CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

MEETING OF JUNE 12, 2019
BARSTOW

ITEM 10
CLOSURE AND POST-CLOSURE WASTE DISCHARGE REQUIREMENTS FOR SOLAR ELECTRIC GENERATING SYSTEMS (SEGS) I & II, SUNRAY LAND COMPANY, DAGGETT, SAN BERNARDINO COUNTY

CHRONOLOGY	
January 9, 1986	Water Board adopted Board Order No. 6-86-5, establishing new Waste Discharge Requirements (WDR) and a Monitoring and Reporting Program (MRP) for surface impoundments at the Solar Electric Generating Systems (SEGS) I & II Facility (Facility).
November 8, 1996	Water Board adopted Board Order No. 6-96-160, which rescinded Board Order No. 6-86-5, incorporated requirements of California Code of Regulations (CCR) title 23, chapter 15, article 5 regulations, added requirements for new land treatment units at the Facility, and identify new Dischargers.
October 8, 1997	Water Board adopted Board Order No. 6-96-160A1, which added amendments to Board Order No. 6-96-160 authorizing an expansion of the land treatment units.

BACKGROUND

The Facility discharged authorized wastes under Board Order Nos. 6-86-5, 6-96-160, and 6-96-160A1 until 2016 when Sunray Land Company purchased the Facility. From 2016 to 2017, the original solar electric generating system was dismantled and removed from the Site. The original system used curved mirrors to focus solar energy and raise the temperature of a heat transfer fluid (HTF). The HTF and methane were used to generate steam to drive a steam-powered electric generator.

This process generated a salty liquid waste stream from the demineralization of ground water for use in the Facility. The salty liquid waste stream was discharged to any one of three lined surface impoundments where evaporation dewatered the waste and created a salty solid waste that accumulated in the surface impoundments over time. In addition, the process generated contaminated solids from leaks and spills of HTF.

The HTF-contaminated soils were treated in land treatment units (LTUs) from 1996 to approximately 2016 using landfarming techniques designed to maintain moisture and nutrient levels in soil which promote biological breakdown of HTF. A backlog of soil stockpiles accumulated over time because the land farming treatment process is slow, and the Facility owners estimated a minimum of ten more years to fully treat all HTF-contaminated soil. To clean close the LTUs in a timely manner, the soil stockpiles would need to be transferred to a Class II treatment or disposal facility. The salty waste and HTF-contaminated soils are classified as Class II designated

waste per CCR title 27 regulations. The Constituents of Concern (COCs) in the wastewater discharged to the surface impoundments included: total dissolved solids (TDS), general minerals, various corrosion inhibitors, scale inhibitors, biocides, phosphates, sulfate salts, and biphenyl, and diphenyl oxide. The surface impoundments were designed and constructed to store the salty waste and the Land Treatment Units designed for treating HTF-contaminated soils in compliance with CCR title 27 regulations.

Board Order No. 6-96-160, as amended, through a preliminary Final Closure and Post Closure Maintenance Plan, requires the Discharger to clean close (i.e., remove all facility materials and waste) all three surface impoundments and both LTUs.

By 2017, the original solar electric generating system was replaced with photovoltaic solar panels that directly convert solar energy to electrical energy without the use of HTF or groundwater for steam generation and cooling purposes. Therefore, the new photovoltaic system does not generate the HTF-contaminated soils or salty liquid waste stream that the original system did.

Since the Facility no longer generates process waste streams regulated by the Water Board, Sunray Land Company submitted a Final Closure and Post Closure Maintenance Plan (FCPCMP) on January 28, 2019. The FCPCMP proposes clean closure (i.e., removal of all facility materials and associated waste) of the two LTUs and two of the three surface impoundments. The third surface impoundment would be converted into a landfill where the accumulated dry salty waste (approximately 37 tons) would be placed and the landfill subsequently closed. The FCPCMP also proposes using the remaining HTF-contaminated soil (approximately 37 tons) for the foundation layer of the required landfill cover.

Water Board staff has prepared a Closure and Post-Closure WDR, which if adopted, would:

- Authorize onsite disposal of waste from the surface impoundments and reuse of HTF-contaminated soils in lieu of transporting and disposing of all waste offsite;
- Establish a post-closure maintenance and monitoring period;
- Incorporate Facility-specific storm water management measures and monitoring and reporting requirements; and
- Provide general updates to the WDR and MRP based on current site conditions, pursuant to CCR title 27.

ISSUES

Should the Water Board adopt a Closure and Post-Closure WDR that:

- Authorizes converting an existing Class II surface impoundment to a Class II landfill for purposes of onsite disposal of Class II designated waste in lieu of clean closure (offsite disposal at an authorized disposal facility);
- Authorizes reuse of HTF-contaminated soils for the foundation layer of the proposed landfill cover in lieu of transporting them offsite to an authorized disposal facility); and
- Authorizes an engineered alternative for the proposed landfill cover's erosion-resistant layer?

DISCUSSION

Key Changes

Board Order No. 6-96-160, as amended, requires the Discharger to clean close (i.e., remove all facility materials and waste) all three surface impoundments and both LTUs. Sunray Land Company submitted a Final Closure and Post Closure Maintenance Plan (FCPCMP) on January 28, 2019. The Discharger's FCPCMP proposes clean closing both LTUs and two of the three surface impoundments (i.e., North and East Ponds). The FCPCMP proposes transferring wastes from the North and East Ponds to the West Pond and closing the West Pond as a landfill pursuant to California Code of Regulations (CCR) title 27. This proposed action would be in lieu of transporting the waste to an authorized disposal site (clean closure). The FCPCMP also proposes using the remaining HTF-contaminated soils as foundation materials for the Proposed West Pond Landfill cover pursuant to CCR title 27. This proposed action would be in lieu of transporting the HTF-contaminated soils to an authorized offsite treatment and reuse facility.

Staff Evaluation of Key Changes

To authorize the Discharger's FCPCMP, the Discharger must demonstrate, and the Water Board must find:

1. It is infeasible to attempt clean closure all three surface impoundments;
2. Reusing the HTF-contaminated soils for the foundation layer of the proposed West Pond Landfill complies with CCR title 27; and
3. The proposed engineered alternative for the proposed West Pond Landfill cover's erosion-resistant layer complies with CCR title 27.

1. <u>Evaluating the Feasibility to Clean Close All Three Surface Impoundments</u>

   The subject wastes in the surface impoundments are Class II designated wastes requiring disposal in a Class II designated waste landfill or other authorized facility. There are no open Class II designated waste landfills in the Lahontan Region. Disposal of Class II wastes in a Class III landfill is prohibited pursuant to CCR title 27 and the facility-specific WDRs for the open Class III landfills in the Lahontan Region. To clean close all three surface impoundments, the dried salty solid wastes (i.e., evaporite material) and wind-blown sediment remaining in the surface impoundments (approximately 37 tons of solid waste) would require approximately 2,500 truckloads traveling a minimum of 400 miles (round trip) to an authorized Class II facility in Kern County (McKittrick Landfill) or to the US Ecology Landfill in Beatty, Nevada.

   The three surface impoundments, including the West Pond, were originally designed and constructed to contain Class II designated waste. To date, the leachate recovery system for the three double-lined surface impoundments has not produced any leachate indicating competent liners. Groundwater monitoring also continues to show the facilities are effectively protecting groundwater quality. Staff anticipates that the West Pond, as a closed landfill, will continue to effectively protect groundwater quality, based upon the West Pond's performance to date, waste material characteristics (solid waste), depth to groundwater (approximately

170 feet below ground surface), low annual precipitation rates, landfill cover design, in combination with leachate recovery and leak detection systems. The clean closure of all three surface impoundments and offsite transport of their waste will produce a substantial amount of air pollutant emissions. Approximately 2,500 truckloads transporting the estimated 37 tons of waste 400 miles (roundtrip) would produce estimated air emissions of two (2) tons of hydrocarbons, two (2) tons of particulates, and greater than 3,000 tons of CO, NO_x, and CO_2 compared with the onsite disposal scenario of less than one (1) ton of hydrocarbons, less than one (1) ton of particulates, and less than 500 tons of CO, NO_x, and CO_2.

Additionally, the difference in costs for offsite disposal compared to onsite disposal is considerable. The transportation and disposal costs for offsite disposal is estimated to be six (6) million dollars, compared with approximately one (1) million dollars to consolidate and place the onsite wastes into the proposed West Pond Landfill and immediately close the West Pond Landfill.

Staff have determined it is infeasible to clean close all three surface impoundments because of the high cost of offsite disposal and the potential environmental impacts.

2. <u>Evaluating the Onsite Reuse of HTF-Contaminated Soils as Foundation Material for the Proposed West Pond Landfill Cover</u>

The FCPCMP proposes to clean close the two LTUs and use the remaining HTF-contaminated soil for the foundation layer of the proposed West Pond Landfill in lieu of transporting the contaminated soil to a treatment facility in Adelanto. CCR title 27, section 21090(a) provides the prescriptive requirements for the final cover of a closed landfill and section 21090(a)(1) states: “Closed landfills shall be provided with not less than two feet of appropriate materials as a foundation layer for the final cover. These materials may be soil, contaminated soil, incinerator ash, or other waste materials, provided that such materials have appropriate engineering properties to be used for as a foundation layer.”

HTF is a synthetic petroleum product composed of biphenyl and diphenyl ether. Like other petroleum hydrocarbons, HTF breakdown products include volatile components such as benzene and toluene. HTF in soil will lose its volatile components and breakdown naturally over time. HTF concentrations in soil stockpiles at SEGS I & II are not hazardous waste requiring disposal in a Class I hazardous waste facility. The concentrations in soil at SEGS I & II require treatment or disposal in a Class II designated waste facility.

There is an estimated 37,000 tons of HTF-contaminated soil in stockpiles at the Facility. The Discharger has demonstrated that the HTF-contaminated soils have the appropriate engineering properties to be used as the foundation layer of the proposed West Pond Landfill’s cover, making this a feasible alternative to offsite disposal and continued landfarming for an additional 10 years. The Discharger has estimated landfarm treatment of the remaining HTF-contaminated soil will take approximately 10 years. The offsite disposal scenario would involve transporting the HTF-contaminated soil to an acceptable Class II landfill.

The offsite alternative would require approximately 2,500 truckloads traveling a minimum of 100 miles (round trip) to Soil Safe of California, a Class II thermal desorption facility in Adelanto, California. This alternative would produce an estimated 0.5 tons of hydrocarbons, 0.5 tons of particulates, and approximately 750 tons of CO, NO_x, and CO_2. Additionally, the cost of the offsite disposal alternative would be approximately three (3) million dollars compared to 200,000 dollars to reuse the HTF-contaminated soils for the foundation layer of the proposed West Pond Landfill's cover.

Reuse of the HTF-contaminated soils as the foundation layer of the proposed West Pond Landfill is a more practical alternative given that it satisfies CCR title 27 regulations for such use, and the comparatively high cost and the environmental impact (air pollutant emissions) of transporting wastes to the authorized facility in Adelanto.

Staff have determined it is acceptable to reuse the HTF-contaminated soils as foundation material for the West Pond Landfill cover.

3. Evaluating the engineered alternative for the West Pond Landfill cover.

The prescriptive final cover requirements in CCR title 27 for a landfill cover includes a minimum two-foot thick foundation layer which may be composed of appropriate waste materials overlain by a one-foot thick "Low-Hydraulic Conductivity Layer" with a hydraulic conductivity of less than 1×10^{-6} cm/s. The low-hydraulic conductivity layer must be overlain by a one-foot thick "Erosion Resistant Layer" which may be an erosion-resistant vegetative layer or evapotranspirative soil cover.

The Discharger must provide a plan for protecting the low-hydraulic conductivity layer from foreseeable sources of damage that could impair its ability to prevent the throughflow of water (e.g., desiccation, burrowing rodents, or heavy equipment damage). The Discharger has proposed an engineered alternative to increase the thickness of the erosion-resistant vegetative layer from one foot to two feet to comply with the requirement to protect the low-hydraulic conductivity layer from foreseeable sources of damage. See West Pond Closure System layers in Attachment D of the proposed WDR. The two-foot erosion-resistant vegetative layer will be more protective than the one-foot erosion-resistant vegetative layer prescribed by CCR title 27 regulations. The thicker vegetative layer over the low-hydraulic-conductivity layer will reduce the potential for desiccation of the low-hydraulic-conductivity layer, which tends to decrease with depth in a soil profile. The thicker erosion-resistant vegetative layer will also double the depth rodents would have to burrow to reach the low-hydraulic-conductivity layer. The thicker erosion-resistant vegetative layer will also better distribute shear stresses upon the low-hydraulic layer potentially created by heavy equipment loading on the overlying layer.

Staff have determined the engineered alternative proposed is protective of water quality.

SUSTAINABLE GROUNDWATER MANAGEMENT ACT

The Sustainable Groundwater Management Act (SGMA) requires the formation of a Groundwater Sustainability Agency (GSA) to develop a Groundwater Sustainability Plan (GSP) for basins designated as medium to high priority at this time. The priority set by the California Department of Water Resources for the Lower Mojave River Valley Groundwater Basin is seen in the table below. Based on this designation neither a GSA nor GSP would be required at this time.

Priority	Groundwater Basin in San Bernardino County
Very Low	Lower Mojave River Valley Groundwater Basin (6-040)

Source: https://gis.water.ca.gov/app/bp2018-dashboard/p1/

PRESENTERS

John Steude, Engineering Geologist, Lahontan Water Board

PUBLIC OUTREACH/INPUT

The Tentative Order was posted on the Water Board's web site and distributed for public review and comment on April 2, 2019. Staff received one email regarding past facility waste (HTF-Therminol) discharges. Water Board staff's response is included as Enclosure 2.

RECOMMENDATION

Adoption of the Order as proposed.

ENCLOSURE	ITEM	BATES NUMBER
1	Board Order No. R6V-2019-PROPOSED	**10 - 7**
2	Response to Comments	**10 - 71**
3	Staff Presentation	**10 - 75**

ENCLOSURE 1

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

BOARD ORDER NO. R6V-2019-[PROPOSED]
WDID NO. 6B364550001

CLOSURE AND POST-CLOSURE WASTE DISCHARGE REQUIREMENTS FOR

SOLAR ELECTRIC GENERATING SYSTEMS I & II, SUNRAY LAND COMPANY, LLC THREE SURFACE IMPOUNDMENTS, TWO LAND TREATMENT UNITS, AND WEST POND LANDFILL

_____San Bernardino County_____

The California Regional Water Quality Control Board, Lahontan Region (Water Board) finds:

1. Discharger

Sunray Land Company, LLC submitted a Final Closure and Post-Closure Maintenance Plan (FCPCMP) for the Solar Electric Generating Systems I & II (SEGS I & II) on January 28, 2019 and supplemental information on February 11, 13, and 22, 2019. For the purposes of this Order, Sunray Land Company, LLC is referred to as the "Discharger."

2. Facility

The Facility currently includes the following Waste Management Units (referred to as WMUs or Units hereafter): (1) three surface impoundments which formerly received wastewater from SEGS I & II operations (i.e., North, East, and West Ponds) totaling approximately 20 acres, and (2) two land treatment units (LTUs - i.e., LTU1 and LTU2) and associated soil stockpiles totaling approximately 5 acres which formerly received soil contaminated with Heat Transfer Fluid (HTF) from SEGS I & II operations. A map of the Facility location is included as Attachment A and the current Site Plan is included as Attachment B, which are made part of this Order.

The Facility stopped generating and discharging wastewater and HTF-contaminated soils due to Facility operational changes beginning in 2016, when SEGS I & II was converted from a heat generating, steam powered, solar facility to a photovoltaic-based solar facility, which does not generate operational wastewater or HTF-contaminated soils.

The FCPCMP proposes to clean-close two of the three surface impoundments (i.e., North and East Ponds) and the two land treatment units and associated HTF-contaminated soil stockpiles by removing all waste materials from these WMUs. The third surface impoundment, West Pond, is proposed to be closed as a landfill designated as the West Pond Landfill. The only post-closure WMU proposed for the Facility will consist of the proposed 5-acre West Pond Landfill. The West Pond Landfill will contain all remaining solid wastes (approximately 74,000 tons) from all three surface

impoundments (approximately 37,000 tons of dried salty evaporites and wind-blown sediments, the two LTUs, and associated HTF-contaminated soil stockpiles (approximately 37,000 tons).

