

**DOE-ID NEPA CX DETERMINATION
Idaho National Laboratory**

SECTION A. Project Title: Carbon Free Power Project (CFPP) Site Characterization Rev 2

SECTION B. Project Description and Purpose:

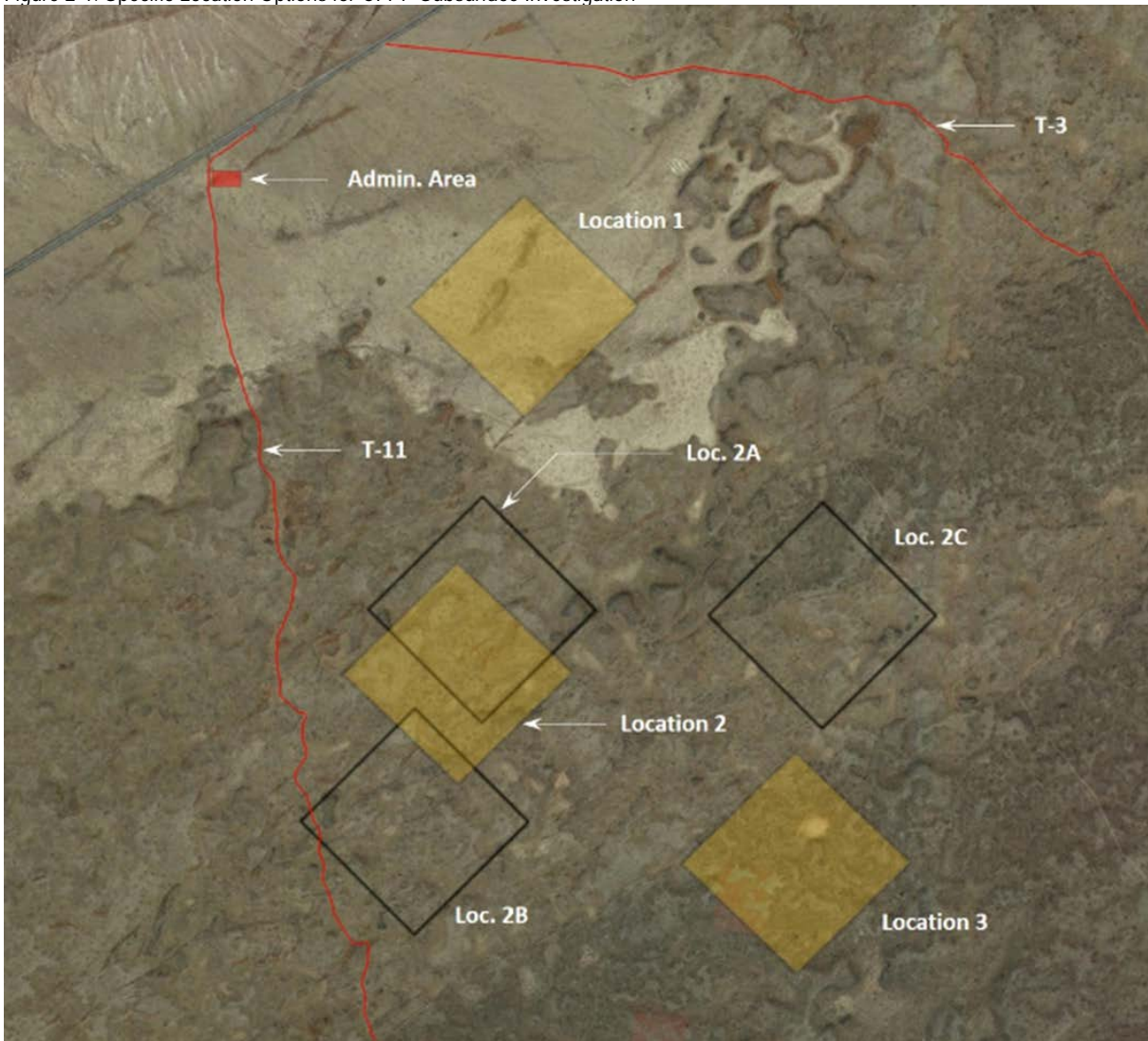
Revision 2

The purpose of this revision is to update the scope for the proposed Carbon Free Power Project (CFPP). The project has developed additional details for core boring and well drilling activities. In 2019 the project completed several activities described in previous versions of this environmental checklist (EC), including improving access to the project site off Highway 33 and improving the T-11 road; installing barriers to prevent traffic on abandoned sections of T-11, a fenced administrative area and project trailer, portable toilet stations at the administrative area, a temporary seismic monitoring station near the Deadman meteorological tower just off T-11, and two small concrete pads adjacent to T-11 and T-3 for Spectral Analysis of Surface Waves (SASW) testing; and erecting a meteorological tower. The project has also completed SASW testing and magnetometry surveys.

