EXHIBIT "F"
High Hazard Work
Contract Number and/or Requisition Number

This document establishes the applicable clauses for High Hazard Work. High Hazard Work includes construction. Construction means combination of erection, installation, assembly, demolition, or fabrication activities involved to create a new facility or to alter, add to, rehabilitate, dismantle or remove an existing facility. It also includes the alteration and repair (including dredging, excavating, and painting) of buildings, structures, or other real property, as well as any construction, demolition, and excavation activities conducted as part of environmental restoration or remediation efforts. This Exhibit will also be used for:

- **Major facility modifications or repair**
- **Demolition**
- **Drilling or Well Installation**
- **Broad Scope Multi-task Order Agreements with Scope Elements Exceeding Moderate Hazard**
- **Hazardous Waste Management / Operations**
- **Other Work Scope Representing a High Hazard as defined in P300 *Integrated Work Management***

To perform subcontract work at LANL, SUBCONTRACTOR is required to comply with CONTRACTOR'S 10 CFR 851 Worker Safety and Health Program, the requirements of which are set forth in this Exhibit. To the extent that the Exhibit requires the submission of supplementary SUBCONTRACTOR'S Site-Specific ES&H plans, the SUBCONTRACTOR shall consolidate such ES&H plan elements and submit the complete SUBCONTRACTOR'S Site Specific ES&H plan to the CONTRACTOR. The SUBCONTRACTOR'S Site Specific ES&H Plan shall be submitted to the CONTRACTOR for review and must be approved prior to issuance of Notice to Proceed.

Submittal of the SUBCONTRACTORS corporate or company ES&H Plan/Procedure/Policy is not an acceptable alternative to a Site-Specific ES&H Plan that is specific to the Scope of Work and associated hazards for the work under this Contract.

GENERAL REQUIREMENTS: The following clauses ALWAYS apply and are made part of the Subcontract.

No.	Title
F1.0	General Requirements
F2.0	Subcontractor's Site Specific ES&H Plan
F3.0	Subcontractor and Lower-Tier Subcontractor Minimum Performance Eligibility Factors
F5.0	Incident Reporting Requirements
F6.0	Injury/Illness Reporting (SUBCONTRACTOR is required to report all job related injuries and illnesses, regardless of severity, immediately to the STR using DOE F 5484.3. SUBCONTRACTOR is also required to submit a weekly productive man-hours report to the STR every Monday for the preceding week using Attachment F6-1, Weekly Productive ManHour Report.) The STR must send this information to the LANL OSH-OM, MS K485, not later than the 5th of each month.
F7.0	Employee Training
F8.0	Pre-job Briefing
F9.0	ES&H Inspections
F10.0	Housekeeping
F11.0	Emergency Preparedness Requirements (SUBCONTRACTOR shall submit as part of the Site-Specific ES&H plan, emergency procedures to be followed)
F12.0	Personal Protective Equipment
F15.0	Occupational Medicine
F17.0	Tools and Equipment
F20.0	Work Management (See attached completed Form 2101) (SUBCONTRACTOR must submit the Integrated Work Document Form 2100A Attachment F 20-1 to the Contractors ES&H representative and the STR/requester for approval.)
F21.0	Fire Protection & Prevention (SUBCONTRACTOR must submit as part of the Site-Specific plan, a Fire Protection/Prevention Plan)
F38.0	Pollution Prevention/Waste Minimization
F42.0	Spill Prevention, Reporting and Response
F52.0	Industrial Hygiene (SUBCONTRACTOR shall submit as part of the Site-Specific ES&H plan an Industrial Hygiene Program which includes at a minimum the elements listed in 52.1 to the CONTRACTOR for approval.)
F59.0	Safety and Environmental Performance
F62.0	Attachments

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

The STR/Requestor will answer questions and provide information to the best of their knowledge based on the nature and scope of work. Where a question is answered Yes, the referenced clause applies and IS made part of the Subcontract. If the question is answered No, the referenced clause IS NOT part of the Subcontract.

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

(A)

Yes☐ No☐ A Site Specific Health and Safety Plan (HASP) is required for Hazardous Waste Operations under 29 CFR 1910.120 or 29 CFR 1926.65.

(B)

Yes☐ No☐ For Construction, Environmental, Drilling, D&D or other High Hazard work not including Hazardous Waste Operations under 29 CFR 1910.120 or 29 CFR 1926.65 work the SUBCONTRACTOR must prepare a written Site Specific Environmental, Safety and Health Plan in accordance with 10 CFR 851 Appendix A 1(d) that is applicable to this subcontract. The content of this plan need not duplicate other sections of the LANL required program, however the plan must contain:

- **The designated individual responsible for on-site implementation of the plan,**
- **Specify qualification for those individuals and,**
- **Provide a list of project activities for which subsequent IWDs will be submitted.**
- **The level of detail should be commensurate with the size, complexity, and risk level of the work.**

F4.0 Subcontractor ES&H Representative Duties and Responsibilities (Option A, B, C, or D is required)

☐ Option A Section 4.1 through 4.4 ES&H Professional (Required for subcontracts with high health and safety risk; large scope/monetary value, large number of employees on site; work with complex activities)

☐ Option B Section 4.5 ES&H Specialists

☐ Option C Sections 4.6 through 4.9 ES&H Representative (Alternative option for subcontracts with lower risk factors and smaller dollar value)

☐ Option D Section 4.10 through 4.12 Environmental Professional (Option for subcontracts with a relatively high environmental compliance risk)

NOTE: Submittal of the qualifications of the ES&H Professional, the ES&H Specialist or Representative, the Environmental Representative must be approved by the Contractor prior to the issuance of the Notice to Proceed.

F13.0 Respiratory Protection
◯ Yes ◯ No
(If yes, SUBCONTRACTOR shall submit as part of the Site-Specific ES&H Plan a Respiratory Protection Program.)

F14.0 Hearing Conservation Program
◯ Yes ◯ No
(If yes, SUBCONTRACTOR shall submit as part of the Site-Specific ES&H Plan a Hearing Conservation Program.)

F16.0 Motor Vehicles ◯ Yes ◯ No

Powered Industrial Equipment ◯ Yes ◯ No
(If yes, SUBCONTRACTOR shall submit as part of the Site-Specific ES&H Plan a compliance program to meet 29 CFR 1910.178 and/or 29 CFR 1926.600.)

Major Equipment brought on site ◯ Yes ◯ No
(If yes, SUBCONTRACTOR shall complete Attachment F-16-1 Major Equipment Declaration.)

F18.0 Inclement Weather
◯ Yes ◯ No

F19.0 Chemical and Hazardous Materials Management
◯ Yes ◯ No
(If yes, SUBCONTRACTOR must have approval from CONTRACTOR for chemicals prior to their introduction into the work site and shall submit as part of the Site-Specific ES&H plan a Hazard Communication Plan.)

F22.0 Welding, Cutting, Brazing, and Grinding
◯ Yes ◯ No
(If yes, SUBCONTRACTOR shall submit a Spark and Flame Permit to the CONTRACTOR for approval.)

F23.0 Fall Prevention/Protection Program
◯ Yes ◯ No
(If yes, SUBCONTRACTOR shall submit as part of the Site-Specific ES&H Plan a Fall Prevention/Protection Program.)

F24.0 Scaffolding
___Yes ___No
(If yes, SUBCONTRACTOR must submit as part of the Site-Specific ES&H Plan a Scaffolding Procedure that meets the requirements of 29 CFR 1926.450.)

F25.0 Portable Ladders
Will the work involve the use of portable ladders?
___Yes ___No

F26.0 Barricades
___Yes ___No

F27.0 Floor and Wall Openings
___Yes ___No

F28.0 Excavation and Trenching
___Yes ___No
(If yes, SUBCONTRACTOR must obtain and Excavation/Soil Disturbance Permit from the Contractor.)

F29.0 Confined Spaces
___Yes ___No
(If yes, SUBCONTRACTOR shall submit as part of the Site-Specific ES&H Plan a Confined Space Program which includes the Contractor's Confined Space Training or a CONTRACTOR approved equivalent.)

F30.0 Lockout/Tagout
Will the work require the use of Lock-out/Tag-out? ___Yes ___No
(If yes, the SUBCONTRACTOR must follow the CONTRACTOR'S Lockout/Tagout Program.)

F31.0 Blind Penetrations
___Yes ___No
(If yes and work involves Class 1 or 2 penetration, SUBCONTRACTOR shall complete a CONTRACTOR penetration permit, Form 2074.)

F32.0 Cranes and Material Handling Equipment
___Yes ___No
(If yes, SUBCONTRACTOR must submit as part of the Site-Specific ES&H plan the appropriate Lift Plan.)

F33.0 Suspended Personnel Platforms
___Yes ___No
(If yes, SUBCONTRACTOR must submit as part of the Site-Specific ES&H plan the appropriate Lift Plan.)

F34.0 Aerial Work Platforms
___◯___Yes ___◯___No

F35.0 Pressure Safety Including Compressed Gases
___◯___Yes ___◯___No
(If yes, SUBCONTRACTOR must notify CONTRACTOR prior to bringing on site and SUBCONTRACTOR shall submit as part of the Site-Specific ES&H Plan a Gas Cylinder Use and Storage Procedure that meets requirements of Compressed Gas Association.)

F36.0 Electrical Safety
Will there be electrical work or electrical testing performed?
___◯___Yes ___◯___No
(If yes and SUBCONTRACTOR's IWD includes electrical work it must be approved by a LANL ESO and ESO signature on the IWD Form 2100A. Subcontractor electrical training must be approved by LANL Chief ESO or designee on Attachment F36-0.)

Will there be work that involves other special electrical hazards (Direct Current, Radio Frequency Current (3 kHz – 300 GHz), Variable Frequency Drives, Storage Batteries and Uninterruptible Power Supplies, Capacitors or Inductors, or Research and Development Equipment)?
___◯___ Yes ___◯___ No
(If yes, SUBCONTRACTOR must follow the CONTRACTOR'S Electrical Safety Program and If yes and SUBCONTRACTOR's IWD includes electrical work it must be approved by a LANL ESO and ESO signature on the IWD Form 2100A. Subcontractor electrical training must be approved by LANL Chief ESO or designee on Attachment F36-0.)

F37.0 Traffic and Pedestrian Control
___◯___Yes ___◯___No
(If yes, SUBCONTRACTOR must submit as part of the Site-Specific ES&H plan a Traffic Control Plan.)

F39.0 Waste Management/Disposal
(Option A or B then select C or D)
If Exhibit is for EP work, choose Option A or B. If Exhibit is for non-EP work choose Option B.
___☐___ Option A Section 39.6 and 39.7 CONTRACTOR provides Waste Characterization Strategy Form (WCSF), for Subcontracts with large and/or complex Waste Management/Disposal Activities and high compliance risk.
___☐___ Option B Section 39.8 through 39.11 SUBCONTRACTOR provides Waste Characterization Strategy Form. Alternative option for Subcontracts with lower risk factors.

___◯___Yes ___◯___No Subcontractor shall provide a Field Waste Management Technician (FWMT)
___◯___Yes ___◯___No Subcontractor shall provide waste sampling personnel
___◯___Yes ___◯___No Subcontractor shall provide waste packaging and transportation
___☐___ Option C Section 39.12, CONTRACTOR provides Acceptable Knowledge (AK) Review or Due Diligence Report.
___☐___ Option D Section 39/13, SUBCONTRACTOR provides Acceptable Knowledge (AK) Review or Due Diligence Report.

F40.0 Work Within the Boundary of a Potential Release Site (PRS)
___◯___Yes ___◯___No
(If yes, SUBCONTRACTOR must follow the CONTRACTOR'S program for working within the boundary of a PRS.)

F41.0 Wastewater Discharges
___◯___Yes ___◯___No
(If yes, SUBCONTRACTOR must follow the CONTRACTOR'S permit or discharge plan when required.)

F43.0 Storm Water Management
___◯___Yes ___◯___No

F44.0 Air Quality
___◯___Yes ___◯___No

F45.0 Biological Resources Protection
___◯___Yes ___◯___No (If yes, SUBCONTRACTOR must follow requirements provided in CONTRACTOR'S project review documents.)

F46.0 Cultural Resources Protection
___◯___Yes ___◯___No

F48.0 Environmental Reporting
___◯___Yes ___◯___No

F49.0 Radiological Requirements
___◯___Yes ___◯___No
(If yes, SUBCONTRACTOR shall comply with the requirements of 40 CFR 61, Subpart H, 10 CFR 835 and the CONTRACTOR Radiation Protection Program.)

F50.0 Radioactive Sealed Sources, Radiation Generating Devices, and/or Industrial Radiography
___◯___Yes ___◯___ No

(If yes, SUBCONTRACTOR shall receive approval through the CONTRACTOR STR prior to bringing the sealed source or RGD on site, Yes to this Clause *requires* Clause 49.0 Radiological Requirements to be Yes.)

F51.0 Asbestos Abatement
◯ Yes ◯ No
(If yes, SUBCONTRACTOR shall submit as part of the Site-Specific ES&H plan an Asbestos Abatement Plan (AAP) to the CONTRACTOR for approval.)

F53.0 Beryllium
◯ Yes ◯ No
(If yes, SUBCONTRACTOR shall comply with the requirements of 10 CFR 850 "Chronic Beryllium Disease prevention Program (CBDPP) and the CONTRACTOR'S CBDPP.)

F54.0 Explosives Storage/Use/Disposal
◯ Yes ◯ No
(If yes, SUBCONTRACTOR shall comply with the CONTRACTOR'S Explosives Safety Program and DOE Standard DOE-STD-1212-2012, Explosives Safety.)

F55.0 Heavy Metals
◯ Yes ◯ No

F56.0 Firearms Safety
◯ Yes ◯ No
(If yes, SUBCONTRACTOR shall submit as part of the Site-Specific ES&H plan a firearms policy to the CONTRACTOR for approval.)

F57.0 Biological Safety
◯ Yes ◯ No
(If yes, SUBCONTRACTOR shall submit as part of the Site-Specific ES&H plan an Exposure Control Plan (ECP) to the CONTRACTOR for approval.)

F58.0 Laser Safety
◯ Yes ◯ No
(If yes, SUBCONTRACTOR shall submit as part of the Site-Specific ES&H plan a Laser Safety Program to the CONTRACTOR for approval.)

F60.0 Refrigerants
◯ Yes ◯ No

F61.0 Demolition Work
◯ Yes ◯ No

Note: If there are Site Entry Requirements or Area Hazards and Controls, Form 2101 must be completed and included in the package by the STR/Requestor.

Form 2101
IWD No./WR No. _____
Rev #: _____

IWD Part 2
FOD Requirements and Approval for Entry and Area Hazards and Controls

Non-Tenant Activity Form

FOD must determine the facility entry and coordination requirements and identify the ES&H/S&S hazards and controls associated with the activity location.

FOD	TA	Bldg.	Room	Other Location
FOD Designated Facility Point-of-Contact	**Name**	**Phone**	**Pager**	**E-mail**

Entry and Coordination Requirements (Check one or more of the following)

☐ No entry/coordination requirements
☐ POTD/POTW
☐ Work must be scheduled
☐ Collocated Hazards/Concerns
☐ Review under AB/Safety Basis/USQ
☐ FOD designated facility point-of-contact must sign IWD Part 3
☐ Check in at Start of Work
☐ Check in Daily
☐ Check out at End of Work
☐ Check out Daily
☐ Work-Area Training Required
☐ Escort Required
☐ Quality Issues
☐ Other Bounding Conditions _____
☐ Security Clearance Requirements
☐ Other Security Requirements

Additional Comments: Does any of the work involve Demolition, Remodeling, or Renovation ☐ Yes ☐ No (If yes use attachment F20-3 to help specify training requirements, preventive measures, exposure sampling, controls and bounding conditions for each of the listed site hazards considered in the SUBCONTRACTOR'S - F20.0 Work Management - Form 2101 and the Site-specific ESH plan.).

Instructions: In the block below, identify work-area hazards that could potentially affect the worker(s). Specify the facility controls and preventive measures that must be implemented by the worker(s) to protect against the site hazards as well as any special training required.

ES&H/S&S WORK AREA HAZARDS & CONTROLS

Work Area Hazards &Concerns Identify site hazards and concerns that could potentially affect the worker(s).	**Work Area Hazard Present**	**Facility Controls/Preventive Measures/Bounding Conditions** Specify preventive measures, controls and bounding conditions for each site hazard	**Reference Documents** List permits, operating manuals, and other reference procedures	**Training and Qualification** List training requirements
☐ **No Work Area Hazards**				
Ionizing Radiation Work in posted radiological areas, work with radioactive materials, or work on or near radiation producing devices. **Specify Hazard:** _____	☐ Yes ☐ No			
Worker Exposure Working near non-ionizing radiation, beryllium, noise, chemicals, hazardous biological materials, lead, asbestos, temperature/humidity extremes or high explosives. **Specify Hazard:** _____	☐ Yes ☐ No			

Form 2101 (cont.)

ES&H WORK AREA HAZARDS & CONTROLS				
Work Area Hazards/Concerns Identify site hazards and concerns that could potentially affect the Worker(s).	**Work Area Hazard Present**	**Facility Controls/Preventive Measures/Bounding Conditions** Specify preventive measures, controls and bounding conditions for each site hazard	**Reference Documents** List permits, operating manuals, and other reference procedures	**Training and Qualification** List training requirements
Energized and Operative Systems Working near energized electrical parts, pressure systems, steam lines; near unprotected belts, pulleys, chains or rotating equipment; fuel fired equipment other than vehicles; or spark or flame producing operations. **Specify Hazard:** _____	☐ Yes ☐ No			
Confined Spaces Entry into tanks, manholes, cooling towers, sumps, or any other area with potentially low oxygen concentration or other hazards such as toxic vapors or engulfment. **Specify Hazard:** _____	☐ Yes ☐ No			
Elevated Work Surface Elevated work when fall protection is not provided by conventional handrail systems or required per P101-20, *Fall Protection Program*	☐ Yes ☐ No			
Environmental Impact Activities conducted in areas containing potential release site, contaminated soil, sensitive species, watercourse wetlands, floodplain, historical/archeological sites, or other work area condition that can be impacted by or can impact the environment. **Specify Hazard:** _____	☐ Yes ☐ No			
Security or Other Hazard **Specify Hazard:** _____	☐ Yes ☐ No			

I have verified that the hazards identified above adequately identify the area hazards and that the IWM process has been applied appropriately.

FOD or Representative **Approval** (Signature/Z#/Date) **Required** _____ Date Approval Expires _____

Form 2101

REQUIRED SIGNATURES:
Note: Place N/A and initials when a representative signature is not required.

Subcontract Technical Representative/Requestor:

_____ _____ _____
Printed Name Phone E-mail

_____
Signature Date

Environmental, Safety &Health Representatives:

_____ _____ _____
Safety Representative Printed Name Phone E-mail

_____
Signature Date

_____ _____ _____
IH Representative Printed Name Phone E-mail

_____
Signature Date

_____ _____ _____
RP Representative Printed Name Phone E-mail

_____
Signature Date

_____ _____ _____
Deployed Environmental Professional Phone E-mail
Printed Name

_____
Signature Date

EXHIBIT "F"

ENVIRONMENTAL, SAFETY, AND HEALTH REQUIREMENTS

TABLE OF CONTENTS

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

F1.0 General Requirements

1.1 For the purpose of this Exhibit, environmental, safety, and health (ES&H) protection encompasses industrial hygiene and safety, and environmental protection, compliance, pollution prevention, and waste management/minimization. The term “SUBCONTRACTOR” includes the SUBCONTRACTOR, its employees and any sub-tier subcontractors and their employees. The term “GOVERNMENT” for the purposes of this Exhibit applies to agencies and personnel of the United States Government (Department of Energy (DOE), National Nuclear Security Administration (NNSA), Department of Defense (DoD), etc.)

1.2 SUBCONTRACTOR shall have sole responsibility for implementing the SUBCONTRACTOR’S written Site-Specific ES&H plan as approved by the CONTRACTOR. Neither the CONTRACTOR nor the GOVERNMENT shall be responsible for supervising the implementation of SUBCONTRACTOR’S Site-Specific ES&H plan and neither CONTRACTOR nor the GOVERNMENT shall have responsibility for the safety and environmental compliance of the SUBCONTRACTOR, its employees or its lower-tier suppliers’ or subcontractors’ employees. The SUBCONTRACTOR shall not commence work on site until the SUBCONTRACTOR’S written Site-Specific ES&H plan is approved by the CONTRACTOR and a Notice to Proceed has been received by the SUBCONTRACTOR.

1.3 When performing work at sites controlled/managed by CONTRACTOR or the GOVERNMENT, the SUBCONTRACTOR shall comply with all applicable Federal, State, and Local laws and regulations protecting workers, air, water, soil, and those governing land use, waste management/disposal, and chemical and pesticide usage.

1.4 The requirements for the SUBCONTRACTOR in accordance with CONTRACTOR’S 10 CFR 851, Worker Safety and Health Program are contained in this Exhibit. Nothing in this Exhibit must be construed as relieving SUBCONTRACTOR from complying with any additional specific safety and health requirement that SUBCONTRACTOR determines to be necessary to protect the safety and health of workers. Some, but not all of the 10 CFR 851 requirements are set forth in this Exhibit. Even if not specifically set forth in this Exhibit, SUBCONTRACTOR is required under 10 CFR 851 to comply with the following regulations and safety and health standards that are applicable to the hazards of its work:

- 10 CFR 850, Chronic Beryllium Disease Prevention Program
- 29 CFR Part 1904.4 through 1904.11, 1904.29 through 1904.33, 1904.44 and 1904.46 – Recording and Reporting Occupational Injuries and Illnesses
- 29 CFR Part 1910, Occupational Safety and Health, excluding 1910.1096, Ionizing Radiation
- 29 CFR Part 1926, Safety and Health Regulations for Construction

- 29 CFR Part 1928, Occupational Safety and Health Standards for Agriculture
- American Conference of Governmental Industrial Hygienists (ACGIH), ‘‘Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices’’ (2005)
- ANSI Z88.2, Respiratory Protection (1992)
- ANSI Z136.1, Safe Use of Lasers (2000)
- ANSI Z49.1, Safety in Welding, Cutting and Allied Processes, Sections 4.3 and E4.3 (1999)
- NFPA 70E, Standard for Electrical Safety in the Workplace (2012)
- American Society of Mechanical Engineers (ASME) Boilers and Pressure Vessel Code, sections I through XII including applicable Code Cases, (2004)
- ASME B31 (ASME Code for Pressure Piping) as follows:
  - B31.1-2001-Power Piping, and B31.1a-2002 Addenda to ASME B31.1-2001;
  - B31.2-1968-Fuel Gas Piping;
  - B31.3-2002-Process Piping;
  - B31.4-2002-Pipeline Transportation Systems for Liquid Hydrocarbons and Other Liquids;
  - B31.5-2001-Refrigeration Piping and Heat Transfer Components, and B31.5a-2004, Addenda to ASME B31.5-2001;
  - B31.8-2003-Gas Transmission and Distribution Piping Systems;
  - B31.8S-2001-Managing System Integrity of Gas Pipelines;
  - B31.9-1996-Building Services Piping;
  - B31.11-2002-Slurry Transportation Piping Systems; and
  - B31G-1991-Manual for Determining Remaining Strength of Corroded Pipelines.
- DOE Manual 231.1B, Environment, Safety and Health Reporting Manual May 13, 2013
- DOE Standard DOE-1212-2012, Explosives Safety, June 2012.

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

1.6 SUBCONTRACTOR shall have sole responsibility for taking such action as is deemed necessary to assure compliance with the Clean Water Act (CWA), Clean Air Act (CAA), Resource, Conservation and Recovery Act (RCRA), and Toxic Substances Control Act (TSCA); 20.4.1 NMAC or 20.9.2-10 NMAC regulations; Laboratory requirements identified in the subcontract; and Department of Energy (DOE) Orders related to environmental compliance and waste management.

1.7 In the event of any SUBCONTRACTOR non-compliance, including environmental or waste management violations, all such measures taken by the CONTRACTOR to correct the violations shall be at the SUBCONTRACTOR’S expense, and the cost thereof, including any stipulated penalties resulting from non-compliance, shall be deducted from payments otherwise due to SUBCONTRACTOR.

1.8 CONTRACTOR is dedicated to the concept that all accidents are preventable. Accordingly, CONTRACTOR is committed to a goal of zero accidents through continuous improvement practices. This "Zero Accident Performance" goal, including zero non-permitted releases and zero regulatory non-compliance with respect to protection of the environment, is an expectation of all SUBCONTRACTORS in the performance of their work. In accordance with 10 CFR 851.20(a)(1), SUBCONTRACTOR shall adopt the following “Zero Accident Performance” objectives:

1.8.1 Strive to eliminate all injuries, illnesses, and adverse impacts to the environment.

1.8.2 Promote environment, safety, and health (ES&H) objectives as a constant value in designing, planning, training, and executing work through the Integrated Safety Management (ISM) process (see Sections 1.11 and 1.12).

1.8.3 Spread ownership for the ES&H program effectiveness throughout the SUBCONTRACTOR’S teams.

1.8.4 Enhance employee awareness and involvement in their ES&H program implementation.

1.8.5 Enforce employees’ consistent use of safe practices in their daily work activities.

1.8.6 Optimize the use of continuous improvement practices as the basis for "Zero Accident Performance" initiatives.

1.8.7 Demonstrate to CONTRACTOR that SUBCONTRACTOR is dedicated to safety and environmental compliance excellence.

1.8.8 Expect senior management to demonstrate leadership and direction for “Zero Accident Performance” implementation.

1.8.9 Ensure all SUBCONTRACTOR employees are empowered to implement and consistently strive for the “Zero Accident Performance” goal.

1.8.10 Ensure SUBCONTRACTOR management is accessible to employees for ES&H concerns.

1.8.11 SUBCONTRACTOR workers may report safety, health, or environmental concerns to the LANL Safety Concerns Hotline at 505-665-7233 email: safety@lanl.gov or to the DOE Los Alamos Field Office at 505-606-0873, or to the DOE Albuquerque Employee Concerns Hotline at email: ecp@doeal.gov or 1-800-688-5713.

If a SUBCONTRACTOR worker has a differing professional opinion on a technical issue related to environment, safety and health it can be reported to Jeffry Roberson Deputy Associate Administrator for Safety (NA-51/FORS) National Nuclear Security Administration U.S. Department of Energy 1000 Independence Avenue, SW Washington,

DC 20585 email **Jeffry.Roberson@nnsa.doe.gov** , or call 301-903-9228. The DPO process and DPO Submittal Form may be found at: http://www.energy.gov/ehss/doe-differing-professional-opinions .

1.8.12 SUBCONTRACTOR and CONTRACTOR workers have the right and responsibility to Pause Work or if necessary Stop Work in accordance with 10 CFR 851.20(a)(9) and LANL Policy without fear of reprisal when:

- There is a reasonable belief that the task poses an imminent risk of death, serious physical harm, or other serious hazard to workers where the workers believe there is insufficient time to utilize normal hazard reporting and abatement procedure.
- There is a reasonable belief that the work poses a potential uncontrolled environmental risk or violates the requirements of applicable laws or permits
- There is a reasonable belief that security of the Laboratory, information, or Government property could be compromised
- Work controlling and execution Information, instructions, or worker training is inadequate to execute the work safely and securely.

1.8.13 CONTRACTOR ES&H personnel may Pause or Stop SUBCONTRACTOR work at any time when conditions such as those in 1.8.12 are observed or when it is necessary to prevent the SUBCONTRACTOR's activities from creating an uncontrolled hazard to collocated workers or to prevent / terminate an environmental, health, or safety violation.

1.9 In accordance with 10 CFR 851.20(a)(10) and 851.20(b)(2)(iv), SUBCONTRACTOR shall inform workers of their rights and responsibilities by appropriate means, including posting the U.S. Department of Energy/LANL "Worker Protection at Los Alamos National Laboratory" poster in the workplace where it is visible to all workers. In accordance with 10 CFR 851.20(b)(2), SUBCONTRACTOR shall allow workers to have access to DOE Safety and Health publications; the 10 CFR 851 Worker Safety and Health Program for the covered workplace; the standards, controls, and procedures applicable to the covered workplace; limited information on any recordkeeping log (OSHA Form 300); and DOE Form 5484.3 (the DOE equivalent to OSHA Form 301) on official time. SUBCONTRACTOR shall designate a location or contact information for workers to obtain this information.

1.10 In accordance with 10 CFR 851.20(b)(5), SUBCONTRACTOR shall ensure that employee representatives have the right to participate in inspections by DOE officials on official time.

1.11 In accordance with 10 CFR 851.11(a)(3)(ii), CONTRACTOR is committed to implementing an Integrated Safety Management System (ISMS) and Environmental Management System (EMS) that promotes CONTRACTOR'S core values and the principles set forth by the U.S. Department of Energy (DOE). The objective of ISMS and EMS is to systematically integrate safety and environmental compliance into management and work practices at all levels so

that workers, the public, and the environment are protected while assigned projects are accomplished.

1.12 In accordance with 10 CFR 851.11(a)(3)(ii), SUBCONTRACTOR shall perform work in a safe and compliant manner that ensures adequate protection for employees, the public, and the environment, and shall be accountable for safety and environmental compliance. SUBCONTRACTOR shall exercise a degree of care commensurate with the work and the associated hazards/risks. SUBCONTRACTOR shall ensure that management of ES&H functions and activities becomes an integral but visible part of SUBCONTRACTOR'S work planning and execution processes. The following ISMS and EMS principles must be adhered to:

1.12.1 Line management is responsible for the protection of employees, the public, and the environment. Line management includes those SUBCONTRACTOR employees managing or supervising employees performing work.

1.12.2 Clear and unambiguous lines of authority and responsibility for ES&H matters are established and maintained at all organizational levels.

1.12.3 Personnel possess the experience, knowledge, skills, and abilities that are necessary to discharge their responsibilities.

1.12.4 Resources are effectively allocated to address ES&H, programmatic, and operational considerations. Protecting employees, the public, and the environment is a priority whenever activities are planned and performed.

1.12.5 Before work is performed, the associated hazards/risks are evaluated and an agreed-upon set of ES&H controls and requirements is established which, if properly implemented, provide adequate assurance that employees, the public, and the environment are protected from adverse consequences.

1.12.6 In accordance with 10 CFR 851.22(b), administrative and engineering controls to prevent and mitigate hazards shall be tailored to the work being performed and associated hazards. Controls are established according to the following hierarchy:

- Hazard elimination by process modification;
- Substitution of a less hazardous substance, if available;
- Application of engineering controls such as enclosures, machine guards, interlocks, or similar devices;
- Application of administrative controls, such as training, lockout/tagout, and procedures; and
- Use of Personal Protective Equipment (PPE).

1.12.7 The conditions and requirements to be satisfied for operations to be initiated and conducted are established and agreed upon by the CONTRACTOR and SUBCONTRACTOR. These agreed upon conditions and requirements are requirements of the subcontract and

binding upon the SUBCONTRACTOR. The extent of documentation and level of authority for agreement shall be tailored to the complexity, hazards, and environmental requirements associated with the work.

1.13 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. The CONTRACTOR may invoke Stop Work at any time for violations of applicable laws and regulations.

1.14 In accordance with 10 CFR 851.20(a)(9), SUBCONTRACTOR shall ensure that workers have the authority and responsibility, and are encouraged to stop work when they discover unsafe conditions or other hazards. SUBCONTRACTOR shall ensure that work does not resume until the ES&H concerns associated with that activity are resolved. Restart of work activities may not occur except as follows:

1.14.1 The worker shall correct the hazardous condition and restart the activity or operation without notifications if (1) the condition does not pose an imminent danger, (2) the condition can be corrected immediately, and (3) the worker has the resources to correct the condition and restart work.

1.14.2 In all other cases, the worker must notify the SUBCONTRACTOR ES&H Representative prior to restart.

1.14.3 If the SUBCONTRACTOR ES&H Representative is notified of a stop work initiated by a worker, the ES&H Representative shall notify the STR.

1.15 In accordance with 10 CFR 851.20(a)(4) the SUBCONTRACTOR will provide mechanisms to involve workers and their elected representatives in the development of the worker safety and health program goals, objectives, and measures and in the identification and control of hazards in the workplace. The following are some ways to involve workers: (1) ES&H committees, (2) safety observers, (3) ad hoc health and safety problem-solving groups, (4) ES&H training of other employees, (5) analysis of job hazards, and (6) committees that plan and conduct ES&H awareness programs.

1.16 In accordance with 10 CFR 851.20(a)(6) and 10 CFR 851.20(b)(7), SUBCONTRACTOR shall establish procedures for workers to report without reprisal, job-related fatalities, injuries, illnesses, incidents and hazards and make recommendations about appropriate ways to control hazards. SUBCONTRACTOR must provide prompt response to such reports and recommendations in accordance with10 CFR 851.20 (a)(7).

1.17 In accordance with 10 CFR 851.20(b)(8), SUBCONTRACTOR'S workers shall have the right, without reprisal, to decline to perform an assigned task because of a reasonable belief that, under the circumstances, the task poses an imminent risk of death or serious physical harm to the worker coupled with a reasonable

belief that there is insufficient time to seek effective redress through normal hazard reporting and abatement procedures.

