SPTF-PLA-10784

Standard Operating Procedure for Phase 1 and Demolition Plan of Facilities
4462 - Sodium Pump Test Facility (SPTF), 4463 - Component Handling and Cleaning Facility (CHCF),
4057 - Liquid Metal Development Laboratory (LMDL-2), and 4038 - ETEC Administrative Offices

Energy Technology Engineering Center
Santa Susana Field Laboratory
Simi Valley, California

Revision 0

Approved:

03/03/2021
ETEC Program Manager
Date
## REVISION HISTORY

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ACRONYMS AND ABBREVIATIONS

ACM    asbestos-containing material
AHA    activity hazard analysis
ALARA  as low as reasonably achievable
AOC    Administrative Order on Consent
BMP    best management practice
Boeing The Boeing Company
CCR    California Code of Regulations
CEQA   California Environmental Quality Act
CFR    Code of Federal Regulations
CHCF   Component Handling and Cleaning Facility
cy    cubic yard
DOE    Department of Energy
DOT    Department of Transportation
DTSC   Department of Toxic Substances Control
EIS    Environmental Impact Statement
ESA    Endangered Species Act
ESH&Q  Environmental, Safety, Health and Quality
ETEC   Energy Technology Engineering Center
°F     degrees Fahrenheit
FM     Facility Manager
H&S    Health and Safety
HAZWOPER Hazardous Waste Operations and Emergency Response
HQ     Headquarters
HAS    Historical Site Assessment
ISMS   Integrated Safety Management System
LLRW   Low-level radiological waste
LMDL-2 Liquid Metal Development Laboratory
LO/TO  lockout/tagout
MCEP   Motor Carrier Evaluation Program
MLLW   mixed low-level waste

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mph  miles per hour  
NEPA  National Environmental Policy Act  
NHPA  National Historic and Preservation Act  
NOE  Notice of Exemption  
North Wind  North Wind Portage, Inc.  
OSF  other structures and facilities  
OSHA  Occupational Safety and Health Administration  
PA  Programmatic Agreement  
PCB  polychlorinated biphenyl  
pCi/g  picocuries per gram  
PM  Program Manager  
POD  Plan of the Day  
PPE  personal protective equipment  
PWS  Performance Work Statement  
QA  quality assurance  
QAPP  Quality Assurance Project Plan  
QC  quality control  
QSD  Qualified SWPPP Designer  
QSP  Qualified SWPPP Practitioner  
RCRA  Resource Conservation and Recovery Act  
RCT  Radiological Control Technician  
RFI  RCRA Facility Investigation  
RMHF  Radioactive Materials Handling Facility  
S&M  Surveillance and Maintenance  
SDS  Safety Data Sheet  
SETF  SNAP Environmental Test Facility  
SHPO  State Historic Preservation Office  
SMARTS  Stormwater Multiple Applications and Report Tracking System  
SNAP  Systems for Nuclear Auxiliary Power  
SOP  Standard Operating Procedure  
SPTF  Sodium Pump Test Facility
<table>
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<tr>
<td>SWPPP</td>
<td>Storm Water Pollution Prevention Plan</td>
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<tr>
<td>TSCA</td>
<td>Toxic Substances Control Act</td>
</tr>
<tr>
<td>TSDF</td>
<td>treatment, storage, and disposal facility</td>
</tr>
<tr>
<td>U.S.</td>
<td>United States</td>
</tr>
<tr>
<td>USEPA</td>
<td>U.S. Environmental Protection Agency</td>
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<tr>
<td>USFWS</td>
<td>U.S. Fish and Wildlife Service</td>
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<td>WAC</td>
<td>Waste Acceptance Criteria</td>
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<td>Waste Management Specialist</td>
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1 INTRODUCTION

The Department of Energy’s (DOE’s) Office of Environmental Management is responsible for the safe remediation, restoration, and mitigation of DOE liability issues from past operations at the former Energy Technology Engineering Center (ETEC) site. ETEC is located in Area IV of the Santa Susana Field Laboratory (SSFL). ETEC conducted research for nuclear and energy development projects.

DOE signed an Administrative Order on Consent (AOC) with the State of California (Department of Toxic Substances Control [DTSC]) in December 2010 (DTSC 2010). The AOC defines the process for soil characterization, cleanup, and the end state for Area IV of the SSFL. In October 2020, the DOE and DTSC signed the Amended Order On Consent for Interim Response Actions at the Radioactive Materials Handling Facility (RMHF) Complex (DTSC 2020) that outlined interim response actions to demolish the above-ground portions of the six remaining DOE Area IV buildings and associated ancillary equipment. This Standard Operating Procedure (SOP) and Demolition document describes the processes/procedures that will be used to demolish the above-ground portions of the following structures in Area IV and dispose of waste generated by the demolition of these structures:

- Building 4462 – Sodium Pump Test Facility (SPTF);
- Building 4463 – Component Handling and Cleaning Facility (CHCF);
- Building 4057 – Liquid Metal Development Laboratory (LMDL-2); and
- Building 4038 – ETEC Administrative Offices.

DOE’s ETEC research and test activities have been terminated, and all DOE buildings and structures in Area IV have been determined to be surplus to DOE’s mission. Removal of these features is necessary to inspect, screen, and/or sample the soil directly beneath the facilities to comply with the AOC. DOE has made the decision to take a conservative approach regarding the waste disposition of the buildings.

This SOP and Demolition document describes the framework for all steps necessary to characterize the buildings for hazardous wastes disposal determinations, demolition planning, above grade structure demolition, and disposal of building debris. Details of building decommissioning and demolition are described in this plan. This plan describes the historic use of the structures, hazardous waste present, waste characterization and analysis, decontamination of the structures, waste management activities, and closure process.

In 2019, DOE conducted radiological confirmation surveys on Buildings 4462, 4463, 4057, and 4038 to confirm the radiologically non-impacted status. Sentinel measurements were collected in biased locations to demonstrate that the buildings were not impacted with non-naturally occurring radioactivity (North Wind 2019 and North Wind 2021).

In the 2020 Amendment to the Order to Consent for Interim response Action at the Radioactive Materials Handling Facility (RMHF) Complex, DOE and DTSC agreed, out of an abundance of caution, to dispose of buildings debris at licensed and authorized mixed low-level waste (MLLW) and disposal facility outside of the State of California.
Waste from the non-impacted facilities (Buildings 4038, 4057, 4462, and 4463) will be disposed of at licensed facility, a Resource Conservation and Recovery Act (RCRA) subtitle C landfill, an authorized MLLW disposal facility outside of the State of California. Demolition debris will be disposed of at Energy Solutions, a licensed facility and accepts a wide variety of low-level radioactive waste, including mixed low activity radioactive and RCRA/Toxic Substances Control Act (TSCA) hazardous waste, in accordance with their waste acceptance criteria (WAC).

The buildings and above-grade structures will be demolished, with debris transported for disposal at a licensed facility outside of the State of California.

The procedures that will be used to demolish all above-grade structures will include:

- Pre-demolition Stage,
- Demolition Stage,
- Management of Demolition Materials and Waste Disposal, and
- Post Demolition Activities.

By implementing this Demolition Plan and SOP, DOE is targeting removal of man-made facilities and apparatus associated with their former site operations. The demolition and removal of all materials will be handled in a phased approach. This document addresses Phase 1 demolition and removal of the above-ground portions of the structures. Phase 2 will involve removal and disposal of the below-grade portions of buildings, the building slabs, and the asphalt cover. Subsurface structures (i.e., underground storage tanks, sumps, and associated below-grade piping) will be addressed during soils cleanup since removal may also require removal of adjacent contaminated soils. Once the slabs and asphalt are removed, DOE will initiate Phase 3, which involves characterization and disposal of impacted soil. This procedure is not intended to address/include soil removal actions that might otherwise be considered site remediation and subject to the requirements of the AOC or completion of groundwater investigation and remediation work, as required under the 2007 Consent Order for Corrective Action (DTSC 2007). Soil cleanup and groundwater remediation will be described in separate remedial planning documents.

The buildings scheduled for demolition are included in Table 1-1. The table includes a brief description of the prior use of each structure.

### Table 1-1. Building description of the prior use of each structure

<table>
<thead>
<tr>
<th>Building Number and Name</th>
<th>Prior Use Description</th>
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<tr>
<td>Building 4462 - SPTF</td>
<td>Non-radiological facility constructed as the main SPTF building used for electromagnetic sodium pump testing.</td>
</tr>
<tr>
<td>Building Number and Name</td>
<td>Prior Use Description</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>Building 4463 - CHCF</td>
<td>Non-radiological facility used to house SPTF support operations, including assembly, disassembly, and cleaning of pumps and other parts of SPTF. The facility is currently inactive.</td>
</tr>
<tr>
<td>Building 4038 - ETEC Headquarters (HQ)</td>
<td>Non-radiological facility constructed as an administrative building providing office space for SNAP, DOE/ETEC, and/or the Liquid Metals Engineering Center.</td>
</tr>
<tr>
<td>Building 4057 - LMDL-2</td>
<td>Non-radiological facility used to house two sodium test rigs. It was decommissioned for laboratory use in 1998.</td>
</tr>
</tbody>
</table>

The ETEC structures and improvements are owned by DOE located on land owned by The Boeing Company (Boeing). The ETEC was co-operated by DOE and Rocketdyne Propulsion and Power, a division of The Boeing Company (Rocketdyne), until 2005, and then by Boeing until 2014. On September 30, 2014, the period of performance for Boeing’s ETEC Closure Contract DE-AC03-99SF21530 with DOE was completed, and North Wind Portage, Inc. (North Wind) assumed responsibilities for ETEC closure activities under Contract DE-EM0000837.

