CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

AMENDED ORDER NO. R5-2014-0117-01

FOR RECOLOGY HAY
ROAD
JEPSON PRAIRIE ORGANICS AS A DBA OF RECOLOGY HAY ROAD
RECOLOGY HAY ROAD LANDFILL
SOLANO COUNTY

WATER CODE SECTION 13301 ORDER
TO COMPLY WITH WASTE DISCHARGE REQUIREMENTS ORDER R5-2008-0188

The California Regional Water Quality Control Board, Central Valley Region (hereafter referred to as "Central Valley Water Board" or "Board") finds that:

1. Recology Hay Road (hereafter referred to as Discharger) owns and operates an active landfill and composting operation regulated by the Water Board under the name of "Recology Hay Road" (facility). According to the WDRs, the facility consists of two Class III landfills (LF-1 and LF-2), one Class II landfill (LF-3), a Class II sewage sludge waste pile (WP-9.1), a Class II sewage sludge land treatment unit (LTU), green-waste and food-waste composting areas, and two lined compost leachate ponds, as shown on Attachment A. The Discharger performs active composting on a 22-acre all-weather pad and stores finished compost product on a 32-acre area, all within the landfill footprint.

2. The Hay Road Landfill is located on a 640-acre site, of which 256 acres are permitted for landfill disposal and composting operations. The site also includes a borrow pit and a habitat preserve. The Landfill is located about eight miles east of Vacaville on Hay Road in Solano County on Assessor's Parcel Numbers 42-020-02, 42-020-06, and 42-020-28.

3. Waste Discharge Requirements (WDRs) Order R5-2008-0188 was adopted by the Central Valley Water Board on 5 December 2008, and regulates the operation, closure, and post-closure maintenance of the facility. The facility operations must comply with Title 27 of the California Code of Regulations.

4. The facility is also regulated under the State Water Resources Control Board's Water Quality Order No. 97-03-DWQ, the *Statewide Industrial Storm Water General Permit* (General Permit) and under the Central Valley Water Board's NPDES Limited Threat General Order R5-2013-0073 for dewatering of a borrow pit. As described in Finding No. 65 of the WDRs, "…De-watering of units to meet prescriptive separation and to maintain operability of the borrow pit is accomplished by extracting groundwater from the borrow pit during the dry season…"

COMPOSTING OPERATIONS AND COMPOST LEACHATE

5. The WDRs regulate the Discharger's green-waste and food-waste composting operations, which include pre-sorting of incoming material, active composting, curing, and storage of finished product. The WDRs state that the Discharger accepts food-waste and green-waste at a 54-acre area located east of disposal module (DM) DM-1, which is composed of 22-acres of an impervious (concrete, asphalt, or similar) working surface for active composting. The WDRs state that the remaining unlined 32-acres is used for finished-product storage.

Food Waste Composting Violations

6. Discharge Specification B.27 of the WDRs states that "*Feedstock for windrow composting shall be limited to green waste and agricultural waste as defined in Title 14. Food waste feedstock shall be limited to in-vessel composting as defined in Title 14, and may be combined with green waste for in-vessel composting."* Title 14, California Code of Regulations, section 17852 subdivision (a)(41) defines "within vessel composting" as *"… a process in which compostable material is enclosed in a drum, silo, bin, tunnel, reactor or other container for purposes of producing compost . . .*".

7. Finding 88 of the WDRs states "*Leachate from the in-vessel composting is collected and returned to within the system*." Title 27 Section 20164 defines leachate as "*any liquid formed by the drainage of liquids from waste or by the percolation or flow of liquid through waste. It includes any constituents extracted from the waste and dissolved or suspended in the fluid."*

8. The Discharger ceased using in-vessel composting prior to April 2010[1], in violation of the WDRs. Presently, food waste composting is performed in the active composting area using windrows which are open to the elements[2]. The current system does not satisfy the within-vessel containment requirements of Title 14 or the WDRs nor does it keep leachate within the vessel system, as required by the WDRs. This Order provides the Discharger a time schedule to either return to in-vessel composting as required by the WDRs or to submit a Report of Waste Discharge (RWD) showing that non in-vessel composting is protective of water quality. If the Water Board adopts new WDRs that authorize non in-vessel composting prior to the time schedule in this Order, then the Discharger will not need to return to in-vessel composting.

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[1] 7 April 2010 Water Board staff inspection.

[2] The Discharger states that the current "aerated static pile" system uses an air distribution system to blow or otherwise draw air through the pile. The Discharger also maintains that the change from an in-vessel system to the aerated static pile allows for odors to be suppressed and more controlled moisture conditioning of the feedstock. In addition, the Discharger states that less compost leachate is generated with the current system because water is evaporated. However, Board staff maintains that the in-vessel system described in the WDRs allows for more precise management of leachate, especially during the wet season.

Leachate Ponds Violations

9. WDRs Prohibition A.19 states "*The discharge of solid or liquid waste or leachate to surface waters, surface water drainage courses, or groundwater is prohibited.*"

10. Finding 88 of the WDRs states that leachate from the 22-acre active composting area flows to the 60-mil HDPE lined "low-flow" pond where it is stored and then recirculated on the compost. The Finding also states that during "significant precipitation events" runoff from the active composting area flows to "a lined high-flow pond so that it does not mix with leachate in the low-flow pond... The high-flow pond has the capacity for the average annual rainfall (20 inches) plus a 100-year, 24-hour storm (4.82 inches). Any pond overflow flows through bioswales and a sedimentation basin prior to off-site discharge under the general industrial storm water permit."

