State Water Resources Control Board

Division of Water Quality
1001 I Street • Sacramento, California 95814 • (916) 341-5455
Mailing Address: P.O. Box 100 • Sacramento, California • 95812-0100
FAX (916) 341-5463 • http://www.waterboards.ca.gov

Linda S. Adams
Secretary for
Environmental Protection

Arnold Schwarzenegger
Governor

TO: Paul Marshall, Manager
CEC Siting Division
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814-5512

FROM: Darrin Polhemus, Deputy Director
DIVISION OF WATER QUALITY

DATE:

SUBJECT: TENTATIVE WASTE DISCHARGE REQUIREMENTS AND MONITORING & REPORTING PROGRAM FOR SOLAR RICE ENERGY LLC, RIVERSIDE COUNTY

We are submitting to you tentative Waste Discharge Requirements (WDRs), Monitoring & Reporting Program (MRP), and an Errata Sheet for the Rice Solar Energy Project, LLC. The subject documents were also sent via e-mail on April 21, 2010 to the California Energy Commission (CEC) staff.

These requirements were drafted by the State Water Board staff at the California Energy Commission's request, which is the lead agency authorized by legislation to expedite and streamline various permitting requirements for the energy projects in California. Per our understanding, the WDRs including the MRP will be considered by your commission at a public meeting. We anticipate that these requirements will be included as conditions of final project approval by the California Energy Commission.

If you have any questions concerning these documents, please contact Mr. Jagroop Khela at (916) 341 5560 or email: jkhela@waterboards.ca.gov.

Enclosure(s): WDRs with an Errata Sheet, MRP

cc: Robert Perdue
Executive Officer
Colorado River Basin
Regional Water Quality Control Board
73-720 Fred Waring Drive, Suite 100
Palm Desert, CA 92260

bc: Jonathan Bishop, EXEC
Gordon Innes, DWQ
Jagroop Khela, DWQ

WASTE DISCHARGE REQUIREMENTS
FOR
RICE SOLAR ENERGY, LLC
CLASS II DISPOSAL FACILITY
RIVERSIDE COUNTY

FINDINGS

The State Water Resources Control Board, Division of Water Quality, on behalf of Colorado River Basin Regional Water Quality Control Board, has reviewed the applicant's Report of Waste Discharge including the technical report, and finds that:

1. Rice Solar Energy, LLC, a wholly owned subsidiary of Solar Reserve, LLC, a Delaware limited liability company with its principal place of business in Santa Monica, California, is hereafter referred to as "Discharger". The Discharger proposes to construct, own, and operate a solar electrical generating plant (hereafter referred to as "facility) on approximately 1,410 acre site in eastern Riverside County, California. The Rice Solar Energy Project (RSEP) uses solar thermal power generating technology incorporating solar tracking heliostats that reflect solar energy to a central receiver that is mounted on a tower. Except during initial melting and conditioning of the salt, no fossil fuels will be utilized in the solar-thermal power generation at the facility.

2. The project site is a privately owned parcel located in eastern Riverside County, California situated south of State Route 62 at milepost 109. The RSEP is within a larger owned parcel of 3,324 acres. Within this larger property, the RSEP is sited within a new square-shaped parcel that will be created by merging four different assessor's parcels, resulting in a single 2,560-acre parcel. The project site will include an administration building, heliostat field with power block, and double-lined evaporation ponds totaling 1,410 acres surrounded by a security fence.

3. The project site is located in a very sparsely settled portion of the Colorado Desert, a sub region of the Sonoran Desert. The nearest residence and permanent settlement to the RSEP is Vidal Junction, which is 14.8 miles northeast at the junction of SR 62 and US Route 95. The nearest residence and permanent settlement to the west of the project site is the Iron Mountain Pumping Plant operated by the Metropolitan Water District of Southern California, where there are several residences. The Iron Mountain Pumping Plant is located 17.8 miles northwest of the RSEP site. The nearest town offering significant services to the RSEP is Parker, Arizona, located approximately 32.5 road miles to the east.

4. The project site is surrounded by private land to the west and north, and uninhabited public lands managed by the Bureau of Land Management (BLM) to the east and south. SR 62 and the Colorado River Aqueduct are located just north of the project site in San Bernardino County. There are sand dunes known as the Rice Valley Dunes to the south of the project site which formerly contained the Rice Valley Dunes Off-Highway Vehicle Recreation area.

5. The Discharger has filed an application for certification under the California Energy Commission's (CEC) standard certification process. Project construction is planned to begin in spring 2011 with an estimated construction period of 30 months. Facility operation is targeted for October 2013.

6. The CEC is a lead agency under the California Environmental Quality Act (CEQA) for all thermal power plants greater than 50 MW. The CEC's power plant licensing process is a CEQA-equivalent process. The RWD indicates that environmental review documents produced by the CEC staff are called the Preliminary Staff Assessment, which is similar to a draft Environmental Impact Report (EIR), and the Final Staff Assessment (FSA) which is like a Final EIR. The CEC licensing process is a 12-month process in which the CEC evaluates the application and formulates its decision on the project proponent's Application for Certification (AFC). The Discharger submitted the project's AFC in October 2009.

7. The Discharger submitted a Report of Waste Discharge/Joint Technical Document (hereafter collectively referred to as the RWD) with the California Energy Commission (CEC) and Colorado River Basin Regional Water Quality Control Board (CRBRWQCB). CEC will coordinate reviews and approvals with the regulatory agencies to ensure that proposed project meets the California Environmental Quality Act (CEQA) requirements. This includes obtaining waste discharger requirements (WDRs) from the CRBRWQCB. The CEC will certify this project and will include these WDRs as conditions of certification. These WDRs are not being proposed by the CRBRWQCB to its Board for consideration and adoption.

8. RSEP Process: The RSEP technology will generate power from the sunlight by focusing energy from a field of mirrors known as heliostats to a central receiver. Molten Salt is circulated through tubes in the receiver, which collects energy gathered from the sun. The heated salt is then routed to an insulated storage tank where it is stored with minimum energy loss. The salt has a melting temperature of 450^{o} F. Salt is a heat storage medium that retains thermal energy over time. Once the salt is melted to a liquid form during construction, it will remain heated and in a liquid state throughout the facility's operating life.

   On any given operating day, when sunrise begins, the receiver is filled with 550^{o} F cold salt and is preheated by incremental redirection of small numbers of heliostats onto the receiver panels. As the sun rises above the horizon, the full array of heliostats are directed onto the receiver, and salt temperature begins to rise. Salt flow through the receiver is recirculated back to the cold salt tank until the salt outlet temperature reaches 1,050oF. Salt is then continuously transferred from the cold salt tank, through the receiver and into the hot salt tank. The quantity of salt in the cold tank decreases while the quantity in the hot tank increases during solar energy collection.

As a decoupled process, small amount of cold salt is circulated continuously through the stream generation system to produce steam. The steam is continuously applied to the steam seals on the turbine to keep the turbine warm while it rotates slowly on the turning

gear when the steam turbine is not in production. During power generation cycle, a hot salt pump will gradually send hot salt to mix with the cold salt flow through the steam generation system to increase the temperature of the steam generation system. The RSEP will use dry cooling technology for the steam turbine cycle using an air-cooled condenser.

9. The RSEP technology consists of the following elements: 1) 17,500 heliostats or mirrors, each encompasses 672 square feet in area occupying approximately 1,370 acres; 2) A 538-foot-high concrete solar receiver tower with a 100-feet-tall solar receiver and 15-feet-long crane; 3) A liquid salt circulation and storage system capable of storing 70 million pounds of liquid salt (sodium nitrate/potassium nitrate mixture); 4) A 150 Mega Watt condensing steam turbine generator system and equipment; 5) A 20 cell ACC for cooling of the steam turbine exhaust; 6) A 10 mile long generation tie-line to connect with the Parker-Blythe transmission line; 7) A new interconnection substation; 8) An onsite switchyard; 9) Two onsite wells for industrial water use and a water treatment system; 10) Three evaporation ponds for waste disposal, approximately 5 acres each; 11) A 30-acre storm water detention pond; 12) Two diesel fire-water pumps and two emergency diesel generator sets for backup emergency power supply; and 13) The existing 12-kV electrical distribution line is extended to have a total length of approximately 1.1 miles long to the facility fence-line.

10. The facility water demand is met by pumping raw water from two onsite water wells. Each well will have sufficient capacity to supply water for the plant needs throughout the expected 30-year operational life of the plant. Groundwater will go through pre-treatment system and then be further purified for use as boiler makeup water and for pressure washing of the heliostats (mirrors). Pretreatment of groundwater is necessary because it contains undesirable levels of TDS unsuitable for heliostat/mirror washing, and for boiler feed water. Discharger's technical report indicates the following average daily use and estimated maximum annual water requirements:

Water Use	**Average Daily Use (gpm)[1]**	**Annual Use (acft/yr)[2]**
Heliostat Wash	51	31
Steam Cycle makeup	52	31
Potable Water	5	3

[1] Gallons per minute
[2] Acre-feet per year

Water Use	**Average Daily Use (gpm)[1]**	**Annual Use (acft/yr)[2]**
Water treatment reject	53	32
Other uses including wet surface air cooler (WSAC), service water, quench water	62	38
Margin for other uses	25	15
Total Plant Consumption	248	150
Maximum Annual Use		180

11. The RWD indicates that water treatment system will include the following components: 1) Multimedia Filter; 2) Reverse Osmosis system; and 3) Electrodeionization. The steam-power generation cycle heat rejection system will consist of an air-cooled steam condenser and includes a generator, turbine lube oil system, and pumps. The cooling is achieved through a closed-loop cooling circuit that utilizes fin-fan heat exchangers that are cooled by mechanical draft ambient airflow forced across the finned-tubes to cool the water circulating within. A small quantity of make-up water will be required to compensate for minor leakage and to maintain system-water-chemistry to prevent corrosion.

