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5 December 2014

APPROVED
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MONITORING AND REPORTING PROGRAM ORDER R5-2014-0830 FOR LF-1 COMPOST AREA, RECOLOGY YUBA SUTTER AND FEATHER RIVER ORGANICS, YUBA COUNTY

Please find enclosed Monitoring and Reporting Program (MRP) Order R5-2014-0830 for Recology's LF-1 Compost Area. This Order was prepared solely for the Compost Area operation at the Recology Yuba Sutter landfill. This Order is issued in conjunction with Cleanup and Abatement Order R5-2013-0704 which requires the Discharger to maintain facilities that collect and contain contact storm water generated from within the compost area. Contact storm water generated at the compost operation is a designated waste and may not be co-mingled with storm water generated from other landfill operations. Contact storm water may not be discharged offsite or outside of the compost area as defined by the low permeable aggregate pad and berm.

This MRP requires monitoring and reporting to demonstrate that the compost area collection system is able to control and manage all run-on, run-off, and precipitation from all operational and storage areas under conditions of a maximum probable 25-year, 24 hour peak storm event of 3.16 inches.

This MRP also requires the installation of soil moisture instrumentation to measure percolation through the low permeable aggregate material (compost pad). This instrumentation shall be installed immediately following work plan approval. By **22 December 2014** the Discharger shall submit a work plan proposing to install soil moisture instrumentation described in Facility Monitoring 4.c., of this MRP. As required by the MPR, soil moisture monitoring is to begin during the month of March 2015.

This MRP is effective on 5 December 2014 and monitoring and reporting shall commence immediately.

If you have any questions regarding this MRP, please contact Todd Del Frate at (916) 464-4737 or by email at tdelfrate@waterboards.ca.gov.

Wendy Wyels

WENDY WYELS, SUPERVISOR
Compliance and Enforcement Section

Enc: Monitoring and Reporting Program Order R5-2014-0830

cc: Mayumi Okamoto, Office of Enforcement, Sacramento
Paul Donoho, Yuba County Environmental Health

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2014-0830

RECOLOGY YUBA SUTTER AND FEATHER RIVER ORGANICS
RECOLOGY YUBA SUTTTER LANDFILL LF-1 COMPOST AREA
YUBA COUNTY

This Monitoring and Reporting Program is issued jointly to Recology Yuba Sutter and Feather River Organics (Discharger) for the LF-1 Compost Area. Recology Yuba Sutter is the owner/operator of the closed municipal solid waste Class III landfill. Several active operations are conducted on the cover of landfill LF-1 including a composting operation and green waste processing area. This monitoring and reporting program requires the Discharger to maintain and monitor appropriate facilities which collect contact storm water (leachate) generated within the composting area during rainfall events up to and including the 25 year, 24 hour design storm event of 3.16 inches, as measured at the DWR Marysville station.

This monitoring and reporting program (MRP) is issued pursuant to California Water Code section 13267. Water Code section 13267(b) states, in relevant part:

> *In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region ... shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.*

The technical reports required by this Monitoring and Reporting Program are necessary to evaluate compliance with Waste Discharge Requirements (WDRs) Order R5-2003-0093 and Cleanup and Abatement Order (CAO) R5-2013-0704. The Discharger owns and operates the facility that discharges waste subject to the MRP, the WDRs, and the CAO. Failure to submit complete monitoring reports by the required due dates subjects the Discharger to civil liability as described in Water Code section 13268.

DESCRIPTION OF COMPOST AREA LEACHATE COLLECTION SYSTEM

The collection system is comprised of multiple components as described in this section.

Low Permeable Aggregate Layer (Operations Layer): The base of the compost area consists of an aggregate material with a minimum 15 percent fines and compacted to 90 percent relative compaction achieving a permeability of $1x10^{-6}$ cm/sec or less. This low permeable aggregate layer has been constructed to a minimum thickness of six inches and maintained at

a three percent (3%) slope for proper drainage[1]. The thickness of the pad shall be monitored with at least 24 thickness control monuments, as described in this MRP. Surrounding the low permeable aggregate layer is a perimeter berm constructed of the aggregate material which controls run off, run on, and spills.

