

Task 1.3.7. Environmental Information Synopsis

Environmental Setting

The Utah FORGE site is adjacent to an operating 306 MW wind farm and a planned 240 MW solar PV plant in a broad, mostly flat, 5000+/- ft. elevation high desert valley of grass and shrub lands, some of which is used for cattle range. This generally rural area is bisected by highways, a rail line, major and minor power and gas pipeline utility corridors, and scattered small communities. Milford, Utah, is 16 miles east of the project site. The Roosevelt Hot Springs PacifiCorp Blundell geothermal power plant and a 500,000 hog farm and biogas operation are south of Milford.

Access to the Utah FORGE project site is year-round via existing county-maintained roads. Annual precipitation is about 12 inches, highest total monthly snowfall is about 3.5 inches (in December) and annual snowfall about 16 inches, significantly less than the Utah average. There are no potable aquifers and no surface waters in the project area. Groundwater is of poor quality but suitable for use in, and already secured for, the stimulation projects. The valley is still open for additional water appropriation.

In 2007-2008 a lightning-caused wildfire removed most plant habitat and the area was reseeded with indigenous grasses. Although no threatened or endangered species have been identified, there are some cross-country restrictions during nesting season for migratory birds. Biological and archeological surveys are planned to be conducted as part of the site inventory in Phase 2A.

NETL and the National Environmental Policy Act (NEPA)

NEPA review of the project is facilitated by the existing environmental data found in the 2011 multistate solar PEIS that includes the Milford area and in a 2008 EA for the wind farm adjacent to the proposed project site. BLM manages a majority of the lands in the project area and NEPA review will also benefit from the numerous BLM resource inventory and planning documents. See, at the minimum:

USDO I BLM Environmental Assessment UT-040-82973: Milford Wind Corridor Project, October 15, 2008. See:

http://www.blm.gov/style/medialib/blm/wo/MINERALS_REALTY_AND_RESOURCE_PROTECTION/energy/renewable_references.Par.95803.File.dat/Milford%20Wind%20Corridor%20Project%20EA%2010-14-08.pdf

EIS-0403: Draft (2011) and Final (2012) Programmatic Environmental Impact Statement Solar Energy Development in Six Southwestern States (AZ, CA, CO, NV, NM, and UT). See: energy.gov/nepa/downloads/eis-0403-final-programmatic-environmental-impact-statement

BLM 2013 Cedar City Field Office Resource Management Plan Analysis of the Management Situation. See: https://eplanning.blm.gov/epl-front-office/projects/lup/7100/56975/61666/CCFO_AMS_.pdf

Cedar City Field Office Resource Management Plan/Environmental Impact Statement: Analysis of the Management Situation, Appendix K Renewable Resources Report. See: https://eplanning.blm.gov/epl-front-office/projects/lup/7100/42769/45569/Appendix_K.__Renewable_Resources_Report.pdf

The Utah FORGE Team recommends a national 3rd party environmental services firm familiar with the area and issues -- SWCA, with offices in Salt Lake City (or another firm acceptable to NETL) be contracted to assist in preparing the Environmental Inventory and the Environmental Assessment (EA).

The Utah FORGE team will provide a detailed project description and surface facilities layout, participate in scoping, provide project, geophysical and geochemical data, subcontract biological and cultural/archeological field surveys using professionals acceptable to NETL and coordinate with NEPA staff of US DOE NETL, US Bureau of Land Management, University of Utah EGI, and other cognizant Utah State agencies. The Utah FORGE Team will also respond to all information requests by the environmental firm, agencies and DOE and make team professionals available on subjects within their area of expertise. It is anticipated that lead and cooperating agency(ies) will be determined among the agencies or by NETL. NETL will provide NEPA contract oversight and review. The NEPA review will assist U.S. DOE in go/no-go decisions and the U.S. Bureau of Land Management (BLM) and Utah State Agencies in evaluating whether and with what stipulations/conditions to grant permits to the Utah FORGE Project to develop the proposed project facilities, in compliance with NEPA.

Best Management Practices and Standard Operating Procedures

Production and injection well drilling and operating best management practices (BMPs), standard operating procedures (SOPs) and waste management practices will be identified early in the Phase 2 planning, permitting and NEPA processes and implemented throughout. The Utah FORGE project will employ use of “Baker tanks” to handle drilling muds and produced fluids. Examples of reference sources for best management practices include but are not limited to mitigation measures cited in various geothermal EAs and the following resource documents and their cited references:

BLM’s Gold Book. See:

http://www.blm.gov/style/medialib/blm/wo/MINERALS_REALTY_AND_RESOURCE_PROTECTION_energy/oil_and_gas.Par.18714.File.dat/OILgas.pdf

BLM Winnemucca District Appendix B. Best Management Practices and Standard Operating Procedures. See

http://www.blm.gov/style/medialib/blm/nv/field_offices/winnemucca_field_office/rmp/0.Par.48614.File.dat/Volume5Part2ApxB.pdf

Handbook of Best Practices for Geothermal Drilling: John Finger and Doug Blankenship, Prepared for the International Energy Agency, Geothermal Implementing Agreement, Annex VII by Sandia National Laboratories. December 2010. See: *<http://www1.eere.energy.gov/geothermal/pdfs/drillinghandbook.pdf>*

Permits

The Utah FORGE Project team is fully versed in and will comply with all county, state and federal standards and permitting requirements, including collection of environmental baseline data, environmental review, stipulations/conditions of permits, mitigation processes, and reclamation activities following FORGE activities . The proposed Utah FORGE project has received enthusiastic support from landowners, the local community, the county and state officials. The status of preliminary discussions, applications and negotiations with agency and

landowner staff are shown in Table 1. The cost of the environmental permitting is estimated to be \$225,000. This includes the cost of environmental consultants, required surveys and efforts from the Utah FORGE team including data gathering, presentations, and travel. Monitoring, ongoing reporting and insurance/well bonds represent additional costs. We anticipate most of the permitting can be initiated in Phase 2A, although completion of NEPA may require most of Phase 2B (Table 2).

Table 1. Preliminary list of permits and access rights.

AGENCY/ENTITY	PERMIT/RIGHT	APPLIED FOR	ISSUED	REQUIRES NEPA
Utah State Lands	Use of Land/Subsurface			Yes
Murphy-Brown	Use of Land/Subsurface			Yes
BLM Cedar City	Temporary Water Pipeline	Yes		Yes
BLM Cedar City	Geophysical/Geological Surveys	Yes		No
BLM Cedar City	Vibroseis	Yes		Yes
BLM Cedar City	Rocky Mtn Power Line Extension Right of Way	No		Yes
BLM Cedar City	Right of Way, Fiber optics along road	No		Yes
Murphy-Brown	200 Acre Ft. Water Right	Yes	Yes	No
Utah Nat. Res. DWR	300 Acre Ft. Water Right	Yes		No
Utah Natural Res.	Geothermal Well Permits	No		Yes
Utah DEQ – Div. Water Qual (DWQ)	UIC – Underground Injection Control	No		EA will address
Utah DEQ – Div. Water Qual (DWQ)	Stormwater UPDES General Permit	No		EA will address
Utah DEQ – Div. Water Qual (DWQ)	Fuel/Other Flammable or Hazardous Material	Guidance offered		EA will address
Utah DEQ – Div. Water Qual (DWQ)	Groundwater Discharge Permit (to be determined)	No		EA will address
Beaver County Planning	Conditional Use Permit	No		EA will address
SW Utah Public Health Dept.	Sanitary Waste - Office Septic System	No		EA will address
Utah Dept. Heritage and Arts – SHPO	Historic/Cultural/Archeol. APE Map for Approval	No		EA will address
Rocky Mtn Power	Power Line Authorization	No		

Table 2. Permitting and EA schedule in months.

Finalize All 2A Tasks	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Arch/Biol.Surveys & Rpt																	
Permits w/ DNA or Casual Use																	
Environ. Assessment																	
Permits w/ EA																	

Phase 2A = blue; Phase 2B = green.

