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Genesis Solar, LLC

(9-AFC-8)

Petition to Amend

Submitted by

Genesis Solar, LLC

August 2025

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Executive Summary

Genesis Solar, LLC as project owner, petitions the California Energy Commission (CEC or Commission) to comply with the Condition of Certification Compliance-13, Gen-1 and Gen-8 regarding the manner of regulation. Genesis Solar is proposing the installation of two HyMATE (Hydrogen Removal units) units, one at each unit 1 and 2 located in the Heat transfer fluid area directly underneath the existing Expansion Vessel. The purpose of the HyMATE installations is to improve and maintain the solar field thermal efficiency and performance by removing dissolved hydrogen from the circulating heat transfer fluid (HTF).

Per the CEC Condition of certification, this compliance proposal is being submitted for approval due to the following condition decisions.

COMPLIANCE-13

The project owner must petition the Energy Commission pursuant to Title 20, California code of Regulations section 1769, in order to modify the project (including linear facilities) design, operation or performance requirements, and to transfer ownership or operational control of the facility. It is the responsibility of the project owner to contact the CPM to determine if a proposed project change should be considered a project modification pursuant of section 1769. Implementation of a project modification without first securing Energy Commission, or Energy Commission staff approval, may result in enforcement action that could result in civil penalties in accordance with section 25534 of the Public Resources Code.

A petition is required for amendments and for staff approved project modifications as specified below. Both shall be filed as a "Petition to Amend." Staff will determine if the change is significant or insignificant. For verification changes, a letter from the project owner is sufficient. In all cases, the petition or letter requesting a change should be submitted to the CPM, who will file it with the Energy Commission's Dockets Unit in accordance with Title 20, California Code of Regulations, section 1209.

GEN-1

The project owner shall design, construct, and inspect the project in accordance with the 2007 California Building Standards Code (CBSC), also known as Title 24, California Code of Regulations, which encompasses the California Building Code (CBC), California Building Standards Administrative Code, California Electrical Code, California Mechanical Code, California Plumbing Code, California Energy Code, California Fire Code, California Code for Building Conservation, California Reference Standards Code, and all other applicable engineering LORS in effect at the time initial design plans are submitted to the CBO for review and approval (the CBSC in effect is the edition that has been adopted by the California Building Standards Commission and published at least 180 days previously). The project owner shall ensure that all the provisions of the above applicable codes are enforced during the construction, addition, alteration, moving, demolition, repair, or maintenance of the completed facility. All transmission facilities (lines, switchyards, switching stations and substations) are covered in the conditions of certification in the Transmission System Engineering section of this document. In the event that the initial engineering designs are submitted to the CBO when the successor to the 2007 CBSC is in effect, the 2007 CBSC provisions shall be replaced with the applicable successor provisions. Where, in any specific case, different sections of the code specify different materials, methods of construction or other requirements, the most restrictive shall govern. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall govern.

The project owner shall ensure that all contracts with contractors, subcontractors, and suppliers clearly specify that all work performed and materials supplied comply with the codes listed above.

GEN-8

The project owner shall obtain the CBO's final approval of all completed work that has undergone CBO design review and approval. The project owner shall request the CBO to inspect the completed structure and review the submitted documents. The project owner shall notify the CPM after obtaining the CBO's final approval. The project owner shall retain one set of approved engineering plans, specifications, and calculations (including all approved changes) at the project site or at another accessible location during the operating life of the project. Electronic copies of the approved plans, specifications, calculations, and marked-up as-builts shall be provided to the CBO for retention by the CPM.

1.0 Introduction

1.1 Overview

By this amendment Genesis Solar, LLC, petitions the Commission to consider the stated Condition of Certification to add a HyMATE Unit provided by CSP Services) to each HTF system in Power Block Unit 1 and Unit 2.

HyMATE units (Hydrogen Removal Equipment):

The HyMATE process functions by extracting hydrogen from the headspace gas that is maintained above the liquid HTF in the expansion vessel (EV) and overflow vessels (OFVs). As hydrogen is removed from the headspace gas, dissolved hydrogen in the adjacent HTF transfers to the headspace gas, thereby removing hydrogen from the HTF in the EV. Hydrogen in the circulating solar field HTF is removed as it passes through the EV.

