APPENDIX H WASTE DISCHARGE REQUIREMENTS

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SOIL AND WATER
APPENDIX H-1

Waste Discharge Requirement
Facts for Waste Discharge

SOIL AND WATER RESOURCES – APPENDIX H-1

FACTS FOR WASTE DISCHARGE~~—Palo Verde Solar I~~ NextEra Blythe Solar Energy Center, LLC, Owner/Operator, Blythe Solar Power Project, Riverside County

1. **NextEra Blythe Solar Energy Center, LLC** ~~Solar Millennium, LLC~~, (the Discharger) is proposing to construct, own and operate a ~~concentrated solar power (CSP)~~ **photovoltaic (PV)** electric generating facility **with** evaporation ponds~~ and a land treatment unit (LTU)~~on land owned by the Bureau of Land Management (BLM). ~~The solar power project is proposed by Palo Verde Solar I, LLC (PVSI).~~ The project is located on the Palo Verde Mesa along the Interstate 10 (I-10) corridor, northwest of the City of Blythe. The facility is referred to as the Blythe Solar Power Project (BSPP). A site map (**Figure 1**), **i**~~a~~s incorporated herein**,** and made a part of these requirements for waste discharge (Waste Discharge Requirements, or WDRs). The address for **the Discharger is**~~, Solar Millennium, LLC 1625 Shattuck Ave. Ste 270, Berkeley, Ca 94709-1161.~~ **NextEra Blythe Solar Energy Center, LLC, 700 Universe Blvd., JES/JB, Juno Beach, Florida 33408.**

2. These WDRs regulate the Facility's ~~eight~~ **two** evaporation ponds~~ and two LTUs~~. The evaporation ponds are designated as Class II Surface Impoundments Waste Management Units (WMU) and must meet the requirements of the California Code of Regulations (CCRs), Title 27, CCR §20200 et seq. The boundaries of the Blythe Solar Power Project are shown on **(Figure 2**), as incorporated herein and made a part of these WDRs.

3. ~~The Discharger submitted two~~ **A** Report~~s~~ of Waste Discharge (ROWD) **was submitted by the previous owner on**~~, January 6, 2010 for the LTU and~~ May 14, 20~~0~~1**0** for the **previously proposed** evaporation ponds for the Blythe Solar Power Project.

4. Definition of terms used in these WDRs:

   a. **Facility** – The entire parcel of property where the proposed Blythe Solar Power Project industrial operation or related solar industrial activities are conducted.

   b. **Waste Management Units (WMUs)** – The area of land, or the portions of the Facility where wastes are discharged. The ~~LTU and the~~ evaporation ponds are WMUs.

   c. **Discharger** – The term Discharger means any person who discharges waste that could affect the quality of the waters of the State, and includes any person who owns the land, WMU or who is responsible for the operation of a WMU. Specifically, the terms "discharger" or "dischargers" in these WDRs means **NextEra Blythe Solar Energy Center, LLC**~~Palo Verde Solar I, LLC~~.

d. Approved Project – the prior solar thermal project proposed for this property that was approved by the BLM, CEC and other agencies.

Facility Location

5. The Project site is located approximately two miles mile north of I-10 and northwest of the City of Blythe, in an unincorporated area of eastern Riverside County, California. The area inside the Project's security fence, the footprint within which all Project facilities will be located, will occupy approximately ~~5,950~~**4,138** acres of Federal land managed by the BLM.

Surrounding Land Use

6. The Facility site is vacant undeveloped desert located approximately one mile north of the Blythe Airport, two miles north of I-10, and eight miles west of the City of Blythe. The small rural community of Mesaville lies to the east of the Project site on the Palo Verde Mesa. North and west of the Project site are vacant desert lands. South of I-10 is undeveloped public and private desert land. Undeveloped and irrigated desert is located east of the site where several large and small parcels are actively farmed. The nearest residence is located in the southeast one-quarter of section 14, outside of the BLM- administered property and outside the ~~7,043~~**4,350** acre disturbance area within the overall ROW that will be disturbed by Project construction and operation. Another residential structure is located off-site between the southern boundary of the Project site, north of the Blythe Airport. No other residences are known to exist within the one-mile radius of the Project site.

7. The Project site is not located in a designated wilderness area; however, it is located near lands that are designated as wilderness lands or ACEC (NECO Maps 2-38 and 2-4). The nearest Federal wilderness areas are located on mountainous land to the northwest and south of the Project site and are referred to as the Palen/McCoy Wilderness Area, and the Chuckwalla Mountains Wilderness Area, respectively. Riverside County land uses in the study area include Open Space-Rural, Agricultural and Public Facility.

8. The Project site is vegetated with desert scrub throughout. Based on information in the NECO Plan, the Project site has not been leased for grazing by BLM.

Facility Description

9. The Project will have a nominal electrical output of **approximately** ~~1,000~~**485** megawatts (MW), ~~consisting of~~ **from four photovoltaic (PV) units**~~four adjacent, identical and independent 250-MW plants, Unit #1 through Unit #4~~**, the first three units would each generate 125 MW nominal alternating current (AC) and the fourth unit would generate approximately 110 MW AC** (**Figure 2**). **Construction of the first unit is tentatively scheduled for mid-2014, with the other units following in a phased approach. The entire project is projected to be completed within 48 months of the start of construction of the first unit.** ~~Commercial operation of Unit #1 is expected to begin in mid-2013, with commercial~~

~~operation of Unit #4 following by the second quarter of 2016, subject to timing of regulatory approvals and PVSI achievement of project equipment procurement and construction milestones. The solar thermal technology will provide 100 percent of the power generated by the Project; no supplementary energy source (e.g., natural gas to generate electricity at night) is proposed to be used for electric energy production. The Project will utilize an auxiliary boiler fueled by propane to reduce startup time and for HTF freeze protection. A second heater will be used on a limited basis for the HTF freeze protection heat exchanger during nighttime hours to keep the HTF in a liquid state when ambient temperatures are not sufficient to keep the temperature of the HTF above its relatively high freezing point (54 degrees Fahrenheit [°F]). The Project will also have one electric and one backup diesel-fueled fire water pump for fire protection.~~

10. ~~The Project proposes to use dry cooling condenser for power plant cooling.~~ Water for ~~cooling tower makeup, process water makeup, and other~~ industrial uses such as ~~mirror~~ **PV panel** washing will be supplied by up to ~~ten~~ **three** onsite wells. This source will also be used to supply water for employee use (e.g., drinking, showers, sinks, and toilets). Water received from the on-site wells will be pumped directly to a reverse osmosis (RO) treatment unit to meet the requirements of the California Department of Health Services for potable water supplies. ~~Power cycle makeup,~~ **PV panel** ~~mirror~~ washing water~~, and cooling of ancillary equipment~~ will require on-site treatment for reduction of dissolved solids, and this treatment varies according to the quality required for ~~each of~~ **this** ~~these~~ use~~s~~.

~~11. The power generation cycle will not produce cooling tower blow down because the plant will be dry cooled. A small auxiliary cooling tower will generate a small amount of blow down, which will be reused on site. No off-site backup cooling water supply is planned at this time.~~

11. ~~12.~~ The main waste stream at the site consists of industrial wastewater generated in the **RO process.**~~various processes associated with power generation. Industrial wastewater is treated via a high pH reverse osmosis at each of the four Power Units. At each Unit, the treated water is recycled to the 1,000,000-gallon Service/Fire Water tank for reuse in the process.~~ The concentrate from the RO system is discharged to lined evaporation ponds (two ~~per Unit~~ **located near the water treatment plant**). The BSPP Facility therefore includes ~~eight~~ **two** proposed evaporation ponds for waste**water** storage and disposal. Sanitary wastewater generated at **the Facility** ~~each Unit~~ is disposed of via septic systems.

12. ~~13.~~ The project will include evaporation ponds for the evaporation of brine waste from the RO plant~~ and other industrial wastes~~. There will be ~~eight~~ **two** ponds, **a total of up to 12 acres in size at the BSPP facility**~~four acres in size and, two within each power block~~. The evaporation ponds will be designed in accordance with Colorado River Basin Regional Water Quality Control Board (Regional Board) requirements.

~~14. The Project will include an LTU to treat soil contaminated with HTF. Based on the release history from the NextEra LLC Kramer Junction Facility, which is parabolic~~

~~trough solar power plant that employs HTF in the same fashion as proposed for the BSPP and also has a LTU for treatment of HTF-contaminated soil, the LTU has been designed in accordance with CCR Title 27 requirements and designed to receive about 3,332 cubic yards of impacted soil on an annual basis. There are two LTUs proposed for the Project Figure 2). The LTU will use indigenous bacteria and amendments to the soil to bioremediate HTF-affected soils to levels acceptable for reuse on the site. Characterization of the hazardous characteristics of HTF-affected soil will be established by the Department of Toxic Substances Control (DTSC) prior to operation and LTU use for soil remediation. Soils in excess of the criterion established by the DTSC will be removed from the site and transported to an appropriate treatment storage and disposal facility. Soil with HTF at concentrations below this criterion will be managed in the LTU and remediated to acceptable levels for reuse as fill on site. The unit will be designed in accordance with Colorado River Basin Regional Water Quality Control Board (Regional Board) requirements.~~

13. ~~15.~~ The estimated project life for the Project is 30 years. **In accordance with United States Department of Labor, Occupational Safety and Health Administration safety regulations, at least two qualified personnel would be present during all energized electrical maintenance activities at the facility. Site security systems would be monitored regularly by on-site personnel and an off-site 24-hour Remote Operations Center.**~~Personnel will staff the Project 24 hours per day/seven days per week. Even when the solar power plant is not operating, personnel will be present as necessary for maintenance, to prepare the Project for startup, and/or for site security.~~

14. ~~16.~~ A sanitary septic system and on-site leach field will be used to dispose of sanitary wastewater ~~within each power block~~.

Climate

15. ~~17.~~ The Project is located in an arid desert climate; therefore, there are extreme daily temperature changes, low annual precipitation, strong seasonal winds and mostly clear skies. Evaporation rates are higher than precipitation rates. Based on 60 years of data from Blythe Airport, the mean maximum temperatures in June to September exceed 100°F. Winter months are more moderate with mean maximum temperatures of high 60's to low 70's °F and minimum temperatures in the low to mid 40's °F. Although there are no average minimal temperatures below freezing point (32°F), the temperature has historically dropped below freezing point between November and March.

16. ~~18.~~ Average annual evaporation in the Facility area, based on published data at the Indio Fire Station 70 miles west of the Project site, is 105 inches, of which 87 percent of that evaporation occurs between March and October. Average annual precipitation in the Project area, based on the gauging station at Blythe Airport, is 3.55 inches, with August recording the highest monthly average of 0.63 inches and June recording the lowest monthly average of 0.02 inches. Per the National Oceanic and Atmospheric Administration (NOAA) Atlas 14 for the Southern

California area, 3.51 inches of rainfall shall fall in the 100 year, 24 hour storm event.

17. ~~19.~~ Winds in the Project area are generally south to southwest with a less frequent component of northerly winds (north through northwest). Calm conditions occur approximately 16.43% of the time, with the annual average wind speed being approximately 7.62 miles per hour (mph) (3.41 m/s).

Regional Topography and Drainage

18. ~~20.~~ The Project site is located on the alluvial fan sediments derived from the McCoy Mountains, located due west of the Project site. The topography slopes gently to the east-southeast at grades of less than one percent over most of the site. Existing topographic conditions show an average slope of about one foot in 80 feet (1.25 percent) toward the east on the west side of the BSPP, and about one foot in 200 feet (0.50 percent) toward the southeast on the east side of the site. ~~Steeper grades of 10 to 15 percent are present along the western side of the unnamed mound in Sections 5, 6 and 7, T6S R22E. A steeper grade of 50 percent was measured along the southwestern side of an unnamed knob on the northeast side of the McCoy Wash in Section 4, T6S R22E.~~ The McCoy Wash occurs about ~~2~~**4**,000 feet from the northeastern corner of the Project site trending northwest to southeast and runs between the mound and knob features described above.

19. ~~21.~~ The vast majority of the time, the Facility site is dry and devoid of any surface flow. When surface flow does occur, it is in response to precipitation. The Facility site is characterized by numerous dry washes originating on the flanks of the McCoy Mountains that lie to the west of the site. These washes enter the site where they ~~either combine (southwest corner of the site) or~~ disperse as they enter the sandier alluvial plain (northern end of the site). The conveyance capacity of the washes is limited and runoff during moderate to large events will break out of these features and be conveyed across the terrain as shallow sheet flow. In general, the drainages appear to be stable and not experiencing significant down cutting or lateral migration. Surface water flow tends to drain to the southeast towards the Colorado River.

20. ~~22.~~ The largest of these features is the McCoy Wash, which occurs about ~~2,000~~ **4,000** feet from the northeastern corner of the Facility site ~~and trends across the Facility site from northwest to southeast~~. Flow in the McCoy Wash can be as high as 4,000 cubic feet per second, as measured in 1976 during historic flooding in the watershed.

21. ~~23.~~ There are no permanent bodies of water located on the Facility site. There are no perennial streams in the McCoy Mountain watershed which impact the Facility site. No springs are listed in the area of the Palo Verde Mesa Groundwater Basin where the Facility is located, according to the NWIS database of Water Resources of the United States that is maintained by the USGS.