A plan view of the proposed West Pond Landfill is presented in Attachment C and a cross-section of the proposed West Pond Landfill system is shown in Attachment D. The cross-section shows the existing bottom liner system consisting of a 60-mil high-density polyethylene (HDPE) liner underlain by a sand drain layer hydraulically connected to leachate collection and recovery system (LCRS) sumps used to monitor for potential fluid leakage through the HDPE liner, underlain by a two-foot thick clay layer. The remaining evaporite waste material from all three surface impoundments will overlay the bottom liner system. A landfill cover system will be constructed over the evaporite waste. The landfill cover will consist of a foundation layer composed of HTF-contaminated soils and clean native soils overlain by a 1-foot low hydraulic conductivity layer composed of clay overlain by a vegetative root zone layer. The vegetative root zone layer is required to be one foot thick. The Discharger has proposed a two-foot thick layer as an engineered alternative to the prescriptive standard to provide additional protection of the low hydraulic conductivity clay layer.

3. Facility Location

The Facility is located at 35100 Santa Fe Street, approximately three miles east of the community of Daggett in San Bernardino County (Assessor's Parcel Number [APN] 0516-341-14-0000). The Facility is within Sections 13, 19, and 24 of Township 9 North, Range 1 East, San Bernardino Base & Meridian (SBB&M), as shown on Attachment A.

4. Site History

The SEGS I & II property (Site) was used for agricultural purposes prior to development as a solar energy generating facility. SEGS I & II began operating on the Site as concentrating solar thermal generating facilities in the early 1980's and were the first industrial-scale, commercial solar power plants built in the United States. SEGS I began operation in 1983 and SEGS II began operations in 1985. The Site was originally part of the Van Dyke Ranch which was settled in 1901 and later became the Cool Water Ranch before being sold to Southern California Edison (SCE). LUZ Engineering Corporation (LUZ), the original developer of SEGS I & II, leased the Site from SCE. LUZ and SCE were identified as the Dischargers in Board Order No. 6-86-5 and Board Order No. 6-96-160. LUZ eventually went into bankruptcy and the Site was acquired by Daggett Leasing Corporation (DLC). DLC purchased the land from SCE. Cogentrix purchased the Site in 2009 and continued operation of SEGS I & II.

In 2015, Sunray Land Company, LLC purchased the Site from Cogentrix. Beginning in the third quarter of 2016, the concentrating solar thermal facility (including parabolic mirrors, pumps, motors, cabling, piping, and HTF) was replaced with photovoltaic modules, cabling, and frames. The photovoltaic modules produce electricity directly from sunlight in contrast to the original technology which used mirrors to focus the

sunlight to heat HTF and the HTF (in addition to natural gas) was used to operate a steam-turbine generator to produce electricity. Sunray Land Company, LLC completed removing SEGS I & II concentrating solar thermal facility hardware and completed installing photovoltaic arrays in 2017.

5. Reason for Action

The Facility is eligible for closure since wastewater and HTF-contaminated soils are no longer generated or discharged at the Site, due to the conversion from a concentrating solar thermal facility to a photovoltaic solar facility. Sunray Land Company, LLC submitted a Final Closure and Post-Closure Maintenance Plan (FCPCMP) on January 28, 2019 and supplemental information on February 11, 13, and 22, 2019.

The FCPCMP describes the manner of closure and the proposed maintenance of the Facility during the post closure period. The Water Board is rescinding Board Order No. 6-96-160, issuing new Waste Discharge Requirements (WDR), and updating the Monitoring and Reporting Program (MRP) to: (1) establish the closure and post-closure maintenance and monitoring period and requirements for the Facility; (2) incorporate Facility-specific storm water management, monitoring, and reporting requirements; (3) provide general updates to the WDR and MRP based on current Site conditions; and (4) develop a WDR in compliance with the requirements of California Code of Regulations (CCR), title 27.

6. Order History

a. Board Order No. 6-86-5 was adopted on January 9, 1986, establishing the first WDR for the Facility.

b. Board Order No. 6-96-160 was adopted on November 8, 1996 to revise the WDR to incorporate the requirements of article 5, of chapter 15, title 23, CCR (Chapter 15), add requirements for the new land treatment units, and identify new Dischargers.

c. Board Order No. 6-96-160A1 was adopted on October 8, 1997 to authorize an expansion of the land treatment units.

7. Waste Management Unit Classification and Authorized Disposal Sites

Pursuant to CCR, title 27, section 20250, the proposed West Pond Landfill is classified as a Class II WMU and is the only authorized waste disposal site within the Facility boundary for Class II residual solid wastes from the three surface impoundments and two land treatment units, including stockpiles of HTF-contaminated soil.

8. Waste Classification

The wastewater formerly discharged to the surface impoundments was classified as a liquid designated waste (i.e., Class II waste). The residual solids or "evaporite material" remaining after evaporation of wastewater in the ponds is classified as a solid designated waste (i.e., Class II waste). The evaporite material includes wind-blown sediments which became entrapped in the surface impoundments over the life of the project and are irreversibly co-mingled with the salty evaporite materials. The HTF-contaminated soil is classified as a solid designated waste (i.e., Class II waste). The proposed West Pond Landfill is a Class II landfill since it will contain Class II wastes from the surface impoundments and land treatment units.

9. Demonstration of Infeasibility of Clean Closure of All Waste Management Units

The evaporite wastes remaining in the three surface impoundments are designated Class II wastes. In order to clean-close all of the surface impoundments, the evaporite wastes would need to be removed and hauled to a Class II landfill. There are no Class II landfills currently available in the Lahontan Region. The closest facilities authorized to accept Class II wastes are 200 miles away (400 miles roundtrip). There are 37,000 tons of Class II wastes in the surface impoundments which would require 2,500 truck loads traveling 400 miles to properly dispose of the evaporite waste in the surface impoundments at an off Site location. The Discharger has demonstrated hauling the evaporate waste to a Class II landfill would cost approximately $6,000,000 and would produce air emission of 2 tons of hydrocarbons, 2 tons of particulates, and more than 3,000 tons of CO, NO_x, and CO_2 compared with the $1,000,000 cost for the on Site disposal scenario for all remaining wastes on Site which would produce approximately 1 ton of hydrocarbons, 1 ton of particulates, and 500 tons of CO, NO_x, and CO_2. The Water Board finds the additional financial cost and air pollution impacts associated with off Site disposal demonstrates that off Site disposal of evaporite wastes is impractical and, therefore, infeasible.

The HTF-contaminated soils remaining in the two land treatment units and associated stockpiles of soil are designated Class II wastes. There are approximately 37,000 tons of HTF-contaminated soils which would require 10 years of treatment on Site to clean-close the land treatment units. In order to clean-close the land treatment units in a reasonable time frame, the 37,000 tons of soil would need 2,500 truckloads of soil to be hauled 100 miles (200 miles roundtrip) to a thermal treatment facility. Thermal treatment for the HTF-contaminated soil would cost approximately $3,000,000 and produce air emissions of approximately 0.5 tons of hydrocarbons, 0.5 tons of particulates, and 500 tons of CO, NO_x, and CO_2 above and beyond the costs and air emissions associated with on Site disposal of the HTF-contaminated soils in the proposed West Pond Landfill. The Water Board finds the additional financial cost and air pollution impacts associated with off Site disposal demonstrates that off Site disposal of HTF-contaminated soils is impractical and, therefore, infeasible.

10. Final Closure and Post-Closure Maintenance Plan

Waste Management Units Proposed to be Clean-Closed

For Units that are clean-closed, the goal of closure is to physically remove all waste and contaminated materials from the Unit and from its underlying and surrounding environs, such that the waste in the Unit no longer poses a threat to water quality pursuant to CCR title 27, section 20950(a)(2)(B). This is the goal for the surface impoundments (North Pond and East Pond), the land treatment units (LTU1 and LTU2) and the associated stockpiles of HTF-contaminated soils which the FCPCMP has proposed to clean-close. The wastes and contaminated materials from these Units are proposed to be removed and transferred to the West Pond Landfill using earth moving equipment.

West Pond Landfill

For landfills that are not clean-closed and surface impoundments closed as landfills, the goal of closure, including but not limited to the installation of a final cover, is to minimize the infiltration of water into the waste, thereby minimizing the production of leachate and gas pursuant to CCR title 27, section 20950(a)(2)(A)(1). For such Units, after closure, the final cover constitutes the Unit's principal waste containment feature. The goal of post-closure maintenance at such Units is to assure that the Unit continues to comply with the performance standard of minimizing water infiltration cited above until such time as the waste in the Unit no longer constitutes a potential threat to water quality. This is the goal and performance standard for the West Pond Landfill which is a current surface impoundment proposed in the FCPCMP to be closed as a landfill.

The FCPCMP dated January 28, 2019 and amended on February 11, 13, and 22, 2019, describes the manner of closure and the proposed maintenance of the Facility during the post-closure period. An engineered alternative final cover will be constructed over the West Pond Landfill, specifically an evapotranspirative (ET) soil cover. The constructed ET cover is a 2-foot thick monolithic cover vegetated with native species from the surrounding area, underlain by a 1-foot thick, low-hydraulic conductivity layer (hydraulic conductivity less than 1×10^{-6} centimeters per second [cm/s]), which is underlain by a foundation layer ranging in thickness from 2 to 6 feet. The foundation layer is composed of soils from the Land Treatment Unit stockpiles and clean soils from the Site.

The main concept of this type of landfill cover is to store moisture between the soil particles during the rainy season and release that moisture during the dry season through plant uptake and evaporation. The Discharger will perform maintenance and monitoring on a periodic basis to maintain, as designed, the final ET cover of the West Pond Landfill throughout the post-closure period of the Facility.

In addition to the water quality protections provided by the landfill cover, the double liner system beneath the existing West Pond surface impoundment will remain in place as an integral part of the West Pond Landfill. The bottom liner consists of a 60 mil HDPE liner

underlain by a 6-inch thick sand drain hydraulically connected to sumps used for leakage detection and leachate collection, which is underlain by a 2-foot thick clay layer with hydraulic conductivity less than 1 x 10^{-6} cm/s.

11. Engineered Alternative to Prescriptive Landfill Cover Design

The prescriptive standard design for a landfill cover under CCR title 27, sections 21090(a)(1-3) requires a foundation layer with minimum thickness of two feet overlain by a 1-foot thick low-hydraulic-conductivity layer, overlain by a 1-foot thick erosion-resistant layer which can be a vegetative layer. In addition to these prescriptive requirements, CCR title 27, section 21090(a)(2) requires the Discharger to provide a plan as part of the FCPCMP for protecting the low-hydraulic-conductivity layer from foreseeable sources of damage that could impair its ability to prevent the throughflow of water (e.g., desiccation, burrowing rodents, or heavy equipment damage). This plan is required above and beyond the prescriptive standard design specifications indicating the prescriptive standard design is not sufficient or feasible to provide the required protection for the low-hydraulic-conductivity layer.

The Discharger has proposed an engineered alternative to the prescriptive landfill cap design as a plan for protecting the low-hydraulic-conductivity layer. The Discharger has proposed in the FCPCMP to increase the thickness of the erosion-resistant vegetative layer from one foot to two feet to protect the low-hydraulic-conductivity layer from foreseeable source(s) of damage that could impair the ability to prevent the throughflow of water. Desiccation of clay soil is a surficial process and tends to decrease with depth below the ground surface. Covering the low-hydraulic conductivity layer with an additional foot of soil will increase its depth and decrease the potential for drying due to evaporation. Burrowing rodents are less likely to burrow a foot deeper to the increased depth of the low-hydraulic-conductivity layer. Shear strength in soils tends to increase with depth and shear stresses applied at the ground surface are distributed over wider areas with increasing depth. Therefore, the shear stresses associated with heavy equipment operating on the landfill cover will be better resisted by the one-foot deeper low-hydraulic-conductivity layer compared with the prescriptive design.

CCR, title 27, section 20080, subsection (b), allows an engineered alternative provided that the Discharger demonstrates the construction or prescriptive standard is not feasible and that the engineered alternative is consistent with the performance goal of the prescriptive standard and affords equivalent protection against water quality impairment.

The Water Board finds: (1) the prescriptive standard design for a landfill cover is not sufficient or feasible to protect the low-hydraulic-conductivity layer without an additional plan to protect the layer from foreseeable sources of damage pursuant to CCR title 27, section 21090(a)(2); (2) the proposed engineered alternative is consistent with the performance goal to minimize the infiltration of water into the waste because the additional soil pore space of a two-feet thick erosion-resistant, vegetative layer can store more water than a one-foot thick layer which prevents more water from infiltrating

the waste; and (3) the proposed engineered alternative provides equivalent or better protection than the prescriptive standard cover design for protection against water quality impairment by increasing the erosion resistance of the erosion-resistant vegetative layer and providing better protection for the low-hydraulic conductivity layer.

Compliance with the prescriptive cover design is impractical for the purpose of preventing water from infiltrating waste without the enhancement of an additional plan for protecting the low-hydraulic-conductivity layer from foreseeable sources of damage that could impair its ability to prevent the throughflow of water. Therefore, the engineered alternative cover is protective of water quality and meets the requirements of CCR, title 27, section 20080, subsection (b).

This Order approves the engineered alternative final cover system with a two-foot thick erosion-resistant vegetative layer instead of a one-foot thick layer.

12. Post-Closure Period

The FCPCMP proposes to close the West Pond surface impoundment as a landfill (i.e., West Pond Landfill), pursuant to CCR title 27, section 21400(b)(2)(a). The Waste Discharge Requirements for the West Pond Landfill require a post-closure period for monitoring and maintenance of the West Pond Landfill pursuant to State Water Resources Control Board (SWRCB) and Regional Water Quality Control Board (RWQCB) requirements in CCR title 27. CCR title 27, section 20950 (a)(1) states: "Relative to the applicable SWRCB-promulgated requirements of this title, the post closure maintenance period shall extend as long as the wastes pose a threat to water quality…the RWQCB's finding that the waste in the Unit no longer poses a threat to water quality shall release the discharger only from the need to comply with the SWRCB-promulgated portions of this title, for that Unit." The West Pond Landfill is scheduled to be certified closed by January 2020; therefore, the post-closure period is expected to end in 2050 for planning purposes but may be extended if measurably significant evidence of release is detected from the Facility or shortened if the Discharger demonstrates and the Water Board finds that the waste in West Pond Landfill no longer poses a threat to water quality.

The FCPCMP proposes to clean close the North Pond and East Pond surface impoundments by removing all remaining wastes from these waste management units (WMUs) and placing the remaining wastes in the West Pond Landfill. CCR title 27, section 21400(b)(1) states: "For surface impoundments that are successfully clean-closed, as herein described, the RWQCB shall declare the Unit no longer subject to the SWRCB-promulgated requirements of this title." Therefore, a RWQCB declaration that the surface impoundments have been successfully clean-closed eliminates the requirement for a post-closure period for the surface impoundments.

The FCPCMP proposes to clean close Land Treatment Unit 1, Land Treatment Unit 2, and associated stockpiles of HTF-contaminated soil by removing the waste soils and placing them in the West Pond Landfill as a foundation material for the landfill cover.

For units to be clean-closed, the goal of closure is to physically remove all waste and contaminated materials from the Unit and from its underlying and surrounding environs, such that the waste in the Unit no longer poses a threat to water quality pursuant to CCR title 27, section 20950(a)(2)(B). Successful completion of clean-closure eliminates the need for any post-closure maintenance period and removes the Unit from being subject to the SWRCB-promulgated requirements of this subdivision…" Therefore, a RWQCB finding that the land treatment units and associated stockpiles of HTF-contaminated soil have been successfully clean-closed eliminates the requirement for a post-closure period for the land treatment units and associated stockpiles of HTF-contaminated soil.

