

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM R5-2012-XXXX

FOR  
DARLING INTERNATIONAL INC., OSCAR HEARD  
AND VAL AND MARY AZEVEDO  
DARLING INTERNATIONAL RENDERING PLANT  
STANISLAUS COUNTY

The Monitoring and Reporting Program (MRP) describes requirements for monitoring the wastewater storage ponds, wastewater treatment system influent and effluent, land application areas, and groundwater. This MRP is issued pursuant to Water Code Section 13267. The Discharger shall not implement any changes to this MRP unless and until a revised MRP is issued by the Executive Officer.

All samples shall be representative of the volume and nature of the discharge or matrix of material sampled. The time, date, and location of each sample shall be recorded on the sample chain of custody form. Field test instruments (such as those used to measure pH and dissolved oxygen) may be used provided that:

1. The operator is trained in proper use and maintenance of the instruments;
2. The instruments are calibrated prior to each monitoring event;
3. The instruments are serviced and/or calibrated by the manufacturer at the recommended frequency; and
4. Field calibration reports are submitted as described in the "Reporting" section of the MRP.

**WASTEWATER FLOW MONITORING**

Wastewater flows shall be monitored as follows:

Parameter	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Treatment System Influent Flow <sup>1</sup>	gpd	Meter Reading	Daily	Monthly
Effluent Flow to Each LAA <sup>2</sup>	gpd	Meter Reading	Daily	Monthly

<sup>1</sup> Report as total daily flow from the primary DAF unit to the treatment system.

<sup>2</sup> Report as total daily flow from the storage ponds to each LAA (and to each irrigation check if the LAA has more than one).

**TREATMENT SYSTEM INFLUENT MONITORING**

Influent samples shall be collected at a point downstream of the primary DAF prior to biological treatment. At a minimum, the Discharger shall monitor the influent as follows:

Constituent	Units	Sample Type	Sampling Frequency	Reporting Frequency
BOD <sub>5</sub> <sup>1</sup>	mg/L	Grab	Weekly	Monthly
Total Suspended Solids	mg/L	Grab	Weekly	Monthly
Total Nitrogen	mg/L	Grab	Weekly	Monthly

<sup>1</sup> 5-day, 20°C Biochemical Oxygen Demand.

### TREATMENT SYSTEM EFFLUENT MONITORING

Effluent samples shall be collected at a point downstream of the secondary DAF prior to discharge to the storage ponds. At a minimum, the Discharger shall monitor the effluent as follows:

Constituent	Units	Sample Type	Sampling Frequency	Reporting Frequency
BOD <sub>5</sub> <sup>1</sup>	mg/L	Grab	Weekly	Monthly
Total Suspended Solids	mg/L	Grab	Weekly	Monthly
Total Nitrogen	mg/L	Grab	Weekly	Monthly
Fixed dissolved solids	mg/L	Grab	Weekly	Monthly
Chloride	mg/L	Grab	Weekly	Monthly
pH	pH units	Grab	Weekly	Monthly

<sup>1</sup> 5-day, 20°C Biochemical Oxygen Demand.

### WASTEWATER STORAGE POND MONITORING

The wastewater storage ponds shall be monitored as follows:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Freeboard	0.1 feet	Staff Gage	Weekly	Monthly
Dissolved Oxygen	mg/L	Grab	Weekly	Monthly
Odors	--	Observation	Weekly	Monthly

### LAND APPLICATION AREA MONITORING

#### A. Daily Pre-Application Inspections

The Discharger shall inspect the land application areas at least **once daily** prior to and during irrigation events, and observations from those inspections shall be documented for inclusion in the monthly monitoring reports. The following items shall be documented for each check or field to be irrigated on that day:

- a. Evidence of erosion;
- b. Containment berm condition;
- c. Condition of each standpipe and flow control valve (if applicable);
- d. Proper use of valves;
- e. Soil saturation;
- f. Ponding;
- g. Tailwater ditches and potential runoff to off-site areas;
- h. Potential and actual discharge to surface water;
- i. Odors that have the potential to be objectionable at or beyond the property boundary; and
- j. Insects.

Temperature; wind direction and relative strength; and other relevant field conditions shall also be observed and recorded. The notations shall also document any corrective actions taken based on observations made. A copy of entries made in the log during each month shall be submitted as part of the Monthly Monitoring Report. If no irrigation with wastewater takes place during a given month, then the monthly monitoring report shall so state.

## B. Routine Monitoring

The Discharger shall perform the following routine monitoring and loading calculations during all months when land application occurs, and shall present the data in the Monthly and Annual Monitoring Reports.

