

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2014-0022

WASTE DISCHARGE REQUIREMENTS
FOR
CORRECTIVE ACTION, POSTCLOSURE MAINTENANCE, AND
SURFACE IMPOUNDMENT OPERATIONS
NEVADA COUNTY DEPARTMENT OF PUBLIC WORKS
MCCOURTNEY ROAD LANDFILL
CLASS III LANDFILLS AND CLASS II SURFACE IMPOUNDMENTS
NEVADA COUNTY

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

1. The Nevada County Department of Public Works (hereinafter Discharger) owns and operates the McCourtney Road Landfill, a closed municipal solid waste (MSW) landfill about 4 miles southwest of Grass Valley, as shown in Attachment A: Location Map, which is incorporated herein and made a part of this Order by reference. The facility is regulated under the California Water Code, section 13000 et seq.; California Code of Regulations, title 27, section 20005 et seq. (Title 27); and the Code of Federal Regulations, title 40, section 258 (40 CFR 258 or "Subtitle D"). Applicable Subtitle D regulations are implemented through State Water Resources Control Board (State Water Board) Resolution 93-62.
2. The facility is on a 244-acre site in Sections 5, 8, and 9, T15N, R8E, MDB&M, corresponding to Assessor Parcel Numbers 25-120-12, 25-130-08, 25-130-46, 25-130-47, 53-310-15, 53-310-17, 53-310-18, 53-310-37, 53-310-38, 53-310-39 and 53-310-40. The geographic coordinates of the site are Latitude 39.172° north, Longitude - 121.109° west. The facility address is 14741 Wolf Mountain Road, Grass Valley.
3. On 15 July 2013, the Discharger submitted an amended Report of Waste Discharge (RWD) describing various facility improvements and updated operations information since adoption of previous WDRs Order R5-2004-0022 in 2004, including, but not limited to, the following:
 - a. Installation of a landfill gas extraction system;
 - b. Installation of an above ground tank farm and associated piping for leachate storage;
 - c. Plans for overhaul and future use of Class II surface impoundment SI-1;
 - d. Monitoring data for the past ten years showing a significant decline in groundwater pollution; and
 - e. Updated financial assurances information.

In light of the above changes at the facility, WDRs Order R5-2004-0022 is out of date and needs to be revised. This revised WDR Order includes the necessary findings, regulatory references, and requirements applicable to the facility given the above

changes and current operations at the facility.

4. The landfill operated from 1973 to 1992, accepting primarily household wastes from incorporated and unincorporated areas of western Nevada County (e.g., Nevada City, Grass Valley, Lake of the Pines). The landfill stopped accepting wastes in November 1992 upon start-up of an onsite transfer station. In 1998, the landfill was closed (i.e., graded and capped in accordance with Title 27 regulations). Since the transfer station start-up in 1992, wastes have been transported to the Anderson Landfill in Shasta County and the Lockwood Landfill in Storey County, Nevada.
5. The facility includes two closed landfill units under Title 27 regulations, referred to herein as Landfill Units 1 and 2. Landfill Unit 1 consists of two cells (Old Landfill Mass and 89-90 Cell) operated as separate landfill units under previous WDRs. Landfill Unit 2 consists of a single cell (90-91 Cell) operated as one landfill unit under previous WDRs. The closed landfill units at the facility may be described as follows:

<u>Unit</u>	<u>Cell</u>	<u>Title 27 Classification</u>	<u>Area (Acres)</u>	<u>Containment System</u>	<u>Period Operated</u>
Landfill Unit 1	Old Landfill Mass	III	24.9	Unlined ¹	1972 - 1989
	89-90 Cell		6.3	Partially lined	1989 - 1990
Landfill Unit 2	90-91 Cell	III	5.1	Lined	1990 -1992

1. Design relied on adequacy of underlying natural geologic materials for containment.

6. The facility also includes two classified surface impoundments referred to as Surface Impoundments 1 and 2 (SI-1 and SI-2), as follows:

<u>Surface Impoundment</u>	<u>Title 27 Classification</u>	<u>Capacity (Million Gallons)</u>	<u>Containment System</u>	<u>Period Operated</u>
SI-1	II	5.2	Double-lined	1987 - present
SI-2	II	1.3	Double-lined	1990 - present

7. Other onsite facilities include four leachate pump stations; a landfill gas (LFG) extraction and treatment system; precipitation and drainage controls; three sedimentation basins; landfill gas and groundwater monitoring systems; the Materials Recovery Facility (MRF) and transfer station; and other related facilities. The site also includes two large buffer areas beyond the facility boundary with a combined area of 87 acres. See Attachment B: Facility Map, which is incorporated herein and made a part of this Order by reference.
8. The site also includes various former operations areas, as follows
 - a. Approximately 52 acres in the northern part of the site used as a burn dump from

1952 to 1973. The area was decommissioned in 1973.

- b. An unlined, household waste landfill unit immediately southeast of the Old Landfill Mass (1976 Cell) that was clean closed in 1995. The area is now a sedimentation basin.
- c. A metals recycling and disposal area near the facility entrance (White Metals Disposal Area) that was clean closed in 1995.
- d. A former septage pond area in the northeastern part used for septage disposal from 1972 to 1990. The area consisted of about 22 unlined ponds. The southern portion of the area was used for expansion of the Old Landfill Mass and construction of the 90-91 Cell and two Class II surface impoundments at the facility. The remainder of the area was decommissioned in 1991.
- e. Microwave Pond -- An area immediately north of the Old Landfill Mass where septage transfer operations were conducted. The area was decommissioned in 1995.

See the Information Sheet for additional details on the above operations.

SUBTITLE D

- 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 accepted MSW or after 9 October 1991. State Water Board Resolution 93-62 requires the Central Valley Water Board to implement in WDRs for MSW landfills the applicable provisions of the federal MSW regulations that are necessary to protect water quality, and in particular the containment provisions and the provisions that are either more stringent or that do not exist in Title 27.
- 10. Neither of the cells in Landfill Unit 1 (i.e., Old Landfill Mass and 89-90 Cell) are subject to Subtitle D regulations because they did not accept wastes on or after 9 October 1991, the effective date of Subtitle D. Landfill Unit 2's single cell (90-91 Cell) was subject to all of Subtitle D regulations because it accepted household wastes, operated on or after 9 October 1991, and did not close prior to the applicable federal deadline (9 October 1993).
- 11. This Order implements the applicable regulations for discharges of solid waste to land through requirements (e.g., prohibitions, specifications, provisions, monitoring and reporting requirements) included herein and in the Standard Provisions and Reporting Requirements for Industrial Facilities (SPRRs) dated September 2003, which are part of this Order. Monitoring and reporting requirements are included in the Monitoring and Reporting Program (MRP) No. R5-2014-0022 and in the SPRRs. Requirements in

regulation generally applicable to the units at the facility 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 of these WDRs. In the event of inconsistency or conflict, requirements in the WDRs supersede those in the SPRRs.

12. Title 27 contains regulatory standards for discharges of solid waste promulgated by the State Water Board and the California Department of Resources Recovery and Recycling (CalRecycle). In certain instances, this Order cites CalRecycle regulatory sections. Title 27, section 20012 allows the Central Valley Water Board to cite CalRecycle regulations from Title 27 where necessary to protect water quality provided it does not duplicate or conflict with actions taken by the Local Enforcement Agency in charge of implementing CalRecycle’s regulations.

WASTE AND UNIT CLASSIFICATIONS

13. Closed Landfill Units 1 and 2 are Class III landfill units consistent with the classifications of their component landfill cells under previous WDRs. Both units accepted nonhazardous solid wastes, including, but not limited to MSW, as defined under Title 27/Subtitle D regulations. None of the cells were authorized to accept hazardous or designated wastes, except for hazardous asbestos-containing wastes (i.e., wastes containing >1% friable asbestos), as classified under the California Code of Regulations, title 22 (Title 22). Previous WDRs authorized the discharge of hazardous asbestos to the Old Landfill Mass per California Health and Safety Code, section 25143.7.¹
14. Both Landfill Units 1 and 2 accepted de-watered sludge from offsite water treatment and wastewater treatment plants, and solids and sludge from the classified onsite surface impoundments. It is unknown whether such discharges to Landfill Unit 1 complied with current regulatory standards for sludge co-disposal contained in Title 27, sections 20200(d) and 20220(c) because most of that unit (i.e., Old Landfill Mass area) is unlined. Other wastes historically discharged to the units included wastes from clean-closing/de-commissioning former operations areas; animal carcasses; treated or exempt medical wastes; and nonhazardous ash.
15. Average landfill disposal rates ranged from about 70 to 120 tons per day on an annual basis. Total landfill tonnage is unknown due to a lack of historical records, but up to 2.3 million cubic yards of waste are estimated to be in place based on changes in topography since 1972. The highest elevation of waste at the landfill is about 2,300 feet above mean sea level (MSL), near the head of the ravine in which the landfill was sited. The lowest elevation of waste is about 2,150 feet MSL at the base of the landfill toe at the downstream end of the ravine upstream of the dam. The maximum height of the landfill waste column is about 80 feet corresponding to the approximate center of the Old

¹. California Health and Safety Code, section 25143.7 permits disposal of hazardous ACW in any landfill that has WDRs that specifically permit the discharge, provided that the wastes are handled and disposed of in accordance with applicable statutes and regulations.

