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Document Title:	Mojave Solar Project Alpha East LTU Remediation Plan Agency Comment Letter
Description:	The Lahontan Regional Water Quality Control Board and Energy Commission Comments on the Mojave Solar Project Alpha East Land Treatment Unit Remediation Plan
Filer:	Ashley Gutierrez
Organization:	California Energy Commission
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Mahnaz Ghamati, Compliance Manager
Atlantica Sustainable Infrastructure
Mojave Solar Project
42134 Harper Lake Road
Hinkley, CA 92347

MOJAVE SOLAR PROJECT (09-AFC-05C) ALPHA EAST LAND TREATMENT UNIT REMEDIATION PLAN COMMENTS

Dear Mahnaz Ghamati,

On October 30, 2025, a Groundwater Quality Assessment and Contaminated Soil Remediation Work Plan was received and reviewed in coordination with the Lahontan Regional Water Quality Control Board (LRWQCB). The plan was prepared in response to a Notice of Violation (NOV) letter dated August 18, 2025, issued by the LRWQCB for an unauthorized discharge of heat transfer fluid (HTF) to the Harper Valley Groundwater Basin at the Alpha East land treatment unit (LTU).

As required by California Energy Commission (CEC) condition of certification **SOIL & WATER-2**, both the LRWQCB and CEC staff have reviewed the plan and provided the comments below. Please ensure agency comments are considered and integrated into a revised plan and resubmitted to both the CEC and LRWQCB staff for final review and approval prior to remediation activities commencing at the Mojave Solar Project, Alpha East LTU.

1. **General Formatting** - Move "Included" list on page 12 to the beginning of the document and use as Table of Contents (TOC). Use of appendices and attachments is confusing for the reader. Some supporting documents for the workplan are appendices and some are attachments. Some appendices also have attachments. For consistency, suggest making supporting documents for the workplan appendices and supporting documents for appendices, attachments.

2. **Professional Qualifications** – The Lahontan Regional Board can't accept the workplan without the signature and stamp of a registered design professional. The land treatment unit is a Title 27 waste containment system

and must be properly closed by a registered Professional Civil Engineer or Certified Engineering Geologist.

3. **Section 1.0 Introduction**

a. Site Maps, Page 3 – Identify site maps as Figures 2a & 2b.

b. Tabulated Analytical Data, Page 3 – Identify site maps as Appendix B.

c. Sampling and Analysis, Drilling, Logging and Well Installation, Excavation of Contaminated Soils, Page 3 – Note these included in the workplan.

d. Land Treatment Unit Construction Details, Page 3 – Bold.

e. Attachment D should be an appendix rather than an attachment. See **General Formatting** above.

4. **Section 2.3 Land Treatment Units** – The construction description of the land treatment units does not match the description provided in the 2010 Report of Waste Discharge, section 1.2.2. Additionally, the boring logs provided in the *Environmental Site Assessment Report* indicate that no liner was present (except for boring log B6), and the soils present are not up to California Code of Regulations (CCR), Title 27 standards (see Title 27, section 20320 (d)(2). Please explain this discrepancy and provide up-to-date construction details (i.e., the as-built final design plans) for the units. It is imperative that the treatment zone, including the final depth, is clearly defined. The design requirements are as follows:

a. LTUs must be designed by, and construction must be supervised and certified by, a registered civil engineer or a certified engineering geologist, pursuant to Title 27, Section 20310(e), CCR.

b. LTUs must be designed, constructed, operated and maintained to maximize the degradation, transformation, and immobilization of waste constituents in the treatment zone, pursuant to Title 27, Section 20377(b), CCR.

c. LTUs must be sited, designed, constructed and operated to ensure the base of the treatment zone is five feet above the highest anticipated elevation of underlying groundwater, pursuant to Title 27, Section 20240(c), CCR.

d. The maximum depth of the treatment zone must not exceed 5 feet from the initial soil surface, pursuant to Title 27, Section 20250(b)(5), CCR.

e. Materials used in LTUs must have appropriate chemical and physical properties to ensure that such structures do not fail to contain the waste because of pressure gradients (including hydraulic head and external hydrogeologic forces), physical contact with the waste or leachate, chemical reactions with soil and rock, climatic conditions, the stress of installation, or because of the stress of daily operation, pursuant to Title 27, Section 20320(a), CCR.

f. Earthen materials used in the LTUs must consist of a mixture of clay and other suitable fine-grained soils which have the following characteristics, and which, in combination, can be compacted to attain the required hydraulic conductivity ($1x10^{-6}$ cm/sec) when installed (Title 27, Section 20320(d), CCR).

    i. At least 30 percent of the material, by weight, must pass a No. 200 U.S. Standard Sieve.

    ii. The materials must be fine grained soils with a significant clay content and without organic matter, and which is a clayey sand, clay, sandy or silty clay, or sandy clay under a soil classification system having industry wide use [e.g., the "SC", "CL" or "CH" soil classes under ASTM Designation: D2487 Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System)].

g. LTUs must be equipped with precipitation and drainage controls that comply with Title 27, Section 20365, CCR.

h. LTUs must be designed to withstand the maximum credible earthquake without damage to the foundation or to the structures which control leachate, surface drainage, erosion or gas (Title 27, Section 20370, CCR).