13. Land Uses

The Site consists of approximately 330 acres of total area, with approximately 95 percent of the property being unpaved, exposed native sediment. Photovoltaic panels are mounted on steel structures which cover approximately 200 acres of the Site. The footprints of existing surface impoundments are approximately 20 acres and the existing LTUs and stockpiles of HTF-contaminated soils cover approximately 5 acres. Waste materials from these 25 acres will be excavated using earth moving equipment and placed in the West Pond Landfill during closure activities. The footprint of the West Pond Landfill will be approximately 5 acres. The post-closure land use at the former surface impoundments, LTUs, and soil stockpiles will be non-irrigated vacant space adjacent to the solar photovoltaic arrays. No new construction is planned or reasonably foreseen that could affect the final cover of the West Pond Landfill.

The Facility is located in an area where the land use is designated Regional Industrial (IR). The area to the southeast of the Facility is designated Rural Living - 5 acre minimum lot size (RL-5). The areas to the southwest and northeast of the Facility are designated Resource Conservation (RC). The area to the northwest is designated Regional Industrial (IR).

14. Site Topography

The Site is situated within the Mojave Valley in the western Mojave Desert. The existing topography of the Facility is shown on Attachment A. The Site is located at 1,945 feet above mean sea level. Topography is generally flat with a slight upward slope to the south, and a slight downward slope to the east.

15. Climatology

The Mojave Valley, in which the Facility is located, has an arid climate characterized by infrequent rainfall, cold winters and hot summers, and low relative humidity. The mean annual temperature is 67 degrees (°) Fahrenheit (F); area temperature ranges from a high of 104° F in the summer to a low of 35° F in the winter. Liquid precipitation in the vicinity of the Facility averages 3.8 inches annually. The expected precipitation for the 24-hour, 1000-year frequency design storm event is 0.145 inches per hour or

approximately 3.5 inches in 24 hours. The annual average evaporation rate is approximately 74 inches per year.

16. Site Geology

The Site is located within the Mojave Valley in the western Mojave Desert of the Mojave Desert geologic province. The underlying geology consists of undifferentiated Holocene alluvial deposits. Driller's logs for the water production wells installed at the Site indicate the geology to depths of approximately 400 feet below ground surface (bgs) consists of an interlayered sequence of medium- to coarse-grained sand, fine-grained sand, silt, and clay with localized gravel and cobbles. Clay layers of 5- to 10-foot thickness are described in several of the driller's logs. Layers of caliche (calcium carbonate partially-cemented sediments) are typical throughout the area at shallower depths.

17. Site Hydrogeology and Groundwater Quality

The Site is situated in the Lower Mojave River Valley Groundwater Basin. The depth to groundwater was approximately 100 feet bgs in 1986. There are three active groundwater monitoring wells on the Site related to the surface impoundments. The depth to groundwater as measured in these wells has increased from 1992 (approximate groundwater depth was 130 feet bgs) through 2018 (approximate groundwater depth was 170 feet bgs).

Based on historical groundwater elevations and groundwater surface contouring generated for the Facility, groundwater flow direction may vary from southeast to northeast. The groundwater hydraulic gradient is relatively shallow or flat and has been reported to range between approximately 0.001 and 0.005 feet/foot.

Based on the 2018 groundwater monitoring data, the quality of groundwater beneath the Facility is excellent with Total Dissolved Solids (TDS) concentrations ranging from 452 to 638 milligrams per liter (mg/L) in the three monitoring wells surrounding surface impoundment locations. Routine monitoring of the lysimeters in the vadose zone beneath the surface impoundments and the sumps associated with the leachate collection and recovery system for the surface impoundments has not detected the presence of moisture over the life of the project. These monitoring results indicate the surface impoundment liner systems have not leaked or shown indications of a release.

18. Site Hydrology

The Facility is located in the Lower Mojave Hydrologic Area. The Mojave River is located approximately one mile north of the Facility. Stormwater, if present, typically flows eastward.

19. Site Storm Water Management

Storm water protection at the Facility is primarily accomplished through drainage control based on the following objectives: protection from run-on; minimize infiltration of precipitation into the waste; minimize exposure of pollutants to precipitation; manage runoff to minimize erosion and sedimentation; and minimize off Site migration of storm water. To achieve these objectives, the Discharger implements structural and non-structural Best Management Practices (BMPs) to mitigate potential pollution of storm water discharges and performs Site compliance inspections to evaluate the effectiveness of the BMPs. The Discharger will continue to implement BMPs and perform inspections throughout the post-closure compliance period of the Facility.

This Order requires prohibitions, limitations, and provisions for storm water and non-storm water discharges at the Facility to protect both groundwater and surface water quality.

20. Basin Plan

The Water Board adopted a *Water Quality Control Plan for the Lahontan Region* (Basin Plan), which became effective on March 31, 1995. This Order implements the Basin Plan, as amended, including the Water Quality Objectives (WQOs) identified in the Basin Plan.

21. Receiving Waters

The receiving waters are the groundwaters of the Lower Mojave River Valley Groundwater Basin (Department of Water Resources [DWR], Groundwater Basin No. 6-40; Basin Plan, Plate 2B). The WQOs for the Mojave River groundwater upgradient of the Calico-Newberry Fault are listed in Table 3-20 of the Basin Plan (i.e., total dissolved solids maximum objective is 340 mg/L and nitrate maximum objective is 4 mg/L, as nitrate). The Mojave River occurs in this reach as underground flow in a confined channel.

22. Beneficial Uses

The present and probable future beneficial uses of the groundwaters of the Lower Mojave River Valley Groundwater Basin (DWR No. 6-40), as set forth and defined in the Basin Plan are:

a. Municipal and Domestic Supply (MUN);
b. Agricultural Supply (AGR);
c. Industrial Service Supply (IND);
d. Freshwater Replenishment (FRSH);
e. Aquaculture (AQUA).

23. Water Quality Protection Standard (WQPS)

The WQPS consists of constituents of concern (COCs), concentrations limits, monitoring points, and the point of compliance. The COCs, monitoring points, and point of compliance for groundwater monitoring are described in MRP No. R6V-2019-PROPOSED, which is made part of this Order.

24. Statistical and Non-Statistical Methods

Statistical and non-statistical analyses of monitoring data are necessary for the earliest possible detection of measurably significant evidence of a release of waste from the West Pond Landfill. CCR, title 27, section 20415, subdivision (e)(7), requires statistical data analyses to determine when there is "measurably significant" evidence of a release from the WMU. CCR, title 27, section 20415, subdivision (e)(8) allows non-statistical data analysis methods that can achieve the goal of the monitoring program at least as well as the most appropriate statistical method. The monitoring parameters listed in MRP No. R6V-2019-PROPOSED are believed to be the best indicators of a release from the Facility.

25. Detection Monitoring Program

Pursuant to CCR, title 27, sections 20385 and 20420, the Discharger is implementing a Detection Monitoring Program (DMP) for the Facility. The current DMP has been designed to monitor the groundwater for evidence of a release. To date, there has been no measurably significant evidence and/or significant physical evidence of a release at the Facility.

26. Evaluation Monitoring Program

An Evaluation Monitoring Program (EMP) may be required, pursuant to CCR, title 27, section 20385 and section 20420, subdivision (k)(5-6), whenever there is “measurably significant” evidence of a release from the Unit during a detection monitoring program or whenever there is significant physical evidence of a release from the Unit. The Discharger shall delineate the nature and extent of the release and develop a suite of proposed corrective action measures within 90 days of establishing an EMP. If the EMP confirms measurably significant evidence and/or significant physical evidence of a release, then the Discharger shall submit an Engineering Feasibility Study for corrective action pursuant to CCR, title 27, section 20425, and MRP No. R6V-2019-PROPOSED.

27. Corrective Action Program

A Corrective Action Program (CAP) to remediate detected releases from the West Pond Landfill may be required pursuant to CCR, title 27, section 20385 and section 20430.

28. Financial Assurance

The Discharger has provided documentation that a financial assurance fund has been developed for closure and post-closure maintenance and potential future corrective action requirements. This Order requires the Discharger to report the amount of money available in the fund as part of the annual self-monitoring report. This Order also requires the Discharger to demonstrate, in an annual report, that the amount of financial assurance is adequate or to increase the amount of financial assurance, as appropriate (e.g. for identified needed corrective actions, or for inflation, etc.).

29. Other Considerations and Requirements for Discharge

Pursuant to California Water Code, section 13241, the requirements of this Order take into consideration:

a. *Past, present, and probable future beneficial uses of water*. This Order identifies existing groundwater quality and past, present, and probable future beneficial uses of water, as described in Finding No. 22. The proposed discharge will not adversely affect present or probable future beneficial uses of water including municipal and domestic supply, agricultural supply, industrial service supply, freshwater replenishment, and aquaculture, because the discharge is authorized only to the West Pond Landfill, which has been designed and will be constructed to prevent waste discharges to the ground water. This Order also requires monitoring to detect any impacts to water quality.

b. *Environmental characteristics of the hydrographic unit under consideration including the quality of water available thereto*. Finding No. 17 describes the environmental characteristics and quality of water available.

c. *Water quality conditions that could reasonably be achieved through the coordinated control of all factors that affect water quality in the area*. The requirements of this Order will not affect groundwater quality. The Water Board will use its existing authority and this Closure and Post-Closure WDR to ensure protection of water quality from these discharges.

d. *Economic considerations*. Water Quality Objectives established in the Basin Plan for the Lower Mojave River Valley Groundwater Basin do not subject the *Discharger to economic disadvantage as compared to other similar discharges in the Region*. This Order will require the Discharger to submit proposals compliant with the requirements of CCR, title 27, and is reasonable.

e. *The need for developing housing within the region*. The Discharger is not responsible for developing housing within the region.

f. *The need to develop and use recycled water*. The Discharger does not propose the use of recycled water at this Facility.

30. Human Right to Water

California Water Code, section 106.3, establishes a state policy that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes and directs state agencies to consider this policy when adopting regulations pertinent to those uses of water. The Discharger has supported this policy by converting the SEGS I & II Facility to photovoltaic-based solar facility, which eliminated the operational need for up to 424 acre-feet per year (0.379 million gallons per day) of groundwater required by operation of the previous concentrating solar thermal facility for cooling purposes and related operations. This Order further promotes the policy by requiring storm water and drainage controls, monitoring to assess water quality, and corrective action when needed to address any adverse impacts to water quality.

31. California Environmental Quality Act

These Closure WDRs govern an existing waste disposal facility and are therefore exempt from the provisions of the California Environmental Quality Act (CEQA), Public Resources Code, section 21000 et seq., in accordance with CCR, title 27, section 15301, Existing Facility (CEQA Exemptions).

32. Antidegradation Analysis

California State Water Resources Control Board (State Water Board) Resolution No. 68-16 ("Statement of Policy with Respect to Maintenance of High Quality Waters in California") requires that whenever the existing quality of water is better than the quality established in policies as of the date on which such policies become effective, such existing high quality must be maintained. Any change in the existing high quality is allowed by that policy only if it has been demonstrated to the Regional Water Board that any change will be consistent with maximum benefit to the people of the state, and will not unreasonably affect present and anticipated beneficial use of such water and will not result in water quality less than that prescribed in the policies.

The policy further requires that dischargers meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that pollution or nuisance will not occur and that the highest water quality consistent with maximum benefit to the people of the state will be maintained.

There has been no detected release at the Facility and thus no change in the existing water quality is expected as result of this WDR, and an EMP and possible CAP will ensure water quality protection.

33. Technical and Monitoring Reports

The Discharger must submit technical and monitoring reports in compliance with this Order and as described in MRP No. R6V-2019-PROPOSED.

Water Code section 13267(b) provides that: "In conducting an investigation specified in subdivision (a), the Regional Board may require that any person who has discharged, discharges, or is suspected of having discharge or discharging, or who proposed to discharge within its region, or any citizen or domiciliary, or political agency or entity of this state who had discharged, discharges, or is suspected of having discharged or discharging, or who proposed to discharge waste outside of its region that could affect the quality of the waters of the state within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the board requires. The burden, including costs of these reports, shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports."

The technical reports required by this Order and MRP No. R6V-2019-PROPOSED are necessary to assure compliance with these waste discharge requirements. Therefore, the burden, including costs, of these reports bears a reasonable relationship to the need for the report and the benefits to be obtained from the reports.

34. Notification of Interested Parties

The Water Board notified the Discharger and interested agencies and persons of its intent to prescribe WDRs for closure and post-closure maintenance and monitoring and has provided them with an opportunity to submit their written views and recommendations.

35. Right to Petition

Any person aggrieved by this action of the Water Board may petition the State Water Board to review the action in accordance with California Water Code, section 13320, and CCR, title 23, sections 2050 et. seq. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of this Order, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the internet at or will be provided in hard copy or electronic format upon request.

36. Consideration of Public Comments

The Water Board, in a public meeting held on June 12, 2019, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED, pursuant to California Water Code sections 13263 and 13267, that the Discharger shall comply with the following:

I. RECEIVING WATER LIMITATIONS

The discharge shall not cause the existing water quality to be degraded nor shall the discharge cause a violation of any applicable water quality standard for receiving water

adopted by the Water Board or the State Water Board as required by the California Water Code and regulations adopted hereunder.

A. Under no circumstances shall the Discharger cause the presence of the following substances or conditions in groundwaters of the Lower Mojave River Valley Groundwater Basin.

1. Bacteria – Groundwaters designated as MUN, the median concentration of coliform organisms, over any seven-day period, shall be less than 1.1 Most Probable Number per 100 milliliters (MPN/100 mL).

2. Chemical Constituents – Groundwaters designated as MUN shall not contain concentrations of chemical constituents in excess of the Primary Maximum Contaminant Level or Secondary MCL based upon drinking water standards specified in the following provisions of CCR, title 22: Table 64431-A of section 64431 (Inorganic Chemicals), Table 64444-A of section 64444 (Organic Chemicals), Table 64449-A of section 64449 (Secondary MCLs – Consumer Acceptance Contaminant Levels), and Table 64449-B of section 64449 (Secondary MCLs – Consumer Acceptance Contaminant Level Ranges). This incorporation-by-reference is prospective including future changes to the incorporated provisions as the changes take effect.

   Groundwaters shall not contain concentrations of chemical constituents that adversely affect the water for beneficial uses.

3. Radioactivity – Groundwater designated MUN shall not contain concentrations of radionuclides in excess of limits specified in CCR, title 22, section 64442, Table 64442, and section 64443, Table 64443, including future changes as the changes take effect.

4. Taste and Odors – Groundwaters shall not contain taste or odor-producing substances in concentrations that cause a nuisance or that adversely affect beneficial uses. For groundwaters designated as MUN, at a minimum, concentrations shall not exceed adopted Secondary MCLs as specified in CCR, title 22, section 64449, Table 64449-A (Secondary MCLs – Consumer Acceptance Contaminant Level) and Table 64449-B (Secondary MCLs – Consumer Acceptance Contaminant Levels Ranges) including future changes as the changes take effect.

II. REQUIREMENTS AND PROHIBITIONS

A. General

1. The discharge shall not cause or threaten to cause a condition of pollution or nuisance as defined in California Water Code, section 13050.

2. The discharge of waste, as defined in California Water Code, section 13050, subdivision (d), shall not cause a violation of any narrative Water Quality Objective (WQO) contained in the Basin Plan.

3. Where any numeric or narrative WQO contained in the Basin Plan is already being violated, any discharge which causes further degradation or pollution is prohibited.

4. The discharge of pesticides to surface waters or groundwater is prohibited.

5. Water used for dust control shall be limited to a minimal amount. A "minimal amount" is defined as that amount which will not result in run-off.

6. All purge water discharged to the ground at the West Pond Landfill shall not contain concentrations of VOCs in excess of the WQPS.

7. The discharge of waste that contains liquid in excess of the moisture-holding capacity of the West Pond Landfill is prohibited.

8. The discharge of solid or liquid waste, leachate, or any other deleterious material to surface waters or groundwater is prohibited.

9. The West Pond Landfill shall be protected from inundation, washout, or erosion of wastes and erosion of covering materials resulting from a 24-hour, 1,000-year storm or a flood having a 1,000-year return period.

10. The Discharger shall notify the Water Board within one business day of any flooding, slope failure or other change in Site conditions that could impair the integrity of the West Pond Landfill or of precipitation and drainage control structures. The Discharger shall correct any failure that threatens the integrity of the West Pond Landfill, after approval of the method, in accordance with a schedule established by the Water Board as specified in CCR, title 27, section 21710, subdivision (c)(2).