WASTEWATER CHARACTER & PROPOSED DISCHARGE:

12. The Discharger proposes to use double-lined evaporation ponds as part of its waste disposal. The evaporation ponds will receive, store and evaporate wastewater from operations at the project site. The proposed discharge to lined evaporation ponds is derived from four sources: 1) Reaction Chamber and Clarifier waste stream; 2) Steam Cycle Blow down; 3) Treated effluent from the oil water separator; 4) Wet Surface Air Cooler (WSAC) Blow down; and 5) Service Water. The estimated amount of wastewater from each of these sources is tabulated above in Finding No. 7.

13. The proposed Industrial wastewater discharge to lined evaporation ponds is from the following processes: reverse osmosis (RO) reject (i.e., brine) from water treatment system; electrodeionization process; steam cycle blowdown; wet surface air cooler blowdown, and service water. The RWD indicates that plant drains will collect containment area wash down and drainage from facility equipment drains. Wastewater from these areas will be collected in a system of floor drains, hub drains, sumps, and piping and then routed to a wastewater collection system. Drains that would contain water mixed with oil and grease will first pass through and oil/water separator unit. Ultimately, wastewater from the wastewater collection system will be piped to three 5-acre lined evaporation ponds for disposal.

14. The RWD states that wastewater discharge into the evaporation 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 ground water. Therefore, the wastewater is classified as a "designated waste." This classification is consistent with CCR Title 27, Chapter 3, Subchapter 2, Article 2 Section 20210.

15. The RWD indicates approximately 31 acre-feet per year of heliostat/mirror wash water will be allowed to sheet flow along its current drainage pattern to the south end of the heliostat field. Further, it reveals that an expansive and shallow detention basin of 30 acre-feet capacity will be constructed to detain any increase in storm flows.

16. The RWD states that during facility construction the average water use over the 30-month construction period will be approximately 780 acre-feet per year. The water will be required for soil moisture conditioning during earthmoving operations and for dust control.

17. The Discharger has not evaluated potential for reuse/recycling of some waste-streams generated at the facility. Since, there will be an RO and Electrodeionization units used for water treatment at the facility, the proponent should have thoroughly evaluated options of treating some of the waste streams such as wet surface air cooler blowdown, service water and even heliostat wash water for its effective reuse and recycling. The State Water Resources Control Board and Regional Water Quality Control Board's have a longstanding policy to conserve and reuse water.

18. Sanitary waste will be generated from the onsite toilets and showers. The wastewater disposal will be to a septic tank leach-field system. The local County Environmental Health Department will issue a permit for construction of the septic-tank leach-field system and will regulate the discharge.

19. Solid waste such as oily rags, broken and rusted metal and machine parts, empty containers, and broken materials generated at the facility will be trucked off site for recycling, or disposed off to a designated waste disposal facility.

20. The RWD indicates that during the 30-year operating life of the facility, about 1-ft of sludge may accumulate at the bottom of the evaporation ponds, which consists of precipitated solids from the evaporated wastewater. Over 30 years, the sludge accumulation is estimated to be about 4,600 tons.

HYDROLOGY, SOILS & BENEFICIAL USES:

21. The project site is located in the Rice hydrological Unit (716.00) of the Hayfield Planning Area. The Hayfield Planning Area covers approximately 1,860 square miles of desert with barren mountains and valleys, with the Chuckwalla Mountains on the south

boundary and the McCoy Mountains on the east boundary. Beneficial uses for the Rice Hydrologic Unit include municipal and domestic supply

22. The project site is located within the Rice Valley and has a slope of less than 2 percent. Runoff occurs primarily during thunderstorms and the surface runoff from the mountains drains towards the center of the valley, except in the eastern part of the valley, where Big Wash drains to the Colorado River.

23. The RWD indicates that the Rice Valley area is in the Sonoran Desert / Mojave Desert physiographic province of California. The Sonoran Desert / Mojave Desert region is dominated by broad alluvial basins that are mostly aggrading surfaces receiving non-marine continental deposits from adjacent uplands.

24. The RWD indicates that subsurface soils at the project site consist of dense silty sands and poorly graded sands interpreted from onsite drilled borings. Specifically, the onsite soils are classified as typical durorthids, loamy-skeletal mixed, hyperthermic and shallow, and typical torripsamments, mixed, hyperthermic. Boring depths ranged from approximately 10 to 85 feet below ground surface (bgs). Expansive soils were not encountered in any site borings.

25. The project site is located in the north central portion of the Rice Valley Groundwater Basin, a desert basin with relatively limited groundwater recharge and little existing groundwater use. The RWD indicates that site specific investigations were conducted and it was found that the alluvium can be divided into two units, the upper alluvium and the lower alluvial aquifer. The saturated upper alluvium occurs from approximately 80 feet bgs to 600 feet bgs and the lower alluvial aquifer occurs from approximately 600 feet bgs to 810 feet bgs. The upper alluvium is comprised of clays and sands with finer grained materials dominating. The lower alluvial aquifer is comprised of sands, gravels and clays with coarser grained materials dominating.

26. The RWD states that depth to ground water ranged between 150 to 153 feet bgs. Groundwater beneath the project site is approximately 285 feet bgs, and flows northeast in the direction of the Vidal Valley Groundwater Basin. Five wells in the basin tested for groundwater quality showed total dissolved solids (TDS) levels range between 662 mg/L to 3,540 mg/L. The average TDS concentration is about 1,900 mg/L. At one well, fluoride content was 1.8 mg/L and boron content was 2.8 mg/L, which may indicate a local impairment of the groundwater.

27. The RWD reflects that recharge within the basin is mainly from infiltration of runoff through alluvial deposits and by mountain front recharge with negligible amount of areal recharge from precipitation. Natural recharge is estimated to be 500 acre-feet per year and represents mountain front recharge. Additional recharge could be from subsurface inflow from the Ward Valley Groundwater Basin but is not quantified.

28. The project site is located in an arid desert climate, low annual precipitation, strong seasonal winds and mostly clear skies. Average annual evaporation in the project area, based on published data at the Indio Fire Station about eighty five miles southwest of the site is 105 inches.

29. Average annual precipitation ranges from 3 inches to 8 inches west of the Rice Valley (*source: SWRCB, 2006; DWR, 2004*). The RWD indicates that average annual precipitation in the project area, based on the gauging station at Blythe is 3.55 inches.

30. Surface water runoff from the mountains drains towards the center of the valley, except in the eastern part of the valley, where Big Wash drains to the Colorado River. The RWD indicates that there are no perennial streams in the vicinity of project site, and most of the moisture from rain is lost through evapotranspiration. The Colorado River aqueduct flows in an east-west direction within 1,000 feet north of the project site. The aqueduct is a concrete lined manmade controlled feature, and does not affect the natural hydrology of Rice Valley.

31. The off-site storm water flows originate from an area north of SR-62 (i.e., the Arizona-California Railroad, and the Colorado River Aqueduct). Small dikes have been constructed to control the flow of water across these features. The dikes direct the offsite flows from the north to specific channels/culverts over the aqueduct, under the railroad and then across SR-62 through small dips in the roadway.

32. The project site, including the utility lines, lies entirely within an area designated by FEMA as Zone D, where there are possible but undetermined flood hazards. The RWD indicates that evaporation ponds will be protected from offsite and onsite flows by the perimeter road. Storm water will be managed around the evaporation ponds to prevent inundation or washout due to floods in a 100 year storm event.

33. The RWD indicates that, based on site's earthquake history, the site could be subject to minor to moderate ground accelerations. Based on National Seismic Hazard Maps 2002 (USGS, 2008a) the peak bedrock acceleration at the site is 0.14 g for a 2,475 year recurrence interval or 2 percent probability of exceedance in 50 years. The San Andreas Fault is the controlling fault impacting the potential ground motion at the Project site.

34. The *Water Quality Control Plan Colorado River Basin- Region 7*, (hereafter Basin Plan), designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies, for Basin Waters. These requirements implement the Basin Plan.

35. Federal regulations for storm water discharge were promulgated by the United States Environmental Protection Agency (USEPA) on 16 November 1990 (Title 40 CFR Parts 122, 123, and 124). The regulations require specific categories of facilities, which

discharge storm water associated with industrial activity, to obtain a National Pollutant Discharge Elimination System permit, and to implement Best Conventional Pollutant Technology to reduce or eliminate industrial storm water pollution.

36. The State Water Resources Control Board adopted Order No. 97-03-DWQ (General Permit No. CAS000001) specifying WDRs for discharges of storm water associated with industrial activities, excluding construction activities, and requiring submittal of a Notice of Intent by industries to be covered under the Permit. Pursuant to a February 23, 1993 memorandum from the State Water Resources Control Board, Office of the Chief Counsel, Geothermal Power Plants are excluded from the regulations pertaining to storm water pollution.

