CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2011-0009

WASTE DISCHARGE REQUIREMENTS
FOR
BUENA VISTA BIOMASS POWER, LLC
BUENA VISTA BIOMASS POWER PROJECT
CLASS II SURFACE IMPOUNDMENT
AMADOR COUNTY

The California Central Valley Regional Water Quality Control Board (hereafter Central Valley Water Board) finds that:

1. Buena Vista Biomass Power, LLC (hereafter "Discharger"), submitted a Report of Waste Discharge (RWD) on 23 July 2009 for the permitting of an existing class II surface impoundment at the Buena Vista Biomass Power facility (formerly known as the Jackson Valley Energy Partners facility). The RWD has been submitted pursuant to Title 27 of the California Code of Regulations (Title 27).

2. The Discharger owns and operates the facility located on a 40.22-acre site comprised of Assessor's Parcel Numbers: 012-010-039 and 012-010-003. The site is located approximately one mile south of the community of Buena Vista on Parcel 1 and a portion of Parcel 2, (Latitude 38.2783, Longitude -120.9170) shown on record of survey for American Lignite Project Company, Inc., as being a portion Section 19, T5N, R10E, MDB&M, as shown in Attachment A, which is attached hereto and incorporated by reference. The Discharger has control of the site pursuant to a ground lease and a grant of easement.

3. Waste management unit (WMU) at this site is an existing class II surface impoundment, which was previously regulated by WDR Order No. 98-052. The location of this class II surface Impoundment is shown in Attachment B, which is attached hereto and incorporated by reference. The class II surface impoundment historically received boiler blow down water and waste brine from the cogeneration system.

4. The site was first developed in 1946, when a small plant was constructed to produce Montan wax from local lignite ore sources. In 1950, the plant was reconfigured to employ a solvent extraction process. In 1986, a cogeneration plant was constructed adjacent to the wax extraction plant. The cogeneration facility employed a circulating fluidized bed to produce superheated steam to power turbines for electricity generation. An evaporation unit demineralized boiler feed water for use in the plant. The cogeneration project was in operation until July 1999, when due to bankruptcy, the wax plant was dismantled and removed from the site. Since that time the facility has not been in operation.

5. The existing co-generation facility and the accompanying class II surface impoundment are being re-engineered and refurbished on the site adjacent to the property historically used for past lignite mining and processing. The Discharger has access to the class II surface impoundment and the impoundment's monitoring well system. The Discharger does not have access or responsibility for the reclaimed lignite mining area north of the facility.

6. The Discharger proposes the discharge of industrial process wastewater to land, specifically into the existing double-lined class II surface impoundment, that will receive "blow down" water used to backwash scale for boilers and cooling towers.

7. The surface impoundment is expected to receive significant discharge only when the plant's brine evaporator is out of service, an estimated 15 % of runtime hours per year, or 1,156 hours, due primarily to evaporator servicing events. During each servicing event of approximately 72 hours, the surface impoundment will receive discharge at a rate of 40 gallons per minute (gpm) totaling approximately 0.17 million gallons, or approximately 5% of the surface impoundment capacity. This discharge will be recycled back to the evaporator, once online, at a rate of 17 gpm. The total discharge from each 72 hr servicing event will be removed from the surface impoundment and recycled back to the facility evaporator within 11 days.

8. During the normal plant operations, with the brine evaporator online, all plant process water will be routed through the evaporator for evaporation, reducing the discharge to the surface impoundment to approximately 6.2 gpm. This water will be rerouted back to the cooling towers at a rate of 4 gpm, resulting in a net discharge of approximately 2.2 gpm to the surface impoundment. With an area of the surface impoundment over 65,000 square feet, the depth of this discharge in the impoundment will accumulate at a maximum rate of approximately 2.3 inches per month. The average annual evaporation rates measured 3 miles southeast of the site by the Western Regional Climate Center indicate monthly pan evaporations rates ranging between 0.72 inches in December and January, to 11.17 inches in July. Design specifications, provided by the Discharger, using a pan evaporation coefficient of 0.75, estimate an average evaporation rate of 3.6 inches per month over an annual basis, or 3.4 gpm. Therefore, except for estimated accumulation of less than 2 inches per month during December and January, no net accumulation of discharge water is expected to accrue in the surface impoundment under normal operating conditions.

9. The estimated 1,000 year, 24-hour duration storm event, with 13 inches of total rainfall, would result in an estimated accumulation of 530,000 gallons of water into the surface impoundment. This rainfall event, coinciding with the maximum discharge to the impoundment from a three-day brine evaporator servicing event

during Dec/Jan, would result in an estimated volume in the surface impoundment of less than 28% of design capacity, with two feet of freeboard.

WASTE AND UNIT CLASSIFICATION

10. The wastewater discharged to the surface impoundment consists of concentrated brine. Estimated concentrations reported by the Discharger in the Report of Waste Discharge are shown below in Table 1.

Table 1.
Feed Water, Predicted Wastewater, and Baseline Groundwater Analytical Results with Municipal and Agricultural Water Quality Objectives
(Concentrations in mg/l, except where noted)

Constituent	Source Water	Predicted Wastewater§	Baseline Groundwater**	Water Quality Goals	
				Municipal	Agricultural
Arsenic	<0.002 - 0.002	<0.05	0.002-0.005	0.01†	0.1*
Aluminum	<0.050	0.46	0.0036-15.4	1∞	–
Alkalinity	64-120	No data	19-130	–	–
Boron	No data	13	1.4-3.2	1‡	0.7*
Calcium	16-36	No data	13-185	–	–
Chloride	6.8-38	No data	20-750	250¥	106*
Copper	<0.003	0.009	0.009-0.22	1	0.2
Electrical Conductivity	200-837	492	297-2800	900 µohms/cm	700 µohms/cm
Fluoride	0.13-0.22	Believed absent	<0.1-0.26	1^	1*
Iron	0.068-0.112	0.64	0.05-9.6	0.3¥	5*
Magnesium	8.8-53	75	12-189	–	–
Manganese	0.019-0.215	0.78	0.025-1.13	0.05¥	0.2*
Nitrate (as Nitrogen)	<0.05-0.68	0.02	0.015-6.2	10∞	–
pH	7.0-8.7	6.5-7.1	5.2-6.5	6.5-8.5	6.5-8.4
Potassium	1.7-2.1	No data	4.8-9.5	–	–
Selenium	<0.002	<0.2	<0.002-0.013	0.05∞	0.02*
Sodium	8.9-60	No data	24-250	20°	69*
Sulfate	19-250	1635	46-1400	500¥	–
TDS	131-580	2000	255-2600	500¥	450*

** Data from monitoring wells MW1, 2, 3 and 4 – January 1991 to October 2009
§ Data from Jackson Valley Energy March 10, 1989 Form 2-C
† USEPA Primary MCL
* Water Quality for Agriculture
∞ California Primary MCL
‡ California DHS Notification Level for Drinking Water
¥ California Secondary MCL
^ California Public Health Goal for Drinking Water
° USEPA Drinking Water Advisory - Restricted Sodium Diets

11. Designated waste is defined in Section 13173(b) of the California Water Code, as a nonhazardous waste that consists of, or contains, pollutants that, under ambient environmental conditions at the waste management unit, could be released at concentrations exceeding applicable water quality objectives or that could reasonably be expected to affect beneficial uses of the waters of the state as contained in the appropriate state water quality control plan.

12. As the predicted wastewater concentrations of several constituents of concern (Table 1) exceed municipal or agricultural water quality goals, and greatly exceed the lower range of the baseline background groundwater data, the discharge is properly classified as a designated waste and, as such, must be discharged to a class II surface impoundment as required by Title 27, and is subject to the requirements of Title 27.

