

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2008-XXXX
FOR
BAR 20 PARTNERS, LTD., A LIMITED PARTNERSHIP BETWEEN
JOHN SHEHADEY AND RICHARD SHEHADEY, AND MICROGY, INC.
BAR 20 DAIRY NO. 2
FRESNO COUNTY

This Monitoring and Reporting Program (MRP) is issued pursuant to California Water Code (CWC) § 13267. The Discharger shall not implement any changes to this MRP unless and until the California Regional Water Quality Control Board, Central Valley Region, (hereafter "Regional Water Board") adopts or the Executive Officer issues a revised MRP.

This MRP includes Monitoring, Record-Keeping, and Reporting Requirements. Monitoring requirements include monitoring of discharges of manure and/or process wastewater, storm water, and tailwater from the production area and cropland, biogas scrubber effluent, and groundwater monitoring in order to determine if the Discharger's facility is in compliance with the discharge specifications of Waste Discharge Requirements Order No. R5-2008-____ (hereafter "Order").

Monitoring requirements also include monitoring of nutrients applied to, and removed from, cropland in order for the Discharger to demonstrate the facility's Nutrient Management Plan minimizes leaching of nutrients and salts to groundwater and the potential transport of these constituents to surface water.

In addition, monitoring requirements include periodic visual inspections of the dairy and digester to verify and document they are being operated and maintained to ensure continued compliance with the Order.

The Discharger shall keep and maintain records for five years of the monitoring activities for the production and cropland and to report the results of all monitoring. The Discharger shall conduct monitoring, record-keeping, and reporting as specified below.

If monitoring consistently shows no significant variation in the magnitude of a constituent concentration after at least two years of monitoring, the Discharger may request the MRP be revised to reduce monitoring frequency. The proposal must include adequate technical justification for reduction in monitoring frequency.

Monitoring Requirements

A. Visual Inspections

1. Production Area

a. Daily

- (1) Inspect the digester equipment area (works) and note material conditions: plumbing, control equipment, feedstock storage, etc.; for evidence of leaks, corrosion, cracks, or other signs of equipment failure or malfunction.

- (2) Inspect the cattle carcass holding area for security and evidence of scavenging.
- b. Annually, no earlier than 1 September and no later than 1 November:
 - (1) Inspect all wastewater retention structures and note material conditions: berm integrity, cracking, slumping, erosion, excess vegetation, animal burrows, and/or seepage.
 - (2) Inspect the all storm water conveyance structures and equipment and note material conditions: integrity, proper functioning, and evidence of blockage and/or leaks.
 - (3) Inspect all dry waste storage and feed storage areas and note material conditions: appropriate drains, protection from rainfall and/or runoff, and measures to ensure leachate will drain to wastewater retention system.
- c. Weekly during the wet season (December to March) and monthly between April and November:
 - (1) Inspect the wastewater retention system for freeboard and insure adequate capacity to retain the anticipated amount of wastewater and runoff that will be generated prior to the next opportunity to apply wastewater to the cropland. Freeboard shall be the vertical distance from the pond surface to the lowest elevation of the surrounding berm or the bottom of the spillway and shall be measured to the nearest 0.25 foot (3 inches). Monthly, photograph each lagoon showing the current freeboard on that date. All photographs shall be dated and maintained as part of the facility records.
 - (2) Inspect all dry waste and feed storage areas and note any conditions or changes that would result in discharges to surface water or off-site, and/or infiltration to underlying soil, and/or prevent drainage to the wastewater retention system.
 - (3) Inspect all corrals and note any occurrence of standing water, mud/manure slurry, and/or saturated manure stockpiles that could result in infiltration of wastewater to underlying soil.
- d. During and after each significant storm event¹:
 - (1) Visual inspect storm water conveyance and containment structures and wastewater retention system for discharge, freeboard, berm integrity, cracking, slumping, erosion, excess vegetation, animal burrows, and seepage or other evidence of uncontrolled discharge of wastewater.

