

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2018-0027

WASTE DISCHARGE REQUIREMENTS
FOR
CITY OF AUBURN
RECOLOGY AUBURN PLACER
AUBURN LANDFILL
CLOSED CLASS III LANDFILLS
POST-CLOSURE MAINTENANCE, DETECTION MONITORING,
EVALUATION MONITORING, AND CORRECTIVE ACTION
PLACER COUNTY

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

1. The City of Auburn owns, and Recology Auburn Placer actively operated and currently maintains, the Auburn Landfill, a closed, municipal solid waste (MSW) landfill located approximately three miles north of Auburn near Elders Corner, as shown in Attachment A: Location Map (incorporated by reference in Finding 3 below). The closed MSW landfill facility is regulated under authority provided in Water Code section 13000 et seq. and the California Code of Regulations, title 27 ("Title 27"). The City of Auburn and Recology Auburn Placer are hereafter collectively referred to as "Discharger".
2. The landfill was previously regulated under Waste Discharge Requirements (WDRs) Order R5-2004-0086. A review of the files by Central Valley Water Board staff indicated the need for an update and limited revision of the WDRs to address changes and issues that have occurred at the site since the WDRs were last revised in 2004. These changes and issues include the following:
 - a. Updated/revised site information and attachment maps;
 - b. The need for financial assurances;
 - c. Re-classification of a former hazardous waste disposal area;
 - d. The results of a leachate collection sump investigation;
 - e. The installation of offsite monitoring wells;
 - f. The need for soil gas monitoring;
 - g. The need for additional onsite monitoring wells;
 - h. The need for a landfill final cover assessment;
 - i. The need to determine separation between wastes and groundwater; and
 - j. Monitoring data collected since 2004.

This revised WDR Order includes revised findings, regulatory references, and requirements to address the above issues and changes at the facility.

3. The following documents are attached to this Order and hereby incorporated into and made a part of this Order by reference:
 - a. Attachment A – Location Map
 - b. Attachment B – Area Map
 - c. Attachment C – Groundwater Monitoring Map
 - d. Attachment D – Facility Map
 - e. Information Sheet
 - f. April 2016 *Standard Provisions and Reporting Requirements for Industrial Facilities Regulated by Title 27* (Industrial SPRRs).

4. The facility is on a 41-acre site in the northwest ¼ of Section 28, T13N, R8E Mount Diablo Base and Meridian (MDB&M), corresponding to Assessor Parcel Number 052-010-027-000. The geographic coordinates of the site are Latitude 38.953° north, Longitude -121.093 ° west. The site is located at 12375 Shale Ridge Road about one-half mile east of Highway 49. See Attachment B: Area Map.

5. The facility includes two landfill units, referred to as Landfill 1 (LF-1) and Landfill 2 (LF-2). LF-1 operated from 1958 until September 1983, accepting primarily household refuse and nonhazardous industrial wastes from the City of Auburn and surrounding unincorporated areas. Prior to June 1979, the facility also accepted industrial wastes (subsequently classified as hazardous) that were discharged to LF-2 immediately northwest of LF-1. See Finding 16. Prior to landfilling, a portion of the site was used for gravel mining.

6. Both LF-1 and LF-2 pre-date Title 27/Chapter 15 regulations and are unlined. The waste management units at the site, as classified under this order, are summarized below:

| Unit | T27 Unit Class | Fill Area | Area (acres) | Containment System | | Wastes |
|-------------------|------------------|--------------|--------------|----------------------|---------------------------------|------------|
| | | | | Liner | Cover | |
| LF-1 | III | Northern | 7.5 | Unlined ¹ | Non-prescriptive Title 27 Cover | MSW |
| | | Southern | 17.5 | | | |
| LF-2 ² | III ² | 5 trenches | 3.0 | Unlined ¹ | Non-Title 27 Earthen Cover | Industrial |
| Total: | 2 units | 3 fill areas | 28.0 | | | |

1. Unit also constructed with pre-Chapter 15/Title 27 dendritic leachate collection and recovery system (LCRS) plumbed to sump at landfill toe. Dendritic LCRS does not meet Title 27 standards, however, because unit is unlined.
2. Former Class II-1 unit under former Subchapter 15 regulations authorized to accept limited Group 1 (e.g. hazardous) wastes.

7. The site includes the two closed landfill units, bin storage areas, access roads, parking areas, and an airport runway easement, as shown in Attachment D: Facility

Map. The landfill facilities include precipitation and drainage controls, gas monitoring probes, groundwater monitoring wells, and a French drain plumbed to a toe sump for leachate collection.

8. 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 (LEA) in charge of implementing CalRecycle regulations.
9. On 9 October 1991, the United States Environmental Protection Agency (USEPA) promulgated MSW landfill 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 on or after the effective date of Subtitle D (9 October 1993). The Auburn landfill is not subject to federal Subtitle D regulations because it ceased accepting wastes before 9 October 1991.
10. 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 I of these WDRs below, and in the Industrial SPRRs dated April 2016 which are part of this Order. Monitoring and reporting requirements are included in the Monitoring and Reporting Program (MRP) R5-2018-0027 and in the Industrial SPRRs. In general, requirements in regulation that are common to landfill units (as opposed to being site-specific) 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 (Sections A through I) of these WDRs, and such requirement in the WDRs supersedes the requirement in the SPRRs.

WASTES AND UNIT CLASSIFICATION

LF-1

11. LF-1 accepted household, commercial and industrial wastes defined as "nonhazardous" and "inert" under Title 27, sections 20220 and 20230, respectively. LF-1 also accepted asbestos containing wastes defined as "hazardous" under Title 22, section 66261.24 and Title 27, section 20164. Previous WDRs authorized the disposal of asbestos containing wastes at the landfill per California Health and Safety

Code (CHSC), section 25143.7.¹

12. LF-1 consists of two separate fill areas referred to as the Northern Fill Area (NFA) and the Southern Fill Area (SFA), as shown in Attachment C: Groundwater Monitoring Map. Most of the SFA (i.e. the western and central portions) was filled from 1958 through 1979. The NFA served as a borrow source for SFA during this period. The NFA and the rest of the SFA were subsequently filled from 1979 to 1983.
13. Approximately 750,000 cubic yards (375,000 tons) of solid waste were discharged to LF-1. Waste disposal was by the cut and fill method. The base of fill ranges from about 1,420 feet MSL in the southwestern corner of the SFA to about 1,485 feet MSL in the NFA. Fill depths in the SFA ranged from about 5 feet (central portion) to 60 feet (northwestern portion). The maximum depth of waste in the NFA was about 44 feet in the crest area.²
14. LF-1 operated (e.g., accepted waste) prior to the effective date of Chapter 15 regulations (27 November 1984) and was not subsequently reconstructed or retrofitted with a base liner and Title 27-compliant LCRS.³ As such, LF-1 is an “existing”, CAI unit under Title 27. Section 20080(d).⁴
15. These WDRs maintain LF-1’s Class III classification under previous WDRs, but require that the Discharger evaluate its final cover and repair and/or improve it as necessary to ensure that it meets Title 27 performance standards. See Postclosure Specification E.1.

1. California Health and Safety Code, section 25143.7 states: *“Waste containing asbestos may be disposed of at any landfill which has waste discharge requirements issued by the regional water quality control board which allow the disposal of such waste, provided that the wastes are handled and disposed of in accordance with the Toxic Substances Control Act (P.L. 94-469) and all applicable laws and regulations.”*
2. See Figures 3 and 4, June 1987 Solid Waste Assessment Test (SWAT) report (*Solid Waste Quality for Auburn Disposal Site, Placer County*), prepared by Emcon Associates.
3. Retrofitting the unit with a Chapter 15/Title 27-compliant base liner and LCRS to comply with Class III standards was considered infeasible given that the landfill had already been constructed and substantially developed. See Title 27, section 20080(e).
4. Title 27, section 20080(d)(1) defines a “closed, abandoned, or inactive” (CAI) unit as that which ceased accepting wastes and was closed prior to the effective date of Chapter 15 regulations. Such units are not generally required to be retrofitted to meet Title 27 containment standards, unless necessary for corrective action. See Title 27, section 20080(g).

LF-2

16. LF-2 accepted industrial wastes classified as “limited Group I wastes” under former Subchapter 15 regulations. Although subsequently classified as “hazardous”, such wastes were at the time allowed to be discharged to a Class II-1 landfill under former Subchapter 15 regulations. These wastes consisted of solid, semi-solid, and liquid wastes from a local Formica plant, including sanding dust, melamine treatment wastes, cleanup liquid, and phenolic resins commonly used as binding agents in building materials (e.g., chip board, countertops, insulation, paint). Approximately 200,000 cubic yards of hazardous Formica plant wastes are estimated to have been discharged to LF-2.
17. In 1979, the Board adopted revised WDRs (Order 79-136) reclassifying the landfill (i.e., LF-1 and LF-2) as a Class II-2 facility (equivalent to a Class III landfill under Title 27 regulations) and prohibiting the further discharge of Group 1 wastes to the landfill.⁵ LF-2 subsequently ceased accepting (Group 1) wastes in 1979 and was closed in accordance with a 1979 Final Closure Plan. See Finding 65.
18. LF-2 is an existing, CAI unit under Title 27 regulations for the same reason as LF-1 described in Finding 14.⁴ These WDRs re-classify LF-2 as a separate, Class III landfill unit based on its equivalent Subchapter 15 classification under previous WDRs and its containment system (final cover) required under these WDRs. As with LF-1, the Discharger is required to evaluate the final cover over LF-1, however, and make any necessary repairs/improvements such that it complies with Title 27 performance standards. See Postclosure Specification E.3.

SITE DESCRIPTION

19. The site is on the southwest flank of a southwest-northeast trending knoll (i.e., low hill) in the western foothills of the Sierra Nevada Mountains. The topography in this area of the foothills generally consists of low hills separated by shallow ravines, which drain the hills in the area and mountainous terrain to the east. Ground surface elevations in the area generally range from about 1,540 feet MSL (top of the knolls) to about 1,300 feet MSL (bottom of ravines). The maximum elevation of the site is about 1,520 feet MSL. Slopes in the area generally range from about 3 to 10 percent toward the ravines.
20. Land within 1000 feet of the site is used for agricultural, commercial, residential, industrial, and recreational purposes. These uses include the landfill and adjacent transfer station; the Auburn Airport immediately east of the site; a convalescent hospital and mobile home park to the west; a commercial mini-storage facility to the south; and private residences to the north. A water conveyance system, the Combie-Ophir Canal,

5. Previous (1974) WDRs classified both landfill units (i.e., LF-1 and LF-2) as a single, Class II-1 landfill under former Subchapter 15 regulations, although only LF-2 accepted limited Group I wastes.

is also located about 75 feet northwest of the site.

21. A March 2017 Department of Water Resources (DWR) well survey found an estimated 161 domestic supply wells, 3 industrial supply wells (bottled water), 1 agricultural irrigation well, and one public supply well within a one-mile radius of the site. See Information Sheet, Attachment 1.
22. The nearest weather stations are DWR's Auburn Station (No. A70 0373 00) about 5.5 miles south of the site and the National Oceanic and Atmospheric Administration (NOAA) Auburn Station (04-0383) about 3.5 miles south of the site. Based on the NOAA station, the site receives an average of 34.3 inches per year of precipitation.⁶ Based on data from both stations, the 100-year, 24-hour precipitation event for this station is estimated to be about 6.1 inches.
23. The site is not within the 100-year floodplain.

GEOLOGY

24. The site geology generally consists of thin layer of surface alluvium underlain by sedimentary or metamorphic bedrock. The surface alluvium generally consists of Auburn-Argonaut-rock complex soils, as classified by the U.S Department of Agriculture Natural Resources Conservation Service soil survey for the area.⁷ Such soils occur on slopes ranging from 14 to 45 percent and consists of up to two feet of silt and/or clay loam alluvium interspersed with bedrock outcrops. An ancient stream bed channel consisting of partially-cemented sand and gravel also traversed the northeast portion of the site trending from northwest to southeast. All but the northwest portion of these channel deposits were excavated to the base of the landfill during landfill construction and replaced with waste.
25. Bedrock at the site generally consists of sheared shale and sandstone interrupted in areas by protrusions of pre-Cretaceous, metavolcanic greenstone or green schist. Such surface protrusions appear as large boulders in the central and northwest portions of the site. The permeability of the weathered/fractured bedrock is estimated to be about 1×10^{-4} cm/sec.
26. There are no active faults within a one-mile radius of the site.

6. As determined from Point Precipitation Frequency estimates for the Auburn Station (04-0383) on the NOAA's National Weather Service Hydrometeorological Design Studies Center Precipitation Frequency Data Server website.

7. See 1 May 2015 U.S. Department of Agriculture, Natural Resources Conservation Service, Custom Soil Survey for Placer County, Western Part (CA620).

UNSATURATED ZONE CONDITIONS

27. The thickness of the unsaturated zone (i.e., the difference between ground surface and groundwater elevation), excluding capillary fringe, ranges from about 50 feet in the northeast corner of the site to less the five feet in the southwest corner of the site including the landfill toe. Within the landfill footprint, the unsaturated zone is reduced by the thickness of the waste column, which varies in height depending on location. Outside of and below the landfill footprint, unsaturated zone material typically consists of bedrock outcrop (e.g., greenstone, schist, or unexcavated shale or sandstone with varying degrees of weathering). Remnants of the mined stream channel deposit also exist within the unsaturated zone north of and underlying the NFA.
28. The Discharger conducts landfill gas (LFG) monitoring in the unsaturated zone along the site perimeter per Local Enforcement Agency and CalRecycle requirements under Title 27 regulations. There are currently 24 soil gas probes at 10 locations along or near the perimeter of the landfill, all of which are monitored for LFG. Two locations (P-4A and P-06) have single-tiered probes; three locations (P-01A, P-03A, and P-07A) have double-tiered (shallow and deep) probes; and six locations (P-08 through P-013) have with triple-tiered (shallow, intermediate and deep) probes. Five of these soil gas monitoring probe locations (P-09 through P-13) are located in a site expansion area 75 to 150 feet east of the landfill. See Attachment D: Facility Map.
29. Monitoring of these perimeter probes over the past 10 years has indicated methane concentrations generally below 0.5% percent by volume and no exceedances of the 5 percent lower explosive limit (LEL) of solid waste regulations. During the most recent monitoring event conducted in the Fourth Quarter, 2016, methane concentrations were non-detect in all probes. These WDRs require that all gas monitoring probes at the site be monitored at least semiannually for field gases, and annually for VOCs, if warranted based on field gas monitoring. See MRP Section A.2.b.

LEACHATE MONITORING

30. A 1987 SWAT investigation (referenced in Finding 13, Footnote 2) revealed the presence of volatile organic compounds (VOCs) and elevated concentrations of inorganic constituents in the leachate collection sump at the site. Since then the Discharger has been monitoring the sump for landfill constituents of concern. The results of sump monitoring conducted since 2005 are summarized below.

| Leachate Collection Sump Liquid Semiannual Monitoring Results | | | |
|--|-----------------------|-----------|-----------|
| Constituent | Maximum Concentration | | |
| | 2005-2010 | 2011-2015 | 2016-2017 |
| VOCs | µg/L | µg/L | µg/L |
| Acetone | 7.9 | 21 | nd |
| Benzene | 2.4 | 0.9 | 1.1 |
| Chlorobenzene | 8.5 | 4.7 | 4.6 |
| 1,2-Dichlorobenzene | 0.6 | 0.4 | 0.3 |
| 1,4-Dichlorobenzene | 4.8 | 2.8 | 2.4 |
| tert-Butyl alcohol (TBA) | 48 | 33 | 27 |
| General Minerals | mg/L | mg/L | mg/L |
| Alkalinity ¹ | 1,200 | 1,100 | 1,100 |
| Chloride | 130 | 170 | 180 |
| Hardness | 1,300 | 1,200 | 1,300 |
| Total Dissolved Solids | 1,400 | 1,400 | 1,200 |

1. Alkalinity as calcium carbonate.

Low to trace concentrations of Chloromethane (0.7 µg/L), Methyl tert-butyl Ether (MTBE), Naphthalene (2.9 µg/L), and Xylenes (0.6 µg/L) have also been intermittently (i.e., at least once) detected in the sump liquid. The Discharger attributes the MTBE and BTEX (Benzene, Toluene, Ethylbenze, and Xylenes) detections to residual impacts of a former underground storage tank (UST) that was removed west of the facility. (The Central Valley Water Board issued a “No Further Action” letter on the former UST site in 1996.) The concentrations of VOCs historically detected in the leachate sump generally declined since 2005, but (consistent with the more concentrated character of leachate) were generally higher than those detected in groundwater monitoring wells at the site (e.g., Benzene, TBA). See Finding 48.

31. Volumes of liquid pumped annually from the sump over the past ten years have ranged from 2.5 to 9.0 million gallons, most of it during the wet season. During 2016, the volume of liquid pumped quarterly from the sump ranged from about 6.1 million gallons (First Quarter 2016) to 21,400 gallons (Third Quarter 2016). Given the potential groundwater separation issues at the SFA noted in Finding 54, and the fact that storm water infiltration into the closed landfill should be minimal, groundwater may be rising up into the landfill waste column and entering leachate collection piping.

These WDRs require that the Discharger monitor the leachate collection sump

semiannually for field and monitoring parameters and every 5 years for COCs.⁸ See MRP, Section A.3. These WDRs also require that Discharger consider the need for any additional leachate collection facilities necessary to comply with Title 27 standards in any revised or updated Engineering Feasibility Study (EFS) submitted under this Order under the Response to Release provisions of the Industrial SPRRs. See Evaluation Monitoring and Corrective Action Specification H.5.a.

SURFACE AND GROUNDWATER CONDITIONS

32. Surface drainage at the site is to an ephemeral tributary to Rock Creek about 3,000 feet southwest of the site. Rock Creek flows to the northwest into Dry Creek, a tributary to Coon Creek, which flows into the Sacramento River.
33. The beneficial uses of surface waters are domestic and municipal supply, agricultural irrigation, industrial supply, recreation, and ground water recharge.
34. Regional groundwater flow is generally to the west, southwest, or northwest depending on topography. Shallow bedrock fracture connectivity and orientation may also influence the overall direction of groundwater flow.
35. Background groundwater quality is average with total dissolved solids (TDS) of about 370 milligrams per liter (mg/L), alkalinity about 220 mg/L, and hardness about 270 mg/L.
36. The beneficial uses of the ground water are domestic, municipal, agricultural, and industrial supply.

GROUNDWATER MONITORING

37. There are currently 13 landfill monitoring wells for the facility, including 7 onsite wells (1, C, E, E-1, E-4, E-11, and LFW-2) and six offsite monitoring wells (A, D, E-12, R-1, R-2, and R-3). Six of these wells (D, LFW-2, E, R-1, R-2, and R-3) are directly down gradient of LF-1 or a portion of it, while one (A and E-12) are directly upgradient of LF-1 or a portion of it. The remaining wells are generally side gradient. There are also two offsite piezometers for measuring groundwater elevation, E-11 and B (northwest and southeast of the site, respectively). An additional offsite well, E-21, monitors a former underground storage tank (UST) site west of the main access road and is not part of the monitoring program under this Order. See Attachment C: Groundwater Monitoring.
38. Shallow groundwater beneath the site ranges from about 1,475 feet MSL in the northeastern corner of the northern fill area (i.e. within sheared shale and sandstone)

⁸. Sump liquid monitoring was not required under previous WDRs Order R5-2004-0086, but was voluntarily conducted by the Discharger to help evaluate the effectiveness of leachate controls.

to about 1,425 feet MSL in the southwestern portion of the southern fill area (i.e. within weathered shale and sandstone or fractured greenstone bedrock). The corresponding depths to groundwater range from about 1.5 feet below ground surface (bgs) in the southwest corner of the site to about 50 feet bgs in the northeast corner of the site. Groundwater elevations vary seasonally about 1 to 5 feet depending on location. Shallow groundwater down gradient of the site may discharge to the ephemeral tributary to Rock Creek described in Finding 32.

39. Based on contour plots of groundwater elevation monitoring data from existing monitoring wells, groundwater is estimated to flow to the southwest at a gradient of approximately 0.03 ft/ft. The plots also suggest, however, a lack of groundwater elevation monitoring points along a northwest-southeast axis passing through LF-2, partly due to the large size of LF-1 relative to the site.⁹ Information on file (April 2006 EFS/CAP, Page 5) further indicates that shallow groundwater flow at the site may be influenced by topography. See Finding 40 and Attachment C: Groundwater Monitoring.
40. Title 27, section 20415(b) requires that the Discharger establish a groundwater monitoring system for each waste management unit, including background, detection and, in the event of a release, corrective action monitoring wells. Given that these WDRs classify LF-2 as a separate unit from LF-1 (see Finding 18), a Title 27 compliant groundwater monitoring system (e.g., prescriptive or engineered alternative) is required for LF-2. A Water Quality Protection Standard (WQPS) also needs to be established for the unit per Title 27, section 20390. Specifically, the Discharger is required to:
 - a. Revisit the groundwater monitoring system for LF-1 to ensure that it is Title 27 compliant. Based on the groundwater flow streams, it appears an additional detection/corrective action monitoring well may be needed along the downgradient perimeter of LF-1 (i.e., between wells LFW-2 and E) to contiguously monitor the SFA and NFA (this well could also be used for monitoring groundwater separation).¹⁰ Suggested locations for the installation of wells and/or piezometers are shown in Attachment C: Groundwater Monitoring Map. See Provision I.7.b.i and Standard Monitoring Specifications 27 through 29, Industrial SPRRs; and
 - b. Establish a Title 27 compliant groundwater monitoring system for LF-2. The Discharger is required to submit a work plan and schedule for the installation of a sufficient number of groundwater monitoring wells and/or piezometers, as

9. A lack of control points for plotting groundwater flow can occur where the landfill unit takes up a relatively large part of a site and, as is typically the case, there are no groundwater elevation monitoring points within the landfill area.

10. No demonstration required for contiguous monitoring of the NFA and SFA because they are not classified as separate units under these WDRs.

necessary, to confirm the direction of groundwater flow in the LF-2 area and comply with Title 27 performance standards for monitoring the unit. The Discharger could alternatively propose to monitor LF-1 and LF-2 contiguously, if adequately demonstrated. See Provision I.7.b.ii and Monitoring Specifications G.1 through G.10.

41. The original Site Conceptual Model for the site, including geologic cross-sections, was provided in the 1987 SWAT Report using data from monitoring wells existing at that time. These WDRs require that the Discharger submit an updated Site Conceptual Model after installation of the monitoring wells described above and completion of the EMP investigation described in Finding 54 below. See Evaluation Monitoring and Corrective Action Specification H.4; Title 27, sections 21750 (f) and (g); and Title 27, section 21760(a)(3).

42. Title 27 specifies the prescriptive requirements and performance standards applicable to monitoring data analysis and requires that such methods be implemented as follows:

- a. As specified in the existing MRP under the WDRs; or
- b. In accordance with a technical report (certified by an appropriately registered professional) documenting such methods, submitted to, and approved by, the Central Valley Water Board; or
- c. In accordance with any water quality data analysis software deemed appropriate for such use by either the Central Valley Water Board or SWRCB.

See Title 27, section 20415, subparagraphs (e)(7) and (e)(10).

43. The Discharger submitted a Sample Collection and Analysis Plan that describes the sampling protocols and data analysis methods used for groundwater monitoring pursuant to Sections 20415(e)(4) and 20415 (e)(7) of Title 27. The data analysis methods are summarized as follows:

| <u>COC Group</u> | <u>Data Analysis Method</u> | <u>Trigger^{1,2}</u> | <u>Needed for Confirmation¹</u> |
|---------------------------------------|----------------------------------|---------------------------------------|---|
| VOCs & other organics | Nonstatistical | 1 ≥ PQL or 2 ≥ MDL | Same COC(s) triggered in at least 1 of 2 retest samples |
| Inorganic COCs, < 10% in background | Nonstatistical | 1 ≥ PQL | |
| Inorganic COCs, ≥ 10% in background | Statistical (Tolerance Interval) | 1 > Concentration Limit | |
| Trend analysis: Monitoring Parameters | Mann-Kendall test | At least 4 historical detections >PQL | Not applicable |

| | | | |
|------|-------------------|---------------------------|--|
| COCs | Time series plots | for each COC ³ | |
|------|-------------------|---------------------------|--|

1. Notification and retest not required for tentatively indicated constituents previously confirmed as part of the release at a given monitoring point (these exceedances shall be assumed confirmed without retest).
 2. "1" and "2" in listed trigger criteria refer to number of monitoring parameters or COCs.
 3. Trigger for performing trend analysis not for a release.
44. 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 VOCs 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) allow 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).
45. 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. 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 MRP under these WDRs specifies the data analysis methods applicable to monitoring data for the site based on the Sample Collection and Analysis Plan referenced in Finding 43. For VOCs and other organic compounds (as well as for inorganic compounds not present in background) a non-statistical method is specified for detection monitoring consistent with Title 27, section 20080(a)(1).
46. For a naturally occurring constituent of concern (i.e., inorganic constituents present in background), Title 27 requires concentration limits for each constituent of concern be determined either by calculation in accordance with a statistical method pursuant to Title 27, section 20415(e)(8) or by an alternate statistical method meeting the requirements of Title 27, section 20415(e)(8)(E).
47. Title 27, section 20390 requires that the Central Valley Water Board establish a Water Quality Protection Standard (WQPS) in the WDRs for each unit, including Constituents of Concern (COCs), Concentration Limits, Point of Compliance, and Monitoring Points. A report describing the WQPS has not been previously submitted for the site and was not required under previous WDRs. These WDRs require that the Discharger submit

a WQPS report for the site describing the WQPS elements for each unit (i.e., LF-1 and LF-2). The WQPS report is required to be submitted after the Discharger has completed a sufficient amount of background monitoring to develop proposed concentration limits. An updated Sample Collection and Analysis Plan consistent with the WQPS report is also required to be submitted. See Provisions I.9 and I.10 and MRP Section C.1.