BLM - U.S. Bureau of Land Management

Rights of Way, Permits and NEPA: Although the project site is on private lands, rights-of-way, Notices of Intent and other permits are required from the BLM authorizing use of the surface across BLM land for access to the site and siting of geophysical surveys, extension of a power line to the project, for the temporary surface pipeline from water wells to the project site, installation of a fiber optic line along existing roads and any other operations requiring temporary or permanent access across or use of BLM lands. Preliminary review of proposed operations by the BLM field office staff in Cedar City have identified no barriers to approval of project activities using BLM land (see BLM letter and attachments of April 19, 2016, Appendix 1.3.7).

DWO - Utah Department of Environmental Quality – Division of Water Quality

The Utah FORGE Project is in communication with the Utah Division of Water Quality regarding permitting of the following programs/activities.

- Underground Injection Control (UIC) Program
- Construction Stormwater Program
- Storage of Process Water in a Pond or Basin
- Discharge of Sanitary Waste
- Above Ground Storage of Diesel or Petroleum Products

UIC Permit: The Utah Division of Water Quality has granted the Utah Forge Project authorization-by rule status under the UIC Program provided we work with the UIC Program to develop conditions to share plans and data with the UIC Program (see October 2014 letter from Candace Cady in Appendix 1.3.7). The Utah Forge Project will provide all data necessary for the Utah Division of Water Quality to develop this list of conditions to be attached to the authorization by rule letter during phase 2 of the FORGE project.

Stormwater UPDES General Permit: Construction of the Utah FORGE Project facilities will disturb more than one acre of land surface and will require a Utah Pollutant Discharge Elimination System (UPDES) General Permit for Construction authorized through the Construction Stormwater Program. We will apply for a UPDES General Permit when facility plans are finalized during phase 2 of the FORGE project.

Surface Discharge: Preliminary plans are to use Baker Tanks for storage of process water. If the Utah FORGE Project requires storage of process water in ponds or basins, a groundwater discharge permit will need to be obtained from the Utah Division of Water Quality. The Utah FORGE Project will likely involve the storage of process water, but the locations, type of storage, and quantities of discharge are not yet known. If needed, we will apply for the groundwater discharge permit when storage and discharge information is available during phase 2 of the FORGE project.

Sanitary Waste – Septic System: The Utah Division of Water Quality requires that prior to discharge of sanitary waste, a septic tank system permit be obtained. Such a permit will be applied for through the Southwest Utah Public Health Department as soon as the Utah FORGE Project has been sited and designed, and the proposed location of the septic tank system and leachline drainfield is known. This will occur during phase 2 of the FORGE project.

Fuel and Other Flammable or Hazardous Material: The Utah Division of Water Quality would like to provide guidance regarding proper storage and containment of above ground diesel and petroleum products to minimize possible spill or loss of products. The Utah FORGE Project will communicate with the Utah Division of Water Quality as soon as the sites of any diesel or petroleum storage facilities associated with our project are known, prior to bringing such storage facilities to the site. Common mitigation measures can include, but not be limited to creating a berm a few inches high, or a trench of a few inches deep around fuel tanks and ensuring availability of onsite fire extinguishers, fire water tanks, and firefighting and safety equipment and including direction for handling of hazardous materials in a site safety plan.

Utah Department of Natural Resources – Division of Water Rights

Application to Appropriate Geothermal Water: The Utah Division of Water Rights (DWRi) administers the appropriation and distribution of the State's valuable water resources. The Utah Geological Survey on behalf of the Utah FORGE Project has already applied for and been granted water rights for 50 acre-feet per year of groundwater from seven points of diversion in the Black Rock District of Escalante Valley for geothermal purposes (see Order of the State Engineer for Fixed-Time Application Number 71-5373 in Appendix 1.3.7). Should the points of diversion change once well sites are more precisely located during phase 2 of the FORGE project, the Utah Geological Survey may need to file a change application.

Application to Drill Geothermal Wells: The DWRi regulates the drilling of geothermal wells in Utah under Utah Administrative Code Rule R655-1. During phase 2 of the FORGE project, before drilling any exploratory or production wells, the Utah FORGE Project is required to submit a plan of operations to the State Engineer for his approval. This plan shall include the following.

- Location, elevation and layout.
- Lease identification and Well Number.
- Tools and equipment description including maximum capacity and depth rating.
- Expected depth and geology.
- Drilling, mud, cementing and casing program.
- Blowout Prevention Equipment (BOPE) installation and test.
- Logging, coring and testing program.

- Methods for disposal of waste materials.
- Environmental considerations.
- Emergency procedures.
- Other information as the State Engineer may require.

Southwest Utah Public Health Department

Utah regulations require that all wastewater be disposed to an approved sewer or onsite wastewater (septic) system. Southwest Utah Public Health Department environmental health professionals will assist the Utah FORGE Project in applying for a septic system permit, answering questions or concerns throughout the construction process, and maintaining the project's system in proper working condition (<http://swuhealth.org/utah-septic-systems/>).

The Utah FORGE Project must perform soil and percolation tests before designing a septic system and completing a Septic System Application to the Southwest Utah Public Health Department. Utah regulations require that certified individuals or engineers perform soil testing and design septic systems. The Utah FORGE Project will do this work during Phase 2C of the FORGE project, when an office building will be constructed.

Utah Department of Heritage and Arts – State Historic Preservation Office

In addition to the federal cultural and archeological regulations, Utah law requires state agencies and developers using state funds to take into account how their expenditures or undertakings will affect historical and archaeological properties. Written evaluation of the project and an opportunity to comment must be provided to the State Historic Preservation Officer (SHPO). Although there are no historical sites in the area surrounding the Utah FORGE Project site, there are archaeological sites (see September 2014 letter from Lori Hunsaker in Appendix 1.3.7). However, the BLM field office in Cedar City has indicated that there are no known cultural sites where the Utah FORGE Project has proposed activities. A cultural/archeological field survey and report by qualified professionals will be obtained in communication with SHPO during Phase 2, preceded by submission to SHPO of an Area of Potential Effect (APE) map.

Beaver County

Conditional Use Permit: The Utah FORGE Project will be required to obtain a Conditional Use Permit (CUP) from Beaver County for the drilling portion of the project during phase 2 of the FORGE project (see October 2015 emails from Scott Albrecht in Appendix 1.3.7). The entire scope of work will likely be permitted through one CUP, and the process will likely be completed in 6 weeks. As a condition of the CUP, a road maintenance agreement (RMA) between Beaver County and the Utah FORGE Project will need to be adopted. This agreement will state that Beaver County will perform regular maintenance and that the Utah FORGE Project will be responsible for any damages caused as a direct result of a negligent act by the project.

Building Permit: Beaver County will require the Utah FORGE Project to obtain a building permit for temporary offices. If the Utah FORGE Project offices are going to be in place for more than 1 year, Beaver County requires they have a permanent foundation.

Encroachment Permit/Easement Water Line: The Utah FORGE Project may run a temporary water line parallel to Salt Cove Road. Most of the roads in Beaver County do not have a written deed or right-of-way and instead these roads have prescriptive easements. Historically Beaver County has only claimed the disturbed area as the county's prescriptive easement. This easement would include some shoulder area for maintenance purposes. Beaver County is willing to work with the Utah FORGE Project to place a water line on the shoulder or in the Salt Cove Road (see October 2015 email exchanges from Scott Albrecht in Appendix 1.3.7).