¹ A significant storm event is defined as a storm event that results in continuous runoff of storm water for a minimum of one hour, or intermittent runoff for a minimum of three hours in a 12-hour period.

2. Cropland

- a. Daily when process wastewater is being applied:
 - (1) Inspect cropland area and note: the condition of cropland berms and surface water protection structures (banks, roadways, etc.). Observe for the occurrence of animal burrows, piping, and bank erosion.
 - (2) Inspect the cropland fields being irrigated for the presence (or lack) of field saturation, excessive deposition of manure solids, tailwater standing at field ends or in conveyance ditches, erosion, runoff (including tailwater discharges from the end of fields, pipes, or other conveyances), and nuisance conditions.
 - (3) Inspect all water supply wells within or adjacent to application cropland and note any application of wastewater within 100 feet of any well.
- b. Annually, prior to the beginning of the rainy season, inspect all surface water protection features and structures. These structures shall be inspected for berm integrity, cracking, slumping, erosion, animal burrows, and other evidence of failure or impending failure.

B. Discharge Monitoring

The discharge of manure/digester waste or wastewater and/or storm water runoff containing manure/digester waste or wastewater to surface water bodies is prohibited by the Order. In the event of such a discharge due to a failure of equipment, facilities, and/or management practices, the Discharger shall monitor discharges of manure and/or process wastewater, storm water, and tailwater from the production area and cropland for the constituents, and at the frequency specified in below.

1. Unauthorized Discharges (Including Off-Property Discharges) of manure/digester waste or wastewater from the production area; irrigation water mixed with wastewater or tailwater from cropland; or storm water runoff from either area which has come in contact with waste:
 - a. Daily during each discharge:
 - (1) Record date, time, approximate volume (gallons) or weight (tons), duration, location, source, and ultimate destination of the discharge.
 - (2) Field measurements of the discharge for electrical conductivity and pH.
 - (3) Laboratory analyses of the discharge for nitrate-nitrogen, total ammonia-nitrogen, ammonia-nitrogen, total Kjeldahl nitrogen, total phosphorus, potassium, total dissolved solids, five day biological oxygen demand (BOD₅), total suspended solids, and total and fecal coliform.
 - b. Daily during each discharge to surface water:

- (1) For surface water upstream² and downstream³ of the discharge.
 - a. Field measurements for electrical conductivity, dissolved oxygen, temperature, and pH.
 - b. Laboratory analyses for nitrate-nitrogen, total ammonia-nitrogen, unionized ammonia-nitrogen, total Kjeldahl nitrogen, total phosphorus, potassium, total dissolved solids, BOD₅, total suspended solids, and total and fecal coliform.

If conditions are not safe for sampling, the Discharger must provide documentation of why samples could not be collected and analyzed. For example, the Discharger may be unable to collect samples during dangerous weather conditions (such as local flooding, high winds, tornados, electrical storms, etc.). Once the dangerous conditions have passed, the Discharger shall collect a sample of the discharge or, if the discharge has ceased, from the waste management unit from which the discharge occurred.

Discharge and surface water sample analyses shall be conducted by a laboratory certified for such analyses by the California Department of Health Services (i.e., California certified Environmental Laboratory Accreditation Program [ELAP] laboratory). These laboratory analyses shall be conducted in accordance with the Title 40 Code of Federal Regulations (CFR) Part 136 (Guidelines Establishing Test Procedures for the Analysis of Pollutants) or other test methods approved by the Executive Officer.

1. All discharges shall be reported as specified in the Noncompliance Reporting Requirements and Annual Reporting Requirements, as appropriate. The rationale for all discharge-sampling locations shall be included in the reports.
2. Biogas Scrubber Effluent Monitoring
 - a. Daily
 - (1) Measure and record the quantity of effluent generated by the biogas scrubber.
 - (2) Measure and record the pH of the biogas scrubber effluent.
 - b. Quarterly:
 - (1) Collect and grab sample of biogas scrubber effluent.
 - (2) Analyze for nitrate-nitrogen, ammonium-nitrogen, total Kjeldahl nitrogen, total phosphorus, potassium, pH, total dissolved solids, and electrical conductivity.