The project has revised original plans to install overhead electrical power supply lines from the Howe Peak transformer to the CFPP site and install a back-up electrical generator at the administrative area. Instead, the project plans to install a propane-powered electrical generator at the administrative area to supply routine electrical power loads. Core boring storage for the project may include a CONEX-type trailer located adjacent to the USGS core boring storage library at CFA.

The project had planned to mow about 70-acres in the southeast corner of the Carbon Free Power Project (CFPP) Site where the core borings and well drilling were being considered ("Location 3") and about ¾-mile from the T-11 road to the 70-acre area for drill rigs and support vehicle travel. These areas contain dense sage brush, and mowing has high potential to impact sage-grouse and other nesting birds. After reviewing data from the 2019 SASW testing and magnetometry surveys, the project proposes to relocate core borings and well drilling to a site near the center of the CFPP area, closer to "Location 2" in Revision 1, Figure 6. This area appears to provide improved subsurface characteristics and significantly less impacts to sage-grouse and other nesting birds. The project considered three areas (each about 70 acres) near Location 2 and plans to focus the subsurface investigation at Location 2A (shown in figure 2-1). Grass and a small amount of sagebrush comprise most of the vegetation at Location 2A, and the project anticipates that a small amount, if any, mowing will be necessary. Project personnel will access Location 2A via a short path from T-11 east to the western corner of Location 2A. The project will complete biological and cultural resource surveys at Location 2A layout and determine the need for mowing.

Figure 2-1. Specific Location Options for CFPP Subsurface Investigation



Current site characterization plans for Location 2A include drilling 40 – 50 boreholes (with depths ranging from 100 feet to 1500 feet) and 10 -12 observation wells, including an aquifer pump test well cluster. The project plans to mow or clear a 30-foot buffer area at each drill rig location for wildland fire prevention. Additional mowing and clearing may be needed on areas where drill rig and support traffic will traverse from the T-11 road to each drilling location. Borehole and observation well construction involves continuous core drilling, reaming after coring, setting well casings to various depths, collecting geophysical logs, and testing well productivity. The project is evaluating specific locations for the wells and boreholes.

If initial core boring activities at Location 2A indicate the site is unsatisfactory for facility construction, the project plans to move subsurface investigations to Location 2B or 2C and complete additional biological and cultural resource surveys prior to work execution.

In addition, the powerline (about 3.2 miles long) connecting to the Howe Peak Transformer along Highway 33 discussed in previous versions is no longer proposed and has been removed from the following discussion..

Revision 1

The proposed action performs site characterization studies to determine capability and suitability for locating a small modular reactor (SMR) on about 2000 acres at the Idaho National Laboratory (INL) Site in Butte County, Idaho and to gather data for preparing a Combined License Application for an SMR. To complete site characterization, the project constructs roads to the site, procures and installs an office trailer, and erects a 60-meters high (about 197 ft) meteorological (met) tower. **Figure 1** shows the project area in relation to the potential SMR location. The proposed action also maintains the T-11 road as necessary by dumping gravel fill material in holes and ruts then levelling and establishes a two-track road from T-11 to the potential SMR location (See **Figure 1**), about 1.1 miles from the T-11 road (See Section E, Project-Specific Instructions, #4). This proposed SMR location is under review and no decision has been made to site such a facility. A decision to use the proposed location for purposes other than site characterization studies is subject to further NEPA review.

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Figure 1. Project area in relation to potential SMR location.



The proposed action constructs a gravel road (about 25 ft wide by 250 ft long) from Highway 33 to the office trailer location using heavy equipment (graders, dump trucks, bulldozers, etc.) and a road adjacent to the proposed office trailer and met tower (about 25 ft wide and 400 ft long). The entrances to the abandoned section of T-11 (i.e., the old Highway 33 access) would be blocked at both ends to prevent use (e.g., by using barricades, signs, or other approved methods). Road construction includes installing drainage features such as culverts if needed.

Project scope includes grading and levelling an administrative area about 130 ft by 250 ft for placing the 12 ft by 60 ft office trailer and parking area -. The met tower requires a metal base plate and instrumentation placed on a graded and levelled 20 ft radius area. Four screw-in anchors hold guy wires about 150 ft from the tower. The proposed action has the potential to disturb about 4.8 acres (See Section E, Conditions and Project-Specific Instructions related to Cultural and Biological Resources). **Figure 2** depicts approximate locations for roads, the office trailer, and the met tower.

