

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2012-XXXX

WASTE DISCHARGE REQUIREMENTS
FOR
FORWARD INC. AND REPUBLIC SERVICES INC.
FORWARD LANDFILL
CLASS II
OPERATION, CLOSURE
AND CORRECTIVE ACTION
SAN JOAQUIN COUNTY

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

1. Forward Inc. a subsidiary of Republic Services Inc. (hereinafter referred to jointly as "Discharger") owns and operates the Forward Landfill (facility) about seven miles southeast of Stockton in Sections 3 and 10, T1S, R7E and Section 34, T1N, R7E, MDB&M, as shown in Attachment A, which is incorporated herein and made part of this Order by reference. The facility is a municipal solid waste (MSW) landfill regulated under authority given in Water Code section 13000 et seq.; California Code of Regulations, title 27 ("Title 27"), section 20005 et seq.; and 40 Code of Federal Regulations section 258 (a.k.a, "Subtitle D") in accordance with State Water Resources Control Board (State Water Board) Resolution 93-62.
2. The facility is on a 751 acre property at 9999 South Austin Road, Manteca. The original Forward Landfill operated on 157 acres since 1973, in 2000 the Discharger purchased the adjacent Austin Road Sanitary Landfill on 410 acres and in 2005, purchased the 184 acre Brochinni Parcel to the south and west. The current permitted footprint is approximately 355 acres, of which the current constructed WMU area is 288 acres. The remainder is used for other activities such as soil borrow or storage. Existing landfill units consist of unlined landfills covering 15 acres and lined landfills covering 273 acres. The existing and future permitted landfill area is shown in Attachment B, which is incorporated herein and made part of this Order by reference. The facility is comprised of Assessor's Parcel Numbers (APN) 181-150-07, 181-150-08, 181-150-09, 181-150-10, 201-060-01, 201-060-02, 201-060-03, 201-060-04, and 201-070-01.
3. This Order does not approve construction of new landfill units on the Brochinni Parcel and does not allow any waste to be discharged to any area other than the 340 acres shown on Attachment B. Construction of new units on the Brochinni Parcel may be addressed in a later WDR.
4. On 1 July 2011, the Discharger submitted an amended Report of Waste Discharge (ROWD) as part of the Joint Technical Document (JTD) for the landfill. Staff requested additional information on 1 August 2011 and the final submittal revision to the

ROWD/JTD was submitted on 1 June 2012. The information in the ROWD/JTD has been used in revising these waste discharge requirements (WDRs). The ROWD contains the applicable information required in Title 27. The ROWD/JTD and supporting documents contain information related to this revision of the WDRs including the following:

- a. Modify the facility boundary to include the recently acquired Brochinni parcel. The revised boundary does not change the area available for new waste management units (WMU):
 - b. Modify LCRS base grades east of WMU FU-06;
 - c. Approve the ET alternative final cover design for subsequent phases of closure construction based on the performance of the alternative final cover demonstration;
 - d. Update inorganic concentration limits;
 - e. Update monitoring parameters and network;
 - f. Revise soil pore gas monitoring requirements to include field screening techniques and collect gas samples only when methane exceeds 5 percent; and
 - g. New requirements for a composting operation.
5. On 14 March 2003, the Central Valley Water Board issued Order No. R5-2003-0049 in which the landfill waste management units at the facility were classified as a Class II or Class III units for the discharge of municipal solid waste and designated waste. This Order continues to classify the landfill units as Class II or Class III units in accordance with Title 27.
6. The existing and future landfill units authorized by this Order are described as follows:

<u>Unit</u>	<u>Area (acres)</u>	<u>Liner/LCRS¹ Components²</u>	<u>Unit Classification & Status</u>
A	8.0	Four trenches with a compacted clay liner and dendritic LCRS. Designated and hazardous waste.	Class I, Closed in 1989.
B-North	2.8	Unlined – construction debris and inert waste.	Class III, Inactive since 1986.
B	12.1	Unlined – nonhazardous solid waste.	Class III, Inactive
D-87	2.5	Two feet CCL base with a dendritic LCRS.	Class III, Inactive overlain by later units.
D-88N, -88S	4.6, 1.5	Four feet CCL base, with a dendritic LCRS	Class II, Inactive overlain

<u>Unit</u>	<u>Area (acres)</u>	<u>Liner/LCRS¹ Components²</u>	<u>Unit Classification & Status</u>
			by later units.
D-89	3.5	Four feet CCL base with blanket LCRS	Class II, Inactive overlain by later units.
D-93	4.6	Single Composite Liner – two feet CCL, 60-mil HDPE and blanket LCRS	Class II, Inactive overlain by later units.
D-94	2.5	Single Composite Liner GCL, 60 mil HDPE and blanket LCRS	Class II, Inactive overlain by later units.
D-95 thru -02	47.5	Single Composite Liner – two feet CCL, 60-mil HDPE and blanket LCRS.	Class II, Inactive.
E	6	Two feet CCL with blanket LCRS. Coal ash only.	Class II, Closed in 1999.
F North, F West	1	Leachate surface impoundments – double liner composed of GCL, 60 mil HDPE, geonet, 60-mil HDPE.	Class II, Active
F South		Proposed leachate surface impoundment – double liner composed of GCL, 60-mil HDPE, geonet, 60-mil HDPE.	Class II, Proposed – to be constructed when needed.
G North G South	78,1	Area for land treatment of petroleum contaminated soils, includes soil storage and clay lined sludge drying areas.	Class II, Inactive.
Austin Road Unit 1	123.9	Unlined municipal solid waste landfill.	Class III, Interim closure in 2002
FU-03, 04, 05, 06, 08, & -10		Single composite liners – two feet CCL, 60-mil HDPE, blanket LCRS.	Class II, Active
Compost Facility	7.6	Compacted native soils	Un-classified, Active
Future FU units		Single composite liners – two feet CCL, 60-mil HDPE, blanket LCRS. The area between old Forward Landfill and the Austin Road Unit.	Permitted, to be constructed as needed.
Future H units		Single composite liners – two feet CCL, 60-mil HDPE, blanket LCRS. South of South Branch Littlejohns Ck. now occupied by the resource recovery facility and the Compost Facility	Permitted, to be constructed as needed.

¹ LCRS – Leachate collection and removal system

² All liner systems are composite liner systems unless otherwise noted

7. On-site facilities at the Forward Landfill include: an office, a scalehouse, maintenance areas, an active landfill gas extraction system, a landfill gas-to-energy plant, a landfill gas flare, a materials recovery facility, and a groundwater remediation system.
8. On 9 October 1991, the United States Environmental Protection Agency (USEPA) promulgated federal MSW regulations under the Resource Conservation and Recovery Act (RCRA), Subtitle D. These regulations are under 40 Code of Federal Regulations section 258, and are hereafter referred to as either “Subtitle D” in reference to the RCRA federal law that required the regulations or “40 C.F.R. section 258.XX”. These regulations apply to all California Class II and Class III landfills that accept MSW. State Water Board Resolution 93-62 requires the Central Valley Water Board to implement in WDRs for MSW landfills the applicable provisions of the federal MSW regulations that are necessary to protect water quality, and in particular the containment provisions and the provisions that are either more stringent or that do not exist in Title 27.
9. This Order implements the applicable regulations for discharges of solid waste to land through Prohibitions, Specifications, Provisions, and monitoring and reporting requirements. Prohibitions, Specifications, and Provisions are listed in Sections A through H of these WDRs below, and in the Standard Provisions and Reporting Requirements (SPRRs) dated January 2012 which are part of this Order. Monitoring and reporting requirements are included in the Monitoring and Reporting Program (MRP) No. R5-2012-XXXX and in the SPRRs. In general, requirements that are either in regulation or otherwise apply to all MSW landfills are considered to be “standard” and are therefore in the SPRRs. Any site-specific changes to a requirement in the SPRRs are included in the applicable section (A through H) of these WDRs, and the requirement in the WDRs supersedes the requirement in the SPRRs.
10. Title 27 contains regulatory standards for discharges of solid waste promulgated by the State Water Board and the California Department of Resources Recovery and Recycling (CalRecycle). In certain instances, this Order cites CalRecycle regulatory sections. Title 27, section 20012 allows the Central Valley Water Board to cite CalRecycle regulations from Title 27 where necessary to protect water quality provided it does not duplicate or conflict with actions taken by the Local Enforcement Agency in charge of implementing CalRecycle’s regulations.

WASTE CLASSIFICATION AND UNIT CLASSIFICATION

11. The Discharger proposes to continue to discharge nonhazardous solid waste, including municipal solid waste, commercial waste, construction and demolition waste, asbestos, and dewatered sewage sludge to lined Class III landfill units and lined Class II landfill

units at the facility. These classified wastes may be discharged only in accordance with Title 27, Resolution 93-62, and Subtitle D as required by this Order.