² Upstream samples shall be taken where the surface water body enters the facility.

³ Downstream samples shall be taken beyond where the discharge has blended with the receiving waters but not influenced by dilution flow from other discharges.

- (3) Analyze for general minerals (bicarbonate, calcium, carbonate, chloride, magnesium, sodium, and sulfate), iron, and manganese.
3. Nutrient Monitoring – by 1 October 2008, the Discharger shall begin monitoring wastewater, digester effluent, dry waste, and plant tissue produced at the facility, soil in the cropland, and irrigation water used on each cropland field for the constituents and at the frequency specified below. This information is for use in conducting nutrient management on the individual cropland fields and the facility on the whole. The Discharger is encouraged to collect and use additional data, as appropriate, to refine nutrient management.
 - a. Wastewater
 - (1) Each application: Record the volume (gallons or acre-feet) and date of process wastewater application to each cropland field.
 - (2) Monthly, measure and record the electrical conductivity in each main wastewater retention pond.
 - (3) Quarterly (during each quarter when wastewater is applied to cropland), prior to blending for application to cropland:
 - a. Analyze for nitrate-nitrogen, ammonium-nitrogen, total Kjeldahl nitrogen, boron, total phosphorus, potassium, pH, total dissolved solids, and electrical conductivity.
 - b. Analyze for general minerals (bicarbonate, calcium, carbonate, chloride, magnesium, sodium, and sulfate), iron, and manganese.
 - b. Digester Effluent (liquid from the screw press separator)
 - (1) Daily, measure and record the volume discharged into the facility's wastewater retention system.
 - (2) Daily, measure and record the electrical conductivity.
 - (3) Quarterly
 - a. Analyze for nitrate-nitrogen, ammonium-nitrogen, total Kjeldahl nitrogen, boron, total phosphorus, potassium, pH, total dissolved solids, and electrical conductivity.
 - b. Analyze for general minerals (bicarbonate, calcium, carbonate, chloride, magnesium, sodium, and sulfate), iron, and manganese.
 - c. Dry Waste
 - (1) Each offsite export of dry waste: record the total volume (cubic yards) or total weight (tons), and analyze for either density (pounds per cubic foot) or percent moisture.

- (2) Twice annually: analyze for ammonium-nitrogen, nitrate, total Kjeldahl nitrogen, chloride, total phosphorus, potassium, electrical conductivity (or total dissolved solids), and density (if volume manure applied is reported) or percent moisture (if weight manure applied is reported).
- d. Plant Tissue
- (1) At harvest: record the total weight (tons) and percent wet weight or volume (cubic yards) and density (grams per liter) of harvested material removed from each cropland field.
 - (2) At harvest: analyze for total nitrogen, phosphorus, and potassium (expressed on a dry weight basis), and percent wet weight (if weight of harvested material is reported) or density (if volume of harvested material is reported).
- e. Soil
- (1) Annually, prior to spring planting for each cropland field:
 - a. In the root zone for the crop to be planted: analyze for nitrate-nitrogen, total Kjeldahl nitrogen, soluble phosphorous, and electrical conductivity.
 - b. Below the root zone: analyze for nitrate-nitrogen, and electrical conductivity.
 - (2) Annually, prior to fall planting for each cropland field:
 - a. In the root zone of the crop to be planted: analyze for nitrate-nitrogen, phosphorus, potassium, total Kjeldahl nitrogen, soluble phosphorus, and electrical conductivity.
 - b. Below the root zone: analyzed for nitrate-nitrogen, total Kjeldahl nitrogen, and electrical conductivity.
- f. Irrigation Water
- (1) Each irrigation event for each cropland field, record volume (gallons or acre-feet) and source (well or canal) of irrigation water applied and date(s) applied.
 - (2) One irrigation event from each source of irrigation water during each irrigation season - analyze for: electrical conductivity and total nitrogen⁴

C. Groundwater Monitoring

The Discharger shall monitor groundwater conditions beneath the facility by sampling domestic wells, agricultural supply wells and monitoring wells present in the production and cropland. This monitoring shall be conducted at the frequency and for the parameters specified below.