SITE DESCRIPTION

13. The site is situated in the low foothills of the Sierra Nevada, between Mokelumne River to the south, and Jackson Creek to the north. Surface elevations at the site range from approximately 150 above mean sea level (MSL) at Jackson creek, to over 400 ft MSL near the power plant structure.

14. The cogeneration facility is located within the alluvial Ione Basin, consisting of marine and lacustrine sedimentary deposits. Specifically, the facility is underlain by the Ione formation which consists of intermittent lenticular beds of sandstone and claystone intermixed with lenses of brown, carbonaceous claystone and lignite. The clays in the Ione formation generally impart a low to very low permeability with shallow groundwater being limited to more permeable sand and gravel lenses. The Ione formation in the project area attains a maximum thickness of approximately 450 feet and overlies Jurassic aged greenstone.

15. There are no known Holocene faults within 1000 feet of the facility. The closest fault is the Bear Mountains Fault Zone which is approximately 5 miles east of the facility and considered inactive. Probabilistic seismic hazard analysis conducted by the California Geological Survey for these soft rock conditions suggests a 10 percent probability of exceedance in 50 years peak ground acceleration of 0.112 g.

16. The first water bearing zone is near the northeastern corner of the facility, approximately five feet below ground surface. Groundwater elevations in the vicinity of the class II surface impoundment typically range from 254 to 265 feet above MSL (approximately 20 feet below the bottom of the surface impoundment).

17. Groundwater flows in a general westerly direction, however groundwater flow conditions appear to be controlled by various sand, gravel and lignite coal seams,

and historical groundwater data suggest there may be more than one groundwater flow direction in the area of the impoundment. Several of the groundwater monitoring wells appear to be screened within clay and silty clay deposits, and may be screened in separate and/or perched water bearing zones.

18. The site receives an average of 21.36 inches of precipitation per year, as measured by the California Department of Water Resources (DWR) at Camp Pardee, located approximately 4 miles southwest of the site at an elevation of 658 MSL. The mean class "A" pan evaporation rate for the facility is 57.9 inches, as measured at Camp Pardee.

19. The 100-year, 24-hour precipitation event for this site is estimated to be 4.32 inches, based on DWR's Rainfall Depth-Duration-Frequency data for Ione, updated in 2000. As identified by the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) of Amador County (May 5, 2010), the facility and surface impoundment are bordered closely on the north by a 100-year floodplain, but are not within the 100-year floodplain boundary.

SURFACE AND GROUNDWATER CONDITIONS

20. The *Water Quality Control Plan for Sacramento and San Joaquin River Basins, Fourth Edition* (hereafter Basin Plan), designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin, and incorporates by reference plans and policies adopted by the State Water Resources Control Board (State Board). Pursuant to Section 13263(a) of the California Water Code, waste discharge requirements must implement the Basin Plan.

21. Surface drainage is toward the Jackson Valley Slough located approximately 500 feet to the north. The Jackson Valley Slough flows west-northwesterly joining Jackson Creek over four air miles from the project site. Jackson Creek is tributary to Dry Creek, which is tributary to the Cosumnes River.

22. The beneficial uses of the Cosumnes River, as specified in the Basin Plan are: municipal and domestic supply; agricultural supply; water contact recreation; non-contact water recreation; warm freshwater habitat; cold freshwater habitat; migration of aquatic organism; spawning, reproduction, and/or early development; and wildlife habitat.

23. The designated beneficial uses of the groundwater, as specified in the Basin Plan are: domestic and municipal supply, agricultural supply, industrial service supply, and industrial process supply.

24. Four groundwater monitoring wells (MW-1, MW-2, MW-3, and MW-4) will be used to monitor groundwater underlying the surface impoundment, as shown in Attachment B.

WASTE MANAGEMENT UNIT DESIGN

25. Section 13360(a)(1) of the California Water Code allows the Central Valley Water Board to specify the design, type of construction, and/or particular manner in which compliance must be met in waste discharge requirement orders for the discharge of waste at solid waste disposal facilities.

26. The double liner specification for class II surface impoundments given in Title 27 requires both liners to have a hydraulic conductivity of 1×10^{-6} cm/s or less. The inner liner may be either clay or a Flexible Membrane Liner (FML) used in combination with either an outer clay liner or a substantial thickness of qualifying natural geologic materials to serve as an outer liner. The FML or synthetic liner must have a minimum thickness of 40 mil and clay liners a thickness of at least two feet and a required relative compaction of 90%. A blanket type leachate collection and recovery system (LCRS) is required between the liners in a double liner system.

27. The existing class II surface impoundment, as currently constructed, meets the Title 27 prescriptive standards for a double lined system consisting of the following components, from the top down:

    a. A primary 60-mil-thick high density polyethylene (HDPE) liner
    b. A 45-mil-thick goetextile blanket-type LCRS with 3/4 to 6 inches of washed drain rock
    c. An 10-mil-thick polyvinyl chloride geomembrane
    d. A minimum 30 inches of compacted clay liner
    e. Lysimeters placed in borings through the clay liner and 6 inches into the underlying material, composed of compacted native soils and clay.

28. The existing 10,000 gallon concrete lined siltation box will be replaced by a 15,000 gallon above-ground clarifier unit to enhance solids removal of waste water prior to discharge to the surface impoundment.

29. The surface impoundment LCRS will have a design action leakage rate (ALR) of 1,070 gallons per day. The LCRS secondary containment tank will have a minimum capacity of 2,000 gallons. Two pump systems will be in place, the first pumps will switch on when the liquid level in the containment tank approaches 18 inches depth. The second pump system will switch on when the liquid level

approaches 36 inches depth. The pump systems in the secondary containment tank will have a design capacity of up to 20 gpm, well above the LCRS design flow of 8 gpm. Alarms will be placed on leachate pumps to notify operators of exceedances of the ALR.

30. The Discharger proposes use of the existing liner system, which will be maintained and operated to prevent migration of wastes from the Unit to adjacent natural geologic materials, groundwater, or surface water, in accordance with the criteria set forth in Title 27 for a class II waste management unit.

31. The existing class II surface impoundment has a capacity of approximately 3.3 million gallons. The impoundment capacity is based on the previous operating capacity of the plant prior to reconfiguration, and will be far in excess of the planned discharge from the reconfigured plant operation which is estimated to be no more than 6% of impoundment capacity. Since the discharge to the impoundment will be only 6 % of capacity, a significant portion of the impoundment surface will be exposed to weathering and the elements, especially in the summer months. At the time of installation, the impoundment's 60 mil HDPE liner met or exceeded Geosynthetic Research Institute (GRI) standard GM13 which includes UV testing. The projected lifetime of the liner is estimated to be 73 years at 40° C under exposed conditions (GRI white paper #6, http://www.geosyntheticinstitute.org/papers/paper6.pdf). Prior to reuse, a professional geosynthetic membrane installer will test the existing liner to ensure that it meets the aforementioned industry standard.

32. Ash and particulate matter from the facility's boiler will be removed from the flue gas before filtered air is discharged to the atmosphere. Ash will be removed from the filters periodically by reverse air flow and collected in hoppers. The collected ash will be transported via enclosed conveyor to an existing 550 ton capacity ash silo. It is estimated that only a small fraction of the silo capacity will be used before ash is removed and disposed. There will be no other ash storage on site.

CEQA AND OTHER CONSIDERATIONS

33. Under the provisions of the California Environmental Water Quality Act (CEQA) an Environmental Impact Report has been prepared and certified by Amador County, the lead agency on 4 January 2011. Amador County Board of Supervisors filed a Notice of Determination on 5 January 2011, in accordance with the California Environmental Quality Act (Public Resources Code Section 21000 et seq.) and CEQA guidelines (14 CCR Section 15000 et seq.). The Regional Board considered the environmental impact report and incorporated mitigation measures from the environmental impact report into these waste discharge requirements designed to prevent potentially significant impacts to design facilities and to water quality.

