

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



**RECIPIENT:** Energy Exploration Technologies Inc.

**STATE:** TX

**PROJECT TITLE :** Simplified High Purity Direct Lithium Hydroxide Production from Salton Sea Brines

**Notice of Funding Opportunity Number**  
DE-FOA-0002823

**Procurement Instrument Number**  
DE-EE0010876

**NEPA Control Number**  
GFO-0010876-001

**CID Number**  
GO10876

**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:

**A9 Information gathering, analysis, and dissemination**

Information gathering (including, but not limited to, literature surveys, inventories, site visits, and audits), data analysis (including, but not limited to, computer modeling), document preparation (including, but not limited to, conceptual design, feasibility studies, and analytical energy supply and demand studies), and information dissemination (including, but not limited to, document publication and distribution, and classroom training and informational programs), but not including site characterization or environmental monitoring. (See also B3.1 of appendix B to this subpart.)

**B3.6 Small-scale research and development, laboratory operations, and pilot projects**

Siting, construction, modification, operation, and decommissioning of facilities for smallscale research and development projects; conventional laboratory operations (such as preparation of chemical standards and sample analysis); and small-scale pilot projects (generally less than 2 years) frequently conducted to verify a concept before demonstration actions, provided that construction or modification would be within or contiguous to a previously disturbed or developed area (where active utilities and currently used roads are readily accessible). Not included in this category are demonstration actions, meaning actions that are undertaken at a scale to show whether a technology would be viable on a larger scale and suitable for commercial deployment.

**Rationale for determination:**

The U.S. Department of Energy (DOE) is proposing to provide federal funding to Energy Exploration Technologies, Inc. to design, construct, test and operate an advanced commercial lithium extraction plant capable of producing lithium hydroxide monohydrate from the Smackover Formation in Texas containing hot brines.

The construction, deployment, research, testing and operation of a demonstration plant that would validate pilot learning, improve process conditions, and optimize the consumption of reagents and consumables, such as water, reagent chemicals, and product quality associated with producing highly pure direct lithium hydroxide from Salton Sea brines would occur at EnergyX's (EX's) Lonestar Demonstration Plant in Hooks, TX. Pilot plant demonstration and optimization would occur at EX's Pilot Facility and Headquarters, located in Austin, TX. Staff training and key process and operational conditions learning would also occur at this facility. Brine production, handling and injection, as well as hydrocarbon removal and treatment would occur at GreenLite's Smackover well in Texarkana, TX. Brine would be reinjected into existing reinjection wells that are approximately 600 feet east of the Smackover well in Texarkana, TX. Commercial evaluation of battery-grade lithium salts would be conducted at the Argonne National Laboratory.

The pilot testing at the EX facility in Austin and the demonstration plant effort at the EX facility in Hooks, TX would involve the use of various hazardous chemicals, including strong acids, bases, resins and solvents, all of which would be managed within dedicated pilot or plant facility. The facilities have hazardous material handling systems and disposal practices established and adhere to all federal, state, and local environmental regulations regarding hazardous materials management as well as health and safety policies and procedures. Additional measures would be implemented as new health and safety risks are identified.

Activities at the GreenLite's Smackover well would include brine production, handling and reinjection. Additionally, pre-treatment, to include hydrocarbon removal would occur at the wellhead. Well operations would encompass various activities, including drilling, brine production, pretreatment, and storage. These operations present several hazardous risks, primarily related to corrosion, handling, and environmental impacts primarily related to hydrogen sulfide gas release and groundwater contamination. To mitigate these risks, a comprehensive process design, advanced engineering practices, and stringent health and safety protocols would be implemented. Key measures include thorough worker safety training and close collaboration with local authorities to identify and avoid hydrogen sulfide-bearing formations. Blowout prevention equipment would be deployed, rated to withstand the specific well depth and pressure conditions. Rigorous well maintenance, leak prevention measures, and systems for safe capture and

disposal of toxic hydrogen sulfide gas would be followed. These would include the use of hydrogen sulfide-resistant materials for well casings and equipment and integrated heat-resistant materials to ensure safe handling of high-temperature brine.

Operations at the GreenLite Injection Well site would involve handling and disposing of spent brine. To mitigate potential risks associated with spent brine, groundwater contamination prevention guidelines would be strictly followed. Guideline measures would include maintaining surface injection pressures below 1,000 pound-force per square inch and disposing of spent brine within subsurface strata at depths between 3,396 and 3,414 feet, with injection volumes kept below 150 barrels per day. Additionally, annulus pressure testing would be completed before starting injection operations and after any workovers to ensure continued well safety and integrity.

The installation of the demonstration plant at the EX facility in Hooks, TX would include the placement of three concrete pads, with two of them being 10 ft (L) x 10 ft (W) x 1 ft (D) and one being 76 ft (L) x 36 ft (W) by 1 ft (D). The smaller pads would house electrical equipment while the larger pad would provide secondary containment for six vertical storage tanks (four pregnant brine tanks which would be 15 ft tall and 12 ft in diameter) and two waste brine tanks (which would be 16 ft tall and 12 ft in diameter). Excavation to a depth of approximately 7 feet is expected for the secondary containment pad.

The project involves modifying the existing building, constructing new brine storage tanks, upgrading the electrical systems within the building, and constructing parking and storage facilities. The recipient would obtain a building permit from the local city or county, ensure that the electrical upgrades comply with the National Electrical Code, and secure a permit from the Texas Commission on Environmental Quality for the construction of the brine storage tanks.