1.18 In accordance with 10 CFR 851.20(a) and 851.20(a)(3), SUBCONTRACTOR shall assign worker safety and health responsibilities to line management and supervision, evaluate personnel performance, and hold both management and workers accountable for worker safety and health performance. SUBCONTRACTOR shall hold its line management personnel accountable for the safety and health of SUBCONTRACTOR'S workforce and for successfully performing the safety and health requirements of the subcontract and shall, at least annually, evaluate the effectiveness of its line management personnel's performance in meeting this objective. 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 STR with information on that action.

1.19 Where this Exhibit states that safety or accident prevention sign, label, or tag is required the SUBCONTRACTOR shall be required to use signs, labels, or tags identical to those used by the CONTRACTOR unless otherwise authorized by the CONTRACTOR's STR.

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

2.1 To perform subcontract work at LANL, SUBCONTRACTOR is required to comply with CONTRACTOR'S 10 CFR 851 Worker Safety and Health Program, the requirements of which are set forth in this Exhibit. This Exhibit also contains additional safety, health and environment requirements that CONTRACTOR considers necessary for performance of work at LANL. Further, SUBCONTRACTOR shall supplement the requirements of this Exhibit with such additional safety, health and environment elements, if any, as SUBCONTRACTOR considers necessary to protect the safety and health of the workers and the environment, and so certify to CONTRACTOR that this Exhibit together with any additional elements constitute the SUBCONTRACTOR'S Site-Specific ES&H Plan. SUBCONTRACTOR shall consolidate such ES&H plan elements and submit the complete SUBCONTRACTOR'S Site-Specific ES&H Plan to CONTRACTOR for review and approval. SUBCONTRACTOR'S Site-Specific ES&H Plan must be approved prior to issuance of a Notice to Proceed.

2.2 SUBCONTRACTOR is responsible for compliance with the ES&H requirements applicable to this subcontract regardless of the performer of the work. SUBCONTRACTOR'S Site-Specific ES&H Plan shall specify how safety requirements will flow down to employees and sub-tier subcontractors. In accordance with 10 CFR 851.20(a)(5) and 10 CFR 851.20(b)(2)(ii), SUBCONTRACTOR will ensure that workers have access to SUBCONTRACTOR'S Site-Specific ES&H Plan, and in accordance with 10 CFR 851.20(b) that workers comply with the requirements in the plan, respectively.

2.3 SUBCONTRACTOR'S Site-Specific ES&H plan shall describe how the SUBCONTRACTOR complies with compliance orders, if any, issued by the Secretary of DOE in accordance with 10 CFR 851.4.

2.4 SUBCONTRACTOR'S Site-Specific ES&H Plan shall include copies of any documents as specified in the following sections of this exhibit. Where the scope of work and this Exhibit specify Hazardous Waste Operations or Emergency Response as defined in 29 CFR 1910.120 or 29 CFR 1926.65 the SUBCONTRACTOR'S Site Specific ES&H Plan shall contain the safety and health program elements stated in 29 CFR 1910.120(b) and Site Specific Safety and Health Plan as required by 29 CFR 1910.120 (b)(4)(i) through 1910.120(b)(4(iv).

2.5 Changes to SUBCONTRACTOR'S Site-Specific ES&H Plan require re-submittal to and approval by CONTRACTOR.

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

3.1 The SUBCONTRACTOR should have a demonstrated safety performance equal to or lower than the standards contained in Attachment F3-1, Safety Performance Eligibility Requirements, and shall complete Attachment F3-2, Environment, Safety and Health History Worksheet. If any of the maximum allowable averages in Attachment F3-1 is exceeded, the SUBCONTRACTOR shall provide information to the CONTRACTOR that clearly explains the excessive rate and that the anomaly causing that excess was not easily preventable using sound safety practice. CONTRACTOR must approve any exceedances.

3.2 If SUBCONTRACTOR intends to use lower-tier subcontractors to perform elements of the subcontracted Scope of Work, such lower-tier subcontractors shall have a demonstrated safety performance equal to or lower than the standards contained in Attachment F3-1, Safety Performance Eligibility Requirements, and shall complete Attachment F3-2, Environment, Safety and Health History Worksheet. SUBCONTRACTOR must obtain approval from CONTRACTOR for any sub-tier SUBCONTRACTOR that exceeds one or more of the maximum allowable averages in Attachment F3-1.

3.3 SUBCONTRACTOR shall ensure that lower-tier subcontractors that perform elements of the subcontracted Scope of Work adhere to this Exhibit F and SUBCONTRACTOR'S Site-Specific ES&H Plan. SUBCONTRACTOR is responsible for ensuring that its lower-tier subcontractor's activities are included in SUBCONTRACTOR'S Site-Specific ES&H Plan and that they work within the requirements of this Subcontract. The names and performance eligibility information of all the entities performing work at every tier must be provided to CONTRACTOR prior to commencement of work as shown in Attachment F3-1 of this Exhibit.

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

F4.0 Subcontractor ES&H Representative Duties and Responsibilities

SUBCONTRACTOR shall provide a competent person(s) and/or qualified person(s) as required in several sections of the OSHA regulations such as, Scaffolds, Excavations, Steel Erection, etc. onsite as long as tasks requiring competent / qualified person(s) are being conducted.

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.

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 relating to the subject matter, the work, or the project.

SUBCONTRACTOR shall submit the competent person and/or the qualified person's qualifications to the CONTRACTOR and must receive approval prior to Notice to Proceed. Approval is based on the complexity of work, related hazards and the relevant skill sets (qualifications) required to address those hazards. For example, when toxic chemicals are used by workers and a potential for exposure exists the ES&H representative must be qualified to evaluate the exposure, select appropriate controls (PPE, Ventilation, etc.) and ensure compliance with any medical surveillance protocols. **Note:** The selection of Options are based on STR and ES&H SME professional judgement. The selection of Option A does not preclude the selection of Option D (Environmental Professional) when there are environmental risk associated with the project.

OPTION A:

4.1 SUBCONTRACTOR shall provide a full time dedicated ES&H Professional on-site and shall work closely with CONTRACTOR management personnel to implement and administer SUBCONTRACTOR'S approved Site-Specific ES&H Plan. This shall be the ES&H Professional's sole responsibility. The dedicated ES&H Professional shall meet the following minimum acceptance criteria or pre-approved equivalent:

- Certification by the American Board of Industrial Hygienists or Board of Certified Safety Professionals or equivalent nationally recognized organization, or eligible for certification;
- A bachelor's degree (or equivalent) in safety engineering or industrial hygiene or an equivalent technical field;
- Three to Five years of full time work experience in the field of environment, safety and health;
- A minimum of 40 hours of formal environmental training in erosion control, waste management, or other environmental discipline, or pre-approved equivalent having other environmental related training and/or job experience.
- Current training in CPR and First Aid.

4.2 SUBCONTRACTOR shall submit the ES&H Professional's qualifications to CONTRACTOR and must receive approval prior to issuance of Notice to Proceed.

4.3 SUBCONTRACTOR'S ES&H Professional's duties shall include, but are not limited to:

- Manage implementation of SUBCONTRACTOR'S approved Site-Specific ES&H Plan, including review of integrated work documents.
- Cease work and take immediate actions, as necessary, to remove personnel from hazardous areas if the safety or health of SUBCONTRACTOR'S personnel, other site personnel, or third parties is jeopardized by SUBCONTRACTOR'S work activities, and notify CONTRACTOR'S STR.
- Cease work and take immediate actions, as necessary, to address environmental compliance issues, and notify the STR.
- Interface with CONTRACTOR'S ES&H personnel and the STR to resolve ES&H issues.
- Provide hazard-specific training for new employees and orientations for visitors.
- Ensure ES&H requirements and goals have been identified to workers.
- Ensure compliance with CONTRACTOR'S emergency response plans (including evacuation alarms, accountability rosters, and assembly points).
- Continuously evaluate the site for any hazards not previously identified or adequately controlled, initiate measures required to protect personnel, the public and the environment, and revise documents accordingly.
- Conduct safety and pre-job briefings as required.
- Attend progress meetings held by the CONTRACTOR.
- Represent SUBCONTRACTOR in incident investigations and/or critiques schedule by the CONTRACTOR.
- Maintain first aid and OSHA 300 logs, report accidents and injuries to the STR immediately, conduct accident/incident investigations as required, and report results to the STR within 2 working days.
- Ensure that proper hazard postings are in place, are legible, and are removed when the project is complete.
- Conduct all operations so as to mitigate adverse environmental impacts (e.g., spill containment, erosion control).
- Establish and maintain the Hazard Communication program (including Material Safety Data Sheets, inventory, and training).
- Conduct and document ES&H inspections in accordance with the requirements of Section F10.1.

4.4 The ES&H Professional shall be at the worksite whenever SUBCONTRACTOR personnel are working. On occasions when the ES&H Professional must be away from the work site, the STR must be notified and a CONTRACTOR approved alternate shall be identified to act on the ES&H Professional's behalf.

OPTION B:

4.5 SUBCONTRACTOR shall provide a full time dedicated ES&H Specialist on-site and shall work closely with CONTRACTOR management personnel to implement and administer SUBCONTRACTOR'S approved Site Specific ES&H Plan. The dedicated ES&H Specialist shall meet the following minimum acceptance criteria or pre-approved equivalent:

- CIH or CAIH certification by the American Board of Industrial Hygiene, or ASP or OHST or CHST certification by the Board of Certified Safety Professionals or equivalent nationally recognized organization, or eligible for certification;
- An Associate degree (or equivalent) in safety engineering or industrial hygiene or an equivalent technical field;
- At least three (3) years of full time work experience in the field of environment, safety and health.
- A minimum of 40 hours of formal environmental training in erosion control, waste management, or other environmental discipline, or pre-approved equivalent having other environment related training and/or job experience.
- Current training in CPR and First Aid.

Note: Sections 4.2 through 4.4 under Option A, ES&H Professional apply to the ES&H Specialist, Option B.

OPTION C:

4.6 SUBCONTRACTOR shall designate an on-site ES&H Representative for all tasks conducted under this subcontract. This person shall assist SUBCONTRACTOR'S supervision with implementation of SUBCONTRACTOR'S approved Site-Specific ES&H Plan and CONTRACTOR'S site requirements. The ES&H Representative should have formal ES&H training, such as the following (depending on the work to be performed):

- A minimum of thirty (30) hours formal ES&H training in OSHA standards or pre-approved equivalent having other ES&H-related training certificates and/or job experience appropriate to the work being performed.
- Formal environmental training and/or job experience in erosion control, waste management, or other environmental discipline.
- Current training in CPR and First Aid.

4.7 SUBCONTRACTOR shall submit the ES&H Representative's qualifications and receive approval from CONTRACTOR prior to issuance of a Notice to Proceed.

4.8 SUBCONTRACTOR'S ES&H Representative's duties shall include, but are not limited to:

- Promote and assist in implementation of SUBCONTRACTOR'S Site-Specific ES&H Plan, including review of integrated work documents.
- Cease work and take immediate actions, as necessary, to remove personnel from hazardous areas if the safety or health of SUBCONTRACTOR'S personnel, other site personnel, or third parties is

jeopardized by SUBCONTRACTOR'S work activities, and notify CONTRACTOR'S STR.
- Continuously evaluate the site for any hazards and environmental compliance issues not previously identified or adequately controlled, initiate measures required to protect personnel, the public and the environment, and revise documents accordingly.
- Participate in ES&H and pre-job briefings as required.
- Conduct and document ES&H inspections in accordance with the requirements of Section F9.1.

4.9 SUBCONTRACTOR'S assigned ES&H Representative may have other duties as long as they will not interfere with or prevent the employee from performing the above-stated responsibilities.

OPTION D:

4.10 SUBCONTRACTOR shall provide a full-time dedicated Environmental Professional on site and shall work closely with CONTRACTOR management personnel to implement and administer SUBCONTRACTOR'S required environmental deliverables and CONTRACTOR'S environmental requirements. This shall be the Environmental Professional's sole responsibility. The dedicated Environmental Professional shall meet the following minimum acceptance criteria or pre-approved equivalent:

- Certified Professional in Erosion and Sediment Controls (CPESC), Certified Inspector in Sediment and Erosion Control (CISEC), or equivalent nationally recognized certification in erosion control, waste management, or other environmental discipline, or eligibility for certification.
- A bachelor's degree (or equivalent) in an environmental related field or an equivalent technical field.
- At least three (3) years of full-time work experience in the field of environmental management.
- Current training of at least 40 hours in environmental compliance field inspections.

4.11 SUBCONTRACTOR shall submit the Environmental Professional's qualifications and receive approval from CONTRACTOR prior to issuance of a Notice to Proceed.

4.12 SUBCONTRACTOR'S Environmental Professional's duties shall include, but are not limited to:

- Conduct all operations so as to mitigate adverse environmental impacts (e.g., spill containment, erosion control, etc.);
- Manage implementation of SUBCONTRACTOR'S environmental deliverables and CONTRACTOR'S environmental requirements;
- Cease work and take immediate actions, as necessary, to address environmental compliance issues and notify CONTRACTOR'S STR;
- Interface with CONTRACTOR'S environmental personnel and the STR to resolve environmental issues;

- Provide environmental protection/compliance training for new employees and orientations for visitors, as deemed necessary;
- Ensure environmental requirements and goals have been identified to workers;
- Continuously evaluate the site for environmental protection/compliance related issues, initiate measures required to mitigate identified issues, and update documents accordingly;
- Conduct environmentally related pre-job briefings;
- Attend progress meetings;
- Represent SUBCONTRACTOR in incident investigations and/or critiques;
- Ensure specific environmental controls are maintained throughout the project; and
- Conduct and document daily environmental inspections as required.

F5.0 Incident Reporting Requirements

5.1 In accordance with 10 CFR 851.26(b), SUBCONTRACTOR shall:

- Report and investigate accidents, injuries and illnesses; and
- Analyze related data for trends and lessons learned (reference DOE Order 225.1B, Accident Investigations, March 04, 2011).

5.2 SUBCONTRACTOR must immediately notify CONTRACTOR'S STR verbally, and then in writing (within 24 hours), of any on-site event or condition that adversely affects, or may adversely affect CONTRACTOR, or its mission, CONTRACTOR'S or SUBCONTRACTOR'S personnel, the public, property, or the environment. An on-site event or condition includes: employee injury/illness/first aid (including a significant change in severity of the original condition); any accident, incident, or near-miss; property damage to equipment, facilities, or motor vehicles; non-compliance with environmental requirements; non-permitted release to the environment; or any other unplanned event that may be a violation of a regulatory requirement or that may be viewed negatively by the public, CONTRACTOR, or GOVERNMENT.

5.3 In situations where any of the conditions mentioned above occur, the scene surrounding or associated with the event shall be preserved for continued investigation unless such actions interfere with establishing a safe condition or CONTRACTOR concurrence is obtained. SUBCONTRACTOR and CONTRACTOR personnel may jointly investigate each injury/illness, accident, incident, near miss, or environmental noncompliance.

5.4 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 working days of its occurrence. Furthermore, the SUBCONTRACTOR shall cooperate and participate as required with any CONTRACTOR or GOVERNMENT critique, analysis, or investigation for such events/conditions.

F6.0 Injury/Illness Recordkeeping and Reporting

6.1 SUBCONTRACTOR shall maintain accurate accident and injury/illness logs in accordance with 10 CFR 851.26 (a)(1). Logs shall be available for review by CONTRACTOR upon request. SUBCONTRACTOR must enter each recordable injury or illness on the SUBCONTRACTOR'S OSHA 300 Log and 301 Incident Report within seven (7) calendar days of receiving information that a recordable injury or illness has occurred.

6.2 In accordance with 10 CFR 851.26(a)(2), the SUBCONTRACTOR is required to report all job-related injuries and illnesses, regardless of severity, immediately to CONTRACTOR'S STR. Copies of the appropriate medical treatment forms (medical provider's diagnosis, restrictions, treatment plan) shall be made available to CONTRACTOR Occupational Medicine when requested (see Section F15.0). SUBCONTRACTOR shall also provide an investigation report using Attachment DOE Form 5484.3 to the CONTRACTOR STR within 2 working days, which includes the location where the injury/illness occurred, date, time, name, Z-number, home address for employees with recordable injuries/lost or restricted work days, body part injured, nature of injury, medical treatment, root cause of accident and corrective actions, restrictions, number of days hospitalized, number of work days lost, number of restricted work days, and number of productive man-hours for the month. Prior to injured or ill employee returning to work, copies of the attending physician's report releasing the employee to full or limited duty shall also be submitted.

6.3 SUBCONTRACTOR shall maintain reports and documentation required by Federal, State, and Local regulations in accordance with 10 CFR 851.26(a) and (b). This includes all hazard inventory information, hazard assessments, exposure measurements and exposure controls. These reports and documentation shall be submitted to CONTRACTOR upon request. SUBCONTRACTOR shall not conceal nor destroy any information concerning non-compliance or potential noncompliance with the requirements of 10 CFR 851.26(a)(4).

6.4 In accordance with 10 CFR 851.26 (a)(2) 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.

F7.0 Employee Training

7.1 In accordance with 10 CFR 851.25(a), (b) and (c), SUBCONTRACTOR shall ensure that workers are properly trained and qualified to safely perform all assigned tasks in accordance with the Training Matrix Attachment 7-0 **Subcontractor Training Requirements**. This form may be found at: http://pmd-shpt-prod:6129/DocumentLibrary/MSS/forms/AP-MSM-001-004.pdf.

This includes training of workers in the hazards to which they may be exposed so they can perform their duties in a safe and healthful manner. This must include initial, periodic, and additional training and provide information on each hazard before or at the time of initial assignment to a job involving exposure to each

hazard. SUBCONTRACTOR must provide training and information to workers who have worker safety and health program responsibilities that is necessary for them to carry out those responsibilities.

7.2 Any CONTRACTOR-required and provided training is noted in the applicable section of this Exhibit. CONTRACTOR will maintain records of any training provided to SUBCONTRACTOR and such records will be made available to SUBCONTRACTOR upon request.

7.3 SUBCONTRACTOR shall conduct or acquire training and maintain records of other specific training required to perform work safely. Training records shall be retained on site for the duration of the contract and made available to CONTRACTOR, upon request.

7.4 SUBCONTRACTOR workers shall complete any facility-specific training required and provided by the CONTRACTOR.

7.5 The training identified shall be completed prior to start of work related to the respective training subject.

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

8.1 In accordance with 10 CFR 851 20(a)(8), SUBCONTRACTOR shall provide for regular communication with workers about workplace safety and health matters.

8.2 Prior to commencement of work, all SUBCONTRACTOR personnel, either initially or as they are introduced to the site, shall attend a pre-job briefing. The pre-construction briefing will be conducted by the CONTRACTOR. Any pre-job briefings of subsequent SUBCONTRACTOR employees must be performed by SUBCONTRACTOR, and formally documented. This documentation must be available for review by CONTRACTOR upon request. The initial pre-job briefing shall cover the scope of the subcontract, the associated hazards and environmental requirements, and the steps that will be taken to mitigate those hazards and assure environmental compliance, as well as the roles and responsibilities of CONTRACTOR, SUBCONTRACTOR, and its employees, at a minimum.

8.3 Once each month, CONTRACTOR will conduct a SUBCONTRACTOR ES&H meeting to provide a forum to focus on current ES&H topics, recognize exceptional performance/compliance as well as review recent incidents and issues. SUBCONTRACTOR will be required to have a representative attend this meeting. Immediately after the ES&H meeting an incident review board (IRB) will be convened. Those involved in selected incidents that occurred during that period will be required to present the events surrounding the incident to the IRB as well as what should have been done to prevent the occurrence. SUBCONTRACTOR management will be required attendants at the IRB meeting.

8.4 SUBCONTRACTOR shall provide a daily briefing for its workers which specifically addresses the hazards and mitigating controls for work to be performed that day. This daily briefing or pre-task planning briefing shall be documented. Pre-task planning documentation shall be available at the work

location and provided to the STR upon request. In addition, SUBCONTRACTOR will conduct employee ES&H meetings.

8.5 A record of attendance and topics covered at all briefings and employee ES&H meetings shall be documented and maintained on the job site for the duration of the subcontract.

F9.0 ES&H Inspections

9.1 SUBCONTRACTOR shall conduct and maintain records daily of initial, and other periodic inspections of the work areas to monitor compliance with ES&H requirements and provide a written report to the CONTRACTOR STR (see Attachment F9-1 Samples of Inspection Checklist for Subcontractors). CONTRACTOR will also perform periodic inspections including compliance monitoring/sampling of the work areas and provide a written report to the STR who will communicate issues to SUBCONTRACTOR.

9.2 SUBCONTRACTOR shall promptly initiate action to correct all identified hazards, deficiencies, or compliance issues that SUBCONTRACTOR is responsible for.

9.3 SUBCONTRACTOR shall report all identified hazards, deficiencies, or compliance issues not under the control of the SUBCONTRACTOR to the CONTRACTOR STR.

9.4 SUBCONTRACTOR shall take all necessary steps to ensure the protection of employees, the public, and the environment until the hazards, deficiencies, or compliance issues are corrected.

9.5 In accordance with 10 CFR 851.20(b)(6), SUBCONTRACTOR shall ensure that workers have the right without reprisal to request and receive results of investigations, inspections and accident investigations.

9.6 Regulatory agencies such as the New Mexico Environment Department (NMED) and the U.S. Environmental Protection Agency (EPA) will make unannounced visits to work areas and perform periodic environmental compliance inspections. The SUBCONTRACTOR shall notify the CONTRACTOR STR immediately if regulatory agency personnel schedule a visit or an inspection of the site, or arrive at the site unannounced.

F10.0 Housekeeping

10.1 Good housekeeping practices are an integral component to maintaining a safe and environmentally compliant work environment. SUBCONTRACTOR shall keep all work areas neat and orderly at all times by providing the necessary resources and by implementing the following housekeeping practices:

- Keep tools and materials properly stored when not in use and remove all materials that are no longer needed.
- Ensure trash, scrap materials, and waste are placed in appropriate containers. Locate containers strategically throughout the work area to promote use.
- Keep floors clear of trip and slip hazards including hoses, welding leads, electric cords, liquids, and other obstacles. Keep cords, hoses, and leads

clear of walkways, roadways, and other locations where possible exposure to damage exists.

- Properly store and dispose of paint, solvents, oil soaked rags, and debris, etc., in approved containers in accordance with the appropriate waste management regulatory requirements.
- Ensure protruding nails, screws, staples, and other sharp objects are protected or removed and do not present a hazard.
- Provide and keep eating and sanitary facilities maintained in a clean and sanitary condition at all times, including adequate washing facilities with soap and disposable towels.
- Provide clean, potable drinking water for employees in a safe, hygienic manner at all worksites. Single use cups shall be provided in a sanitary dispenser. Cups shall be replenished as needed during the day and trashcans provided for their disposal. "Community" or common use cups shall not be used.
- Unless specified elsewhere in the subcontract, SUBCONTRACTOR shall provide and maintain its own sanitary toilet facilities for its employees. The cleaning and maintenance of the facilities, and method and location of waste disposal, shall be acceptable to CONTRACTOR.

F11.0 Emergency Preparedness Requirements

11.1 SUBCONTRACTOR must comply with CONTRACTOR'S site-specific emergency response requirements which are covered in the General Employee Training and the facility-specific training for the facilities and buildings in which they work. CONTRACTOR will communicate site-specific emergency response requirements to SUBCONTRACTOR'S employees at the beginning of the work to be performed under this contract. Communication of requirements will be documented by CONTRACTOR.

11.2 Unless specified otherwise, communication of site-specific emergency response requirements to SUBCONTRACTOR employees who do not attend the initial communication briefing described in paragraph 11.1 above must be performed by SUBCONTRACTOR and formally documented. This documentation must be available for review by CONTRACTOR.

11.3 SUBCONTRACTOR is responsible for defining emergency procedures specific to the site in the SUBCONTRACTOR'S Site-Specific ES&H Plan. These emergency procedures must be written and communicated to the employees. At a minimum, SUBCONTRACTOR will include the following information:

- Protective actions
- Shelter-in-place
- Evacuation of personnel
- Notifications
- Emergency signals
- Evacuation routes
- Assembly areas
- Personnel accountability

An annual evacuation drill is required with documented results available for the

CONTRACTOR'S review.

11.4 SUBCONTRACTOR is responsible for ensuring that all employees and personnel entering the site are informed of the emergency procedures for that site.

F12.0 Personal Protective Equipment

12.1 SUBCONTRACTOR shall provide, use, and maintain personal protective equipment (PPE) to protect SUBCONTRACTOR personnel from hazards directly related to the work. See 29 CFR 1910.132(a) and NFPA 70E.

12.2 SUBCONTRACTOR shall perform a required workplace hazard identification and assessment in accordance with Section F51.0, Industrial Hygiene, of this Exhibit to determine the required controls, including PPE.

12.3 SUBCONTRACTOR shall provide training to each employee who is required to use PPE. Each such employee shall be trained to know at least the following: when PPE is necessary; what PPE is necessary; how to properly don, doff, adjust, and wear PPE; the limitations of the PPE; and the proper care, maintenance, useful life, and disposal of PPE.

12.4 SUBCONTRACTOR shall require employees to wear eye protection equipped with hard side shields (safety glasses) manufactured to a recognized standard (ANSI Z87) when required by the work being performed. This applies to prescription eyewear as well.

12.5 Welders shall wear welding hoods or a hardhat/welding hood combination manufactured to a recognized standard and safety glasses while welding.

12.6 SUBCONTRACTOR employees shall wear safety shoes or boots manufactured to a recognized standard (ANSI Z41.1 or ASTM F2413) for all construction or demolition site work and when required by the presence of foot hazards for other type work being performed (Examples: warehousing, materials handling, machining and forming, etc.).

12.7 SUBCONTRACTOR employees who handle chemicals or harmful substances shall be trained and shall wear appropriate PPE per the chemical manufacturer's recommendations or as determined by exposure assessment (see Section F51.0).

12.8 Hardhats manufactured to a recognized standard shall be worn with the brim forward at all times when required by the work being performed.

12.9 Gloves shall be specified by the SUBCONTRACTOR in accordance with 29 CFR 1910.138(b), 1926.28, 1926.95 that are effective protection when used in specific tasks. Gloves worn for general hand protection or worn when required to protect personnel from cut, puncture or abrasion hazards shall meet a minimum ANSI/ISEA EN388 cut resistance 4, puncture resistance 2, abrasion resistance 3.

12.10 In accordance with 10 CFR 851 Appendix A (10) workers performing electrical lockout activities shall wear properly rated electrical protective gloves and Arc Flash PPE (if required by NFPA 70E) while verifying absence of energy.

SUBCONTRACTOR employees performing diagnostics and testing work and/or work with energized equipment within the NFPA 70E defined Arc Flash boundary shall wear arc flash PPE conforming to the requirements of NFPA 70E. SUBCONTRACTOR workers performing such work within the Restricted Approach boundary as defined in NFPA 70E are required to wear voltage rated PPE**.**

12.11 SUBCONTRACTOR shall require all employees to wear long pants and a suitable shirt, with no less than 4-inch sleeves, as the minimum work clothing to be worn at the worksite.

12.12 SUBCONTRACTOR employees exposed to high noise levels shall wear appropriate hearing protection PPE to reduce the noise dose to less than 100% of the ACGIH TLV for the exposure period.

12.13 All SUBCONTRACTOR employees working on construction, demolition, highway or remediation sites shall wear high visibility, reflective, vests at all times when not in office trailers / buildings or working in shops containing rotating machinery (shop saws, drill presses, etc.). Vests shall comply with Manual of Uniform Traffic Control Devices (MUTCD) Section 6E-3 (High Visibility Clothing). Flagmen and Signalmen shall wear vests complying with 29 CFR 1926.201

F13.0 Respiratory Protection

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

13.2 The SUBCONTRACTOR'S designated respirator program administrator must oversee the SUBCONTRACTOR respirator program.

13.3 Respirator Selection

13.3.1 SUBCONTRACTOR must select respirators certified by the National Institute for Occupational Safety and Health (NIOSH) which must be used in compliance with the conditions of its certification.

13.3.2 SUBCONTRACTOR must identify and evaluate the respiratory hazards including a reasonable estimate of employee exposures and identification of the contaminant's chemical state and physical form. The respirator selected must be appropriate for the chemical state and physical form of the contaminant.

13.3.3 Where exposure cannot be identified or reasonably estimated, the atmosphere shall be considered immediately dangerous to life or health (IDLH).

13.3.4 SUBCONTRACTOR must use the OSHA assigned protection factors (APFs) listed in Table 1 of 29 CFR 1910.134 with the exception of

filtering face pieces (dust masks). Respirators must meet or exceed the required level of protection. The respirator selected must keep the employee's exposure to hazardous substances, when measured outside the respirator, at or below the maximum use concentration (MUC). Filtering face pieces can only be worn for voluntary use for nuisance dust below the permissible exposure limit (PEL). Filtering Face pieces are assigned a protection factor of 1. A hazard assessment must be completed to demonstrate that workers wearing filtering face pieces are below the PEL for nuisance dust.

13.3.5 If air-purifying respirators with chemical or combination cartridges are used, the SUBCONTRACTOR must use a respirator equipped with an end-of-service-life indicator (ESLI) certified by NIOSH for the contaminant, or implement a change schedule for cartridges that will ensure that they are to be changed before the end of their service life and describes in the respirator program the information and data relied upon and basis for the change schedule and reliance on the data.

13.4 Medical Evaluation:

13.4.1 SUBCONTRACTOR must identify a Physician or other Licensed Health Care Professional (PLHCP) to perform medical evaluations using a medical questionnaire or an initial medical examination that obtains the same information as the medical questionnaire. Information required is contained in Appendix G of OSHA standard 29 CFR 1910.134. SUBCONTRACTOR must obtain a written recommendation regarding the employee's ability to use the respirator from the PLHCP.

13.4.2 The medical evaluation must be completed prior to fit-testing and use of the respirator.

13.5 Fit Testing

13.5.1 SUBCONTRACTOR must ensure employees pass a Quantitative Fit Test (QNFT) conducted in accordance with 29 CFR 1910.134 Appendix A (C).

13.5.2 Fit-testing is required prior to initial use, whenever a different respirator face piece is used, and at least annually thereafter. An additional fit-test is required whenever the employee reports, or the employer or PLHCP makes visual observations of, changes in the employee's physical condition that could affect respirator fit (e.g., facial scarring, dental changes, cosmetic surgery, or an obvious change in body weight).

13.6 Use of Respirators

13.6.1 SUBCONTRACTOR must clean and disinfect respirators using the procedures in Appendix B-2 of 29 CFR 1910.134 or equally effective manufacturer's procedures at the intervals specified in 29 CFR 1910.134.

13.6.2 Provisions will be made for employees who wear corrective lenses and are required to wear full-face respiratory protection. These provisions

will include rotation from such respiratory protection work and eyeglass inserts or special lenses, as/if required.

F14.0 Hearing Conservation Program

14.1 When noise associated with work under this subcontract is equal to or exceeds the ACGIH exposure limits, SUBCONTRACTOR shall have a written Hearing Conservation Program that meets the requirements of 29 CFR 1910.95 and 29 CFR 1926.52. The program shall include noise monitoring to identify employees for inclusion in a Hearing Conservation Program; administrative and engineering controls; the procurement and use of low noise equipment when possible; posting of signs and warnings for areas found to require hearing protection; how SUBCONTRACTOR will perform audiometric testing to establish a baseline audiogram; and training on noise health effects and hearing protection devices used at the work location. The written program shall be submitted as part of the Site-Specific ES&H Plan.

14.2 SUBCONTRACTOR shall ensure employees who are part of a Hearing Conservation Program complete annual training as defined in 29 CFR 1910.95.

14.3 SUBCONTRACTOR shall provide equipment for sampling and monitoring noise levels. Subcontractor shall calibrated such equipment before and after use, document all measurements and provide such documentation to CONTRACTOR upon CONTRACTOR'S request.

F15.0 Occupational Medicine (OM) Services

15.1 In accordance with 10 CFR 851 Appendix A, Section 8, SUBCONTRACTOR shall:

- Ensure workers are evaluated by a recognized occupational medical provider, when required, prior to the work being performed. Attachment F15-1 is provided as a guide to determine when medical evaluations is required.
- Maintain a work history log for each worker who performs work on LANL property. The work history log must include records of the dates and times the individual was on site.
- Provide access to work-related medical records, work history logs, surveillance and certification records and employee records as requested by the CONTRACTOR.
- Collaborate with LANL staff to obtain information on workplace job conditions and issues related to worker's health.
- Provide workers access to their personal records as required by DOE regulations.
- Obtain a return to work evaluation from a recognized occupational medical provider after a work related injury or illness or an absence due to any injury or illness lasting 5 or more consecutive days the SUBCONTRACTOR will provide a copy of the work release to the CONTRACTOR'S STR.

15.2 CONTRACTOR'S Occupational Medicine Office will provide initial treatment (when requested) of any non-emergency work-related injury or illness for

SUBCONTRACTOR workers for events that occur on LANL property. The SUBCONTRACTOR supervisor shall accompany SUBCONTRACTOR workers to Occupational Medicine.

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

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

F16.0 Motor Vehicles and Powered Industrial Equipment

16.1 In accordance with 10 CFR 851 Appendix A, Section 9, SUBCONTRACTOR shall implement a motor vehicle safety program to protect the safety and health of all drivers and passengers in motor vehicles and powered industrial equipment (i.e., fork trucks, tractors, platform lift trucks and other similar specialized equipment powered by an electric motor or an internal combustion engine). General requirements for SUBCONTRACTOR-provided equipment and vehicles shall be defined in the Site-Specific ES&H Plan to ensure compliance with appropriate regulatory requirements (29 CFR 1910.178 & 29 CFR 1926.600). Such elements shall include but are not limited to seat belt use, rollover protection, back-up alarms, lifting and hauling, scissor points, training, general vehicle maintenance, inspection, and operational use.