Landfill Mass and deepest portion of the underlying ravine.

16. Both surface impoundments at the site (SI-1 and SI-2) are Class II waste management units under Title 27, Section 20250. Both are "new" units under Title 27 because they began operations after 27 November 1984. SI-1 and SI-2 historically accepted liquid and semi-solid wastes classified as designated, nonhazardous, and/or inert. Neither of the impoundments was authorized to accept hazardous wastes.
17. From 1990 to 1992, the facility also operated as a septage transfer station, accepting septage and chemical toilet wastes from offsite sources. Septage wastes were temporarily stored in Baker tanks in the Microwave Pond area. The tanks were periodically pumped out and the waste hauled by tanker truck to an authorized disposal facility (e.g., Lake Wildwood Wastewater Treatment Plant).
18. The Materials Recovery Facility at the site includes areas for wood and yard waste diversion; buyback of common recyclables; white goods processing; green waste composting; and handling of household hazardous waste under the County's CUPA/HazMat program. The transfer station and MRF are regulated under a single permit issued by the Local Enforcement Agency (LEA). Wastewater from tipping floor within the transfer station is captured by a subsurface collection sump and pumped by PS-4 through a closed pipe collection system to the leachate tank farm. See Attachment B.

SITE DESCRIPTION

19. The site is in the northern foothills of the western Sierra Nevada Mountains at an average elevation of about 2,250 feet MSL. Topographic relief in the area generally consists of hills and ridges separated by ravines and/or intermittent streams. Vegetation varies with topography, and includes pine and oak trees; shrub growth such as manzanita and ceanothus; and various native grasses.
20. The landfill was sited at the head of a small east-sloping ravine that included a seasonal stream draining to the east. An embankment was constructed across a downstream portion of the ravine as part of the landfill containment system. The seasonal stream was subsequently buried during landfill development. Surface elevations at the site range from about 2400 feet MSL in the upper reaches of the ravine on the western side of the site to about 2100 feet MSL on the eastern side of the site. Differences between the original and present site topography reflect changes associated with landfill development.
21. Land uses in the area include agricultural, industrial, and rural housing. Industrial uses are generally limited to the landfill, transfer station, and an animal control facility (about 1,000 feet northwest of the site). Historically, the Grass Valley area is famous for lode and placer gold mining, most of which occurred in the mid to late 1800s.

22. An August 2013 Department of Water Resources (DWR) well survey identified 156 domestic wells within a one-mile radius of the site. These wells range from approximately 50 to 600 feet deep. Water yields for these wells are generally less than 18 gallons per minute (gpm). The closest of these wells are along Wolf Mountain Road immediately south of the site and Hidden Valley Road northeast of the site in the Hidden Valley Subdivision, which depends on the well water for drinking water supply. Nine nearby wells were historically impacted by the landfill and monitored by the Discharger under previous WDRs. See Finding 48 and Attachment C: Groundwater Monitoring.
23. The site is not within a 100-year floodplain based on the Federal Emergency Management Agency's Flood Insurance Rate Map, Community Panel Number 060-57C-0650E, effective February 3, 2010.
24. The site receives an average of about 53 inches per year of precipitation. The 100-year, 24-hour precipitation event is 8.3 inches based on the Rainfall Depth Duration Frequency data provided by the State Department of Water Resources for the Grass Valley Station about 4 miles northeast of the site. The 1,000-year, 24-hour precipitation event for this station is 10.6 inches. The mean annual Pan A evaporation is 46.7 inches per year as measured at the Nevada City Station.

Geology

25. The site is in the Western Metamorphic Belt of the Sierra Nevada Mountains, a geologically complex region characterized by steeply dipping, northwest-southeast (NW-SE) trending ridges. Rock formations in the area are typically faulted and folded in a NW-SE direction consistent with the regional metamorphic fabric. The area generally consists of metamorphic rocks of sedimentary and igneous origin intruded by plutonic igneous rocks.
26. Two primary shear zones have been identified at the site, one trending N20°W and a subordinate conjugate trending N30°E.² The latter merges into the former in the northern part of the site south of MW-4. The N20°W shear zone then extends to a northwest trending ravine immediately north of the site. The ravine (likely another shear zone) is believed to act as an impermeable barrier to groundwater flow to the north, but may redirect fracture flow to the northeast along its direction of shear. The widths of the shear zones at the site have not been well established, but are estimated to range from about five to 15 feet. Secondary shear zones may also exist perpendicular to the primary ones onsite.
27. Bedrock at the site consists of metavolcanic schist, gneiss serpentinite, and amphibolite intruded by mafic diabase and gabbro dikes. Most bedrock types are steeply dipping

² See March 1993 *Supplemental Hydrogeological Report for McCourtney Road Landfill* prepared by Anderson Consulting Group (pages 15–17); April 1996 *Work Plan, Evaluation Monitoring Program, McCourtney Road Landfill* prepared by Geologic Associates Inc. (pages 2 and 3).

and typically sheared, fractured and/or folded consistent with regional trends. Bedrock fracturing at the site tends to be in the direction of either of the two shear zones. Fractures are generally vertical and close with depth. Other fracture parameters affecting rock permeability and groundwater flow direction (e.g., lateral and vertical distribution; connectivity; size of opening, and mineralization) have not been well established.

28. Native soil at the site consists primarily of Secca Series and rock outcrop soils, as classified by the United States Department of Agriculture's Natural Resources Conservation Service (formerly Soil Conservation Service and Forest Service). Secca series soil generally consists of up to 60 inches of gravelly-to-silty clay loam underlain by bedrock.³ Outcrops generally consist of weathered talc-schist and serpentine. Onsite soils also include Aiken Series clay loam soils, most of which were excavated during landfill development. Areas of exposed bedrock include the south edge of the site near Wolf Mountain Road; the perimeter of the 90-91 Cell disposal area; and north and east sedimentation basin areas.
29. The site is within the Foothills Fault System, a zone of NW-SE trending quaternary faults extending approximately 130 miles from about Jamestown (SW end) to Oroville (NW end). The closest mapped faults within this system include the Highway 49 fault about 5.5 miles to the south-SE; and the Swain Ravine, Spenceville, and Dewitt faults each about 12 miles to the west-NW, west, south-SW, respectively. The closest historically active fault in this system is the Cleveland Hills Fault about 25 miles to the NW near Oroville. In 1975, the Cleveland Hills Fault registered a magnitude 5.8 on the Richter scale. There are no known Holocene faults within 1,000 feet of the facility.
30. The maximum probable earthquake (MPE) for the site is estimated to be about 5.8 on the Richter scale based on the 1975 Oroville earthquake noted above. A maximum magnitude earthquake of 6.2 and a peak horizontal ground acceleration of 0.16g were computed for the site using a probabilistic approach (i.e., seismic hazard distributed across area rather than single source).⁴

SURFACE WATER CONDITIONS

31. The site is drained by two ephemeral streams that flow into French Ravine about one-half mile east of the site. French Ravine is a perennial stream that receives tail water from the Nevada Irrigation District's James and Cory ditches most of the year. French Ravine joins Wolf Creek about two miles to the southeast below the Nevada Irrigation

3. See report *Soil Survey of Nevada County Area, California, U.S. Department of Agriculture, Soil Conservation and Forest Service*, August 1975 (re-issued August 1993).

4. Maximum magnitude earthquake derived from probabilistic seismic hazard (PSH) de-aggregation analysis assuming an earthquake in the Foothills Fault System with a 475-year return period (10% chance in 50 years).

District's Tarr Ditch diversion. Wolf Creek is tributary to the Bear River (including Camp Far West Reservoir); thence the Feather and Sacramento Rivers. See Attachment A.

32. The *Water Quality Control Plan for Sacramento and San Joaquin River Basins, Fourth Edition*, designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin. The designated beneficial uses of the Bear River under the Basin Plan are municipal and domestic supply; agricultural supply; hydropower generation; water contact recreation; non-contact water recreation; warm freshwater habitat; cold freshwater habitat; and wildlife habitat. Potential beneficial uses include migration of aquatic organisms; and spawning, reproduction and/or early development.
33. Storm water runoff at the site is directed to sedimentation basins along the north, east and southeast perimeter of the facility. These basins detain storm water for silt and sediment control during the rainy season and are normally dry during the summer months. The sedimentation basins discharge to the east-flowing ephemeral streams noted in Finding 31. See Attachment G: Storm Water Drainage.