11. Surface drainage from off Site areas and internal Site drainage from surface or subsurface sources, shall not contact or percolate through solid wastes discharged at the West Pond Landfill.

12. The exterior surfaces of the West Pond Landfill shall be graded to promote lateral run-off of precipitation and to prevent ponding.

13. The Discharger shall maintain in good working order any control system or monitoring device installed to achieve compliance with these WDRs.

14. The Discharger shall at all times maintain adequate and viable financial assurances acceptable to the Water Board Executive Officer for costs associated with closure and post-closure maintenance and monitoring and for corrective action for all known or reasonably foreseeable releases.

15. The Discharger shall comply with CCR, title 27, section 20950, closure and post-closure maintenance, general standards for all WMUs.

16. The Discharger shall comply with CCR, title 27, section 21090, requirements for closure and post-closure maintenance and design requirements for solid waste landfills except where engineered alternatives to the requirements in CCR, title 27, section 21090 have been approved by the Water Board pursuant to CCR, title 27, section 20080.

17. The West Pond Landfill is the only authorized disposal location at the Facility. The only waste authorized to be disposed in the West Pond Landfill is the solid wastes remaining in the three surface impoundments (North Pond, East Pond, and West Pond and HTF-contaminated soils remaining in LTU1 and LTU2 and associated soil stockpiles.

B. Specific Requirements for Use of Engineered Alternative Evapotranspirative Cap

The Discharger has proposed the option of using an erosion-resistance layer via a two-foot thick vegetative layer in lieu of the prescriptive one-foot thick vegetative layer required by CCR, title 27, section 21090(a)(3)(A)(1). The purpose of the increased thickness of the vegetative layer is to satisfy the requirement in CCR, title 27, section 21090(a)(2) to provide a plan for protecting the low-hydraulic conductivity layer from foreseeable sources of damage that could impair its ability to prevent the throughflow of water (e.g., desiccation, burrowing rodents, or heavy equipment damage). The Water Board approves this engineered alternative evapotranspirative cap pursuant to CCR, title 27, section 20080. A cross-section of the proposed bottom liner, waste, and evapotranspirative cap for the West Pond Landfill is presented in Attachment D, which is made a part of this Order.

C. Storm Water Discharges

Waste in discharges of storm water shall be reduced or prevented to achieve the best practicable treatment level using controls, structures, and management

practices. The Discharger shall comply with all storm water monitoring, response, and reporting requirements described in MRP No. R6V-2019-PROPOSED.

D. Electronic Submittal of Information

Pursuant to CCR, title 23, section 3890, the Discharger shall submit all reports, including soil, soil vapor, and water data, prepared for the purpose of subsurface investigation or remediation of a discharge of waste to land subject to Division 2 of title 27 electronically over the internet to the State Water Board's Geotracker system. This requirement is in addition to, and not superseded by, any other applicable reporting requirement.

III. WATER QUALITY MONITORING AND RESPONSE PROGRAMS

A. Detection Monitoring Program

The Discharger shall maintain a DMP as required in CCR, title 27, section 20420. The Discharger shall continue to conduct a DMP, as necessary, to provide the best assurance of the detection of a release from the West Pond Landfill.

B. Evaluation Monitoring Program

The Discharger shall establish an EMP whenever there is measurably significant evidence and/or significant physical evidence of a release from the West Pond Landfill pursuant to CCR, title 27, section 20425. Within 90 days of initiating an EMP, the Discharger shall delineate the nature and extent of the release, as well as develop, propose, and support corrective action measures to be implemented in a CAP.

C. Corrective Action Program

The Discharger will implement a CAP as required pursuant to CCR, title 27, section 20430, should the results of the EMP warrant a CAP. If warranted, the Discharger shall implement a CAP until it can be demonstrated to the satisfaction of the Water Board that the concentrations of all COCs are reduced to levels below their respective concentration limits throughout the entire zone affected by the release.

D. Water Quality Protection Standard

1. The WQPS consists of COCs, concentration limits, monitoring points, and the point of compliance. The COCs, concentration limits, monitoring points, and point of compliance for groundwater and unsaturated zone monitoring are described in MRP No. R6V-2019-PROPOSED.

2. At any given time, the concentration limit for each COC shall be equal to the background data set of that constituent unless a concentration level greater than background has been established.

3. If the Discharger or Water Board Executive Officer determines that concentration limits were or are exceeded, the Discharger may immediately institute verification procedures upon such determination as specified below or, within 90 days of such determination, submit a technical report pursuant California Water Code, section 13267, subdivision (b), proposing an EMP meeting the provisions of CCR, title 27. In the event of a release, unless the technical report proposing an EMP recommends and substantiates a longer period, the Discharger will only have 90 days, once the Water Board authorizes the initiation of the EMP, to complete the delineation, develop a suite of proposed corrective action measures, and submit a proposed CAP for adoption by the Water Board.

4. Monitoring of the groundwater and unsaturated zone shall be conducted to provide the best assurance of the detection of a release from the West Pond Landfill.

E. Data Analysis

Within 45 days of receipt of laboratory results, the Discharger shall determine at each Monitoring Point whether there is measurably significant evidence and/or significant physical evidence of a release from the West Pond Landfill. The analysis shall consider all monitoring parameters and COCs. The Executive Officer may also make an independent finding that there is measurably significant evidence and/or significant physical evidence of a release.

1. To determine whether there is "measurably significant" (as defined in CCR, title 27, section 20164) evidence of a release from the West Pond Landfill, the Discharger shall use approved statistical data analysis methods to evaluate point of compliance groundwater data, as required by CCR, title 27, section 20415, subdivision (e).

2. To determine whether there is significant physical evidence of a release from the West Pond Landfill, the Discharger shall use non-statistical methods. Significant physical evidence may include, but is not limited to, unexplained volumetric changes in the West Pond Landfill, unexplained stress in biological communities, unexplained changes in soil characteristics, visible signs of leachate migration, unexplained water table mounding beneath or adjacent to the Facility, and/or any other change in the environment that could be reasonably be expected to be the result of a new release from the West Pond Landfill. Other non-statistical evidence of a release may include trends of increasing concentrations of one or more constituents over time.

3. If there is measurably significant evidence and/or significant physical evidence of a release, the Discharger shall immediately notify the Water Board verbally by telephone or email as to the monitoring points and constituent(s) or parameters involved followed by written notification sent certified mail within seven days (see "Unscheduled Reports to be Filed With the Water Board," MRP No. R6V-2019-PROPOSED). The Discharger must initiate the verification procedures, as specified in section III.F below.

F. Verification Procedures

Whenever there is a determination by the Discharger or Executive Officer that there is measurably significant evidence or significant physical evidence of a release, the Discharger shall initiate verification procedures as specified below.

1. The Discharger shall either conduct a composite retest using data from the initial sampling event with all data obtained from the resampling event or shall conduct a discrete retest in which only data obtained from the resampling event must be analyzed to verify evidence of a release. Alternatively, the Discharger may perform a pass 1-of-3 retesting approach using quarterly samples, as an engineered alternative.

2. The verification procedure need only be performed for the constituent(s) that has shown a measurably significant evidence of a release and shall be performed at each Monitoring Point for which a release is indicated.

3. Within seven days of receiving the results of the last laboratory analyses for the retest, the Discharger shall report to the Water Board, by certified mail, the results of the verification procedure, as well as all data collected for use in the retest.

4. If the Discharger or Executive Officer verifies that there is or was evidence of a release, the Discharger is required to submit a technical report to the Water Board within 90 days of such a determination, pursuant to California Water Code, section 13267, subdivision (b). The report shall propose an evaluation monitoring program (see section III.C above) or make a demonstration to the Water Board that there is a source other than the West Pond Landfill that caused evidence of a release (see "Unscheduled Reports to be Filed with the Water Board," MRP No. R6V-2019-PROPOSED).

5. If the Discharger declines to conduct verification procedures, the Discharger shall submit a technical report, as specified in Section III.G below.

G. Technical Report Without Verification Procedures

If the Discharger chooses not to initiate verification procedures after there has been a determination made for evidence of a release, a technical report shall be submitted pursuant to California Water Code, section 13267, subdivision (b). The report shall propose an EMP or attempt to demonstrate that the release did not originate from the Facility.

H. Monitoring and Reporting

1. Pursuant to California Water Code, section 13267, subdivision (b), the Discharger shall comply with the monitoring and reporting requirements as established in the attached MRP No. R6V-2019-PROPOSED, and as specified by the Executive Officer. The MRP may be modified by the Water Board Executive Officer.

2. The Discharger shall comply with the "General Provisions for Monitoring and Reporting," dated September 1, 1994, which is attached to and made part of MRP No. R6V-2019-PROPOSED.

IV. PROVISIONS

A. Rescission of Waste Discharge Requirements

Board Order No. 6-96-160, as amended by Board Order No. 6-96-160A1, and MRP No. 96-160 are hereby rescinded.

B. Standard Provisions

The Discharger shall comply with the "Standard Provisions for Waste Discharge Requirements," dated September 1, 1994, in Attachment E, which is attached to and made part of this Order.

C. Closure and Post-Closure

This Order provides Water Board approval of the FCPCMP and the proposed engineered alternative final cover. The Discharger shall submit a report to the Water Board on or before **February 15, 2020**, and by **February 15** every year thereafter, indicating that the FCPCMP is in conformance with existing Facility operations. The FCPCMP and cost estimates for corrective action shall be updated if/when there is a significant change in the activities or costs for maintenance and/or monitoring of the Facility, and to reflect changes in inflation rates.

D. Financial Assurance

The Discharger shall submit to the Water Board a financial assurance report on or before **February 15, 2020**, and by **February 15** every year thereafter, providing evidence that adequate financial assurance has been provided for closure and post-closure maintenance and for corrective action of all known and reasonably foreseeable releases. Evidence shall include the total amount of money available in the fund developed by the Discharger. In addition, the Discharger shall either provide evidence that the amount of financial assurance is still adequate or increase the amount of financial assurance by an appropriate amount. An increase may be necessary due to inflation, change(s) in regulatory requirements, change(s) in the approved closure plan, or other unforeseen events.

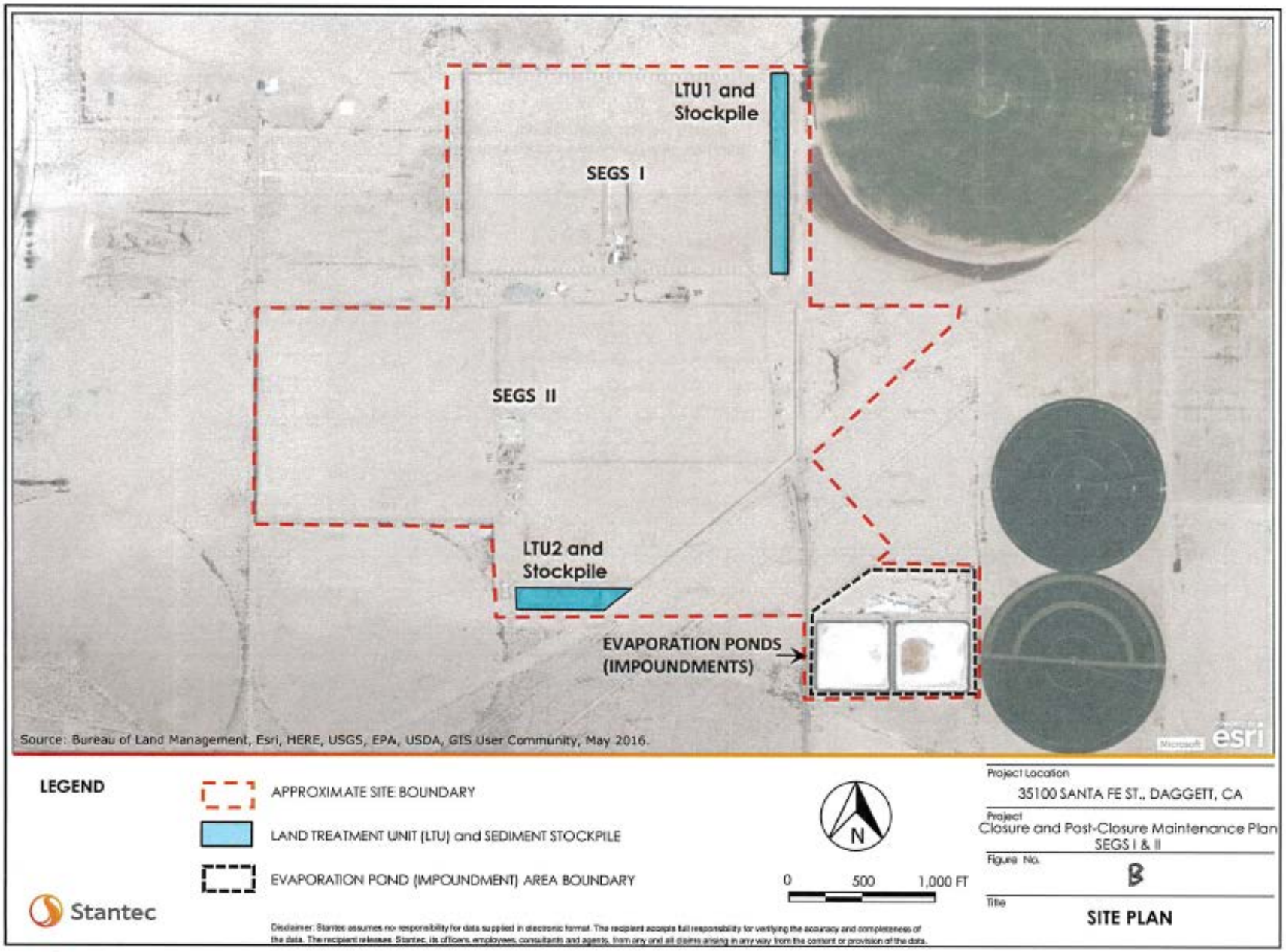
I, Patty Z. Kouyoumdjian, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Board, Lahontan Region, on June 12, 2019.