⁴ In lieu of sampling the irrigation water, the Discharger may provide equivalent data from the local irrigation district.

1. Domestic and Agricultural Supply Wells

a. Annually:

- (1) Field measurements for pH, temperature, and electrical conductivity.
- (2) Analyze for nitrate-nitrogen, ammonium-nitrogen, total Kjeldahl nitrogen, calcium, potassium, sodium, magnesium, bicarbonate, carbonate, sulfate, chloride, boron, iron, manganese, total phosphorus, total dissolved solids, and total coliform organisms.

2. Monitoring Wells

a. Quarterly for two years and semi-annually thereafter:

- (1) The depth to groundwater from a surveyed reference point to the nearest 0.010 foot in each monitoring well.
- (2) Field measure pH, temperature, and electrical conductivity.

b. Quarterly for two years and semi-annually thereafter: analyze for nitrate-nitrogen, ammonium-nitrogen, total Kjeldahl nitrogen, calcium, potassium, sodium, magnesium, bicarbonate, carbonate, sulfate, chloride, boron, iron, manganese, total phosphorus, and total dissolved solids.

3. Sampling Procedures

Approved sampling procedures are listed on the Central Valley Water Board's web site at:

http://www.waterboards.ca.gov/centralvalley/water_issues/dairies/sampling_procedures.pdf

When special procedures appear to be necessary, the Discharger may request approval of alternative sampling procedures. The Executive Officer will review such requests and if adequate justification is provided, may approve the requested alternative sampling procedures.

D. General Monitoring Requirements

1. The Discharger shall comply with all the provisions and specifications of the Standard Provisions and Reporting Requirements.
2. All samples collected shall be representative of the volume and nature of the material being sampled.
3. Field activity reports should be created for each monitoring event, one record for each monitored location (monitoring well, water supply well, surface water body, cropland field). The field activity reports should identify the technician performing the fieldwork, the technician's affiliation, the entity commissioning the work (property owner, contractor, consultant, etc.), the location of the work, the identification of the sampled location, and

the date(s) of the work. The field activity record should be prepared and signed by the field technician in the field when the work is performed.

4. All samples containers shall be labeled and records maintained to show the time and date of collection as well as the person collecting the sample and the sample location.
5. All samples collected for laboratory analyses shall be preserved and submitted to the laboratory within the required holding time appropriate for the analytical method used and the constituents analyzed.
6. All samples submitted to a laboratory for analyses shall be identified in a properly completed and signed Chain-of-Custody form.
7. Testing instruments used for pH, and electrical conductivity may be used in the field provided: the operator is trained in the proper use and maintenance of the instruments; the instruments are field calibrated prior to each monitoring event; and instruments are serviced and/or calibrated by the manufacturer at the recommended frequency.

E. Record Keeping Requirements

1. Dischargers shall maintain on-site (for review by Regional Water Board inspectors) for a period of five years from the date they are created all information as follows:
 - a. Records of the inspections including any and all subsequent corrective actions specified in Section **A. Visual Inspection** above.
 - b. All records for the production area and digester including:
 - (1) Records documenting actions taken to correct deficiencies noted during the inspections. Deficiencies not corrected in 30 days must be accompanied by an explanation of the factors preventing immediate correction.
 - (2) Records of the date, time, and estimated volume of any digester bypass and/or overflow or leaks from any wastewater conveyance or storage structure.
 - (3) Records documenting the daily wastewater electrical conductivity measurements in each main wastewater retention pond.
 - (4) Records of all dry waste and/or wastewater exported from the facility which include information on the hauler, destination, dates hauled, and amount exported.
 - (5) Action taken and date(s) to correct unauthorized releases as reported in accordance with Section **F.1. Noncompliance Reporting Requirements** below.
 - (6) Records of monitoring activities, field activity records, and laboratory analyses conducted as required in Section **D. General Monitoring Requirements** above.
 - c. All records for the cropland including:

- (1) All information necessary to document implementation and management of the elements of the nutrient management plan (NMP).
 - (2) Identification of crop, acreage, dates of planting and harvest, and actual crop yields for each field.
 - (3) Dates, locations, and approximate weight and moisture content, or volume and density, of dry waste or artificial fertilizer applied to each field.
 - (4) Dates, locations, and volume of wastewater applied to each field.
 - (5) Weather conditions for 24 hours prior to and following application of dry waste and wastewater.
 - (6) Results (analytical laboratory reports) from dry waste, wastewater, digester effluent, irrigation water, soil, plant tissue, storm water and/or tailwater discharges, surface water, biogas scrubber effluent, and groundwater sampling.
 - (7) Records documenting any corrective actions taken to correct deficiencies noted during the inspections required in the Monitoring Provisions above. Deficiencies not corrected in 30 days must be accompanied by an explanation of the factors preventing immediate correction.
 - (8) Actions taken to correct unauthorized releases as reported in accordance with Section **F.1. Noncompliance Reporting** below.
 - (9) Records of monitoring activities, field activity records, and laboratory analyses conducted as required in Section **D General Monitoring Requirements** above.
- d. A copy of the Discharger's current NMP.
- e. The Manure/Process Wastewater Tracking Manifest forms documenting the export of waste from the facility. A copy of this form can be found on our web site in Attachment D of the Waste Discharge Requirement General Order R5-2007-0035 for Existing Milk Cow Dairies (Dairy General Order) at:
- http://www.waterboards.ca.gov/centralvalley/adopted_orders/GeneralOrders/R5-2007-0035.pdf

F. Reporting Requirements

1. Noncompliance Reporting Requirements

- a. The Discharger shall report any noncompliance that endangers human health or the environment or any noncompliance with Prohibitions in the Order, within 24 hours of becoming aware of its occurrence. The incident shall be reported to the Regional Water Board office, Fresno County Environmental Health Services (559-445-3357), and to the California Office of Emergency Services (OES) (800-852-7550). During

non-business hours, the Discharger shall leave a message on the Regional Water Board's voice mail. The message shall include the time, date, place, and nature of the noncompliance, the name and number of the reporting person, and shall be recorded in writing by the Discharger. The OES phone number is operational 24 hours a day.

- b. A written report shall be submitted to the Regional Water Board office within two weeks of the Discharger becoming aware of the non-compliance incident. The report shall contain a description of the noncompliance, its causes, duration, and the actual or anticipated time for achieving compliance. The report shall include complete details of the steps that the Discharger has taken or intends to take, in order to prevent recurrence. All intentional or accidental spills shall be reported as required by this provision. The written submission shall contain:
- (1) The approximate date, time, and location of the noncompliance including a description of the ultimate destination of any unauthorized discharge and the flow path of such discharge to a receiving water body;
 - (2) A description of the noncompliance and its cause;
 - (3) The flow rate, volume, and duration of any discharge involved in the noncompliance;
 - (4) The amount of precipitation (in inches) the day of any discharge and for each of the seven days preceding the discharge;
 - (5) A description (location; date and time collected; field measurements of pH, temperature, dissolved oxygen and electrical conductivity; sample identification; date submitted to laboratory; analyses requested) of noncompliance discharge samples and/or surface water samples taken to comply with the **Monitoring Requirements** above for Unauthorized Discharges (Including Off-Property Discharges) of manure /digester waste or process wastewater from the production area or land application area and storm water discharges to surface water from the production area;
 - (6) The period of noncompliance, including dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue;
 - (7) A time schedule and a plan to implement corrective actions necessary to prevent the recurrence of such noncompliance; and
 - (8) The laboratory analyses of the noncompliance discharge sample and/or upstream and downstream surface water samples shall be submitted to the Regional Water Board office within 45 days of the discharge.