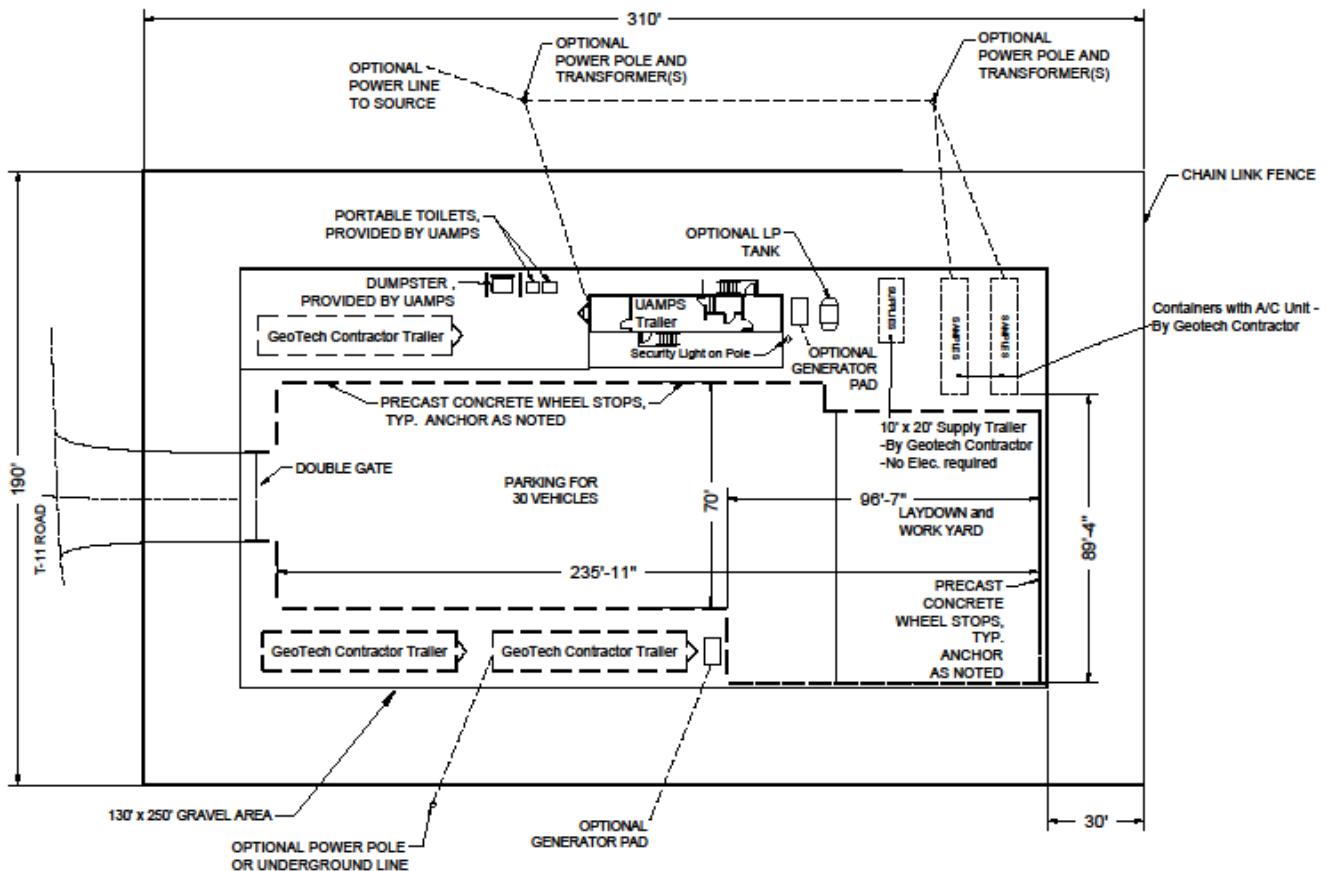
Figure 2. Approximate locations for roads, an office trailer, and met tower.



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The administrative area supports a parking area, laydown yard, two climate-controlled 8 ft x 40 ft Conex boxes for storing core borings and soil samples, support crew trailers, and portable concrete curbs that line the perimeter. Construction grades the area, places pit run gravel, installs the office trailer and auxiliary equipment (e.g., pole mounted security light, generators, equipment trailers, restroom trailers, comfort stations, and miscellaneous apparatus and gear) near the support trailer, and constructs a 6 ft high chain link fence with personnel barriers around the perimeter of the office trailer and parking area. A remote monitoring system to alert loss of electric power and temperature excursions in the core boring storage containers. A propane-powered backup generator and propane tank (or diesel-powered electric generator) supply electrical power, and a 50 ft mowed buffer may be required around the gravel pad to meet wildland fire requirements. **Figure 3** shows the proposed layout of the administrative area.