_____
PATTY Z. KOUYOUMDJIAN
EXECUTIVE OFFICER

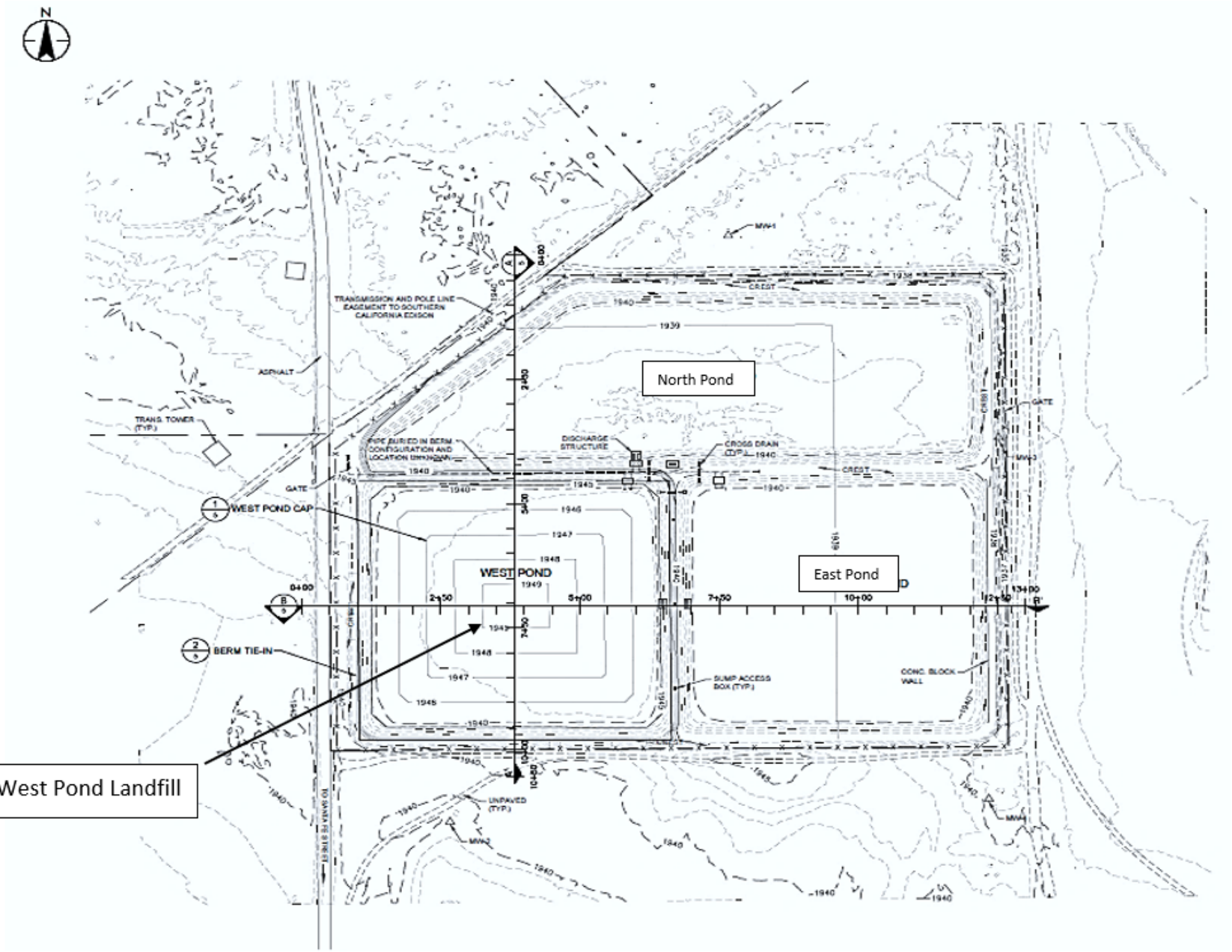
Attachments:
A. SEGS I & II Facility Location Map
B. Site Plan
C. Plan View of West Pond Landfill
D. Detail - West Pond Landfill Closure System
E. Standard Provisions for Waste Discharge Requirements

Attachment A - SEGS I & II Facility Location Map

Attachment B - Site Plan

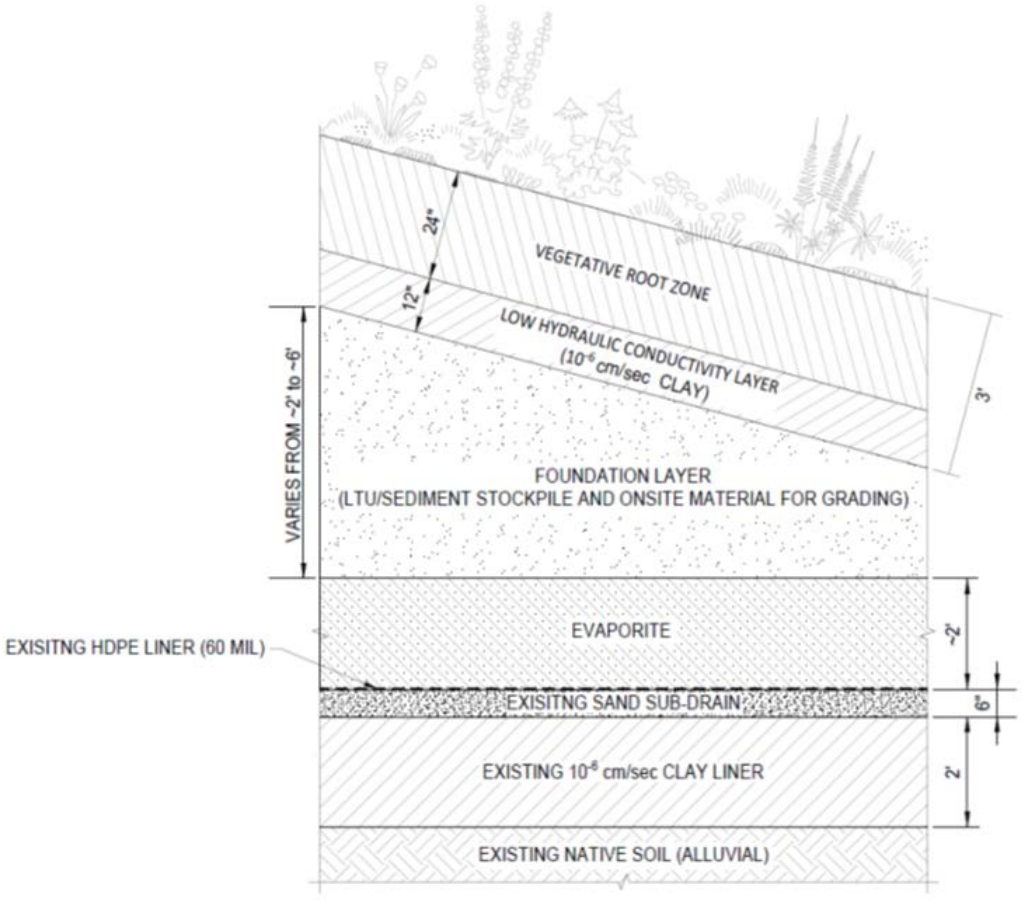


Attachment C - Plan View of West Pond Landfill



Attachment D

Detail - West Pond Landfill Closure System



Attachment E

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

STANDARD PROVISIONS
FOR WASTE DISCHARGE REQUIREMENTS

1. Inspection and Entry

The Discharger shall permit Regional Board staff:

a. to enter upon premises in which an effluent source is located or in which any required records are kept;

b. to copy any records relating to the discharge or relating to compliance with the Waste Discharge Requirements (WDRs);

c. to inspect monitoring equipment or records; and

d. to sample any discharge.

2. Reporting Requirements

a. Pursuant to California Water Code 13267(b), the Discharger shall immediately notify the Regional Board by telephone whenever an adverse condition occurred as a result of this discharge; written confirmation shall follow within two weeks. An adverse condition includes, but is not limited to, spills of petroleum products or toxic chemicals, or damage to control facilities that could affect compliance.

b. Pursuant to California Water Code Section 13260 (c), any proposed material change in the character of the waste, manner or method of treatment or disposal, increase of discharge, or location of discharge, shall be reported to the Regional Board at least 120 days in advance of implementation of any such proposal. This shall include, but not be limited to, all significant soil disturbances.

c. The Owners/Discharger of property subject to WDRs shall be considered to have a continuing responsibility for ensuring compliance with applicable WDRs in the operations or use of the owned property. Pursuant to California Water Code Section 13260(c), any change in the ownership and/or operation of property subject to the WDRs shall be reported to the Regional Board. Notification of applicable WDRs shall be furnished in writing to the new owners and/or operators and a copy of such notification shall be sent to the Regional Board.

d. If a Discharger becomes aware that any information submitted to the Regional Board is incorrect, the Discharger shall immediately notify the Regional Board, in writing, and correct that information.

e. Reports required by the WDRs, and other information requested by the Regional Board, must be signed by a duly authorized representative of the Discharger.

Under Section 13268 of the California Water Code, any person failing or refusing to furnish technical or monitoring reports, or falsifying any information provided therein, is guilty of a misdemeanor and may be liable civilly in an amount of up to one thousand dollars ($1,000) for each day of violation.

f. If the Discharger becomes aware that their WDRs (or permit) are no longer needed (because the project will not be built or the discharge will cease) the Discharger shall notify the Regional Board in writing and request that their WDRs (or permit) be rescinded.

3. Right to Revise WDRs

The Regional Board reserves the privilege of changing all or any portion of the WDRs upon legal notice to and after opportunity to be heard is given to all concerned parties.

4. Duty to Comply

Failure to comply with the WDRs may constitute a violation of the California Water Code and is grounds for enforcement action or for permit termination, revocation and re-issuance, or modification.

5. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge in violation of the WDRs which has a reasonable likelihood of adversely affecting human health or the environment.

6. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the Discharger to achieve compliance with the WDRs. Proper operation and maintenance includes adequate laboratory control, where appropriate, and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by the Discharger, when necessary to achieve compliance with the conditions of the WDRs.

7. Waste Discharge Requirement Actions

The WDRs may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for waste discharge requirement modification, revocation and re-issuance, termination, or a notification of planned changes or anticipated noncompliance, does not stay any of the WDRs conditions.

8. Property Rights

The WDRs do not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.

9. Enforcement

The California Water Code provides for civil liability and criminal penalties for violations or threatened violations of the WDRs including imposition of civil liability or referral to the Attorney General.

10. Availability

A copy of the WDRs shall be kept and maintained by the Discharger and be available at all times to operating personnel.

11. Severability

Provisions of the WDRs are severable. If any provision of the requirements is found invalid, the remainder of the requirements shall not be affected.

12. Public Access

General public access shall be effectively excluded from treatment and disposal facilities.

13. Transfers

Providing there is no material change in the operation of the facility, this Order may be transferred to a new owner or operation. The owner/operator must request the transfer in writing and receive written approval from the Regional Board's Executive Officer.

14. Definitions

a. "Surface waters" as used in this Order, include, but are not limited to, live streams, either perennial or ephemeral, which flow in natural or artificial water courses and natural lakes and artificial impoundments of waters. "Surface waters" does not include artificial water courses or impoundments used exclusively for wastewater disposal.

b. "Ground waters" as used in this Order, include, but are not limited to, all subsurface waters being above atmospheric pressure and the capillary fringe of these waters.

15. Storm Protection

All facilities used for collection, transport, treatment, storage, or disposal of waste shall be adequately protected against overflow, washout, inundation, structural damage or a significant reduction in efficiency resulting from a storm or flood having a recurrence interval of once in 100 years.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

MONITORING AND REPORTING PROGRAM
NO. R6V-2019-[PROPOSED]
WDID NO. 6B364550001
FOR

SOLAR ELECTRIC GENERATING SYSTEMS I & II,
SUNRAY LAND COMPANY, LLC
THREE SURFACE IMPOUNDMENTS, TWO LAND TREATMENT UNITS,
AND WEST POND LANDFILL

San Bernardino County

This monitoring and reporting program (MRP) is issued to Sunray Land Company, LLC (Discharger) pursuant to California Water Code section 13267 and incorporates requirements for groundwater and unsaturated zone monitoring and reporting; facility monitoring, maintenance, and reporting; and financial assurances reporting contained in California Code of Regulations, title 27, section 20005, et seq. (hereafter Title 27). The technical reports required by Order R6V-2019 -PROPOSED and MRP No. R6V-2019-PROPOSED are necessary to assure compliance with these waste discharge requirements. Therefore, the burden, including costs, of these reports bears a reasonable relationship to the need for the report and the benefits to be obtained from the reports.

I. WATER QUALITY PROTECTION STANDARD

A Water Quality Protection Standard (WQPS) is required by California Code of Regulations (CCR), title 27, section 20390 through 20410, to assure the earliest possible detection of a release from a waste management unit to the underlying soil and/or groundwater. The WQPS shall consist of all constituents of concern (COC), the concentration limits for each COC, the point of compliance, and all water quality monitoring points. The Executive Officer shall review and approve the WQPS, or any modification thereto, for each monitored medium.

Sunray Land Company, LLC submitted a Final Closure and Post-Closure Maintenance and Monitoring Plan (FCPCMP) on January 28, 2019 and supplemental information on February 11, 13, and 22, 2019. A WQPS is necessary to evaluate the effectiveness of the detection monitoring program (DMP) to determine if a release occurs from the West Pond Landfill (Landfill).

A. Constituents of Concern

The COCs include all the waste constituents, their reaction products, and hazardous constituents that are reasonably expected to be in or derived from waste contained in a waste management unit. The COCs for each monitored medium at the Landfill are listed in Attachment A, which is made part of this MRP.

B. Monitoring Parameters

Monitoring parameters are those COCs that provide a reliable indication of a release from the Facility. The monitoring parameters for each monitored medium at the Landfill are listed in Attachment A.

C. Concentration Limits

Concentration limits are established for each COC and are intended to reflect background ambient conditions of surface and subsurface media that are unaffected by a release from the waste management unit. At any given time, the concentration limit for each COC must be equal to the background data set of that constituent unless a concentration limit greater than background has been established. CCR, title 27 allows for various options to determine concentration limits including statistical interwell and intrawell methods and non-statistical methods.

1. The Discharger is using the following methodologies to determine concentration limits for the groundwater monitoring program.

   a. Interwell Comparisons – The Discharger is using historical water quality data from the upgradient groundwater monitoring well to develop concentration limits for inorganic COCs. Because there is no indication of a release from the Landfill, interwell comparisons are appropriate.

   b. Intrawell Comparisons – When the upgradient groundwater dataset is determined to have a non-normal distribution, non-parametric intrawell prediction limits are calculated for those inorganic COCs.

   c. Non-Statistical Comparisons – For inorganic COCs either not detected in background wells or only detected at trace concentrations and for man-made organic COCs, the concentration limit has been set at the method detection limit (MDL) for the analytical method used. For the DMP, the MDL is selected as the concentration limit, as this will allow for early detection of a release from the Landfill.

If subsequent sampling of the background monitoring point(s) indicates significant water quality changes due to either seasonal fluctuations or other reasons unrelated to waste management activities at the Facility, the Discharger may request modification of the WQPS's concentration limits to provide season-specific concentration limits (background data sets) for each COC at each monitoring point.

D. Point of Compliance and Monitoring Points

The point of compliance is a vertical surface located at the hydraulically downgradient limit of the Landfill that extends through the uppermost aquifer underlying the Landfill. The point of compliance is monitored by existing groundwater monitoring wells MW-1, MW-3, and MW-4 (Attachment B). An additional monitoring point will need to be installed to include upgradient (background) groundwater monitoring since MW-2 is no longer functioning as a monitoring well. Section IV(f)(2) of this MRP requires the Discharger to submit a work plan by September 30, 2019 for the installation of an up-gradient monitoring well to replace MW-2.

E. Post-Closure Period

The FCPCMP proposes to close the West Pond surface impoundment as a landfill (a.k.a., West Pond Landfill, hereafter referred to as the "Landfill"), pursuant to CCR title 27, section 21400(b)(2)(a). The Waste Discharge Requirements for the Landfill require a post-closure period for monitoring and maintenance of the Landfill. CCR title 27, section 20950 (a)(1) states: "Relative to the applicable SWRCB-promulgated requirements of this title, the post closure maintenance period shall extend as long as the wastes pose a threat to water quality…the RWQCB's finding that the waste in the Unit no longer poses a threat to water quality shall release the discharger only from the need to comply with the SWRCB-promulgated portions of this title, for that Unit." The Landfill is scheduled to be certified closed by January 2020; therefore, the post-closure period is expected to end in 2050 for planning purposes but may be extended if measurably significant evidence of release is detected from the Facility or shortened if the Discharger demonstrates and the Water Board finds that the waste in Landfill no longer poses a threat to water quality.

The FCPCMP proposes to clean close the North Pond and East Pond surface impoundments by removing all remaining wastes from these waste management units (WMUs) and placing the remaining wastes in the Landfill. CCR title 27, section 21400(b)(1) states: "For surface impoundments that are successfully clean-closed, as herein described, the RWQCB shall declare the Unit no longer subject to the SWRCB-promulgated requirements of this title." Therefore, a RWQCB declaration that the surface impoundments have been successfully clean-closed eliminates the requirement for a post-closure period for the surface impoundments.

The FCPCMP proposes to clean close Land Treatment Unit 1, Land Treatment Unit 2, and associated stockpiles of Heat Transfer Fluid (HTF)-contaminated soil by removing the waste soils and placing them in the Landfill as a foundation material for the Landfill cover. For units to be clean-closed, the goal of closure is to physically remove all waste and contaminated materials from the Unit and

from its underlying and surrounding environs, such that the waste in the Unit no longer poses a threat to water quality pursuant to CCR title 27, section 20950(a)(2)(B). Successful completion of clean-closure eliminates the need for any post-closure maintenance period and removes the Unit from being subject to the SWRCB-promulgated requirements of this subdivision…" Therefore, a RWQCB finding that the land treatment units and associated stockpiles of HTF-contaminated soil have been successfully clean-closed eliminates the requirement for a post-closure period for the land treatment units and associated stockpiles of HTF-contaminated soil.

II. MONITORING

The Discharger must comply with the monitoring requirements outlined below. All monitoring and inspecting activities must be documented, and all sampling must be conducted in accordance with an approved Sampling and Analysis Plan (SAP) that includes quality assurance and quality control standards and procedures, as described in the General Provisions for Monitoring and Reporting (Attachment C of this MRP).