11. The process water applied to the active food waste stockpiles, as well as the rain falling onto the stockpiles, forms a leachate which is high in nitrate, total dissolved solids (TDS), and biological oxygen demand (BOD). The leachate drains out of the eastern stockpiles and flows east across the all-weather surface to a concrete-lined ditch, sump with pump, and into the low-flow pond. Contrary to the WDRs, wastewater in the low-flow pond is pumped into the high-flow pond. The high-flow pond contains a pipe through the berm, so that if the pond becomes full, wastewater may flow through the pipe and into the bioswales, sedimentation basin, and then to surface waters. The Discharger states that there have been no discharges from the ponds to surface water, but the WDRs do not require freeboard measurements or other documentation to confirm that discharges to surface waters have not occurred. In addition, the Discharger has changed the configuration of the ponds from that described in the WDRs. Therefore, there is the potential for a discharge or threatened discharge of leachate to surface waters, in violation of Prohibition A.19 of the WDRs. This Order allows the Discharger a time schedule to re-configure the ponds to comply with the WDRs or to submit a RWD requesting that the WDRs be revised to allow the current pond configuration.

12. If, during the period before the ponds were re-configured to comply with the WDRs, or the WDRs were revised, wastewater were to flow from the high flow pond into surface waters, the wastewater could be of higher strength than allowed by the WDRs[3]. Therefore, it is appropriate to require the Discharger to take interim actions to either prevent an overflow from the high flow pond to surface water or to reduce the volume of leachate entering the high flow pond.

Unauthorized Green Waste Pond

13. Leachate and stormwater generated on the western section of the compost area currently flows south through unlined ditches to an unlined stormwater pond known as the "green

[3] This is because the wastewater would be composed of both compost leachate and stormwater, whereas the WDRs require leachate be separated from stormwater.

waste runoff pond[4]". The pond overflows to an unlined drainage course, which eventually discharges to the A-1 Channel and surface waters. The Discharger states that the depth of the green waste runoff pond is 18.2 feet MSL[5]. The closest groundwater monitoring wells are 4B and G-2, which had a groundwater elevation of 19.10 and 19.12 feet on 22 March 2011, respectively[6]. These elevations indicate that, at times, groundwater has the potential to rise into the bottom of the green waste runoff pond. The unlined ditches, unlined pond, and off-site discharge of leachate are not described, nor permitted, by the WDRs. Use of this pond to store leachate or stormwater generated from the compost area is a violation of the WDRs. The Discharger has committed to construct improvements to rectify this issue.

14. Because the green waste runoff pond is not described in the WDRs, Monitoring and Reporting Program (MRP) R5-2008-0188 does not require the Discharger to analyze its contents. However, it is assumed that the green waste runoff pond would contain leachate from the compost area, similar in concentration to the high-flow pond. The use of the unlined green waste pond for storage of leachate and stormwater may have caused or contributed to groundwater pollution in the eastern portion of the landfill. This Order requires that the Discharger document that it has constructed improvements such that runoff from the compost pad is no longer discharged to the green waste runoff pond or to unlined ditches. The Discharger has stated that it will construct these facility improvements by 31 September 2014.

High Strength Waste

Historical analysis of the high-flow and low-flow ponds content shows elevated concentrations of inorganic constituents, as shown below. According to the WDRs, the high-flow pond is only to contain stormwater runoff from the active composting area, not leachate, which is why it is allowed to overflow to surface waters. However, the data below show that high strength waste is contained in the low-flow and high-flow ponds, and that the concentrations exceed the water quality goals and the US EPA Benchmark values used for reference in the Industrial Storm Water General Order. Therefore, it is not appropriate to allow this waste to overflow and discharge to surface waters.

Waste Constituent	Sump[1]	Low Flow Pond[2]	High Flow Pond[3]	Parameter Benchmark Values[4]	Water Quality Goals
Specific Conductance, umhos/cm	10,445	3,815	9,395		900 (CA secondary MCL)
Total Dissolved Solids, mg/L			6,900		500 (CA secondary MCL)
Total Suspended Solids, mg/L	1,362	330		100	

[4] The name "green waste runoff pond" is found on the Recology's 2011 Exhibit A to the Solano County Use Permit U-11-09. Recology also refers to this pond as the "western compost area pond".
[5] 5 June 2014, Recology response to Draft CAO
[6] Recology first semiannual 2011 monitoring report, Table 2.

Waste Constituent	Sump[1]	Low Flow Pond[2]	High Flow Pond[3]	Parameter Benchmark Values[4]	Water Quality Goals
Biochemical Oxygen Demand, mg/L	15,750	2,150		30	
Chemical Oxygen Demand, mg/L	32,000	3,900		120	
Chloride, mg/L			1,600	860	250 (CA secondary MCL)
Total Kjeldahl Nitrogen, mg/L			320		NA
Sulfate, mg/L			320		250 (CA secondary MCL)
Lead, mg/L			0.15	0.0816	0.015 (USEPA Primary MCL)
Phosphorous, mg/L			150	2.0	NA
Nitrate as N. mg/L			14		10 (CA secondary MCL)
Ammonia as N, mg/L	895	145	11	19	30 (USEPA Health Advisory)
Nitrite as N, mg/L			0.66		1 (USEPA Primary MCL)

[1]Sump in which wastewater from the compost pad is collected prior to being pumped to the low-flow pond. Average values from samples collected in February and April 2010.
[2]Average of values from samples collected in February and April 2010.
[3]Samples collected in November 2013
[4]From Table B of the State Water Resources Control Board's *Sampling and Analysis Reduction Certification* to satisfy the requirements of Section B.12.b of the stormwater Industrial General Permit No. 97-03-DWQ.

15. The MRP does not require sampling of the low-flow pond, nor does it require freeboard measurements for either pond. A Revised MRP will be issued for this facility and it will contain these requirements.

<u>Compost Leachate Used for Dust Control Violation</u>

16. As reported in the Discharger's 26 January 2011 *Report of Remedial Actions High-Flow and Low-Flow Ponds*, during the summer of 2010, "*Water was removed from the pond and used for dust control over lined portions of the landfill. Draining the pond required removal of approximately 10 million gallons of liquid through evaporation and dust control*."