34. This order implements:

    a. The Water Quality control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition; and

    b. The prescription standards and performance goals of Chapters 1 through 7, subdivision 1, Division 2, Title 27 of the California Code of Regulations, effective 18 July 1997, and subsequent revisions.

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

36. The technical reports required by this Order and the attached Monitoring and Reporting Program are necessary to assure compliance with these waste discharge requirements. Buena Vista Biomass Power, LLC is responsible for the discharges of waste at the facility subject to this Order and is, therefore, subject to CWC Section 13267(b).

PROCEDURAL REQUIREMENTS

37. All local agencies with jurisdiction to regulate land use, solid waste disposal, air pollution, and to protect public health have approved the use of this site for the discharges of waste to land stated herein.

38. The Central Valley Water Board notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge, and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

39. The Central Valley Water Board, in a public meeting, heard and considered all comments pertaining to the discharge.

40. Any person adversely affected by this action of the Central Valley Water Board may petition the State Water Resources Control Board to review the action. The

petition must be received by the State Board within 30 days of the date of issuance of this Order. Copies of the law and regulations applicable to filing the petition will be provided on request.

IT IS HEREBY ORDERED pursuant to Sections 13263 and 13267 of the California Water Code, that Order No. 98-052 is rescinded, and that Buena Vista Biomass Power, LLC, its agents, successors, and assigns, in order to meet the provisions of Division 7 of the California Water Code and the regulations adopted thereunder, shall comply with the following:

A. PROHIBITIONS

1. The discharge of 'hazardous waste' at this facility is prohibited. For the purposes of this Order, the terms 'hazardous waste' and 'designated waste' are as defined in Division 2 of Title 27 of the CCR.

2. The discharge of waste to the surface impoundment is prohibited until all required reports are submitted and the Executive Officer provides written approval to begin discharge.

3. The discharge of solid waste or liquid waste to surface waters, surface water drainage courses, or groundwater is prohibited.

4. The discharge of wastes outside of a waste management unit or portions of a waste management unit specifically designed for their containment is prohibited.

5. The discharge of wastes into the class II surface impoundment to a point where evapoconcentration causes wastes to exceed the criteria for hazardous wastes is prohibited.

6. The discharge of waste within 100 feet of surface waters, excluding any storm water diversion structures around the waste management units, is prohibited.

7. The discharge of wastes, which have the potential to reduce or impair the integrity of containment structures or which, if commingled with other wastes in the unit, could produce violent reaction, heat or pressure, fire or explosion, toxic by-products, or reaction products which in turn,

    a. require a higher level of containment than provided by the unit,
    b. are 'restricted' hazardous wastes, or
    c. impair the integrity of containment structures,

    is prohibited.

8. The disposal of ash and any other waste material associated with combustion of feed material for this project is prohibited without the concurrence from Executive Officer.

B. DISCHARGE SPECIFICATIONS

General Specifications

1. Wastes shall only be discharged into, and shall be confined to, the waste management units (WMUs) specifically designed for their containment.

2. Prior to the discharge of waste to a WMU, all wells within 500 feet of the unit shall have sanitary seals or shall be properly abandoned. A record of the sealing and/or abandonment of such wells shall be sent to the Central Valley Water Board and to the State Department of Water Resources.

Protection from Storm Events

3. Precipitation and drainage control systems shall be designed, constructed, and maintained to accommodate the anticipated volume of precipitation and peak flows from surface runoff under 1,000-year, 24-hour precipitation conditions.

4. Surface drainage from tributary areas and internal site drainage from surface or subsurface sources shall not contact or percolate through wastes.

5. Annually, prior to the anticipated rainy season but no later than **31 October**, any necessary erosion control measures shall be implemented, and any necessary construction, maintenance, or repairs of precipitation and drainage control facilities shall be completed to prevent erosion or flooding of the facility.

Class II Surface Impoundment Construction and Operation

6. The surface impoundment consists of, from the top down:

   a. A primary 60-mil-thick high density polyethylene (HDPE) liner
   b. A 45-mil-thick goetextile blanket-type LCRS with 3/4 to 6 inches of washed drain rock
   c. An 10-mil-thick polyvinyl chloride geomembrane
   d. A minimum 30 inches of compacted clay liner
   e. Lysimeters placed in borings through the clay liner and 6 inches into the underlying material, composed of compacted native soils and clay.

7. The unsaturated zone monitoring system shall be capable of measuring both saturated and unsaturated flows that may occur as a result of a release from the waste management unit.

8. Surface impoundments and related containment structures shall be constructed and maintained to prevent, to the greatest extent possible, inundation, erosion, slope failure, washout, and overtopping under 1,000-year, 24-hour precipitation conditions, and shall be designed to contain the 100-year wet season precipitation without using the required 2 feet of freeboard.

9. Materials used to construct liners shall have appropriate physical and chemical properties to ensure containment of discharged wastes over the operating life, closure, and post-closure maintenance period of the surface impoundments.

10. Materials used in the construction of the LCRS shall have appropriate physical and chemical properties to ensure the required transmission of leachate over the life of the surface impoundments and the post-closure maintenance period. The FML shall be capable of withstanding expected UV radiation for the planned life of the Unit. Alternatively a sacrificial cover may be used.

11. LCRS shall be designed, constructed, and maintained to collect twice the anticipated daily volume of leachate generated by each surface impoundment and to prevent the buildup of hydraulic head on the underlying liner at any time. The depth of the fluid in any LCRS sump shall be kept at the minimum needed for safe pump operation.

12. Any direct-line discharge to a surface impoundment shall have fail-safe equipment or operating procedures to prevent overfilling.

13. The surface impoundment shall be designed, constructed and maintained to prevent scouring and/or erosion of the liners and other containment features at points of discharge to the impoundments and by wave action at the waterline.

14. Leachate removed from a surface impoundment's primary LCRS shall be discharged to the impoundment from which it originated.

15. If leachate is detected in the vadose zone monitoring system of a surface impoundment indicating a leak in the containment structures the Discharger shall:

    a. Immediately cease discharge of waste until the leaks can be found and repaired,
    b. Report to the RWQCB within 72 hours that the containment structures have failed,

c. Submit written notification of the release to the RWQCB within seven days. The notification should include a time schedule to repair the containment structures, and
d. Not resume discharge of wastes to the surface impoundment until the RWQCB has determined that repairs to the liner are complete and there is no further threat to water quality.

16. Solids that accumulate in the surface impoundments shall be periodically removed to maintain minimum freeboard requirements and to maintain sufficient capacity for surface impoundment leachate and for the discharge of wastes. Prior to removal of these solids, sufficient samples shall be taken for their characterization and classification pursuant to Article 2, Subchapter 2, Chapter 3, Division 2 of Title 27. The rationale for the sampling protocol used, the results of this sampling, a rationale for classification of the solids, and a proposed disposal method shall be submitted to Central Valley Water Board staff for review.

17. Leachate generation by a waste containment unit LCRS shall not exceed 85% of the design capacity of (a) the LCRS, or (b) the sump pump. If leachate generation exceeds this value and/or if the depth of the fluid in an LCRS exceeds the minimum needed for safe pump operation, then the Discharger shall immediately cease the discharge of waste, excluding leachate, to the waste management unit and shall notify the Central Valley Water Board in writing within **seven days**. Notification shall include a timetable for a remedial action to repair the containment structures or other action necessary to reduce leachate production.

Class II Surface Impoundment Closure

18. The Discharger shall submit a Report of Waste Discharge prior to closure of the class II surface impoundment.

19. The closure of each surface impoundment shall be under the direct supervision of a California registered civil engineer or certified engineering geologist.