Project work occurring at each facility would conform to existing facility usage with no new environmental permits are expected for the proposed project. All required construction and operating permits (including zoning, building, structural, electrical, etc.) would be obtained and verified on site by DOE's Independent Engineer. Any and all permits required for the execution of the project at the above-referenced locations would be the responsibility of the recipient.

The US Fish and Wildlife Service's (USFWS') Information for Planning and Consultation (IPaC) website identifies two birds, one mammal, and one reptile that have home ranges that overlap the project sites. The Tricolored bat (proposed endangered) is a species associated with forested landscapes, with foraging and roosting occurs along forested perimeters and forested riparian areas. While species proposed for federal listing by the USFWS are not protected by the take prohibitions of the Endangered Species Act, it is important to note that no trees would be cleared as part of the project. The alligator snapping turtle (proposed threatened) is a species closely tied to still or slow-moving and deep waterbodies, including rivers, sloughs, oxbows, reservoirs, lakes and canals. While this habitat type does not persist at the project sites, movements of this species, between suitable habitat may occur. It is important to note that this species is not protected by the take prohibitions of the Endangered Species Act. The piping plover and red knot (both federally threatened) are species that are most commonly associated with beach/dune habitats. The piping plover relies on shorelines, reservoir and lake beaches, river islands and nearby sand pits, and pond shorelines. The red knot relies on tidal flats, marshes, flooded fields and beaches for habitat. Neither bird species would be expected to occur at the project sites. No habitat, to include critical habitat persists within or in the vicinity of the project sites. Accordingly, DOE has determined there would be no effect on federally listed threatened or endangered species. Further, DOE does not anticipate adverse impacts to migratory bird species.

Consultation with the Texas Historical Commission (the State Historic Preservation Office; SHPO) was initiated on May 20th, 2025, and was completed on June 2nd, 2025. The SHPO found that no above-ground or archeological resources are present or would be affected by the project as proposed. The response letter also states that if historic properties are discovered or if cultural materials are encountered during construction, that work cease immediately. The Commission's History Programs Division should be contact for historic properties and/or the Archaeology Division should be contacted for archaeological finds.

DOE has considered the scale, duration, and nature of proposed activities to determine potential impacts on resources, including those of an ecological, historical, cultural, and socioeconomic nature. DOE does not anticipate impacts on these resources within the scope of this current NEPA Determination that would be considered significant or require DOE to consult with other agencies or stakeholders.

EERE is aware of the November 12, 2024, decision of *Marin Audubon Society v. FAA*, No. 23-1067 (D.C. Cir. Nov. 12, 2024). To the extent that a court may conclude that the Council on Environmental Quality (CEQ) regulations implementing NEPA are not judicially enforceable or binding on this agency action, EERE has nonetheless elected to follow those regulations at 40 C.F.R. Parts 1500-1508, in addition to DOE's procedures/regulations implementing NEPA at 10 C.F.R. Part 1021, to meet the agency's obligations under NEPA, 42 U.S.C. §§ 4321 et seq.

DOE has made a final NEPA determination.

Include the following condition in the financial assistance agreement:

The Texas Historical Commission must be contacted if the project changes, or if new historic properties are found. They can be reached directly at [Rebecca.Shelton@thc.texas.gov](mailto:Rebecca.Shelton@thc.texas.gov) and [Caitlin.Brashear@thc.texas.gov](mailto:Caitlin.Brashear@thc.texas.gov).

Notes:

Geothermal Technologies Office & Advanced Materials and Manufacturing Technologies Office  
NEPA review completed by Chris Akios, 6/9/2025

#### FOR CATEGORICAL EXCLUSION DETERMINATIONS

The proposed action (or the part of the proposal defined in the Rationale above) fits within a class of actions that is listed in Appendix A or B to 10 CFR Part 1021, Subpart D. To fit within the classes of actions listed in 10 CFR Part 1021, Subpart D, Appendix B, a proposal must be one that would not: (1) threaten a violation of applicable statutory, regulatory, or permit requirements for environment, safety, and health, or similar requirements of DOE or Executive Orders; (2) require siting and construction or major expansion of waste storage, disposal, recovery, or treatment facilities (including incinerators), but the proposal may include categorically excluded waste storage, disposal, recovery, or treatment actions or facilities; (3) disturb hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that preexist in the environment such that there would be uncontrolled or unpermitted releases; (4) have the potential to cause significant impacts on environmentally sensitive resources, including, but not limited to, those listed in paragraph B(4) of 10 CFR Part 1021, Subpart D, Appendix B; (5) involve genetically engineered organisms, synthetic biology, governmentally designated noxious weeds, or invasive species, unless the proposed activity would be contained or confined in a manner designed and operated to prevent unauthorized release into the environment and conducted in accordance with applicable requirements, such as those listed in paragraph B(5) of 10 CFR Part 1021, Subpart D, Appendix B.

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. This proposal is not connected to other actions with potentially significant impacts (40 CFR 1508.25(a)(1)), is not related to other actions with individually insignificant but cumulatively significant impacts (40 CFR 1508.27(b)(7)), and is not precluded by 40 CFR 1506.1 or 10 CFR 1021.211 concerning limitations on actions during preparation of an environmental impact statement.

The proposed action is categorically excluded from further NEPA review.

#### SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: \_\_\_\_\_



Matthew Blevins

NEPA Compliance Officer

Date: 6/9/2025

#### FIELD OFFICE MANAGER DETERMINATION

- ☒ 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: \_\_\_\_\_

Field Office Manager

Date: \_\_\_\_\_