UNSATURATED ZONE CONDITIONS

34. The soil pore gas monitoring system for the site currently consists of 12 multi-probe gas wells (OPs-1 through 12) and five dry piezometers (PZs-100, 101, 102, 113, and 116) installed along the perimeter of the closure units. Most of the multi-probe gas wells have shallow, medium, and deep probes relative to the landfill waste as required under solid waste regulations. The locations of the soil pore gas monitoring points at the site are shown in Attachment E: Gas Controls.
35. Since initiation of soil gas monitoring in 2006, total VOCs detected in soil pore gas have historically averaged about 255 ppbv at the OLM, 145 ppbv at the 89-90 Cell, and 677 ppbv at the 90-91 Cell. Average total VOCs per hit in soil pore gas ranged from 522 ppbv at the 89-90 Cell to 2,307 ppbv at the 90-91 Cell. Chlorinated VOCs represented the largest percentage of total historical hits in soil pore gas (32%), followed by ketones (22%), and BTEX compounds (12%). Ethers and alcohols had the highest concentrations per hit on average. See Information Sheet.
36. Soil pore gas monitoring results for the First Half 2013 were non-detect for methane and organic vapors in most probes. The highest methane concentrations were detected in gas probes OP-4D (11% by volume) and OP-12S (11% by volume) between Closure Landfill Units 1 and 2 and the highest concentration of organic vapors were detected in probe OP-6M (300 ppbv) along the northern perimeter of Closure Landfill Unit 1. VOCs detected in the soil-pore gas at OP-6M consisted primarily of cis-1,2-Dichloroethene (430 ppbv), vinyl chloride (23 ppbv), and trichloroethylene (14 ppbv).
37. No lysimeters were installed beneath the unlined portions of the landfill units, which generally predated Title 27 requirements for unsaturated zone monitoring. Installation of

new or replacement lysimeters beneath landfill units was also infeasible because the units had already been developed. Most of the landfill lysimeters are therefore along the perimeter of the units, as follows:

- a. Landfill Unit 1: LYs-1, 2 and 4 (OLM) and LVs-1 through 4 (89-90 Cell)
- b. Landfill Unit 2: LY-3
- c. SI-1: Ls-2; 3; 5 to 15; 17 to 19; and LV-14
- d. SI-2: LVs-13 and 14

All five "LV" lysimeters installed at Landfill Unit 2 (i.e., LVs-5 through 9) became non-functional and were abandoned in 2000. Other non-functional/abandoned lysimeters included L-16 at SI-1 and LVs-10 through 12 at SI-2. See Attachment D: Landfill Lysimeter Monitoring and Attachment F: Surface Impoundment Monitoring.

38. Soil pore water monitoring data for the site is limited due to generally low liquid recovery rates from the lysimeters. Available data indicates that VOCs have been sporadically detected in lysimeters at the site, primarily those associated with SI-1 (e.g., L-15, L-19). Confirmed VOCs have generally been limited to acetone (up to 145 µg/L), 2-Butanone (up to 154 µg/L), and Tert-Butyl Alcohol (up to 295 µg/L). General minerals also appear to be mildly elevated in some of the lysimeters at the unit (e.g., chloride above 100 mg/L in L-3, electrical conductivity up to 1,520 µmhos/L in L-19), but exceedances have not been confirmed due to lack of fluid recovery in background (L-1). Monitoring reports on file attribute the VOC results to landfill gas and the inorganics to spatial variability. Given the low fluid recovery in the lysimeters at SI-1, the relatively few VOCs detected, and likelihood of impacts from other sources (e.g., landfill gas, residual impacts from Septage ponds), no release from SI-1 was ever confirmed. These WDRs therefore keep the unit in detection monitoring.

GROUNDWATER CONDITIONS

39. Evidence of perched groundwater has been observed in some areas of the site such as where underlying low permeability rock traps infiltrated water within the unsaturated zone. Natural springs and seeps have also been observed in areas, including fracture springs near monitoring wells MW-4 and MW-4A; ephemeral seeps near the toe of the Old Landfill Mass embankment; buried springs or seeps near the southern edge of the Old Landfill Mass; a buried perennial stream several hundred feet west of the Old Landfill Mass embankment heel; and offsite springs down gradient of the former Old Septage Pond Area. The combined year round flow from these springs varies between 5 and 25 gpm.
40. The uppermost aquifer at the site occurs in weathered/fractured bedrock at depths ranging from approximately 101 feet below ground surface (bgs) at monitoring well DW-2 on the western side of the site to less than 12 feet bgs near the downstream end of the ravine on the eastern side of the site. Corresponding piezometric groundwater elevations range from about 2,238 feet MSL to about 2,080 feet MSL +/- 2 to 5 feet of seasonal variation. The overall direction of groundwater flow is to the east consistent

with the site's pre-landfill topography and the average groundwater gradient is about 0.08 ft/ft based on piezometric data.

41. The actual groundwater flow direction and gradient at a given location at the site may differ from that indicated by groundwater elevation contour mapping due to a number of factors, including a lack of piezometric data (especially within the landfill footprint and former septage pond areas); geologic complexity of the site (e.g., faults, fractures, permeability variation, flow barriers); and hydrogeological phenomena (e.g., vertical gradients, recharge zones, mounds). Groundwater monitoring data indicates, for example, that a secondary flow direction may exist to the north or northeast where landfill impacts have been detected. See Finding 49 and Attachment B and Information Sheet, Attachment 2.
42. Background groundwater quality in the uppermost aquifer at the site includes total dissolved solids (TDS) at about 233 mg/L, electrical conductivity at about 285 mg/L, chloride at about 4 mg/L, sulfate at about 10 mg/L, and bicarbonate alkalinity at about 182 mg/L.
43. The beneficial uses of the ground water at the site are municipal and domestic supply, agricultural supply, industrial service supply and industrial process supply.
44. The groundwater monitoring system for Landfill Unit 1 currently consists of two background wells (DW-2 and MW-19) and 14 corrective action monitoring wells. The corrective action monitoring wells include four wells north of the unit (MWs-A. 4, 4A, and 17); three wells northeast of the unit (MWs-2, 14, and 16); and seven wells east of the unit (MWs-5, 6, 6A, 13, 20A, 20B, and 22). One of the corrective action monitoring wells (MW13) is along the Point of Compliance, while the other wells are further down gradient or side gradient. Six of the monitoring wells (4 & 4A; 6 & 6A; and 20B & 20A) are well pairs with upper and lower zone completions. The groundwater monitoring system for Landfill Unit 1 also includes two detection monitoring wells (MWs-3 and 11), one of which (MW-11) is along the southern portion of the Point of Compliance. See MRP Section A.1.a.
45. Landfill Unit 1's monitoring system does not comply with Title 27 performance standards because the unit has only two monitoring wells (MWs-11 and 13) along the Point of Compliance (e.g., down gradient perimeter of the unit). Groundwater monitoring data further indicates that MW-13 may be influenced by surface water infiltration from a nearby sedimentation basin. Given the length of the Point of Compliance, additional Point of Compliance wells are needed down gradient of the unit (e.g., to the east and northeast). In addition, a compliance well is needed southeast of the unit to monitor corrective action progress in returning to compliance with the Water Quality Protection Standard and preventing any potential threat to the privately-owned domestic wells southeast of the site. These WDRs require that the Discharger submit a work plan for

the installation of additional monitoring wells at Landfill Unit 1 as necessary to address these issues. See Monitoring Specification H.25 and Provision J.5.e.

46. The groundwater monitoring system for Closure Landfill Unit 2 currently consists of two background wells (DW-2 and PZ-115) and two corrective action monitoring wells (PZ-105 and DW-1). PZ-105 is along the Point of Compliance, while DW-1 is further down gradient or side gradient. Given the proximity of the two closure units, one or more of the monitoring wells may be influenced by both units.
47. Several other monitoring wells historically installed at the site have been abandoned and are no longer part of the monitoring system (e.g., MWs 7, 8, 10 and 12). The monitoring system also includes various piezometers and two former monitoring wells used only for measuring groundwater elevation. See Attachment C: Groundwater Monitoring
48. A 1987 Solid Waste Assessment Test (SWAT) investigation found groundwater impacts down gradient (i.e., north and east) of the landfill units and some of the former operations areas (e.g., septage ponds, 1976 Cell). Constituents detected included certain volatile organic compounds (VOCs), primarily of chlorinated solvents, and elevated general minerals. Follow-up monitoring under the SWAT and previous WDRs delineated impacts to the site boundary and in nine nearby privately-owned domestic wells, as identified below and shown in Attachment C.

