

# DOE-ID NEPA CX DETERMINATION Idaho National Laboratory

**SECTION A. Project Title:** United States Geological Survey (USGS) Geotechnical Drilling for USGS-145 and 146

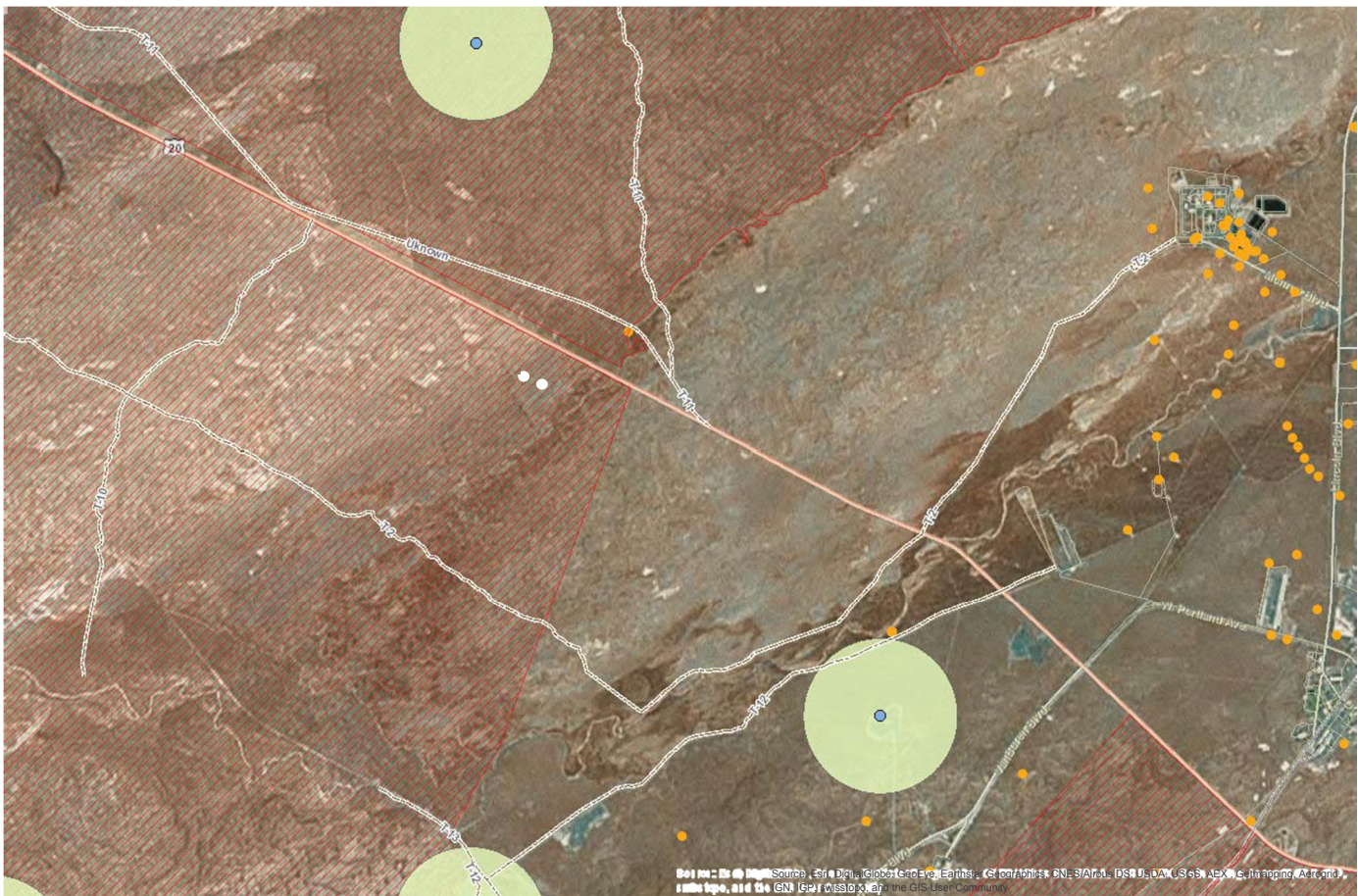
**SECTION B. Project Description and Purpose:**

The purpose of this revision is to clarify scope of the original environmental checklist and add drilling and construction of an additional borehole, USGS-146. Borehole USGS-146 would be drilled and constructed to a depth of about 725 ft. The well would be drilled as a water supply well to support coring at USGS-145, and would also be used to measure water level and water quality data. After drilling, USGS-146 would be cased down near the water table (near 600 ft.) and left as an open-hole monitor well (about 600 to 725 ft.) to allow collection of water level and water quality samples. Borehole USGS-146 is sited near approximately 200 ft. from USGS-145 (Figure 1).

The U.S. Geological Survey (USGS) needs geologic, stratigraphic, and hydraulic data for the purpose of characterizing groundwater flow and water quality in the eastern Snake River Plain aquifer. Monitoring wells are constructed to obtain the needed data, and the USGS has identified the need for an additional monitoring well. The proposed well is needed to provide coverage for information gaps related to regional geologic stratigraphy and groundwater flow by providing water quality and water level information near the west central section of the Idaho National Laboratory (INL).

The proposed action would continuously core geotechnical borehole USGS-145 to a depth of about 1,200 ft. below land surface. After coring, USGS-145 would be constructed as a water level monitor well completed to one or two depths depending on geology. Borehole USGS-145 is sited about 5 miles north of the Radioactive Waste Management Complex (RWMC) and about 7 miles northwest of Central Facilities Area (CFA) off of highway 20/26 (Figure 1), and will serve as a regional water level well.