Leachate Collection and Storage: Compost storm water (leachate) will gravity drain by the 3% designed slope of the low permeable aggregate layer into a series of six-inch diameter drain pipes installed along the toe of the compost pad. The compost pad working area wraps around the western and southern boundary of LF-2. The 3% slope shall be maintained along these boundaries of LF-2 across LF-1, to the toe of the compost pad approximately 240 and 400 feet, respectively, where leachate will be collected. The leachate collected by these drain pipes will be routed directly into a header pipe installed within the clay-lined perimeter ditch. Leachate collected in this header pipe will then discharge to storm water collection sumps and be pumped into the on-site above ground storage tanks for storage until eventual disposal to the Marysville Publically Owned Treatment Works (POTW), used as compost make up water, or hauled off-site for appropriately permitted disposal.

The current 240,000-gallon storage system includes twelve 20,000 gallon above ground storage tanks and discharge lines. The Discharger may add additional tanks as needed to contain contact stormwater. Failure to contain all contact stormwater generated during rainfall events up to and including the 25 year, 24 hour design storm event is a violation of the CAO.

Collection Sumps: Two 5,000 gallon concrete vaults have been installed north of the compost area. Additional sumps may be added as needed. Contact storm water from the header pipe will discharge into one of these two northern sumps. At the southern end of the compost area, two sumps (west and east) have been installed and will collect contact storm water from the southern green waste processing area. Contact storm water will sheet flow by directional grading to the southern sumps. From the sumps, water will be pumped to the above ground storage tanks. The volume of water pumped into the tanks will be measured using flow meters. All sumps shall contain appropriatly sized pumps and liquid level switches controlling discharge. This MRP requires the Discharger to meter and report flows discharged out of these sumps.

Discharge to POTW or other off-site sources: The Discharger has permission to discharge up to 60,000 gallons of contact storm water per day into the POTW. This disposal option is part of the Discharger's water balance and critical to maintaining capacity during the wet season. If necessary, the Discharger may also haul water off-site to an appropriately permitted disposal area. This MRP requires the Discharger to meter and report all flows discharged off-site, and to provide hauling receipts for any trucked waste.

J-Stands: Two J-Stands have been located at the site, one north of the compost area and one south. The J-Stands are intended as additional storage that will allow a water truck to load contact storm water for use as make-up water in the compost operation. Discharge from the J-Stands will be monitored using flow meters.

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[1] Compliance of the low permeable aggregate layer is evaluated on the thickness of the pad, the 3% slope of the pad, and the presence of liquid below the compacted base.

A. MONITORING

The "compost area" shall include all areas, drainages, and containment structures used during the processing and curing of green waste. As described above, these facilities include the low permeable compost pad, above ground storage tanks, conveyance pipes, berms, and sumps. This monitoring program requires the Discharger to monitor the compost area and leachate collection system in accordance with this MRP.

The monitoring program of this MRP includes:

Section	Monitoring Program
A.1	Compost Pad Thickness and Drainage Controls Monitoring
A.2	Compost Pad Sump Monitoring
A.3	Contact Storm Water Discharge Monitoring
A.4	Facility Monitoring

1. Compost Pad Thickness and Drainage Controls

The Discharger shall operate and maintain the low permeable compost pad at a minimum thickness between six inches and nine inches. As proposed by the Discharger, the thickness of the compost pad shall be monitored using 24 control monuments spaced in a grid pattern across the compost area with 200 feet between rows and 65 feet between markers.

The markers shall have an upper steel plate located six inches above the base of the low permeable layer and the cover of LF-1. The markers shall be surveyed for both horizontal and vertical control and plotted on the facility site map. The survey report shall be included in the February 2015 Monthly Monitoring Report. When the thickness markers are encountered during operations, additional material must be immediately placed to restore proper grade. In addition, compost pad grades of less than 3% (as measured from the base of the perimeter berm adjacent to LF-2 to the base of the compost area perimeter berm) shall be repaired during first available dry period.