37. The conditional discharge as permitted herein is consistent with the antidegradation provisions of State Water Resources Control Board Resolution No. 68-16. Degradation of groundwater immediately beneath the WMUs is unlikely to occur if the proposed project complies with the terms and conditions of these WDRs and MRP. The proposed project appears to be consistent with maximum benefit to the people of the State, as the land use at this location is not expected to ever change and best practical treatment or control can be achieved through a combination of the described treatment processes, WMU design and construction, and ground water quality monitoring.

WASTE MANAGEMENT UNIT DESIGN & CONSTRUCTION

38. The Discharger proposes to construct three Class II Surface Impoundment Waste Management Units (WMU) to handle designated liquid waste generated at the facility as described in Finding Nos. 12, 13, and 14. The three 5-acre evaporation ponds will have a proposed average design depth of 6 feet across each pond to ensure: one foot of sludge build up; three feet of operational depth; and two feet of freeboard.

39. The RWD indicates that containment design for the evaporation ponds from surface of the evaporation ponds downwards will consists of the following: 1) a primary 60 mil high density polyethylene (HDPE) liner; 2) a leak detection and removal system comprising a geonet and collection sump; 3) a secondary HDPE liner (minimum of 40 mil); and 4) a base layer consisting of either a geosynthetic clay liner (GCL) or 2 feet of onsite material with a hydraulic conductivity of less than 1×10^{-6} cm/sec of which at least 30%, by weight, shall pass through a No. 200 Standard sieve. If this material is unavailable then a geosynthetic clay liner (GCL) or approved equivalent is the alternative design for the base layer. The GCL option is proposed as an engineered alternative.

40. The RWD states that a ramp will be constructed to provide access for equipment and maintenance to each pond. At the ramp location, there will be a protective layer above the primary HDPE liner.

41. The RWD indicates that 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. The berms shall be covered with a minimum 6-inch thickness of road base or approved equivalent. The top of the berms will be a minimum of 2 feet above the surrounding existing grade to prevent potential inflow of storm water.

42. The RWD indicates that the leak detection system between the upper and lower liners will consists of a geonet drainage media and a trench containing piping and sand bedding. The sand bedding in the trench, including the perforated piping system, will have to be carefully placed on top of the underlying 40 mil HDPE liner. The geonet will be placed across the top of the sand-filled trench to avoid strain on the material.

43. The RWD indicates that the moisture detection system below the liner system will consists of continuous carrier pipes installed at the sides and low point of each pond (one carrier pipe per pond) at a depth of approximately 5 feet below the secondary liner. The carrier pipes will be terminated at the surface on each side of the pond and will be equipped with a pull cable system for conveyance of a neutron probe for moisture detection.

44. The RWD indicates that excavation and berm construction will use standard cut and fill techniques. The sub grade will be moisture conditioned to 2 percent above the optimum moisture content, compacted to at least 90 percent relative compaction as determined by American Society for Testing and Materials (ASTM) D1557, and proof-rolled using a smooth drum roller prior to placement of the GCL or the 2 feet of low permeable onsite material.

45. The RWD further states that the quality assurance program will be implemented consistent with the State Water Resources Control Board's Construction Quality Assurance (CQA) Requirements. CQA testing will be performed on the sub-grade, GCL, HDPE liners, granular/free draining native soil, and hard surface materials.

A. DISCHARGE SPECIFICATIONS

1. The Discharger shall inform the Energy Commission's Compliance Project Manager (CPM), with a copy to the CRBRWQCB, immediately upon noticing that this Order fails to implement any applicable requirement of CCR Title 27.

2. Wastes must be only discharged into, and confined to, approved WMUs specifically designed for their containment, as described in Finding Nos. 38 and 39.

3. The Discharger must follow the Water Quality Protection Standard (WQPS) for detection monitoring established by the CRBRWQCB. The following are parts of the WQPS, as established by the CRBRWQCB Executive Officer:

a. The Discharger must test for the monitoring parameters and other Constituents of Concern (COC) listed in the attached Monitoring and Reporting Program (MRP) and revisions thereto. The MRP is an integral part of the proposed WDRs and must be implemented.

b. Concentration Limits – for each monitoring point, the concentration limit for each monitoring parameter, or other constituent of concern, shall be its background value, as obtained during that reporting period, as represented by a set of at least eight background data points collected from an appropriate background monitoring point (or collected from that monitoring point before there is any evidence of a release).

c. The monitoring wells, including those located along the Point of Compliance[3] (which follows the downgradient boundary of the WMU) will be determined when Discharge submits its ground water monitoring work plan for approval by the CPM, in consultation with the CRBRWQCB Executive Officer, in accordance with Discharge Specification 6 of these WDRs. The upgradient and downgradient wells (i.e., background monitoring points and monitoring points, respectively) and their location must be specified in the work plan. These monitoring points, and the location of the surface trace of the Point of Compliance, will be approved based on calculated groundwater gradient at the site. A revised MRP may be required if the groundwater gradient changes. All proposed changes to the monitoring program, including any additional or replacement monitoring points, would need approval ahead of time by the CPM, in consultation with the CRBRWQCB Executive Officer.

4. The Discharger must report test results to the CRBRWQCB for monitoring parameters listed in the MRP and future revisions thereto. Monitoring parameters and COCs are subject to the most appropriate statistical or non-statistical test under the MRP, and any revised MRP approved by the CPM, in consultation with the CRBRWQCB. Typically, such testing involves applying the approved statistical or nonstatistical test to the appropriate background data set ("Concentration Limit" for a given constituent at a given monitoring point) to determine a "Threshold Value" (a concentration above which a release is indicated, triggering a retest for validation), which is then compared with the then-current concentration of that constituent at that Monitoring Point.

5. Discharges to a WMU must cease immediately, and the Discharger must empty the WMU by conveying its waste to a functioning WMU, if there is any containment system failure of that unit, including, but not limited to, any detectable flow of the Unit's

[3] The "Point of Compliance" is a conceptual curvilinear vertical surface that extends down into the uppermost aquifer. Its surface trace follows along the downgradient side(s) of the WMU. At least one of the downgradient monitoring wells must be placed along the Point of Compliance, and the Point of Compliance, once determined, must show up on the site map in each monitoring report.

contained liquid waste into the leak-detection system (between the upper and lower liners), until such time as the cause of the failure has been remedied to restore complete containment to the WMU. The Discharger must inform the CEC and CRBRWQCB immediately upon discovering the failure and convey to them promptly information concerning all remedial actions taken to remedy the condition.

6. Containment of waste shall be limited to the areas designated for such activity. Any revision or modification of the waste containment area, or change in operation that alters the nature and constituents of the waste produced, must be submitted in writing to the Energy Commission's Compliance Project Manager (CPM), with copies to the Regional Board Executive Officer, for review. The CPM, in consultation with the Regional Board Executive Officer, must approve the proposed change before the change in operation or modification of the designated area is implemented.

7. At any WMU where the groundwater separation is less than five feet below the base of the waste, the Discharger shall construct a groundwater drainage system capable of maintaining this minimum allowable separation. The design's separation from groundwater must be based upon the separation between the pond's uppermost liner and the highest anticipated groundwater elevation.

8. Wastewater from waste collection system, as defined in Finding No. 13, including brine precipitates discharged to and/or contained in the holding ponds, must not overflow the ponds. Liquids must maintain a minimum freeboard of two feet at all times.

9. The Discharger must install in all surface impoundments/WMUs (as in this case) a permanent marker delineating the brim of the WMU. The marker is to be maintained as a reference point for measuring the freeboard.

10. Prior to removal of solids accumulated in the evaporation ponds, an analysis of the material must be conducted to verify that it is not a hazardous waste and the material must be disposed of in a manner consistent with that analysis and applicable laws and regulations. After removing the residual solids, prior to resuming use of that impoundment, the Discharger must inspect all portions of the impoundment's uppermost geomembrane to identify, and repair, any breaches in it (including any damage to underlying liner system components), and must submit a report to the CPM, with a copy to the CRBRWQCB, that is signed by a suitably-licensed professional, detailing the location and nature of any such repair and certifying the pond's readiness for continued use.

11. The lined waste disposal ponds must be designed, constructed, operated, and maintained to prevent inundation or washout due to floods using 24-hour/100-year design storm in water balance calculations.

12. Prior to the use of any new chemicals for control of microbes, pH, scale, and corrosion of equipments or pipelines, the Discharger must request review and approval by the CPM, in consultation with the CRBRWQCB Executive Officer, in writing.

13. Waste conveyance systems throughout the facility area must be cleaned at least once every 90 days to prevent the buildup of solids, or when activity at the site creates the potential for release of solid materials from the conveyance systems.

14. Pipe maintenance and de-scaling activities that may include hydroblasting or sandblasting must be performed in a designated area to prevent wastes generated from these activities from impacting the environment.

15. Public contact with wastes must be precluded through means such a fences, signs, or other alternatives acceptable to the CPM.

16. The WMUs/surface impoundments must be managed and maintained to ensure their effectiveness, in particular:

    a. Erosion control measures must be implemented to ensure small coves and irregularities are not created, and

    b. Solid materials must be removed in a manner that does not damage or compromise the integrity of the liners, or any component of the containment systems.

17. Water used in the processes, dust control, and maintenance (i.e., cleanup) must be limited to the least amount necessary.