1.1 National Historic Preservation Act

Demolition activities are performed in accordance with the National Historic Preservation Act (NHPA) and in consultation with the State Historic Preservation Office (SHPO) and in accordance with the Programmatic Agreement (PA) published in September 2019.

1.2 National Environmental Policy Act

Demolition activities are performed based on decommissioning and demolition processes evaluated in the Final Environmental Impact Statement (EIS) for Remediation of Area IV and the Northern Buffer Zone (DOE 2019). DOE has completed its National Environmental Policy Act (NEPA) evaluation of the project and issued a Record of Decision for building demolition.

1.3 Endangered Species Act

Demolition activities will be performed to comply with the Endangered Species Act (ESA) and in consultation with the U.S. Fish and Wildlife Service (USFWS). Pursuant to the Biological Opinion prepared by the USFWS (2018), DOE has developed a No Effects Determination Memorandum (DOE 2021) and has provided it to the USFWS to ensure any demolition would avoid, minimize, or compensate for adverse effects on federally listed and proposed species and designated critical habitat. DOE has shared this memorandum with the California Department of Fish and Wildlife and DTSC. The No Effects Determination Memorandum includes the building mitigation measure appropriate for the action.
1.4 California Environmental Quality Act

The draft Programmatic Environmental Impact Report has been prepared by California DTSC, pursuant to the California Environmental Quality Act (CEQA) and includes the analysis of all DOE Area IV building demolition activities. A Notice of Exemption (NOE) was prepared for demolition of the above ground portions of the buildings located in the ETEC Complex (October 2020). The NOE complies with the CEQA requirements for removal of the above ground portions of the buildings at the ETEC Complex.

1.5 Compliance with the AOC

The AOC addresses two requirements regarding anthropogenic materials. The first is that the materials be characterized as to waste type and that waste classified as low-level radioactive waste (LLRW) be disposed of at a facility authorized to receive the waste. In accordance with the May 2020 Order on Consent for Interim Response Action at the RMHF Complex and its October 2020 Amendment, all building debris generated as part of the building decommissioning and demolition will be disposed of as LLRW or hazardous, and building debris will be shipped and disposed of at a licensed and authorized facility outside of the State of California. The second criterion is the complete removal of all anthropogenic material. DOE will remove above grade building debris and dispose of it as LLRW or hazardous waste at a licensed and authorized facility outside of the State of California.

1.6 Tribal and Archeological Monitoring

DOE will ensure that tribal and archaeological monitoring will be conducted by qualified archeological and tribal monitors during demolition Tribal and archaeological monitoring. Communication of inadvertent discovery will follow the procedures outlined in Chapters 2 (Standard Operating Protocols) and 4 (Inadvertent Discovery Procedures) of the Monitoring and Inadvertent Discovery Plan for Tribal and Archeological Monitors for the Remediation of Area IV and the Northern Buffer Zone of the Santa Susana Field Laboratory (DOE 2020).

Each day’s monitoring activities will be documented on a daily monitoring form or log developed in conjunction with the DOE Contractor and approved by DOE. The daily log will include information on personnel present, activities monitored, field conditions, findings, and problems encountered. The daily logs will be provided to the DOE Contractor biweekly, who will in turn summarize and compile the records for submittal to DOE on an agreed-upon schedule, as determined by DOE.

2 SITE LOCATION AND DESCRIPTION

The former ETEC consists of approximately 90 of the 290 acres located within a geographic area identified as Area IV, located in the westernmost part of the SSFL. The SSFL encompasses 2,850 acres of land located in the southeastern portion of Ventura County. The only development within a 1-mile radius of the ETEC Complex is the infrastructure of the SSFL. According to the Ventura County Planning Division, 2014 Ventura County General Plan, most of the land surrounding Area IV is undeveloped.
2.1 Weather and Climate

The climate in the area of SSFL is characterized as “Mediterranean.” The mean temperature during the winter months is approximately 50 degrees Fahrenheit (°F), and the mean temperature in the summer months is approximately 70°F. Based on climate data between 2018 and 2019 from Weather Atlas, average rainfall is on the order of 17.9 inches per year. The majority of the rainfall occurs between December and April.

The average hourly wind speed in Simi Valley varies significantly by season. The more turbulent part of the year lasts for 6 months (November to April), with average western wind speeds of more than 7 miles per hour (mph). The calmer time of year lasts for 6 months, with northerly winds from May to October.

During the fall, winter, and spring, Santa Ana winds can blow from the north or northeast in excess of 35 mph.

3 BUILDING INFORMATION

3.1 Building 4462 – Sodium Pump Test Facility

Constructed in 1972, Building 4462 (the SPTF) started operations in 1974 and continued through October 2001. The SPTF was one of seven liquid metal test facilities at ETEC used for research and development. The SPTF’s primary purpose was to provide a test bed for development, performance, and verification testing of large sodium pumps.

Both electric-magnetic and conventional pumps were tested at SPTF. The pumps were part of a larger effort to design safe and efficient thermal transfer loops for liquid metal–cooled reactors. To test the pump, sodium in the facility was heated with electric heaters.

The Hazardous Building Survey conducted by Wood Environment & Infrastructure Solutions Inc. (Wood 2019) identified the low-level ACM and other hazardous materials within Building 4462. Asbestos abatement and hazardous waste removal, including removal of ACM from the windows, door and wall calking, mastic, pipe elbow and run insulation, sealants, residual mastic, and electrical components and hazardous waste removal (including fluorescent light fixtures, switches, and oils) has been completed. Remaining ACM in pipe gasket materials will be abated during demolition.

In 2019, DOE conducted radiological conformation surveys on Building 4462 to confirm the radiologically non-impacted status. Sentinel measurements were collected in biased locations to demonstrate that the building is not impacted with radioactivity other than naturally occurring (North Wind 2019).

3.2 Building 4463 – Component Handling and Cleaning Facility

Constructed in 1974, Building 4463 was used to assemble, disassemble, and clean pumps tested at the SPTF. Both SPTF and CHCF (Building 4463) were non-radiological facilities and are currently inactive.

The Hazardous Building Survey conducted by Wood Environment & Infrastructure Solutions Inc. (Wood 2019) identified the low-level ACM and other hazardous materials within Building 4463.
Asbestos abatement and hazardous waste removal, including removal of ACM from the windows, door and wall calking, mastic, pipe elbow and run insulation, sealants, residual mastic, and electrical components and hazardous waste removal (including gas cylinders, fluorescent light fixtures, switches, and oils) has been completed. All remaining ACM will be abated during demolition. All remaining residual hazardous materials will be abated during or after demolition (Wood 2020).

In 2019, DOE conducted radiological conformation surveys on Building 4463 to confirm the radiologically non-impacted status. Sentinel measurements were collected in biased locations to demonstrate that the building is not impacted with radioactivity other than naturally occurring (North Wind 2019).

3.3 Building 4057 – Liquid Metal Development Laboratory

Constructed in 1963, Building 4057 (LMDL-2) was designed to provide prototype testing of mechanical devices and instrumentation for DOE and its predecessor agencies. Two sodium systems were housed in Building 4057; both contained a sodium piping “loop” having the capacity of 42 gallons and capable of heating sodium to 1,300°F. Its mission was to perform non-nuclear testing of sodium components.

The Hazardous Building Survey conducted by Wood Environment & Infrastructure Solutions Inc. (Wood 2019) identified the low-level ACM and other hazardous materials within Building 4057. Asbestos abatement and hazardous waste removal, including removal of ACM from the windows, door and wall calking, mastic, pipe elbow and run insulation, sealants, residual mastic, and electrical components and hazardous waste removal (including fluorescent light fixtures, switches, and oils) has been completed.

In 2019, DOE conducted radiological conformation surveys on Building 4057 to confirm the radiologically non-impacted status. Sentinel measurements were collected in biased locations to demonstrate that the building is not impacted with radioactivity other than naturally occurring (North Wind 2021).

3.4 Building 4038 – ETEC Administrative Offices

Constructed in 1962, Building 4038 housed the DOE ETEC Program Office. It is currently vacant and inactive.

The Hazardous Building Survey conducted by Wood Environment & Infrastructure Solutions Inc. (Wood 2019) identified the low-level ACM and other hazardous materials within Building 4038. Asbestos abatement and hazardous waste removal, including removal of ACM from the windows, door and wall calking, mastic, pipe elbow and run insulation, sealants, residual mastic, and electrical components and hazardous waste removal (including fluorescent light fixtures, switches, and oils) has been completed.