The Discharger shall include in the monthly report a description of any drainage control failures and repairs required to make the drainage controls functional. Monthly, the Discharger shall report volume of material placed back onto the pad to restore grade and prepare an isopach map showing the thickness of remaining material as well as areas that need repair.

The Discharger shall monitor the compost pad thickness at each control monument according to the schedule below in Table 1.

Table 1

Inspection Type	Monitoring Frequency	Reporting Frequency
Operations Containment (verify compost operations are conducted within compost pad, perimeter berms intact)[1]	Weekly	Monthly
Compost Pad Thickness Field Verification (each monument exposed must be reported and plotted on map)	Monthly	Monthly
Compost Pad Grading (volume of material needed to restore grade)	Monthly	Monthly
Compost Pad Topographic Survey (maintain 3% grade)[2]	Monthly	Monthly
Compost Pad Drainage Controls	Daily between 15 October and 15 May, and daily during rainfall events for the remainder of the year	Monthly

1. Inspections must include photographs as described in Facility Monitoring, 4.a.
2. Prepare map of survey results and report in February 2015 Monitoring Report.

2. Storage Tank and Sump Monitoring

The storage tanks and sumps shall be monitored **daily** between 15 October and 15 May of each year, and hourly during rainfall events. The Discharger shall monitor the capacity of the storage tanks and contact storm water sumps for adequate freeboard (measured in feet), for remaining capacity.

Between 15 October and 15 May, the Discharger shall inspect the facility on a daily and hourly during rain events to determine whether pumps are operational and appropriately sized, discharge lines are properly connected and not leaking, and that excess sediment has been removed from sumps. The results of each inspection shall be submitted with the monthly report. Storage tanks and sumps shall be placed on a Facility Site Map and properly numbered for reference. Tank and sump monitoring shall be conducted at the frequency outlined in the table below.

Table 2

Inspection Type	Parameter, units	Inspection Frequency[1]	Reporting Frequency
Each storage tank	Freeboard (0.1 feet)	Daily	Monthly
Each sump	Freeboard (0.1 feet)	Daily	Monthly
Each storage tank	Remaining capacity at end of each day (%)	Daily	Monthly
Each sump	Remaining capacity at end of each day (%)	Daily	Monthly
Overflow from tanks and sumps[2]	Yes/No	Daily	Monthly

1. +During rain events Discharger is required to inspect all facilities on a hourly basis.
2. Inspect and document whether or not there has been any overflow from the storage tanks or sumps. If tanks or sumps overflow, Discharger shall immediately contact Board staff by phone or email.

3. Contact Storm Water Discharge Monitoring

The Discharger must monitor flows throughout the system. The Discharger shall install and monitor flow meters on the effluent discharge lines of the storage tanks including the discharge pipe upstream of the on-site POTW discharge point. Other discharge points requiring flow monitoring, include the two J-Stands located north and south of the compost area. If contact water is trucked off-site, then the trucks must be filled from the J-Stands. All flow meters shall be calibrated annually, properly numbered and referenced on the Facility Site Map.

Monitoring shall be conducted **daily** between 15 October and 15 May of each year, and daily during rainfall events for the remainder of the year, in accordance with the table below.

Table 3

Metered Location	Parameter	Units	Monitoring Frequency	Reporting Frequency
Each Sump	Volume pumped/sump	Gallons	Daily	Monthly
Volume hauled off-site[1]	Volume hauled	Gallons	Daily	Monthly
Tanks to POTW	Volume pumped to POTW/day	Gallons	Daily	Monthly
Each J-Stand	Volume pumped and applied to compost piles	Gallons	Daily	Monthly

1. The Discharger shall report the volume hauled and location hauled to, and shall include hauling receipts in with the monthly reports.

