equipment maintenance or repair), CONTRACTOR will brief SUBCONTRACTOR on the hazards they may encounter in these laboratories, and the requirements in 22.6.

F22.6 SUBCONTRACTOR shall comply with the requirements below regarding programmatic or research work at a BSL-1 or BSL-2 Laboratory.

F22.6.1 Work at BSL-1 and BSL-2 Laboratories must be approved by CONTRACTOR's Institutional Biosafety Committee, via the CONTRACTOR's Biosafety Officer.

F22.6.2 SUBCONTRACTOR shall complete medical surveillance measures as dictated by specific BSL-1 and BSL-2 Laboratory entry requirements.

### **F22 TRAINING:**

**Note:** A facility-specific awareness briefing and training are required prior to entering buildings or facilities where biological hazards exist; CONTRACTOR provides training.

1. Workers that may come into contact with blood or other potentially infectious material, including when rendering first aid, must complete **Initial Bloodborne Pathogen Training (LIVE #7292) and annual refresher training (#11776)**. SUBCONTRACTOR may provide Bloodborne Pathogen training to workers provided it is compliant with **29 CFR 1910.1030, Bloodborne Pathogens** and has been approved by CONTRACTOR'S Biological Safety Officer. Worker may take **Bloodborne Pathogens (UTrain 7292) and Bloodborne Pathogens annual refresher Self-Study (UTrain 11776)** to meet requirements.
  - [Initial training required, and annual refresher training required; provide proof of training if requested by CONTRACTOR.]
2. Workers conducting programmatic research at a Biosafety Level Laboratory must take **LANL Principles of Biosafety (LIVE # 31701) initially, then LANL Principles of Biosafety On-Line Refresher (UTrain #37023)** annually thereafter.
  - [Initial training required and annual refresher training required; provide proof of training if requested by CONTRACTOR.]

### **F23.0 LASER SAFETY**

F23.1 If at any point SUBCONTRACTOR will utilize Class 3B or Class 4 lasers, SUBCONTRACTOR's Site-Specific S&H Plan shall include a Laser Safety Program that ensures compliance with **ANSI Z136.1-2014, Safe Use of Lasers**, including laser hazard evaluation, hazard controls, laser safety training, and other requirements specific to the work. CONTRACTOR will provide to SUBCONTRACTOR laser hazard evaluations or hazard controls established for CONTRACTOR-owned lasers.

### **F23 TRAINING:**

1. Workers that work with or can potentially be exposed to Class 3B or Class 4 laser radiation are required to complete laser safety training per **ANSI Z136.1-2014, Safe Use of Lasers, Section 5**. SUBCONTRACTOR can provide training, or workers can take **Laser Operator, Class 3B or Class 4 (UTrain Curriculum 2641)**.
  - [Initial training required and refresher training as needed; provide proof of training if requested by CONTRACTOR]

## F24.0 FIREARMS SAFETY

F24.1 All SUBCONTRACTOR non-security firearms use shall be conducted in accordance with the CONTRACTOR's **P101-2, NON-SECURITY FIREARMS SAFETY PROGRAM**. Security use of firearms at CONTRACTOR's site by the SUBCONTRACTOR is prohibited.

**Note:** Restriction of firearms for security use does not apply to CONTRACTOR's designated protective force.

### F24 TRAINING:

None

## F25.0 EXPLOSIVES STORAGE/USE/DISPOSAL

F25.1 In accordance with **10 CFR 851 Appendix A, Section 3**, SUBCONTRACTOR shall comply with the policy and requirements specified in CONTRACTOR's explosives safety program and the most current revision of DOE technical standard **DOE-STD-1212, explosives safety**.

F25.2 When SUBCONTRACTOR personnel work in explosives areas within intraline distance of explosives, the CONTRACTOR str will coordinate with SUBCONTRACTOR and explosives safety authority having jurisdiction (AHJ) to determine non-facility personnel requirements apply. If it is determined those requirements apply, the SUBCONTRACTOR shall not be closer than intraline distance from any explosive's operations

F25.3 SUBCONTRACTOR shall notify and receive approval from CONTRACTOR prior to the use of explosives or blasting agents to perform any part of the subcontracted scope of work.

F25.4 SUBCONTRACTOR shall ensure explosives on-site storage and transportation conforms to the requirements of **DOE Technical Standard DOE-STD-1212, Explosives Safety**. These activities must follow the requirements in the **DOE TECHNICAL STANDARD DOE-STD-1212, SECTION 32 (STORAGE) AND SECTION 33 (TRANSPORTATION)**. SUBCONTRACTOR shall handle all shipments of explosives or blasting agents to CONTRACTOR in accordance with U.S. Department of Transportation regulations. SUBCONTRACTOR shall supply a CONTRACTOR-approved magazine for storage of explosives at a location designated by CONTRACTOR.

F25.5 SUBCONTRACTOR shall submit to CONTRACTOR for approval, a blasting plan as part of the task-specific work control and planning documents that includes at a minimum:

- Specific procedures for notifying the proper authorities prior to a blast;
- Procedures for guarding the blast site to ensure the area is free of personnel during firing operations;
- A detailed description of the blasting method (e.g., shot design, loading, initiation, delay patterns, blasting patterns, use of blasting mats, etc.);

- Specific description of all explosive material to be used;
- Specific procedures describing the process to be used during elevated fire danger; and
- Name of licensed blaster and copy of license.

F25.6 SUBCONTRACTOR shall submit Blasting Plan and receive CONTRACTOR approval prior to work proceeding.

F25.7 SUBCONTRACTOR shall design each explosive shot to minimize potential for fire-starting potential, vibration, noise, fragment production, and overpressure damage.

F25.8 SUBCONTRACTOR shall monitor each explosive shot with a seismograph and retain records for the life of the project.

F25.9 SUBCONTRACTOR shall dispose of all unused explosives or damaged explosives and blasting agents in accordance with CONTRACTOR waste management requirements, and all applicable federal and state laws.

#### **F25 TRAINING:**

None

#### **F26.0 TRAFFIC AND PEDESTRIAN CONTROL**

F26.1 For each phase of multi-phase project, SUBCONTRACTOR shall work with CONTRACTOR through the STR to ensure an **Impediment to Vehicular and Pedestrian Notification- Form 46-00-011.1** has been submitted and approved by LANL Utilities & Infrastructure. SUBCONTRACTOR shall provide a Traffic Control Plan (TCP) for the worksite stamped by a state of New Mexico licensed Professional Engineer (PE) for review and approval. SUBCONTRACTOR shall develop TCPs in accordance with federal and state regulations, including the Manual on Uniform Traffic Control Devices (MUTCD). Refer to MUTCD, Part 6 for TCP example content. SUBCONTRACTOR shall receive CONTRACTOR approval for each TCP and **Form 46-00-011.1** prior to starting work involving traffic control.

F26.2 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:

F26.3 The basic safety principles governing the design of permanent roadways and roadsides shall also govern the design of temporary traffic control zones and can include language to suggest minimizing impact to existing operations including traffic flow, parking and transit system impacts to safely execute work

F26.4 Design drawings shall indicate the following:

- disposition of all temporary traffic control devices, including work suspensions;
- placement and use of traffic control devices and flaggers;

- F26.5 Strategies for traffic operations to include:
- demand management,
  - corridor or network management,
  - safety management and enforcement,
  - work zone traffic management;
  - 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.
- F26.6 If using any oversize vehicles, SUBCONTRACTOR shall submit **Attachment F26-1, Requirement for Moving Heavy Equipment and Oversized Vehicles, Form 2075**, to CONTRACTOR Traffic Engineer for approval.
- F26.7 To provide acceptable levels of operations, SUBCONTRACTOR shall perform routine day and night inspections of temporary traffic control elements.
- F26.8 SUBCONTRACTOR traffic control management shall conform to the New Mexico **Department of Transportation, Section 618**.
- F26.9 SUBCONTRACTOR personnel who are knowledgeable in the principles of proper temporary traffic control (i.e., International Municipal Signal Association or American Traffic Safety Services Association trained and certified), shall be assigned responsibility for safety in temporary traffic control zones.
- F26.10 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 a daily inspection log for review by CONTRACTOR Traffic Engineer.

**F26 TRAINING:**

None

**F27.0 MOTOR VEHICLES AND POWERED INDUSTRIAL EQUIPMENT**

- F27.1 SUBCONTRACTOR shall submit a Motor Vehicle Safety Program as part of the Site-Specific S&H Plan if using CONTRACTOR/GOVERNMENT owned or leased vehicles, or SUBCONTRACTOR powered industrial equipment (e.g., fork trucks, powered industrial trucks, rough terrain forklifts, tractors, platform lift trucks, and other similar specialized equipment powered by an electric motor or an internal combustion engine).

- F27.1.1 SUBCONTRACTOR Motor Vehicle Safety Program shall include, 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.
- F27.1.2 SUBCONTRACTOR shall report immediately to the STR all mishaps/incidents leading to the damage of a motor vehicle or CONTRACTOR property on official business.
- F27.1.3 SUBCONTRACTOR provided vehicle and mobile equipment operators shall be responsible for the safety of all passengers and the stability of materials being transported.
- F27.1.4 SUBCONTRACTOR shall ensure that its vehicles and mobile equipment are shut down during refueling.
- F27.1.5 SUBCONTRACTOR shall ensure that parking brakes are set in its vehicles and equipment when unattended.
- F27.1.6 SUBCONTRACTOR shall ensure that truck drivers exit the cab and remain clear while the truck is being loaded by powered industrial equipment unless the vehicle is equipped with a vehicle/equipment manufacturer-approved cab shield.
- F27.2 SUBCONTRACTOR personnel operating motor vehicles and powered industrial equipment shall have a current valid driver's license and an operator's qualification for the equipment that they are operating. For forklifts and powered industrial trucks, the competency and qualification shall be based upon the class of forklift that they will be operating in accordance with **29 CFR 1910.178**; trained on the equipment to be operated; healthy and unimpaired; not use cellular devices or hand held communications equipment while the equipment is in operation, and abide by established road regulations and/or jobsite regulations.
- F27.3 SUBCONTRACTOR shall ensure all SUBCONTRACTOR provided vehicles and mobile equipment are 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 manufacturer's recommendations.
- F27.4 SUBCONTRACTOR 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 shall meet the following requirements.
- F27.4.1 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 shall make maintenance and inspection records available per CONTRACTOR request.

- F27.4.2 SUBCONTRACTOR shall ensure equipment does not leak or cause an adverse environmental impact or safety concern. This includes any leaks or other adverse environmental impacts.
- F27.4.3 SUBCONTRACTOR shall de-energize, rendered inoperable, tag out of service, or remove from the project location any equipment or machinery that is not in compliance with regulatory requirements.
- F27.4.4 SUBCONTRACTOR forklift operators shall inspect and document a preoperational inspection once during each shift the equipment 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.
- F27.4.5 SUBCONTRACTOR shall ensure dozer blades, end loader buckets, forklift forks, or like equipment parts are lowered to the ground before the operator exits the equipment.
- F27.4.6 SUBCONTRACTOR shall ensure that operators of specialty vehicles, such as ATVs, OHVs, and UTVs are appropriately trained and familiar with the vehicle and are authorized to operate them.
- F27.5 SUBCONTRACTOR shall complete **Attachment F27-1, Major Equipment Declaration**, and provide a copy to the CONTRACTOR 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).
- F27.5.1 CONTRACTOR shall complete the **Safety Review Checklist within the Major Equipment Declaration Form** and provide a copy to the CONTRACTOR STR.

**F27 TRAINING:**

1. Workers who operate forklifts, powered industrial trucks, and rough terrain forklifts shall be trained and certified on the applicable equipment as required by **29 CFR 1910.178**. SUBCONTRACTOR provides training.
  - [Initial training required and refresher training as needed; provide proof of training if requested by CONTRACTOR]

**F28.0 MECHANICAL MATERIAL HANDLING (MMH)**

- F28.1 SUBCONTRACTOR shall evaluate Mechanical Material Handling (MMH) work activities to make a load determination of Low Consequence (formerly Ordinary) Material Handling Activity (MHA) or High Consequence (formerly Critical) Material Handling Activity (MHA). SUBCONTRACTOR shall provide CONTRACTOR STR with proposed load determination and STR, with assistance from CONTRACTOR MMH Coordinator as

needed, will concur before MMH task planning continues. After SUBCONTRACTOR and CONTRACTOR agreement on the determination of Low Consequence MHA or High Consequence MHA, SUBCONTRACTOR shall complete the requirements associated with the selected load type.

- F28.2 MMH activities are defined as those involving moving materials by various types of equipment that provide a mechanical advantage. Examples of MMH activities include:
- moving materials using a cart;
  - transporting gas bottles, dewars, and/or liquid cylinders using a cart or dolly;
  - using hand trucks, hydraulic lift tables, and pallet jacks; and
  - using mechanical material handling devices such as jacks, air casters, lift bags, industrial rollers, etc. that are included in **ASME B30.1, Jacks, Industrial Rollers, Air Casters, and Hydraulic Gantries**.
  - using powered winches governed by ASME B30.7.
- F28.3 SUBCONTRACTOR shall use **Form 2272A Mechanical Material Handling MHA Risk Assessment** to document the risk assessment. If SUBCONTRACTOR answers YES to any of the questions, the load handling activity shall be classified as a High Consequence activity. The CONTRACTOR RLM and MMH Coordinators are encouraged to determine if any of the hazards can be eliminated or mitigated through the employment of other methods or equipment and re-evaluate the risk assessment.

## MMH GENERAL GUIDANCE

### 1. Requirements for High-Consequence (formerly Critical) Material Handling Activities

High-consequence Load activities are performed under the authorization of the ALD, the RLM and the MMH Coordinator. If onsite SUBCONTRACTORS are involved, then the STR will perform a technical evaluation of the SUBCONTRACTOR's proposal to determine if High-Consequence Load activities will be performed and will seek assistance from a LANL MMH Coordinator as required.

If a load is determined to be high-consequence, then a High-Consequence Operational Plan must be developed.