GROUNDWATER IMPACTS AND CORRECTIVE ACTION

LF-1

48. A 1989 amended SWAT report confirmed the presence of VOCs and elevated concentrations of inorganic constituents in groundwater at the site.¹¹ The concentrations of VOCs detected in groundwater since 2005 are summarized as follows:

| Constituent | Maximum Concentration ¹ | | | Well(s) ³ | Location |
|--------------------------------|------------------------------------|------------------|------------------|---|------------------------------------|
| | 2005-2009 | 2010-2014 | 2015-2017 | | |
| VOCs | µg/L | µg/L | µg/L | | |
| Benzene | 0.3 ² | 2.1 | ND | E-12, 1, E, R-2 | Sidegradient (west) of LF-1 & LF-2 |
| Chloroethane | ND | 0.3 ² | ND | E-1 | |
| 1,1-Dichloroethane | 0.8 | 0.5 | 0.3 ² | E-1, E-4, 1 | |
| Di-isopropyl ether (DIPE) | 0.5 | 0.5 | 0.4 ² | 1, E-4 | Downgradient (SE) of LF-1 & LF-2 |
| Methyl-tert-butyl ether (MTBE) | 0.2 ² | 0.2 ² | 0.1 ² | E-1, LFW-2, R-3 | |
| Tert-Butyl Alcohol | 11 | 9.5 | ND | 1, LFW-2, E, E-12, D, E-1, E-4, A, R-3, R-2 | Sidegradient (west) of LF-1 & LF-2 |
| Toluene | ND | 0.6 | ND | E-12 | LF-2 |

1. Maximum VOC concentration detected during time period in any well.
2. Trace concentration (i.e., below PQL).
3. Monitoring wells in which VOC historically detected, beginning with well with maximum concentration.
4. Monitoring well(s) in which VOC recently detected (i.e., one or more times in 2015 to 2017 monitoring period).

All VOCs detected in wells at the site have generally declined to trace or non-detect levels. Also, most of the monitoring wells with MTBE and BTEX (Benzene, Toluene, Ethylbenzene, and Xylenes) detections were on the western side of the site proximate to the former underground storage tank that was removed west of the facility, indicating that residual impacts from the former UST area could be a source of MTBE and BTEX detected in these wells.¹²

11. See 21 September 1989 addendum to 1987 SWAT Report, prepared by Emcon Associates.

12. Also, the remaining monitoring well for the former UST area, E-21 (not part of the landfill monitoring program), shows higher concentrations of MTBE and BTEX compared to the landfill monitoring wells.

49. Elevated concentrations of inorganic constituents detected in groundwater since 2005 are summarized as follows:

| <u>Constituent</u> | <u>Historical Concentration (mg/L)¹</u> | | | |
|------------------------------|--|---------------------|-----------------|---------------------|
| | <u>2H16/Maximum/Average²</u> | | | |
| | <u>Upgradient</u> | <u>Downgradient</u> | | <u>Sidegradient</u> |
| | Offsite | Onsite | Offsite | Onsite |
| Well: | A | LFW-2 ³ | R-3 | 1 |
| Alkalinity ⁴ | 220/220/204 | 1,100/1.100/694 | 760/760/684 | 570/600/500 |
| Chloride | 12/13/10 | 240/300/192 | 150/190/160 | 13/17/13 |
| Hardness | 270/280/233 | 1,700/1,700/1025 | 1,000/1,600/962 | 590/620/480 |
| Total Dissolved Solids (TDS) | 370/380/334 | 1,400/1,500/1006 | 980/1,100/973 | 630/690/563 |

1. Historical concentrations based on groundwater monitoring data collected from 2005 through 2016.
2. "2H16" denotes Second Half 2016 monitoring period.
3. Similar concentrations of inorganic constituents were detected in down gradient well D west of LFW-2.
4. Alkalinity as calcium carbonate.

The results indicated Second Half 2016 (2H16) concentrations at or close to historical maximums for the above time period (2005 through 2016) for some of the above inorganic constituents in down gradient wells. Both average and maximum concentrations of TDS historically detected in down gradient wells LFW-2, D and side gradient well R-3 exceeded the federal and state secondary maximum contaminant level (MCL) for taste and odor (500 mg/L). Concentrations of chloride detected in the above down gradient wells (i.e., D, LFW-2 & R-3) also intermittently exceeded the federal and state secondary MCLs (250 mg/L) and/or state agricultural limit (106 mg/L).

50. Previous WDR Order 93-243 required that the Discharger submit an Engineering Feasibility Study (EFS), Corrective Action Program (CAP) and Article 5 monitoring program to address groundwater impacts at the landfill. In response, the Discharger submitted a 27 January 1994 *Amendment to Report of Waste Discharge* report containing a proposed EFS, CAP and Article 5 groundwater monitoring program for the site. The EFS considered the following conceptual alternatives for remediation of VOCs in groundwater at the site:
- a. No action except continued groundwater monitoring of natural attenuation of VOCs;
 - b. Construction of a prescriptive low permeability cover ($k < 1 \times 10^{-6}$ cm/sec) over the entire landfill as a source control measure to reduce infiltration and leachate production;
 - c. Installation of a groundwater extraction and treatment system to remove VOCs from the groundwater;

- d. Installation of a low permeability slurry wall (about 2,600 feet long by 85 feet deep) along the down gradient perimeter of the landfill as a barrier to prevent further down gradient migration of impacted groundwater; and
- e. In Situ Remediation – Air and/or methane sparging and soil vapor extraction, or bioventing, to enhance biological degradation of VOCs in groundwater.

The EFS concluded that Options a and b were readily implementable options and proposed Option a based on a conclusion that groundwater monitoring data showed declining VOC concentrations due to natural attenuation. The EFS included a plan to re-consider the other options in the event the VOC release increased. The EFS/CAP did not consider corrective action measures for inorganic constituents in groundwater and neither the EFS/CAP nor the Article 5 report were approved by Regional Board staff. Consequently, the Discharger continued groundwater monitoring under with MRP No. 93-243.

- 51. WDR Order R5-2004-0086 (Provision G.6) subsequently required that the Discharger submit a revised EFS/CAP to evaluate corrective action options and propose corrective action measures to address groundwater impacts from inorganic constituents from the landfill. In April 2006, the Discharger submitted the revised EFS/CAP, which discussed the following potential corrective action measures:¹³
 - a. Source Control
 - 1) Capping the landfill with a lower permeability clay soil cover to reduce storm water infiltration and leachate formation;
 - 2) Retrofitting the landfill with a base liner and LCRS to help contain and collect leachate;
 - 3) Installation of additional leachate collection and extraction facilities (e.g., drains, pumps, sump); and/or
 - 4) Installation of a slurry wall along the downgradient perimeter of the landfill to prevent offsite migration of leachate and/or impacted groundwater.
 - b. Groundwater Extraction & Remediation
 - 1) The installation of groundwater extraction wells;
 - 2) Remediation using reverse osmosis to remove elevated concentrations of chloride from extracted groundwater; and
 - 3) Disposal of treated (or untreated) groundwater.
 - c. Corrective Action Monitoring
 - 1) Conduct ongoing groundwater monitoring to evaluate effectiveness of corrective action measures and changes/ attenuation of nature and extent of impacts;

¹³. See April 2006 *Engineering Feasibility Study and Correction Action Plan (EFS/CAP) for the Auburn Landfill*, prepared by Golder Associates.

- 2) Improve groundwater monitoring program with recommended changes (e.g., sump monitoring, quarterly sampling to capture seasonal variations; trend analysis).

The report recommended that existing corrective action measures at the site such as final cover improvements (see Finding 71), leachate collection and disposal, and corrective action monitoring (with recommended improvements) be continued, as necessary.¹⁴ The report concluded that the source control and groundwater extraction and remediation measures listed under a and b above were too costly, infeasible, and/or ineffective, with the possible exception of installing additional leachate collection facilities for source control.

52. In a 9 August 2006 letter providing comments on the EFS/CAP, Water Board staff expressed concerns that the leachate collection sump could be leaking and/or allowing groundwater to infiltrate into the sump. The letter stated that the EFS/CAP did not include an adequate evaluation of the design and condition of the leachate collection sump, requesting that the EFS/CAP be revised or amended to address this and other issues. The Discharger subsequently conducted a physical investigation of the sump in accordance with a December 2007 work plan reviewed by Water Board staff.¹⁵
53. The follow-up investigation included entering into the sump near the end of the dry season when the sump liquid level was expected to be low for a closer view of its interior (e.g., floor, walls, joints, pipe seals) to determine its design and assess whether the sump was watertight. The investigation also included an evaluation of the pump system and piping. The results of the investigation indicated that the sump was concrete-lined and that it was equipped with two automatic sump pumps. See Finding 61. Overall the sump was found to be in excellent condition and no significant deterioration of the walls, joints, seals or other portions of the sump was observed.

While the pumps appeared to be adequate and in good condition, the report recommended that the discharge capacity of the conveyance pipes and sump pumps be increased to provide a suitable safety factor relative to the historical high leachate discharge rate recorded for the sump. The results of the investigation were documented in the 28 October 2008 report *Leachate Sump Investigation Report for Auburn Landfill*, prepared by Holdrege & Kull. The Discharger subsequently implemented the improvements to the sump recommended in the report.
54. Notwithstanding the amended EFS/CAP findings described above, groundwater elevation monitoring data for the site indicates that during the wet season,

14. Water balance calculations indicated that the amount of rainfall expected to percolate into the landfill during an average year (7.7 inches) was about equal to the volume of leachate extracted each year, suggesting that the leachate may be infiltrated precipitation.

15. See 3 December 2007 *Leachate Sump Interior Investigation Workplan*, prepared by Holdrege & Kull.

groundwater may be rising into the landfill waste column in the western and central portions of the SFA. Groundwater monitoring reports for the Second Half 2015 and Second Half 2016, for example, indicated groundwater levels of about 1,445 feet MSL in the western and central portions of the SFA, about 10 to 15 feet above the estimated base of the SFA in these areas, as described in Finding 58 (e.g., 1,420 - 1,430 feet MSL). Groundwater may be contributing to the volume of leachate extracted from the leachate collection sump and pumped to sewer each wet season.

These WDRs require that the Discharger submit an Evaluation Monitoring Program (EMP) work plan to determine the bottom of wastes at representative locations in the western and central portions of the SFA at LF-1 and former excavation pits at LF-2 (i.e., all areas where the depth of waste is unknown and groundwater separation may be an issue).¹⁶ These WDRs also specify a minimum scope of any revised or updated EFS/CAP submitted under this Order to address groundwater separation issues should they be confirmed at the site. See Provision I.7.e and Evaluation Monitoring and Corrective Action Specifications H.1 and H.5.

LF-2

55. Phenol is a petroleum derivative often occurring as a breakdown product of other aromatic compounds such as benzene. Phenol is formed from two chemical groups - phenyl (C₆H₅) and hydroxyl (OH). Phenolic compounds are formed when phenol combines with additional chemical groups such as halogens (e.g., pentachlorophenol) or additional hydroxyl groups. Phenolic compounds are generally highly water soluble and when dissolved in water will bio-degrade under appropriate conditions (e.g., aerobic, anaerobic, presence of suitable bacteria) depending on the compound.¹⁷
56. Information on file indicates that total recoverable phenols per EPA Test Method 420.1 were detected in excess of 900 µg/L in monitoring well 1 immediately west of LF-2 (see Finding 62) on several occasions in the late 1970s.¹⁸ Elevated concentrations of chemical oxygen demand (COD) suspected to be from the melamine wastes were also detected in this well. Low to trace concentrations of total phenols were also detected in other wells in the LF-2 area and in the sump at the landfill toe. In 1979, the Water Board adopted revised WDR Order 79-136 requiring LF-2 to stop accepting wastes and close. Subsequent WDRs Order 93-243 required that the Discharger continue monitoring groundwater for Total Phenols by EPA Method 420.1.¹⁹

16. Title 27, section 20240(c) requires that existing landfill units be operated to ensure that wastes will be a minimum of five feet (5 ft.) above the highest anticipated elevation of underlying ground water.

17. See report *Phenols, Canadian Water Quality Guidelines for Protection of Aquatic Life*, Canadian Council of Ministers of the Environment at <http://cegg-rcqe.ccme.ca/en/index.html>.

18. See 12 March 1979 Central Valley Water Board staff report for proposed Cease and Desist Order Auburn Sanitary Landfill on agenda for March 1979 Board meeting.

19. This method is based on a reaction of sample distillate with alkaline ferricyanide and 4-aminoantipyrine. If phenols are present, a color change occurs (a red complex) in a shade proportional to the

57. In 2001, the Discharger discontinued testing for total recoverable phenols using EPA Method 420.1 and began analyzing for specific phenolic compounds by EPA Method 8270B. Previous WDRs Order R5-2004-0086 also incorporated this change. No phenolic compounds have been detected in groundwater since this change in laboratory test methods, possibly indicating that the previous detections were false-positives or that any phenols in groundwater have since attenuated to non-detect levels.

To assess whether phenolic compounds from LF-2 may be present in groundwater at the site, these WDRs require that the Discharger conduct semiannual monitoring of LF-2's monitoring wells, including any new wells, for total recoverable phenols (EPA Method 420.1 or 420.4) and every 2½ years for specific phenolic compounds using EPA Method 604 or EPA Method 8270 C or D. Five year COC monitoring, including various phenolic compounds, is also required. See MRP, Section A.1.b and Table I.

WASTE MANAGEMENT UNIT DESIGN AND CONSTRUCTION

LF-1

58. The western and central portions of the SFA were constructed in 1958, while the eastern portion of the SFA was constructed in 1979. The SFA was excavated to bedrock or close to bedrock in most areas prior to waste filling. Excavation depths ranged from about 5 feet in the central portion of the SFA to about 40 feet in the northern portion of the SFA. Based on cross-sections (i.e., a site conceptual model) provided in the 1987 SWAT report, the western and central portions of the base of the SFA were graded relatively flat (e.g., 1 percent slope), while the eastern portion of the SFA was graded up to five percent. Base elevations of the SFA ranged from about 1,420 feet MSL in the southwestern corner to about 1,472 feet MSL in the northeastern corner of the SFA.²⁰ The resulting average was about 2.5 percent to the southwest.
59. The NFA was constructed in 1979 concurrent with the eastern portion of the SFA. Up to 35 feet of soil was excavated from the NFA area prior to filling. Base elevations ranged from about 1,472 feet MSL along the southeastern perimeter of the NFA to about 1,490 feet MSL in the northeastern corner of the NFA.⁹ After excavation to base grade, an additional three feet of underlying channel deposit gravel was excavated and replaced with compacted soil in preparation of the subgrade. The base

concentration of total phenols, which is then measured with a colorimeter. The color change is not the same for all phenols, however, and the method cannot detect individual phenol compounds. The MDL varies from 5 µg/L to 50 µg/L, depending on test protocol.

20. Previous (1974) WDRs, applicable to the western and central portions of the SFA, prohibited the discharge of wastes below 1,420 feet MSL. Subsequent (1979) WDRs (applicable to construction of the NFA and eastern portion of SFA, required that there be at least ten feet of separation between landfill wastes and seasonal high groundwater.

was graded at slopes ranging up to five percent and the side slopes excavated to a maximum slope of 1.5H:1V.

60. Neither fill area was constructed with a liner. A dendritic leachate collection system consisting of French drains was installed at certain interior and perimeter locations of the landfill consistent with former Subchapter 15 regulations.²¹ The leachate interior drains were partially cut into the subgrade while the exterior drains ran along the intersection of the subgrade surface and excavation slopes. Each LCRS drain consisted of a minimum of one foot of pea gravel (4 to 6 square feet in cross sectional area) packed around a perforated four-inch PVC pipe. Riser pipes were also installed at two locations to allow for monitoring flow in the drains.
61. The leachate collection system drains were plumbed to a collection sump installed at the toe of LF-1 in the southwest corner of the site sometime prior to 1979. The sump consists of a rectangular, concrete-walled vault (a septic tank) overlain by a cylindrical section consisting of rings of four-foot diameter, concrete storm drain pipe stacked on and fitted to each other. The rectangular vault is plumbed to the leachate collection system by two clay pipes that protrude through its walls. The sump includes two 100-gallon per minute (gpm) pumps, one within the cylindrical section and the other underlying the first within the western chamber of the concrete vault. Each pump is operated separately by electrode switches that turn the pumps on and off when the leachate levels reach specified depths.

LF-2

62. LF-2 consisted of five unlined pits excavated to depths ranging from about 5 to 30 feet.²² See Information Sheet, Attachment 2. The unit was originally sited as a Class II-1 facility authorized to accept limited Group I (e.g., special or hazardous) wastes based on underlying natural geologic materials, which at the time were reported to be "highly impermeable". In 1978, Water Board staff observed exposed wastes in contact with water in the one or more of the unlined pits at the unit. Phenolic wastes were also detected in groundwater in monitoring wells near the unit. At least one of the pits (Pit No. 5) was backfilled as an interim remedial measure, and in 1979 LF-2 was ordered to stop accepting wastes and close. LF-2 was ultimately closed in 1984 concurrent with LF-1.

LANDFILL CLOSURE

63. A landfill's containment system includes its base liner, and, after closure, its final cover. Title 27, section 20950(a)(2)(A).1 states, in part:

21. Design does not meet Title 27 standards for a dendritic LCRS for a Class III landfill due to the absence of an underlying liner.

22. Previous WDRs (Order Nos. 93-243 and R5-2004-0086) described the five unlined pits at LF-2 as "five clay-lined ponds". No information was found on file supporting this description.

“Closure — for landfills . . . and surface impoundments closed as landfills, the goal of closure, including but not limited to the installation of a final cover, is to minimize the infiltration of water into the waste, thereby minimizing the production of leachate and gas. For such Units, after closure, the final cover constitutes the Unit’s principal waste containment feature”

Given that LF-1 and LF-2 were both constructed without a base liner on permeable (e.g., fractured or weathered) bedrock (e.g., shale, sandstone, greenstone), the final cover over these units constitutes their principle containment feature.

64. The Title 27 prescriptive final cover design for a pre-Subtitle D MSW classified landfill includes the following components, from top to bottom:²³
- a. Erosion Resistant Layer -- at least one foot of vegetative cover soil with established vegetative cover;
 - b. Low Hydraulic Conductivity (LHC) Layer -- Minimum one foot of compacted clay soil with a permeability not exceeding the lesser of:
 - i. 1×10^{-6} cm/s and
 - ii. The permeability of underlying clay soil liner or natural geologic materials, as applicable;
 - c. Foundation Layer - at least two feet of materials (soil and/or waste) with appropriate engineering properties to support the overlying cover.

See Title 27, section 21090. In lieu of the prescriptive final cover design, the Discharger may construct an engineered alternative design (EAD) provided that it meets the requisite demonstration under Title 27, section 20080(b).

65. LF-1 and LF-2 were closed in 1984 in accordance with a non-Title 27 prescriptive final cover in accordance with a November 1979 Final Closure Plan (FCP).²⁴ Since then various repairs and improvements have been made to the final cover as part of postclosure maintenance to address erosion, settlement and drainage issues, which are ongoing issues at the site. The final cover components may be described as follows, from top to bottom:
- a. Erosion Resistant Layer – Less than one foot of vegetative cover soil overlain by vegetative cover (native grass);
 - b. Engineered Soil Layer – Two feet of compacted, low permeability soil; and
 - c. Foundation Layer – One foot of existing intermediate cover soil

The engineered soil layer consisted of sandy silt and sandy clay from onsite borrow

23. For compositely lined MSW landfill units (none of which are present at the Auburn Landfill), a geomembrane barrier layer is also required in the final cover design to prevent a “bathtub effect”,

24. *Geotechnical Investigation and Operation and Closure Plan, Auburn Class II-2 Disposal Site*, prepared by Emcon Associates

sources, and clay from a borrow source immediately east of the landfill. Laboratory permeabilities of the cover soil ranged from 1×10^{-5} cm/sec to 1×10^{-8} cm/sec when compacted to 90% of maximum dry density.

Given the original final cover design and final cover improvements implemented over the years, portions of the existing final cover of both landfill units may already meet Title 27 prescriptive or performance standards. These WDRs require that the Discharger conduct a field investigation of the final cover over both units and implement any necessary repairs or improvements to make this demonstration. See Postclosure Specifications E.1 through E.3.

66. The landfill cover decks were graded to minimum slopes of two percent and maximum side slopes of 3:1 horizontal-to-vertical (3H:1V). The upper (i.e., NFA) cover deck (about 1535 feet MSL in 1984) was graded about 5H:1V to the west and about 10H:1V to the south toward the lower deck. The lower deck in the southern disposal area (about 1494 feet MSL in 1983) was graded at a 2 percent slope to the western, southern and southeastern side slopes. The side slope grades ranged from 5H:1V to the west to about 3H:1V to the south and southeast except for an offsite area between the landfill (approximately 200 feet x 350 feet) and airport runway, which was graded at 50H:1V to provide an overrun for the airport runway.
67. Precipitation and drainage facilities installed as part of landfill closure included unlined drains along the northern, western, and eastern perimeter of the southern disposal area, and an interior drain constructed in the landfill cover in the northeastern portion of the southern disposal area, as shown in Attachment D: Facility Map.
 - a. Northern perimeter ditch -- a "V"-shaped ditch about 1.5 feet deep and 3 feet wide) installed to divert run-on from north of the SFA, including the LF-2 (former Class II-1) disposal area. The northern perimeter drain flows joins the western perimeter drain;
 - b. Western perimeter ditch -- drains runoff from the western slopes of the southern disposal area and discharges into the City storm drain along Shale Ridge Road.
 - c. Eastern perimeter ditch -- a 10-foot wide, flat-bottom ditch about 1 foot high, drains the interior ditch in the northern portion of the NFA, the southeastern slopes of the NFA, and the eastern/southeastern slopes of the SFA. This drain also discharges to the City storm drain along Shale Ridge Road, at a point near the southeastern corner of the site.
 - d. The interior drain (also a 1.5 x 3 foot "V" ditch) drains the southern portion of the

NFA and the northern portion of the SFA and flows to the eastern perimeter ditch.

LANDFILL POST-CLOSURE MAINTENANCE

68. Title 27, section 20950(a)(2) states, in part:

“ . . . the goal of post-closure maintenance . . . is to assure that the Unit continues to comply with the performance standard of [Title 27, section 20950(a)(2)(A).1] until such time as the waste in the Unit no longer constitutes a potential threat to water quality . . . ”

69. An aerial site survey conducted in July 2003 indicated that the northern disposal area has settled significantly since closure in 1984. The survey showed a crest elevation of 1512 feet MSL, compared to 1535 MSL in 1984, and reduced crest slopes (i.e. 3 percent) compared to 1984 (10 to 20 percent). The measured cover elevations in the lower deck area were generally the same as in 1984, except for areas of differential settlement.

70. A 20 March 2003 site inspection conducted by Regional Board staff indicated that the landfill cover was not adequately shedding water. Numerous areas of thin vegetation were noted in the northern disposal area and ponding was noted in the hummocky areas of the cover in the southern disposal area. In response to the inspection, the Discharger submitted and Regional Board staff approved a 30 June 2003 *Workplan for Drainage and Cover Improvements*. The work plan included an aerial site survey (noted above) and field inspection to identify specific areas of the cover and drainage facilities in need of repair. The Discharger submitted the results of this work in a 4 November 2003 report *Recommendations for Final Cover/Drainage Corrective Measures, City of Auburn Landfill* prepared by SCS Engineers. The report included recommendations for both interim and long term cover repairs, as follows:

a. The recommended interim repairs included:

- 1) Inspection of the cover surface for ponding immediately after storm events and removal of ponded water.
- 2) Repair of minor erosion damage
- 3) Filling in rodent burrows.
- 4) Re-establishing vegetation over distressed/repared areas.

b. Proposed long term repair measures included the following:

- 1) Construction of a new soil-lined V-ditch along top deck to divert run-on.
- 2) Placement and compaction of approximately 5,200 cubic yards of imported soil in areas of settlement on top and northeast decks.
- 3) Re-grading the cover to a minimum slope of 2% to restore drainage.
- 4) Surveying to verify cover grades.
- 5) Re-establishing vegetation over repaired areas.

The report proposed completion of southern disposal area deck repairs by November

2004 and northern disposal area repairs by November 2005.

71. In fall 2004, Phase I final cover and drainage system improvements were completed in the top-deck area of SFA. The work included re-grading the 2.7-acre top-deck area and the placement, grading, and compaction of approximately 3,000 bank cubic yards of general fill soils. The top-deck area was re-graded to an average surface slope of 2 percent or more to prevent surface water ponding and to allow for proper surface storm water drainage. A 430-foot long drainage swale was installed along the northern boundary of the southern fill area to prevent surface water run-on from the north. After subsequent minor settlements were repaired, a native foothill grass seed mix was hydraulically applied. The Phase I repairs were documented in a November 2004 report. Similar (Phase II) final cover improvements were made into a 3.2-acre of the NFA in the fall 2005. The final cover repairs were documented in technical reports submitted in November 2004 and December 2005, respectively.
72. In December 2004, the Discharger submitted a postclosure maintenance plan (PCMP) in response to a Notice and Compliance Order issued by the Local Enforcement Agency.²⁵ The PCMP outlined landfill postclosure maintenance and monitoring activities generally consistent with previous WDRs Order R5-2004-0086 and the requirements of the LEA. The report also included a postclosure land use plan showing existing and potential land uses at the site. Existing uses included a 2-acre bin storage and toter repair area on the cover of LF-2; a 1.6-acre employee parking area immediately north of the SFA (not over the landfill footprint); and a 2.3-acre, fenced area on the east site of the landfill where the adjacent Auburn Airport runway was extended (by easement) onto the property. Potential postclosure land uses identified in the PCMP, subject to LEA and Water Board staff approval, included transfer station vehicle storage (north of the aforementioned employee parking area) and wood storage (northeast of the bin storage area).
73. In September 2009, a large brush fire (the "49er Fire") occurred in the Highway 49 corridor area that spread to the landfill site. The fire completely burned off the landfill vegetative cover and melted surface leachate piping, which had to be replaced. Only slight damage occurred to the gas probes. The landfill cover was hydro-seeded shortly thereafter and the vegetative cover re-established.
74. An aerial topographic survey of the site was last conducted in February 2013. A subsequent inspection by Water Board staff on 13 January 2016 found areas of subsidence and ponding on the SFA and NFA cover decks, which the Discharger repaired in the spring 2016. A drainage swale along the eastern side of the landfill

25. See 16 December 2004 *Postclosure Maintenance and End-Use Plan, City of Auburn Landfill*, prepared by SCS Engineers.

was also re-graded to improve drainage and lined with rock to reduce erosion.

75. Notwithstanding final cover repairs and improvements implemented at the site in 2004 and 2005, these WDRs require that the Discharger to revisit the landfill cover designs at LF-1 and LF-2, and their present condition, to verify that they meet Title 27 performance standards for a closed, Class III landfill. Upon completion of this evaluation, the Discharger is required to submit a work plan for implementing any repairs or improvements necessary to bring the final covers over these units up to Title 27 standards. See Postclosure Specifications E.1 and E.2.