5. **Section 2.4 Detected Soil and Groundwater Contamination** – Please clearly define the extent of soil and groundwater contamination.

a. *Soil contamination* – Soil contamination was previously found near sample ports E2 and E3 up to approximately 10 ft below ground surface (bgs). Additional sampling conducted in July 2024 concluded that contamination is present near boring B5 at approximately 10 ft bgs and near boring B6 to a depth between 5 ft bgs and 10 ft bgs and possibly at 40 ft bgs. Gasoline was detected in boring B6 at 40 ft bgs. A carbon chain can breakdown into shorter chains that meet the chemical and physical specifications of gasoline and would register as such on a laboratory test. Gasoline is not a single, unique chemical compound, but a complex mixture of various hydrocarbons, primarily in the C4-C12 range.

b. *Groundwater contamination* – A release to groundwater was identified in July 2024. Toluene (8.3 ug/L), diphenyl oxide (990 ug/L), biphenyl (280 ug/L), and methylene blue activated substances (0.332 mg/L) were detected between 24 ft and 33 ft bgs.

6. **Section 3.0, Task 3.2 – Perched Groundwater Monitoring Well Installation** – Groundwater well screen intervals should be no longer than 10 feet at contaminated sites. Groundwater was encountered in MWPA-200 at 32 ft bgs. Please take the depth to groundwater in well MWP-A200 into consideration when designing the screened interval for the proposed wells MWLTU-A1 and MWLTU-A2.

7. **Section 3.0, Task 3.3 – Laboratory Testing –** Groundwater sampling must include nitrates, phosphates/phosphorus, biphenyl, diphenyl oxide, volatile organic compounds, semi-volatile organic compounds, methylene blue activated substances, and polyfluorinated alkyl substances (USEPA Test Method 1633A).

8. **Section 3.0, Task 3.3 – Laboratory Testing** – The laboratory report must be uploaded electronically to GeoTracker in an Electronic Deliverable Format (EDF) file. For more information, please visit the Frequently Asked Questions on the State Water Resources Control Board GeoTracker website: Electronic Submittal of Information (ESI) - Frequently Asked Questions | California State Water Resources Control Board.

9. **Section 3.0, Task 3.3 – Groundwater Quality Assessment** – Consider additional analytical methods to detect breakdown products.

10. **Section 3.0, Task 3.5 – Prepare Report** – The groundwater sampling report must be uploaded electronically to GeoTracker in Portable Document Format (PDF) file. For more information, please visit the Frequently Asked Questions on the State Water Resources Control Board GeoTracker website: Electronic Submittal of Information (ESI) - Frequently Asked Questions | California State Water Resources Control Board.

11. **Section 4.0 Contaminated Soil Excavation, Removal and Alpha East LTU Closure** – The precipitation and drainage control system must be maintained upon closure of the LTU pursuant to Title 27, section 21420(a)(4), CCR.

12. **Section 4.0, Task 4.2 – Soil Excavation and Sampling** – Soil excavation should commence to a depth of 10 vertical ft bgs and until PID readings are less than 10 ppm VOCs. When PID readings are less than 10 ppm, soil samples should be collected from the base and walls of the excavation.

13. **Section 4.0, Task 4.2 – Soil Excavation and Sampling**

a. Prior to reuse of the soil onsite, the laboratory results must be distributed to the Lahontan Regional Board and CEC for review. CEC and LRWQCB will revise condition of certification **WASTE-10** to reflect inclusion of the waterboard's involvement in the review and approval of HTF contaminated soil sample results.

b. One of the analyzed constituents is identified as "Diphenyl". While this is a synonym for biphenyl, please use biphenyl for consistency.

14. **Section 4.0, Task 4.3 – Laboratory Testing** – Soil samples should also be analyzed for semi-volatile organic compounds (USEPA Test Method 8270) and for those constituents listed in the California Total Threshold Limit Concentration (TTLC), Soluble Threshold Limit Concentration (STLC), and Waste Extraction Test (WET) methods (see California Code of Regulations, title 22, section 66261.24(a)(2) and section 66262.126, Appendix II). Those constituents that exceed TTLC values must be run using the STLC method. Those that exceed the STLC, but not the TTLC must be run using the WET test.

15. **Section 4.0, Task 4.4 – Prepare Report** – The excavation report must be uploaded electronically to GeoTracker in Portable Document Format (PDF) file. For more information, please visit the Frequently Asked Questions on the State Water Resources Control Board GeoTracker website: Electronic Submittal of Information (ESI) - Frequently Asked Questions | California State Water Resources Control Board.

16. **Attachment C Batch Canister Certification Reports** – When processing batch canister certification reports, MSP staff should receive a report that includes a list of chemical compounds present in each canister. Should further vapor sampling be required at the site, please ensure the data (including the list of chemical compounds) is provided to you to affirm or disqualify vapor forming chemicals that appear on the sample laboratory analytical report.

If you have any questions, please contact Compliance Project Manager, Ashley Gutierrez, Compliance Monitoring and Enforcement Unit, Safety and Reliability Branch, at (916) 839-0400 or Ashley.Gutierrez@energy.ca.gov.

Sincerely,

Hurshbir Shahi

Hurshbir Shahi, Supervisor
Compliance Monitoring and Enforcement Unit
Safety and Reliability Branch
Siting, Transmission, and Environmental Protection Division

CC: Kerri OKeefe,
LRWQCB Engineering Geologist
Kerri.OKeefe@waterboards.ca.gov
David Rosas, MSP Plant Manager
David.Rosas@atlantica.com
James Ackerman, CEC Engineering Geologist
James.Ackerman@energy.ca.gov