In 2019, DOE conducted radiological conformation surveys on Building 4038 to confirm the radiologically non-impacted status. Sentinel measurements were collected in biased locations to demonstrate that the building is not impacted with radioactivity other than naturally occurring (North Wind 2021).
4 PROJECT ORGANIZATION

4.1 Project Management and Field Supervision

North Wind will provide the overall program, project, and site management to integrate hazardous materials survey/identification, hazardous materials abatement, demolition of structures, site supervision, site safety and health oversight, and quality control (QC). North Wind will perform the following:

- Program and project management;
- Preparation of required plans;
- Schedule and cost control;
- Project and progress reporting;
- Assessment of laboratory analyses;
- Site management and customer interface;
- Site inspections for field QC, safety, and environmental compliance;
- Demolition of buildings and other structures and facilities (OSF);
- Waste management, transportation, and disposal of all demolition debris;
- Field documentation and record-keeping; and
- Project decontamination and demolition post-demolition final report.

4.2 Organization Chart

The project organization is presented graphically in Figure 4-1. The project team and their roles and responsibilities are discussed in detail below.
4.3 Personnel – Duties and Responsibilities

4.3.1 Program Manager

The North Wind Program Manager (PM) is responsible for promoting safety and ensuring that safety policy and procedures are followed through all levels of work planning and implementation per NW-HSM, North Wind Health and Safety Manual. The PM is to actively support workers and line management in understanding and meeting project expectations. The PM, along with the Environmental, Safety, Health and Quality (ESH&Q) Manager, are to provide leadership that promotes a strong safety culture and ensures that workers can be open and honest about workplace issues that may concern them without threat of reprisal or reprimand.

The primary roles and responsibilities of the PM will also include:

- Oversees transition in conjunction with the Transition Manager;

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VERIFY THAT THIS IS THE CORRECT VERSION BEFORE USE
• Interacts with DOE and other stakeholders;
• Obtains and commits resources;
• Ensures workers supporting project needs are qualified and held accountable for their actions;
• Troubleshoots performance and schedule issues with the lead/support manager;
• Oversees project and reviews performance;
• Establishes clear roles and responsibilities commensurate with accountability and authority;
• Actively recognizes and rewards project personnel for innovations that improve safety and performance; and
• Participates in safety inspections and assigns personnel to evaluate safety issues and recommend corrective actions, and tracks status through the continuous improvement process.

4.3.2 ESH&Q Manager

The ESH&Q Manager is to serve as the primary focal point for safety, health, and environmental affairs across a broad spectrum of interrelated process organizations. The ESH&Q Manager’s primary role is to proactively implement company ESH&Q policies and ensure compliance with applicable regulatory requirements on matters of quality, environment, health, and safety management. This position is also responsible for ensuring coordination with the Risk Management Department.

The ESH&Q Manager is responsible for ensuring that the ESH&Q and radiation services and programs are effectively functioning and that ESH&Q policy objectives are met. Other responsibilities include:

• Develops and maintains the Integrated Safety Management System (ISMS) (North Wind 2020a), Worker Safety and Health Program (WSHP) (North Wind 2020b), and ESH&Q Programs;
• Ensures compliance with the Environmental Management System Plan during demolition, waste staging, and disposal activities;
• Develops and conducts health and safety (H&S) and quality assurance (QA) training;
• Works closely with the Radiation Protection Manager and Radiological Control Technicians (RCTs);
• Works closely with the project H&S and QA specialists;
• Participates in work plan generation;
• Participates in the preparation and provides approval of project activity hazards analyses (AHAs);
• Directs response and corrective actions for non-compliance;
• Investigates incidents and accidents;
• Monitors safety trends and practices; and
• Approves project-specific H&S plans and procedures.

4.3.3 Corporate Support

North Wind is ultimately responsible for the safety and health of all workers supporting project operations at the ETEC site. Corporate support is responsible for implementation and improvement of the quality management program in the areas of recruiting, hiring, accounting, procurement, scheduling, and information technology.

4.3.4 Facility Manager

Throughout project implementation, the Facility Manager (FM) will participate in work package development/review meetings and maintain the project site in compliance with regulatory requirements and interface agreements. Additional duties will include:

• Assists in the development of task-specific execution plans, hazard analyses, and subcontracting requirements necessary to perform task activities and oversight to confirm that activities comply with the specified requirements in addition to applicable project procedures;
• Participates in the work control planning process;
• Host daily Plan of the Day (POD) meetings;
• Daily work authorization;
• Reviews and approves work requests and work plan documents;
• Prepares Environmental Checklist and Significant Work Activity forms in accordance with EMS-10784, Environmental Management System Description;
• Manages workers, the surveillance and maintenance (S&M) technician, and other environmental technician(s); and
• Coordinates Native American Monitors, site visitors, and guest access and ensures site specific requirements are met.

4.3.5 Waste Management and Transportation Specialist

The Waste Management Specialist’s (WMS’s) roles and responsibilities will include:

• Leads waste management and transportation operations and disposition;
• Accountable for compliance with disposal activities;
• Oversees waste specialists during profiling, packaging, transportation, and disposal;
• Ensures compliance with the applicable treatment, storage, and disposal facility (TSDF) WAC;

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• Leads transportation operations, including motor carrier compliance and hazardous materials/hazardous waste shipping operations;
• Accountable for compliance with transportation process;
• Develops transportation logistics plans to ensure smooth flow of equipment relating to the transportation activities;
• Completes due diligence review on motor carriers involved in onsite and offsite work activities; and
• Ensures compliance with applicable DOE directives related to transportation activities.

4.3.6 Operations Manager
The Operations Manager is the designated demolition competent person, and his/her roles and responsibilities will include:
• Builds safe work practices into work planning, conducting field operations in a safe and productive manner while complying with budget and schedule;
• Identifies emerging risks and schedule optimization opportunities;
• Participates in and ensures compliance with the work control planning process;
• Leads/integrates work scope in conformance with plans, schedule, and milestones;
• Determines staff ramp-up and ramp-down to meet funding and milestones;
• Hosts status/monthly performance reviews; and
• Manages Superintendents.

4.3.7 Superintendent
• Hosts daily tailgate meeting;
• Oversees the day-to-day work activities, including craft resource allocations, equipment management, and work control compliance;
• Reports to the Operations Manager and ensures that safe work practices and quality program requirements are incorporated into work planning, as well as the conduct of field operations;
• Participates in the work control planning process; and
• Participates in development of appropriate management strategies and mitigations.

4.3.8 Regulatory Manager
• Ensures compliance with DOE requirements and the overall safety and quality of the project;
• Participates in the work control planning process;
• Defines compliance strategies for permits, licenses, agreements, and consent orders;
• Ensures that deliverables meet California and federal regulatory requirements;
• Interfaces with DTSC, Ventura County, and the Los Angeles Regional Water Quality Board; and
• Assists the FM in the preparation of Environmental Checklist and Significant Work Activity forms.

4.3.9 QA Specialist
• Contributes to the development and conduct of the training and qualification effort;
• Establishes and supervises the supplier assessment and evaluation effort from a QA standpoint;
• Establishes and supervises the independent and management assessment effort;
• Participates in the work control planning process;
• Reviews quality procurements for the project; and
• Assists in administration of the Corrective Action Management System.

4.3.10 Radiological Protection Manager
• Designs the ETEC Radiation Protection Program and administers oversight activities to ensure that the program functions properly;
• Implements and oversees the radiological work controls processes;
• Reviews operations, equipment and facilities, procedures, radiation exposures, and radiological conditions for compliance with regulatory requirements;
• Ensures that the As Low As Reasonably Achievable (ALARA) Program is being effectively implemented;
• Oversees collection and maintenance of dosimetry results;
• Advises management and field staff on radiological hazards associated with project activities, including normal/off-normal events and during emergency response actions;
• Supervises project RCTs and obtains health physics technical support as needed to effectively implement radiological programs; and
• Periodically reviews radiological training requirements and updates curriculums, as appropriate.

4.3.11 General Responsibilities – All Staff
Employees are responsible for performing their duties in accordance with requirements. This includes performing duties in accordance with training received and complying with requirements related to environmental protection or worker safety. Employees must also report hazardous substance releases, injuries, and other incidents, near misses, and unsafe work conditions to management, as required in NW-HSM and HSP-005, Incident Reporting and Investigation. Other responsibilities include:

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• Ensure that quality requirements are implemented in the course of daily work;
• Complete training and/or qualification necessary to perform their work;
• Implement those plans and procedures that apply to their work;
• Participate in the work control planning process;
• Contribute to the improvement of performance;
• Ensure quality of their work;
• Stop work authority, per North Wind procedure HSP-1115, Step Back and Stop Work Authority, if there is a possibility of:
  - Imminent danger to safety of employee or public,
  - Compromise to the success of the project, and
  - Exposure to environmental hazard(s) beyond permissible exposure limits.

5 TRAINING

North Wind has an established training program that is related to site operations and activities. Training or information awareness is essential to ensure that workers’ safety and health are maintained and to maximize the skills and knowledge of all North Wind employees and subcontractors. All ETEC workers shall receive, or have current, training and instruction in the following areas:

• General safety and health work practices;
• COVID-19 awareness recommendations found in Occupational Safety and Health Administration (OSHA) guidance 3990-03;
• Specific instruction with respect to hazards unique to the job assignment;
• Department of Transportation (DOT) training for waste and transportation personnel per job requirement;
• Have and maintain current Hazardous Waste Operations and Emergency Response (HAZWOPER) training and certification per the OSHA regulations addressed in 29 Code of Federal Regulations (CFR) 1926.65 for personnel working in the field; and
• Environmental and endangered species training.