17. The use of compost leachate for dust control on the landfill units is a violation of Discharge Specification B.13 which states "*Leachate or landfill gas condensate from a lined landfill module shall be discharged either to a publicly owned treatment works under permit, or to the composite-lined landfill unit from which it was generated….*" This section does not mention the use of compost water for dust control. In addition, the use of compost leachate as dust control is a violation of section 20375(d) of Title 27, which states "*There shall be no discharge from a surface impoundment except as authorized by WDRs".* Section 20340(g) of Title 27 also states that leachate may only be applied to the unit from which it was derived, unless the Water Board specifically authorizes otherwise. The

application of compost leachate as dust control is not authorized by the WDRs and therefore this action is a violation of the WDRs. This Order provides the Discharger a timeline to either cease the use of compost leachate for dust control, or to submit a RWD to revise the WDRs to allow this action.

Separation Between Waste and Groundwater

18. Section 20240 subdivision (c) of Title 27 requires a minimum of five feet of separation between waste and the highest anticipated elevation of underlying groundwater, unless a discharger can show that an engineered alternative provides equivalent or better protection. For the Hay Road Landfill, the Discharger proposed an engineered alternative of either a 1-foot or ½-foot gravel layer to serve as a capillary break and underdrain. Construction Specification D.2 of the WDRs allows this engineered alternative for the separation distance between "*wastes or leachate and the highest anticipated elevation of groundwater*" and states that the following minimum separations must be met:

Construction Specification D.2

Module	Required Separation Between Wastes or Leachate and the Highest Anticipated Elevation of Groundwater
DM-1 (see WDR Findings 64 and 65)	5 feet
DM-2.1	3 feet
DM-2.2 through DM-16	2.5 feet
Sludge storage (WP-9.1)	2.5 feet
Land treatment unit (LTU)	5 feet

19. In order to determine compliance with the specified minimum separation requirements for each module or unit, the Monitoring and Reporting Program requires that, on a quarterly basis, "The Discharger shall determine the separation of groundwater from the lowest point of each module and/or unit."

20. The design documents and Construction Quality Assurance (CQA) reports for the various landfill units contain the bottom elevation of each unit, as shown in the table below. The bottom elevations shown in the table for units 2.1, 2.2A, 2.2B, 4.1, 5.1A, 5.1B, 9.1A, 9.1B, 11.1, and 11.2 are based on the design elevations, which may have been slightly modified during construction. The Discharger disagrees with the Prosecution Team's interpretation of the compliance determination location for measuring the separation between waste and groundwater. In order to evaluate compliance, prepare revised WDRs, and accurately determine the final elevation of these units, this Order requires the Discharger to submit CQA report[7]s with stamped surveyor's as-built drawings showing the bottom elevation of

[7] The Discharger contends that a CQA report (stamped or unstamped) does not exist for subgrade construction of DM-2.1 Phase 1 and 2, that a CQA report (stamped or unstamped) does not exist for the low permeability clay for DM-2.1 Phase 1, and that an unstamped CQA report only exists for the low permeability clay for DM-2.1 Phase 2. The Discharger shall provide an explanation as to the unavailability of the CQA reports and further specify its solution to determine the elevation measurements at DM 2.1.

the units as constructed and the base elevation of the LCRS sumps and LDS sumps. Staff contends the elevations for the remainder of the landfill units shown in the table are accurate as they are based on surveyed data. The Discharger disagrees with the contents of the table. However, the Discharger will further refine and verify the elevation measurements and data shown in the table in order to accurately determine the final elevation of these units and the elevations of the LCRS sumps and LDS sumps.

Disposal Module	Sump ID	Bottom of Waste or Leachate (feet MSL)	Reference
1	S-1	5	2007 Joint Technical Document, Dwg 2.a
2.1	S-2.1	23.15	Estimated, based on elevation of adjacent sump S-11.1
2.2A	S-2.2A	23.15	Estimated, based on elevation of adjacent sump S-11.1
2.2B	S-2.2B	23.15	Estimated, based on elevation of adjacent sump S-11.1
3.1	LD-3.1	17.67	Construction Quality Assurance Report Disposal Module 3.1 Liner System-Norcal Waste Systems Hay Road Landfill, Subgrade survey record. Sept 2008.
3.2	LD-3.2	17.33	Construction Quality Assurance Report-Disposal Modules 3.2 & 3.3 Liner System-Recology Hay Road, Subgrade survey record. June 2010.
3.3	LD-3.3	18.23	Construction Quality Assurance Report-Disposal Modules 3.2 & 3.3 Liner System-Recology Hay Road, Subgrade survey record. June 2010.
4.1	LD-4.1	17.93	DM-4.1 Base Liner Design Report and Construction Documents. Drawing 3. May 2003.
5.1A	S-5.1A	21.44	Design Report and Construction Documents-Disposal Module 5.1.-B&J Sanitary Landfill, Dwg 6. Aug 2000.
5.1B	S-5.1B	21.09	Design Report and Construction Documents-Disposal Module 5.1.-B&J Sanitary Landfill, Dwg 6. Aug 2000.
5.2	LD-5.2	21.3	Construction Quality Assurance Report-Disposal Module 5.2 Liner System-Norcal Waste Systems Hay Road Landfill, Pad Certification Survey. Sep 2004.
6.1	LD-6	20.35	Construction Quality Assurance Report-Disposal Module 6.1 Liner System-Recology Hay Road, Subgrade As-Built. Aug 2012.
9.1A	S-9.1A	23.46	Design Report and Construction Documents- DM-9 and DM-11- B&J Drop Box Sanitary Landfill, Dwg 4. Apr 1997.
9.1B	S-9.1B	23.45	Design Report and Construction Documents- DM-9 and DM-11- B&J Drop Box Sanitary Landfill, Dwg 4. Apr 1997.
11.1	S-11.1	23.15	Design Report and Construction Documents- DM-9 and DM-11- B&J Drop Box Sanitary Landfill, Dwg 4. Apr 1997.
11.2	S-11.2	22.95	Design Report and Construction Documents-DM-11.2- B&J Drop Box Sanitary Landfill, Dwg 3. Feb 1999.