Rocky Mountain Power

The Utah FORGE project will work with Rocky Mountain Power, BLM and Beaver County to determine the requirements for extending a power line to the project area. An initial cost estimate including a visit with a Rocky Mountain Power estimator (Kent Sorenson, Cedar City office) during April 2016 suggested a cost of about \$600,000. The per mile cost for above-ground transmission (480 V, 200 amps) is about \$84,000 per mile, with underground transmission being double this cost. The proposed line of 6.5 miles will cross the UPR rail line and a 345 kV transmission line. Rocky Mountain Power has a "blue-sky" program that allows the user to pay 1.9c/kWh extra to ensure renewable power generation in the consumed power. Compliance with the requirements of the above listed regulatory agencies will ensure that the Utah FORGE Project uses the appropriate environmental best practices. Additionally, the Utah FORGE Project has developed a Hazardous Waste Contingency Plan (see chapter 1.3.2. Environmental, Safety and Health Plan) that will ensure best waste management practices. Once locations of well and building sites are finalized during phase 2 of the FORGE project, reclamation plans will be developed to restore all disturbances caused by the Utah FORGE Project to natural conditions.

APPENDIX 1.3.7



State of Utah

GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

Department of
Environmental Quality

Amanda Smith
Executive Director

DIVISION OF WATER QUALITY
Walter L. Baker, P.E.
Director

OCT 10 2014

Rick Allis
Utah Geological Survey
1594 West North Temple
P.O. Box 146100
Salt Lake City, UT 84114-6100

Dear Rick:

Subject: Coordination between Utah Division of Water Quality (DWQ) and Utah Geological Survey (UGS) on the Frontier Observatory for Research in Geothermal Energy (FORGE) Project

On Wednesday September 17, the UGS held a meeting with the Divisions of Water Rights and Water Quality to introduce a proposal for the subject project which will be funded by the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy under the FORGE financial opportunity to develop enhanced geothermal systems (EGS). It is our understanding that the principal investigator for the proposed project would be, if awarded, the Energy and Geoscience Institute (EGI) at the University of Utah and that the UGS would be responsible for, among other things, obtaining all environmental permits required to support the construction and operation of the FORGE facility.

To assist the UGS in identifying areas requiring environmental regulatory involvement, DWQ has prepared the following list, as you requested, of DWQ programs that either will be or may be involved at some stage during the construction and operation of the FORGE facility.

- 1. Underground Injection Control (UIC) Program** – Due to the nature of the FORGE facility as a research observatory it will be difficult to prepare a UIC Class V permit for the facility as the nature of all the activities involving injection wells is not known at this point. Therefore DWQ has decided to grant authorization-by-rule status to the injection wells provided EGI and UGS agree to work with the UIC Program in developing a set of conditions by which EGI and UGS share plans and data with which the UIC Program can assess potential impact on human health and the environment. These conditions may take the form of an informal list attached to the authorization by rule letter or as a more formal Memorandum of Agreement between EGI, UGS, and DWQ. Contact Candace Cady at 801.536.4352 or ccady@utah.gov for additional information.
- 2. Construction Stormwater Program** – If construction of the FORGE facility would result in surface disturbance of one acre or more, the construction must be authorized under the UPDES

Rick Allis
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General Permit for Construction. For details and requirements of the General Permit, go to the following web page:

<http://www.waterquality.utah.gov/UPDES/stormwatercon.htm>

If you have questions about the UPDES General Permit for Construction, contact Harry Campbell at 801.536.4391 or hcampbell@utah.gov

3. **Additional DWQ Environmental Permit Considerations** - If construction of the FORGE facility results in any of the following activities or site facilities the following permits or guidance may be necessary:

a) Storage of process water in a pond or basin may require a groundwater discharge permit and/or a construction permit. Contact Dan Hall at 801.536.4356 or dhall@utah.gov for additional information.

b) Discharge of sanitary waste from the FORGE facility will require:

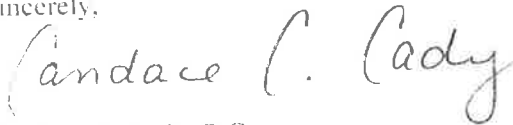
1. an onsite septic system permit from the Utah Southwest Health Department (contact Robert Beers at 435.986.2582 or rbeers@swuhealth) or.
2. construction and operating permits from DWQ for a Large Underground Waste Disposal System (contact John Mackey at 801.536.4347 or jkmackey@utah.gov) and inventory under the UIC Program (contact Candace Cady at 801.536.4352 or ccady@utah.gov) or.
3. a UPDES discharge permit (contact Jeff Studenka at 801.536.4395 or jstudenka@utah.gov).

Applicability of these options depends on the volume of discharge and the ultimate discharge point – subsurface or surface.

c) Storage of any diesel or petroleum products in above ground storage facilities are not regulated; however should any of these be necessary the Division would like to provide guidance on their proper installation and containment to minimize or prevent any possible spill or loss of products. Contact Dan Hall at 801.536.4356 or dhall@utah.gov for additional information.

If you have any questions, please contact Candace Cady at 801.536.4352 or ccady@utah.gov.

Sincerely,



Candace C. Cady, P.G.
Environmental Scientist
Underground Injection Control (UIC) Program

CCC:mf

Cc: Mr. Paul Wright, Utah DEQ Southwest District Engineer (via email)
Mr. Robert Beers, Southwest Utah Public Health Department (via email)



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Lieutenant Governor

Julie Fisher
*Executive Director
Department of
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Brad Westwood
Director

September 25, 2014

Richard Allis
Director/State Geologist
Department of Natural Resources
Utah Geological Survey
P.O. Box 146100
Salt Lake City, Utah 84114-6100

RE: Geothermal Field Test North of Milford, SHPO Case No. 14-1275

Dear Mr. Allis:

The Utah State Historic Preservation Office received your request for our comments on the above-referenced case on September 11, 2014. As we discussed on the telephone, our office cannot provide the Utah Geological Survey with specific literature review data; however, our office does not have specific concerns about this areas indicated in your correspondence. However, there are likely to be sites in these areas.

Please note that this comment does not denote formal concurrence in accordance Utah Code 9-8-404 or Section 106 of the National Historic Preservation Act, as codified in 36CFR800. It is our understanding that formal consultation consistent with these statutes will occur prior to any undertaking. If you have questions, please do not hesitate to contact me 801-245-7241 or at lhunsaker@utah.gov.

Sincerely


Lori Hunsaker
Deputy State Historic Preservation Officer



GARY R. HERBERT
Governor
SPENCER J. COX
Lieutenant Governor

State of Utah
DEPARTMENT OF NATURAL RESOURCES
Division of Water Rights

MICHAEL R. STYLER KENT L. JONES
Executive Director *State Engineer/Division Director*

Control Number 0890-1503

Appendix D

ORDER OF THE STATE ENGINEER
For Fixed-Time Application Number 71-5373 (F80102)

Fixed-Time Application Number 71-5373 (F80102) in the name of Utah Geological Survey was filed on August 15, 2014, to appropriate 50.00 acre-feet (af) of water from points located: (1) Well - South 396 feet and East 270 feet from the NW Corner of Section 31, T26S, R9W, SLB&M (10-inch well, 100-2000 feet deep); (2) Well - South 500 feet and East 830 feet from the NW Corner of Section 18, T26S, R9W, SLB&M (existing 10-inch well, 248 feet deep); (3) Well - South 2640 feet from the N $\frac{1}{4}$ Corner of Section 11, T27S, R10W, SLB&M (10-inch well, 100-2000 feet deep); (4) Well - South 683 feet and East 108 feet from the W $\frac{1}{4}$ Corner of Section 26, T26S, R10W, SLB&M (proposed 10-inch well); (5) Well - South 2640 feet and West 500 feet from the N $\frac{1}{4}$ Corner of Section 11, T27S, R10W, SLB&M (proposed 10-inch well); (6) Well - South 2179 feet and East 203 feet from the NE Corner of Section 31, T26S, R9W, SLB&M (proposed 10-inch well); (7) Well - North 115 feet and East 1270 feet from the SW Corner of Section 26, T26S, R10W, SLB&M (10-inch well, 140 feet deep). The water is to be used for year-round geothermal, tech development, and heat extraction.

Notice of the application was published in the Millard County Chronicle Progress on September 10 and 17, 2014. No protests were received.