16.2 SUBCONTRACTOR personnel operating motor vehicles and powered industrial equipment must have a valid driver's license.

16.3 SUBCONTRACTOR shall be responsible for training SUBCONTRACTOR personnel to operate SUBCONTRACTOR-provided equipment and machinery. All personnel operating any SUBCONTRACTOR-provided vehicles or mobile equipment at sites controlled/managed by CONTRACTOR or GOVERNMENT must be healthy and unimpaired, possess appropriate and required operators' licenses/training, and abide by established road regulations and/or jobsite regulations.

16.4 Operators of All-Terrain Vehicles (ATVs) shall obtain a Motorcycle Safety Foundation (MSF) or MSF endorsed or similar State approved ATV training. ATV operators must use the appropriate personal protective equipment for ATV use. SUBCONTRACTOR shall prohibit passengers in addition to operators on ATVs.

16.5 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 manufacturer's recommendations.

16.6 SUBCONTRACTOR shall ensure that major SUBCONTRACTOR provided equipment (including but not limited to: heavy equipment, large vehicles, compressors, generators, cranes, hoists, derricks, stationary and portable fuel tanks, etc.) used in the performance of work under this subcontract is inspected, operated and maintained by competent personnel. SUBCONTRACTOR shall inspect and maintain equipment in conformance with the manufacturer's maintenance instructions and recommendation. Prior to initial use, all equipment, shall be inspected by a SUBCONTRACTOR authorized and qualified inspector to

ensure compliance with applicable OSHA, ANSI, and NFPA requirements. SUBCONTRACTOR shall maintain inspection and maintenance records available for CONTRACTOR inspection.

16.6.1 SUBCONTRACTOR forklift operators must inspect and document a preoperational inspection once during each shift the vehicle is used. In addition forklift qualified personnel shall inspect forklifts at intervals not greater than 12 months or whenever permanent deformation is suspected. Severe service shall warrant more frequent inspection and shall be performed by trained personnel.

16.6.2 SUBCONTRACTOR stationary and portable aboveground storage tanks for fuels, flammable, or combustible liquids shall comply with NFPA 30 Flammable and Combustible Liquids Code. Steel aboveground tanks shall be compliant with Underwriters Laboratory Standard UL142 Steel Aboveground Tanks for Flammable and Combustible Liquids. Shop fabricated stationary aboveground storage tanks for flammable or combustible liquids shall be installed in accordance with Steel Tank Institute (STI) Standard R912.

16.7 SUBCONTRACTOR shall document all maintenance, inspections, deficiencies, and corrective actions associated with SUBCONTRACTOR-provided equipment. These records must be made available to CONTRACTOR upon request. SUBCONTRACTOR shall ensure that SUBCONTRACTOR-provided equipment or machinery that is not in compliance with regulatory requirements is de-energized, rendered inoperable, and tagged out of service or removed from the project location.

16.8 SUBCONTRACTOR shall enforce the following motor vehicle safety requirements:

- Workers shall not use a cellular devices while the motor vehicle is in operation.
- All mishaps/incidents leading to the damage of a motor vehicle on official business must be reported to the STR and investigated. Investigation reports shall be transmitted to the STR for CONTRACTOR review.
- Drivers of motor vehicles shall follow on-site speed limits and other traffic rules.

16.9 SUBCONTRACTOR shall provide awareness campaigns and incentive programs to encourage safe driving and proper equipment operation.

16.10 SUBCONTRACTOR shall complete Attachment F16-1, Major Equipment Declaration, and provide a copy to the STR prior to placing any such SUBCONTRACTOR-provided equipment in service at LANL, and prior to performing any activity involving the loading, unloading, and transporting of self-propelled medium or heavy duty construction equipment at LANL (i.e., mobilization/demobilization). SUBCONTRACTOR shall read and complete the Safety Review Checklist (pages 2 and 3) of the Major Equipment Declaration Form and provide a copy to the STR. SUBCONTRACTOR shall also provide to the STR prior to mobilizing any equipment to the site a Risk Control Plan specific to mobile equipment/personnel interface (MEPI). The plan shall identify all areas

on the site with MEPI hazards. The plan shall also identify how the SUBCONTRACTOR will mitigate the MEPI hazards by area and phase of construction. Mitigation steps may include, but not be limited to: installation of barricades separating equipment from pedestrians; MEPI specific training; utilization of spotters and flagger.

16.11 SUBCONTRACTOR provided vehicle and mobile equipment operators are responsible for the safety of all passengers and the stability of materials being transported.

16.12 SUBCONTRACTOR shall ensure that its vehicles and mobile equipment are shut down during refueling.

16.13 SUBCONTRACTOR shall ensure that parking brakes are set in its vehicles and equipment when unattended.

16.14 SUBCONTRACTOR shall ensure dozer blades, end loader buckets, forklift forks, or like equipment parts are lowered to the ground before the operator exits such equipment.

16.15 SUBCONTRACTOR shall ensure that truck drivers exit the cab and remain clear while the truck is being loaded by power equipment unless the vehicle is equipped with a vehicle / equipment manufacturer approved cab shield.

16.16 SUBCONTRACTOR shall manage, clean-up, containerize and characterize all oil, fuel, or petroleum product leakage from SUBCONTRACTOR provided vehicles and equipment and follow applicable waste management requirements for disposal. https://adep.lanl.gov/adepimageslib/WebDocs/permits_reqs_tool.pdf , **Environmental Work Planning Permits & Requirements** / Waste Management/Disposal).

F17.0 Tools and Equipment

17.1 SUBCONTRACTOR shall ensure that all tools provided for use in work are used in accordance with the manufacturers' recommendations, have required guards in place, and are maintained in good working order. Appropriate personal protective equipment must be worn when using any tool (see F12, Personal Protective Equipment).

17.2 SUBCONTRACTOR shall ensure that all equipment and tools, including hand tools, are inspected, operated, and maintained by qualified personnel. Damaged or defective tools shall be tagged “Out of service” or removed from LANL property.

17.3 SUBCONTRACTOR shall ensure that power tools and equipment are inspected prior to use and are inspected quarterly, at a minimum, or more frequently if recommended by the manufacturer. Inspection documentation shall be maintained by the SUBCONTRACTOR and made available to CONTRACTOR, upon request.

17.4 Unless approved in writing by the CONTRACTOR, SUBCONTRACTOR shall not use job-made tools of any kind at the jobsite.

17.5 SUBCONTRACTOR shall follow 29 CFR 1926.302(e) if powder actuated tools will be used. Only properly trained and certified employees shall be permitted to use powder-actuated tools. Documentation of the training shall be made available to CONTRACTOR upon request and each employee using such tools shall carry qualification cards. The powder-actuated charges for powder-actuated tools shall be controlled. Each cartridge shall be accounted for and properly stored. No live or spent cartridges shall be left on the ground or disposed of in trashcans or other unauthorized container.

17.6 SUBCONTRACTOR shall ensure that work is performed only in areas and at times where adequate illumination exists. SUBCONTRACTOR shall provide all lighting required to safely perform work and must meet the minimum intensities listed in 29 CFR 1926.56 Table D-3. Artificial lighting equipment shall be manufactured to a recognized standard acceptable to CONTRACTOR.

17.7 SUBCONTRACTOR must ensure that tools are never hoisted, lowered, or carried by the power cord. All electric tools shall be grounded, except approved and labeled double-insulated tools. SUBCONTRACTOR shall ensure all tools are checked for electrical continuity after repairs are made. Extension cords shall be in good condition.

17.8 SUBCONTRACTOR shall use ground fault circuit interrupters (GFCI(s)) on all temporary electrical applications, including task lighting.

17.8.1 Temporary construction light stringers that provide general purpose area lighting shall not be installed on the load side of a GFCI and shall have no receptacles installed in its dedicated branch circuit. Temporary light stringers shall contain a grounding conductor.

17.9 SUBCONTRACTOR shall ensure that all grinding wheels, wire brushes, and flapper wheels are rated for the grinder on which they are used. Grinding wheels will be ring-tested before use.

17.10 SUBCONTRACTOR will ensure that excess flow valves are installed on air manifolds and compressors supplying air to greater than 1/2-inch ID hoses.

17.11 SUBCONTRACTOR shall ensure that fuel powered tools are not used inside a building or excavation without adequate ventilation and air monitoring. All fuel powered tools must be shut down prior to being refueled.

17.12 SUBCONTRACTOR shall ensure that all SUBCONTRACTOR-owned ventilated enclosures, confinement systems, and/or local exhaust ventilation systems are tested and certified prior to use and on a routine basis not less than one time per year. This applies to ventilation systems that are intended to minimize employee exposures and prevent occupational diseases caused by the inhalation of hazardous, toxic, or radioactive contaminants. High-efficiency particulate air (HEPA) filtration systems must be certified to verify filtration efficiency prior to initial use, annually thereafter and after any maintenance that disturbs the HEPA filter.

17.13 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.

17.14 SUBCONTRACTOR shall ensure that all electric power tools utilizing 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 any extension cords, re-locatable power taps, temporary lighting, or other electrical equipment utilizing or delivering 60 Hz ac power. Any such power tool or other electrical device that is not listed must be approved by the CONTRACTOR electrical Authority Having Jurisdiction (AHJ) prior to use. Any NRTL listed electrical power tool that is repaired must be inspected by an AHJ before reuse.

F18.0 Inclement Weather

18.1 SUBCONTRACTOR shall establish adequate controls for employee exposure to potential inclement weather conditions including but not limited to heat, cold, wind, lightning, etc.

18.2 SUBCONTRACTOR shall ensure that all field employees are trained on the warning signs/symptoms of early heat or cold related disorders, and instructed on the clothing and work methods best suited to avoid heat and/or cold stress. Stay times shall be defined to reduce the possibility of heat or cold related disorders, if necessary.

18.3 SUBCONTRACTOR shall ensure that employees have access to an adequate sanitary potable water supply during all periods of the day and have available plenty of fluids (i.e., water, electrolyte replacement drinks, etc.) when heat stress conditions exist.

18.4 SUBCONTRACTOR shall define protective actions for lightning threats and high wind conditions. Actions should include work stoppage and sheltering, when required.

F19.0 Chemical and Hazardous Materials Management

19.1 If any amount of hazardous chemicals as defined by Appendices A and B of the OSHA Hazard Communication Standard (29 CFR 1910.1200) will be used for the work, SUBCONTRACTOR shall develop and implement a written Hazard Communication Program which must conform to 29 CFR 191.1200 subsections (e), (f), and (h) and at a minimum include procedures describing the method SUBCONTRACTOR will use to communicate and train SUBCONTRACTOR workers on the hazards associated with chemical handling, use, storage, labeling, inspection and disposal. The program shall be submitted for approval as part of SUBCONTRACTOR'S Site-Specific ES&H Plan.

19.2 SUBCONTRACTOR shall have written approval from CONTRACTOR for chemicals prior to their introduction into the work site. Copies of Material Safety Data Sheets (MSDS) for each hazardous material purchased and/or carried onto a worksite shall be submitted to CONTRACTOR. SUBCONTRACTOR shall maintain a list of hazardous materials, the quantities of each, and the MSDS for each at the work site.

19.3 Chemicals shall be stored in appropriate containers and segregated to ensure compatibility. SUBCONTRACTOR shall label all hazardous substances and/or chemicals that have been transferred from the manufacturer's container into another container.

19.5 Upon project completion, or within 30 days of the end of each calendar year, SUBCONTRACTOR will prepare and submit to CONTRACTOR STR Attachment F19-1 for the EPA Annual Toxic Release Inventory Report and Clean Air Act Section 112 applicability determination for all chemicals used on-site in excess of 100 pounds, as well as any quantities of asphalt, lead or mercury.

F20.0 Work Management

20.1 In accordance with 10 CFR 851.22 (a) and (c), SUBCONTRACTOR must implement a hazard prevention and abatement process to ensure that all identified and potential hazards are prevented or abated in a timely manner. For hazards identified either in the facility design or during the development of procedures, controls must be incorporated in the appropriate facility design or procedure. For existing hazards identified in the workplace, SUBCONTRACTOR must prioritize and implement abatement actions according to the risk to workers, implement interim protective measures pending final abatement and protect workers from dangerous safety and health conditions. SUBCONTRACTOR shall address hazards when selecting or purchasing equipment, products, and services.

20.2 In accordance with 10 CFR 851.21(a)(6) and 10 CFR 851 Appendix A Section 1, SUBCONTRACTOR shall implement a work control process that includes the following items:

- Development of a consolidated set of clearly defined work tasks/steps linked to hazards and controls. Tasks/steps shall be identified in sufficient detail to ensure that the work can be accomplished with all hazards and controls identified using an Integrated Work Document (IWD) Form 2100A, Attachment F20-1. Work tasks/steps must be linked to the hazards and controls that are directed to the worker. IWDs for or containing electrical work shall be developed in accordance with *Guide for Electrical IWDs for LANL Subcontractors* that may be found at: http://int.lanl.gov/safety/industrial_hygiene_and_safety/electrical-safety/_assets/docs/iwd.pdf.
- Identifies a single SUBCONTRACTOR Person-In-Charge (PIC) with the responsibility, accountability, and authority to determine the quality of the Integrated Work Document (IWD) and manage and coordinate the work. The PIC shall be trained on the CONTRACTOR PIC required training which includes the General IWM Overview and PIC module computer based training courses.
- Obtains authorization through the STR from the Facility Operations Director (FOD) or his/her formally designated representative to perform the work within the FOD'S facility.
- Direct involvement, as necessary, of workers, supervisors, subject-matter experts (SME(s)), and the PIC in identifying tasks/steps and associated hazards and controls.

- A pre-job brief must be conducted by the PIC using IWD Validation and Release Form 2102A, Attachment F20-2, which must involve the actual workers and, as necessary, direct supervisors and SME(s).
- A field walk-down of the work activity to validate the tasks/steps, hazards, and controls that have been identified for implementation.
- Clearly identified roles and responsibilities, accountabilities, and authorities required for work management, review, and approval.
- Explicit release of the work by the SUBCONTRACTOR PIC prior to startup,
- Continued confirmation of readiness periodically performed for conducting the work.
- Using the Integrated Work Document (IWD) Part 4, Form 2104, http://int.lanl.gov/tools/forms/organizational.shtml for Feedback/Post Job reviews with the workers and Person in Charge (PIC) should include the following:
    - Identify inefficiencies, problems during the activity, coordination issues, unanticipated conditions, near misses;
    - Develop recommendations for improvement.
    - Verify the activity is complete and make notifications in accordance with Facility Operations Director (FOD) requirements and ensure that follow-through actions (e.g., clean-up, recycle, waste disposal, equipment removal, and secure storage) are completed.

20.3 IWD(s) will be developed by SUBCONTRACTOR, reviewed by the SUBCONTRACTOR'S and CONTRACTOR'S ES&H Representative, and approved by the SUBCONTRACTOR'S line manager. The completed IWD must be provided to the CONTRACTOR STR for review and concurrence prior to commencement of affected work and approval by the LANL ESO if electrical work is to be performed. SUBCONTRACTOR shall include CONTRACTOR'S Form 2101 (FOD Requirements and Approval for Entry and Area Hazards and Controls) with the IWD. If a completed and approved Form 2101 was not included with the contract, SUBCONTRACTOR must obtain a completed and approved Form 2101 from the appropriate FOD through the CONTRACTOR STR.

20.4 SUBCONTRACTOR shall conduct pre-and post-job briefings to ensure workers are aware of foreseeable hazards and protective measures described in the IWD, and document employee attendance at such briefing. Upon completion of the pre-job briefing, workers shall indicate understanding and compliance with the requirements by signing the concurrence 2102A IWD Validation and Release Form (Attachment F20-2) associated with the briefing.

20.5 SUBCONTRACTOR shall have authorized Work Package(s), containing the written scope of work, SUBCONTRACTOR'S IWDs that describe hazards and controls, FOD Requirements and Approval for Entry and Area Hazards and Controls and daily pre-job briefing documentation at the work site for CONTRACTOR review.

20.6 Reporting hazards not previously identified.

20.6.1 SUBCONTRACTOR shall communicate to its employees the importance of reporting hazards not previously identified or evaluated.

20.6.2 Upon identification of a hazard, If immediate corrective action is not possible or the hazard falls outside the project scope, SUBCONTRACTOR must notify affected workers, post appropriate warning signs, implement needed interim control measures, and notify the STR of the action taken. SUBCONTRACTOR must stop work in the affected area until appropriate protective measures are established.

F21.0 Fire Protection & Prevention

21.1 Smoking, use of any tobacco products or electronic smoking devices (herein referred to as smoking and or smoking materials) is prohibited within any LANL facility. SUBCONTRACTOR shall ensure that workers only smoke in designated CONTRACTOR approved smoking areas outside buildings. SUBCONTRACTOR shall follow any CONTRACTOR designated smoking, smoking materials, and ignition sources restrictions for special areas (explosive areas, flammable liquid / gas areas, etc.). Under extreme wildfire conditions, LANL'S Fire Marshall may impose additional restrictions on smoking and spark and flame-producing activities.

21.2 SUBCONTRACTOR shall control the storage and loading of combustible materials within work and office areas to ensure safety and compliance with applicable fire codes. Material must be well arranged, and aisles shall be maintained open and clear of obstructions. Stored material shall be kept away from heaters, lamps, hot pipes, equipment, and machinery and the use of extension cords minimized.

21.3 Prior to starting any work, SUBCONTRACTOR shall develop and submit to CONTRACTOR for review and acceptance, a Fire Protection and Prevention Plan specific to the work under this subcontract. The Plan shall be submitted as part of SUBCONTRACTOR'S Site-Specific ES&H Plan.

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

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

21.4.2 SUBCONTRACTOR shall train employees in the proper use of portable fire extinguishers. See also Section F22, Welding, Cutting, Brazing, and Grinding, of this Exhibit for fire watch and portable fire extinguisher requirements.

21.5 SUBCONTRACTOR'S Fire Protection and Prevention Plan shall ensure that fire protection equipment is placed and maintained in proper locations as work progresses.

21.6 SUBCONTRACTOR'S Fire Protection and Prevention Plan shall ensure that temporary heating equipment is installed, used, refueled and maintained to minimize the fire hazard posed by these devices. SUBCONTRACTOR shall use listed/approved temporary heating devices in accordance with manufacturer's requirements, shall perform refueling operations in an approved manner, shall locate this equipment with sufficient separation from adjacent combustible materials, and monitor the safe operation of this equipment during use.

21.7 SUBCONTRACTOR shall monitor its work and office areas to ensure that all doors, stairwells, aisles, and means of egress are OSHA-compliant and are kept clear and unobstructed at all times.

21.8 If SUBCONTRACTOR furnishes portable field offices, SUBCONTRACTOR shall ensure they have appropriate separations, are secured, all exits are clearly marked and adequately lighted, and, if equipped, that all emergency lights remain functional.

21.9 SUBCONTRACTOR'S Fire Protection and Prevention Plan shall address the requirements for the handling, storage, and use, and disposal of flammable and combustible liquids and gases. SUBCONTRACTOR shall ensure they are stored properly, dispensed in safety cans manufactured to a recognized standard and areas designated for these activities are maintained in an orderly fashion. All hazardous areas shall be posted with appropriate signs and access shall be controlled. SUBCONTRACTOR shall prohibit open flames and smoking in designated storage areas.

21.10 SUBCONTRACTOR shall insure that portable fire extinguishers, staged fire-fighting equipment, fire suppression system control valves, sprinkler system and standpipe fire department connections, fire hydrants, and fire lanes are kept clear and unobstructed.

21.11 SUBCONTRACTOR shall maintain a minimum of 18-inches of free space below sprinkler heads when working in facilities having sprinkler systems. Fire sprinkler heads and fire detection and alarm devices shall be appropriately masked and protected during painting and spray-application of fireproofing material operations.

21.12 SUBCONTRACTOR shall ensure that combustible waste containers are emptied regularly; equipment, tables, and floors are free from oil or oily rags; and oily rag containers are kept covered and emptied regularly. Janitor/storage closets shall be maintained in an orderly condition and shall not be used to store quantities of hazardous or toxic chemicals. Electrical, mechanical, and communications rooms shall be kept in order and free of combustible storage materials. Cable trays and raceways shall be free of combustible material, debris, or trash.

21.13 SUBCONTRACTOR shall not permit open fires on the jobsite.

F22.0 Welding, Cutting, Brazing, and Grinding

22.1 SUBCONTRACTOR shall ensure that its employees are trained in and comply with the requirements for proper fire prevention and equipment use when welding, cutting, brazing, or grinding.

22.2 Welding, cutting, grinding, and brazing equipment apparatus and tools shall be inspected before each use. Cutting torch assemblies shall be equipped with pressure relief valves, backflow prevention devices, and flash arrestors.

22.3 SUBCONTRACTOR shall ensure employees performing welding, cutting, grinding, or other spark-producing activities wear fire retardant clothing as well as other applicable body protection (leather gloves, sleeves, aprons, etc.).

22.4 SUBCONTRACTOR shall complete Attachment F22-1, Spark and Flame Permit, if the work involves spark or flame producing operations. The permit must be submitted to CONTRACTOR for approval 2 working days in advance and must be posted in the immediate work area.

22.5 Prior to beginning any spark- or flame-producing operation, SUBCONTRACTOR shall inspect the work area for the presence of combustible, flammable, or toxic materials and ensure that those materials are not within a 35-ft radius of the operation area or are protected.

22.6 SUBCONTRACTOR shall evaluate the housekeeping conditions, fire extinguisher availability, emergency exit locations, and pull alarms for emergency response services prior to starting work involving spark or flame producing operations.

22.7 Prior to beginning any spark or flame producing operation, SUBCONTRACTOR shall assess the work area for proper ventilation to prevent the accumulation of fumes, gases, particulates, or conditions that would create an oxygen-deficient or oxygen-enriched atmosphere.

22.8 SUBCONTRACTOR shall designate a fire watch who has the responsibility to monitor the spark or flame producing operation, remain for 30 minutes after the conclusion of the operation to assess potential ignition hazards, and walk the area to ensure no smoldering ambers are present that could ignite a fire in the work area.

22.9 If a motor/generator portable arc-welding or cutting machine incorporates power receptacles for general use, SUBCONTRACTOR shall ensure that the generator neutral is bonded to the generator case and all general purpose single phase 15, 20, and 30 amp receptacles are GFCI protected.

22.10 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.

22.11 SUBCONTRACTOR shall perform an exposure assessment and develop special procedures when employees are welding or cutting near chlorinated solvents, working with materials containing cadmium, chromium, lead, mercury, beryllium, or radioactive materials, or conducting operations in a confined space or in an area in which explosives have not been removed. Such special procedures shall be approved by CONTRACTOR prior to implementation.

22.12 SUBCONTRACTOR shall develop and implement procedures for the maintenance and inspection of welding, grinding, brazing, or cutting equipment in accordance with the manufacturer's requirements and instructions.

F23.0 Fall Prevention/Protection

23.1 SUBCONTRACTOR'S Site-Specific ES&H Plan shall include a written Fall Prevention/Protection Program that complies with 29 CFR 1926 Subpart M and includes maximum use of primary fall protection systems including but not limited to scaffolds, aerial lifts, and personnel hoists, and the inspection of fall protection equipment as required by the manufacturer and prior to each use. The Fall Protection Plan must be approved by a LANL Qualified Person.

23.2 All SUBCONTRACTOR supervisors and users of fall protection equipment must have documented training in the care, use and inspection of all fall protection used.

F24.0 Scaffolding

24.1 If scaffolds will be used to perform work, SUBCONTRACTOR shall include a written Scaffolding Procedure in SUBCONTRACTOR'S Site-Specific ES&H Plan that meets the requirements of 29 CFR 1926.450.

24.2 Scaffold platforms shall be fully planked or decked out, capable of supporting four (4) times the maximum intended load to be imposed upon them, and all sides protected by standard guardrail system. The top rail shall be approximately 42 inches from the platform. A mid-rail and 4 inch toe board shall be installed.

24.3 SUBCONTRACTOR erected scaffolds, where employees are working/passing below, shall have planking/siding or netting installed from the platform to the top rail.

24.4 SUBCONTRACTOR shall utilize a scaffold inspection and tagging system that utilizes a red tag to indicate scaffolds under construction or demolition not to be used by workers not assigned to the construction or demolition of scaffolds, yellow to indicate scaffolds that are complete but have hazards associated with them and personal fall arrest / restraint PPE is required for use and / or abatement of hazards, and green to indicate scaffolds are safely erected and are complete and safe to use without personal fall arrest / restraint PPE .

24.5 SUBCONTRACTOR shall erect or modify scaffolds under the direction of a trained, competent scaffold builder whose qualifications shall be made available to CONTRACTOR upon request. The competent person shall sign all scaffold tags and perform and document inspections before initial use, including initial use following alteration, and daily thereafter.

24.6 SUBCONTRACTOR shall provide safe access/egress to all levels of scaffolds. Scaffold platform accesses shall be protected to prevent the possibility of accidental fall-through, utilizing secured access gates.

24.7 Special scaffolds (e.g., hanging scaffolds, 2-point suspension scaffolds, etc.) shall be designed by a competent engineer and erected with all necessary personnel safety equipment installed, such as rope grabs and lifelines.

24.8 All scaffolds erected by SUBCONTRACTOR shall have casters, jackscrews, or base plates installed. Mudsills shall be used where required. Scaffolds shall be level and plumb, capable of supporting at least four (4) times the anticipated load, and secured to a solid structure, when required.

24.9 When scaffolds will be secured to a facility, a CONTRACTOR'S Penetration Permit (see Section F31, Blind Penetrations) will be required.

24.10 SUBCONTRACTOR shall provide scaffold user training to all employees. Training records will be made available to CONTRACTOR, upon request.

F25.0 Portable Ladders

25.1 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). The annual inspection must be documented on a label adhered to the side rail of the ladder.

25.2 Manufactured ladders must be rated for industrial or heavy-duty work and used only as allowed by the manufacturer. Job made ladders shall be constructed to conform to 29 CFR 1926.1053.

25.3 Metal ladders shall not be used during electrical work activities including electrical welding or if there is any risk of contacting an energized electrical circuit. Portable ladders shall not be used if the ladder or worker will come within 10 ft of an energized power line.

25.4 SUBCONTRACTOR shall ensure stepladders shall be open, leveled on all four feet and spreaders locked in place before use. Workers shall never use the rung of a stepladder above that indicated on the ladder for standing or working. All four feet of a stepladder shall be secure and stable before the ladder is used. SUBCONTRACTOR is prohibited from ever using a stepladder more than 20 ft tall.

25.5 SUBCONTRACTOR shall ensure the base of straight or extension ladders must be equipped with non-skid safety feet and shall be positioned out one fourth of the ladder's length from its upper point of support. The top shall extend at least three (3) feet beyond the supporting object or a grab rail must be provided. On extension ladders, SUBCONTRACTOR shall ensure safety dogs or latches are engaged, the extension rope is secured to a rung on the base section, and a minimum of three (3) rungs of overlap exist. For ladders being used for longer than single-use, one-time access, SUBCONTRACTOR shall always tie off, secure, or permanently fasten the ladder to the structure. Ladders fitting this category shall be held in place by a second person when being tied or untied. SUBCONTRACTOR shall not use an extension or single-section ladder more than 30 ft long.

25.6 SUBCONTRACTOR shall ensure Ladders placed in any location where they can be displaced by work activities or traffic, such as passageways, doorways, or driveways, must be secured to prevent accidental displacement, or a barricade shall be used to keep the activity or traffic away from the ladder.

25.7 SUBCONTRACTOR shall ensure only one person at a time is permitted to work from a ladder unless a two-man designed ladder is in use.

25.8 SUBCONTRACTOR shall ensure tools, materials, or other items will not be carried while ascending or descending a ladder and hand lines must be used to raise and lower items to and from the work area.

25.9 SUBCONTRACTOR shall ensure workers keep both feet in contact with the rungs at all times while working and that ladders must be positioned to maintain proper access to work area so that the worker faces the ladder and the worker's body does not over-extend to the side during work operations.

25.10 SUBCONTRACTOR shall ensure fixed ladders are not used in lieu of scaffolds as a primary means of conducting work SUBCONTRACTOR shall only use fixed ladders for access/egress and/or to conduct low-level (4 feet or lower for general industry; 6 feet or lower for construction). Any fixed ladder work exceeding 4 feet (general industry) or 6 feet (construction) that does not maintain a constant 3-point contact requires standard fall protection.

Note this requirement does not pertain to the use of portable ladders, although consideration for the use of aerial lifts, scaffolding, platforms etc. shall be given for work that will require significant time or at heights over 6 feet.

25.11 SUBCONTRACTOR shall ensure workers never use a portable ladder on a powered working platform, man-lift, scissor-lift, or other movable surface.

25.12 SUBCONTRACTOR shall provide training on the care, use and inspection of portable ladders to employees. Training records will be made available to CONTRACTOR upon request.

F26.0 Barricades

26.1 SUBCONTRACTOR is responsible for properly erecting and maintaining barricades in such a manner that they provide adequate warning/protection and do not impede the work of other workers. Any exception must be approved in writing by the CONTRACTOR STR.

26.2 SUBCONTRACTOR shall provide and use one of the following barricade devices appropriate for the nature of the job for all physical hazard areas, including all construction areas.

- Warning Barricades call attention to hazards but offer no physical protection. Yellow and black rope or tape shall be used for Warning barricades.
- Protective barricades (hard barricade) warn as well as provide physical protection from falling (see F23, Fall Prevention/Protection). Protective barricades must meet the requirements of 29 CFR 1926.203 and /or 29 CFR 1926.502(b) depending on application.

26.3 A protective barricade shall be erected when a warning barricade will not offer adequate protection.

26.4 An appropriate barricade shall be erected with a “Warning-No Entry Without Permission” or similar tag before work is started. The requirements for access shall be stated on the tag together with identified hazards.

26.5 No barricade shall be placed closer than three feet from the edge of the danger point. A rope or tape shall be hung 42 inches plus or minus 3 inches above the floor or ground level.

26.6 Tags shall be placed at intervals of up to 30 feet around the entire barricade rope with at least one tag visible from each approachable side. Where the size of the jobsite prevents such placement, one tag shall be placed on the most common approachable side so long as it is clearly visible from any approachable side.

26.7 Barricades must have a designated entrance gate. Entry or exit from an area shall only occur through the designated gate. Stepping over or ducking under the barricade is prohibited.

26.8 When an elevation difference of four feet or more is within three feet of the barricade, a protective barricade or a warning barricade at least six feet from the hazard edge must be used to allow an ample buffer area around the hazard.

26.9 Authorization to enter a barricade may only be obtained from the PIC working inside the barricade. In the alternative, personnel that are authorized to permit entry may be listed on the tag attached to the barricade.

26.10 When a work area can be completely isolated from all other activities and operations, the area may be designated as such and posted with the appropriate warning and access authorization signs in lieu of extensive barricades and tags. In this case, signs shall be visibly posted at all potential access points. Barricades must still be utilized within the posted area, as appropriate, to provide hazard control of individual tasks within the work area.

26.11 Barricades must be promptly removed when no longer required.

F27.0 Floor & Wall Openings

27.1 Holes or openings in floors, decking, or roofs, including skylights, through which personnel could fall, must be guarded with guardrails or with covers capable of supporting, without failure, at least twice the maximum load expected to cross over the cover. When installed, covers must be secured to prevent displacement. When covers are removed, the exposed holes or openings must be constantly attended or protected by temporary standard railing.

27.2 Covers must be a distinctive bright and contrasting color to readily reveal their presence to workers and must have a sign posted that reads “WARNING – TEMPORARY COVER – DO NOT REMOVE UNLESS AUTHORIZED.”

27.3 Material or equipment may not be stored on a hole/opening cover.

27.4 Wall openings from which there is a drop of more than four (4) feet and the bottom of the opening is less than three (3) feet above the working surface must be barricaded (see F-26) or provided with standard guardrails. Guardrails shall be constructed with the top rail 42 (plus or minus 3 inches) inches from the floor

or platform level and shall have a mid-rail and toe-board and withstand a side load of 200 lb. Toe-boards shall extend four (4) inches above the floor or platform level. SUBCONTRACTOR shall install vertical support posts for guardrails at intervals of not more than eight (8) feet.

27.5 Any floor opening/wall opening adjacent to hazardous operations/locations or machinery must be guarded against falls or unwanted access.

F28.0 Excavations & Trenching

28.1 SUBCONTRACTOR shall designate a Person in Charge (PIC) of the excavation who is qualified, experienced, and knowledgeable in the hazards associated with excavations. The PIC must be on site whenever excavation work is taking place, including work in an excavation. The competent person identified in 28.19 may also serve as PIC if approved in writing by the CONTRACTOR'S STR.

28.2 All SUBCONTRACTOR employees, whether craft or supervision, involved in any excavation, fill, soil disturbance/transfer, or trenching work activity, including working in any excavation, are required to complete CONTRACTOR'S Excavation Self Study Training.

28.3 SUBCONTRACTOR shall not commence any excavation, fill, soil disturbance/transfer, or trenching work, or drilling until they have obtained written permission from the CONTRACTOR STR and complied with the requirements, stipulations, and conditions specified in the Excavation/Soil Disturbance Permit. The permit authority for this subcontract is CONTRACTOR, who will issue Permit and all stipulations associated with the Permit to SUBCONTRACTOR. Permits shall be kept at the jobsite at all times. SUBCONTRACTOR shall allow 10 working days from written request to receipt of approved permit.