12. The Discharger also proposes to continue to discharge designated waste to Class II landfill units including industrial waste, coal and wood ash, contaminated soils, salty wastes, and auto shredder waste. These classified wastes may be discharged only in accordance with Title 27, Resolution 93-62, and Subtitle D as required by this Order.
13. Water Code section 13173 defines "Designated Waste" as either of the following:
 - a. Hazardous waste that has been granted a variance from hazardous waste management requirements pursuant to Health and Safety Code section 25143.
 - b. Nonhazardous waste that consists of, or contains, pollutants that, under ambient environmental conditions at a waste management unit, could be released in concentrations exceeding applicable water quality objectives or that could reasonably be expected to affect beneficial uses of the waters of the state as contained in the appropriate state water quality control plan.

Designated waste can be discharged only at Class I waste management units, or at Class II waste management units which comply with Title 27 and have been approved by the regional board for containment of the particular kind of waste to be discharged.
14. The Discharger proposes to continue to discharge wastes containing greater than one percent (>1%) friable asbestos to the landfill units. These wastes are classified as 'hazardous' under California Code of Regulations, title 22 (Title 22). However, these wastes do not pose a threat to groundwater quality and California Health and Safety Code, section 25143.7 permits their disposal in any landfill that has WDRs that specifically permit the discharge, provided that the wastes are handled and disposed of in accordance with applicable statutes and regulations.
15. DTSC has granted shredder waste a variance, for the purposes of disposal, from hazardous waste management requirements pursuant to Title 22 of the CCR. Shredder waste is any non-recyclable wastes which results from the shredding of automobile bodies (from which batteries, mufflers, and exhaust pipes have been removed), household appliances, and sheet metal.
16. The Discharger proposes to discharge shredder waste to units with single composite liners.
17. The Discharger proposes to discharge dewatered sewage and water treatment sludges to units with single composite liners. If disposed directly into the landfill, sludge is mixed with refuse so that the mixed sludge will not exceed the moisture holding capacity of the refuse. Sludges containing excess moisture may be air-dried on a bermed, compacted clay pad. When dry, the sludge and underlying soil impacted by contact with the sludge are disposed in the WMU.

18. The Discharger accepts soils contaminated with less than hazardous levels of petroleum hydrocarbons. These soils are either treated in the land treatment unit, or discharged to Class II landfill units. The Discharger has demonstrated that soil contaminated with less than hazardous levels of petroleum hydrocarbons can be transformed to a 'nonhazardous solid waste' in the treatment unit.
19. The Discharger proposes to continue to discharge treated wood waste in the composite-lined units at the landfill. Title 22 defines "treated wood" to mean wood that has been treated with a chemical preservative for purposes of protecting the wood against attacks from insects, microorganisms, fungi, and other environmental conditions that can lead to decay of the wood and the chemical preservative is registered pursuant to the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. Sec. 136 and following). This may include but is not limited to waste wood that has been treated with chromated copper arsenate (CCA), pentachlorophenol, creosote, acid copper chromate (ACC), ammoniacal copper arsenate (ACA), ammoniacal copper zinc arsenate (ACZA), or chromated zinc chloride (CZC).
20. Title 22, section 67386.11 allows treated wood waste to be discharged to a composite-lined portion of a MSW landfill that is regulated by WDRs issued pursuant to the Water Code provided that the landfill owner/operator:
 - a. Comply with the prohibitions in Title 22, section 67386.3, which are:
 - i. Treated wood waste shall not be burned, scavenged, commingled with other waste prior to disposal, stored in contact with the ground, recycled without treatment (except as in iii, below), treated except in compliance with Title 22, section 67386.10, or disposed to land except in compliance with Title 22, section 67386.11.
 - ii. Any label or mark that identifies the wood and treated wood waste shall not be removed, defaced, or destroyed.
 - iii. Treated wood waste may be recycled only by reuse when all of the following apply:
 - (1) Reuse is on-site.
 - (2) Reuse is consistent with FIFRA approved use of the preservative.
 - (3) Prior to reuse, treated wood waste is handled in compliance with Title 22, division 4.5, chapter 34.
 - b. Ensure treated wood waste is managed at the landfill according to Title 22, division 4.5, chapter 34 prior to disposal.

- c. Monitor the landfill for a release and if a verified release is detected from the unit where treated wood is discharged, the disposal of treated wood will be terminated at the unit with the verified release until corrective action ceases the release. .
- d. Handle treated wood waste in a manner consistent with the applicable sections of the California Occupational Safety and Health Act of 1973.

21. Title 27, section 20690 allows the use of alternative daily cover (ADC) at MSW landfills upon approval by the Local Enforcement Agency (LEA) and concurrence from CalRecycle. Title 27, section 20705 provides the Water Board's regulations for all daily and intermediate cover including that it shall minimize the percolation of liquids through waste and that the cover shall consist of materials that meet the landfill unit classification (Class II or Class III). The regulations also require that for non-composite lined portions of the landfill, that any contaminants in the daily or intermediate cover are mobilized only at concentrations that would not adversely affect beneficial uses of waters of the state in the event of a release. For composite-lined portions of the landfill, the regulations require that constituents and breakdown products in the cover material are listed in the water quality protection standard.
22. The Discharger uses the following materials for ADC: synthetic fabric tarps; processed green material; shredded tires; ash and cement kiln dust; construction and demolition wastes; contaminated soils; compostable materials (off-spec, delivered by generator); and processed and treated auto shredder residue. ADC materials were previously approved by the LEA. The Discharger has demonstrated that these materials will minimize percolation of liquids through waste, that they meet the unit classification where they will be discharged, and that the constituents and breakdown products are included in the water quality protection standard.
23. Landfills may propose new ADC materials in order to preserve landfill air space and to beneficially reuse waste materials. Title 27, section 20686 includes regulations for beneficial reuse, including use of ADC. Approval of ADC is primarily handled by the LEA and CalRecycle under Title 27, section 20690. This Order allows any ADC proposed for use at the facility after the adoption of this Order to be approved by Central Valley Water Board staff provided the Discharger has demonstrated it meets the requirements in Title 27, section 20705. The approved ADC materials should then be listed in the facility's WDRs during the next regular update or revision with information about the Discharger's demonstration. This Order also includes a requirement that ADC only be used in internal areas of the landfill unless the Discharger demonstrates that runoff from the particular ADC is not a threat to surface water quality. The demonstration can take sedimentation basins into account.
24. Leachate from the landfill units and other liquid wastes will be discharged to one of two existing and one proposed Class II surface impoundments. If leachate production exceeds impoundment capacity at any impoundment, excess leachate will either be contained in temporary on-site, above ground tanks or will be transported to the City of

Stockton's wastewater plant for off-site disposal. No liquids generated offsite will be discharged to the impoundments without prior approval of the RWQCB.

COMPOST FACILITY WASTE

25. The Discharger proposes to continue to treat some decomposable organic waste in the Compost Facility. Material accepted for treatment at the compost Facility includes green waste, food waste (including garbage as defined in 14 CCR Section 17225.30), food processing residue, biosolids, mixed solid waste, manure, mixed paper, ash, grit/grease, holding tank pumpings and agricultural waste. Green material, food processing residue, food waste, sewage sludge, mixed solid waste and manure are as defined in Title 14 (Chapter 3.1, Article 1, Section 17852) CCR. Compost may be marketed offsite as a product or utilized on-site as a soil amendment or alternative cover (ADC).
26. Title 27 regulates waste classifications and waste management unit classifications designed to provide protection to beneficial uses of waters of the state for projects involving the discharge of solid waste to land for treatment, storage or disposal at landfills, surface impoundments, waste piles and land treatment units. Under this scheme, a composting operation that does not involve the processing of hazardous constituents may either be exempt from regulation under Title 27 or be a Class II waste pile for the treatment and storage of solid waste.
27. The feedstock and some additives for composting are classified as nonhazardous solid waste and some may be designated waste as defined in Title 27, depending on various factors including site-specific conditions and the types and volumes of feedstocks and additives. Composting operations are regulated under Title 27 regulations at sites where groundwater could be impacted by compost leachate from the compost pads or the runoff retention basin. However, based on site specific factors including site location, fine grained soils and depth to groundwater, the threat to beneficial uses of surface water or groundwater posed by this operation is not commensurate with the stringent monitoring, siting, construction and design standards applicable to a Class II waste pile under Title 27 so long as it meets and continues to meet the requirements of this Order. The requirements of this Order include a runoff retention basin that can accommodate runoff from a 25-year, 24-hour storm event; installation of a synthetic liner in the retention basin; and construction and maintenance of low conductivity (minimum 1×10^{-5} cm/sec) composting and storage pads to minimize downward infiltration. The attached MRP requires quarterly monitoring of the retention basin liquid and of the leachate from active compost areas. The Regional Water Board may revise this Order with more stringent requirements if monitoring indicates the threat to waste quality is greater than expected.
28. Title 27, section 20200(a)-(a)(1) states that: *"[For wastes that cannot be discharged directly or indirectly to waters of the state, the waste classification system under Title 27] shall provide the basis for determining which wastes may be discharged at each class of Unit. Waste classifications are based on an assessment of the potential risk of water quality degradation associated with each category of waste."*

29. Title 27 section 20200(a)(1) allows the Regional Water Board to make a finding that: “...a particular waste constituent or combination of constituents presents a lower risk of water quality degradation than indicated by classification according to this article.” Based on the Discharger submittals and on the lower risk to water quality cited in Finding 28 of this Order, the Regional Water Board finds, pursuant to Title 27 section 20200(a)(1), that the operation is not subject to Title 27 regulations so long as the operation continues to meet the composting related requirements of this Order.