20. At closure of surface impoundment, all residual wastes, including liquids, sludges, precipitates, settled solids, and liner materials and adjacent natural geologic materials contaminated by wastes, shall be completely removed and discharged to a waste management unit approved by Central Valley Water Board staff. If after reasonable attempts, the Discharger demonstrates the removal of all remaining contamination is infeasible, the impoundment shall be closed as a landfill.

C. RECEIVING WATER LIMITATIONS

Water Quality Protection Standards

The concentrations of Constituents of Concern in waters passing through the Point of Compliance shall not exceed the Concentration Limits established pursuant to Monitoring and Reporting Program No. R5-2011-0009, which is attached to, and made part of, this Order.

D. FINANCIAL ASSURANCE

1. The Discharger shall demonstrate financial responsibility for initiating and completing corrective action of all known or reasonably foreseeable releases, and shall submit a report for financial assurances by **April 30th each year** to the Executive Officer review and approval. The assurances of financial responsibility shall name the Central Valley Water Board as beneficiary and shall provide that funds for corrective action shall be available to the Central Valley Water Board upon the issuance of any order under California Water Code, Division 7, Chapter 5. The Discharger shall adjust the cost annually to account for inflation and any changes in facility design, construction, or operation.

2. The Discharger shall, by **30 April of each year**, submit for approval by the Executive Officer, plans with detailed cost estimates and a demonstration of assurances of financial responsibility for initiating and completing corrective action for all known or reasonably foreseeable releases from the waste management unit. The Discharger shall provide the assurances of financial responsibility to the Central Valley Water Board as required by Title 27 CCR, Division 2, Subdivision 1, Chapter 6. **The financial assurance fund for corrective action shall be established, and evidence thereof shall be made available to the Central Valley Water Board, prior to discharging waste to the surface impoundment.** The Discharger shall adjust the cost annually to account for inflation and any changes in facility design, construction, or operation.

3. The Discharger shall, by **30 April of each year**, submit for approval by the Executive Officer, plans with detailed cost estimates and a demonstration of assurances of financial responsibility to ensure closure and post-closure maintenance of each waste management unit in accordance with its approved closure and post-closure maintenance plans. The Discharger shall provide the assurances of financial responsibility to the Central Valley Water Board as required by Title 27 CCR, Division 2, Subdivision 1, Chapter 6. **The financial assurance fund for closure and post-closure maintenance shall be established, and evidence thereof shall be made available to the Central Valley Water Board, prior to discharging waste to the surface impoundment.** The Discharger shall adjust the cost annually to account for inflation and any changes in facility design, construction, or operation.

E. PROVISIONS

1. The Discharger shall comply with the Standard Provisions and Reporting Requirements, dated September 2003, which are hereby incorporated into this Order. The Standard Provisions and Reporting Requirements contain important provisions and requirements with which the Discharger must comply. A violation of any of the Standard Provisions and Reporting Requirements is a violation of these waste discharge requirements.

2. The Discharger shall comply with Monitoring and Reporting Program No. R5-2011-0009, which is attached to and made part of this Order. This compliance includes, but is not limited to, maintenance of waste containment facilities and precipitation and drainage controls and monitoring groundwater, the unsaturated zone, and surface waters throughout the active life of the waste management units and the post-closure maintenance period. A violation of Monitoring and Reporting Program No. No. R5-2011-0009, is a violation of these waste discharge requirements.

3. **The Discharger shall not discharge waste to the class II surface impoundment until the following tasks are completed and approved by Central Valley Water Board staff:**

    a. install background groundwater monitoring points to comply with Title 27 Section 20415(b)
    b. establish background groundwater quality through at least one year of monitoring (a minimum of eight samples are required to develop statistical values for inorganic constituents of concern) per Title 27 Section 20400.
    c. submit a report proposing a Water Quality Protection Standard (Water Standard) per Title 27 Section 20390,
    d. submit a plan for approval by the RWQCB for a groundwater quality monitoring system per Title 27 Section 20415, and
    e. install an approved groundwater quality monitoring system.

4. **Prior to discharging waste to the class II surface impoundment the Discharger shall** establish Financial Assurance funds for corrective action, unit closure and post-closure maintenance.

5. The Discharger shall maintain legible records of the volume and type of waste discharged to the surface impoundments and the manner and location of the discharge. Such records shall be maintained at the facility until the beginning of the post-closure maintenance period. These records shall be available for review by representatives of the Board and of the State Water Resources Control Board, copies of these records shall be sent to the Central Valley Water Board.

6. In the event that the Discharger's clean-closure of the site is unsuccessful, and the Unit is subsequently closed as a landfill, the Discharger shall provide proof to the Central Valley Water Board **within sixty days after completing final closure** that the deed to the surface impoundment facility property, or some other instrument that is normally examined during title search, has been modified to include, in perpetuity, a notation to any potential purchaser of the property stating that:

    a. the parcel has been used for disposal of liquid wastes;

    b. land use options for the parcel are restricted in accordance with the post-closure land uses set forth in the post-closure plan and in WDRs for the surface impoundment; and

    c. in the event that the Discharger defaults on carrying out either the post-closure maintenance plan or any corrective action needed to address a release, then the responsibility for carrying out such work falls to the property owner.

7. In the event of any change in control or ownership of the facility or disposal areas, the Discharger must notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to this office. To assume operation as Discharger under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Central Valley Water Board, and a statement. The statement shall comply with the signatory paragraph of Standard Provision VIII.A.5 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer shall be approved or disapproved by the Executive Officer.

F. REPORTING REQUIREMENTS

1. The Discharger shall comply with the reporting requirements specified in this Order, in Monitoring and Reporting Program Order No. R5-2011-0009, and in the Standard Provisions and Reporting Requirements dated September 2003.

2. The Discharger shall complete the tasks outlined in these WDRs and the attached Monitoring and Reporting Program No. R5-2011-0009, in accordance

with the following time schedule:

	Task	Compliance Date
a.	Establish the groundwater background and monitoring system. (See E.3)	Prior to discharging waste to the surface impoundment
b.	Submit a report characterizing background water quality conditions and establishing water quality protection standards. (See E.3)	Prior to discharging waste to the surface impoundment
c.	Submit a plan for approval by the Central Valley Water Board for a groundwater quality monitoring system. (See E.3)	Prior to discharging waste to the surface impoundment
d.	Install the approved groundwater quality system. (See E.3)	Prior to discharging waste to the surface impoundment
e.	Submit Construction Quality Assurance Report for the class II surface impoundment.	60 days after completion of construction of the Impoundment
f.	Submit Financial Assurances for closure and post-closure maintenance, and all known or reasonably foreseeable releases. (See D.1, 2 and 3)	Prior to discharging waste to the surface impoundment
g.	A report describing the characteristics of the ash and any other waste material associated with combustion of the feed material, the expected quantities to be disposed of, and the method and location of the disposal. (See A.8)	Prior to the disposal

3. In the event of any change in ownership of this waste management facility, the Discharger shall notify the succeeding owner or operator in writing of the existence of this Order. A copy of that notification shall be sent to the Central Valley Water Board.

The Central Valley Water Board will review this Order periodically and may revise requirements when necessary.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 3 February 2011.

for PAMELA C. CREEDON, Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2011-0009

FOR
BUENA VISTA BIOMASS POWER, LLC
BUENA VISTA BIOMASS POWER PROJECT
CLASS II SURFACE IMPOUNDMENT
AMADOR COUNTY

Compliance with this Monitoring and Reporting Program, and with the companion Standard Provisions and Reporting Requirements dated September 2003, is ordered by Waste Discharge Requirements Order No. R5-2011-0009. Failure to comply with this Program, or with the Standard Provisions and Reporting Requirements, constitutes noncompliance with the WDRs and with the Water Code, which can result in the imposition of civil monetary liability.

