

DOE-ID NEPA CX DETERMINATION

Idaho National Laboratory

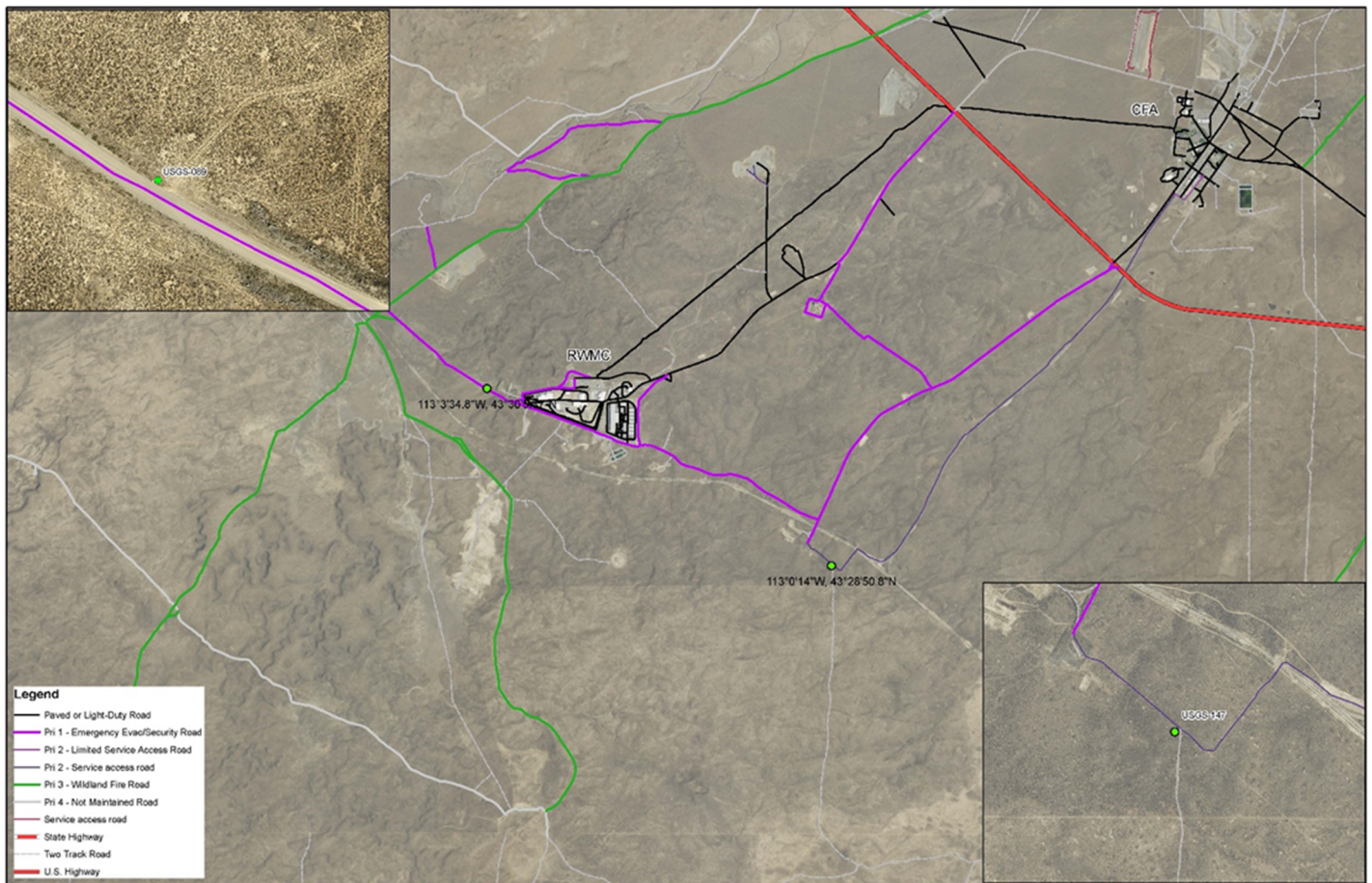
SECTION A. Project Title: United States Geological Survey (USGS) Geotechnical Drilling for USGS-147 and Modification of USGS-89

SECTION B. Project Description and Purpose:

The U.S. Geological Survey (USGS) needs geologic, stratigraphic, and hydraulic data to characterize groundwater flow and water quality in the eastern Snake River Plain aquifer. Monitoring wells are constructed to obtain the data, and the USGS has identified the need to deepen monitoring well (USGS-89) and to core and construct an additional monitoring well (USGS-147) near the Radioactive Waste Management Complex (RWMC). The USGS needs the proposed wells to provide coverage for information gaps related to regional geologic stratigraphy and groundwater flow by providing water quality and water level information downgradient from facilities along the southern end of the Idaho National Laboratory Site (INL), fig.1.