Training or information awareness of employees shall be provided:

• To all new employees;
• To all employees given a new job assignment for which training has not previously been received;
• When refresher training is scheduled or warranted;
• Whenever new substances, processes, procedures, or equipment are introduced to the workplace and represent a new hazard; and
• Whenever North Wind is made aware of new or previously unrecognized hazards.

Specific training requirements for ETEC project personnel are based on their assigned job duties and are outlined in the specific corporate or site-specific H&S program or work control documents.

6  PROJECT CONTACT INFORMATION

North Wind key staff can be reached via telephone and e-mail, as provided in Table 6-1.

Table 6-1. Project Management Team Contact Information.

<table>
<thead>
<tr>
<th>Name</th>
<th>Role</th>
<th>Telephone</th>
<th>E-mail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trina Cesnik</td>
<td>Program Manager</td>
<td>(440) 487-5360</td>
<td><a href="mailto:tcesnik@northwindgrp.com">tcesnik@northwindgrp.com</a></td>
</tr>
<tr>
<td>Brad Frazee</td>
<td>Program Manager</td>
<td>(208) 557-7891</td>
<td><a href="mailto:bfrazee@northwindgrp.com">bfrazee@northwindgrp.com</a></td>
</tr>
<tr>
<td>Micah Nielsen</td>
<td>ESH&amp;Q Manager</td>
<td>(208) 557-0823</td>
<td><a href="mailto:mnielsen@northwindgrp.com">mnielsen@northwindgrp.com</a></td>
</tr>
<tr>
<td>T. Stewart Williford</td>
<td>Facility Manager</td>
<td>(805) 587-0691</td>
<td><a href="mailto:swilliford@northwindgrp.com">swilliford@northwindgrp.com</a></td>
</tr>
</tbody>
</table>

7  PHYSICAL SECURITY AND VISITOR CONTROL

7.1 Installation Access Requirements for Personnel

All personnel will comply with applicable Boeing facility access requirements, as well as security policies and procedures, as required by the performance work statement (PWS), including executing the Boeing Access Agreement. Information will be provided for required background checks in order to meet installation access requirements. Personnel will comply with all personal identity verification requirements, as directed by DOE and Boeing. North Wind and subcontractor personnel will be badged at the main entrance to SSFL. At the end of each week, or when personnel complete their tasks, their badges will be returned when they exit the site.

For temporary personnel, including delivery and waste truck drivers, North Wind will provide full-time escort while they are within the SSFL controlled area, and will coordinate their presence on site with the SSFL Main Gate.

7.2 Approved Gates/Routes

Personnel will access SSFL via Woolsey Canyon Road through the main gate. The designated haul route for all trucks leaving the site for disposal LLRW or hazardous waste will be along Woolsey Canyon Road. The number of trucks will be coordinated with SSFL and will not exceed 16 per day.

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7.3 Site Controls

Entry to the SSFL is restricted, and only authorized personnel can enter the complex. Access to the location of the buildings can be achieved only by gaining access to the SSFL. The SSFL is surrounded by fencing, and access to the private SSFL road system is controlled by a security checkpoint at the entrance to SSFL, which is manned 24 hours a day. Security personnel conduct routine surveillance of the SSFL.

The road leading to each building area will be cordoned off. Signage indicating that the area is restricted to authorized personnel only will be maintained at the site. Exclusion zones will be established for access control before and during demolition utilizing temporary orange safety fence and signage for facilities without existing premier fencing.

Approved radio communications will be established and maintained by operations personnel throughout demolition activities.

Temporary barriers (i.e., construction cones and flagging) will delineate personnel and vehicle access points into the demolition area. After each shift during decommissioning and demolition activities, all heavy equipment will be placed in designated locations and keys removed. Secured covers will be placed over waste containers, if present.

The FM (or designee) will ensure that all personnel are accounted for on a daily basis prior to leaving the site.

8 HAZARD MITIGATION

Table 8-1 addresses activities, anticipated hazards, and anticipated mitigating actions associated with those activities. This table should not be viewed as all-inclusive of every activity or hazard that will be performed during decommissioning and demolition activities. The work control procedures, SOPs, the H&S Plan, and project specific AHAs will address the workplace tasks, hazards, and work controls that will be in place to protect workers.

Table 8-1. Approach to Mitigating Decommissioning and Demolition Hazards and Challenges.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Hazards and Challenges</th>
<th>Mitigating Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working near Electrical Cables</td>
<td>− Unknown power sources</td>
<td>− Enforce a compliant lockout/tagout (LO/TO) program.</td>
</tr>
<tr>
<td></td>
<td>− Incorrect electrical diagrams</td>
<td>− Use electrical diagram with caution.</td>
</tr>
<tr>
<td></td>
<td>− Non code installation of electrical wiring</td>
<td>− For unknown electrical configuration, require personal protective equipment (PPE) as though line is energized.</td>
</tr>
<tr>
<td>Hoisting and Rigging</td>
<td>− Dropped loads from improper rigging</td>
<td>− Implement a critical lift program.</td>
</tr>
<tr>
<td></td>
<td>− Untested equipment</td>
<td>− Inspect and clear load paths.</td>
</tr>
<tr>
<td></td>
<td>− Improper use of slings</td>
<td>− Require loads be secured.</td>
</tr>
<tr>
<td></td>
<td>− Unbalanced loads</td>
<td>− Stock adequate supply of approved and tested slings and anti-chafing materials.</td>
</tr>
</tbody>
</table>

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## Approach to Mitigating Decommissioning and Demolition Hazards and Challenges

<table>
<thead>
<tr>
<th>Activity</th>
<th>Hazards and Challenges</th>
<th>Mitigating Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Welding and Cutting Activities</td>
<td>- Traffic interference</td>
<td>- Minimize access to the work area; Require spotters.</td>
</tr>
<tr>
<td></td>
<td>- Fire resulting from slag</td>
<td>- Require pre-job hazards analysis and hazard abatement.</td>
</tr>
<tr>
<td></td>
<td>- PPE improper for the work</td>
<td>- Assign trained fire watches.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Control combustible loading.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Protect against arc flashing.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Establish hot work permits.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- No welding or cutting activities on days wind &gt;25 mph.</td>
</tr>
<tr>
<td>Chemical and Hazardous Material Management</td>
<td>- Worker exposure</td>
<td>- Limit the amount of hazardous materials at the work site.</td>
</tr>
<tr>
<td></td>
<td>- Improper storage</td>
<td>- Hazardous material survey and abatement activities completed prior to demolition.</td>
</tr>
<tr>
<td></td>
<td>- Fire and explosion</td>
<td>- Immediately stop work if new or unexpected contamination encountered.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Establish appropriate storage requirements for hazardous and flammable material.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Implement safety data sheet (SDS) and worker awareness training program.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Sample for hazardous airborne materials, such as silica, when potential concerns arise during specific activities.</td>
</tr>
<tr>
<td>Biological Hazards Management</td>
<td>- Exposure to dust from mouse and bird droppings</td>
<td>- Ongoing assessments of each room and area for biological hazards where people will be working.</td>
</tr>
<tr>
<td></td>
<td>- Venomous bites from spiders or snakes</td>
<td>- Removing biological hazards whenever feasible, such as pest controls or use of qualified wildlife handlers.</td>
</tr>
<tr>
<td></td>
<td>- Stings from wasps or bees or scorpions</td>
<td>- Don proper PPE for work area, such as snake gaiters in off-road areas, as required by the AHA or project policy.</td>
</tr>
<tr>
<td></td>
<td>- Contact with poisonous plants or vegetation, particularly poison oak</td>
<td>- Exposure to poison oak is a concern at the SSFL. Know how to identify it during each season of the year. Avoid direct contact with it. Adhere to applicable AHA requirements when working near poison oak.</td>
</tr>
<tr>
<td></td>
<td>- Damage to eggs in established nests</td>
<td>- Inspect buildings for nesting materials of migratory birds during nesting seasons.</td>
</tr>
<tr>
<td>Nesting of migratory birds</td>
<td></td>
<td>- Adherence to bird nesting protection strategies.</td>
</tr>
<tr>
<td>Working Near/Handling Lead, Asbestos, and Polychlorinated Biphenyls (PCBs)</td>
<td>Uncharacterized material present Unknown safety and health risks</td>
<td>- Building surveys have been completed prior to commencing demolition activities.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Work performed by trained/certified workers.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Require HAZWOPER medical exams and screening.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Implement a comprehensive job hazards analysis process.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Lead, asbestos, and PCB building surveys have been completed prior to beginning demolition work and work performed by trained/certified workers prior to decommissioning and demolition activities.</td>
</tr>
</tbody>
</table>
## Approach to Mitigating Decommissioning and Demolition Hazards and Challenges