2. Annual Reporting Requirements

- a. An annual Facility Report is due by **1 July** of each year for the previous year's monitoring, planting and harvesting.
- b. The annual report shall include all the information as specified below:
 - (1) Summary of the crops grown in the facility cropland to include: field identification, type, date planted and harvested, and amount harvested.
 - (2) Number and type of animals, and number maintained in each type of confinement (free-stalls or open corrals). Statement reporting the type of manure removal practices in each type of confinement (i.e., flush lanes, dry scrape, vacuum pickup, etc.).
 - (3) Summary of all dry waste and/or wastewater discharges from the facility to surface water or to land areas (cropland or otherwise) when not in accordance with the facility's Nutrient Management Plan that occurred during the annual reporting period, including date, time, location, approximate volume, a map showing discharge and sample locations, rationale for sample locations, and method of measuring discharge flows.
 - (4) Summary of all storm water discharges from the production area to surface water during the annual reporting period, including the date, time, approximate volume, duration, location, and a map showing the discharge and sample locations, rationale for sample locations, and method of measuring discharge flows.
 - (5) Summary of all discharges from the cropland to surface water that have occurred during the annual reporting period, including the date, time, approximate volume, location, source of discharge (i.e., tailwater, process wastewater, or blended process wastewater), a map showing the discharge and sample locations, rationale for sample locations, and method of measuring discharge flows.
 - (6) Copies of records documenting the monthly wastewater electrical conductivity measurements in each main wastewater retention pond.
 - (7) Copies of laboratory analyses of all discharges (dry waste, wastewater, digester effluent, or tailwater), surface water (upstream and downstream of a discharge), and storm water, including chain-of-custody forms and laboratory quality assurance/quality control results.
 - (8) Tabulated field measurement and analytical data for samples of the dry waste, wastewater, digester effluent, irrigation water, soil, and plant tissue. The data shall be tabulated to clearly show sample dates, constituents analyzed, constituent concentrations, and detection limits.

- (9) Tabulated irrigation and nutrient application data for each cropland field. The data shall be tabulated to show each field, area (acreage), crop(s) grown, amount and source of irrigation water, and the amount and source of nutrients and salt added (dry waste, wastewater, or fertilizer).
- (10) Calculations showing the total nitrogen, phosphorus, potassium, and non-nutrient salts applied to each field, including from sources other than dry waste or wastewater.
- (11) Calculations showing the nitrogen and salt balance for each field and the facility as a whole during the reporting period. The balance is determined by the amount of nitrogen and salt present in the cropland soil at the beginning of the reporting period, plus the amount added by dry waste, wastewater, and/or fertilizer, and minus the amount removed by harvest and/or export from the facility.
- (12) If the amount of salt exceeded 2,000 pounds per acre for single crop fields or 3,000 pounds per acre for double crop fields; for any field, a statement indicating how the NMP will be modified to bring the facility back into compliance with the Order.
- (13) Copies of all records and reports prepared for Section **F.1. Non-Compliance Reporting** above.
- (14) Copies of all facility corrective action reports which resulted from inspections for the past year.

3. **Groundwater Reporting Requirements**

- a. The Discharger shall report the results of all groundwater monitoring concurrently with the annual report.
- b. Groundwater monitoring reports shall include:
 - (1) Copies of all field activity reports, chain-of-custody forms, and laboratory analyses (including laboratory quality assurance/quality control results) for each well sample (water supply wells and monitoring wells) collected.
 - (2) Tabulated groundwater elevation data showing date of measurement, depth to water, wellhead elevation and groundwater elevation in each on the monitoring wells.
 - (3) Tabulated analytical results for the well samples showing date of sampling, constituents analyzed, and detected concentrations.
 - (4) A potentiometric contour map showing the groundwater flow direction, gradient, and elevations for the most current groundwater sampling event.
 - (5) The tabulated data shall include both historical and current information.