This Monitoring and Reporting Program shall be implemented as of the adoption of Waste Discharge Requirements Order No. R5-2011-0009. Therefore, all monitoring and reporting requirement shall be completed per the schedule established in this Program. If no discharge took place during the reporting period, the Monitoring Report shall state this. The groundwater monitoring shall start as of the adoption of Waste Discharge Requirements Order No. R5-2011-0009.

A. REPORTING

The Discharger shall report monitoring data and information as required in this Monitoring and Reporting Program and as required in the Standard Provisions and Reporting Requirements. Reports which do not comply with the required format will be rejected and the Discharger shall be deemed to be in noncompliance with the WDRs. In reporting the monitoring data required by this program, the Discharger shall arrange the data in tabular form so that the date, the constituents, the concentrations, and the units are readily discernible. The data shall be summarized in such a manner so as to illustrate clearly the compliance with waste discharge requirements or the lack thereof. Historical and current monitoring data shall be graphed at least once annually. Graphs for the same constituent shall be plotted at the same scale to facilitate visual comparison of monitoring data. A short discussion of the monitoring results, including notations of any water quality violations shall precede the tabular summaries. Data shall also be submitted in a digital format acceptable to the Executive Officer

Method detection limits and practical quantitation limits shall be reported. All peaks shall be reported, including those which cannot be quantified and/or specifically identified. Field and laboratory tests shall be reported in the quarterly monitoring reports. The results of any monitoring done more frequently than required at the locations specified herein shall be reported to the Board.

B. REQUIRED MONITORING REPORTS AND SUBMITTAL DATES

1. Quarterly Groundwater, Vadose Zone, and Leachate Monitoring Reports

All Quarterly monitoring reports shall include all water quality data and observation collected during the reporting period and submitted per the **Reporting Due Dates** in Section B.6. of this Monitoring and Reporting Program. At a minimum, the sampling and data collection in Section D of this Monitoring and Reporting Program, Standard Provisions and Reporting Requirements (2003), and Waste Discharge Requirements shall be reported.

2. Annual Monitoring Summary Report

The Discharger shall submit an Annual Monitoring Summary Report to the Board covering the previous monitoring year. The annual report shall contain the information specified in Standard Provisions and Reporting Requirements (2003), Section VIII.B. of the "*Reports to be Filed with the Board.*"

3. Facility Monitoring Report

Annually, prior to the anticipated rainy season, but no later than **30 September**, the Discharger shall conduct an inspection of the facility. The inspection shall assess needed maintenance, damage to the drainage control system, groundwater monitoring equipment (including wells, etc.), and shall include the Standard Observations contained in Section XII.S. of Standard Provisions and Reporting Requirements (2003). Repairs and maintenance shall be completed by **31 October**, and a report shall be submitted to the Board by **15 November**.

4. Response to a Release

If the Discharger determines that there is significant statistical evidence of a release (i.e. the initial statistical comparison or non-statistical comparison indicates, for any Constituent of Concern or Monitoring Parameter, that a release is tentatively identified), the Discharger shall immediately notify the Board verbally as to the Monitoring Point(s) and constituent(s) or parameter(s) involved, shall provide written notification by certified mail within seven days of such determination and implement Response to Release section of the Standard Provisions and Reporting Requirements (2003).

5. Water Quality Protection Standard Report

Any proposed changes in a statistical method or concentration limits for a constituent of concern or monitoring parameter a Water Quality Protection Standard Report shall be submitted and include the information required in Section C.1 of this Monitoring Reporting Program. Any changes to Water Quality Protection Standard shall be approved by the Executive Officer in a Revised Monitoring and Reporting Program prior to its being implemented.

6. Submittal Dates

Quarterly Groundwater, Unsaturated Zone and Leachate Monitoring Reports

Reporting Type	Sampling Frequency and Data Reported	Reporting Period	Report Date Due
Quarterly	Weekly, Monthly and Quarterly	1 January – 31 March 1 April – 30 June 1 July – 30 September 1 October – 31 December	**1 May** **1 August** **1 November** **1 February**

Report	Due Date
Annual Monitoring Summary Report:	1 February
Facility Monitoring Report:	15 November
Response to a Release:	As necessary
Water Quality Protection Standard Report:	Before placing waste into the surface impoundment and as necessary thereafter.

C. WATER QUALITY PROTECTION STANDARD AND COMPLIANCE PERIOD

1. Water Quality Protection Standard Report

For each waste management unit (Unit), the Water Quality Protection Standard shall consist of all constituents of concern, the concentration limit for each constituent of concern, the point of compliance, and all water quality monitoring points.

The Water Quality Protection Standard for waste constituents consists of the constituents of concern, the concentration limits, and the point of compliance and all monitoring points. The Executive Officer shall review and approve the Water Quality Protection Standard, or any modification thereto, for each monitored medium.

The report shall:

a. Identify **all distinct bodies of surface and groundwater** that could be affected in the event of a release from a Unit or portion of a Unit. This list shall include at least the uppermost aquifer and any permanent or ephemeral zones of perched groundwater underlying the facility.

b. Include a map showing the surface trace of the Point of compliance along the downgradient boundary of the impoundment, as well as the monitoring points and background monitoring points for the surface water monitoring program, groundwater monitoring program, and the unsaturated zone monitoring program. The map shall include the point of compliance in accordance with §20405 of Title 27.

c. Evaluate the perennial direction(s) of groundwater movement within the uppermost groundwater zone(s).

If subsequent sampling of the background monitoring point(s) indicates significant water quality changes due to either seasonal fluctuations or other reasons unrelated to waste management activities at the site, the Discharger may request modification of the Water Quality Protection Standard.

2. Constituents of Concern

The constituents of concern include all the waste constituents, their reaction products, and hazardous constituents that are reasonably expected to be in or derived from waste contained in the Unit. The constituents of concern for all Units at the facility are those listed in Tables 1 through 4 for the specified monitored medium.

3. Monitoring Parameters

Monitoring parameters are constituents of concern that are the waste constituents, reaction products, hazardous constituents, and physical parameters that provide a reliable indication of a release from a Unit. The monitoring parameters for all Units are those listed in Tables 1 through 5 for the specified monitored medium.

4. Concentration Limits

The concentration limit for each constituent of concern shall be determined as follows:

a. By calculation in accordance with a statistical method pursuant to §20415 of Title 27;

b. By an alternate statistical method acceptable to the Executive Officer in accordance with §20415 of Title 27; or

c. For a constituent whose background data set (concentration limit) is comprised of at least 90% non-detect (ND) values, the Threshold Value is the constituent's Practical Quantitation Limit (PQL).

The laboratory analytical methods to be used with each respective constituent of concern are listed in Table 6.

5. Point of Compliance

The point of compliance for the water standard at each Unit is a vertical surface located at the hydraulically downgradient limit of the Unit that extends through the uppermost aquifer underlying the Unit. The Discharger shall include in the Water Quality Protection Standard Report, a map showing the surface trace of the point of compliance (along the downgradient boundary of the Unit, relative to the local flow direction of groundwater in the uppermost aquifer).

D. MONITORING

The Discharger shall comply with the monitoring program provisions of Title 27 for groundwater, surface water, and the unsaturated zone, in accordance with Monitoring Specifications in Standard Provisions and Reporting Requirements (2003). Detection monitoring for a new facility or a new Unit shall be installed, operational, and one year of quarterly monitoring data collected **prior to** the discharge of wastes. A minimum of 8 samples should be used to develop background concentrations for COCs. All monitoring shall be conducted in accordance with a Sample Collection and Analysis Plan, which includes quality assurance/quality control standards, that is acceptable to the Executive Officer.

