PMC-ND

(1.08.09.13)

U.S. DEPARTMENT OF ENERGY
OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY
NEPA DETERMINATION

RECIPIENT: Kawerak, Inc. **STATE:** AK

PROJECT TITLE: Unaatuq Energy: Geothermal Technology for Pilgrim Hot Springs

Notice of Funding Opportunity Number	Procurement Instrument Number	NEPA Control Number	CID Number
	DE-IE0000164	GFO-0000164-002	GO164

Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Policy 451.1), I have made the following determination:

CX, EA, EIS APPENDIX AND NUMBER:

Description:

B3.1 Site characterization and environmental monitoring	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. Covered activities include, but are not limited to, site characterization and environmental monitoring under CERCLA and RCRA. (This class of actions excludes activities in aquatic environments. See B3.16 of this appendix for such activities.) Specific activities include, but are not limited to: (a) Geological, geophysical (such as gravity, magnetic, electrical, seismic, radar, and temperature gradient), geochemical, and engineering surveys and mapping, and the establishment of survey marks. Seismic techniques would not include large-scale reflection or refraction testing; (b) Installation and operation of field instruments (such as stream-gauging stations or flow-measuring devices, telemetry systems, geochemical monitoring tools, and geophysical exploration tools); (c) Drilling of wells for sampling or monitoring of groundwater or the vadose (unsaturated) zone, well logging, and installation of water-level recording devices in wells; (d) Aquifer and underground reservoir response testing; (e) Installation and operation of ambient air monitoring equipment; (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); (g) Sampling and characterization of water effluents, air emissions, or solid waste streams; (h) Installation and operation of meteorological towers and associated activities (such as assessment of potential wind energy resources); (i) Sampling of flora or fauna; and (j) Archeological, historic, and cultural resource identification in compliance with 36 CFR part 800 and 43 CFR part 7.
B5.15 Small-scale renewable energy research and development and pilot projects	Small-scale renewable energy research and development projects and small-scale pilot projects, provided that the projects are located within a previously disturbed or developed area. Covered actions would be in accordance with applicable requirements (such as local land use and zoning requirements) in the proposed project area and would incorporate appropriate control technologies and best management practices.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide funding to Kawerak, Inc. to build, operate, and monitor a 65kW Organic Rankine Cycle (ORC) binary small-scale power plant (closed loop with only water vapor emissions) from the geothermal resources at Pilgrim Hot Springs. The proposed system would provide electricity and heat to 18 existing buildings on site, reduce dependency on imported diesel fuel, and provide data on feasibility of small-scale geothermal energy for remote applications.

This project (award number DE-IE0000164) received a Conditional NEPA determination (GFO-0000164-001; A9 and B3.1) on September 8, 2022. The previous ND did not apply to Task 2 (subtasks 2.2, 2.4, 2.5, 2.6, and 2.7), Task 3, or Task 4. This ND applies to Tasks 2, 3, 4, and 5 which would include the permitting, contracts with contractors, pre-construction meetings and site inspections, construction, construction closeout, and post-construction monitoring of the binary small-scale power plant system.

PROJECT DESCRIPTION

The proposed project activities would include the final design of the geothermal power plant distribution system throughout the property, and the delivery and installation of an ORC engine (contained within a 40’ shipping container) using the current 14-inch diameter production well on site at Pilgrim Hot Springs. Equipment testing of the ORC unit would occur in a factory setting before truck delivery to Nome, Alaska. Stampede Ventures, Inc. would install the ORC

unit above the existing production well, trench and install HDPE piping throughout the property for wastewater discharge, and bury electrical lines throughout the property connecting all buildings to the electrical grid. The existing source well produces water, under artesian conditions, at an estimated rate of 60-75 GPM. A new vertical turbine line shaft pump would be installed to boost flows to 200-250 GPM. A Battery Energy Storage System (BESS) would be connected to the geothermal power plant to store electricity and control output from the well and power plant. Discharge as a result of the proposed project would be limited to geothermal mineral waters discharged into the hot springs pools, before reinjection back into the geothermal well.

Site improvements would include expanding road access by placing additional gravel along the existing road and gravel pad, including potential concrete pads, to support the 8-foot x 40-foot shipping container which would house the power plant (including the ORC engine), a parking area, and a back-up diesel generator and associated switchgear components. A 15-ft clearance between the new infrastructure and the toe of the existing gravel pad would be maintained.

IMPACTS ANALYSIS

Cultural Resources
The existing Pilgrim Hot Springs area includes sites and structures of historic and cultural value and is listed on the National Register of Historic Places (NRHP). While some of the environment within the parcel has been documented as part of an NRHP-listed property, there is no record of comprehensive cultural resource field investigations. Based on research conducted for Pilgrim Hot Springs and in the surrounding area, paired with the minimal field investigations completed, there is a potential for locating unidentified prehistoric and historic archaeological (subsurface) resources.

On July 9, 2025, DOE/USDA initiated Section 106 consultation with the Alaska SHPO and participating tribes and local government agencies. On August 8, 2025, the Alaska SHPO responded with concurrence to the finding of “No Adverse Effect” for this project, and no comments were received from other consulting parties; however, if there are any changes to the scale or scope of work, there may be additional Section 106 responsibilities under certain circumstances set forth in 36 CFR Part 800.13. The following conditions/ mitigations were agreed to through the consultation process:

1. The APE would be surveyed, and any historic properties found within the APE would be avoided.
2. Kawerak would develop a Cultural Resource Management Plan (CRMP) that would guide future research and survey of the property with the objective of reevaluating the properties significance at a national level and of protecting any cultural resources within the property.
3. Ground disturbing activities would be monitored.