LTU	NA	21.4	Topographic Map. Definition of Depth of Treatment Zone, LTU, Norcal Waste Systems, Figure 1 (Low point in new LTU on Topographic Map). Apr 2004.

21. A review of the monitoring reports show that, for units DM-2.2, 5.1, 9, and 11, the Discharger appears to be appropriately reporting separation between the bottom of the LCRS and groundwater. However, not all of the units are constructed in the same manner, and for units DM-3.1, 3.2, 3.3, 4.1, 5.2, and 6, the Prosecution Team contends that groundwater separation should be referenced from the bottom of the leak detection layer 60-mil HDPE membrane as that location more accurately interprets Construction Specification D.2 and the MRP's compliance determination for the separation requirement. For these units, the Discharger has been reporting the groundwater separation at the LCRS. Similarly, at DM-1, the Discharger has been reporting separation at Sump S-1 (6 feet msl), but the Prosecution Team contends that a review of the 2007 Joint Technical Document (drawing 2.a) shows that the lowest point of the unit is on the north-central side at an elevation of 5 msl. The Prosecution Team contends that the Discharger should report the separation between groundwater and leachate at the lowest known elevation at which leachate can be present, as discussed in Finding 20. The Discharger disagrees with the Prosecution Team's interpretation of the compliance determination location for measuring separation between waste and groundwater and it is anticipated that this issue will be resolved when updated WDRs are issued.

22. Unit DM-1 is the original landfill unit. Approximately 2/3 of the unit does not have a bottom liner, while about 1/3 of unit does. The WDRs state that groundwater dewatering is required to lower the groundwater to provide the required five feet of separation for this unit. As explained above, the Discharger has been reporting the separation to groundwater at Sump S-1, the lowest portion of the lined unit. The Discharger has shown that, when operating, the dewatering system appropriately lowers the groundwater in the area of Sump S-1. However, the lowest elevation of the waste is in the north-central side, in the unlined portion of the unit, and a review of the groundwater maps in the monitoring reports shows that there is not five feet of separation in this area. Between 2009 and 2013, groundwater was consistently reported by the Discharger to be approximately 15 feet above the waste. The Prosecution Team contends this is a violation of Title 27 and the WDRs. This Order requires the Discharger to take corrective actions for unit DM-1 by delineating the extent of the high groundwater, completing an Engineering Feasibility Study, implementing the chosen option, and then conducting monitoring to demonstrate effectiveness.

23. Unit DM-3.3 is in the south-east corner of the facility, adjacent to the wetland bird sanctuary. The WDRs require a separation of 2.5 feet. The Prosecution Team contends that the Discharger has been erroneously reporting the separation from the bottom of the LCRS sump rather than bottom of the leak detection layer 60-mil HDPE membrane. Staff has re-calculated the separation using the point that staff considers to be the unit's lowest known elevation as found in Finding 20 and the elevation of the groundwater at the adjacent groundwater monitoring well (G-30). By staff's calculations, between 2011 and

2014, the separation has ranged between 0.35 feet and 1.1 feet[8], in violation of the WDRs separation requirement. The Discharger disagrees with the Prosecution Team's interpretation of the compliance determination location at unit DM 3.3, however, the Discharger has agreed to certain actions at DM 3.3. This Order requires the Discharger to perform an analysis of the separation at Unit DM-3.3 by delineating the extent of the high groundwater, complete an Engineering Feasibility Study, and if required, implement the chosen option, and then conduct monitoring to demonstrate effectiveness.

RUNOFF AND DRAINAGE CONTROLS

24. Section 20365 of Title 27 defines the performance standard for landfill runoff and drainage controls, and states: "*Units and their respective containment structures shall be designed and constructed to limit, to the greatest extent possible, ponding, infiltration, inundation, erosion, slope failure, washout, and overtopping under the precipitation conditions specified in Table 4.1 (of this article).* Prohibitions A.4 and A.5 of the WDRs prohibit the discharge of waste constituents to the unsaturated zone or to groundwater and prohibit the discharge of waste outside of a unit or portions of a unit.

25. Inadequate drainage may lead to slope failure and/or the creation of leachate, and result in a threatened discharge of waste or waste constituents, in violation of Prohibitions A.4 and A.5. The WDRs include Facility Specification C.10 which provides a performance measure for drainage controls, and states: "*Precipitation and drainage control systems shall be designed and constructed to accommodate the anticipated volume of precipitation and peak flows from surface runoff under 1,000-year, 24-hour precipitation conditions."* Table 4.1 of Section 20365 of Title 27 shows that the 1,000-year, 24-hour precipitation event applies to Class II landfill units, while Class III units are held to a 100-year, 24-hour precipitation event.

26. During a 31 January 2014 site inspection, Water Board staff observed that the storm water down drains and ditches appeared to be undersized and/or inadequately graded to allow stormwater runoff to move off the landfill as quickly as possible.

27. Inadequate drainage may result in oversaturation of the slopes potentially resulting in a slope failure. Inadequate drainage may also allow stormwater to percolate into the waste mass which contributes to the creation of leachate and landfill gas. This Order requires the Discharger to re-evaluate its drainage control systems to ensure that the drainage control systems for the Class II units comply with Specification C.10 of the WDRs (designed for the 1,000 year, 24-hour precipitation event) while the drainage control systems for the Class III units comply with Section 20365 of Title 27 (designed for the 100 year, 24-hour precipitation event).

TEMPORARY FILL SLOPE STABILITY

[8] The unit was constructed in 2010, and separation results were first reported in 2011.

28. Facility Specification C.2 of the WDRs states "Waste filling at landfill modules shall be conducted in accordance with a fill plan demonstrating that all temporary refuse fill slopes will be stable under both static and dynamic conditions for the design event for the unit."