All point of compliance monitoring wells established for the detection monitoring program shall constitute the monitoring points for the Water Quality Protection Standard for groundwater. All detection monitoring program groundwater monitoring wells, unsaturated zone monitoring devices, leachate, and surface water monitoring points shall be sampled and analyzed for monitoring parameters and constituents of concern as indicated and listed in Tables 2 through 5.

Method detection limits and practical quantitation limits shall be reported. All peaks shall be reported, including those which cannot be quantified and/or specifically identified. Metals shall be analyzed in accordance with the methods listed in Table 6.

The Discharger may, with the approval of the Executive Officer, use alternative analytical test methods, including new USEPA approved methods, provided the methods have method detection limits equal to or lower than the analytical methods specified in this Monitoring and Reporting Program.

1. Surface Impoundment

The Discharger shall monitor the Class II surface impoundment per the schedule in Table 1 and report the results in the quarterly Monitoring Reports. Surface impoundment samples shall be collected in a convenient location at least 50 feet, if possible, from the influent structure. Any liquids in the surface impoundments shall be sampled for the parameters in Table 1 and if no liquid is present this shall be stated in the Monitoring Report.

Table 1 - Surface Impoundment Monitoring

Field Parameter	Units	Frequency[1]
Quantity Discharged(with a flow meter)	gallons	Monthly
Freeboard	feet (0.1)	Weekly
Remaining Capacity	acre-feet & %	Monthly
Temperature	°C	Quarterly
Specific Cond. (field and lab)	µmhos/cm	Quarterly
pH (field and lab)	pH	Quarterly
Analytical Parameters		
Total Dissolved Solids	mg/l	Quarterly
Total Suspended Solids	mg/l	Quarterly
Chemical Oxygen Demand	mg/l	Quarterly
Volatile Organic Compounds	mg/l	Quarterly
Total Alkalinity	ug/l	Quarterly
Total Hardness	meq/l	Quarterly
Calcium	mg/l $CaCO_3$	Quarterly
Chloride	mg/l	Quarterly
Magnesium	mg/l	Quarterly
Potassium	mg/l	Quarterly
Sodium	mg/l	Quarterly
Sulfate	mg/l	Quarterly
Nitrate - Nitrogen	mg/l	Quarterly
Dissolved Metals:	mg/l	Quarterly
Aluminum	ug/l	
Arsenic		
Barium		
Boron		
Cadmium		
Copper		
Iron		
Lead		
Manganese		
Mercury		
Selenium		
Zinc		

[1] If liquids are present in the surface impoundment for less that the specified time interval of sampling frequency listed, sampling shall occur once per discharge episode.

2. Groundwater

The Discharger shall operate and maintain a groundwater monitoring system that complies with the applicable provisions of Title 27 §20415. The Discharger shall also collect, preserve, and transport groundwater samples in accordance with the approved Sample Collection and Analysis Plan. The approved groundwater monitoring system and Sample Collection and Analysis Plan must be **completed before any discharge** to the Class II Surface Impoundment.

Quarterly, the Discharger shall determine the groundwater flow rate and direction in the uppermost aquifer, and in any zones of perched water and in any additional zone of saturation monitored pursuant to this Monitoring and Reporting Program, and report the results semiannually, including the times of highest and lowest elevations of the water levels in the wells.

Hydrographs of each well shall be submitted showing the elevation of groundwater with respect to the elevations of the top and bottom of the screened interval and the elevation of the pump intake. Hydrographs of each well shall be prepared quarterly and submitted annually.

Groundwater samples shall be collected from the monitoring wells, background wells, and any additional wells added as part of the approved groundwater monitoring system. Samples shall be collected and analyzed for the monitoring parameters in accordance with the methods and frequency specified in Table 2.

The monitoring parameters shall also be evaluated each reporting period with regards to the cation/anion balance, and the results shall be graphically presented using a Stiff diagram, a Piper graph, or a Schueller plot.

Table 2 - Groundwater Monitoring

Field Parameter	Units	Frequency
Groundwater Elevation	ft (0.01), MSL	Quarterly
Temperature	°C	Semi-Annually
Specific Conductance	µmhos/cm	Semi-Annually
pH	pH	Semi-Annually
Analytical Parameters		
Total Dissolved Solids	mg/l	Semi-Annually
Chemical Oxygen Demand	mg/l	Semi-Annually
Volatile Organic Compounds	ug/l	Semi-Annually
Total Alkalinity	meq/l	Semi-Annually
Total Hardness	mg/l $CaCO_3$	Semi-Annually
Calcium	mg/l	Semi-Annually
Chloride	mg/l	Semi-Annually
Magnesium	mg/l	Semi-Annually

Table 2 - Groundwater Monitoring		
Potassium	mg/l	Semi-Annually
Sodium	mg/l	Semi-Annually
Sulfate	mg/l	Semi-Annually
Nitrate - Nitrogen	mg/l	Semi-Annually
Dissolved Metals:	ug/l	Semi-Annually
Aluminum		
Arsenic		
Barium		
Boron		
Cadmium		
Copper		
Iron		
Lead		
Manganese		
Mercury		
Selenium		
Zinc		

3. Unsaturated Zone Monitoring

The Discharger shall operate and maintain an unsaturated zone detection monitoring system that complies with the applicable provisions of Title 27 §20415. The Discharger shall collect, preserve, and transport samples in accordance with the quality assurance/quality control standards contained in the approved Sample Collection and Analysis Plan. The unsaturated zone detection monitoring system and Sample Collection and Analysis Plan must be **completed before any discharge** to the Class II Surface Impoundment.

Unsaturated zone samples shall be collected from the monitoring devices and background monitoring devices of the approved unsaturated zone monitoring system. The collected samples shall be analyzed for the listed constituents in accordance with the methods and frequency specified in Table 3. All monitoring parameters shall be graphed so as to show historical trends at each monitoring point.

The lysimeters shall be checked monthly for liquid and monitoring shall also include the total volume of liquid removed from the system. Unsaturated zone monitoring reports shall be included with the corresponding semiannual groundwater monitoring and shall include an evaluation of potential impacts of the facility on the unsaturated zone and compliance with the Water Quality Protection Standard.

Table 3- Unsaturated Zone Monitoring		
Field Parameter	**Units**	**Frequency**
Flow Rate	gallons/month	Monthly
Temperature	°C	Quarterly
Specific Conductance	µmhos/cm	Quarterly
pH	pH	Quarterly
Analytical Parameters		
Total Dissolved Solids	mg/l	Quarterly
Volatile Organic Compounds	µg/l	Quarterly
Calcium	mg/l	Quarterly
Chloride	mg/l	Quarterly
Magnesium	mg/l	Quarterly
Potassium	mg/l	Quarterly
Sodium	mg/l	Quarterly
Sulfate	mg/l	Quarterly
Nitrate - Nitrogen	mg/l	Quarterly
Dissolved Metals (as per Table 1)	mg/l	Quarterly

4. Leachate Collection and Recovery System (LCRS) Monitoring

The LCRS sump shall be inspected quarterly for leachate. Upon detection of leachate in a previously dry LCRS, the Discharger shall immediately collect a grab sample of the leachate and shall continue to collect grab samples of the leachate at the following frequencies thereafter. The LCRS shall be sampled and analyzed for the following:

Table 4 - LCRS Monitoring		
Field Parameter	**Units**	**Frequency**
Flow Rate	gallons/month	Monthly
Temperature	°C	Quarterly
Specific Conductance	µmhos/cm	Quarterly
pH	pH number	Quarterly
Analytical Parameters		
Total Dissolved Solids	mg/l	Quarterly
Volatile Organic Compounds	µg/l	Quarterly
Calcium	mg/l	Quarterly
Chloride	mg/l	Quarterly
Magnesium	mg/l	Quarterly
Potassium	mg/l	Quarterly
Sodium	mg/l	Quarterly
Sulfate	mg/l	Quarterly
Nitrate - Nitrogen	mg/l	Quarterly
Dissolved Metals (as per Table 1)	mg/l	Quarterly

All LCRSs shall be tested annually to demonstrate operation in conformance with waste discharge requirements. The results of these tests shall be reported to the Board and shall include comparison with earlier tests made under comparable conditions.