Figure 1. Location of USGS 145 at the INL Site



These well locations are necessary because they are located away from other wells at the INL Site and would provide the information needed to address the information gaps previously described. The proposed boreholes would be located within the Sage Grouse Conservation Area (SGCA) identified in the *Candidate Conservation Agreement for Greater Sage-grouse (*Centrocercus urophasianus*) on the Idaho National Laboratory Site* (U.S. Department of Energy, Idaho Operations Office and U.S. Fish and Wildlife Service, Department of Energy-Idaho Operations Office [DOE/ID]-11514, September 2014), but within a recent fire scar with no established sagebrush. Boreholes USGS-145 and USGS-146 would make use of an existing two-track road to minimize impacts to cultural and historical resources. The proposed well locations are near the highway, and interaction with wildlife and habitat is expected to be minimal. Soil disturbance would result from transportation and staging activities that are adjacent to roadways and drill sites. The area disturbed for borehole

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coring and drilling is expected to be approximately 300 ft. x 300 ft. After drilling, disturbance at the site would be limited to an area needed to drive a truck and generator for sampling. Efforts would be made to minimize sagebrush disturbance.

USGS personnel would construct USGS-145 using a Christensen™ CS-1500 truck-mounted coring unit; however, construction of USGS-146 would be done using a Gefco™ SD-300 drill. Final monitoring well construction for USGS-146, setting casing, and well equipment would be performed using a Gefco™ SD-300 drill rig. Support equipment would include a Sullair air compressor, water truck, semi-truck with trailer, and utility truck. The USGS would archive all removable core material in the INL Core Storage Library (CFA-663) for further studies.

After drilling and (or) coring, boreholes (USGS-145 and USGS-146) would be re-drilled if needed to accommodate casing, casing seal, and materials necessary for final well construction. The completed well(s) would be added to the USGS Long-Term Monitoring Network. When no longer needed, USGS-145 and USGS-146 would be closed in compliance with all applicable requirements.

The USGS plans to begin project activities in the spring of 2017. Drilling and coring work is anticipated to take approximately 12 weeks and likely completed in the fall of 2017. Final construction including reaming, setting casing, annular seal, and measurement line is anticipated to take an additional 4 weeks. Estimated project costs are \$375,000. A well drilling permit for USGS-145 and USGS-146 will be submitted to the Idaho Department of Water Resources in compliance with all applicable requirements.

### **SECTION C. Environmental Aspects or Potential Sources of Impact:**

#### **Air Emissions**

USGS personnel would use a truck mounted coring unit with an air compressor to core the boreholes. Because drilling activities would be conducted several hundred feet below the surface, air pollutants from the boreholes are not anticipated. There would be exhaust from operation of the coring unit and other heavy equipment, but these emissions would be below reportable levels. There is a potential for fugitive dust.

#### **Discharging to Surface-, Storm-, or Ground Water**

Project activities would result in the discharge of wastewater from the drilling operations to the ground. Project personnel would work with Waste Generator Services (WGS) to determine the appropriate waste disposal pathways.

#### **Disturbing Cultural or Biological Resources**

Cultural resource surveys would be completed prior to drilling the wells and working within associated laydown areas to ensure potential cultural resources would not be impacted.

Although the chance for increased biological disturbance at the wellhead site is minimal, there is the potential for some impact to wildlife and habitat during the course of the proposed action. Sage grouse could be impacted by noise and soil disturbance.

#### **Generating and Managing Waste**

Core drilling activities would generate several hundred cubic feet of rock cuttings and drilling fluid, most of which would enter fractures in the coreholes. Drilling activities would also generate about 300 cubic feet of basalt and sediment core, all of which would be archived at the INL Core Storage Library for future studies. Project activities would also generate limited amounts of used personal protective equipment (PPE) and miscellaneous industrial waste. This waste would be disposed at the INL landfill through WGS. Project personnel would incorporate waste minimization measures by obtaining reusable laundered PPE where practical.

#### **Releasing Contaminants**

Diesel fuel for operation of drilling equipment would be stored in fuel tanks. Other 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.

To minimize the potential impact of contaminant release, project personnel would use non-hazardous chemical substitutes in place of hazardous chemicals as long as the non-hazardous substitutes meet the requirements and specifications needed. Project personnel would apply spill prevention and minimization measures during chemical use and storage and would reference Affirmative Procurement (Management Control Procedure [MCP]-592) as guidance to procure appropriate chemicals.

#### **Using, Reusing, and Conserving Natural Resources**

All applicable waste would be diverted from disposal in the landfill when possible. Project personnel would use every opportunity to recycle, reuse, and recover materials and divert waste from the landfill when possible.

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**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 to Subpart D, item B3.1 categorical exclusion, "Onsite and offsite site characterization and environmental monitoring."

**Justification:** The proposed USGS action will provide additional capability to monitor and characterize flow through the Snake River Plain Aquifer. Project activities described in this EC are consistent with 10 CFR 1021, Appendix B to Subpart D, item B3.1 categorical exclusion, "Site characterization and monitoring ... Specific activities include, but are not limited to: ... (c) Drilling of wells for sampling or monitoring of groundwater or the vadose (saturated) zone, well logging, and installation of water-level recording devices in wells ... (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)..."

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: 2/14/2017