<u>Well</u>	<u>Parcel</u>	<u>Location</u>	<u>Distance From Site</u>
25-130-39	15431	Wolf Mountain Road	50 feet east
25-130-40	15483		100 feet SE
25-140-14	15552		200 feet SE
25-140-39	15543		225 feet SE
25-140-40	15605		250 feet SE
25-140-41	15653		400 feet SE
25-140-32	15719		500 feet SE
25-140-33	15779		600 feet SE
53-280-14	13585		Hidden Valley Road

49. The Discharger has been conducting semiannual groundwater monitoring and reporting under previous WDRs since the early 1990s. Historical monitoring of the Discharger's monitoring wells through the Second Half 2012 showed the following VOC impacts to groundwater down gradient of Landfill Unit 1:

VOC	Concentration, µg/L					
	MW-4A			MW-20A		
	Peak ¹	2002	2012	Peak ¹	2002	2012
Carbon Tetrachloride	<0.3 ²	<0.1 ²	<0.1 ²	11.0	2.3	0.6
Chlorobenzene	1.2	0.8	0.2 T ³	<1.0 ²	<0.2 ²	<0.1 ²

Chloroform	<0.7 ²	<0.2 ²	<0.1 ²	9.0	0.8	0.1T ³
cis-1,2-Dichloroethene	3.3	2.0	1.7	<0.1 ²	<0.1 ²	<0.1 ²
1,4-Dichlorobenzene	0.9	0.6	0.4T ³	<1.0 ²	<0.2 ²	<0.1 ²
Tetrachloroethylene	1.4	0.6	0.2T ³	<1.0 ²	<0.2 ²	<0.1 ²
Trichloroethylene	2.6	1.2	0.8	<1.0 ²	<0.2 ⁴	<0.1 ²

1. Peak concentrations generally occurred in 1996 in MW-4A and in 1993 in MW-20A.
2. Denotes non-detect where "x" is MDL.
3. Trace concentration

Other VOCs (e.g., acetone, benzene) were historically detected at trace concentrations. Time series plots of the data show significant declining trends from peak concentrations, and those with the highest peak concentrations (e.g., Carbon Tetrachloride) had the steepest historical declines. Most historically-detected VOCs had declined to low or trace levels by 2012. Carbon tetrachloride at 0.6 µg/L in MW-20A remained above the California Primary MCL (0.5 µg/L) and California Public Health Goal (0.1 µg/L).

50. Impacts historically detected in the nine offsite domestic wells noted in Finding 48 primarily included Chlorobenzene (up to 1.2 µg/L), 1,1-Dichloroethane (up to 0.8 µg/L), and 1,2-Dichloroethene. Previous WDRs required that the Discharger monitor these domestic wells and report the data under the monitoring and reporting program. No VOCs have been detected in any of these wells since the Second Half 2009 and only a few VOC hits have been detected in the wells since 2003. Monitoring data for the domestic wells closest to the site (e.g., Wells 25-130-39 and 25-130-40 in Attachment C) further indicate concentrations of general minerals at or near background concentrations, including background concentrations of total dissolved solids (about 345 mg/L), chloride (20 mg/L), and bicarbonate alkalinity (about 330 mg/L).
51. Given that the offsite domestic wells appear to have cleaned up over the past 10 years and that the wells do not meet Title 27 standards for monitoring, these WDRs do not require that the Discharger continue to monitor these offsite wells. Instead, as noted in Finding 45, these WDRs require that the Discharger install a Title 27 compliant monitoring well in the southeast portion of the site to monitor the progress of corrective action in cleaning up groundwater and minimizing any potential future threat to nearby offsite domestic wells.
52. Historical monitoring of the Discharger's monitoring wells through the Second Half 2012 showed the following VOC impacts to groundwater down gradient of Closure Landfill Unit 2:

VOC	Concentration, µg/L					
	DW-1			PZ-105		
	Peak ²	2002	2012	Peak ²	2002	2012
Chlorobenzene	<0.6 ³	<0.2 ³	0.1T ⁴	0.9	0.7	0.5

Chloroethane	<0.6 ³	<0.2 ³	<0.2 ³	8	5.3	0.2T ⁴
1,1-Dichloroethane	<0.6 ³	<0.2 ³	0.2T ⁴	10	3.9	0.3T ⁴
1,1-Dichloroethene	<0.6 ³	<0.2 ³	<0.1 ³	2.5	0.2T ⁴	<0.1 ³
cis-1,2-Dichloroethene	<0.6 ³	<0.2 ³	<0.1 ³	43	27	10.8
1,4-Dichlorobenzene	<0.6 ³	<0.2 ³	<0.1 ³	6.2	4.8	2.3
Dichlorodifluoromethane	3.9	2.8	<0.5	3.5	0.5	<0.1 ³
Trichloroethylene (TCE)	2.6 ¹	1.2 ¹	0.6 ¹	1.8	0.5	0.1T ⁴
Trichlorofluoromethane	2.4	1.5	0.1 T ⁴	<1 ³	<0.2 ³	<0.1 ³
Vinyl Chloride	<0.6 ³	<0.2 ³	<0.1 ³	1.5	1.1	0.2 T ⁴

1. TCE detected in MW-4A.
2. Peak concentrations generally occurred in 1996 north of unit and in 1993 east of unit.
3. Denotes non-detect where "x" is MDL.
4. Trace concentration.

Time series plots of the data typically showed peak concentrations between 1993 and 1996 followed by significant declining trends similar to those at Landfill Unit 1. Cis-1,2-Dichloroethene in PZ-105 (10.8 µg/L) had the highest concentrations of any of the detected VOCs at the unit and as of 2012 remained above the California Primary MCL (6 µg/L). Two other VOCs, Trichloroethylene and Vinyl Chloride, exceeded their respective California Public Health Goals.

53. The detection monitoring system for the two Class II surface impoundments at the site does not comply with Title 27 requirements because the units do not have a Point of Compliance well. Monitoring well MW-3 currently serves as a background well for the units. A monitoring well is needed immediately down gradient of SI-1 for detection monitoring. These WDRs require that the Discharger submit a work plan for the installation of a Point of Compliance monitoring well down gradient of the Class II surface impoundments at the site consistent with this Finding and Title 27 requirements. See Monitoring Specification H.13 and Provision J.6.e.
54. 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.
55. The Discharger does not currently have an approved list of concentration limits for detection monitoring. Previous WDRs Order No. R5-2004-0022 required that the Discharger use an interwell data analysis approach for calculation of concentration limits

for statistical (i.e., naturally occurring) constituents of concern in groundwater. Concentration limits for nonstatistical constituents of concern (e.g., VOCs) were specified as non-detect. In 2010, the Discharger proposed the use of an intrawell procedure (intrawell Prediction Limits) for analysis of detection monitoring data (See 29 June 2010 report *Amendment to Sample Collection and Monitoring Plan*, prepared by Holdrege and Kull) and since then has been using this method for computing groundwater concentration limits for general minerals at the site. A review of the files indicates that the proposal was never formally approved and that a revised Water Quality Protection Standard Report was not submitted (or required) under previous WDRs. These WDRs therefore require that the Discharger submit a revised Water Quality Protection Standard Report consistent with the requirements of this Order. The monitoring and reporting program, for example, requires that concentration limits for statistical constituents be based on an interwell approach absent a satisfactory demonstration that an intrawell approach is justified at the site (e.g., existence of significant spatial variability not attributable to a release from the unit). For evaluation of corrective action progress (i.e., trends), the monitoring program specifies an intrawell statistical procedure (e.g., Sens Slope Method) currently used by the Discharger as under previous WDRs. See Section C.4., MRP.

LANDFILL CONSTRUCTION

Old Landfill Mass

56. The Old Landfill Mass (OLM) was sited in an east-sloping ravine as described Finding 20. In 1972, an embankment was constructed across the downstream end of the ravine to contain wastes at the landfill toe. The embankment is approximately 850 feet long, 240 feet wide at the base, 15 feet wide at the top, and 67 feet high. Reports on file (e.g., boring logs) indicate that the embankment may have been constructed in two stages and that the second stage partially overlapped lower lifts of waste. In 1989, a buttress (approximately 30 feet high and 50 feet wide) was constructed to provide additional support for the embankment. The buttress was designed to achieve a safety factor of 1.34 under assumed worst-case conditions.
57. The OLM was an existing waste management unit under Title 27 section 20080(d) because it operated on or before 27 November 1984, the effective date of Title 27 regulations. The unit was constructed without a liner and Title 27 compliant LCRS. Information in the file indicates that the unit's design may have relied on natural geologic materials for waste containment.⁵ Limited leachate collection piping was installed in the landfill toe area. To capture water from a buried natural spring and dewater the area a gravel subdrain with interceptor piping was installed beneath the landfill toe area and

5. Original plans for the unit are reported to have noted the existence of "substantial formations of the clay" underlying the unit. See May 1993 *Site Background and Waste Characterization Summary Reports* prepared by Anderson Consulting Group. Report cites October 1971 *Construction Plans of the McCourtney Road Landfill*, prepared by Laugenour and Meikle.

embankment. The unit's containment system may be summarized as follows, from top to bottom:

<u>Component</u>	<u>Base Liner</u>	<u>Side Slopes</u>
Operations layer	None	
Primary Liner	None	
Filter Fabric	None	
LCRS piping	Toe area only ¹	
Subgrade	Compacted soil	
Subdrain	Toe area embankment and buttress ²	

1. Non prescriptive LCRS (interceptor piping) installed in toe area.

2. Interceptor piping installed for de-watering purposes.

58. In 1989, various improvements to the leachate collection system were implemented at the OLM, as follows:
- a. The leachate and subdrain piping systems in the landfill toe area were joined. Combined flow from both systems (up to 10 gpm on a year round basis) has since been handled as leachate;
 - b. A subdrain and collection piping was installed below the landfill embankment buttress constructed the same year;
 - c. Five leachate extraction wells were installed in waste in the landfill toe area (i.e., west of the embankment) for monitoring and leachate extraction purposes. No leachate was subsequently detected in the wells, and they are now used as piezometers.
 - d. Shallow leachate collection trenches filled with drainage material and covered with filter fabric were installed beneath the intermediate cover along the downslope perimeter of the landfill.
59. LFG collection piping was also installed in the trenches to collect landfill gas and plumbed to an onsite flare station in the northeast part of the OLM. The system operated primarily during periods of high leachate flows when more gas was generated in the LCRS. In 1995, the system was decommissioned as part of landfill closure. See Finding 82.

89-90 Cell

60. The 89-90 Cell was a "new" landfill unit under Title 27, section 20080(d) because it began operations after 27 November 1984. The Cell was constructed adjacent to the southwest side of the OLM and is partially lined. The unlined portion of the unit consists of the 6.2 acre Winter 89 Cell and the lined portion consists of the 1.9 acre Summer 90

Cell. The Summer 90 Cell was constructed with a composite liner including a blanket LCRS. The Summer 90 Cell partially overlies the Winter 89 Cell and adjacent OLM.

61. The unit's containment system may be summarized as follows, from top to bottom:

<u>Component</u>	<u>Winter Cell Area</u>	<u>Summer Cell Area</u>
Operations layer	None	Compacted soil
Primary Liner	None	60-mil HDPE ¹
Filter Fabric	None	Geotextile ²
LCRS	None	12 inches gravel
Subgrade	Compacted soil	
Subdrain	None	

1. HDPE single-side textured, placed smooth side up.
2. 10 oz/yd² non-woven fabric.

90-91 Cell

62. The 90-91 Cell was also a "new" landfill unit under Title 27, section 20080(d). The 5.1-acre unit was constructed immediately west of the OLM and northwest of the 89-90 Cell. The unit was constructed with a composite liner consisting of one foot of compacted clay overlain by a 60-mil HDPE liner. A blanket-type LCRS consisting of 12 inches of gravel was installed over the base liner. The unit's containment system may be summarized as follows, from top to bottom:

<u>Component</u>	<u>Base Liner</u>	<u>Side Slopes</u>
Operations layer	1.5 feet compacted soil	
Primary Liner	60-mil HDPE ¹	
	1 foot compacted clay	
Filter Fabric	Geotextile ²	
LCRS	12 inches gravel	
Subgrade	Compacted soil	
Subdrain	French drain ³	

1. HDPE single-side textured, placed smooth side up.
2. 10 oz/yd² non-woven fabric.
3. Installed beneath downstream end of unit.

The LCRS was plumbed to a compositely lined sump constructed on the southeast corner of the unit.

63. To meet the Title 27 siting requirements for groundwater separation (5-foot minimum),

the Discharger installed a subdrain (French drain) beneath the downstream (southern) end of the unit to intercept groundwater. The subdrain (approximately 620 feet long and 7 feet deep) was plumbed to a sump in the NE corner of the unit. The sump was equipped with automatic pumps set to activate at a specified liquid level (e.g., 2 to 3 feet). A pipe riser was plumbed to the sump for monitoring liquid levels and flows from the sump metered. No flows from the sump have been historically recorded since initial testing, indicating that adequate groundwater separation has been maintained at the unit.⁶

64. In April 1991 after construction of the unit, the Discharger installed a groundwater de-watering system at the 90-91 Cell to ensure adequate separation from high groundwater.⁷ The system included de-watering well PW-1 upgradient of the unit and four additional piezometers along the unit perimeter (PZs-103, 105, 115, and 116). Under an approved contingency plan per previous WDRs, groundwater extraction would be activated whenever the groundwater elevation exceeded a specified level at a piezometer corresponding to a maximum allowable groundwater elevation at the LCRS sump.⁸ Since its installation in 1991, groundwater pumping activities have been primarily limited to the wet season when groundwater levels are highest. Water pumped from PW-1 is discharged to SI-2 for use onsite as operations water. See Discharge Specification B.1.c. Review of boring logs for the piezometers indicate that the depth of first water encountered during drilling was significantly below the bottom of the 90/91 cell. Because the fractures encountered are effectively confined systems, the piezometric levels recorded in the wells do not reflect the actual location of the saturated zone beneath the 90/91 cell. This is corroborated by the fact that the subdrain on the southern end of the unit has never recorded any flow.

SURFACE IMPOUNDMENT CONSTRUCTION

65. Surface Impoundment 1 (SI-1) was constructed in the southern part of the OSPA (north of the Old Landfill Mass) in 1987. With a capacity of 5.2 million gallons (MG) and a 1.4-acre footprint, SI-1 is the larger of the two Class II surface impoundments at the site. SI-1's liner system is as follows, from top to bottom:

<u>Component</u>	<u>Base Liner</u>	<u>Side Slopes</u>
Primary Liner	80-mil HDPE ¹	
Filter Fabric	Geotextile ²	
LCRS	5" gravel	Geonet
Secondary Liner	4 feet compacted clay	

6. See January 1991 certification report *Engineering Report, 1990-1991 Disposal Area*, prepared by Emcon.
 7. See February 1991 *Plan for Enhanced Monitoring of Groundwater in the Vicinity of 90-91 Cell, McCourtney Road Landfill*, prepared by Environmental Solutions, Inc.
 8. See July 1996 *Contingency Plan for Maintenance of Separation Between 90/91 Cell Base Liner and Groundwater*. prepared by Holdrege & Kull.

Subgrade	Weathered bedrock
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1. HDPE single-side textured, placed smooth side up.
2. 10 oz/yd² non-woven fabric.

The LCRS sump for SI-1 (located west of the impoundment in a topographically lower area) consists of a cast-in-place concrete sump with a volume of approximately 1,500 gallons (allowing for 2 feet of freeboard). In June 1989, three surface aerators were installed in SI-1 for odor control and evaporation enhancement. As discussed in Findings 75 and 76, the Discharger plans is to use SI-1 as a backup for the tank farm leachate storage system.

66. Surface Impoundment 2 (SI-2) was constructed in 1990 immediately west of SI-1. The unit is the smaller of the two Class II surface impoundments at the site with a capacity of 1.3 MG and a 0.4 acre footprint. SI-2's liner system is as follows, from top to bottom:

<u>Component</u>	<u>Base Liner</u>	<u>Side Slopes</u>
Primary Liner	60-mil HDPE ¹	
Filter Fabric	Geotextile ²	
LCRS	12" gravel	Geonet
Secondary Liner	60-mil HDPE ¹	
	2 feet compacted clay	
Subgrade	Weathered bedrock	

1. HDPE single-side textured, placed smooth side up.
2. 10 oz/yd² non-woven fabric.

As discussed in Finding 77, SI-2 is now only used to store inert water.

67. This Order includes an Action Leakage Rate (ALR) for the Class II surface impoundments' LCRSs. The ALR is the maximum flow rate through the primary liner to the LCRS beyond which the Discharger is required to take actions to inspect and repair the primary liner system. The ALR is based on the recommendations in the 1992 USEPA guidance document Action Leakage Rate for Leak Detection Systems. The guidance recommends that the ALR for lined surface impoundments be set at no more than 1,000 gallons per acre per day (gpd). Using this recommendation, the calculated ALR is 1,300 gpd (39,000 gallons over a 30-day period) for SI-1 and 400 gpd for SI-2 (12,000 gallons over a 30-day period). This Order sets the ALR for these surface impoundments to these values. The leakage rate will be calculated based on monthly readings of the flow totalizer that records flow from the LCRS manhole back to the surface impoundment.