<table>
<thead>
<tr>
<th>Activity</th>
<th>Hazards and Challenges</th>
<th>Mitigating Actions</th>
</tr>
</thead>
</table>
| Protecting Workers from Hazardous Material Exposure | − Long term respiratory concerns  
− Worker contamination and inhalation concerns  
− Uncharacterized material present | − Utilization of real-time monitoring for area, air, and employees.  
− Require proper personal protective clothing.  
− Implement HAZWOPER training program for all workers.  
− Hazardous material survey completed prior to demolition.  
− Immediately stop work if new or unexpected contamination encountered. |
| Public and Environment Protection | − Monitoring and controlling worker/public exposure from physical demolition with known and potential hazards  
− Dust generated from demolition activities | − Thorough review of historical site assessment and collection of data to fill gaps.  
− Hazardous material survey completed prior to demolition.  
− Engineered controls (wetting, spray fixatives, etc.).  
− Administrative controls.  
− PPE.  
− Area and employee air monitoring. |

### Construction Safety

| General Construction | Hazard Awareness | Basic PPE requirements (hard hats, safety shoes, safety glasses, hearing protection).  
− Good housekeeping (reduce trip hazards, combustibles, etc.).  
− Access control. |
| Heavy Equipment Operation | Operator proficiency  
− Obstructions (overhead power lines, moving over occupied facilities) | Trained and qualified operators; spotters.  
− Planned routes for moving/operating.  
− Designated parking areas. |

## 9 PRE-DEMOLITION

### 9.1 Pre-Demolition Inspections

DOE will conduct physical inspections of all buildings, as needed, to support potential wastes and factors that may affect how those wastes are managed. The results of the inspections will be used to confirm that the waste management strategies ensure wastes are addressed in compliance with requirements and are handled as safely and efficiently as possible. Inspections will be carried out by qualified and trained personnel as required.

Depending upon the particular site features being demolished, the following inspections may be performed:

- Asbestos and lead-based paint surveys;
- Tank, pressure vessel, and equipment/infrastructure surveys;
- General site safety and issues surveys (including equipment and infrastructure with potentially hazardous materials);
• Confined space surveys;
• Concrete assessment surveys;
• Energetics surveys;
• Underground features surveys;
• Electronic waste surveys; and
• Coolant, hydraulic oil, refrigerant, and other fluid surveys.

Based on the outcomes of inspections that have been performed, waste management strategies will be incorporated into the Waste Management Plan (WMP) (North Wind 2020c). If specific, non-routine features of concern are identified at a building, additional inspections may be conducted before the plan is finalized. The contractor will look for indications of and then investigate any previously identified undocumented below grade, shallow depth man-made features, including storage tanks and buried liquid containment features (i.e., septic tanks, sumps, and drains). DOE will notify DTSC of discovery of any undocumented below grade feature and document findings in the closeout report.

Prior to demolition, preliminary activities will be performed in association with the requirements of the PWS. These activities include, but are not limited to, the following:

• Ensure an effective safety program for all decommissioning and demolition activities is in place, as addressed by the ISMS, WSHP, and other project ESH&Q programs and plans.
• North Wind will provide temporary facilities for required site personnel, as needed, for project execution.
• North Wind will provide an archeologist and Native American monitor for all demolition activities in accordance with Section 106 of the NHPA for decommissioning and demolition areas.
• An initial bird survey has been conducted, and structure openings inspected, for signs of bird activity and potential nest building. Inspections will follow, with appropriate bird nesting mitigation strategies implemented. Inspections will be shared with USFWS, as requested.
• Conduct an evaluation in accordance with 29 CFR Part 1926, Subpart T Demolition.
• Site controls will be established to ensure secure access to the demolition area(s) and exclusion of non-construction personnel. Controls include delineation of demolition boundaries, erection of temporary fencing, and placement of construction and traffic signage. Orange safety fence maybe used for temporary fencing to create an “exclusion zone,” preventing entry into the demolition areas.
• Sediment and erosion control best management practices (BMPs) will be implemented in accordance with the DOE approved North Wind Storm Water Pollution Prevention Plan (SWPPP) (North Wind 2020d) prior to commencement of activities with the potential to impact stormwater. Prior to mobilization, the SWPPP Notice of Intent was submitted by the

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North Wind Qualified SWPPP Designer (QSD) to the California Water Board’s Stormwater Multiple Applications and Report Tracking System (SMARTS). Site BMPs, rain event, and quarterly non-stormwater SWPPP inspections will be conducted under the supervision of North Wind’s Qualified SWPPP Practitioner (QSP). The QSP will notify the Regional Water Quality Control Board and local stormwater management agency of any planned changes in activity that might result in noncompliance with the SWPP requirements. Exceedances and violations will be reported using the SMARTs system, as required in the SWPPP.

- Review utility as-built drawings for all structures and identify the locations of underground utilities (e.g., water, power, sewer, etc.).

- Personnel will be trained in the contents of the applicable AHA. Each workday will start with a tailgate safety meeting where personnel will be advised of the work scope for that day, briefed on task-specific details, and informed of the work-specific safety precautions.

- Tasks not briefed in the morning tailgate will be formally briefed prior to their performance in the field.

- Pre-position the water truck and dust control equipment when potential for dust-generating activities is present.

- Conduct a final walk-around to ensure that no unauthorized personnel or equipment are near the vicinity of the structure.

- Engineering surveys will be completed by the demolition competent person prior to beginning any demolition activates.

- Prepare site infrastructure, such as laydown yards, equipment storage areas, sanitary facilities, and construction management facilities.

- Perform an inspection of concrete pad surfaces prior to demolition of a building. Any visible and accessible cracks will be sealed prior to demolition. Sealants include caulking or grout-like materials.

9.2 Utility Isolation and Verification

All building electrical feeds and/or supply lines have been de-energized and air gapped, ensuring that each building has been rendered “cold and dark.” All sanitary drains from buildings will be cut above grade, as needed, and capped/grouted. This includes above-grade water, sewage, electrical, telecommunications, and gas. Where appropriate, above-grade utility infrastructure may be removed to facilitate worker safety prior to structural demolition.

9.3 Removal of Materials from Facility, Lines and Equipment

Prior to demolition, piping, tubing, compressors, pumps, hoists, and other equipment with refrigerants, oil, or hydraulic fluid will be drained by a licensed contractor, as necessary, until no additional material can be removed. The contents will be transported and disposed of at an approved LLRW disposal facility outside of the State of California.

The majority of lamps, ballasts, switches, mercury containing articles, and other waste items that may be otherwise hazardous have been removed, segregated, and containerized as required, and
transported to a disposal facility as LLRW outside of the State of California. Minimal hazardous waste remains within 4462/4463 until it can be safely removed during demolition.

Examples of such waste items include:

- Fluorescent tubes and other lamps,
- Lamp ballasts/capacitors,
- Thermostats,
- Batteries,
- Fire alarms,
- Electronic switching equipment, and
- Pressure measurement instruments.

Lines and equipment that have held hazardous materials or hazardous wastes will be managed during demolition, and will not be rinsed or otherwise cleaned beyond gravity draining, physical scraping, wiping, pigging, etc. The materials will be transported and disposed of at an approved LLRW disposal facility outside of the State of California.

9.4 Removal of Equipment, Appliances, Fixtures

Prior to demolition, affected buildings and surrounding areas may be emptied of removable and installed equipment, components, infrastructure, or miscellaneous items. The contents will be transported and disposed of at an approved LLRW disposal facility outside of the State of California.

10 DUST CONTROL

Dust control and dust protection measures are employed to mitigate the generation of dust resulting from demolition activities. Dust control measures (i.e., misting) will be used during demolition to reduce generated dust sources. The methods considered to mitigate airborne dust are presented below:

- Water sprays for dampening work areas during demolition activities.
- Water sprays for dampening demolition areas during time periods when wind conditions create dust, as appropriate. If the forecast calls for windy evening conditions, water sprays will be used to dampen subject work areas just prior to the end of the workday, as well as covering with tarps or similar plastic material, when necessary.
- Truck bed covers to contain dust in loads being transported off-site.

All efforts will be made not to overuse water during dust control efforts so as not to create any runoff or additional cleanup requirements.

Water trucks or tanks will be used to provide water to sprayers or misters for dust control during all demolition activities. Misters and sprayers may be handheld, mounted on mobile equipment.
not performing the demolition (e.g., grade-all), or mounted directly onto the demolition equipment.

10.1 Air Monitoring

Background measurements for airborne radioactive materials were collected for two years to establish background concentration and variation data in accordance with the Baseline Air Monitoring Work Plan Santa Susana Field Laboratory, Ventura County, California (NASA, Boeing, and DOE 2017). The four-perimeter baseline air monitoring stations in Area IV will continue to operate throughout demolition. Air monitoring stations DOE-1 and DOE-3 will be utilized as primary monitoring points during demolition. Locations of Area IV air monitoring stations can be reviewed in the Report on Air Monitoring, Area IV, Seventh Quarter and Annual Summary (North Wind 2020e).

During demolition, these four perimeter air monitoring stations will continue to collect air samples to determine if there are any fugitive air emissions not controlled by the dust control and prevention measures. Additionally, short-term work area air samples will be collected within the footprint during demolition of above grade structures to verify the control of airborne dust.

North Wind calculated the expected airborne material, based on the available (i.e., recent) data regarding the contamination present within Buildings 4462, 4462, 4057, & 4038. The calculation determined that the potential for airborne radioactive material would be extremely low, likely below detection limits. The air sampling filters will be measured daily. If elevated values are found, the perimeter air monitor data will be pulled within 24 hours to identify any potential offsite airborne contamination. In the unlikely event that airborne contamination has occurred, immediate notification will be provided to stakeholders (e.g., DOE, DTSC, and Ventura County).