COST ESTIMATES AND FINANCIAL ASSURANCES

76. The Discharger is not required to demonstrate financial assurances for post-closure maintenance to CalRecycle for either landfill (i.e., LF-1 and LF-2) because both landfills ceased operations prior to January 1, 1988. See Title 27, section 22210(b). The Discharger is also not required to demonstrate financial assurances for corrective action for either landfill to CalRecycle because both landfills ceased operations prior to July 1, 1991. See Title 27, section 22220(b).
77. For those solid waste landfills for which postclosure and corrective action financial assurances are not required by CalRecycle under Title 27, Chapter 6, the Discharger is required to demonstrate financial assurances for postclosure maintenance and corrective action to the Central Valley Water Board pursuant to Title 27, sections 22212(a) and 22222, respectively.
78. Previous WDRs did not include financial assurance requirements for the landfill facility and no postclosure maintenance and corrective action cost estimates and financial assurances have been previously provided for the landfill units. Consistent with Finding 77, these WDRs require that the Discharger submit an updated PCMP that includes itemized postclosure maintenance/monitoring activities and cost estimates for both landfill units. A report providing corrective action cost estimates for addressing a known or reasonably foreseeable release from the units is also required to be submitted. See Postclosure Specifications; Financial Assurance Specifications; and Provisions sections.
79. This Order requires that the Discharger provide and maintain financial assurances for postclosure maintenance and corrective action of closed units LF-1 and LF-2 in at least the amounts of the approved cost estimates for these units, as adjusted annually for inflation, to ensure that funds are available for required postclosure maintenance and corrective action of these units. The Discharger is required to establish an irrevocable fund (or to provide other means) as the financial assurance mechanism(s) for these units pursuant to the CalRecycle-promulgated sections of Title 27, Chapter 6, with the Central Valley Water Board named as beneficiary per Financial Assurance Specification F.2. The same funding mechanism may be used for both units.

CEQA AND OTHER REFERENCES

80. The action to revise WDRs for the landfill is exempt from the provisions of the California Environmental Quality Act (Public Resources Code §21000, et seq.), in accordance with California Code of Regulations, title 14, section 15301.
81. 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. The *Porter-Cologne Water Quality Control Act*, Division 7, California Water Code; and
 - d. State Water Resources Control Board Resolution No. 68-16, *Statement of Policy With Respect to Maintaining High Quality of Waters in California*.
82. *The Statement of Policy with Respect to Maintaining High Quality of Waters in California*, SWRCB Order WQ 68-16 (hereinafter "Anti-Degradation Policy") was adopted by the State Water Board in October 1968. Anti-Degradation Policy limits the Board's discretion to authorize the degradation of "high-quality waters." This policy has been incorporated into the Board's Basin Plans. "High-quality waters" are defined as those waters where water quality is more than sufficient to support beneficial uses designated in the Board's Basin Plan. Whether or not a water is a high-quality water is established on a constituent-by-constituent basis, which means that an aquifer can be considered a high-quality water with respect to one constituent, but not for others. (SWRCB Order No. WQ 91-10.)
83. Anti-Degradation Policy applies when an activity discharges to high quality waters and will result in some degradation of such high quality waters. When it applies, the Policy requires that WDRs reflect best practicable treatment or control (BPTC) of wastes and that any degradation of high quality waters (a) will be consistent with the maximum benefit to the people of the State, and (b) will not result in an exceedance of water quality objectives. If the activity will not result in the degradation of high quality waters, Anti-Degradation Policy does not apply, and the Discharger need only demonstrate that it will use "best efforts" to control the discharge of waste.
84. Anti-Degradation Policy does not apply to the discharge of waste to the Auburn Landfill. The requirements of this Order are designed to ensure that any such wastes remain contained at the facility and will not reach waters of the State. The requirements of this Order reflect the Discharger's best efforts to control such wastes.

85. Facilities under WDRs are classified for the purposes of determining the annual permit fee and WDR update cycle. These classifications are based on threat to water quality and complexity associated with the discharge. The Auburn Landfill was classified as a "2B" discharge under the previous WDR Order R5-2004-0086. These revised WDRs maintain the "2B" designation. The following fee criteria were used:

Threat to Water Quality:

Category "2" – "Those discharges of waste that could impair the designated beneficial uses of the receiving water, cause short-term violations of water quality objectives, cause secondary drinking water standards to be violated, or cause a nuisance."

Complexity:

Category "B" – "Any discharger not included in Category A that has physical, chemical, or biological treatment systems (except for septic systems with subsurface disposal), or any Class 2 or Class 3 waste management units."

The WDR review cycle for 2B discharges is 10 years from the date of adoption of the WDRs, or, if granted a continuance by the Executive Officer, from the continuance date. The WDR fee schedule may be found on the State Water Resource Control Board website at: <http://www.waterboards.ca.gov/>.

86. Water Code Section 13267(b) provides that: "In conducting an investigation specified in subdivision (a), the Central Valley Water Board may require that any person who has discharged, discharges, or is suspected of 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 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 Central Valley Water 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."
87. The technical reports required by this Order and the attached "Monitoring and Reporting Program R5-2018-0027" are necessary to assure compliance with these waste discharge requirements. The City of Auburn owns, and Recology Auburn Placer actively operated and currently maintains, the closed facility that discharged the waste subject to this Order.
88. 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.

PROCEDURAL REQUIREMENTS

89. 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.
90. The 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.
91. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

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 California 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 the 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 State Water Resource Control Board website at: <http://www.waterboards.ca.gov/>, or will be provided upon request.

IT IS HEREBY ORDERED that Order R5-2004-0086 is rescinded, except for purposes of enforcement, and the City of Auburn and Recology Auburn Placer, and their agents, successors and assignees, 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. DISCHARGE PROHIBITIONS

1. The discharge of new or additional waste, or the relocation of existing waste, to any unit at the site, is prohibited.
2. The discharge of 'hazardous waste' or 'designated waste' to any unit at the site (other than the limited Group I wastes and hazardous asbestos historically discharged at the site) 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., and 'designated waste' is as defined in Title 27.
3. The discharge of waste shall not cause a nuisance condition [Wat. Code, § 13050(m)].

4. The Discharger shall comply with all Standard Prohibitions listed in Section C of the Industrial SPRRs, as applicable to a closed, unlined, Class III landfill.

B. DISCHARGE SPECIFICATIONS

1. Wastes shall remain within their designated disposal area at all times.
2. The Discharger shall, in a timely manner, remove any wastes discharged at this facility in violation of this Order and dispose of them at an authorized facility. If the Discharger is unable to remove 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. If the waste is a hazardous waste, the Discharger shall immediately notify the Department of Toxic Substances Control.
3. During wet weather conditions, the facility shall be operated and graded to minimize leachate generation. Seeps shall be monitored as outlined in the MRP until they have been successfully repaired (i.e., 0 gallons/24 hours).

C. FACILITY SPECIFICATIONS

1. Both existing landfill units at the site (i.e., LF-1 and LF-2) shall be maintained to ensure that there is adequate separation between the base of wastes, including leachate, and the highest anticipated elevation of underlying groundwater, including capillary fringe. For the purposes of this specification, a minimum of 5 feet of separation (the prescriptive standard for a Class III unit per Title 27, section 20240(c)) shall be presumed to be adequate. Engineered alternatives to the minimum five-foot prescriptive standard may be approved by the Executive Officer upon sufficient demonstration by the Discharger that the minimum separation is adequate. See Title 27, sections 20080(c) and 20260; and Response to Release specifications in Section J of the Industrial SPRRs, as applicable.
2. Storm water runoff from the facility shall be discharged in accordance with Monitoring and Reporting Program No. R5-2018-0027 and applicable storm water regulations.
3. Annually, prior to the anticipated rainy season but no later than 1 November, any necessary construction, maintenance, or repairs of precipitation and drainage control facilities shall be completed and reported in compliance with MRP No. R5-2018-0027.
4. The Discharger shall comply with Standard Facility Specifications 2 through 8 listed in Section E of the Industrial SPRRs, as applicable to a closed, unlined Class III landfill.

D. DESIGN AND CONSTRUCTION SPECIFICATIONS

1. The Discharger shall maintain storm water conveyance systems for Class III units for a 100-year, 24-hour storm event. [Title 27, § 21750(e)(3)]. All landfill drainage conveyances shall be graded and lined, as necessary, to convey runoff and minimize percolation consistent with the performance standards of Title 27, section 20365.
2. The Discharger shall comply with all of the Storm Water Provisions listed in Section L of the Industrial SPRRs, as applicable to a closed, unlined Class III landfill.
3. Waste management units and their respective containment structures shall be designed, constructed and maintained to limit, to the greatest extent possible, ponding, infiltration, inundation, erosion, slope failure, washout, and overtopping [Title 27, § 20365(a)].
4. All Class III landfill units shall be designed to withstand the maximum probable earthquake without damage to the foundation or to the structures that control leachate, or surface drainage, or erosion, or gas [Title 27, § 20370(a)].
5. Hydraulic conductivities for the final cover shall be relative to water [Title 27, section 20320(b)]. Hydraulic conductivities shall be determined primarily by appropriate field test methods in accordance with accepted civil engineering practice. It is acceptable for the Discharger to use appropriate compaction tests in conjunction with laboratory hydraulic conductivity tests to determine field permeabilities as long as a reasonable number of field hydraulic conductivity tests are also conducted [Title 27, section 20320(c)].
6. Materials used in containment structures shall have appropriate chemical and physical properties to ensure that such structures do not fail to contain waste because of pressure gradients, physical contact with waste or leachate, chemical reactions with soil or rock, climatic conditions, the stress of installation, or because of the stress of daily operations [Title 27, § 20320(a)].
7. All containment structures shall be designed by, and construction shall be supervised by, a California registered civil engineer or a certified engineering geologist, and shall be certified by that individual as meeting the prescriptive standards, or approved engineered alternative design, in accordance with this Order prior to waste discharge.
8. The Discharger shall not proceed with construction until the construction plans, specifications, and all applicable construction quality assurance plans have been approved.

9. The Discharger may propose changes to a containment 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 containment 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.
10. Any report, or any amendment or revision of a report, that proposes a design or design change that might affect a waste management unit's containment features or monitoring systems shall be approved by a California registered civil engineer or a certified engineering geologist [Title 27, § 21710(d)].

E. POSTCLOSURE SPECIFICATIONS

1. By **15 August 2018**, the Discharger shall submit for approval a work plan for a field investigation to verify that the final covers installed over LF-1 and LF-2 meet Title 27 performance standards for a closed, Class III landfill. At a minimum, the Landfill Final Cover Investigation Work Plan shall include the following:
 - a. A summary of Title 27 prescriptive and performance standards applicable to the units;
 - b. Engineered drawings showing the final cover design(s) at LF-1 and LF-2, as built;
 - c. A list of tasks, including, but not necessarily limited to:
 - i. An investigation of the cover thickness(es) and soil type(s) at each unit;
 - ii. Plans for appropriate field and laboratory testing of the cover (e.g., moisture, compaction, hydraulic conductivity);
 - iii. Identification of any areas not meeting Title 27 performance standards; and
 - d. An implementation schedule consistent with the timeline for submission of the Landfill Final Cover Repair/Improvement Work Plan required in Postclosure Maintenance Specification E.2 below.

See Finding 75 and Provision I.8.b.

2. **Within 12 months of approval**, the Discharger shall, based on the Landfill Final Cover Investigation required above, submit for approval a Landfill Final Cover Repair/Improvement Work Plan proposing all repairs and/or improvements necessary to bring to the landfill final covers into compliance with Title 27 performance standards. At a minimum, this work plan shall include the following:
 - a. A summary of the results of the Landfill Final Cover Investigation;

- b. Appropriate engineered drawings showing the locations of planned repairs and/or improvements, including cover grades and thickness;
- c. A list of tasks describing the repairs/improvements to be performed at each unit (e.g., recompaction of cover soil, placement of additional clay soil, increasing cover thickness).
- d. A Construction Quality Assurance Plan for the work to be performed; and
- e. An implementation schedule consistent with the due date for the certification report required under Postclosure Maintenance Specification E.3 below.

All final cover repairs and/or improvements, including re-compaction of existing cover soil and/or placement of additional clay soil, if necessary, shall be completed in accordance with the approved Landfill Final Cover Repair/Improvement Work Plan.

3. **Within 12 months of approval** of the Landfill Final Cover Repair/Improvement Work Plan, the Discharger shall submit a certification report documenting the final cover repairs and/or improvements to LF-1 and LF-2 completed under approved Landfill Final Cover Repair/Improvement Work Plan required under Postclosure Specification E.3 above. See Provision I.8.d.
4. **Within 90 days of approval** of the above certification report, the Discharger shall submit an updated PCMP for LF-1 and LF-2, including, but not limited to, updated postclosure maintenance plans and cost estimates per Title 27, section 21769(c)(1)(A) reflecting the final cover repairs/improvements completed per Postclosure Specification E.3 above and the groundwater monitoring wells installed per Finding 40 and Provision I.7.d. See Finding 78, Financial Assurances Specification F.1, and Provision I.8.e.
5. 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.
6. The completed final cover shall 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.
7. The Discharger shall comply with Standard Postclosure Maintenance Specifications 1 through 12 listed in Section G of the Industrial SPRRs, and

Design and Construction Specifications D.1 through D.10 herein, as applicable to a closed, unlined, Class III landfill.

F. FINANCIAL ASSURANCE SPECIFICATIONS

1. The Discharger shall update the PCMP for a unit any time there is a change that will increase the amount of the post-closure maintenance/monitoring cost estimate and/or as otherwise required under this Order (e.g., per Postclosure Specification E.4), Updated PCMPs shall meet the requirements of Title 27, section 21769(c), and include a lump sum estimate of the cost of carrying out all actions necessary to update the post-closure maintenance plan and to carry out the remainder of the first thirty years of post-closure maintenance and monitoring. Reports regarding financial assurance submitted under F.4.a below shall reflect the updated cost estimate. Updated PCMPs for the closed landfill units at the site shall be submitted to the Central Valley Water Board, the Local Enforcement Agency, and CalRecycle. See Postclosure Specification E.4.
2. The Discharger shall demonstrate to the Central Valley Water Board that it has obtained and maintained required assurances of financial responsibility for LF-1 and LF-2 for both post-closure maintenance per Title 27, section 22212(a) and for corrective action to address all known or reasonably foreseeable releases from the landfill units per Title 27, section 22222.
3. The financial assurances mechanisms for postclosure maintenance and corrective action shall be among those listed in Title 27 Section 22228 for which the Discharger is eligible.
4. By **1 June 2020**, the Discharger shall, per Financial Assurance Specification F.2 above, submit a report showing that it has established the following:²⁶
 - a. An irrevocable postclosure maintenance funding mechanism, with the Central Valley Water Board named as beneficiary, to ensure funds are available for required postclosure maintenance of LF-1 and LF-2. The funding amounts shall be consistent with the updated PCMP submitted under Provision I.8.e, as annually adjusted for inflation; and
 - b. An irrevocable funding mechanism for corrective action, with the Central Valley Water Board named as beneficiary, to ensure funds are available for required corrective action of LF-1 and LF-2. The funding amounts shall be in

26. For financial assurance mechanisms requiring funding, the Discharger shall either fully fund the mechanism by 1 June 2020 or may propose a payment schedule. If the Discharger proposes a payment schedule to fund the mechanism, it shall submit a report by 1 June 2021 showing that the mechanism is fully funded. For financial assurance mechanisms not requiring funding, such as a Guarantee, the Discharger shall submit a report showing the mechanism is in place by 1 June 2020.

accordance with the approved corrective action cost estimates for these units provided in the corrective action cost estimates report for these units submitted under Provision I.8.a, as annually adjusted for inflation.

5. By **1 June of each year**, the Discharger shall submit a report to the Central Valley Water Board that reports the balance of both the postclosure and corrective action funds or the amounts of the Guarantees and the adjustments to account for inflation in accordance with Title 27 Section 22236.

G. MONITORING SPECIFICATIONS

All Units

1. The Discharger shall, for each landfill unit, comply with the detection and corrective action monitoring program provisions of Title 27 for groundwater, surface water, and the unsaturated zone in accordance with these WDRs, MRP R5-2018-0027, and the applicable sections of the Industrial SPRRs.
2. The Discharger shall comply with the currently-approved Water Quality Protection Standard, as specified in this Order, MRP No. R5-2018-0027, and the applicable sections of the Industrial SPRRs incorporated by reference under this Order.²⁷
3. The Discharger shall conduct background monitoring for each classified unit at the site consistent with Section 20415, including, but not necessarily limited to, subsections 20415 (b), (e)(6), and (e)(10).²⁸ Background monitoring of units may be conducted contiguously if demonstrated per Monitoring Specification G.10. See also Standard Monitoring Specification I.26, Industrial SPRRs.
4. For each monitoring event, the Discharger shall determine whether the landfill is in compliance with the currently-approved Water Quality Protection Standard using procedures specified in MRP R5-2018-0027 and the applicable sections of the Industrial SPRRs incorporated by reference under this Order.
5. Concentration limits shall be developed using upgradient data absent a satisfactory demonstration to the contrary in an approved WQPS Report. The

²⁷. For the purposes of this specification, the “currently-approved” WQPS shall be that described in the WQPS Report submitted under Provision I.9 (or a subsequent update or revision thereto), as approved by the Executive Officer.

²⁸. Background and downgradient wells for interwell detection monitoring shall be identified by tracing groundwater gradient flow streamlines (i.e., flow lines perpendicular to the gradient contours) through each unit, as applicable. Background wells shall be found by following the flow streams upgradient from the unit (or units, if contiguous). and down gradient wells shall be found by following the same flow streams down gradient from the unit(s).

groundwater monitoring system may include Background Monitoring Points that are not hydraulically upgradient of the Unit if the discharger demonstrates to the satisfaction of the Central Valley Water Board that sampling at other Background Monitoring Points will provide samples that are representative of the background quality of ground water or are more representative than those provided by the upgradient Background Monitoring Points. See Title 27, section 20415(b)(2).

6. Initial Background Sampling –Consistent with Title 27, section 20415(e)(6), the discharger shall collect all groundwater monitoring data necessary for selecting the appropriate monitoring data analysis methods and for establishing background values for the landfill unit under Title 27. Upon installation of a new background monitoring well, quarterly sampling shall be conducted on that well for at least one year to establish background concentrations for inorganic constituents.
7. 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 R5-2018-0027.
8. Detection monitoring of each unit for naturally occurring inorganic constituents shall be conducted on an interwell basis (i.e., using hydraulically upgradient monitoring points as background) absent an approved demonstration of intrawell monitoring as an engineered alternative design under Title 27, section 20380(e). To the extent that such demonstration is based on a claim of spatial variability of the groundwater geochemistry, the report shall demonstrate that such variability is not the result of a release from a waste management unit at the site.
9. Detection monitoring data analysis methods, including those used for analysis of background data, shall be in accordance with Title 27, Section 20415(e)(7) through (e)(10) and the Industrial SPRRs, as applicable.
10. Where the proximity of units to each other, physical constraints, obstructions or other related factors (e.g., utility easement, bedrock outcrop) render installation of a monitoring well infeasible or impractical at a prescriptive location (e.g., directly upgradient of unit, point of compliance well), the Discharger may propose a contiguous and/or engineered alternative monitoring system for the unit(s) per Title 27, sections 20405(b), 20415(e)(3) and 20380(e).
11. The Discharger shall adequately monitor soil pore gas for the presence of LFG in concentrations that may threaten water quality or otherwise warrant adjustments or improvements to the LFG extraction system, including the installation of additional gas extraction vents or monitoring wells.

12. Any proposal for concentration limits greater than background (CLGBs) shall be accompanied by the requisite demonstration under Section 20400(c) (i.e., that it is technologically or economically infeasible to achieve the background value for that constituent and that the constituent will not pose a substantial present or potential hazard to human health or the environment). Approval of CLGBs shall require approval of revised WDRs by the Central Valley Water Board.
13. For units in corrective action (i.e., LF-1), the data analysis methods shall also include trend analysis; an evaluation of the water chemistry; and preparation of contaminant contour plots to monitor the nature of the release and effectiveness of corrective action measures, as specified in the MRP.
14. For units in corrective action (i.e., LF-1), the Discharger shall install a sufficient number of groundwater monitoring wells at appropriate locations and depths in the uppermost aquifer, and in other aquifers or perched zones not already monitored, as necessary, to define the nature and extent of the release and evaluate the effectiveness of the corrective action program.
15. As permitted by Title 27, Section 20430(f), corrective action may be terminated when the Discharger demonstrates that the constituents of the release have been reduced to levels at or below their respective concentration limits throughout the entire zone affected by the release. The Discharger may make this demonstration by satisfying the minimum "proof period" specified in Title 27 (one year) or as otherwise demonstrated under Title 27, section 20380(e) and approved by Water Board staff. The "proof period" shall consist of at least six semiannual sampling events for each monitoring point that are approximately evenly distributed over a three-year period in which the concentration of the constituents of the release remain at or below their respective sampling limit.
16. The Discharger shall comply with all Standard Monitoring Specifications listed in Section I, and all Response to a Release specifications listed in Section J, of the Industrial SPRRs, as applicable to a closed, unlined, Class III landfill.

H. EVALUATION MONITORING AND CORRECTIVE ACTION SPECIFICATIONS

1. By **15 August 2018**, the Discharger shall submit an Evaluation Monitoring Program (EMP) workplan to determine the base elevation of landfill wastes, and the amount of separation between landfill wastes and groundwater, if any, at representative locations within the following areas of the landfill:
 - a. The western and central portions of the SFA in LF-1;
 - b. The leachate collection system along the perimeter of the SFA; and

- c. The former excavation pits at LF-2.
See Provision I.7.a.
2. The EMP required above shall characterize the amount of separation between wastes and groundwater using relevant benchmarks, such historical range, seasonal maximum and minimum, current separation; and separation based on the highest anticipated groundwater elevation at a given location. The EMP shall also determine the following:
 - a. The maximum depth of waste and thickness of the waste column in representative portions of the landfill;
 - b. Where groundwater is in contact with landfill wastes and the distance groundwater has risen into wastes (excluding capillary fringe); and
 - c. Whether leachate collection sump pumping is affecting the groundwater levels in the affected areas of the SFA.
3. **Within one year of approval of the EMP workplan**, the Discharger shall submit an EMP Report documenting the results of the EMP investigation, including contour maps of relevant parameters (e.g., base of landfill waste, highest anticipated groundwater elevation, minimum anticipated groundwater separation, etc.). The EMP Report shall also provide recommendations and a schedule for further investigation and/or the development of an Engineering Feasibility Study/Corrective Action Plan (EFS/CAP), as warranted based on the results of the EMP investigation. See Provision I.7.c.
4. **Within two years of approval of the EMP workplan**, based on the EMP Report submitted under Evaluation Monitoring and Corrective Action Specification H.3 above, and the Monitoring Well Installation Report submitted under Provision I.7.d below, the Discharger shall submit an updated Site Conceptual Model with hydrogeologic cross-sections showing monitoring wells, the unsaturated zone, fractured bedrock, co-related zones, the uppermost aquifer, the water table, the base of each unit, and other relevant information. See Finding 41 and Provision I.7.e.
5. Any revised or updated EFS/CAP submitted under this Order shall, among the corrective action measures necessary to return the unit into compliance with the Water Quality Protection Standard, consider all measures necessary to bring the landfill unit into compliance with Title 27 siting and waste containment standards for a Class III landfill. For an unlined landfill, such measures shall, at a minimum, include one or more of the following, as applicable:

- a. Installation of containment features (e.g., slurry wall between NFA and SFA, separate leachate collection sump and conveyance lines for NFA) necessary to restore adequate separation between wastes and groundwater per Title 27, section 20260d;
- b. Installation of a Title 27-compliant final cover, including grading and drainage facilities, per Title 27, section 21090 or Title 27, 20080(a), if not already proposed/completed per Postclosure Specification E.1;
- c. Groundwater extraction and treatment and/or appropriate disposal; and
- d. Clean closure (or partial clean closure) of areas where one or more of the above measures are not feasible or are ineffective to comply with Title 27 standards for a Class III landfill.

See Findings 50, 51, 54, 63, 64 and 86; and Section J, *Response to Release*, Industrial SPRRs.

I. PROVISIONS

1. The Discharger shall maintain a copy of this Order at the facility, including the MRP R5-2018-0027, and the Industrial SPRRs dated April 2016, 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 not specifically referred to in this Order.
3. The Discharger shall comply with MRP R5-2018-0027, which is incorporated into and made part of this Order by reference.
4. The Discharger shall comply with the applicable portions of the Industrial SPRRs, as referenced in the specifications of this Order.
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, and shall be prepared by a California-registered Civil Engineer or Certified Engineering Geologist.
7. Pursuant to Section 13267 of the California Water Code, the City of Auburn/Recology Auburn Placer shall submit the following technical reports relevant to groundwater monitoring and corrective action at the site:

| | Report | Due Date |
|----|--|---|
| a. | An Evaluation Monitoring Program (EMP) investigation work plan to determine the base of waste and minimum groundwater separation at representative locations within the SFA and LF-2. See Evaluation Monitoring and Corrective Action Specification H.1. | 15 August 2018 |
| b. | A work plan and schedule for the installation of additional groundwater monitoring wells, appropriately placed and screened, as follows: i. A sufficient number of wells along the downgradient perimeter of LF-1 to contiguously monitor the NFA and SFA; and ii. A sufficient number of wells along the perimeter of LF-2 to monitor the unit and verify the direction of groundwater flow. See Finding 40 and Industrial SPRRs, Standard Monitoring Specifications I.27 and I. 35. | 15 August 2018 |
| c. | An EMP Report providing the results of the EMP investigation required under I.7.a above per Evaluation Monitoring and Corrective Action Specification H.3. | Within 1 year of EMP workplan approval |
| d. | A Monitoring Well Installation Report for the groundwater monitoring wells required under I.7.b above. | Within 1 year of well installation workplan approval |
| e. | An updated Site Conceptual Model with detailed hydrogeologic cross-sections per Evaluation Monitoring and Corrective Action Specification H.4. | Within 2 years of EMP workplan approval |

The EMP and Monitoring Well Installation reports required in c and d above may be submitted as a single document.