A. Detection Monitoring Program

The Discharger must operate and maintain a detection monitoring system that complies with the DMP monitoring provisions contained in CCR, title 27, sections 20385 through 20420. Monitoring of the groundwater and unsaturated zone must be conducted to evaluate the effectiveness of the DMP and to provide the best assurance of the early detection of any releases from the Landfill. Changes to the existing monitoring system must be designed and certified by a California-licensed professional civil engineer or professional geologist as meeting the requirements of CCR, title 27, section 20415(e)(1). The Discharger must collect, preserve, and transport samples in accordance with an approved SAP.

1. Groundwater Monitoring

The groundwater monitoring program monitors the quality of groundwater that passes through the point of compliance as well as monitors the quality of groundwater upgradient, cross-gradient, and downgradient of the Landfill through the collection of groundwater samples for laboratory analysis and field measurement of water quality parameters.

a. Monitoring Points

The point of compliance is monitored by the existing groundwater monitoring wells MW-1, MW-3, and MW-4 (Attachment B). Additional monitoring points will include an upgradient (background) groundwater monitoring well.

b. Depth to Groundwater

Prior to purging and sampling, the Discharger must measure and record the depth below the ground surface (bgs) of the static groundwater surface in all groundwater monitoring wells relative to the surveyed (by California-licensed Land Surveyor and appropriately experienced California-licensed Civil Engineer) top-of-casing measuring point for each well. The measurements shall be accurate to the nearest 0.01 foot.

c. Groundwater Purging and Sampling

Prior to sampling, all groundwater monitoring wells must be purged using either standard or United States Environmental Protection Agency (USEPA) low-flow techniques until temperature, electrical conductivity, and pH of extracted well water have stabilized. These parameters will be considered stable when three consecutive readings have pH values within +/- 0.3 pH units and temperature and electrical conductivity values within +/- three (3) percent.

All groundwater samples, with the exception of field parameters, are to be analyzed by a California state-certified laboratory using the USEPA analytical methods listed in Attachment A or the most recently approved SW-846 USEPA method or other equivalent USEPA method. An alternate method may be proposed and used if acceptable to the Executive Officer.

d. Constituents of Concern and Monitoring Parameters

The Discharger shall monitor, at each groundwater monitoring well, all COCs and monitoring parameters in accordance with the frequencies listed in Attachment A. Should any non-monitoring parameter COC exceed their respective concentration limit by a measurably significant amount at any given monitoring point, that non-monitoring parameter COC will become a monitoring parameter at that monitoring point.

e. Field Parameters

The Discharger shall monitor, at each groundwater monitoring well, all field parameters in accordance with the frequencies listed in Attachment A.

f. Aquifer Characteristics

The Discharger must calculate, and illustrate on a Site plan and/or aerial photograph, the following aquifer characteristics: the static water level elevation (feet above mean sea level) in each groundwater monitoring well; the groundwater gradient (feet/feet); the direction of the groundwater gradient beneath and around the Facility (degrees); the seepage velocity of groundwater flow (feet/year); and the current groundwater elevation isocontours for that monitoring period.

g. Calibration Documentation

Annually, the Discharger must submit documentation of instrument calibration and performance checks to verify proper operation of the field monitoring equipment.

2. Unsaturated Zone Monitoring

The unsaturated zone monitoring program monitors for the presence of liquid in the lysimeters and LCRS sumps.

The West Pond Landfill monitoring points shall include the leachate collection and removal system sumps originally designed and constructed for the West Pond surface impoundment to provide an early indication of a release which may have breached the HDPE bottom liner and entered the sand drain. The sumps shall be visually monitored for the presence of liquid when groundwater and stormwater monitoring events occur.

The West Pond Landfill monitoring points shall include the lysimeters originally designed and constructed for the West Pond surface impoundment to provide an early indication of a release. The lysimeters have historically been dry but shall continue to be monitored for the presence of liquid during the post-closure period.

B. Final Cover Monitoring

The Discharger will install an engineered alternative final cover over the Landfill, specifically an evapotranspirative (ET) cover. The final cover will consist of 2-foot thick vegetative root zone layer underlain by a 1-foot thick low hydraulic conductivity layer which is underlain by a 2- to 6-foot thick foundation layer. The cover will be graded to prevent leachate formation due to storm water infiltration, to promote lateral runoff, and to prevent ponding. The Discharger must

periodically monitor and maintain the final cover materials to ensure the integrity of the cover and to evaluate the cover's capability to promote runoff and prevent ponding.

C. Storm Water Monitoring and Response Program

Waste in discharges of storm water must be reduced or prevented to achieve the best practicable treatment level using controls, structures, and best management practices (BMPs). At minimum, the Discharger must: develop and implement a Site-specific storm water pollution control plan (SWPCP); conduct monitoring, including visual observations and periodic collection of samples for laboratory analytical analysis; evaluate storm water monitoring data; implement appropriate response actions when monitoring data indicate non-compliance with the storm water monitoring program; and provide annual reports to the California Regional Water Quality Control Board-Lahontan Region (Water Board).

1. Storm Water Pollution Control Plan

The Discharger shall develop and implement a Site-specific SWPCP (or equivalent document) that contains, at minimum, the following elements below. A copy of the SWPCP (and amendments thereto) shall be maintained at the Facility so as to be available to Site personnel at all times. The Discharger is required to submit a copy of the SWPCP to the Water Board in accordance with the schedule specified in MRP section IV.F.1.

a. Facility Information

A list of Site contacts including those persons responsible for assisting with the implementation of the SWPCP.

b. Site Map

A Site map that illustrates: the Facility boundary; all storm water drainage areas within the Facility and the flow direction of each drainage area; locations of storm water collection and conveyance systems, including associated discharge locations and directions of flow; locations of storm water monitoring points; locations of structural control measures that affect run-on; and locations of all industrial storage areas and storage tanks, shipping and receiving areas, fueling areas, vehicle and equipment storage/maintenance areas, material handling and processing areas, waste treatment and disposal areas, cleaning and material reuse areas, and other areas of industrial activity that may have potential pollutant sources.

c. List of Industrial Materials

A list of industrial materials handled at the Facility, the locations where each material is stored and handled, as well as the typical quantities and handling frequency.

d. Potential Pollutant Sources

A description of all potential pollutant sources including industrial processes, material handling and storage areas, dust and particulate generating activities, non-storm water discharges, and erodible surfaces.

e. Best Management Practices

A narrative description of each minimum and/or advanced BMP being implemented at the Facility, as well as a summary table that identifies each area of industrial activity, the associated pollutant sources and pollutants, and the specific BMPs being implemented.

The following minimum BMPs must be implemented and maintained to reduce or prevent pollutants in industrial storm water discharges: good housekeeping; preventative maintenance; spill and leak prevention response; material handling and waste management; erosion and sediment controls; an employee training program; and quality assurance and record keeping.

Advanced BMPs may be necessary to reduce or prevent discharges of pollutants in storm water discharges in a manner that reflects best industry practice considering technological availability and economic practicability and achievability. Advanced BMPs may include: exposure minimization BMPs; storm water containment and discharge reduction BMPs; treatment control BMPs; or other advanced BMPs based on Site-specific criteria.

f. Storm Water Monitoring Plan

The SWPCP shall include a storm water monitoring plan that meets the requirements outlined in MRP section II.C.2 below.

2. Storm Water Monitoring

a. Monitoring Points

The storm water discharge monitoring locations shall be selected such that samples collected are representative of storm water

discharge leaving each drainage area identified for the Facility. The storm water discharge monitoring locations must be identified on the Site plan in the SWPCP.

b. Storm Water Sampling

The Discharger shall collect storm water samples, from each storm water discharge monitoring location, and analyze for all monitoring parameters in accordance with the frequencies listed in Attachment A.

All storm water samples, with the exception of pH, are to be analyzed by a California state-certified laboratory using the USEPA analytical methods listed in Attachment A or the most recently approved SW-846 USEPA method or other equivalent USEPA method. An alternate method may be proposed and used if acceptable to the Executive Officer.

c. Visual Observations

Monthly, the Discharger shall visually observe and document, during normal operating hours, each drainage area for the following: the presence or indications of prior, current, or potential non-storm water discharges and their sources; authorized non-storm water discharges, their sources, and associated BMPs; and all potential pollutant sources.

Visual observations shall also be conducted at the same time that storm water sampling occurs. At the time a storm water sample is collected, the Discharger shall observe and document the discharge for the following.

i. Visually observe and record the presence or absence of floating and suspended materials, oil and grease, discolorations, turbidity, odors, trash/debris, and source(s) of any discharged pollutants.

ii. In the event that a discharge location is not visually observed during the sampling event, the Discharger shall record which discharge locations were not observed during sampling or that there was no discharge from the discharge location.

d. Monitoring Parameters

The Discharger shall monitor, at each storm water discharge monitoring location, all parameters in accordance with the frequencies listed in Attachment A.

e. Water Quality Thresholds

The specific water quality thresholds that apply to the storm water monitoring parameters are listed in the table below.

STORM WATER MONITORING	
Parameter	**Water Quality Thresholds**
pH	Measured pH shall not be lower than 6.0 nor greater than 9.0.
Turbidity	Storm water discharges shall not exceed 500 nephelometric turbidity units (NTUs).
Oil and Grease, Total	Storm water discharges shall not contain oils and greases at concentrations in excess of 15 milligrams per liter (mg/L).
Iron, Total	Storm water discharges shall not contain dissolved iron at concentrations in excess of 1.0 mg/L.

f. Calibration Documentation

Annually, the Discharger must submit documentation of instrument calibration and performance checks to verify proper operation of any field monitoring equipment.

3. Data Evaluation and Response Actions

The storm water monitoring data (storm water sampling and analytical data and visual observations) must be evaluated to determine the following: the effectiveness of BMPs in reducing or preventing pollutants in the storm water discharges; compliance with the monitoring parameter water quality thresholds; and the need to implement additional BMPs and/or SWPCP revisions.

The results of all storm water sampling and analytical results from each distinct sample must be directly compared to the water quality threshold for the corresponding monitoring parameter. An exceedance of one or more water quality thresholds requires the Discharger to implement the following response actions:

a. The Discharger shall notify the Water Board verbally or via email within 30 days of obtaining laboratory results whenever a determination is made that a water quality threshold is exceeded for one or more storm water monitoring parameters;

b. Identify the pollutant sources that may be related to the exceedance and whether the BMPs in the SWPCP have been properly implemented and perform BMP maintenance, if necessary;

c. Assess the SWPCP and its implementation to determine whether additional BMPs or SWPCP measures are necessary to reduce or prevent pollutants in storm water discharges; and

d. Revise or amend the SWPCP, as appropriate, to incorporate the additional BMPs or SWPCP measures necessary to reduce or prevent pollutants in storm water discharges and implement the revised SWPCP no later than 60 days following the reported exceedance; or

e. Demonstrate, to the satisfaction of the Executive Officer, that the exceedance(s) is attributed solely to non-industrial pollutant sources and/or to natural background sources.

III. DATA ANALYSES

All groundwater data must be analyzed using statistical and non-statistical methods that meet the requirements of CCR, title 27, sections 20415, subdivisions (e)(8) and (9).

A. Site-Specific Statistical Analysis Method

The Executive Officer may approve statistical methods which are different from the general methods listed in Subtitle D provided that such methods are capable of determining a statistically significant release from the Landfill. The Discharger has proposed a combination in interwell and intrawell statistical methods to evaluate water quality data. Based on data provided by the Discharger, the proposed methods are capable of detecting statistically significant evidence of a release from the Landfill. Statistical data analysis shall be completed in accordance with the proposed methods.

B. Non-Statistical Analysis Methods

In order to determine if any new releases have occurred from the Facility, evaluation of data will also be conducted using non-statistical methods. Non-statistical analyses shall be as follows.

1. Physical Evidence

Physical evidence can include unexplained stress in biological communities such as vegetation loss, soil discoloration, or groundwater mounding. Each semi-annual and annual report must comment on such physical elements.

2. Time-Series Plots

Non-statistical evidence of a release may include trends of increasing concentrations of one or more constituents over time, as depicted in time-series plots. Time-series plots are not required for parameters that have never been detected above their MDL (as specified by the applicable USEPA method). Each annual report must include these time-series plots.

IV. REPORTING REQUIREMENTS

The Discharger must comply with the following reporting requirements.

A. Scheduled Reports to be Filed with the Water Board

The following periodic reports, including all water and unsaturated zone data collected during the corresponding reporting period, must be submitted electronically to the Water Board by uploading to the State Water Board's GeoTracker system, per the following schedule.

REPORTING SCHEDULE		
Sampling and Reporting Frequency	**Sampling and Reporting Period**	**Report Due Date**
Annual DMP Monitoring Report	January 1 – December 31	February 15
Annual Storm Water Report	January 1 – December 31	February 15
Five-Year Constituent of Concern Monitoring Report[1]	January 1 – June 30 July 1 – December 31	August 15 February 15

[1] Sampling and reporting period will alternate between January 1 through June 30 for one five-year sampling event and July 1 through December 31 for the next five-year sampling event. The August 15 report due date corresponds to the January 1 through June 30 sampling and reporting period; the February 15 report due date corresponds to the July 1 through December 31 sampling and reporting period. The first 5-year report is due August 15, 2025.

1. Annual Detection Monitoring Reports

Annual DMP reports must be submitted to the Water Board no later than **February 15** of each year and must include, but not be limited to, the following information.

a. All data collected during the reporting period in accordance with the approved SAP for the Landfill's groundwater and unsaturated zone monitoring systems, as outlined in MRP section II.A.

b. Tabulated results of sampling and laboratory analyses for each groundwater monitoring point where a parameter has been reported at a concentration exceeding the MDL, including historical

(last ten years) and current reporting period data, as well as the concentration limit for each monitoring parameter and an identification of each sample that exceeds its respective concentration limit by a measurably significant amount at any given monitoring point.

c. Tabulated results of sampling and laboratory analyses for each unsaturated zone monitoring point, including historical (last ten years) and current reporting period data.

d. A map and/or aerial photograph showing the Landfill perimeter and ancillary facilities as well as locations of all monitoring points, observation stations, and the surface trace of the point of compliance.

e. Calculate and illustrate on a map and/or aerial photograph the static groundwater surface elevation (feet above mean sea level) in each groundwater monitoring well, the groundwater gradient (feet/feet) and the direction of the groundwater gradient beneath and around the Facility (degrees), the seepage velocity of groundwater flow (feet/year), and the current groundwater elevation isocontours for that monitoring period.

f. Copies of all field monitoring and well sampling data sheets.

g. Time-series plots of the laboratory analytical results from the groundwater and unsaturated zone monitoring at each monitoring point for each COC detected during the monitoring period as well as available historical data (minimum of last ten years of data). Time-series plots must include, as horizontal lines, the COCs concentration limit as derived in accordance with the WQPS for the respective COC/monitoring point pair, as well as the MDL for the analytical method used.

h. A letter transmitting the essential points of each report, including a discussion of any violations found since the last report was submitted and describing actions taken or planned for correcting those violations.

   i. If the Discharger has previously submitted a detailed time schedule for correcting violations, a reference to the correspondence transmitting this schedule will suffice.

   ii. If no violations have occurred since the last submittal, this must be stated in the letter of transmittal.

i. All data collected in accordance with MRP section II. B. Specifically, a description of the condition of the final cover materials and a discussion regarding any subsidence or soil cover washouts, which have occurred, and the capability of the cover to promote runoff and prevent ponding. In the case where subsidence, washouts or other damage to the cover is noted, the report shall indicate the actions taken to repair cover material to prevent reoccurrence. The report shall also include a determination on whether significant changes in the operation of the Landfill warrant an update to the FCPCMP.

j. Evidence that adequate financial assurance for post-closure maintenance and corrective action is still in effect. Evidence may include a copy of the renewed financial instrument or a copy of the receipt for payment of the financial instrument.

k. Evidence that the financial assurance amount is adequate or increase the amount of financial assurance by an appropriate amount if necessary, due to inflation, a change in the approved closure plan, or other unforeseen events.

l. The Discharger must review the FCPCMP annually to determine if significant changes in the operation or maintenance of the Facility warrant an update to the plan. Proposed changes to the plan must be outlined in the annual report.