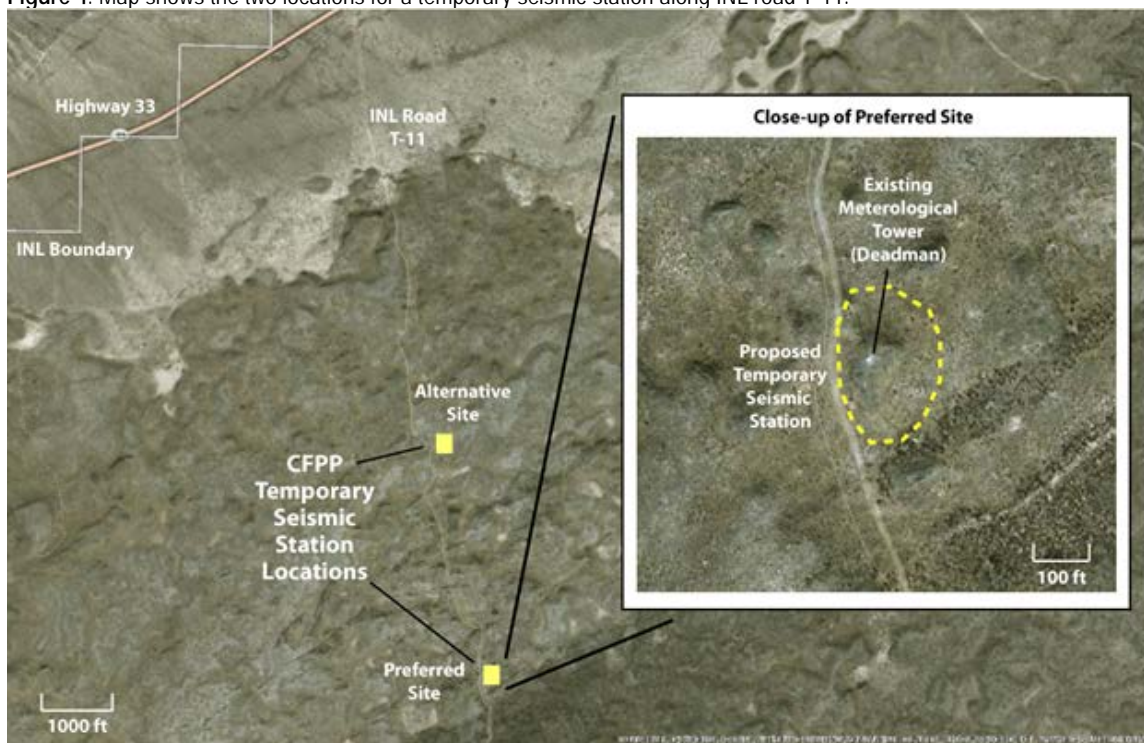
Figure 3. Proposed administrative area for proposed office trailer and support equipment.



Initial site characterization activities also install a temporary seismic station disturbing an area about 50 ft in diameter. Two locations for the temporary seismic station are being considered, with the preferred location near the met tower (Deadman) just off the T-11 road (see **Figure 4**). The alternative site is located further north just off T-11. Constructing the temporary seismic station includes:

- Hand excavating a 12-inch diameter, 2-ft deep hole to house a three-component seismometer
- Hand excavating a 12-inch diameter, 2-3 ft deep hole to hold a 10 ft long pole (3-inch diameter) for an antenna and solar panel
- A 2 ft x 3 ft metal box placed on the ground near the antenna pole to house batteries, datalogger, and 2.4G digital radio.

Figure 4. Map shows the two locations for a temporary seismic station along INL road T-11.



If the project area is selected for locating an SMR, then additional review under the National Environmental Policy Act (NEPA) is required. Detailed subsurface investigations requiring two deep seismic velocity boreholes would also be needed, which likely involves removing the temporary seismic station and installing a permanent seismic station near one of the seismic velocity boreholes. Converting temporary seismic stations to a permanent one usually requires disturbing an area about 50 ft in radius around the station to complete the following activities:

- Placing a 4 ft-diameter concrete circular pad housing a circular culvert enclosure (4 ft high) and steel lid with handle
- Hand-auguring a 12-inch diameter hole to a depth of 3 or 4 ft to place a steel rod in concrete
- Hand-excavating a 3 x 3 ft base for a 10 ft tower in 1 to 2 ft of concrete.

In general, a permanent seismic station consists of the following instrumentation:

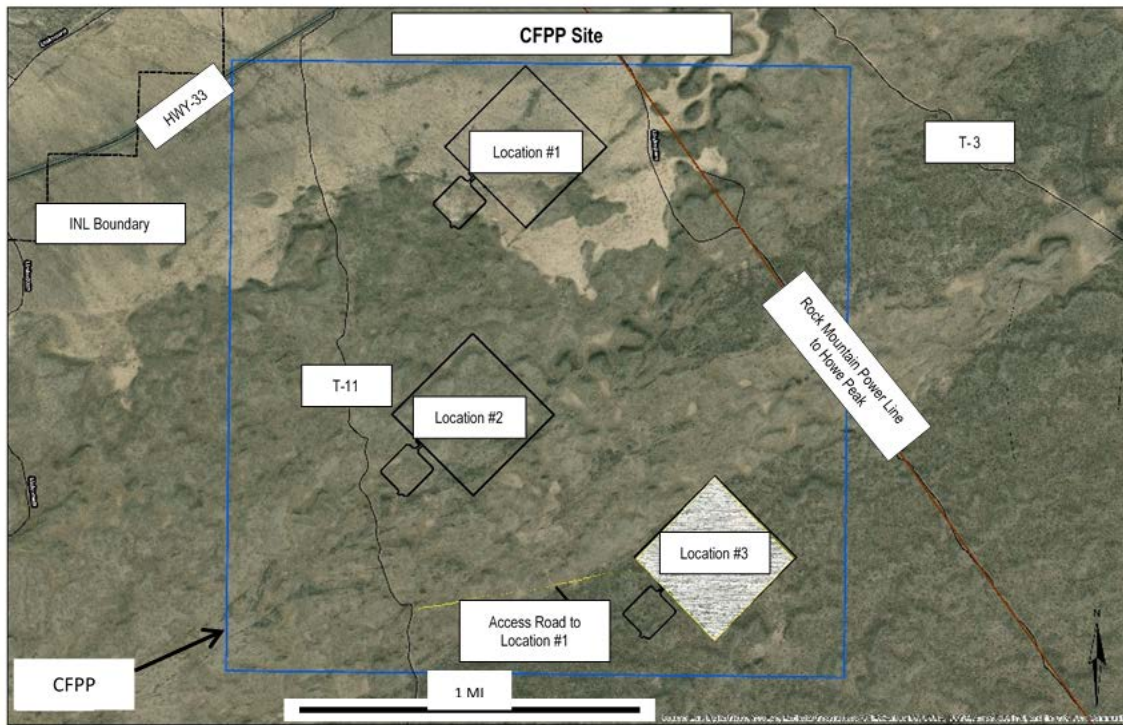
- A datalogger, three-component broadband seismometer, and three-component accelerometer housed in the culvert enclosure
- Two solar panels and one antenna attached to the tower
- Global Positioning System (GPS) antenna attached to the top of the steel rod
- Digital 2.4G radio and GPS receiver in a small enclosure on the tower
- A 2 x 3 ft steel box set on the soil surface adjacent to the tower to house two or more sealed 12-volt, 100 amp/hr. Gel Cell batteries.

Site characterization also includes drilling about 40 boreholes and 10 observation wells, including an aquifer pump test well cluster, which require removing vegetation for heavy equipment access to the boreholes and observation well locations. Borehole and observation well construction involves continuous core drilling, reaming after coring, setting well casings to various depths, collecting geophysical logs, and testing well productivity. Specific locations for the wells and boreholes are presently unknown. This environmental checklist (EC) will be revised to evaluate these locations when they are identified, as needed.

In support of borehole and well construction planned for the spring of 2020, mowing of affected areas is planned for the fall of 2019. Areas planned to be mowed include an approximate 70-acre reactor building area in the southeast corner of the Carbon Free Power Project (CFPP) Site where the core borings would need to be located, and an approximate ¾-mile track from the T-11 roadway to the 70-acre reactor building area for drill rigs and supporting vehicle traffic to traverse (See Figure 5).

Special Note: Before mowing activities can take place DOE needs to consult with the U.S. Fish & Wildlife Service (FWS) regarding the large-scale removal of sagebrush from the 'Sage Grouse Conservation Area' (SGCA), a requirement of DOE's Candidate Conservation Agreement (CCA) with the FWS. CFPP Location 3 falls within the SGCA (See Section E, Conditions, #s 11 & 14).

Figure 5. Proposed areas to be mowed in preparation of future core boring/drilling locations.



In addition, prior to borehole and well installation, during the fall of 2019, seismic testing it planned to be conducted at the CFPP Site, comprised of a magnetic survey and spectral analysis of surface waves (SASW) activities. Preparations for the planned seismic testing includes pouring two 7 feet x 10 feet pads, one adjacent to the T-11 road, and one along the T-3 road to give the truck mounted wave generator an impact point. The scope of work for seismic testing is described in Attachment 1 'Seismic Testing Summary Description'.

Original EC

The proposed action performs site characterization studies to determine capability and suitability for locating a small modular reactor (SMR) on about 2000 acres at the Idaho National Laboratory (INL) Site in Butte County, Idaho and to gather data for preparing a Combined License Application for an SMR. To complete site characterization, the project constructs roads to the site, procures and installs an office trailer, and erects a 60-meters high (about 197 ft) meteorological (met) tower. Figure 1 shows the project area in relation to the potential SMR location. The proposed action also maintains the T-11 road as necessary by dumping gravel fill material in holes and ruts then levelling and establishes a two-track road from T-11 to the potential SMR location (See Figure 1), about 1.1 miles from the T-11 road. This proposed SMR location is under review and no decision has been made to site such a facility. A decision to use the proposed location for purposes other than site characterization studies is subject to further NEPA review.