8. Pursuant to Section 13267 of the California Water Code, the Discharger shall submit the following technical reports relevant to postclosure maintenance and financial assurances for LF-1 and LF-2:

| | Report | Due Date |
|----|--|---------------------|
| a. | A corrective action cost estimates report for LF-1 and LF-2 for approval in preparation for funding the demonstration required under Financial Assurances Specification F.4.b. | 31 July 2018 |

| | Report | Due Date |
|----|---|---|
| b. | A Landfill Cover Investigation Workplan to verify that the final covers over LF-1 and LF-2 meet Title 27 performance standards for a closed Class III landfill. See Postclosure Specification E.1. | 15 August 2018 |
| c. | A Landfill Final Cover Repair/Improvement Work Plan (including report of results of the above landfill cover investigation work plan) for any repairs and/or improvements necessary to bring the final covers over LF-1 and LF-2 up to Title 27 standards. See Postclosure Specification E.2. | Within 1 year of approval of Landfill Final Cover Investigation Work Plan |
| d. | A certification report documenting all repairs and/or improvements implemented under the work plan required in I.8.c. See Postclosure Specification E.3. | Within 1 year of approval of Landfill Final Cover Repair/Improvement Work Plan |
| e. | An updated PCMP for LF-1 and LF-2, including, but not limited to, updated postclosure maintenance plans and cost estimates per Postclosure Specification E.4. | Within 90 days of approval of Certification Report in Provision I.8.d. |

9. By **31 January 2020**, the Discharger shall submit a revised Water Quality Protection Standard (WQPS) Report describing the WQPS for LF-1 and LF-2 and each water-bearing media monitored under this Order (i.e., groundwater and surface water). The revised WQPS report shall specify the Constituents of Concentration, Concentration Limits, Monitoring Points, Points of Compliance, and Compliance Periods, consistent with the requirements of this Order and Title 27 regulations. In addition, the WQPS shall evaluate whether monitoring wells are appropriately placed and screened, including in zone(s) with the highest hydraulic conductivity, to detect the earliest possible release from a unit to the uppermost aquifer.
10. By **31 January 2020**, the Discharger shall submit an updated Sample Collection and Analysis Plan containing proposed sampling and analysis methods and protocols for monitoring all units at the site consistent with the revised WQPS Report required under Provision I.9 above and Standard Monitoring Specification I.7 of the Industrial SPPRs.
11. The Discharger shall comply with all General Provisions listed in Sections K of the Industrial SPPRs applicable to a closed, Class III landfill.
12. The Central Valley Water Board has converted to a paperless office system. All project correspondence and reports required under this Order shall therefore be

submitted electronically rather than in paper form, as follows:

- a. All project correspondence previously submitted in paper form (e.g., letters, short reports) shall be converted to Portable Document Format (PDF) and emailed to the Central Valley Water Board at: centralvalleysacramento@waterboards.ca.gov. To ensure that the submittal is routed to the appropriate staff as quickly as possible, the following information shall be included in the body of the email:

| | |
|------------------|---|
| Attention: | Title 27 Compliance & Enforcement Unit |
| Discharger name: | City of Auburn and Recology Auburn Placer |
| Facility name: | Auburn Landfill |
| County: | Placer |
| CIWQS place ID: | 206725 |

Unit staff and senior shall also be cc'd on the email.

- b. All technical reports and monitoring reports required under this Order shall be converted to PDF and uploaded via internet to the State Water Board's GeoTracker database at <http://geotracker.waterboards.ca.gov>, as specified in California Code of Regulations, title 23, section 3892, subdivision (d) and section 3893. Project-associated analytical data shall be similarly uploaded to the GeoTracker database in an appropriate format specified under this Order under a site-specific global identification number. Information on the GeoTracker database is provided at:

https://www.waterboards.ca.gov/ust/electronic_submittal/index.shtml

Notification of the Geotracker upload shall be emailed to the Central Valley Water Board at: centralvalleysacramento@waterboards.ca.gov, as described above.

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 6 April 2018.

ORIGINAL SIGNED BY

PAMELA C. CREEDON, Executive Officer

JDM

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM R5-2018-0027
FOR
CITY OF AUBURN
RECOLOGY AUBURN PLACER
AUBURN LANDFILL
CLOSED CLASS III LANDFILLS
POST-CLOSURE MAINTENANCE, DETECTION MONITORING,
EVALUATION MONITORING AND CORRECTION ACTION
PLACER COUNTY

This monitoring and reporting program (MRP) is issued pursuant to California Water Code section 13267 and incorporates requirements for groundwater, surface water, and unsaturated zone monitoring and reporting; facility monitoring, maintenance, and reporting contained in California Code of Regulations, Title 27, section 20005, et seq. (hereafter Title 27); Waste Discharge Requirements (WDRs) Order R5-2018-0027 and *Standard Provisions and Reporting Requirements for Waste Discharge Requirements for Industrial Facilities Regulated by Title 27*, dated April 2016 (Industrial SPRRs). Compliance with this MRP is ordered by the WDRs and the Discharger shall not implement any changes to this MRP unless a revised MRP is issued by the Central Valley Water Board or the Executive Officer.

A. MONITORING

The Discharger shall monitor closed landfill units LF-1 and LF-2 in accordance with the detection and corrective action monitoring program provisions of Title 27 for groundwater, surface water, and the unsaturated zone. Monitoring shall also be in accordance with the Monitoring Specifications in Section G of the WDRs and the Standard Monitoring Specifications in Section I of the Industrial SPRRs. All monitoring shall be conducted in accordance with the most current approved Sample Collection and Analysis Plan, including quality assurance/quality control standards. The Discharger may use alternative analytical test methods, including new USEPA approved methods, provided the methods have method detection limits equal to or lower than the analytical methods specified in this Monitoring and Reporting Program, and are identified in the approved Sample Collection and Analysis Plan.

All compliance monitoring wells established for the detection monitoring program shall constitute the monitoring points for the groundwater Water Quality Protection Standard. All detection monitoring program groundwater monitoring wells, unsaturated zone monitoring probes, leachate monitoring points, and surface water monitoring points shall be sampled and analyzed for monitoring parameters and constituents of concern (COCs) as indicated and listed in Tables I through VI.

As described in WDR Finding 39, groundwater beneath the site is currently believed to flow to the southwest, with the possible exception of the northwest portion of the site, where groundwater may flow to the northwest consistent with northwest-sloping topography in that area. This MRP assigns monitoring points to background, detection, and corrective action monitoring programs based on an assumption that groundwater

flows to the southwest beneath the entire site; however, it is acknowledged that these designations may change over time as warranted by monitoring data from new or existing wells and/or if the direction of groundwater flow beneath the site significantly changes.

The monitoring program of this MRP includes:

| <u>Section</u> | <u>Monitoring Program</u> | <u>Reference Map</u> ¹ |
|----------------|------------------------------|-----------------------------------|
| A.1 | Groundwater Monitoring | WDR Attachment C |
| A.2 | Unsaturated Zone Monitoring | WDR Attachment D |
| A.3 | Leachate Monitoring | WDR Attachment D |
| A.4 | Surface Water Monitoring | WDR Attachments B & D |
| A.5 | Landfill Facility Monitoring | n/a |

1. See reference map for monitoring locations.

1. Groundwater Monitoring

The Discharger shall operate and maintain groundwater detection and corrective action monitoring systems that comply with the applicable provisions of Title 27, Subchapter 3 “Water Monitoring”. These groundwater monitoring systems shall be certified by a California-licensed professional civil engineer or geologist as meeting the requirements of Title 27. The current groundwater monitoring system at the site **does not meet** the applicable requirements of Title 27 (see WDR Finding 40). WDR Provision I.7 therefore provides a schedule and list of tasks necessary for the installation of a Title 27-compliant groundwater monitoring system at the site.

Groundwater monitoring shall be conducted consistent with this MRP and the revised Water Quality Protection Standard (WQPS) Report. Background and downgradient wells for interwell monitoring, including contiguously monitored units/fill areas, shall be identified by tracing the shallow groundwater gradient flow streams (i.e., flow lines perpendicular to the gradient contours) through each unit/fill area, as applicable. Detection monitoring for naturally occurring inorganic constituents at the site shall be conducted using an interwell monitoring approach, unless otherwise approved in the WQPS Report.

Historical releases at the site have consisted primarily of volatile organic compounds (VOCs) and inorganic constituents from landfill LF-1. This MRP therefore places LF-1 in corrective action monitoring and LF-2 in detection monitoring.

The Discharger shall revise the groundwater monitoring system (after review and approval by Central Valley Water Board staff) as needed, upon the installation of the additional wells required under the WDRs.

a. Monitoring Points (see WDR Attachment C: Site Map)

i. LF-1

| Fill Area | Program | Well | Relative Location | |
|------------------------|-------------------------------|-----------------------------|-------------------|----------------|
| | | | GW Flow | Unit/Fill Area |
| NFA | Detection & Corrective Action | E-12 | Sidegradient | NW of NFA |
| | | --- ^{1,2} | | West of NFA |
| SFA | Background | --- ^{1,2} | Downgradient | SW of NFA |
| | Detection & Corrective Action | D, LFW-2, E, R-1, R-2 & R-3 | | Downgradient |
| | | | | |
| NFA & SFA ³ | Background | A | Upgradient | NE of NFA |
| | Detection & Corrective Action | --- ^{1,3} | Downgradient | South of SFA |

1. Possible future well(s) to be installed per WDR Provision I.7.b.
2. Well may not be needed if contiguous monitoring of LF-1 and LF-2 demonstrated and approved per WDR Monitoring Specification G.10.
3. Contiguous monitoring point for both fill areas (no demonstration required under WDR Monitoring Specification G.10 because both areas part of same unit).

ii. LF-2

| Fill Area | Program | Well | Relative Location | |
|-------------------|-------------------------|----------------------|---------------------------|------------------------------|
| | | | GW Flow | Unit/Fill Area |
| Trenches 1 - 5 | Background ¹ | E-12 | Upgradient ¹ | NW of NFA |
| | | --- ^{1,2,3} | | West of NFA |
| | Detection | 1 & E-4 | Sidegradient ¹ | SE of LF-2 (SW of NFA) |
| | | | | West of LF-2 |
| | Detection ¹ | C | Downgradient ¹ | SW of LF-2 (north of SFA) |
| | --- ^{1,2,3} | | | |

1. Interwell monitoring assignments assume groundwater flow to the southwest.
2. Possible future well(s) to be installed per WDR Provision I.7.b.
3. Well may not be needed if contiguous monitoring of LF-1 and LF-2 demonstrated and approved per WDR Monitoring Specification G.10.

The groundwater monitoring network shall also include any future or replacement wells installed under these WDRs, but not listed in the above table. Where the proximity of units, physical constraints, or other related factors render installation of a monitoring well infeasible, the Discharger may propose a contiguous and/or engineered alternative monitoring system for the unit(s). See WDR Monitoring Specification G.10.

b. Monitoring Schedule

Groundwater samples shall be collected from the background wells, detection monitoring wells, corrective action monitoring wells (if any), and any additional wells added as part of the approved groundwater monitoring system. The collected samples shall be analyzed for the parameters and constituents listed in Table I in accordance with the specified methods and frequencies. The Discharger shall collect, preserve, and transport groundwater samples in accordance with the approved Sample Collection and Analysis Plan.

Once per quarter, the Discharger shall measure the piezometric groundwater elevation in each well and piezometer, determine groundwater flow direction, and estimate groundwater flow rates in the uppermost aquifer and in any additional zones being monitored. Groundwater elevation monitoring shall be conducted in existing wells and any future wells added as part of the approved groundwater monitoring system. The results shall be reported semiannually, including the times of expected highest and lowest elevations of the water levels in the wells, pursuant to Title 27, section 20415(e)(15). Additional and/or more frequent monitoring and reporting may be required under the Evaluation Monitoring Program required under WDR Section H (Evaluation and Corrective Action Monitoring Specifications).

Samples collected for the COC monitoring specified in Table I shall be collected and analyzed in accordance with the methods listed in Table VI every five years. Five-year COCs were last monitored in **September 2015** and shall be monitored again in **September 2020**. The five-year COC results shall be reported in the Annual Monitoring Report for the year in which the samples were collected.

Background, detection, and corrective action monitoring data analysis shall be conducted consistent with the statistical and non-statistical data analysis methods described in Section C.1.e, as updated in the WQPS Report submitted under WDR Provision I.7, as approved by the Executive Officer.

2. Unsaturated Zone Monitoring

The Discharger shall operate and maintain an unsaturated zone detection and corrective action monitoring system that complies with the applicable provisions of Title 27, sections 20415 and 20420. Unsaturated zone monitoring at the facility may be limited to soil pore gas monitoring given that all of the units at the site are unlined and that it is not technically feasible to retrofit them with lysimeters.

a. Monitoring Points (See Attachment D: Facility Map)

There are currently 11 soil gas monitoring wells at the site, each with single, double or triple tiered probes, as identified below.

| Screen | Soil Gas Probes | | |
|---------------------------|--------------------|----------------------|---|
| | <u>Single Tier</u> | <u>Double Tier</u> | <u>Triple Tier</u> |
| Shallow ¹ | P-4A & P-6 | P-1AS, P-3AS & P-7AS | P-8S, P-9S, P-10S, P-11S, P-12S & P-13S |
| Intermediate ² | --- | P-1AI, P-3AI & P-7AI | P-8I, P-9I, P-10I, P-11I, P-12I & P-13I |
| Deep ³ | --- | --- | P-8D, P-9D, P-10D, P-11D, P-12D & P-13D |

1. Shallow probes all 10 feet deep.
2. Intermediate probes range from 20 to 30 feet deep.
3. Deep probes range from 35 to 45 feet deep.

Soil pore gas monitoring shall also include any future or replacement soil gas wells/probes installed at the site.

b. Monitoring Schedule

Unsaturated zone samples shall be collected from the monitoring network listed above and shall be analyzed for the parameters and constituents listed in Table II in accordance with the specified methods and frequencies. The Discharger shall collect, preserve, and transport samples in accordance with the quality assurance/quality control standards contained in the approved Sample Collection and Analysis Plan. Monitoring results for the unsaturated zone shall be included in monitoring reports and shall include an evaluation of potential impacts of the facility on the unsaturated zone and compliance with the Water Quality Protection Standard.

c. Confirmation of a Gas Release

In the event that LFG is detected at levels triggering VOC testing (i.e., methane at or above 1% by volume and/or total organic vapors at or above 50 ppmv, the Discharger shall, within 24-hours, notify Central Valley Water Board staff by telephone or email. Retest sampling in accordance with the approved Sample Collection and Analysis Plan shall be conducted thereafter, as necessary, to confirm a release. Confirmation of a gas release (i.e., LFG) to the unsaturated zone may constitute physically significant evidence of a release under the Landfill SPRRs. Upon confirmation of a gas release, the Discharger shall implement appropriate short term and long term corrective action measures consistent with the Response to Release requirements of the applicable SPRRs and/or as otherwise directed by the Central Valley Water Board.

3. Leachate Monitoring

As noted in WDR Finding 6, both LF-1 and LF-2 are unlined and pre-date Title 27/Chapter 15 regulations. Leachate collection facilities at the site are therefore currently limited to the non-Title 27 compliant French drain system installed beneath, and along the exterior perimeter of, the NFA and SFA; and a concrete-lined leachate collection sump plumbed to the French drain system located at the southwestern toe of the SFA. The NFA was not constructed with its own sump. This MRP requires that the existing and any future leachate collection sumps installed at the site (e.g., a toe sump for the NFA) be monitored in addition to any leachate seepage from the landfill cover.¹

a. Monitoring Points (see WDR Attachment C: Site Map)

The Discharger shall operate and maintain the leachate collection sump at the southwestern toe of LF-1 and any future leachate sump(s) installed at the site. The current leachate collection sump monitoring points are:

| Unit | Fill Area | Monitoring Point |
|------|------------------|-------------------|
| LF-1 | NFA ¹ | LS-1 ² |
| | SFA ¹ | |
| LF-2 | --- | n/a ³ |

1. Both fill areas unlined with dendritic leachate collection system not meeting Title 27 standards.
2. Both fill areas currently plumbed to single sump at toe of SFA.
3. Unit not constructed with liner or leachate collection system.

All (i.e., existing and future) leachate collection sumps for the landfill shall be inspected monthly for the presence of leachate, and flow shall be recorded in accordance with Table III below. Leachate in the leachate collection sump, including any commingled condensate returned to that sump, shall then be sampled for all field and monitoring parameters (and in accordance with the frequencies) listed in Table III whenever liquid is present. All leachate collection sump samples shall also be analyzed for the 5-year COCs specified in Table III every five years, beginning again in **September 2020**.

b. Seep Monitoring

The Discharger shall visually monitor all areas of each closed landfill and fill area (e.g., cover decks, side slopes, and toe) for leachate seeps in the regular course of site/postclosure activities and as part of Facility Monitoring under Section A.5. Any observed leachate seepage from a closed landfill unit shall be sampled upon detection and analyzed for the field parameters and applicable monitoring parameters and COCs listed in Table III. The quantity of leachate shall be

1. A separate leachate collection sump may be needed for the NFA to prevent NFA leachate from commingling with groundwater if it is determined that groundwater is entering the perimeter leachate drain at the SFA.

estimated and reported as Leachate Flow Rate (in gallons per day). Reporting for leachate seeps shall be conducted as required in Section B.3 of this MRP.

4. Surface Water Monitoring

The Discharger shall install and operate a surface water detection monitoring system to detect a release from the landfill to surface water and any resulting impacts to surface water if such a release occurs. The monitoring system shall comply with the applicable provisions of Title 27, sections 20415 and 20420.

a. Monitoring Points

Surface water monitoring at the Auburn Landfill shall be conducted in the ditch along Shale Ridge Road and the ephemeral drain to Rock Creek. See Attachments B & C.

| <u>Monitoring Point</u> | <u>Status</u> | <u>Location</u> | <u>Surface Water</u> |
|-------------------------|---------------|--|---|
| SW-1 | Background | Upstream, eastern site perimeter | Drainage ditch along Shale Ridge Road |
| SW-2 | Detection | Downstream, Western site perimeter | Drainage ditch along Shale Ridge Road |
| SW-3 ² | Detection | Lowest ground surface near site entrance | Seasonal high groundwater reaching surface |
| SW-4 | Detection | Ephemeral drain to Rock Creek | Surface/groundwater discharge to Rock Creek |

1. Sampling required one time per year during the wet season when water is present during the monitoring period.
2. Sampling at this monitoring point is required only if there is ponded water that does not appear to be storm water (i.e., does not drain off and extends beyond the drainage ditch). Whether or not sampling is required, the Discharger shall note the conditions observed in the appropriate field log to be included in the monitoring report submitted under this order for that monitoring period.

b. Monitoring Schedule

Surface water samples shall be collected at each monitoring point location and analyzed for the monitoring parameters and constituents in accordance with the methods and frequency specified in Table IV. All surface water monitoring samples shall be collected and analyzed for the 5-year COCs specified in Table IV every five years, beginning again in **September 2020**.

The above monitoring system meets Title 27 requirements for surface/storm water monitoring.

5. Landfill Facility Monitoring

a. Annual Facility Inspection

Annually, prior to the anticipated rainy season, but no later than **15 September** of each year, the Discharger shall conduct an inspection of all classified units at the landfill facility (i.e., LF-1 and LF-2). The inspection shall assess repair and maintenance needed for drainage control systems, cover systems, leachate collection piping and sump(s), and monitoring systems; and shall assess preparedness for winter conditions (including but not limited to erosion and sedimentation control). The Discharger shall take photos of any problem areas before and after repairs. Any necessary construction, maintenance, or repairs shall be completed by **31 October** of each year. Annual facility inspection reporting shall be submitted as required in Section B.4 of this MRP.

b. Major Storm Events

The Discharger shall inspect all precipitation, diversion, and drainage facilities and all unit side slopes for damage **within 7 days** following major storm events (i.e. one which produces 2.5 inches or more of precipitation within a 24-hour period, as measured at DWR's Auburn Station) capable of causing damage or significant erosion. The Discharger shall take photos of any problem areas before and after repairs. Necessary repairs shall be completed **within 30 days** of the inspection. Notification and reporting requirements for major storm events shall be conducted as required in Section B.5 of this MRP.

c. Five-Year Topographic Surveys

Title 27 requires that the Discharger conduct an initial final cover topographic survey upon completion of landfill closure or partial closure and at least every five years thereafter. The purpose of the survey is to track differential settlement of the landfill's low hydraulic conductivity (LHC) layer of the cover. The Discharger is also required to produce an iso-settlement map accurately depicting the estimated total change in elevation of each portion of the final cover's LHC (or engineered alternative cover, as applicable).

The most recent aerial topographic survey of the site was conducted in February 2013. The next topographic survey of the site, including all closed landfill units shall be completed by **30 April 2018** and subsequent topographic surveys of the site shall be completed at least **every five years** thereafter.

Reporting of the above shall be in accordance with Section B.6 of this MRP.

d. Standard Observations

The Discharger shall conduct Standard Observations at all classified units at the site (i.e., LF-1 and LF-2) in accordance with this section of the MRP. Standard observations shall be conducted monthly during the wet season (1 October to 30 April) and quarterly during the dry season (1 May to 30 September).

The Standard Observations shall include:

- i. For the units:
 - (1) Evidence of ponded water at any point on the unit outside of any contact storm water/leachate diversions structures on the active face (show affected area on map); and
 - (2) Evidence of erosion and/or of day-lighted refuse.
- ii. Along the perimeter of the units:
 - (1) Evidence of leachate seeps, estimated size of affected area, and flow rate (show affected area on map); and
 - (2) Evidence of erosion and/or of day-lighted refuse.
- iii. For receiving waters:
 - (1) Floating and suspended materials of waste origin - presence or absence, source, and size of affected area; and
 - (2) Discoloration and turbidity - description of color, source, and size of affected area.

Results of Standard Observations shall be submitted in the semiannual monitoring reports required in Section B.1 of this MRP.

Landfill Facility Monitoring shall also include leachate seep monitoring during the regular course of site/postclosure activities under Section A.3.

B. REPORTING

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

| Reporting Schedule | | | |
|---------------------------|-----------------------------------|--------------------------------|---|
| <u>Section</u> | <u>Report</u> | <u>End of Reporting Period</u> | <u>Due Date</u> |
| 1 | Semiannual Monitoring Report | 30 June & 31 December | 1 August, 1 February |
| 2 | Annual Monitoring Report | 31 December | 1 February |
| 3 | Seep Reporting | Continuous | Immediately & Within 7 Days |
| 4 | Annual Facility Inspection Report | 31 October | 15 November |
| 5 | Major Storm Event Reporting | Continuous | Immediately & 14 days from damage repair |

| Reporting Schedule | | | |
|---------------------------|--|--------------------------------|---|
| <u>Section</u> | <u>Report</u> | <u>End of Reporting Period</u> | <u>Due Date</u> |
| 6 | Topographic Survey and Iso-Settlement Map for Closed Landfills | Every 5 Years | 31 May 2018 & Every 5 years thereafter (All units) |

The Discharger shall enter all monitoring data and reports into the online Geotracker database as required by Division 3 of Title 27 and Chapter 30, Division 3 of Title 23. Notification of the Geotracker upload shall be emailed to the Central Valley Water Board at: centralvalleysacramento@waterboards.ca.gov. To ensure that the submittal is routed to the appropriate staff as quickly as possible, the following information shall be included in the body of the email:

| | |
|----------------------|---|
| Attention: | Title 27 Compliance & Enforcement Unit, or Title 27 Permitting Unit |
| Report Title | |
| Geotracker Upload ID | |
| Discharger name: | City of Auburn and Recology Auburn Placer |
| Facility name: | Auburn Landfill |
| County: | Placer |
| CIWQS place ID: | 206725 |

Reporting Requirements

The Discharger shall submit the monitoring reports required under this Order as pdf uploaded to Geotracker. as described above. Each monitoring report shall include the data and information as required in this Monitoring and Reporting Program and as required in WDRs Order R5-2018-0027 and the Standard Provisions and Reporting Requirements (particularly Section I: “Standard Monitoring Specifications” and Section J: “Response to a Release”). In reporting the monitoring data required by this program, the Discharger shall arrange the data in tabular form so that the date, the constituents, the concentrations, and the units are readily discernible. The data shall be summarized in such a manner so as to illustrate clearly the compliance with waste discharge requirements or the lack thereof.

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

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

- a. Sample identification and the monitoring point or background monitoring point from which it was taken, along with the identity of the individual who obtained the sample;
- b. Date, time, and manner of sampling;
- c. Date and time that analyses were started and completed, and the name of the personnel and laboratory performing each analysis;
- d. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used;
- e. Calculation of results; and
- f. Results of analyses, and the MDL and PQL for each analysis. All peaks shall be reported.
- g. Well purge data sheets.

Required Reports

1. Semiannual Monitoring Report

Monitoring reports shall be submitted semiannually and are due on **1 August** and **1 February**. Each semiannual monitoring report shall contain at least the following:

- a. For each groundwater monitoring point addressed by the report, a description of:
 - i. The time of water level measurement;
 - ii. The type of pump - or other device - used for purging and the elevation of the pump intake relative to the elevation of the screened interval;
 - iii. The method of purging used to stabilize water in the well bore before the sample is taken including the pumping rate; the equipment and methods used to monitor field pH, temperature, and conductivity during purging; results of pH, temperature, conductivity, and turbidity testing; and the method of disposing of the purge water;
 - iv. The type of pump - or other device - used for sampling, if different than the pump or device used for purging; and
 - v. A statement that the sampling procedure was conducted in accordance with the approved Sample Collection and Analysis Plan.
- b. A map or aerial photograph showing the locations of observation stations, monitoring points, and background monitoring points.
- c. Groundwater elevation contour and flow stream maps showing groundwater elevations and the directions of groundwater flow in the uppermost aquifer and in any additional zones of saturation based upon quarterly groundwater elevation monitoring prior to sampling. Corresponding estimates of groundwater gradients

and flow velocity shall also be provided.

- d. Cumulative tabulated monitoring data for all monitoring points and constituents for groundwater, unsaturated zone, leachate, and surface water. Concentrations below the laboratory reporting limit shall not be reported as "ND" unless the reporting limit is also given in the table. Otherwise they shall be reported "<" the reporting limit (e.g., <0.10). Units shall be as required in Tables I through IV unless specific justification is given to report in other units. Refer to the SPRRs Section I "Standard Monitoring Specifications" for requirements regarding MDLs and PQLs.
- e. Laboratory statements of results of all analyses evaluating compliance with requirements.
- f. An evaluation of the concentration of each monitoring parameter (or 5-year COC when 5-year COC sampling is conducted) as compared to the current concentration limits, and the results of any required verification testing for constituents exceeding a concentration limit. Report any actions taken under SPRRs Section J: Response to a Release for verified exceedances of a concentration limit for wells/constituents not already in corrective action monitoring.
- g. An evaluation of the effectiveness of the leachate monitoring and control facilities, and of the run-off/run-on control facilities.
- h. A summary of all Standard Observations for the reporting period required in Section A.5.d of this MRP.
- i. A summary of inspection, leak search, repair or improvement of final covers on any closed landfill units in accordance with the most recently approved PCMP or updated PCMP. See WDR Postclosure Specification E.7 and Standard Closure and Post-Closure Maintenance Specifications G.8, G.11 and G.12 of the Industrial SPRRs.

2. Annual Monitoring Report

The Discharger shall submit (i.e., upload to Geotracker) an Annual Monitoring Report to the Central Valley Water Board by **1 February** covering the reporting period of the previous monitoring year. If desired, the Annual Monitoring Report may be combined with the second semiannual report, but if so, shall clearly state that it is both a semi-annual and annual monitoring report in its title. Each Annual Monitoring Report shall contain the following information:

- a. All monitoring parameters shall be graphed to show historical trends at each monitoring point and background monitoring point, for all samples taken within at least the previous 10 calendar years. If a 5-year COC event was performed, than these parameters shall also be graphically presented for the entire history of COC monitoring. Each such graph shall plot the concentration of one or more constituents for the period of record for a given monitoring point or background

monitoring point, at a scale appropriate to show trends or variations in water quality. Constituent monitoring data of incompatible scales/ranges shall not be plotted on the same graph. The graphs shall plot each datum, rather than plotting mean values. Graphical analysis of monitoring data may be used to provide significant evidence of a release.