29. The Discharger prepared a slope stability analysis which is included in the 2007 Post Closure and Post Closure Maintenance Plan (PCPCMP). While the PCPCMP states that the final cover's side slopes will have a maximum slope of 4H:1V (horizontal to vertical), the PCPCMP does not address the appropriate slope for the temporary interior areas of the landfill.

30. Figure 1 of the Discharger's 2013 Winterization Plan indicates that the uppermost slopes and/or stockpiles at DM-1, DM-2.2, and DM-11 are in the range of approximately 2.5H:1V. It is unknown if these interior slopes meet the stability requirements of Facility Specification C.2. Therefore, this Order requires the Discharger to submit an analysis of the appropriate slope for "temporary[9] refuse fill slopes" under both static and dynamic conditions using the performance criteria of Title 27, and if necessary, make facility modifications.

FLOOD PROTECTION

31. Finding 11 of the WDRs states that about one-half of the existing landfill and 80% of the expansion area are within the 100 year floodplain, which is estimated to be at an elevation of 25 feet MSL. Federal regulations, as incorporated by State Water Board Resolution 93-62, require that a discharger whose new or existing landfills are located within a 100 year floodplain must demonstrate that the landfill location will not "result in the washout of solid waste so as to pose a hazard to human health or the environment". The Discharger has stated that there is a 40 foot MSL exterior perimeter berm around most of the landfill, except for portions of module DM-1. This berm is intended to prevent the washout of waste in a 100-year flood. Although not described in the WDRs, the Discharger states that, in addition to providing flood protection, the berms are also intended to provide stability in the event of an earthquake.

32. The WDRs require that the facility be protected from a 100-year flood and also prohibit the discharge of waste outside a unit. Specifically,

    Construction Specification D.9 states: *The Discharger shall construct and maintain berms along the exterior of each landfill unit as necessary to prevent inundation and washout of wastes from a 100-year flood.*

    Facility Specification C.12 states: *The Discharger shall prevent floodwaters from a 100-year flood from contacting wastes in a disposal module. As the site is developed, a flood protection and slope stability levee (or berm) shall be constructed around the*

[9] Defined as areas which have not reached the final elevation grade.

site to at least 40 feet above mean sea level to prevent flood waters from a 100-year flood from entering the site.

Prohibition A.5 states: "*The discharge of wastes outside of a Unit or portions of a Unit specifically designed for their containment is prohibited.*"

33. Inadequate flood protection creates a threatened discharge of waste during a flood event, in violation of WDR Prohibition A.5. The Discharger's 2013 topographic site plan (i.e., the *Recology Hay Road 2013 Winterization Plan*) indicates that some exterior berms along the north side of the facility may not meet the specification in the WDRs of a berm height of at least 40 feet MSL around the site. In addition, the Discharger has stated[10] that in addition to providing flood protection, the berm "*provides additional stability against global failure of the waste mass (movement along the base liner system).*" However, the Discharger has also stated that the 100-year flood elevation is at about 25 feet, and therefore Facility Specification C.12 should be re-evaluated. Therefore, this Order requires that either the Discharger (a) submit a site drawing which indicates the location, distance, and height of all perimeter berms, and indicates whether the berms meet the requirements of the WDRs, or (b) submit a RWD requesting a change to Facility Specification C.12 and including an engineering evaluation of the height of the berms necessary to provide stability to prevent global failure of the waste mass.

REGULATORY CONSIDERATIONS

34. The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition* (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Board. These requirements implement the Basin Plan.

35. The site is in the Putah plain, which is drained by natural and man-made watercourses. The nearest surface water is the Alamo Creek A-1 Channel, which is an agricultural drainage canal that flows along the north and east sides of the site. The A-1 Channel drains to Ulatis Creek about three miles southeast of the site, then to Cache Slough and the Sacramento-San Joaquin Delta. As described in the Basin Plan, the designated beneficial uses of the Sacramento-San Joaquin Delta are municipal and domestic supply; agricultural supply, industrial supply, industrial process supply, water contact recreation, non-contact water recreation, warm fresh water habitat, cold freshwater habitat, migration of aquatic organisms, spawning, reproduction, and/or early development, wildlife habitat, and navigation.

36. The designated beneficial uses of the underlying groundwater, as specified in the Basin Plan, are domestic, agricultural, and industrial supply.

[10] 5 June 2014 Recology comments on draft CAO

37. Water Code section 13301 states in relevant part,

    When a regional board finds that a discharge of waste is taking place or threatening to take place in violation of requirements or discharge prohibitions prescribed by the regional board or the state board, the board may issue an order to cease and desist and direct that those persons not complying with the requirements or discharge prohibitions (a) comply forthwith, (b) comply in accordance with a time schedule set by the board, or (c) in the event of a threatened violation, take appropriate remedial or preventative action.

38. As a result of the events and activities described in this Order, the Central Valley Water Board finds that a discharge of waste is taking place or threatening to take place in violation of WDRs Order R5-2008-0188. This Order requires the Discharger to take appropriate remedial action and to comply in accordance with the time schedule set forth below.

39. Water Code section 13267 subdivision (b)(1) 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.

40. The technical reports required by this Order are necessary to ensure compliance with this Order and WDRs Order R5-2008-0188, and to ensure the protection of water quality. Recology Hay Road owns and operates the facility that discharges waste subject to this Order and WDRs Order R5-2008-0188.

41. The issuance of this Order is being taken for the protection of the environment and as such is exempt from provisions of the California Environmental Quality Act (Pub. Resources Code, § 21000 et seq.) pursuant to California Code of Regulations, title 14, sections 15061 subdivision (b)(3), 15306, 15307, 15308, and 15321subdivision (a)(2).