### 2. High-Consequence (formerly Critical) MMH Material Handling Activity Plan Development

The High-consequence (formerly Critical) MMH Material Handling Activity Plan must be developed by a qualified MMH Coordinator using **Form 2272-B - High-Consequence MMH Material Handling Activity Plan**. The MMH Coordinator may use the Material Handling Activity Planning and Permitting System (MHAPPS) in lieu of Form 2272-B.

Approved High-Consequence MHA Plans and/or the associated IWD for the work will be reviewed on the frequency established by **P300, Integrated Work Management and P300-1, Integrated Work Management for R&D**. If work conditions change, the MMH Coordinator will pause and revise the High-Consequence Load Operational Plan and the associated IWD.

### 3. Standardized MMH Material Handling Plans

MMH Material Handling Plans may be designated as Standardized MMH Material Handling Plans if the ALL the following are true throughout the evolution:

- The selection of the MMH Equipment, i.e., make, model, and capacity, does NOT change.
- The load characteristics, i.e., the weight, the location of the center of gravity, the dimensions do NOT change.
- The work environment, i.e., travel paths, do NOT change.

Once a MMH Material Handling Plan has been designated a Standardized MMH Material Handling Plan, the following apply:

- The Standardized MMH Material Handling Plan is null and void if any of the above listed considerations change.
- The Standardized MMH Material Handling Plan must be reviewed on an annual basis to ensure the efficacy of the plan relative to the load, the MMH equipment, and the work environment.
- The Standardized MMH Material Handling Plan must expire when the associated IWD expires.

F28.4 If SUBCONTRACTOR answered NO to all questions, the load determination is Low Consequence (formerly Ordinary) MHA and SUBCONTRACTOR shall complete requirements for a Low Consequence (formerly Ordinary) MHA. If SUBCONTRACTOR answered YES to any question, the load determination is High Consequence (formerly Critical) MHA and SUBCONTRACTOR shall complete requirements for a High Consequence MHA.

F28.5 If MMH activity is for a Low Consequence (formerly Ordinary) MHA, SUBCONTRACTOR shall evaluate the hazards of MMH task using the approach detailed in F5.0 Work Management and implement appropriate controls.

F28.6 If MMH activity is for a High Consequence (formerly Critical) MHA, SUBCONTRACTOR shall develop a **Form 2272-B -High-consequence MMH Material Handling Activity Plan** with input from CONTRACTOR MMH Coordinator and STR, as appropriate. SUBCONTRACTOR shall incorporate the Plan into or used as a supplement to the task integrated work document (IWD). As such, this will be considered an update to the IWD and SUBCONTRACTOR shall follow the IWD review and approval process. SUBCONTRACTOR shall not begin Critical Load MMH until Plan is CONTRACTOR approved and incorporated into IWD.

F28.7 SUBCONTRACTOR shall designate a qualified person knowledgeable in the type(s) of load handling activities to determine appropriate methods and to develop plans for load handling activities to ensure safety. This shall include, at a minimum, following manufacturer's instructions for load handling equipment and rigging, completing a documented site-specific walk down to ensure environment/site conditions are incorporated into the lift plan(s) being followed. Planning shall be done in accordance

with **ASME P30.1, Planning for Load Handling Activities**. The load handling activity plans shall address the following:

- Information about the load(s) to be handled.
- Information about the load handling equipment.
- A rigging plan.
- Information about the load handling equipment and/or the load's travel path.
- Information regarding personnel that are participating in the load handling activity relative to their role(s), responsibilities, and qualifications.
- Information regarding the site, services, and ancillary equipment.
- The communication method to be utilized during the load handling activity.
- F Site control methods regarding vehicle and pedestrian traffic and potential interferences from other site activities.
- Contingency considerations.
- Identify the need for an emergency action plan directly related to the load handling activity.

F28.8 SUBCONTRACTORS are encouraged to use the LANL web-based Material Handling Activity Planning and Permitting System (MHAPPS) as an alternative method to submit load handling activity plans.

F28.9 SUBCONTRACTOR is encouraged to use **Attachment F31-1 – Critical Load Operational Plan Instructions and Sample Template** as a reference when developing the Plan.

#### **F28 TRAINING:**

None

#### **F29.0 CRANES, HOISTING, AND RIGGING**

F29.1 All SUBCONTRACTOR crane and material handling operations shall be performed in accordance with the applicable sections of **29 CFR 1910 AND 29 CFR 1926, THE APPLICABLE AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)** standard(s) listed below, and the manufacturer's instructions for the equipment in use.

- BTH-1, Design of Below-the-Hook Lifting Devices
- B30.1, Jacks, Industrial Rollers, Air Casters, and Hydraulic Gantries
- BTH-1, Design of Below-the-Hook Lifting Devices
- B30.1, Jacks, Industrial Rollers, Air Casters, and Hydraulic Gantries
- B30.2, Overhead and Gantry Cranes
- B30.3, Tower Cranes
- B30.5, Mobile and Locomotive Cranes
- B30.6, Derricks
- B30.7, Winches

- B30.9, Slings
- B30.10, Hooks
- B30.16, Overhead and Underhung Stationary Hoists
- B30.17, Cranes and Monorails
- B30.20, Below-the-Hook Lifting Devices
- B30.21, Lever Hoists
- B30.22, Articulating Boom Cranes
- B30.26, Rigging Hardware
- B30.29, Self-Erecting Tower Cranes
- B30.30, Ropes
- P30.1, Planning for Load Handling Activities

**Note:** A lift in the context of this clause applies to a load handling activity that involves the attachment of a rigging devices such as a slings, rigging hardware, hooks, underhung and/or lever hoists, and below-the-hook lifting devices affixed to a load handling equipment such as a mobile crane, overhead crane (top running or underhung), 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.

- F29.2 All SUBCONTRACTOR mobile crane operators shall meet the qualification requirements stated in **29 CFR 1926 Subpart CC**, for the classification of crane equipment they are operating, be evaluated in accordance with **29 CFR 1926.1427(f)**, possess a current cdl with a valid medical examiner's certificate and a state of New Mexico mobile crane operator license. This documentation shall be provided to the CONTRACTOR STR prior to any equipment operations at the project site.
- F29.3 The SUBCONTRACTOR lift director shall be a qualified person that is knowledgeable in the types of load handling activities being performed. The appointed lift director shall be present on site during load handling activities, stop load handling activities if alerted to unsafe conditions affecting those activities, ensure that the load handling activity area is prepared to support load handling equipment operations, ensure that personnel involved in the load handling activity understand their responsibilities, duties, and associated hazards, addressed safety concerns raised by personnel before and during the load handling activity, ensure precautions are implemented when hazards associated with special load handling activities are present, and obtain verification from the load handling equipment operator that the load handling activity does not exceed the load handling equipment's capabilities.
- F29.4 All SUBCONTRACTOR 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.
- F29.5 SUBCONTRACTOR Signal persons shall be qualified per **29 CFR 1926.1428**. Evidence of training and experience shall be made available to CONTRACTOR STR.
- F29.6 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 lead via documented training equivalent to the CONTRACTOR's based on evidence of classroom training, experience, and proficiency.
- F29.7 All SUBCONTRACTOR rigging equipment shall 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 1926.251** and the applicable ASME standard. Inspection records shall be maintained at the project site and provided to the CONTRACTOR STR upon request and at contract closeout.
- F29.8 SUBCONTRACTOR shall ensure that all load handling equipment, i.e., 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 shall 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** and the applicable ASME standard. 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**.
- F29.9 SUBCONTRACTOR qualified and competent persons shall conduct initial and periodic inspections of mobile cranes per **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.
- F29.10 SUBCONTRACTOR may use CONTRACTOR forms for daily/pre-use and monthly

inspections: **Attachment F29-4 - Mobile Crane Daily/Pre-use Inspection Checklist, Form 2211** and/or **Attachment F29-5 - Monthly Mobile Crane Inspection Checklist, Form 2212**.

- F29.11 SUBCONTRACTOR qualified and competent persons, as required, shall conduct initial and periodic inspections of portable cranes/hoisting equipment they bring on site as per applicable ASME standards and **29 CFR 1910.179** requirements.
- F29.12 Except for 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 2-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.
- F29.13 SUBCONTRACTOR shall designate a qualified person knowledgeable in the type(s) of load handling activities to determine appropriate methods and to develop plans for load handling activities to ensure safety. This shall include, at a minimum, following manufacturer's instructions for load handling equipment and rigging, completing a documented site-specific walk down to ensure environment/site conditions are incorporated into the lift plan(s) being followed. Planning shall be done in accordance with **ASME P30.1 - Planning for Load Handling Activities**.
- F29.14 SUBCONTRACTOR's are encouraged to use the LANL web-based Material Handling Activity Planning and Permitting System (MHAPPS) as an alternative method to submit load handling activity plans.
- F29.15 SUBCONTRACTOR qualified person shall classify all load handling activities as either ordinary, moderate risk, or critical and obtain the CONTRACTOR qualified person's concurrence with the classification. Any load handling activity meeting one or more of the following criteria shall be considered a Critical Lift:
- F29.16 For Critical Lifts, SUBCONTRACTOR shall submit an **Attachment F29-1 – Critical Lift Plan for SUBCONTRACTORS, Form 2210A**, which shall be approved by CONTRACTOR qualified person and the SUBCONTRACTOR'S qualified person and lift director before such load handling activities are performed. **ASME P30.1, Planning for Load Handling Activities** may be used for additional guidance when developing Load Handling Activity Plans. SUBCONTRACTOR shall provide the lift plan to the STR and allow a minimum of 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:
- Name and Z number of the designated lift director (Person(s)-In-Charge (PIC) along with all planned participants (i.e., operators, riggers, signalers, etc.).

- The designated lift director (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 designated lift director (PIC) must not operate or rig while performing designated lift director (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 the load handling 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,
  - Anticipated forces (load weight, share of load weight, or tension due to angular loading) for each rigging component.
  - Boom and swing angles,
  - Methods of attachment,
  - Crane or hoist orientations, and
  - 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 load handling equipment shall operate the equipment during the load handling activity.
- Requirements that ensure only signalers who are designated, qualified, and trained in accordance with this document give signals to the operators. Operator shall always obey a STOP signal, 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 as per the applicable ASME standard and the corresponding written proof test certificates shall be available for all rigging components upon request.
- Load rating charts that have a serial number, part number, or other traceable method to the specific piece of load handling equipment used in the load handling activity (if applicable) shall be available.

- Signatures from the operator, rigger, signaler, and the designated lift director (PIC) who reviewed the plan before the load handling activity is performed. If the work plan requires multiple load handling activities or is executed on more than one shift or day, the plan shall be reviewed 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

F29.17 or moderate risk lifts, SUBCONTRACTOR shall submit an **Attachment F29-2 - Ordinary/Moderate Risk Lift Procedure, Form 1611A**. Moderate risk lift examples include:

- Are two (2) bridge cranes working together to lift a single load?
- Do mobile crane activities involve lifting any object greater than 20,000 pounds?
- Does any of the work require an employee to work directly underneath a load that is braced/cribbed/supported?
- Does the load handling activity include boom trucks or mobile cranes performing lifts that are between 70% and 75% of load handling equipment's load rating chart for its configuration and the boom length and swing radius?
- Do any lifts involve the use of customized/site manufactured below-the-hook lifting devices?
- Do any lifts with a boom truck or mobile crane involve the lifting of personnel?

F29.18 All SUBCONTRACTOR rigging equipment (i.e., slings, below-the-hook lifting devices, and rigging hardware) shall be proof load tested as per the applicable ASME standard and the corresponding written proof test certificates shall be available for all rigging components upon request.

F29.19 SUBCONTRACTOR shall 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 3-working days for review and approval.

F29.20 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.

- F29.21 SUBCONTRACTOR shall ensure all Critical Lift Plans and Moderate Risk Lift Procedures are available at the lift site at the time of lift. For all critical lifts, SUBCONTRACTOR shall have copies of proof documents 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.
- F29.22 Where CONTRACTOR qualified person observation of critical lifts is requested by the CONTRACTOR, the SUBCONTRACTOR shall provide at least 4 working days advanced notice to the CONTRACTOR STR before performing and Critical load handling activities.
- F29.23 SUBCONTRACTOR shall route elevated loads 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. SUBCONTRACTOR shall ensure that no personnel are permitted directly under suspended loads that are not properly braced, cribbed, or supported.
- F29.24 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 shall 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 shall meet the requirements in Option (1) De-energize and ground, Option (2) 20-foot minimum clearance, or Option (3) **29 CFR 1926.1408 Table A Clearance**.
- F29.25 For SUBCONTRACTOR to utilize special hoisting and rigging application devices such as track-hoes with lifting attachments and forklifts with boom attachments, SUBCONTRACTOR shall meet the following minimum requirements:
- 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;
  - When using forklifts with lifting attachments, SUBCONTRACTOR shall comply with the requirements of **29 CFR 1910.178(a)(4)**.

- Documented pre-use inspection which requires both a visual and operational check;
- Lift plan that outlines the procedures, hazards and controls associated with the operation.

F29.26 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.

F29.27 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.

F29.28 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—Supplemental Requirements**, and **29 CFR 1926.1435 Tower Crane and 29 CFR 1926.1436 Derricks**.