Flood Hazard

22. ~~24.~~ According to FEMA, no flood insurance rate maps have been created for the Project site and adjacent areas. Reviews of flood zone maps generated by the Riverside County Flood Control District also did not identify any flood zone maps for this area of Riverside County.

Regional Geology

23. ~~25.~~ The Facility is located in the northwestern Colorado Desert, in the alluvial-filled basin of the Palo Verde Mesa, which is part of the greater Colorado Desert Geomorphic Province. The basin is bound by the McCoy Mountains to the west, the Little Maria Mountains to the northwest, and the Big Maria Mountains to the northeast. This area has a generally low relief until near the surrounding mountains. In the region, the Palo Verde Valley is roughly equivalent to the recent historic floodplain of the Colorado River. Surficial deposits of late Miocene to Holocene age form most of the land surface in the area. Most of these deposits are composed of Quaternary Alluvium, underlain by the Pliocene Bouse Formation, which is in turn unconformably underlain by the Miocene Fanglomerate. These deposits are all underlain by bedrock consisting of metamorphic and igneous intrusive rocks of pre-Tertiary age, including Proterozoic schist and gneiss, Paleozoic sedimentary rocks, and Mesozoic sedimentary and metavolcanic rock sequences.

Site Specific Geology

24. ~~26.~~ The Facility is sited on the uppermost of two terraces that comprise the Palo Verde Mesa. Topography at the Facility site slopes gently away from the McCoy Mountains from the west to the southeast. Ground surface elevations at the Facility site range from ~~830~~ **580** feet above mean sea level (msl) in the west to 410 feet msl in the east.

Seismicity

25. ~~27.~~ The Project site is located in seismically active Southern California, a region that has experienced numerous earthquakes in the past. A review of the Alquist Priolo (AP) Earthquake Fault Maps and the Riverside County AP Earthquake Hazard Zone Map indicate that there are no AP fault zones present within the Project boundaries (California Division of Mines and Geology 2000, California Geological Survey 2003, 2007).

26. ~~28.~~ According to the ~~recent~~ **submitted** geotechnical investigation of the site (Kleinfelder 2009), several inferred faults have been mapped by several authors trending northwest-southeast through the area. These faults are speculative and based on geophysical data (Rostein et al., 1976). The Blythe Graben is mapped approximately six miles northeast of the site (Stone, 2006). The Blythe Graben offsets Quaternary alluvium dated between 6 to 31 thousand years old. The tectonic significance of the Blythe Graben is unknown. The location and elevation

of alluvial deposits of the McCoy wash area that have been incised by the McCoy Wash and other drainages suggest that tectonic uplift may have affected this area since the Pliocene epoch (within the last 5 million years). This uplift could be related to faulting, or regional uplift associated with the basin and range extension. Because the speculated faults in the area are not considered active, and there is no direct evidence of active faulting on the site, the risk associated with surface rupture from active faults at the site is considered very low. Regardless of whether there are faults across the site, because the Project is located in a seismically active area, all Project structures must be designed to comply with the California Building Code (CBC) and Universal Building Code (UBC) Zone 3 requirements. The CBC and UBC are considered to be standard safeguards against major structural failures and loss of life. The goals of the codes are to provide structures that will:

a. Resist minor earthquakes without damage;

b. Resist moderate earthquakes without structural damage but with some non-structural damage; and

c. Resist major earthquakes without collapse but with some structural and non-structural damage.

27. ~~29.~~ The CBC and UBC base seismic design on minimum lateral seismic forces ("ground shaking"). The CBC and UBC requirements operate on the principle that providing appropriate foundations, among other aspects, helps to protect buildings from failure during earthquakes.

Ground Rupture

28. ~~30.~~ The Project site is not located within a State of California Earthquake Fault Zone designated by the Alquist-Priolo Special Studies Zone Act of 1972 (formerly known as a Special Studies Zone), an area where the potential for fault rupture is considered probable (Riverside County, 2008). In addition, no Quaternary, Sufficiently Active, or Well Defined Faults are located under or near the Site. Based on this information and engineering judgment, earthquake-induced ground rupture is not considered to be a significant hazard at the Site.

Slope Stability

29. ~~31.~~ The Site is not considered to be an area with the potential for permanent ground displacement due to earthquake-induced landslides because surface topography at and near the site is relatively flat (Riverside County, 2008). A review of the Riverside County General Plan, Safety Element, did indicate areas considered susceptible to earthquake induced landslides and rock falls in the McCoy Mountains; however, these areas are several miles from the Site and are not expected to impact the Project. Based on this information and engineering judgment, slope instability is not considered to be a significant hazard at the Site.

Erosion

30. ~~32.~~ Erosion is the displacement of solids (soil, mud, rock, and other particles) by wind, water, or ice and by downward or down-slope movement in response to gravity. Due to generally flat terrain, the Project site is not prone to significant mass wasting (gravity-driven erosion and non-fluvial sediment transport) at present. The Riverside County General Plan, Safety Element (Riverside County, 2008), indicates the Site is in an area with moderate potential for wind erosion, the off-site linears are in areas with moderate to high potential for wind erosion. Soil characteristics at the Project site allow for the potential for wind and water erosion, and significant sediment transport currently occurs across the valley axial drainage that crosses the majority of the proposed plant site. As indicated above, these valley axial deposits are characterized by subdued bar and swale topography and ongoing deposition from sheet floods. Limited sand and aeolian erosion also occurs between depositional episodes.

31. ~~33.~~ To address the management of sediment transport, erosion and sedimentation during operation, the project design ~~will~~ **may** incorporate **minor** diversion berms **and**~~,~~ channels~~, and dispersion structures~~. The final design for these features will be developed during detailed design, and will include industry-standard calculations and modeling to reduce the potential for erosion or sedimentation, and to reduce the need for ongoing maintenance. Dirt roads and exposed surfaces will be periodically treated with dust palliatives as needed to reduce wind erosion. Construction and maintenance of the proposed drainage and sediment management system at the Site is expected to reduce water and wind erosion at and downstream of the Site to less than significant levels.

Liquefaction

32. ~~34.~~ Liquefaction is a soil condition in which seismically induced ground motion causes an increase in soil water pressure in saturated, loose, uniformly-graded sands, resulting in loss of soil shear strength. As a result, the effects of liquefaction can include loss of bearing strength, differential settlement, ground oscillations, lateral spreading, and flow failures or slumping. Liquefaction occurs primarily in areas where the groundwater table is within approximately 50 feet of the surface (Riverside County, 2008). The depth to water beneath the Site is estimated to be approximately 195 feet bgs. In addition, the sandy soils encountered in the upper 100 feet beneath the Project site during geotechnical drilling are generally dense and well graded. Dense, well-graded sands are not generally considered susceptible to liquefaction. Based on this information and engineering judgment, the potential for liquefaction hazard at the Project site is considered to be low. The potential for liquefaction will be further evaluated as part of the Final Geotechnical Investigation for the Project, and if necessary, design parameters to address identified conditions will be incorporated into the detailed project design.

Differential Settlement

33. ~~35.~~ Seismically induced settlement can occur during moderate and large earthquakes in soft or loose, natural or fill soils that are located above the ground water table, resulting in differential settlement. The settlement can cause damage to surface and near-surface structures. The most susceptible soils are clean loose granular soils. Due to the expected dense to very dense nature of the near surface soils, the potential for damage due to seismically induced settlement is considered to be low at the Project site. The potential for seismically-induced settlement will be further evaluated as part of the Final Geotechnical Investigation for the Project, and if necessary, design parameters to address identified conditions will be incorporated into the detailed project design.

Collapsible Soil Conditions

34. ~~36.~~ Alluvial soils in arid and semi-arid environments can have characteristics that make them prone to collapse with increase in moisture content and without increase in external loads. Soils that are especially susceptible to collapse or hydrocompaction in a desert environment are loose dry sands and silts, and soils that contain a significant fraction of water soluble salts. Overall soil gradation observed at the Facility site trended from coarser- to finer-grained alluvial deposits as distance from the McCoy Mountains increased. The ground surface in the western portion of the Project site is dominated by areas of desert pavement with layers of flat-lying gravel overlying finer-grained sandy materials. East toward Black Creek road, the surface becomes less dominated by desert pavement and becomes sandier. Soils observed at the Facility site have a low permeability and high runoff potential. Based on this data and engineering judgment, the site soils do not have a significant potential for hydrocompaction or collapse. The potential for hydrocompaction and soil collapse will be further evaluated as part of the Final Geotechnical Investigation for the Project, and if necessary, design parameters to address identified conditions will be incorporated into the detailed project design.

Expansive Soil

35. ~~37.~~ Expansive soil is predominantly fine grained and contains clay minerals capable of absorbing water in their crystal structure. It is often found in areas that were historically a flood plain or lake area, but can also be associated with some types of shale, volcanic ash or other deposits, and can occur in hillside areas also. Expansive soil is subject to swelling and shrinkage, varying in proportion to the amount of moisture present in the soil. As water is initially introduced into the soil (by rainfall or watering) expansion takes place. If dried out, the soil will contract, often leaving small fissures or cracks. Excessive drying and wetting of the soil can progressively deteriorate structures that are not designed to resist this effect, and can lead to differential settlement under buildings and other improvements. The surficial soils at the site generally consist of predominantly granular soils that do not contain much clay and are not subject to significant expansion hazards. The potential for expansive soils will be further evaluated as part of the Final

Geotechnical Investigation for the Project, and if necessary, design parameters to address identified conditions will be incorporated into the detailed project design.

36. ~~38.~~ Based on the above information, the cut and fill slope dimensions and earthwork requirements will be adequate to address the stability of the evaporation ponds ~~and LTU~~ for the life of the project and no further analysis is warranted.

Regional Hydrogeology

37. ~~39.~~ The Project is located in the alluvial-filled basin of the Palo Verde Mesa. Regionally, this valley formed as a structural depression or a pull-apart basin and is composed of two broad geologic units, consolidated rocks and unconsolidated alluvium (Metzger et al 1973). The consolidated rocks consist of pre-Tertiary age igneous and metamorphic rocks, which form the basement complex, and in some locations, Tertiary-age volcanic rocks that overlie the basement complex. The consolidated rocks are nearly impermeable except for areas where fracturing or weathering has occurred. It is uncertain the extent that these rocks yield water to the alluvium. The flux of groundwater into and out of the bedrock is unknown and has not been described in the literature reviewed for this project.

Hydrostratigraphy

38. ~~40.~~ The geologic units that are important in an evaluation of the water resources in the Palo Verde Mesa area are thought to be the Miocene-age Fanglomerate, the Pliocene-age Bouse Formation, and the fluvial deposits of the Colorado River. According to Metzger et al (1973), the Miocene-age Fanglomerate is made up chiefly of cemented gravel composed of poorly-sorted pebbles and some fine-grained material with a provenance from a nearby source. The Fanglomerate represents composite alluvial fans deposits that built up from local mountains as the fans prograded toward the valley. Because the Fanglomerate was deposited on an irregular surface having considerable local relief, it varies widely in thickness. Locally, the Fanglomerate may be absent, but at some places (e.g., Milpitas Wash area), it is at least 2,100 feet thick. Near Parker, Arizona, wells with specific capacities as much as 15 gallons per minute per foot of drawdown (gpm/ft) have been reported in the Fanglomerate (Metzger et al 1973). The Fanglomerate was not encountered during the drilling of test well TW-1, which was installed to a depth of 405 feet below ground surface (bgs) as part of the assessment of site conditions for the Application for Certification (AFC) **that was developed for the prior solar thermal project**.

39. ~~41.~~ The Bouse Formation is of Pliocene age and is composed of tufa and basal limestone overlain by interbedded clay, silt, and sand (Metzger et al 1973). These sediments were deposited in an embayment of the Gulf of California. According to Metzger et al (1973), the Bouse Formation rests unconformably on the Miocene Fanglomerate and the contact between the two formations is sharp. Near Blythe, the Bouse is overlain by younger alluvium and occurs at a depth of about 600 feet beneath unit B of the alluvium. The thickness of the formation is relatively uniform

throughout the area. Near the town of Parker, Arizona (about 60 miles northeast of the BSPP site), the Bouse Formation was measured at a thickness of 767 feet in well LCRP-27 that was drilled by the United States Geological Survey (USGS). In the Palo Verde Valley at well LCRP-22, the basal limestone is 5-feet thick whereas south of Cibola, Arizona, the limestone is about 100- feet thick. The interbedded sequence of clays, silt, and sand that overlie the basal limestone is by far the thickest unit in the Bouse Formation, occurring in sequences over 700 feet in the Parker-Blythe-Cibola area, according to Metzger et al (1973). With respect to water-bearing characteristics, the Bouse Formation can be divided into two zones: an upper and a lower zone (Metzger et al 1973). The upper zone is an aquifer whereas the lower zone is an aquitard. The results of pumping tests, as reported by Metzger et al (1973), indicate that specific capacities as high as 15 gpm/ft of drawdown may be obtained from the upper zone. In contrast, the best that may be expected from the lower zone is 1 to 2 gpm/ft Sediments of the Bouse Formation were not encountered during the drilling of test well TW-1 during the hydrolgeologic investigation conducted as part of the AFC.

40. ~~42.~~ The contact between the Bouse Formation and the overlying deposits of the Colorado River is erosional irregular surface. The alluviums of the Colorado River are the result of several broad periods of sediment deposition (aggradation) and erosion (degradation) by the Colorado River.