The applicant has provided information to the State Engineer stating that "...the goal is to have horizontal legs in 2 - 3 wells in the area of the groundwater rights application north of Milford (likely depth between 2 and 4 km), and that we will be wanting to create fractures linking injection and production wells so that groundwater can be circulated between the wells to sweep out heat."

The applicant has also indicated that the drilling will occur on lands not owned by the applicant. This approval does not grant any rights of access to nor use of land or facilities not owned by the applicant, those permissions and/or permits must be secured separately.

The proposed development is within the "Black Rock District" of the Escalante Valley hydrologic area and, as such, is subject to the policy guidelines set forth in a State Engineer's Memorandum issued January 2, 1998, to establish policy guidelines related to this area. As set forth in that memorandum regarding the Black Rock District, "Nonconsumptive geothermal filings will be considered on their individual merits and on the basis of pertinent considerations from state statutes." Therefore, it appears that this application can be considered further, subject to the state statutes¹ and administrative rules² governing applications for geothermal purposes.

¹ §73-22, Utah Code Annotated.

² R655-1, Utah Administrative Code

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A relevant portion of statute states: "Ownership of a geothermal resource derives from an interest in land and not from an appropriative right to geothermal fluids."³ "Geothermal fluid" means water and steam at temperatures greater than 120 degrees centigrade naturally present in a geothermal system⁴. The procedure to appropriate geothermal fluids follows the same basic procedure whereby water rights are secured. The law states that priorities applicable to water rights exist between the geothermal owner and the owner of water rights other than geothermal fluids, but that no priorities shall be created among geothermal owners by the approval of an application to appropriate geothermal fluids⁵. The law also states that the State Engineer shall approve an application if he finds that the applicant is a geothermal owner and that the proposed extraction of geothermal fluids will not impair existing rights to the waters of the state⁶.

It is the opinion of the State Engineer that the approval of this application will not interfere with prior rights and is consistent with the provisions of Utah Water Law and the Geothermal Resources Conservation Act. Therefore, the applicant is put on notice that diligence must be shown in pursuing the development of this application which can be demonstrated by the completion of the requirements set forth herein in pursuit of authorization to construct the proposed wells and develop the project as proposed in the application.

It is, therefore, **ORDERED** and Fixed-Time Application Number 71-5373 (F80102) is hereby **APPROVED** subject to prior rights and the following conditions:

1. This approval is limited to the rights to divert and beneficially use water and does not grant any rights of access to nor use of land or facilities not owned by the applicant.
2. As noted, this approval is granted subject to prior rights. The applicant shall be liable to mitigate or provide compensation for any impairment of or interference with prior rights as such may be stipulated among the parties or decreed by a court of competent jurisdiction.
3. Water use under this approval shall be limited to a nonconsumptive maximum annual diversion of 50 acre-feet for year-round geothermal, tech development, and heat extraction.
4. The applicant/owner and any successor(s) shall comply with all provisions of §73-22-6, Utah Code Annotated, and Administrative Rule R655-1 which include but may not be limited to the following:
 - a. The applicant shall submit Notices of Intent to the State Engineer in

³ §73-22-4 (1), Utah Code Annotated. This principle is generally described as defining a "correlative" right to the resources underlying the lands in question.

⁴ §73-22-3 (4), Utah Code Annotated.

⁵ §73-22-8 (3), Utah Code Annotated.

⁶ §73-22-8 (2), Utah Code Annotated.

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compliance with §73-22-6(1)(b), Utah Code Annotated, prior to the drilling, redrilling, deepening, permanent alteration, or abandonment of any well. Approval of the Notices of Intent must be obtained from the State Engineer prior to commencement of the respective operations.

- b. An acceptable surety bond as defined at R655-1-2.3 and authorized at §73-22-6(1)(e), Utah Code Annotated, in the amount of \$10,000 for each well or \$50,000 for all injection and production wells.
- c. An acceptably complete "Plan of Operations" as defined at R655-1-2.1.2, including a description of the Blow-Out Prevention Equipment (BOPE) installation and test.
- d. Comply with all provisions of §73-22-6(1)(c), Utah Code Annotated, and Administrative Rule R655-1-4 requiring the keeping of well logs and filing true and correct copies with the Division of Water Rights (Division). These records are public records when filed with the Division, unless the owner or operator requests, in writing, that the records be held confidential. The period of confidentiality shall be established by the Division, not to exceed five years from the date of production or injection for other than testing purposes or five years from the date of abandonment, whichever occurs first, as determined by the Division. Well records held confidential by the Division are open to inspection by those persons authorized in writing by the owner or operator. Confidential status shall not restrict inspection by state officers charged with regulating well operations or by authorized officials of the Utah State Tax Commission for purposes of tax assessment.
- e. The applicant/owner and successor(s) shall maintain a permanent record of all water diverted and injected under this application, said record to be made available for inspection by personnel of the Division upon reasonable request. A monthly report of all diversions and injections under this approval shall be submitted to the Division as required at Administrative Rule R655-1-4.2.4 and 4.2.5.
- f. All well heads, separators, pumps, mufflers, manifolds, valves, pipelines, and other equipment used for the production of geothermal resources shall be maintained in good condition in order to prevent loss of or damage to life, health, property, and natural resources. All surface well head equipment and pipelines and subsurface casing and tubing will be subject to periodic corrosion surveillance in order to safeguard health, life, property, and natural resources as required at Administrative Rule R655-1-7.1 and 7.2.

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5. Drilling cards will only be issued after each Notice of Intent and Drilling Program has been filed and approved as outlined herein.
6. This application is approved subject to 73-3-8(2), Utah Code Annotated, for a fixed-time period which ends **October 31, 2025**. The application will permanently lapse at the end of the fixed-time period unless extended as allowed by statute. The applicant is required to measure water diverted and annually report water diverted and used to the Division of Water Rights water use reporting program.

The applicant is strongly cautioned that other permits may be required before any development of this application can begin and it is the responsibility of the applicant to determine the applicability of and acquisition of such permits. Once all other permits have been acquired, this is your authority to develop the water under the above referenced application. This approval is limited to the rights to divert and beneficially use water and does not grant any rights of access to, or use of land or facilities not owned by the applicant.

It is the applicant's responsibility to maintain a current address with this office and to update ownership of their water right. Please notify this office immediately of any change of address or for assistance in updating ownership.

Your contact with this office, should you need it, is with the Southwestern Regional Office. The telephone number is 435-586-4231.

This Order is subject to the provisions of Administrative Rule R655-6-17 of the Division of Water Rights and to Sections 63G-4-302, 63G-4-402, and 73-3-14 of the Utah Code which provide for filing either a Request for Reconsideration with the State Engineer or an appeal with the appropriate District Court. A Request for Reconsideration must be filed with the State Engineer within 20 days of the date of this Order. However, a Request for Reconsideration is not a prerequisite to filing a court appeal. A court appeal must be filed within 30 days after the date of this Order, or if a Request for Reconsideration has been filed, within 30 days after the date the Request for Reconsideration is denied. A Request for Reconsideration is considered denied when no action is taken 20 days after the Request is filed.

Dated this 14th day of October, 2014.


Kent L. Jones, P.E., State Engineer

ORDER OF THE STATE ENGINEER
Fixed-Time Application Number
71-5373 (F80102)
Page 5

Mailed a copy of the foregoing Order this 10th day of October, 2014 to:

Utah Geological Survey
PO Box 146100
Salt Lake City, UT 84114-6100

Division of Water Rights
Water Use Program

BY: 
Sonia R. Nava, Applications/Records Secretary



Mike Lowe <mikelowe@utah.gov>

Fwd: Indication of Beaver County permitting requirements

1 message

Rick Allis <rickallis@utah.gov>

Fri, Jan 29, 2016 at 1:43 PM

To: Mike Lowe <mikelowe@utah.gov>

This may be helpful.