#### **F29 TRAINING:**

1. Workers who will use CONTRACTOR-owned cranes are required to submit documentation of having completed an industry recognized course approved by the CONTRACTOR Hoisting and Rigging Program Lead. Alternatively, SUBCONTRACTOR workers may complete the **Incidental Crane Classroom Instruction (UTrain 20295)** and **Incidental Crane Examination (UTrain 20296)**. If performing critical lifts, workers must complete **Cranes: Qualified Classroom Instruction (UTrain 20297)** and **Crane: Qualified Examination (UTrain 20298)**.
  - [Initial training required and refresher training is required as follows: classroom instruction is required every 6 years; examination is required every 3 years; provide proof of training if requested by CONTRACTOR]
2. Workers who are Mobile Crane Operators must be trained in and licensed by the State of New Mexico, in accordance with Crane Operator Safety Act and **29 CFR 1926.1427**. SUBCONTRACTOR provides training.
  - [Initial training required, and retraining based on license type is required every 2 years; provide proof of training if requested by CONTRACTOR]
3. People signaling mobile cranes are required to be trained and qualified in accordance with **29 CFR 1926.1428**. SUBCONTRACTOR provides training. To meet requirements of **29 CFR 1926.1428**, SUBCONTRACTOR may provide evidence of an industry course or elect to take **Mobile Crane Advanced Rigger and Signal Person (UTrain Curriculum 6058)**, which consists of two instructor-led courses and an examination.
  - [Initial training required and refresher training required as follows: incidental crane class instruction is required every 6 years; incidental crane examination is required every 3 years; rigging and signaling is required every 2 years; provide proof of training if requested by CONTRACTOR]

### **F30.0 WELDING, CUTTING, BRAZING, AND GRINDING**

- F30.1 SUBCONTRACTOR must complete and follow CONTRACTOR-supplied **ATTACHMENT F30-1 -SPARK- OR FLAME- PRODUCING OPERATIONS PERMIT, FORM 1563**, if the work involves spark- or flame- producing operations. SUBCONTRACTOR shall submit permit to CONTRACTOR for approval 2-working days prior to the start of work and shall post permit in the immediate work area.
- F30.2 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.
- F30.3 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).
- F30.4 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, conditions that would create an oxygen-deficient or oxygen-enriched atmosphere.
- F30.5 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.

#### **F30 TRAINING:**

1. Workers who are involved in welding, cutting, burning, grinding, and other spark- or flame-producing operations that produce enough sparks or flames to be considered a fire or health hazard are required to complete **Welding Safety Self-Study (UTrain 9519)**. The course is recommended for workers that supervise spark- or flame-producing operations.
  - [Initial training required and refresher training if needed; provide proof of training if requested by CONTRACTOR]

### **F31.0 PENETRATION OPERATIONS**

- F31.1 SUBCONTRACTOR shall understand how penetrations are classified and documented in **Attachment F31-1 – Penetration Permit, Form 2074**.
- F31.1.1 CONTRACTOR defines blind penetrations as penetrations into a material that potentially contains utilities or other hazards, and when the other side of the surface is not accessible. Class 1 penetrations are any blind penetration made into walls, ceilings, floors, roofs, or other surfaces or materials to a depth of 1½ inches or less. Class 2 penetrations are blind penetrations that do not meet the definition of a Class 1 penetration.

F31.1.2 Visual penetrations are any penetration into a homogenous material where the other side is accessible, it can be visually verified that no hazards are present on the other side, and it is known there are no hazards within the material. Visual penetrations do not require a permit. Visual verification can be provided by physically seeing the area, using a punch out and camera, or photographic proof. Only normal hazard controls would be required based on the nature of the material (e.g., crystalline silica, asbestos, etc.).

F31.1.3 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 (e.g., sheetrock, wood, etc.) are not considered penetrations.

F31.2 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). This visual check must be performed at both sides of the penetration (e.g., interior, exterior, in adjacent rooms, etc.)

F31.3 CONTRACTOR and SUBCONTRACTOR shall review and sign the completed Penetration Permit along with the workers performing the task confirming that the controls and safeguards are in place prior to penetration operations starting.

### **F31 TRAINING:**

1. Workers involved in the penetration operation process (i.e., performing, scheduling, or supervising work) must complete **Penetration Operations (UTrain 51029)**.
  - [Initial training required and refresher training as needed; provide proof of training if requested by CONTRACTOR]
2. Workers required to use dielectric PPE as specified in the risk assessment and task integrated work document must complete the **Demonstration of Proficiency for the Use of Dielectric PPE (UTrain curriculum 7298)**.
  - [Initial training required and refresher training every three years; provide proof of training if requested by CONTRACTOR]

### **F32.0 LOCKOUT/TAGOUT**

F32.1 SUBCONTRACTOR shall 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.

F32.1.1 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 35.2 through 35.4** of this clause do not apply.

- F32.2 Where SUBCONTRACTOR will perform work as defined by **29 CFR 1910.147** or **29 CFR 1926.417**, the SUBCONTRACTOR shall follow **P101-3, Lockout/Tagout for Hazardous Energy Control**, including use of CONTRACTOR-provided locks and tags, coordination with CONTRACTOR Lock Coordinators, and use of **Attachment F32-1 - Lockout/Tagout (LO/TO) Orders, Form 2244** (as required per P101-3).
- F32.3 SUBCONTRACTOR workers shall complete CONTRACTOR-required **Lockout/Tagout Training, UTrain Curriculum 127**.
- F32.4 SUBCONTRACTOR shall 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 shall contact CONTRACTOR 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.
- F32.5 SUBCONTRACTOR authorized workers associated with the task will walk-down the job and sign off on **Form 2320 Pre-job walk-down checklist (as required per P101-3)**.
- F32.6 New facility electrical distribution systems and equipment (e.g., switchboards, panelboards, motor control centers) being commissioned, or the construction or acceptance testing of new or major building renovation or reconfiguration of a work area that exceeds 50 percent of the aggregate area of the building, SUBCONTRACTOR shall submit **Attachment F32-2 – Lockout/Tagout Partial Energization Plan, Form 3058**, to CONTRACTOR Chief Electrical Inspector for review and approval.
- F32.7 SUBCONTRACTOR will ensure continuity of LO/TO protection when shift or personnel changes occur and the methodology to achieve this will be documented on **Form 2321 LO/TO Shift or Personnel Change Orders**.

### **F32 TRAINING:**

**Note:** CONTRACTOR STR shall ensure SUBCONTRACTOR workers are entered in **Curricula 127, LO/TO Authorized Worker** prior to SUBCONTRACTOR worker taking CONTRACTOR-required lockout/tagout training.

1. All Laboratory workers, including SUBCONTRACTORS, who affix locks/tags to energy-isolating devices to disable equipment, to prevent unexpected energization/start-up, or unexpected release of hazardous energy in order to prevent injury when performing servicing and maintenance activities must complete **Lockout/Tagout Authorized Workers Training (UTrain curriculum 127)**, which is composed of instructor-led training and a demonstration of proficiency.
  - [Initial training required and refresher training every three years].

### **F33.0 ELECTRICAL SAFETY**

- F33.1 SUBCONTRACTOR shall implement a comprehensive electrical safety program appropriate for the activities at the worksite that meets the requirements listed in **F1, General Requirements**.

- F33.2 SUBCONTRACTOR shall 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.
- F33.3 SUBCONTRACTOR workers shall complete 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 F33-0 - Electrical Training Documentation for SUBCONTRACTOR'S**. SUBCONTRACTOR shall provide acceptable training records for each worker.
- F33.4 If SUBCONTRACTOR'S work involves tasks where the worker will be exposed to other 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 uninterruptable power supplies, SUBCONTRACTOR workers shall 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 F33-0 -Electrical Training Documentation for SUBCONTRACTOR'S**.
- F33.5 For work on 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 shall 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. SUBCONTRACTOR IWD shall be approved by CONTRACTOR'S electrical AHJ (ESO).
- F33.6 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 electric hazardous electrical circuit, then SUBCONTRACTOR shall develop and follow an **Attachment F33-1 - Energized Electrical Work Permit, Form 2195**, that meets both the requirements of NFPA 70E and CONTRACTOR'S requirements. Exemptions to Energized Electrical Work Permit include:
- Testing, troubleshooting, and voltage measuring,
  - Thermography and visual inspections if the restricted approach boundary is not crossed,

- 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,
- General housekeeping and miscellaneous non-electrical tasks if the restricted approach boundary is not crossed,
- Work on batteries.

F33.7 SUBCONTRACTOR shall ensure any worker subject to electrical shock (other than static electricity) is evaluated by medical personnel and CONTRACTOR is notified. SUBCONTRACTOR shall notify CONTRACTOR and have worker evaluated by medical personnel for any possible arc flash or burn to the skin or eyes from proximity to electrical discharge.

F33.8 SUBCONTRACTOR shall ensure that all facility electrical installations are inspected by a CONTRACTOR electrical inspector. Rough-in and final electrical inspections are required prior to Authorization to Energize being granted by CONTRACTOR'S Chief Electrical Inspector or designee.

### **F33 TRAINING:**

**Note:** SUBCONTRACTOR may submit company-provided training to the CONTRACTOR Chief ESO or designee to have it evaluated for equivalency with CONTRACTOR-required electrical safety training.

1. Workers that conduct work on facility electrical hazards (50/60 Hz Power) are required to complete **Non-electrician Crafts: Energized and Planners (UTrain Curriculum 2908)**, which consists of instructor-led training.
  - [Initial training required and refresher training every three years for non-electrician crafts training]
2. Workers that are responsible for responding to medical emergencies, as a second person or safety watch, are required to complete **CPR/AED for Electrical Workers at LANL (UTrain Curriculum 9099)**, which consists of instructor-led training.
  - [Initial training required and annual refresher training]
3. Workers who use dielectric PPE (e.g., gloves, boots) are required to complete DoP for Dielectric PPE (Gloves) (UTrain Curriculum 7298), which consists of a self-study module and in-person demonstration of proficiency.
  - [Initial training required and refresher training every three years, or before use if not performed in one year]
4. Workers who use a multimeter to take measurements on a hazardous circuits are required to complete **DoP for Meters (UTrain Curriculum 7299)**, which consists of a self-study module and in-person demonstration of proficiency.
  - [Initial training required and refresher training every three years, or before use if not performed in one year]

5. Workers that use a ground stick to discharge hazardous energy are required to complete **DoP for Ground Sticks (UTrain Curriculum 7300)**, which consists of a self-study module and in-person demonstration of proficiency.
  - [Initial training required and refresher training every three years, or before use if not performed in one year]
6. Workers conducting tasks on variable frequency drives, rectifiers, inverters, UPSs, battery banks or other facility power electronic equipment are required to complete **Facility Power Electronics and Battery Banks (UTrain Curriculum 7316)**, which consists of an instructor-led course.
  - [Initial training required and refresher training every three years]
7. Workers conducting tasks on DC sources, capacitors, inductors, transients, magnetic forces, potential gradients, or induced voltages and currents are required to complete **R&D DC Electrical Safety (UTrain Curriculum 7260)**, which consists of an instructor-led course.
  - [Initial training required and refresher training every three years]
8. Workers conducting tasks involving non-ionizing radiation hazards, including static electric and magnetic fields, RF and sub RF, electromagnetic fields, or infrared radiation are required to complete **RF and Sub RF Safety (UTrain Curriculum 7261)**, which consists of an instructor-led course.
  - [Initial training required and refresher training every three years]
9. Workers conducting tasks on lead acid batteries, lithium batteries, and battery banks less than 100 volts radiation are required to complete **Battery Safety (UTrain Curriculum 7262)**, which consists of an instructor-led course.
  - [Initial training required and refresher training every three years]

### **F34.0 FALL PREVENTION/PROTECTION**

- F34.1 SUBCONTRACTOR shall submit a fall prevention/protection – elevated work surface plan (EWSP) to the str for review and approval by the CONTRACTOR fall prevention/protection competent person as part of task-specific work planning and control documents. SUBCONTRACTOR may use **Attachment F34-1-FALL HAZARD ASSESSMENT FORM**, and **Attachment F34-2 - FALL ARREST RESCUE PLAN FORM**, to meet the requirements of the fall prevention/protection – EWSP. SUBCONTRACTOR’S fall prevention/protection – EWSP shall comply 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. Additionally, SUBCONTRACTOR shall inspect fall protection equipment as required by the manufacturer prior to each use, and per 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/ASSP Z359.2-2017, Minimum Requirements for a Comprehensive Managed Fall Protection Program hierarchy of controls outlined below for providing protection when encountering falls-from-elevation (>4 feet for general industry, >6 feet for construction) hazards

**F34 TRAINING:**

1. Workers overseeing fall protection must be trained and designated as a Fall Protection Competent Person. SUBCONTRACTOR provides training or workers can take **Competent Person: Fall Protection (UTrain 52600)**.
  - [Initial training required and refresher training required every 2 years; submit proof of qualifications to CONTRACTOR]
2. Fall protection users must be completed by fall protection users training as required by **29 CFR 1910.30** and **29 CFR 1926.503**. SUBCONTRACTOR provides training or workers can take **Fall Protection, LANL (UTrain Curriculum 9257)**.
  - [Initial training required and refresher training as needed; provide proof of training if requested by CONTRACTOR]
3. A Qualified Person designation is required for qualified engineers who supervise the design, selection, installation, use and inspection of certified anchorages and horizontal lifelines.
  - [Submit proof of designation to CONTRACTOR]

**F35.0 SCAFFOLDING**

- F35.1 If scaffolds will be used to perform work, SUBCONTRACTOR shall submit written Scaffolding Plan to CONTRACTOR for review and approval as part of task-specific work planning and control documents. Plan shall meet the following requirements:
- 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
- F35.2 When scaffolds will be secured to a facility, SUBCONTRACTOR shall complete a CONTRACTOR-provided Penetration Permit.
- F35.3 SUBCONTRACTOR shall ensure all scaffolds are 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.

F35.4 SUBCONTRACTOR shall ensure all wooden scaffolds have structural engineer provided engineered drawings, specified material requirements, and download and/or weight bearing calculations. SUBCONTRACTOR shall keep this information present at the scaffold for review at all times.

#### **F35 TRAINING:**

1. Employees that perform work while on a scaffold shall complete scaffold user training. SUBCONTRACTOR provides training or workers can take **Scaffold Users Training (UTrain 14708)**.
  - [Initial training required and refresher training as needed; provide proof of training if requested by CONTRACTOR]
2. Workers that are involved in erecting, disassembling, moving, operating, repairing, maintaining, or inspecting a scaffold shall complete scaffold builder/inspector training. SUBCONTRACTOR ensures individuals are trained by a Scaffolding Competent Person.
  - [Initial training required and refresher training as needed; provide proof of training if requested by CONTRACTOR]
3. Workers overseeing the erection, dismantling, movement, and/or alteration of scaffolds must be qualified and designated as a Scaffolding Competent Person.
  - [Submit proof of qualifications to CONTRACTOR]

#### **F36.0 PORTABLE LADDERS**

F36.1 SUBCONTRACTOR shall ensure manufactured ladders are rated and used only as allowed by the manufacturer. SUBCONTRACTOR shall ensure job-made ladders are constructed to conform to **29 CFR 1926.1053, Ladders**.