41. ~~43.~~ The fluvial deposits of the Colorado River are divided into older and younger alluvium (Metzger et al 1973). They defined the younger alluvium as the sediment deposit representing only the youngest aggradation by the Colorado River, whereas older alluviums are the deposits of several degradations and aggradations. In well 6S/23E-32E1, located approximately 7.5 miles east of the BSPP site, the bottom of the Colorado River fluvial deposits reportedly occurs to a depth of about 506 feet bgs.

42. ~~44.~~ The older alluvium is comprised of a basal-cemented gravel overlain by inter-layered sequences of sand and pebbly sand, with lenses of cobble gravels and silt and clay. The gravels consist of quartzite, limestone, and chert clasts derived from local mountain sources. In the Blythe area, this sequence has been measured as much as 600 feet thick. The lenses of cobble-gravel beds yield copious amounts of water according to Metzger et al (1973). The contact between the older and younger alluvium is between the present floodplain of the Colorado River and the bordering terraces, alluvial slopes, or bedrock.

43. ~~45.~~ The younger alluvium is composed of a basal gravel overlain by sand. The younger alluvium is generally from 90 to 125 feet thick above its basal gravel (Metzger et al 1973). The basal gravel may be absent locally in the Palo Verde Mesa, but the alluvium is continuous throughout the flood plain

On-site Drainage

44. ~~46.~~ On-site storm water management for the completed facility will be provided through the use of source control techniques, site design and treatment control.

~~The storm flows from the solar collector arrays will be treated through the use of swales, and ditches.~~

~~47. Locations within the power block for the potential of chemical or oil releases will be fully contained. Rainfall within the containment areas will be allowed to evaporate or will be drained through an oil water separator. Locations within the power block where "contact" storm water may occur will be contained within a system of curbs or trenches. Drains from these curbed areas or containment trenches will be directed to an oil water separator. The oil separated and captured within the oil water separator will be trucked off-site to a licensed disposal/recycling facility. Clean water discharged from the oil water separator will be used on Project site by discharging it to the cooling tower or to the raw water storage tank. The water discharge from the oil water separator will not be discharged to the storm water system.~~

Facility Operational Water

47. ~~48. The Project will be dry cooled.~~ The Project's various water uses include water for ~~solar collector mirror~~ **PV panel** washing, ~~makeup for the SSG feed water~~, dust control, ~~water for cooling plant auxiliary equipment,~~ potable water and fire protection. Water needs for the Project will be met by use of groundwater pumped from wells on the Project site. The estimated water supply need for the Project operation is approximately ~~600~~ **30 to 40** acre-feet per year.

Evaporation Ponds (Design and Installation Sequence)

48. ~~49.~~ The containment strategy for the evaporation ponds is summarized as follows:

    a. Meet or exceed regulatory requirements for containment of waste fluids;

    b. Select materials that are compatible with the physical, chemical and thermal characteristics of the water and contaminated soils being contained;

    c. Protect against physical damage to the containment layers by including protective layers into the designs of each containment facility;

    d. Allow for occasional removal of contained media without otherwise damaging the integrity of the containment systems; and

    e. Include the ability to monitor the integrity of the containment system, to transfer fluids out of permeable layers on a continuous basis, and to transfer fluids from one evaporation pond to another.

49. ~~50. Each 4.0 acre~~ **The two** evaporation pond**s will cover up to 12-acres and have** ~~has~~ a proposed design depth of ~~five~~ **eight** feet which incorporates:

    a. ~~Rotating pond use every 4 months over the life of the project~~ **Cleaning out each pond every 8 to 10 years over the 30 year life of the project;**

b. **3**~~2~~ feet of operational depth;

c. ~~1 foot of sludge build up over 30 years~~ **Up to 3 feet of sludge build up between each clean out cycle**; and

d. 2 feet of freeboard.

50. ~~51.~~ The containment design for the evaporation ponds, from the surface of the evaporation ponds downwards, consists of the following:

a. A hard surface / protective layer;

b. A primary 60 mil high density polyethylene (HDPE) liner;

c. An interstitial leak detection system (LDS) comprising a drainage layer and piping;

d. A secondary 40 mil HDPE liner; and

e. A 2 foot thick compacted silty-sand base.

51. ~~52.~~ The hard surface / protective layer provides protection against accidental damage to the HDPE liners which could be caused by burrowing animals, falling objects, varying climatic conditions and worker activities. Second, the hard surface / protective layer will allow for occasional removal of the precipitated solids within the evaporation ponds. Various hard surface media such as reinforced concrete, roller compacted concrete, revetments, or combinations of these media will be assessed prior to the selection of the preferred option.

52. ~~53.~~ High density polyethylene (HDPE) was selected as the preferred fabric for the primary and secondary liners for the following reasons:

a. It is chemically resistant to potentially high concentrations of dissolved salts;

b. It is very durable during installation;

c. It is strong and possesses desirable stress-strain characteristics; and

d. It is the most common synthetic liner material and as such there is a broad base of practical experience associated with the installation of HDPE amongst construction contractors.

53. ~~54.~~ A 60 mil upper liner was selected to provide appropriate balance between strength and ductility characteristics, which is very important during liner installation. A non-woven geotextile will be installed on top of the 60 mil liner to act primarily as a protective layer. A 40 mil lower liner was selected for the lower and secondary liner to provide slightly better ductility and handling

characteristics during installation, as strength is of lesser importance for the secondary liner. HDPE possesses large thermal expansion and contraction characteristics, and exhibits stress when liner temperature exceeds 122 ^{O}F. ~~The temperature of the blowdown water is not expected to exceed 122°F.~~

54. ~~55.~~ A 2 foot thick basal layer of compacted silty sand is included in the design profile to protect the underlying groundwater in the unlikely event that both synthetic liner materials are punctured during construction or operation of the evaporation ponds. This base layer also serves to provide a smooth, competent surface to support the overlying synthetic liners and leak detection system layers.

Leak Detection System

55. ~~56.~~ A drainage layer is included in the design profile for the evaporation ponds which consists of a granular drainage layer with perforated piping to collect and convey fluids to an extraction riser in a leak detection sump (LDS). Geocomposite drainage materials, consisting of HDPE geonet and nonwoven geotextiles heat bonded to one or both sides, may be used in conjunction with or as a substitute for the granular drainage layer on slopes.

56. ~~57.~~ The water collected in the LDS will drain by gravity to a unique monitoring well that is constructed for each of the leak collection layer. Automated pneumatic, solar-powered pumping systems are included in the design of each of these monitoring wells to automatically return water to that pond, which in turn minimizes the hydraulic pressures across the secondary liners and therefore the risk of impact to groundwater quality.

57. ~~58.~~ The base of the evaporation pond leak detection and collection layer will slope at a minimum inclination of 1 percent to a leak collection trench. The trench will contain screened sand (with no fines) and a perforated pipe that will slope at a minimum inclination of 3/4 percent towards a leak detection and collection sump, located at the lowest point in the pond. The water in the collection sump will drain by gravity to a monitoring well that is constructed for each evaporation pond (one well per pond). Automated pneumatic pumping systems in the monitoring wells will automatically return water collected in the sump to that evaporation pond, which in turn minimizes the hydraulic pressures across the secondary liners and, therefore, minimizes the risk of leakage through the secondary liner. Leakage rates will be measured using a flow totalizer.

58. ~~59.~~ The collection sump, pipe, and monitoring well, will include prefabricated and field-fabricated HDPE components with water tight, extrusion welded and wedge-welded seams and penetrations. The liner system will be installed in accordance with current practices. Destructive and non-destructive testing procedures will be used to verify sump and penetration tightness and continuity.

59. ~~60.~~ This design is consistent with CCR Title 27, Section 20340, which requires an LDRS between the liners for the evaporation ponds.

60. ~~61.~~ The side slopes around the evaporation ponds will contain the same liner system as the base of the ponds, except that leak collection pipes will not be located on the pond side slopes.

61. ~~62.~~ The berms shall be covered with a minimum 6-inch thick road base or approved equivalent. The top of the berms will be a minimum of 2 feet above the surrounding grade to prevent potential inflow of stormwater.

62. ~~63.~~ The wastewater will come into contact with the hard surface/protective layer. The media for this layer will either be roller-compacted concrete or an approved equivalent alternate. All final media selection will be compatible with the wastewater by using quality concrete with maximum chemical resistance (specifications will be provided to the concrete manufacturer to ensure proper mix selection).

63. ~~64.~~ If there is leakage in the evaporation pond, the wastewater will come into contact with the primary/secondary liner. HDPE is chemically resistant to saline solutions and long-term contact between the wastewater in the evaporation ponds and the HDPE liner system will not compromise liner integrity.

64. ~~65.~~ The hard surface/protective layers, liner system, and base layer will have the ability to withstand the dissolved solids content of the water without degradation. These systems will not fail due to pressure gradients from physical contact with the wastewater and residue or undergo chemical reactions or degradation.

65. ~~66.~~ The containment construction process will follow these general steps:

    a. Prior to construction, the topsoil and subsoil covering the area will be stripped and stockpiled.

    b. Placement and compaction of the silty sand base material;

    c. Installation of the carrier pipe for the moisture detection (neutron probe) system beneath the base of the ponds;

    d. Construction of finish grading to sub grade, as needed, and excavation of the leak collection trench and detection/collection sumps.

    e. Scarification, moisture conditioning, compaction, proof rolling and testing of sub~~-~~grade materials;

    f. Installation of secondary HDPE liner;

    g. Installation of leak detection layer, sump, and leak extraction risers;

    h. Installation of primary HDPE liner;

    i. Installation of the non-woven geomembrane liner;

j. Installation of granular fill;

k. Installation of liner protection layers; and

l. Hard surface placement.

Waste Classification

66. ~~67.~~ Wastewater from ~~several processes~~ **the water treatment units (e.g. reverse osmosis)** within the Facility will be piped to **the** two ~~4.0-acre~~ evaporation ponds ~~per Unit~~ (total combined area of **12**~~8~~ acres ~~per Unit~~) for disposal. The pond area provides sufficient evaporative capacity to dispose of the anticipated wastewater stream, and allows for one pond to be taken out of service for up to approximately **ten**~~three~~ years for cleaning, potential future maintenance, and repair without impacting the operation of the plant. Raw water for the Facility is supplied from groundwater wells. ~~Discharge into the evaporation ponds are from two sources:~~

~~a. High pH RO (Reverse Osmosis Concentrate; and~~

~~b. Stormwater runoff from the proposed bioremediation and land farm units used to treat soil affected spills by Heat Transfer Fluid (HTF).~~

Wastewater Discharge

67. ~~68.~~ The estimated concentrations of chemical constituents in the wastewater discharge to the evaporation ponds **based on the approved solar thermal project** are provided in the **Table 1**, Raw Water Quality and Estimated Chemistry of Wastewater Flows. The total concentrations of chemical constituents estimated in the evaporation pond residue that will accumulate in the ponds during operation **of the previously proposed project** are provided in **Table 2**. **These values were calculated for the Approved Project and will be the same or lower for this Modified Project.**

68. ~~69.~~ Classification of wastewater and evaporation pond residue is summarized in the Classification of Wastewater and Evaporation Pond Residue **Table 3** below.

69. ~~70.~~ Testing of this material will be conducted as part of the facility monitoring program to verify this characterization. The evaporation pond residue accumulated in the ponds is non hazardous; however, it does contain pollutants which could exceed water quality objectives if released, or that could be expected to affect the beneficial uses of waters of the state. Therefore, the evaporation pond residue is classified as a “designated waste.”

Evaporation Residue

70. ~~71.~~ During the 30-year operating life of the Project, it is estimated that up to ~~1~~**3** foot of residue may accumulate in the bottoms of the evaporation ponds that consists of

precipitated solids from the evaporated wastewater. The total amount of accumulated residue **was** ~~is~~ estimated to be approximately 23,000 tons **for the Approved Project, and will be less for the Modified Project**. The predicted chemical makeup of the residue, based on information about the raw water chemistry and knowledge of the water use and treatment processes at the Project, is summarized in **Table 3**, Estimated Chemistry of Evaporation Pond Residue.

~~**Land Treatment Unit**~~

~~72. In compliance with Table 2.1 in CCR Title 27, Chapter 3, Subchapter 2, Article 2, Section 20210, solid designated wastes will be managed in full containment in a Class II LTU with a single liner system. The LTU will be constructed to be above the level of a 100-year storm event and designed to meet seismic hazard criteria. In addition, the base of the LTU will have a greater than 5-foot separation between it and the underlying groundwater.~~

~~73. The LTU will not incorporate a liner containment system or leak detection and removal system, but will be constructed with a prepared base consisting of two feet of compacted, low permeability, lime-treated material. This base will serve as a competent platform for land treatment activities, and will serve to slow the rate of surface water infiltration in the treatment area. The compacted lime-treated and native soil beneath the LTU is designated as a "treatment zone" to a depth of five feet. Although the LTU will be taking vehicle traffic, no hard surface will be required, as there is no liner system to protect. A staging area is allocated in the LTU for storage of HTF-impacted soils while they are being characterized. Soil characterized as hazardous will be removed from the site; therefore, no additional liner system is required in the LTU to cater for the hazardous waste.~~

~~74. The LTU will be surrounded on all sides by a 2-foot high compacted earthen berm with side slopes of approximately 3:1 (horizontal: vertical). These berms will control and prevent potential inflow (run on) of surface storm water into the LTU or runoff of storm water from the unit.~~

~~a. The Project LTU is sized based on data from an existing solar farm that uses an LTU to bioremediate HTFimpacted soil. The basis is summarized below:~~

~~b. HTF-impacted soil is generated at a rate consistent with existing solar farm experience. Kramer Junction is a 150 MW facility that generates an average of 500 cubic yards (cyd) of HTF-impacted soil per year (DTSC correspondence, 1995). This rate is ~ 3.3 cyd/year/MW~~

~~c. Applying the Kramer Junction experience to the 1000 MW Blythe facility, the Blythe facility is estimated to generate ~3,332 cyd/year of HTF-impacted soil.~~

~~d. HTF-impacted soil is treated in 6-inches thicknesses, so, on average, 180,000 square feet or 4.1 acres is needed for HTF-impacted generated per year~~

e. The LTU will be used for either placement of HTF-impacted soil or treatment of HTF-impacted soil. That is at any one time the LTU is used to place material to be treated as it is generated or being used for soil treatment. HTF-impacted soil treatment is estimate to take 1 to 4 months to complete bio remediation; however the design of the LTU will allow soil placed at the beginning of the year to have up to twelve months to complete bioremediation and removal.