Extraction is accomplished using a palladium/silver alloy foil or membrane. The membrane is permeable only to hydrogen. All other headspace gas components including nitrogen, HTF vapor and other HTF degradation products remain in the headspace gas. The extracted hydrogen is sent to a catalytic oxidizer where it mixes with air and oxidized to water vapor. The only release from the HyMATE process is water vapor. All other gas components remain in the headspace gas that is sent back to the EV.

2.2 HyMATE Process Components

The system is mounted in a high-cube container (20’ L x 8’ W x 9’6” H) that includes the following main components and accessories:

- Membrane assemblies with palladium membrane for selective hydrogen removal and membrane heaters
- Gas blower for circulation of headspace gas
- Vacuum pumps for hydrogen removal
- Catalytic oxidizer for conversion of hydrogen to water
- Steam traps/knock out pot and condensate return pump
- Programmable Logic Controller (PLC) with software license and data acquisition
- Instrumentation of the system (pressure transmitters and indicators, temperature transmitters, flow meter)
- Complete signal and power accessories
- Pneumatic control valves, manual shutoff valves and pressure safety valves
- Piping and accessories for circulating headspace gas, nitrogen and hydrogen supply, and for vacuum side

- Insulation and heat tracing
- Container for mounting all components and easy transport and installation of the complete system
- Data interface for remote control

This Amendment contains all of the information that is required pursuant to the Siting Regulations (California Code of Regulations [CCR] Title 20, Section 1769, Post Certification Amendments and Changes). The information necessary to fulfill the requirements of Section 1769(a)(1) is contained in Sections 1.0 through 5.0 as summarized in Table 1 below.

TABLE 1

Informational Requirements for Post-Certification Amendments and Changes in accordance with Title 20 California Code of Regulations

Section 1769(a)(1) Requirement	Section of Petition Fulfilling Requirement
(A) A complete description of the proposed modifications, including new language for any conditions that will be affected.	2.0
(B) A discussion of the necessity for the proposed changes	2.2
(C) If the modification is based on information that was known by the petitioner during the certification proceeding, an explanation why the issue was not raised at that time	2.2
(D) If the modification is based on new information that changes or undermines the assumptions, rationale, findings, or other bases of the final decision, an explanation of why the change should be permitted	2.2
(E) An analysis of the impacts the modification may have on the environment and proposed measures to mitigate any significant adverse impacts	1.3
(F) A discussion of the impact of the modification on the facility's ability to comply with applicable laws, ordinances, regulations, and standards;	1.3
(G) A discussion of how the modification affects the public	4.0
(H) A list of property owners potentially affected by the modification.	5.1
(I) A discussion of the potential effect on nearby property owners, the public and the parties in the application proceedings.	5.2

1.2 Ownership of Genesis Solar, LLC

Genesis Solar, LLC is a wholly owned subsidiary of NextEra Energy Resources.

1.3 Summary of Environmental Impacts

The Siting Regulations require that an analysis be conducted to address the potential impacts the proposed project change may have on the environment and proposed measures to mitigate any potentially significant adverse impacts (Title 20, CCR, Section 1769 (a)(1)(E)). The regulations also require a discussion of the impact of the proposed change on the facility's ability to comply with applicable laws, ordinances, regulations and standards ("LORS") (Title 20, CCR Section 1769 (a)(1)(F)).

Section 3.0 of this Amendment includes a discussion of the potential environmental impacts associated with the proposed additions and a discussion of the consistency of the change with LORS. Section 3.0 concludes that there would be no environmental impacts associated with implementing the addition of the two HyMATE units specified in this Amendment and that the project would continue to comply with all applicable LORS.

2.0 Description of Project Changes

This section includes a complete description of the proposed modification consistent with the Siting Regulations (Title 20, CCR, Section 1769 (a)(1)(A)).

The location of the HyMATE process is shown in Figure 1 and is directly under the EV. This area (Figures 2, 3) is covered with a concrete pad, has close proximity to the EV, and has ample height and width clearance. These features make this location best suited for installation of the HyMATE process. The location is accessible from the adjacent paved road. The HyMATE process will be unloaded from a flatbed truck and positioned onto the concrete pad using a forklift or crane.