2. Annual Storm Water Reports

Annual storm water reports must be submitted to the Water Board no later than **February 15** of each year in accordance with the frequencies listed in Attachment A and may be combined with the annual DMP monitoring report. Annual storm water reports must include, but not be limited to, the following information:

a. All data collected during the reporting period in accordance with the storm water monitoring plan, as outlined in MRP section II.C.2.

b. Tabulated results of sampling and laboratory analyses for each storm water discharge monitoring location, including historical and current reporting period data, as well as the water quality objective for each monitoring parameter and an identification of each sample that exceeds its respective water quality objective at any given discharge monitoring location.

c. A copy of the current Site map from the SWPCP.

d. Copies of all field monitoring, storm water sampling, and visual observation data sheets. An explanation shall be provided in the Annual Report for uncompleted sampling event visual observations.

e. Calibration methods and any discrepancies of any meters used for field parameter evaluations after calibration is performed.

f. A summary of the actions taken in response to a water quality objective exceedance, including monitoring parameter and pollutant source(s) involved, additional BMP and/or SWPCP measures taken, and associated dates and timelines for implementing the response action; or a demonstration that the exceedance(s) is attributed to a non-industrial pollutant source and/or to a natural background source.

g. A copy of any SWPCP amendments and/or revisions for the reporting period.

h. A summary of significant spills and/or leaks that occurred at the Facility during the reporting period and the response taken by the Discharger, including dates.

i. A summary of employee trainings performed during the reporting period, including dates and content.

3. Five-Year Constituent of Concern Monitoring and Reporting Program

Pursuant to CCR, title 27, section 20420, subdivision (g), **every five years** the Discharger must sample for COCs. Groundwater samples must be collected and submitted for laboratory analyses at all monitoring points once every five years for all monitoring parameters and COCs listed in Appendix II of Title 40, Code of Federal Regulations (40 CFR), Part 258. Successive monitoring efforts must be carried out alternately during January 1 through June 30 of one five-year sampling event and July 1 through December 31 of the next five-year sampling event, and every fifth year, thereafter. The five-year COC sampling event must be reported no later than 45 days following the monitoring period. The first five-year sampling event is scheduled to occur in first half of 2025 and reported to the Water Board no later than **August 15, 2025**.

B. Unscheduled Reports to be Filed With the Water Board

The following reports must be submitted to the Water Board as specified below.

1. Notice of Tentative Release from the Landfill

a. Physical or Measurably Significant Evidence of a Release from the Landfill

The Discharger must immediately notify the Water Board verbally **whenever a determination is made that there is physical or "measurably significant" evidence of a release from the Landfill**. This verbal notification must be followed by written notification via certified mail within seven days of such determination. Upon such notification, the Discharger may initiate verification procedures or demonstrate that another source other than the Landfill caused evidence of a release in accordance with MRP section IV.B.1.b.

The notification must include the following information:

i. The potential source of the release;

ii. General information including the date, time, location, and cause of the release;

iii. An estimate of the flow rate and volume of waste involved;

iv. A procedure for collecting samples and description of laboratory tests to be conducted;

v. Identification of any water body or water-bearing media affected or threatened;

vi. A summary of proposed actions; and

vii. For a measurably significant evidence of a release – the monitoring parameters and/or COCs that are involved in the measurably significant evidence of a release from the Landfill; or

viii. For a physical evidence of a release – the physical factors that indicate evidence of a release.

b. Other Source That May Cause Evidence of a Release From the Landfill

The Discharger may make a demonstration that a source other than the Landfill caused evidence of a release. For this case, the

Discharger must notify the Water Board of the intention to make this demonstration. The notification must be sent to the Water Board by certified mail within seven days of determining physical or measurably significant evidence of a release.

2. Evaluation Monitoring

The Discharger must, **within 90 days of verifying a release**, submit a technical report pursuant to California Water Code section 13267, subdivision (b), proposing an Evaluation Monitoring Program (EMP) meeting the provisions of CCR, title 27, section 20420, subdivision (k)(5). If the Discharger decides not to conduct verification procedures, or decides not to make a demonstration that a source other than the Landfill is responsible for the release, the release will be considered verified. The EMP must include the following information:

a. COC Concentrations – the maximum concentration of each COC at each monitoring point as determined during the most recent COC sampling event (i.e., under CCR, title 27, section 20420, subdivision (g) or (k)[1]). Any COC that exceeds its concentration limit is to be retested at that monitoring point. Should the results of the retest verify that the COC is above the concentration limit, then that COC will become a monitoring parameter at that monitoring point;

b. Proposed Monitoring System Changes – any proposed changes to the groundwater and unsaturated zone monitoring systems necessary to meet the provisions of CCR, title 27, section 20425;

c. Proposed Monitoring Changes – any proposed additions or changes to the monitoring frequency, sampling and analytical procedures or methods, or statistical methods used at the Facility necessary to meet the provisions of CCR, title 27, section 20425; and

d. Proposed Delineation Approach – a detailed description of the measures to be taken by the Discharger to assess the nature and extent of the release from the Landfill.

3. Engineering Feasibility Study Report

Within 180 days of verifying the existence of a release, the Discharger must submit an Initial Engineering Feasibility Study report meeting CCR, title 27, section 20420, subdivision (k)(6), proposing corrective action measures that could be taken to achieve background concentrations for all COCs

involved in the release. This report will be the basis for a later expanded Engineering Feasibility Study submitted under the Evaluation Monitoring Program, per CCR, title 27, section 20425, subdivision (b).

4. Monitoring Well Logs

Pursuant to CCR, title 27, section 20415, subdivision (e)(2) all monitoring wells (including groundwater and unsaturated zone monitoring wells) and all other borings installed to satisfy the requirements of this Monitoring and Reporting Program shall be drilled by a California licensed drilling contractor and shall be logged during drilling under the direct supervision of either a California-licensed professional geologist or civil engineer with expertise in stratigraphic well logging. These logs shall be submitted to the Water Board within 90 days following completion of fieldwork.

5. Significant Earthquake Event

After a significant[1] or greater earthquake event at the Facility, the Discharger shall notify the Water Board within 48 hours, and within 45 days submit to the Water Board a detailed written post-earthquake report describing any physical damages to the containment features or groundwater and/or unsaturated zone monitoring systems. The Discharger shall closely examine the Landfill cover, vegetative cover, slope conditions, drainage control system, and surface grading for signs of cracking or depressed/settled areas, following the earthquake event. If cracking or depressed areas of the cover is identified, the Discharger shall make repairs to those areas within 30 days from the date of the earthquake event.

C. General Provisions

The Discharger must comply with Attachment C, "General Provisions for Monitoring and Reporting," dated September 1, 1994, which is attached to and made part of this MRP.

D. Violations

If monitoring data indicate violation of the WDR, the Discharger must report the violation in the scheduled report for the corresponding reporting period and provide information indicating the cause of violation(s) and the action taken or planned to bring the discharge into compliance.

[1] A significant earthquake is a seismic event classified according to the United States Geological Survey Earthquake Hazard Program as a moderate earthquake measuring between 5 and 5.9 on the Richter scale, or higher.

E. Electronic Reporting Requirements

Pursuant to CCR, title 23, section 3890, the Discharger must submit reports, including soil, vapor, and water data, prepared for the purpose of subsurface investigation or remediation of a discharge of waste to land subject to Division 2 of CCR, title 27, electronically over the internet to the State Water Resources Control Board's GeoTracker system. This requirement is in addition to, and not superseded by, any other applicable reporting requirement. The Discharger must provide the monitoring report to the Water Board, as specified in this MRP, and upload the full monitoring report into GeoTracker, as stipulated by CCR, title 23.

For all other types of documents and correspondence, please send to the Water Board's email address at Lahontan@waterboards.ca.gov and include your WDID No. or Facility name in the subject line. Documents that are 50 MB or larger should be transferred to a disk and mailed.

F. Technical Reports

Pursuant to California Water Code, section 13267, subdivision (b):

1. By **June 30, 2019**, the Discharger shall provide work plan and schedule for removing free liquids to the extent practicable from the surface impoundments.

2. By **September 30, 2019**, the Discharger shall submit a SWPCP that meets the requirements outlined in MRP section II.C.1. The report must be certified by a California-licensed professional civil engineer or professional geologist.

3. By **September 30, 2019**, the Discharger must submit a Work Plan to install an up-gradient monitoring well to replace MW-2.

4. By **June 30, 2020**, the Discharger must submit a Closure Certification Report.

5. **Upon completion of all closure activities for a Unit**, the Discharger shall conduct an aerial photographic survey and a topographic survey of the closed portions of the Unit and of its immediate surroundings, including at least the surveying monuments pursuant to CCR, title 27, section 21090(e)(1). The data so obtained shall be used to produce a topographic map of the Site at a scale and contour interval sufficient to depict the as-closed topography of each portion of the Unit, and to allow early identification of any differential settlement pursuant to CCR, title 27, section 21090(e)(2).

6. **At least every five years after completing closure of the Landfill**, the Discharger shall produce and submit to the Water Board an iso-

settlement map accurately depicting the estimated total change in elevation of each

portion of the final cover's low-hydraulic conductivity layer pursuant to CCR, title 27, section 21090(e)(2). For each portion of the Landfill, the map shall show the total lowering of the surface elevation of the final cover, relative to the baseline topographic map produced in compliance with CCR, title 27, section 21090(e)(1).

7. **Prior to conducting periodic grading operations on the closed Landfill**, the Discharger shall note on a map of the landfill the approximate location and outline of any areas where differential settlement is visually obvious. Each five-yearly iteration of the iso-settlement map shall show all areas where differential settlement has been noted since the previous map submittal and shall highlight areas of repeated or severe differential settlement. Map notations and delineations made pursuant to this requirement need not be surveyed, so long as all areas were differential settlement was visually identifiable prior to regrading can be relocated. Such notation and delineation shall be made by, or under the supervision of, a California-licensed professional civil engineer or professional geologist.

Ordered by: _____ Dated: _____

PATTY Z. KOUYOUMDJIAN
EXECUTIVE OFFICER

Attachments: A. Water Quality Monitoring Program
B. Location Plan (Monitoring Points)
C. General Provisions for Monitoring and Reporting

ATTACHMENT A – WATER QUALITY MONITORING PROGRAM

GROUNDWATER MONITORING					
Parameter		Units	USEPA Method[1]	Sampling Frequency	Reporting Frequency
Field Parameters					
Groundwater Depth		feet below ground surface	--	annually	annually
" Gradient		foot/foot	--	annually	annually
" Direction		compass heading	--	annually	annually
Temperature		degrees Farenheit	--	annually	annually
Electrical Conductivity		micromhos/cm	--	annually	annually
pH		pH Units	--	annually	annually
Turbidity		NTUs	--	annually	annually
Constituents of Concern					
Monitoring Parameters	Total Dissolved Solids	milligrams/liter	E160.1	annually	annually
	Chloride	milligrams/liter	300	annually	annually
	Sodium	milligrams/liter	6010	annually	annually
	Sulfate	milligrams/liter	300	annually	annually
	Phosphate	milligrams/liter	300	annually	annually
	Potassium	milligrams/liter	6010	annually	annually
	Benzene	micrograms/liter	8260	annually	annually
	Biphenyl	micrograms/liter	8015	annually	annually
	Diphenyl Oxide	micrograms/liter	8015	annually	annually
	Morpholine	micrograms/liter	8270	annually	annually
	Hydroquinone	micrograms/liter	8270	annually	annually
	Volatile Organic Compounds[2]	micrograms/liter	8260	annually	annually
	Semi-volatile Organic Compounds[3]	micrograms/liter	8270	annually	annually
Antimony		micrograms/liter	7062	5 year	5 year
Arsenic		micrograms/liter	7062	5 year	5 year
Barium		micrograms/liter	6010	5 year	5 year
Beryllium		micrograms/liter	6010	5 year	5 year
Cadmium		micrograms/liter	7131	5 year	5 year
Chromium		micrograms/liter	6010	5 year	5 year
Hexavalent Chromium		micrograms/liter	7196	5 year	5 year
Cobalt		micrograms/liter	6010	5 year	5 year
Copper		micrograms/liter	6010	5 year	5 year
Lead		micrograms/liter	7421	5 year	5 year
Mercury		micrograms/liter	7471	5 year	5 year
Nickel		micrograms/liter	7521	5 year	5 year
Selenium		micrograms/liter	7742	5 year	5 year
Silver		micrograms/liter	6010	5 year	5 year
Thallium		micrograms/liter	7841	5 year	5 year
Tin		micrograms/liter	6010	5 year	5 year
Vanadium		micrograms/liter	6010	5 year	5 year
Zinc		micrograms/liter	6010	5 year	5 year
Total Cyanide		micrograms/liter	335.4	5 year	5 year
Total Sulfide		micrograms/liter	376.2	5 year	5 year

UNSATURATED ZONE MONITORING				
Parameter	**Units**	**USEPA Method[1]**	**Sampling Frequency**	**Reporting Frequency**
Field Parameters				
Presence of liquid in lysimeters and/or LCRS sumps	visual observation data	--	during groundwater and stormwater sampling events	annually
STORM WATER MONITORING				
Parameter	**Units**	**USEPA Method[1]**	**Sampling Frequency**	**Reporting Frequency**
pH	pH Units	--	four qualifying storm events per year[5]	annually
Turbidity	NTUs	SM-2130-B		
Oil and Grease, Total	milligrams/liter	1664A		
Iron, Total	milligrams/liter	200.7		

1 - The Discharger shall analyze for all constituents, with the exception of field parameters, using the United States Environmental Protection Agency (USEPA) analytical methods indicated or the most recently approved SW-846 USEPA method or other equivalent USEPA method. An alternate method may be proposed and used if acceptable to the Executive Officer.

2 - As defined in Appendix I, 40 CFR, part 258.

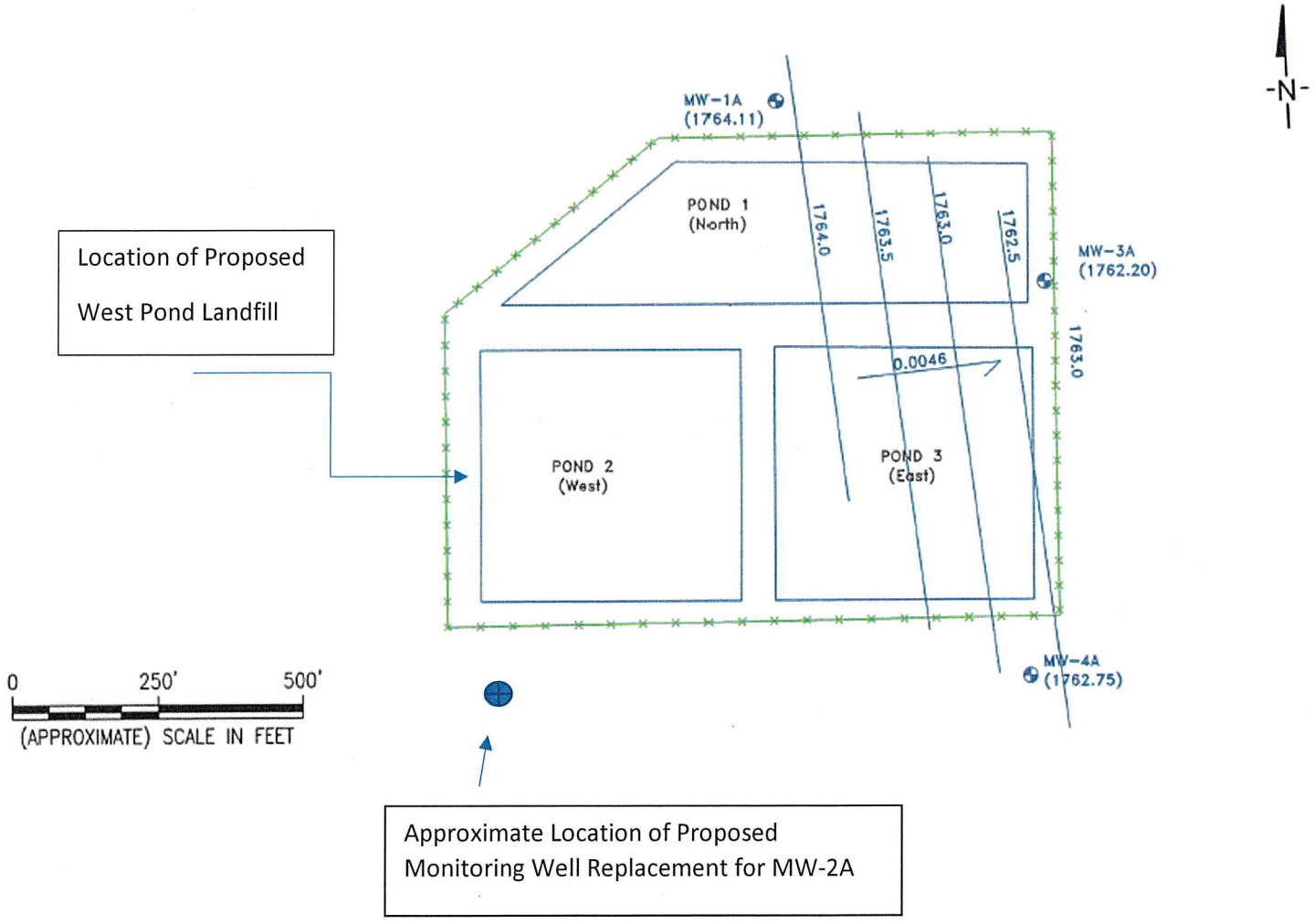
3 - As defined in Appendix II, 40 CFR, part 258.