4. **Hydrologic Report with Monitoring Well Installation and Sampling Plan (MWISP) – by 30 May 2008**, the Discharger shall submit a Hydrogeologic Report and MWISP. At a minimum the report must contain all of the information listed below:
- a. For Existing Monitoring Wells include the following:
 - (1) General Information:
 - a. Topographic map depicting the facility boundaries, and the major waste management areas (wastewater retention ponds, corrals, dry waste and feed storage areas, digester works, and cropland). The map should also show any existing on-site or nearby (within 2,000 feet) domestic, irrigation, and municipal supply wells and monitoring wells, utilities, surface water bodies, drainage courses and their tributaries/destinations, and other major physical and man-made features (roads, schools, parks, etc), as appropriate.
 - b. A description of the underlying geology and hydrogeology of the facility. Historical groundwater depth and water quality data should be included. Copies of Department of Water Resources Well Completion Records or other well construction description for all on-site water supply wells (active or otherwise) should be attached.
 - c. Site plan showing monitoring well locations, other existing wells, and major physical site features (corrals, freestall barns, milk parlors, feed storage areas, etc.) waste handling facilities (separator basins, retention ponds, manure storage areas, etc.), irrigated cropland and pasture, and on-site or adjacent water features.
 - d. Monitoring Well Construction:
 - (a) Number and depths of the monitoring well installed.
 - (b) Monitoring well identification (i.e., numbers).
 - (c) Date(s) of drilling and well installation.
 - (d) Description of monitoring well locations including field-implemented changes (from proposed locations) due to physical obstacles or safety hazards.
 - (2) As – built for each monitoring well depicting the details outlined above
 - (3) All depth to water measurements made during the field program.
 - (4) Construction summary table of pertinent information such as date of installation, well depth, casing diameter, screen depth and interval, seal depth and interval, and well elevation.
 - (5) Monitoring Well Survey:
 - a. Identify coordinate system and/or reference points used.

- b. Description of reference points.
 - c. Horizontal and vertical coordinates of north side of each well casing with cap removed.
 - d. Name, license number, affiliation, and signature of California licensed professional responsible for survey.
 - e. Surveyor's field notes.
 - f. Tabulated survey data, certified by the surveyor.
- (6) Proposed monitoring event – schedule, depth to water measuring equipment and practices, well purging equipment, practices, and criteria for completion, sample collection equipment and practices, and analytical procedures.
5. If the Hydrogeologic Report determines that additional monitoring wells are needed, the Hydrologic report should include a **Monitoring Well Installation and Sampling Plan (MWISP)**, which should include the following:
- a. Rational for the proposed number, construction, and location of the monitoring wells. Include anticipated depth to groundwater, groundwater flow direction (source of data), and identify the major waste management areas of the facility (corrals, wastewater retention ponds, digester work, and cropland). Provide for installation of a monitoring well up gradient from the influence of the facility (in as much as possible) and down gradient from each of the major waste management areas of the facility.
 - b. Local permitting information, as required by the Fresno County Environmental Health Services Department.
 - c. Drilling details; method, type of equipment, and logging practices/equipment.
 - d. Health and Safety Plan.
 - e. Proposed monitoring well design – a well construction schematic depicting: total depth, anticipated groundwater depth, borehole diameter, well construction materials, screen interval and perforations, seal intervals and materials, surface completion, and well protection.
 - f. Proposed well development – schedule (at least seven days after completion), method, equipment, measured parameters, and criteria used to determine that completion is complete.
 - g. Surveying – the method used to obtain horizontal and vertical positions, method accuracy, and the name and affiliation of the registered professional performing the survey.
 - h. Proposed monitoring event – schedule (at least twenty-four hours after development), depth to water measuring equipment and practices, well purging

equipment, practices, and criteria for completion, sample collection equipment and practices, and analytical procedures.