The proposed HyMATE units are mounted in a high-cube container (20' L x 8' W x 9'6" H) that includes the following main components and accessories:

- palladium membrane for selective hydrogen removal and membrane heaters
- Gas blower for circulation of headspace gas
- Vacuum pumps for hydrogen removal
- Catalytic oxidizer for conversion of hydrogen to water
- Steam traps/knock out pot and condensate return pump
- Programmable Logic Controller (PLC) with software license and data acquisition
- Instrumentation of the system (pressure, temperature and flow transmiiters).
- Complete signal and power accessories
- Pneumatic control valves, manual shutoff valves and pressure safety valves
- Piping and accessories for circulating headspace gas, nitrogen and hydrogen supply, and for vacuum side
- Insulation and heat tracing
- Container for mounting all components and easy transport and installation of the complete system
- Data interface for remote control

2.1 Changes to Condition of Certification

By way of background, the Decision for the Genesis Solar facility describes in GEN-1 any alterations or additions will be presented to the CPM 30 days before commencement of work.

"Once the certificate of occupancy has been issued, the project owner shall inform the CPM at least 30 days prior to any construction, addition, alteration, moving, demolition, repair, or maintenance to be performed on any portion(s) of the completed facility that requires CBO approval for compliance with the above codes. The CPM will then determine if the CBO needs to approve the work." (Decision, pg. 4)

The original Condition of Certification to the Decision will not be affected by the addition of the HyMate units. The Units will be constructed to CBO specifications and inspected by the CBO as required. (Decision p.2)

Additionally, the implementation of the proposed HyMate Units will not adversely affect the Conditions of Certification listed to ensure that the Genesis Solar Energy Project will be designed and constructed in conformance with the applicable LORS pertinent to the engineering aspects summarized in the Decision. (Decision, p. 3)

2.2 Necessity of Proposed Changes

The Siting Regulations require a discussion of the necessity for the proposed modification to GEN-1 and GEN-8 and whether the change is based on information known by the petitioner during the certification proceeding (Title 20, CCR, Sections 1769 (a)(1)(B), and (C)).

As described in Section 2.1 above, structural changes to the site does not change the decision as it is stated in GEN-1 and GEN-8. At the time of original approval, the project owner did not consider the need for a HyMATE unit. The deterioration of the HCE tubes at Genesis Solar recently understood caused concern and the need for action. Genesis Solar, LLC proposes to add the HyMATE Units to minimize the degradation of the HCE tubes and maintain plant efficency

3.0 Environmental Analysis of Proposed Project Changes and Consistency with LORS

The Amendment does not change the design or operation of the plant equipment. Accordingly, the proposed addition to the plant does not modify GEN-1 or GEN-8 and will not result in any environmental impact.

The proposed change has no possible potential impact on the following environmental disciplines: Biological Resources, Cultural Resources, Geology and Paleontology, Hazardous Materials Management, Land Use, Noise and Vibration, Socioeconomics, Soil and Water Resources, Traffic and Transportation, Waste Management, and Worker Safety and Fire Protection.

3.1 Air Quality

The proposed changes that incorporate GEN-1 and GEN-8 will not cause any change to air quality.

3.2 Impact to Public Health

The proposed changes that incorporate GEN-1 and GEN-8 will have no effect on public health. Genesis Solar is well outside of the city of Blythe and approximately 6 miles from the I-10 Wiley's Well Road rest area. There are no neighbors near the facility and no threat to outside public residences.

3.3 Consistency of Amendment with the Certification and LORS

The Siting Regulations require a discussion of the consistency of the proposed project revisions with the applicable laws, ordinances, regulations, and standards (LORS) and whether the modifications are based upon new information that changes or undermines the assumptions, rationale, findings, or other bases of the final decision (Title 14, CCR Section 1769 (a)(1)(D)). If the project is no longer consistent with the certification, the petition for project change must provide an explanation for why the modification should be permitted.

This Amendment is consistent with all applicable LORS and is not based on new information that changes or undermines any bases for the Decision. The findings and conclusions contained in the Decision for the project are still applicable to the project as modified.

4.0 Potential Effects on the Public

This section discusses the potential effects on the public that may result from the modification proposed in this request for approval, per the Siting Regulations (Title 20, CCR, Section 1769(a) (1) (G)).

The proposed changes will not affect the public. There are no residential homes, hospitals or schools within a 16-mile radius of the plant.

5.0 List of Property Owners and Potential Effects on Property Owners

5.1 List of Property Owners

In accordance with the Siting Regulations (Title 20, CCR, Section 1769(a)(1)(H)), the project owner will provide the Compliance Project Manager for the project a list of all property owners whose property is located within 500 feet of the project.

There are no property owners within 500 feet of the project.