CANNERY WASTE PILOT PROJECT

30. The Discharger proposes to conduct a Cannery Waste Land Application Pilot project on 7.5 acres north of the Austin Road Unit. The pilot project is located outside the landfill disposal footprint area. The project will be limited in size, is for one season only and will collect data for an anti-degradation analysis. The anti-degradation will be part of a CEQA Initial Study in support of future cannery waste land application.

SITE DESCRIPTION

31. Forward Landfill is situated in the eastern San Joaquin Valley on relatively flat terrain with pre-landfill surface elevations ranging from 30 to 40 feet above mean sea level (MSL). The existing Solid Waste Facility Permit allows landfilling to a maximum elevation of 210 feet MSL. The North Fork of South Littlejohns Creek forms the north and west boundaries of the Austin Road unit and drains the north half of the combined landfill area. The South Fork of South Littlejohns Creek separates the old Forward units and the composting/materials recycling area and drains the south half of the combined landfill area.
32. Land uses within one mile of the facility include agriculture, industrial and residential. The Stockton Metropolitan Airport is approximately one mile to the west, the Northern California Youth Correction Center is approximately 1,900 feet to the north, and the BNSF Intermodal Facility is approximately one mile to the northeast. There are three residences within one half mile of the landfill.
33. There are 35 domestic, industrial, or agricultural groundwater supply wells within one mile of the facility. Locations of these wells relative to the facility are shown on Attachment C, which is incorporated herein and made part of this Order by reference.
34. The site is underlain by lenticular deposits of clay, silt and sand with minor gravel of the Pleistocene Victor Formation. The closest fault, the Tracy-Stockton Fault Zone is approximately 6.5 miles to the northwest.
35. The measured hydraulic conductivity of the native soils underlying the landfill units ranges between 2×10^{-2} and 2×10^{-3} centimeters per second (cm/s).

36. Based on a site-specific seismic analysis, the controlling maximum credible earthquake (MCE) for the site is a moment of magnitude 6.4 event along the Great Valley Fault at a closest rupture distance of 21 miles (34 kilometers) from the site. It is estimated that a MCE event would produce a peak ground acceleration of 0.13 g at the site.
37. The facility receives an average of 13.31 to 14.35 inches of precipitation per year as measured at the site. The mean pan evaporation is 78.43 inches per year as measured at the Oakdale Woodward Dam Station.
38. The 1,000-year, 24-hour precipitation event for the facility is estimated to be 4.11 inches, based on California Department of Water Resources' bulletin 195 entitled *Rainfall Depth-Duration-Frequency for California*, revised November 1982, updated August 1986.
39. Most of the waste management facility is not within a 100-year flood plain based on the US Dept. of Housing and Urban Development, Federal Flood Insurance Rate Map, May 1980. The North Branch of Littlejohns Creek was realigned subsequent to this map and all of the facility is now out of the 100-year flood plain.
40. Storm water sedimentation basins are located west of the landfill as shown on Attachment B. The basins detain storm water for sedimentation control during the rainy season and are normally dry during the summer months. Storm water from the sedimentation basins is typically evaporated but may be discharged to North Fork of South Littlejohns Creek.

SURFACE WATER AND GROUNDWATER CONDITIONS

41. The *Water Quality Control Plan for Sacramento and San Joaquin River Basins, Fourth Edition* (hereafter Basin Plan), designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin.
42. Surface water drainage from the northern half of the site is to the North Fork of South Littlejohns Creek; drainage from the southern half flows to the South Fork of South Littlejohns Creek thence to Littlejohns Creek in the Duck-Littlejohns Hydrologic Area (31.40) of the San Joaquin River Basin.
43. The designated beneficial uses of Littlejohns Creek as specified in the Basin Plan, are municipal and domestic supply; agricultural supply; water contact recreation; non-contact water recreation; commercial and sport fishing; warm fresh water habitat; cold freshwater habitat; wildlife habitat; preservation of biological habitats of special significance; migration of aquatic organisms; and spawning, reproduction, and/or early development.
44. The first encountered groundwater ranges from about 60 feet to 80 feet below the native ground surface. Groundwater elevations range from about -14 feet to -30 feet below the mean sea level (BMSL). The depth to groundwater fluctuates seasonally as much as 10 feet. Groundwater is unconfined.

45. In 2007, the Discharger submitted a detailed re-evaluation of historic groundwater levels for the area east of WMU FU-06. The report demonstrated that the historic groundwater level in the area east of WMU FU-06 is six feet BMSL.
46. Monitoring data indicate background groundwater quality for first encountered groundwater has electrical conductivity (EC) ranging between 900 and 1100 micromhos/cm, with total dissolved solids (TDS) ranging between 600 and 800 milligrams per liter (mg/L).
47. The direction of groundwater flow is generally toward the north-northeast. The estimated average groundwater gradient is approximately 0.6616 feet per foot. The estimated average groundwater velocity is 195 feet per year.
48. The designated beneficial uses of the groundwater, as specified in the Basin Plan, are domestic and municipal water supply, agricultural supply, industrial service supply, and industrial process supply.

GROUNDWATER AND UNSATURATED ZONE MONITORING

49. The existing groundwater monitoring network consists of two units, the Forward Unit with a detection program and the Austin Road Unit with a detection program, a corrective action program and an ongoing evaluation program. The groundwater monitoring network is summarized in the following:

Forward Unit – Background Wells	MW-22, MW-23R, MW-24
Forward Unit – Detection Wells	MW-1A, MW-2A, MW-3A, MW-10, MW-13A, MW-14A, MW-15, MW-16, MW-17, MW-18, MW-19, MW-21
Forward Unit – Domestic Well	DW-9690
Austin Road Unit – Background Well	AMW-2
Austin Road Unit – Detection Wells	AMW-5R, AMW-7, AMW-12
Austin Road Unit – Corrective Action Wells	AMW-1, AMW-4, AMW-6, AMW-10, AMW-11, AMW-13, AMW-14, AMW-18, AMW-19, AMW-19BR
Austin Road Unit – Evaluation Wells*	AMW-13B, AMW-21, AMW-22, AMW-24R, AMW-24SR, AMW-25, AMW-26R, AMW-27, AMW-28, AMW-29, AMW-29S, AMW-30,

AMW-30S, AMW-31, AMW-31S, AMW-32,
AMW-32S.

Austin Road – Domestic Wells 7898-A, 8106-2

*The evaluation program is part of an ongoing investigation into nature and extent of VOC impacts to the deep aquifer north of the Austin Road unit. Additional wells may be installed and wells may be abandoned as the investigation progresses. Some evaluation wells may be retained as a revised corrective action monitoring program.

50. The Discharger's detection monitoring program for groundwater at the landfill satisfies the requirements contained in Title 27.

51. The existing unsaturated zone monitoring system for the landfill consists of:

<u>Unit Monitored</u>	<u>Type</u>	<u>Monitoring Points</u>
F - North	Suction	E-1, E-2, W-1, W-2
F - West	Suction	LY-Pond-N, LY-Pond-S
Background	Suction	LY-BG-1
Forward	Suction	LY-A, LY-E1A, LY-E1B, LY-E2A, LY-E2B, D93A, D93B
Austin Road	Suction	FU-03, FU-04W, FU-04E, FU-05, FU-06
Forward	Pan	D-01S, D-01N, D-02
Austin Road	Pan	FU-03, FU-04W, FU-04E, FU-05, FU-06

Landfill units built after 2001 are constructed with pan lysimeters below the landfill sump as a final check of the integrity of the base liner. New landfill units at Austin Road have a suction lysimeter in addition to the pan lysimeter. In recent years, lysimeters at new units have not been sampled on a regular basis. This Order requires quarterly monitoring of all currently existing and any future lysimeters.

