

**SECTION A. Project Title:** High Frequency Sounder - Permanent Installation at Water Reactor Research Test Facility (WRRTF)

**SECTION B. Project Description:**

The scope of this project is to construct and operate a 150-watt high frequency (HF) radio antenna (both transmit and receive) within the fenced area of the former Water Reactor Research Test Facility (WRRTF) to support various wireless test bed (WTB) activities and increase WTB capabilities by measuring the ionospheric characteristics of the region. The measurements are used to generate propagation maps of the ionosphere to graphically illustrate what HF frequencies are effective for communications. Construction is scheduled to take place in the August-September 2012 timeframe with operation beginning in October 2012.

The proposed work will deploy the transmit and receive radiofrequency (RF) equipment within the fenced area at the WRRTF facility (see Figures 1, 2, and 3); replace the existing WTB trailer outside of the fence area with a sturdy pre-fab equipment shelter (to be located on the existing asphalt parking lot); upgrade the electrical power supply to the new pre-fab shelter; and provide RF connectivity (transmission lines) between the RF equipment within the fenced area and the equipment shelter outside the fenced area.

The standard Receive antenna array is a 60 m equilateral triangle, so a rectangular area 210 ft x 230 ft would be a minimum. The standard 100 ft tall Transmit antenna installs in an area 140 ft square at a minimum. If possible, the central tower of the Transmit antenna should be at least 100 ft away from any of the Receive antennas. The elements of the Transmit antenna should be at least 50 ft away from any of the Receive antennas. Both Transmit and Receive antennas must be at least 15 ft (or more) away from metal, horizontal conductors (such as the horizontal rails of the surrounding chain link fence). The overall footprint will be approximately 500 ft X 300 ft.

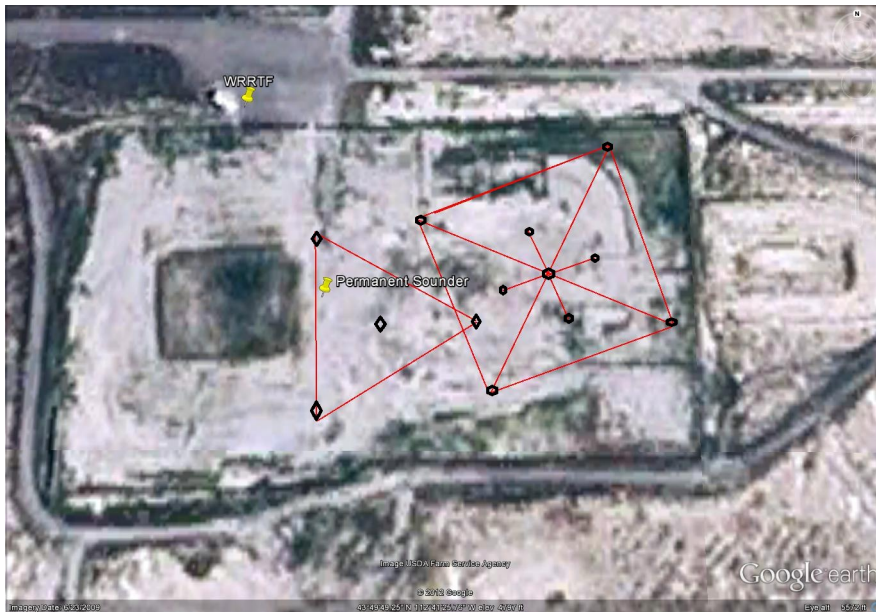


Figure 1. WRRTF Permanent Sounder Proposed Transmit and Receive Equipment Layout within the Fenced Area.