Rick

----- Forwarded message -----

From: **Scott Albrecht** <smalbrecht@beaver.utah.gov>

Date: Thu, Oct 22, 2015 at 12:59 PM

Subject: Re: Indication of Beaver County permitting requirements

To: Rick Allis <rickallis@utah.gov>

Most of the roads do not have a written deed or right-of-way. Therefore they are a prescriptive easements. Historically we have claimed the disturbed area only as our prescriptive easement. This would include some shoulder area for maintenance purposes. The County is willing to work with you to place a water line on the shoulder or in the Salt Cove Road.

Thanks,

On Thu, Oct 22, 2015 at 12:19 PM, Rick Allis <rickallis@utah.gov> wrote:

Perfect Scott

Thanks

One further question - is there a width defined by an easement on the various roads - in particular that Salt Cove Road running east-west. It goes through various landowner' lots, and everyone we have contacted are supportive - I think there is one half section owner I havent contacted. We may want to lay a temporary water line parallel to the road, and maybe inside the road envelope at some points. So, is there a set width, or is it a grey area - I know roads can be tricky as to who owns what.

Rick

On Thu, Oct 22, 2015 at 12:14 PM, Scott Albrecht <smalbrecht@beaver.utah.gov> wrote:

Rick:

Thanks again for meeting with us the other day. We appreciate the work you are doing on this project and want to support this effort as much as possible.

A Conditional Use Permit (CUP) would be required for the project, specifically the drilling portion. The entire Scope of Work can be permitted through one CUP. This process shouldn't take more than 6 weeks. As a condition of the CUP, a road maintenance agreement (RMA) would need to be adopted. This agreement pretty much just states that we will perform regular maintenance and that you would be responsible for any damages caused as a direct result of a negligent act by the project.

A building permit would be required for your temporary offices. If the offices are going to be there for more than 1 year, they will need a permanent foundation.

Any septic work will need to be coordinated through the Southwest Public Health Department.

Please let me know if this is sufficient for your needs at this stage of the process or if you need additional information.

Thanks,

On Wed, Oct 21, 2015 at 7:20 AM, Rick Allis <rickallis@utah.gov> wrote:

Scott

As mentioned at yesterday's meeting, our geothermal project is assembling a list of likely permitting requirements, and some indication of how onerous these requirements will be (the Dept. of Energy needs to be convinced we can achieve the project goals without some permitting "headaches" or unusual delays along the way.

All I need at the moment your best shot at what County hoops we will need to take care of. For example, as I mentioned yesterday, we will have a mobile/ temporary office that will have power and groundwater and will have a site manager there once there are drilling and related activities going on at the two well sites (the existing Acord-1 well on Murphy-Brown land, and the deep well site most likely on SITLA section 32, but this could shift a couple of hundred yards north and/or east to section 31 of Murphy Brown). We most likely will have some support trailers at the deep well site, especially while there is drilling, stimulation and fluid circulation going on. The intention is for all project participants to be using Milford accommodation - the only exception may be during drilling when if operating around the clock a supervisor may sleep in the trailer to be on hand for emergencies. Do we need a septic tank at the office site, but only "portaloos" at the drilling site? We may want to lay (temporarily) some pipe for groundwater adjacent to Salt Cove Road. There is a chance that pipe may have to cross that road near to where the road crosses the Negro Mag Wash in Section 31. Obviously we assume the project will have to put in a satisfactory trench to bury the pipe at that point and repair the road after the project is over.

What activities obviously need County permits? Would the strategy be for the project to put in an "activity/project" plan to the County so that all the above activities can be approved with a single Conditional Use permit?

At this stage, because we are still figuring out the details, we just need an indication from the County that they are supportive of what we will be doing, and that closer to the time we will need to apply for a (?) permit for certain activities (maybe list some of them if possible - especially how you handle temporary trailers on site; an office on site, etc.) I assume the time frame for formal permit approval is unlikely to exceed a few months?

Any advice you can give us at this stage would be very helpful.

Thanks
Rick

--
Rick Allis
Director/State Geologist
Utah Geological Survey
Salt Lake City, Utah 84105
ph [801-537-3100](tel:801-537-3100)

--
Scott Albrecht
County Administrator

(435)438-6490
smalbrecht@beaver.utah.gov
www.beaver.utah.gov

--
Rick Allis
Director/State Geologist
Utah Geological Survey
Salt Lake City, Utah 84105
ph **801-537-3100**

--
Scott Albrecht
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--
Rick Allis
Director/State Geologist
Utah Geological Survey
Salt Lake City, Utah 84105
ph **801-537-3100**

INTERDISCIPLINARY TEAM NEPA CHECKLIST

Project Title: FORGE Access/Pipeline ROW

NEPA Log Number: Update at a later time

File/Serial Number: Update at a later time

Project Leader: Brooklynn Shotwell (435) 865-3073 or bshotwell@blm.gov

DETERMINATION OF STAFF: *(Choose one of the following abbreviated options for the left column)*

NP = not present in the area impacted by the proposed or alternative actions

NI = present, but not affected to a degree that detailed analysis is required

PI = present with potential for relevant impact that need to be analyzed in detail in the EA

NC = (DNAs only) actions and impacts not changed from those disclosed in the existing NEPA documents cited in Section D of the DNA form.

The rationale column should include NI and NP discussions.

RESOURCES AND ISSUES CONSIDERED:

Determination	Resource	Rationale for Determination	Signature	Date
NI	Air Quality	There will be dust and exhaust generated during the project activities. These impacts are expected to be localized and short-lived.	R. Friese	04/18/16
NP	Areas of Critical Environmental Concern	None within the CCFO boundaries.	D. Jacobson	4-14-2016
NP	BLM Natural Areas	None within the CCFO boundaries.	D. Jacobson	4-14-2016
NI	Cultural Resources	In 2011, a Class III inventory was completed for approximately 72% of the proposed pipeline route. Within 0.5 miles of the proposed route, are 5 sites that are determined not eligible for the National Register of Historic Places. Also, the Dominguez-Escalante Historic Trail is located approximately 4 miles west of the proposed project. Since the pipeline will be on the ground, there will be no visual intrusion to the trail.	Jamie Palmer	4/13/2016
NI	Greenhouse Gas Emissions	Some greenhouse gasses will be emitted from machinery during construction. This action may lead to a successful geothermal project which may reduce the proportion of energy that is generated from fossil fuels.	R. Friese	04/18/16
NP	Environmental Justice	There are no minority populations which would be affected by the proposed action.	B. Shotwell	3/31/2016
NI	Farmlands (Prime or Unique)	There are no prime or unique farmlands within the area.	D. Fletcher	04/18/2016
PI	Fish and Wildlife Excluding Special Status Species	The area is identified as crucial year-long pronghorn habitat.	S. Whitfield	04/14/16
NI	Floodplains	The pipeline crosses two intermittent/ephemeral drainages that likely have narrow associated floodplains. The function of the floodplains should not be affected by the proposed action, provided the mitigation measures for soils are followed (see below).	R. Friese	04/18/16