- b. An evaluation of the monitoring parameters with regards to the cation/anion balance, and a graphical presentation using a Stiff diagram, a Piper graph, or a Schoeller plot.
- c. All historical monitoring data for which there are detectable results, including data for the previous year, shall be submitted in tabular form in a digital file format per Geotracker. The Central Valley Water Board regards the submittal of data in digital format as "...the form necessary for..." statistical analysis [Title 27, section 20420(h)], that facilitates periodic review by the Central Valley Water Board.
- d. Hydrographs of each well showing the elevation of groundwater with respect to the elevations of the top and bottom of the screened interval and the elevation of the pump intake. Hydrographs of each well shall be prepared quarterly and submitted annually.
- e. A comprehensive discussion of the compliance record, and the result of any corrective actions taken or planned which may be needed to bring the Discharger into full compliance with the waste discharge requirements.
- f. A written summary of the monitoring results, indicating any changes made or observed since the previous Annual Monitoring Report.
- g. Updated concentration limits for each monitoring parameter at each monitoring well based on the new data set.
- h. A summary of any new wells installed or abandoned at the site during the previous year in accordance with WDR Provision I.9.

3. Seep Reporting

The Discharger shall report by telephone any seepage from the disposal area **immediately** after it is discovered. A written report shall be filed with the Central Valley Water Board **within seven days**, containing at least the following information:

- a. A map showing the location(s) of seepage;
- b. An estimate of the flow rate;
- c. A description of the nature of the discharge (e.g., all pertinent observations and analyses);
- d. Verification that samples have been submitted for analyses of the Field Parameters and Monitoring Parameters listed in Table A.3 of this MRP, and an estimated date that the results will be submitted to the Central Valley Water Board; and

e. Corrective measures underway or proposed, and corresponding time schedule.

4. Annual Facility Inspection Reporting

By **15 November** of each year, the Discharger shall submit an Annual Facility Inspection Report describing measures implemented based on the Annual Facility Inspection, including inspections and repairs, preparations for winter, and photographs of any problem areas and the repairs. See Section A.5.a.

5. Major Storm Event Reporting

Following major storm events capable of causing damage or significant erosion, the Discharger **immediately** shall notify Central Valley Water Board staff of any damage or significant erosion upon discovery and report subsequent repairs within **14 days** of completion of the repairs, including photographs of the problem and the repairs. See Section A.5.b.

6. 5-Year Topographic Survey(s)

By **31 May 2018**, the Discharger shall submit the report for the **April 2018** topographic survey conducted under this Order (or previous WDRs) for the closed landfill units at the site. Subsequent topographic reports for the site shall be submitted at least **every five years** thereafter. Each report shall include topographic survey and a base-line iso-settlement map for the closed unit. See MRP Section A.5.c.

C. WATER QUALITY PROTECTION STANDARD

The Water Quality Protection Standard for the landfill unit shall consist of all Constituents of Concern (COCs), Concentration Limits, the Point of Compliance, and all Monitoring Points consistent with this Order and Title 27, Section 20390.

1. Water Quality Protection Standard Report

By **31 January 2020**, the Discharger shall submit a revised Water Quality Protection Standard (WQPS) Report proposing a WQPS for each classified unit at the site consistent with the Findings and Requirements of this Order. At a minimum, the report shall include the following information:

- a. Identify **all distinct bodies of surface and ground water** that could be affected in the event of a release from a waste management unit or portion of a unit. This list shall include at least the uppermost aquifer, unsaturated zone, and any permanent or ephemeral zones of perched groundwater underlying the facility.
- b. Evaluate the perennial direction(s) of groundwater movement within the uppermost groundwater zone(s).
- c. A map showing the monitoring points and background monitoring points for groundwater, the unsaturated zone, and surface water for each unit and/or fill area. The map shall show the point of compliance for each unit in accordance with Title 27, section 20405.
- d. Listings/tables showing all elements of the WQPS for each unit and water bearing

media, including, but not limited to, concentration limits for all monitoring parameters and 5-year COCs. See Standard Monitoring Specification I.25, SPRR.

- e. Proposed data analysis methods for calculating concentration limits for monitoring parameters and constituents of concern detected in 10% or greater of the background data (e.g., naturally-occurring constituents) per Title 27, section 20415(e)(8)(A-D)] or section 20415(e)(8)(E). See WDR Findings 42 and 45.
- f. A retesting procedure to confirm or deny measurably significant evidence of a release pursuant to Title 27, section 20415(e)(8)(E) and section 20420(j)(1-3).

Once approved, the concentration limits of the WQPS shall be annually updated to reflect current background monitoring data using the approved data analysis methods. Any subsequent proposed changes to the WQPS, other than annual update of the concentration limits shall be submitted in the form of a revised WQPS report for review and approval by the Executive Officer. The WQPS shall be certified by a California-registered civil engineer or geologist as meeting the requirements of Title 27.

2. Monitoring Parameters

Monitoring parameters are a select group of constituents that are monitored during each monitoring event that are the waste constituents, reaction products, hazardous constituents, and physical parameters that provide a reliable indication of a release from a waste management unit. The monitoring parameters for all waste management units are those listed in Tables I through V for the specified monitored medium.

3. Constituents of Concern (COCs)

The COCs include a larger group of waste constituents, their reaction products, and hazardous constituents that are reasonably expected to be in or derived from waste contained in the waste management unit, and are required to be monitored every five years [Title 27, sections 20395 and 20420(g)]. The COCs for all waste management units at the facility are those listed in Tables I through IV for the specified monitored medium, and Table VI. The Discharger shall monitor all COCs every five years, or more frequently as required in accordance with a Corrective Action Program. The last 5-year COC report was submitted to the Central Valley Water Board in the **2015 Second Semiannual, Annual, and Five-Year COC Monitoring Report**, and 5-year COCs are due to be monitored again in **September 2020**.

4. Concentration Limits

As noted in the WDR Findings, additional monitoring wells need to be installed at the site to confirm the direction of groundwater flow and/or to comply with Title 27 performance standards for background, detection, and/or corrective action monitoring at each unit. The Discharger therefore does not yet have an approved set of concentration limits for naturally occurring constituents in groundwater for each unit. The WQPS for the site will therefore need to be revised once the required wells have been installed and monitored for monitoring parameters and 5-year COCs. Proposed concentration limits for all water bearing media (e.g., surface water and groundwater) shall therefore be included in the revised WQPS Report required under the WDR Provisions.

For a naturally occurring constituent of concern, the concentration limit for each constituent of concern shall be determined by calculation in accordance with a statistical method pursuant to Title 27, section 20415(e)(8); or by an alternate statistical method meeting the requirements of Title 27, section 20415(e)(8)(E).

a. Detection Monitoring

- i. Non-naturally occurring COCs - The concentration limits for non-naturally-occurring constituents of concern, including organic compounds (e.g., VOCs and dissolved metals not detectable in background), shall be the laboratory detection limit.
- ii. Naturally Occurring COCs - The concentration limits for naturally-occurring COCs (e.g., general minerals and dissolved metals detectable in background) shall be determined by statistical analysis of upgradient monitoring data. The data analysis method for calculating concentration limits for naturally-occurring COCs under this Order shall be the interwell/intrawell Tolerance Limit Method, or as otherwise proposed in the revised WQPS Report and approved by Board staff. Concentration limits for naturally occurring COCs shall be updated annually and included in the Annual Monitoring Report submitted under Section g of this MRP.

b. Corrective Action Monitoring

The concentration limits for corrective action monitoring shall be the same as those for detection monitoring absent approval of a proposal for concentration limits greater than background (CLGBs) under Title 27 Section 20400(c) and revision of the WDRs. Time series plots and/or an intrawell statistical procedure (e.g., Mann-Kendall test) shall be used for trend analysis to monitor corrective action progress.

5. Point of Compliance

The Point of Compliance for the water standard at each waste management unit is a vertical surface located at the hydraulically downgradient limit of the Unit that extends through the uppermost aquifer underlying the unit. The Point of Compliance wells for LF-2 shall include wells R-2, D, LFW-2, E and any future well(s) installed along the downgradient or sidegradient perimeter of LF-1. The Point of Compliance wells for LF-2 are not yet known because the groundwater gradient direction has not yet been confirmed and additional wells may need to be installed per WDR Provision I.7.b.ii. The WQPS Report required under the WDR provisions is required to specify the Point of Compliance well for each unit.

6. Compliance Period

The compliance period for each waste management unit shall be the number of years equal to the active life of the unit plus the closure period. The compliance period is the minimum period during which the Discharger shall conduct a water quality monitoring program subsequent to a release from the waste management unit. The compliance period shall begin anew each time the Discharger initiates an evaluation monitoring program [Title 27, section 20410].

7. Monitoring Points

A monitoring point is a well, device, or location specified in the waste discharge requirements, which monitoring is conducted and at which the water quality protection standard applies. The monitoring points for each monitored medium are listed in Section A of this MRP.

D. TRANSMITTAL LETTER FOR ALL REPORTS

A transmittal letter explaining the essential points shall accompany each report. At a minimum, the transmittal letter shall identify any violations found since the last report was submitted, and if the violations were corrected. If no violations have occurred since the last submittal, this shall be stated in the transmittal letter. The transmittal letter shall also state that a discussion of any violations found since the last report was submitted, and a description of the actions taken or planned for correcting those violations, including any references to previously submitted time schedules, is contained in the accompanying report. The transmittal letter shall contain a statement by the discharger, or the discharger's authorized agent, under penalty of perjury, that to the best of the signer's knowledge the report is true, accurate, and complete.

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

ORIGINAL SIGNED BY

Ordered by: _____
PAMELA C. CREEDON, Executive Officer

6 April 2018

JDM

**TABLE I
 GROUNDWATER DETECTION AND
 CORRECTIVE ACTION MONITORING PROGRAM**

| <u>Parameter</u> | <u>Geotracker Code</u> | <u>Units</u> | <u>Sampling Frequency</u> | <u>Reporting Frequency</u> |
|---|------------------------|---------------------|--|--|
| Field Parameters | | | | |
| Groundwater Elevation | GWELEV | Ft. & 10ths, M.S.L. | Quarterly | Semiannual |
| Groundwater Separation | | Ft. & 10ths, M.S.L. | Quarterly | Semiannual |
| Temperature | TEMP | °F | Semiannual | Semiannual |
| Electrical Conductivity | SC | umhos/cm | Semiannual | Semiannual |
| pH | PH | pH units | Semiannual | Semiannual |
| Turbidity | TURB | Turbidity units | Semiannual | Semiannual |
| Monitoring Parameters | | | | |
| Total Dissolved Solids (TDS) | TDS | mg/L | Semiannual | Semiannual |
| Chloride | CL | mg/L | Semiannual | Semiannual |
| Carbonate | CACO3 | mg/L | Semiannual | Semiannual |
| Bicarbonate | BICACO3 | mg/L | Semiannual | Semiannual |
| Nitrate - Nitrogen | NO3N | mg/L | Semiannual | Semiannual |
| Sulfate | SO4 | mg/L | Semiannual | Semiannual |
| Calcium | CA | mg/L | Semiannual | Semiannual |
| Magnesium | MG | mg/L | Semiannual | Semiannual |
| Potassium | K | mg/L | Semiannual | Semiannual |
| Sodium | NA | mg/L | Semiannual | Semiannual |
| Volatile Organic Compounds (USEPA Method 8260B, short list, see Table V) | | ug/L | Semiannual | Semiannual |
| Total Recoverable Phenols ^{1,2} (USEPA Method 420.1 or 420.4) | | ug/L | Semiannual | Semiannual |
| Phenols ^{1,2} (USEPA Method 604) | | ug/L | Semiannual | Semiannual |
| Inorganics, dissolved (see Table VI) ^{1,2} | | ug/L | Annually | Annually |
| 5-Year Constituents of Concern (see Table VI) | | | | |
| Total Organic Carbon | TOC | mg/L | 30 September 2020 & every 5 years thereafter | 1 February 2021 & every 5 years thereafter |
| Inorganics (dissolved) | | ug/L | “ “ | “ “ |
| Volatile Organic Compounds (USEPA Method 8260B, extended list) | | ug/L | “ “ | “ “ |
| Semi-Volatile Organic Compounds | | ug/L | “ “ | “ “ |

1. Additional monitoring parameters for LF-2 only.

2. Monitoring for Total Recoverable Phenols may be discontinued, and monitoring for inorganic constituents and speciated Phenols reduced to 5-year COC monitoring, if, after two years of monitoring a given well (including wells installed per WDR Provision I.7.b.ii) at the specified frequency, these constituents have not been detected above concentration limits during that period.

| | | | |
|---|------|-----|-----|
| (USEPA Method 8270C or D) Chlorophenoxy Herbicides | ug/L | “ “ | “ “ |
| (USEPA Method 8151A) Organophosphorus Compounds | ug/L | “ “ | “ “ |
| (USEPA Method 8141B) | | | |

**TABLE II
 UNSATURATED ZONE DETECTION AND
 CORRECTIVE ACTION MONITORING PROGRAM**

SOIL-PORE GAS¹

| <u>Parameter</u> | <u>Geotracker Code</u> | <u>Units</u> | <u>Sampling Frequency</u> | <u>Reporting Frequency</u> |
|---|------------------------|--------------------|---------------------------|----------------------------|
| Monitoring Parameters | | | | |
| Methane | CH4 | % | Semiannual | Semiannual |
| Carbon Dioxide | C02 | % | Semiannual | Semiannual |
| Organic Vapors | --- | ppmv | Semiannual | Semiannual |
| Volatile Organic Compounds ¹ (USEPA Method TO-15) | --- | ug/cm ³ | Annual | Annual |

¹. Gas samples may be prescreened to determine if laboratory analysis using Method TO-15 is required. A gas analyzer for methane concentrations or a Photo Ionization Detector (PID) for total VOCs concentrations may be used. If methane concentrations exceeding 1.0 percent by volume OR organic vapors (total VOCs) are detected at a concentration greater than 50 ppmv then a gas sample shall be obtained and analyzed for VOCs using EPA Method TO-15. Both the screening results and laboratory analysis results shall be reported. Otherwise, the Discharger shall report the methane or total VOC screening results and no further laboratory analysis is required.

**TABLE III
 LEACHATE MONITORING^{1,2}**

| <u>Parameter</u> | <u>Geotracker Code</u> | <u>Units</u> | <u>Sampling Frequency</u> | <u>Reporting Frequency</u> |
|---|------------------------|--------------|--|--|
| Field Parameters | | | | |
| Total Flow | | Gallons | Quarterly | Quarterly |
| Flow Rate | FLOW | Gallons/Day | " | " |
| Electrical Conductivity | SC | umhos/cm | " | " |
| pH | PH | pH units | " | " |
| Monitoring Parameters | | | | |
| Total Dissolved Solids (TDS) | TDS | mg/L | Semiannual | Semiannual |
| Chloride | CL | mg/L | " | " |
| Carbonate | CACO3 | mg/L | " | " |
| Bicarbonate | BICACO3 | mg/L | " | " |
| Nitrate - Nitrogen | NO3N | mg/L | " | " |
| Sulfate | SO4 | mg/L | " | " |
| Calcium | CA | mg/L | " | " |
| Magnesium | MG | mg/L | " | " |
| Potassium | K | mg/L | " | " |
| Sodium | NA | mg/L | " | " |
| Volatile Organic Compounds (USEPA Method 8260B, short list, see Table V) | | ug/L | " | " |
| Total Recoverable Phenols ^{2,3} (USEPA Method 420.1 or 420.4) | | ug/L | Semiannual | Semiannual |
| Phenols (USEPA Method 604) ^{2,3} | | ug/L | Annually | Annually |
| 5-Year Constituents of Concern (see Table VI) | | | | |
| Total Organic Carbon | TOC | mg/L | 30 September 2020 & every 5 years thereafter | 1 February 2021 & every 5 years thereafter |
| Inorganics (dissolved) | | ug/L | " " | " " |
| Volatile Organic Compounds (USEPA Method 8260B, extended list) | | ug/L | " " | " " |
| Semi-Volatile Organic Compounds (USEPA Method 8270C or D) | | ug/L | " " | " " |
| Chlorophenoxy Herbicides (USEPA Method 8151A) | | ug/L | " " | " " |
| Organophosphorus Compounds (USEPA Method 8141B) | | ug/L | " " | " " |

1. Includes both leachate seep and leachate collection sump monitoring.
 2. The Discharger shall report by telephone immediately the leachate seep is discovered and file a written report with the Central Valley Water Board within seven days. See MRP Section 3.
 3. Monitoring for Total Recoverable Phenols may be discontinued, and monitoring for speciated Phenols reduced to 5-year COC monitoring, if, after two years of monitoring at the specified frequency, these constituents have not been detected in the sump liquid during that period.

TABLE IV
SURFACE WATER DETECTION MONITORING PROGRAM

| <u>Parameter</u> | <u>Geotracker Code</u> | <u>Units</u> | <u>Sampling Frequency</u> ¹ | <u>Reporting Frequency</u> |
|---|------------------------|-----------------|--|--|
| Field Parameters | | | | |
| Electrical Conductivity | SC | umhos/cm | Annually | Annually |
| pH | PH | pH units | Annually | Annually |
| Turbidity | TURB | Turbidity units | Annually | Annually |
| Flow Rate. | | Yes or No | Annually | Annually |
| Monitoring Parameters | | | | |
| Total Dissolved Solids (TDS) | TDS | mg/L | Annually | Annually |
| Carbonate | CACO3 | mg/L | Annually | Annually |
| Bicarbonate | BICACO3 | mg/L | Annually | Annually |
| Chloride | CL | mg/L | Annually | Annually |
| Nitrate - Nitrogen | NO3N | mg/L | Annually | Annually |
| Sulfate | SO4 | mg/L | Annually | Annually |
| Calcium | CA | mg/L | Annually | Annually |
| Magnesium | MG | mg/L | Annually | Annually |
| Potassium | K | mg/L | Annually | Annually |
| Sodium | NA | mg/L | Annually | Annually |
| Volatile Organic Compounds (USEPA Method 8260B, short list, see Table V) | | ug/L | Annually | Annually |
| 5-Year Constituents of Concern (see Table VI) | | | | |
| Total Organic Carbon | TOC | mg/L | 30 September 2020 and every 5 years thereafter | 1 February 2021 and every 5 years thereafter |
| Inorganics (dissolved) | | ug/L | " " | " " |
| Volatile Organic Compounds (USEPA Method 8260B, extended list) | | ug/L | " " | " " |
| Semi-Volatile Organic Compounds (USEPA Method 8270C or D) | | ug/L | " " | " " |
| Chlorophenoxy Herbicides (USEPA Method 8151A) | | ug/L | " " | " " |
| Organophosphorus Compounds (USEPA Method 8141B) | | ug/L | " " | " " |

¹. Surface water sampling is required at least one time during the wet season when water is present at the designated surface water monitoring point any time during the monitoring period.

TABLE V
MONITORING PARAMETERS FOR DETECTION
AND CORRECTIVE ACTION MONITORING

Surrogates for Metallic Constituents:

| <u>COC Description</u> | <u>Geotracker Code</u> |
|-------------------------|------------------------|
| pH | PH |
| Total Dissolved Solids | TDS |
| Electrical Conductivity | SC |
| Chloride | CL |
| Sulfate | SO4 |
| Nitrate nitrogen | NO3N |

Volatile Organic Compounds, short list (USEPA Method 8260B):

| | |
|--|---------|
| Acetone | ACE |
| Acrylonitrile | ACRAMD |
| Benzene | BZ |
| Bromochloromethane | BRCLME |
| Bromodichloromethane | BDCME |
| Bromoform (Tribromomethane) | TBME |
| Carbon disulfide | CDS |
| Carbon tetrachloride | CTCL |
| Chlorobenzene | CLBZ |
| Chloroethane (Ethyl chloride) | CLEA |
| Chloroform (Trichloromethane) | TCLME |
| Dibromochloromethane (Chlorodibromomethane) | DBCME |
| 1,2-Dibromo-3-chloropropane (DBCP) | DBCP |
| 1,2-Dibromoethane (Ethylene dibromide; EDB) | EDB |
| o-Dichlorobenzene (1,2-Dichlorobenzene) | DCBZ12 |
| m-Dichlorobenzene (1,3-Dichlorobenzene) | DCBZ13 |
| p-Dichlorobenzene (1,4-Dichlorobenzene) | DCBZ14 |
| trans- 1,4-Dichloro-2-butene | DCBE14T |
| Dichlorodifluoromethane (CFC-12) | FC12 |
| 1,1-Dichloroethane (Ethylidene chloride) | DCA11 |
| 1,2-Dichloroethane (Ethylene dichloride) | DCA12 |
| 1,1 -Dichloroethylene (1,1 -Dichloroethene; Vinylidene chloride) | DCE11 |
| cis- 1,2-Dichloroethylene (cis- 1,2-Dichloroethene) | DCE12C |
| trans-1,2-Dichloroethylene (trans-1,2-Dichloroethene) | DCE12T |
| 1,2-Dichloropropane (Propylene dichloride) | DCPA12 |
| cis- 1,3-Dichloropropene | DCP13C |
| trans- 1,3-Dichloropropene | DCP13T |
| Di-isopropylether (DIPE) | DIPE |
| Ethanol | ETHANOL |
| Ethyltertiary butyl ether | ETBE |
| Ethylbenzene | EBZ |
| 2-Hexanone (Methyl butyl ketone) | HXO2 |
| Hexachlorobutadiene | HCBU |
| Methyl bromide (Bromomethene) | BRME |
| Methyl chloride (Chloromethane) | CLME |

TABLE V
MONITORING PARAMETERS FOR DETECTION
AND CORRECTIVE ACTION MONITORING
Continued

| | |
|--|---------|
| Methylene bromide (Dibromomethane) | DBMA |
| Methylene chloride (Dichloromethane) | DCMA |
| Methyl ethyl ketone (MEK: 2-Butanone) | MEK |
| Methyl iodide (Iodomethane) | IME |
| Methyl t-butyl ether | MTBE |
| 4-Methyl-2-pentanone (Methyl isobutylketone) | MIBK |
| Naphthalene | NAPH |
| Styrene | STY |
| Tertiary amyl methyl ether | TAME |
| Tertiary butyl alcohol | TBA |
| 1,1,1,2-Tetrachloroethane | TC1112 |
| 1,1,2,2-Tetrachloroethane | PCA |
| Tetrachloroethylene (Tetrachloroethene; Perchloroethylene) | PCE |
| Toluene | BZME |
| 1,2,4-Trichlorobenzene | TCB124 |
| 1,1,1-Trichloroethane (Methylchloroform) | TCA111 |
| 1,1,2-Trichloroethane | TCA112 |
| Trichloroethylene (Trichloroethene) | TCE |
| Trichlorofluoromethane (CFC- 11) | FC11 |
| 1,2,3-Trichloropropane | TCPR123 |
| Vinyl acetate | VA |
| Vinyl chloride | VC |
| Xylenes | XYLENES |

**TABLE VI
 5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS**

| <u>Inorganics (dissolved):</u> | <u>USEPA Method</u> | <u>Geotracker Code</u> |
|---------------------------------------|----------------------------|-------------------------------|
| Aluminum | 6010 | AL |
| Antimony | 7041 | SB |
| Barium | 6010 | BA |
| Beryllium | 6010 | BE |
| Cadmium | 7131A | CD |
| Chromium | 6010 | CR |
| Cobalt | 6010 | CO |
| Copper | 6010 | CU |
| Silver | 6010 | AG |
| Tin | 6010 | SN |
| Vanadium | 6010 | V |
| Zinc | 6010 | ZN |
| Iron | 6010 | FE |
| Manganese | 6010 | MN |
| Arsenic | 7062 | AS |
| Lead | 7421 | PB |
| Mercury | 7470A | HG |
| Nickel | 7521 | NI |
| Selenium | 7742 | SE |
| Thallium | 7841 | TL |
| Cyanide | 9010C | CN |
| Sulfide | 9030B | S |

Volatile Organic Compounds, extended list (USEPA Method 8260B):

| <u>COC Description</u> | <u>Geotracker Code</u> |
|---|-------------------------------|
| Acetone | ACE |
| Acetonitrile (Methyl cyanide) | ACCN |
| Acrolein | ACRL |
| Acrylonitrile | ACRAMD |
| Allyl chloride (3-Chloropropene) | CLPE3 |
| Benzene | BZ |
| Bromochloromethane (Chlorobromomethane) | BRCLME |
| Bromodichloromethane (Dibromochloromethane) | DBCME |
| Bromoform (Tribromomethane) | TBME |
| Carbon disulfide | CDS |
| Carbon tetrachloride | CTCL |
| Chlorobenzene | CLBZ |
| Chloroethane (Ethyl chloride) | CLEA |
| Chloroform (Trichloromethane) | TCLME |
| Chloroprene | CHLOROPRENE |
| Dibromochloromethane (Chlorodibromomethane) | DBCME |
| 1,2-Dibromo-3-chloropropane (DBCP) | DBCP |
| 1,2-Dibromoethane (Ethylene dibromide; EDB) | EDB |
| o-Dichlorobenzene (1,2-Dichlorobenzene) | DCBZ12 |