42. On 9 October 2014, in Rancho Cordova, California, after due notice to the Discharger and all other affected persons, the Central Valley Water Board conducted a public hearing at which evidence was received to consider an Order under Water Code section 13301 to establish a time schedule to achieve compliance with waste discharge requirements.

IT IS HEREBY ORDERED that, pursuant to Water Code sections 13301 and 13267, Recology Hay Road shall implement the following measures necessary in order to comply with WDRs Order R5-2008-0188.

This Order requires the submittal of technical reports. These technical reports shall contain the information and decisions required by the following paragraphs. If a report is submitted without the required information or decision, then the Discharger is in violation of this Order and subject to additional enforcement action.

Compost Area

1. **By 1 November 2014**, the Discharger shall submit a *Compost Area Stormwater Modification* technical report documenting that it has made facility modifications such that (a) compost area stormwater and leachate are only discharged to lined ditches, the low-flow pond, and the high-flow pond, and (b) that compost area stormwater and leachate does not flow into the green waste pond. The report shall describe the modifications that have made and include diagrams and maps indicating flow directions.

2. **By 1 December 2014**, the Discharger shall submit either:

   (a) a *Compost Ponds ReConfiguration* technical report documenting that it has made facility modifications such that leachate is stored in the low flow pond and stormwater is stored in the high flow pond as described in Finding 88 of the WDRs, or

   (b) a statement that it intends to submit a Report of Waste Discharge (RWD) by **1 February 2015**, with the contents as described in Item No. 3, below. For the interim period until the WDRs are revised, the Discharger shall not allow the wastewater in either pond to overflow into surface waters. In addition, the Discharger shall submit a technical report describing how it will inspect and manage the ponds in the interim period to prevent overflows (e.g. enhanced evaporation, transport to a POTW, use as compost conditioning, etc.).

3. **If the Discharger does not submit the *Compost Ponds Reconfiguration Report*,** then by **1 February 2015**, the Discharger shall submit a RWD requesting that the WDRs be revised to such that the two compost ponds may be operated in a manner other than as described in the WDRs. The RWD shall be submitted after consultation with Central Valley Water Board Permitting staff, in order to determine the supporting data which must be submitted. If the WDRs are not revised by ~~15 February~~**24 June 2016**, then the Discharger must make facility modifications such that it complies with Finding 88 no later than **1** ~~April~~ **July 2016**.

4. **By 1 February 2015,** the Discharger shall submit either:

   (a) a *Food Waste In-Vessel Composting* technical report documenting the facility modifications that have been made such that all food waste composting is conducted in an in-vessel manner, as required by Discharge Specification B.27 of the WDR, or

   (b) after consultation with the Central Valley Water Board's Permitting Unit, the Discharger may submit a RWD requesting that the WDRs be revised in order to allow that food waste composting take place outside of vessels. The RWD must show how non-

vessel composting will be protective of water quality and prevent nuisance conditions. If the WDRs are not revised by ~~15 February~~**24 June 2016**, then by **1** ~~April~~ **July 2016**, the Discharger must comply with Discharge Specification B.27.

5. ~~**By 1**~~**After 18** ~~**February 2015**~~**2016**, the Discharger may only use compost leachate as dust control or for moisture conditioning within the 22-acre impervious (concrete, asphalt, or similar) working pad of the compost area. ~~shall submit either:~~

~~(a) a *Compost Leachate Dust Control* technical report documenting that leachate from the compost ponds are no longer used for dust control on the landfill, or~~

~~(b)~~(a) ~~After consultation with the Central Valley Water Board's Permitting Unit, the Discharger may submit a RWD requesting that Discharge Specification B.13 of the WDRs be revised in order to specifically allow the use of compost leachate as dust control. The RWD must describe how the leachate will be applied in a manner that protects water quality. If the WDRs are not revised by 15 February 2016, then the Discharger may not use compost leachate as dust control.~~

~~6. If the Discharger chooses option 5(b), then prior to 15 February 2016 , the Discharger may use compost leachate for dust control if it is done in a manner[11] that does not cause instability of the waste, does not cause leachate seeps, does not generate additional landfill gas that is not captured by the active landfill gas extraction system, does not cause contaminants to enter surface water, does not cause leachate volumes to exceed the maximum capacity of the LCRS, and does not cause the LCRS to be operated in violation of Construction Specification D.4 of the WDRs. In addition, the Discharger shall maintain a log describing the use of compost leachate as dust control. The log shall include date, volume used as dust control, source of water (i.e., which pond), and location of use. The log shall be submitted with the semiannual monitoring reports.~~

Separation Between Waste and Groundwater

6. **Beginning with the fourth quarter 2014**; for all units listed in Finding 20, the Discharger shall report separation between waste or leachate and groundwater according to Discharge Specification D.2, Finding 64, and Finding 65 to units of 0.1 feet, and if desired, the Discharger may also include what it believes, in its professional opinion, is the margin of error for that measurement. The Discharger shall also clearly report the elevation and rationale it is using to define the location used for determining groundwater separation from waste or leachate. The information described above shall be continuously monitored~~continue to be measured quarterly~~ and reported in ~~the semi-annual~~stand-alone quarterly monitoring reports. Quarterly monitoring reports are due the first day of the second month after the quarter ends (i.e., by 1 May, 1 July, 1 November, and 1 February).

~~[11] From Discharge Specification B.13 of the WDRs~~

The same information for all other units shall be continuously monitored and reported in the semiannual reports required by the MRP.

(a) **For DM-1: for Third Quarter 2016 and thereafter.** Separation between waste and groundwater shall be reported from transducers installed in six new piezometers (PZ-S1, VWT-B1, VWT-B7, VWT-B10, VWT-B13, and a sixth piezometer to be installed no later than **15 September 2016)**. The data from the piezometers shall be presented in an Excel format table using the NGVD 29 datum, along with the actual calculations used for determining separation. The data shall also be presented on a potentiometric surface map overlying the bottom waste elevation in DM-1. Only piezometers identified in this Order shall be used for determining compliance, unless the Regional Board requires or agrees to additional data points. The Discharger shall clearly identify the duration of time that groundwater separation was not achieved and maintained during the quarter.