28.4 SUBCONTRACTOR shall notify the STR if the excavation, fill, soil disturbance/transfer, or trenching area will change during the project. SUBCONTRACTOR will not excavate, fill, conduct soil disturbance/transfer, or trench in the newly identified area until CONTRACTOR issues a modified or new Permit.

28.5 SUBCONTRACTOR shall handle any excavated material removed from a Potential Release Site (PRS)[1] in accordance with the Waste Management Plan or Waste Characterization Strategy Form. (https://adep.lanl.gov/adepimageslib/WebDocs/wcsf_preparation_guidance.pdf).

28.6 SUBCONTRACTOR shall ensure fill material (soil, concrete, or asphalt) used on CONTRACTOR'S site is free of contamination.

28.7 SUBCONTRACTOR shall not transport fill material (soil, concrete or asphalt) from its point of origin to another location at LANL without obtaining written approval from the STR prior to movement of the material.

[1] Potential Release Site (PRS) – A location where hazardous materials may have been released to the surface or subsurface as the result of past LANL activities.

28.8 SUBCONTRACTOR shall obtain written approval from the STR prior to release of fill material (soil, concrete or asphalt) from LANL for use outside the LANL facility boundary.

28.9 SUBCONTRACTOR shall not abandon excavated material, debris or equipment on-site at LANL.

28.10 Upon Excavation/Soil Disturbance Permit request, SUBCONTRACTOR shall physically identify the established geographical boundaries of the proposed excavation activity with flagging, survey paint or other means as agreed to by the STR.

28.11 CONTRACTOR will perform a non-intrusive underground survey (electromagnetic, gravitational, GPR, etc.) to identify and mark the location of underground interferences, services and/or utilities, and provide an engineered drawing to SUBCONTRACTOR showing the locations and type of services within the surveyed area. SUBCONTRACTOR is responsible for maintenance of utility locate markings. Locate markings are required to be revalidated every 30 days by CONTRACTOR and/or if the utility markings are no longer in place or obliterated.

28.12 SUBCONTRACTOR shall hand excavate (pothole) and expose a four (4) foot radius around all identified locations prior to any machine excavation. Vacuum, air, or water type potholing is not allowed in Potential Release Sites (PRS). Hazardous Energy Safe condition must be met prior to excavation. Appropriate precautionary PPE and tools shall be utilized when exposing live or unknown findings. SUBCONTRACTOR shall notify STR when potholing is complete so locations can be confirmed and updated as required.

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

28.14 SUBCONTRACTOR shall erect barricades (see F26) around excavation area prior to beginning work activities or ahead of work progress. Barricades shall be installed at least six (6) feet from edge in a manner that prevents accidental entry into the trenched or excavated area. Lesser distance must be approved by CONTRACTOR and SUBCONTRACTOR shall ensure no more than 25 feet of lateral travel shall be required in any trench to reach a ladder.

28.15 Where trenches or excavations will exceed four (4) feet in depth, SUBCONTRACTOR shall use protective systems acceptable to CONTRACTOR and SUBCONTRACTOR shall ensure no more than 25 feet of lateral travel shall be required in any trench to reach a ladder.

28.16 SUBCONTRACTOR shall evaluate and monitor air quality prior to entry into any excavation that may contain possible hazardous atmospheres. Documented results shall be available at the job site. SUBCONTRACTOR shall submit, with the Excavation/Soil Disturbance permit request, operator qualification records and current calibration records for the monitoring instrument to be utilized.

28.17 SUBCONTRACTOR shall ensure that soil material is kept at least two (2) feet away from the excavation edge and that erosion control best management

practices are implemented throughout the life of the activity. SUBCONTRACTOR must take necessary precautions to prevent materials from falling into the excavation.

28.18 Walkways, bridges, or ramps with standard guardrails shall be provided where employees or equipment are permitted or required to cross over excavations or trenches.

28.19 SUBCONTRACTOR shall provide at the jobsite a competent person whose qualifications shall be made available to CONTRACTOR upon request and who will classify all soils and perform inspections daily and after each rain, snow, freeze, thaw, etc., of all excavations/trenches. These inspections shall be documented, kept on file, and made available to CONTRACTOR upon request.

28.20 SUBCONTRACTOR shall stop work and notify the STR immediately should anything unanticipated be exposed or discovered, including any cultural resource remains (see Section 46.4).

F29.0 Confined Spaces

29.1 SUBCONTRACTOR shall have a written permit-required confined space program that meets the requirements of 29 CFR 1910.146. Should the SUBCONTRACTOR be executing construction work as set forth in 29 CFR 1926.1201(a) the written permit-required confined space program must meet the requirements of 29 CFR 1926.353 and 29 CFR 1926 Subpart AA *Confined Spaces in Construction*. The written Permit-required confined space program shall be submitted as part of SUBCONTRACTOR'S Site-Specific ES&H Plan.

29.2 SUBCONTRACTOR is responsible for air quality evaluation and monitoring in confined spaces. Monitoring for oxygen, explosive gases, and other identified hazard(s) shall be conducted per 29 CFR 1910.146 (d)(5) or 29 CFR 1926.1204(e) prior to entry into any confined space and results shall be documented. Monitoring equipment shall be provided by SUBCONTRACTOR and shall be calibrated and maintained to manufacturers' recommendations. All instrument calibration and training records shall be made available to CONTRACTOR upon request. CONTRACTOR shall examine each confined space before initial entry to evaluate the specific hazards and SUBCONTRACTOR'S hazard controls and safety precautions.

29.3 SUBCONTRACTOR shall ensure that all employees have completed training that covers the requirements in 1910.146(g) or 1926.1207. Personnel serving as entrants, attendants and entry supervisors shall be trained in their duties as per 29 CFR 1910.146(h) or 1926.1208, 1926.1209, and 1926.1210 for construction.

29.4 Prior to each entry into a permit-required confined space SUBCONTRACTOR shall ensure that a Confined Space Entry Permit meeting all elements of 29 CFR 1910.146 (e) and (f) or 1926.1205 and 1926.1206 for construction is completed and followed. The permit form shall be submitted to CONTRACTOR'S STR for review and approval prior to initial entry. The permit shall be conspicuously posted or otherwise made available at the confined space and all entrants must sign a log upon entering and exiting the confined space such that persons in the confined space can be determined.

29.5 SUBCONTRACTOR shall develop a rescue procedure that meets all of the requirements in 29 CFR 1910.146(k) or 1926.1211 for construction. CONTRACTOR must review and approve of SUBCONTRACTORS rescue procedure prior to any confined space work requiring a rescue procedure. This procedure shall include an evaluation of a prospective rescuers ability to respond in a timely manner considering the hazard(s) identified.
Note: What will be considered timely will vary according to the specific hazards involved in each entry. For example 29 CFR 1910.134 *Respiratory Protection* requires that employers provide a standby person or persons capable of immediate action to rescue employee(s) wearing respiratory protection while in work areas defined as IDLH atmospheres. If emergency rescue capabilities are required per 29 CFR 1910.146(k) CONTRACTOR must approve of SUBCONTRACTORS emergency rescue capabilities prior to any work in specific confined spaces.

29.6 SUBCONTRACTOR shall make all arrangements and bear the cost of an emergency rescue team when required.

29.7 Any confined space work where Flammable Liquids (Class 1) are brought into and/or used in a confined space will be reviewed by the CONTRACTOR's STR to determine controls and rescue requirements.

F30.0 Lockout/Tagout

30.1 Where SUBCONTRACTOR will only provide advisory services and will not perform work as defined by 29 CFR 1910.147 or 29 CFR 1926.417, F30.2 through F30.13 of this section do not apply however, SUBCONTRACTOR must assist the CONTRACTOR designated lead authorized worker to 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.

30.2 Where SUBCONTRACTOR will perform work as defined by 29 CFR 1910.147 or 29 CFR 1926.417, the SUBCONTRACTOR will follow the CONTRACTOR'S Lockout/Tagout Procedure, including CONTRACTOR provided locks and tags, shall be used by SUBCONTRACTOR.

30.3 SUBCONTRACTOR must work with the CONTRACTOR-designated lead authorized worker to 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.

30.4 SUBCONTRACTOR workers shall complete CONTRACTOR-required lockout/tagout training. SUBCONTRACTOR workers must also complete CONTRACTOR-required electrical worker training to perform verification on electrical systems.

30.5 SUBCONTRACTOR must identify all hazardous energy sources associated with the equipment that must be controlled to prevent injury and identify the energy-isolating device(s) for those energy sources. SUBCONTRACTOR will contact the STR, who will consult with the equipment owner/operator and appropriate

subject-matter experts, as necessary, to identify the hazardous energy sources in the area.

30.6 For a simple lockout/tagout, SUBCONTRACTOR shall follow the procedure on the back of the CONTRACTOR-required tag (see Attachment F30-1).

30.7 If all of the conditions for a simple lockout/tagout are not met, SUBCONTRACTOR must complete a specific written procedure using Attachment F30-2, Lockout Tagout Orders Attachment F30-2. SUBCONTRACTOR shall submit the completed Lockout Tagout Orders to CONTRACTOR with 2-working day advance notice for approval.

30.8 For simple lockout/tagouts, SUBCONTRACTOR must complete Attachment F30-3, Subcontractor Lockout/Tagout Record for Simple Lockout/Tagouts, and submit the form to CONTRACTOR with 2-working day advance notice for approval.

30.9 SUBCONTRACTOR shall be responsible for informing the Lock Coordinator of the location of each lockout/tagout, the workers involved, and the date the locks were applied and removed.

30.12 SUBCONTRACTOR shall identify the Lock Coordinator and the equipment owner/operators for approval of all lockout/tagouts on the site.

F31.0 Blind Penetrations

SUBCONTRACTOR shall classify penetrations (an opening made by drilling, cutting, or otherwise piercing a wall, ceiling, roof, or floor) as either Class 1 (penetrations into hollow walls, roofs, ceilings, floors, or 1 ½ inches or less into solid material) or Class 2 (penetrations into solid material greater than 1 ½ inches in depth). Placement of thumbtacks, picture nails, or similar items in a hollow wall or ceiling that do not go beyond the thickness of the external material (sheetrock, wood, etc.) are not considered penetrations.

Note: A Penetration Permit will be required for all roofing demolition or upgrade activities.

Class 1 penetrations must be performed with a penetration permit (Attachment F31-1, Form 2074) and Class 1 Checklist shall be available at the work locations.

31.1 When a Class 1 penetration will be performed, SUBCONTRACTOR shall evaluate hazards by:

- Checking behind walls, through roofs, under floors, or through false ceilings to attempt to locate hidden utilities or other hazards (e.g., asbestos);
- Verifying metal stud locations by measuring from adjacent studs or by using detection equipment to determine that the metal is not an electric conduit or gas pipe.

31.2 SUBCONTRACTOR shall implement the following controls for Class 1 penetrations:

- Relocate the penetration if known hazards exist;
- Use existing anchor holes when possible;
- When penetrating drywall or other easily penetrated surfaces, use nonconductive power or manual tools to make the penetration;
- Use only masonry bits and hand tools such as awls and hand drills to make the initial penetration to minimize the potential for puncturing electrical lines,
- Use drill bit stops or short drill bits for penetrations into solid materials to limit the maximum depth to 1 ½ inch;
- Use electric drill stops when available;
- Use Nationally Recognized Testing Laboratory (NRTL) listed electrical tools equipped with ground fault circuit interrupter (GFCI) protection (or plugged into a receptacle with GFCI protection) or NRTL listed electrical tools that are double-insulated. Test GFCIs before use;
- Wear the required PPE specified on the penetration permit, including rated and certified gloves to protect against the voltage potentially present;
- Wear dielectric rubber outer boots over required foot protection when using water coolant or in a wet environment; and
- Prior to making Class 1 Penetrations SUBCONTRACTOR shall complete Class 1 Penetration Checklist, Attachment F31.1, and shall have the checklist available at the work location.

31.3 When a Class 2 penetration will be performed, SUBCONTRACTOR shall evaluate hazards by:

- Reviewing historical records, engineering plans, and drawings that pertain to the area/location of the planned penetration and attempting to determine if there are hidden hazards;
- Consulting with the CONTRACTOR personnel who may have knowledge of the area to help identify potential hidden hazards; and
- Visually inspecting the proposed location of the penetration for any hidden utilities by checking behind walls, into false ceilings, and under subflooring systems for any evidence of utility runs that lead to or from power sources or valves, and conduits exiting through floor slabs, walls, and roofs. This visual check must be performed from areas inside the facility and locations of energy sources outside the facility and adjacent rooms.

31.4 SUBCONTRACTOR shall implement the following controls for Class 2 penetrations:

- If possible, relocate the penetration if known or suspected hazards exist.
- De-energize and lock and tag out all circuits and other energy sources (e.g., gas lines) in the room, building, or area if known electrical or other utility lines are present in the solid material and if the penetration site cannot be changed to a safer location. Lockout/tagouts must be performed in accordance with Section F-30 of this Exhibit.
- If hidden hazards are suspected, use nondestructive testing devices (NDT) (e.g., ground-penetrating radar, x-ray, magnetic, induction,

conductive, or other devices and methods) to determine whether additional hazards exist. If the penetration is to be made into a solid load-bearing wall, use NDT prior to performing the penetration to ensure that the penetration does not interrupt wall reinforcement. Two detection methods are required.

- Use Nationally Recognized Testing Laboratory (NRTL) listed electrical tools that are equipped with ground fault circuit interrupter (GFCI) protection (or plugged into a receptacle with GFCI protection) or NRTL listed electrical tools that are double insulated. Test GFCIs before use.
- If a penetration is in a grounded location (concrete or metal surface, pavement, earth, or wet location) or if the process requires the use of water or other coolants, wear dielectric rubber outer boots over required foot protection.
- Wear the correct classification of dielectric gloves, approved protective outer leather gloves in conjunction with the dielectric gloves, nonconductive safety glasses, and a face shield. Class 2 dielectric protection must be worn if electrical hazards exist or may exist.
- Use masonry or wood bits (which cannot penetrate conduit) whenever possible.
- Where possible, use short drill bits or mark equipment to limit the depth of the penetration.

31.5 SUBCONTRACTOR shall complete a CONTRACTOR penetration permit (Attachment F31-1) for Class 2 penetrations and submit to CONTRACTOR with 2 working day advance notice for approval.

F32.0 Cranes & Material Handling Equipment

32.1 All crane and material handling operations shall be performed in accordance with the applicable sections of 29 CFR 1910 and 29 CFR 1926, the American National Standards Institute (ANSI) B30 series documents, the Department of Energy Hoisting and Rigging Standard 1090-2007 (DOE STD 1090-2007), and the manufacturer's instructions.

NOTE: SUBCONTRACTOR may elect to comply with later revisions of DOE STD 1090 only with approval of the LANL Crane Program Leader and the LANL STR.

32.2 All mobile crane operators must meet the physical qualifications outlined in DOE STD 1090-2007, have documentation of completion of an Operator training course for the type and classification of crane equipment they are using, and possess a current medical certificate and possess a State of New Mexico Mobile Crane Operator license. This documentation which must meet the minimum qualifications in 29 CFR 1926.1400 shall be provided to the CONTRACTOR STR prior to any equipment operations at the project site.

The Contractor shall serve as the controlling entity and ensure that SUBCONTRACTOR complies with the following Ground Conditions per 29 CFR 1926.1402.

(1) Ensure that ground preparations necessary to meet the requirements in paragraph (b) of 29 CFR 1926.1402 are provided such that the ground conditions are firm, drained, and graded to a sufficient extent so that , in

conjunction (if necessary) with the use of supporting materials, the equipment manufacturer's specifications for adequate support and degree of level of the equipment are met.

(2) CONTRACTOR will Inform the SUBCONTRACTOR including the operator the location of hazards beneath the equipment set-up area (such as voids, tanks, utilities) if those hazards are identified in documents (such as site drawings, as built drawings, and soil analysis) that are in the possession of the controlling entity or the hazards are otherwise known to that controlling entity.

(3) In the event the operator or assembly director determines that the ground conditions do not meet the requirements in 29 CFR 1926.1402, the SUBCONTRACTOR shall have a discussion with the controlling entity regarding the ground preparations that are needed so that with the use of suitable supporting materials/devices (if necessary), complies with the standard.

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

Multiple crane operation work-sites or operations occur where two or more mobile or fixed cranes (such as tower cranes or pedestal cranes) share the same air space when working within a limited or constrained area such as a construction work-site (e.g. where crane booms or loads could potentially collide, collide with structures, or collide with other mobile equipment). Where multiple crane operation work sites or operations occur, shall designate a Crane Operations Superintendent, approved by the STR who is responsible to coordinate the placement and safe operation of cranes to prevent mutual interference or collision between cranes and loads and to ensure sufficient clearances are maintained between cranes, loads, structures, and other mobile equipment. Unless otherwise agreed to by the STR, the Crane Operations Superintendent shall have no other duties that would interfere or distract from the primary duty of coordinating and controlling crane movements and operations.

32.4 All riggers shall have formal training and experience demonstrating that they are qualified to perform rigging activities and signaling operations. Evidence of training and experience shall be made available to CONTRACTOR STR prior to any rigging operations at the project site. Per 29 CFR 1926.1404 and 1425 the SUBCONTRACTOR shall use a qualified rigger for rigging operations during assembly/disassembly and other activities when employees must be in the fall zone to handle a load. In addition, Signal person must be qualified per 29 CFR 1926.1428.

32.5 SUBCONTRACTOR personnel who use CONTRACTOR'S stationary cranes, hoists, lifting devices and rigging equipment shall be trained and licensed by CONTRACTOR as Incidental Crane Operators and Riggers for ordinary lifts or as Qualified Crane Operators and Riggers for critical lifts (high consequence lifts)

may apply for training and license equivalency based on evident of class room training, experience and proficiency. An example of equivalency is an industry or OSHA accredited course and documented experience provided by.

32.6 All SUBCONTRACTOR rigging equipment must be tagged as to capacity, have passed an annual inspection within one year from date of intended use, and have passed a preoperational inspection prior to each use. All rigging shall be stored properly (i.e., on racks or in protected areas). Rigging inspections shall meet minimum requirements at 29 CFR 1926.1400 and inspection records shall be maintained at the project site and provided to the CONTRACTORS STR upon request and at contract closeout

32.7 SUBCONTRACTOR shall ensure that all mobile cranes, overhead cranes, hoists, and mechanized equipment have been thoroughly inspected and performance-tested to demonstrate the equipment's ability to safely handle and maneuver rated loads. These tests and inspections must be done prior to initial on-site operation and annually thereafter, as well as following major repairs and modifications. These inspection records shall be provided to the CONTRACTORS STR prior to any equipment operations at the project site. Inspection records shall meet the minimum requirements as specified at 29 CFR 1926.1412, *Inspections* and 29 CFR 1926.1413, *Wire Rope-Inspection*. Maintenance must be current per manufacturer's recommendations. Maintenance shall be performed by a qualified person and provisions for fall protection shall be provided consistent with 29 CFR 1926 Subpart M.

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

32.9 With the exception of final preoperational inspections performed immediately prior to use, SUBCONTRACTOR shall provide appropriate documentation (i.e., training, licenses, certificates, inspections, qualifications, records, and other documents requested by CONTRACTOR) to the STR for review and approval at least two working days prior to planned use. Cranes or other material handling equipment may not be used prior to SUBCONTRACTOR receipt of written approval from the STR.

32.10 SUBCONTRACTOR shall designate a qualified person knowledgeable in crane operations and rigging to determine the methods and develop plans for crane and rigging operations to ensure safe lifts.

32.11 All lifts must be classified as either ordinary or critical by the designated SUBCONTRACTOR qualified person. Any lift meeting one or more of the following criteria shall be considered a Critical Lift (otherwise, it is an ordinary lift):

- A significant risk of personal injury or property damage.
- The load item, if damaged or upset, would result in a release into the environment of radioactive or hazardous material exceeding the established permissible environmental or occupational limits.

- The load item is unique and, if damaged, would be irreplaceable or not repairable and is vital to a system, facility, or project operation.
- The cost to replace or repair the load item, or the delay in operations of having the load item damaged would have a negative impact on facility, organizational, Laboratory, or National Nuclear Security Administration (NNSA) budgets to the extent that it would affect program commitments.
- The failure of the lift could significantly impact the confidence of Laboratory customers or sponsors in the Laboratory's ability to safely execute current or future missions.
- Potential for undetectable load or facility damage, resulting in future operational or safety concerns at a facility.
- Exceeds or may exceed 75% of the rated capacity of the crane (or hoist) or rigging equipment used. Where boom cranes or mobile cranes are involved, greater than 75% of capacity chart for the boom angle(s) and swing radius required for the full cycle of the lift.
- A load that requires special care in handling because of weight, size, asymmetrical shape, undetermined center of gravity, installation tolerances, or other unusual factors.
- Any mobile or industrial boom crane lift in which the crane, hoist, mechanized equipment, or load and line could at any time contact an energized power line or enter the minimum distance specified in 29 CFR 1926.1408, *Power Line Safety (Up To 350 kV) Equipment Operations*, Table A

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

- Identification of the designated Person In Charge (PIC)(s) (Name[s] and Z number[s])
- The designated PIC must be present at the lift location when the plan is executed and is responsible for the execution of the critical lift plan
- Identification of the items to be moved, including weight, dimensions, and center of gravity
- The transport path of the load or loads and the location of any sensitive, dangerous, mission-critical, high-value, or safety-significant equipment, facilities, or materials relative to the transport path
- Identification of operating equipment by type and rated capacity
- Rigging sketches that include (if applicable) the following:
- Identification and rated capacity of slings, lifting bars, rigging accessories, and below-the-hook lifting devices
- Load-indicating devices
- Lifting point(s)
- Sling angles
- Boom and swing angles
- Methods of attachment

- Crane or hoist orientations
- Other factors affecting equipment capacity
- Operating requirements and special operating instructions, including rigging precautions and safety measures to be implemented
- The requirement that only qualified operators who have been trained and instructed to operate the specific equipment assigned will be authorized to make the lift
- Requirements that ensure only signalers who are designated, qualified and trained in accordance with this document give signals to the operators (operator will obey a STOP signal at all times, no matter who gives the signal)
- Proof test certificates for all rigging components below the hook as required by DOE STD 1090-2007 Section 2.2d
- Load charts for each crane or hoist used in the lift (if applicable).
- The critical lift plan will be reviewed by a CONTRACTOR Hoisting and Rigging SME.
- The operator, rigger, signaler, and the PIC will review the plan before the lift is made. If the work plan requires multiple lifts or is executed on more than one shift or day, review with the work team before the initial lift of the day or shift.
- A pre-lift meeting will be conducted with all participating personnel and all questions resolved before a critical lift is initiated. This meeting must be documented on a pre-lift meeting sign-in sheet.
- A specific expiration or review and revision date for each critical lift plan will be established and included in each plan.
- The critical lift plan will be available at the location of the lift when lifting is being conducted.

32.13 Ordinary lifts may require a written ordinary lift plan, as determined by the SUBCONTRACTOR'S qualified person, the crane operator, or the STR. When required, the plan should contain, at a minimum, 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
- Requirement for a pre-lift meeting and a pre-lift meeting sign-in sheet.

Note: Simple offloading operations for nonhazardous, ordinary value cargo or loads from vehicles and transporters, construction materials pick and place operations including steel erection, concrete placement, and material positioning in both industrial and construction operations will not be required to have a documented task specific ordinary lift plan. The Job Hazard Analysis (JHA) / Work Document associated with the task must address crane, hoisting, and rigging hazards.

32.14 All Critical Lift Plans and/or Ordinary Lift Plans (when required) must be available at the lift site at the time of lift.

32.15 Where CONTRACTOR qualified person observation of critical lifts is required. SUBCONTRACTOR shall provide at least four (4) working days advance notice to the STR for observation.

32.16 Elevated loads shall be routed so that no personnel are exposed to the hazards associated with falling objects. A cone of safety shall be established around all hoisted loads in which personnel and equipment are separated by time and distance from any hoisted load. No personnel shall be permitted under suspended loads with the following momentary exceptions:

- Personnel required for guiding, landing or installing materials;
- Personnel engaged in the initial connection of structural steel; or
- Personnel necessary for the hooking or unhooking of the load.

When working under suspended loads as permitted above, the following criteria shall be met:

- Material being hoisted shall be rigged to prevent unintentional displacement;
- Hooks with self-closing safety latches or their equivalent shall be used to prevent components from slipping out of the hook; and
- All loads shall be rigged by a qualified rigger.

32.17 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 29CFR 1926.1407 and 1408. SUBCONTRACTOR(S) must ensure hazard assessments and precautions inside the work zone complies with the following:

- Identify the work zone and submit the hazard assessment to the STR prior to initializing operations.
- Determine if any part of the equipment, load line or load, if operated up to the equipment's maximum working radius in the work zone, could get closer than 20 feet to a power line. If so the SUBCONTRACTOR must meet the requirements in Option (1) De-energize and ground, Option (2) 20 foot minimum clearance or Option (3) Table A Clearance of 29 CFR 1926.1408.

32.17.1 Preventing encroachment/electrocution. Where encroachment precautions are required under Option (2) or Option (3), all of the following requirements must be met:

- Conduct a planning meeting with the operator and the other workers who will be in the area of the equipment or load to review the location of the power lines and the steps that will be implemented to prevent encroachment/electrocution.
- If tag lines are used they must be nonconductive.
- Erect and maintain an elevated warning line, barricade or line of signs in view of the operator at 20 feet from the power line if using Option 2 or the minimum approach distance under

(Table A) if using Option 3. If the operator is unable to see the elevated warning line, a dedicated spotter must be used as described in 29 CFR 1926.1408(b)(4), (iii), (iv) and (v).

- Implement at least one of the following measures:
  - A proximity alarm set to give the operator sufficient warning to prevent encroachment.
  - A dedicated spotter who is in continuous contact with the operator. Where this measure is selected, the dedicated spotter must:`
  - Be equipped with a visual aid to assist in identifying the minimum clearance distance.
  - Be positioned to effectively gauge the clearance distance.
  - Where necessary, use equipment that enables the dedicated spotter to communicate directly with the operator.
  - Give timely information to the operator so that the required clearance distance can be maintained.
  - A Device that automatically warns the operator when to stop movement, such as a range control warning device.
  - A device that automatically limits range of movement, set to prevent encroachment.
  - An insulating link/device, as defined in 29 CFR 1926.1401, installed at a point between the end of the load line and the load.

32.17.2 Voltage information. Where Option (3) of the standard is used, the utility owner/operator of the power lines must provide the required voltage information within two working days of the SUBCONTRACTORS' request.

32.17.3 Operations below power lines

- No part of the equipment, load line, or load is allowed below a power line unless the SUBCONTRACTOR has confirmed that the utility owner/operator has de-energized and visibly grounded the power line, except where one of the exceptions in paragraph 29 CFR 1926.1408 (d)(2) of this section applies.
- Exceptions. Paragraph 29 CFR 1926.1408 (d)(1) of the regulation is inapplicable where the SUBCONTRACTOR demonstrates that one of the following applies:

The work is covered by Subpart V

- For equipment with extensible booms: the uppermost part of the equipment, with the boom at true vertical, would be more than 20 feet below the plan of the power line or more than the Table A minimum clearance distance below the plane of the power line.
- For equipment with articulating or extensive booms: The uppermost part of the equipment, with the boom in the fully extended position, at true vertical, would be more than 20 feet

below the plane of the power line or more than the Table A minimum clearance distance below the plane of the power line.
- The SUBCONTRACTOR demonstrates that compliance with paragraph (d)(1) of the standard is infeasible and meets the requirements of 29 CFR 1926.1410.

32.17.4 Training

The SUBCONTRACTOR must train each operator and crew member assigned to work with the equipment on all of the following:

- The procedures to be followed in the event of electrical contact with a power line.
- Power lines are presumed to be energized unless the utility owner/operator confirms that line has been and continues to be de-energized and visibly grounded at the work site.
- Power lines are presumed to be un-insulated unless the utility owner/operator or a registered engineer who is qualified person confirms that a line is insulated.
- The limitations of an insulating link/device, proximity alarm, and range control device, if used.
- The procedures to be followed to properly ground equipment and the limitations of grounding.

SUBCONTRACTORS working as dedicated spotters must be trained to enable them to effectively perform their task, including training on the applicable requirements of the standard. Training under this standard must be administered in accordance with 29 CFR 1926.1430(g)(h) Devices originally designed by the manufacturer for use as: a safety device (29 CFR 1926.1415), operational aid, or a means to prevent power line contact or electrocution, when used to comply with the standard, must meet the manufacturer’s procedures for use and conditions of use.

Table A – Minimum Clearance Distances

Voltage (nominal, kV, alternating current)	**Minimum clearance distance (feet)***
Up to 50	**10 (feet)**
Over 50 to 200	**15**
Over 200 to 350	**20**
Over 350 to 500	**25**
Over 500 to 750	**35**
Over 750 to 1000	**45**
Over 1000 (as established by the utility owner/operator)	

29 CFR 1926.1409 addresses requirements for Power line safety (over 350kV)
29 CFR 1926.1410 Power line safety (all voltages) –equipment operations closer than the Table A zone
29 CFR 1926.1411 Power line safety-while traveling under or near power lines with no load include Table T- Minimum Clearance Distances While Traveling With No Load

Table T – Minimum Clearance Distances while Traveling with No Load

Voltage (nominal, kV, alternating current) While Traveling-Minimum Clearance	
Up to 0.75	**4 (feet)**
Over .75 to 50	**6**
Over 50 to 345	**10**
Over 345 to 750	**16**
Over 750 to 1000	**20**
Over 1000 (as established by the utility owner/operator)	

Note: These clearance distances do not relieve the SUBCONTRACTOR from full compliance with the requirements of 29 CFR 1926.1406 through 29 CFR 1926.1411.

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

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

32.19 SUBCONTRACTOR shall ensure that each Signal Person meets minimum qualifications as specified at 29 CFR.1428 Signal Person Qualifications. This document shall be maintained at the project site and provided to the Contractor upon request.

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

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

F33.0 Suspended Personnel Platforms

33.1 Suspended personnel platforms shall only be used when they are the least hazardous way to perform the work and 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.

33.2 Personnel platforms (baskets) provided by SUBCONTRACTOR shall be designed, by a registered professional engineer. Additionally, and any repairs or alterations to personnel platforms must be approved by a registered professional engineer. The platforms must have permanent markings indicating maximum weight and must be load-tested in accordance with 29 CFR 1910.179.

33.3 If CONTRACTOR approves the use of crane suspended personnel platforms, SUBCONTRACTOR shall thoroughly inspect the crane/derrick and ensure it has an operational anti-two-block device and locking devices on the hook. Free fall capacity, if present, shall be positively locked out or disabled. The area under the lift shall be isolated by barricades and signs.

33.4 SUBCONTRACTOR shall provide a positive means of communication between the crane operator and employees in a crane suspended personnel platform. Employees in the platform shall wear full body harnesses attached to a designated anchor point.

33.5 SUBCONTRACTOR shall describe the manner in which SUBCONTRACTOR intends to comply with this section in SUBCONTRACTOR'S Site-Specific ES&H Plan.

F34.0 Aerial Work Platforms (Aerial Lifts)

34.1 Machines manufactured and used for elevated personnel platform work (JLG, Hi-lift, etc.) shall be operated and maintained in accordance with manufacturers' instructions and recommendations and only by trained and qualified individuals. Training records shall be made available to CONTRACTOR, upon request.

34.2 All persons inside work platforms shall wear a full body harness attached to a designated anchor point and stand on the floor of the platform or basket only. Climbing or sitting on the guardrail or enclosure is prohibited. All work platforms shall be equipped with a UL or FM approved fire extinguisher either 5BC or 5 ABC rate minimum.

34.3 SUBCONTRACTOR shall ensure lifts are not be used as a substitute for a material hoist and that nothing is rigged from the boom or platform.

F35.0 Pressure Safety Including Compressed Gases

35.1 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 10 CFR 851 Appendix A, Section 4, the applicable American Society of Mechanical Engineers (ASME) engineering codes, and sound engineering principles. When stated in the Scope of Work, the CONTRACTOR will review and approve SUBCONTRACTOR designs, installations, tests, and other specified deliverables associated with pressure systems.

35.2 SUBCONTRACTOR shall conduct any field pressure tests of piping using written test plans and procedures that are submitted as part of the site-specific ES&H Plan. At a minimum, the procedures shall include: safety requirements, clear identification of test boundaries, isolation points, system over pressurization protection, and a space to record test results and applicable drawings. Prior to implementation, such testing procedures will be reviewed and approved by the LANL chief Pressure Safety Officer via the STR.

35.3 SUBCONTRACTOR shall notify CONTRACTOR and receive written CONTRACTOR authorization prior to bringing any compressed gases on-site. Additionally, for such compressed gases, SUBCONTRACTOR's ES&H Plan shall include a Gas Cylinder Use and Storage Procedure that meets the requirements of Compressed Gas Association (CGA) Pamphlet P-1. The Procedure shall include segregation by type, proper signage, protective isolation of flammable gases from oxygen, provisions to keep cylinder caps in place when cylinders are not in use, positive securing of bottles, and maintenance of safe distances from ignition sources, doors, and windows.

35.4 SUBCONTRACTOR shall provide cradles and/or cages for lifting compressed gas cylinders and ensure that cylinders being transported are secured.