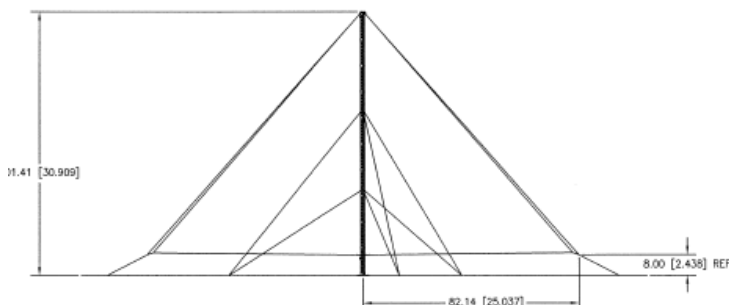


Figure 2. Permanent Sounder Transmit (TX) Tower with Antennas.

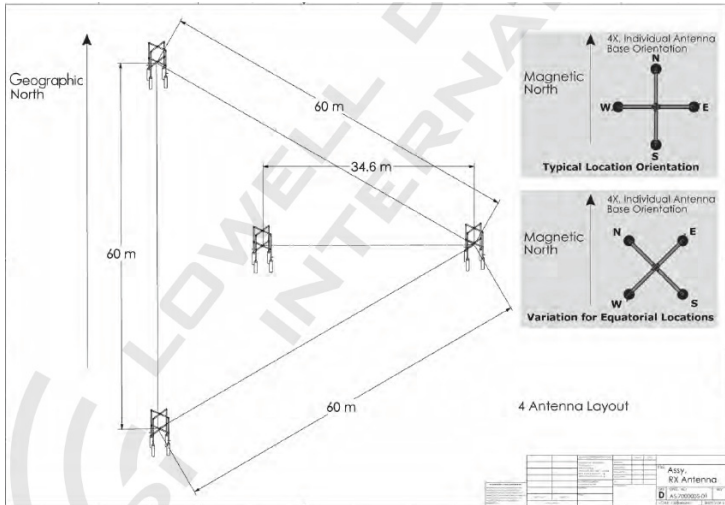


Figure 3. Permanent Sounder Receive (RX) Array Deployment

The 100-ft antenna will be assembled on the ground from 10-ft sections, then raised into place by a crane or gin-pole. The antenna and guy-wires will be set on/attached to concrete bases poured below grade. Power and signal cables to the transmit and receive antennas will be routed either above-grade or below grade.

A construction debris landfill is located within the WRRTF fence. This landfill remains subject to closure requirements, including on-going efforts at revegetation. All construction and operational activities will comply with the following conditions issued by Southeastern Idaho Public Health Department:

1. The cap covering the landfill must not be disturbed. Mowing of vegetation on the landfill cover is not allowed, and equipment may not operate or be stored on the cap nor can any of the towers touch or impact the cap in any way.
2. Stormwater runoff from the cap must not be impacted; water must run off and away from the cap.

In addition, personnel access inside the WRRTF fence will be required to verify closure and revegetation requirements.

All antenna wires and guy-lines will be clearly marked to warn birds. Appropriate predator devices will be installed on the 100 ft Transmit antenna to deter perching as practicable. The antenna will be operated in continuous mode (24/7/365) and used for research/development. It is expected to be in place for several years.

Access to WRRTF is allowed by an existing paved road which is in good condition. Operation of this Sounder does not require off-road driving. By constructing the HF Sounder within the fenced boundary at WRRTF, it will exclude interaction with medium-to-large animals. Work within the WRRTF fence poses no disturbance to known biological or cultural resources. There are no known sage grouse leks within approximately 10 km of WRRTF.

This project has been approved by the Sagebrush Steppe Reserve Committee and reviewed by the INL Land Use Committee. The WRRTF fenced area is under the control of CH2M-WG Idaho, LLC (CWI). A subsurface investigation within the WRRTF fence has been conducted; the results have been transmitted to project and construction personnel. All activities within the fence must be coordinated with CWI and CWI personnel must have unrestricted access inside the fence.