75. To address above average spill events, Kramer Junction has additional capacity in the LTU or a factor of safety for HTF-impacted soil treatment. Kramer Junction has a capacity to treat 1,944 cyd/year and generates an average of 500 cyd/year of HTF-impacted soil, so the facility has ~ a 3.9 factor of safety. Applying this factor of safety to Blythe, the total area estimated for LTU is ~700,000 square feet or 16 acres.

76. Treatment of HTF-impacted soil in the LTU will involve moisture conditioning and may involve addition of nitrogen and phosphorous nutrients (i.e., fertilizers) as needed to stimulate consumption of HTF by the indigenous bacteria. The HTF-impacted soil will be moisture conditioned and turned periodically as needed to enhance aeration, promote breakdown of HTF by the indigenous bacteria and/or to control dust emissions. Permanent or portable irrigation sprinklers will supply water to the area for dust control and to assist in treatment.

77. Treatment piles may be covered by plastic sheeting as needed to enhance temperature and moisture retention characteristics, and as needed to control storm water contact, odors and dust emissions.

78. The base layer construction process will follow these general steps:

    a. Prior to construction, the LTU will be stripped, grubbed and cleared of topsoil;

    b. General excavation and grading to sub grade will take place as needed;

    c. Scarification and moisture conditioning of sub grade materials will take place; and

    d. Placement, moisture conditioning, lime treatment, and compaction of native clayey silt material to form the base and perimeter berms will be completed before proof rolling after finish grading.

79. The LTU pad and berm construction will use standard cut and fill techniques. Native clayey silt material will be used to construct the pad and berms. The clayey silt material will be moisture conditioned and treated with at least 2 percent quicklime to achieve an R-Value of at least 40 to 50. Treatment and compaction of the material will be conducted using standard commercial lime treatment methods and equipment and compacted in lifts using a sheeps foot roller. The lime treated layer will be compacted to a minimum of 95 percent of the maximum dry density as determined by American Standard for Testing and Materials (ASTM) D1557. Field testing of the density of the soil will be performed at regular intervals. Compaction

results will be recorded. After finish grading, the surface of the LTU pad and berms will be proof rolled.

Waste Classification

80. The HTF-affected soils will be characterized as hazardous or non hazardous waste prior to determination of whether the material can be treated at the LTU or must be removed for off-site disposal. Therefore, HTF affected soils will be relocated to a temporary staging area in the LTU and characterized consistent with U.S. Environmental Protection Agency (EPA) protocols. Soil sample of excavated HTF-affected soil will be collected in accordance with the EPA's current version of the manual "Test Methods for Evaluating Solid Waste" (SW-846) and the waste material will be characterized in accordance with State and Federal requirements. Soil samples will be analyzed for HTF constituents (Biphenyl and Diphenyl Ether) using modified EPA Method Modified 8015.

81. Prior to operation of the LTU and initiation of any on-site remediation of HTF, the waste stream will be characterized and a waste classification determination rendered by the DTSC. Initially, in addition to sampling for HTF, soil samples will also be analyzed for ignitability and toxicity using appropriate State and Federal methods to characterize the waste as hazardous or non-hazardous. Once a sufficient data set has been accumulated to allow characterization of the material as hazardous or non-hazardous waste based on HTF content and generator knowledge, the DTSC will be petitioned for a determination of waste classification for HTF-affected soils generated at the facility. Following this determination, subsequent samples will only be analyzed for HTF to determine disposition of the waste either for remediation or for transportation and disposal off site. If the soil is characterized as a hazardous waste, the impacted soils will be transported from the site by a licensed hazardous waste hauler for disposal at a licensed hazardous waste landfill or treatment storage and disposal facility (TSDF).

82. Based on the classification practice and management of similar waste stream at the Kramer Junction Solar Electric Generating System (SEGS) facility in Kern County, it is anticipated that soil containing 10,000 mg/kg HTF or more will be managed as hazardous waste, and that soil containing less than 10,000 mg/kg HTF will be non-hazardous waste and can be managed at the site. At the Kramer Junction facility, the DTSC issued a letter dated April 4, 1995, stating that soil contaminated with HTF "poses an insignificant hazard" and classifies the waste as non-hazardous for soils with a concentration of less than 10,000 mg/kg HTF pursuant to CCR Title 22, Section 66260.200(f). Given that the formulation of HTF has not changed significantly since this determination, it is anticipated that future waste characterization at BSPP will yield a similar result although the DTSC has indicated that this decision will be made on a project specific basis and the Kramer Junction classification does not necessarily ensure the same classification for the BSPP.

83. All HTF-affected soil classified as a hazardous waste will be removed for the site for proper off-site disposal; therefore the material in the LTU will be managed as a

~~non-hazardous "designated waste" as defined in CCR Title 23, Chapter 15, Section 2522. Based on waste discharge requirements for similar sites, soil containing HTF in concentrations less than 100 mg/kg will not be regulated as a waste and could be reused as fill on site.~~

~~Waste Management~~

~~84. The LTU will be used to treat HTF-affected soil at various concentrations. Spills of HTF will be cleaned up within 48 hours and affected soil will be moved to a temporary staging area in the LTU where it will be placed on 60-mil plastic and covered with plastic sheeting pending receipt of analytical results and characterization of the waste material. As possible, free liquids will be removed using a vacuum truck. The liquids will be filtered and reused to the extent possible and reintroduced into the process. Filtrate that cannot be reused will be characterized, as appropriate (though will likely be managed as hazardous waste, as the concentration in the filtrate will likely be more than 10,000 mg/kg HTF).~~

~~85. No HTF-affected soils characterized as hazardous waste will be disposed or treated on site. As stated previously, it is anticipated that soil containing 10,000 mg/kg HTF or more will be managed as hazardous waste, and that soil containing less than 10,000 mg/kg HTF will be managed at the site as non-hazardous waste. If the soil is characterized as a non-hazardous waste, it will be spread in the LTU for bioremediation treatment. In general, within the LTU, more highly contaminated soil will be covered with plastic sheeting to prevent contact with storm water and to control potential odors and emissions, as well as for moisture and temperature retention. Once the soil has been treated to a concentration of less than 100 mg/kg HTF, it will be moved from the LTU to another portion of the site until it is reused at the Project site as fill material.~~

~~86. Based on available operation data from other sites, it is anticipated that approximately 1,666 cubic yards (on average) of HTF-affected soil may be treated per year. Larger or smaller quantities could be generated during some years, depending on the frequency and size of leaks and spills.~~

~~87. A Spill Prevention, Control, and Countermeasure (SPCC) Plan will be developed for the Project (refer to Section 13.4 for details). Periodically, equipment failures in and around mirror fields are expected at the Project that may result in spills of HTF onto soil.~~

~~88. Excess wastewater or rain fall may occasionally accumulate in the LTU. The LTU has been constructed with 2-foot high berms such that storm water will not drain into or from the LTU. Based on the frequency of storms in the area, it is anticipated accumulation of rainwater within the containment would occur on a yearly basis. Water that accumulates within the LTU will be sampled for HTF and amendments as described in Section 12. If HTF is not detected above the practical quantitation limit (PQL) and amendment concentrations (i.e., nitrate, phosphate, TDS) are at or near background groundwater concentrations and below State of California primary or secondary maximum contaminant levels the water may be reused in the~~

~~plant process. If HTF is detected and amendment concentrations exceed background or drinking water standards the waste will be properly disposed of at a licensed TSDF.~~

Hazardous Waste

71. There will be a variety of chemicals stored and used during construction and operation of the project. The storage, handling, and use of all chemicals will be conducted in accordance with applicable laws, ordinances, regulations, and standards.

72. Hazardous materials will be stored in proper containers in material yards and designated construction areas. Cleanup materials (spill kits) will also be stored in these areas. Fuel, oil, and hydraulic fluids used in on-site vehicles will be transferred directly from a service truck to construction equipment and will not otherwise be stored on site.

73. Designated, trained service personnel will perform fueling either prior to the start of the workday or at completion of the workday. Service personnel and construction contractors will follow SOPs for filling and servicing construction equipment and vehicles.

~~74. Any HTF impacted soil classified as hazardous will be removed from the LTU staging area after the initial characterization. The evaporation ponds will not contain hazardous wastewater or sludge as it is illegal to discharge hazardous waste into surface impoundments under the Toxic Pits Cleanup Act of 1984.~~

Basin Plan

74. ~~75.~~ The Water Quality Control Plan for the Colorado River Basin Region of California (Basin Plan) was adopted on November 17, 1993, and designates the beneficial uses of ground and surface water in this Region.

75. ~~76.~~ The Basin Plan designates beneficial uses for surface waters in each watershed of the Colorado River Basin region. Beneficial uses of surface waters within the Facility area and vicinity that could be impacted by the Facility include:

    a. Agricultural use

    b. Municipal use

    c. Industrial use

    d. Recreational use

    e. Groundwater recharge

    f. Wildlife habitat

g. Preservation of Rare, Threatened, or Endangered Species

76. ~~77.~~ The beneficial uses of ground water in the Imperial Hydrological Unit are:

a. Municipal Supply (MUN)

b. Industrial Supply (IND)

c. Agricultural supply

Monitoring Parameters

77. ~~78.~~ Based on the chemical characteristics of the projected discharges to the evaporation ponds from wastewater, the following list of monitoring parameters are required. These specific parameters are selected because they provide the best distinction between the wastewater and the groundwater in the Project area that can be used to differentiate a potential release that could change the chemical composition of the groundwater.

a. Cations: Antimony, Arsenic, Barium, Cadmium, Calcium, Total Chromium, Cobalt, Copper, Lead, Mercury, Nickel, Selenium, Zinc;

b. Anions: Chloride and Sulfate; and

c. Other: ~~HTF,~~ Total Dissolved Solids, Specific Conductivity, and pH.

California Environmental Quality Act (CEQA)

78. ~~79.~~ The California Energy Commission (CEC) is the lead agency under the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000 et seq.) for all thermal power plants with power ratings of 50 MW or more. **The CEC's authority to permit this PV project has been extended through special legislation.** The CEC's power plant licensing process is a CEQA-equivalent process. The CEC will coordinate reviews and approvals with the regulatory agencies to ensure that the proposed project meets CEQA requirements. This includes obtaining these WDRs from the staff of the Regional Board. The CEC will certify this project and will include these WDRs as conditions of certification in accordance with the Warren-Alquist Act.[1]

[1] The Warren-Alquist State Energy Resources Conservation and Development Act is the authorizing legislation for the California Energy Commission. The Act is codified at Public Resources Code (PRC) Section 25000 et seq.. PRC Section 25500 establishes the Commission's authority to certify all sites and related facilities for thermal power plants with power ratings of 50 megawatts or more. The section further declares that "the issuance of a certificate by the commission shall be in lieu of any permit, certificate, or similar document required by any state, local or regional agency, or federal agency to the extent permitted by federal law, for such use of the site and related facilities, and shall supersede any applicable statute, ordinance, or regulation of any state, local, or regional agency, or federal agency to the extent permitted by federal law."

Monitoring and Reporting Program

79. ~~80.~~ The monitoring and reporting requirements in the Monitoring and Reporting Program (Appendix **D**~~C~~), and the requirement to install groundwater monitoring wells, are necessary to determine compliance with these WDRs, and to determine the Facility's impacts, if any, on receiving water.