10.2 Stormwater Best Management Practices

Installation, inspection, and maintenance of stormwater BMPs will be in accordance with the approved SWPPP and managed as Risk Level 2 for the following control measures:

- Potential non-stormwater release,
- Staged material,
- Waste management,
- Good housekeeping, and
- Post-demolition.

The SWPPP Risk Level is calculated based on the final project schedule activity dates and will be representative of a combined Risk Level Matrix, including projected rainfall factor, effect of topography on erosion factor, and receiving watershed risk factor.

11 PERMITS

The following permits are anticipated in association with abatement and demolition work:

- CUPA Haz Waste Generator (Ventura County/ certified unified program agency),
• Ventura County Air Permit (Ventura County Air Pollution Control District),
• Hazardous Materials Certificate of Registration (DOT),
• Construction General Permit (2009-009-DWQ) (State Water Resources Control Board), and
• TSDF permits, as applicable.

12 BUILDING DEMOLITION

Personnel involved in the demolition activities of the four remaining DOE buildings in Area IV will be trained and hold OSHA HAZWOPER and COVID-19 special measures training. Project-specific training will be provided during mobilization in accordance with the North Wind project training matrix (North Wind 2020f).

North Wind has completed a survey and inspected the work site, examined utility and facility maps and drawings to determine the extent of the work area, and established a coordinated plan for demolition work. Above grade structures will be removed to a condition of slab-on-grade, where the above grade portions of the structures are removed but the slabs and the foundations are left in place to provide a barrier to the soil and/or subsurface structures. If the structures have below grade structures, the below grade foundation and walls will be left in place. Asphalt surfaces will also be left in place.

Demolition will be conducted in a manner to minimize the co-mingling of waste types and be conducted to avoid disturbance of asphalt and concrete slabs. A demolition competent person will be at the project site during all demolition activities.

Notifications of demolition will be provided to DTSC at two intervals; one-week and again two days prior to commencing demolition activities.

12.1 Building 4462 – Sodium Pump Test Facility and Building 4463 – Component Handling and Cleaning Facility

Large, non-homogenous constructed heavy industrial buildings (i.e., 4462 and 4463) require a specific demolition approach, plan, and sequence. “Non-homogenous” in this context refers to structures that are not a predictable repeating column and beam construction arrangement. Heavily constructed structures such as 4462 and 4463 require the use of hot cutting methods because of the thickness of the steel in their construction. Portions of steel members in 4463 are greater than 3 inches thick. This material is considered “un-shearable,” meaning it cannot be cut with a mechanical (hydraulic) shear.

The use of shape charges is vastly safer than hot cutting structural members in a felling operation, as it eliminates the presence of workers within the structure during demolition. The use of shape charges, which result in the energetic felling of a structure, is not typical blasting. Rather, it is the engineered progressive failure of structures induced by the systematic elimination of structural supports using small amounts of strategically placed charges. The use of shape charges provides the following worker protections:

• Preparatory work does not substantially change the structures’ ability to stand in the presence of external inputs (i.e., wind or seismic forces).
• There is no need for weakening the structural columns when workers are within the structure.

• Column cutting is achieved remotely and completely with workers outside of an exclusion zone.

• The duration of the demolition is shortened and the amount of handwork (labor intensive) is vastly reduced, improving safety performance.

• The risk of shape charge use is immensely reduced in that the SSFL is controlled and not open to the public. Being able to prevent people from entering the exclusion zone is much easier on a controlled site versus an urban industrial environment.

An exclusion zone will be established. Building 4462 low-rise structures surrounding the building will be pre-demolished and resultant debris removed. Interior and exterior non-load-bearing walls, equipment, pipe, conduit, elevator cars/rails, etc. will be removed on the first two stories of the building. The concrete encasement will be removed from structural steel columns, leaving clean steel surfaces. To prevent fly of debris, 16 plywood boxes will be fabricated and installed over shaped charge placement locations.

Building 4463 low-rise structures surrounding the building will be pre-demolished, and resultant debris from below the existing overhead crane rail will be removed from selected interior and exterior non-load-bearing walls, equipment, pipe, conduit, elevator cars/rails, etc. on the first level. Resultant debris will be removed, leaving clean columns and reasonably clean levels. Encasement from structural steel columns will be removed, leaving clean steel surfaces for subsequent shape charge placement on the first level. Twenty-six plywood boxes will be fabricated and installed over shaped charge placement locations.

Loading operations will begin approximately three (3) days prior to the scheduled energetic felling of the structures.

Six (6), 3-component, Instantel MiniMate Plus seismographs will be placed around the blasting area to measure vibration and air overpressure generated by energetic felling operations. Cursory pre- and post-blast surveys of adjacent, above-grade properties to remain will be conducted.

Ground vibration from energetic felling of a building is primarily a product of the impact of the structures with the ground. The small amount of charges used is simply a catalyst to allow gravity to do the work in collapsing the structures in a controlled manner. Demolition charges are typically loaded in relatively small quantities in aboveground structural members. Vibration effects imparted into the ground from the charge detonation plays very little role in the generation of vibration from energetic felling.

Air overpressure from the energetic felling of the structures will primarily result from the use of a non-electric initiation system (for reasons of overall safety) as compared to an electric system. An non-electric system will be initiated using 18-grain detonating cord that will probably generate overpressure readings of approximately 140 to 150 dBL (below .01 psi), as measured at adjacent facilities. Such overpressure is brief/transient and below the U.S. Bureau of Mines recognized threshold of damage to windows or structures.
Immediate visual vibration/overpressure readings will be available within approximately 60 minutes following the energetic felling of the structures.

Dust, an unpreventable byproduct of any type of demolition operation, will last in the general vicinity for five (5) to ten (10) minutes following the energetic felling. The duration of the airborne dust will be a direct function of the wind direction and velocity at the time of the energetic felling. Dust prevention and control measures, including the use of water cannons to create a curtain to collect the dust, will be in place during demolition and felling operations.

12.2 Building 4057 – Liquid Metal Development Laboratory

An exclusion zone will be established. Dust control will be performed prior to and during demolition. All sanitary waste pipe openings (abandoned bathrooms) will be grouted. Using an excavator equipped with shear and/or bucket with thumb, the structure will be collapsed/crushed into the building footprint and downsized for disposal. The debris will then be loaded into approved containers or trucks for disposal.

Demolition will be conducted in a manner to minimize the co-mingling of waste types and to avoid disturbance of asphalt and concrete slabs. A demolition competent person will be at the project site during all demolition activities.

12.3 Building 4038 – ETEC Administrative Offices

An exclusion zone will be established. Pre-watering of the building exterior will be performed prior to demolition work. Dust control will be ongoing as the structure is demolished. Using an excavator equipped with shear and/or bucket with thumb, the structure will be collapsed/crushed into the building footprint and downsized for disposal. Debris will then be loaded into approved containers or trucks for disposal. Demolition will be conducted in a manner to minimize the co-mingling of waste types and to avoid disturbance of asphalt and concrete slabs. A demolition competent person will be at the project site during all demolition activities.

13 EQUIPMENT AND SUBCONTRACTORS

13.1 Equipment Required

Equipment (or equivalent) to be mobilized to the site includes, but is not limited to, the following:

- (1 ea.) 490 1250 high reach Komatsu excavator with demo cage – demo/downsizing;
- (2 ea.) 650 Komatsu excavator with demo cage – demo/downsizing;
- (1 ea.) 350 Komatsu excavator with demo cage and "quick coupler" for attachments;
- (2 ea.) 2500R LaBounty shear;
- (2 ea.) 4500R LaBounty shear;
- (1 ea.) 7500R LaBounty shear;
- (1) 350X4 Link Belt excavator with bucket and thumb;
- (1) 350X4 Link Belt excavator with GXT 445 shear;
- (1) 250X4 Link Belt excavator with bucket and thumb;
- (1) 145X4 Link Belt excavator with bucket, thumb, and Genesis Versi Pro shear;
- (1) Cat 242D Skid Steer with bucket, forks, grapple bucket, and sweeper attachments;
- (1) Cat TL1255D Reach Forklift;
- (1) JLG 800 Al Boom Lift;
- (2) Buffalo Turbine Misters;
- (2) Grapple;
- (2) Bucket with hydraulic thumb;
- (2) Hydraulic hammer;
- (1) Skid steer with attachments;
- (4) Buffalo turbine misters;
- (1) 3500 PSI Pressure Washer; and
- (1) Water trucks.

13.2 Subcontractors

Table 13-1. Subcontractor information.