Determination	Resource	Rationale for Determination	Signature	Date
NI	Fuels/Fire Management	Fire and fuels management would not be affected by the proposed action.	M. Mendenhall	4/5/16
NI	Geology / Mineral Resources/Energy Production	There are no current or pending minerals-related exploration or development authorizations (permits, leases, licenses, claims) beneath or immediately adjacent to the proposed right of way corridor. The entire project area is prospectively valuable for the occurrence of geothermal and oil and gas resources. The only known mineral resources coincident with the project area are surficial deposits of common variety mineral materials and a geothermal heat resource in a buried granitic pluton at depth. The proposed temporary surface laid water pipeline will not substantially impact these known mineral resources.	E. Ginouves	4-4-16
NI	Hydrologic Conditions	During precipitation events there will be decreased infiltration rates in the disturbed areas. The proposed action alone will not result in a significant impact to watershed functions if mitigation measures are followed (see soils), but the cumulative impacts of increasing soil disturbance in the watershed can lead to more rapid and energetic runoff responses. Higher energy runoff events can cause higher rates of erosion, increased sediment loads in surface water runoff, and decreased groundwater recharge.	R. Friese	04/18/16
PI/NI	Invasive Species/Noxious Weeds	The BLM coordinates with County and local governments to conduct an active program for control of invasive species. NI, if project vehicles are power-washed prior to arrival in the project area to guard against the introduction of noxious weed species.	D. Fletcher	04/18/2016
NI	Lands/Access	No impacts are expected to lands resources as long as the standard ROW term for valid existing rights is included in the ROW grant. There are currently no authorized ROWs that would be affected by this proposal.	B. Shotwell	3/31/2016
NI	Livestock Grazing	The project will occur within the Hanson Allotment. The livestock grazing season of use within the project area is from November 1st – May 15 th . It is anticipated that the majority of work would be completed in the summer of 2017, which would be outside the livestock grazing season of use. Range Improvement Projects including fences, pipelines and cattle guards that would be impacted would be replaced or restored. It is expected that the survey would require that livestock fences would be cut to allow ingress/egress of construction equipment; fence reconstruction would be required immediately following the completion of the project. In addition, any disturbed areas within the project area would be reclaimed utilizing a BLM approved seed mix.	D. Fletcher	04/18/2016
PI/NI	Migratory Birds	The pipeline has the potential to impact nesting birds and raptors if constructed during the nesting season April 1- July 30. A survey would be required prior to any ground disturbing activities. NI if the pipeline can be constructed between August 1 and March 30 th .	S. Whitfield	04/14/16
NI	Native American Religious Concerns	On April 15, 2016, face-to-face consultation took place between the Paiute Indian Tribe of Utah (PITU) and the	J. Palmer	4/15/16

Determination	Resource	Rationale for Determination	Signature	Date
		BLM-Cedar City Field Office. The PITU have reviewed the project and have no objection to the project moving forward. The PITU would like to be informed of any changes or updates to the project.		
NI	Paleontology	<p>The surficial geology of the easternmost ½ of the proposed ROW consists of Quaternary-age alluvial fan gravels and the western ½ consists of Quaternary-age lake terrace gravel deposits. The alluvial gravels would be classified as Class 2 (low potential for fossil resources), and the lacustrine gravels Class 3 (moderate potential for fossil resources) using the Bureau’s Potential Fossil Yield Classification System.</p> <p>No paleontological resources are known to exist on proposed project area. The westernmost 1/2 of the project falls beneath the projected maximal easternmost shoreline of ancestral Lake Bonneville, a Pleistocene-aged lake with known occurrences of mega-fauna vertebrate fossil skeletons adjacent to the lakeshore. The nearest known vertebrate fossil occurrence of this type to the project was discovered in 2010 during the excavation of wind turbine foundation WGT 7-21 in Phase 2 of the Milford Flat Wind farm. This locality lies about 8 miles to the northwest of the project in the SE4 sec. 3 , T. 26 S., R. 10 W. The fossil find was a partial camel skeleton at a depth of 6 feet.</p> <p>While it is conceivable that Pleistocene-age fossil skeletons are present at some depth under the project area – most likely in the westernmost portion of the project area - the proposed surface-laid pipeline will not disturb the sediments to any appreciable depth and so any vertebrate fossils that may coincide with the pipeline corridor should not be adversely affected by the survey work.</p> <p>No fossil specific mitigation measures are necessary to attach to the proposed project work.</p>	E. Ginouves	4-4-16
PI	Rangeland Health Standards	<p>SOPs including the following would limit the impact to the Rangeland Health Standards.</p> <p>Any disturbed areas within the project area would be reclaimed utilizing a BLM approved seed mix.</p> <p>Parameters for limiting public access following completion of the project along the survey lines would reduce the number of new roads within the area.</p> <p>These SOPs would limit the impacts to the Rangeland Health Standards.</p>	D. Fletcher	04/18/2016
NI	Recreation	Other than a minor amount of dispersed recreation, there are no existing recreation resources which would be affected as a result of this proposal.	D. Jacobson	4/14/16
NI	Socio-Economics	Minor increases in local service sector revenue could be expected from the temporary workforce involved in the seismic survey.	M. Campeau	4/14/16
PI	Soils	7.6 acres of soil disturbance will likely result from the proposed action. The disturbance corridor will be maintained to preserve the natural runoff regime and prevent excessive soil erosion. Erosion mitigation measures may include drainage bars, check dams, and berms. Disturbed areas that	R. Friese	04/18/16

Determination	Resource	Rationale for Determination	Signature	Date
		are no longer being used will be reclaimed immediately.		
NI	Special Status Plant Species	There are no known Sensitive Plant Species present in the project area.	M. Bayles	4/11/16
PI	Special Status Animal Species	No threatened, endangered or candidate species occur within the project area. The area has the potential for kit fox and nesting raptors in the area. Survey for sensitive species would be required.	S. Whitfield	04/14/16
NP	Wastes (hazardous or solid)	There are no known hazardous/solid wastes associated with this project. Ensure all local, state and federal regulations are followed during the construction of the pipeline and access road.	Glenn Pepper	4/5/2016
NI	Water Resources/Quality (drinking/surface/ground)	The project proponents report having 50 acre-ft/year in water rights for the project. Any impacts from this pumpage will be analyzed in the analysis of the geothermal well development phase of the project.	R. Friese	04/18/16
NP	Wetlands/Riparian Zones	There are no wetland/riparian zones within the project area.	R. Friese	04/18/16
NP	Wild and Scenic Rivers	There are no designated or eligible segments of wild or scenic rivers in the Cedar City field office area	D. Jacobsen	04/14/16
NP	Wilderness/WSA	There are no designated or eligible segments of wild or scenic rivers in the Cedar City field office area	D. Jacobsen	4/14/16
NI	Woodland / Forestry	A few scattered pinyon/juniper may need to be removed.	C. Peterson	4/5/2016
PI	Vegetation excluding USFW designated species	It is expected that the project may lead to the development of a new road within the area It would be required that any disturbed areas within the project area would be reclaimed utilizing a BLM approved seed mix.	D. Fletcher	04/18/2016
NI	Visual Resources	While no impact to visual resources is anticipated from the project work, the project activities occur on VRM Class III lands which allow for degradation of the existing visual character of the landscape.	D. Jacobsen	4/14/16
NP	Wild Horses and Burros	Proposed project is not within or adjacent to an wild horse Herd Area (HA) or Herd Management Area (HMA).	C. Hunter	4/5/16
NI	Lands with Wilderness Characteristics	None present within the project area	D. Jacobsen	4/1/416

FINAL REVIEW:

Reviewer Title	Signature	Date	Comments
Environmental Coordinator			
Authorized Officer			



United States Department of the Interior



BUREAU OF LAND MANAGEMENT

Color Country District Office

Cedar City Field Office

176 East DL Sargent Drive

Cedar City, UT 84721

Telephone (435) 865-3000

www.blm.gov/ut/st/en/fo/cedar_city.html

In Reply Refer To:

UTC01
3250,

April 19, 2016

Mr. Rick Allis, Director
Utah Geological Survey
1594 W North Temple, Suite 3110
P.O. Box 146100
Salt Lake City, Utah 84114-6100

Dear Mr. Allis:

On March 13, this office received two notices of intent for geothermal exploration and an application for a right of way, all submitted by the Utah Geological Survey (UGS) in behalf of the State of Utah's bid to be selected as the project site for the Department of Energy's Frontier Observatory for Research into Geothermal Energy (FORGE) initiative. The applications pertain to the federal land components of Utah's proposal. I appreciate the efforts made by the UGS in keeping this office informed of the federal lands components of Utah's project proposal and for providing adequate time for us to respond to the overall project timeframes.

