DOE-ID NEPA CX DETERMINATION
Idaho National Laboratory

EC Document No.: DOE-ID-INL-11-005 R1

SECTION A. Descriptive Information: Abandonment of Corehole USGS 137 at the Idaho National Laboratory

SECTION B. Project Description:

The U.S. Geological Survey (USGS) initially proposed to drill a 2,000-foot deep geotechnical corehole (USGS 137) into the eastern Snake River Plain aquifer (Environmental Checklist – INL-11-037). Geotechnical borehole USGS 137 is located 3.0 miles south of RWMC at the Southeast Quarter of the Southwest Quarter, Section 31, Township 02 North, Range 29 East; USGS 137 was to be located approximately 50 ft northeast of USGS 109 and within the same well pad (figure 1). The purpose of this geotechnical borehole was to obtain geologic, stratigraphic, and hydraulic data to characterize flow in the Snake River Plain aquifer. Depth to water in the eastern Snake River Plain aquifer at this location is about 628 ft below land surface (bls); a multilevel monitoring system was to be installed into the boreholes once the core drilling was completed.

USGS started coring the hole in fall of 2011. While reaming it in the spring of 2012 to set the casing to the aquifer, the larger hole opened up a sand and gravel bed that sloughed in on the drill hammer and drill rods. While attempting to remove the rods, the hammer came off and lodged at the bottom of the reamed hole approximately 256 ft bls. Attempts were made to set casing at the base of the sedimentary interbed to stop sloughing before retrying to retrieve the hammer; however, the casing became stuck near 186 ft bls, and would not move. A video reveals USGS 137 is caved at 221 ft bls; the drill hammer still sits near 256 ft bls.

After obtaining biological and cultural resource clearances, USGS moved over a safe distance, re-drilled corehole (USGS 137A) on the existing pad, and continued work associated with drilling the borehole in compliance with the original environmental checklist.

This revision is to address environmental aspects and work activities associated with abandoning the original borehole. The USGS currently plans to abandon USGS 137 from 221ft bls to land surface using Portland Type II cement and bentonite casing seal. The USGS plans to leave a brass marker to identify the location of the abandoned well; additionally, a cement pad will be placed at land surface. Casing material will be cut flush with the cement pad at land surface. The casing inside the original borehole will remain in place. The top two feet of the casing will be removed after grouting to make it flush with the ground.

This project is expected to start March of 2013 and expected to take less than two days to complete; expected cost should not exceed $5,000.