F36.0 Electrical Safety

36.1 In accordance with 10 CFR 851 Appendix A, Section 10, SUBCONTRACTOR shall implement a comprehensive electrical safety program appropriate for the activities at the worksite which must meet the applicable electrical safety codes and standards listed in Section F1.0, General Requirements. Electrical Integrated Work Documents shall be prepared in accordance with *Guide for Electrical IWDs for LANL Subcontractors* that may be found at: http://int.lanl.gov/safety/industrial_hygiene_and_safety/electrical-safety/_assets/docs/iwd.pdf .

36.2 SUBCONTRACTOR will use only electrical equipment that is listed by a Nationally Recognized Testing Laboratory (NRTL), such as Underwriters

Laboratory (UL) and will use it as intended per its listing. Any modifications or repairs to such listed equipment, or use of such listed equipment outside of its intended use, must be approved by the CONTRACTOR'S electrical Authority Having Jurisdiction (AHJ), e.g., an Electrical Safety Officer (ESO). Any unlisted electrical equipment (containing an electrical hazard) must be inspected and approved by the CONTRACTOR'S electrical AHJ.

36.3 SUBCONTRACTOR shall ensure that all workers who may be exposed to facility electrical hazards meet the training requirements for electrical workers per OSHA and NFPA 70E for "qualified person(s)". Documentation of training shall be provided to the CONTRACTOR'S Chief ESO or designee(s) for approval using Attachment F36-0. Alternatively, the electrical workers may take the appropriate CONTRACTOR electrical safety training, as determined by an ESO. Acceptable training records must be provided for each employee.

36.4 If SUBCONTRACTOR'S work will involve research and development (R&D) equipment or other special electrical hazards, including direct current, capacitors, inductors, variable frequency drive power supplies and equipment, radio frequency (3 khz - 300 Ghz) storage batteries, and/or uninterruptable power supplies, SUBCONTRACTOR shall follow CONTRACTOR'S electrical safety requirements specified below.

36.4.1 SUBCONTRACTOR'S work results in exposure of workers to R&D or special electrical hazards (as stated above), SUBCONTRACTOR workers must take the appropriate CONTRACTOR R&D electrical safety training, as determined by an ESO or provide documentation of equivalent training that is acceptable to the CONTRACTOR Chief ESO or his / her designee(s) using Attachment F36-0.

36.5 For work on or near exposed electrical hazards, which includes activities such as zero energy checks, adjustments, troubleshooting, and maintaining and/or repairing electrical equipment, SUBCONTRACTOR shall develop and follow an Integrated Work Document that meets both the requirements of NFPA 70E and CONTRACTOR'S requirements specified below.

36.5.1 If the work involves the replacement of parts, circuit reconfiguration, or the use of tools on an energized hazardous electrical circuit, then the SUBCONTRACTOR shall develop and follow an Energized Electrical Work Permit (EEWP) that meets both the requirements of NFPA 70E and CONTRACTOR'S requirements specified below.

36.6 SUBCONTRACTOR shall ensure electrical workers follow all PPE requirements in section F12, Personal Protective Equipment, of this Exhibit as well as in NFPA 70E.

36.7 SUBCONTRACTOR shall ensure any worker subject to electrical shock (other than static electricity) is evaluated by medical personnel and CONTRACTOR is notified. Additionally, any possible arc flash or burn to the skin or eyes from proximity to electrical discharge requires CONTRACTOR notification and evaluation by medical person.

F37.0 Traffic and Pedestrian Control

37.1 SUBCONTRACTOR shall develop and implement a Traffic Control Plan (TCP) for the worksite, including placement and use of traffic control devices and

flagmen. The plan shall address changes required in traffic flow and controls as the work progresses. The Plan(s) will be submitted to CONTRACTOR STR for approval by the CONTRACTOR Traffic Engineer. SUBCONTRACTOR'S TCP shall be submitted for each phase of a multi-phase project.

37.2 SUBCONTRACTOR'S TCP must include a set of control measures designed to minimize the impact on transportation and facilitate the passage of vehicles and pedestrians around the work zone. Strategies for traffic operations will include: demand management; corridor/network management; safety management and enforcement; and work zone traffic management.

37.3 SUBCONTRACTOR'S TCP shall include a set of control measures designed to inform road users, LANL workers, area facilities and in cases where SUBCONTRACTOR's Scope of Work requires control of public roads outside the LANL / DOE owner controlled area, the general public, area residences and businesses, and appropriate public entities about the project and its impacts.

37.4 SUBCONTRACTOR'S TCP controls must conform to LANL design standards for traffic control devices used in construction and maintenance work zones. The amount of detail included in the TCP depends on the complexity of the project, volume of traffic flow, roadway geometry, and the activities being performed. At a minimum, the TCP shall include a description outlining how vehicles (including oversize vehicles) and pedestrians will be directed to use traffic paths prescribed in the TCP during every phase of the project; and instructions addressing the particular sequence of actions necessary to setup, maintain, operate, and take down the traffic control devices.

37.5 SUBCONTRACTOR shall analyze and design temporary diversions of traffic from its normal course while creating and maintaining a safe work zone.

37.6 SUBCONTRACTOR shall equip any barricade left after dark on or in close proximity to roadways with flashing amber lights.

F38.0 Pollution Prevention / Waste Minimization

38.1 SUBCONTRACTOR shall manage all work activities in a manner that prevents pollution and minimizes the generation of waste and that promotes energy conservation.

38.2 SUBCONTRACTOR shall practice pollution prevention and waste minimization techniques including proper storage of chemicals to prevent spills, separation of waste streams to expedite material management and to prevent cross contamination, prompt clean-up and reporting of spills, and use of nonhazardous substitutes in the place of hazardous chemicals.

38.3 SUBCONTRACTOR shall make every effort to minimize waste generated during construction and demolition. SUBCONTRACTOR shall track and report the weight and volume of materials that were removed from the site as waste and shall indicate the method of disposition (e.g., reused, recycled, or disposed). SUBCONTRACTOR shall report these data at intervals requested by the STR.

38.4 SUBCONTRACTOR shall purchase and use materials and products that provide for pollution prevention, and shall take advantage of reuse and recycling

programs to the extent practical. Requirements for purchase of materials and products that provide for pollution prevention and requirements for waste minimization are as follows:

38.4.1 Recycled Construction Products and Materials –*Resource Conservation and Recovery Act* supplemented by Executive Order 13693 require designated products to be purchased with the highest recovered (recycled) material content level practicable. *Comprehensive Procurement Guidelines* for products designated by the U.S. Environmental Protection Agency for purchase with recovered materials may be found at: http://www2.epa.gov/greenerproducts. *Green Spec* directory of environmentally preferable construction products and materials organized by the CSI Master Format may be found at http://www.greenspec.com.

38.4.2 Biobased Materials and Products - *The Farm Security and Rural Investment Act* and Executive Order 13693 require preferential purchase of products certified by the U.S. Department of Agriculture to contain biobased content. Biobased Industrial Products certified by the U.S. Department of Agriculture may be found at http://www.biopreferred.gov/BioPreferred/.

38.4.3 Energy Efficient Products - Executive Order 13693 and 48 CFR Part 23.203 require the purchase of energy efficient products labeled "Energy Star". For energy efficient products, go to: http://www.eere.energy.gov/. *Building for Environmental and Economic Sustainability* (BEES) tool to weight the environmental and economic performance of building products and materials may be found at http://www.bfrl.nist.gov/oae/bees.html.

38.4.4 Waste Reduction and Recycling –Executive Order 13693 and DOE directives require waste reduction and recycling targets. For more information, visit https://www.fedcenter.gov/programs/eo13693/.

F39.0 Waste Management/Disposal

39.1 SUBCONTRACTOR shall comply with all Federal, State, and Local laws and regulations for generation, storage, packaging, transportation, and disposal of wastes generated at sites controlled by CONTRACTOR including DOE O 435.1, Radioactive Waste Management.

39.2 SUBCONTRACTOR shall utilize the LANL Environmental Work Planning Permits and Requirements tool (e.g. EX-ID, PR-ID) when planning and before conducting project activities at the Laboratory.

39.2.1 The link to "Environmental Work Planning Permits & Requirements", http://int.lanl.gov/environment/compliance/lanl_only/permit_reqs.shtml contains additional guidance on permits and requirements relative to Waste and Materials Management. Contact the assigned CONTRACTOR Waste Management Coordinator for additional information.

39.3 SUBCONTRACTOR shall not abandon or leave any waste, materials, product, chemicals, debris, equipment or excess concrete, asphalt or soil on-site at the Laboratory without approval of the CONTRACTOR.

39.4 Waste managed by SUBCONTRACTOR that is of unknown origin (e.g., abandoned materials or waste from a PRS that has never been sampled), having a likelihood of generating hazardous or mixed waste, shall be managed conservatively in a less-than-90-day accumulation area meeting all applicable hazardous and mixed waste regulatory requirements until characterization information confirms the waste is not a hazardous or mixed waste. SUBCONTRACTOR personnel who manage waste in a less-than-90-day accumulation area shall have LANL RCRA Personnel Training.

Note: The following section is only applicable if hazardous or mixed waste management units will be newly constructed or modified.

39.5 SUBCONTRACTOR shall not begin physical construction until CONTRACTOR provides evidence of having received a permit, or modification thereof for the hazardous or mixed waste management unit.

OPTION A: CONTRACTOR Provides Waste Characterization Strategy Form (WCSF)

39.6 SUBCONTRACTOR shall store, handle, package, transport, and dispose of waste in accordance with CONTRACTOR provided WCSF.

39.7 SUBCONTRACTOR shall notify STR immediately if a waste stream is generated that was not included in the WCSF. Work involving the new waste stream shall not continue until the CONTRACTOR provides an amended WCSF.

OPTION B: SUBCONTRACTOR Provides Waste Characterization Strategy Form (WCSF)

39.8 SUBCONTRACTOR shall prepare the WCSF in accordance with the following requirements:

- Prepare the WCSF in accordance with the Waste Characterization Strategy Form Preparation Guidance: http://permalink.lanl.gov/object/tr?what=info:lanl-repo/eprr/ADEP-EP-DIR-SOP-10021.
- Submit the WCSF to the CONTRACTOR signatories for review and signature.
- Submit the approved WCSF to the STR.
- SUBCONTRACTOR shall store, handle, package, and disposition waste in accordance with the approved WCSF.
- Notify the STR and amend the approved WCSF when an unanticipated waste is generated or when an approved strategy for management of a waste stream significantly changed in accordance with the WCSF Preparation Guidance.

39.9 SUBCONTRACTOR shall comply with the following Field Waste Management requirements:

- SUBCONTRACTOR shall inspect used containers in accordance with DOT requirements before reuse. Provide decontamination fluid analysis to STR to show that previously used containers are clean.
- SUBCONTRACTOR shall ensure that field operations and sampling personnel are briefed on the WCSF and amendment requirements.
- If WCSF identifies direct offsite disposal of radioactive waste to a non-Department of Energy treatment storage, or disposal facility; SUBCONTRACTOR shall verify with the LANL Waste Certifying Official that there is an approved Exemption Request in place. If an approved Exemption Request is not in place, supply the required data to the CONTRACTOR'S Waste Certifying Official.
- SUBCONTRACTOR shall set up appropriate areas for accumulating/storing wastes (e.g., <90 day accumulation area. Satellite Accumulation Area, Universal Waste Area, Used Oil Area, New Mexico Special Waste area, radioactive waste staging or storage area). Request that CONTRACTOR WMC assigned to the project register the area and provide the FWMT with the Site ID number.
- SUBCONTRACTOR shall perform all necessary inspections, record keeping, and reporting requirements for accumulation, staging, or storage areas and ensure SUBCONTRACTOR personnel are performing these duties. Submit inspection records to CONTRACTOR at the end of the project for records management.
- SUBCONTRACTOR shall report weekly to the STR on the status of each waste container in a format preapproved by the CONTRACTOR.
- SUBCONTRACTOR shall participate in periodic CONTRACTOR and/or regulatory agency waste management compliance inspections.
- SUBCONTRACTOR shall make waste determinations within 45 days of the date of waste generation unless otherwise specified in the WCSF (e.g., for wastes stored in satellite accumulation areas, drill pits, or an approved area of contamination). Plan sampling events (e.g., within 10 days of waste generation or well completion) and analytical sample turnaround times (e.g., 21 days) to ensure data are available to make the waste determination. If a waste determination cannot be made within 45 days, SUBCONTRACTOR shall notify STR and provide an acceptable alternative date for each waste container.
- If a waste determination cannot be made within 45 days for wastes in hazardous waste <90 day accumulation areas, SUBCONTRACTOR shall notify the CONTRACTOR waste generator and WMC and submit a Waste Acceptance Criteria Exception Form to CONTRACTOR'S Waste Services. SUBCONTRACTOR shall ensure that wastes are shipped prior to expiration of the <90 day clock, unless a 30 day extension has been granted.
- SUBCONTRACTOR shall evaluate use of Green is Clean for non-radioactive wastes generated in a radiological area.
- Before day 70 or 15 working days (whichever is shorter) of the end of an accumulation period SUBCONTRACTOR shall notify the CONTRACTOR'S Waste Generator and WMC if a source evaluation (due diligence review) is needed for listed wastes (F-, P-, U-, or K-listed), who will contact the Environmental Protection Division (ENV-CP) representative to discuss preparation of the due diligence review.

- SUBCONTRACTOR shall prepare CONTRACTOR'S Waste Profile Forms and submit them to the CONTRACTOR'S WMC. If the waste will be shipped off-site SUBCONTRACTOR shall obtain and complete the receiving facility's Waste Profile Form, obtain the approval from the receiving facility, and notify the CONTRACTOR waste generator and WMC that an approved off-site Waste Profile Form is in place for waste shipment. SUBCONTRACTOR shall submit all approved Waste Profile Forms and supporting documentation (e.g., data and acceptable knowledge documentation) to STR at the end of the project for records management.
- SUBCONTRACTOR shall evaluate drill cuttings and drilling, purge, development, and rehabilitation waters for land application in accordance with the New Mexico Environment Department approved Notice of Intent (NOI) decision trees and prepare packages for CONTRACTOR'S ENV-CP's approval of the land application. SUBCONTRACTOR shall evaluate other environmental media for return to the location of origin to determine if they meet criteria that were specified in approved work plans or other documents.
- SUBCONTRACTOR shall ensure that all wastes are dispositioned within regulatory time limits.

39.10 SUBCONTRACTOR shall comply with the following Waste Sampling requirements:

- SUBCONTRACTOR shall inform the project Field Waste Management Technician (FWMT) and the CONTRACTOR WMC of sample date prior to the sampling event.
- SUBCONTRACTOR shall collect representative waste samples and manage samples in accordance with Environmental Protection Agency (EPA) guidance (EPA, 1986. SW-846, https://www.epa.gov/sites/production/files/2015-10/documents/chap9_0.pdf and the project WCSF.

39.11 SUBCONTRACTOR shall comply with the following waste packaging and transport-related requirements:

- SUBCONTRACTOR shall ensure that all containers are packaged, labeled, screened, and marked in accordance with 49 CFR Department of Transportation requirements.
- SUBCONTRACTOR shall coordinate waste transportation directly with the disposal facility or through the CONTRACTOR'S Waste Operations group.
- SUBCONTRACTOR shall notify the CONTRACTOR'S waste generator, WMC, and Transportation Coordinator of scheduled waste shipping dates.
- SUBCONTRACTOR shall verify that all shipping containers are secured by the carrier prior to transportation.
- If responsible for the transport of the waste, SUBCONTRACTOR shall transport wastes in accordance with the off-site receiving facilities' waste acceptance criteria and 49 CFR Department of Transportation requirements. SUBCONTRACTOR shall ensure transportation is by an

approved carrier in accordance with Department of Energy's Motor Carrier Qualifications Program.

OPTION C: CONTRACTOR provides the Acceptable Knowledge Review or Due Diligence Report

39.12 SUBCONTRACTOR shall maintain a copy throughout the life time of the project of the final Acceptable Knowledge Review or Due Diligence Report(s) provided by the CONTRACTOR.

- SUBCONTRACTOR shall attach a copy of the final (s) to the Waste Profile form and/or Land Application Package(s), if applicable.

OPTION D: SUBCONTRACTOR provides the Acceptable Knowledge Review or Due Diligence Report

39.13 SUBCONTRACTOR shall comply with the following due diligence review requirements:

- Gather, collect, analyze, and review validated analytical data and historical documentation to determine if potentially F, P, U, or K-listed contamination detected in waste originated from a listed source.
- Prepare an Acceptable Knowledge Review or Due Diligence Report and submit the report to ENV-CP for review and approval. The report must identify the potentially listed contaminants, a list of the documents reviewed, identification of sources that may have contaminated the waste, and conclusions regarding what sources were not listed. The report must be submitted within 70 days of the date of generation unless wastes are stored in a drill pit or an approved area of contamination. The final reports shall be attached to the Waste Profile Form and/or Land Application Package(s), if applicable.
- If the document review identifies that the source of the contamination is listed but the concentrations are low, notify the STR to request that CONTRACTOR'S ENV-CP evaluates whether a "contained-in" may be appropriate. The notification must occur within 70 or 15 working days (whichever is shorter) of the end of an accumulation period, if one applies.

F40.0 Work Within the Boundary Of A Potential Release Site (PRS)

40.1 SUBCONTRACTOR shall comply with all Federal, State, and Local laws and regulations governing work within the boundary of a PRS.

40.2 SUBCONTRACTOR agrees to comply with the following requirements imposed by the NNSA Consent Order dated March 1, 2005, as executed by CONTRACTOR and the New Mexico Environment Department (NMED).

40.2.1 CONTRACTOR will notify SUBCONTRACTOR if the planned work activities will take place within the boundary of the PRS that is also a radiological site. The STR through the Laboratory's ADEP/WES organization will provide SUBCONTRACTOR with information regarding potential contaminants present in soils and other materials at the site

and the potential hazards associated with those contaminants, where available, and will ensure the boundaries of the PRS are marked at the construction site.

40.2.2 CONTRACTOR shall provide and SUBCONTRACTOR will follow the plan detailing the sequence of soil disturbing work, layout and management of areas for construction equipment and materials, and site stabilization measures to be performed within the boundary of the PRS.

40.2.3 SUBCONTRACTOR agrees to manage all excavated soil, fill and other materials (i.e., concrete, asphalt, drain lines, etc.) within the boundary of the PRS. All excavated soil and fill must be returned to the point and depth of origin within the excavation upon completion of the project unless otherwise specified in the CONTRACT. While staged within the PRS boundary, SUBCONTRACTOR shall stabilize the excavated soil, fill and other material to ensure that the soil or other materials are not dispersed off the site by wind, storm water runoff, vehicle or pedestrian traffic, etc.

40.2.4 SUBCONTRACTOR agrees to manage, characterize, and dispose of any soil or other material including concrete and asphalt removed from a PRS boundary in accordance with Section F39, Waste Management/Disposal. SUBCONTRACTOR shall provide copies of all waste management documentation for materials removed from a PRS to CONTRACTOR.

40.2.5 SUBCONTRACTOR shall not abandon excavated material from a PRS or on a PRS. If fill material or soil is suspected to be contaminated, SUBCONTRACTOR will sample and analyze the material as may be required for characterization and disposal, and to manage all waste generated in accordance with the Waste Management Plan or Waste Characterization Strategy Form. **Note:** Leaving a pile of concrete, asphalt, soil, excavated material, equipment, waste, chemicals, or other material at the site is considered abandonment of waste, unless approved in writing by the STR.

40.3 PRS boundaries and specific Best Management Practices (BMPs) for any PRS shall be uniquely identified in SUBCONTRACTOR'S Storm Water Pollution Prevention Plan (SWPPP), as part of its Site-Specific ES&H Plan, and shall meet the following, as applicable:

40.3.1 SUBCONTRACTOR shall not locate concrete washout pits, potholing water pits, and storm water retention ponds within the boundary of a PRS nor can a storm water retention pond be constructed of fill material from a PRS.

40.3.2 Prior to the start of any soil disturbing activities within a PRS, SUBCONTRACTOR shall install and maintain BMPs (i.e., erosion controls) in the manner and sequence specified in SUBCONTRACTOR'S SWPPP for the project to prevent storm water

running onto a PRS or runoff from a PRS impacted by the planned work activities.

40.3.3 SUBCONTRACTOR agrees to stabilize any disturbed areas within a PRS boundary as soon as practicable. To the extent practicable, stabilization activities shall be timed, to take advantage of climatic conditions.

Note: To prevent contaminant transport and the invalidation of site characterization data, disking or grading the surface of a PRS is prohibited, except as approved by the STR.

40.4 SUBCONTRACTOR agrees to comply with the requirements of the Price Anderson Amendments Act (PAAA), 10 CFR 30, Subpart A for any work activity or project to be conducted within the boundary of a PRS designated as either a radiological site or a nuclear environmental site (NES) as determined by the Laboratory, SUBCONTRACTOR acknowledges the Office of Price-Anderson Enforcement can apply sanctions to SUBCONTRACTOR for actions, procurements, or conditions that violate nuclear safety requirements for protecting workers and the public. SUBCONTRACTOR shall ensure that all personnel, including its lower-tier subcontractors, are notified of enforcement consequences, associated with the PAAA.

F41.0 Wastewater Discharges

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

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

41.3 SUBCONTRACTOR shall capture all concrete and mortar washout material in on-site containment areas for dewatering / evaporation / hardening at locations designated by the STR. SUBCONTRACTOR shall ensure residue from this process is accounted for and managed in accordance with its Waste Management Plan or Waste Characterization Strategy Form (see Section F39) and managed in accordance with the plan or form.

41.4 For wastewater discharges into Laboratory treatment facilities, SUBCONTRACTOR shall demonstrate compliance with the applicable Waste Acceptance Criteria (WAC) and receive approval from the STR prior to any such

wastewater discharges. Compliance with the WAC may be demonstrated through existing water quality data or through sampling and analysis by SUBCONTRACTOR, as may be required by CONTRACTOR to demonstrate compliance.

F42.0 Spill Prevention, Reporting, And Response

42.1 SUBCONTRACTOR shall prepare and implement a Spill Prevention Control and Countermeasure (SPCC) Plan in accordance with 40 CFR 112 (SPCC Plan) for facilities that have an aggregate aboveground storage capacity of 1,320 gallons, or greater, of oil or other petroleum products. The SPCC Plan shall be submitted by the SUBCONTRACTOR as part of its Site-Specific ES&H Plan.

42.2 SUBCONTRACTOR shall develop and maintain spill prevention control and countermeasures for chemicals, petroleum, and waste products used and stored on the work site. The following Best Management Practices (BMP(s)) 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 sewers.
- Maintain nearby spill control equipment (i.e. spill kit).
- Effectively containerize and label all products
- Aboveground fuel storage tanks designed for stationary use may not be used as mobile tanks.

42.3 SUBCONTRACTOR shall supply CONTRACTOR with an inventory of chemicals, petroleum, and other products to be stored at the worksite and the steps that will be taken to prevent releases of those products prior to bringing them onto the worksite.

42.4 SUBCONTRACTOR shall provide immediate notification to the STR and LANL Emergency Management (EM) of any spilling, leaking, pumping, pouring, discharging (including wastewater), emitting or dumping of materials to the environment, regardless of quantity. STR will make appropriate on-site notifications to Environmental Compliance. See http://int.lanl.gov/environment/water/flst/docs/forms/Unplanned-Release-Report.pdf. Releases that are reportable to the NMED and EPA may require additional documentation. SUBCONTRACTOR shall report any other incident relative to material/waste handling, storage, transportation, or disposal and shall take immediate and appropriate steps to protect human health and the environment. SUBCONTRACTOR agrees to sample and analyze liquid releases and/or spill residues as may be required for characterization and disposal, and to manage all waste generated in accordance with regulatory requirements.

42.5 SUBCONTRACTOR shall not store or use Clean Air Act Section 112r toxic or flammable chemicals in excess of the threshold quantities that would require LANL to have a Risk Management Plan. SUBCONTRACTOR shall provide a list of all chemicals planned to be stored or used over the duration of the project in quantities in excess of 500 pound. This list is needed prior to the start of work.

F43.0 Storm Water Management

43.1 SUBCONTRACTOR shall comply with all Federal, State, and Local laws and regulations regarding storm water runoff and control of potential pollutants from 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 CONTRACTOR at any time.

43.2 SUBCONTRACTOR shall utilize appropriate storm water management, sediment, and erosion control Best Management Practices (BMP)(s) in accordance with Laboratory Engineering Standards, the LANL Storm Water BMP Manual, LANL construction specifications, good engineering practices, and industry standards.

43.3 For activities subject to the NPDES Construction General Permit (CGP), SUBCONTRACTOR is required to comply with the requirements of the Permit as published on EPA's website. (http://cfpub.epa.gov/npdes/stormwater/cgp.cfm)

43.3.1 SUBCONTRACTOR shall assist CONTRACTOR with development of a Storm Water Pollution Prevention Plan (SWPPP) in accordance with the NPDES CGP. Properly certify the SWPPP for inclusion in the project ES&H Plan and shall implement the SWPPP.

43.3.2 SUBCONTRACTOR, through submission to the Environmental Protection Agency of a Notice of Intent (NOI), shall obtain NPDES CGP coverage separate from that obtained by CONTRACTOR, and shall require, as necessary, all lower-tier subcontractors, whose day-to-day operational control of subcontract activities fall under the purview of the NPDES regulations, to obtain separate permits. SUBCONTRACTOR shall provide documentation of a proper NOI submittal to the STR.

43.3.3 SUBCONTRACTOR shall complete all required storm water training prior to the commencement of earth-disturbing or pollutant-generating activities.

43.3.4 SUBCONTRACTOR will correct deficiencies noted by CONTRACTOR during SWPPP inspections within the timeframe specified in the CGP and as noted on the inspection reports.

43.3.5 SUBCONTRACTOR shall initiate stabilization measures whenever earth-disturbing activities have permanently or temporarily ceased on any portions of the site. Stabilization activities will be completed within 14 calendar days or within 7 calendar days for sites that discharge to an impaired water.

43.3.6 SUBCONTRACTOR shall complete and maintain record keeping requirements as identified in the CGP.

43.4 For work within a watercourse, subject to regulation by the US Army Corp of Engineers, SUBCONTRACTOR shall comply with all terms and conditions of the applicable 404 Permit and the related New Mexico Section 401 Water Quality Certification.

43.5 For activities with facilities subject to the NPDES Multi-Sector General Permit (MSGP), SUBCONTRACTOR shall obtain, through the Contractor, a copy of the facility MSGP SWPPP and shall comply with the site specific MSGP requirements as identified in the facility MSGP SWPPP.

43.5.1 SUBCONTRACTOR shall provide CONTRACTOR with project information sufficient to amend the facility MSGP SWPPP, as needed.

43.5.2 SUBCONTRACTOR shall stabilize disturbed areas whenever earth-disturbing activities have permanently or temporarily ceased on any portions of the site.

43.5.3 Upon identification of corrective actions required by the MSGP, Subcontractor shall notify the STR, document conditions in accordance with MSGP requirements, take immediate corrective action, and complete final corrective action within 14 calendar days.

43.6 All temporary and permanent control measures necessary to comply with NPDES permit requirements, spill clean-up, or other regulations, shall be performed at SUBCONTRACTOR'S expense and shall be included in the subcontract price.

43.7 In the event that SUBCONTRACTOR fails to comply with the provisions of this clause, CONTRACTOR may take such action as it deems necessary to assure compliance with NPDES or other federal or state regulations. In such event, the cost of all measures taken by CONTRACTOR, including those actions resulting in a violation(s) and/or penalties attributable to SUBCONTRACTOR activity, shall be charged to SUBCONTRACTOR and may be deducted from any amounts due to the SUBCONTRACTOR.

F44.0 Air Quality

44.1 SUBCONTRACTOR shall comply with all Federal, State, and Local laws and regulations governing air quality and emissions.

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

44.3 SUBCONTRACTOR shall provide in Attachment F16-1 Major Equipment Declaration, a list of equipment that may emit air pollutants to be used for the duration of the project and proposed equipment to be installed in buildings on a temporary basis. Equipment includes, but is not limited to: generators, boilers, hot water heaters, cooling towers, storage vessels or tanks, degreasers, parts washers, refrigerant containing equipment, rock crushers, asphalt plants, concrete plants, plug mills, etc.

44.4 For all open burning operations, SUBCONTRACTOR shall comply with the Open Burning and Smoke Management requirements of New Mexico Administrative Code Sections 20.2.60 and 20.2.65 as well as LANL's Title V Operating Permit.

F45.0 Biological Resources Protection

45.1 SUBCONTRACTOR'S activities and operations will comply with all Federal, State, and local laws and regulatory requirements for protection of threatened and endangered species, migratory birds, and protected habitats (including wetlands and floodplains).

45.2 SUBCONTRACTOR and all lower tier Subcontractors shall comply with all work restrictions required for compliant biological resources protection that are identified by the STR. Such actions are identified by: biological SME work plan review, PR-ID comments, and/or excavation permit comments. These actions may include restrictions that impact work schedule or locations.

45.3 Action required for compliant biological resources protection (e.g. timing restrictions, biological assessment, mitigation requirements, location restrictions, etc.) must be included in the SUBCONTRACTOR'S Site-Specific ES&H Plan.

F46.0 Cultural Resources Protection

46.1 SUBCONTRACTOR'S activities and operations will comply with all Federal, State, and local laws and regulatory requirements for protection of cultural resources.

46.2 SUBCONTRACTOR and all lower tier Subcontractors shall comply with all work restrictions required for compliant cultural resources protection that are identified by the STR. Such actions are identified by: cultural SME work plan review, PR-ID comments, and/or excavation permit comments. These actions may include restrictions that impact work location.

46.3 SUBCONTRACTOR and all lower tier Subcontractors shall not enter the marked boundaries or archaeological sites without written authorization from the STR.

46.4 SUBCONTRACTOR shall immediately stop work if, for example, any bones (possible burials), clusters or alignments of rocks above bedrock (possibly masonry walls), charcoal stains (possible hearths or burned wooden structures), clusters of artifacts such as pottery or pieces of chipped stone, etc. are encountered. SUBCONTRACTOR must notify STR immediately. SUBCONTRACTOR shall not resume work in the area of the discovery until authorized to do so in writing by the STR.

46.5 Actions required for compliant cultural resources protection (e.g. marking and avoidance of archeological sites, protection of significant historic buildings and structures, etc.) must be included in the SUBCONTRACTOR'S Site-Specific ES&H Plan.

F47.0 Pesticide and Herbicide Applications

47.1 SUBCONTRACTOR'S activities and operations shall comply with NPDES Pesticide General Permit and Federal Insecticide, Fungicide, and Rodenticide Act.

47.2 SUBCONTRACTOR shall not apply pesticides on LANL property unless authorized through the CONTRACTOR.

F48.0 Reserved

F49.0 Radiation Protection

49.1 SUBCONTRACTOR shall comply with the requirements of 10 CFR 835 as implemented through the LANL Radiation Protection Program and as specified in P121 *Radiation Protection* for work involving radiological hazards. While SUBCONTRACTOR must implement all applicable P121 requirements, a subset of P121 and related requirements are highlighted in this Section. SUBCONTRACTOR can obtain the latest version of P121 from CONTRACTOR.

49.2 SUBCONTRACTOR shall implement applicable roles and responsibilities with respect to radiation protection, including the following:

49.2.1 SUBCONTRACTOR shall utilize radiological control technicians (RCTs) provided by CONTRACTOR unless authorized by CONTRACTOR RP Division.

49.2.2 All radiological control technicians (RCTs) shall be qualified through the CONTRACTOR RCT qualification process.

49.2.3 Each SUBCONTRACTOR employee has stop work authority, and SUBCONTRACTOR shall follow requirements established by CONTRACTOR before resuming radiological operations.

49.2.4 In its oversight role, CONTRACTOR may suspend radiological work performed by SUBCONTRACTOR based on established thresholds, unanticipated conditions, procedure violations, or other conditions warranting suspension, and SUBCONTRACTOR shall follow requirements established by CONTRACTOR before resuming radiological operations.

49.3 SUBCONTRACTOR shall comply with radiological emergency response processes and requirements established by site, facility, and activity.

49.3.1 SUBCONTRACTOR shall report to CONTRACTOR Occupational Medicine in response to applicable radiological events as required by CONTRACTOR, including wound counting as a result of minor injuries occurring in areas controlled for contamination, personnel decontamination, and counseling following an intake.

49.3.2 SUBCONTRACTOR employees shall participate in followup to radiological events, including critique, fact-finding, investigation, and corrective action as needed.

49.4 SUBCONTRACTOR shall implement CONTRACTOR ALARA Program Elements, including establishing ALARA goals when required.

49.5 SUBCONTRACTOR shall comply with CONTRACTOR occupational dose limits, administrative control level, action level, and dose management processes.

49.5.1 SUBCONTRACTOR shall ensure declared pregnant workers are subject to the Reproductive Health Assistance Program process administered by CONTRACTOR Occupational Medicine and the 500 mrem dose limit.

49.6 SUBCONTRACTOR shall implement radiation dosimetry requirements established by CONTRACTOR.

49.6.1 SUBCONTRACTOR shall assign and use dosimetry in accordance with CONTRACTOR requirements, including accident, external, extremity, and electronic dosimetry and assigned internal dosimetry. This applies to all radiological work conducted on the LANL site, including those activities also governed under an NRC license.