52. Volatile organic compounds (VOCs) are often detected in a release from a MSW landfill and are often associated with releases of landfill gas rather than leachate. Since volatile organic compounds are not naturally occurring and thus have no background value, they are not amenable to the statistical analysis procedures contained in Title 27 for the determination of a release of wastes from a landfill unit. Title 27, sections 20415(e)(8) and (9) allows the use of a non-statistical evaluation of monitoring data that will provide the best assurance of the earliest possible detection of a release from a landfill unit in accordance with Title 27, sections 20415(b)(1)(B)2.-4. However, Title 27 does not specify a specific method for non-statistical evaluation of monitoring data.

53. The Central Valley Water Board may specify a non-statistical data analysis method pursuant to Title 27, section 20080(a)(1). Water Code section 13360(a)(1) allows the

Central Valley Water Board to specify requirements to protect groundwater or surface waters from leakage from a solid waste site, which includes a method to provide the best assurance of determining the earliest possible detection of a release.

54. In order to provide the best assurance of the earliest possible detection of a release of non-naturally occurring waste constituents from a landfill unit, the SPRRs specify a non-statistical method for the evaluation of monitoring data for non-naturally occurring compounds. The specified non-statistical method for evaluation of monitoring data provides two criteria (or triggers) for making the determination that there has been a release of non-naturally occurring waste constituents from a landfill unit. The presence of two non-naturally occurring waste constituents above their respective method detection limit (MDL), or one non-naturally occurring waste constituent detected above its practical quantitation limit (PQL) [a.k.a, laboratory reporting limit (RL)], indicates that a release of waste from a Unit has occurred. Following an indication of a release, verification testing must be conducted to determine whether there has been a release from the landfill unit or the detection was a false detection. The detection of two non-naturally occurring waste constituents above the MDL as a trigger is appropriate due to the higher risk of false-positive analytical results and the corresponding increase in sampling and analytical expenses from the use of one non-naturally occurring waste constituent above its MDL as a trigger.
55. For a naturally occurring constituent of concern, the Title 27 requires concentration limits for each constituent of concern be determined as follows:
- a. By calculation in accordance with a statistical method pursuant to Title 27, section 20415(e)(8); or
 - b. By an alternate statistical method meeting the requirements of Title 27, section 20415(e)(8)(E).
56. The Discharger submitted a October 2011 Concentration Limit Update (CLU) report proposing statistical data analysis methods to calculate new or revised concentration limits for each monitored constituent in accordance with Title 27. The CLU report proposed to use intrawell data analysis to calculate tolerance limits for the monitored constituents. The CLU and approved data evaluation methods are included in MRP No. R5-2012-XXXX.

GROUNDWATER DEGRADATION AND CORRECTIVE ACTION

57. Groundwater down-gradient of the old Austin Road Unit is impacted with dichloroethane, dichloroethylene, tetrachloroethylene, and trichloroethylene. VOC impacts were detected in 1989 and by 1991 evaluation monitoring determined that chlorinated hydrocarbon impacts extended as far as 1,000 feet down-gradient of the landfill. A corrective action plan was approved for implementation in August 1991. The plan consisted of a load

checking program; extraction and treatment of impacted groundwater from two wells; and continued monitoring of the effectiveness of corrective action.

58. In 1998 corrective action monitoring determined that the initial corrective actions had failed to contain groundwater contamination or remediate groundwater impacts. In April 1999, the City of Stockton (previous discharger) submitted a Draft Engineering Feasibility Study (EFS) for an improved corrective action plan. Staff determined that the Draft EFS was inadequate and requested changes. On 3 September 2000, ownership of Austin Road landfill was transferred to Forward Inc. The new Owner submitted a revised EFS on 11 June 2001 and revised in response to comments on 30 August 2001; a Time Schedule for Corrective Action was issued 13 December 2001; and the Discharger submitted an Evaluation Procedures for Proposed Corrective Action on 26 February 2002. The resulting corrective action plan, includes the following activities:

- a. Enhance landfill gas control system to prevent further release of VOCs from the landfill;
- b. Continued groundwater extraction and treatment with existing extraction wells;
- c. Implementation of a groundwater artificial recharge system using treated water;
- d. Additional groundwater monitoring wells to monitor the effectiveness of the corrective action and determination of the need for modifications; and
- e. Install an interim cover on Austin Road Landfill Unit 1.

59. The groundwater extraction system consisted of groundwater extraction wells at the downgradient boundary of the Austin Road Unit. VOCs are removed with an air stripper and the treated water is discharged to a recharge basin to recharge the shallow aquifer. Operation and monitoring of the groundwater extraction system is regulated by Order R5-2003-0080.

60. In 2008, chlorinated solvents including tetrachloroethylene and trichloroethylene were detected in water supply wells at the California Youth Authority (CYA) facility, approximately 1900 feet north of the Austin Road Unit. On 8 December 2008, the Executive Officer issued Cleanup and Abatement Order (CAO) R5-2008-0714 requiring among other things a plan to supply drinking water to the CYA, a source control plan, upgrade the existing groundwater treatment system, investigate the nature and extent of the release, submit an engineering feasibility study, and implement corrective actions. Compliance with the CAO is ongoing, the Discharger extended the municipal water supply to CYA and is currently working on the nature and extent investigation. Any corrective actions resulting from the CAO will be addressed in a future Order.

LINER PERFORMANCE DEMONSTRATION

61. On 15 September 2000 the Central Valley Water Board adopted Resolution No. 5-00-213 *Request For The State Water Resources Control Board To Review The Adequacy Of The*

Prescriptive Design Requirements For Landfill Waste Containment Systems To Meet The Performance Standards Of Title 27. The State Water Board responded, in part, that “a single composite liner system continues to be an adequate minimum standard” however, the Central Valley Water Board “should require a more stringent design in a case where it determines that the minimum design will not provide adequate protection to a given body of groundwater.”

In a letter dated 17 April 2001, the Executive Officer notified Owners and Operators of Solid Waste Landfills that “the Board will require a demonstration that any proposed landfill liner system to be constructed after 1 January 2002 will comply with Title 27 performance standards. A thorough evaluation of site-specific factors and cost/benefit analysis of single, double, and triple composite liners will likely be necessary.”

62. On 21 February 2002, the Discharger submitted “Leachate Attenuation Analyses Prescriptive Clay Liner, Forward Landfill” and on 21 March staff provided comments for that document. On 10 July 2002 the discharger submitted “Performance Demonstration for a Single Composite Liner”, and on 14 August 2002 staff provided comments for that document. On 25 September 2002 the discharger submitted a revised performance demonstration and on 24 October 2002 staff responded indicating concurrence with the revised demonstration. The proposed liner system consists of a single composite base liner from bottom to top composed of: a prepared subgrade, two feet of compacted clay, 60-mil HDPE, one-foot gravel drainage layer, filter fabric, one-foot operations layer, and a first waste layer composed of selected waste. Side-slope liners to be composed of: a prepared subgrade, two-feet of compacted clay or GCL, 60-mil HDPE, geocomposite drainage net, and one-foot operations layer. Forward will install a double composite liner under landfill sumps, conduct an electric leak test over the sump, conduct CQA inspections during placement of the operations layer and first lift of refuse, conduct an electric leak test over the entire base liner after installation of the operations layer; and use selected material in the operations layer. The report demonstrated that the proposed liner system would effectively prevent the migration of wastes from the unit.

CONSTRUCTION AND ENGINEERED ALTERNATIVE

63. On 17 June 1993, the State Water Board adopted Resolution 93-62 implementing a State Policy for the construction, monitoring, and operation of municipal solid waste landfills that is consistent with the federal municipal solid waste regulations promulgated under 40 Code of Federal Regulations section 258 (a.k.a, Subtitle D). Resolution 93-62 requires the construction of a specified composite liner system at new municipal solid waste landfills, or expansion areas of existing municipal solid waste landfills, that receive wastes after 9 October 1993. Resolution 93-62 also allows the Central Valley Water Board to consider the approval of engineered alternatives to the prescriptive standard. Section III.A.b. of Resolution 93-62 requires that the engineered alternative liner systems be of a composite design similar to the prescriptive standard.