5.2 Potential Effects on Property Owners

This section addresses potential effects of the modification proposed in this Amendment on nearby property owners, the public, and parties in the application proceeding, per the Siting Regulations (Title 20, CCR, Section 1769 (a)(1)(I)).

There are no property owners within 500 feet of the project.

6.0 Included Drawings

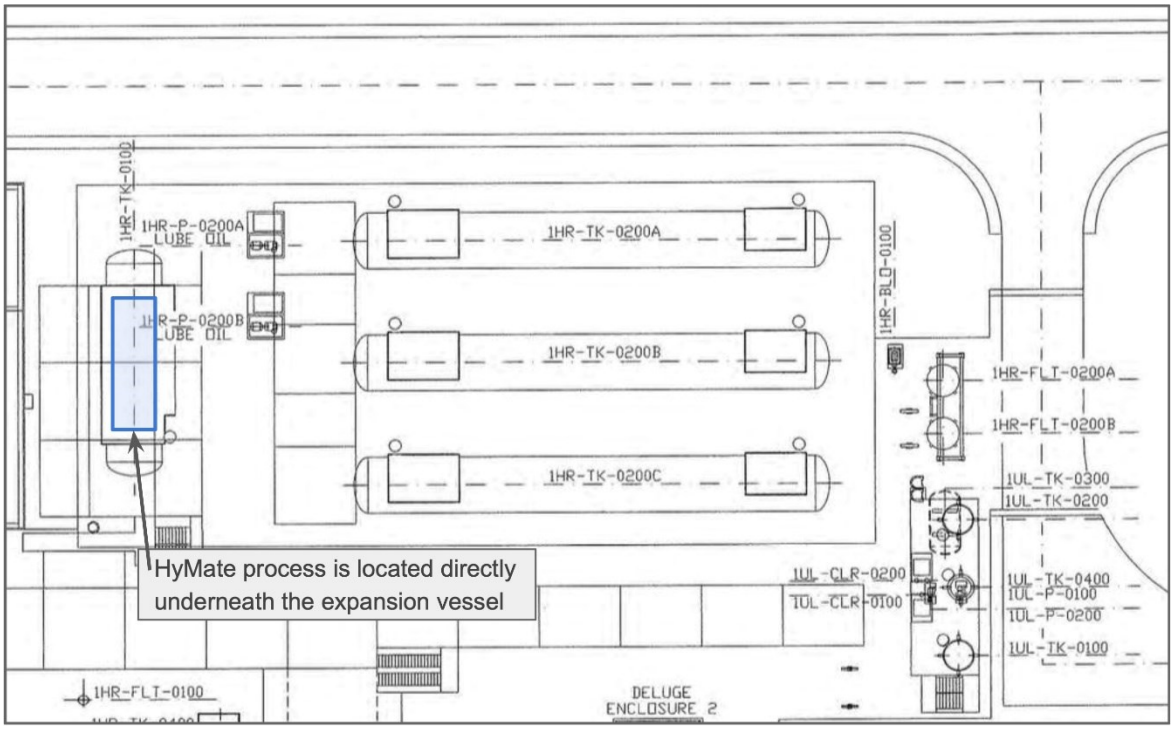


Figure 1: Proposed HyMATE system location in the Genesis power blocks

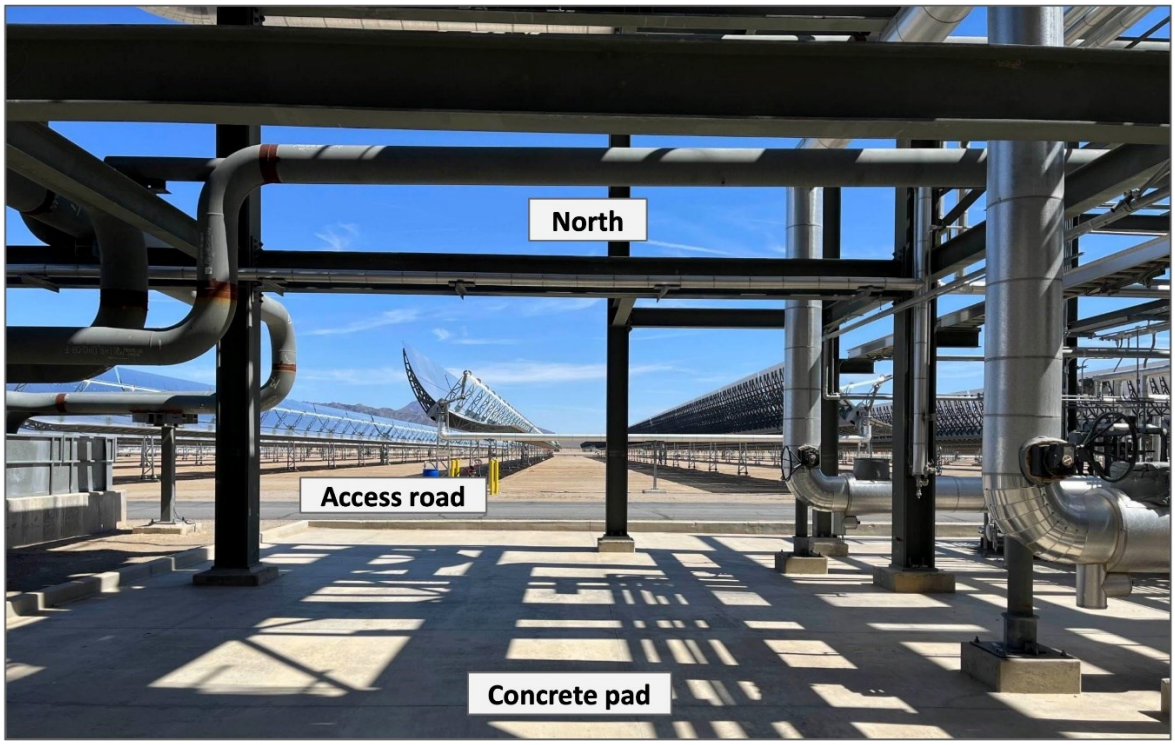


Figure 2: Proposed HyMATE system location looking north

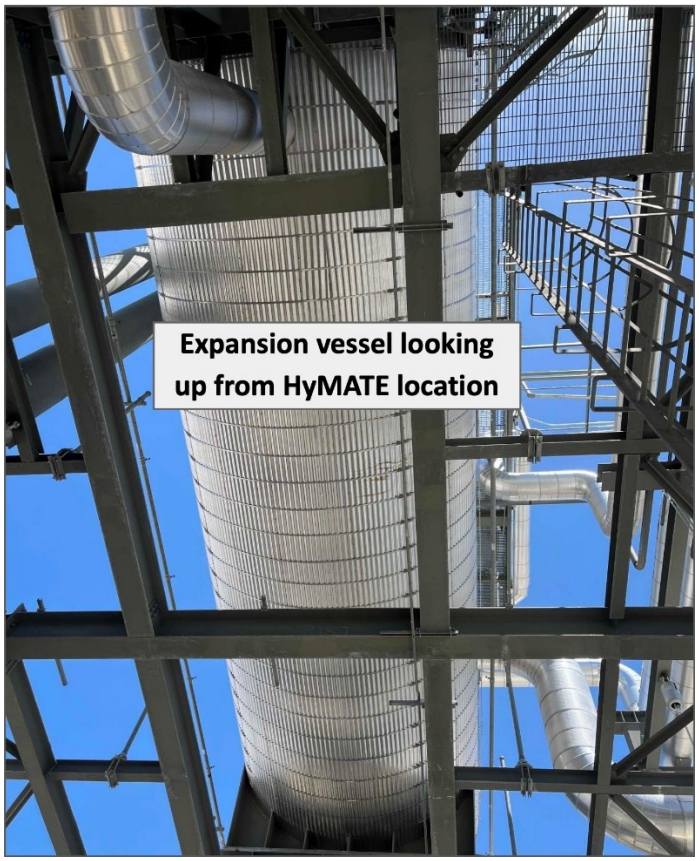