49.6.2 SUBCONTRACTOR shall track SUBCONTRACTOR worker doses with respect to CONTRACTOR established ALARA goals, limits, administrative control level, action levels, dose management plans, and limits established in work control documents.

49.7 SUBCONTRACTOR shall implement controls and requirements established by CONTRACTOR radiological posting and access controls.

49.8 SUBCONTRACTOR shall comply with all applicable CONTRACTOR radiological training requirements established by policy, posting, access control, and work control documentation.

49.8.1 If escorts are used for radiological work, SUBCONTRACTOR shall implement CONTRACTOR escort requirements.

49.9 SUBCONTRACTOR shall implement all applicable CONTRACTOR personnel protective equipment (PPE) requirements established by policy, posting, access control, and work control documentation, and as instructed by CONTRACTOR personnel.

49.9.1 SUBCONTRACTOR shall not wear radiological PPE beyond designated areas or off the LANL site.

49.9.2 SUBCONTRACTOR shall implement CONTRACTOR requirements for medical qualification for PPE and respiratory protection (see applicable sections).

49.10 SUBCONTRACTOR shall conduct radiological work in accordance with CONTRACTOR work control requirements, including using the LANL radiological work permit process.

49.10.1 All SUBCONTRACTOR work control documents with radiation protection content shall be subject to review and approval by CONTRACTOR.

49.11 SUBCONTRACTOR shall ensure CONTRACTOR new activity ALARA review / radiological design / design review for new or modified facilities or equipment that may affect radiation protection requirements.

49.12 SUBCONTRACTOR shall use radiation protection instruments only when authorized to use them, they must be on the list of instruments approved by CONTRACTOR group RP-SVS, and they must be calibrated by CONTRACTOR group RP-SVS.

49.13 SUBCONTRACTOR shall implement CONTRACTOR requirements for contamination control.

49.13.1 SUBCONTRACTOR shall ensure adequate areas are established and maintained for PPE storage, PPE donning and doffing, and personnel decontamination as approved by CONTRACTOR.

49.13.2 SUBCONTRACTOR shall implement CONTRACTOR process for contamination control with pre-existing wounds, including evaluation and occlusion of open wounds by CONTRACTOR Occupational Medicine processes prior to entry into areas controlled for contamination.

49.13.3 SUBCONTRACTOR shall implement CONTRACTOR requirements for personnel contamination monitoring, which may result in decontamination, re-survey, and Occupational Medicine involvement.

49.13.4 SUBCONTRACTOR shall comply with CONTRACTOR process for item removal from areas controlled for contamination, which may result in decontamination, resurvey, destruction, and disposal of items and equipment.

49.13.5 SUBCONTRACTOR shall comply with CONTRACTOR restrictions on eating, drinking, and smoking in areas controlled for contamination.

49.14 SUBCONTRACTOR shall notify CONTRACTOR prior to bringing any radioactive materials onto LANL site (if this involves a radioactive sealed source, see Section F50.0).

49.15 SUBCONTRACTOR shall provide all original records associated with radiation protection to CONTRACTOR RP organization when requested and prior to leaving the LANL site.

F50.0 Radioactive Sealed Sources, Radiation Generating Devices, or Industrial

Radiography

50.1 SUBCONTRACTOR shall comply with the specific requirements in this Section for radioactive sealed sources (RSS) and radiation generating devices (RGD) in addition to applicable radiation protection requirements in Section F 49.0 and detailed in P121 *Radiation Protection*.

50.2 SUBCONTRACTOR shall not operate RSS / RGD without CONTRACTOR defined coverage by Deployed SESH and/or RP-PROG.

50.3 SUBCONTRACTOR shall notify CONTRACTOR and receive written approval from CONTRACTOR groups RP-PROG and Deployed ESH **at least 48 hours** prior to bringing, using, or storing a radioactive sealed source (RSS) or radiation generating device (RGD) on LANL site. Such approval is conditioned on SUBCONTRACTOR providing evidence of the following to CONTRACTOR group RP-PROG at least 48 hours prior to bringing, using, or storing RSS / RGD on LANL site:

- Description of activity, RSS / RGD equipment (including RSS radionuclide), and planned LANL work location(s);
- Applicable federal (NRC) and/or state (NMED) licenses;
- DOT shipping documentation for RSS / RGD to be transported;
- For RSS, Special Form Certificate(s), Certificate(s) of Competent Authority, and current leak test results;
- For RGD, current operating certification;
- Operating procedure(s);
- Current training of operator(s); and
- SUBCONTRACTOR emergency contact list.

50.4 SUBCONTRACTOR shall maintain current appropriate license, certification, operating procedures, and training for any RSS / RGD brought on the LANL site in accordance with applicable federal and state regulations.

50.5 SUBCONTRACTOR shall be issued CONTRACTOR whole body and extremity dosimetry (for hands-on radiological work) when required by CONTRACTOR processes in addition to any SUBCONTRACTOR required dosimetry.

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

51.1 Class IV Asbestos Work means maintenance and custodial activities during which employees contact but do not disturb ACM or PACM and activities to clean up dust, waste and debris in accordance with 29 CFR 1910.1001 and 29 CFR 1926.1101(b) resulting from Class 1, 11, and 111 activities. SUBCONTRACTOR workers shall receive asbestos awareness training.

51.2 A 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 prior to start of work. The AAP shall address the requirements in the contract and the procedures (including materials, chemicals, tools, and equipment) that will be used to perform asbestos work and disposal of asbestos-containing waste. The AAP shall be included in SUBCONTRACTOR'S Site-Specific ES&H Plan.

51.3 SUBCONTRACTOR shall perform all asbestos work in accordance with the EPA Standard 40 CFR Subpart M, National Emission Standard for Hazardous Air Pollutants (NESHAP), 29 CFR 1926.1101and 29 CFR 1910.1001, and the subcontract. Upon CONTRACTOR request, SUBCONTRACTOR shall submit the following information as applicable:

- Company Abatement License
- Personnel Qualifications/Training/Certificates
- Personnel Medical Records (latest)
- Personnel Respirator Fit Test (latest)
- Inspector Accreditation Certificate and Inspection Report
- Designer Accreditation Certificate and Designer Report

51.3 SUBCONTRACTOR shall be cognizant of and responsible for all wastes generated in accordance with Section F39, Waste Management / Disposal, of this Exhibit. A waste profile form (WPF) (provided by CONTRACTOR) shall be completed by SUBCONTRACTOR, in coordination with CONTRACTOR'S Waste Management Coordinator for all waste streams generated, and shall be approved prior to disposal of waste.

51.4 SUBCONTRACTOR shall prepare and submit all required New Mexico Environment Department (NMED) Air Quality 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.

51.5 SUBCONTRACTOR acknowledges all roofing jobs at LANL require notification to New Mexico Environment Department (NMED). Accordingly, SUBCONTRACTOR shall prepare and submit to CONTRACTOR STR all NMED notification forms/letters at least 15 working days before any work begins. CONTRACTOR shall submit approved forms to NMED 10 working days before any work begins.

51.6 SUBCONTRACTOR acknowledges that all demolition work requires advance notification by the CONTRACTOR to New Mexico Environment Department (NMED) Air Quality Bureau even if no asbestos is present. SUBCONTRACTOR shall prepare and submit all required NMED notification forms/letters to CONTRACTOR STR at least 15 working days before any work begins. CONTRACTOR will submit the required information to NMED 10 working days before any work begins.

51.7 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.

51.8 SUBCONTRACTOR shall be responsible for transportation of asbestos waste to an NMED approved disposal site. SUBCONTRACTOR can contact NMED's Solid Waste Bureau at (505) 827-0197, or Air Quality Bureau at (505) 827-1494

for information on landfills that are currently allowed to accept Asbestos Contaminated Material.

51.9 SUBCONTRACTOR shall provide CONTRACTOR with copies of the signed waste shipment records as required by 40 CFR 61.150.

F52.0 Industrial Hygiene

52.1 In accordance with 10 CFR 851 Appendix A, Section 6, SUBCONTRACTOR shall implement an industrial hygiene program that at a minimum includes the following elements:

52.1.1 Initial or baseline surveys and periodic resurveys and/or exposure monitoring as appropriate of all work areas of operations to identify and evaluate potential worker health risks;

52.1.2 Coordination with planning and design personnel to anticipate and control health hazards that proposed facilities and operations would introduce;

52.1.3 Coordination with cognizant, occupational medical, environmental, health physics, and work planning professionals;

52.1.4 Policies and procedures to mitigate the risk from identified and potential occupational carcinogens;

52.1.5 Professionally and technically qualified industrial hygienists to manage and implement the industrial hygiene program; and

52.1.6 Use of respiratory protection equipment (see F13.0) and Personal Protective Equipment (see F12.0).

52.2 In accordance with 10 CFR 851.21 (a), SUBCONTRACTOR shall establish procedures to identify existing and potential workplace hazards and assess the risk of associated workers injury and illness. Procedures must include methods to:

- Assess worker exposure to chemical, physical, and/or biological workplace hazards through appropriate workplace monitoring;
- Document assessment for chemical, physical, and/or biological workplace hazards using recognized exposure assessment and testing methodologies and using of accredited and certified laboratories; and
- Record observations; testing and monitoring results.
- Analyze designs of new facilities and modifications to existing facilities and equipment for potential workplace hazards;
- Evaluate operations, procedures, and facilities to identify workplace hazards;
- Perform routine job activity-level hazard analyses;
- Review site safety and health experience information; and
- Consider interaction between workplace hazards and other hazards such as radiological hazards.

52.3 In accordance with 10 CFR 851.21, SUBCONTRACTOR shall provide representative sampling of any relevant toxic material documentation and any lessons learned from previous projects to the CONTRACTOR.

52.4 In accordance with 10 CFR 851.21 (c), SUBCONTRACTOR shall perform the activities identified in subsection 52.2 initially to obtain baseline information and as often thereafter as necessary to ensure compliance with 10 CFR 851.

52.5 SUBCONTRACTOR shall complete exposure assessment for applicable chemical and physical hazards in accordance with compliance-driven sampling for 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.

52.6 In accordance with 10 CFR 851.20 (b)(3) and (4), SUBCONTRACTOR shall ensure workers have the right without reprisal to be notified when monitoring results indicate the worker was overexposed to hazardous materials and also observe measuring of hazardous agents and have the results of their own exposure monitoring.

52.7 SUBCONTRACTOR shall address hazard prevention and abatement, including a process to identify hazards and controls for those hazards based on risk, and the hierarchy of controls (i.e., elimination or substitution, engineering controls, work practices and administrative controls, then personal protective equipment) in its Site-Specific ES&H plan.

F53.0 Beryllium

53.1 In accordance with 10 CFR 851.23(a)(1), SUBCONTRACTOR shall comply with CONTRACTORS'S Chronic Beryllium Disease Prevention Program (CBDPP, LANL P101-21) and comply with all applicable requirements as specified by CONTRACTOR to include beryllium medical surveillance, registry reporting requirements, training, PPE, or other program areas. SUBCONTRACTOR can request a copy of the documents from the STR.

53.2 Prior to entry into posted beryllium areas or performing beryllium operations SUBCONTRACTOR shall provide evidence that each worker has completed beryllium training in accordance with LANL P101-21, Section 6. Additionally, prior to entry into posted beryllium areas or performing beryllium operations each SUBCONTRACTOR worker must receive any required site-specific training.

53.3 In accordance with 10 CFR 850.39(h) and DOE-STD-1187-2007, SUBCONTRACTOR shall provide all required Beryllium Registry Data to the CONTRACTOR for reporting to the Beryllium Registry Data Center semi-annually. 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.

F54.0 Explosives Storage/Use/Disposal

54.1 In accordance with 10 CFR 851 Appendix A, Section 3, SUBCONTRACTOR must comply with the policy and requirements specified in CONTRACTOR'S

Explosives Safety Program, and DOE Standard DOE-1212-2012, Explosives Safety.

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

54.3. SUBCONTRACTOR shall ensure explosives storage and transportation conform to the requirements of DOE Standard DOE-1212-2012, Explosives Safety. These activities must follow the requirements in the DOE Standard DOE-1212-2012, Chapter 2, Section 16 (Transportation) and Section 17 (Storage). All shipments of explosives and blasting agents to LANL must be handled in accordance with U.S. Department of Transportation regulations. SUBCONTRACTOR will supply an approved magazine for storage of explosives at a location designated by CONTRACTOR.

54.4 SUBCONTRACTOR shall submit to CONTRACTOR for approval a Blasting Plan as part of its Site-Specific ES&H Plan 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 (shot design, loading, initiation, delay patterns, blasting patterns, use of blasting mats, etc.);
- Specific description of the blasting agents and primers to be used;
- Specific procedures describing the process to be used during elevated fire danger; and
- Name and credentials of person designated as the certified/qualified blaster.

54.5 SUBCONTRACTOR shall design each explosive shot to minimize potential for vibration, sonic blast, fragment production, and overpressure damage.

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

54.7 SUBCONTRACTOR shall dispose of all unused explosives or damaged explosives and blasting agents in accordance with all applicable federal and state laws.

F55.0 Heavy Metals

55.1 SUBCONTRACTOR'S SITE-SPECIFIC ES&H Plan shall address applicable OSHA Standard requirements specific as noted below to any work involving heavy metals, including training and qualification, monitoring, medical surveillance, and worker protection requirements.

55.2 SUBCONTRACTOR shall follow requirements specifically applicable to a condition, practice, means, method, operation, or process performed by SUBCONTRACTOR. The following requirements, if more specific prevail over any different general standard which might otherwise be applicable to the same condition, practice, means, method, operation, or process:

55.2.1 Inorganic Arsenic – SUBCONTRACTOR shall perform work in accordance with 29 CFR 1910.1018 and 29 CFR 1926.1118 (identical standards);

55.2.2 Cadmium – SUBCONTRACTOR shall perform work in accordance with 29 CFR 1910.1027 and/or 29 CFR 1926.1127;

55.2.3 Lead – SUBCONTRACTOR shall perform work in accordance with 29 CFR 1910.1025 and/or 29 CFR 1926.62;

55.2.4 Chromium (VI) – SUBCONTRACTOR shall perform work in accordance with 29 CFR 1910.1026 and/or 29 CFR 1926.1126; and

55.2.5 Welding and Cutting – SUBCONTRACTOR shall perform work in accordance with 29 CFR 1926.350 thru 354. Metals such as Zinc, Lead, Cadmium, Chromium, and Mercury, are addressed in 1926.353(c).

55.2.6 Miscellaneous Metals – Other metals that may be impacted and compliance requirements are contained in 29 CFR 1926.55, “Gases, Vapors, Fumes, Dusts and Mists,” and its Appendix A, “American Conference of Governmental Industrial Hygienists’ Threshold Limit Values of Airborne Contaminants for Construction.”

55.2.7 Environmental Requirements – The following metals may be regulated as hazardous or mixed waste if they meet the criteria established in 40 CFR 261.24 Toxicity Characteristic:

- Arsenic
- Barium
- Cadmium
- Chromium
- Lead
- Mercury
- Selenium
- Silver

If waste meets or exceeds these regulatory levels, SUBCONTRACTOR shall manage the hazardous or mixed waste in accordance with all applicable hazardous waste management regulations in 40 CFR Parts 260-265.

Note: These parameters may also be regulated under the Laboratory’s NPDES Permit No. NM0028355 and the WQCC regulations if the discharge of contaminants is into surface waters.

F56.0 Firearms Safety

56.1 All SUBCONTRACTOR non-security firearms use shall be conducted in accordance with the CONTRACTOR’s Firearms Safety Program for Research and Development P101-2. Security use of firearms at LANL by SUBCONTRACTOR is prohibited under this Exhibit F.

F57.0 Biological Safety

57.1 In accordance with 10 CFR 851 Appendix A, Section 7 (a), SUBCONTRACTOR must comply with the requirements of this section.

57.2 SUBCONTRACTOR shall ensure each worker must have received an awareness briefing and site-specific training provided by CONTRACTOR prior to entry into buildings or facilities where biological hazards exist.

57.3 SUBCONTRACTOR shall develop and implement a site specific written exposure control plan (ECP) for direct exposure to wastewater, sewage, contact with blood or other potentially infectious materials, direct contact with wildlife, or potential contact with rodent nests or infestations.

57.4 SUBCONTRACTOR shall ensure workers complete CONTRACTOR'S Bloodborne Pathogen course, or equivalent course as approved by CONTRACTOR'S Biological Safety Officer where work involves contact with blood or other potentially infectious materials. .

57.5 SUBCONTRACTOR agrees to comply with the following requirements regarding work at a Bio Science Laboratory (BSL):

57.5.1 Work at BSL-1 must be approved by CONTRACTOR, and SUBCONTRACTOR'S workers must have completed CONTRACTOR course 31701, Principles of Biosafety (live). CONTRACTOR approval must be given by LANL Biological Safety Officer and LANL Institutional Biological Safety Committee (IBC) Chair.

57.5.2 Work at BSL-2 must be approved by the CONTRACTOR, and SUBCONTRACTOR'S workers must have completed CONTRACTOR course 31701, Principles of Biosafety (live). CONTRACTOR approval must be given by IBC.

57.5.3 Work in BSL-3 laboratories during non-operational periods requires specific approval from CONTRACTOR. CONTRACTOR approval must be given by LANL Facility Operations Director.

57.5.4 SUBCONTRACTOR must perform specific medical surveillance as dictated by specific BSL-1, 2, and 3 laboratory entry requirements. For blood and other potentially infectious materials, SUBCONTRACTOR must perform post-exposure evaluations and offer of Hepatitis B Vaccination.

F58.0 Laser Safety

58.1 SUBCONTRACTOR'S Site-Specific ES&H Plan shall include a Laser Safety Program that ensures compliance with ANSI Z136.1-2007 (Standard for Safe Use of Lasers). The program shall include laser hazard evaluation, hazard controls, laser safety training, and other requirements specific to the work.

F59.0 Safety and Environmental Performance Citation

59.1 A “Safety Citation” (SC), Attachment F59-1 may be issued to SUBCONTRACTOR by the CONTRACTOR’S ES&H organization thru the STR for any safety or environmental violations. A Safety 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 OSHA record keeping and any other violations at the discretion of the STR, the LANS Safety Representative, and/or the Procurement Specialist. SUBCONTRACTOR application for payments will be placed on hold if any SC has not been resolved by SUBCONTRACTOR. For every three (3) SC’s 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 (1/2) of a shift Safety Stand-Down with all employees, including lower tier subcontract employees engaged in work activities at the Site. (**Note:** If the citation was issued because of a lower tier’s failure to comply, the citation will be issued to the prime subcontractor but will be held against the lower tier for the stand-down purposes). This stand-down time will be dedicated to documented safety briefings and general housekeeping.

59.2 The SUBCONTRACTOR shall promptly evaluate and resolve any noncompliance with applicable ES&H requirements. If the SUBCONTRACTOR fails to provide resolution or if, at any time, the 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, the CONTRACTOR may issue an order stopping work in whole or in part. Any Stop Work Order issued by the CONTRACTOR under this clause (or issued by the SUBCONTRACTOR to a lower-tier SUBCONTRACTOR) shall be without prejudice to any other legal or contractual rights of the CONTRACTOR. In the event that the CONTRACTOR issues a Stop Work Order, an order authorizing the resumption of the work may be issued at the discretion of the CONTRACTOR. The 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.

59.3 Should the SUBCONTRACTOR’s or SUBCONTRACTOR’s lower-tier SUBCONTRACTOR(s) actions or inactions result in an accident, release, incident, event, fatality, injury, or personnel overexposure that leads to a regulatory citation, notice of violation (PNOV or NOV) to the CONTRACTOR and/or the GOVERNMENT or disability to the CONTRACTOR to execute the Laboratory's primary or supporting mission, SUBCONTRACTOR shall reimburse CONTRACTOR and/or the Government for the amount of any resultant fine and/ or the cost of additional Work required as a result of the enforcement action in accordance with General Condition, GC-12, Fines and Penalties. In accordance with General Condition, GC-13, Contractor's Right to Offset, or GC-40, Backcharges, CONTRACTOR will retain offsetting amounts sufficient to cover CONTRACTOR'S costs including, but not limited to, the cost of investigation, response, repair, regulatory response, remediation, abatement, permitting, fines, penalties, and loss of CONTRACTOR's fee.

F60.0 Refrigerants

60.1 SUBCONTRACTOR shall be responsible and accountable for compliance with the EPA CAA Section 608, regulated **under** 40 CFR Part 82 for all refrigerant related work. SUBCONTRACTOR shall ensure that SUBCONTRACTOR

employees are made aware of the content of these practices prior to beginning work on refrigerant containing equipment.

60.2 SUBCONTRACTOR shall use only appropriate level EPA certified technicians (as defined by EPA in the references in clause 60.1) for the type of equipment being serviced.

60.3 SUBCONTRACTOR shall use only EPA certified recovery/recycle units.

60.4 SUBCONTRACTOR shall provide to CONTRACTOR a signed certification statement affirming that the SUBCONTRACTOR has submitted an EPA Recovery Unit Acquisition Certification form to the EPA (a copy of the form is acceptable).

60.5 SUBCONTRACTOR shall not install new equipment at LANL which contains Ozone Depleting Substances (ODS) including R-22 and R-123.

60.6 SUBCONTRACTOR shall coordinate with CONTRACTOR to ensure all ozone depleting substances to be sent off-site are offered to DoD prior to considering any other disposal or recycle options. STR must contact EPC-ES (refrigerants@lanl.gov) to arrange for all ODS to be offered to DoD prior to considering any other off-site disposal or recycle options.

F61.0 Demolition, Remodeling or Renovation

61.1 Per 29 CFR 1926.850, prior to permitting employees to start demolition, remodeling, or remodeling operations, the SUBCONTRACTOR shall conduct an engineering survey, done by a competent person, of the structure to determine the condition of the framing, floor, and walls and possibly of unplanned collapse of any portion of the structure. Any adjacent structure shall also be checked.

61.2 Prior to allowing work in a damaged structure, the SUBCONTRACTOR shall shore or brace the walls or floor.

61.3 The SUBCONTRACTOR shall ensure that all electric, gas, water, steam, sewer, and other service lines have been shut off, capped or otherwise controlled before demolition work is started. If it is necessary to maintain power, water or other utilities, they shall be relocated.

61.4 The SUBCONTRACTOR must be determine if any type of hazardous chemicals, gases, explosives, flammable materials, or other dangerous materials have been used in any pipes, tanks, or other equipment in the facility. The CONTRACTOR has provided some of that information on the 2101A. When the presence of any such substances is apparent or suspected, testing, air sampling and purging shall be performed and the hazard eliminated before demolition is started.

61.5 The SUBCONTRACTOR shall ensure that roof, floor and wall openings are covered unless they are being used as chutes or material drops. Warning signs shall be posted at the top of the chute and barricades shall be installed at the bottom of the drop area

61.6 In accordance with 29 CFR 1926.851 only those stairways, passageways, and ladders, designated as means of access to the structure of a building shall be

used. The SUBCONTRACTOR shall ensure that other access ways are entirely closed at all times.

61.7 In accordance with 29 CFR 1926.852, the SUBCONTRACTOR shall ensure that the use of chutes during demolition which are at an angle of more than 45 degrees from the horizontal shall be entirely enclosed except for disposal opening. A gate shall be installed in each chute at or near the discharge end. Any chute opening, into which workmen dump debris, shall have a substantial guardrail 42 inches above the floor. Where the material is dumped from mechanical equipment or wheelbarrows, a securely attached toeboard or bumper shall be provided.

61.8 The SUBCONTRACTOR shall not allow masonry walls to fall to the floor in such mass to exceed the safe carrying capacities of the floor. A wall more than one story in height is required to be braced. Structural or load supporting members on any floor shall not be cut or removed until all stories above such floor have been demolished and removed.

61.9 If the SUBCONTRACTOR is manually removing floors, the openings cut shall extend the full span of the arch between supports. Safe walkways, not less than 10 inches wide formed of planks not less than two inches thick shall be provided as walkways. Demolition of floor arches shall not be started until they, and the surrounding floor area for a distance of 20 feet, have been cleared of debris.

61.10 If mechanical equipment is used to remove walls, floors and materials, the SUBCONTRACTOR shall ensure that they meet the requirements of 29 CFR 1926 Subparts N and O and 29 CFR 1926.1501 and subpart DD.

61.11 When removing steel construction, the SUBCONTRACTOR shall ensure that any cranes, derricks, and other hoisting equipment used meet the requirements of 29 CFR 1926.1501 and 29 CFR 1926 subpart DD. Steel construction shall be dismantled column length by column length, and tier by tire.

61.12 When mechanical demolition is used the SUBCONTRACTOR such as balling or clamming, only those workers necessary for the performance of the work shall be allowed in the area. During demolition, continuing inspections by a competent person shall be made as the work progresses to detect hazards resulting from weakened or deteriorated floors, or walls, or loosened material.

61.13 Demolition work requires advance notification by the CONTRACTOR to New Mexico Environment Department (NMED) even if no asbestos is present. SUBCONTRACTOR shall prepare and submit all required NMED notification forms/letters to CONTRACTOR at least 15 working days before any work begins. CONTRACTOR will submit the required information to NMED 10 working days before any work begins.

61.14 SUBCONTRACTOR shall provide a Waste Characterization Strategy Form to the CONTRACTOR for final review and approval before waste is generated from Construction, Demolition, Decontamination and Decommissioning activities, and manage the waste accordingly. WCSF link: http://permalink.lanl.gov/object/tr?what=info:lanl-repo/eprr/ADEP-EP-DIR-SOP-10021#page=36

F62.0 Attachments

Attachment F3-1	Safety Performance Eligibility Requirements
Attachment F3-2	Environment, Safety and Health Worksheet
Attachment F6-1	Weekly Productive Man-Hour Report Attachment Links. To access the DOE form: http://int.lanl.gov/safety/exhibit-f/_assets/docs/form_5484_sub_injury_notification.pdf Form 5484 Addendum http://int.lanl.gov/safety/exhibit-f/_assets/docs/form_5484_addendum.pdf
Attachment F7-0	Subcontractor Training Matrix A, Link for Access Training Matrix: http://pmd-shpt-prod:6129/DocumentLibrary/MSS/forms/AP-MSM-001-004.pdf
Attachment F9-1	Samples of Inspection Checklists for Subcontractors
Attachment F10-1	Safety/Housekeeping Inspection Checklist
Attachment F15-1	Medical Surveillance for Toxic & Hazardous Substance Requirements
Attachment F16-1	Major Equipment Declaration
Attachment F19-1	Environmental Reporting Data for EPA Annual Toxic Release Inventory Report
Attachment F20-0	Feedback/Post Job reviews, IWD Part 4, Form 2104, http://int.lanl.gov/tools/forms/organizational.shtml
Attachment F20-1	Integrated Work Document (IWD) – Form 2100A
Attachment F20-2	IWD Validation and Release Form 2102A
Attachment F20-3	Remodel, Renovation, and/or Demolition
Attachment F22-1	Spark and Flame Permit https://irm.lanl.gov/forms/Shared/1563.pdf
Attachment F30-1	Lockout/Tagout Tag
Attachment F30-2	Specific Written Procedure for Lockout/Tagout
Attachment F30-3	Subcontractor Lockout/Tagout Record for Simple Lockout/Tagouts
Attachment F31-1	Fillable Penetration Permit https://irm.lanl.gov/forms/Shared/2074.pdf
Attachment F32-1	Critical Lift Plan
Attachment F36-0	Electrical Training Documentation for SUBCONTRACTORS
Attachment F59-1	Safety and Environmental Performance Citation

Attachment F3-1
Safety Performance Eligibility Requirements

It is the policy of LANS that all work performed at LANL shall be conducted in a manner that protects workers, the public, and the environment. The objective of this policy is to establish a consistent site-wide approach to worker protection by incorporating safety and health into daily activities. To support the effective implementation of this policy, firms should have a demonstrated safety performance equal to or lower than the following standards:

Statistical Standards		
Experience Modification Rate	The "EMR" is a number that is assigned to your company based on the insurance premium you pay and your loss statistics. Contact your insurance company for these numbers.	Maximum Allowable Average: **1.00**
Total Recordable Injury/Illness Case Rate (from Company OSHA 300 log)	Rate = Total Recordable Injuries/Illnesses x 200,000 Total Employee Hours Worked	Maximum Allowable Average: **3.2**
DART Case Rate (Days Away From Work, Restriction, or Job Transfer) (from Company OSHA 300 log)	Rate = Total Days Away/Restricted/Transferred Work Day Cases x 200,000 Total Employee Hours Worked	Maximum Allowable Average: **1.4**

Firms must submit a properly executed Environment, Safety, and Health History Worksheet (Attachment F3-2) along with a letter from their Workman's Compensation Insurance Carrier to certify the Experience Modification Rate (EMR) performance. If any of the above maximum allowable averages is exceeded, the firm shall provide information that clearly explains the excessive rate and that the anomaly causing that excess was not easily preventable using sound safety practice.

If a firm is a joint venture, association, consortia, or partnership that has fewer than three years of demonstrated safety and/or environmental performance, each entity comprising the joint venture, association, consortia, or partnership must submit a properly executed Environment, Safety, and Health History Worksheet (Attachment F3-2) along with a letter from their Workman's Compensation Insurance Carrier to certify the Experience Modification Rate (EMR) performance.

Any response received from a firm which does not provide the ES&H History Worksheet(s), which exceeds any of the stated maximum allowable averages, or which has fewer than three years of demonstrated safety and/or environmental performance may, at LANS' sole discretion, be considered unacceptable.

If a firm intends to use lower-tier subcontractors to perform elements of the subcontracted Scope of Work, such lower-tier subcontractors shall also meet the maximum allowable averages specified above. The firm to whom a subcontract is awarded (i.e., Subcontractor) shall be responsible for ensuring that all its lower-tier subcontractors meet the maximum allowable average safety performance eligibility requirements. When requested, Subcontractor must demonstrate to LANS' satisfaction that its lower-tier subcontractors meet the maximum allowable average safety performance eligibility requirements. Any lower-tier subcontractor that does not meet one or more of the maximum allowable average safety performance eligibility requirements must be evaluated and approved by the Subcontractor and LANS.

Attachment F3-2
Environment, Safety and Health Worksheet

Subcontractor Name:

Worksheet completed by:

Date:

Proposed LANS Subcontract Number:

1.	**Experience Modification Rate (EMR)**		
	List your firm's Interstate EMR for the past three (3) years and total hours worked.		
	Year:	EMR:	
	Year:	EMR:	
	Year:	EMR:	
		3-year average:	
	If the state where the jobsite is located has an EMR rating system, provide the state EMR for the past three (3) years and the total hours worked.		
	Year:	EMR:	
	Year:	EMR:	
	Year:	EMR:	
		3-year average:	
2. **Rates**	**Total Recordable Case (TRC) and Days Away/Restricted/Transferred Case (DART)**		
	List the cumulative injury statistics rates for the past three (3) years using the BLS formula to determine recordability.		
	Year:	TRC: DART:	Hours Worked:
	Year:	TRC: DART:	Hours Worked:
	Year:	TRC: DART:	Hours Worked:
		3-year average TRC: DART:	
	Attach copies of the OSHA Annual Summary Logs (OSHA's Form 300A) for the three most recent years and a current year OSHA 300 Log for the months during the period since the last annual report.		
	Any OSHA fine(s) over the past three (3) years? If yes, provide a written explanation on an attachment to this form.		
3.	**Fatalities**		
	Any fatalities within the last three (3) years? If Yes, list total number of fatalities: , and provide a written explanation for each fatality on an attachment to this form.		
4.	**Bureau of Alcohol, Tobacco, and Firearms violations**		
	Any Bureau of Alcohol, Tobacco, and Firearms violations within the last three (3) years? If Yes, list the number: , and type of violations: .		
5.	For companies exempt from record keeping requirements per 29 CFR 1904.1 (ten or fewer employees), complete items 1 and 3 above and summarize the cause of the injuries/illnesses for the past three (3) years, including the current year, on a separate attachment to this form. Additionally, include corrective actions taken to prevent re-occurrence.		

6.	Check your type of work for the most recent 3 year period: ☐ Non-Residential Building, include dates: ☐ Heavy (Non-Highway) Construction, include dates: ☐ Mechanical, include dates: ☐ Electrical, include dates: ☐ Other (State type and date):
7.	List key Safety and Health personnel planned for this project. Please list name and expected position. **NAME** **POSITION**
8.	List key Environmental personnel planned for this project. Please list name and expected position. **NAME** **POSITION**
9.	**Environmental Record**
	Has your firm been subject to any environmental enforcement proceedings before a federal or state agency within the last five (5) years? ____ If Yes, for each proceeding provide the name of the agency, the nature of the proceeding, the charge(s) and the result on an attachment to this form.
	Has your firm violated or exceeded any federal or state environmental standard, requirement, regulation or statute within the last three (3) years? ____ If Yes, for each violation give a brief description of the nature of the violation on an attachment to this form.

NOTE: This form is for evaluation purposes only and will not be a part of a Subcontract.