F36.2 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)**.

#### **F36 TRAINING:**

1. Workers that use portable ladders in the course of their work or supervise workers who use portable ladders shall complete ladder safety training. SUBCONTRACTOR provides training or workers can take **Ladder Safety (UTrain 12985)**; OSHA 10-Hour Training is an acceptable substitute.
  - [Initial training required and refresher training as needed; provide proof of training if requested by CONTRACTOR]

#### **F37.0 SUSPENDED PERSONNEL PLATFORMS**

F37.1 Suspended personnel platforms shall only be used when SUBCONTRACTOR can

demonstrate to CONTRACTOR that use is the least hazardous way to perform the work. If authorized by CONTRACTOR, SUBCONTRACTOR shall develop and submit a Lift Plan to CONTRACTOR for review and approval prior to use. The plan shall include, but not be limited to, employee training, pre-lift meetings, trial lifts, and platform and rigging inspections.

- F37.2 Personnel platforms (baskets) provided by SUBCONTRACTOR shall be designed by a registered professional engineer and built in accordance with **29 CFR 1926.1431, Hoisting Personnel.**

**F37 TRAINING:**

None

**F38.0 AERIAL WORK PLATFORMS (AERIAL LIFTS)**

- F38.1 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. SUBCONTRACTOR shall ensure equipment and operation are compliant with **29 CFR 1926.453**. SUBCONTRACTOR shall ensure fall protection means and training for its employees is compliant with **29 CFR 1910.67, 29 CFR 1910.68, 29 CFR 1926.453, 29 CFR 1926.502 and 29 CFR 1926.503**.
- F38.2 All persons inside work platforms shall adhere to manufacturer's recommendations for fall protection requirements. SUBCONTRACTOR shall visually inspect equipment and test it before each use. SUBCONTRACTOR workers shall not climb or sit on the guardrail or enclosure.
- F38.3 SUBCONTRACTOR shall ensure lifts are not used to rig/suspend items from the boom or platform.

**F38 TRAINING:**

1. Operators of aerial lifts shall be trained and authorized. SUBCONTRACTOR provides training or workers can take **Aerial Platform Lift Classroom (UTrain 39459)**.
  - [Initial training required and refresher training as needed; provide proof of training if requested by CONTRACTOR]

**F39.0 BARRICADES**

- F39.1 SUBCONTRACTOR shall properly erect and maintain barricades in such a manner that they provide adequate warning/protection and do not impede the work of other workers. Barricades must be inspected daily, or more frequently in active or high-traffic areas, to ensure they remain in place, are visible, function as intended and corrected as soon as possible. SUBCONTRACTOR shall have any exception be approved in writing by CONTRACTOR STR.

- F39.2 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.
- F39.2.1 Warning barricades call attention to hazards but offer no physical protection. SUBCONTRACTOR shall use yellow and black rope or tape shall be used for warning barricades.
- F39.2.2 Protective barricades (hard barricade) warn as well as provide physical protection from falling. SUBCONTRACTOR shall ensure protective barricades meet the requirements of **29 CFR 1926.502(b)** depending on application.
- F39.2.3 Danger barricades call attention to life hazards but also offer no physical protection. SUBCONTRACTOR shall use red and black rope or tape for danger barricades. SUBCONTRACTOR shall use signs on all danger barricades listing the hazard and the person in charge's (PIC) name. SUBCONTRACTOR shall post gate signs at entrance points.
- F39.3 SUBCONTRACTOR shall erect a protective barricade when a warning barricade will not offer adequate protection. SUBCONTRACTOR shall ensure the protective barrier is constructed of materials and in a manner that limits the movement of personnel, vehicles, and equipment. SUBCONTRACTOR shall not use tape, cones, or rope as a protective barricade and shall only use these temporarily until a suitable barricade is erected.
- F39.4 SUBCONTRACTOR shall erect barricades with a "Warning - No Entry without Permission" or similar tag before work is started. SUBCONTRACTOR shall document the requirements for access on the tag together with identified hazards.
- F39.5 All barricades must have tagging requirements. "Barricade in Use" tags are required and must include the following information printed on the tag(s):
- PIC's or STR's name
  - Organization
  - Date and time of installation
  - Contact method (e.g., phone number and/or radio channel).
- F39.6 SUBCONTRACTOR shall ensure tags are 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, SUBCONTRACTOR shall place one tag on the most common approachable side so long as it is clearly visible from any approachable side.
- F39.7 SUBCONTRACTOR shall ensure barricades have a designated entrance(s), and exit from an area.
- F39.8 SUBCONTRACTOR shall prohibit stepping over or ducking under the barricade.

- F39.9 SUBCONTRACTOR shall 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.
- F39.10 SUBCONTRACTOR shall ensure that 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.
- F39.11 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, SUBCONTRACTOR shall post signs visibly at all potential access points. SUBCONTRACTOR shall ensure barricades are still used within the posted area, as appropriate, to provide hazard control of individual tasks within the work area.
- F39.12 SUBCONTRACTOR shall promptly remove barricades when no longer required for safety or traffic control. Barricades must be removed immediately upon completion of the work and/or when the area has been restored to a safe and passable condition.

**F39 TRAINING:**

None

**F40.0 EXCAVATIONS AND TRENCHING**

- F40.1 SUBCONTRACTOR shall conduct excavation and trenching in compliance with **29 CFR 1926 Subpart P**; the appendices to Subpart P; **P101-17, Excavation/Fill/Soil Disturbance**; OSH-ISH-FSD-003-Potholing Procedures; and the provisions of the CONTRACTOR Excavation/Fill/Soil Disturbance (EXID) 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 shall be on site whenever excavation work is taking place, including work in an excavation. The competent person identified in [Section 40.17](#) may also serve as PIC if approved in writing by CONTRACTOR STR. Whenever the designated PIC must be changed to another PIC, SUBCONTRACTOR shall complete the following:
- F40.1.1 Complete an EXID Permit request.
  - F40.1.2 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.
  - F40.1.3 Incoming PIC performs a review of the EXID Permit, utility locates, and the potholing plan.
- F40.2 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 Excavation E-Learning Training No. 31419 on an annual basis.

- F40.3 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 EXID Permit. The permit authority for this subcontract is CONTRACTOR, who will issue the Permit and all stipulations associated with the Permit to SUBCONTRACTOR. SUBCONTRACTOR shall keep Permits at the jobsite at all times. SUBCONTRACTOR shall allow seven (7) working days from written request to receipt of the approved Permit.
- F40.4 SUBCONTRACTOR shall notify the STR if the excavation, fill, soil disturbance/transfer, or trenching area will change during the project. SUBCONTRACTOR shall not excavate, fill, conduct soil disturbance/transfer, or trench in the newly identified area until CONTRACTOR issues a modified or new Permit.
- F40.5 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 CONTRACTOR waste management requirements.
- F40.6 SUBCONTRACTOR shall ensure fill materials (soil, concrete, or asphalt) brought from off site for use on CONTRACTOR'S site are free of contamination.
- Note:** Clean fill means materials generally considered not to be water soluble and nonhazardous in nature, including but not limited to soil, sediment, gravel, rock, and tuff that is not mixed with chemicals or other products, oil, debris, and other solid waste (e.g., trash).
- F40.7 SUBCONTRACTOR shall not transport fill material (soil, concrete or asphalt) from its point of origin to another CONTRACTOR location or outside the CONTRACTOR facility boundary without obtaining written approval from the STR prior to movement of the material.
- F40.8 SUBCONTRACTOR shall not abandon excavated material, debris, or equipment on-site without written CONTRACTOR approval.
- F40.9 Upon EXID 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.
- F40.10 CONTRACTOR will perform a non-intrusive underground survey (e.g., 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 shall be 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.

F40.11 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 **OSH-ISH-FSD-003, Potholing Procedures**. Vacuum-, air- or water-type potholing shall not be conducted by SUBCONTRACTOR in a Consent Order Site without approval from CONTRACTOR through the EXID Permit. CONTRACTOR may at its discretion conduct such potholing using CONTRACTOR resources. SUBCONTRACTOR shall ensure a hazardous energy safe conditions are met prior to excavation. SUBCONTRACTOR shall use appropriate precautionary PPE (e.g., dielectric glove, chemical protection, etc.) and tools 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.

F40.12 SUBCONTRACTOR shall develop a potholing plan and perform the following:

- Conduct potholing according to the potholing plan.
- The operator of the mechanical excavation equipment shall visually inspect the potholes to verify the location of utilities.
- Prior to introducing mechanical excavation equipment, the operator shall ensure debris has not covered the exposed utilities within the potholes.
- The excavation equipment operator shall obtain approval from the PIC before the use of mechanical excavation equipment begins.
- If an unknown utility has been discovered, SUBCONTRACTOR shall notify STR immediately and pause work. STR will then make proper notifications to LANL UI group.
- Potholing plan has to be within thirty (30) days of the date of issue. Revalidation will be required.

F40.13 SUBCONTRACTOR shall ensure that, while excavations are open, all underground installations are protected, supported, or removed as necessary to protect employees and the utility.

F40.14 SUBCONTRACTOR shall erect barricades and signage, as described in **P101-17, Excavation/Fill/Soil Disturbance** around excavation area prior to beginning work activities or ahead of work progress. SUBCONTRACTOR shall install barricades at least six feet from edge in a manner that prevents accidental entry into the trenched or excavated area; lesser distance shall be approved by CONTRACTOR. SUBCONTRACTOR shall install barricades and signage to delineate between locations where potholing is occurring and locations where excavation using mechanical equipment has been approved.

F40.15 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 twenty-five (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.).

F40.16 SUBCONTRACTOR shall evaluate and monitor air quality prior to entry into any excavation that may contain possible hazardous atmospheres by a Competent Industrial Hygienist and/or other technically qualified personnel. Air sampling does not have to be performed in all trenches less than four (4) feet in depth (**29 CFR 1926.651 [g]**). SUBCONTRACTOR shall be 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. SUBCONTRACTOR shall make all instrument calibration and training records available to CONTRACTOR upon request. SUBCONTRACTOR shall ensure document results are kept available at the job site. SUBCONTRACTOR shall submit, with the EXID Permit request, operator qualification records and current calibration records for the monitoring instrument to be utilized.

F40.17 SUBCONTRACTOR shall provide a competent person, whose qualifications shall be made available to the CONTRACTOR, at the jobsite prior to starting work. A competent person shall classify all soils and perform inspections daily and after each rain, snow, freeze, thaw, etc., of all excavations/trenches. SUBCONTRACTOR shall ensure these inspections are documented, kept on file at the project site, and made available to CONTRACTOR upon request.

F40.18 SUBCONTRACTOR shall evaluate the need for spotter(s) to assist the operation of mechanical excavation equipment movement through the project site. Spotter is responsible for guiding the mechanical excavation equipment operator to avoid contact with utilities present within the excavation. The spotter(s) shall have no other responsibilities when performing these duties. The spotter shall remain within visual or verbal distance of the operator at all times.

F40.19 SUBCONTRACTOR shall pause work and notify the STR immediately should unanticipated utilities, radiological liquid waste lines, and/or infrastructure be exposed, discovered, or damaged. This requirement applies also to cultural resources such as bones, artifacts, charcoal stains.

#### **F40 TRAINING:**

1. Workers or supervision involved in an excavation, fill, soil disturbance/transfer, or trenching work activity including personnel working in any excavation must complete **Excavation/Fill/Soil Disturbance E-Learning (UTrain Course no. 31419)**.
  - [Initial training required and annual refresher training; provide proof of training if requested by CONTRACTOR]

2. Excavation and Trenching Competent Person Qualification is required for personnel(s) who will be responsible for classifying soils and performing excavation inspections. SUBCONTRACTOR is responsible for designating a competent person after they have the training, experience, and education to meet the requirements of **29 CFR 1926 Subpart P “Competent Person”** definition.
  - [Submit proof of qualifications to CONTRACTOR]
3. Workers that will access CONTRACTOR’S Excavation/Fill/Soil Disturbance (EXID) system as an EXID Requester, PIC, and/or Alternate PIC must complete **EXID Permit Process (UTrain course no. 47420)**.
  - [Initial training required and refresher training as needed; provide proof of training if requested by CONTRACTOR]

#### **F41.0 PRESSURE SAFETY INCLUDING COMPRESSED GASES**

- F41.1 SUBCONTRACTOR shall comply with **10 CFR 851 Appendix A, Section 4, Pressure Safety, and 10CFR851.23, ESM Chapter 17, Attachment REQ-8**, OSHA Requirements for Pressure Systems. SUBCONTRACTOR shall obtain CONTRACTOR review and approval of SUBCONTRACTOR designs, installations, tests, and other specified deliverables associated with pressure systems, when these deliverables are included in the Statement of Work
- F41.2 SUBCONTRACTOR shall establish and apply safety policies and procedures to ensure that pressure systems are designed, fabricated, installed, tested, inspected, maintained, repaired, and operated by trained and qualified personnel in accordance with applicable and sound engineering principles.
- F41.3 SUBCONTRACTOR shall ensure that all pressure vessels, boilers, air receivers, and shall ensure supporting piping systems conform to the most applicable American Society of Mechanical Engineers (ASME) code of construction as the code of record and apply National Board Inspection Code numbering and registration to any stamped ASME vessel. CONTRACTOR will review and approve the selection of the ASME code of record.
- F41.4 Prior to conducting any field pressure tests of piping, SUBCONTRACTOR shall develop and submit testing procedures that, at a minimum, shall include: safety requirements, clear identification of test boundaries, the test equipment, isolation points, system over pressurization protection including objective evidence of sizing of over pressure protection, instrumentation calibration and accuracy and precision requirements, and a space to record test results and applicable drawings. SUBCONTRACTOR shall clearly identify the acceptance criteria for the testing (pass/fail) and the method of objectively verifying the results. SUBCONTRACTOR shall submit to CONTRACTOR STR, testing procedures for review and approval by CONTRACTOR Chief Pressure Safety Officer.
- F41.5 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 S&H Plan shall include a Gas Cylinder Use and Storage Procedure that meets the requirements of P101-5 Cryogenics and Compressed Gases: Health and Safety Requirements, **P101-34, Pressure Safety, Engineering Standards Manual STD-342-100 Chapter 10, Hazardous Process Section F1030.60 – Attachment A -- Hazardous Gas Design**. 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 cylinders, and maintenance of safe distances from ignition sources, doors, and windows.