TABLE VI
5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS
Continued

| | |
|--|-----------|
| m-Dichlorobenzene (1,3-Dichlorobenzene) | DCBZ13 |
| p-Dichlorobenzene (1,4-Dichlorobenzene) | DCBZ14 |
| trans- 1,4-Dichloro-2-butene | DCBE14T |
| Dichlorodifluoromethane (CFC 12) | FC12 |
| 1,1 -Dichloroethane (Ethylidene chloride) | DCA11 |
| 1,2-Dichloroethane (Ethylene dichloride) | DCA12 |
| 1,1 -Dichloroethylene (1, I-Dichloroethene; Vinylidene chloride) | DCE11 |
| cis- 1,2-Dichloroethylene (cis- 1,2-Dichloroethene) | DCE12C |
| trans- 1,2-Dichloroethylene (trans- 1,2-Dichloroethene) | DCE12T |
| 1,2-Dichloropropane (Propylene dichloride) | DCPA12 |
| 1,3-Dichloropropane (Trimethylene dichloride) | DCPA13 |
| 2,2-Dichloropropane (Isopropylidene chloride) | DCPA22 |
| 1,1 -Dichloropropene | DCP11 |
| cis- 1,3-Dichloropropene | DCP13C |
| trans- 1,3-Dichloropropene | DCP13T |
| Di-isopropylether (DIPE) | DIPE |
| Ethanol | ETHANOL |
| Ethyltertiary butyl ether | ETBE |
| Ethylbenzene | EBZ |
| Ethyl methacrylate | EMETHACRY |
| Hexachlorobutadiene | HCBU |
| 2-Hexanone (Methyl butyl ketone) | HXO2 |
| Isobutyl alcohol | ISOBTOH |
| Methacrylonitrile | METHACRN |
| Methyl bromide (Bromomethane) | BRME |
| Methyl chloride (Chloromethane) | CLME |
| Methyl ethyl ketone (MEK; 2-Butanone) | MEK |
| Methyl iodide (Iodomethane) | IME |
| Methyl t-butyl ether | MTBE |
| Methyl methacrylate | MMTHACRY |
| 4-Methyl-2-pentanone (Methyl isobutyl ketone) | MIBK |
| Methylene bromide (Dibromomethane) | DBMA |
| Methylene chloride (Dichloromethane) | DCMA |
| Naphthalene | NAPH |
| Propionitrile (Ethyl cyanide) | PACN |
| Styrene | STY |
| Tertiary amyl methyl ether | TAME |
| Tertiary butyl alcohol | TBA |
| 1,1,1,2-Tetrachloroethane | TC1112 |
| 1,1,2,2-Tetrachloroethane | PCA |
| Tetrachloroethylene (Tetrachloroethene; Perchloroethylene; PCE) | PCE |
| Toluene | BZME |
| 1,2,4-Trichlorobenzene | TCB124 |
| 1,1,1 -Trichloroethane (Methylchloroform) | TCA111 |

TABLE VI
5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS
Continued

| | |
|--|---------|
| 1,1,2-Trichloroethane | TCA112 |
| Trichloroethylene (Trichloroethene; TCE) | TCE |
| Trichlorofluoromethane (CFC- 11) | FC11 |
| 1,2,3-Trichloropropane | TCPR123 |
| Vinyl acetate | VA |
| Vinyl chloride (Chloroethene) | VC |
| Xylene (total) | XYLENES |

Semi-Volatile Organic Compounds (USEPA Method 8270C or D - base, neutral, & acid extractables):

| | |
|--|-----------|
| Acenaphthene | ACNP |
| Acenaphthylene | ACNPY |
| Acetophenone | ACPHN |
| 2-Acetylaminofluorene (2-AAF) | ACAMFL2 |
| Aldrin | ALDRIN |
| 4-Aminobiphenyl | AMINOBP4 |
| Anthracene | ANTH |
| Benzo[a]anthracene (Benzanthracene) | BZAA |
| Benzo[b]fluoranthene | BZBF |
| Benzo[k]fluoranthene | BZKF |
| Benzo[g,h,i]perylene | BZGHIP |
| Benzo[a]pyrene | BZAP |
| Benzyl alcohol | BZLAL |
| Bis(2-ethylhexyl) phthalate | BIS2EHP |
| alpha-BHC | BHCALPHA |
| beta-BHC | BHCBETA |
| delta-BHC | BHCDELTA |
| gamma-BHC (Lindane) | BHCGAMMA |
| Bis(2-chloroethoxy)methane | BECEM |
| Bis(2-chloroethyl) ether (Dichloroethyl ether) | BIS2CEE |
| Bis(2-chloro-1-methylethyl) ether (Bis(2-chloroisopropyl) ether; DCIP) | BIS2CIE |
| 4-Bromophenyl phenyl ether | BPPE4 |
| Butyl benzyl phthalate (Benzyl butyl phthalate) | BBP |
| Chlordane | CHLORDANE |
| p-Chloroaniline | CLANIL4 |
| Chlorobenzilate | CLBZLATE |
| p-Chloro-m-cresol (4-Chloro-3-methylphenol) | C4M3PH |
| 2-Chloronaphthalene | CNPH2 |
| 2-Chlorophenol | CLPH2 |
| 4-Chlorophenyl phenyl ether | CPPE4 |
| Chrysene | CHRYSENE |
| o-Cresol (2-methylphenol) | MEPH2 |
| m-Cresol (3-methylphenol) | MEPH3 |
| p-Cresol (4-methylphenol) | MEPH4 |

TABLE VI
5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS
Continued

| | |
|---|-------------|
| 4,4'-DDD | DDD44 |
| 4,4'-DDE | DDE44 |
| 4,4'-DDT | DDT44 |
| Diallate | DIALLATE |
| Dibenz[a,h]anthracene | DBAHA |
| Dibenzofuran | DBF |
| Di-n-butyl phthalate | DNBP |
| 3,3'-Dichlorobenzidine | DBZD33 |
| 2,4-Dichlorophenol | DCP24 |
| 2,6-Dichlorophenol | DCP26 |
| Dieldrin | DIELDRIN |
| Diethyl phthalate | DEPH |
| p-(Dimethylamino)azobenzene | PDMAABZ |
| 7,12-Dimethylbenz[a]anthracene | DMBZA712 |
| 3,3'-Dimethylbenzidine | DMBZD33 |
| 2,4-Dimethylphenol (m-Xylenol) | DMP24 |
| Dimethyl phthalate | DMPH |
| m-Dinitrobenzene | DNB13 |
| 4,6-Dinitro-o-cresol (4,6-Dinitro-2-methylphenol) | DN46M |
| 2,4-Dinitrophenol | DNP24 |
| 2,4-Dinitrotoluene | DNT24 |
| 2,6-Dinitrotoluene | DNT26 |
| Di-n-octyl phthalate | DNOP |
| Diphenylamine | DPA |
| Endosulfan I | ENDOSULFANA |
| Endosulfan II | ENDOSULFANB |
| Endosulfan sulfate | ENDOSULFANS |
| Endrin | ENDRIN |
| Endrin aldehyde | ENDRINALD |
| Ethyl methanesulfonate | EMSULFN |
| Famphur | FAMPHUR |
| Fluoranthene | FLA |
| Fluorene | FL |
| Heptachlor | HEPTACHLOR |
| Heptachlor epoxide | HEPT-EPOX |
| Hexachlorobenzene | HCLBZ |
| Hexachlorocyclopentadiene | HCCP |
| Hexachloroethane | HCLEA |
| Hexachloropropene | HCPR |
| Indeno(1,2,3-c,d)pyrene | INP123 |
| Isodrin | ISODRIN |
| Isophorone | ISOP |
| Isosafrole | ISOSAFR |
| Kepone | KEP |
| Methapyrilene | MTPYRLN |
| Methoxychlor | MTXYCL |

TABLE VI
5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS
Continued

| | |
|--|------------|
| 3-Methylcholanthrene | MECHLAN3 |
| Methyl methanesulfonate | MMSULFN |
| 2-Methylnaphthalene | MTNPH2 |
| 1,4-Naphthoquinone | NAPHQ14 |
| 1-Naphthylamine | AMINONAPH1 |
| 2-Naphthylamine | AMINONAPH2 |
| o-Nitroaniline (2-Nitroaniline) | NO2ANIL2 |
| m-Nitroaniline (3-Nitroaniline) | NO2ANIL3 |
| p-Nitroaniline (4-Nitroaniline) | NO2ANIL4 |
| Nitrobenzene | NO2BZ |
| o-Nitrophenol (2-Nitrophenol) | NTPH2 |
| p-Nitrophenol (4-Nitrophenol) | NTPH4 |
| N-Nitrosodi-n-butylamine (Di-n-butylnitrosamine) | NNSBU |
| N-Nitrosodiethylamine (Diethylnitrosamine) | NNSE |
| N-Nitrosodimethylamine (Dimethylnitrosamine) | NNSM |
| N-Nitrosodiphenylamine (Diphenylnitrosamine) | NNSPH |
| N-Nitrosodipropylamine (N-Nitroso-N-dipropylamine; Di-n-propylnitrosamine) | NNSPR |
| N-Nitrosomethylethylamine (Methylethylnitrosamine) | NNSME |
| N-Nitrosopiperidine | NNSPPRD |
| N-Nitrosopyrrolidine | NNSPYRL |
| 5-Nitro-o-toluidine | TLDNONT5 |
| Pentachlorobenzene | PECLBZ |
| Pentachloronitrobenzene (PCNB) | PECLNO2BZ |
| Pentachlorophenol | PCP |
| Phenacetin | PHNACTN |
| Phenanthrene | PHAN |
| Phenol | PHENOL |
| p-Phenylenediamine | ANLNAM4 |
| Polychlorinated biphenyls (PCBs; Aroclors) | PCBS |
| Pronamide | PRONAMD |
| Pyrene | PYR |
| Safrole | SAFROLE |
| 1,2,4,5-Tetrachlorobenzene | C4BZ1245 |
| 2,3,4,6-Tetrachlorophenol | TCP2346 |
| o-Toluidine | TLDNO |
| Toxaphene | TOXAP |
| 2,4,5-Trichlorophenol | TCP245 |
| 0,0,0-Triethyl phosphorothioate | TEPTH |
| sym-Trinitrobenzene | TNB135 |

TABLE VI
5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS
Continued

Chlorophenoxy Herbicides (USEPA Method 8151A):

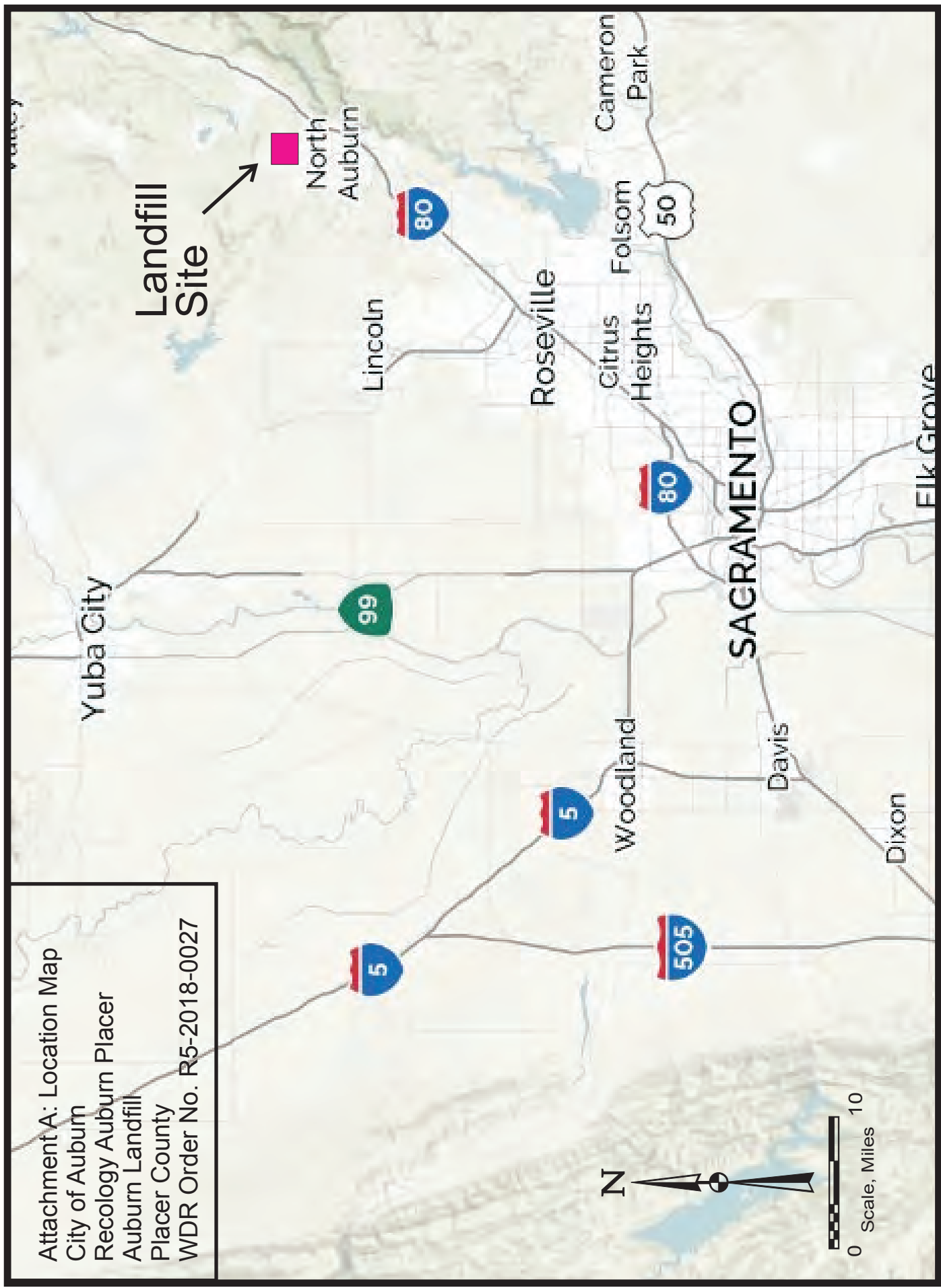
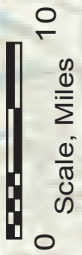
| | |
|---|---------|
| 2,4-D (2,4-Dichlorophenoxyacetic acid) | 24D |
| Dinoseb (DNBP; 2-sec-Butyl-4,6-dinitrophenol) | DINOSEB |
| Silvex (2,4,5-Trichlorophenoxypropionic acid; 2,4,5-TP) | SILVEX |
| 2,4,5-T (2,4,5-Trichlorophenoxyacetic acid) | 245T |

Organophosphorus Compounds (USEPA Method 8141B):

| | |
|--|-----------|
| Atrazine | ATRAZINE |
| Chlorpyrifos | CLPYRIFOS |
| 0,0-Diethyl 0-2-pyrazinyl phosphorothioate (Thionazin) | ZINOPHOS |
| Diazinon | DIAZ |
| Dimethoate | DIMETHAT |
| Disulfoton | DISUL |
| Methyl parathion (Parathion methyl) | PARAM |
| Parathion | PARAE |
| Phorate | PHORATE |
| Simazine | SIMAZINE |

Attachment A: Location Map
City of Auburn
Recology Auburn Placer
Auburn Landfill
Placer County
WDR Order No. R5-2018-0027

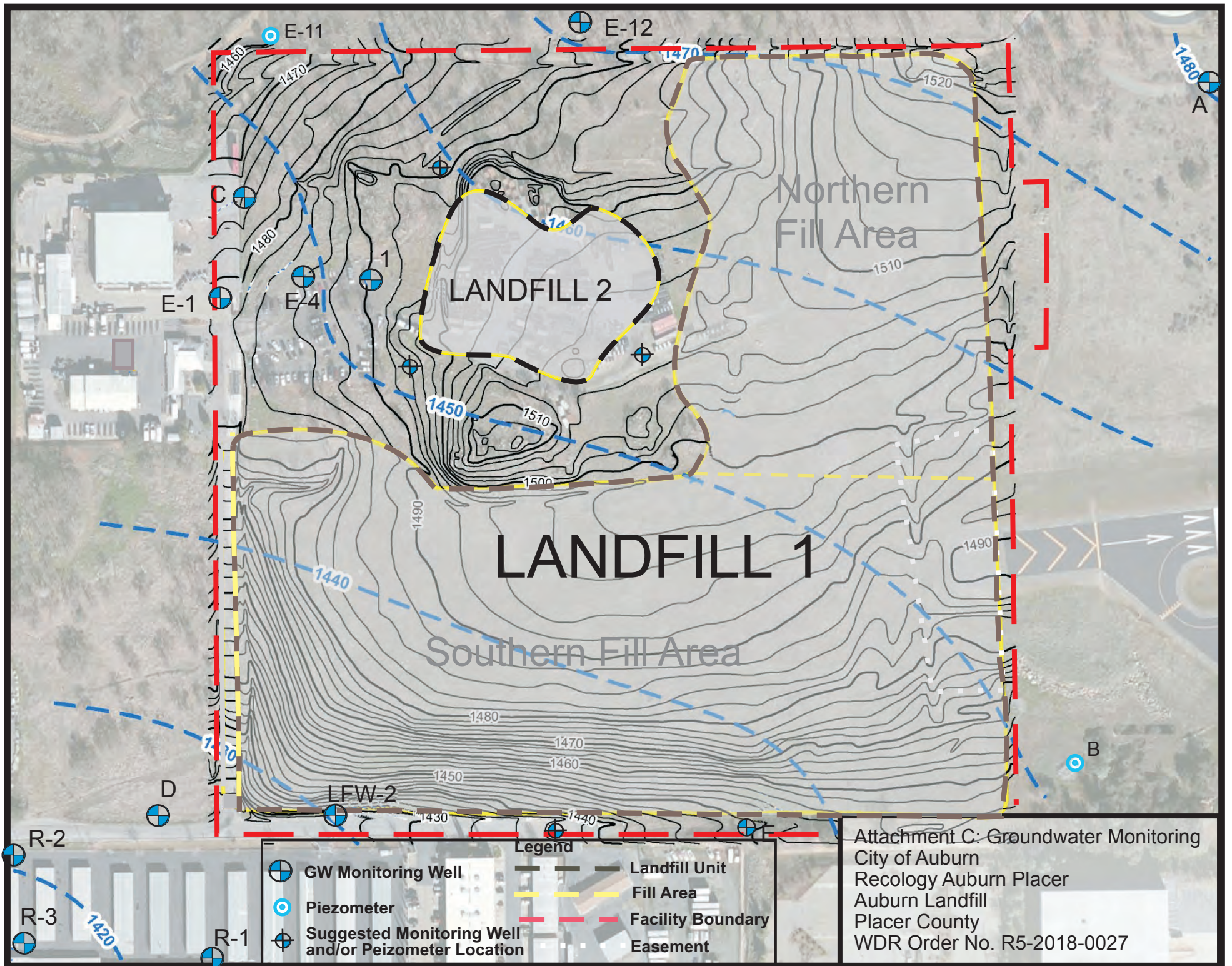
Landfill Site







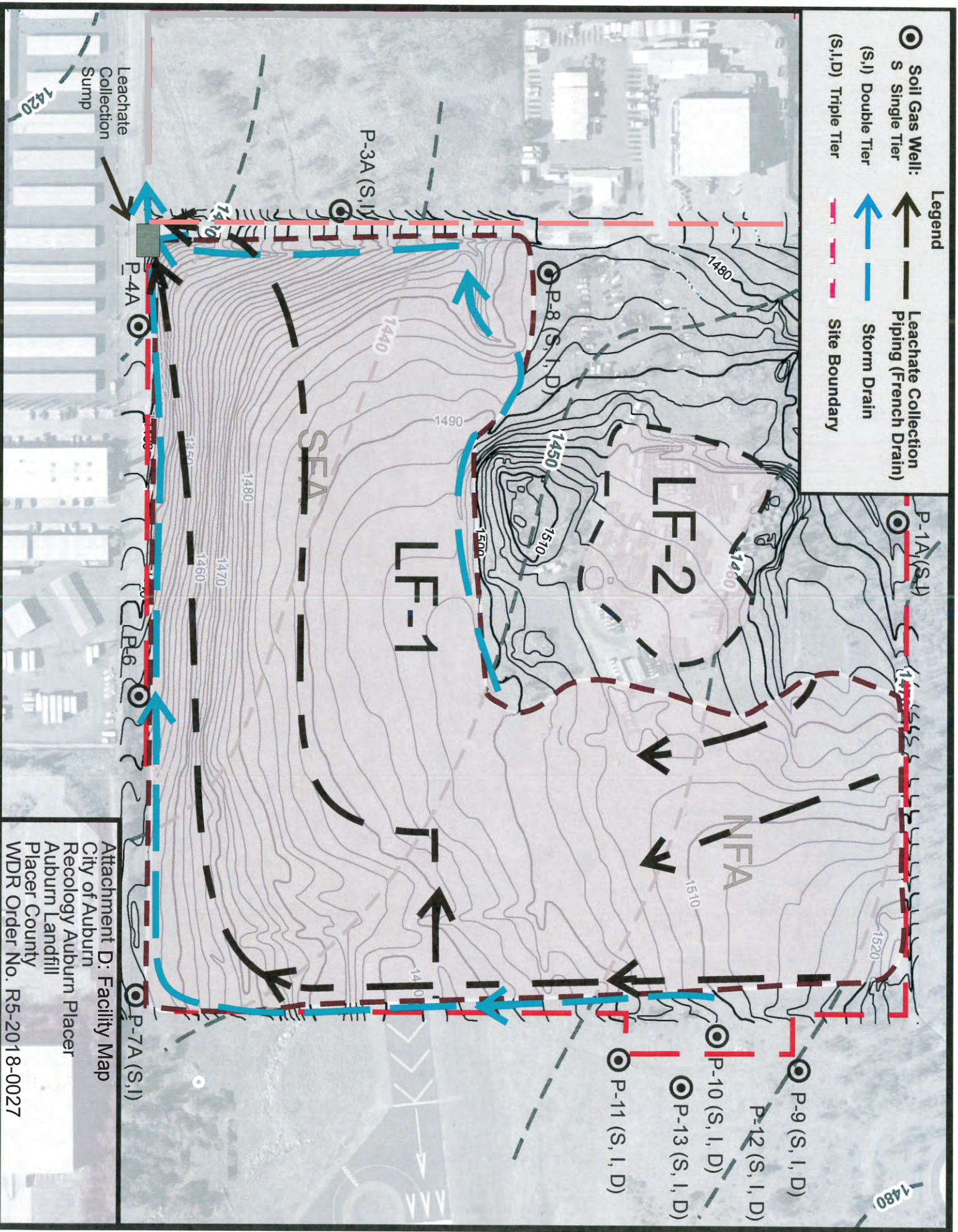


Attachment B: Area Map
City of Auburn
Recology Auburn Placer
Placer County
Section 28, T13N, R8E MDB&M
WDR Order No. R5-2018-0027

North Auburn
Auburn



- Legend**
- 
Soil Gas Well:
 S Single Tier
 (S,I) Double Tier
 (S,I,D) Triple Tier
 - 
Leachate Collection Piping (French Drain)
 - 
Storm Drain
 - 
Site Boundary



Attachment D: Facility Map
 City of Auburn
 Recology Auburn Placer
 Auburn Landfill
 Placer County
 WDR Order No. R5-2018-0027

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

STANDARD PROVISIONS AND REPORTING REQUIREMENTS
FOR
WASTE DISCHARGE REQUIREMENTS
FOR
INDUSTRIAL FACILITIES REGULATED BY TITLE 27
(Title 27, § 20005 et seq.)

April 2016

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A. APPLICABILITY

1. These Standard Provisions and Reporting Requirements (SPRRs) are applicable to Class II surface impoundments, waste piles, and land treatment units that are regulated by the Central Valley Regional Water Quality Control Board (hereafter, Central Valley Water Board) pursuant to the provisions of California Code of Regulations, title 27 ("Title 27"), section 20005 et seq.
2. "Order," as used throughout this document, means the Waste Discharge Requirements (WDRs) to which these SPRRs are incorporated.
3. The requirements prescribed herein do not authorize the commission of any act causing injury to the property of another, and do not protect the Discharger from liabilities under federal, state, or local laws. This Order does not convey any property rights or exclusive privileges.
4. The provisions of this Order are severable. If any provision of this Order is held invalid, the remainder of this Order shall not be affected.
5. If there is any conflicting or contradictory language between the WDRs, the Monitoring and Reporting Program (MRP), or the SPRRs, then language in the WDRs shall govern over either the MRP or the SPRRs, and language in the MRP shall govern over the SPRRs.
6. If there is a site-specific need to change a requirement in these SPRRs for a particular facility, the altered requirement shall be placed in the appropriate section of the WDRs and will supersede the corresponding SPRRs requirement. These SPRRs are standard and cannot be changed as part of the permit writing process or in response to comments, but they will be periodically updated on an as-needed basis.
7. Unless otherwise stated, all terms are as defined in Water Code section 13050 and in Title 27, section 20164.

B. TERMS AND CONDITIONS

1. Failure to comply with any waste discharge requirement, monitoring and reporting requirement, or Standard Provisions and Reporting Requirement, or other order or prohibition issued, reissued, or amended by the Central Valley Water Board or the State Water Board, or intentionally or negligently discharging waste, or causing or permitting waste to be deposited where it is discharged into the waters of the state and creates a condition of pollution or nuisance, is a violation of this Order and the Water Code, which can result in the imposition of civil monetary liability [Wat. Code, § 13350(a)]
2. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to [Wat. Code, § 13381]:

- a. Violation of any term or condition contained in this Order;
 - b. Obtaining this Order by misrepresentation, or failure to disclose fully all relevant facts;
 - c. A change in any condition that results in either a temporary or permanent need to reduce or eliminate the authorized discharge; or
 - d. A material change in the character, location, or volume of discharge.
3. Before initiating a new discharge or making a material change in the character, location, or volume of an existing discharge, the Discharger shall file a new report of waste discharge (ROWD), or other appropriate joint technical document (JTD), with the Central Valley Water Board [Wat. Code, § 13260(c) and § 13264(a)]. A material change includes, but is not limited to, the following:
- a. An increase in area or depth to be used for solid waste disposal beyond that specified in waste discharge requirements;
 - b. A significant change in disposal method, location, or volume (e.g., change from land disposal to land treatment);
 - c. A change in the type of waste being accepted for disposal; or
 - d. A change to previously-approved liner systems or final cover systems that would eliminate components or reduce the engineering properties of components.
4. Representatives of the Central Valley Water Board may inspect the facilities to ascertain compliance with the waste discharge requirements. The inspection shall be made with the consent of the owner or possessor of the facilities or, if the consent is refused, with a duly issued warrant. However, in the event of an emergency affecting the public health or safety, an inspection may be made without consent or the issuance of a warrant [Wat. Code, §13267(c)].
5. The Central Valley Water Board will review this Order periodically and will revise these waste discharge requirements when necessary [Wat. Code, § 13263(e) and Title 27, § 21720(b)].
6. Except for material determined to be confidential in accordance with California law and regulations, all reports prepared in accordance with terms of this Order shall be available for public inspection at the offices of the Central Valley Water Board [Wat. Code, § 13267(b)]. Data on waste discharges, water quality, geology, and hydrogeology shall not be considered confidential.
7. A discharge of waste into the waters of the state is a privilege, not a right. No discharge of waste into waters of the state, whether or not the discharge is

made pursuant to waste discharge requirements, shall create a vested right to continue the discharge [Wat. Code, § 13263(g)].

8. Technical and monitoring reports specified in this Order are requested pursuant to the Water Code [§13267(b)]. Failure to furnish the reports by the specified deadlines or falsifying information in the reports, are misdemeanors that may be liable civilly in accordance with §13268(b) of the Water Code [Wat. Code, §13268(a)].