EVALUATION MONITORING

68. Previous WDRs Order No. 91-229 required that the Discharger develop and implement a two-phase Evaluation Monitoring Program (EMP) to investigate the release to groundwater at the site. Similar requirements were also included in a 4 March 1991 Judgment Pursuant to Stipulation (i.e., stipulated agreement) issued by the Superior Court of the State of California, County of Nevada in settlement of various claims by CalRecycle against the Discharger for solid waste facilities permit violations and other noncompliance issues.⁹
69. Phase 1 of the EMP, completed in 1993, included installation of additional borings and monitoring wells; development of site conceptual hydrogeological and contaminant transport models; delineation of groundwater impacts (both onsite and offsite); leachate characterization; and various other tasks. Phase 2 of the EMP, completed in 1995, included sampling of privately-owned domestic wells to assess the offsite extent of impacts (see Finding 50) and the implementation of “short term” corrective action measures. The results of the Phase I work were documented in various technical reports submitted under the 1991 WDRs and JPS and are summarized in Finding Nos. 26, 40, and 48.¹⁰
70. A final Evaluation Monitoring Program Report, an Engineering Feasibility Study, and a Corrective Action Program (CAP) addressing the release at the site were submitted as an amended Report of Waste Discharge under previous (1996) WDRs.¹¹
 - a. The final EMP report included the results of the Phase 2 site investigation and concluded that leachate release from the landfill was the primary cause of the groundwater impacts. The report also summarized the various short term corrective action measures implemented under previous WDRs. See Finding 71 below.
 - b. The EFS also concluded that active remedial measures such as air sparging, groundwater pump and treat, and active bioremediation would be infeasible due to a lack of hydraulic control associated with the complex hydrogeology at the site. The report concluded that landfill closure would be the most feasible and effective means of corrective action. However, the EFS did not consider landfill gas extraction as a corrective action measure, possibly due to the fact that landfill gas was not widely known as a common source of groundwater impacts at the time and that the EMP

9. Order No. 91-229 and the JPS also required submission of operational plans/reports potentially relevant to the release, including, but not limited to, load checking, sludge management, LCRS testing, septage pond closure, sediment control; liquids management; landfill development; soil pore water investigation; and preliminary closure.

10. See March 1993 *Supplemental Hydrogeologic Report*; May 1993 *Site Background and Waste Characterization Summary Reports*; and June 1993 *Site Hydrogeology Summary Report*, all prepared by the Anderson Consulting Group.

11. See August 1996 *Amended Report of Waste Discharge, Corrective Action Monitoring Proposal, and Water Quality Protection Standard Report*, prepared by GeoLogic Associates.

attributed the impacts to leachate release.

- c. The CAP incorporated the Final Closure and Postclosure Plan as the primary corrective action measure. The CAP report also included a corrective action monitoring plan, water quality protection standard report; proposal for preventing leachate buildup at the Old Landfill Mass to promote embankment stability; and contingency plan for maintaining adequate groundwater separation at the 90-91 Cell.

CORRECTIVE ACTION

71. Short-term corrective action measures implemented at the site prior to landfill closure included, but were not limited to, the following:
 - a. Installation of an LCRS gas recovery system at the OLM (1989);
 - b. Cessation of septage pond operations (1990);
 - c. De-watering of the 90-91 Cell (1991);
 - d. Cessation of landfill operations/waste acceptance (1992);
 - e. Cessation of septage transfer operations (1992);
 - f. Testing and decommissioning of the Old Septage Pond Area (1993); and
 - g. Clean closure of the 1976 Cell and White Metal Disposal areas (1995).
72. April 2000 sampling conducted by CalRecycle staff revealed the presence of elevated methane and VOCs in landfill gas at the site. Central Valley Water Board staff subsequently requested that the Discharger submit a Corrective Action Plan for landfill gas extraction to address landfill gas as a source of VOCs in groundwater. A two-phase amended CAP was ultimately approved, including a site-wide gas investigation to delineate gas sources and pathways (Phase 1) and a landfill gas extraction system design (Phase 2). Phase 1 included installation and sampling of 12 landfill perimeter gas probes and six in situ gas probes. The Phase I report confirmed that landfill gas was migrating outside the waste mass and threatening groundwater quality.¹²
73. The final LFG extraction system design plan was approved by the Regional Board staff on 5 May 2003 and incorporated into previous WDRs Order No. R5-2004-0022, which required gas monitoring. In 2004, the Discharger completed installation of the system, including three extraction wells at the 90-91 Cell (EWs-1 to 3), 21 extraction wells at the OLM (EWs-4 to 24), and three extraction wells at the 89-90 cell (EWs-25 to 27), The system also included headers, condensate lines, two 400 SCFM blowers, a flare station, and associated facilities. See Attachment E: Gas Controls, which is incorporated herein and made a part of this Order by reference.

12. See June 2002 *Revised Landfill Gas Control Corrective Action Plan, Phase 1 Report of Findings/Phase II Recommendations*, prepared by County of Nevada, Department of Transportation and Sanitation.

LEACHATE HANDLING OPERATIONS

Surface Impoundment SI-1

74. Prior to start-up of the aboveground tank farm in June 2013 (see Finding 78), SI-1 was the primary storage facility for non-inert liquids generated at the site. Discharges to SI-1 included the following:

- a. Leachate from the landfill units and LCRs return leachate from SI-1;
- b. Septage and chemical toilet wastes from onsite and offsite sources;
- c. Landfill gas condensate from the landfill gas extraction system;
- d. Impacted groundwater;
- e. Contact storm water from onsite facilities;
- f. Monitoring well liquids (e.g., purge water); and/or
- g. Washwater from the onsite transfer station.

Since 1990, the discharge of septage and chemical toilet wastes has been limited to wastes from onsite sources.

75. Freeboard restrictions and impoundment maintenance requirements in previous WDRs imposed indirect limits on how much and how long waste and any associated solids/sludges could be stored in SI-1 prior to disposal. Liquids were pumped from the impoundments as necessary to maintain freeboard, prepare the impoundment for cleaning or repair, and to winterize the impoundment. The 1.4 acre, open-air impoundment also collected a significant amount of direct precipitation during the wet season, which increased the volume of wastewater in the impoundment that had to be trucked offsite for disposal. The costs of handling and disposing of increased wastewater volumes from rainwater led to the installation of the above above-ground tank farm described in Finding 78. Consistent with previous WDRs, Discharge Specification B.2.c requires that the Discharger maintain a freeboard of at least 2.9 feet in both Class II surface impoundments corresponding to two feet plus the calculated rise in liquid level associated with a 1,000 year, 24 hour storm event. Facility Specification C.4 of these WDRs requires that the Discharger manage the liquid levels in the impoundment in accordance with the Discharger's operation plan, as approved by Board staff and required under Title 27. The WDRs also include other discharge prohibitions and specifications appropriate for a Class II surface impoundment given the Discharger's plan to use SI-1 as a backup storage facility for the leachate tank farm in the event of an emergency.

76. SI-1 has been drained and repaired several times during its operational period to repair leaks in the primary liner. During the past several years, about 2,500 gallons per month of leachate has been collected in the LCRS and returned to the impoundment using a portable pump. In June 2013, concurrent with leachate tank farm start-up, SI-1 was taken out of service for cleaning, leak-testing, and repair. After partially draining the impoundment, it was discovered that leachate stopped collecting in the LCRS. Inspection of the primary liner revealed a leak about 6 to 8 feet below the rim and seam separations in a few areas. The Discharger has since repaired the leak and returned the

impoundment to service as an operations water pond for dust control and fire suppression purposes. The impoundment is still plumbed to the waste management units, and is considered a backup storage facility for the leachate tank farm in the event of an emergency or other contingency and therefore has the potential to take designated waste.

Surface Impoundment SI-2

77. SI-2 was historically used as a backup impoundment to SI-1 and accepted similar types of wastes, as needed. In 1994, however, the impoundment was cleaned out and since then has been used as an operations water pond, primarily for storage of fire suppression water. Liquids discharged to the impoundment include direct rainfall and uncontaminated groundwater from de-watering activities at Landfill Unit 2. This Order limits the discharge of wastes to this impoundment to such inert liquids. See Discharge Specification B.2.a.i. However, SI-2 remains a class II surface impoundment until closure is completed in accordance with Title 27 section 21400.

Tank Farm

78. In March 2013, the Discharger installed an above-ground tank farm east of SI-1 to replace SI-1 as the primary storage facility for leachate and other non-inert liquids generated at the site. The 120,000-gallon tank farm includes eight 15,000-gallon HDPE tanks installed in pairs, a central collection HDPE manhole, HDPE transfer piping, and valves to divert liquid flows to the tanks. The tank farm was sized for two days of peak flow from the pump stations (approximately 43,738 gpd) after which hauling and/or backup storage (i.e., SI-1) would be needed. In June 2013, the tank farm started-up operations. See Attachment B.