6. Monitoring Well Installation Completion Report (MWICR) - within 60 days of installation of the monitoring wells, the Discharger shall submit MWICP. At a minimum the MWICP shall summarize the field activities as described below:
 - a. General Information: same as required for the Hydrogeologic Report and MWISP in **Sections F.4. and F.5.** above with the necessary revisions and/or updated data gathered during the field work to install the monitoring wells.
 - b. Monitoring Well Construction.
 - (1) Number and depths of the monitoring well installed.
 - (2) Monitoring well identification (i.e., numbers).
 - (3) Date(s) of drilling and well installation.
 - (4) Description of monitoring well locations including field-implemented changes (from proposed locations) due to physical obstacles or safety hazards.
 - (5) Description of drilling and construction, including equipment, methods, and difficulties encountered (such as hole collapse, lost circulation, need for fishing).
 - (6) Name and address of drilling company, driller, California License Number, and logger (name and affiliation of geologist).
 - (7) Driller's Well Completion Report and lithologic log of borehole.
 - c. As – built for each monitoring well depicting the details outlined above
 - d. All depth to water measurements made during the field program.
 - e. Field notes from drilling, installation, and surveying activities (i.e. sub-contractor dailies as appropriate).
 - f. Construction summary table of pertinent information such as date of installation, well depth (below site grade), casing diameter, screen depth and interval, seal depth and interval, and casing elevation (above site grade).
 - g. Monitoring Well Development:
 - (1) Date and time of development.
 - (2) Name and affiliation of technician performing development.
 - (3) Method of development.
 - (4) Methods used to determine when development is complete.

- (5) Development log: volume of water purged and measurements for temperature, pH, and electrical conductivity during and after development. Response notes – (bailing to dry, recovery time, number of development cycles).
 - (6) Disposal of development water.
 - h. Monitoring Well Survey:
 - (1) Identify coordinate system and/or reference points used.
 - (2) Description of reference points.
 - (3) Horizontal and vertical coordinates of north side of each well casing with cap removed.
 - (4) Name, license number, affiliation, and signature of California licensed professional responsible for survey.
 - (5) Surveyor's field notes.
 - (6) Tabulated survey data, certified by the surveyor.
7. **Groundwater Limitations Analysis Report.** The Discharger shall submit to the Executive officer a Groundwater Limitations Analysis Report consistent with the Order.
 - a. This report shall contain an evaluation of the groundwater quality and flow data to assess trends.
 - b. Data shall be presented and evaluated to address:
 - (1) The monitoring program's adequacy to assess compliance with the Order.
 - (2) Whether groundwater data provided is representative of conditions up gradient of the influence of the facility.
 - (3) Whether groundwater data provided is representative of conditions down gradient of the major waste management areas (wastewater retention system, corrals, digester works, and cropland) of the facility.
 - (4) Whether monitoring has been conducted in compliance with the Order and consistent with this MRP.
 - c. The report shall propose specific numeric groundwater limitations for each waste constituent that reflects full implementation of best practicable treatment or control (BPTC) and reflecting applicable water quality objectives for that waste constituent. The report shall describe in detail how these were determined considering actual data from monitoring wells comprising the approved groundwater monitoring program, impact reductions through full implementation of BPTC, the factors in CWC § 13241, Resolution 68-16, the Basin Plan, etc. The Discharger may, submit results of a validated groundwater model or other hydrogeologic information to support its proposal.

G. General Reporting Requirements

1. The results of any monitoring conducted more frequently than required at the locations specified herein shall be reported to the Regional Water Board.
2. Laboratory analyses for manure, process wastewater, and soil shall be submitted to the Regional Water Board upon request by the Executive Officer.
3. Each report shall be signed by the Discharger or a duly authorized representative as specified in the Standard Provisions and Reporting Requirements, Section C. 6.
4. All technical reports required by this MRP that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared as specified in the Standard Provisions and Reporting Requirements, Section C. 8.

5. Submit Reports to:

California Regional Water Quality Control Board
Central Valley Region
1685 E Street
Fresno, CA 93706
Attention: Confined Animal Regulatory Unit

ORDERED BY: _____
PAMELA C. CREEDON, Executive Officer

(Date)

SMH: 2/5/08