Attachment F6-1
Weekly Productive Man-Hour Report

Subcontract No.: _____ **Date:** _____

SUBCONTRACTOR: _____

Sub-Tier Subcontractors: _____

_____

_____

STR: _____

Note: Include all lower-tier subcontractors in reporting

Total Contract Productive Man-Hours for Week Ending _____		
	On-Site Hours	**Off-Site Hours**
Non-Manual		
Manual		
Total Hours		

1) OSHA 300 Log Report

Lost Workday Cases: _____

Restricted Cases or Job Transfer Cases: _____

Other Recordable Cases (i.e., medical treatment): _____

Total Recordable Cases: _____
(Cumulative for Project)

2) First Aids: _____

3) Incidents: _____

Definitions:

Non-Manual – Project Managers, Safety Representatives, Superintendents, Construction Managers, Engineers, Consultants, Drafters, Buyers, Cost Estimators, Schedulers, Clerks, etc.
Manual – Craft-type personnel (i.e., carpenters, welders, electricians, equipment operators, delivery personnel, etc.)
Incident – An unplanned event that may result in property damage, environmental release, vehicle damage or any undesired loss of resources.

Note: Only report productive man-hours. Do not include sick, vacation, etc.
******REPORT DUE TO STR BY NOON EVERY MONDAY******

Attachment F9-1
Samples of Inspection Checklist for Subcontractors

Note: Subcontractor shall provide a written report to the Contractor STR

Project Title: _____

Subcontract No. _____

Subcontractor Name: _____ Date: _____

	Yes	No	N/A
First Aid			
1. Are first aid kit locations identified and accessible?	____	____	____
2. Are emergency eye wash/safety showers available and inspected monthly?	____	____	____
3. Are first aid kits inspected monthly?	____	____	____
4. Is a qualified first aid/CPR provider on site?	____	____	____
Personal Protective Equipment			
1. Have levels of personnel protection been established?	____	____	____
2. Are respirators decontaminated, inspected, and stored according to standard procedures?	____	____	____
3. Have employees been fit-tested?	____	____	____
4. Is defected personal protective equipment tagged and taken out of service?	____	____	____
5. Does compressed breathing air meet CGA Grade “D” minimum?	____	____	____
6. Are there sufficient sizes and quantities of protective equipment?	____	____	____
7. At a minimum, are employees utilizing safety glasses, hard hats, and steel toe boots?	____	____	____
Fire Prevention			
1. Are employees smoking only in designated outdoor areas?	____	____	____
2. Are fire lanes established and maintained?	____	____	____
3. Are flammable liquid dispensing systems bonded?	____	____	____
4. Are approved safety cans available for storage of flammable liquids?	____	____	____
5. Are fire extinguishers available and inspected monthly?	____	____	____
6. Are flammables and combustibles properly stored?	____	____	____
7. Are flammable storage cabinets available and used when needed?	____	____	____
Air Monitoring			
1. Is required air monitoring being conducted?	____	____	____
2. Are air monitoring instruments calibrated daily?	____	____	____
3. Are air monitoring logs up to date?	____	____	____
4. Are instrument user manuals available?	____	____	____
5. Are instruments being maintained?	____	____	____
6. Are employees notified of personal sampling results within 5 days of receipt?	____	____	____

	Yes	No	N/A
Welding and Cutting			
1. Are fire extinguishers present at welding and cutting operations with designated fire watch?	____	____	____
2. Are confined spaces evaluated prior to and during cutting and welding operations?	____	____	____
3. Have Hot Work Permits been completed?	____	____	____
4. Are proper helmets, goggles, aprons, and gloves available for welding and cutting operations?	____	____	____
5. Are welding machines properly grounded?	____	____	____
6. Are oxygen and fuel gas cylinders stored a minimum of 20 feet apart?	____	____	____
7. Are only trained personnel permitted to operate welding and cutting equipment?	____	____	____
8. Are gas cylinders transported in a secured vertical position with caps in place?	____	____	____
Hand and Power Tools			
1. Are defective hand and power tools tagged and taken out of service?	____	____	____
2. Is eye protection available and used when operating power tools?	____	____	____
3. Are guards and safety devices in place on power tools?	____	____	____
4. Are power tools inspected before each use?	____	____	____
5. Are non-sparking tools available when necessary?	____	____	____
6. Is the correct tool being used for the job?	____	____	____
Motor Vehicles			
1. Are vehicles regularly inspected?	____	____	____
2. Are personnel licensed for the vehicles they operate?	____	____	____
3. Are unsafe vehicles tagged and reported to supervision?	____	____	____
4. Is vehicle safety equipment operating properly?	____	____	____
5. Are loads secured?	____	____	____
6. Are vehicle occupants using safety belts?	____	____	____
7. Are current insurance cards and blank accident report forms located in vehicles?	____	____	____
Emergency Plans			
1. Are emergency telephone numbers posted?	____	____	____
2. Have emergency escape routes been designated?	____	____	____
3. Are employees familiar with the emergency signal?	____	____	____
4. Has the emergency route to the hospital been established and posted?	____	____	____
5. Is a vehicle on site that can transport injured employees to the hospital?	____	____	____
Materials Handling			
1. Are materials stacked and stored to prevent sliding or collapsing?	____	____	____
2. Are tripping hazards identified?	____	____	____
3. Are semi-trailers chocked?	____	____	____
4. Are fixed jacks used under semi-trailers?	____	____	____
5. Are riders prohibited on materials handling equipment?	____	____	____

	Yes	No	N/A
6. Are approved man lifts provided for the lifting of personnel?	____	____	____
7. Are personnel in man lifts wearing approved fall protection devices?	____	____	____

Fire Protection

1. Do employees know the location and use of all fire extinguishers?	____	____	____
2. Are fire extinguisher locations posted?	____	____	____
3. Are combustible materials segregated from open flames?	____	____	____
4. Have fire extinguishers been professionally inspected during the last year?	____	____	____
5. Are fire extinguishers visually inspected monthly?	____	____	____

Electrical

1. Is electrical equipment and wiring properly guarded and maintained in good condition?	____	____	____
2. Are extension cords kept out of wet areas?	____	____	____
3. Is damaged electrical equipment tagged and taken out of service?	____	____	____
4. Have underground electrical lines been identified by proper authorities?	____	____	____
5. Has a lockout/tagout system been established?	____	____	____
6. Are GFCIs being used on all temporary electrical systems and as needed?	____	____	____
7. Are extension cords being inspected daily (I.e., group pin in place, no unapproved splices)?	____	____	____
8. Are warning signs exhibited on high voltage equipment (250V or greater)?	____	____	____
9. Is adequate distance maintained from overhead electrical lines?	____	____	____
10. Are switches, circuit breakers, and switchboards installed in wet locations enclosed in weatherproof enclosures?	____	____	____

Cranes and Rigging

1. Are cranes inspected daily prior to use?	____	____	____
2. Are crane swing areas barricaded or demarked?	____	____	____
3. Is all rigging equipment tagged with an identification number and rated capacity?	____	____	____
4. Is rigging equipment inspection documented?	____	____	____
5. Are slings, chains, and rigging inspected before each use?	____	____	____
6. Are damaged slings, chains, and rigging tagged and taken out of service?	____	____	____
7. Are slings padded or protected from sharp corners?	____	____	____
8. Do employees keep clear of suspended loads?	____	____	____
9. Are rated load capacities and special hazard warnings posted on crane?	____	____	____
10. Are the records of annual crane inspection available?	____	____	____
11. Has accessible areas within the swing radius of the rear of the crane been barricaded?	____	____	____
12. Do crane operators have required training/certification?	____	____	____

	Yes	No	N/A
Compressed Gas Cylinders			
1. Are breathing air cylinders charged only to prescribed pressures?	____	____	____
2. Are cylinders stored in well ventilated areas?	____	____	____
3. Is smoking prohibited in cylinder storage areas?	____	____	____
4. Are cylinders stored secure and upright?	____	____	____
5. Are cylinders protected from snow, rain, etc.?	____	____	____
6. Are cylinders caps in place before cylinders are moved?	____	____	____
7. Are propane cylinders stored and used only outside of buildings?	____	____	____
Scaffolding			
1. Is scaffolding placed on a flat, firm surface?	____	____	____
2. Are scaffold planks free of mud, ice, grease, etc.?	____	____	____
3. Is scaffolding inspected before each use?	____	____	____
4. Are defective scaffold parts taken out of service?	____	____	____
5. Have employees completed scaffold user training?	____	____	____
6. On scaffolds where platforms are overlapped, is planking overlapped a minimum of 12 inches?	____	____	____
7. Does scaffold planking extend over end supports between 6 to 18 inches (dependent upon platform length)?	____	____	____
8. Are employees restricted from working on scaffolds during storms and high winds?	____	____	____
9. Are all pins in place and wheels locked?	____	____	____
10. Is required perimeter guarding (top rail, mid rail, and toe board) present?	____	____	____
11. Has a competent person been designated to oversee scaffold construction?	____	____	____
12. Are employees prohibited from moving mobile scaffold horizontally while employees are on them?	____	____	____
13. Are all scaffolding components manufactured by the same company?	____	____	____
Ladders			
1. Are ladders regularly inspected?	____	____	____
2. Are access ways, stairways, ramps, and ladders clean of ice, mud, snow, or debris?	____	____	____
3. Are ladders being used in a safe manner?	____	____	____
4. Are ladders kept out of passageways, doors, or driveways?	____	____	____
5. Are broken or damaged ladders tagged and taken out of service?	____	____	____
6. Are metal ladders prohibited in electrical service?	____	____	____
7. Are stairways and floor openings guarded?	____	____	____
8. Are safety feet installed on straight and extension ladders?	____	____	____
9. Is general housekeeping being maintained?	____	____	____
10. Are ladders tied off?	____	____	____
11. Are handrails and side rails installed along the unprotected sides of stairways having 4 or more risers or rising more than 30 inches?	____	____	____
Site Safety Plan			
1. Is a site safety plan available on site and accessible to all employees?	____	____	____
2. Does the safety plan accurately reflect site conditions and tasks?	____	____	____
3. Have potential hazards been described to employees on site?	____	____	____
4. Is there a designated safety official on site?	____	____	____
5. Have all employees signed a safety plan acknowledgment form?	____	____	____

	Yes	No	N/A
Site Posters			
1. Are the following posters displayed in a prominent and accessible area?	____	____	____
A. Minimum Wage	____	____	____
B. OSHA Job Protection	____	____	____
C. Equal Employment Opportunity	____	____	____
2. Are all required state specific posters displayed?	____	____	____
Site Control			
1. Are work zones clearly marked?	____	____	____
2. Are support trailers located to minimize exposure from a potential release?	____	____	____
3. Are support trailers accessible for approach by emergency vehicles?	____	____	____
4. Is the site properly secured during and after work hours?	____	____	____
5. Is an exclusion zone sign-in/sign-out log maintained?	____	____	____
6. Are only employees with current training and physicals permitted in exclusion zone?	____	____	____
Heavy Equipment			
1. Is heavy equipment inspected as prescribed by the manufacturer?	____	____	____
2. Is defective heavy equipment tagged and taken out of service?	____	____	____
3. Are project roads and structures inspected for load capacities and proper clearances?	____	____	____
4. Is heavy equipment shut down for fueling and maintenance?	____	____	____
5. Are backup alarms installed and working on mobile equipment?	____	____	____
6. Have qualified equipment operators been designated?	____	____	____
7. Are riders prohibited on heavy equipment?	____	____	____
8. Are guards and safety appliances in place and used?	____	____	____
9. Are operators using the “three point” system when mounting/ dismounting equipment?	____	____	____
Excavation			
1. Has a “competent person” been designated to oversee excavation activities?	____	____	____
2. Prior to opening excavations, are utilities located and marked?	____	____	____
3. Has a professional engineer evaluated all excavations greater than 20’ deep?	____	____	____
4. Is there rescue equipment on site and accessible to the excavation area?	____	____	____
5. Is excavated material placed a minimum of 24 inches from the excavation?	____	____	____
6. Are the sides of excavation sloped or shored to prevent cave ins?	____	____	____
7. Have excavations greater than 4 feet deep been monitored for hazardous atmospheres (i.e.,LEL/O2 deficiency)?	____	____	____
8. Are ladders or ramps used in excavations over 4 feet deep?	____	____	____
9. Are means of egress available so as to require no more than 25 feet or lateral travel?	____	____	____
10. Are barriers, i.e., guardrails or fences placed around excavations near pedestrian or vehicle thoroughfares?	____	____	____
11. Is excavation inspected daily by competent persons and documented?	____	____	____

	Yes	No	N/A
Confined Spaces			
1. Have employees been trained in the hazards of confined spaces?	____	____	____
2. Are confined space permits posted at entrance to confined space?	____	____	____
3. Is a copy of the confined space entry procedure available?	____	____	____
4. Has a rescue plan been established?	____	____	____

Attachment F10-1
Safety / Housekeeping Inspection Checklist

Safety / Housekeeping Inspection Checklist

Subcontract No. / Location	Supervisor (name)	Date

	Satisfactory	Unsatisfactory	Not Applicable
Personal Protective Equipment			
Housekeeping			
Flammable and Combustible Liquids			
Welding and Cutting Operations			
Electrical Installations			
Floor and Wall Openings/Guarding			
Ladders			
Scaffolding			
Temporary Heaters			
Fire Protection and Prevention			
Material Storage and Handling			
Demolition Work			
Concrete Construction			
Steel Erection			
Masonry Work			
Excavation / Trench Shoring			
Cranes / Hoists and Derricks			
Power Tools			
Hand Tools			
Heavy Equipment			
Motor Vehicles			
Equipment Maintenance (Upkeep)			
Accident Prevention (Warning) Signs and Tags			
Barricades			
Compressed Air Equipment			
ALARA (Radcon)			

OVERALL RATING	Excellent	Above Average	Average	Below Average	Unsatisfactory

COMMENTS:

Attachment 15-1
Medical Surveillance For
Toxic and Hazardous Substance Requirements

Potential Carcinogens					Metals
Chemical CAS# **Reference from:** **29 CFR Requirement**					**Chemical CAS#** **Reference from:** **29 CFR Requirement**
2-Acetylamino-fluorine **CAS #53-96-3** **1910.1014**	**1,3 Butadiene** **CAS #106-99-0** **1910.1051** American Conference of Governmental Industrial Hygienists Threshold Limit Values, 2005	**Ethyleneimine** **CAS #151-56-4** **1910.1012** American Conference of Governmental Industrial Hygienists Threshold Limit Values, 2005	**Methylene chloride** **CAS #75-09-2** **1910.1052** American Conference of Governmental Industrial Hygienists Threshold Limit Values, 2005	**Beta-Propiolactone** **CAS #57-57-8** **1910.1013** American Conference of Governmental Industrial Hygienists Threshold Limit Values, 2005	**Arsenic-Inorganic** **CAS #7440-38-2** **1910.1018** American Conference of Governmental Industrial Hygienists Threshold Limit Values, 2005
Acrylonitrile **CAS #107-13-1** **1910.1045** American Conference of Governmental Industrial Hygienists Threshold Limit Values, 2005	**Bis-Chloro-Methylether** **CAS #542-88-1** **1910.1008** American Conference of Governmental Industrial Hygienists Threshold Limit Values, 2005	**Ethylene Oxide** **CAS #75-21-8** **1910.1047** American Conference of Governmental Industrial Hygienists Threshold Limit Values, 2005	**Alpha-Naphthylamine** **CAS #134-32-7** **1910.1004** American Conference of Governmental Industrial Hygienists Threshold Limit Values, 2005	**Chromium (VI)** **CAS #1333-82-0** **CAS #7738-94-5** **1910.94(d)(9)(viii)** American Conference of Governmental Industrial Hygienists Threshold Limit Values, 2005	**Beryllium** **10 CFR 850** American Conference of Governmental Industrial Hygienists Threshold Limit Values, 2005
4-Aminodi-phenyl **CAS #92-67-1** **1910.1011** American Conference of Governmental Industrial Hygienists Threshold Limit Values, 2005	**1,2-Dibromo-3-Chloropropane** **CASE #107-13-1** **1910.1044**	**Formaldehyde** **CAS #50-00-0** **1910.1048** American Conference of Governmental Industrial Hygienists Threshold Limit Values, 2005	**Beta-Naphthylamine** **CAS #91-59-8** **1910.1009** American Conference of Governmental Industrial Hygienists Threshold Limit Values, 2005	**Vinyl Chloride** **CAS #75-01-4** **1910.1017** American Conference of Governmental Industrial Hygienists Threshold Limit Values, 2005	**Cadmium** **CAS #7440-43-9** **CAS #1306-19-0** **1910.1027** American Conference of Governmental Industrial Hygienists Threshold Limit Values, 2005
Benzene **CAS #71-43-2** **1910.1028** American Conference of Governmental Industrial Hygienists Threshold Limit Values, 2005	**3,3'-Dichloro- Benzidine** **CAS #91-94-1** **1910.1007** American Conference of Governmental Industrial Hygienists Threshold Limit Values, 2005	**Methylenedianiline** **CAS #101-77-9** **1910.1050** American Conference of Governmental Industrial Hygienists Threshold Limit Values, 2005	**4-Nitrobiphenyl** **CAS #92-93-3** **1910.1003** American Conference of Governmental Industrial Hygienists Threshold Limit Values, 2005		**Lead** **CAS #74-39-1** **1910.1025 Gen. Industry** **1926.62 Construction** American Conference of Governmental Industrial Hygienists Threshold Limit Values, 2005

Fibers	Physical & Biological Substances	Occupational Groups	Required Certifications		
Chemical CAS# Reference from: 29 CFR Require*ment*	**Program Regulatory Driver**	**Program Regulatory Driver**	**Program Regulatory Driver**		
Asbestos **CAS #1332-21-4** **1910.1001** **1026.1101** American Conference of Governmental Industrial Hygienists Threshold Limit Values, 2005	**Human Pathogens** **Blood-Borne Pathogens** **1910.1030**	**Hazardous Waste/ Emergency Response** **1910.120** (Also see NIOSH guide for hazardous waste site activities)	**DOT Truck Driver** US DOT Federal Highway Admin, Federal Motor Carrier Safety Regs. 49 DFR 391.41		
Silica **1910.1000** National Institute for Occupational Safety and Health, Criteria for a Recommended Standard: Occupational Exposure to Crystalline Silica, DHEW (NIOSH) Publication No. 75-120, 1974 Table Z-3, permissible exposure limits for mineral dusts. American Conference of Governmental Industrial Hygienists Threshold Limit Values, 2005	**Noise** **1910.95 and DOD Instruction 6055.12, DOD Hearing Conservation Program** American Conference of Governmental Industrial Hygienists Threshold Limit Values, 2005	**Respiratory Protection** **1910.134**	**Tower Climber (Hoisting & Rigging)** TSCM Operations Manual DOE 0 471.2-4, 02-06-04 Chapter 3, Par III E		
		Laser Use **ANSI Z136.1-2007**	**Crane Operator (Hoisting & Rigging)** Mobile or Pulpit Crane operator licensed by the State of New Mexico. Licensing and training requirements conform to 29 CFR 1926.1427 Subpart CC		
		Deployable Teams (ARG,BEST,JTOT,RAP) **DOE Order 151.1-** Comprehensive Emergency Management System Centers for Disease Control, Health Information for International Travel			

Attachment F16-1
Major Equipment Declaration

The following equipment will be used on Subcontract Number _____

EQUIPMENT	MANUFACTURER	SERIAL NO.

(Use Additional Sheets As Necessary)

All equipment listed above is properly serviced and maintained in accordance with each Manufacturer's recommendations and OSHA/ANSI/LANL requirements as applicable. All equipment listed above will be operated, inspected, and maintained by a competent person for the duration of the Subcontract. Equipment will not be operated in an unsafe manner or condition. Equipment that cannot be repaired will be removed from the Los Alamos National Laboratory (LANL).

Documentation of all required certifications, inspections, and maintenance will be maintained by the Subcontractor's Representative on site, and available for review as requested.

Equipment leaking fluids will be immediately removed from service and the fluids will be contained to prevent absorption into surface areas or releases to the environment. Spill residues shall be cleaned up, containerized, characterized and managed in accordance with the Waste Management Plan or Waste Characterization Strategy Form (see Exhibit F39). If the Waste Management Plan or Waste Characterization Strategy Form does not include this type of waste stream, the SUBCONTRACTOR shall implement the requirements contained in Exhibit F39.3.

Before loading, unloading, and transporting self-propelled medium and heavy duty construction equipment LANL, read and complete the “Self-Propelled Equipment Loading, Unloading & Transport Safety Review Checklist”, pages 2 and 3 of this form.

All equipment listed above has the necessary permits(s) and/or relocation notices from NMED. Copies of permits and notices have been provided to STR.

_____ _____

Signature of Company Representative Company Name

Submit one (1) copy to the Subcontract Technical Representative (STR) before placing equipment in service.

MAJOR EQUIPMENT LISTING

Cranes (All Types)	Front End Loaders	Dozers	Scrapers	Light Plants
Finishing Machines	Compactors/Rollers	Backhoes	Forklifts	Power Shovels
Generators, Portable	Spreading Machines	Graders	Gradalls	Compressors
Aerial/Man Lifts	Saws (Cut Off-Band-Table-Stone)		Ditch Witches (Trenching Machines)	
Wackers (Soil Compactors)	Tractors (Agricultural and Industrial)		Trucks and Trailers (Excluding P/U’s)	
Drilling Rigs	Welding Machines (Gasoline or Diesel)		Power Equipment/Fuel Burning Equipment	

THIS LIST IS NOT ALL INCLUSIVE. CONTACT THE STR CONCERNING ANY MAJOR EQUIPMENT TO BE USED THAT MAY NOT BE LISTED

Self-Propelled Equipment Loading, Unloading & Transport Safety Review Checklist

The following items will be reviewed by the responsible work group supervisor prior to performing any activity involving the Loading, Unloading, and Transport of Self-propelled Medium or Heavy Construction Equipment (i.e. mobilization / demobilization). SUBCONTRACTOR will submit completed checklists to the responsible Subcontract Technical Representative (STR). The intent of this checklist is to enhance personnel safety and does not alter the contractual relationship between CONTRACTOR and SUBCONTRACTOR.

- ☐ Responsible Work Group Supervisor will assign the person in charge of loading, unloading, or transport activity.
- ☐ Ensure trailer is positioned and secured properly, level, and on a surface sufficient to support the load.
- ☐ Ensure that all proximity hazards have been identified and proper controls are established.
- ☐ Inspect trailer and associated equipment to ensure they are in safe working condition.
- ☐ Establish controls to restrict non essential personnel from the immediate proximity of loading/off loading activity.
- ☐ Determine the need for and assign flagman when necessary.
- ☐ Driver to determine loading alignment and position for transport.
- ☐ Equipment Declaration submitted to STR.

SUBCONTRACTORS Name _____ Subcontract Number _____

To the best of my knowledge, I believe that this information is accurate and complete.

Print Name _____ Date _____

Signature _____

Major Equipment Declaration

Self-Propelled Equipment Loading, Unloading & Transport Safety Review Checklist (continued)

Do:

- If any condition changes unexpectedly or equipment malfunctions during loading or unloading, **STOP WORK IMMEDIATELY**, place in a safe condition and secure the area, and contact supervision.
- Follow all manufacturer's instructions and equipment operator manuals.
- Contact the appropriate supervisor or PIC if original plans change or any questions arise during the work activity.
- Always review the work area for potential hazards.
- Follow established safety controls.
- Maintain line of sight between flagman and operator.
- Once the equipment is positioned on the transport vehicle, ensure the load is properly secured.
- Contact STR when necessary to notify an offsite vendor of malfunctioning equipment.

Don't:

- Never place any part of your body within "THE LINE OF FIRE". (i.e. Crush Points, Pinch Points, Rotating Structures, under suspended loads)
- Never use equipment when it is unsafe

General Considerations

- While offloading or loading equipment during inclement weather conditions the driver will take additional precautions to ensure control of the load. During icy conditions no loading or offloading will be performed.
- Workers must never place any part of their bodies in a pinch or crush point.
- At LANL, every worker has the right and duty to stop work if it appears unsafe to continue. While all employees are encouraged to thoughtfully comply with rules and job plan steps, they should not hesitate to stop work if they do not understand a rule or if compliance with it appears to be the wrong or unsafe thing to do.

Major Equipment Declaration

Attachment F19-1
Environmental Reporting Data for EPA Annual Toxic Release Inventory Report

Subcontractor:_____ LANS Project Title_____
LANS Subcontract Number: _____
STR Name:_____
Form Completed by:_____ Date_____

This data is due to STR at the conclusion of project and by January 31 for multi-year projects. Use additional sheets as needed.

Calendar Year:_____
All asphalt, lead or mercury used during this calendar year:

	Amount (pounds)
Asphalt used	
Lead used	
Mercury used	

All other chemicals stored or used in this calendar year in quantities greater than 100 pounds:

Chemical name	**CAS #**	**Amount (in pounds)**

For all wastes containing lead or mercury disposed in this calendar year:

Waste Description	**Amt (lbs)**	**Mercury or Lead Conc. In Waste (ppm)**	**Disposal Site Name/Address**

CERTIFICATION:
I certify that the information on this form is true, accurate and complete.

_____ _____ _____
Signature of Subcontractor Representative Title Date

Attachment F20-1
Integrated Work Document (IWD) - Form 2100

Subcontractor IWD – (Subcontract Activity Specific Information)

Subcontract#			**Company Name:**	
Revision #:			**Activity/Task Title:**	
Work Document #: (WO # / Task)			**Subcontractor Planner Name**	**Znumber** **Date**
TA:	**Building:**	**Room:**	**Additional Location Description:**	

Activity Description/Overview:

List Names of Hazard Analysis (HA) Team _____ **Date HA Performed** ____ __ ____

PRECAUTIONS/LIMITATIONS/PREREQUISITES:
(include training/authorizations, approved permits, and area postings)

1. If steps cannot be completed as described, or if unforeseen situations occur, **STOP WORK**, stabilize the situation, contact your supervisor, the LANL POC and await further instructions before proceeding.

2. Training required to perform this activity:
   - Reference LANL AP-MSS-004.2 Subcontractor Training Matrix
   - List additional Trainings, certifications, licenses required to perform this activity
     - o
     - o

GENERAL HAZARDS ***(identify hazards and associated controls)***

The following PPE is required:
- Safety Shoes
- Safety Glasses with side shields

Slips, Trips and Falls
- Be aware of ground and floor conditions.

Back Strains
- Use proper lifting and bending technique at all times

1.

2.

3.

Subcontractor IWD – (Subcontract Activity Specific Information)

Subcontract #			**Company Name**
Revision #			**Activity/Task Title**
Work Document # (WO # / Task)			**Subcontractor Planner Name** **Znumber** **Date)**
TA	**Building**	**Room**	**Additional Location Description**

1.

CAUTION

2.

NOTE:

3.

4. CONTACT the LANL POC and inform them the work is completed. Complete all the required documentation and return the Master Work Package to the Area Work Control Office.

Insert Rows above *for additional Tasks/Steps or attach pages to clearly communicate ESH&Q/S&S hazards and associated controls.*

IWD Type

☐ Moderate-Hazard

☐ High-Hazard /Complex

☐ Standing IWD

The Subcontractor line manager approves work based upon confidence that this IWD has been jointly prepared with the Contractor, the IWD clearly defines Subcontractor provided work tasks/steps linked to hazards and controls associated with the work to be performed, that the work will be performed within ES&H/S&S requirements and will be performed in accordance with this IWD.

Signature:_____ Z#_____

Date: _____

Subcontractor PIC Signature _____ Z#_____

Document Preparer Signature_____ Z#_____

STR or Designee Signature _____ Z#_____

LANL ES&H Rep Signature _____ Z#_____

FOD Rep Signature _____ Z#_____

LANL ESO Signature (if required) _____ Z#_____

Reviewed by SUBCONTRACTOR ES&H Representative

_____
Signature

Z# _____ Date: _____

Attachment F20-2
IWD Validation and Release Form 2102A
Pre-Job Brief Content

- What are the critical steps or phases of this activity?
- How can we make a mistake at that point?
- What is the worst thing that can go wrong?
- What controls, preventive measures, and bounding conditions are needed?
- What work permits are required and how will we meet their requirements?
- What are the handoffs and coordination requirements among workers and multiple PICs?
- Are there hold-points including those that require sign-offs?
- What are the stop work responsibilities and expectations (e.g. for unanticipated conditions or hazards)?
- How would we respond to alarms and emergencies?
- Are there lessons learned from previous similar work?
- Is other information needed to perform this activity in a safe, secure, and environmentally responsible manner?
- Does everyone agree to the work tasks/steps, hazards, and controls and commit to follow them?

PRE-JOB BRIEF ATTENDANCE ROSTER	
By signing below, I agree to the following: • I understand the work, the hazards, and the controls. ▪ I agree to follow the work steps and implement the controls as written. ▪ I agree to stop work when conditions or hazards change or when I encounter unexpected conditions during the execution of work, or when work cannot be performed as written, or instructions become unclear during execution. ▪ I confirm that I am authorized, qualified, and, fit to perform the work.	
Worker (Signature / Z # / Date) **Required**	Worker (Signature / Z # / Date)
Worker (Signature / Z # / Date)	Worker (Signature / Z # / Date)
Worker (Signature / Z # / Date)	Worker (Signature / Z # / Date)
Worker (Signature / Z # / Date)	Worker (Signature / Z # / Date)
Worker (Signature / Z # / Date)	Worker (Signature / Z # / Date)

WORK RELEASE
By signing below, I have verified the following: • I have jointly conducted a walkdown with workers to confirm the IWD can be performed as written, required initial conditions and other prerequisites are in-place. • The assigned workers are authorized and are qualified to perform the work in a safe, secure, and environmentally responsible manner. • I have conducted the pre-job briefing, and all workers have been briefed. • I have ensured coordination as required by the STR.
PIC (Signature / Z # / Date) **Required**
Alternate PIC Signatures when PIC authority is assumed the first time (Note: alternate PICs are required to sign only once, but formal handoff and employee notification are required for each PIC change). Alternate PIC (Signature / Z# / Date) **Required** _____ Alternate PIC (Signature / Z# / Date) **Required** _____ Alternate PIC (Signature / Z# / Date) **Required** _____

Form 2102A

Form F20-3 COMPLETE THIS FORM IF WORK INVOLVES REMODEL, RENOVATION, AND/OR DEMOLITION

Identify site hazards and concerns (including legacy use) that could potentially affect subcontractors, support workers and collocated workers. See Section F61.0 for more information. The following checklist is to be used by the SUBCONTRACTOR to help specify training requirements, preventive measures, further hazard ID, exposure monitoring, controls and bounding conditions for each of the listed site hazards considered in the SUBCONTRACTOR'S - F20.0 Work Management - Form 2101 and the Site-specific ESH plan.