In response to your applications, the following summarizes the status of your applications:

- **Geothermal Exploration Notice of Intent to carry out surface geophysical data collection including geologic mapping, gravity measurements and resistivity (MT/TDE), soil gas, nodal seismometer and GPS surveys.**

Staff review of these activities in the project area concluded that all of the activities can be treated as casual-use provided we receive data sets of the resistivity survey locations well in advance of the on-the-ground work. Our archeologist will need the locations at least two snow free months in advance of the on-the-ground work so that they can be ground checked to confirm they will not disturb any eligible cultural resources. As with previous work of this nature carried out by in 2012 in this same area by UGS, we anticipate that any conflicts that arise can be mitigated by minor offsets of the proposed survey sites. You note that the resistivity surveys would be carried out during the annual maintenance shut-down of the Blundell geothermal powerplant in May 2017. Since this coincides with the migratory bird nesting season, it will be necessary to evaluate any sites that require cross-country travel by vehicles to access to assure that there will be no "take" of nesting migratory birds. As with the 2012 survey work, we intend to provide you with a letter of agreement for this survey work, following receipt of the proposed resistivity survey locations.

- **Geothermal Exploration Notice of Intent to carry out a vibroseis survey using cross country travel by two vibroseis trucks along a total of about twenty miles of BLM managed land.**

The BLM believes this work is subject to NEPA and in support of the environmental assessment that will need to be carried out for the vibroseis survey work as a whole, we have completed and enclosed an interdisciplinary team checklist identifying those resources potentially impacted by the proposed work on federal lands. The NEPA analysis carried out in support of the overall project work will need to analyze

the impacts to soils, vegetation, wildlife and cultural resources by the proposed project work. It will be necessary for the entire proposed seismic line footprint to be cleared in advance for cultural resources and the survey report findings presented to this office. Provided the project activities can be completed in the period of Sept 1st through March 31st, no survey for migratory birds or raptors in the project area will be necessary.

- **SF-299 Application for a 30 foot wide right-of-way for a surface water pipeline covering 2.1 miles of BLM land.**

As with the vibroseis survey work, the proposed pipeline right of way is subject to NEPA analysis and in support of that analysis, we have completed and enclosed an interdisciplinary team checklist identifying those resources potentially impacted by the proposed work on federal lands. The NEPA carried out in support of the overall project work will need to analyze the impacts to soils, vegetation, wildlife and cultural resources by the proposed project work. Provided the project activities can be completed in the period of Sept 1st through March 31st, no survey for migratory birds or raptors in the project area will be necessary. Based on prior cultural resources survey work in the proposed pipeline footprint, no pre-construction cultural resource survey is necessary, provided the pipeline is laid on the surface.

It is my understanding that the UGS will be arranging for the necessary NEPA analysis to be prepared through a 3rd party contractor. I would request that as soon as a contractor is selected that they contact this office to meet with the members of my staff that have indicated on the NEPA checklists that have potential resource impact issues to be addressed in the documents.

Once the NEPA analysis is completed and a Decision Record signed for the proposed work, it will take no longer than two weeks to issue the signed authorizations to carry out the work

If you have any questions, feel free to contact Ed Ginouves of my staff at (435) 865-3040.

Sincerely,

Elizabeth Burghard
Field Office Manager

Enclosures: IDT Checklists for FORGE Vibroseis and Pipeline ROW Proposals

INTERDISCIPLINARY TEAM ANALYSIS RECORD CHECKLIST

Project Title: FORGE Milford Valley Vibroseis Survey

NEPA Log Number: DOI-BLM-UT-C010 -2016-0042 EA

File/Serial Number:

Project Cat-Herder: Ed Ginouves

DETERMINATION OF STAFF: (Choose one of the following abbreviated options for the left column)

NP = not present in the area impacted by the proposed or alternative actions

NI = present, but not affected to a degree that detailed analysis is required

PI = present with potential for significant impact analyzed in detail in the EA; or identified in a DNA as requiring further analysis

NC = (DNAs only) actions and impacts not changed from those disclosed in the existing NEPA documents cited in Section C of the DNA form.

Determination	Resource	Rationale for Determination*	Signature	Date
RESOURCES AND ISSUES CONSIDERED (INCLUDES SUPPLEMENTAL AUTHORITIES APPENDIX 1 H-1790-1)				
NI	Air Quality	There will be dust and exhaust generated during the project activities. These impacts will be localized and short-lived. There is the potential for long term air quality impacts from dust if the project disturbance is not allowed to recover because of subsequent use of vehicle tracks by recreational users (road creation). The mitigation measures for air quality will be the same as those for soils.	R. Friese	03/31/16
NP	Areas of Critical Environmental Concern	None within the CCFO boundaries.	D. Jacobson	3-14-2016
NP	BLM Natural Areas	None within the CCFO boundaries.	D. Jacobson	3-14-16
PI/NI	Cultural Resources	A Class I Literature Review was prepared in an effort to first identify previous archaeological investigations in the area and second, to determine the potential for undiscovered resources. The proposed project area contains numerous cultural resources that are eligible to the National Register of Historic Places. A Class III inventory of the Area of Potential Effects (APE) will need to take place prior to authorization. If historic properties are identified during this inventory, stipulations will be added to the plan of development to avoid or minimize any potential adverse effects. If no historic properties are identified or no adverse effects to historic properties are identified than this determination will be changed to a NI.	Jamie Palmer	3/21/2016
NI	Greenhouse Gas Emissions	There will be greenhouse gas emissions from equipment during the project activities. These emissions will be minor, especially compared to the emissions from vehicles on the nearby I-15.	R. Friese	03/31/16
NI	Environmental Justice	No minority or economically challenged populations would be disproportionately affected.	E. Ginouves	3/11/2016

Determination	Resource	Rationale for Determination*	Signature	Date
NI	Farmlands (Prime or Unique)	There are no prime or unique farmlands within the area.	D. Fletcher	03/31/2016
PI	Fish and Wildlife Excluding Special Status Species	The area is identified as crucial yearlong pronghorn habitat and portions occur in crucial mule deer winter range. Avoid activities during the pronghorn fawning season April 15 – June 15 and crucial winter season December 1 – April 1	S. Whitfield	03/29/2016
NI	Floodplains	There is probably a floodplain associated with the Negro Mag Wash in the project area. There are probably other narrow floodplain areas associated with other ephemeral/intermittent streams. However, the proposed activities should not affect overall floodplain function if mitigation measures are followed (see soils mitigation measures)	R. Friese	03/31/16
NI	Fuels/Fire Management	Project activities are being conducted in any area with low fire danger due to low fuel loadings. NI provided project work can be carried out with no open flames and spark arrestors on all vehicles used off road.	M. Mendenhall	3/31/16
NI	Geology / Mineral Resources/Energy Production	<p>The entire project area is prospectively valuable for the occurrence of geothermal and oil and gas resources.</p> <p>The only known mineral resources coincident with the project area are surficial deposits of common variety mineral materials and geothermal heat resource in a buried granitic pluton at depth. The easternmost portion of the project overlaps geothermal leases associated with the Roosevelt Geothermal field.</p> <p>Geothermal authorizations are present in the proposed project area within the NW4 of sec. 34, T. 26 S., R. 9 W., and corresponding to the eastern-most end of proposed seismic lines S2 and S3. S2 overlaps a small portion of geothermal lease U27386, which poses no problems. S3 crosses U80899, a ROW for a geothermal fluid pipeline to injection well 82-33. The seismic line crosses the pipeline at a road crossing and, provided the seismic point was not coincident with the pipeline, this should not be an issue.</p>	E. Ginouves	3/11/16
NI	Hydrologic Conditions	During precipitation events there will be decreased infiltration rates in the disturbed areas. The proposed action alone will not result in a significant impact to watershed function if mitigation measures are followed (see soils), but the cumulative impacts of increasing soil disturbance in the watershed can lead to more rapid and energetic runoff responses. Higher energy runoff events can cause higher rates of erosion, increased sediment loads in surface water runoff, and decreased groundwater recharge.	R. Friese	03/31/16
PI/NI	Invasive, Non-native Species	<p>The BLM coordinates with County and local governments to conduct an active program for control of invasive species.</p> <p>NI, if project vehicles are power-washed prior to arrival in the project area to guard against the introduction of noxious weed species.</p>	E. Ginouves	3/11/16