The construction activities for this project include the following:

1. Install building, tower and receiver concrete foundations/anchors.
2. Install new 100' tall steel tower and guy wire system.
3. Install (3) new approx 3' to 5' tall PVC/concrete receiver tower configurations near the main tower assembly.
4. Install new approx. 12' X 16' modular or metal building .
5. Modify the exiting WRRTF 250 amp power service to facilitate the new building load requirements.
6. Install new tower cabling between towers and support building.
7. Install new electronic tower equipment.

Estimated Construction Start Date: August, 2012

Estimated Construction Completion Date: September 30, 2012

Approximate Cost: \$500,000

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**SECTION C. Environmental Aspects / Potential Sources of Impact:**

**Air Emissions** - Although this system will run off of commercial power, there may be instances (power outages) where there is a need to be powered by a generator. Portable/temporary generators will be used during these instances. Visible emissions from the temporary generator must meet the 20% opacity requirement in the Idaho National Laboratory (INL) Tier I air permit. While performing construction activities, fugitive dust may be generated during excavation. All reasonable precautions (e.g., watering) will be used to control fugitive dust. The subcontractor will document any dust control methods that are used in their daily logbook and submit to Battelle Energy Alliance, LLC (BEA). These records will be used as compliance records for the INL Tier I air permit. Any refrigerant work will be performed by a certified refrigeration technician.

**Disturbing Cultural/Biological Resources** - The WRRTF area has been surveyed for cultural resources and poses no current sensitivities; however, work will halt temporarily and cultural resource personnel will be contacted in the unlikely event that cultural artifacts are discovered. Biological surveys will continue to be requested on a case basis. Placement of the tower base, guy wire anchors, and ground rods will all cause minor soil disturbances. This area is located over a closed landfill, within the fence, where a building was collapsed into its basement. The cap covering the landfill must not be disturbed. Equipment may not operate or be stored on the cap nor can any of the towers touch or impact the cap in any way. Stormwater runoff from the cap must not be impacted; water must run off and away from the cap. Efforts to revegetate the area must be not hampered.

**Generating and Managing Waste** - Industrial waste, in the form of construction waste and common office trash are expected. All solid waste will be managed by Waste Generator Services (WGS). Scrap metal will be recycled to the extent practicable.

**Releasing Contaminants** - Portable generators have air emissions and fuel tanks associated with them. Typical construction chemicals such as fuels, lubricants, paints, adhesives, etc., will be used during the construction activities. The subcontractor will be required to submit initial, quarterly and final chemical inventory lists with associated Material Safety Data Sheets (MSDS's). The Construction Chemical Coordinator will enter these chemicals into the INL Comply Plus Chemical Management System. Spills will be reported to the BEA point of contact. Scrap metal will be recycled to the extent practicable.

**SECTION DG. Recommended Level of Environmental Review (or Documentation) and Reference(s):** Identify the applicable specific categorical exclusion from 10 CFR 1021, Appendix B, give the appropriate justification, and the approval date.

Note: 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, including requirements of DOE orders; 2) require siting and construction or major expansion of waste storage, disposal, recovery, or treatment facilities; 3) disturb hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that pre-exist in the environment such that there would be uncontrolled or unpermitted releases; 4) adversely affect environmentally sensitive resources. In addition, no extraordinary circumstances related to the proposal exist which would affect the significance of the action, and the action is not "connected" nor "related" (40 CFR 1508.25(a)(1) and (2), respectively) to other actions with potentially or cumulatively significant impacts

References: 10 CFR 1021, Appendix B to Subpart D, item B1.19 categorical exclusion, "Microwave, meteorological, and radio towers."

Justification: The proposed action would allow construction of a 150-watt high frequency (HF) radio antenna and associated facilities and is consistent with 10 CFR 1021, Appendix B to Subpart D, item B1.19, "Siting, construction, modification, operation, and removal of microwave, radio communication, and meteorological towers and associated facilities, provided that the towers and associated facilities would not be in a governmentally designated scenic area unless otherwise authorized by the appropriate governmental entity."

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

Approved by Jack Depperschmidt, DOE-ID NEPA Compliance Officer on: 7/8/1125/201209