- F41.6 SUBCONTRACTOR shall provide cradles and/or cages for lifting compressed gas cylinders and ensure that transported cylinders are secured. SUBCONTRACTOR shall transport compressed gases per Department of Transportation (49 CFR) requirements.
- F41.7 SUBCONTRACTOR shall have procurements reviewed by the CONTRACTOR Chief Pressure Safety Officer (or designee) via the STR to ensure purchase of relief devices and pressure vessels meet the Laboratory requirements.

**F41 TRAINING:**

**Note:** SUBCONTRACTOR workers shall be required to complete additional activity-specific training for system-specific operations or advanced tasks.

1. Pressure Safety training shall be required at any pressure if there is hazardous or radiological material. Workers and supervisors of employees who work with systems containing gases or liquids at pressures greater than 15 pounds per square inch (gauge) are required to complete:
  - **UTrain 769, Pressure Safety Orientation for P101-34 Pressure Safety**
  - **Curriculum 2306, Low Pressure Systems Training RQMTS for P101-5 Cryogenics and Compressed Gases.**
  - [Initial training required and refresher training if needed; provide proof of training if requested by CONTRACTOR]
2. Workers who handle or work with compressed gas cylinders or compressed gas cylinder systems are required to complete:
  - **UTrain 9518, Gas Cylinder Safety for P101-34 Pressure Safety**
  - **Curriculum 2302, Gas Cylinder Hazards Requirements for P101-5 Cryogenics and Compressed Gases**
  - [Initial training required and refresher training if needed; provide proof of training if requested by CONTRACTOR]
3. Workers who handle or work with cryogenics or cryogenic systems are required to complete:
  - **Curriculum 2720, Cryogenic Fluids Worker for P101-5 Cryogenics and Compressed Gases.**
  - [Initial training required and refresher training if needed; provide proof of training if requested by CONTRACTOR]

4. Workers who work with flammable gases are required to complete:
  - **UTrain 52827 Flammable Gas Safety Self-Study for P101-34 Pressure Safety.**
  - [Initial training required and refresher training if needed; provide proof of training if requested by CONTRACTOR]
  - **Curriculum 2301 Flammable Gas Hazards Requirements for P101-5 Cryogenics and Compressed Gases.**
5. Workers who design, fabricate, install, operate, inspect, and/or test pressure-components systems, and/or maintain pressure systems are required to complete:
  - **UTrain 30120 Pressure Safety: Advanced Self-Study or UTrain 11459 Pressure Safety: Advanced for P101-34 Pressure Safety**
  - **Curriculum 2300 Intermediate and High-Pressure System RQMTS for P101-5 Cryogenics and Compressed Gases.**
  - [Initial training required and refresher training if needed; provide proof of training if requested by CONTRACTOR]
6. Workers who assemble or maintain compression fittings are required to complete:
  - **UTrain 30831 Compression Fittings Assembly for P101-34 Pressure Safety**
  - **Curriculum 6917 Compression Fittings Installer for P101-5 Cryogenics and Compressed Gases; (Compression Fittings live course at Swagelok Southwest in Albuquerque is an acceptable substitute.)**
  - [Initial training required and refresher training if needed; provide proof of training if requested by CONTRACTOR]
7. Workers who operate tube trailers are required to complete:
  - **Curriculum 8261 Gas Facility Operator Training for both P101-5 Cryogenics and Compressed Gases and P101-34 Pressure Safety**
  - [Initial training required and refresher training if needed; provide proof of training if requested by CONTRACTOR]

## **F42.0 CONFINED SPACES**

- F42.1 SUBCONTRACTOR shall have a written permit-required confined space program that meets the requirements of **29 CFR 1910.146**. Should SUBCONTRACTOR execute construction work as set forth in **29 CFR 1926.1201(A)**, the written permit-required confined space program shall meet the requirements of **29 CFR 1926.1204**. SUBCONTRACTOR shall submit the confined space program as part of SUBCONTRACTOR's site-specific ESH plan.
- F42.2 If SUBCONTRACTOR enters a CONTRACTOR-owned confined space with CONTRACTOR workers, CONTRACTOR confined space program has precedence; however, SUBCONTRACTOR shall have their own confined space program, which demonstrates

workers are qualified to conduct confined space work.

- F42.3 SUBCONTRACTOR shall be 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. SUBCONTRACTOR shall make all instrument calibration and training records available to contractor upon request.
- F42.4 SUBCONTRACTOR shall ensure that all employees have completed training as required by **1910.146(g) or 1926.1207** for construction. SUBCONTRACTOR 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, SUBCONTRACTOR entry supervisors shall also meet the definition of qualified person as defined in **1926.1202**.
- F42.5 Prior to each entry into a permit-required confined space, SUBCONTRACTOR shall ensure that a confined space entry permit meets all elements of **29 CFR 1910.146 (e), and (f), or 1926.1205 and 1926.1206** for Construction, is completed and followed. SUBCONTRACTOR shall submit the permit form to CONTRACTOR's str for review and approval prior to initial entry. SUBCONTRACTOR shall conspicuously post the permit or otherwise make it available at the confined space, and all entrants shall sign a log upon entering and exiting the confined space such that persons in the confined space can be determined.
- F42.6 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(d)(9) or 1926.1206(l)** for construction. SUBCONTRACTOR shall submit the rescue procedure for CONTRACTOR review and approval prior to any confined space work requiring a rescue procedure. If rescue services are needed, SUBCONTRACTOR shall ensure the potential rescue service provider meets all requirements in **29 CFR 1910.146(k) or 1926.1211** for Construction hazard(s) identified. CONTRACTOR must approve SUBCONTRACTOR's rescue service provider capabilities prior to any work in specific confined spaces.
- F42.7 SUBCONTRACTOR shall make all arrangements and bear the cost of a rescue service provider when required.
- F42.8 For CONTRACTOR-owned spaces, SUBCONTRACTOR shall meet or exceed designated entry requirements for spaces previously evaluated and marked by CONTRACTOR. CONTRACTOR confined space evaluations will indicate if inherent confined space hazards meet **1910.146(C)(5)(I)(A) ALTERNATE ENTRY OR 1910.146(C)(7) TEMPORARY RECLASSIFICATION TO A NON-PERMIT CONFINED SPACE REQUIREMENTS**. SUBCONTRACTOR confined space entry supervisor must determine if work conditions and operations are consistent with the CONTRACTOR evaluation and meet **1910.146(C)(5) OR 1910.146(C)(7) REQUIREMENTS OR 1926.1203(E) OR**

**1926.1203(G)** for construction.

F42.9 For CONTRACTOR-owned confined spaces, SUBCONTRACTOR shall pause or stop work and inform CONTRACTOR'S STR of any additional existing hazards not identified in the evaluation. A CONTRACTOR authorized confined space evaluator will review conditions and document any re-evaluation performed.

F42.10 For new construction, SUBCONTRACTOR competent person shall identify, evaluate, and mark confined spaces in accordance with **1926.1203(A) AND (B)** and perform work in accordance with **1926 subpart AA**.

F42.11 After executing construction work, SUBCONTRACTOR shall perform debriefings in accordance with **29 CFR 1926.1203(H)(5)**.

F42.12 When SUBCONTRACTOR and CONTRACTOR employees work simultaneously in a confined space, a completed confined space evaluation by a CONTRACTOR authorized confined space evaluator must be available, entry must be coordinated by a CONTRACTOR authorized confined space 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.

#### **F42 TRAINING:**

1. Workers who will be performing permit-required confined space work shall be trained per the requirements of **29 CFR 1910.146(g)**. SUBCONTRACTOR provides training. [Initial and refresher training if needed; provide documentation of training for entry team]
2. Workers providing air quality evaluations and monitoring in confined spaces must be trained on the equipment used. [Initial and refresher training if needed; provide proof of training and instrument calibration records if requested by CONTRACTOR]

#### **F43.0 ASBESTOS WORK/ABATEMENT/DEMOLITION/ROOFING WORK**

F43.1 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.

F43.2 SUBCONTRACTOR performing asbestos abatement shall submit an Asbestos Abatement Plan (AAP) in accordance with **29 CFR 1910.1001** and **29 CFR 1926.1101** for CONTRACTOR approval. SUBCONTRACTOR AAP shall address the requirements in the subcontract and the procedures (including materials, chemicals, tools, and equipment involved) that will be used to perform asbestos work and disposal of asbestos-containing waste. SUBCONTRACTOR shall submit the AAP as part of the SUBCONTRACTOR'S Site-Specific ESH Plan.

- F43.3 SUBCONTRACTOR shall perform all asbestos work in accordance with **40 CFR Subpart M, National Emission Standard for Hazardous Air Pollutants (NESHAP), 29 CFR 1926.1101 and 29 CFR 1910.1001**, and the subcontract. As applicable to the Statement of Work, state, federal, and local laws, SUBCONTRACTOR shall submit the following information to CONTRACTOR STR for review and approval, prior to mobilizing for any asbestos abatement work:
- Company abatement license
  - Personnel qualifications/training/certificates
  - Personnel medical clearance (latest)
  - F Personnel respirator fit test (latest)
  - Inspector Accreditation Certificate and Inspection Report
  - Designer Accreditation Certificate and Designer Report
- F43.4 SUBCONTRACTOR acknowledges that any renovations that the following work requires advance notification to New Mexico Environment Department, Air Quality Bureau:
- F43.4.1 any renovations that may disturb greater than threshold quantities of asbestos-containing material,
- F43.4.2 all roofing work, and
- F43.4.3 all demolition work, even if no asbestos is present.
- F43.5 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.
- F43.6 SUBCONTRACTOR shall comply with the waste handling, packaging, and disposal requirements contained in **29 CFR 1926.1101, 40 CFR 61.145, 40 CFR 61.150, 20.9.7.A(9) NMAC, and 20.9.8.10-12 NMAC (as applicable), and the U.S. Department of Transportation shipping regulations contained in 49 CFR 171 and 172**.
- F43.7 SUBCONTRACTOR shall follow requirements for transportation and/or disposal of asbestos waste.
- F43.8 SUBCONTRACTOR shall provide CONTRACTOR STR with copies of the signed waste shipment records as required by **40 CFR 61.150** within 10-working days of waste shipment delivery.

**F43 TRAINING:**

1. Workers that may contact, but do not disturb asbestos containing material are required to complete asbestos awareness training. SUBCONTRACTOR provides training.

- [Initial training required and annual refresher training required; provide proof of training if requested by CONTRACTOR]
- 2. Workers conducting asbestos abatement activities shall be trained per **29 CFR 1910.1001** and/or **29 CFR 1926.1101**. SUBCONTRACTOR provides training.
  - [Initial training required and annual refresher training required; provide proof of training if requested by CONTRACTOR]
- 3. Workers in a specialized role (e.g., asbestos inspector, asbestos project designer) shall be certified for that role. SUBCONTRACTOR provides training.
  - [Initial training required and annual refresher training required; submit proof of certification to CONTRACTOR]

#### **F44.0 BERYLLIUM WORK ACTIVITIES INVOLVING AIRBORNE BERYLLIUM (REQUIRES OSH-DO CONCURRENCE)**

**Note:** Use of this clause requires concurrence of the Occupational Safety and Health Division Office per P101-21, Chronic Beryllium Disease Prevention Program Section 5.26.3 SUBCONTRACTOR/Supplier Visitors Working in Beryllium Areas. Specifically, the Laboratory organization requesting work must obtain concurrence from the Occupational Safety and Health Division Office that use of SUBCONTRACTOR employees is appropriate for the anticipated work if exposure to airborne beryllium cannot be eliminated.

- F44.1 In accordance with **10 CFR 851.23(a)(1)**, SUBCONTRACTOR shall comply with CONTRACTORS's Chronic Beryllium Disease Prevention Program (CBDPP) and applicable requirements as specified by CONTRACTOR. The CONTRACTOR shall provide a copy of the CBDPP upon the SUBCONTRACTORS request.
- F44.2 The STR shall engage a CONTRACTOR Qualified Industrial Hygiene and Safety Professional (QIHSP) any time beryllium is identified as a hazard to determine the applicable CBDPP requirements the SUBCONTRACTOR must follow. Requirements may include enrollment in CONTRACTOR supplied beryllium medical surveillance for those with potential exposure to airborne beryllium (beryllium workers), LANL beryllium training, personal protective equipment (including respiratory protection), air and surface sampling, and protocols for release of equipment, material and supplies from a designated beryllium area or beryllium soil contamination area.
- F44.3 The STR shall ensure that a CONTRACTOR QIHSP participates in all Hazard Analyses (HA) for work in beryllium areas or work with beryllium items or tools. The CONTRACTOR QIHSP who participated in the HA shall be identified on the IWD or work control document. The SUBCONTRACTOR shall follow the recommendations of the CONTRACTOR'S QIHSP. The SUBCONTRACTOR shall identify workers, safety personnel, and or management to participate in the HA to ensure that work methods and controls identified will function as intended.
- F44.4 The HA process shall determine if it is anticipated beryllium activities will generate

airborne beryllium. If it is determined airborne beryllium may be generated or beryllium worker status is required for area entry, workers must be qualified beryllium workers in accordance with **P101-21**.

- F44.5 Designated beryllium area postings shall not be added, modified, or removed by SUBCONTRACTOR without concurrence of CONTRACTOR. CONTRACTOR STR shall be notified as soon as reasonably practicable if a change in postings is required.
- F44.6 In accordance with **10 CFR 850.39(h)** and **DOE-STD-1187-2019**, SUBCONTRACTOR shall provide all required Beryllium Registry Data to the CONTRACTOR for reporting to the DOE Beryllium-Associated Worker Registry semi-annually. This shall include completion of a LANL Beryllium Questionnaire. The SUBCONTRACTOR will also be required to provide the CONTRACTOR a list of all employees who have previously been exposed to beryllium and at what DOE site location.