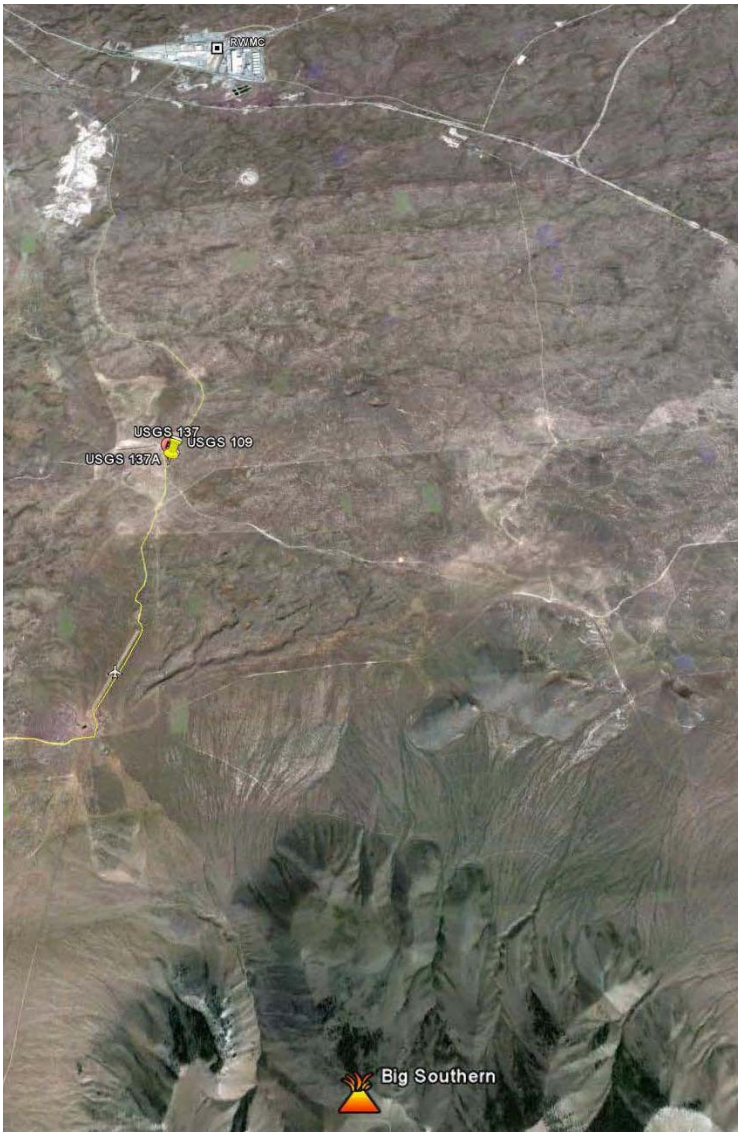

Figure 1. Location of USGS 137, USGS 137A, and USGS 109, south of the Radioactive Waste Management Complex, Idaho National Laboratory, Idaho.

SECTION C. Environmental Aspects or Potential Sources of Impact:

Air Emissions: There will be some exhaust from operation of heavy equipment but these emissions should be well below any reportable levels. If fugitive dust is expected during project activities, reasonable precautions will be taken to prevent particulate from becoming airborne. This is in accordance with the methods specified in the Rules for the Control of Air Pollution in Idaho (IDAPA 58.01.01.650-651). Steps taken to control fugitive dust at the INL Site (such as application of water or other suppressants) must be recorded in the project records. The date, time, location, and amount/type of suppressant must be recorded to demonstrate compliance with the INL Title V Air Permit.

USGS personnel bringing non-INL owned air emission sources onto the INL (e.g., internal combustion equipment) are responsible for determining if any permitting requirements apply to that equipment and, if necessary, obtaining the permit and maintaining an on-site file of the documentation. This requirement does not apply to mobile equipment (an engine that is connected to a drive train to propel a vehicle).

Disturbing Cultural/Biological Resources – This work will be performed in a previously disturbed area. Any soil disturbance would be the result of transportation and staging activities that are adjacent to roadways and the graveled drill sites. Interaction with wildlife/habitat is expected to be minimal.

Cultural Resources: Surveys will be completed near the well and associated laydown areas prior to drilling to verify that no resources have been previously impacted. Project activities will be organized to minimize impacts to any sensitive materials identified during these surveys. Contact Brenda Pace (525-0916) to arrange for cultural resource surveys and a review.

Biological Resources: Although the chance for increased disturbance at the wellhead sites and on existing roadways is minimal, there is the potential for some interaction with wildlife/habitat during the course of this project. Contact Jackie Hafla (525-9358) to report sage grouse sightings near the drilling areas. Jackie should also be contacted to arrange for nesting bird surveys or to respond to any questions or concerns on this subject.

Extensive soil disturbance may require revegetation. Soil removal and transportation activities must be reviewed by Jenifer Nordstrom (526-8119). Any travel through weed infestations would require monitoring for spread of weeds and contacting the CFA Weed Maintenance group for control measures.

Generating and Managing Waste – Project activities may generate limited amounts of used personal protective equipment (PPE) and miscellaneous industrial waste. This waste will be disposed of at the INL Landfill Complex through Waste Generator Services (WGS). Project personnel will incorporate waste minimization measures by obtaining reusable laundered personal protective equipment (PPE) where practical. Scrap casing will be recycled if practicable.

Releasing Contaminants – Diesel fuel for operation of equipment will be stored in fuel tanks. Other chemicals such as hydraulic oil may also be used. Because this project will use petroleum products and possibly other potentially hazardous industrial chemicals, there is the potential for small amounts of contaminant release into the air or soil. Project personnel will use non-hazardous chemical substitutes in the place of hazardous chemicals as long as the non-hazardous substitutes meet the requirements/specifications of the requester. Project personnel will apply spill prevention/minimization measures during chemical use and storage and will reference Affirmative Procurement (MCP-592) as guidance to procure appropriate chemicals. Project personnel will maintain an inventory of on-site chemicals purchased from off-site sources and records of any chemical releases. Chemical usage data is directly provided to DOE-ID for inclusion in annual EPCRA reports. Project personnel must protect the well and groundwater from sources of contamination during abandonment.

SECTION D. Determine the Recommended Level of Environmental Review (or Documentation) and Reference(s): Identify the applicable categorical exclusion from 10 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 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 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 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 B3.1 categorical exclusion, "Onsite and offsite site characterization and environmental monitoring

Justification: The proposed USGS action will provide additional protection to the Snake River Plain Aquifer by filling in an open hole in the upper part of the unsaturated zone at USGS 137. Project activites described in this EC are consistent with 10 CFR 1021, Appendix B to Subpart D, item B3.1 categorical exclusion, "Onsite and offsite 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."

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: 2/28/2013