Figure 1. Project area in relation to potential SMR location.



The proposed action constructs a gravel road (about 25 ft wide by 250 ft long) from Highway 33 to the office trailer location using heavy equipment (graders, dump trucks, bulldozers, etc.) and a road adjacent to the proposed office trailer and met tower (about 25 ft wide and 400 ft long). Barricades will be placed at the old Highway 33 access to T-11 north of the new access road and at the point where the new road intersects with the portion of T-11 running from the old Highway 33 access. Road construction includes installing drainage features such as culverts if needed.

Project scope includes grading and levelling an administrative area about 130 ft by 250 ft for placing the 12 ft by 60 ft office trailer and parking area and an area about 200 ft in radius for the met tower. The met tower requires a metal base plate and instrumentation placed on a graded and levelled 20 ft radius area. Four screw-in anchors hold guy wires about 150 ft from the tower. The proposed action has the potential to disturb about 4.8 acres. Figure 2 depicts approximate locations for roads, the office trailer, and the met tower.

Figure 2. Approximate locations for roads, an office trailer, and met tower.

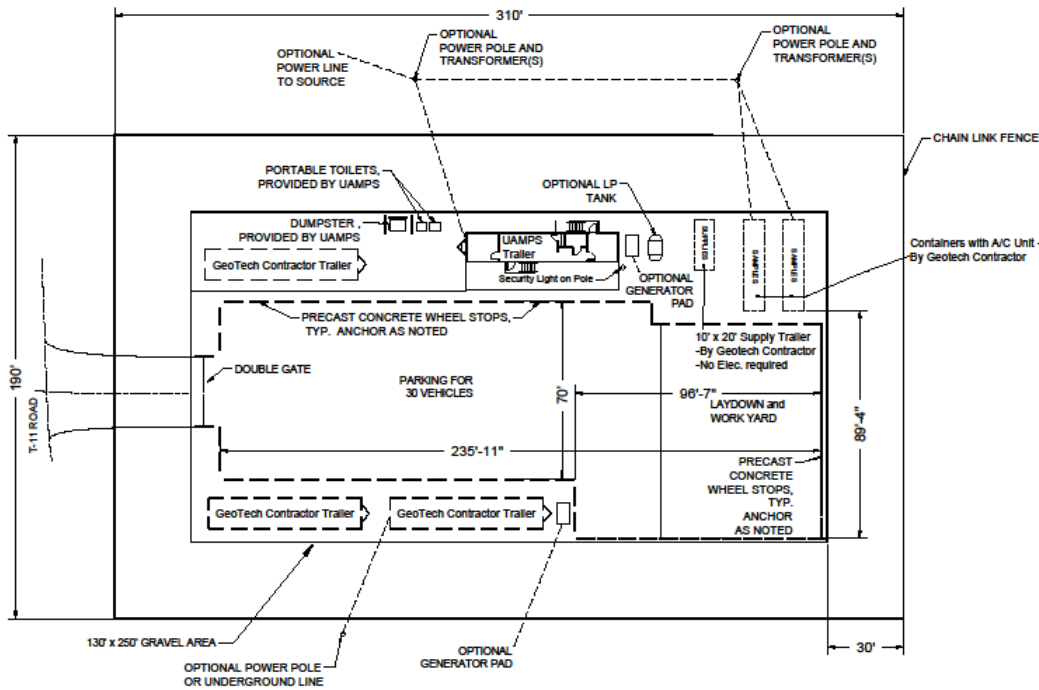


The administrative area supports a parking area, laydown yard, two climate-controlled 8 ft x 40 ft Conex-type boxes for storing core borings and soil samples, support crew trailers, and portable concrete curbs that line the perimeter. Construction grades the area, places pit run gravel, installs the office trailer and auxiliary equipment (e.g., pole mounted security light, generators, equipment trailers, restroom trailers, comfort stations, and miscellaneous apparatus and gear) near the support trailer, and constructs a 6 ft high chain link fence with personnel barriers around the perimeter of the office trailer and parking area. A remote monitoring system to alert loss of electric power and temperature excursions in the core boring storage containers. A propane-

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powered backup generator and propane tank supply backup power, and a 50 ft mowed buffer may be required around the gravel pad to meet wildland fire requirements. Figure 3 shows the proposed layout of the administrative area.