#### **F44 TRAINING:**

**Note:** CONTRACTOR Industrial Hygiene personnel will specify the level of beryllium training required for the work and location.

- Workers identified as beryllium workers must complete UTrain Curriculum 9416 (Beryllium Training and Medical Surveillance Tracking 1-Year for Active Beryllium Workers). This includes:
  - UTrain Curriculum 117 (Beryllium Worker Training)**, which consists of an instructor-led course and self-study refresher training.
    - [Initial training and refresher training every two years; provide proof of training if requested by CONTRACTOR],
  - UTrain Curriculum 4261 (Authorized Chemical Workers Hazard Communication Training)** and
  - UTrain Non-Train 37948 (Be 1-yr Surveillance Tracking)** which is used to track enrollment in the 1-year beryllium medical surveillance program within U-Train [Non-Train 37948 is marked complete by CONTRACTOR upon program enrollment at LANL].
- Workers entering into posted beryllium areas but not performing operations involving potential airborne beryllium, and/or working with beryllium alloy tools without potential exposure to airborne beryllium shall complete **Beryllium Awareness Level Training (UTrain Curriculum 9360)**, which consists of a self-study course.
  - [Initial training required and refresher training required every two years; provide proof of training if requested by CONTRACTOR].
- Other SUBCONTRACTOR workers that work on site who are not defined as Beryllium Workers or Beryllium Awareness Level Workers must take **Beryllium: General Employee Overview (UTrain Curriculum 118/Course 55173)**.
  - [Initial training required and refresher training required every two years; provide proof of training if requested by CONTRACTOR].

**ENVIRONMENTAL AND WASTE EXHIBIT F'S****F45.0 POLLUTION PREVENTION/WASTE MINIMIZATION**

- F45.1 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.
- F45.2 SUBCONTRACTOR shall engage CONTRACTOR in the planning phase of work to avoid the generation of abandoned materials, items, and equipment. SUBCONTRACTOR shall ensure lay down areas include controls such as fencing and signage to prevent materials, items, and equipment from outside projects being stored in those lay down areas.
- F45.3 SUBCONTRACTOR shall purchase and use materials and products that provide for pollution prevention per DEAR 970.5223-7.
- F45.4 SUBCONTRACTOR shall provide its services in a manner that promotes the natural environment, reduces greenhouse gas emissions, and protects the health and well-being of federal employees, contract service providers, and visitors using the facility. To the maximum extent reasonable, SUBCONTRACTOR shall purchase and use:
- Recycled content products
  - Biobased products
  - Energy efficient products for Energy Star and the Federal Energy Management Program (FEMP)
  - Environmentally preferable and energy efficient electronics including desktop computers, laptops and monitors
  - Non-ozone depleting alternative products
  - Products that support reduction in greenhouse gas emissions
  - Water efficient plumbing products
  - Other federally recognized products (to include biobased products) listed in the SFTool (Product Search | SFTool [ecomedes.com])
- F45.5 Per FAR 52.223-2 – Affirmative Procurement of Biobased Products Under Service and Construction Contracts, SUBCONTRACTOR shall make maximum use of biobased products that are U.S. Department of Agriculture-designated items unless the product cannot be acquired competitively within a time frame providing for compliance with the contract performance schedule; meet contract performance requirements; or at a reasonable price.

**F46.0 WASTE MANAGEMENT**

- F46.1 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.

- F46.2 SUBCONTRACTOR shall be provided a CONTRACTOR generated Waste Characterization Strategy Form or Waste Certification Statement that identifies all waste streams potentially generated by the project. CONTRACTOR will provide waste characterization, packaging, storage and disposal for each potential waste stream, as applicable. If SUBCONTRACTOR encounters or will generate a waste stream that is not on the Waste Characterization Strategy Form or Waste Certification Statement, SUBCONTRACTOR shall pause any activity associated with the previously unidentified waste. SUBCONTRACTOR shall notify, in writing, CONTRACTOR STR and Waste Management Coordinator of the previously unidentified waste stream. SUBCONTRACTOR shall not proceed with work involving the new waste stream until CONTRACTOR provides an amended/approved Waste Characterization Strategy Form or Waste Certification Statement that addresses waste management of the new waste stream.
- F46.3 SUBCONTRACTOR shall ensure project waste containers are closed, except when waste is being added, removed or consolidated. SUBCONTRACTOR shall ensure roll-off bins and other bulk containers containing material for recycling, construction/demolition debris or other waste material remain covered, except when adding, removing or consolidating material, with the exception of non-bulk containers (e.g., drums, bins, or a lined pit) holding concrete washout.
- F46.4 SUBCONTRACTOR shall not abandon or leave waste without written CONTRACTOR approval. 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.
- F46.4.1 Per subcontract, if SUBCONTRACTOR provides waste containers, drums, packagings, bins, or similar items, SUBCONTRACTOR shall receive CONTRACTOR review of items to ensure they meet CONTRACTOR specifications prior to use.
- F46.5 Per subcontract, if SUBCONTRACTOR provides waste or recyclable material transportation, then
- F46.5.1 SUBCONTRACTOR shall request CONTRACTOR approval for the transporter(s) to be used and destination facility (or facilities).
- F46.5.2 SUBCONTRACTOR shall coordinate with CONTRACTOR for CONTRACTOR to sign any onsite and offsite shipping documentation (e.g., bills of lading, Uniform Hazardous Waste Manifests).
- F46.6 SUBCONTRACTOR shall provide to CONTRACTOR weights and volumes of wastes or recyclable materials being removed from the work site for disposal or recycling.

F46.7 When requested, SUBCONTRACTOR shall provide product and/or waste chemical, radiological, and physical information to CONTRACTOR.

#### **F47.0 SPILL PREVENTION, REPORTING, AND RESPONSE**

F47.1 SUBCONTRACTOR shall provide immediate notification to CONTRACTOR STR of any spilling, leaking, pumping, pouring, discharging [including wastewater and potable water not otherwise covered under another plan (e.g., SWPPP)], emitting or dumping of materials to the environment, regardless of quantity and will have spill kits available to aid in spill remediation.

F47.2 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.

F47.3 CONTRACTOR STR will supply necessary forms to document spills and SUBCONTRACTOR shall coordinate with CONTRACTOR personnel to provide information necessary to complete unplanned release reporting requirements.

F47.4 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.

F47.5 SUBCONTRACTOR shall remediate and complete corrective actions in response to any spills, leaks, or unpermitted discharges. SUBCONTRACTOR shall manage waste generated in accordance with F46, Waste Management; CONTRACTOR may direct SUBCONTRACTOR to conduct sampling and analyze environmental media, liquid releases, and/or spill residues for remediation verification.

F47.6 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.

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- Aboveground fuel storage tanks designed for stationary use may not be used as mobile tanks.

F47.7 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 CONTRACTOR property/facility, and those to be stored or used over the duration of the project at the worksite or elsewhere on CONTRACTOR property. SUBCONTRACTOR shall indicate in the submittal of all chemicals those that will be stored or used in quantities in excess of 500 pounds.

F47.8 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.

### **SPECIAL REQUIREMENTS**

SUBCONTRACTOR shall meet the requirements of any clause marked as an ESH requirement included in this subcontract.

### **F48.0 WORK WITHIN THE BOUNDARY OF A CONSENT ORDER SITE**

F48.1 SUBCONTRACTOR shall comply with FSD-P409-0102, Work Conducted Within or Near a Consent Order Site, when performing work within or near a Consent Order Site [i.e., Solid Waste Management Unit (SWMU) or Area of Concern (AOC)].

F48.2 SUBCONTRACTOR shall comply with AP-P409-0306, Identifying and Assessing Newly Created or Discovered SWMUs and AOCs, for new or newly discovered releases within or near the job site.

F48.3 SUBCONTRACTOR shall comply with F46, Waste Management, for the management of waste generated and removed from within the boundary of a Consent Order Site. CONTRACTOR will mark boundaries at the site, as necessary.

F48.4 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.

F48.5 SUBCONTRACTOR shall 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 Consent Order site boundary, SUBCONTRACTOR shall stabilize the excavated soil, fill, and other materials to ensure there is no off-site dispersion by wind, stormwater runoff, vehicle or pedestrian traffic, etc. If staged outside of the Consent Order site boundary, SUBCONTRACTOR shall segregate the excavated soil, fill, and other materials from materials originating outside of the boundary to prevent cross-contamination. Upon completion of the project, SUBCONTRACTOR shall return all excavated soil and fill to the point and depth of origin unless otherwise specified by CONTRACTOR.

- F48.6 SUBCONTRACTOR may use mechanical/vacuum potholing methods within the boundary of a Consent Order site when approved by CONTRACTOR through the Excavation/Fill/Soil Disturbance Permit. SUBCONTRACTOR shall characterize, containerize, and manage potholing liquids, fluids, and sediment in accordance with Waste Management. If the sediment is allowed to dry, it can be returned to the point and depth of origin.
- F48.7 SUBCONTRACTOR shall ensure Consent Order sites are identified in the SUBCONTRACTOR'S Storm Water Pollution Prevention Plan for construction projects greater than or equal to one acre in size.

#### **F49.0 WASTEWATER DISCHARGES**

- F49.1 SUBCONTRACTOR shall comply with all federal, state, and local laws 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. SUBCONTRACTOR shall not discharge wastewater to the environment without coverage under an approved discharge permit or an approved Notice of Intent (NOI) to discharge. SUBCONTRACTOR shall not discharge wastewater to the subsurface without coverage under an approved Ground Water Discharge Plan. SUBCONTRACTOR shall contact CONTRACTOR STR prior to any wastewater discharges from the project. CONTRACTOR will provide the permit(s) or NOI(s) when required.
- F49.2 SUBCONTRACTOR shall comply with all requirements for on-site sanitary wastewater storage and disposal as established by New Mexico Ground Water Discharge Permits 857 and 1589. CONTRACTOR will obtain the required permits from the New Mexico Environment Department for the use of proposed sanitary holding tanks and septic tank/leach field systems prior to the start of work.
- F49.3 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/hardening at locations designated by CONTRACTOR STR and Waste Management Coordinator. SUBCONTRACTOR shall stabilize potholing washout materials and left on site or shall be characterized, containerized, and managed in accordance with Waste Management.
- F49.4 For wastewater discharges into Laboratory treatment facilities, SUBCONTRACTOR shall demonstrate compliance with the applicable Waste Acceptance Criteria (WAC) and receive approval from CONTRACTOR STR and Waste Management Coordinator prior to any such wastewater discharges. SUBCONTRACTOR compliance with the WAC may be demonstrated through existing water quality data or through sampling and analysis by SUBCONTRACTOR.

**F50.0 STORM WATER MANAGEMENT**

- F50.1 SUBCONTRACTOR shall comply with all federal, state, and local 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.
- F50.2 SUBCONTRACTOR shall use appropriate storm water management, sediment, and erosion control Best Management Practices (BMPs) in accordance with the LANL Engineering Standards Manual, Chapter 3 Civil, Attachment 1, Storm Water Compliance and Design Requirements, Subpart 1.0.A (issued as VAR- 10468), the LANL Storm Water BMP Manual, construction specifications, good engineering practices, and industry standards.
- F50.3 SUBCONTRACTOR shall initiate stabilization measures whenever earth-disturbing activities have permanently or temporarily ceased on any portions of the site. SUBCONTRACTOR shall complete stabilization activities within 7-calendar days for sites that discharge to an impaired watercourse.
- F50.4 For activities subject to the NPDES Construction General Permit (CGP), SUBCONTRACTOR shall comply with the requirements of the current version of the permit as published on EPA's website and in accordance with LANL Engineering Standards, Chapter 3 Civil, Attachment 1, Storm Water Compliance and Design Requirements, Subpart 1.0.C (issued as VAR-10468).
- F50.5 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.
- F50.6 SUBCONTRACTOR personnel who are responsible for the installation and maintenance of storm water control measures, the performance of corrective actions, and signing permit required documents and reports shall complete CONTRACTOR-led storm water training on permit and project-specific SWPPP requirements 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).
- F50.7 SUBCONTRACTOR will correct deficiencies, both self-identified and noted by CONTRACTOR during SWPPP inspections within the timeframe specified in the CGP and as noted on the inspection reports.
- F50.8 SUBCONTRACTOR shall initiate, maintain, and complete the record keeping requirements as identified in the CGP.

- F50.9 For work within a watercourse, subject to regulation by the U.S. Army Corp of Engineers, SUBCONTRACTOR shall comply with all terms and conditions of the applicable 404 Permit, the related New Mexico Section 401 Water Quality Certification and in accordance with the LANL Engineering Standards Manual, Chapter 3 Civil, Attachment 1, Storm Water Compliance and Design Requirements, Subpart 1.0.D (issued as VAR-10468).
- F50.10 For activities subject to the NPDES Multi-Sector General Permit (MSGP) for Stormwater Discharges Associated with Industrial Activity, SUBCONTRACTOR shall comply with the requirements of the Permit as published on EPA's website.
- F50.11 For activities within facilities subject to the NPDES 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.
- F50.11.1 For activities subject to the NPDES MSGP, SUBCONTRACTOR shall ensure workers are trained to the CONTRACTOR MSGP SWPPP and understand specific requirements in the MSGP relative to their work responsibilities, prior to starting work within the boundary of an MSGP facility.
- F50.11.2 SUBCONTRACTOR shall provide the CONTRACTOR with project information sufficient to amend the facility MSGP SWPPP, as needed.
- F50.11.3 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.
- F50.11.4 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 one or more ESH Representatives responsible for the implementation of NPDES CGP or MSGP requirements. SUBCONTRACTOR shall submit these individuals experience and/or certifications for CONTRACTOR approval prior to start of associated work activities.
- F50.12 For development or redevelopment projects with a footprint that exceeds 5000 square feet, SUBCONTRACTOR shall comply with Section 438 of the Energy Independence and Security Act (EISA 438), and use green infrastructure/low impact development features to maintain or restore, to the maximum extent technically feasible, the pre-development site hydrology with regard to the temperature, rate, volume, and duration of flow. Refer to the LANL Engineering Standards Manual, Chapter 3 Civil, Attachment 1, Storm Water Compliance and Design Requirements (issued as VAR- 10468), for design guidance associated with EISA 438 compliance.