C. STANDARD PROHIBITIONS

1. The discharge of wastes which have the potential to reduce or impair the integrity of containment structures or which, if commingled with other wastes in the waste management unit, could produce violent reaction, heat or pressure, fire or explosion, toxic by-products, or reaction products, which, in turn:
 - a. require a higher level of containment than provided by the unit; or
 - b. are 'restricted wastes'; or
 - c. impair the integrity of containment structures;is prohibited [Title 27, § 20200(b)].
2. The discharge of wastes outside of a waste management unit or portions of a unit specifically designed for their containment is prohibited.
3. The discharge of waste to a closed waste management unit is prohibited.
4. The discharge of waste constituents to the unsaturated zone or to groundwater is prohibited, except within the treatment zone at a land treatment unit.
5. The discharge of solid or liquid waste or leachate to surface waters, surface water drainage courses, or groundwater is prohibited.

D. STANDARD DISCHARGE SPECIFICATIONS

1. The Discharger is responsible for accurate characterization of wastes, including a determination of whether or not wastes will be compatible with containment features and other wastes at the waste management unit and whether or not the wastes are required to be managed as a hazardous waste [Title 27, § 20200(c)] or designated waste [Title 27, § 20210].
2. Leachate collected from a waste management unit shall be discharged to the unit from which it came, or discharged to an appropriate waste management unit in accordance with Title 27 and in a manner consistent with the waste classification of the liquid [Title 27, § 20200(d) and § 20340(g)].

3. Wastes shall be discharged only into waste management units specifically designed for their containment and/or treatment, as described in this Order.
4. The discharge shall remain within the designated disposal area at all times.
5. The discharge of waste shall not cause a nuisance condition [Wat. Code, § 13050(m)].

E. STANDARD FACILITY SPECIFICATIONS

1. All waste management units shall be designed, constructed, and operated to ensure that wastes, including leachate, will be a minimum of 5 feet above the highest anticipated elevation of underlying groundwater [Title 27, § 20240(c)], including the capillary fringe.
2. Surface and subsurface drainage from outside of a waste management unit shall be diverted from the unit [Title 27, § 20365(e)].
3. The Discharger shall **immediately** notify the Central Valley Water Board staff of any slope failure occurring at a waste management unit. Any failure which threatens the integrity of containment features or the waste management unit shall be promptly corrected in accordance with an approved method [Title 27, § 21710(c)(2)].
4. The Discharger shall **immediately** notify Central Valley Water Board staff of any flooding, unpermitted discharge of waste off-site or outside of waste management units, equipment failure, or other change in site conditions which could impair the integrity of waste or leachate containment facilities or precipitation and drainage control structures.
5. The Discharger shall maintain in good working order any facility, control system, or monitoring device installed to achieve compliance with the waste discharge requirements.
6. The Discharger shall lock all groundwater monitoring wells with a lock on the well cap or monitoring well box. All monitoring devices shall be clearly labeled with their designation including all monitoring wells, LCRS risers, and lysimeter risers and shall be easily accessible for required monitoring by authorized personnel. Each monitoring device shall be clearly visible and be protected from damage by equipment or vehicles.
7. The Discharger shall maintain the depth of the fluid in the sump of each waste management unit at the minimum needed for efficient pump operation (the depth at which the pump turns on given the pump intake height and maximum pump cycle frequency).

8. Each LCRS shall be tested at least annually to demonstrate proper operation. The results of the tests shall be compared with earlier tests made under comparable conditions [Title 27, § 20340(d)].
9. The Discharger shall maintain a *Storm Water Pollution Prevention Plan and Monitoring Program and Reporting Requirements* in accordance with State Water Board Order No. 2014-0057-DWQ (or most recent general industrial storm water permit), or retain all storm water on-site.

F. STANDARD CONSTRUCTION SPECIFICATIONS

1. The Discharger shall submit for review and approval at least **90 days** prior to proposed construction, design plans and specifications for new Class II waste management units that include the following:
 - a. Detailed construction drawings showing all required liner system components, the LCRS, leachate sump, unsaturated zone monitoring system, and access to the LCRS for required annual testing.
 - b. A Construction Quality Assurance (CQA) Plan prepared by a California-registered civil engineer or certified engineering geologist, and that meets the requirements of Title 27, section 20324.
 - c. A geotechnical evaluation of the area soils, evaluating their use as the base layer or reference to the location of this information in the ROWD/JTD [Title 27, § 21750(f)(4)].
 - d. Information about the seismic design of the proposed new waste management unit (or reference to the location of this information in the ROWD/JTD) in accordance with Title 27, section 20370.
 - e. A revised water quality monitoring plan for groundwater detection monitoring (or information showing the existing plan is adequate) in accordance with Title 27, section 20415.
 - f. An Operation Plan (or reference to the location of this information in the ROWD/JTD) meeting the requirements of Title 27, sections 21760(b) and 20375(b).
2. All containment structures shall be designed by, and construction shall be supervised by, a California registered civil engineer or a certified engineering geologist, and shall be certified by that individual as meeting the prescriptive standards, or approved engineered alternative design, in accordance with this Order prior to waste discharge.
3. The Discharger shall not proceed with construction until the construction plans, specifications, and all applicable construction quality assurance plans have

been approved. Waste management units shall receive a final inspection and approval of the construction by Central Valley Water Board staff before use of the unit commences [Title 27, § 20310(e)].

4. Any report, or any amendment or revision of a report, that proposes a design or design change that might affect a waste management unit's containment features or monitoring systems shall be approved by a California registered civil engineer or a certified engineering geologist [Title 27, § 21710(d)].
5. Materials used in containment structures shall have appropriate chemical and physical properties to ensure that such structures do not fail to contain waste because of pressure gradients, physical contact with waste or leachate, chemical reactions with soil or rock, climatic conditions, the stress of installation, or because of the stress of daily operations [Title 27, § 20320(a)].
6. Waste management 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 [Title 27, § 20365(a)].
7. The Discharger shall design storm water conveyance systems for Class II units for a 1,000-year, 24-hour storm event [Title 27, § 21750(e)(3)].
8. All Class II waste management units shall be designed to withstand maximum credible earthquake without damage to the foundation or to the structures that control leachate, or surface drainage, or erosion [Title 27, § 20370(a)].
9. The Discharger shall perform stability analyses that include components to demonstrate the integrity of the waste management unit foundation, final slopes, and containment systems under both static and dynamic conditions throughout the life of the unit [Title 27, § 21750(f)(5)].
10. New Class II Units, other than LTUs and expansions of existing Class II units, shall have a 200 foot setback from any known Holocene fault. [Title 27, § 20250(d)].
11. Liners shall be designed and constructed to contain the fluid, including waste, and leachate [Title 27, § 20330(a)].
12. Hydraulic conductivities shall be determined primarily by appropriate field test methods in accordance with accepted civil engineering practice. The results of laboratory tests with both water and leachate, and field tests with water, shall be compared to evaluate how the field permeabilities will be affected by leachate. It is acceptable for the Discharger to use appropriate compaction tests in conjunction with laboratory hydraulic conductivity tests to determine field permeabilities as long as a reasonable number of field hydraulic conductivity tests are also conducted [Title 27, § 20320(c)].

13. Hydraulic conductivities specified for containment structures other than the final cover shall be relative to the fluids (leachate) to be contained. Hydraulic conductivities for the final cover shall be relative to water [Title 27, § 20320(b)].
14. A test pad for each barrier layer and any final cover shall be constructed in a manner duplicating the field construction. Test pad construction methods, with the designated equipment, shall be used to determine if the specified density/moisture-content/hydraulic conductivity relationships determined in the laboratory can be achieved in the field with the compaction equipment to be used and at the specified lift thickness [Title 27, § 20324(g)(1)(A)].
15. The Discharger shall ensure proper preparation of the subgrade for any liner system that includes a GCL so as to provide a smooth surface that is free from rocks, sticks, or other debris that could damage or otherwise limit the performance of the GCL.
16. The Discharger shall propose an electronic leak location survey of the top liner for any new waste management unit in the construction quality assurance plan unless the Discharger demonstrates that a leak location survey is not needed.
17. Leachate collection and removal systems are required for Class II surface impoundments [Title 27, § 20340(a)].
18. The LCRS shall be designed, constructed, maintained, and operated to collect and remove twice the maximum anticipated daily volume of leachate from the waste management unit [Title 27, § 20340(b)].
19. Leachate collection and removal systems shall be designed and operated to function without clogging through the life of the waste management unit.
20. The leachate sump, leachate removal pump, and pump controls shall be designed and set to maintain a fluid depth no greater than the minimum needed for efficient pump operation [Title 27, § 20340(c)].
21. All construction of liner systems and final cover systems shall be performed in accordance with a Construction Quality Assurance Plan certified by a registered civil engineer or a certified engineering geologist [Title 27, § 20323].
22. The Construction Quality Assurance program shall be supervised by a registered civil engineer or a certified engineering geologist who shall be designated the CQA officer [Title 27, § 20324(b)(2)].
23. The Discharger shall ensure that a third party independent of both the Discharger and the construction contractor performs all of the construction quality assurance monitoring and testing during the construction of a liner system.

24. The Discharger shall notify Central Valley Water Board staff at least **14 days** prior to commencing field construction activities including construction of a new Class II waste management unit, construction of a final cover (for units closed as a landfill), or any other construction that requires Central Valley Water Board staff approval under this Order.
25. The Discharger shall submit for review and approval at least **60 days** prior to proposed discharge, final documentation required in Title 27 Section 20324(d)(1)(C) following the completion of construction of a new Class II waste management unit. The report shall be certified by a registered civil engineer or a certified engineering geologist and include a statement that the liner system was constructed in accordance with the approved design plans and specifications, the CQA Plan, the requirements of the WDRs, and that it meets the performance goals of Title 27. The report shall contain sufficient information and test results to verify that construction was in accordance with the design plans and specifications, the construction quality assurance plan, and the performance goals of Title 27.
26. The Discharger shall not discharge waste onto a newly constructed liner system until the final documentation report has been reviewed and an acceptance letter has been received.

G. STANDARD CLOSURE AND POST-CLOSURE SPECIFICATIONS

1. The final closure and post-closure maintenance plan for the waste management unit shall include at least the following: an itemized cost analysis, closure schedule, any proposed final treatment procedures, map, changes to the unit description presented in the most recent ROWD, future land use, and a construction quality assurance plan [Title 27, § 21769(c) & (d)].
2. Closure of each waste management unit shall be under the direct supervision of a registered civil engineer or certified engineering geologist [Title 27, § 20950(b)].
3. The final cover of waste management units closed as a landfill shall be designed, graded, and maintained to prevent ponding and soil erosion due to high run-off velocities [Title 27, § 21090(b)(1)(A)].
4. The final grading design shall be designed and approved by a registered civil engineer or certified engineering geologist [Title 27, § 21090(b)(1)(C)].
5. All final cover designs shall include a minimum 1-foot thick erosion resistant vegetative layer or a mechanically erosion-resistant layer [Title 27, § 21090(a)(3)(A)(1 & 2)].

6. Areas with slopes greater than ten percent, surface drainage courses, and areas subject to erosion by wind or water shall be designed and constructed to prevent such erosion [Title 27, § 21090(b)(2)].
7. The Discharger shall design storm water conveyance systems for Class II units that are closed as a landfill for a 1,000-year, 24-hour storm event [Title 27, § 21750(e)(3)].
8. Construction or repair of a final cover system's low-hydraulic conductivity layer is to be carried out in accordance with an approved construction quality assurance plan [Title 27, § 21090(b)(1)(E)].
9. Within **30 days** of completion of all closure activities, the Discharger shall certify that all closure activities were performed in accordance with the most recently approved final closure plan and CQA Plan, and in accordance with all applicable regulations. The Discharger shall also certify that units that are closed as a landfill shall be maintained in accordance with an approved post-closure maintenance plan [Title 27, § 21710(c)(6)].
10. The post-closure maintenance period for units closed as a landfill shall continue until the Central Valley Water Board determines that wastes remaining in the landfill unit(s) no longer pose a threat to water quality [Title 27, § 20950(a)(1)].
11. The Discharger shall periodically inspect and identify problems with the final cover including areas that require replanting, erosion, areas lacking free drainage, and any areas damaged by equipment operations [Title 27, § 21090(a)(4)(B)].
12. The Discharger shall repair any cover promptly in accordance with a cover repair plan to be included in the final post-closure maintenance plan [Title 27, § 21090(a)(4)(C)].

H. STANDARD FINANCIAL ASSURANCE PROVISIONS

1. The Discharger shall establish an irrevocable fund (or provide other means) for closure to ensure closure of each Class II unit in accordance with an approved closure plan [Title 27, § 20950(f) and § 22207(a)].
2. The Discharger shall obtain and maintain assurances of financial responsibility for initiating and completing corrective action for all known and reasonably foreseeable releases from the waste management unit [Title 27, §20380(b) and § 22222].

I. STANDARD MONITORING SPECIFICATIONS

1. The water quality monitoring program shall include appropriate and consistent sampling and analytical procedures and methods designed to ensure that

monitoring results provide a reliable indication of water quality at all monitoring points and background monitoring points [Title 27, § 20415(e)(4)].

2. All monitoring systems shall be designed and certified by a registered geologist or a registered civil engineer [Title 27, § 20415(e)(1)].
3. All monitoring wells shall be cased and constructed in a manner that maintains the integrity of the monitoring well bore hole and prevents the bore hole from acting as a conduit for contaminant transport [Title 27, § 20415(b)(4)(A)].
4. All sample chemical analyses of any material shall be performed by a laboratory certified by the California Department of Health Services [Wat. Code, § 13176(a)].
5. A Detection Monitoring Program for a new Class II waste management unit shall be installed, operational, and one year of monitoring data collected from background monitoring points prior to the discharge of wastes [Title 27, § 20415(e)(6)].
6. Background for water samples shall be represented by the data from all samples taken from applicable background monitoring points during that reporting period (at least one sample from each background monitoring point).
7. The Discharger shall submit for approval, establish, and maintain an approved Sample Collection and Analysis Plan. The Sample Collection and Analysis Plan shall at a minimum include:
 - a. Sample collection procedures describing purging techniques, sampling equipment, and decontamination of sampling equipment;
 - b. Sample preservation information and shipment procedures;
 - c. Sample analytical methods and procedures;
 - d. Sample quality assurance/quality control (QA/QC) procedures;
 - e. Chain of Custody control; and
 - f. Sample analysis information including sample preparation techniques to avoid matrix interferences, method detection limits (MDLs), practical quantitation limits (PQLs) and reporting limits (RLs), and procedures for reporting trace results between the MDL and PQL.

If required by the Executive Officer, the Discharger shall modify the Sample Collection and Analysis Plan to conform with this Order.

8. For any given monitored medium, the samples taken from all monitoring points and background monitoring points to satisfy the data analysis requirements for a given reporting period shall all be taken **within a span not to exceed 30 days**, unless a longer time period is approved, and shall be taken in a manner that ensures sample independence to the greatest extent feasible. Specific methods of collection and analysis must be identified. Sample collection, storage, and analysis shall be performed according to the most recent version of USEPA Methods, such as the latest editions, as applicable, of: (1) Methods for the Analysis of Organics in Water and Wastewater (USEPA 600 Series), (2) Test Methods for Evaluating Solid Waste (SW-846, latest edition), and (3) Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020), and in accordance with the approved Sample Collection and Analysis Plan. Appropriate sample preparation techniques shall be used to minimize matrix interferences.
9. If methods other than USEPA-approved methods or Standard Methods are used, or there is a proposed alternant USEPA method than the one listed in the MRP, the proposed methodology shall be submitted for review and approval prior to use, including information showing its equivalence to the required method.
10. The **methods of analysis and the detection limits** used must be appropriate for the expected concentrations. For the monitoring of any constituent or parameter that is found in concentrations which produce more than 90% non-numerical determinations (i.e., "trace" or "ND") in data from background monitoring points for that medium, the analytical method having the lowest MDL shall be selected from among those methods which would provide valid results in light of any matrix effects or interferences.
11. The laboratory reporting limit (RL) for all reported monitoring data shall be set no greater than the practical quantitation limit (PQL).
12. **"Trace" results** - results falling between the MDL and the PQL - shall be reported as such, and shall be accompanied both by the estimated MDL and PQL values for that analytical run.
13. Laboratory data shall not be altered or revised by the Discharger. If the Discharger observes potential lab errors, it shall identify the issue in the monitoring report and shall describe steps that will be taken to prevent similar errors in the future.
14. **MDLs and PQLs** shall be derived by the laboratory for each analytical procedure, according to State of California laboratory accreditation procedures. These MDLs and PQLs shall reflect the detection and quantitation capabilities of the specific analytical procedure and equipment used by the lab, rather than simply being quoted from USEPA analytical method manuals. In relatively

interference-free water, laboratory-derived MDLs and PQLs are expected to closely agree with published USEPA MDLs and PQLs. MDLs and PQLs shall be reported.

15. If the laboratory suspects that, due to a change in matrix or other effects, the true detection limit or quantitation limit for a particular analytical run differs significantly from the laboratory-derived MDL/PQL values, the results shall be flagged in the laboratory report accordingly, along with estimates of the detection limit and quantitation limit actually achieved. The **MDL shall always be calculated such that it represents the lowest achievable concentration associated with a 99% reliability of a nonzero result.** The PQL shall always be calculated such that it represents the lowest constituent concentration at which a numerical value can be assigned with reasonable certainty that it represents the constituent's actual concentration in the sample. Normally, PQLs should be set equal to the concentration of the lowest standard used to calibrate the analytical procedure.
16. All **QA/QC data** shall be reported, along with the sample results to which they apply, including the method, equipment, analytical detection and quantitation limits, the percent recovery, an explanation for any recovery that falls outside the QC limits, the results of equipment and method blanks, the results of spiked and surrogate samples, the frequency of quality control analysis, and the name and signature of a responsible person from the laboratory. **Sample results shall be reported unadjusted for blank results or spike recoveries.** In cases where contaminants are detected in QA/QC samples (i.e., field, trip, or lab blanks), the accompanying sample results shall be appropriately flagged, but the analytical results shall not be adjusted.
17. Unknown chromatographic peaks shall be reported, flagged, and tracked for potential comparison to subsequent unknown peaks that may be observed in future sampling events. Identification of unknown chromatographic peaks that recur in subsequent sampling events may be required.
18. The sampling interval of each monitoring well shall be appropriately screened and fitted with an appropriate filter pack to enable collection of representative groundwater samples [Title 27, § 20415(b)(4)(B)].
19. All borings are to be logged during drilling under the direct supervision of a registered geologist or registered civil engineer with expertise in stratigraphic well logging [Title 27, § 20415(e)(2)].
20. Soils are to be described according to the Unified Soil Classification System [Title 27, § 20415(e)(2)(A)]. Rock is to be described in a manner appropriate for the purpose of the investigation [Title 27, § 20415(e)(2)(B)].

21. The Discharger shall submit a work plan for review and approval at least **60 days** prior to installation or abandonment of groundwater monitoring wells.
22. The Discharger shall provide Central Valley Water Board staff a minimum of **one week** notification prior to commencing any field activities related to the installation or abandonment of monitoring devices.
23. The water quality protection standard shall consist of the constituents of concern (COC), concentration limits, and the point of compliance. The water quality protection standard shall apply during the active life of the waste management unit, closure period, post-closure maintenance period, and any compliance period under Title 27, section 20410 [Title 27, § 20390].
24. The point of compliance at which the water quality protection standard applies is a vertical surface located at the hydraulically downgradient limit of the waste management unit that extends through the uppermost aquifer underlying the unit [Title 27, § 20405).
25. The compliance period is the minimum period of time during which the Discharger shall conduct a water quality monitoring program and is the number of years equal to the active life of the waste management unit plus the closure period [Title 27, § 20410(a)].
26. The groundwater monitoring system shall include a sufficient number of monitoring points, installed at appropriate locations, to yield groundwater samples from the uppermost aquifer that represent the quality of groundwater that has not been affected by a release from the waste management unit [Title 27, § 20415(b)(1)(A)].
27. The Detection Monitoring Program shall include a sufficient number of monitoring points, installed at appropriate locations and depths to yield groundwater samples from the uppermost aquifer that represent the quality of groundwater passing the point of compliance to allow the detection of a release from the waste management unit [Title 27, § 20415(b)(1)(B)1.].
28. Additional monitoring points shall be added as necessary to provide the best assurance of the **earliest possible detection** of a release from the waste management unit [Title 27, § 20415(b)(1)(B)2.].
29. The Detection Monitoring Program shall also include a sufficient number of monitoring points installed at appropriate depths and locations to yield groundwater samples from other aquifers or perched zones not already monitored to provide the **earliest possible detection** of a release from the waste management unit [Title 27, § 20415(b)(1)(B)3. and 4., and §20420(b)].

30. A surface water monitoring system shall be established to monitor each surface water body that could be affected by a release from the waste management unit [Title 27, § 20415(c)].
31. An unsaturated zone monitoring system shall be established for each waste management unit [Title 27, § 20415(d)].
32. The Discharger shall notify Central Valley Water Board staff within **seven days** if fluid is detected in a previously dry LCRS, unsaturated zone monitoring system, or if a progressive increase is detected in the volume of fluid in a LCRS [Title 27, § 21710(c)(3)].
33. Driller's logs for all monitoring wells shall to be submitted to the Central Valley Water Board and the Department of Water Resources [Wat. Code, § 13751 and Title 27, § 20415(b)(3)].
34. Groundwater elevation, temperature, electrical conductivity, turbidity, and pH are to be accurately measured at each well each time groundwater is sampled [Title 27, § 20415(e)(13)].
35. The groundwater flow rate and direction in the uppermost aquifer and in any zones of perched water and in any additional portions of the zone of saturation being monitored shall be determined at least quarterly [Title 27, § 20415(e)(15)].
36. The Discharger shall graph all analytical data from each monitoring point and background monitoring point and shall submit the graphs to the Central Valley Water Board annually [Title 27, § 20415(e)(14)].
37. For each waste management unit, the Discharger shall collect all data necessary for selecting appropriate data analysis methods for establishing background values for each constituent of concern and for each monitoring parameter [Title 27, § 20420(c)]. The Discharger shall propose a data analysis method that includes a detailed description of the criteria to be used for determining "measurably significant" (as defined in Title 27, section 20164) evidence of a release from the waste management unit and determining compliance with the water quality protection standard [Title 27, § 20415(e)(6) and (7)].
38. For statistical analysis of data, the Discharger shall use one of the methods described in Title 27, section 20415(e)(8)(A)-(E). A non-statistical data analysis method can be used if the method can achieve the goal of the particular monitoring program at least as well as the most appropriate statistical method [Title 27, § 20415(e)(8)]. The Discharger shall use a statistical or nonstatistical data analysis method that complies with Title 27, section 20415(e)(7, 8, 9, and 10), to compare the concentration of each constituent of concern or monitoring parameter with its respective background concentration to determine whether

there has been a measurably significant evidence of a release from the waste management unit. For any given monitoring point at which a given constituent has already exhibited a measurably significant indication of a release at that monitoring point, the Discharger may propose to monitor the constituent, at that well, using a concentration-versus-time plot.

39. The Discharger may propose an alternate statistical method [to the methods listed under Title 27, section 20415(e)(8)(A-D)] in accordance with Title 27, section 20415(e)(8)(E), for review and approval.
40. The statistical method shall account for data below the practical quantitation limit (PQL) with one or more statistical procedures that are protective of human health and the environment. Any PQL validated pursuant to Title 27, section 20415(e)(7) that is used in the statistical method shall be **the lowest concentration (or value) that can be reliably achieved** within limits of precision and accuracy specified in the WDRs or an approved Sample Collection and Analysis Plan for routine laboratory operating conditions that are available to the facility. The Discharger's technical report (Sample Collection and Analysis Plan and/or Water Quality Protection Standard Report), pursuant to Title 27, section 20415(e)(7), shall consider the PQLs listed in Appendix IX, Article 19 to Chapter 14 of Division 4.5 of Title 22, CCR, for guidance when specifying limits of precision and accuracy. For any given constituent monitored at a background or downgradient monitoring point, an indication that falls between the MDL and the PQL for that constituent (hereinafter called a "trace" detection) shall be identified and used in appropriate statistical or non-statistical tests. Nevertheless, for a statistical method that is compatible with the proportion of censored data (trace and ND indications) in the data set, the Discharger can use the laboratory's concentration estimates in the trace range (if available) for statistical analysis, in order to increase the statistical power by decreasing the number of "ties".
41. The water quality protection standard for organic compounds which are not naturally occurring and not detected in background groundwater samples shall be taken as the detection limit of the analytical method used (e.g., USEPA methods 8260 and 8270).
42. Alternate statistical procedures may be used for determining the significance of analytical results for common laboratory contaminants (i.e., methylene chloride, acetone, diethylhexyl phthalate, and di-n-octyl phthalate) if part of an approved water quality protection standard. Nevertheless, analytical results involving detection of these analytes in any background or downgradient sample shall be reported and flagged for easy reference by Central Valley Water Board staff.
43. **Confirmation of Measurably Significant Evidence of a Release.** Whenever a constituent is detected at a detection monitoring point at a concentration that exceeds the concentration limit from the water quality protection standard, the

Discharger shall conduct verification sampling to confirm if the exceedance is due to a release or if it is a false-positive (unless previous monitoring has already confirmed a release for that constituent at that monitoring point). An exceedance of the concentration limit from the water quality protection standard is considered measurably significant evidence of a release that must be either confirmed or denied. There are two separate verification testing procedures:

- a. Standard Monitoring Specification I.44 provides the procedure for analytes that are detected in less than 10% of the background samples such as non-naturally occurring constituents like volatile organic compounds; and
- b. Standard Monitoring Specification I.45 provides the procedure for analytes that are detected in 10% or greater of the background samples such as naturally occurring constituents like chloride.

44. Verification Procedure for Analytes Detected in Less than 10% of

Background Samples. The Discharger shall use the following non-statistical method for all analytes that are detected in less than 10% of the background samples. The non-statistical method shall be implemented as follows:

- a. **Initial Determination of Measurably Significant Evidence of a Release.** Identify each analyte in the **current** detection monitoring point sample that exceeds either its respective MDL or PQL, and for which a release has not been previously confirmed. The Discharger shall conclude that the exceedance provides a preliminary indication of a release or a change in the nature or extent of the release, at that monitoring point, if **either**:
 - 1) The data contains two or more analytes that equal or exceed their respective MDLs; or
 - 2) The data contains one or more analyte that equals or exceeds its PQL.
- b. **Discrete Retest** [Title 27, § 20415(e)(8)(E) and § 20420(j)(1-3)]:
 - 1) In the event that the Discharger or Central Valley Water Board staff concludes (pursuant to paragraph I.44.a., above) that there is a preliminary indication of a release, then the Discharger shall **immediately** notify Central Valley Water Board staff by phone or e-mail and, within **30 days** of such indication, shall collect two new (retest) samples from the monitoring point where the release is preliminarily indicated and analyze them for the constituents that caused the need for the retest.
 - 2) **Confirmation of a Release.** As soon as the retest data are available, the Discharger shall conclude that measurably significant evidence of a release is confirmed if (not including the original sample) two or more

analytes equal or exceed their respective MDLs or if one or more analyte equals or exceeds its PQL. The Discharger shall then:

- a) **Immediately** verbally notify the Central Valley Water Board whether or not the retest confirmed measurably significant evidence of a release for the analyte at the monitoring point, and follow up with written notification submitted by certified mail **within seven days** of the verbal notification; and
- b) Carry out the requirements of Section J, **RESPONSE TO A RELEASE** if a release has been confirmed.
- c) Add any five-year analyte that is confirmed per this method to the monitoring parameter list such that it is monitored during each regular monitoring event.