4. Facility Monitoring

a. Monthly monitoring reports shall include all data collected from daily and weekly measurements, photographs of the compost area and drainage controls, and an estimate (in percent) of area covered with compost. The monthly report shall include a description of any drainage control failures and repairs required to make the drainage controls functional. These items include diversion berms, drainage flow paths, drain inlets free, ponding on pad, piping, and freeboard of storage tanks and sumps.

b. **Annual Compost Pad Inspection**

Annually, prior to the anticipated rainy season, but no later than **15 September**, the Discharger shall conduct an inspection of the compost pad for the following items: verify that operations are conducted within the compost pad, verify the thickness of the compost pad is a minimum of six inches as determined by the monuments, verify the compost pad is free of significant cracks and has a 3% slope to maintain positive drainage, verify all perimeter low permeable berms are intact and no breaches have developed, verify inlets to drainage pipes and header pipes are clear and free of obstructions, and that discharge pumps, float switches, and discharge lines are operational. The inspection shall assess capacity of storage tanks and sumps and identify any maintenance needed for the compost pad including the underlying final cover of LF-1. The Discharger shall take photos of any problems areas before and after repairs. Any necessary construction, maintenance, or repairs shall be completed by **15 October**. Annual facility inspection reporting shall be submitted as required in Section B.3 of this MRP.

c. **Soil Moisture Monitoring**

The Discharger shall monitor soil moisture conditions beneath the low permeable compost pad to determine if liquids from the compost pad are percolating through the cover of LF-1. The Discharger shall collect soil moisture measurements using soil moisture probes installed to comply with this MRP.

<u>Installation of Soil Moisture Instrumentation</u>
No later than **1 March 2015** the Discharger shall monitor at a minimum four sets (clusters) of soil moisture probes for the 15 acre compost operations area. Each cluster shall contain a minimum of three sensors that can measure volumetric soil moisture. One sensor or probe should be buried at the interface of the low permeable pad and

final soil cover. The next two probes should be buried at depths of one foot and two feet below the top probe. Each instrument cluster shall be properly identified on the Facility Site Map.

Readings from the instrument clusters shall be collected monthly. Data collected shall be presented in a graph with volumetric water content as a percent on the Y-axis and date on the X-axis. Precipitation in inches or other hydrologic factors which may be interpreted as an influence to percolation rates shall be assessed and graphed against volumetric water content. These graphs shall be submitted with the Annual reports as required in Section B.2 of this MRP.

d. Rainfall Monitoring

The Discharger shall monitor an onsite weather station, located within the boundary of LF-1, for the following values. The location of the weather station shall be shown on the Facility Site Map.

Table 6

Parameter	Units	Monitoring Frequency	Reporting Frequency
Rainfall Intensity	Inches/hour	Daily	Monthly
Rainfall Total in 24 hour period (12:00 am to 11:59 pm)	Inches/24 hour interval	Daily	Monthly

e. Site Photo logs

During the first week of each month, the Discharger shall take photographs of all flow meters (showing the volume reading), berms, above ground tank connections, conveyance lines, pipe joints, pipe aprons, sumps, perimeter ditches, compost pad, and any other leachate controls. Monthly reports shall include photo documentation of the above controls.

f. Calibration Logs

On an annual basis, or more frequently if recommended by the manufacturer, the Discharger shall maintain and calibrate all flow meters. Routine maintenance and calibration shall be recorded on the compost pad field inspection form included with the Operations and

Maintenance Manual dated 28 October 2013.

B. REPORTING

The Discharger shall submit the following reports in accordance with the required schedule:

Reporting Schedule

Section	Report
B.1	Monthly Monitoring Report
B.2	Annual Monitoring Report
B.3	Annual Facility Inspection Report

Reporting Requirements

The Discharger shall notify Board staff immediately if there is any overflow, leakage, or seeps from sumps, tanks, pipes, or berms, respectively. The Discharger shall submit monitoring reports **monthly** as well as **annually** with the data and information as required in this Monitoring and Reporting Program. These Reports shall be submitted separately from those required by WDRs Order R5-2003-0093. The first monthly report is for data collected during December 2014, and is due by **15 January 2015** and every month after until compost activities at the site have ceased. The first annual report shall cover calendar year 2015 and shall be submitted by **1 February 2016.** 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 this MRP, the CAO as well as the WDRs or the lack thereof.