F50.13 For activities that potentially impact designated wetlands or 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.

#### **F50 TRAINING:**

1. CONTRACTOR-led storm water training on permit and project-specific SWPPP requirements required for all SUBCONTRACTOR personnel responsible for the installation and maintenance of storm water control measures, the performance of corrective actions, and signing permit required documents and reports.

#### **F51.0 AIR QUALITY**

- F51.1 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). SUBCONTRACTOR shall provide CONTRACTOR with all copies of permits, relocation notices, etc.
- F51.2 SUBCONTRACTOR shall provide in Attachment F27-1, 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.
- F51.3 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 CONTRACTOR'S Title V Operating Permit.

#### **F52.0 BIOLOGICAL RESOURCES PROTECTION**

- F52.1 SUBCONTRACTOR 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 subject matter expert work plan review, Project and Activity Review (PAR) comments, excavation permit comments, design requirements, or biological assessment requirements and conservation measures. These actions may include restrictions that impact work schedule or locations.
- F52.2 SUBCONTRACTOR shall include in task specific work planning and control documents actions required for compliant biological resources protection (e.g., timing restrictions, biological assessment requirements and conservation measures, mitigation requirements, location restrictions, design requirements etc.).

**F53.0 CULTURAL RESOURCES PROTECTION**

- F53.1 SUBCONTRACTOR comply with all work restrictions required for compliant cultural resources protection that are identified by the CONTRACTOR STR. Such actions are identified by: CONTRACTOR cultural subject matter expert work plan review, Project and Activity Review (PAR) comments, excavation permit comments and/or design requirements. These actions may include restrictions that impact work location.
- F53.2 SUBCONTRACTOR shall not enter the marked boundaries of archaeological sites without written authorization from CONTRACTOR STR.
- F53.3 SUBCONTRACTOR shall immediately pause 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 shall 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.
- F53.4 SUBCONTRACTOR shall include in task specific work planning and control documents actions required for compliant cultural resources protection (e.g., marking and avoidance of archeological sites, protection of significant historic buildings and structures, design requirements, etc.).

**F54.0 PESTICIDE AND HERBICIDE APPLICATIONS**

- F54.1 SUBCONTRACTOR shall not apply pesticides on LANL property unless authorized through the CONTRACTOR STR in writing.
- F54.2 Any authorized SUBCONTRACTOR activities and operations involving pesticide or herbicide application shall comply with the NPDES Pesticide General Permit, New Mexico Department of Agriculture pesticide regulations (e.g., Pesticide Control Act and 21.17 NMAC) and the Federal Insecticide, Fungicide, and Rodenticide Act.

**F55.0 REFRIGERANTS**

- F55.1 SUBCONTRACTOR shall submit to CONTRACTOR training and appropriate-level EPA certification records for technicians that will perform service, maintenance, repair and/or disposal activities for the type of equipment being serviced. CONTRACTOR will approve of technicians prior to work beginning.
- F55.2 SUBCONTRACTOR shall use only EPA-certified recovery/recycle units.
- F55.3 SUBCONTRACTOR shall not install new equipment at CONSTRUCTOR site that uses refrigerants classified as Ozone Depleting Substances including R-22 and R-123. SUBCONTRACTOR shall receive approval via CONTRACTOR STR prior to the installation of any new equipment that uses flammable refrigerants.
- F55.4 SUBCONTRACTOR shall coordinate with CONTRACTOR to ensure all refrigerants to be

sent offsite are offered to Department of Defense prior to considering any other disposal or recycle options.

- F55.5 SUBCONTRACTOR shall submit a copy of Attachment F53-1, Refrigerant Service Record Form for each service, repair, maintenance, disposal or installation of refrigerant containing equipment. Form is available from CONTRACTOR STR.
- F55.6 SUBCONTRACTOR shall submit Attachment F53-2, Refrigeration Appliance Inventory Form when installing new refrigerant-containing equipment. Form is available from CONTRACTOR STR.

### **F56.0 ABOVEGROUND STORAGE TANKS**

- F56.1 If SUBCONTRACTOR work involves installation, replacement, repair, or modification of an aboveground storage tank (AST) system, then SUBCONTRACTOR shall comply with the regulations promulgated in 40 CFR 112 and 20.5 NMAC.
- F56.2 Per 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 (on site greater than one year), and is used to contain oil. If these criteria apply, then SUBCONTRACTOR shall register the AST system with the NMED Petroleum Storage Tank Bureau as required by this regulation in order to be allowed for on-site use at CONTRACTOR location. SUBCONTRACTOR shall provide documentation of registration to CONTRACTOR.
- F56.3 If SUBCONTRACTOR work involves facilities that have an aggregate aboveground storage capacity of 1,320 gallons, or greater, of oil or other petroleum products, then SUBCONTRACTOR shall comply with the Spill Prevention Control and Countermeasure (SPCC) Rule set forth in 40 CFR 112. SUBCONTRACTOR shall collaborate with CONTRACTOR to modify CONTRACTOR SPCC Plan for oil handling work on existing facilities subject to the SPCC rule. Alternatively, if SUBCONTRACTOR work is subject to the SPCC Rule and an SPCC Plan does not exist, SUBCONTRACTOR shall collaborate with CONTRACTOR to develop a CONTRACTOR- approved SPCC Plan.
- F56.4 SUBCONTRACTOR shall inform STR when it removes from CONTRACTOR location equipment subject to SPCC requirements.

### **F57.0 DEMOLITION, REMODELING, OR RENOVATION**

- F57.1 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.
- F57.2 Where walkways represent a fall hazard of 6 feet or greater, SUBCONTRACTOR shall equip walkways 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. SUBCONTRACTOR shall not start demolition of floor arches until they, and the surrounding floor area for a distance of 20 feet, have been cleared of debris.

- F57.3 If mechanical equipment is used to remove walls, floors, and materials, 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.
- F57.4 SUBCONTRACTOR acknowledges that any renovations that the following work requires advance notification to New Mexico Environment Department, Air Quality Bureau:
- any renovations that may disturb greater than threshold quantities of asbestos-containing material,
  - all roofing work, and
  - all demolition work, even if no asbestos is present.
- F57.5 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.
- F57.6 SUBCONTRACTOR shall implement the CONTRACTOR-provided Waste Characterization Strategy Form or Waste Certification Statement before waste is generated from construction, demolition, decontamination, and decommissioning activities, and shall manage the waste accordingly.

### **F58.0 ASBESTOS WORK/ABATEMENT/DEMOLITION/ROOFING WORK**

- F58.1 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.
- F58.2 SUBCONTRACTOR performing asbestos abatement shall submit an Asbestos Abatement Plan (AAP) in accordance with 29 CFR 1910.1001 and 29 CFR 1926.1101 for CONTRACTOR approval. SUBCONTRACTOR AAP shall address the requirements in the subcontract and the procedures (including materials, chemicals, tools, and equipment involved) that will be used to perform asbestos work and disposal of asbestos-containing waste. SUBCONTRACTOR shall submit the AAP as part of the SUBCONTRACTOR'S Site-Specific ESH Plan.
- F58.3 SUBCONTRACTOR shall perform all asbestos work in accordance with 40 CFR Subpart

M, National Emission Standard for Hazardous Air Pollutants (NESHAP), 29 CFR 1926.1101 and 29 CFR 1910.1001, and the subcontract. As applicable to the Statement of Work, state, federal, and local laws, SUBCONTRACTOR shall submit the following information to CONTRACTOR STR for review and approval, prior to mobilizing for any asbestos abatement work:

- Company abatement license
- Personnel qualifications/training/certificates
- Personnel medical clearance (latest)
- Personnel respirator fit test (latest)
- Inspector Accreditation Certificate and Inspection Report
- Designer Accreditation Certificate and Designer Report

F58.4 SUBCONTRACTOR acknowledges that any renovations that the following work requires advance notification to New Mexico Environment Department, Air Quality Bureau:

- any renovations that may disturb greater than threshold quantities of asbestos-containing material,
- all roofing work, and
- all demolition work, even if no asbestos is present.

F58.5 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.

F58.6 SUBCONTRACTOR shall comply with the waste handling, packaging, and disposal requirements contained in 29 CFR 1926.1101, 40 CFR 61.145, 40 CFR 61.150, 20.9.7.A(9) NMAC, and 20.9.8.10-12 NMAC (as applicable), and the U.S. Department of Transportation shipping regulations contained in 49 CFR 171 and 172.

F58.7 SUBCONTRACTOR shall follow F46, Waste Management requirements for transportation and/or disposal of asbestos waste.

F58.8 SUBCONTRACTOR shall provide CONTRACTOR STR with copies of the signed waste shipment records as required by 40 CFR 61.150 within 10-working days of waste shipment delivery.

**ATTACHMENT 1: EXHIBIT F ATTACHMENTS AND MANDATORY REFERENCES****Page 1 of 4**

The following attachments apply to the requirements in clauses included in this subcontract. If a clause is absent, there are no attachments for that clause. See the [Exhibit F website](#) for current version of attachments.

**F3 SUBCONTRACTOR AND LOWER-TIER SUBCONTRACTOR MINIMUM PERFORMANCE ELIGIBILITY FACTORS**

- Attachment F3-2, Environment, Safety, and Health History Worksheet, current version

**F4 ESH REPRESENTATIVE DUTIES AND RESPONSIBILITIES**

- Attachment F4-1, Minimum Qualifications for Subcontractor Safety and Environmental Representatives, current version

**F5 WORK MANAGEMENT**

- Attachment F5-1, IWD Subcontract Activity Specific Information, Form 2100A, current version
- Attachment F5-2, FOD Site Hazard Analysis and Coordination Requirements, current version
- Attachment F5-3, IWD Validation and Release, Form 2103A, current version
- Attachment F5-4, Integrated Work Document (IWD) Post Job Review, Form 2104, current version
- Attachment F5-5, Stop-Work Action Worksheet, Form 2181, current version
- Attachment F5-6, Subcontractor IWD Mandatory Hold Points, current version

**F6 INCIDENT REPORTING REQUIREMENTS**

- Attachment F6-1, Weekly productive man-hour report, current version
- Attachment F6-2a, DOE individual accident/incident report, form 5484.3, current version
- Attachment F6-2b, LANL Form 5484 addendum, current version

**F7 SAFETY & ENVIRONMENTAL PERFORMANCE CITATION**

- Attachment F7-1, Safety and Environmental performance citation, current version

**F9 ESH INSPECTIONS**

- Attachment F9-1, Sample ESH inspection checklist for subcontractors, current version (optional use)

**F10 HOUSEKEEPING**

- Attachment F10-1, Safety/Housekeeping Inspection Checklist, current version (optional use)

**F11 EMERGENCY PREPAREDNESS REQUIREMENTS**

- P1201-4, LANL Incident Reporting and Protective Actions, current version

**ATTACHMENT 1: EXHIBIT F ATTACHMENTS AND MANDATORY REFERENCES**

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**F12 OCCUPATIONAL HEALTH AND FIRST AID**

- Attachment F12-1, Medical Surveillance for Toxic and Hazardous Substance requirements, current version

**F17 RADIATION PROTECTION**

- Attachment F17-1, Radioactive Sealed Source / Radiation Generating Device Authorization for use on LANL Site, Form 2264, current version,
- P121, Radiation Protection, current version,

**F19 RESPIRATORY PROTECTION**

- Form 1465, Request for Respiratory Protection Evaluation and Use, current version
- Respirator Medical Clearance Verification Form

**F20 CHEMICAL AND HAZARDOUS MATERIALS MANAGEMENT**

- Attachment F20-1, Environmental Reporting Data for EPA Annual Toxic Release Inventory Report, current version

**F21 BERYLLIUM ACTIVITIES NOT INVOLVING AIRBORNE BERYLLIUM**

- P101-21, Chronic Beryllium Disease Prevention Program, current version

**F24 FIREARMS SAFETY**

- P101-2, Non-Security Firearms Safety Program, current version

**F25 EXPLOSIVES STORAGE/USE/DISPOSAL**

- P101-8, Explosives Safety, current version

**F26 TRAFFIC AND PEDESTRIAN CONTROL**

- Attachment F26-1, Requirements for Moving Heavy Equipment and Oversized Vehicles, Form 2075, current version

**F27 MOTOR VEHICLES AND POWERED INDUSTRIAL EQUIPMENT**

- Attachment F27-1, Major Equipment Declaration, current version

**F28 MECHANICAL MATERIAL HANDLING**

- Attachment F28-1, Critical Load Operational Plan Instructions and Sample Template, current version (optional use)

**ATTACHMENT 1: EXHIBIT F ATTACHMENTS AND MANDATORY REFERENCES**

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**F29 CRANES AND MATERIAL HANDLING EQUIPMENT**

- Attachment F29-1, Ordinary/Moderate Risk Lift Procedure for SUBCONTRACTORS, Form 1611A, current version
- Attachment F29-2, LANL Critical Lift Plan for SUBCONTRACTORS, Form 2210A, current version
- Attachment F29-3, High Consequence Material Handling Activity, Form 2041, current version
- Attachment F29-4, Mobile Crane Daily/Pre-Use Inspection Checklist, Form 2211, current version (optional use)
- Attachment F29-5, Monthly Mobile Crane Inspection Checklist, Form 2212, current version (optional use)

**F30 WELDING, CUTTING, BRAZING, AND GRINDING**

- Attachment F30-1, Spark- or Flame-Producing Operations Permit, Form 1563, current version

**F31 PENETRATION OPERATIONS**

- Attachment F31-1, Penetration Permit, Form 2074, current version

**F32 LOCKOUT/TAGOUT**

- Attachment F32-1, Lockout/Tagout (LO/TO) Orders, Form 2244, current version
- Attachment F32-2, Lockout/Tagout Partial Energization Plan, Form 3058, current version
- P101-3, Lockout/Tagout for Hazardous Energy Control, current version.