	Exhaust vent. Sys.	Return Air, Plenums	Lab Fume Hood	HVAC, Furnace,Refrig	Fans, Ductwork	Exhausts Stacks	Underground Utilities	Tank, Boiler, P. vessel	Piping, valve ,fitting	Drains, P-Trap	Steam Trap	Lighting , Ballast	Interior Partitions	Stairs, Elevator	Door, Window	Exit Sign	Cooling Tower	Flooring, Tile	Roofing Material	Interior Wall	Exterior Wall, Siding	Framing, Concrete	Column	Beam	Other
Fibers/Particulate (potential for exposure to generated particulate (i.e. grinding or paint removal)																									
Asbestos (ACM)																									
Refractory Ceramics																									
Fiberglass																									
Crystalline-Silica																									
Plascite coating																									
Epoxy coating																									
Polyurethane																									
Lead based paint																									
Metals (potential for exposure to particulate or fume generation from D&D activity (i.e. surface contamination or paint/surface removal, welding or cutting)																									
Lead																									
Mercury																									
Cadmium																									
Chromium																									
Nickle																									
Other																									

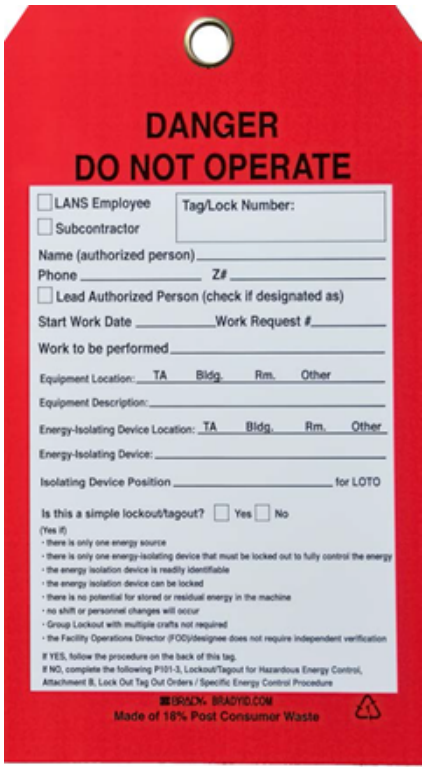
Provide location and detail for any checked box:

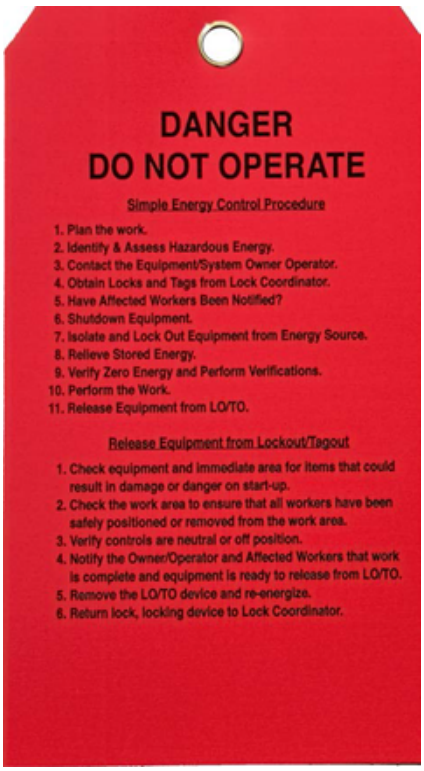
Form 20-3
Page 2 of 2

	Exhaust vent. Sys.	Return Air, Plenums	Lab Fume Hood	HVAC, Furnace,Refrig	Fans, Ductwork	Exhausts Stack	Underground Utilities	Tank, Boiler, P. vesse	Piping, valve ,fitting	Drains, P-Trap	Steam Trap	Lighting , Ballast	Interior Partitions	Stairs, Elevator	Door, Window	Exit Sign	Cooling Tower	Flooring, Tile	Roofing Material	Interior Wall	Exterior Wall, Siding	Framing, Concrete	Column	Beam	Other
Chemicals (potential for exposure to chemicals via contamination form historical use or current inventories of stored materials)																								
Acids/bases																								
Perchlorates																								
Peroxide formers																								
Explosive residues																								
Refrigerants																								
PCBs																								
Oils/Fuels																								
Other Chemicals																								
Biohazards (potential for exposure to biohazards from existing contamination or from stored materials)																								
Live animals/feces																								
Sewage																								
Mold, bacteria																								
Other																								
Electrical (any uncontrolled electrical source or the potential for unidentified sources)																								
Uncapped,																								
Batteries																								
Other																								
Confined spaces																								
Rad. Contaminated																								
Structural issue																								

Provide location and detail for any checked box:

Attachment F30-1
Lockout/Tagout Tag (SAMPLE)





Attachment F30-2
Specific Written Procedure for Lockout/Tagout

No: P101-3 Lockout/Tagout for Hazardous Energy Control
Attachment B. LO/TO Orders (Page 1 of 5) ***Available at***
http://int.lanl.gov/safety/industrial_hygiene_and_safety/lockout-tagout/index.shtml

Attachment B, LO/TO Orders

Lock Coordinator Name/Z# **Phone #** **Alternate Lock Coordinator Name/Z#** **Phone #**

Section 1: General Information					
1. Work Document Number (i.e., Package/Procedure #):			2. LO/TO (Parent) Record #		3. Date:
Location					
4. TA:	5. Bldg:	6. Rm:	7. Equipment/Machinery/Name/Number:		
8. Reason for LO/TO:					
9. Name of Equipment Owner/Operator:					
10. Energy Type to be Isolated (check all that apply) ☐ Electrical ☐ Mechanical ☐ Hydraulic ☐ Pneumatic ☐ Steam ☐ Capacitors ☐ Compressed Energy ☐ Gravity ☐ Other (specify):					
11. Group LO/TO: ☐ Yes ☐ No If Yes, Name of Lead Authorized Worker:				12. Group Lock Box used: ☐ Yes ☐ No If yes, enter ID# of Lock Box Lock Box ID:	
13. Sequencing Required for LO/TO ***Installation*** If Yes, complete Section 2 below ☐ Yes ☐ No If No, place N/A in column 20 below				14. Sequencing required for LO/TO ***Removal*** If Yes, complete Section 2 below ☐ Yes ☐ No If No, place N/A in column 28 below	
Section 2: LO/TO Installation & Removal					
LO/TO Installation				**LO/TO Removal / Return to Service**	
15. Approval to Install LO/TO (signature & Z#)				24. Approval to Remove LO/TO (signature & Z#). Call # _____	
16. Verification required for LO/TO Installation (Peer/Concurrent dual verification). ☐ Yes ☐ No				25. Verification required for LO/TO Removal (Peer/Concurrent dual verification) ☐ Yes ☐ No	
17. Verification Determination Approved by FOD/Designee (signature)		Z#	Date	26. Verification Determination Approved by	Z# Date
18. Specific Energy Isolation Device/ID	19. Location of locking Device	20. LO/TO Installation Sequence	21. Required Position/Alignment for LO/TO	22. LO/TO Installation verified By:	27. Required Position/Alignment following Removal / 28. LO/TO Removal Sequence / 29. LO/TO Removal Verified By: / 30. As-Left Position
23. LO/TO Points Positioned and First Lock installed by Signature		Z#	Date	31. LO/TO Removed, Positioned and Verified by Signature	Z# Date

Page 1 of 5

No: P101-3 Lockout/Tagout for Hazardous Energy Control
Attachment B. LO/TO Orders (Cont.) (Page 2 of 5) *Available at*
http://int.lanl.gov/safety/industrial_hygiene_and_safety/lockout-tagout/index.shtml

Attachment B, LO/TO Orders

Attachment B, LO/TO Orders (Cont.)			
1. Work Document Number (i.e., Package/Procedure #):	2. LO/TO (Parent) Record #	3. Date:	
32. Zero Energy Checks have been completed ☐ Yes ☐ No	33. Completed by Signature	Z#	Date
Section 3: Lead Authorized Worker and Authorized Workers (anyone applying a lock for this activity)			
34. Authorized Workers Name(s)	Z#	35. Date workers lock is hung	36. Date workers lock is removed
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Section 4: Return of Lock(s)/Tag(s) and Locking Devices			
All Lock(s)/Tag(s) and Locking Devices have been removed and returned to the Lock Coordinator or Designee			
37. Signature of Lock Coordinator or Designee	Z#	Date	

Page 2 of 5

No: P101-3 Lockout/Tagout for Hazardous Energy Control
Attachment B. LO/TO Orders (Cont.) (Page 3 of 5) *Available at*
http://int.lanl.gov/safety/industrial_hygiene_and_safety/lockout-tagout/index.shtml

Attachment B, LO/TO Orders

Continuation Page (print as needed)

18. Specific Energy Isolation Device/ID	19. Location of locking Device	20. LO/TO Installation Sequence	21. Required Position/Alignment for LO/TO	22. LO/TO Installation verified By:	27. Required Position/Alignment following Removal	28. LO/TO Removal Sequence	29. LO/TO Removal Verified By:	30. As-Left Position
23. LO/TO Points Positioned and First Lock installed by Signature		Z#	Date		31. LO/TO Removed, Positioned and Verified by Signature		Z#	Date

Page **3** of **5**

No: P101-3 Lockout/Tagout for Hazardous Energy Control
Attachment B. LO/TO Orders (Cont.) (Page 4 of 5) *Available at*
http://int.lanl.gov/safety/industrial_hygiene_and_safety/lockout-tagout/index.shtml

Attachment B, LO/TO Orders

The following are directions for filling out Attachment B.

1. Enter the Work Document Number, this will be the number from the IWD or the procedure number (i.e., TA88-DOP-0001)
2. Enter the LO/TO Parent Record number, this is obtained from the Lock Coordinator when the HEC lock(s) are issued. The Remedy LO/TO database issues this number.
3. Enter the date of when the locks will be applied.
4. Enter the TA where the lock(s) will be hung.
5. Enter the Building number of where the lock(s) will be hung.
6. Enter the Room number where the equipment is located/where work is being performed.
7. Enter the Equipment/Machinery/Name/Number (example, HVA-001)
8. Write a brief description of the reason for LO/TO (example, Removing and replacing bel
9. Enter the Name of the Equipment Owner/Operator. Each FOD is different in the assigning o Equipment Owner/Operators. There are also programmatic Equipment Owner/Operators.
10. Check the appropriate energy type to be isolated, check all that apply. Mak e you have nsidered all energy sources, if other you will need to specify what "other" is.
11. Check applicable box to identify if a group LO/TO (A LO/TO where two or or authorized workers, regardless of their occupation or craft, lock out and tag out the same equipment to perform servicing or maintenance).
12. Check applicable box if lock box is used for the job. Enter the lock box ID . Each organization that issues locks will be required to uniquely number and track lock boxes in their possession.
13. When installing the lock(s)/tag(s), is there a specific sequence in which the isolation devices are to be positioned. If a specific sequence must be followed, THEN number the sequence order in column 20. If there is not a specific sequence to follow then place N/A in column 20. This needs to be an operations type person (Operator) who understands the equipment/system/component.
14. When removing the lock(s)/tag(s), is there a specific sequence in which the isolation devices are positioned after lock/tag removal? If a specific sequence must be followed, THEN number the sequence order in column 28. If not, place N/A in the box(s).
15. The Equipment Owner/Operator signs and enters their EE#, authorizing the installation of the LO/TO. With some FODs this will be the maintenance coordinators.
16. Is verification required for this LO/TO. Determine if this is Peer Verification (see P101-3, Section 3.15) or Concurrent Dual verification (see P315, Attachment 10, Section 10.3.6). For Independent Verification see P315, Attachment 10, Independent Verification, The Operations Manager (OM) prepares and maintains a facility-specific list of systems and components requiring Independent Verification.
17. The FOD/Designee must sign after determining if verification is required. If Independent Verifier is identified at this time then it must be entered into the Remedy database.
18. Enter the specific Energy isolation device/ID, (example, MCC-A, A4)

No: P101-3 Lockout/Tagout for Hazardous Energy Control
Attachment B. LO/TO Orders (Cont.) (Page 5 of 5) *Available at*
http://int.lanl.gov/safety/industrial_hygiene_and_safety/lockout-tagout/index.shtml

Attachment B, LO/TO Orders

19. Location of locking device, this is the location of where the lock is applied (example, MCC-A, A4 TA-XX, Bld. XXX, rm. 123)
20. If the LO/TO needs to be installed in a particular order, number the order in which the locks need to be installed. If the "No" box is checked in #13, then place N/A in this column.
21. Required Position/alignment for LO/TO, open, closed, connected, disconnected, on, off, etc..
22. LO/TO installation verified by – Has the equipment /system/component being locked out, been identified by the FOD as requiring Independent Verification (IV)[1].
23. The Lead Authorized worker positions the LO/TO points and installs his/her lock and signs that this has been completed.
24. This is the person, who authorized the LO/TO to be removed, signs and places his/her Z# in this box. This signature authority may place a phone number here for the Lead Authorized worker to call for authorization to remove the LO/TO. When verbal authorization is given, it must be documented in this section. Example: John Smith per telecom, 8/13/14 and your initials. Note: It is also permissible to pre-authorize the removal of the lock by pre-signing.
25. If verification is required for LO/TO removal, check the "Yes" box, otherwise check the "No" box.
26. If verification is required, the FOD/Designee must sign. Independent Verifier is identified at this time and entered into the database.
27. Write the required position/alignment the system/component will be placed in following the removal of the lock(s).
28. If the isolation device needs to be positioned in a particular order/sequence, (per Post Maintenance) number the order/sequence in which the isolation device is to be position. If not, place N/A in the box(s).
29. LO/TO removal verified by Lead Authorized Worker – the lock(s) has been removed and the As-Left position is documented in column 30.
30. Enter the As-Left Position.
31. If the removal of the lock has been identified as needing to be verified, the verifier writes name and Z# after verifying the lock has been removed.
32. The authorized worker must verify that the steps utilized in this energy control procedure have effectively isolated the machine or equipment from the hazardous energy.
33. The authorized worker signs after zero energy checks have been completed.
34. All authorized workers applying a lock for this activity name/s/Z# and the Date must be entered.
35. Enter the date the authorized worker hangs lock.
36. Enter the date the authorized worker removes lock.
37. The Lock Coordinator or designee signs once locks, tags, and locking devices have been removed and returned. If a lock and/or tag are found to be contaminated then that will be noted by the Lock Coordinator or designee and the Lock Coordinator or designee will sign.

Page 5 of 5

Attachment F30-3

Los Alamos
NATIONAL LABORATORY

Subcontractor Lockout/Tagout Record for Simple Lockout/Tagouts

Section 1. Section 1 will be prepared by the work provider.

Prepared by	Organization	Phone Number	Work Request Number	
Equipment, Machinery, or System	**Tech Area**	**Building**	**Room**	**Other**

Specific Written Procedure Required? Yes ___ No ___

A specific written procedure is required if:

- There is more than one energy source;
- More than one energy isolation device must be locked out to fully control the energy;
- The energy isolation device is not readily identifiable;
- The energy isolation device cannot be locked;
- There will be shift or personnel changes that will affect the status of the lockout/tagout;
- The workers performing the service or maintenance are not from the same craft and organization/company; or
- The FOD/designee requires an independent verification.

If Yes, this form is not required. Complete a specific written procedure.

If No, complete the following:

Energy type: _____ Energy-Isolating Device: _____

Section 2. Section 2 will be signed by the equipment owner/operator.

Equipment Owner/Operator Notification
Authorized workers will notify the equipment owner/operator before starting work. The equipment owner/operator will complete the following:

I accept the responsibility for notifying affected workers prior to the shutdown and restart of equipment. My signature approves the start of this work:

_____ _____
Signature of Equipment Owner/Operator Date

_____ _____
Print Name Organization

I must be personally notified prior to any testing, positioning, or restart of the equipment: Yes_____ (Initial) No_____ (Initial)

I must be personally notified prior to the start of equipment: Yes_____ (Initial) No_____ (Initial)

If yes, contact information:

Phone: _____ Pager: _____ E-mail: _____

Facility Manager/Designee Date

Attachment F32-1
Critical Lift Plan

No: P101-25 Cranes, Hoists, Lifting Devices, and Rigging Equipment
Attachment B. LANL Critical Lift Plan [SAMPLE] (Page 1 of 14)

1.0 GUIDANCE FOR COMPLETING ATTACHMENT B, LANL CRITICAL LIFT PLAN [SAMPLE]

1.1 General

This attachment is designed to be flexible enough to permit the format to serve as a guide for lifting with multiple equipment types. . A Microsoft Word version of this format may be found on the Cranes, Hoists, Lifting Devices, and Rigging Equipment website.

The design is based around the more complex requirements of using a mobile lattice boom crane. Therefore some elements will not be applicable to lifts using bridge cranes, monorails, chain falls or other equipment. The user must determine what information or data requirements are not applicable for a given situation and enter “NA” with the user’s initials and date. If in doubt about a given item, consult with local Environment, Safety, Health (ESH) representatives or contact the Occupational Safety and Health (OSH) Crane Program Leader for guidance. This format is also used to document Critical Pre-Engineered Lifts in accordance with Section 3.1.1.c

1.2 Header

All sections must be filled in to fully describe the lift, location, Person in Charge (PIC), etc. Name and Z number must identify the PIC. If there is not an associated job number or project number, users may identify the job and project with a distinct title or name that associates the lift with an activity or mission element.

In the line requesting the lift plan expiration date; in the case of a single lift or limited duration project, users may use the end date of the project or lift. It is recommended that users plan for delay or unanticipated change in schedule and not crowd the end date. For standing plans or other long duration activities, the end date may be the expiration or review required date of the Integrated Work Document (IWD) or standing procedure. In general, critical lift plans must be reviewed annually to incorporate any lessons learned or changes in equipment, loads, environment, or other impacting procedure or process. To assure these reviews, the expiration date should be set annually for standing plans.[2]

1.2.1 Part A, Critical Lift Determination

Users complete the checklist by checking off each item yes or no. This is a check to assure that the lift is indeed a critical lift requiring a critical lift plan. If all ten items are checked “no,” then a critical lift plan is not necessary. The RLM must approve the critical lift determination.

[2] When periodically reviewing a critical lift plan, where it is found no change is necessary, it is required that workers only complete a new page 1 with header and critical lift determination and then attach that to the remaining body of the plan. Where changes are made, it is necessary only to change those pages containing the revised material plus a page 1 and with approval signatures page (Section L) where required.

1.2.2 Part B, Pre-Lift Checklist

The entire Part B is devoted to a checklist that may be used both during preparation of the lift plan as well as on the day of lift. It is designed to assist users in meeting not only the documentation requirements, but some items are designed specifically for in the field and pre-lift reminders to the PIC. Questions on the left side are to assist in getting together the attachments users will need (annual and monthly inspection copy, load test [where required], rigging proof certificates, operator authorization and currency, etc.) to accompany the plan. The right side is geared to in-field, pre-lift check-off of readiness. Where something is NA mark it NA. The questions on the right side need not be marked at the time of review and approval. This is a valuable aid in pulling the plan together.

1.2.3 Part C, Personnel and Environmental Exposure

The items here are for evaluating radiation, chemical, explosive, etc. hazards that are present in the lift area that could impact the work team or result in an incident or event. This should be considered a planning block.

1.2.4 Part D, Load Identification and Information

Part D, when completed, describes the load in detail and asks for details on where the information came from. Care and caution must be exercised if the load is classified so as not to result in a classified lift plan if that can be avoided. Users should consult their Derivative Classifier (DC) and security representative up front. If indeed the required data would disclose classified information then the lift plan will need to be classified to a commensurate level.

Part D lists some sources of load data that may be NA. Mark those with NA, initial, and date.

1.2.5 Part E, Operating Equipment to Be Used

Part E, when completed, is a description of the equipment to be used. The assumption here is that the machine is LANL equipment. In cases where rented cranes are used or a subcontractor is conducting the lift, the provider of the equipment must provide this information. For rental or subcontractor equipment, annotate this section “Rental Equipment,” followed by the name of the company from which equipment is rented or “Subcontractor” followed by the subcontract number and name of the subcontractor company.

Question 6 on load charts is primarily for mobile or fixed adjustable jib cranes. A load chart states the maximum load that can be safely handled at a given swing and boom angle. Machines such as fixed boom angle jibs, monorails, bridge cranes, etc. do not have a crane chart per se. These machines have a fixed maximum safe load. Where the lift is being conducted by a machine without a crane chart, mark this as NA and place the maximum safe load in its place as an annotation.

1.2.6 Part F, Rigging

This section is used to describe the rigging to be used. Most of the information here is self-explanatory and includes most of the common rigging materials used. Users may mark as “NA” those that are not being used in a particular lift.

1.2.7 Part G, Operating Area

Use this section as an aid in examining the place where the lift will be conducted. Examine the pick point, the load path, and the landing point to visualize the entire lift when examining for obstructions or limitations that will need to be put into the lifting process for a safe and incident-free lift. Also, while examining these factors look for things and events in the area of the lift (scaffolding, piping, operating machines, etc.) that in a momentary loss of control could result in a cascade of damage either resulting in injury or disruption of vital or important systems. For those items that are discovered, formulate an action plan to mitigate or eliminate the risk involved and attach it to the Critical Lift Plan. Make sure that all mitigating steps are accomplished before the lift.

1.2.8 Part H, Practice Lift Required?

This section allows users to describe a practice lift if one is needed or planned. Often with delicate, complex, or very high risk lifting, a practice lift just before actually rigging it up is the best way to assess not only readiness and skills but to find any maneuver problems that were not evident during planning. This provides a check against planning and communication so any last minute problems are discovered and fixed before the load is on the hook.

Practice lifts may be done in a number of ways. Usually the rigging to the load is assembled but not rigged to the load as a check of rigging fit. If no lifting beam is being used then the load path is “flown” from the pick point to the landing point with the hook alone. In some cases where a lifting beam is part of the under hook rigging, the beam will be flown with a tag line manned to evaluate steering, especially in tight spaces.

A practice lift is rarely wasted time and effort. Even if a lift has been done in the past numerous times, sometimes a practice lift conducted without the load shows things that were missed in the past.

1.2.9 Part I, Sketches and Drawings

This section is advisory in nature concerning the sketches and drawings that are necessary for compliance with DOE-STD-1090-2007, *Hoisting and Rigging Standard*. Gridded sheets are provided in later pages for use in making hand-drawn sketches. CAD or other electronic drafting programs may be used instead of the gridded pages. Clearly title each sketch or drawing so that it is obvious that each required sketch or drawing is present. It is also permissible to use photographs for demonstrating the rigging and/or other orientations.

1.2.10 Part J, Notes/Things to Do

This section is open to include any additional annotations or instructions, etc. that are needed to conduct a safe, planned lift.

1.2.11 Part K, Personnel Assignments

Document who is involved and what role they will play in the lift, along with a verification of any required training. Use additional sheets if needed.

No: P101-25 Cranes, Hoists, Lifting Devices, and Rigging Equipment
Attachment B. LANL Critical Lift Plan [SAMPLE] (Cont.) (Page 4 of 14)

1.2.12 Part L, Review and Approval

This section is to document reviews and approval of the plan. Note that the original must have the "wet ink" signature of reviewers and approvers. Use additional sheets if needed.

1.2.13 Part M, Pre-Lift Meeting

This section is to document the required pre-lift meeting. Because only six spaces are provided, if there are more than six people involved, users may attach an attendance roster marked as Section M if needed.

1.2.14 Gridded Sheets

Gridded sheets are provided for use in making sketches if other drawings or electronic sketches are not used.

No: P101-25 Cranes, Hoists, Lifting Devices, and Rigging Equipment
Attachment B. LANL Critical Lift Plan [SAMPLE] (Cont.) (Page 5 of 14)

Table B-1. LANL Critical Lift Plan	
Name and company of person preparing this plan:	
Date prepared:	Date of lift:
Critical lift plan expiration date:	PIC:
Client/customer:	Job #: Project #:
Lift location (building #, address, etc.):	This critical lift plan must be available when and where the lift is performed. How will this requirement be met?
A. Critical Lift Determination	
A lift will be determined critical if any of the following conditions are met. Check each answer with either a Yes or a No.	
1. If the load item were damaged or upset would it result in a release into the environment of radioactive or hazardous material exceeding the established permissible environmental limits?	Yes _____ No_____
2. Is the load item unique and, if damaged, would it be irreplaceable or not repairable and is it vital to a system, facility or project operation?	Yes _____ No_____
3. If the load item was damaged, would the cost to replace or repair the load item, or the delay in operations of having the load item damaged have a negative impact on facility, organizational, or DOE budgets to the extent that it would affect program commitments?	Yes _____ No_____
4. If the load were mishandled or dropped, would the event cause any of the above noted consequences to nearby installations or facilities?	Yes _____ No_____
5. Does the lift exceed 75% of the manufacturer's rated capacity for the crane, hoist, or mechanized equipment to be used in the lift?	Yes _____ No_____
6. Does the load item require special care in handling because of weight, size, asymmetrical shape, undetermined center of gravity, installation tolerances, or other unusual factors?	Yes _____ No_____
7. Is the lift an otherwise non-critical lift that must be made in close proximity to critical or expensive items that could be damaged as a result of contact with a hoisted load?	Yes _____ No_____
8. Does the lift use two or more cranes, hoists, pieces of mechanized equipment, or a combination of such equipment?	Yes _____ No_____
9. Is the lift such that the crane, hoist, or mechanized equipment could at any time come in contact with an energized high voltage power line?	Yes _____ No_____
10. Could failure of this lift significantly impact the confidence of LANL customers or sponsors in the ability of LANL to safely execute current or future missions?	Yes _____ No_____

No: P101-25 Cranes, Hoists, Lifting Devices, and Rigging Equipment
Attachment B. LANL Critical Lift Plan [SAMPLE] (Cont.) (Page 6 of 14)

Table B-1. LANL Critical Lift Plan (Cont.)

B. Pre-lift Checklist

__ Crane's monthly and annual inspections current
__ Periodic maintenance complete
__ Crane inspected ___Site-control in-place
__ Load test verified ___Spotters in-place
__ Operator is qualified ___Signal person identified
__ Riggers are qualified ___Head-height checked
__ Rigging proof tested ___Hoist-height checked
__ Proof tests verified ___Signatures procured
__ Rigging inspected ___Tailing info provided
__ Annual rig. Insp. current ___Job briefing held
__ Work zones identified ___Team is ready for lift

C. Personnel & Environmental Exposure

1. Any radiation exposure hazards? _____
2. Any chemical exposure hazards? _____
3. Any explosive hazards? _____
4. Any exposure hazards to the public? _____

If YES to any of the above, what precautions are needed?

5. Is EM&R notification required?
   When? _____
   Where? _____
   Who? _____

D. Load Identification and Information

1. Load condition:_____New ___ Used_____
2. Wt. empty: _____
3. Wt. of contents: _____
4. Wt. of lifting beam: _____
5. Wt. of rigging: _____
6. Wt. of excess load material: _____
7. Wt. of temporary lift frames: _____
8. Total weight: _____
9. Source of load weight information: _____
   (drawings, calculations, dynamometers, etc.)
10. Page on drawing: _____
11. Revision #: ____ Revision date: _____
12. Center of gravity has been identified: _____
13. Dimensions: _____
14. Location and type of lift points are shown

E. Operating Equipment to be Used

1. Crane mfg. and model: _____
2. Crane S/N: _____ ID-No: _____
3. Crane capacity: _____
4. Trolley/travel restrictions: _____
5. Load is what percent of crane capacity? ____ %
6. Are any crane, hoist, and equipment load charts required for this lift? Y____N____
   Are they available to the operator?
   Y____N____

No: P101-25 Cranes, Hoists, Lifting Devices, and Rigging Equipment
Attachment B. LANL Critical Lift Plan [SAMPLE] (Cont.) (Page 7 of 14)

Table B-1. LANL Critical Lift Plan (Cont.)	
F. Rigging	**I. Sketches & Drawings**
1.Hitch type(s): _____ 2. Sling type: WR____FW___ RS _ Chain ___ (If more than one, write the number of each type on the appropriate line) 3. Number of slings: _____ 4. Size: _____ 5. Shackle sizes: _____ 6. Shackle rated capacity: _____ tons 7. Sling assembly rated capacity: _____ lbs. 8. Shackle secured to load by: _____ 9. Shackle & lifting lug mating are OK?_____ 10. Temporary lift frames & weights:_____ 11. Supports & load grillages shown?_____	In accordance with DOE-STD-1090-2007, *Hoisting and Rigging Standard,* rigging sketches must include--as applicable: 1. Identification and rated capacity of slings, lifting bars, rigging accessories, and below-the-hook lifting devices. 2. Load-indicating devices. 3. Load vectors (Sling Tension). 4. Lifting points. 5.Sling angles 6.Boom and swing angles 7. Methods of attachment. 8. Crane orientations. 9.Other factors affecting equipment capacity, such as load path sketch, key point heights, floor or soil bearing capacity, etc. 10. Calculate and provide the rated capacity of equipment in the configuration in which it will be used. Make sure that these items are included at a minimum.
G. Operating Area	**J. Notes/Things To Do**
1. Are obstructions present? 2. Are clearance issues present? 3. Is the lift area populated? 4. Action items for 1, 2, & 3:	
H. Practice Lift Required?	
1.Describe the lift	
2. Team members involved in the practice lift must be those who will be involved in the actual lift. Are all of those members present?	

No: P101-25 Cranes, Hoists, Lifting Devices, and Rigging Equipment
Attachment B. LANL Critical Lift Plan [SAMPLE] (Cont.) (Page 8 of 14)

Table B-1. LANL Critical Lift Plan (Cont.)

K. Personnel Assignments
List names of all persons involved in the lift and identify their roles (Operator, Signaler, Person In Charge [PIC], etc.). All must be qualified.

Name	Z Number	Role	Training Verified		Comments/Notes
			Y	N	
			Y	N	
			Y	N	
			Y	N	
			Y	N	
			Y	N	
			Y	N	

L. Review and Approval. List all that apply. (Must include the PIC and one other qualified person at a minimum and may include the health and safety rep., Responsible Line Manager [RLM], First Line Manager [FLM], responsible oversight org. rep., quality assurance rep., or others as required)

	Z Number	Organization	Concurrence /Approver's Signature
Responsible Line Manager			
OSH Crane Program SME			
Person in Charge			
Operator			
Rigger			
Signaler			

M. Pre-lift Meeting

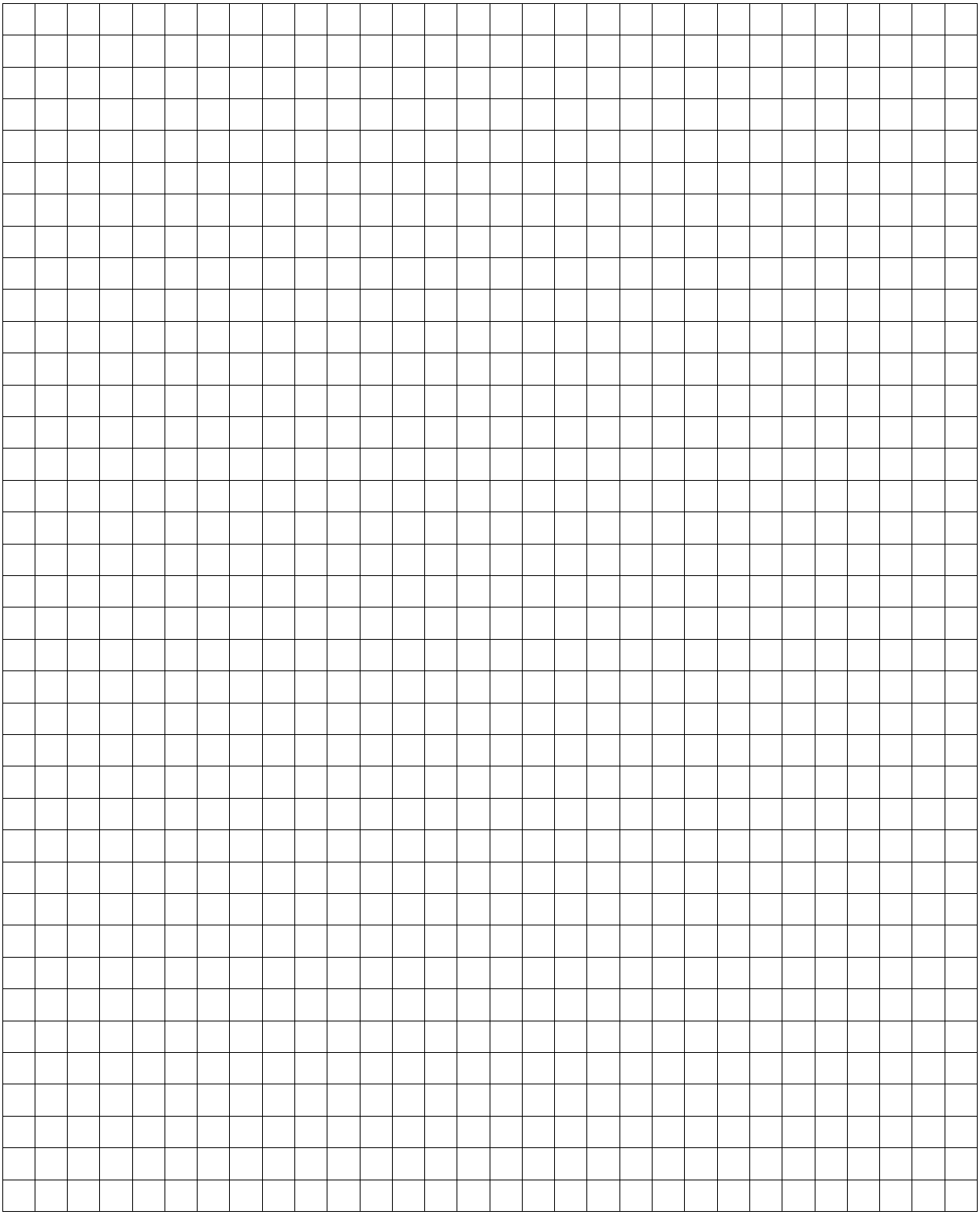
Name	Z Number	Signature	Name	Z Number	Signature

No: P101-25 Cranes, Hoists, Lifting Devices, and Rigging Equipment
Attachment B. LANL Critical Lift Plan [SAMPLE] (Cont.) (Page 9 of 14)

Load Schematic & Rigging Method

No: P101-25 Cranes, Hoists, Lifting Devices, and Rigging Equipment
Attachment B. LANL Critical Lift Plan [SAMPLE] (Cont.) (Page 10 of 14)

Load Travel Path/Personnel Placement



No: P101-25 Cranes, Hoists, Lifting Devices, and Rigging Equipment
Attachment B. LANL Critical Lift Plan [SAMPLE] (Cont.) (Page 11 of 14)

Load Handling Sequence & Procedures

No: P101-25 Cranes, Hoists, Lifting Devices, and Rigging Equipment
Attachment B. LANL Critical Lift Plan [SAMPLE] (Cont.) (Page 12 of 14)

Write-in the subject for the drawing(s) below (optional and as needed)

Attachment F36-0 Electrical Training Documentation for Subcontractors

SUBCONTRACTOR workers who will perform electrical work involving exposure to:

(1) **60 Hz shock and/or arc flash hazards**

☐ Will take, or has taken LANL Training for Facility Workers

☐ Will take, or has taken equivalent training, to meet NFPA 70E qualification, must be on a list of acceptable training organizations.

(2) **R&D Electrical Hazards Including DC, capacitor, sub-RF, and/or RF hazards**

☐ Will take, or has taken LANL Training for R&D Workers

☐ Company provides adequate training, content of which must be reviewed and approved by LANL Chief Electrical Safety Officer, or designee.

Approval

_____

LANL Chief ESO or designee

Printed Name: _____ Z#:_____

Date: _____

Attachment F59-1
Safety and Environmental Performance Citation

SC No.: *(YR-SC-XXX)*	Subcontract No.	SUBCONTRACTOR Name	Page 1 of ___

Brief Title/Description of Safety and Environmental Performance Incident

Specified Requirement (identify requirement and reference document (e.g. General Safety Rules, Subcontractor Site-Specific ES&H Plan)

Description of Safety and Environmental Performance Incident (provide detailed information; include names, dates, locations)

Immediate actions to be taken

STR Name (Print)	Signature	Date	Phone	Pager

Corrective Actions taken (provide detailed information; include names, dates and locations)

SUBCONTRACTOR Name (Print)	Signature	Date	Phone	Pager

Actions Complete:

SUBCONTRACTOR Name (Print)	Signature	Date	Phone	Pager