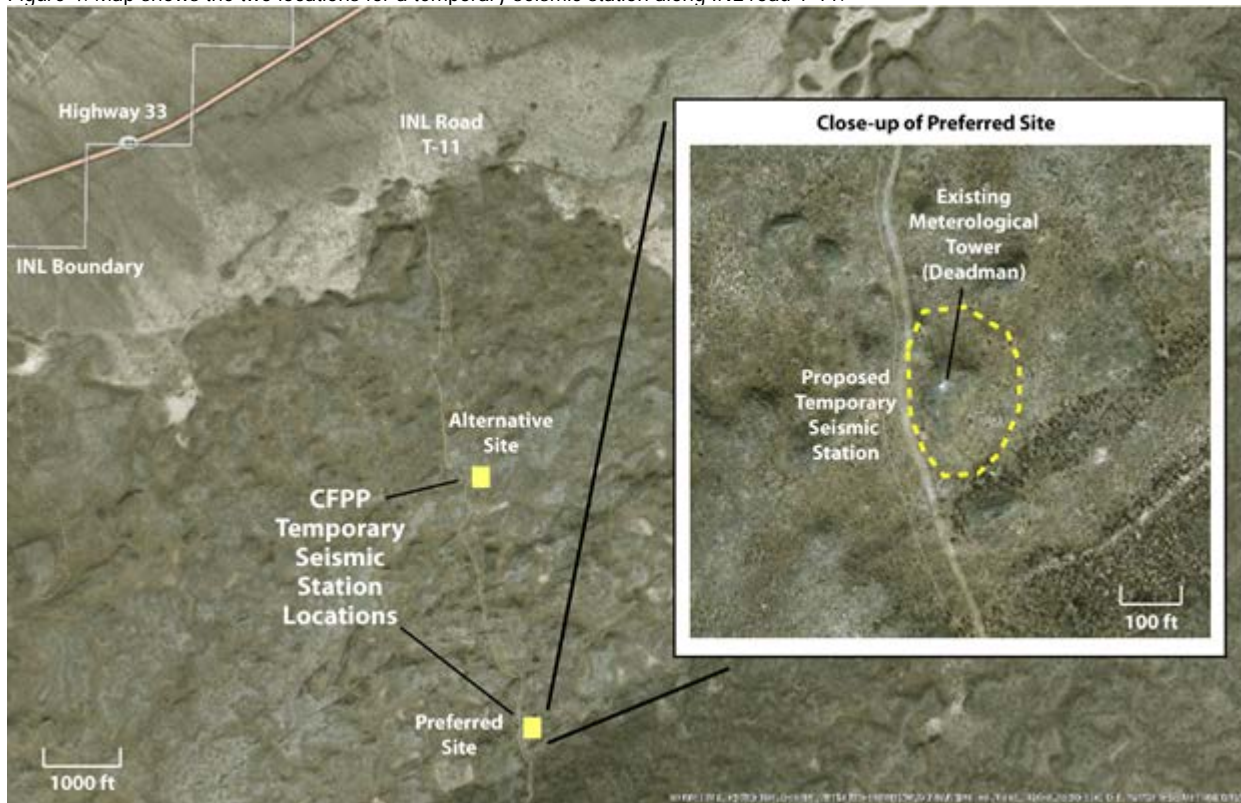
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Figure 4. Map shows the two locations for a temporary seismic station along INL road T-11.



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- Placing a 4 ft-diameter concrete circular pad housing a circular culvert enclosure (4 ft high) and steel lid with handle
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- Hand-excavating a 3 x 3 ft base for a 10 ft tower in 1 to 2 ft of concrete.

In general, a permanent seismic station consists of the following instrumentation:

- A datalogger, three-component broadband seismometer, and three-component accelerometer housed in the culvert enclosure
- Two solar panels and one antenna attached to the tower
- Global Positioning System (GPS) antenna attached to the top of the steel rod
- Digital 2.4G radio and GPS receiver in a small enclosure on the tower
- A 2 x 3 ft steel box set on the soil surface adjacent to the tower to house two or more sealed 12-volt, 100 amp/hr Gel Cell batteries.

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SECTION C. Environmental Aspects or Potential Sources of Impact:

Air Emissions

Project activities have the potential to generate fugitive dust.

Mobile engine/generator sets used during Phase I activities are exempted from permitting in APAD INL -01-83 R1, Mobile Sources - Nonroad Engines - Generic Coverage for engines less than 294 hp and APAD INL-02-20, Mobile Sources - Nonroad Engines - Generic Coverage for gasoline engines less than 52 hp.

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A truck mounted coring unit with an air compressor would be used to core the boreholes. Because drilling activities would be conducted several hundred feet below the surface, air pollutants from the boreholes are not anticipated. Emissions from the operations of mobile coring units and other heavy equipment are not regulated as stationary sources. No emission reporting is required.

Discharging to Surface-, Storm-, or Ground Water

Project activities discharge wastewater from well and borehole drilling operations to the ground.

Disturbing Cultural or Biological Resources

Soil disturbing activities have the potential to impact cultural resources.

Impacts to biological resources (e.g., vegetation, birds, nests, leks) have the potential to occur during project activities. The CFPP Site is within the SGCA and CFPP Location 3 contains 'good' condition sagebrush habitat.