4 - If methane gas is detected during field monitoring at or above a threshold concentration of 5 percent of methane gas volume in air, then soil-pore gas samples must be taken from that LFG monitoring probe (during that monitoring event) and analyzed for the soil-pore gas COCs listed.

5 - A qualifying storm event is a precipitation event that produces a storm water discharge for at least one drainage area and is preceded by 48 hours with no discharge from any drainage area. The Discharger shall collect and analyze storm water samples from two qualifying storm events within the first half of each reporting year (July 1 to December 31) and from two qualifying storm events within the second half of each reporting year (January 1 through June 30). If a sufficient number of qualifying storm events do not occur within a given reporting year, the Discharger must document and report that information in the regularly scheduled Annual Storm Water Report.

Attachment B – Monitoring Well Locations,

Potentiometric Surface, and Groundwater Direction



CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

GENERAL PROVISIONS
FOR MONITORING AND REPORTING

1. SAMPLING AND ANALYSIS

a. All analyses shall be performed in accordance with the current edition(s) of the following documents:

i. Standard Methods for the Examination of Water and Wastewater

ii. Methods for Chemical Analysis of Water and Wastes, EPA

b. All analyses shall be performed in a laboratory certified to perform such analyses by the California State Department of Health Services or a laboratory approved by the Regional Board Executive Officer. Specific methods of analysis must be identified on each laboratory report.

c. Any modifications to the above methods to eliminate known interferences shall be reported with the sample results. The methods used shall also be reported. If methods other than EPA-approved methods or Standard Methods are used, the exact methodology must be submitted for review and must be approved by the Regional Board prior to use.

d. The Discharger shall establish chain-of-custody procedures to insure that specific individuals are responsible for sample integrity from commencement of sample collection through delivery to an approved laboratory. Sample collection, storage, and analysis shall be conducted in accordance with an approved Sampling and Analysis Plan (SAP). The most recent version of the approved SAP shall be kept at the facility.

e. The Discharger shall calibrate and perform maintenance procedures on all monitoring instruments and equipment to ensure accuracy of measurements, or shall insure that both activities will be conducted. The calibration of any wastewater flow measuring device shall be recorded and maintained in the permanent log book described in 2.b, below.

f. A grab sample is defined as an individual sample collected in fewer than 15 minutes.

g. A composite sample is defined as a combination of no fewer than eight individual samples obtained over the specified sampling period at equal intervals. The volume of each individual sample shall be proportional to the discharge flow rate at the time of sampling. The sampling period shall equal the discharge period, or 24 hours, whichever period is shorter.

2. OPERATIONAL REQUIREMENTS

a. Sample Results

Pursuant to California Water Code Section 13267(b), the Discharger shall maintain all sampling and analytical results including: strip charts; date, exact place, and time of sampling; date analyses were performed; sample collector's name; analyst's name; analytical techniques used; and results of all analyses. Such records shall be retained for a minimum of three years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge, or when requested by the Regional Board.

b. Operational Log

Pursuant to California Water Code Section 13267(b), an operation and maintenance log shall be maintained at the facility. All monitoring and reporting data shall be recorded in a permanent log book.

3. REPORTING

a. For every item where the requirements are not met, the Discharger shall submit a statement of the actions undertaken or proposed which will bring the discharge into full compliance with requirements at the earliest time, and shall submit a timetable for correction.

b. Pursuant to California Water Code Section 13267(b), all sampling and analytical results shall be made available to the Regional Board upon request. Results shall be retained for a minimum of three years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge, or when requested by the Regional Board.

c. The Discharger shall provide a brief summary of any operational problems and maintenance activities to the Board with each monitoring report. Any modifications or additions to, or any major maintenance conducted on, or any major problems occurring to the wastewater conveyance system, treatment facilities, or disposal facilities shall be included in this summary.

d. Monitoring reports shall be signed by:

i. In the case of a corporation, by a principal executive officer at least of the level of vice-president or his duly authorized representative, if such representative is responsible for the overall operation of the facility from which the discharge originates;

ii. In the case of a partnership, by a general partner;

iii. In the case of a sole proprietorship,by the proprietor; or

iv. In the case of a municipal, state or other public facility, by either a principal executive officer, ranking elected official, or other duly authorized employee.

e. Monitoring reports are to include the following:

i. Name and telephone number of individual who can answer questions about the report.

ii. The Monitoring and Reporting Program Number.

iii. WDID Number.

f. Modifications

This Monitoring and Reporting Program may be modified at the discretion of the Regional Board Executive Officer.

4. NONCOMPLIANCE

Under Section 13268 of the Water Code, any person failing or refusing to furnish technical or monitoring reports, or falsifying any information provided therein, is guilty of a misdemeanor and may be liable civilly in an amount of up to one thousand dollars ($1,000) for each day of violation under Section 13268 of the Water Code.

x:PROVISONS WDRS

file: general pro mrp

ENCLOSURE 2

From: Robert L. Berkman [redacted]
Sent: Saturday, April 6, 2019 2:21 PM
To: Steude, John@Waterboards <john.steude@waterboards.ca.gov>
Subject: Fwd: Closure Regs for SEGS 1 and 2 in San Bernardino County

Correction: That should be Therminol (Eastman product).

Begin forwarded message:

From: "Robert L. Berkman" [redacted]
Subject: Closure Regs for SEGS 1 and 2 in San Bernardino County
Date: April 6, 2019 at 2:16:34 PM PDT
To: john.steude@waterboards.ca.gov

Sir,
Will you be examining the possible discharging of "Therminal" product, as alleged by many past employees associated with the SEGS projects?

Regards,

Robert Berkman, president CEQA-NOW

[redacted]

Response to Comment: The Land Treatment Units (2) were constructed and operated to treat the soil that became contaminated with heat transfer fluid (Therminol) due to system leaks and spills. The Land Treatment Units and the fate of the treated soils are currently and have been under Water Board regulation since November 1996, when the Land Treatment Units were put into service. The Land Treatment Units will be clean closed under the proposed Waste Discharge Requirements.

ENCLOSURE 3

Item 10

Closure and Post-Closure
Waste Discharge Requirements for
Solar Electric Generating Systems (SEGS) I & II,
Sunray Land Company,
Daggett, San Bernardino County

John Steude, P.G.
Engineering Geologist
Lahontan Regional Water Quality Control Board

June 12, 2019
Barstow, California

Overview

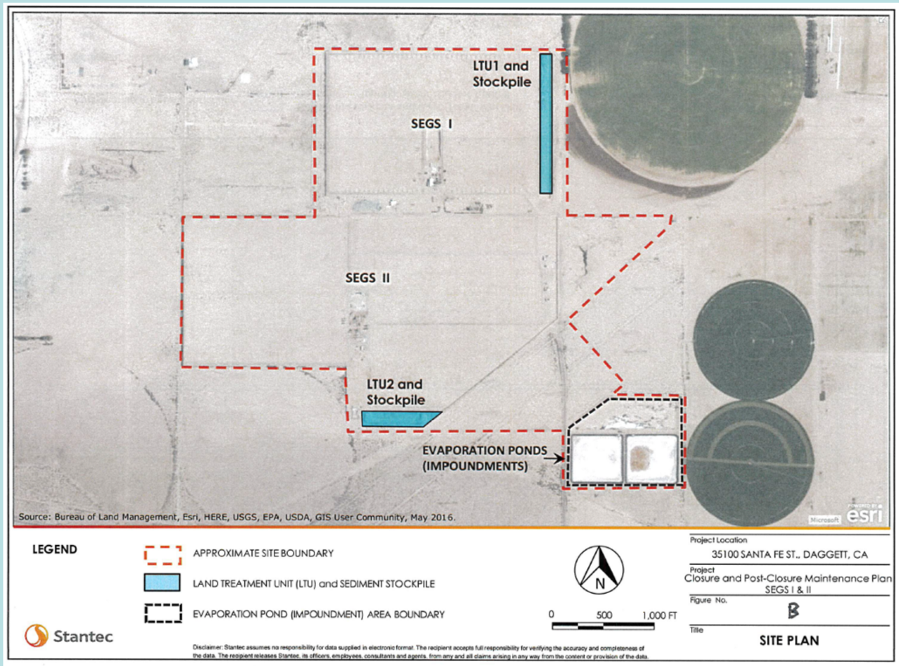
- SEGS I & II Background
- Why is a New WDR Proposed?
- Public Comments Received
- Staff Recommendation

Background

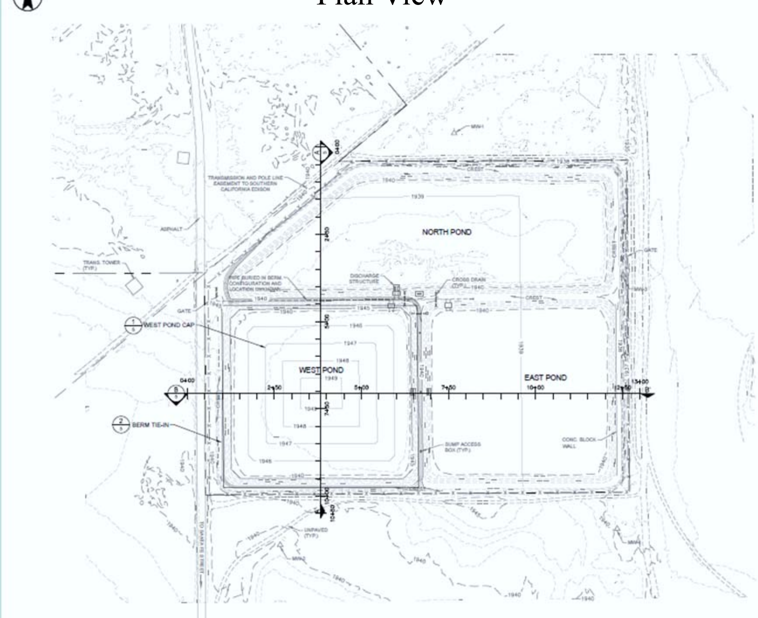
- Operational Period: 1984 – Present
- Discharges Ceased: 2017
- Final Closure Plan Submitted: January 2019

3

SEGS I & II Location Map

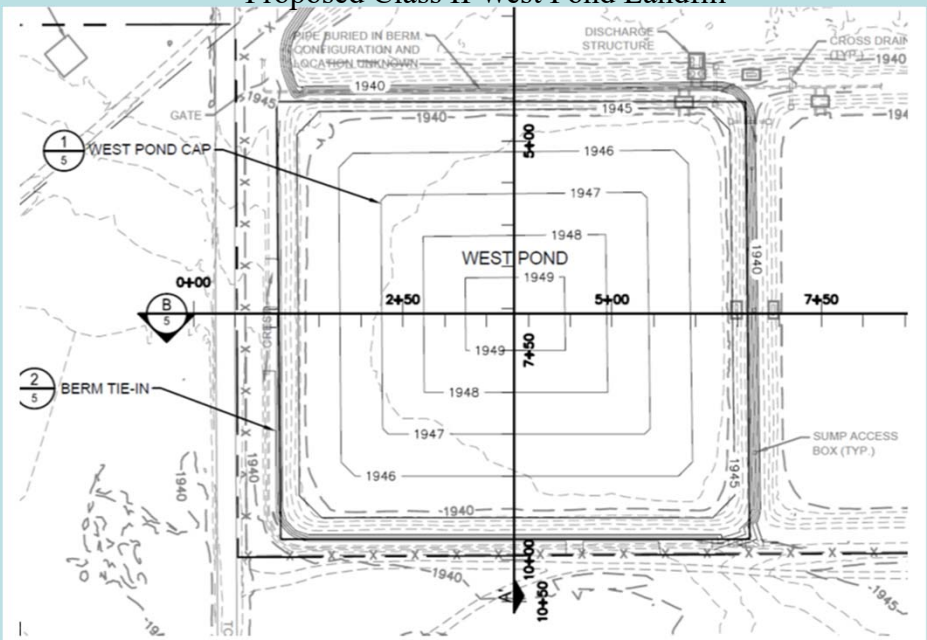

LTU1 and Stockpile
SEGS I
SEGS II
LTU2 and Stockpile
EVAPORATION PONDS (IMPOUNDMENTS)
Source: Bureau of Land Management, Esri, HERE, USGS, EPA, USDA, GIS User Community, May 2016.
LEGEND
APPROXIMATE SITE BOUNDARY
LAND TREATMENT UNIT (LTU) and SEDIMENT STOCKPILE
EVAPORATION POND (IMPOUNDMENT) AREA BOUNDARY
N
0 500 1,000 FT
Stantec
Project Location
35100 SANTA FE ST., DAGGETT, CA
Project
Closure and Post-Closure Maintenance Plan SEGS I & II
Figure No.
B
Title
SITE PLAN

Plan View

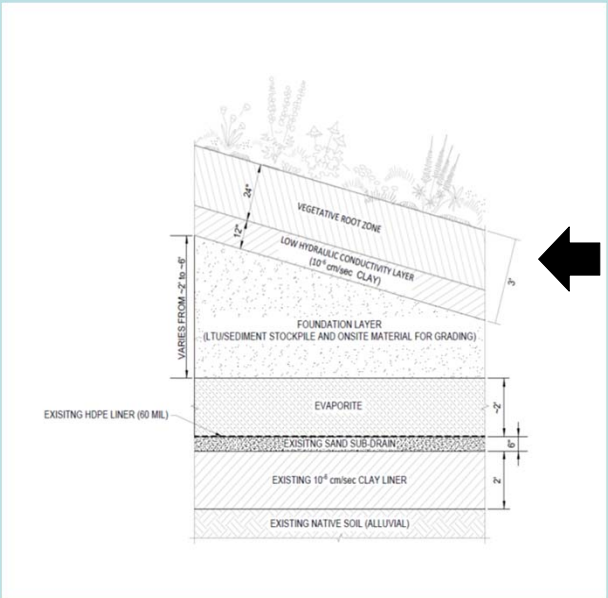

N
NORTH POND
WEST POND
EAST POND
WEST POND CAP
BERM TIE-IN

6

Proposed Class II West Pond Landfill



Proposed West Pond Landfill Cross-section



Engineered Alternative Final Cover

8

Why is the WDR proposed?

- Waste discharges have ceased.
- A Final Closure Plan has been submitted.
- New WDR will establish the post-closure monitoring period.

9

Key Changes in Closure Plan

- Original Plan
  - Clean close land treatment units (2) and surface impoundments (3).
  - Transport waste offsite to appropriate Class II disposal facility.
- Proposed plan
  - Place surface impoundment waste in proposed West Pond Landfill.
  - Reuse contaminated soil as foundation for cap of proposed West Pond as a Class II landfill.

10

Advantages of Proposed Plan

- Economically feasible.
  - Continues to protect water quality.
  - Complies with CCR title 27.
- Generates substantially less air pollution, including greenhouse gases.

11

Public Comments Received

- Two comments requesting project clarification were received.
- No changes to WDR in response to comments.

12

Staff Recommendation

Adopt the Order as Proposed

13