Table 1: Raw Water Quality and Predicted Chemistry of Wastewater Streams

	Supply Water[1]	Wastewater To Evaporation Pond[2]	STCL[3]	TCLP[4]
24-Average Flow Rate (GPM)		8.748	---	---
Peak Operation Flow Rate (GPM)		14.636	---	---
Constituent	(mg/L)	(mg/L)	(mg/L)	(mg/L)
CATIONS				
Calcium	287	369	---	---
Magnesium	60	185	---	---
Sodium	457	14818	---	---
Potassium	11	198	---	---
ANIONS				
M-Alkinity			---	---
Sulfate	970	17918	---	---
Chloride	559	10325	---	---
Nitrate	1	12	---	---
Silicon Dioxide	15	277	---	---
GENERAL WATER QUALITY				
Bicarbonate			---	---
Carbonate			---	---
OH		2	---	---
P-Alkalinity				
pH	7.2		---	---
Spec Cond	3338	61676	---	---
TDS	2,170	40089	---	---
Total Hardness (CaC03)				
Turbidity	1.6	136		
Total Phosphate	0.3		---	---
Fluoride	1.3	24	180	---
Barium	0.017	0	---	---
Iron	0.123	2	---	---
Total Suspended Solids	1	0	---	---
Biological Oxygen Demand	1	0	---	---
TRACE METALS				
Boron	1.41	26.042	--	--
Copper	0.01	0.175	25	--
Molybdenum	0.031	0.569	350	--
Vanadium	0.005	0	24	--
Zinc	0.235	0.092	250	--

NOTES:
1 - Water quality data from AFC Table Water 4, AECOM, 2009 **apply to the Approved Project. Data for the Modified Project will be the same or less than these values.**
2 - Water Quality data from Kiewit Evaporation Pond Preliminary Design, Operations and Maintenance Plan, April 2010
3 - STLC = Soluble Threshold Limit Concentration, Regulated by CCR Title 22, Division 4.5, Article 3, Section 66261.24
4 - TCLP = Toxicity Characteristics Leaching Procedure; Regulate under 40 CFR Section 261.24

Source: AECOM ROWD May 14, 2010

Table 2: Estimated Chemistry of Evaporation Pond Residue

	Concentration in Evaporation Pond Discharge	Total Residue Mass After 30 Years	Concentration in Residue		STLC	TTLC	TCLP
	ppm	lbs	% or ppm		mg/L	mg/kg	mg/L
Aluminum	0.00	0	0	ppm	-	-	-
Arsenic	0.00	0	0	ppm	5.0	500	5.0
Barium	0.305	1,401	6.81	ppm	-	-	-
Boron	26.04	119,740	582.01	ppm	-	-	-
Calcium	369	1,698,481	0.83	%	-	-	-
Chloride	10325	47,474,130	23.1	%	-	-	-
Copper	0.18	809	3.93	ppm	-	-	-
Fluoride	24	110,397	536.60	ppm	180	18000	-
Iron	2.3	10,445	50.77	ppm	-	-	-
Magnesium	185	849,267	0.41	%	-	-	-
M-Alkalinity	573	2,634,625	1.28	%	-	-	-
Molybdenum	0.57	2,616	12.72	ppm	-	-	-
Nitrate	12	54,204	263.47	ppm	-	-	-
Phosphate	6	27,588	134.09	ppm	-	-	-
Potassium	198	911,395	0.44	%	-	-	-
Selenium	0	0	0.00	ppm	1.0	100	1.0
Silica	277	1,274,858	0.62	%	-	-	-
Sodium	14818	68,131,223	33.1	%	-	-	-
Sulfate	17918	82,386,733	40.0	%	-	-	-
Total Phosphate	6	26,428	128.46	ppm	-	-	-
Vanadium	0.09	423	2.06	ppm	-	-	-
Zinc	4.34	19,955	96.99	ppm	250	5000	-
TDS	44,745	205,734,718	100	%	-	-	-

Notes: Where a constituent was reported as "ND" the amount in the supply water was assumed to be zero (0) ppm. Reporting those constituents at their lower detection limit would change the results above.

Source: AECOM ROWD May 14, 2010

Values apply to the Approved Project. Data for the Modified Project will be the same or less than these values.

Table 3 Classification of Wastewater and Evaporation Pond Residue

Waste Stream	Waste Stream Compared To	Regulation	Waste Stream Characteristic	State & Federal Classification	CWC Section 13173 Classification[1]
Wastewater	STLC	CCR Title 22, Chapter 11, Division 4.5, Article 3, Section 66261.24 "Characteristics of Toxicity"	<STLC	Non-hazardous	Designated waste
	TCLP	Code of Federal Regulations (CFR) Part 261, Section 261.24	<TCLP	Non-hazardous	Designated waste
Evaporation Pond Residue	STLC	CCR, Title 22, Chapter 11, Division 4.5, Article 3, Section 66261.24 "Characteristics of Toxicity"	<STLC	Non-hazardous	Designated waste
	TTLC	CCR, Title 22, Chapter 11, Division 4.5, Article 3, Section 66261.24 "Characteristics of Toxicity"	<TTLC	Non-hazardous	Designated waste
	TCLP	Code of Federal Regulations (CFR) Part 261, Section 261.24	<TCLP	Non-hazardous	Designated waste

Source: AECOM ROWD May 14, 2010

SOIL AND WATER
APPENDIX H-2

Waste Discharge Requirement
Requirements for Waste Discharge

SOIL AND WATER RESOURCES – APPENDIX H-2

REQUIREMENTS FOR WASTE DISCHARGE— NextEra Blythe Solar Energy Center ~~Palo Verde Solar I~~, LLC, Owner/Operator, Blythe Solar Power Project, Riverside County

A. Discharge Specifications

1. The treatment or disposal of wastes at this Facility shall not cause pollution or nuisance as defined in Sections 13050 of Division 7 of the California Water Code (CWC).

2. The Discharger will maintain the monitoring wells in good working order at all times. Well maintenance may include periodic well re-development to remove sediments.

3. Thirty days prior to introduction of a new waste stream into the evaporation ponds, the Discharger must receive approval from the Regional Board's Executive Officer.

4. Waste material shall be confined or discharged to the evaporation ponds ~~and LTU~~.

5. Prior to drilling a new well or abandoning a well at the Facility, the Discharger shall notify, in writing, the Regional Board's Executive Officer of the proposed change.

6. Containment of waste shall be limited to the areas designated for such activities. Any revision or modification of the designated waste containment area, or any proposed change in operation at the Facility that changes the nature and constituents of the waste produced must be submitted in writing to the Regional Board's Executive Officer for review and approval before the proposed change in operations or modification of the designated area is implemented.

7. Any substantial increase or change in the annual average volume of material to be discharged under this order at the Facility must be submitted in writing to the Regional Board's Executive Officer for review and approval.

8. If any portions of the evaporation ponds are to be closed, the Discharger shall notify the Regional Board's Executive Officer at least 180 days prior to beginning any partial or final closure activities.

9. Fluids and/or materials discharged to and/or contained in the evaporation ponds shall not overflow the ponds.

10. Prior to the use of new chemicals for the purposes of adjustment or control of microbes, pH, scale, and corrosion of the cooling tower water and wastewater, the Discharger shall notify the Regional Board's Executive Officer in writing.

11. For the liquids in the evaporation ponds, a minimum freeboard of two (2) feet shall be maintained at all times.

12. Final disposal of residual waste from cleanup of the evaporation ponds shall be accomplished to the satisfaction of the Regional Board's Executive Officer upon abandonment or closure of operations.

13. The evaporation ponds shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods having a predicted frequency of once in 100 years.

14. Prior to removal of solid material that has accumulated in the concrete evaporation ponds, an analysis of the material must be conducted and the material must be disposed of in a manner consistent with that analysis and applicable laws and regulations.

15. Conveyance systems throughout the Facility area shall be cleaned out at least every 90 days to prevent the buildup of solids.

16. Pipe maintenance and de-scaling activities that include hydroblasting and/or sandblasting shall be performed within a designated area that minimizes the potential for release to the environment. Waste generated as a result of these activities shall be disposed of in accordance with applicable laws and regulations. Water from the hydroblasting process shall be conveyed to the evaporation ponds.

17. Public contact with wastewater shall be precluded through such means as fences, signs, or other acceptable alternatives.

18. The evaporations ponds shall be managed and maintained to ensure their effectiveness.~~, in particular,~~

19. Implementation of erosion control measures shall assure that small coves and irregularities are not created.

20. The liner beneath the evaporation ponds shall be appropriately maintained to ensure its proper functioning.

21. Solid material shall be removed from the evaporation ponds in a manner that minimizes the likelihood of damage to the liner.

22. Ninety days prior to the cessation of discharge operations at the Facility, the Discharger shall submit a workplan, subject to approval of the Regional Board's Executive Officer, for assessing the extent, if any, of contamination of natural geological materials and waters of the Palo Verde Mesa Groundwater Basin by the waste. One hundred twenty days following workplan approval, the Discharger shall submit a technical report presenting results of the contamination assessment. A

California Registered Civil Engineer or Certified Engineering Geologist must prepare the workplan, contamination assessment, and engineering report.

23. Upon ceasing operation at the Facility, all waste, all natural geologic material contaminated by waste, and all surplus or unprocessed material shall be removed from the site and disposed of in accordance with applicable laws and regulations.

24. The Discharger shall establish an irrevocable bond for closure in an amount acceptable to the Regional Board's Executive Officer or provide other means to ensure financial security for closure if closure is needed at the discharging site. The closure fund shall be established (or evidence of an existing closure fund shall be provided) within six (6) months of the adoption of this Order.

25. Surface drainage from tributary areas or subsurface sources, shall not contact or percolate through the waste discharged at this site.

26. The Discharger shall implement the attached Monitoring and Reporting Program, Appendix D, and revisions thereto, in order to detect, at the earliest opportunity, any unauthorized discharge of waste constituents from the Facility, or any impairment of beneficial uses associated with (caused by) discharges of waste to the ~~brine~~ **evaporation** pond.

27. The Discharger shall use the constituents listed in the attached Monitoring and Reporting Program, Appendix D, and revisions thereto, as "Monitoring Parameters".

28. The Discharger shall follow the Water Quality Protection Standard (WQPS) for detection monitoring established by the Regional Board. The following are parts of WQPS as established by the Regional Board's Executive Officer:

    a. The Discharger shall test for the monitoring parameters and the Constituents of Concern (COCs) listed in the Monitoring and Reporting R7-2010-0xxx and revisions thereto.

    b. Concentration Limits – The concentration limit for each monitoring parameter and constituents of concern for each monitoring point (as stated in the Detection Monitoring Program), shall be its background valued as obtained during that reporting period.

29. All current, revised, and/or proposed monitoring points must be approved by the Region Board's Executive Officer.

30. Water used for the process and site maintenance shall be limited to the amount necessary in the process, for dust control, and for Facility cleanup and maintenance.

31. The Discharger shall not cause or permit the release of pollutants, or waste constituents, in a manner which could cause or contribute to a condition of contamination, nuisance, or pollution to occur.

32. The Discharger must develop and implement a Hazardous Materials Business Plan (HMBP), which will include, at a minimum, procedures for:

    a. Hazardous materials handling, use, and storage;
    b. Emergency response;
    c. Spill control and prevention;
    d. Employee training; and
    e. Reporting and record keeping.

33. Hazardous materials expected to be used during construction include: unleaded gasoline, diesel fuel, oil, lubricants (i.e., motor oil, transmission fluid, and hydraulic fluid), solvents, adhesives, and paint materials. There are no feasible alternatives to these materials for construction or operation of construction vehicles and equipment, or for painting and caulking buildings and equipment.

34. The construction contractor will be responsible for assuring that the use, storage and handling of these materials will comply with applicable federal, state, and local laws, ordinances, regulations and standards (LORS), including licensing, personnel training, accumulation limits, reporting requirements, and recordkeeping.

35. During Facility operations, chemicals will be stored in chemical storage areas appropriately designed for their individual characteristics. Bulk chemicals will be stored outdoors on impervious surfaces in aboveground storage tanks with secondary containment. Secondary containment areas for bulk storage tanks will not have drains. Any chemical spills in these areas will be removed with portable equipment and reused or disposed of properly. Other chemicals will be stored and used in their delivery containers.

36. A portable storage trailer may be on site for storage of maintenance lube oils, chemicals, paints, and other construction materials, as needed. All drains and vent piping for volatile chemicals will be trapped and isolated from other drains to eliminate noxious vapors. The storage, containment, handling, and use of these chemicals will be managed in accordance with applicable laws, ordinances, regulations, and standards.

37. Small quantities of hazardous wastes will be generated over the course of construction. These may include paint, spent solvents, and spent welding materials. Some hazardous wastes will be recycled, including used oils from equipment maintenance, and oil-contaminated materials such as spent oil filters, rags, or other cleanup materials. Used oil must be recycled, and oil or heavy metal contaminated materials (e.g., filters) requiring disposal must be disposed of in a Class I waste disposal facility. Scale from pipe and equipment cleaning operations, and solids from the evaporation pond, will be disposed of in a similar manner.

38. All hazardous wastes generated during facility construction and operation must be handled and disposed of in accordance with applicable laws, ordinances, regulations, and standards. Any hazardous wastes generated during construction must be collected in hazardous waste accumulation containers near the point of generation and moved daily to the contractor's 90-day hazardous waste storage area located on site. The accumulated waste must subsequently be delivered to an authorized waste management facility. Hazardous wastes must be either recycled or managed and disposed of properly in a licensed Class I waste disposal facility authorized to accept the waste.

39. The Discharger shall monitor the evaporation ponds in conformance with applicable CCR Title 27 requirements for Class II surface impoundment waste management units.

40. The leachate collection and removal system must be used to provide preliminary detection monitoring of leaks through the top liner of the double-lined evaporation ponds. Physical evidence of leachate beneath the upper concrete liner shall be interpreted as a warning that containment of the evaporation pond contents may be compromised.