B. DISCHARGE PROHIBITIONS

1. The Discharger is prohibited from discharging, treating or composting the following wastes to the WMUs (evaporation ponds) at the facility:

    a. Municipal solid and liquid waste;
    b. Sludge (including sewage sludge, water treatment sludge, and industrial sludge);
    c. Septage;
    d. Oily and greasy liquid waste;
    e. Radioactive waste;
    f. Infectious or bio-hazardous materials, as defined by Health and Safety Code Section 25020.5;
    g. Hot, burning waste materials or ash; and
    h. Filter cake, if it is hazardous, and, thus, must be disposed of at a Class I Hazardous Waste Landfill.

2. The Class II WMUs (i.e., lined evaporation ponds) must receive only waste streams as identified in Finding Nos. 12 and 13.

3. Discharge of waste streams as mentioned above (Provision No. A.2) to an area other than the evaporation ponds is strictly forbidden.

4. The Discharger must not cause degradation of any groundwater aquifer or water supply.

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

6. Use of industrial waste streams generated at the facility for dust control on access roads, well pads, or other locations is prohibited.

7. The discharge of hazardous is prohibited. The discharge of designated waste to an area other than waste management units authorized to receive such waste is prohibited.

8. The treatment or disposal of wastes at this facility must not cause pollution or nuisance, as defined in Section 13050 of the California Water Code.

9. The Discharger must not cause the concentration of any Constituent of Concern or Monitoring Parameter to exceed its respective background value (as represented by its respective Concentration Limit {suite of at least eight background data points}) at any Monitoring Point in any monitored medium addressed in the attached MRP, which is a part of these WDRs.

C. PROVISIONS

1. The Monitoring and Reporting Program is necessary to determine compliance with the WDRs and to identify facility impacts, if any, to receiving waters.

2. The Discharger must notify the CPM and the CRBRWQCB Executive Officer at least **10 days** prior to construction of the sub grade, the installation of an unsaturated zone monitoring system, the installation of all soil and synthetic liners for containment and ancillary cover systems, and the construction of the LCRS(s) for any WMUs.

3. Visual observations and detailed geologic mapping of foundation conditions underlying each excavation for a WMU must be made during construction by a California registered geologist. A geologic report and map of the excavation for each WMU must be submitted to the CPM, with a copy to the CRBRWQCB Executive officer, before discharging waste to the WMU.

4. The groundwater detection monitoring system must consist of monitoring wells as approved by the CPM, in consultation with the CRBRWQCB Executive Officer. The Discharger must maintain all onsite groundwater monitoring wells in good working order at all times to ensure compliance with the monitoring provisions of these WDRs. Well

maintenance may include, but need not be limited to, periodic well re-development to remove sediments.

5. **One Hundred Eighty days (180)** prior to facility operation, the Discharger must submit for approval by the CPM, in consultation with the CRBRWQCB Executive Officer, assurances of financial responsibility for initiating and completing corrective action for all known or reasonably foreseeable releases from the WMUs. The financial assurance mechanism must be made payable to the CEC and must address the cost for a third party (i.e., someone other than the Discharger) to complete remediation of the most likely release scenario. In the event of a release, the Discharger is expected to finance the cleanup, whereas the financial assurance mechanism is to provide the CEC with funds to address the release, in the event that the Discharger fails to perform that duty, for whatever reason.

6. **One Hundred Eighty Days (180)** prior to discharge into the WMUs, the Discharger must submit to the CPM, with a copy to the CRBRWQCB Executive Officer, a technical report describing a work plan for the installation of a groundwater-monitoring network. The network must consist of one or more background monitoring wells and two or more downgradient wells capable of yielding representative samples from the uppermost portion of the uppermost aquifer located at the hydraulically downgradient limit(s) of the WMUs. All monitoring wells must meet DWR Well Standards in addition to performance standards prescribed by CCR Title 27, Section 20415(b) (4) et seq. All well locations and construction features are subject to the prior approval of the CPM, in consultation with the CRBRWQCB Executive Officer, and must be sufficient to monitor potential impacts of wastes (leaked from any one of the lined evaporation ponds) on the uppermost groundwater aquifer underneath the WMUs.

7. Within **60 days** following work plan approval, the Discharger must implement the program. Within **30 days** following the construction of the approved network, the Discharger must submit copies of drillers' logs and "as built" construction drawings of each groundwater monitoring well, as well as properly surveyed reference point elevations for each well, to the CPM, with a copy to the CRBRWQCB Executive Officer.

8. The Discharger must notify the CPM and the CRBRWQCB Executive Officer at least **10 days** prior to installing groundwater monitoring well(s).

9. The Discharger should commence monitoring of the background monitoring wells within **30 days** of completion of the approved groundwater monitoring network and must monitor for all specified Constituents of Concern by collecting a sample from each downgradient and background well quarterly for two years and then proposing (to the CPM, with a copy to the CRBRWQCB Executive Officer) the most appropriate Concentration Limit (background location and suite of at least eight data points from that location). The groundwater monitoring program must include consistent sampling and

analytical procedures that are designed to ensure that monitoring results provide a reliable indication of water quality at all monitoring points.

10. After **two full years** of quarterly monitoring for all COCs at all monitoring points (MonPt) and background monitoring points, the Discharger must characterize background groundwater quality using data from approved background well(s) using methods as described by CCR Title 27, Section 20415(e)(10) to propose a Concentration Limit for each MonPt/COC pair (for each COC at each monitoring point, propose the best background data source[4] and a set of at least eight data points for use in compliance testing). The Discharger should use the proposed Concentration Limit for each Monitoring Point/COC pair, in combination with an appropriate statistical or nonstatistical data analysis method [see Title 27, Section 20415(e) (7-9), and the USEPA's **Unified Guidance**[5] (2009)], to determine a proposed triggering concentration (here called "Threshold Value") which, if exceeded by that pair in a future sample, would provide an initial release indication, subject to validation by retesting. The proposal shall also include a retesting approach, with the Threshold Value lowered to compensate for retesting effects, as described in the **Unified Guidance**.

11. The Discharger must implement the attached MRP and revisions thereto as specified by the CPR, in consultation with the CRBRWQCB Executive Officer, to detect at the earliest opportunity any unauthorized discharge of waste constituents from the facility, or any impairment of beneficial uses associated with brine or waste discharge from similar identified processes (i.e., boiler blow down, WSAC blow down, etc) to the evaporation ponds.

12. The Discharger should use the constituents listed in the MRP and revisions thereto, as Monitoring Parameters (i.e., all COCs are Monitoring Parameters).

13. The Discharger must submit technical and monitoring program reports, as directed by the CRBRWQCB Executive Officer. Monitoring reports must be certified to be true and correct, and signed under penalty of perjury, by an authorized official of the company.

14. All monitoring must be conducted pursuant to a compliance testing program the the CPM, in consultation with the CRBRWQCB Executive Officer, has determined meets the requirements of Title 27 of the California Code of Regulations.

[4] The Concentration Limit can be either an "intrawell" background data set (collected from the same well that will be tested in the future) or an "interwell" background data set (collected from an upgradient well), with the most appropriate being the with the lowest variance, and that has a mean that is at least similar to that of the compliance well mean.

[5] The **Unified Guidance** is available for downloading from http://www.epa.gov/osw/hazard/correctiveaction/resources/guidance/sitechar/gwstats/ .

15. The Discharger must maintain records that contain appropriate supporting documentation of the nonhazardous nature of each waste stream accepted for on-site disposal or treatment. The records must contain certified analytical results of waste streams and a description of the waste stream generating processes, and any other information that may be necessary to demonstrate the nonhazardous nature of the waste being disposed into the lined ponds.

16. The Discharger must retain records of all monitoring information, copies of all reports required by these WDRs, and records of all data for a period of at least five (5) years from the date of the sample, measurement, report or application.

17. Unless otherwise approved by the CPM, in consultation with the CRBRWQCB Executive Officer, all analyses should be conducted at a laboratory certified for such analyses by the California Department of Public Health. All analyses must be conducted in accordance with the latest California Environmental Laboratory Accreditation Program (ELAP) rulings.

18. The laboratory must use the lowest achievable reporting limits for groundwater samples required under the MRP.

19. **Ninety days (90)** prior to terminating discharge operation, the Discharger must submit a work plan, for review and approval by the CPM, in consultation with the CRBRWQCB Executive Officer, to determine the extent (if any) of contamination to natural geologic materials and underlying groundwater by the waste. **One hundred twenty days (120)** following work plan approval, the Discharger must submit a technical contamination assessment report. A California Registered Civil Engineer or Certified Engineering Geologist must prepare the work plan and technical contamination assessment report.

20. Upon ceasing operation at this facility, all waste, liner system components, and natural geologic material contaminated by waste and surplus or unprocessed material, shall be removed from the site and disposed of in accordance with applicable laws and regulations. After removal of all wastes, the Discharger should request in writing an inspection and approval by the CPM and a representative of the CRBRWQCB Executive Officer.

21. **Two years prior** to closure of the facility or any portion thereof, the Discharger must submit, for review and approval by the CPM, in consultation with the CRBRWQCB Executive Officer, a closure plan in accordance with Section 21769 of CCR Title 27.

22. The closure plan must include at least the following:

    ii. Facility location map;
    iii. Topographic maps;

iv. Existing monitoring and control systems;
v. Land uses;
vi. Estimated closure date and schedule;
vii. General closure description;
viii. Other special requirements;
ix. Revised closure cost estimates (if appropriate); and
x. Any other applicable requirements as specified in CCR Title 27.