Additionally, the project design would also be reviewed by the Alaska SHPO. Adverse effects to historic buildings and features would be avoided, and mitigated, if necessary.

Additional Impacts
There is no existing National Wetland Inventory wetland mapping or Natural Resource Conservation Service (NRCS) soil survey mapping coverage for the study area, so a wetland delineation was completed for Pilgrim Hot Springs in September 2023. Wetland determinations were conducted at representative locations within the 115-acre study area. Upland ecosystems within the study area include swaths of cottonwood forest with understories dominated by cow parsnip, lady fern and fireweed. The most common wetland type was emergent, with vegetation communities dominated by herbaceous hydrophytic plant species. All wetlands in the Pilgrim Hot Springs study have floodplain connections to the Pilgrim River, a navigable water. Activities that would occur in wetland areas would be limited to narrow trenches to bury HDPE water piping and electrical cables and placement of gravel at the existing pad. Wetlands and waters at Pilgrim Hot Springs fall under the jurisdiction of the U.S. Army Corps of Engineers. Any development plans that encompass dredge activities and/or the placement of fill material into wetlands or waters would necessitate compliance with the Section 404 permitting process.

Air emissions may occur during well testing, the use of vehicles to access the site, and potential use of generators to power well testing equipment. These emissions would not significantly impact air quality as generator and vehicle use would be temporary and intermittent. For operation, the ORC engine would generate noise, but it would be dampened by the shipping container it is enclosed within and additional enclosure and screening features would further dampen the sound.

Construction-related noise would consist of a short-term, intermittent increase in ambient noise levels. The ORC engine generates a sound pressure of 78 dBa. The ORC engine would be contained within a 40-ft shipping container, which would lessen noise pollution from the system, and an additional enclosure and screening features would be used to further dampen the sound.

The geothermal reservoir at the site has been studied at length as part of previous projects at the University of Alaska and the current project. Withdrawal and injection rates would be designed to avoid negative impacts to the resource,

and additionally, the project would obtain all required permits and approvals to withdraw and inject water. As such, adverse impacts to this resource are not anticipated.

Project activities would involve hazards associated with routine field work, working with electricity, fuels, and high temperatures. Kawerak, Inc. would observe all applicable health, safety, and environmental regulations. DOE has considered the scale, duration, and nature of the proposed activities to determine potential impacts on sensitive resources, including those of an ecological, historical, cultural, and socioeconomic nature, and found no effects that would be expected to result from the proposed project activities.

FOR CATEGORICAL EXCLUSION DETERMINATIONS:

- The proposal fits within a class of actions that is listed in Appendix B to 10 CFR Part 1021 or Appendix B and C of DOE's NEPA Implementing Procedures (June 30, 2025).To fit within the classes of actions listed in Appendix B to 10 CFR Part 1021, or Appendix B of DOE's NEPA Implementing Procedures, a proposal must satisfy the conditions that are integral elements of the classes of actions in Appendix B of both 10 CFR Part 1021 and DOE's NEPA Implementing Procedures.

- There are no extraordinary circumstances related to the proposed action that may affect the significance of the environmental effects of the proposal.

- The proposed action has not been segmented to meet the definition of a categorical exclusion.

- The proposed action is categorically excluded from further NEPA review.

NEPA PROVISION

DOE has made a final NEPA determination.

Include the following condition in the financial assistance agreement:

Kawerak, Inc. is responsible for obtaining the required permits and approval from the following entities before the proposed work may proceed:

• Alaska Oil and Gas Conservation Commission (AOGCC) Permits for geothermal drilling
• Alaska Department of Environmental Conservation (ADEC) Wastewater Discharge Permit for water associated with construction and testing of the production and re-injection wells would require an Alaska Pollutant Discharge Elimination System (APDES) permit
• Alaska Department of Natural Resources Temporary Water Use Permit in the event that temporary water use is required for construction, an authorization would be obtained.
• Alaska Department of Fish and Game (ADF&G) Project Approval
• Initial review of the ADF&G Anadromous Waters Mapper does not indicate any trenching or fill activities would occur in a fish bearing stream or designated fish habitat. However, if consultation with ADF&G during the US Army Corp of Engineers (USACE) permitting process indicates the need for a Title 16 Fish Habitat Permit, one would be obtained.
• US Bureau of Land Management (BLM) Permit for Road and/or Trail Improvements
• USACE Nationwide Permit
• Although National Wetlands Inventory (NWI) mapping does not exist for the project area, due to the nature of the terrain at Pilgrim Hot Springs, it is assumed a Nationwide Permit – Electric Utility Line and Telecommunications Activities would apply. A preliminary wetlands delineation was completed for the property in 2023.
• Mary's Igloo Native Corporation Land Use Permit
• Land Use coordination with ANCSA Village Native Corporation that owns surrounding land around the property and project site.
• Environmental Protection Agency Underground Injection Well notice ADEC

Notes:

Office of Indian Energy Policy and Programs (OIE)
NEPA review completed by Emma Luther, 8/18/2025

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: Electronically Signed By: Nicole Serio Date: 8/19/2025

NEPA Compliance Officer

FIELD OFFICE MANAGER DETERMINATION

- [x] Field Office Manager review not required
- [ ] Field Office Manager review required

BASED ON MY REVIEW I CONCUR WITH THE DETERMINATION OF THE NCO :

Field Office Manager's Signature: _____ Date: _____

Field Office Manager