64. Title 27, section 20080(b) allows the Central Valley Water Board to consider the approval of an engineered alternative to the prescriptive standard. In order to approve an engineered alternative in accordance with Title 27, sections 20080(c)(1) and (2), the Discharger must demonstrate that the prescriptive design is unreasonably and unnecessarily burdensome and will cost substantially more than an alternative which will meet the criteria contained in Title 27, section 20080(b), or would be impractical and would not promote attainment of applicable performance standards. The Discharger must also demonstrate that the proposed engineered alternative liner system is consistent with the performance goal addressed by the particular prescriptive standard, and provides protection against water quality impairment equivalent to the prescriptive standard in accordance with Title 27, section 20080(b)(2).
65. Water Code section 13360(a)(1) allows the Central Valley Water Board to specify the design, type of construction, and/or particular manner in which compliance must be met in waste discharge requirements or orders for the discharge of waste at solid waste disposal facilities.
66. The Discharger proposes a liner system which will be designed, constructed, and operated in accordance with the criteria set forth in Title 27, and the provisions in State Water Board Resolution 93-62 for municipal solid wastes.
67. On 30 May 2002, the Discharger submitted a Joint Technical Document requesting approval of single composite bottom liner that complies with the prescriptive standard liner requirements and an engineered alternative to the prescriptive standard for the side slope liner requirements for all future modules at the facility. Future landfill modules shall have a single composite bottom liner that consists of, in ascending order: a prepared subgrade; a 24-inch thick, low-permeability soil layer (minimum permeability of 1×10^{-7} cm/sec); a 60-mil high density polyethylene (HDPE) geomembrane; a 12-ounce/square yard cushion geotextile (may be omitted if the LCRS gravel is sub-angular to rounded); a 12-inch LCRS gravel drainage layer; an 8-ounce/square yard separator geotextile; and a 12-inch thick protective cover soil operations layer. The components for the engineered alternative side slope liner of the future landfill modules consists of, in ascending order: a prepared subgrade; a Geosynthetic Clay Liner (GCL) or a 24-inch thick low permeability soil layer (minimum permeability of the soil 1×10^{-7} cm/sec); a 60-mil HDPE geomembrane; a geocomposite drainage net; and a 12-inch thick protective cover soil operations layer.
68. The Discharger's engineered alternative demonstration contends that installation of 24-inches of compacted low permeability soil and gravel drainage material on side slopes will be technically difficult and would cost substantially more than the use of GCL and geocomposite drainage net respectively (the alternative design).
69. The Discharger adequately demonstrated that construction of a Subtitle D prescriptive standard liner would be unreasonably and unnecessarily burdensome when compared to the proposed engineered alternative design. The Discharger demonstrated that the

proposed engineered alternative is consistent with the performance goals of the prescriptive standard and affords at least equivalent protection against water quality impairment.

70. The approved leachate collection and removal system (LCRS) consists of a 12-inch gravel layer with six-inch high density polyethylene (HDPE) lateral pipe and headers. The drainage layer has a minimum 2% grade towards the leachate collection pipes and minimum 1% grade along the leachate collection pipes. The leachate collection pipes are placed on approximately 200-foot centers. Calculated peak daily leachate generation is 4,073 gallons/acre or approximately 0.0045 cubic feet per second. Daily peak head on the liner system is calculated to be approximately 1.6 inches. Collected leachate is discharged to one of the onsite Class II impoundments.
71. A pan lysimeters will be installed beneath the LCRS sump in each new landfill cell/module for the purpose of vadose zone monitoring. The proposed design for the pan lysimeters consists of, in ascending order: a prepared subgrade; a 24-inch thick, low-permeability soil layer (minimum permeability of 1×10^{-7} cm/sec) or a GCL liner; a 60-mil HDPE geomembrane; and a gravel filled pan lysimeter with access pipe. Overlying the pan lysimeter is the primary sump which consists of a GCL liner; a 60-mil HDPE geomembrane; a gravel filled LCRS sump with access pipe; an 8-ounce/square yard separator geotextile; and a 12-inch thick protective cover soil operations layer.
72. The Discharger proposes to install an intermediate liner where new landfill modules/cells are constructed over the existing Class III waste disposal area. The interface liner consists of, in ascending order: one-foot of existing soil cover; one-foot of additional foundation soil; 24-inch low permeability soil (minimum permeability of 1×10^{-7} cm/sec) or GCL liner; 60-mil HDPE geomembrane; geocomposite drainage layer; and one-foot protective cover soil layer.
73. The Discharger proposes the following construction quality assurance protocols for liner construction:
 - a. Monitor placement of drainage layer gravel with a dedicated CQA technician;
 - b. a liner leak test over the entire base liner to be performed after installation of the gravel drainage layer and the operations layer; and
 - c. during placement of the first layer of waste in a new unit, site personnel will monitor waste placement and will exclude materials that could threaten the liner.
74. The May 2002 (subsequently revised in 2002, 2003, 2007 and 2008) Joint Technical Document includes a stability analysis for the landfill and liner system pursuant to Title 27, section 21750(f)(5). The Discharger based the seismic slope stability analysis on two potential earthquake events, a Maximum Creditable Earthquake (MCE) of M 7.9 on the San Andreas Fault at distance 70 Miles and an MCE of M 6.7 on the Great Valley Fault at

distance 21 miles. The slope stability analysis was completed using the program SLOPE/W. The gross stability of the landfill and liner was assessed using the maximum slope height and slope gradient. The final static factor of safety of 1.5 can be obtained for the proposed final cover configuration and no significant seismic-induced permanent displacement is anticipated for the proposed cover design for the design earthquakes. Discharger's stability analysis includes components to demonstrate the integrity of the landfill foundation, final slopes, and containment systems under both static and dynamic conditions throughout the landfill's life including the closure period and post-closure maintenance period. The stability analysis demonstrates that the structural components will withstand the forces of the MCE without failure of the containment systems or environmental controls.

75. The Discharger proposes to construct new Class II surface impoundments as needed to contain and evaporate leachate from solid waste management units. An engineered alternative to the prescriptive liner requirements of Title 27 is proposed for the Class II Surface Impoundments. The engineered alternative consists of from the top down:
- a. A primary 60-mil-thick High Density Polyethylene (HDPE) geomembrane;
 - b. a geonet drainage layer, as a Leachate Collection and Removal System (LCRS);
 - c. a secondary 60-mil-thick HDPE geomembrane; and
 - d. a GCL in place of the compacted clay liner.

76. This Order approves the Discharger's proposed liner system for future modules as described in Finding 6 and requires that the Discharger submit design plans and construction quality assurance (CQA) plans for each new module or modules for review and approval at least 180 days prior to construction.

COMPOST FACILITY

77. The Composting Facility is located on 7.6 acre parcel south of the South Fork of South Littlejohns Creek. The facility consists of compacted native soil pad with a minimum one-percent slope to the north. The pad is protected from run-on by berms on the eastern edge and a portion of the south edge of the site. The site is sloped to drain to two ditches designed to contain run-off from the 25-year, 10-minute duration storm. Composting windrows are constructed normal to the slope to allow free drainage and minimize ponding. The surface native soils consist of lean clay to silt and silty clay. This Order requires that the one-foot thick soil layer beneath composting pad areas be tested and if necessary conditioned and compacted to achieve a hydraulic conductivity of 1×10^{-5} cm/sec or less.
78. Leachate, if any, is collected in the two ditches and drains to an unlined storm-water retention basin. The Discharger does not monitor, sample or otherwise control leachate. This Order requires that the retention pond be sized to contain at least a 25-year, 24-hour storm event and that the retention pond be equipped with a synthetic liner.

79. Water collected in the retention basin will either be evaporated, used in the initial mixing of the compost, used for dust control, pumped to the on-site leachate evaporation pond, or transported off-site to a municipal treatment facility.

LANDFILL CLOSURE

80. Title 27, section 21090 provides the minimum prescriptive final cover components for landfills consisting of, in ascending order, the following layers:

- a. Two-foot soil foundation layer.
- b. One-foot soil low flow-hydraulic conductivity layer, less than 1×10^{-6} cm/s or equal to the hydraulic conductivity of any bottom liner system.
- c. Geomembrane layer (this layer is required for composite-lined landfills for equivalency to bottom liner).
- d. One-foot soil erosion resistant/vegetative layer.

81. Title 27 allows engineered alternative final covers provided the alternative design will provide a correspondingly low flow-through rate throughout the post-closure maintenance period.

82. The Discharger submitted a December 2008, *Preliminary Closure and Postclosure Maintenance Plan* (Appendix L in the *Joint Technical Document*) for closure and post-closure maintenance of all the unlined and composite-lined landfill units at the facility. The Closure Plan proposes eight-staged closure projects over the life of the Landfill. Final closure dates for the various stages will depend on module fill rates. The first closure Stage consists of most of the top deck, north and west side-slopes of the Austin Road Unit and the east, west and south slide-slopes to a height of 150 feet of the Forward Unit. To date, the first stage areas on the Austin Road Unit have a final cover installed but not yet certified as closed. All of the first stage was tentatively scheduled for completion by December 2014.