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Precipitation	0.1 in.	Rain Gauge <sup>1</sup>	Daily	Monthly, Annually
LAAs and individual checks receiving wastewater	--	Observation	Daily	Monthly, Annually
Hydraulic loading rate				
Wastewater	in.	Calculated <sup>2</sup>	Daily	Monthly, Annually
TID water	in.	Calculated <sup>2</sup>	Daily	Monthly, Annually
Nitrogen loading rate				
Wastewater	lb/ac/day	Calculated <sup>2, 3</sup>	Daily	Monthly, Annually
Supplemental water	lb/ac/day	Calculated <sup>2, 3</sup>	Daily	Monthly, Annually
Other sources (fertilizer, etc.)	lb/ac/mo	Calculated <sup>2, 4</sup>	Daily	Monthly, Annually
Fixed dissolved solids loading rate (wastewater plus TID water)	lb/ac/mo	Calculated <sup>2, 3</sup>	Monthly	Monthly, Annually

<sup>1</sup> Data obtained from the nearest National Weather Service rain gauge is acceptable.

<sup>2</sup> Rate shall be calculated for each irrigation check.

- 3 Total nitrogen and FDS loading rates shall be calculated using the applied volume of wastewater, supplemental irrigation water, and actual application area using the specified method m in Section D (Mass Loading Limitations) of the WDRs.
- 4 Loading rates for supplemental nitrogen shall be calculated using the actual load and the application area.

### GROUNDWATER MONITORING

The current groundwater monitoring well network consists of MW-1R, MW-2R, MW-3R and MW-4 through MW-6. For the purpose of determining compliance with the Groundwater Limitations of the WDRs, MW-5 is designated as the background monitoring well and all other monitoring wells are compliance wells. Prior to construction of any new groundwater monitoring wells, the Discharger shall submit plans and specifications to the Central Valley Water Board for review and approval.

Prior to sampling, the groundwater elevations shall be measured. Depth to groundwater shall be measured to the nearest 0.01 feet. Samples shall be collected using standard EPA methods. Groundwater monitoring shall include, at a minimum, the following constituents:

Constituent	Units	Type of Sample	Sampling and Reporting Frequency
Depth to Groundwater <sup>1</sup>	0.01 feet	Measurement	Semiannually
Groundwater Elevation <sup>1</sup>	0.01 feet	Calculated	Semiannually
Gradient <sup>1</sup>	feet/feet	Calculated	Semiannually
Gradient Direction <sup>1</sup>	Degrees	Calculated	Semiannually
pH	pH units	Grab	Semiannually
Total dissolved solids	mg/L	Grab	Semiannually
Chloride	mg/L	Grab	Semiannually
Nitrate (as nitrogen)	mg/L	Grab	Semiannually
Standard minerals <sup>2</sup>	mg/L	Grab	Annually <sup>5</sup>
Metals <sup>3,4</sup>	µg/L	Grab	Annually <sup>5</sup>

<sup>1</sup> Groundwater elevations shall be determined based on depth-to-water measurements using a surveyed elevation reference point on the well casing.

<sup>2</sup> Standard Minerals shall include, at a minimum, the following elements/compounds: boron, bromide, calcium, fluoride, magnesium, phosphate, potassium, sodium, sulfate, total alkalinity (including alkalinity series), and hardness as CaCO<sub>3</sub>.

<sup>3</sup> Samples analyzed for metals shall be filtered prior to sample preservation using a 0.45-micron filter.

<sup>4</sup> At a minimum, the following metals shall be included: arsenic, copper, lead, iron, manganese, nickel, and zinc.

<sup>5</sup> Monitoring shall occur at least six months apart.

### TURLOCK IRRIGATION DISTRICT LATERAL No. 5 WATER SUPPLY MONITORING

TID water shall be monitored at the on-site pump station with a sample representative of the typical water supply. TID water monitoring shall include at least the following.

Constituents	Units	Sampling and Reporting Frequency
Fixed Dissolved Solids	mg/L	Quarterly
Chloride	mg/L	Quarterly
Total Nitrogen	mg/L	Quarterly
pH	Std. units	Quarterly
Standard minerals	mg/L	Annually

<sup>1</sup> Standard Minerals shall include, at a minimum, the following elements/compounds: boron, calcium, chloride, iron, magnesium, manganese, nitrogen, potassium, sodium, sulfate, total alkalinity (including alkalinity series), and hardness.

### GROUNDWATER SUPPLY MONITORING

The facility groundwater supply wells shall be monitored as follows:

Constituents	Units	Sampling and Reporting Frequency
Fixed Dissolved Solids	mg/L	Quarterly
Chloride	mg/L	Quarterly
Total Nitrogen	mg/L	Quarterly
pH	Std. units	Quarterly
Standard minerals	mg/L	Annually

<sup>2</sup> Standard Minerals shall include, at a minimum, the following elements/compounds: boron, calcium, chloride, iron, magnesium, manganese, nitrogen, potassium, sodium, sulfate, total alkalinity (including alkalinity series), and hardness.

### REPORTING

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample type (e.g., effluent, groundwater), sampling location, and the reported analytical result for each sample are readily discernible. The data shall be summarized in such a manner to clearly illustrate compliance with waste discharge requirements and spatial or temporal trends, as applicable. The results of any monitoring done more frequently than required at the locations specified in the Monitoring and Reporting Program shall be reported in the next scheduled monitoring report.