<table>
<thead>
<tr>
<th>Scope of Work</th>
<th>Subcontractor</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Asbestos, Lead, and PCB Abatement</td>
<td>- American Integrated Resources, Inc.</td>
</tr>
<tr>
<td></td>
<td>- Wood Environment &amp; Infrastructure Solutions, Inc.</td>
</tr>
<tr>
<td>- Bird Nesting Survey: Arborist (if required)</td>
<td>- North Wind Resource Consulting</td>
</tr>
<tr>
<td>- Transport Carrier</td>
<td>- MP Environmental</td>
</tr>
<tr>
<td>- Designated Waste Hauling</td>
<td></td>
</tr>
<tr>
<td>- Licensed Waste Disposal Facility Outside</td>
<td>- *Energy Solutions, Clive UT</td>
</tr>
<tr>
<td>the State of California</td>
<td></td>
</tr>
<tr>
<td>- Demolition</td>
<td>- North West Demolition and Dismantling</td>
</tr>
<tr>
<td></td>
<td>- CDI Demolition</td>
</tr>
</tbody>
</table>

*Energy Solutions is permitted, licensed, and authorized to receive, treat, and dispose Class A LLRW, NORM/NARM, Class A Mixed LLRW, 11e.(2) Byproduct Material, Special Nuclear Material based on concentration limits, Polychlorinated Biphenyl (PCB) Radioactive Waste, and PCB Mixed Waste.

14 WASTE CHARACTERIZATION

Waste generated by decommissioning and demolition activities will be characterized as nonhazardous or hazardous, as applicable, in accordance with procedures outlined in U.S. Environmental Protection Agency (USEPA) SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods; 40 CFR; Title 22 of the California Code of Regulations (CCR); and
Chapter 6.5 of Division 20 of the California Health and Safety Code. DOE will provide DTSC with the waste characterization data for DTSC’s review and records. DOE will respond to DTSC comments relative to the characterization data.

Disposal of debris and waste from the four remaining buildings 4038, 4057, 4462, and 4463 that have no radiological function or history of radiological usage will be disposed out of the State of California, and out of an abundance of caution, at an authorized MLLW disposal facility (in accordance with the WAC of the receiving facility). Hazardous waste associated with pre-demolition activities including asbestos abatement and deactivation associated with these remaining DOE Area IV buildings has been previously disposed of at a licensed or authorized mixed low-level radioactive waste disposal facility. Waste from demolition, as well as small quantities of hazardous waste that may remain in the buildings will be disposed of in the same manner.

14.1 Characterization Studies

Certain types of uniformly characteristic demolition wastes at SSFL warrant characterization studies of waste streams that apply to more than a single demolition site. These studies yield results that may be generalized and may be used to supplement generator process knowledge with additional empirical data. The process to develop these characterization studies and the applicable waste streams will be outlined in the WMP. DTSC has approval authority for the waste management and disposition information developed for these buildings. Some examples of relevant characterization studies include:

- Stained and painted concrete floors and walls,
- Utility poles,
- Road base, and
- Concrete transformer pads.

14.2 In-Situ Characterization of Demolition Wastes

Materials may be characterized before they become wastes, only when the boundaries of the area that will become waste are clearly identified and when this will assist efforts to segregate non-hazardous from hazardous wastes or incompatible wastes during the demolition. *In-situ* characterization of intact materials that are subject to demolition will be based on definitive, documented generator process knowledge and/or sampling performed in accordance with USEPA SW-846 by state-certified laboratories.

14.3 Characterization of Wastes in Containers

Demolition wastes contained in drums, cubic yard (cy) boxes, or roll-off bins will be characterized based on definitive, documented generator process knowledge. The WMP outlines the requirements that are necessary for managing hazardous waste (e.g., labeling, container storage, spill prevention measures, etc.). Using the waste profiling and manifesting procedures discussed in the WMP, wastes will be characterized so that completion of waste profiles can occur before the wastes are transported to the approved off-site disposal facilities.

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14.4 Generator Process Knowledge

As prescribed in Section 66262.11(b)(2) and (c)(2) in Title 22 of the CCR, generator process knowledge is an important component of waste characterization and is employed in concert with waste sampling and analysis to determine whether the waste is hazardous or non-hazardous. Generator process knowledge may be used in limiting the number of analytes that are included in laboratory analyses of samples collected from wastes. Documentation supporting generator process knowledge may include:

- Applicable analytical data that were obtained for other purposes (i.e., RCRA Facility);
- Investigation RCRA Facility Investigation (RFI), remediation confirmation sampling, process monitoring, health and safety environmental monitoring, etc.;
- Chemical usage inventories applicable to a specific area;
- Historical analytical data pertaining to specific waste types and the characteristics that are exhibited by the wastes; and
- Waste characterization studies and reports that apply to the waste streams in question.

14.5 Hazardous and Potentially Hazardous Materials

North Wind has identified, in the Hazardous Building Materials Survey (Wood 2019), the following hazardous and potentially hazardous materials inside of the buildings:

- Asbestos,
- PCBs,
- Mercury, and
- Exposure to airborne dust from bird or mouse droppings.

North Wind has removed the following hazardous and potentially hazardous material inside the buildings (Wood 2020) in preparation of decommissioning and demolition activities:

- Asbestos;
- Light bulbs, circuit boards, and ballast;
- Lead and other heavy metals;
- Lead-based paint;
- Mercury;
- PCBs; and
- Oils and other liquids.

Small quantities of hazardous materials remain in the buildings due to safety concerns and will be removed during demolition. All materials that have been removed to date have been transported to a disposal facility outside of the State of California. Manifests for disposal have been provided to DTSC, as required.
15 WASTE MANAGEMENT AND DISPOSAL

This section describes the procedures for packaging, shipping, and disposal of wastes generated during building demolition. These activities will be conducted within the framework established by local, state, and federal regulations. Out of an abundance of caution, demolition waste debris has been characterized and categorized and will be disposed of as LLRW or hazardous, irrespective of having characterization data showing no radioactivity.

15.1 Waste Management Activities

The waste management activities at the site will consist of size reduction, use of historical characterization data, certification, preparation for off-site disposal, and shipment. The purpose of this section is to describe the requirements for the generation, characterization, storage, and disposal of waste associated with demolition activities. Waste is managed in a manner that is protective of workers, public H&S, and the environment.

Waste shall be generated, characterized, and packaged per specific waste handling procedures that provide the requirements for loading the waste into containers, recording its description, and completing the waste inventory documentation. All operations shall be performed by trained personnel and in full accordance with the processes and requirements contained in the approved project H&S Plan (North Wind 2020g) and the Quality Assurance Project Plan (QAPP) (North Wind 2020h). Containers may be stored at the job site or be placed in storage at a limited access storage area, pending shipment. The WMP will include detailed procedures for waste generation, characterization, packaging and shipping, and QA verification. These procedures shall comply with DOE, DOT, USEPA, State of California, and the disposal sites’ WAC and the following requirements, as appropriate:

1. 49 CFR, “Transportation;”
2. 40 CFR, “Protection of Environment;”
3. 22 CCR, Division 4.5 (all “appropriate” requirements); and
4. WAC of the disposal facilities receiving the waste.

There will be no on-site disposal of hazardous waste. All materials generated during decommissioning and demolition activities will be shipped to a licensed facility outside of the State of California. The PM and WMS will ensure that waste management requirements are passed down through subcontracts to all companies performing demolition work under this plan.

Management of generated waste will consist of the following steps:

1. Sample like materials for waste characterization, if historical documentation is not available;
2. Upon mobilization, set up hazardous and nonhazardous accumulation areas;
3. Segregate waste into approved containers, pending transport;
4. Load waste containers into waiting trucks for offsite disposal;
5. Stage waste containers;

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6. Coordinate closely with the SSFL Waste Management Department; and

7. Track and document waste disposition.

A waste inventory log will be used to track materials leaving the project site for disposal. The Transportation Specialist verifies the date and quantity of waste leaving the project site before the manifest is certified. Upon delivery to the disposal facility, the landfill will be required to certify the date, time, and quantity of material received.

15.2 Hazardous Waste

Management of any generated hazardous materials/waste will comply with the following:

- Hazardous waste will be managed in accordance with 40 CFR, Title 22, Division 4.5 of the CCR, and Division 20, Chapter 6.5 of the California Health and Safety Code.

- Waste will be accumulated in closed containers (including lined roll-off bins), tanks, or lined trucks/trailers that prevent the release of any material.

- Wastes that are hazardous, or potentially hazardous, will not be managed using practices such as stockpiling, where the wastes are accumulated outside of lined and closed containers.

- Whenever there is the possibility that wastes are hazardous, even if the hazardous nature of the wastes has not been verified, the wastes will be managed as though they are hazardous, until they are verified through characterization to be non-hazardous.

- If it is necessary to combine compatible non-hazardous wastes with hazardous or unverified potentially hazardous wastes, the resulting mixture will be managed as hazardous waste regardless of the properties of the waste resulting from the mixture.

- Segregation, waste compatibility, container labeling, accumulation times, and all other management requirements for hazardous wastes stated in local, state, and federal regulations identified above will be observed for all wastes, as applicable.

- Containers will be kept securely closed, except when wastes are actually being transferred into or out of them.

15.3 Recycling of Demolition Materials

There will be no recycling of materials generated as part of the demolition of these facilities.

15.4 Transportation of Waste

Due to the sensitive nature of transporting the waste through the residential areas and in and out of SSFL, the specific procedures and relevant details for waste transportation will be defined in the WMP. Waste management and transportation personnel will be trained to these requirements prior to transporting any waste off-site. Waste disposition is controlled to cooperate with local homeowners adjacent to the site and along Woolsey Canyon Road. These requirements include, but are not limited to, the following:
• The number of loads leaving the site will be staggered and limited to 16 round-trip truckloads per day to limit disruption to the local community. Permit loads shall be coordinated with the assigned Boeing Field Coordinator 48 hours in advance of arrival.