83. Due to Forward Landfill changing development plans, the 2008, *Preliminary Closure and Postclosure Maintenance Plan*, is outdated and it is unlikely that the 2008 closure stages can occur as projected. This Order requires submittal of an updated Preliminary Closure and Postclosure Maintenance Plan.

84. The Discharger proposes a ET final cover for closure of the landfill. The proposed final cover consists of a minimum of one-foot of existing interim cover overlain by a minimum of three-feet of selected fine grained soil.

85. From 2006 to 2010, the Discharger completed a demonstration project for an alternative final cover system on the northern slope of the Austin Road Unit. The project involved a three-feet thick soil cover over the existing one-foot thick interim cover. The soils consisted of on-site clayey silt with an as-built minimum hydraulic conductivity of 1×10^{-6} cm/sec. Performance of the demonstration cover was monitored for climate (rainfall,

evaporation, solar radiation, relative humidity, barometric pressure, temperature and wind speed) and soil moisture at various depths within the 4-foot thick cover. Lysimeters at the bottom of the cover system measured no breakthrough (no water infiltration through the cover and into the waste) over the four-year test. Soil moisture and heat dissipation sensors installed at various depths within the cover demonstrated overall soil drying trends; upward moisture and soil suction gradient over most of the year; and a net negative moisture flow (upward movement of moisture and long-term drying of the underlying waste) over the four-year test period.

86. Title 27 section 21090 requires that final cover systems contain a low-hydraulic conductivity layer that exhibits a saturated hydraulic conductivity of less than 1×10^{-6} cm/sec, or equal to the hydraulic conductivity of the bottom liner system or underlying natural geologic materials, whichever is less. The alternative final cover demonstration project showed that in this location and using site soils the water balance/evapotranspiration engineered alternative cover meets or exceeds the performance goals of Title 27.
87. Side slopes for the closed landfill will be sloped at 3H:1V and will include 15-foot wide benches every 50 vertical feet or less as required by Title 27.
88. The Discharger performed a slope stability analysis for the proposed final cover. The Discharger's static and dynamic stability analysis demonstrates that the side slopes of the final cover will be stable in accordance with the requirements of Title 27.
89. Pursuant to Title 27, section 21090(e)(1), this Order requires a survey of the final cover following closure activities for later comparison with iso-settlement surveys required to be conducted every five years.
90. This Order approves the proposed final cover and requires that a final closure and post-closure maintenance plan, design documents, and CQA plan be submitted for review and approval at least 180 days prior to actual closure.

LANDFILL POST-CLOSURE MAINTENANCE

91. The Discharger submitted a December 2008 *Preliminary Closure and Postclosure Maintenance Plan* (Appendix L of the Report of the Joint Technical Document) for closure and post-closure maintenance of the landfill. The plan includes inspection, maintenance, and monitoring of the landfill during the post-closure maintenance period, and a post-closure maintenance cost estimate for the entire facility. Inspection and maintenance will include the condition of the final cover, drainage features, LCRS, groundwater monitoring wells, unsaturated zone monitoring points, landfill gas system, groundwater corrective action system, and site security. The plan will be implemented for a minimum period of 30 years or until the waste no longer poses a threat to environmental quality, whichever is greater.

92. Once every five years during the post-closure maintenance period, aerial photographic maps of the closed landfill area will be made to identify and evaluate landfill settlement. Iso-settlement maps will be prepared to determine the amount of differential settlement occurring over the previous five years. Pursuant to Title 27, section 21090(e)(2), this Order requires iso-settlement maps to be prepared and submitted every five years.
93. The completed final cover will be periodically tested for damage or defects by monitoring surface emissions pursuant to California Code of Regulations, title 17, section 95471(c) and Title 27, section 21090(a)(4)(A). Defects will be repaired and tested for adequacy based on the closure CQA Plan.

FINANCIAL ASSURANCES

94. Title 27, sections 21820 and 22206 require a cost estimate for landfill closure. The cost estimate must be equal to the cost of closing the landfill at the point in its active life when the extent and manner of operation would make closure the most expensive. When closing units in phases, the estimate may account for closing only the maximum area or unit of a landfill open at any time. The Discharger's 2008 revised *Preliminary Closure and Post Closure Maintenance Plan* includes a cost estimate for landfill closure. The lump sum estimate is for the cost to close largest future area needing closure at any one time. The total amount of the closure cost estimate in 2008 dollars is \$12,571,034. This Order requires that the Discharger maintain financial assurance with the California Department of Resources Recycling and Recovery (CalRecycle) in at least the amount of the closure cost estimate. As of 2012, the balance of the closure fund was \$13,407,553.
95. Title 27, sections 21840 and 22211 requires a cost estimate for landfill post-closure maintenance. The Discharger's December 2008 revised *Preliminary Closure and Post Closure Maintenance Plan* includes a cost estimate for landfill post-closure maintenance. The amount of the cost estimate for post-closure maintenance in 2008 dollars is \$12,740,328. This Order requires that the Discharger maintain financial assurance with CalRecycle in at least the amount of the post-closure maintenance cost estimate adjusted annually for inflation. As of 2012, the balance of the post-closure maintenance fund was \$13,588,125.
96. Title 27, section 22221 requires a cost estimate for corrective action of all known or reasonably foreseeable releases. The Discharger submitted a 1992 cost estimate of \$143,473 for corrective action of all known or reasonably foreseeable releases. This Order requires that the Discharger re-evaluate the corrective action cost estimate and maintain financial assurance with the CalRecycle in at least the amount of the re-evaluated cost estimate adjusted annually for inflation. As of 2012, the balance of the corrective action fund was \$187,046.

CEQA AND OTHER CONSIDERATIONS

97. On 6 February 2003, the San Joaquin County Planning Commission certified the Final Environmental Impact Report (EIR) for the facility. A Notice of Determination was filed in accordance with the California Environmental Quality Act (Public Resources Code Section 21000 et seq.) and CEQA guidelines (Title 14, section 15000 et seq.). The Central Valley Water Board considered the Final EIR and incorporated mitigation measures from the Final EIR into these waste discharge requirements designed to prevent potentially significant impacts to design facilities and to water quality. On 6 January 2011, the San Joaquin County Planning Commission certified the negative declaration regarding a revised facility boundary.
98. This Order implements:
- a. *The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition;*
 - b. The prescriptive standards and performance goals of California Code of Regulations, title 27, section 20005 et seq., effective 18 July 1997, and subsequent revisions;
 - c. State Water Board Resolution 93-62, *Policy for Regulation of Discharges of Municipal Solid Waste*, adopted 17 June 1993, and revised on 21 July 2005.
 - d. The applicable provisions of Title 40 C.F.R. section 258 "Subtitle D" federal regulations as required by State Water Board Resolution 93-62.
99. Based on the threat and complexity of the discharge, the facility is determined to be classified 1A as defined below:
- a. Category 1 threat to water quality, defined as, "Those discharges of waste that could cause the long-term loss of a designated beneficial use of the receiving water. Examples of long-term loss of a beneficial use include the loss of drinking water supply, the closure of an area used for water contact recreation, or the posting of an area used for spawning or growth of aquatic resources, including shellfish and migratory fish."
 - b. Category A complexity, defined as, "Any discharge or toxic wastes; any small volume discharge containing toxic waste; any facility having numerous discharge points and groundwater monitoring; or any Class 1 waste management unit."
100. Water Code section 13267(b) provides that: "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 discharge or discharging, or who proposed to discharge within its region, or any citizen or domiciliary, or political agency or entity of this state who had discharged, discharges, or is suspected of having discharged or discharging, or who proposed to discharge waste outside of its region that could affect the

quality of the waters of the state within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the board requires. The burden, including costs of these reports, shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports.

101. The technical reports required by this Order and the attached "Monitoring and Reporting Program No. R5-2012-XXXX" are necessary to assure compliance with these waste discharge requirements. The Discharger owns and operates the facility that discharges the waste subject to this Order.

PROCEDURAL REQUIREMENTS

102. All local agencies with jurisdiction to regulate land use, solid waste disposal, air pollution, and to protect public health have approved the use of this site for the discharges of waste to land stated herein.
103. The Central Valley Water Board notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge, and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
104. The Central Valley Water Board, in a public meeting, heard and considered all comments pertaining to the discharge.
105. 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 that this Order becomes final, except that if the thirtieth day following the date that this Order becomes final 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.