Generating and Managing Waste

Project activities have the potential to generate industrial waste such as boxes, wiring, paper, insulation, and some metals (wire, conduit, etc.) and hazardous waste. Industrial waste would be properly managed and disposed.

Core drilling activities are expected to generate several hundred cubic feet of rock cuttings and drilling fluid, most of which would enter fractures in the boreholes. Drilling activities would also generate basalt and sediment core, which when no longer needed for project activities would be archived at the INL Core Storage Library for future studies.

Releasing Contaminants

Chemicals such as hydraulic oil may also be used. Because this project would use petroleum products and possibly other potentially hazardous industrial chemicals, there is the potential for release of small amounts of contaminants into the air, water, or soil. Although not anticipated, there is a potential for spills when using chemicals or fueling equipment. In the event of a spill, notify facility PEL. If the PEL cannot be contacted, report the release to the Spill Notification Team (208-241-6400). Clean up the spill and turn over spill cleanup materials to WGS, or otherwise manage and dispose of the waste in accordance with all applicable federal, state, and local laws, codes, and regulations.

Using, Reusing, and Conserving Natural Resources

Project personnel will use every opportunity to recycle, reuse, and recover materials and divert waste from the landfill when possible.

SECTION D. Determine Recommended Level of Environmental Review, Identify Reference(s), and State Justification: Identify the applicable categorical exclusion from 10 Code of Federal Regulation (CFR) 1021, Appendix B, give the appropriate justification, and the approval date.

For Categorical Exclusions (CXs), the proposed action must not: (1) threaten a violation of applicable statutory, regulatory, or permit requirements for environmental, safety, and health, or similar requirements of Department of Energy (DOE) or Executive Orders; (2) require siting and construction or major expansion of waste storage, disposal, recovery, or treatment or facilities; (3) disturb hazardous substances, pollutants, contaminants, or Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)-excluded petroleum and natural gas products that pre-exist in the environment such that there would be uncontrolled or unpermitted releases; (4) have the potential to cause significant impacts on environmentally sensitive resources (see 10 CFR 1021). In addition, no extraordinary circumstances related to the proposal exist that would affect the significance of the action. In addition, the action is not "connected" to other action actions (40 CFR 1508.25(a)(1)) and is not related to other actions with individually insignificant but cumulatively significant impacts (40 CFR 1608.27(b)(7)).

References: 10 CFR 1021, Appendix B, B1.24 "Property Transfers," B3.1 "Site characterization and environmental monitoring"

Justification: Activities proposed are consistent with 10 CFR 1021, Appendix B, B1.24, "Transfer, lease, disposition, or acquisition of interests in personal property (including, but not limited to, equipment and materials) or real property (including, but not limited to, permanent structures and land), provided that under reasonably foreseeable uses (1) there would be no potential for release of substances at a level, or in a form, that could pose a threat to public health or the environment and (2) the covered actions would not have the potential to cause a significant change in impacts from before the transfer, lease, disposition, or acquisition of interests."

B3.1, "Site characterization and environmental monitoring (including, but not limited to, siting, construction, modification, operation, and dismantlement and removal or otherwise proper closure (such as of a well) of characterization and monitoring devices, and siting, construction, and associated operation of a small-scale laboratory building or renovation of a room in an existing building for sample analysis). Such activities would be designed in conformance with applicable requirements and use best management practices to limit the potential effects of any resultant ground disturbance. Covered activities include, but

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are not limited to, site characterization and environmental monitoring under CERCLA and RCRA. (This class of actions excludes activities in aquatic environments. See B3.16 of this appendix for such activities.) Specific activities include, but are not limited to:

- a) Geological, geophysical (such as gravity, magnetic, electrical, seismic, radar, and temperature gradient), geochemical, and engineering surveys and mapping, and the establishment of survey marks. Seismic techniques would not include large-scale reflection or refraction testing;
- b) Installation and operation of field instruments (such as stream-gauging stations or flow-measuring devices, telemetry systems, geochemical monitoring tools, and geophysical exploration tools);
- c) Drilling of wells for sampling or monitoring of groundwater or the vadose (unsaturated) zone, well logging, and installation of water-level recording devices in wells;
- d) Aquifer and underground reservoir response testing;
- e) Installation and operation of ambient air monitoring equipment;
- f) Sampling and characterization of water, soil, rock, or contaminants (such as drilling using truck- or mobile-scale equipment, and modification, use, and plugging of boreholes);
- g) Sampling and characterization of water effluents, air emissions, or solid waste streams;
- h) Installation and operation of meteorological towers and associated activities (such as assessment of potential wind energy resources);
- i) Sampling of flora or fauna; and
- j) Archeological, historic, and cultural resource identification in compliance with 36 CFR part 800 and 43 CFR part 7.

Is the project funded by the American Recovery and Reinvestment Act of 2009 (Recovery Act) Yes No

Approved by Jason Sturm, DOE-ID NEPA Compliance Officer on: April 28, 2020