As required by the California Business and Professions Code Sections 6735, 7835, and 7835.1, all groundwater monitoring reports shall be prepared under the direct supervision of a California-registered professional and signed by the registered professional.

## A. Monthly Monitoring Reports

Daily, weekly, and monthly monitoring data shall be reported in monthly monitoring reports. Monthly reports shall be submitted to the Central Valley Water Board on the **1<sup>st</sup> day of the second month** following sampling (i.e. the January Report is due by 1 March). At a minimum, the reports shall include:

1. Results of wastewater flow, influent, effluent, and storage pond, land application area, Turlock Irrigation District water supply, and groundwater supply monitoring. Data shall be presented in a tabular format.
2. The cumulative volume of wastewater generated during the year to date;
3. Calculations of the average annual effluent chloride and FDS concentration for the calendar year to date.
4. Calculations of total nitrogen (year to date) and FDS (year to date) mass loading rates.
5. A comparison of monitoring data to the requirements of the WDRs and an explanation of any violation of those requirements.
6. Copies of LAA inspection logs.
7. If requested by staff, copies of laboratory analytical report(s).
8. A calibration log verifying calibration of all hand-held monitoring instruments.

## B. Semiannual Monitoring Reports

Effective immediately, the Discharger shall establish a semiannual groundwater sampling and reporting frequency, such that samples are obtained approximately every six months. Semiannual monitoring reports shall be submitted to the Central Valley Water Board by the **1<sup>st</sup> day of the second month after the semiannual period** (e.g., the January-June semiannual report is due by August 1<sup>st</sup>). The Semiannual Monitoring Report shall include the following:

1. Results of groundwater monitoring.
2. A narrative description of all preparatory, monitoring, sampling, and analytical testing activities for the groundwater monitoring. The narrative shall be sufficiently detailed to verify compliance with the WDRs, this MRP, and the Standard Provisions and Reporting Requirements. The narrative shall be supported by field logs for each well documenting depth to groundwater; parameters measured before, during, and after purging; method of purging; calculation of casing volume; and total volume of water purged.
3. Calculation of groundwater elevations, an assessment of groundwater flow direction and gradient on the date of measurement, comparison of previous flow direction and gradient data, and discussion of seasonal trends if any.
4. A narrative discussion of the analytical results for all groundwater locations monitored with reference to summary data tables, graphs, and appended analytical reports (as applicable).

5. Summary data tables of historical and current water table elevations and analytical results.
6. A scaled map showing relevant structures and features of the facility, the locations of monitoring wells, surface water monitoring locations, and any other sampling stations, and groundwater elevation contours referenced to mean sea level datum.
7. Copies of laboratory analytical report(s) for groundwater monitoring.

### **C. Annual Report**

An Annual Monitoring Report shall be submitted to the Central Valley Water Board by **1 February** each year. The Annual Monitoring Report shall include the following:

1. The results of the annual monitoring for Turlock Irrigation District water and groundwater supply monitoring.
2. Tabular and graphical summaries of all data collected during the year.
3. Tabular summaries of monthly and annual totals for wastewater flows, treated wastewater used for irrigation (hydraulic loading in gallons/acre and inches), total nitrogen (lbs/ac/yr), and fixed dissolved solids (lbs/ac/yr).
4. A statistical evaluation of groundwater quality and compliance with the Groundwater Limitations of the WDRs in accordance with the approved *Groundwater Limitations Compliance Assessment Plan* submitted pursuant to Provision I.1.a of the WDRs. Statistical analyses shall be presented for the following constituents: total dissolved solids, chloride, nitrate nitrogen, arsenic, iron, and manganese.
5. A digital database (Microsoft Excel) containing historic effluent, water supply and groundwater monitoring data.
6. A comprehensive evaluation of the effectiveness of the past year's wastewater application operation in terms of odor control and groundwater protection, including consideration of application management practices (e.g., waste constituent and hydraulic loadings, application cycles, drying times, and cropping practices), and groundwater monitoring data.
7. A summary of the crops removed from each LAA and yields (tn/ac). The summary shall include planting and harvest dates and crop type.
8. Estimated flows for the next calendar year.
9. A discussion of compliance and the corrective actions taken, as well as any planned or proposed actions needed to bring the discharge into full compliance with the waste discharge requirements.
10. Summary of information on the disposal of wastewater treatment sludge, including the results from any sludge monitoring required by the disposal facility.
11. A discussion of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program.

12. Equipment maintenance and calibration records, as described in Standard Provision No. C.4.

A letter transmitting the self-monitoring reports shall accompany each report. The letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. The transmittal letter shall contain a statement by the Discharger, or the Discharger's authorized agent, under penalty of perjury, that to the best of the signer's knowledge the report is true, accurate and complete, as described in the Standard Provisions General Reporting Requirements Section B.3.

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

Ordered by: \_\_\_\_\_  
PAMELA C. CREEDON, Executive Officer

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(Date)