IT IS HEREBY ORDERED, pursuant to California Water Code sections 13263 and 13267, that Order No. R5-2003-0049 is rescinded except for purposes of enforcement, and that Forward Inc. and Republic Services Inc., its agents, successors, and assigns, in order to meet the provisions of Division 7 of the California Water Code and the regulations adopted thereunder, shall comply with the following:

A. PROHIBITIONS

1. The discharge of 'hazardous waste' is prohibited. For the purposes of this Order, the term 'hazardous waste' is as defined in California Code of Regulations, Title 23, section 2510 et seq.
2. The Discharger shall comply with all Standard Prohibitions listed in Section C of the Standard Provisions and Reporting Requirements (SPRRs) dated January 2012 which are attached hereto and made part of this Order by reference.
3. The discharge of any waste on the Brochinni Parcel is prohibited.

B. DISCHARGE SPECIFICATIONS

1. The Discharger shall only discharge the wastes listed or allowed under the Waste Classification and Unit Classification and the Compost Facility Waste sections in the Findings of this Order.
2. The Discharger shall discharge treated wood wastes only to landfill units equipped with a composite liner system and a leachate collection and removal system (i.e., Modules FU-03, 04, 05, 06, 08, 10 and future modules listed in Finding 6 of this Order). If a verified release is detected from the waste management unit where treated wood is disposed, the disposal of treated wood shall be terminated at the unit with the verified release until corrective action ceases the release.
3. The Discharger shall manage treated wood waste in accordance with California Health and Safety Code sections 25143.1.5 and 250150.7 and shall comply with all prohibitions listed in Title 22, section 67386.3.
4. The Discharger shall treat only compostable waste at the Compost Facility. When treatment is complete compost must be removed from the Compost Facility and may be sold off-site as a product or used on site as alternative daily cover within composite lined WMUs.
5. The Discharger may treat a limited volume of cannery waste as part of the Cannery Waste Pilot Project, described in Finding 30 of this Order. The pilot project is limited to 7.5 acres, for one season only and shall collect data for an anti-degradation analysis.
6. The Discharger may not use any material as alternative daily cover (ADC) that is not listed as approved ADC in the Findings of these WDRs unless and until the Discharger has demonstrated it meets the requirements in Title 27, section 20705, and the Discharger has received approval that it may begin using the material as ADC.
7. The Discharger shall use approved ADC only in internal areas of the landfill that do not drain outside of the limits of the contiguous landfill units unless the Discharger demonstrates that runoff from the particular ADC is not a threat to surface water

quality and the demonstration has been approved. This demonstration may take removal of sediment or suspended solids into account for landfills where surface water drains to a sedimentation basin.

8. The Discharger shall, in a timely manner, remove and relocate any wastes discharged at this facility in violation of this Order. If the Discharger is unable to remove and relocate the waste, the Discharger shall submit a report to the Central Valley Water Board explaining how the discharge occurred, why the waste cannot be removed, and any updates to the waste acceptance program necessary to prevent re-occurrence. If the waste is a hazardous waste, the Discharger shall immediately notify the Department of Toxic Substances Control.
9. The Discharger shall comply with all Standard Discharge Specifications listed in Section D of the SPRRs dated January 2012 which are attached hereto and made part of this Order by reference.

C. FACILITY SPECIFICATIONS

1. The Discharger shall comply with all Standard Facility Specifications listed in Section E of the SPRRs dated January 2012 which are part of this Order.
2. Soil in the upper one foot of the composting pad and compost storage pad areas shall be tested and if necessary conditioned and compacted to achieve 1×10^{-5} cm/sec vertical hydraulic conductivity.
3. The composting pad and compost storage pad areas shall be maintained to minimize the downward percolation of applied, produced, and precipitated wasters by a combination of the following factors:
 - a. The depth, composition and degree of compaction of the pad;
 - b. Judicious use of applied water to control dust and facilitate continued compaction of the pad areas;
 - c. Shifting the location of the compost and storage piles, at least annually, to facilitate and maintain compaction;
 - d. Limiting applied water to minimize production and drainage of leachate;
 - e. Assuring that no compost pile, feedstock pile, or additive pile produces free drainage (i.e., releases leachate); and
 - f. Other effective measures proposed by the Discharger.
4. Compost Facility run-on and run-off controls:

- a. Compost Facility shall implement storm water BMPs so that run-off water does not adversely affect the beneficial uses of any downstream water body;
- b. The Discharger shall monitor leachate and water in the retention basin as required by MRP R5-XXX-XXXX'
- c. The retention basin shall be equipped with a synthetic liner, shall maintain a minimum two feet of freeboard and shall be designed and operated to minimize the downward percolation of constituents;
- d. The Compost and Compost storage pads shall be designed, constructed and maintained to prevent to the greatest extent possible, ponding, infiltration, inundation, erosion, slope failure, and washout;
- e. The pad or pads shall have a minimum one percent slope;
- f. The Discharger shall maintain an effective run-on control system and for the composting area a run-off control system designed to withstand the maximum peak flow from a 25-year, 10-minute storm; and
- g. The retention basin shall be designed to accommodate all runoff and direct precipitation from a 25-year, 24-hour storm and maintain two feet of freeboard.

D. CONSTRUCTION SPECIFICATIONS

1. The Discharger shall construct the base liner and side slope liner of new Class II/Class III landfill units as described in Finding 6 of this Order in accordance with the following approved prescriptive base liner and the approved engineered alternative side slope liner design:
 - a. A composite **base liner system** that is comprised, in ascending order, of the following:
 - 1) Prepared subgrade of graded and compacted, fine grained native soil;
 - 2) a 24-inch thick, low permeability soil layer (minimum permeability of 1×10^{-7} cm/sec);
 - 3) a 60-mil HDPE geomembrane, overlain by a 12-ounce/sq. yard cushion geotextile (may be omitted if LCRS gravel is sub-angular to rounded);
 - 4) a 12-inch LCRS gravel drainage layer overlain by an 8-ounce/Sq. yard separator geotextile; and
 - 5) a 12-inch thick protective soil operations layer.

- b. An engineered alternative composite **side slope liner system** that is comprised, in ascending order, of the following:
 - 1) Prepared subgrade of graded and compacted, fine grained native soil;
 - 2) a (GCL) or 24-inch thick low permeability soil layer (minimum permeability 1×10^{-7} cm/sec;)
 - 3) a 60-mil HDPE liner (single sided textured, textured side down);
 - 4) a geocomposite drainage net; and
 - 5) a 12-inch thick protective soil operations layer.
2. An Intermediate Liner System shall be constructed over the south slope of the existing Class III Waste Management Cell at Austin Road Landfill. The Intermediate Liner system will be constructed on top of the existing interim cover and will separate the existing Class III waste in Austin Road Landfill from new Class III waste. The Intermediate Liner System shall be comprised, in ascending order, of the following:
 - 1) One-foot of existing refuse cover soil;
 - 2) one-foot of additional foundation soil;
 - 3) a 24-inch thick low permeability soil layer (minimum permeability of 1×10^{-7} cm/sec) or GCL liner;
 - 4) a 60-mil HDPE geomembrane (textured);
 - 5) drainage geocomposite; and
 - 6) a 12-inch thick protective soil operations layer.
3. The Discharger shall construct the liner of any new Class II surface impoundment units as described in Finding 6 of this Order in accordance with the following approved prescriptive liner:
 - 1) Prepared subgrade of graded and compacted, native soil;
 - 2) a Geosynthetic Clay layer;
 - 3) a 60-mil HDPE geomembrane;
 - 4) a geonet LCRS layer; and
 - 5) a 60-mil HDPE geomembrane.

4. The Discharger shall not proceed with construction until the construction plans, specifications, and all applicable construction quality assurance plans have been approved.
5. The Discharger may propose changes to the liner system design prior to construction, provided that approved components are not eliminated, the engineering properties of the components are not substantially reduced, and the proposed liner system results in the protection of water quality equal to or greater than the design prescribed by Title 27 and this Order. The proposed changes may be made following approval by the Executive Officer. Substantive changes to the design require reevaluation as an engineered alternative and approval by the Central Valley Water Board in revised WDRs.
6. The Discharger shall comply with all Standard Construction Specifications listed in Section F of the SPRRs dated January 2012 which are attached hereto and made part of this Order by reference.
7. The Discharger shall comply with all Storm Water Provisions listed in Section L of the SPRRs dated January 2012 which are attached hereto and made part of this Order by reference.