Determination	Resource	Rationale for Determination*	Signature	Date
NI	Lands/Access	<p>Any pending or authorized lands and realty actions in the project area would not be substantially affected by the proposed action as long as measures are taken to assure all rights by grant, permit or lease holders are upheld. Prior to any surface disturbing activities in the vicinity of potential lands projects, the lands and realty staff should be notified to assist in locating existing or pending lands actions that may be impacted.</p> <p>The following authorizations are within the seismic lines:</p> <ul style="list-style-type: none"> • UTU-51402 – Cooling Tower, Pipelines, Fence and Access Road • UTU-58158 – Infiltration Ponds, Pipelines and Fence for Blundell Geothermal Plant • UTU-68164 – Kern River Natural Gas Line • UTU-74908 – Fence Easement • UTU-77373 – Regeneration Site for FTV Fiber ROW • UTU-80899 – Water Well and Well Pad for Blundell Geothermal Plant • UTU-81494 – Water Observation Well and Well Pad • UTU-81495 – Water Observation Well and Well Pad • UTU-82050 – Water Observation Well and Well Pad • UTU-83067 – Sigurd-Red Butte #2 345 kV Transmission Line 	M. Campeau	04/04/16
NI	Livestock Grazing	<p>The project will occur within the Hanson and Milford Bench Allotments The livestock grazing season of use within the project area is from November 1st – May 15th. . It is anticipated that the majority of work would be completed in the summer of 2017, which would be outside the livestock grazing season of use.</p> <p>Range Improvement Project including fences, pipelines and cattle guards that would be impacted would be replaced or restored. It is expected that the survey would require that livestock fences would be cut to allow ingress/egress of heavy equipment; fence reconstruction would be required immediately following the completion of the surveys.</p> <p>In addition, any disturbed areas within the project area would be reclaimed utilizing a BLM approved seed mix.</p>	D. Fletcher	03/31/2016
PI/NI	Migratory Birds	<p>If the work is carried out during the period of April 1 through August 31, it has the potential to impact ground-nesting migratory birds that could be present in the project area.</p> <p>NI provided that the project activities can be carried out outside of the migratory bird nesting season of April 1 – August 31.</p>	S. Whitfield	03/29/2016
PI	Native American Religious Concerns	<p>Native American consultation is needed because the types of cultural resources that will be impacted by this project. Also, this type of project is not covered the existing MOU.</p>	Jamie Palmer	03/32/16

Determination	Resource	Rationale for Determination*	Signature	Date
NI	Paleontology	<p>The surficial geology of the project area consists of a Quaternary-age alluvial fan pediment . The fan is bisected by Negro Mag Wash. The surface formation would be classified as Class 2 (low potential for fossil resources), using the Bureau's Potential Fossil Yield Classification System.</p> <p>No paleontological resources are known to exist on proposed project area. The westernmost portions of the project lie just east of the projected maximal easternmost shoreline of ancestral Lake Bonneville, a Pleistocene-aged lake with known occurrences of mega-fauna vertebrate fossil skeletons adjacent to the lakeshore. The nearest known vertebrate fossil occurrence of this type to the project was discovered in 2010 during the excavation of wind turbine foundation WGT 7-21 in Phase 2 of the Milford Flat Wind farm. This locality lies about 6 miles to the northwest of the project in the SE4 sec. 3 , T. 26 S., R. 10 W. The fossil find was a partial camel skeleton at a depth of 6 feet.</p> <p>While it is conceivable that Pleistocene-age fossil skeletons are present at some depth under the project area – most likely in the westernmost portion of the project area- the proposed vibroseis survey will not disturb the surface to any appreciable depth and so any vertebrate fossils that may coincide with the seismic line locations should not be adversely affected by the survey work.</p> <p>No fossil specific mitigation measures are necessary to attach to the proposed project work.</p>	E. Ginouves	3/11/16
PI	Rangeland Health Standards	<p>Dependent upon the amount of disturbance associated with the drive and crush survey; particularly cross country there may be an impact on the Rangeland Health Standards.</p> <p>SOPs including the following would limit the impact to the Rangeland Health Standards.</p> <p>Any disturbed areas within the project area would be reclaimed utilizing a BLM approved seed mix.</p> <p>Parameters for limiting public access following completion of the project along the survey lines would reduce the number of new roads within the area.</p> <p>These SOPs would limit the impacts to the Rangeland Health Standards.</p>	D. Fletcher	03/31/2016
NI	Recreation	Other than a minor amount of dispersed recreation, there are no existing recreation resources which would be affected as a result of this proposal.	D. Jacobson	3/11/16
NI	Socio-economics	Minor increases in local service sector revenue could be expected from the temporary workforce involved in the seismic survey.	E. Ginouves	3/11/16

Determination	Resource	Rationale for Determination*	Signature	Date
PI	Soils	<p>There will be impacts to soils from off-road vehicle travel. These impacts are expected to be minor, unless the tracks are subsequently used for recreational OHV travel; resulting in the establishment of new roads.</p> <p>Recommend the following mitigation measures: Minimize the number of intersections of off-road tracks with existing roads. Upon project completion, mask the intersections of off-road tracks with existing roads by raking tracks and /or vertical mulching. Minimize repeat travel on off-road vehicle tracks</p> <p>BLM resource specialists will inspect the area upon completion of the project, and the operators may be required to mask highly-visible tracks by additional raking and/or vertical mulching.</p>	R. Friese	03/31/16
NI	Special Status Plant Species	No known Threatened, Endangered, Candidate or Sensitive Plant Species occur within the project area. (Refer to SS Plant_ProjectAssessment_Form).	Mitch Bayles	3/31/16
NI	Special Status Animal Species	<p>NI - No TEC species occur within the project area.</p> <p>NI – Ferruginous hawk nest have been identified to occur in the area. The proponent has agreed to avoid the nesting season from April 1- August 31.</p>	S. Whitfield	03/29/2016
NP	Wastes (hazardous or solid)	No solid or hazardous wastes would be generated or utilized by the proposal.	E. Ginouves	3/11/16
NI	Water Resources/Quality (drinking/surface/ground)	During precipitation events there will be decreased infiltration rates in areas of disturbance. The proposed action alone will not result in a significant impact to water resources if mitigation measures are followed (see soils), but the cumulative impacts of increasing soil disturbance in the watershed can lead to more rapid and energetic runoff responses. Higher energy runoff events can cause higher rates of erosion, increased sediment loads in surface water runoff, and decreased groundwater recharge.	R. Friese	03/31/16
NP	Wetlands/Riparian Zones	There are no wetland/riparian zones within the project area.	A. Stephens	03/31/16
NP	Wild and Scenic Rivers	There are no designated or eligible segments of wild or scenic rivers in the Cedar City field office area	D. Jacobsen	3/11/16
NI	Wilderness/WSA	No designated wilderness or wilderness study areas are within or adjacent to the project area.	D. Jacobsen	3/11/16
NP	Woodland / Forestry	There are no woodland/forestry resources within the proposed project area.	C. Peterson	3/15/2016

Determination	Resource	Rationale for Determination*	Signature	Date
PI	Vegetation excluding USFW designated species	<p>It is expected that the heavy equipment will drive and crush vegetation along the survey lines. This may lead to the development of new roads dependent on the level of disturbance and the condition of the current vegetative community in areas that are surveyed where there is no current road access. This</p> <p>It would be required that any disturbed areas within the project area would be reclaimed utilizing a BLM approved seed mix.</p>	D. Fletcher	03/31/2016
NI	Visual Resources	While no impact to visual resources is anticipated from the project work, the project activities occur on VRM Class III lands which allow for degradation of the existing visual character of the landscape.	D. Jacobsen	3/11/16
NI	Wild Horses and Burros	None present within the project area.	C. Hunter	3/11/16
NI	Lands with Wilderness characteristics	None present within the project area.	D. Jacobson	3/11/16

Reviewer Title	Signature	Date	Comments
NEPA / Environmental Coordinator			
Authorized Officer			