41. Groundwater monitoring wells must be constructed adjacent to and both up gradient and down gradient of the evaporation ponds to provide background and detection monitoring for any potential release from the evaporation ponds containment. The Point of Compliance to be used for the detection monitoring must be the shallow groundwater beneath the evaporation pond. The groundwater monitoring wells must be constructed in conformance with Title 27 CCR Section 20415 requirements. The monitoring wells must be designed to meet the background and detection monitoring requirements in conformance with Title 27 CCR Section 20415(b)(1)(B) as applicable, including:

    a. Providing a sufficient number of monitoring points to yield ground water samples from the uppermost aquifer that represent the quality of ground water passing the Point of Compliance and to allow for the detection of a release from the evaporation ponds;

    b. Providing a sufficient number of monitoring points and background monitoring points installed at appropriate locations and depths to yield ground water samples from the uppermost aquifer to provide the best assurance of the earliest possible detection of a release from the evaporation ponds; and

    c. Selecting monitoring point locations and depths that include the zone(s) of highest hydraulic conductivity in the ground water body monitored.

42. The detection monitoring wells shall be constructed to meet the well performance standards set forth in Title 27 CCR Section 20415(b)(4), as applicable, including:

43. All monitoring wells shall be cased and constructed in a manner that maintains the integrity of the monitoring well bore hole and prevents the bore hole from acting as a conduit for contaminant transport.

44. The sampling interval of each monitoring well shall be appropriately screened and fitted with an appropriate filter pack to enable collection of representative ground water samples.

45. For each monitoring well, the annular space (i.e., the space between the bore hole and well casing) above and below the sampling interval shall be appropriately sealed to prevent entry of contaminants from the ground surface, entry of contaminants from the unsaturated zone, cross contamination between portions of the zone of saturation, and contamination of samples.

46. All monitoring wells shall be adequately developed to enable collection of representative ground water samples.

47. The monitoring program must also meet the general requirements set forth in Title 27 CCR Section 20415(e), which require that all monitoring systems be designed and certified by a registered geologist or a registered civil engineer. The applicable general requirements set forth for boring logs, quality assurance/quality control, sampling and analytical methods used, background sampling, data analysis, and other reporting as applicable will be implemented.

48. Baseline samples of the groundwater must be collected from each of the monitoring wells and analyzed prior to discharging wastewater to the evaporation ponds. The groundwater must be initially sampled for each of the proposed monitoring parameters listed in the attached Monitoring and Reporting Program, Appendix D, and any additional Constituents of Concern (COC) identified by the Regional Board.

B. Prohibitions

1. The discharge or deposit of solid waste to the evaporation ponds as a final form of disposal is prohibited, unless authorized by the Regional Board's Executive Officer.

2. The Discharger is prohibited from discharging, treating or composting at this site the following wastes:

    a. Municipal solid waste;

    b. Sludge (including sewage sludge, water treatment sludge, and industrial sludge);

    c. Septage;

d. Liquid waste, unless specifically allowed by these WDRs or approved by the Regional Board's Executive Officer;

e. Oily and greasy liquid waste; unless specifically allowed by these WDRs or approved by the Regional Board's Executive Officer;

f. Hot, burning waste materials or ash.

3. The Discharger shall not cause degradation of any groundwater aquifer or water supply.

4. The discharge of waste to land not owned or controlled by the Discharger is prohibited.

5. Use of wastewater ~~or cooling tower liquids~~ on access roads, well pads, or other developed project locations for dust control is prohibited.

6. The discharge of hazardous or designated wastes to other than a waste management unit authorized to receive such waste is prohibited.

7. Any hazardous waste generated or stored at the facility will be contained and disposed in a manner that complies with federal and state regulations.

8. Wastewater or any fluids in the evaporation ponds shall not enter any canal, drainage, or drains (including subsurface drainage systems) which could provide flow to the Waters of the State.

9. The Discharger shall appropriately dispose of any materials, including fluids and sediments removed from the evaporation ponds.

10. The Discharger shall neither cause nor contribute to the contamination or pollution of ground water via the release of waste constituents in either liquid or gaseous phase.

11. Direct or indirect discharge of any waste to any surface water or surface drainage courses is prohibited.

12. The Discharger shall not cause the concentration of any Constituent of Concern or Monitoring Parameter to exceed its respective background value in any monitored medium at any Monitoring Point assigned for Detection Monitoring pursuant to the attached Monitoring and Reporting, Appendix C, and future revisions thereto.

C. Provisions

1. The Discharger shall comply with the attached Monitoring and Reporting Program, Appendix D, and future revisions thereto, as specified by the Regional Board's Executive Officer.

2. Unless otherwise approved by Regional Board's Executive Officer, all analyses shall be conducted at a laboratory certified for such analyses by the California Department of Public Health. All analyses shall be conducted in accordance with the latest edition of "Guideline Establishing Test Procedures for Analysis of Pollutants", promulgated by the United States Environmental Protection Agency.

3. The laboratory shall use detection limits less than or equal to Environmental Protection Agency (EPA) Action Level/Maximum Contaminate Levels (MCLs) or California Department of Public Health (CDPH) Notification Level/MCL for all samples analyzed. The lowest concentration, whether EPA or CDPH, of the two agencies must be used for the analysis.

4. Prior to any change in ownership of this operation, the Discharger shall transmit a copy of the Board Order to the succeeding owner/operator, and forward a copy of the transmittal letter to the Regional Board.

5. Prior to any modification in this facility that would result in material change in the quality or quantity of discharge, or any material change in the location of discharge, the Discharger shall report all pertinent information in writing to the Regional Board's Executive Officer and obtain revised waste discharge requirements before any modification is implemented.

6. All permanent containment structures and erosion and drainage control systems shall be certified by a California Registered Civil Engineer or Certified Engineering Geologist as meeting the prescriptive standards and performance goals.

7. The Discharger shall ensure that all site-operating personnel are familiar with the content of these WDRs, and shall maintain a copy of these WDRs at the site.

8. These WDRs do not authorize violation of any federal, state, or local laws or regulations.

9. The Discharger shall allow the Regional Board, or an authorized representative, upon presentation of credential and other documents as may be required by law, to:

    a. Enter upon the premises regulated by these WDRs, or the place where records must be kept under the conditions of these WDRs;

    b. Have access to and copy, at reasonable times, any records that shall be kept under the condition of these WDRs;

    c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under these WDRs; and

d. Sample or monitor at reasonable times, for the purpose of assuring compliance with these WDRs or as otherwise authorized by the CWC or California Code of Regulations, any substances or parameters at this location.

10. The Discharger shall comply with all of the conditions of these WDRs. Any noncompliance with these WDRs constitutes a violation of the Porter-Cologne Water Quality Act and may be grounds for enforcement action.

11. 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 these WDRs. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures.

12. These 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.

13. The Discharger shall comply with the following:

    a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

    b. The Discharger shall retain records of all monitoring information, copies of all reports required by these WDRs, and records of all data used to complete the application for these WDRs, for a period of at least five (5) years from the date of the sample, measurement, report or application. This period may be extended by request of the Regional Board's Executive Officer at any time.

    c. Records of monitoring information shall include:

        i. The date, exact places, and time of sampling or measurements.
        ii. The individual(s) who performed the sampling or measurements.
        iii. The date(s) analyses were performed.
        iv. The individual(s) responsible for reviewing the analyses.
        v. The results of such analyses.

    d. Monitoring must be conducted according to test procedures described in the attached Monitoring and Reporting Program, Appendix D, unless other test procedures have been specified in these WDRs or approved by the Regional Board's Executive Officer.

14. All monitoring systems shall be readily accessible for sampling and inspection.

15. The Discharger is the responsible party for the WDRs, and the monitoring and reporting program for the Facility. The Discharger shall comply with all conditions

of these WDRs. Violations may result in enforcement actions, requiring corrective action or imposing civil monetary liability.

16. The Discharger shall furnish, under penalty of perjury, technical monitoring program reports, and such reports shall be submitted in accordance with the specifications prepared by the Regional Board's Executive Officer. Such specifications are subject to periodic revisions as may be warranted.

17. The Discharger may be required to submit technical reports as directed by the Regional Board's Executive Officer.

18. The procedure for preparing samples for the analyses shall be consistent with the attached Monitoring and Reporting Program, Appendix D, and any future revisions thereto. The Monitoring Reports shall be certified to be true and correct, and signed, under penalty of perjury, by an authorized official of the company. All technical reports require the signature of a California Registered Professional Engineer or Professional Geologist.

19. All monitoring shall be done as described in Title 27 of the CCRs.

SOIL AND WATER
APPENDIX H-3

Waste Discharge Requirement
Monitoring and Reporting Program

SOIL AND WATER RESOURCES – APPENDIX H-3

MONITORING AND REPORTING PROGRAM-- NextEra Blythe Solar Energy Center, LLC ~~Palo Verde Solar I~~, LLC, Owner/Operator, Blythe Solar Power Project, Riverside County

PART I
GENERAL REQUIREMENTS

A. GENERAL

A Discharger who owns or operates a Class II Surface Impoundment is required to comply with the provisions of Title 27, Division 2, Chapter 3, Subchapter 3, Article 1 of the California Code of Regulations for the purpose of detecting, characterizing, and responding to releases to the groundwater. Section 13267, California Water Code (CWC) gives the Colorado River Basin Regional Water Quality Control Board (Regional Board) authority to require monitoring program reports for discharges that could affect the quality of waters within its region.

1. This Monitoring and Reporting Program (MRP) is Appendix C of the WDRs set forth in Appendices A and B, and are incorporated herein by this reference...The principal purpose of this self-monitoring program is:

    a. To document compliance with Waste Discharge Requirements (WDRs), and prohibitions established by the Regional Board;

    b. To facilitate self-policing by the Discharger in the prevention and abatement of pollution arising from waste discharge;

    c. To conduct water quality analyses.

2. The Regional Board Executive Officer may alter the monitoring parameters, monitoring locations, and/or the monitoring frequency during the course of this monitoring program.

B. DEFINITION OF TERMS

1. Affected Persons – all persons who either own or occupy land outside the boundaries of the parcel upon which a waste management unit (surface impoundment or impoundment) is located that has been or may be affected by the release of waste constituents from the unit.

2. Background Monitoring Point – a device (e.g. well) or location (e.g. a specific point along a lakeshore) that is upgradient or side gradient from the impoundment assigned by this MRP, where water quality samples are taken that are not affected by a release from the impoundment and that are used as a basis of comparison against samples taken from downgradient Monitoring Points.

3. Constituents of Concern (COCs) – those constituents likely to be in the waste, or derived from waste constituents in the event of a release from the impoundment.

4. Matrix Effect – refers to any change in the Method Detection Limit (MDL) or Practical Quantitation Limit (PQL) for a given constituent as a result of the presence of other constituents - either of natural origin or introduced through a spill or release - that are present in the sample being analyzed.

5. Method Detection Limit (MDL) – the lowest constituent concentration that can support a non-zero analytical result with 99 percent reliability. The MDL is laboratory specific and should reflect the detection capabilities of specific procedures and equipment used by the laboratory.

6. Monitored Media – water - bearing media monitored pursuant to this Monitoring and Reporting Program. The Monitored Media may include: (1) groundwater in the uppermost aquifer, in any other portion of the zone of saturation (as defined in Title 27, Section 20164) in which it would be reasonable to anticipate that waste constituents migrating from the surface impoundment could be detected, and in any perched zones underlying the impoundment, (2) any bodies of surface water that could be measurably affected by a release, (3) soil-pore liquid beneath and/or adjacent to the surface impoundment, and (4) soil-pore gas beneath and/or adjacent to the surface impoundment.

7. Monitoring Parameters – the list of constituents and parameters used for the majority of monitoring activity.

8. Monitoring Point – a device (e.g. well) or location (e.g. a specific point along a lakeshore) that is downgradient from the surface impoundment assigned by this MRP, at which samples are collected for the purpose of detecting a release by comparison with samples collected at Background Monitoring Points.

9. Practical Quantification Limit (PQL) – the lowest constituent concentration at which a numerical concentration can be assigned with a 99 percent certainty that its value is within 10 percent of the actual concentration in the sample. The PQL is laboratory specific and should reflect the detection capabilities of specific procedures and equipment used by the laboratory.

10. Reporting Period – the duration separating the submittal of a given type of monitoring report from the time the next iteration of that report is scheduled for

submittal. Unless otherwise stated, the due date for any given report shall be 30 days after the end of its Reporting Period.

11. Sample Locations -

    a. For Monitoring Points – the number of data points obtained from a given Monitoring Point during a given Reporting Period – used for carrying out the statistical or non-statistical analysis of a given analyte during a given Reporting Period.

    b. For Background Monitoring Points – the number of new and existing data points from all applicable Background Monitoring Points in a given Monitored Medium – used to collectively represent the background concentration and variability of a given analyte in carrying out a statistical or non-statistical analysis of that analyte during a given Reporting Period.

12. Uppermost Aquifer – the geologic formation nearest the natural ground surface that is an aquifer, as well as, lower aquifers that are hydraulically interconnected with this aquifer within the facility's property boundary.

13. Volatile Organic Constituents (VOCs) – the suite of organic constituents having a high vapor pressure. The term includes at least the 47 organic constituents listed in Appendix I to 40 CFR Part 258.

14. VOC_{water} – the composite monitoring parameter that includes all VOCs that are detectable in less than 10 percent of the applicable background samples. This parameter is analyzed, using the non-statistical method described in Part III.A.2. of this MRP, to identify releases of VOCs that are detected too infrequently in backgroundwater to allow for statistical analysis.