In addition, the volume of groundwater discharged from the French drain shall be reported in gallons per minute. To assure water quality is protected, the Discharger shall monitor the French drain quarterly and include the results in the report. The analytes shall include those required in the WDRs for detection groundwater monitoring wells. If any analyte exceeds the water quality protection standard in the WDRs, then the Discharger shall immediately follow the protocol for notification of the Regional Board outlined in the Standard Provisions of the WDRs.

(b) **For DM-3.3: for Third Quarter 2016 and thereafter.** Separation between waste and groundwater shall be reported from a transducer installed in the new piezometer installed adjacent to Pan Lysimeter 3.3 and screened from 16 to 21 ft NGVD 29. Only piezometers identified in this Order shall be used for determining compliance, unless Regional Board requires or agrees to additional data points. The data from the piezometer shall be presented in an Excel format table (using the NGVD 29 datum), along with the actual calculations used for determining separation. The data shall also be presented on a potentiometric surface map overlying the bottom waste elevation of DM-3.3.

~~6.~~7. By **15 December 2014**, the Discharger shall submit Construction Quality Assurance (CQA) reports with stamped surveyor's as-built drawings showing the bottom elevation of the units as constructed and the bottom elevation of the wastes or leachate for all units identified in the text of Finding 20[12]. The Discharger shall refine and verify the elevation measurements and data in Finding 20 in order to accurately determine the final elevation of

[12] The Discharger contends that a CQA report (stamped or unstamped) does not exist for subgrade construction of DM-2.1 Phase 1 and 2, that a CQA report (stamped or unstamped) does not exist for the low permeability clay for DM-2.1 Phase 1, and that an unstamped CQA report only exists for the low permeability clay for DM-2.1 Phase 2. The Discharger shall provide an explanation as to the unavailability of the CQA reports and further specify its solution to determine the elevation measurements at DM 2.1

these units and the elevations of the LCRS sumps and LDS sumps.

~~7.~~8. By **15 January 2015,** the Discharger shall submit a *Groundwater Separation Delineation Workplan* describing the methods it will use to determine the separation, or lack thereof, between waste and groundwater (a) throughout unit DM-1 and (b) unit DM-3.3. Drawing 2.a of the 2007 JTD shall be used as the reference elevation for waste in unit DM-1, unless the Discharger proposes to conduct additional data review or field investigations to determine the waste elevations. For unit DM-3.3, though the Parties disagree over the reference elevation as the bottom of the leak detection layer 60-mil HDPE membrane, the Discharger has agreed as part of the Workplan to further evaluate the historical groundwater separation beneath unit DM 3.3 and whether additional separation is needed. The methods selected shall be sufficient to determine the lateral and vertical extent of groundwater which is less than the required separation between waste and groundwater (5' for DM-1 and 2.5' for DM-3.3), with a consideration of seasonal and yearly variations.

~~Beginning **15 April 2015 and quarterly thereafter (15 July, 15 October, 15 January, and 15 April)** the Discharger shall submit *Groundwater Separation Quarterly Updates* describing the work it has accomplished to implement the *Groundwater Separation Delineation Workplan,* prepare the EFS, and implement the EFS. Beginning with the **15 July 2016 report**, the Discharger shall include the results of the monitoring to show the effectiveness of the corrective action.~~

~~8.~~9. By **15 November 2015**, the Discharger shall submit an *Engineering Feasibility Study (EFS)*. The new EFS may reference the 1996 EFS that was prepared to address groundwater separation at DM-1, shall incorporate data collected since the 1996 EFS was submitted, as well as the information developed from the *Delineation Workplan* and shall evaluate alternatives to achieve compliance in unit DM-1 and maintain or increase groundwater separation in DM-3.3. The EFS shall identify the selected alternative, propose methods to monitor effectiveness of the corrective action, and propose a schedule for compliance.

~~9.~~10. By ~~**1 April**~~**15 July 2016,** the Discharger shall complete installation of their proposed remedial actions, as described in the *Engineering Feasibility Study*, submitted to comply with Item 10 of this Order. For DM-1, the Discharger has proposed to install a French drain along the northern boundary of the unlined unit to maintain 5-feet of separation between the first encountered groundwater and the base of the waste. To maintain this separation, groundwater may not rise above 0.0 feet mean sea level. To address separation of groundwater beneath DM 3.3, the Discharger has proposed to lower the outlet in the "Bird Sanctuary" to comply with the separation elevation required in the WDRs.

~~10.~~11. By **31 July 2016,** the Discharger shall submit water quality testing results from the water to be discharged to the Borrow Pit from the French Drain. The analytes shall include those in the WDRs for detection groundwater monitoring wells. If the water contained in the French drain, prior to discharge, violates any of the established concentration limits for naturally occurring constituents, or if VOCs are detected, then the water contained in the drain may not be discharged to the Borrow Pit and alternate means of managing the water

must be in place, prior to any discharge from the French drain. These alternate methods may include hauling off to an approved facility, installation of above ground tanks, or application for a discharge permit from the Regional Board.

~~11.~~12. By **15 ~~July~~ October 2016**, the Discharger shall submit a *Groundwater Separation Implementation Report* documenting that ~~all studies and engineering designs have~~ the Discharger has completed~~, and~~ installation of the remedial actions for DM-1 and DM-3.3. Specifically, the report shall demonstrate, under the signature of a Professional Engineer, and supported with design figures, as built drawings, surveyed elevations, boring logs, and daily reports that: ~~it has begun the field work necessary to implement the selected alternative to achieve compliance with the groundwater separation requirements.~~

(a) **DM-1:** The French drain along on the northern boundary of DM-1 has been installed and is operational. The monitoring network (6 piezometers and transducers) and French Drain flow meter(s) have successfully been installed, surveyed, calibrated and are operational. The report shall document that all landfill waste, impacted soil and leachate intersected during the installation of the French drain was excavated, removed, or pumped and disposed of in a permitted waste management unit or wastewater treatment facility. The final construction report must also include an Operations and Maintenance (O&M) Manual which outlines the practices that will be in place to optimize the performance of this trench and the corrective action measures that will be immediately implemented if groundwater rises above 0.0 feet mean sea level (i.e., within 5 feet of waste) beneath DM-1.