**F33 ELECTRICAL SAFETY**

- Attachment F33-0, Electrical Training Documentation for Subcontractors, current version
- Attachment F33-1, Energized Electrical Work Permit, Form 2195, current version

**F34 FALL PREVENTION/PROTECTION**

- Attachment F34-1, Fall Hazard Assessment Form, current version (optional use)
- Attachment F34-2, Fall Arrest Rescue Plan form

**F44 BERYLLIUM WORK INCLUDING ACTIVITIES INVOLVING AIRBORNE BERYLLIUM**

- F44 Mandatory Reference, P101-21, Chronic Beryllium Disease Prevention Program, current version

**ATTACHMENT 1: EXHIBIT F ATTACHMENTS AND MANDATORY REFERENCES**

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**F47 SPILL PREVENTION, REPORTING, AND RESPONSE**

- Attachment F47-1, Environmental Compliance Programs (EPC-CP) Unplanned Release Form, current version

**F48 WORK WITHIN CONSENT ORDER SITE**

- FSD-P409-0102, Work conducted Within or Near a Consent Order Site, current version
- AP-P409-0306, Identifying and Assessing Newly Created or Discovered SWMUs and AOCs, current version

**F50 STORM WATER MANAGEMENT**

- LANL Engineering Standards Manual, Chapter 3 Civil, Attachment 1, Storm Water Compliance and Design Requirements, VAR-10468, current version
- LANL Storm Water Best Management Practices Manual, current version

**F55 REFRIGERANTS**

- Attachment F55-1, LANL Refrigerant Service Record Form, current version
- Attachment F55-2, Refrigeration Appliance Inventory Form, current version – EDRMS download

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**ATTACHMENT 2: EXHIBIT F SCREENING QUESTIONS**

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**EXHIBIT F SCREENING QUESTIONS**

The following questions are used to determine 1) the Exhibit F consequence level: moderate or high, and 2) which special requirements ESH clauses will be marked as Yes and included in the subcontract.

**EXHIBIT F CONSEQUENCE LEVEL**

#	Question	
0	Does this work include any of the following? <ul style="list-style-type: none"> <li>▪ Construction of a new building</li> <li>▪ Structural demolition</li> <li>▪ Complex roofing</li> <li>▪ Alterations to a building's life safety or related system</li> <li>▪ Alterations that introduce possible egress aspects</li> <li>▪ Work on live electrical equipment that will require an Energized Electrical Work Permit</li> <li>▪ Hoisting and rigging potentially requiring Critical Lifting</li> <li>▪ Any other work representing a high hazard/complex (consequence) in P300, Integrated Work Management, Attachment A. Hazard Grading Table</li> </ul>	Check the appropriate box on page 1  <b>Yes</b> = work is high consequence  <b>No</b> = work is moderate consequence

**EXHIBIT F SPECIAL REQUIREMENTS CLAUSE TRIGGER QUESTIONS**

#	Question	Y	N	Include clause(s) when marked Y
1	Will this work occur in an area posted for radiological hazards or anywhere radiological controls are established?	<input type="checkbox"/>	<input type="checkbox"/>	17
2	Will work involve radioactive materials, sources, radiation contamination, or radiation generating devices?	<input type="checkbox"/>	<input type="checkbox"/>	17
3	Will the subcontractor bring a radioactive sealed source (RSS) or radiation generating device (RGD) on-site?	<input type="checkbox"/>	<input type="checkbox"/>	17
4	Will the subcontractor be performing activities that likely require an industrial hygiene exposure assessment? <ul style="list-style-type: none"> <li>▪ Chemical hazards – silica, metals, organics, welding fumes, cryogenes, acids, etc.</li> <li>▪ Physical hazards – noise, thermal stress, cryogenes, etc.</li> <li>▪ Biological hazards – blood, sewage, etc.</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	18
5	Will this work involve areas with extensive exposed soil? Excavations, earthmoving, well drilling, vegetation control, etc.	<input type="checkbox"/>	<input type="checkbox"/>	18, 40

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**ATTACHMENT 2: EXHIBIT F SCREENING QUESTIONS**

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#	Question	Y	N	Include clause(s) when marked Y
6	Will this work involve grinding, cutting, drilling, or breaking actions on building or road materials with crystalline silica as a component? <ul style="list-style-type: none"> <li>▪ Cured concrete, Portland cement, asphalt paving, ceramic tile, stone, masonry bricks, pavers, drywall joint compound, paint, or DriTherm, etc.</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	18
7	Will this work involve abrasive blasting with silica-containing media or on substrates that contain crystalline silica?	<input type="checkbox"/>	<input type="checkbox"/>	18
8	Will this work require the use of hearing protection? Sustained noise levels exceeding 85 dBA.	<input type="checkbox"/>	<input type="checkbox"/>	18
9	Will this work potentially require the use of respirators? Requirement will be based on exposure assessment data or radiation protection mandates.	<input type="checkbox"/>	<input type="checkbox"/>	19
10	Will the subcontractor bring hazardous chemicals on-site?	<input type="checkbox"/>	<input type="checkbox"/>	20
11	Will the subcontractor use any quantities of lead, asphalt, or mercury?	<input type="checkbox"/>	<input type="checkbox"/>	20
12	Will the subcontractor be conducting work in beryllium areas and not generating airborne beryllium?	<input type="checkbox"/>	<input type="checkbox"/>	21
13	Will this work involve potential exposure to or handling of etiological agents? Microorganisms or microbial toxins that can cause disease in humans.	<input type="checkbox"/>	<input type="checkbox"/>	22
14	Will this work potentially involve exposure to any of the following: <ul style="list-style-type: none"> <li>▪ Wastewater</li> <li>▪ Sewage</li> <li>▪ Blood</li> <li>▪ Potentially-infections materials</li> <li>▪ Wildlife, rodents, or their nests and excreta</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	22
15	Will this work occur in a Biosafety Level (BSL) Laboratory?	<input type="checkbox"/>	<input type="checkbox"/>	22
16	Will this work involve using or working on a Class 3B or Class 4 laser? Including work that involves disabling interlocks of lower class lasers.	<input type="checkbox"/>	<input type="checkbox"/>	23
17	Will the subcontractor be using firearms or destructive devices per Title 18 USC Chapter 44? Use of firearms for purposes other than R&D is expressly prohibited under Exhibit F.	<input type="checkbox"/>	<input type="checkbox"/>	24
18	Will the subcontractor be using any of the following: <ul style="list-style-type: none"> <li>▪ High explosives</li> <li>▪ Blasting agents or compounds</li> <li>▪ Propellants (excluding hand held powder operated tools)</li> <li>▪ Chemical use/storage classified as explosives</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	25
19	Will this work obstruct or impede traffic, or require a traffic control plan? This includes pedestrian and/or vehicular traffic for buildings, sidewalks, and roads.	<input type="checkbox"/>	<input type="checkbox"/>	26

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**ATTACHMENT 2: EXHIBIT F SCREENING QUESTIONS**

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#	Question	Y	N	Include clause(s) when marked Y
20	Will this work require the use of government-owned vehicles or powered industrial equipment (e.g., heavy equipment, large vehicles, off-road vehicles, compressors, generators, cranes, hoists, derricks, stationary and portable fuel tanks, etc.)?	<input type="checkbox"/>	<input type="checkbox"/>	27
21	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.	<input type="checkbox"/>	<input type="checkbox"/>	27
22	Will this work involve the use of mechanical material handling equipment to move supplies and materials (e.g., carts, dollies, hand trucks, hydraulic lift tables, pallet jacks, etc.)?	<input type="checkbox"/>	<input type="checkbox"/>	28
23	Will this work require the use of cranes or material handling equipment?	<input type="checkbox"/>	<input type="checkbox"/>	29
24	Will this work require hoisting, lifting, and rigging operations? In this context, a lift applies to operations that involve: <ul style="list-style-type: none"> <li>▪ An attachment of a rigging device (such as a sling or shackle)</li> <li>▪ 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)</li> <li>▪ Any other equipment designed for lifting applications that are used to lift or lower equipment/materials from one position to another</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	29
25	Will this work involve welding, cutting, brazing, or grinding activities?	<input type="checkbox"/>	<input type="checkbox"/>	30
26	Will this work create sparks or flames?	<input type="checkbox"/>	<input type="checkbox"/>	30
27	Will the subcontractor be performing penetrations operations?	<input type="checkbox"/>	<input type="checkbox"/>	31
28	Will this work require Lockout/Tagout (LOTO)?	<input type="checkbox"/>	<input type="checkbox"/>	32
29	Will this work be on or near exposed electrical hazards?	<input type="checkbox"/>	<input type="checkbox"/>	33
30	Will this work involve interaction with equipment that may pose an arc flash hazard?	<input type="checkbox"/>	<input type="checkbox"/>	33
31	Will this work involve facility electrical installations, equipment, or systems?	<input type="checkbox"/>	<input type="checkbox"/>	33
32	Will this work occur on an elevated work surface? <ul style="list-style-type: none"> <li>▪ Work above 4 feet (for general industry) or 6 feet (for construction).</li> <li>▪ Fall protection is not automatically required when using a portable ladder, each task must be evaluated and controls determined.</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	34
33	Will this work require the use of fall protection systems?	<input type="checkbox"/>	<input type="checkbox"/>	34
34	Will this work require the use of scaffolding?	<input type="checkbox"/>	<input type="checkbox"/>	35

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**ATTACHMENT 2: EXHIBIT F SCREENING QUESTIONS**

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#	Question	Y	N	Include clause(s) when marked Y
35	<u>Will this work require the use of portable ladders?</u>	<input type="checkbox"/>	<input type="checkbox"/>	<u>36</u>
36	<u>Will this work require the use of suspended personnel platforms?</u>	<input type="checkbox"/>	<input type="checkbox"/>	<u>37</u>
37	<u>Will this work require the use of personnel lifts (aerial work platforms)?</u>	<input type="checkbox"/>	<input type="checkbox"/>	<u>38</u>
38	<u>Will this work require the use of barricades?</u>	<input type="checkbox"/>	<input type="checkbox"/>	<u>39</u>
39	<u>Will this work involve any excavations or soil disturbances?</u>	<input type="checkbox"/>	<input type="checkbox"/>	<u>40</u>
40	<u>Will this work involve potholing activities?</u>	<input type="checkbox"/>	<input type="checkbox"/>	<u>40</u>
41	<u>Will this work involve pressure systems more than cylinders of compressed gas?</u>	<input type="checkbox"/>	<input type="checkbox"/>	<u>41</u>
42	<u>Will the subcontractor bring compressed gases on-site?</u>	<input type="checkbox"/>	<input type="checkbox"/>	<u>41</u>
43	<u>Will this work involve the creation of or entering any permit-required confined spaces?</u>	<input type="checkbox"/>	<input type="checkbox"/>	<u>42</u>
44	<u>Will the subcontractor be contacting--but not disturbing--asbestos containing materials?</u>	<input type="checkbox"/>	<input type="checkbox"/>	<u>43</u>
45	<u>Will the subcontractor be performing asbestos abatement activities?</u>	<input type="checkbox"/>	<input type="checkbox"/>	<u>43</u>
46	<u>Will the subcontractor be performing beryllium work activities, including airborne beryllium?</u>	<input type="checkbox"/>	<input type="checkbox"/>	<u>44</u>
47	<u>Will this work be within the boundary of any Consent Order Sites?</u>	<input type="checkbox"/>	<input type="checkbox"/>	<u>48</u>
48	<u>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.</u>	<input type="checkbox"/>	<input type="checkbox"/>	<u>49</u>
49	<u>Will this work potentially require the need for storm water management?</u>	<input type="checkbox"/>	<input type="checkbox"/>	<u>50</u>
50	<u>Will this work require open burning operations?</u>	<input type="checkbox"/>	<input type="checkbox"/>	<u>51</u>
51	<u>Will this work directly or indirectly impact threatened or endangered species, migratory birds, or protected habitats?</u>	<input type="checkbox"/>	<input type="checkbox"/>	<u>52</u>
52	<u>Will this work be conducted in an area that may trigger cultural resources protection requirements?</u>	<input type="checkbox"/>	<input type="checkbox"/>	<u>53</u>
53	<u>Will the subcontractor be applying any pesticides or herbicides?</u>	<input type="checkbox"/>	<input type="checkbox"/>	<u>54</u>
54	<u>Will this work involve any of the following:</u> <ul style="list-style-type: none"> <li>- <u>Service, maintenance, repair, or disposal of refrigeration equipment</u></li> <li>- <u>Installation of new equipment containing refrigerants</u></li> <li>- <u>Installation of equipment containing flammable refrigerants</u></li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<u>55</u>
55	<u>Will this work involve installation, modification, or repair of a storage tank? Includes aboveground and below ground storage tanks, storage vessels, or any oil? product storage tank (i.e., gasoline, mineral oil, diesel fuel, vegetable oil)</u>	<input type="checkbox"/>	<input type="checkbox"/>	<u>56</u>
56	<u>Will this work involve the installation of oil-filled equipment that has a capacity to hold 55 gallons of any type of oil? Electrical transformers, hydraulic equipment (e.g., elevators), reciprocating engines or turbines</u>	<input type="checkbox"/>	<input type="checkbox"/>	<u>56</u>

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**THIS PAGE IS FOR CONTRACTOR INTERNAL USE ONLY****EXHIBIT F APPROVALS**

If Radiation Protection review is not required, check the N/A box and sign in RP Representative signature block. All other reviewers are required. The same person may sign for both the Safety and the Industrial Hygiene Representative if the supporting organization does not have separately designated safety and industrial hygiene professionals on staff and the individual is duly qualified by their RLM.

**Subcontract Technical Representative**\_\_\_\_\_  
Name/Z#\_\_\_\_\_  
Signature**Safety Representative**\_\_\_\_\_  
Name/Z#\_\_\_\_\_  
Signature**Industrial Hygiene Representative**\_\_\_\_\_  
Name/Z#\_\_\_\_\_  
Signature**Deployed Environmental Professional**\_\_\_\_\_  
Name/Z#\_\_\_\_\_  
Signature**Radiation Protection Representative OR  N/A**\_\_\_\_\_  
Name/Z#\_\_\_\_\_  
Signature