23. The Discharger must notify the CRBRWQCB Executive Officer at least **180 days** prior to beginning of any partial or final closure activity of the evaporation ponds.

24. The Discharger must maintain the established irrevocable bond for closure in an amount acceptable to the CPM, or provide other means to ensure financial security for closure. The amount of bond may be changed to reflect updated closure cost adjusted for inflation at the discretion of the CPM.

25. In the event of any change in control or ownership of land or waste discharge facility presently owned or controlled by the Discharger, the Discharger must notify the succeeding owner or operator of the existence of these WDRs by letter, a copy of which must be immediately forwarded to the CPM and the CRBRWQCB.

    To assume operation under these WDRs, the succeeding owner or operator must apply in writing to the CPM and the CRBRWQCB Executive Officer requesting transfer of these WDRs. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, address and telephone number of the persons responsible for maintaining contact with the CPM and the CRBRWQCB, and a statement, as follows. The statement shall comply with the signatory paragraph of Standard Provision and shall state that the new owner or operator assumes full responsibility for compliance with these WDRs. Failure to submit the request will be considered a discharge without requirements, a violation of the California Water Code. Transfer must be approved or disapprove in writing by the CPM, in consultation with the CRBRWQCB Executive Officer.

26. Prior to a modification that results in any material change in the quality or quantity of waste discharge, or a material change in the location of waste discharge, the Discharger must report all pertinent information in writing to the CPM and CRBRWQCB Executive Officer and obtain revised WDRs for inclusion in the CEC permit.

27. All permanent containment structures, and erosion and drainage control systems, must be certified by a California Registered Civil Engineer or Certified Engineering Geologist to meet prescriptive standards and performance goals.

28. The Discharger must ensure that all site-operating personnel are familiar with the content of these requirements, and that a copy of these WDRs remains available at the facility.

29. The Discharger must allow authorized representative(s) of the CPM and/or CRBRWQCB to:

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

    b. Have access to and copy records kept under the condition of these WDRs;

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

    d. Sample or monitor for the purpose of assuring compliance with these WDRs or as authorized by the California Water Code, any substance or parameter at this location.

30. The Discharger must comply with terms and conditions of these WDRs. Any noncompliance constitutes a violation of the porter-Cologne Water Quality Act (Water Code, Section 13000 et seq.), and is grounds for enforcement action.

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

32. Pursuant to the California Business and Professions Code Sections 6735, 7835, and 7835.1 all engineering and geologic evaluations and judgments must be performed by or under the direction of California registered professionals.

Please Include or modify contents of the WDRs "ONLY" as indicated below:

Include Finding Nos. 46 & 47 as follows:

IMPROVEMENTS OVER EXISTING TITLE 27 PRESCRIPTIVE STANDARDS

46. Under this Order, the Title 27 prescriptive standard [at §20415(e)(8)(E)2. of that Title] to use what would, in modern phraseology, be called a pass-2-of-3 retesting approach for statistical compliance testing has been replaced by the far more statistically powerful pass-1-of-3 retesting approach suggested in the USEPA's **Unified Guidance** ("UG," 2009). Likewise, the prescriptive standard to take all retest samples within 30 days of a preliminary release indication [§20415(e)(8)(E)3.] has been replace by the UG-supported improvement of allowing roughly 90 days to separate successive samples (for a given monitoring parameter at a given well), in order to avoid serial correlation that would likely invalidate the retest. These improvements are implemented as allowed under Title 27 §20080(a)(1) and constitute the means for assuring that the monitoring program meets Title 27's performance standard for a Detection Monitoring Program [§20420(a) of that Title], that it is: "appropriate for detection, at the earliest possible time, a release from the Unit . . . ."

MONITORING AND REPORTING PROGRAM (MRP) TO PHASE IN

47. It is not possible to initiate monitoring for a release until after the groundwater flow direction, and groundwater monitoring points and background monitoring points have been established, and each monitored waste constituent (Monitoring Parameter {MonPar}) has, at each Monitoring Point (MonPt) an approved Concentration Limit (suite of background reference data) and an approved data analysis method to apply to that Concentration Limit in order to obtain the retest-triggering concentration ("Threshold Value") against which each new datum will be compared, for that MonPar at that MonPt (i.e., for that "MonPt/MonPar pair"). Therefore, as noted at the start of the attached Monitoring and Reporting Program (MRP), most of the MRP does not come into effect until the Discharger has completed this preparatory work.

    Therefore, the first six-monthly Reporting Period during which the MRP will become fully in-effect (i.e., the Discharger initiates compliance monitoring and testing for all MonPt/MonPar pairs), will start around 2.5 years after the Monitoring Points and Background Monitoring Points are installed. This delay in initiating compliance analysis monitoring should cause no absence of water quality protection, given that a release from one of the three impoundments would, most likely, take several years to reach the downgradient wells and be detected. Nevertheless, it is not

possible to conduct an effective monitoring program absent the completion of the above-described preparatory work.

A. DISCHARGE SPECIFICATIONS

Replace discharge specification A.3 with the following:

3. The Discharger must follow the Water Quality Protection Standard (WQPS) for detection monitoring established by the CRBRWQCB. The following are parts of the WQPS, as established by the CRBRWQCB.

a. The Discharger must test for the monitoring parameters[3] (MonPars) in the attached Monitoring and Reporting Program (MRP) and revisions thereto. The MRP is an integral part of the proposed WDRs and must be implemented.

b. **Concentration Limits [see also Parts C.6 through C.10] –** for each monitoring point, the concentration limit for each monitoring parameter shall be its background value, as represented by a set of at least eight background data points collected from an appropriate upgradient "interpoint" background monitoring point (or an "intrapoint" concentration limit using data collected from that compliance-testing monitoring point before there is any evidence of a release there).

c. The monitoring wells, including those located along the Point of Compliance[4] (which follows the downgradient boundary of the WMU) will be determined when Discharge submits its ground water monitoring work plan for approval by the CPM, in consultation with the CRBRWQCB Executive Officer, in accordance with Discharge Specification 6 of these WDRs. The upgradient and downgradient wells (i.e., background monitoring points and monitoring points, respectively) and their location must be specified in the work plan. These monitoring points, and the location of the surface trace of the Point of Compliance, will be approved based on calculated groundwater gradient at the site. A revised MRP may be required if the groundwater gradient changes. All proposed changes to the monitoring program, including any additional or replacement monitoring points, would need approval ahead

Footnote (include as follows):

3. At this site, every Constituent of Concern (COC) is also a monitoring parameter (MonPar), so the two terms are equivalent.

4 .The "Point of Compliance" is a conceptual curvilinear vertical surface that extends down into the uppermost aquifer. Its surface trace follows along the downgradient side(s) of the WMU. At least one of the downgradient monitoring wells must be placed along the Point of Compliance, and the Point of Compliance, once determined, must show up on the site map in each monitoring report.

C. PROVISIONS

Replace Provision C.10 of the WDRs with the following:

10. The Discharger's report, under Part C.9, must characterize background groundwater quality using data from approved background well(s) using methods as described by CCR Title 27, Section 20415(e)(10) by proposing a Concentration Limit for each MonPt/MonPar pair (for each MonPar at each monitoring point, including a determination of the best background data source[5] and a set of at least eight data points from it. The Discharger's report should also propose (for each MonPt/MonPar pair, considered individually) an appropriate statistical or nonstatistical data analysis method [see Title 27, Section 20415(e)(7-9), the USEPA's **Unified Guidance**[6] (2009), and MRP Parts I.D.1, II.A.4., and III], to be used to determine that MonPt/MonPar pair's respective retest-triggering/confirming concentration (here called the "Threshold Value") which, if exceeded by that pair in a future sample, would provide an initial release indication, subject to validation by retesting. The proposal shall also include a retesting approach in accordance with MRP Part III, with the Threshold Value for any statistical method lowered to compensate for retesting effects, as described either in the **Unified Guidance** or, for a 95% Gamma Upper Prediction Limit method, in the two papers referenced in the footnote to Part II.A.3. of the MRP.

Footnote 5 (include):

[5] The Concentration Limit can be either a (preferred) "intrawell" background data set collected from the same well that will be tested in the future or an "interwell" background data set collected from an upgradient well, with the most appropriate being the source that produces the lowest Threshold Value (using an appropriate data analysis method), and, for the interpoint approach only, that has a mean that is comparable to that of the compliance well mean.

[6] The **Unified Guidance** is available for downloading from http://www.epa.gov/osw/hazard/correctiveaction/resources/guidance/sitechar/gwstats/ .