Pump Stations

79. Four onsite pump stations exist that pump liquid wastes from various sources to the storage facilities at the site, as follows:
- a. Pump Station 1 (PS-1) is plumbed to collect leachate from Landfill Unit 1, including the leachate collection piping under the final cover (see Finding 91), interceptor piping beneath the landfill toe embankment and buttress areas (commingled leachate and groundwater), and LCRS piping of the former 89-90 Cell.
 - b. PS-2 pumps leachate from Closure Landfill Unit 2's LCRS sump. An adjacent riser for the subdrain was previously disconnected from the pump station, given that the subdrain has been historically dry. (In the event pumping from the subdrain becomes necessary, that riser would also be connected to PS-2).
 - c. PS-3 pumps leachate collected from the leachate interceptor piping in Closure Landfill Unit 2's final cover, as well as LFG condensate collected by gravity drainage from the LFG collection system to a holding tank near the flare station. Both flows are pumped northeast into PS-2's discharge line.
 - d. PS-4 pumps wash water and contact storm water from a holding tank in the

MRF/transfer station area to the central collection manhole.

80. All pump station flows are directed to a central collection manhole north of Closure Landfill Unit 1, from which point they are discharged to either the leachate tank farm and/or SI-1. Effluent from the site septic tanks is also pumped to the central collection manhole through an HDPE pipe connected to a PVC discharge pipe. See Attachment B.

CLOSURE

Landfill Units

81. Title 27, section 21090 provides the minimum prescriptive final cover components for landfills consisting of the following, from top to bottom:
- a. One-foot soil erosion resistant/vegetative layer.
 - b. Geomembrane layer (this layer is required for composite-lined landfills for equivalency to bottom liner).
 - c. One-foot soil low hydraulic conductivity layer, less than 1×10^{-6} cm/s or equal to the hydraulic conductivity of any bottom liner system.
 - d. Two-foot soil foundation layer.

Under Section 20080(b), the Discharger may construct an engineered alternative to the Title 27 prescriptive standard provided that the requisite demonstration is made (e.g., that the design meets Title 27 performance standards and that compliance with the prescriptive standard is not feasible).

82. On 20 March 1997, Central Valley Water Board staff approved a revised Final Closure Plan (FCP) for the landfill (see *December 1996 Revised Final Closure Plan, McCourtney Road Landfill, prepared by Bryan A. Stirrat & Associates*). The revised FCP proposed contiguous closure of the OLM and 89-90 cell (i.e., Closure Landfill Unit 1 herein) and separate closure of the 90-91 cell (i.e., Closure Landfill Unit 2 herein). The FCP included plans for grading and capping the landfill units; seeding for vegetative cover; installation of precipitation and drainage controls; decommissioning of the LCRS gas extraction system (including vertical well, collection piping, and flare station); and various technical reports supporting the closure plan (e.g., slope stability, settlement analysis, liquids management). Required under Title 27. Closure was also intended as a corrective action measure to address impacts to groundwater.
83. The FCP proposed an engineered alternative final cover design that included the following elements, from top to bottom:
- a. Deck and adjacent slopes ($\leq 5H:1V$)
 - i. Vegetative cover – native grass mix
 - ii. Erosion resistant layer – $1\frac{1}{2}$ feet vegetative cover soil (including 6" top soil)
 - iii. Low hydraulic conductivity (LHC) Layer – GCL ($k < 1 \times 10^{-9}$ cm/sec)
 - iv. Foundation layer – 2 feet compacted foundation soil

b. Side Slopes (> 5H:1V)

- i. Vegetative cover – native grass mix
- ii. Erosion resistant layer – 1 foot vegetative cover soil (including 6" top soil)
- iii. LHC layer – 1 foot compacted clay soil ($k \leq 1 \times 10^{-6}$ cm/sec)
- iv. Foundation Layer – 2 feet compacted foundation soil

The approved FCP included the requisite demonstration of the engineered alternative design per Title 27, Section 20080(b).

84. The FCP included updated slope stability analysis for the landfill based on final refuse elevations. As in previous slope stability studies at the site, the eastern embankment slope was determined to be the critical slope for modeling purposes. The cross section developed for slope stability analysis extended from the base of the embankment buttress to the top of refuse at the 89-90 Cell. Groundwater, bedrock, the toe slope buttress and embankment, deep landfill refuse, and shallow landfill refuse were included as contacts in the model. Static analyses yielded a minimum factor of safety of 2.28, indicating stable slopes under static conditions. Dynamic analysis using design earthquake parameters (MPE of 6.0, PGA of 0.17g) also indicated stable slopes with a factor of safety (1.8) exceeding the minimum (1.5) required under Title 27, Section 21750(f)(5). Displacement analysis at the calculated yield acceleration (0.5g) also indicated dynamic stability with only a small amount of movement (0.5 to 0.6 cm) unlikely to affect the structural integrity of the unit.
85. Clay soil for the LHC layer constructed on the side slopes was imported from offsite (Ostrom Road Landfill, Yuba County) due to the unsuitability of onsite soil. Test pad results confirmed that the imported soil met project specifications and were correlated with laboratory permeability test results as part of project CQA. Other CQA measures for the LHC layer included maintenance of at least six inches of overlap between the GCL panels. For the vegetative cover layer, the top soil was amended with fertilizer and mulch to promote vegetative cover growth. The Final Closure Construction Quality Assurance Report was approved by Central Valley Water Board staff on 27 August 1999.
86. The southwest portion of Landfill Unit 1 was graded with an upper deck/crown (2,300 to 2,296 feet MSL) corresponding to the former 89-90 Cell area; the northwest portion with a middle deck (2,290 to 2,284 feet MSL); and the eastern part of the unit (2,274 to 2,264 feet MSL) with a lower deck. Each deck was graded to a three percent minimum slope for sheet flow drainage toward the north, east, and/or southeast. The sideslopes were graded to about 10H:1V on the NW side of the unit; 5.5H:1V on the northeast side of the unit (above the toe slope embankment); 3.5H:1V on the south and west sides of the unit; and 2H:1V along the lower portion of the toe slope embankment. A 20 foot wide bench was also cut into the toe slope embankment as required under Title 27 every 50 feet of vertical height.

Berms and four foot wide concrete-lined V drains were constructed along the deck rims

to capture and convey runoff down to the next deck level via overside drains. A concrete lined ditch was constructed along the landfill perimeter to capture and convey runoff from the unit to sedimentation basins north, east and southeast of the landfill.

87. Landfill Unit 2 was graded with a NW-SE oriented, elongated cover deck approximately 400 feet long and 200 feet wide. The deck included a central spine from which slopes ranged from 3 percent to 10 percent at the deck rim. The NE half of the deck was plumbed for drainage similar to Landfill Unit 1, while the SE half of the deck was graded for sheet flow drainage to the southern sideslopes. Grades along the side slopes ranged from about 2.5H:1V on the SW side to 3.5H:1V on the NE side. A concrete lined ditch was constructed along the landfill perimeter to capture and convey runoff from the unit to sedimentation basins north, east and southeast of the landfill. This is illustrated in Attachment G: Storm Water Drainage.
88. Storm water runoff from the landfill units is discharged to surface water via onsite sedimentation basins located north, east, and southeast of Landfill Unit 1, as follows:
 - a. Runoff from Landfill Unit 1 and the southern half of Landfill Unit 2 flows to the first of two sedimentation basins connected in series immediately southeast of the landfill for removal of coarse sediments. Sediment separation in the first basin (SB-S1) is accomplished by means of a riser pipe plumbed to an outfall that discharges to the second basin (SB-S2). SB-S1 also has an emergency spillway into SB-S2.
 - b. Runoff from the northern half of Landfill Unit 2 and the northwest area of the site flow directly via culvert to the northern sedimentation basin (SB-N).
 - c. Runoff from the Landfill Unit 1 toe embankment and leachate tank farm area flows by concrete-lined ditch to the eastern sedimentation basin (SB-E).

After sediment removal, storm water from the basins is discharged to an earthen-lined drainage ditch equipped with velocity controls that flows into the ephemeral stream east side of the facility. See Attachment G.
89. All landfill drainage facilities, including cover swales, drop inlets, overside drains, perimeter ditches, culverts, and the storm water pond were designed to have sufficient capacity to accommodate a 24-hour, 100-year storm event.
90. The certification report for landfill closure (*October 1998 Final Closure Construction Quality Assurance Report, McCourtney Road Landfill*, prepared by Nevada County Department of Transportation and Sanitation and Anderson Consulting Group) was approved by Regional Board staff on 27 August 1999. The total as-built cost of landfill closure, including site preparation; facilities decommissioning; final cover construction and testing; installation of drainage controls; landscaping; and other items, was approximately \$3.65 million in 1996 dollars.
91. In November 2002, the Discharger installed leachate collection trenches (i.e., French

drains) beneath the final cover along the northern perimeter of Landfill Unit 1 and eastern perimeter of Closure Landfill Unit 2 to capture leachate seepage observed along the sides of the units. The trench at Closure Landfill Unit 1 was approximately 4,300 feet long and the trench at Landfill Unit 2 was approximately 1,500 foot long. The trenches were plumbed to Pump Stations 1 and 2, respectively. No leachate seepage has been noted along the cover since installation of the trenches.