The proposed action includes coring borehole USGS-147, which involves continuous core drilling, reaming after coring, setting well casing to various depths, collecting geophysical logs, and performing an aquifer test to examine well productivity. The planned completion depth for well USGS-147 is 850 ft below land surface (bls), about 200 ft into the regional eastern Snake River Plain aquifer. Following construction, a dedicated five-horse power pump and measurement line will be fitted to USGS-147 to allow for aquifer testing, sample collection, and water level data collection. Proposed well USGS-147 is sited about 2 miles southeast of RWMC and about four miles southwest of Central Facilities Area (CFA) (Figure 1). The well coordinates are – latitude/longitude: 43°28'50.8"N/113°00'14.0"W (WGS84).

Figure 1. Location of Proposed Well USGS-147 and Existing Monitor Well USGS-89 at the INL Site.



Well USGS-89 is used for routine collection of water level and water quality data. Due to regional declines in water levels, well USGS-89 does not produce enough water to collect groundwater samples. The USGS removed the pump and measurement line from well USGS-89 (January, 2018) to examine the condition of the well. After discussion, it was determined the best path forward would be to PQ-size core (4.9-in.) drill well USGS-89 approximately 50 to 100 feet deeper; the current well depth for USGS-89 is 646 ft below land surface (bls). The proposed modification is to allow the USGS to reset a new pump and allow for collection of groundwater samples and water level monitoring. USGS will use the existing well pad to deepen the well. The USGS would use PQ-size coring system to enter well USGS-89 and drill out the bottom. Deepening the well is expected to take 1 to 2 weeks. After drilling, a new suite of geophysical logs would be collected along with conducting an aquifer test to document well productivity. Current well construction for USGS-89 is provided in Figure 2. The well coordinates are – latitude/longitude: 43°30'05.37"N/113°03'34.8"W (WGS84).

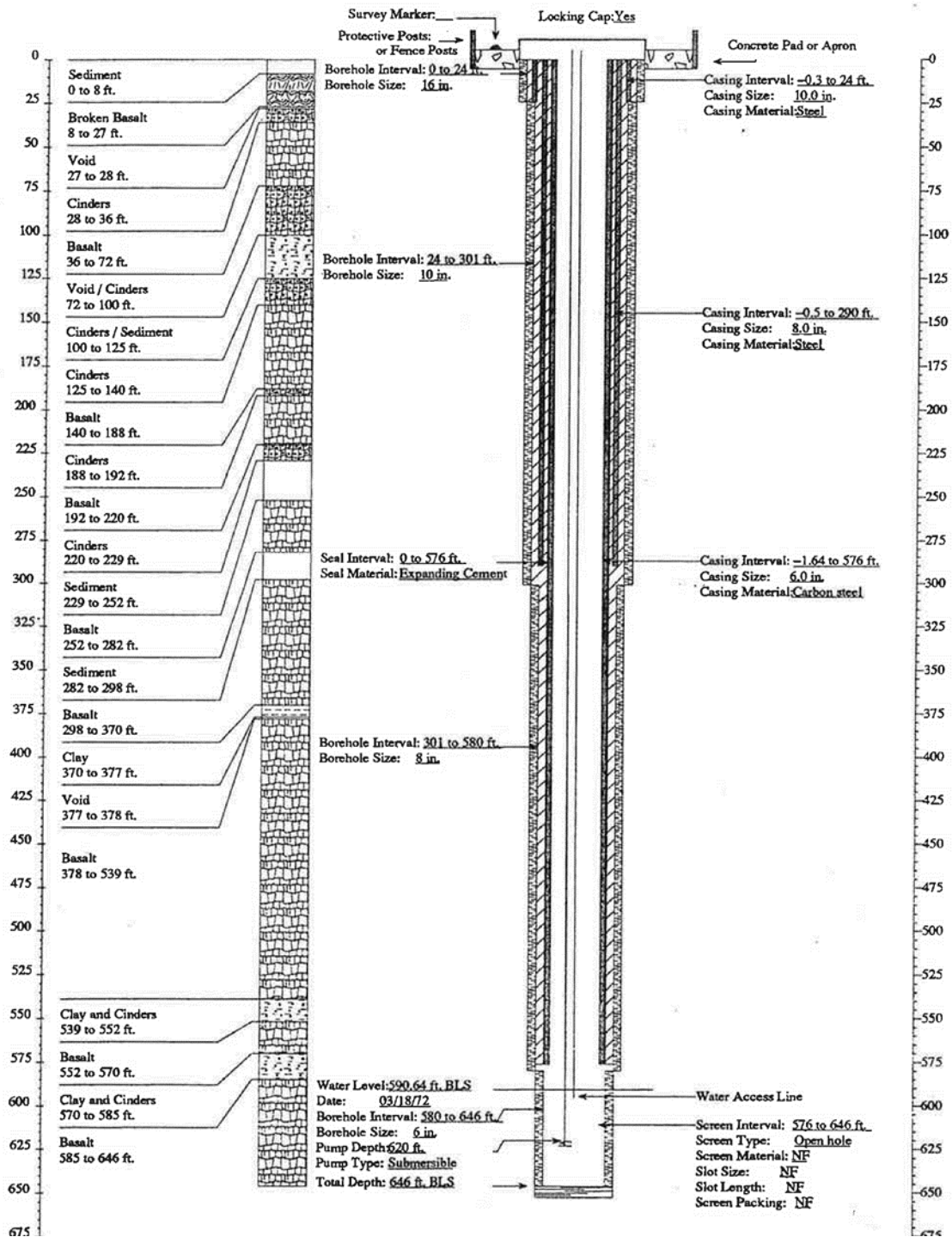
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Figure 2. Construction diagram of Well USGS-89 at the INL.