5. Surface Water Monitoring

The Discharger shall maintain a *Storm Water Pollution Prevention Plan* and *Monitoring Program and Reporting Requirements* in accordance with State Water Resources Control Board Order No. 97-03-DWQ, or retain all storm water on-site.

6. Solids Monitoring

Fly ash from the power plant incinerators and flocculated solid waste from the filter presses will be stored onsite for a maximum of 30 days prior to removal and disposal off-site. There will be no storage of fly ash in open exposed piles. The amount of these solid wastes removed from the facility each month will be reported in the facility annual report along with the receiver of the material and the location of ultimate disposal.

7. Water Supply Monitoring

A sample of the process water supply for the facility will be collected annually, and will be analyzed for total dissolved solids, chloride, sulfate, nitrogen as nitrogen, and the minerals and metals listed in Table 1. The resulting date will be included in the facility's annual report.

8. Facility Monitoring

a. Facility Inspection

Annually, prior to the anticipated rainy season, but no later than **30 September**, the Discharger shall conduct an inspection of the facility. The inspection shall assess needed maintenance, damage to the drainage control system, groundwater monitoring equipment (including wells, etc.), and shall include the Standard Observations contained in section F.4.f. of Standard Provisions and Reporting Requirements. Any necessary construction, maintenance, or repairs shall be completed by **31 October**. By **15 November** of each year, the Discharger shall submit an annual report describing the results of the inspection and the repair measures implemented, including photographs of the problem and the repairs.

b. Storm Events

The Discharger shall inspect all precipitation, diversion, and drainage facilities for damage **within 7 days** following major storm events. Necessary repairs shall be completed **within 30 days** of the inspection. The Discharger shall report any

damage and subsequent repairs within 45 days of completion of the repairs, including photographs of the problem and the repairs.

Analytical Methods

Table 6 provides the laboratory analytical methods. The Discharger may, with the approval of the Executive Officer, use alternative analytical test methods, including new USEPA approved methods, provided the methods have method detection limits equal to or lower than the analytical methods specified in this Monitoring and Reporting Program.

Table 6—Analytical Methods

Analytical Parameters	Units	Analytical Methods
Total Dissolved Solids	mg/L	SM 2540C
Chemical Oxygen Demand	mg/L	SM 5220D
Biological Oxygen Demand	mg/L	SM 5210B
Sulfur	mg/L	EPA 200.7
Major Anions:		
chloride	mg/L	EPA 300.0
sulfate	mg/L	EPA 300.0/9038
carbonate	mg/L	SM 2320B
bicarbonate	mg/L	SM 2320B
Major Cations:		
calcium	mg/L	EPA 6010
magnesium	mg/L	EPA 6010
sodium	mg/L	EPA 6010
potassium	mg/L	EPA 6010
Dissolved Metals:		
aluminum	mg/L	EPA 6010 or 6020
boron	mg/L	EPA 6010
iron	mg/L	EPA 6010 or 6020
lead	mg/L	EPA 6010 or 6020
manganese	mg/L	EPA 6010 or 6020
copper	mg/L	EPA 6010 or 6020
zinc	mg/L	EPA 6010 or 6020
Nitrate – Nitrogen	mg/L	EPA 300.0 /SM 4500-NO3
Total Kjeldahl Nitrogen	mg/L	SM 4500-N ORG bg
Volatile Organic Compounds	ug/l	EPA 8260

The Discharger shall implement the above monitoring program on the effective date of this Order.

Ordered by: _____
for PAMELA C. CREEDON, Executive Officer

3 February 2011
Date

INFORMATION SHEET

ORDER NO. R5-2010-0009
BUENA VISTA BIOMASS POWER, LLC
BUENA VISTA BIOMASS POWER PROJECT
CLASS II SURFACE IMPOUNDMENT
AMADOR COUNTY

The Buena Vista Biomass Power, LLC is developing a biomass-fired electrical power facility capable of generating 18.5 megawatts of power. The facility is located at 4655 Coal Mine Road, Buena vista, CA, approximately five miles south of the City of Ione.

The facility site is in the Sierra Nevada range lower western foothills, bordered by the Mokelumne River to the south, and Jackson Creek to the north. Surface elevations at the site range from approximately 150 MSL at Jackson Creek, to over 400 feet MSL near the power plant structure. Surface drainage for the site is to Jackson Valley Slough, an intermittent stream.

The biomass-fired power plant is being refurbished from an existing facility originally developed in 1986. The existing facility includes a double-lined class II surface water impoundment, which is also being refurbished to receive blow down waste water used to backwash scale from the boilers and cooling towers. The facility water treatment system consists of a brine concentrator, a reverse osmosis treatment unit, and a condensate polishing unit.

The class II surface impoundment has a capacity of approximately 3.3 million gallons, including two feet of freeboard. The surface impoundment is expected to receive significant discharge only when the plant brine evaporator is out of service, an estimated 15 % of runtime hours per year or 1,156 hours, due primarily to evaporator servicing events. During each servicing event of approximately 72 hours, the surface impoundment will receive discharge at a rate of 40 gallons per minute (gpm) totaling approximately 0.17 million gallons, or approximately 5% of the surface impoundment capacity. This discharge will be recycled back to the evaporator, once online, at a rate of 17 gpm. The total discharge from each 72 hr servicing event will be removed from the surface impoundment within 11 days.

During the normal plant operations, with the evaporator online, all plant process water will be routed through the brine evaporator for evaporation, reducing the discharge to the surface impoundment to approximately 6.2 gpm. This water will be re-routed back to the cooling towers at a rate of 4 gpm, resulting in a net discharge of approximately 2.2 gpm to the impoundment. With an area of the surface impoundment over 65,000 square feet, the depth of this discharge in the impoundment will be approximately 2.3 inches per month. The average annual evaporation rates measured 3 miles southeast of the site by the Western Regional Climate Center indicate monthly pan evaporations rates ranging between 0.72 inches in December and January, to 11.17 inches in July. Design specifications, provided by the Discharger, using a pan evaporation coefficient of .0.75 estimate an average evaporation rate of 3.6 inches per month over an annual basis, or 3.4 gpm. Therefore, except for estimated accumulation of less than 2 inches per month during December and January, no net

accumulation of discharge water is expected to accrue in the surface impoundment under normal operating conditions.