MONITORING AND REPORTING PROGRAM
FOR
RICE SOLAR ENERGY, LLC
CLASS II DISPOSAL FACILITY
RIVERSIDE COUNTY

CONSISTS OF:

PART I – GENERAL REQUIREMENTS
PART II – MONITORING REQUIREMENTS
PART III – STATISTICAL AND NON-STATISTICAL ANALYSIS

MONITORING AND REPORTING PROGRAM
RICE SOLAR ENERGY, LLC
CLASS II LAND DISPOSAL FACILITY
RIVERSIDE COUNTY

Note: *the site's declared Monitoring Parameters (MoPars) under Part II.A.4 and the Reporting Period declaration under Part I.D.1, of this Monitoring and Reporting Program (MRP), together with MRP Part III (for reference purposes) and the waste and surface impoundment sampling of Parts II.B. and II.C., become effective on the day that the CEC permit for this site becomes effective. All MRP requirements are in-effect as of the start of the first six-month-long Reporting Period [see Part I.D.1 of this MRP] following approval of the Discharger's Concentration Limit Report [see WDR Part C.10].*

PART I

GENERAL REQUIREMENTS

A. GENERAL

A Discharger who owns or operates a Class II Surface Impoundment is required to comply with this site-specific Monitoring and Reporting Program (MRP) in order to meet 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. Because this will be a new facility, so can have no existing release, the purpose of this MRP is to establish a Detection Monitoring Program that meets the first of these purposes ("detecting"). Section 13267, California Water Code gives the Regional Water Board authority to require monitoring program reports for discharges that could affect the quality of waters within its region.

1. This MRP is issued pursuant to Provision No. C1 of WDRs. The principal purpose of this self-monitoring program is:

   a. To document compliance with Waste Discharge Requirements (WDRs), and prohibitions established by the Regional Water 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 designed to detect a release from any of the three regulated surface impoundments at the facility.

2. The CPM, in consultation with the CRBRWQCB Executive Officer, may alter the monitoring parameters and/or the monitoring frequency during the course of this monitoring program if deemed necessary. *Failure to comply with this MRPconstitutes noncompliance with the WDRs and the California Water Code, which can result in imposition of civil monetary liability.*

B. SAMPLING AND ANALYTICAL METHODS

Sample collection, storage, and analysis must be performed according to the most recent version of USEPA approved methods. Specific methods of analysis must be identified. If methods other than USEPA-approved methods are used, the exact methodology must be submitted for review and approval by the Regional Water Board Executive Officer prior to use. All analyses shall be conducted by a laboratory certified by the California Department of Public Health to perform the required analyses. 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 CRBRWQCB. All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurement. For any left-censored concentration data point (i.e., either a non-detect {ND} value, or trace value), the laboratory should report the Method Detection Limit (MDL) and Practical Quantitation Limit (PQL) for that determination and, if feasible, should include an estimated concentration (e.g., with a "P-value" flag, and with the concentration estimate in parentheses) for any trace value determination.

C. RECORDS TO BE MAINTAINED

Written reports shall be maintained by the Discharger or laboratory, and shall be retained for a minimum of five years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge or when requested by the Regional Water 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.

D. REPORTING

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**). Unlike with most WMUs under Title 27 WDRs, there will be no five-yearly monitoring for those COCs that are not Monitoring Parameters, given that, for this site's WMUs, there are so few waste constituents that each COC is a Monitoring Parameter. The monitoring year's first Reporting Period begins on March 1 and ends on August 31, with the report due by September 15; the second Reporting Period begins on September 1 and ends on February 28, with the report due by March 15.

A "Detection Monitoring Report" shall be submitted to both the CPM and the Regional Water 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 must 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 at the start of the Reporting Period and during a separate mid-Period velocity-and-direction determination. For each of these two determinations, include a description and graphical presentation (e.g., arrow on a map);

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

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

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

c. Methods and results of field testing for pH, temperature, electrical conductivity, and turbidity, including; equipment calibration methods, and method for disposing of purge water

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

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

b. 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;

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 CPM and Regional Water Board, an "Annual Summary Report" for the period the prior and current Reporting Periods; this Annual Summary Report can be combined with the monitoring report for the Reporting Period just ending (see Part I.D.1 of this MRP). 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)), in the form of a concentration-versus-time plot showing all data, for that MonPt/MonPar pair, obtained for that pair during at least the prior five calendar years. Each such graph can plot the concentration of a given MonPar 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 monitoring 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 CPM, in coordination with the Regional Water 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 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 CPM, in consultation with the Regional Water Board Executive Officer (Title 27, Section 20420(h)). The submittal of data in hard copy and on diskette CD-ROM constitutes the "... form necessary for..." statistical analysis, in that this facilitates periodic review of the Discharger's declared monitoring and testing results;

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. **Annual Influent sampling report** containing analytical results of quarterly samples collected from the waste collection system prior to disposal to evaporation ponds, and evaporation pond sampling results as specified in Part II B and C of this MRP, respectively.

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

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

g. The following two appendices, updated to reflect conditions at the end of that monitoring year's just-completed (#2-of-2) Reporting Period:

   i. **Appendix A —** a table having a record (row) for each MonPt/MPar pair (i.e., for each Monitoring Parameter at each Monitoring Point) that shows that pair's: then-current concentration limit type (e.g., enter "interpoint" and background MonPt name, if the data is from a background MonPt, or enter "intrapoint," if the data comes from that same MonPt during at least its initial two years); retesting method (either "pass-1-of-3" or "pass-1-of-2"); background data points; Threshold Value ("TV," calculated by applying the data analysis method {declared under Part I.D.2.g.i} to that pair's concentration limit); and compliance status (enter "Detection Mode" if the pair has shown no retest-verified release indication or "Tracking Mode" if there has been such an indication). This is how this MRP implements Title 27 §20390(a); and

ii. **Appendix B —** a table showing, for each then-current data analysis compliance-testing method, a description thereof [including, for statistical methods applied to readily-detectable inorganic waste constituents, the value used for each parameter setting (e.g., alpha = 0.01)], and a list of each MonPt/MonPar pair that uses that method. For "Detection Mode" MonPt/MonPar pairs (i.e., pairs that have not shown a verified release indication) that are evaluated under the California Nonstatistical Data Analysis Method (CNSDAM), the description is "CNSDAM, per the MRP." For a statistical method applied to a MonPt/MonPar pair in Detection Mode, the description is adequate if a person familiar with the method can apply it to that pair's declared concentration limit in the above-required table (Part I.D.2.g.i of this MRP) and come up with the same Threshold Value (TV) as declared for that pair in that table. For any (release-affected) MonPt/MonPar pair in Tracking Mode, the TV is the background mean value (serving as that pairs respective cleanup concentration goal), which shall be plotted as a horizontal line on that pair's respective concentration-versus-time plot (included elsewhere in the Annual report). For any statistical method following the USEPA's 2009 Unified Guidance (UG) the method description can be the method's name, the UG page range(s) to be following in calculating the TV, and the parameter settings. This is how this MRP implements Title 27 §20415(e)(7) and §20420(e); and

h. If appropriate (every four years) a proposed-and-validated update, under Part II.A.7.b. of this MRP, of the Concentration Limits to include appriate new background data (from that MonPt/MonPar pair's declared background data source).

3. Contingency Reporting

a. The Discharger shall report any spill by telephone within 48 hours of discovery. The reportable quantity for any spill, which may occur from the waste collection system and/or evaporation ponds is 150 gallons. Any other type of spill, regardless of type or size, is to be reported by telephone within 48 hours. After reporting a spill, a written report shall be filed with the CRBRWQCB Executive Officer within seven 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 Monitoring Parameter (MonPar), that a release is tentatively identified, the Discharger shall immediately notify the Regional Water Board verbally as to the Monitoring Point(s) and MonPar(s) involved, shall provide written notification by certified mail within seven 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 retesting confirms the existence of a release, the Discharger shall carry out the requirements of

Part I.D.3.d. In any case, the Discharger shall inform the Regional Water 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 days of completing the retest and the inclusion of a discussion of the event in the next scheduled Monitoring Report and a notation on it in the Annual Summary Monitoring Report summary section.

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

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

   i. If this conclusion is not based upon “direct monitoring” and compliance testing of the MonPars, pursuant to Part II.A.5., then the Discharger shall, within thirty days, sample for all MonPars at all Monitoring Points and submit them for laboratory analysis. Within seven days of receiving the laboratory analytical results, the Discharger shall notify the CPM and Regional Water Board, by certified mail, of the concentration of all MonPars at each Monitoring Point. Because this is a scan, rather than an application of the site’s statistical-or-nonstatistical data analysis method, merely obtain and report a single concentration datum for each MonPar 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 to the CPM and Regional Water Board an addendum to the site’s 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 to the CPM and Regional water Board a preliminary engineering feasibility study meeting the requirements of Title 27, Section 20430.

e. Any time the Discharger concludes - or the CRBRWQCB Executive Officer directs the Discharger to conclude - that a 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 should 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. Leakage Detection System (LDS), and Solids Monitoring

a. 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 evaporation ponds.

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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 rulings, and include an accurate determination of the groundwater surface elevation and field parameters (temperature, electrical conductivity, turbidity) at each groundwater sampling location (Title 27, Section 20415(e)(13 & 15)). In addition, the Discharger shall make a mid-Reporting-Period determination of the elevation (at each groundwater sampling location). If a given well is to be sampled (in addition to the groundwater elevation determination), the groundwater elevation shall be obtained prior to purging the well and sample collection. The resulting suite of location-specific groundwater elevation values shall be used to produce the quarterly groundwater flow rate/direction analyses required under Part I.D.1.b.i. Groundwater wells shall have their water surface elevation gauged using an electronic sounder capable of measuring depth to groundwater within 100th of an inch. Following gauging, wells that are to be sampled 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 groundwater 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 peristaltic 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 days, and shall be taken in a manner that insures sample independence to the greatest extent feasible (Title 27, Section 20415(e)(12)(B)). Therefore, in order to accommodate the pass-1-of-3 retesting approach used under the MRP for statistically-tested Monitoring Parameters (MonPars), and the pass-

1-of-2 retesting approach used for VOCs under the nonstatistical test method, the first sample of the Reporting Period, for all COCs at all Monitoring Points and Background Monitoring Points, shall be taken at the very start of the Reporting Period. If the first sample exceeds that MonPt/MonPar pair's respective Threshold Value, then the Discharger shall take and process a mid-Reporting-Period retest sample (for that MonPt/MonPar pair). If a second retest is needed (pass-1-of-3 approach only), the Discharger will take the sample just prior to the end of that Period and, in that case only, will not take a sample for that MonPt/MonPar pair at the start of the subsequent Report.

