DOCKETED	
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Document Title:	Mojave Solar Project -New Pond Liner Inquiry
Description:	Lahontan Water Board Staff Inquiry about the Selection of the Evaportive Pond Liner Selection
Filer:	Ashley Gutierrez
Organization:	California Energy Commission
Submitter Role:	Commission Staff
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Mojave Solar Project
New Pond's Liner Inquiry
Comment's Response

Atlantica
Sustainable Infrastructure

WaterBoard's Comment: 02/29/2024

Please explain how the proposed Geonet material properties meet or exceed the Title 27 requirements, including those in Chapter 3, Subchapter 2, Article 4 (e.g., Table 4.1, Figure 4.1, etc.).

MSP Response: 03/15/2024

Title 27 Section 20340 (a) requires Class II surface impoundments to have a Leachate Collection and Removal System (LCRS). For surface impoundments, the LCRS shall be installed between the liners. The purpose of the LCRS is to provide a means for detection of leaks in the upper liner and convey the liquids to a collection point. The geonet provides a medium for the leachate to quickly travel from a source to the sump. The underlying liner provides containment for any leaked fluids.

The placement of the LCRS, per Section 20340 (b), shall be between the liners, and shall be designed, constructed, maintained, and operated to collect and remove twice the maximum-anticipated daily volume of leachate from the unit. As indicated in the prior Alpha and Beta Pond designs, the Action Leakage Rate with a 2X factor of safety is 2,750 gallons per acre per day. The resulting ALR for the proposed Alpha 3 (5.56 acres) and Beta 3 (6.23 acres) ponds would be 15,000 gallons per day and 17,000 gallons per day, respectively.

In general, a typical leakage rate from small holes/tears would be on the order of 10 to 100 gallons per day. As indicated in the specifications, the geonet is required to convey 2.9 gallons per minute per foot of width. To convey 13,750 to 17,000 gallons per day would result in a flow width of approximately 3 to 4 feet (13,750 gallons/day = 9.5 gallons/minute, 9.5 gallons/minute/2.9 gallons/minute/foot of width = 3.3 feet & 17,000 gallons/day = 11.81 gallons/minute, 11.81 gallons/minute/2.9 gallons/minute/foot of width = 4.1 feet). The sump has a perimeter of 200 feet and therefore, able to convey significantly greater volume than required.

The geonet specification requires a transmissivity (flow rate) of 2.9 gallons/min/ft of width, thus the geonet can quickly convey liquids to the sump under low head as required by Section 20340 (c).

MSP has constructed 8 other leachate collection sumps in the existing Alpha and Beta ponds. The systems are very similar to the proposed ponds and will be tested in

a similar manner to confirm the system is not clogging. Annual testing is required by Section 20340 (d).

For the proposed ponds, similar to the existing ponds, the geonet LCRS layer will cover 100% of the impoundment area, except within the sump where the LCRS gravel and collection pipe are located. The geonet has been designed and tested to demonstrate that the material has sufficient strength and thickness to prevent collapse under pressure. The specifications require testing at 2,500 psf, equivalent to approximately 40 feet of water depth - more than 4 times the expected pressure exerted by the ponded liquids. Therefore, the requirements of Section 20340 (e) are met.

Table 4.1 and Figure 4.1 of Section 20340 of Title 27 indicate that the blanket LCRS is required for Class II Surface Impoundments. This requirement is met by having geonet underlying 100% of the upper geomembrane.

Sincerely,

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