Monitoring and Reporting Program

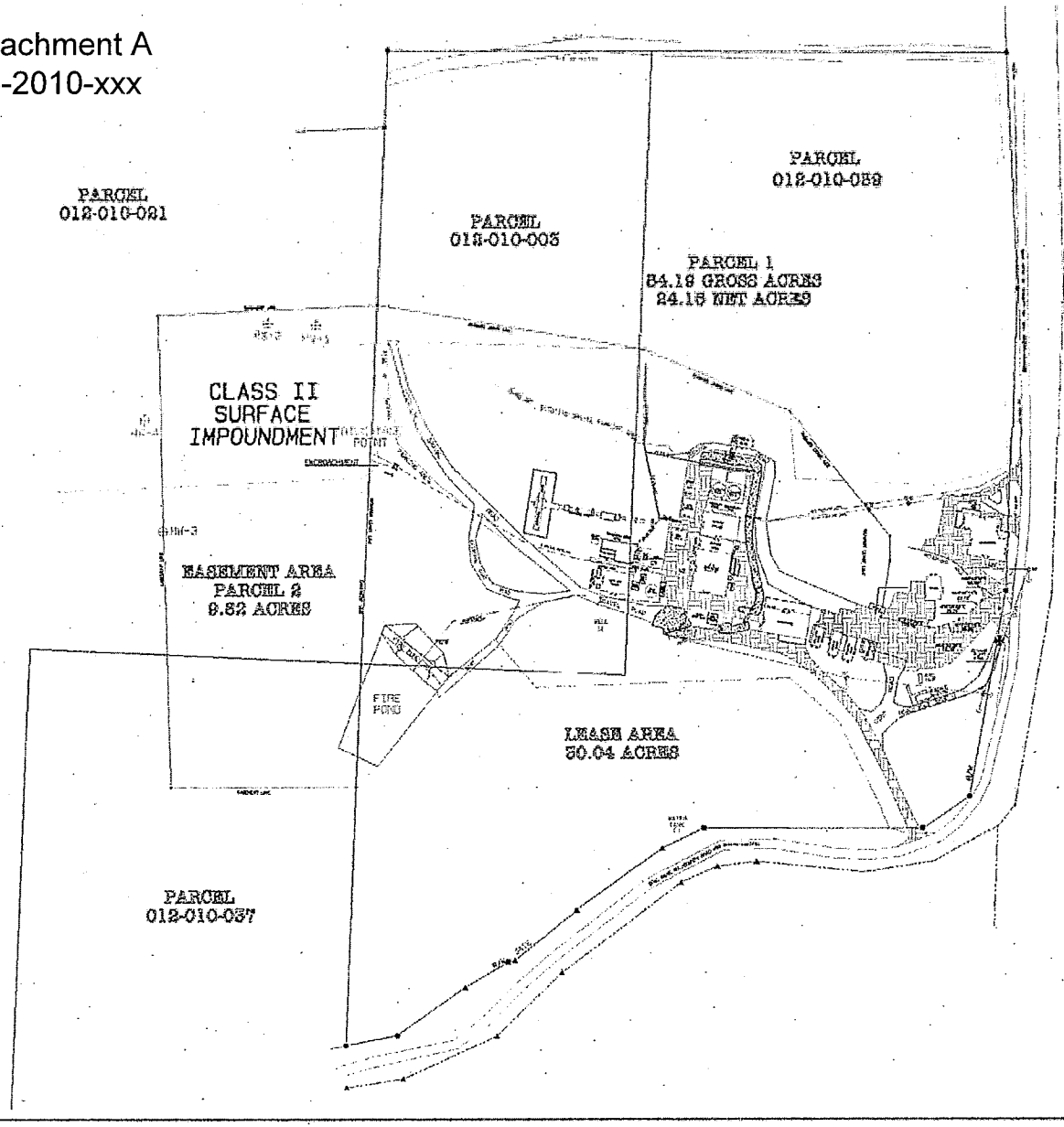
This Order includes a monitoring and reporting program as required in Title 27 for evaluation, detection and corrective action which will include groundwater, vadose zone and leachate monitoring.

In addition, prior to the anticipated rainy season, the Discharger must conduct a facility inspection to assess the condition of the drainage control system and groundwater monitoring equipment. Any repairs and maintenance shall be completed by 31 October, and a report submitted to the Board by 15 November. Reporting must be made both semi-annually and annually.

CEQA

Under the provisions of the California Environmental Quality Act (CEQA) an Environmental Impact Report has been prepared and certified by Amador County, the lead agency, on 30 November 2010. A Notice of Determination was filed by the Amador County Board of Supervisors on 5 January 2011.

Attachment A
R5-2010-xxx

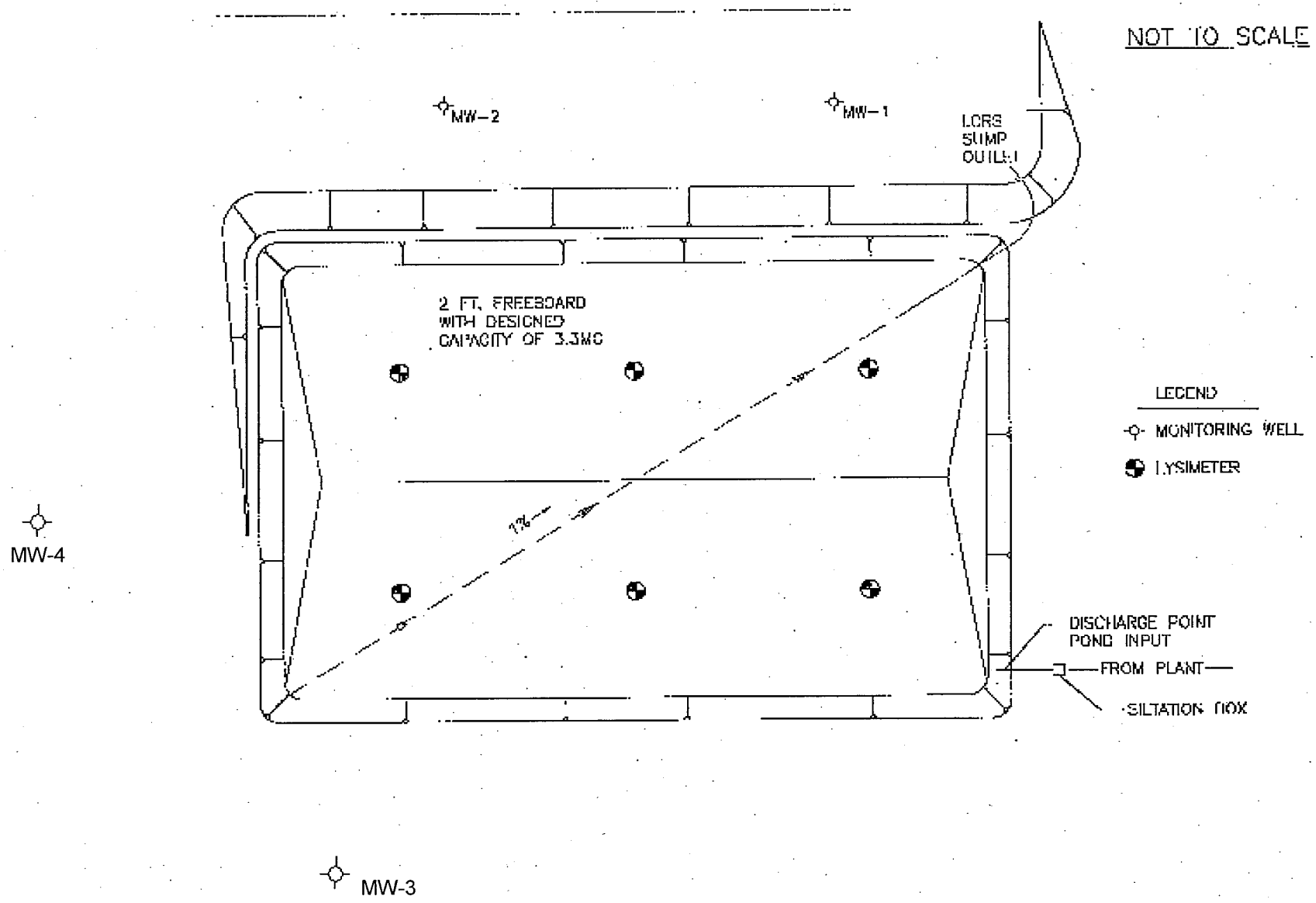


NELSON engineering

BUENA VISTA
BIOMASS POWER
IONE, CA

WASTEWATER
PERMIT DRAWING

CMS-01



Attachment B
Buena Vista Biomass Power
Waste Discharge Requirements
R5-2010-xxx