WellName: USGS-089
 Facility: RWMC
 Well Type: Observation Well
 Well Status: Active
 Year Drilled: 1972
 Total Depth: 646

Easting: 263277.48 Driller: Cashman
 Northing: 669975.84 Geologist: NF
 Longitude: 1130328.00 Drilling Method: Cable tool
 Latitude: 433005.00 Drilling Fluid: NF
 Completion Depth: 646 Land Surface: 5028.91

06/18/1993
 Water Level: 590.64
 Water Level Date: 03/18/72
 Water Level Access: Line



The proposed well location USGS-147 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). Well location USGS-89 is located near the RWMC and does not fall within the SGCA; furthermore, well site USGS-89 would make use of an existing well pad for drilling and construction activities. Well site(s) USGS-147 and USGS-89 would make use of existing roads to minimize impacts to cultural and historical resources. The proposed well locations are located adjacent to established roads, and minimal interaction with wildlife and habitat is expected. Soil disturbance would result

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from transportation and staging activities that are adjacent to roadways and drill sites. The area disturbed for borehole coring and drilling is approximately 250 ft. x 250 ft at each well location. After drilling, disturbance at the site would be limited to an area needed to drive a truck and generator for sampling. The project will minimize sagebrush disturbance.

USGS personnel would construct wells USGS-147 and deepen existing well USGS-89 using a Christensen™CS-1500 truck-mounted coring unit. A Gefco™SD- 300 drill rig will ream the final monitoring well and set the casing. Support equipment includes a Sullair air compressor, water truck, semi-truck with trailer, and utility truck. After drilling and (or) coring, USGS will re-drill USGS-147 to accommodate casing, casing seal, and materials necessary for final well construction. The USGS archives all removable core material in the INL Core Storage Library (CFA-663) for further studies.

The completed well(s) would be added to the USGS Long-Term Monitoring Network. When no longer needed, USGS-147 and (or) USGS-89 would be closed in compliance with all applicable requirements.

Project activities are planned for the summer of 2018. Drilling and coring work is anticipated to take approximately 12 weeks and likely completed in the fall of 2018. Final construction including reaming, setting casing, annular seal, and measurement line is anticipated to take an additional 4 weeks.

Estimated project costs are \$300,000. A well drilling permit for USGS-89 will be submitted to the Idaho Department of Water Resources in compliance with all applicable requirements; well drilling permit for USGS-147 has been submitted for the 2018 calendar year through Fluor (contact Mike Lewis or Renee Bowser).

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 discharge wastewater from the drilling operations to the ground.

Disturbing Cultural or Biological Resources

Project activities have the potential to impact cultural resources.

Although the chance for increased biological disturbance at the wellhead site is minimal, there is the potential to impact wildlife and habitat.

Sage grouse could be impacted by noise and soil disturbance.

Generating and Managing Waste

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 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. Personal protective equipment (PPE) and miscellaneous industrial waste would also be generated.

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.

Using, Reusing, and Conserving Natural Resources

All applicable waste would be diverted from disposal in 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 eastern 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: 2/20/2018