C. SAMPLING AND ANALYTICAL METHODS

Sample collection, storage, and analysis shall be performed according to the most recent version of Standard USEPA methods, and California ELAP rulings. Water and waste analysis shall be performed by a laboratory approved for these analyses by the California Department of Public Health. Specific methods of analysis must be identified. If methods other than USEPA-approved methods or Standard Methods are used, the exact methodology must be submitted for review and approval by the Regional Board Executive Officer prior to use. The director of the laboratory whose name appears on the certification shall supervise all analytical work in his/her laboratory and shall sign all reports of such work submitted to the Regional Board. All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurement. In addition, the Discharger is responsible for verifying that laboratory analysis of all samples from Monitoring Points and Background Monitoring Points meet the following restrictions:

1. Methods, analysis, and detection limits used must be appropriate for expected concentrations. For detection monitoring of any constituent or parameter found in concentrations that produce more than 90% non-numerical determinations (i.e. "trace" or "ND") in data from Background Monitoring Points for that medium, the analytical methods having the lowest "facility-specific method detection limit (MDL)", defined in Part I.B.5., shall be selected from among those methods that provide valid results in light of any "Matrix Effects" (defined in Part I.B.4.) involved.

2. Analytical results falling between the MDL and the PQL shall be reported as “trace”, and shall be accompanied both by the estimated MDL and PQL values for that analytical run, and by an estimate of the constituent's concentration.

3. MDLs and PQLs shall be derived by the laboratory for each analytical procedure, according to State of California laboratory accreditation procedures. These MDLs and PQLs shall reflect the detection and quantitation capabilities of the specific equipment used by the lab. If the lab suspects that, due to a change in matrix or other effects, the true detection limit or quantitation limit for a particular analytical run differs significantly from the laboratory-derived MDL/PQL values, the results shall be flagged accordingly, along with an estimate of the detection limit and quantitation limit actually achieved.

4. All Quality Assurance/Quality Control (QA/QC) data shall be reported, along with the sample results to which it applies, including the method, equipment, and analytical detection limits, the recovery rates, an explanation of any recovery rate that is less than method recovery standards, the results of equipment and method blanks, the results of spiked and surrogate samples, the frequency of quality control analysis, and the name and qualifications of the person(s) performing the analyses. Sample results shall be reported unadjusted for blank results or spike recovery.

5. Upon receiving written approval from the Regional Board Executive Officer, an alternative statistical or non-statistical procedure can be used for determining the significance of analytical results for a constituent that is a common laboratory contaminant (i.e., methylene chloride, acetone, diethylhexyl phthalate, and di-n-octyl phthalate) during any given Reporting Period in which QA/QC samples show evidence of laboratory contamination for that constituent. Nevertheless, analytical results involving detection of these analytes in any background or downgradient sample shall be reported and flagged for easy reference by Regional Board staff.

6. In cases where contaminants are detected in QA/QC samples (i.e. field, trip, or lab blanks), the accompanying sample results shall be appropriately flagged.

7. The MDL shall always be calculated such that it represents a concentration associated with a 99% reliability of a non-zero result.

D. RECORDS TO BE MAINTAINED

Written reports shall be maintained by the Discharger or laboratory, and shall be retained for a minimum of five (5) 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. Such records shall show the following for each sample:

1. Identity of sample and of the Monitoring Point or Background Monitoring Point from which it was taken, along with the identity of the individual who obtained the sample;

2. Date and time of sampling;

3. Date and time that analyses were started and completed, and the initials of the personnel performing each analysis;

4. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used;

5. Calculations of results; and

6. Results of analyses, and the MDL and PQL for each analysis.

E. REPORTS TO BE FILED WITH THE REGIONAL BOARD

1. Detection Monitoring Reports – For each Monitored Medium, all Monitoring Points and Background Monitoring Points assigned to detection monitoring under Part II.A.7 of this MRP shall be monitored **semiannually** for the Monitoring Parameters (Part II.A.4). A "Detection Monitoring Report" shall be submitted to the Regional Board in accordance with the schedule contained in the Summary of Self-Monitoring and Reporting Requirements, and shall include the following:

    a. A Letter of Transmittal that summarizes the essential points in each report shall accompany each report submittal. The letter of transmittal shall be signed by a principal executive officer at the level of vice-president or above, or by his/her duly authorized representative, if such representative is responsible for the overall operation of the facility from which the discharge originates. The letter of transmittal shall include:

        i. A discussion of any violations noted since the previous report submittal and a description of the actions taken or planned for correcting those violations. If no violations have occurred since the last submittal, that should be so stated;

        ii. If the Discharger has previously submitted a detailed time schedule or plan for correcting any violations, a progress report on the time schedule and status of the corrective actions being taken; and

iii. A statement by the official, under penalty of perjury, that to the best of the signer's knowledge the report is true, complete, and correct.

b. A Compliance Evaluation Summary shall be included in each Detection Monitoring Report. The compliance evaluation summary shall contain at least:

i. Velocity and direction of groundwater flow for each monitored groundwater body under and around the surface impoundment based upon the water level elevations taken during the collection of water quality data. A description and graphical presentation (e.g., arrow on a map) shall be submitted;

ii. Methods used for water level measurement and pre-sampling purging for each monitoring well addressed by the report including:

1. Method, time, and equipment used for water level measurement;

2. Type of pump used for purging, placement of the pump in the well, pumping rate, and well recovery rate;

3. Methods and results of field testing for pH, temperature, electrical conductivity, and turbidity, including;

a. Equipment calibration methods, and

b. Method for disposing of purge water

iii. Methods used for sampling each Monitoring Point and Background Monitoring Point, including:

1. A description of the type of pump, or other device used, and its placement for sampling;

2. A detailed description of the sampling procedure: number and description of samples, field blanks, travel blanks, and duplicate samples; types of containers and preservatives used; date and time of sampling; name and qualifications of individual collecting samples, and other relevant observations;

c. A map or aerial photograph showing the locations of Monitoring Points, and Background Monitoring Points;

d. For each Detection Monitoring Report, provide all relevant laboratory information including results of all analyses, and other information needed to demonstrate compliance with Part I.C.;

e. An evaluation of the effectiveness of the run-off/run-on control facilities;

f. A summary of reportable spills/leaks occurring during the reporting period; include estimated volume of liquids/solids discharged outside designated containment area, a description of management practices to address spills/leaks, and actions taken to prevent reoccurrence.

2. Annual Summary Report – The Discharger shall submit to the Regional Board, an "Annual Summary Report" for the period extending from January 1 through December 31. The "Annual Summary Report" is due **March 15** of each year, and shall include the following:

   a. A graphical presentation of analytical data for each Monitoring Point and Background Monitoring Point (Title 27, Section 20415(e)(14)). The Discharger shall submit, in graphical format, the laboratory analytical data for all samples taken within at least the previous five (5) calendar years. Each such graph shall plot the concentration of one (1) or more constituents over time for a given Monitoring Point and Background Monitoring Point, at a scale appropriate to show trends or variations in water quality. The graphs shall plot each datum, rather than plotting mean values. For any given constituent or parameter, the scale for background plots shall be the same as that used to plot downgradient data. On the basis of any aberrations noted in the plotted data, the Regional Board Executive Officer may direct the Discharger to carry out a preliminary investigation (Title 27, Section 20080(d)(2)), the results of which will determine whether or not a release is indicated;

   b. A tabular presentation of all monitoring analytical data obtained during the previous two (2) Monitoring and Reporting Periods, submitted on hard copy within the annual report as well as digitally on electronic media in a file format acceptable to the Regional Board Executive Officer (Title 27, Section 20420(h)). The Regional Board regards the submittal of data in hard copy and on diskette CD-ROM as "...a form necessary for..." statistical analysis in that this facilitates periodic review by the Regional Board statistical consultant;

   c. A comprehensive discussion of the compliance record and any corrective actions taken or planned, which may be needed to bring the Discharger into full compliance with WDRs;

   d. A written summary of the groundwater analyses, indicating changes made since the previous annual report; and

   e. An evaluation of the effectiveness of the run on/run-off control facilities, pursuant to Title 27, Section 20365.

3. Contingency Reporting

   a. The Discharger shall report any spill of ~~HTL or~~ evaporation pond liquid by telephone within 48 hours of discovery. The reportable quantity for evaporation pond liquid is 150 gallons.

      After reporting a spill, a written report shall be filed with the Regional Board Executive Officer within seven (7) days, containing at a minimum the following:

      i. A map showing the location(s) of the discharge/spill;

      ii. A description of the nature of the discharge (all pertinent observations and analyses including quantity, duration, etc.); and

iii. Corrective measures underway or proposed.

b. Should the initial statistical comparison (Part III.A.1.) or non-statistical comparison (Part III.A.2.) indicate, for any Constituent of Concern or Monitoring Parameter, that a release is tentatively identified, the Discharger shall immediately notify the Regional Board verbally as to the Monitoring Point(s) and constituent(s) or parameter(s) involved, shall provide written notification by certified mail within seven (7) days of such determination (Title 27, Section 20420(j)(1)), and shall conduct a discrete retest in accordance with Part III.A.3. If the retest confirms the existence of a release, the Discharger shall carry out the requirements of Part I.E.3.d. In any case, the Discharger shall inform the Regional Board of the outcome of the retest as soon as the results are available, following up with written results submitted by certified mail within seven (7) days of completing the retest.

c. If either the Discharger or the Regional Board determines that there is significant physical evidence of a release (Title 27, Section 20385(a)(3)), the Discharger shall immediately notify the Regional Board of this fact by certified mail (or acknowledge the Regional Board's determination) and shall carry out the requirements of Part I.E.3.d. for all potentially-affected monitored media.

d. If the Discharger concludes that a release has been discovered:

   i. If this conclusion is <u>not</u> based upon “direct monitoring” of the Constituents of Concern, pursuant to Part II.A.5., then the Discharger shall, within thirty days, sample for all Constituents of Concern at all Monitoring Points and submit them for laboratory analysis. Within seven (7) days of receiving the laboratory analytical results, the Discharger shall notify the Regional Board, by certified mail, of the concentration of all Constituents of Concern at each Monitoring Point. Because this scan is not to be tested against background, only a single datum is required for each Constituent of Concern at each Monitoring Point (Title 27 Section 20420(k)(1));

   ii. The Discharger shall, within 90 days of discovering the release (Title 27, Section 20420(k)(5)), submit a Revised Report of Waste Discharge proposing an Evaluation Monitoring Program meeting the requirements of Title 27, Section 20425; and

   iii. The Discharger shall, within 180 days of discovering the release (Title 27, Section 20420(k)(6), submit a preliminary engineering feasibility study meeting the requirements of Title 27, Section 20430.

e. Any time the Discharger concludes - or the Regional Board Executive Officer directs the Discharger to conclude - that a liquid phase release from the surface impoundment has proceeded beyond the facility boundary, the Discharger shall so notify all persons who either own or reside upon the land that directly overlies any part of the plume (Affected Persons).

i. Initial notification to Affected Persons shall be accomplished within 14 days of making this conclusion and shall include a description of the Discharger's current knowledge of the nature and extent of the release; and

ii. Subsequent to initial notification, the Discharger shall provide updates to all Affected Persons, including any persons newly affected by a change in the boundary of the release, within 14 days of concluding a material change in the nature or extent of the release has occurred.

4. Surface Impoundment - Leakage Detection System (LDS), and Solids Monitoring

a. Sampling and reporting shall be conducted semi-annually.

b. Provide volume of solids removed from the holding pond each month for that reporting period, and transported to a waste management facility for disposal. Include name and location of waste management facility.

c. Conduct quarterly inspections of Leakage Detection System (LDS), and holding pond.

PART II

MONITORING REQUIREMENTS FOR GROUNDWATER

A. GROUNDWATER SAMPLING AND ANALYSIS FOR DETECTION MONITORING

1. Groundwater Surface Elevation and Field Parameters – Groundwater sampling and analysis shall be conducted semiannually pursuant to California ELAP rulings, and include an accurate determination of the groundwater surface elevation and field parameters (temperature, electrical conductivity, turbidity) for each Monitoring Point and Background Monitoring Point (Title 27, Section 20415(e)(13)). Groundwater elevation obtained prior to purging the well and sample collection, shall be used to fulfill the semi-annual groundwater flow rate/direction analyses required under Part I.E.1.b.i. Groundwater wells shall be gauged using an electronic sounder capable of measuring depth to groundwater within 100^{th} of an inch. Following gauging, wells shall be purged according to EPA groundwater sampling procedures until:

   a. pH, temperature, and conductivity are stabilized within 10 percent, and

   b. turbidity has been reduced to 10 NTUs or the lowest practical levels achievable.

   The above identified parameters shall be recorded in the field, and submitted in the monitoring report. Sampling equipment shall be decontaminated between wells. Purge water may be discharged to the brine pond; discharge to the ground surface is prohibited.

2. Groundwater Sample Collection - Groundwater samples shall be collected from all monitoring points and background monitoring points after wells recharge to within at least 80 percent of their original static water level. Groundwater samples shall be collected with a paristaltic pump that is decontaminated between sampling events. Samples shall be labeled, logged on chain-of-custody forms, and placed in cold storage pending delivery to a State certified analytical laboratory.