E. CLOSURE AND POST-CLOSURE MAINTENANCE SPECIFICATIONS

1. The Discharger shall submit a final or partial final closure and post-closure maintenance plan at least two years prior to proposed closure of any portion of the landfill in accordance with requirements in Section G of the Standard Closure and Post-Closure Specifications in the SPRRs.
2. The Discharger shall close landfill units with a final cover as proposed in the 2005, Alternative Final Cover Design Report and as approved by this Order. The components of the approved final cover as proposed in the The Final Cover System shall be comprised, in ascending order,
 - 1) Minimum one-foot thick foundation layer (in most cases the existing interim cover) cleared, grubbed and compacted;
 - 2) minimum three-feet thick evapotranspiration layer, with minimum of 70% passing No. 200 sieve; an as-built saturated hydraulic conductivity of less than 1×10^{-6} in the lower two-feet and lightly compacted to support vegetation in the upper one-foot; and
 - 3) a robust vegetation cover with a minimum 60% plant coverage after two years and composed of plants selected to survive the Central Valley climate and effectively remove moisture.

3. The Discharger shall obtain revised WDRs prior to closure with any other final cover design than the design or designs approved in this Order.
4. The Discharger shall close the landfill with side slopes at steepness of 3H:1V or less, and top deck areas shall be sloped at three percent or greater.
5. The Discharger shall install an active landfill gas extraction system for the closed landfill unit during landfill closure, and landfill gas shall be extracted from closed landfill units until such time that the landfill gas is no longer a threat to water quality as documented by the Discharger and approved by the Executive Officer.
6. The Discharger shall test the shear strength of the final cover material in a laboratory to ensure minimum design shear strengths are achieved and include the results in the final documentation report.
7. The Discharger shall ensure that the vegetative/erosion resistant layer receives necessary seed, binder, and nutrients to establish the vegetation proposed in the final closure plan. The Discharger shall install necessary erosion and sedimentation controls to prevent erosion and sediment in runoff from the closed landfill during the period the vegetation is being established.
8. The Discharger shall comply with all Standard Closure and Post-Closure Specifications listed in Section G and all Standard Construction Specifications that are applicable to closure in Section F of the SPRRs dated January 2012 which are attached hereto and made part of this Order by reference.

F. FINANCIAL ASSURANCE SPECIFICATIONS

1. The Discharger shall obtain and maintain assurances of financial responsibility with CalRecycle for closure and post-closure maintenance for the landfill in at least the amounts described in Findings 95 and 96, adjusted for inflation annually. A report regarding financial assurances for closure and post-closure maintenance shall be submitted to the Central Valley Water Board by **1 June of each year**. This may be the same report that is submitted to CalRecycle for this purpose. If CalRecycle determines that either the amount of coverage or the mechanism is inadequate, then within 90 days of notification, the Discharger shall submit an acceptable mechanism to CalRecycle and the Central Valley Water Board for at least the amount of the approved cost estimate.
2. The Discharger shall update the preliminary closure and post-closure maintenance plan (PCPCMP) any time there is a change that will increase the amount of the closure and/or post-closure maintenance cost estimate. The updated PCPCMP shall be submitted to the Central Valley Water Board, the Local Enforcement Agency, and CalRecycle. The PCPCMP shall meet the requirements of Title 27, section 21769(b), and include a lump sum estimate of the cost of carrying out all actions necessary to

close each Unit, to prepare detailed design specifications, to develop the final closure and post-closure maintenance plan, and to carry out the first thirty years of post-closure maintenance. Reports regarding financial assurance required in F.1 above shall reflect the updated cost estimate.

3. The Discharger shall obtain and maintain assurances of financial responsibility with CalRecycle for initiating and completing corrective action for all known or reasonably foreseeable releases from the landfill in at least the amount of the annual inflation-adjusted cost estimate described in Finding 97. A report regarding financial assurances for corrective action shall be submitted to the Central Valley Water Board by **1 June of each year**. This may be the same report that is submitted to CalRecycle for this purpose. If CalRecycle determines that either the amount of coverage or the mechanism is inadequate, then within 90 days of notification, the Discharger shall submit an acceptable mechanism to CalRecycle and the Central Valley Water Board for at least the amount of the approved cost estimate.
4. The Discharger shall comply with all Standard Financial Assurance Specifications listed in Section H of the SPRRs dated January 2012 which are attached hereto and made part of this Order by reference.

G. MONITORING SPECIFICATIONS

1. The Discharger shall comply with the detection monitoring program provisions of Title 27 for groundwater, surface water, and the unsaturated zone, and in accordance with Monitoring and Reporting Program (MRP) No. R5-201X-XXXX, and the Standard Monitoring Specifications listed in Section I of the SPRRs dated January 2012 which are attached hereto and made part of this Order by reference.
2. The Discharger shall, for any landfill unit in a corrective action monitoring program, comply with the corrective action monitoring program provisions of Title 27, MRP No. R5-201X-XXXX, and the Standard Monitoring Specifications listed in Section I of SPRRs dated January 2012 which are attached hereto and made part of this Order by reference.
3. The Discharger shall comply with the Water Quality Protection Standard as specified in this Order, MRP No. R5-201X-XXXX, and the SPRRs dated January 2012 which are attached hereto and made part of this Order by reference.
4. The concentrations of the constituents of concern in waters passing the Point of Compliance (defined pursuant to Title 27, section 20164 as a vertical surface located at the hydraulically downgradient limit of the landfill unit that extends through the uppermost aquifer underlying the unit) shall not exceed the concentration limits established pursuant to MRP No. R5-201X-XXXX.

5. For each monitoring event, the Discharger shall determine whether the landfill is in compliance with the Water Quality Protection Standard using procedures specified in MRP No. R5-201X-XXXX and the Standard Monitoring Specifications in Section I of the SPRRs dated January 2012 which are attached hereto and made part of this Order by reference.
6. The Discharger shall comply with all Standard Monitoring Specifications and Response to a Release specifications listed in Sections I and J of the SPRRs dated January 2012 which are attached hereto and made part of this Order by reference.

H. PROVISIONS

1. The Discharger shall maintain a copy of this Order at the facility, including the MRP No. R5-201X-XXXX and the SPRRs dated January 2012 which are part of this Order, and make it available at all times to facility operating personnel, who shall be familiar with its contents, and to regulatory agency personnel.
2. The Discharger shall comply with all applicable provisions of Title 27 and Subtitle D that are not specifically referred to in this Order.
3. The Discharger shall comply with MRP No. R5-201X-XXXX, which is incorporated into and made part of this Order by reference.
4. The Discharger shall comply with the applicable portions of the Standard Provisions and Reporting Requirements for Waste Discharge Requirements for Nonhazardous Solid Waste Discharges Regulated by Subtitle D and/or Title 27, dated January 2012, which are attached hereto and made part of this Order by reference.
5. If there is any conflicting or contradictory language between the WDRs, the MRP, or the SPRRs, then language in the WDRs shall supersede either the MRP or the SPRRs, and language in the MRP shall supersede the SPRRs.
6. All reports required by this Order shall be submitted pursuant to Water Code section 13267.
7. The Discharger shall complete the tasks contained in these waste discharge requirements in accordance with the following time schedule:

Task

Compliance Date

A. Construction Plans

Submit construction and design plans for review and approval. (see all Construction Specifications in Section D, above and Section F of the SPRRs.)

90 days prior to proposed construction

B. Construction Report

Submit a construction report for review and approval upon completion demonstrating construction was in accordance with approved construction plans (see Standard Construction Specification F.27 in the SPRRs).

60 days prior to proposed discharge

C. Final Closure Plans

Submit a final or partial final closure and post-closure maintenance plan, design plans, and CQA plan for review and approval (see all Closure and Post-Closure Specifications in Section E, above and Section G of the SPRRs).

Two years prior to closure

D. Unsaturated Zone Monitoring System

Submit a report that reviews the status of the unsaturated zone monitoring system. The report should document those monitoring points that need repair or replacement, consider the need for additional monitoring points and should establish a time schedule to completely restore the monitoring system.

30 January 2013

E. Closure and Postclosure Maintenance Plan

Submit a revised Closure and Postclosure Maintenance Plan with closure stages dates that account for future landfill expansion. The revised Plan must include revised cost estimates for Closure Financial Assurances.

1 July 2013

F. Update Corrective Financial Assurance Cost Estimate

Submit an updated and revised cost estimate for initiating and completing corrective actions of all known or reasonably foreseeable releases. The revised cost estimates must consider the future costs to cleanup groundwater north of the Austin Road unit and other potential releases from the expanding landfill footprint.

1 June 2013

G. Compost Facility Specification

Submit a report demonstrating that the compost area features meet or exceed the relevant facility specifications. **1 September 2013**

8. The Discharger shall comply with all General Provisions listed in Section K of the SPRRs dated January 2012 which are part of this Order.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify that 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 _____.

PAMELA C. CREEDON, Executive Officer

RDA