45. **Verification Procedure for Analytes Detected in 10% or Greater of the Background Samples.** The Discharger shall use either a statistical or non-statistical method pursuant to Title 27, section 20415(e)(8)(E) for all analytes that are detected in 10% or greater of the background samples. The Discharger shall use one of the statistical methods required in Title 27, section 20415(e)(8)(E) unless another method has been proposed by the Discharger in a Water Quality Protection Standard Report (or equivalent report) and approved by the Central Valley Water Board in a Monitoring and Reporting Program pursuant to Title 27, section 20415(e)(8)(A-D)] or section 20415(e)(8)(E). The method shall be implemented as follows:

- a. **Initial Determination of Measurably Significant Evidence of a Release.**
The Discharger shall compare the value reported by the laboratory for each analyte to the statistically-derived concentration limit from the most recent report (Annual Monitoring Report or Water Quality Protection Standard Report) that uses the approved statistical procedure. If the value exceeds the concentration limit for that constituent, the Discharger shall conclude that there is measurably significant evidence of a release [Title 27, § 20420(i)].
- b. **Retest Method** [Title 27, § 20415(e)(8)(E) and § 20420(j)(1-3)].
 - 1) In the event that the Discharger or Central Valley Water Board staff concludes (pursuant to paragraph I.45.a., above) that there is a preliminary indication of a release, then the Discharger shall **immediately** notify Central Valley Water Board staff by phone or e-mail and, within **30 days** [Title 27, § 20415(e)(8)(E)(3)] of such indication, the Discharger shall implement a verification procedure/retest option, in accordance with Title 27, sections 20415(e)(8)(E) and 20420(j)(2). The verification procedure shall include either a single “composite” retest (i.e., a statistical analysis that augments and reanalyzes the data from the monitoring point that indicated a release) or shall consist of at least two “discrete” retests

(i.e., statistical analyses each of which analyzes only newly-acquired data from the monitoring point that indicated a release) [Title 27, § 20415(e)(8)(E)]. The Discharger may use an alternate method previously approved by the Central Valley Water Board and included in the Monitoring and Reporting Program. The verification procedure shall comply with the requirements of Title 27, section 20415(e)(8)(E) in addition to the performance standards of Title 27, section 20415(e)(9). The retest samples shall be collected from the monitoring point where the release is preliminarily indicated and shall be analyzed for the constituents that caused the need for the retest. For any indicated monitoring parameter or constituent of concern, if the retest results of one or more of the retest data suites confirm the original indication, the Discharger shall conclude that measurably significant evidence of a release has been confirmed.

- 2) **Confirmation of a Release.** As soon as the retest data are available, the Discharger shall evaluate the results pursuant to paragraph I.45.b.1, above and shall:
 - a) **Immediately** verbally notify the Central Valley Water Board whether or not the retest confirmed measurably significant evidence of a release for the analyte at the monitoring point, and follow up with written notification submitted by certified mail **within seven days** of the verbal notification; and
 - b) Carry out the requirements of Section J, **RESPONSE TO A RELEASE** if a release has been confirmed.
 - c) Add any five-year analyte that is confirmed per this method to the monitoring parameter list such that it is monitored during each regular monitoring event.

46. **Physical Evidence of a Release.** If the Discharger determines that there is a significant **physical** evidence of a release, the Discharger shall immediately verbally notify Central Valley Water Board staff and provide written notification **by certified mail within 7 days** of such determination, and within **90 days** shall submit an amended report of waste discharge to establish an Evaluation Monitoring Program [Title 27, § 20385(a)(3) and § 20420(I)(1) & (2)].

J. RESPONSE TO A RELEASE

1. **Measurably Significant Evidence of a Release Has Been Confirmed.** If the Discharger has confirmed that there is measurably significant evidence of a release from a waste management unit pursuant to Standard Monitoring Specification I.44 or I.45, then the Discharger shall:
 - a. **Immediately** sample all monitoring points in the affected medium at that waste management unit and determine the concentration of all monitoring parameters and constituents of concern for comparison with established concentration limits. Because this constituent of concern scan does not involve statistical testing, the Discharger will need to collect and analyze only a single water sample from each monitoring point in the affected medium [Title 27, § 20420(k)(1)].
 - b. **Within 90 days** of confirming measurably significant evidence of a release, the Discharger shall submit an amended report of waste discharge to establish an Evaluation Monitoring Program meeting the requirements of Title 27, sections 20420(k)(5)(A-D), including but not limited to the results of sampling pursuant to paragraph J.1.a, above. The Evaluation Monitoring Program shall be designed for the collection and analysis of all data necessary to assess the nature and extent of the release and to determine the spatial distribution and concentration of each constituent throughout the zone affected by the release [Title 27, § 20420(k)(5) and § 20425(b)].
 - c. **Within 180 days** of confirming measurably significant evidence of a release, the Discharger shall submit to the Central Valley Water Board an initial engineering feasibility study for a Corrective Action Program necessary to meet the requirements of Title 27, section 20430. At a minimum, the initial engineering feasibility study shall contain a detailed description of the corrective action measures that could be taken to achieve background concentrations for all constituents of concern [Title 27, § 20420(k)(6)].
 - d. If the Discharger confirms that there is measurably significant evidence of a release from the waste management unit at any monitoring point, the Discharger may attempt to demonstrate that a source other than the waste management unit caused the evidence of a release or that the evidence is an artifact caused by an error in sampling, analysis, or statistical evaluation or by natural variation in groundwater, surface water, or the unsaturated zone. The Discharger may make a demonstration pursuant to Title 27, section 20420(k)(7) in addition to or in lieu of submitting both an amended report of waste discharge or an engineering feasibility study; however, the Discharger is not relieved of the requirements and due dates of Title 27, sections 20420(k)(6) & (7) unless Central Valley Water Board staff agree that the demonstration successfully shows that a source other than the

waste management unit caused the evidence of a release or that the evidence resulted from error in sampling, analysis, or statistical evaluation or from natural variation in groundwater, surface water, or the unsaturated zone. In order to make this demonstration, the Discharger shall notify the Central Valley Water Board by certified mail of the intent to make the demonstration **within seven days** of determining measurably significant evidence of a release, and shall submit a report **within 90 days** of determining measurably significant evidence of a release [Title 27, § 20420(k)(7)].

- e. **Within 90 days** of the date that the Evaluation Monitoring Program from paragraph J.1.b is approved (the date is it established), the Discharger shall complete and submit the following:
 - i) **Results and Assessment for the Evaluation Monitoring Program.** A report with the results and assessment based on the approved Evaluation Monitoring Program [Title 27, § 20425(b)].
 - ii) **Updated Engineering Feasibility Study.** An updated engineering feasibility study for corrective action based on the data collected to delineate the release and data from the ongoing monitoring program required under Title 27, section 20425(e) [Title 27, § 20425(c)].
 - iii) **Amended ROWD for a Corrective Action Program.** An amended report of waste discharge to establish a Corrective Action Program meeting the requirements of Title 27, section 20430 based on the data collected to delineate the release and based on the updated engineering feasibility study [Title 27, § 20425(d)].

K. GENERAL PROVISIONS

1. In the event the Discharger does not comply or will be unable to comply with any prohibition or limitation of this Order for any reason, the Discharger shall notify the appropriate Central Valley Water Board office by telephone **as soon as** it or its agents have knowledge of such noncompliance or potential for noncompliance, and shall confirm this notification in writing **within two weeks**. The written notification shall state the nature, time, and cause of noncompliance, and shall describe the measures being taken to prevent recurrences and shall include a timetable for corrective actions.
2. All reports and transmittal letters shall be signed by persons identified below:
 - a. For a corporation: by a principal executive officer of at least the level of senior vice-president.
 - b. For a partnership or sole proprietorship: by a general partner or the proprietor.

- c. For a municipality, state, federal or other public agency: by either a principal executive officer or ranking elected or appointed official.
 - d. A duly authorized representative of a person designated in a, b or c above if:
 - 1) The authorization is made in writing by a person described in a, b, or c of this provision;
 - 2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a Unit, superintendent, or position of equivalent responsibility (a duly authorized representative may thus be either a named individual or any individual occupying a named position); and
 - 3) The written authorization is submitted to the Central Valley Water Board.
 - e. Any person signing a document under this Section 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 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.”
3. The Discharger shall take all reasonable steps to minimize any adverse impact to the waters of the State resulting from noncompliance with this Order. Such steps shall include accelerated or additional monitoring as necessary to determine the nature, extent, and impact of the noncompliance.
 4. The owner of the waste management facility shall have the continuing responsibility to assure protection of waters of the state from discharged wastes and leachate generated by discharged waste during the active life, closure, and any post-closure maintenance period of the waste management units and during subsequent use of the property for other purposes.
 5. The fact that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with this Order shall not be regarded as a defense for the Discharger’s violations of this Order.
 6. The Discharger shall notify the Central Valley Water Board of a material change in; the types, quantity, or concentrations of wastes discharged; site operations and features; or proposed closure procedures, including changes in cost

estimates. This notification shall be given a reasonable time before the changes are made or become effective. No changes shall be made without Central Valley Water Board approval following authorization for closure pursuant to the site Notification of Closure [Title 27, § 21710(a)(4)].

7. The Discharger shall maintain legible records of the volume and type of each waste discharged at each waste management unit or portion of a unit, and the manner and location of discharge. Such records shall be maintained by the Discharger until the beginning of the post-closure maintenance period. These records shall be on forms approved by the State Water Board or Central Valley Water Board and shall be maintained at the waste management facility until the beginning of the post-closure maintenance period. These records shall be available for review by representatives of the State Water Board or Central Valley Water Board at any time during normal business hours. At the beginning of the post-closure maintenance period, copies of these records shall be sent to the Central Valley Water Board [Title 27, § 21720(f)].
8. In the event of any change in landowner or the operator of the waste management facility, the Discharger shall notify the succeeding owner or operator in writing of the existence of this Order. A copy of that notification shall be sent to the Central Valley Water Board.
9. In the event of any change of ownership or responsibility for construction, operation, closure, or post-closure maintenance of the waste discharge facilities described in this Order, the Discharger shall notify the Central Valley Water Board prior to the effective date of the change and shall include a statement by the new Discharger that construction, operation, closure, or post-closure maintenance will be in compliance with this Order and any revisions thereof [Title 27, § 21710(c)(1)].
10. To assume ownership or operation under this Order, the succeeding owner or operator must apply in writing to the Central Valley Water Board requesting transfer of the Order within **14 days** of assuming ownership or operation of this facility. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Central Valley Water Board, and a statement. The statement shall comply with the signatory requirements contained in General Provision K.2 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the Water Code. Transfer of this Order shall be approved or disapproved by the Central Valley Water Board.

L. STORM WATER PROVISIONS

1. The Discharger shall design storm water conveyance systems for Class II units for a 1,000-year, 24-hour storm event [Title 27, § 21750(e)(3)].

2. Waste management 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 for the unit [Title 27, § 20365(a)].
3. Precipitation on Class II waste piles which is not diverted by covers or drainage control systems shall be collected and managed through the LCRS, which shall be designed and constructed to accommodate the precipitation conditions for each class unit [Title 27, § 20365(b)].
4. Diversion and drainage facilities shall be designed, constructed, and maintained to [Title 27, § 20365(c)]:
 - a. Accommodate the anticipated volume of precipitation and peak flows from surface runoff and under the precipitation conditions for the waste management unit.
 - b. Effectively divert sheet flow runoff laterally, via the shortest distance, into the drainage and collection facilities.
 - c. Prevent surface erosion through the use of energy dissipators where required to decrease the velocity of runoff, slope protection, and other erosion control measures where needed to prevent erosion.
 - d. Control and intercept run-on, in order to isolate uncontaminated surface waters from water that might have come into contact with waste.
 - e. Take into account:
 - i) For closed waste management units and for closed portions of units, the expected final contours of the closed unit, including its planned drainage pattern.
 - ii) For operating portions of waste management units other than surface impoundments, the unit's drainage pattern at any given time.
 - iii) The possible effects of the waste management unit's drainage pattern on and by the regional watershed.
 - iv) The design capacity of drainage systems of downstream and adjacent properties by providing for the gradual release of retained water downstream in a manner which does not exceed the expected peak flow rate at the point of discharge if there were no waste management facility.
 - f. Preserve the system's function. The Discharger shall periodically remove accumulated sediment from the sedimentation or detention basins as needed to preserve the design capacity of the system.

5. Collection and holding facilities associated with precipitation and drainage control systems shall be emptied immediately following each storm or otherwise managed to maintain the design capacity of the system [Title 27, § 20365(d)].
6. Surface and subsurface drainage from outside of a waste management unit shall be diverted from the unit [Title 27, § 20365(e)].
7. Cover materials shall be graded to divert precipitation from the waste management unit, to prevent ponding of surface water over wastes, and to resist erosion as a result of precipitation [Title 27, § 20365(f)].
8. Any drainage layer in a final cover shall be designed and constructed to intersect with the final drainage system for the waste management unit in a manner promoting free drainage from all portions of the drainage layer [Title 27, §20365(f)].

INFORMATION SHEET

WASTE DISCHARGE REQUIREMENTS ORDER R5-20018-0027
CITY OF AUBURN AND RECOLOGY AUBURN PLACER
AUBURN LANDFILL
CLOSED CLASS III LANDFILLS
POST-CLOSURE MAINTENANCE, DETECTION MONITORING,
EVALUATION MONITORING AND CORRECTION ACTION
PLACER COUNTY

Background

The Auburn Landfill is a closed, municipal solid waste (MSW) landfill facility about three miles north of Auburn near Elders Corner. The landfill facility consists of two landfill units, referred to as Landfill 1 (25-acres) and Landfill 2 (3-acres), both of which are unlined. Landfill 1 (LF-1) operated from 1958 until September 1983, accepting primarily household refuse and nonhazardous industrial wastes. Landfill 2 (LF-2) operated from 1958 to 1979, accepting industrial (Formica plant) wastes subsequently classified as hazardous. Both landfill units were closed with a compacted soil cover in 1984 prior to the enactment of Chapter 15 regulations and as such are “closed, inactive, or abandoned” (CAI) units under Title 27, section 20080(d)(1).

Geology

The site geology generally consists of thin layer of surface alluvium underlain by sedimentary or metamorphic bedrock. The surface alluvium generally consists of up to two feet of silt and/or clay loam soil interspersed with bedrock outcrops. Bedrock at the site generally consists of sheared shale and sandstone interrupted by protrusions of greenstone or green schist that appear as large boulders in the central and northwest portions of the site. The permeability of the weathered/fractured bedrock is estimated to be about 1×10^{-4} cm/sec.

Groundwater

A March 2017 DWR supply well survey found an estimated 161 domestic supply wells, three industrial supply wells, one agricultural well, and one public supply well within a one-mile radius of the site. See Attachment 1. Shallow groundwater at the site generally flows to the southwest consistent with topography. The depths to groundwater range from about 1.5 feet below ground surface (bgs) in the southwest corner of the site to about 50 feet bgs in the northeast corner of the site. Background groundwater quality is average with total dissolved solids (TDS) of about 370 milligrams per liter (mg/L). There are currently 13 landfill monitoring wells for the facility, including seven onsite wells and six offsite monitoring wells. Six of the wells are directly down gradient, one is upgradient and the others are side gradient.

Historical monitoring indicates volatile organic compounds (VOCs) and elevated concentrations of general minerals in groundwater downgradient of the landfill indicative of a leachate release from the facility. Concentrations of VOCs in wells at the site have generally declined to trace or non-detect levels. Elevated concentrations of alkalinity (1,100 mg/L, chloride (240 mg/L), hardness (1,700 mg/L) and TDS (1,400 mg/L) continue to be

detected in point of compliance wells at the site, however, and at lower, but still elevated, concentrations downgradient offsite.

Landfill Unit Design

LF-1 consists of two unlined fill areas referred to as the Northern Fill Area (NFA) and Southern Fill Area (SFA). Both fill areas were generally excavated to bedrock and constructed with a dendritic, non-Title 27 leachate collection system prior to filling. The leachate collection system consisted of a network of French drains plumbed via header pipe to a concrete sump at the toe of the SFA along Shale Ridge Road. The sump was equipped with two automatic pumps that pump sump liquid to a sewer manhole near the facility office at the top of the main access road from Shale Ridge Road. Up to 10 million gallons of liquid are typically pumped per year, mostly during the wet season. LF-2 consisted of five pits excavated to estimated depths ranging from 5 to 30 feet bgs. No leachate collection facilities were installed at LF-2. See Attachment 2.

Revised WDRs

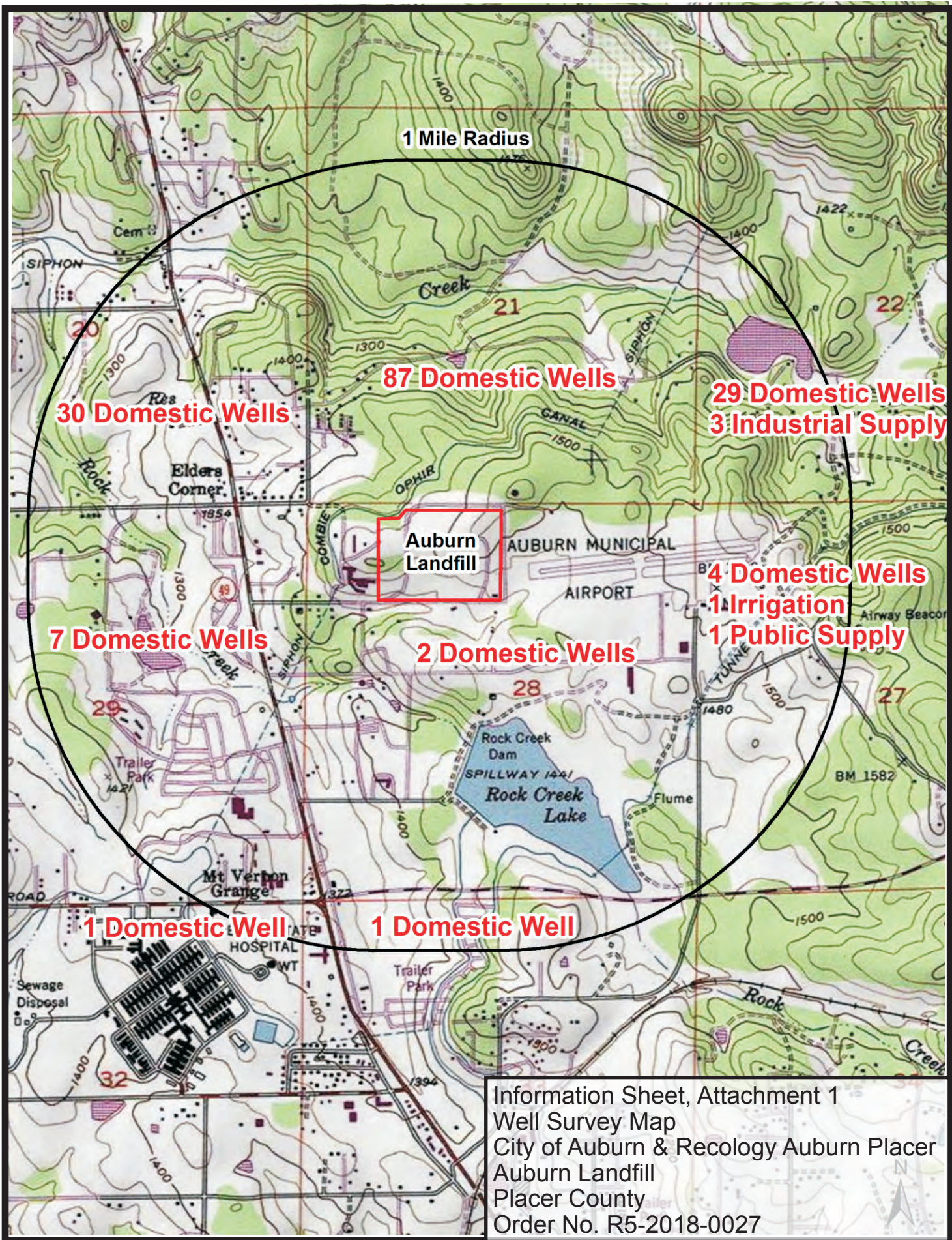
These revised WDRs re-classify LF-2 as a Class III landfill unit and require that groundwater monitoring of the unit include phenols given the unit's waste disposal history noted above. The Discharger is also required to evaluate the final cover over both units (LF-1 and LF-2) to ensure that the final covers over both units comply with Title 27 standards. See WDR Postclosure Specification E.1. The Discharger is also required to submit a work plan for the installation of additional onsite monitoring wells at the units to comply with Title 27 detection/corrective action monitoring requirements. See WDR Provision I.7.b. An Evaluation Monitoring Program work plan is also required to determine the base of landfill wastes in areas of the landfill where it is suspected that groundwater may be in contact with wastes during the wet season, including the excavation pits at LF-2 and the western and central parts of the Southern Fill Area (SFA) where the landfill waste column is closer to groundwater. See WDR Evaluation Monitoring and Corrective Action Specification H.1. Any Engineering Feasibility Study submitted under the WDRs in response to a release is required to address, among other issues, Title 27 siting and containment system requirements, including minimum groundwater separation requirements. See WDR Evaluation Monitoring and Corrective Action Specification H.5.

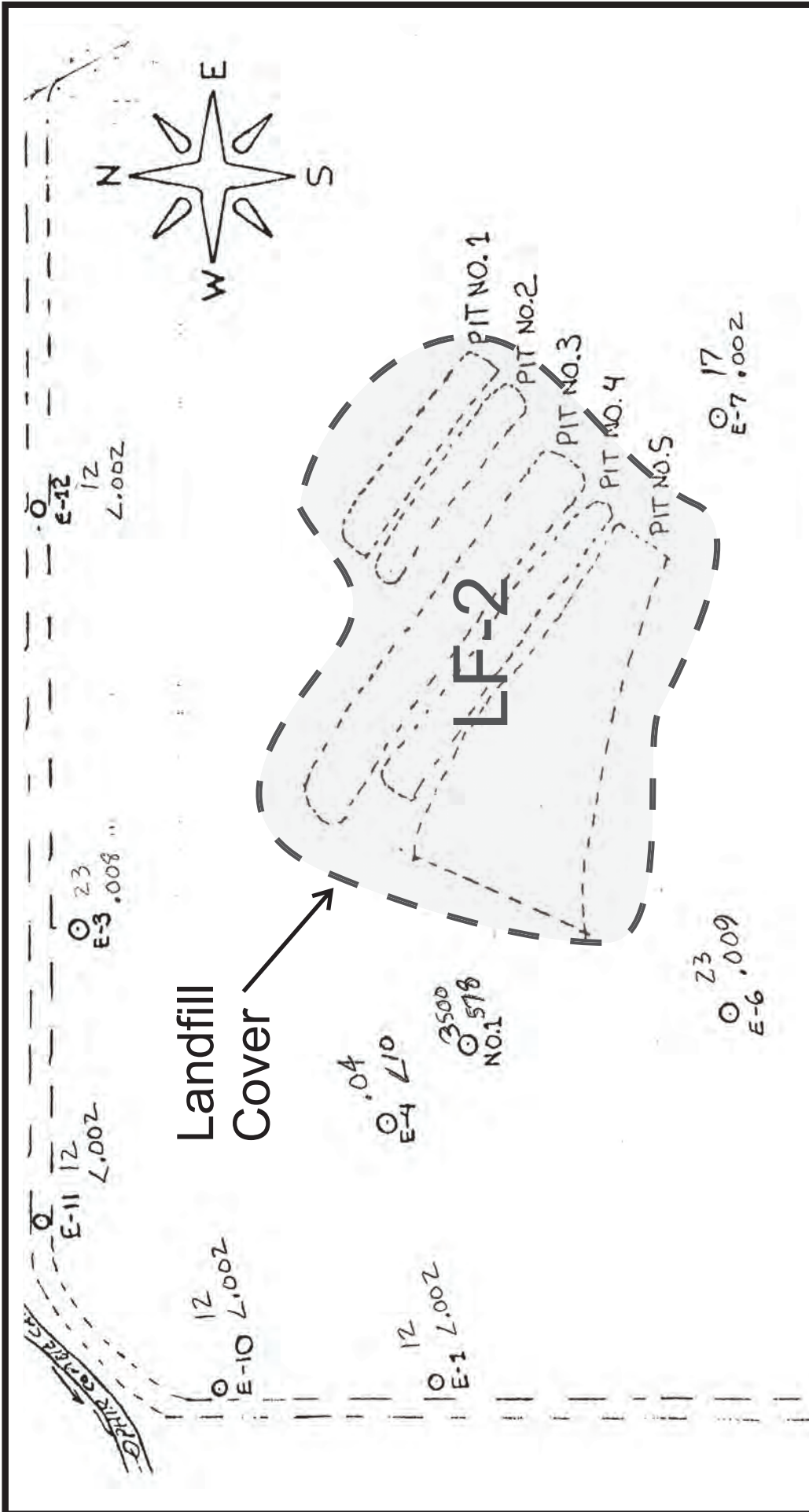
The WDRs also require that the Discharger provide financial assurances for the two landfill units consistent with Title 27 requirements for landfill units not regulated by CalRecycle financial assurance sections of Title 27. Cost estimates for postclosure and corrective action are required to be included in an updated Postclosure Maintenance Plan and a corrective action report to be submitted for the facility. See WDR Provisions I.8.f and I.8.a.

The WDRs also require that the Discharger submit a revised Water Quality Protection Standard (WQPS) Report and an updated Sample Collection and Analysis Plan reflecting installation of the above wells, updated concentration limits, and proposed data analysis methods. The Monitoring and Reporting Program in the WDRs generally requires quarterly groundwater elevation monitoring, semiannual monitoring for VOCs and general minerals, and five-year monitoring for landfill constituents of concern (COCs). The next five-year COC monitoring event is required to be conducted by September 2020.

Surface drainage at the site is to an ephemeral tributary to Rock Creek about 3,000 feet southwest of the site. Rock Creek flows to the northwest into Dry Creek, a tributary to Coon Creek, which flows into the Sacramento River.

JDM





Information Sheet: Attachment 2
 Former Excavation Pits At :LF-2
 City of Auburn
 Recology Auburn Placer
 Placer County
 WDR Order No. R5-2018-0027

3/19/19