3. Five-Day Sample Procurement Limitation – To satisfy data analysis requirements for a given reporting period, samples collected from all Monitoring Points and Background Monitoring Points shall be taken within a span not exceeding five (5) days, and shall be taken in a manner that insures sample independence to the greatest extent feasible (Title 27, Section 20415(e)(12)(B)).

4. Groundwater Monitoring Parameters for Detection Monitoring – Groundwater samples collected from monitoring points and background monitoring points shall be analyzed for the following:

Parameter	Unit	Sample Type
Chloride	mg/L	Grab
Sulfate	mg/L	Grab
Total Dissolved Solids (TDS)	mg/L	Grab
pH	#	Grab
Specific Conductance	µohms/cm	Grab
~~HTF~~	~~mg/L~~	~~Grab~~
Heavy Metals (Sb, As, Ba, Cd, Ca, Cr, Co, Cu, Pb, Hg, Ni, Se, Zn)	mg/L	Grab
Oil & Grease	mg/L	Grab

All Monitoring Points and Background Monitoring Points assigned to Detection Monitoring shall be sampled semi-annually in **June** and **December** of each year in accordance with Part I of this MRP. Monitoring results shall be reported in the semi-annual Detection Monitoring Report.

5. Data Analysis – Statistical or non-statistical analysis shall be carried out as soon as the data is available, in accordance with Part III of this monitoring program.

   Monitoring Points and Background Monitoring Points – At a minimum of 90 days prior to the operation of the facility, the Discharger shall submit a proposed groundwater monitoring program, including background and detection monitoring locations, to the Executive Officer for review and approval.

6. Initial Background Determination: For the purpose of establishing an initial pool of background data for each Constituent of Concern at each Background Monitoring Point (Title 27, Section 20415(e)(6)):

   a. Whenever a new Constituent of Concern is added to the Water Quality Protection Standard, including any added by the adoption of this Board Order, the Discharger shall collect at least one (1) sample **quarterly** for at least one (1) year from each Background Monitoring Point in each monitored medium and analyze for the newly-added constituent(s); and

   b. Whenever a new Background Monitoring Point is added, including any added by this Board Order, the Discharger shall sample the new monitoring point at least **quarterly** for at least one (1) year, analyzing for all Constituents of Concern and Monitoring Parameters.

7. Semiannual Determination of Groundwater Flow Rate/Direction (Title 27, Section 20415(e)(15): The Discharger shall measure the water level in each well and determine groundwater flow rate and direction in each groundwater body described in Part II.A.1. at least semiannually. This information shall be included in the semi-annual Detection Monitoring Reports required under Part I.E.1.

PART III

STATISTICAL AND NON-STATISTICAL ANALYSES

A. STATISTICAL AND NON-STATISTICAL ANALYSIS

The Discharger shall use the most appropriate of the following methods to compare the downgradient concentration of each monitored constituent or parameter with its respective background concentration to determine if there has been a release from the surface impoundment. For any given data set, proceed sequentially down the list of statistical analysis methods listed in Part III.A.1., followed by the non-statistical method in Part III.A.2., using the first method for which the data qualifies. If that analysis tentatively indicates the detection of a release, implement the retest procedure under Part III.A.3.

1. Statistical Methods. The Discharger shall use one (1) of the following statistical methods to analyze Constituents of Concern or Monitoring Parameters that exhibit concentrations exceeding their respective MDL in at least ten percent of the background samples taken during that Reporting Period. Each of these statistical methods is more fully described in the Statistical Methods discussion below. Except for pH, which uses a two-tailed approach, the statistical analysis for all constituents and parameters shall be a one-tailed (testing only for statistically significant increase relative to background) approach:

    a. One-Way Parametric Analysis of Variance (ANOVA) followed by multiple comparisons (Title 27, Section 20415(e)(8)) – This method requires at least four (4) independent samples from each Monitoring Point and Background Monitoring Point during each sampling episode. It shall be used when the background data for the parameter or constituent obtained during a given sampling period, has not more than 15% of the data below PQL. Prior to analysis, replace all 'trace' determinations with a value halfway between the PQL and the MDL values reported for that sample run, and replace all "non-detect" determinations with a value equal to half the MDL value reported for that sample run. The ANOVA shall be carried out at the 95% confidence level. Following the ANOVA, the data from each downgradient Monitoring Point shall be tested at a 99% confidence level against the pooled background data. If these multiple comparisons cause the Null Hypothesis (i.e., that there is no release) to be rejected at any Monitoring Point, the Discharger shall conclude that a release is tentatively indicated from that parameter or constituent; or

    b. One-Way Non-Parametric ANOVA (Kruskal-Wallis Test), followed by multiple comparisons – This method requires at least nine (9) independent samples from each Monitoring Point and Background Monitoring Point; therefore, the Discharger shall anticipate the need for taking more than four (4) samples per Monitoring Point, based upon past monitoring results. This method shall be used when the pooled background data for the parameter or constituent, obtained within a given sampling period, has not more than 50% of the data below the

PQL. The ANOVA shall be carried out at the 95% confidence level. Following the ANOVA, the data from each downgradient Monitoring Point shall be tested at a 99% confidence level against the pooled background data. If these multiple comparisons cause the Null Hypothesis (i.e., that there is no release) to be rejected at any Monitoring Point, the Discharger shall conclude that a release is tentatively indicated for that parameter or constituent; or

c. Method of Proportions – This method shall be used if the "combined data set" – the data from a given Monitoring Point in combination with the data from the Background Monitoring Points – has between 50% and 90% of the data below the MDL for the constituent or parameter in question. This method; (1) requires at least nine (9) downgradient data points per Monitoring Point per Reporting Period, (2) requires at least thirty data points in the combined data set, and (3) requires that $n * P > 5$ (where n is the number of data points in the combined data set and P is the proportion of the combined set that exceeds the MDL); therefore, the Discharger shall anticipate the number of samples required, based upon past monitoring results. The test shall be carried out at the 99% confidence level. If the analysis results in rejection of the Null Hypothesis (i.e., that there is no release), the Discharger shall conclude that a release is tentatively indicated for that constituent or parameter; or

d. Other Statistical Methods. – These include methods pursuant to Title 27, Section 20415(e)(8)(c-e).

2. Non-Statistical Method. The Discharger shall use the following non-statistical methods for all constituents that are not amenable to statistical analysis by virtue of having been detected in less than 10% of applicable background samples. A separate variant of this test is used for the VOC_{water} Composite Monitoring Parameters. Regardless of the test variant used, the method involves a two-step process: (1) from all constituents to which the test variant applies, compile a list of those constituents which equal or exceed their respective MDL in the downgradient sample from a given Monitoring Point, then (2) evaluate whether the listed constituents meet either of the test variant's two possible triggering conditions. For each Monitoring Point, the list described above shall be compiled based on either the data from a single sample taken during the Monitoring Period for that Monitoring Point, or (where several independent samples have been analyzed for that constituent at a given Monitoring Point) from the sample that contains the largest number of detected constituents. Background shall be represented by the data from all samples taken from the appropriate Background Monitoring Points during that Reporting Period (at least one (1) sample from each Background Monitoring Point). The method shall be implemented as follows:

a. VOC_{water} Composite Monitoring Parameter – For any given Monitoring Point, the VOC_{water} Monitoring Parameter is a composite parameter addressing all detectable VOCs including at least all 47 VOCs listed in Appendix I to 40 CFR 258 and all unidentified peaks. The Discharger shall compile a list of each VOC which (1) exceeds its MDL in the Monitoring Point sample (an unidentified peak is

compared to its presumed (MDL), and also (2) exceeds its MDL in less than ten percent of the samples taken during that Reporting Period from that medium's Background Monitoring Points. The Discharger shall conclude that a release is tentatively indicated for the VOC_{water} composite Monitoring Parameter if the list either (1) contains two or more constituents, or (2) contains one constituent that exceeds its PQL;

b. Constituents of Concern: As part of the COC monitoring required under Part 2.A.5 of this MRP, for each Monitoring Point, the Discharger shall compile a list of COCs that exceed their respective MDL at the Monitoring Point, yet do so in less than ten percent of the background samples taken during that Reporting Period. The Discharger shall conclude that a release is tentatively indicated if the list either (1) contains two or more constituents, or (2) contains one constituent that exceeds its PQL.

3. Discrete Retest – In the event that the Discharger concludes that a release has been tentatively indicated (under Parts III.A.1. or III.A.2.), the Discharger shall, within 30 days of that conclusion, collect two (2) new suites of samples for the indicated Constituent(s) of Concern or Monitoring Parameter(s) at each indicated Monitoring Point, collecting at least as many samples per suite as were used for the initial test. Re-sampling of Background Monitoring Points is optional. As soon as the retest data is available, the Discharger shall use the same statistical method or non-statistical comparison separately on each suite of retest data. For any indicated Monitoring Parameter or Constituent of Concern at an affected Monitoring Point, if the test results of either (or both) of the retest data suites confirms the original indication, the Discharger shall conclude that a release has been discovered. All retests shall be carried out only for the Monitoring Point(s) for which a release is tentatively indicated, and only for the Constituent of Concern or Monitoring Parameter that triggered the indication there, as follows:

   a. If an ANOVA method was used in the initial test, the retest shall involve only a repeat of the multiple comparison procedure, carried out separately on each of the two (2) new suites of samples taken from the indicating Monitoring Point;

   b. If the Method of Proportions statistical test was used, the retest shall consist of a full repeat of the statistical test for the indicated constituent or parameter, carried out separately on each of the two (2) new sample suites from the indicating Monitoring Point;

   c. If the non-statistical comparison was used:

      i. Because the VOC Composite Monitoring parameters (VOC_{water}) each address, as a single parameter, an entire family of constituents which are likely to be present in any surface impoundment release, the scope of the laboratory analysis for each retest sample shall include all VOCs detectable in that retest sample. Therefore, a confirming retest for either parameter shall have validated the original indication even if the suite of constituents in the

confirming retest sample(s) differs from that in the sample that initiated the retest;

ii. Because all Constituents of Concern that are jointly addressed in the non-statistical testing under Part III.A.2. remain as individual Constituents of Concern, the scope of the laboratory analysis for the non-statistical retest samples shall be narrowed to involve only those constituents detected in the sample which initiated the retest.

SUMMARY OF SELF-MONITORING AND REPORTING REQUIREMENTS

A. GROUNDWATER MONITORING

1. Groundwater monitoring wells shall be sampled/analyzed semi-annually for the following parameters/constituents:

Parameters & Constituent	Unit	Type of Sample	Reporting Frequency
a. Chloride	mg/L	grab	semiannual
b. Sulfate	mg/L	grab	semiannual
Total Dissolved Solids (TDS)	mg/L	grab	semiannual
c. PH	#	field measurement	semiannual
d. Specific Conductance	μohms/cm	field measurement	semiannual
~~e. HTF~~	~~mg/L~~	~~grab~~	~~semiannual~~
e~~f~~. Heavy Metals (Sb,As, Ba, Cd, Ca, Cr, Co, Cu, Pb, Hg, Ni, Se, Zn)	mg/L	grab	semiannual
f~~g~~. Oil & Grease	mg/L	grab	semiannual

2. The collection, preservation, and holding times of all samples shall be in accordance with the U.S. Environmental Protection Agency approved procedures. All analyses shall be conducted by a laboratory certified by the California Department of Public Health to perform the required analyses.

B. SURFACE IMPOUNDMENT: Leakage Detection System (LDS), and Solids Monitoring

	Unit	Observation or Sampling Frequency	Reporting Frequency
1. Estimated volume of solid/liquid in holding pond	ft^3	Monthly	semiannual
2. Measurement of freeboard	ft	Monthly	semiannual
3. Volume of solids removed and shipped to off site waste management facility	tons	Monthly	semiannual

C. MONITORING REPORTS AND OBSERVATION SCHEDULE

"Reporting Period" means the duration separating the submittal of a given type of monitoring report from the time the next iteration of that report is scheduled for submittal. An annual report, which is a summary of all the monitoring during the previous year, shall also be submitted to the Regional Board. The submittal dates for Detection Monitoring Reports and the Annual Summary Report are as follows:

1. Detection Monitoring Reports

a. 1st Semiannual Report (January 1 through June 30) – report due by **August 1**

b. 2nd Semiannual Report (July 1 through December 31) – report due by **March 1**

2. Annual Summary Report

January 1 through December 31 – report due **March 15** of the following year.

3. The Detection Monitoring Reports and the Annual Summary Report shall include the following:

   a. The Discharger shall arrange the data in tabular form so that the specified information is readily discernible. The data shall be summarized in such a manner as to clearly illustrate whether the facility is operating in compliance with WDRs.

   b. Records of monitoring information shall include:

      i. The date, exact place, and time of sampling or measurement;

      ii. The individual performing the sampling or measurement;

      iii. The date the analysis was performed;

      iv. The initials of the individual performing the analysis;

      v. The analytical technique or method used; and

      vi. The result of the analysis.

   c. Each report shall contain the following statement:

      "I declare under the penalty of law that I have personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of a fine and imprisonment for knowing violations."

   d. A duly authorized representative of the Discharger may sign the documents if:

      i. Authorization is made in writing by the person described in Part I.E.1.a;

      ii. Authorization specifies an individual or person having responsibility for the overall operation of the regulated disposal system; and

      iii. Written authorization is submitted to the Regional Board Executive Officer.

      iv. Monitoring reports shall be certified under penalty of perjury to be true and correct, and shall contain the required information at the frequency designated in this monitoring report.