Under a pass-1-of-3 retesting approach for a statistically-based test, the Threshold Value shall be calculated in accordance with the USEPA's **Unified Guidance** (2009) or other guidance that lowers the TV to compensate for the effect of retesting[1], and the initial release-indication shall prevail only if both retests confirm the original indication. This MRP applies this improved approach in place of Title 27's prescriptive pass-2-of-3 approach and retest-within-30-days approach (applicable to statistical tests), as allowed pursuant to §20080(a)(1) of that Title.

Under a pass-1-of-2 retesting approach for the nonstatistical method included in this MRP, the initial **release**-indication shall prevail only if the single retest confirms the original indication.

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**
Total Dissolved Solids (TDS)	mg/L	Grab
EC (Electrical Conductivity)	µmhos/cm	Grab
pH	pH units	Grab
All Volatile Organic Compounds ever detected above their PQL in wastewater (see MRP Part II.B)	µg/L	Grab
CCR Title 22 Heavy Metals, Dissolved (As, Ba, Cd, Pb, Zn, etc)	mg/L	Grab
Oil & Grease	mg/L	Grab

[1] For example, for a 95% Gamma Upper Prediction Limit, see the Table 4 discussion at the back of: **One-Sided Approximate Prediction Intervals for at Least p of m Observations from a Gamma Population at Each of r Locations**, by DK Bhaumik and RD Gibbons [TECHNOMETRICS, February 2006, VOL. 48, NO. 1] and **Simultaneous Gamma Prediction Limits for Ground Water Monitoring**, by RD Gibbons and DK Bhaumik [Ground Water Monitoring & Remediation 26, no. 3 / Summer 2006 / pages 105-116].

Total Petroleum Hydrocarbon (TPH-gas & diesel)	µg/L	Grab

For all Monitoring Points and Background Monitoring Points, the initial sampling event for each of the two semi-annual Reporting Periods shall early in March and September, respectively, of each year in accordance with Parts I.D.1 and II.A.3. of this MRP. Monitoring results obtained during a given Reporting Period shall be reported in the semiannual Detection Monitoring Report for that Reporting Period.

5. Data Analysis – Non-statistical and statistical compliance-testing data analysis, whether for an initial sample (for that Reporting Period) or a retest sample, shall be carried out as soon as the data is available, in accordance with Part III of this monitoring program.

6. Monitoring Points and Background Monitoring Points – The Discharger shall sample the Monitoring Points and Background Monitoring Points listed in the approved report submitted under Part C.10 of the WDRs, which report is incorporated by reference in this MRP, in accordance with the sampling schedule given under Parts I.D.1., II.A.3, and II.A.4 of this MRP, by obtaining a single new concentration datum for each MonPt/MonPar pair for each initial test (for that Reporting Period) or retest, and subjecting it to the most appropriate test under Part III. In addition, the Discharger shall sample each background moitoring point at least once each Reporting Period.

7. Initial Background Determination – The initial background data set (Concentration Limit) for each MonPt/MonPar pair is established under the approved report submitted under Part C.10 of the WDRs. However:

   a. **New MonPars or Wells**

      i. Whenever a new waste constituent is added to the MonPars in the Water Quality Protection Standard, the Discharger shall collect at least one (1) sample **quarterly** for two (1) years from each Monitoring Point and Background Monitoring Point in each monitored medium. Nevertheless, for any of these eight data points (for that new MonPar at each sampling location), the Discharger can substitute existing data for that constituent, from the sampling location. As part of the next scheduled Monitoring Report following completion of this data collection effort, the Discharger shall propose a Concentration Limit for that new MonPar at each Monitoring Point, as was done initially under Part C.10 of the WDRs. The new Monitoring Parameter and its Concentration Limits become effective during the Reporting Period following the approval of this proposal; and

      ii. Whenever a new Monitoring Point is added, the Discharger shall sample the new monitoring point at least **quarterly** for at least two (2) years, and shall propose an appropriate Concentration Limit for each MonPar there, as done initially under Part C.10 of the WDRsanalyzing for all Monitoring Parameters. The new Monitoring

Point, and the Concentration Limits for each MonPar there, become effective during the Reporting Period following the approval of this proposal.

b. **Updating Concentration Limits —** The updating of the Concentration Limit for each MonPt/MonPar pair follows a four-year cycle, regardless of whether the Concentration Limit is of the interpoint or intrapoint type. Every four years after this monitoring program becomes effective, the Annual Summary Monitoring Report will include a proposal to update each Concentration Limit by adding the data from its background data source, if appropriate. For each given MonPt/MonPar pair, the proposal shall create a pool of the eight prospective new data points and the Concentration Limit's most recent background data points and shall run a Sen's-Slope/Mann-Kendall test at 90% confidence, looking only for a significant upward slope (thus, it is really a one-tailed test at 95% conficence). In the absence of a significant slope indication, the Discharger shall declare that result and propose that the new data be added to that MonPt/MonPar pair's Concentration Limit. The revised Concentration Limits become effective during the Reporting Period following approval of this proposal.

8. Semiannual Reporting of the Quarterly Determination of Groundwater Flow Rate/Direction [Title 27, Section 20415(e)(13 & 15)] – The groundwater flow rate and direction determinations done twice each Reporting Period under Part I.D.1.b of this MRP.

B. WASTE COLLECTION SYSTEM SAMPLING

Influent samples shall be collected from the waste collection system, which receives combined industrial waste streams generated at the facility. The samples should be representative of the volume and nature of the discharge. Influent sampling should include the following, with the results included in each Annual Summary Monitoring Report and with due attention paid to any non-MonPar constituent present in excess of its respective PQL:

Parameter	Unit	Sample Type	Frequency
Total Dissolved Solids (TDS)	mg/L	Grab	Quarterly
EC (Electrical Conductivity)	µmhos/cm	Grab	Quarterly
pH	pH units	Grab	Quarterly
Volatile Organic Compounds	µg/L	Grab	Annually
CCR Title 22 Heavy Metals, Dissolved (As, Ba, Cd, Pb, Zn, etc)	mg/L	Grab	Annually
Oil & Grease	mg/L	Grab	Quarterly
Total Petroleum Hydrocarbon (TPH-gas & diesel)	µg/L	Grab	Quarterly

For Volatile Organic Compounds (VOCs), any VOC detected pursuant to this waste testing that is present in excess of its respective PQL concentration becomes a Groundwater MonPar. For any such new VOC MonPar, the Discharger shall meet the data gathering and submittal requirements of MRP Part II.A.7.a.i.

Note that sampling and analysis under this Part and Part II.C. begins as soon as there is waste to sample, even though groundwater compliance testing is not yet in effect, and that, until groundwater compliance testing begins, this information will constituent the majority of the information in the semi-annual Monitoring Reports and the Annual Summary Monitoring Report.

C. EVAPORATION PONDS / SURFACE IMPOUNDMENT SAMPLING

Parameter	Unit	Sample Type	Frequency
Freeboard	feet	Measurement	Monthly

The Discharger must inspect the condition of lined evaporation ponds each month and record visual observations (e.g., in data sheets or bound logbook). Notations, which shall be included in each Reporting Period's monitoring report, shall include observations of whether weeds are developing along the bank, whether scum, or debris accumulating on the water surface; whether burrowing animals or insects are present.

D. FACILITY MONITORING

1. Annual Inspection

   The Discharger should conduct an annual rainy season inspection. The inspection must assess the facility drainage control systems, WMUs, retention basin, groundwater monitoring wells, and fencing. Any necessary construction, maintenance, or repairs must be completed within 15 days of the inspection. The Discharger must include its finding and any corrective action taken in the Annual report.

2. Seismic Events

   The Discharger must implement the Post-Earthquake Inspection and Response Plan following any seismic event which causes significant ground motion at the site.

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PART III

STATISTICAL AND NON-STATISTICAL ANALYSES

A. STATISTICAL DATA ANALYSIS METHODS

The Discharger shall use any one of the following statistical data analysis methods for each MonPt/MonPar pair having a Concentration Limit consisting of (all or mostly) numerical concentration values, including estimated concentraionts ("J" values), rather than "ND" determinations. The best method for a given MonPt/MonPar pair may not be the same for another MonPar at that MonPt or for that same MonPar at another MonPt, so the proposal [under WDR Part C.10] must be specific to each MonPt/MonPar pair:

1. A parametric Upper Prediction Limit run in accordance with the USEPA's **Unified Guidance**[2] ("**UG**", 2009) manual;
2. A parametric Shewhart Control Chart run in accordance with the USEPA's UG;
3. A parametric 95% Gamma Upper Prediction Limit run in accordance with the two papers (by Gibbons and Bhaumik) listed in the footnote to MRP Part II.A.3; or
4. If none of the above methods are suitable, another method used in accordance with the USEPA's UG.