Field, laboratory tests, and standard observations shall be reported in each monitoring report. Monthly and annual monitoring reports shall be submitted to the Central Valley Water Board in accordance with the above schedule for the calendar period in which samples were taken or observations made.

The Discharger shall retain records of all monitoring information, including all calibration and maintenance records, all original strip chart recordings of continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order. Records shall be maintained throughout the life of the facility including the post-closure period. Such records shall be legible and shall show the following for each sample:

a) Sample identification and the monitoring point or background monitoring point from which it was taken, along with the identity of the individual who obtained the sample;

b) Date, time, and manner of sampling;

c) Date and time that analyses were started and completed, and the name of the personnel and laboratory performing each analysis;

d) Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used;

e) Calculation of results; and

f) Results of analyses, and the MDL and PQL for each analysis. All peaks shall be reported.

Required Reports

1. **Monthly Monitoring Report:** Monitoring reports shall be submitted on the 15th day following the month in which monitoring occurred (i.e. the October monitoring report is due 15 November). Each monthly monitoring report shall contain at least the following:

   a) All data required to be submitted in a Monthly report as described in the "Monitoring" section above.

   b) An evaluation of the effectiveness of the leachate monitoring and control facilities, and of the run-off/run-on control facilities.

   c) A summary of all observations for the reporting period including leachate volumes collected and pumped, repairs performed, and an evaluation of how the system is performing compared to the 25-year, 24-hour design storm event.

   d) A summary of inspection, leak search, and repair of the low permeable compost pad in accordance with the approved Operations and Maintenance Plan dated 28 October 2013.

   e) A Facility Map showing locations/names of all monuments, tanks, and sumps.

   f) If contact stormwater was trucked off-site, then copies of the hauling receipts and documentation of the location of disposal.

2. **Annual Monitoring Report:** The Discharger shall submit an Annual Monitoring Report to the Central Valley Water Board by **1 February** covering the reporting period of the previous monitoring year. Each Annual Monitoring Report shall contain the following information:

   a) All data required to be submitted in an Annual report as described in the "Monitoring" section above.

   b) A comprehensive discussion of the compliance record, and the result of any corrective actions taken or planned which may be needed to bring the Discharger into full compliance with the MRP/WDRs and CAO.

c) A written summary of the monitoring results, indicating any changes made or observed since the previous Annual Monitoring Report.

d) A comprehensive discussion of any corrective actions completed during the reporting event including changes to pumping, storage capacity, or upgrades to pipelines.

3. **Annual Facility Inspection Reporting:** By **15 November** of each year, the Discharger shall submit a report describing the results of the inspection and the repair measures implemented, preparations for winter, and include photographs of any problem areas and the repairs. Refer to Section A.4.b of this MRP, above.

4. **Major Storm Event Reporting:** Following any storm event capable of causing damage or significant erosion, the Discharger shall **immediately** notify Central Valley Water Board staff of any damage or significant erosion upon discovery. A report describing all subsequent repairs shall be submitted within **14 days** of completion of the repairs, including photographs of the problem and the necessary steps taken to complete the repairs.

C. TRANSMITTAL LETTER FOR ALL REPORTS

An electronic transmittal letter explaining the essential points shall accompany each report. At a minimum, the transmittal letter shall identify any violations found since the last report was submitted, and if the violations were corrected. If no violations have occurred since the last submittal, this shall be stated in the transmittal letter. The transmittal letter shall also state that a discussion of any violations found since the last report was submitted, and a description of the actions taken or planned for correcting those violations, including any references to previously submitted time schedules, is contained in the accompanying report. 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.

D. ELECTRONIC TRANSMITTAL OF REPORTS

The Discharger shall enter the above required monitoring reports into the online Geotracker database as required by Division 3 of Title 27 and Chapter 30, Division 3 of Title 23. In addition, the Discharger shall follow the directions in the Executive Officer's 26 September 2014 letter, and shall submit an email to centralvalleysacramento@waterboards.ca.gov notifying staff that the monitoring report has been uploaded to Geotracker.

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

Ordered by: _____
Andrew Altevogt, Assistant Executive Officer

5 December 2014
(Date)

TAD/HFH/WW