(b) **DM3.3:** The lowering of the outfall for the "Bird Sanctuary" has been completed and the piezometer adjacent to DM 3.3 has been installed. The monitoring network (piezometers and transducer) and outfall have successfully been installed, surveyed, calibrated and are operational. The final construction report must also include an O&M Manual which outlines the practices that will be in place to maintain the "Bird Sanctuary" so that water does not back up in the pond. The O&M Manual shall specify the corrective action measures that will be immediately implemented if groundwater rises to less than 2.5' of separation beneath DM-3.3, as required in the current WDRs (or if future WDRs require a different separation, then that value).

~~12.~~13. As of **1 August 2016**, the Discharger must operate and maintain the French Drain and Bird Sanctuary in a way that continuously maintains the separation of waste to groundwater in all units as defined in the WDRs except the north eastern corner of DM-1. No later than 1 February 2017 the separation of waste to first encountered groundwater in the north eastern corner of DM-1 shall be at least 5 feet. At any time, if separation of groundwater to waste is less than required, the Discharger shall immediately notify Board staff and shall immediately undertake the corrective actions specified in the Groundwater Separation Implementation Report. The operation of these remedial actions should not impact any beneficial uses of groundwater identified in the WDRs.

Runoff and Drainage Controls

~~13.~~14. By **15 March 2015**, the Discharger shall submit a *Runoff and Drainage Controls* technical report which evaluates whether the current controls for the Class II units comply with Specification C.10 of the WDRs (i.e., 1000 year, 24 hour precipitation), and whether the current controls for the Class III units comply with section 20365 of Title 27 (i.e., 100 year, 24 hour precipitation). In particular, the report shall evaluate the collection aprons, berms and runoff channels that direct the runoff into the downspouts. This evaluation must provide a justification for the location, spacing and length of each downspout, as well as evaluate the termination point of the downspout and whether it is located in such a manner that ponding and runoff is immediately drained away from each unit. If these conditions are not met, then the report shall also include a workplan and proposed schedule to return to compliance.

Temporary Fill Slope Stability

~~14.~~15. **By 15 March 2015**, the Discharger shall submit a *Temporary Fill Slope Stability* technical report containing an analysis of the appropriate slope for "temporary[13] refuse fill slopes" under both static and dynamic conditions using the performance criteria of Title 27 Section 2170(f)(5). The report shall show whether or not the temporary refuse fill slopes comply with Facility Specification C.2 and shall contain a map showing the existing slope (H:V) for all temporary fill areas. If the evaluation shows that the current slopes do not meet criteria of Facility Specification C.2, then the Discharger shall include a workplan and proposed timeline to make facility modifications.

Flood Protection

~~15.~~16. **By 1 February 2015**, the Discharger shall either submit (a) a *Flood Protection* technical report containing a site drawing which indicates the location, distance, and height of all perimeter berms, and description of whether the berms comply with WDR Specifications C.12 and D.9, and if not, a workplan and proposed timeline to return to compliance, or (b) a RWD requesting a change to the flood control requirements of Specifications C.12 and D.9, which includes an engineering evaluation of the height of the berms necessary to provide stability to prevent global failure of the waste mass.

Other Requirements

17. Extraction well G.22 shall not be removed, nor shall groundwater extraction cease, unless the Discharger has received approval from Water Board staff.

~~16.~~18. All data, technical reports and plans, and monitoring reports prepared by the Discharger after the date of this Order shall be uploaded to the State Water Resources Control Board's web-based Geotracker database system (http://geotracker.waterboards.ca.gov), in compliance with the requirements of Title 23 Section 3890 et seq. This includes uploading

[13] Defined as areas which have not reached the final elevation grade.

all reports, plans, and data required under this Order and under any Order or permit issued by the State Water Quality Control Board.

~~17.~~19. As required by the California Business and Professions Code sections 6735, 7835, and 7835.1, all reports shall be prepared by, or under the supervision of, a California Registered Engineer or Professional Geologist and signed by the registered professional. Each technical report submitted by the Discharger shall contain the professional's signature and/or stamp of the seal.

~~18.~~20. As required by Provision G.6a, G.6d, and G.6e of WDRs Order R5-2008-0118, all reports and transmittal letters shall be signed by either a principal executive officer of the corporation with at least the level of senior vice-president or a duly authorized representative in accordance with Provision G.6d of the WDRs, and any person signing a document submitted to comply with this Order shall make the following certification:

> *I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my knowledge and on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.*

If, in the opinion of the Executive Officer, the Discharger fails to comply with the provisions of this Order, the Executive Officer may refer this matter to the Attorney General for judicial enforcement or may issue a complaint for administrative civil liability.

Failure to comply with this Order or with the WDRs may result in the assessment of Administrative Civil Liability of up to $10,000 per violation, per day, depending on the violation, pursuant to the Water Code, including sections 13268, 13350 and 13385. The Central Valley Water Board reserves its right to take any enforcement actions authorized by law.

Any person aggrieved by this action of the Central Valley Water Board may petition the State Water Board to review the action in accordance with Water Code section 13320 and California Code of Regulations, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of this Order, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the Internet at: http://www.waterboards.ca.gov/public_notices/petitions/water_quality or will be provided upon request.

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 9 October 2014, as amended on 19 February 2016.

Original Signed by

PAMELA C. CREEDON, Executive Officer