All statistical methods used for validating ongoing compliance (Detection Mode testing) shall use a pass-1-of-3 plan for retesting [see MRP Part II.A.3], with the retest-triggering concentration (Threshold Value) lowered to compensate for the retesting approach, pursuant to the UG or the Gibbons/Bhaumik papers referenced above.

B NONSTATISTICAL DATA ANALYSIS METHOD (NSDAM)[3]

1. **Non-Statistical Method For Detection Mode MonPars Seldom Found In Background —** For any given Monitoring Point (MonPt) subject to compliance testing each Reporting Period, the discharger shall use this data analysis method, jointly, for all Monitoring Parameters (MonPars) on that MonPt's "scope list" (see ¶III.B.1.a. for the initial test scope list and ¶III.B.2.b for the modified scope list used during the single retest).
   a. **Scope List —** Create a current "scope list" for that MonPt showing each detection mode MonPar, at that MonPt, that exceeds its respective MDL in less than 10% of its background data set (Concentration Limit).
   b. **Two Triggers —** From the scope list made for that MonPt under ¶III.B.1.a. above, for an initial test [or, for a retest, the modified scope list under ¶III.B.2.b, below], identify each

[2] The **Unified Guidance** is available for downloading from http://www.epa.gov/osw/hazard/correctiveaction/resources/guidance/sitechar/gwstats/ .
[3] For this site, this nonstatistical test applies mainly to the VOC MonPars (i.e., those VOCs that have been detected above their respective PQL in the facility waste stream).

scope-list-MonPar in the current sample from that MonPt that exceeds either its respective MDL or its respective PQL. The discharger shall conclude that these exceeding MonPars provide a preliminary indication [or, for a retest, provide a measurably significant release indication], at that MonPt, if either:

i. two or more of the MonPars on the MonPt's scope list exceed their respective MDL; or

ii. at least one of the MonPars on the MonPt's scope list equals or exceeds its respective PQL.

2. **Single Discrete Retest (A "Pass-1-of-2" Plan):**

a. In the event that the discharger concludes [pursuant to paragraph III.B.1.ii.b., above] that there is a preliminary indication, then the discharger shall immediately notify regulatory agency staff by phone or e-mail and obtain a new independent (retest) sample from the indicating MonPat at mid-Reporting-Period.

b. For any given MonPt retest sample, the discharger shall include, in the retest analysis, only the laboratory analytical results for those constituents indicated in that MonPt's original test [under ¶III.B.1.b.], and these indicated constituents shall comprise the MonPt's "modified scope list," for use in the retest. As soon as the retest data are available, the discharger shall apply the same test [under ¶III.B.1.b, above, but using this modified scope list] to analyze the retest sample's data at that compliance MonPt.

c. If the retest sample trips either (or both) of the triggers under ¶ III.B.1.b, then the Discharger shall conclude that there is a measurably significant increase at that MonPt for the constituent(s) indicated in the validating retest sample. Furthermore, given a confirming retest, beginning with the next Reporting Period, the discharger shall monitor the indicated-and-verified constituent(s) in Tracking Mode (instead of Detection Mode) at that MonPt, shall report this conclusion immediately to the CPM and CRBRWQCB, shall remove the indicating constituent(s) from the scope list created (under ¶III.B.1.a. of this M&RP) for that MonPt, and shall highlight this release-indication conclusion and these changes in the next scheduled monitoring report and in the landfill's operating record.

Please Include or modify contents of the WDRs "ONLY" as indicated below:

Include Finding Nos. 46 & 47 as follows:

IMPROVEMENTS OVER EXISTING TITLE 27 PRESCRIPTIVE STANDARDS

46. Under this Order, the Title 27 prescriptive standard [at §20415(e)(8)(E)2. of that Title] to use what would, in modern phraseology, be called a pass-2-of-3 retesting approach for statistical compliance testing has been replaced by the far more statistically powerful pass-1-of-3 retesting approach suggested in the USEPA's **Unified Guidance** ("UG," 2009). Likewise, the prescriptive standard to take all retest samples within 30 days of a preliminary release indication [§20415(e)(8)(E)3.] has been replace by the UG-supported improvement of allowing roughly 90 days to separate successive samples (for a given monitoring parameter at a given well), in order to avoid serial correlation that would likely invalidate the retest. These improvements are implemented as allowed under Title 27 §20080(a)(1) and constitute the means for assuring that the monitoring program meets Title 27's performance standard for a Detection Monitoring Program [§20420(a) of that Title], that it is: "appropriate for detection, at the earliest possible time, a release from the Unit . . . ."

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47. It is not possible to initiate monitoring for a release until after the groundwater flow direction, and groundwater monitoring points and background monitoring points have been established, and each monitored waste constituent (Monitoring Parameter {MonPar}) has, at each Monitoring Point (MonPt) an approved Concentration Limit (suite of background reference data) and an approved data analysis method to apply to that Concentration Limit in order to obtain the retest-triggering concentration ("Threshold Value") against which each new datum will be compared, for that MonPar at that MonPt (i.e., for that "MonPt/MonPar pair"). Therefore, as noted at the start of the attached Monitoring and Reporting Program (MRP), most of the MRP does not come into effect until the Discharger has completed this preparatory work.

    Therefore, the first six-monthly Reporting Period during which the MRP will become fully in-effect (i.e., the Discharger initiates compliance monitoring and testing for all MonPt/MonPar pairs), will start around 2.5 years after the Monitoring Points and Background Monitoring Points are installed. This delay in initiating compliance analysis monitoring should cause no absence of water quality protection, given that a release from one of the three impoundments would, most likely, take several years to reach the downgradient wells and be detected. Nevertheless, it is not

possible to conduct an effective monitoring program absent the completion of the above-described preparatory work.

A. DISCHARGE SPECIFICATIONS

Replace discharge specification A.3 with the following:

3. The Discharger must follow the Water Quality Protection Standard (WQPS) for detection monitoring established by the CRBRWQCB. The following are parts of the WQPS, as established by the CRBRWQCB.

a. The Discharger must test for the monitoring parameters[3] (MonPars) in the attached Monitoring and Reporting Program (MRP) and revisions thereto. The MRP is an integral part of the proposed WDRs and must be implemented.

b. **Concentration Limits [see also Parts C.6 through C.10] –** for each monitoring point, the concentration limit for each monitoring parameter shall be its background value, as represented by a set of at least eight background data points collected from an appropriate upgradient "interpoint" background monitoring point (or an "intrapoint" concentration limit using data collected from that compliance-testing monitoring point before there is any evidence of a release there).

c. The monitoring wells, including those located along the Point of Compliance[4] (which follows the downgradient boundary of the WMU) will be determined when Discharge submits its ground water monitoring work plan for approval by the CPM, in consultation with the CRBRWQCB Executive Officer, in accordance with Discharge Specification 6 of these WDRs. The upgradient and downgradient wells (i.e., background monitoring points and monitoring points, respectively) and their location must be specified in the work plan. These monitoring points, and the location of the surface trace of the Point of Compliance, will be approved based on calculated groundwater gradient at the site. A revised MRP may be required if the groundwater gradient changes. All proposed changes to the monitoring program, including any additional or replacement monitoring points, would need approval ahead

Footnote (include as follows):

3. At this site, every Constituent of Concern (COC) is also a monitoring parameter (MonPar), so the two terms are equivalent.

4 .The "Point of Compliance" is a conceptual curvilinear vertical surface that extends down into the uppermost aquifer. Its surface trace follows along the downgradient side(s) of the WMU. At least one of the downgradient monitoring wells must be placed along the Point of Compliance, and the Point of Compliance, once determined, must show up on the site map in each monitoring report.

C. PROVISIONS

Replace Provision C.10 of the WDRs with the following:

10. The Discharger's report, under Part C.9, must characterize background groundwater quality using data from approved background well(s) using methods as described by CCR Title 27, Section 20415(e)(10) by proposing a Concentration Limit for each MonPt/MonPar pair (for each MonPar at each monitoring point, including a determination of the best background data source[5] and a set of at least eight data points from it. The Discharger's report should also propose (for each MonPt/MonPar pair, considered individually) an appropriate statistical or nonstatistical data analysis method [see Title 27, Section 20415(e)(7-9), the USEPA's **Unified Guidance**[6] (2009), and MRP Parts I.D.1, II.A.4., and III], to be used to determine that MonPt/MonPar pair's respective retest-triggering/confirming concentration (here called the "Threshold Value") which, if exceeded by that pair in a future sample, would provide an initial release indication, subject to validation by retesting. The proposal shall also include a retesting approach in accordance with MRP Part III, with the Threshold Value for any statistical method lowered to compensate for retesting effects, as described either in the **Unified Guidance** or, for a 95% Gamma Upper Prediction Limit method, in the two papers referenced in the footnote to Part II.A.3. of the MRP.

Footnote 5 (include):

[5] The Concentration Limit can be either a (preferred) "intrawell" background data set collected from the same well that will be tested in the future or an "interwell" background data set collected from an upgradient well, with the most appropriate being the source that produces the lowest Threshold Value (using an appropriate data analysis method), and, for the interpoint approach only, that has a mean that is comparable to that of the compliance well mean.

[6] The **Unified Guidance** is available for downloading from http://www.epa.gov/osw/hazard/correctiveaction/resources/guidance/sitechar/gwstats/ .