Figure 3: View of EV directly above proposed HyMATE system location

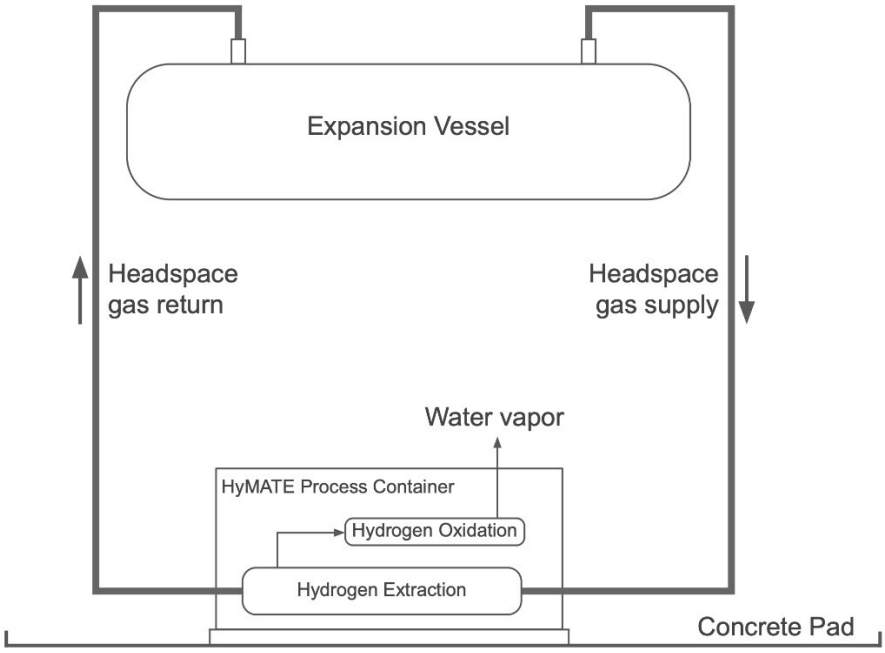
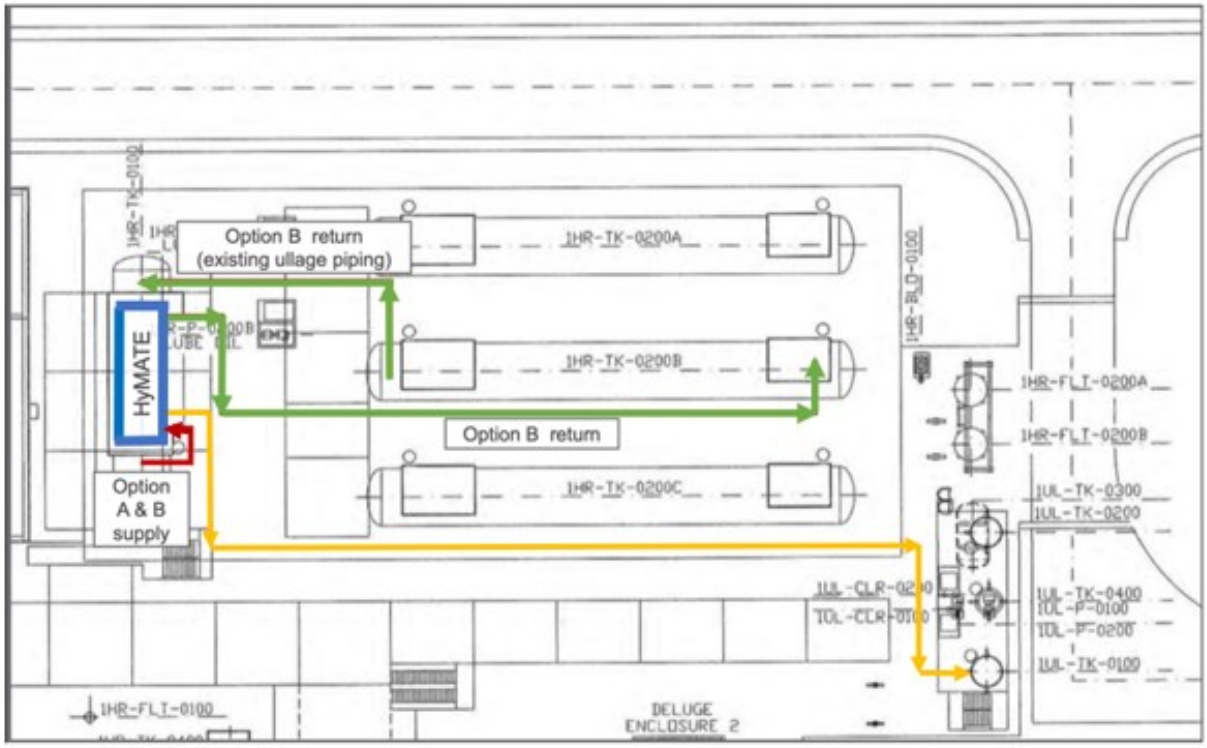


Figure 4: Schematic of piping runs between EV and HyMATE process



6” Return to Expansion through overflow vessel

6” supply from Expansion Vessel HyMATE Unit

1” HTF condensate to Ullage Vessel #1