• It is possible that Boeing and NASA will also have trucks leaving the site; therefore, DOE will coordinate with the Boeing Field Coordinator to stagger loads to cause the least amount of disruption to the residents along Woolsey Canyon Road. Drivers will use the turnouts along Woolsey Canyon Road to allow motorists to pass.

• Truck drivers departing SSFL shall follow the direction of the Boeing Field Coordinator to ensure that the specific requirements outlined in the WMP with regard to the requirements of waste transportation in place for the SSFL are met. In general, drivers shall not depart earlier than 7:00 a.m. and not later than 4:00 p.m.

• All out-bound waste containers will be covered prior to leaving the site. Visual inspections of the surfaces of the trucks, including tires, will be performed. If caked mud/soil is observed, it will be removed prior to the vehicle departure.

• Departures for dump trucks shall be scheduled in such a manner that is consistent with the transportation agreement with the SSFL site. To minimize noise impacts, drivers shall not use “jake-brakes” unless it is necessary. Drivers shall use the area outside the gate to check their brakes as needed but will not wait for other drivers.

• Drivers shall not convoy through, or spend the night in, the adjacent neighborhoods.

15.4.1 Haul Routes

Truck access to the work area is limited to entry on site via the Woolsey Canyon Road Gate. Trucks enter the site through this gate, adhering to all site rules, keeping speeds at less than 15 mph—or as posted—for additional safety. Truck staging is kept to a minimum in parking areas near the site. North Wind will work closely with the hauling contractors to ensure they understand the importance of being a “good neighbor” in the areas surrounding the facility.

North Wind will utilize a mobile truck scale on site. Loaded trucks will be weighed and documented before going down Woolsey Canyon Road.

Shipments will be scheduled on a weekly basis to ensure compliance with the daily shipment allowance down Woolsey Canyon Road. North Wind will communicate shipping requirements during weekly meetings and will coordinate any changes to the plan as soon as the need is recognized. Appendix B-1 shows the truck routes onsite and the Proposed Routes for Hazardous Material Shipments from SSFL.

During transport, North Wind will require that each transporter have a system in place that will allow North Wind to determine the exact location of the shipment within 2 hours of requesting that information from the transporter. Acceptable systems include communication systems, global positioning systems, or a combination of the two.

Prior to using a transporter, proper documentation from the transporter will be obtained demonstrating their compliance with applicable DOT regulations and licensing requirements, along with being listed as a DOE Motor Carrier Evaluation Program (MCEP) approved carrier, as
necessary. The Transportation Specialist will perform a due diligence review of the motor carrier selected and ensure the transport driver is current on medical exam, licenses, endorsements, and any applicable required training. The DOE/ETEC Transportation Plan will be followed to verify that the hazardous material transportation efforts are compliant with local, state, and federal regulations.

All material to be transported will be labeled, marked, and placarded as required by USEPA, DOT, and state regulations. Packaging will be selected in accordance with DOT, EPA, and TSDF requirements. All waste manifests for each shipment from the site will be prepared in accordance with federal and state regulations. Copies of shipping documents (i.e., waste profiles, bills of lading, manifests, weight receipts, and certificates of disposal) are kept onsite and will be scanned and sent to the records department per QAP-10784-171, Records Management Plan. Copies of the waste manifest will be provided electronically to DTSC.

15.5 Demolition Waste Facilities and Locations

All waste will be disposed of as LLRW or hazardous. Wastes will be reduced in size and loaded for disposal to a licensed or authorized facility outside of the State of California.

15.6 Anticipated Quantities by Type of Materials

All materials generated during phase I demolition activities will be shipped to a licensed facility, in accordance with their WAC, outside of the State of California, as identified in Table 15-1. Materials include metal, wood, concrete, and miscellaneous debris from above grade building demolition. Asphalt, concrete, and below grade materials will be removed during Phase 2.

Table 15-1. Waste Description

<table>
<thead>
<tr>
<th>Waste Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial Waste</td>
</tr>
<tr>
<td>CA or RCRA Hazardous Waste, including Asbestos</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Estimated Volume</th>
<th>Disposal Facility</th>
</tr>
</thead>
<tbody>
<tr>
<td>*24,600 cy</td>
<td>**Energy Solutions</td>
</tr>
<tr>
<td>*10cy of asbestos and lightbulbs and 110 gallons of used oils</td>
<td>** Energy Solutions</td>
</tr>
</tbody>
</table>

*Estimated waste volume allows for void space when packaged for disposal.

** Energy Solutions is permitted, licensed, and authorized to receive, treat, and dispose Class A LLRW, NORM/NARM, Class A Mixed LLRW, 11e.(2) Byproduct Material, Special Nuclear Material based on concentration limits, Polychlorinated Biphenyl (PCB) Radioactive Waste, and PCB Mixed Waste.
16 POST DEMOLITION

Above grade structures will be removed to a condition of slab-on-grade where the above grade portions of the structures are removed but the slabs and the foundations are left in place to provide a barrier to the soil and/or subsurface structures. Asphalt surfaces and sub-grade vaults and sumps will remain in place.

A suitable material to prevent water accumulation on the slab will be added after demolition. All debris will be removed from slabs and radiological surveys will be completed to confirm no smearable or fixed contamination is present. All penetrations through the slabs will be sealed with caulk or grout-like materials.

17 REPORTING

Reporting includes the preparation of post-demolition summary reports for each demolition project that includes completion of site restoration and waste disposal activities. This report will include post-demolition maps, field reports, screening and sample results, photographic documentation, and complete copies of the debris/waste documents disposal.

DOE will review and re-evaluate the building demolition site conditions after a period of one year from the completion of demolition, and an annual summary of findings will be submitted to DTSC for the annual evaluation of the performance of the site restorative measures for the building demolition sites. The summary will include a signed statement certifying that each unit has been fully decommissioned and has undergone interim site restoration in accordance with this approved SOP and Decommissioning and Demolition Plan. Since post-closure/post-demolition activities will be conducted at each site consisting of the implementation of the soil and groundwater programs, each site will be left in a safe configuration pending future soil and groundwater remediation. Completion of the facilities will not be deemed complete until the slabs, vaults, and subsurface infrastructure have been removed.

18 SCHEDULE

Following DTSC approval of this plan, a schedule for demolition activities will be submitted to DTSC on a monthly basis.

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19  REFERENCES


DOE, 2019. Final Environmental Impact Statement for Remediation of Area IV and the Northern Buffer Zone of the Santa Susana Field Laboratory, December.


DOE, 2020. Monitoring and Inadvertent Discovery Plan for Tribal and Archaeological Monitors for the Remediation of Area IV and the Northern Buffer Zone of the Santa Susana Field Laboratory, September.


NASA, Boeing, and DOE 2017, Baseline Air Monitoring Work Plan Santa Susana Field Laboratory, Ventura County, California

Notice of Exemption (NOE) was prepared for demolition of the above ground portions of the buildings located in the ETEC Complex (October 2020)

North Wind, 2019. ETEC Radiological Survey Report for Buildings 4038 and 4057, November


North Wind, 2020b. Worker Safety and Health Plan, September.


North Wind, 2020d. CLIN 0008 Stormwater Pollution Prevention Plan, Revision 1, December.

North Wind, 2020e. Report on Air Monitoring, Area IV, Seventh Quarter and Annual Summary, July.


North Wind, 2021. ETEC Radiological Survey Report for Buildings 4038 and 4057, February

State Historic Preservation Office and DOE, 2019. Programmatic Agreement (PA) between the United States Department of Energy (DOE) and the California State Historic Preservation Officer (SHPO) Regarding the Proposed Cleanup of Santa Susana Field Laboratory Area IV and Northern Buffer Zone, Ventura County, California, September.

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Title 22 CCR, *Social Security.*


USFWS, 2018. *Biological Opinion for Remediation of Area IV and the Northern Buffer Zone of the Santa Susana Field Laboratory,* August.

Ventura County Planning Division, 2014. *Ventura County General Plan.*


Wood Environment & Infrastructure Solutions Inc., 2020. *Asbestos Abatement Closeout Report*
Appendix A: Site Maps
Figure A-1. Layout of the SPTF Facilities, LMDL-2, Administrative Office, and CHCF
Figure A-2. SPTF Site Location Map
Figure A-3. Topographic Map & Land Use within 1-Mile Radius

Figure 3
Topographic Map &
Land Use within One Mile Radius
Energy Technology Engineering Center (ETEC)
Santa Susana Field Laboratory
Canoga Park, California

Legend
- ETEC Areas HV
- 1 Mile Radius
- SSFL Site Boundary
- Stream
- Pond

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Appendix B: Haul Routes
Figure B-1. Proposed Routes for Hazardous Material Shipments to Energy Solutions from SSFL
Appendix C: Existing Condition
Building 4462 - Sodium Pump Test Facility (SPTF) and Building 4463 - Component Handling and Cleaning Facility (CHCF)

Building 4057 - Liquid Metal Development Laboratory (LMDL-2)
Building 4038 - ETEC Administrative Offices

Building 4038 - ETEC Administrative Offices facing North and Northwest

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