Surface Impoundments

92. Section 21769 of Title 27 requires submission of closure plans for all classified waste management units, including surface impoundments. The Discharger has indicated that surface impoundments SI-1 and SI-2 will remain active as an operations water impoundments and that SI-1 will also be considered a backup impoundment for the leachate tank farm. A preliminary closure and postclosure maintenance plan (PC/PCMP) is therefore required for the units under Section 21769(b). A review of the RWD indicates that the Discharger has not previously prepared and submitted these plans for review and approval, as is required under Section 21769(d). WDR Provision J.5.b therefore requires that the Discharger prepare and submit a PC/PCMP (or PC/PCMPs) for the surface impoundments at the site to the Central Valley Water Board for review and approval.

POSTCLOSURE

93. Central Valley Water Board staff approved the Postclosure Maintenance Plan (PCMP) for the landfill (December 1996 *Revised Final Post-Closure Maintenance Plan, McCourtney Road Landfill*, prepared by Bryan A. Stirrat & Associates) in March 1997. The plan included schedules for maintenance and monitoring of the landfill's environmental control and monitoring systems, including perimeter gas monitoring wells, leachate sumps, subdrains, lysimeters, groundwater monitoring wells, storm drains, and surface water. No updates to the PCMP have been submitted and approved by Regional Board staff since the original plan was approved in 1997. WDR Provision J.5.b requires that the Discharger submit an updated final PCMP to reflect the changes at the facility since 2004 (see Finding 3) and postclosure maintenance and monitoring requirements under this Order. See also Closure and Postclosure Maintenance Specification F.1.I.
94. Title 27, section 21090(e) requires that the Discharger conduct an aerial topographic survey (or other topographic survey meeting Title 27 performance standards, as approved by Regional Board staff) after completion of landfill closure, and every five years thereafter, for the purposes of tracking landfill settlement. The most recent (January 2011) five-year iso-settlement map prepared by the Discharger indicated that most areas within the cells had less than one foot of settlement since the previous five-year mapping. One to two feet of settlement were recorded on the eastern boundary of the Old Landfill Mass and the center of the 90-91 Cell. Re-grading and synthetic cover maintenance are performed periodically by the discharger as needed to address isolated areas of settlement and to promote drainage away from the landfill surface.

WDR Provision J.5.d requires that the Discharger submit a report documenting all final cover surveys conducted at the site since landfill closure and demonstrating that the methodology used to track differential settlement complies with Title 27 requirements. Postclosure Specification F.1.k, and MRP Section A.5.c. require that the Discharger perform an aerial (or approved alternative) topographic survey of the site by **1 June 2016** (five years after the most recent survey) and **every five years** thereafter and track differential settlement of the final cover.

FINANCIAL ASSURANCES

Landfills

95. Title 27, sections 21840 and 22211 requires a cost estimate for landfill post-closure maintenance. The total estimated cost of postclosure maintenance (including groundwater monitoring) for the 30-year postclosure maintenance period in the 1997 approved PCMP was \$16,332,302 (\$1,361,025 per year) in 2013 dollars.¹³ This postclosure cost estimate did not include postclosure maintenance and monitoring costs associated with installation of the LFG extraction system in 2004. As noted above, Provision J.5.b of these WDRs requires that the Discharger submit an updated PCMP, including updated cost estimates reflecting the scope of current landfill monitoring and control systems and requirements under this Order.
96. The Discharger is required to demonstrate financial assurances for postclosure maintenance to CalRecycle pursuant to Section 22210(a).¹⁴ The Discharger has established a Pledge of Revenue for postclosure financial assurances, funded by annual allocations from the County's solid waste budget. CalRecycle has approved this funding mechanism. Financial Assurance Specification G.1.a requires that the Discharger provide and maintain financial assurances to the CalRecycle in at least the amount of the updated postclosure maintenance cost estimates required above, as approved by the Central Valley Water Board and annually adjusted for inflation.
97. The Discharger is required to provide cost estimates and demonstrate financial assurances to CalRecycle for initiating and completing corrective action for all known or reasonably foreseeable releases from the landfill. including a "water release" under Section 22101(a) and a "non-water" release such as caused by a natural event under Section 22101(b).¹⁵ Section 22221(b) requires that corrective action financial assurances be in at least the amount of the greater of the most recently approved (or most recently submitted) corrective action cost estimates for water and non-water releases,

¹³ The corresponding cost estimate for the remainder of the 30-year postclosure maintenance period based on the 1997 PCMP is \$8,166,151 (\$680,513 per year) in 2013 dollars.

¹⁴ Section 22210 applies to all solid waste landfills permitted under Chapter 4 that have, or will be, operated after January 1, 1988.

¹⁵ Solid waste section financial assurance requirements for "non-water" release may or may not exceed the scope of funding required for "water-release" under water qualify Section 20380(b).

respectively.

98. In a 21 April 2010 letter, Central Valley Water Board staff approved the Discharger's cost estimate of \$3,359,270 in 2013 dollars for corrective action financial assurances for the landfill corresponding to the known release to groundwater at the site. The approved cost estimate did not include groundwater corrective action monitoring costs, which were already funded under postclosure financial assurances. Financial Assurances Specification G.1.b requires that the Discharger provide and maintain financial assurances to the CalRecycle in at least the amount of the above corrective action cost estimates, as annually adjusted for inflation.
99. The Discharger has not yet provided a funding mechanism approved by CalRecycle for corrective action financial assurances. Financial Assurances Specification G.1.c requires that the Discharger submit a report demonstrating the adequacy of corrective action financial assurances, including funding and mechanism, by **1 June** of each year.

Surface Impoundments

100. Title 27, sections 22207(a) and 22212(a) require that the Discharger provide financial assurances for closure and postclosure maintenance of the Class II surface impoundments in at least the amount of the approved cost estimates under the PC/PCMP, as annually adjusted for inflation. Financial Assurances Specification G.2.a requires that, by **1 June 2014**, an annually thereafter, the Discharger submit a report to the Central Valley Water Board demonstrating the adequacy (i.e., funding and mechanism) of closure and postclosure financial assurances for the surface impoundments.
101. Title 27, section 22222 requires that the Discharger provide financial assurances for corrective action to address a known or reasonably foreseeable release from the Class II surface impoundments at the site. The Discharger has not yet submitted the cost estimates for these required assurances. These WDRs require that the Discharger submit a report to the Central Valley Water Board providing cost estimates for corrective action financial assurances for the surface impoundments and an annual report demonstrating that corrective action financial assurances (in the amount of approved cost estimates as annually escalated) have been provided in an appropriate mechanism. See Provision J.6.a and J.6.c.

CEQA AND OTHER CONSIDERATIONS

102. The action to revise the WDRs is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Section 21000, et seq.), in accordance with Title 14, CCR Section 15301 for existing facilities.
103. The Nevada County Board of Supervisors certified a final Mitigated Negative Declaration for closure of the landfill on 7 January 1997 (*Initial Study and Mitigated Negative*

Declaration, McCourtney Road Landfill Closure Project-1997, prepared by the Nevada County Department of Sanitation; State Clearinghouse No. 96112030). The report found that the closure project would not have a significant impact on water quality provided that it was implemented consistent with the approved Final Closure and Postclosure Maintenance Plan and applicable landfill regulations. The study did not identify any significant landfill gas issues at the site at the time, and no landfill gas controls were proposed as part of the final closure plan or as a mitigation measure. As noted in Finding 72, landfill gas was subsequently found to be a significant issue at the site, and it became necessary to install landfill gas controls after the landfill had been closed.

104. 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.”
105. The technical reports and monitoring and reporting program required by this Order (MRP No. R5-2014-0022, attached) are necessary to assure compliance with these waste discharge requirements. The Discharger owns and operates the facility that discharges the waste subject to this Order.
106. This Order implements:
 - a. *The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition*;
 - b. *Chapters 1 through 7, Subdivision 1, Division 2, Title 27, of the California Code of Regulations, effective 18 July 1997, and subsequent revisions*;
 - c. *State Water Board Resolution 93-62, Policy for Regulation of Discharges of Municipal Solid Waste*, adopted 17 June 1993, and revised on 21 July 2005.
 - d. The applicable provisions of Title 40 C.F.R. section 258 “Subtitle D” federal regulations as required by State Water Board Resolution 93-62.
 - e. *The Porter-Cologne Water Quality Control Act* (as amended January 1, 2002), Division 7, California Water Code.
 - f. *State Water Resources Control Board Resolution No. 68-16, Statement of Policy With Respect to Maintaining High Quality of Waters in California*.

107. 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 McCourtney Road Landfill was classified as a "1B" discharge under previous WDRs Order R5-2004-0022. These revised WDRs maintain the "1B" designation. The following fee criteria were used:

Threat to Water Quality:

Category "1" – Those discharges of waste that could cause the long-term loss of a designated beneficial use of the receiving water. Examples of long-term loss of a beneficial use include the loss of drinking water supply, the closure of an area used for water contact recreation, or the posting of an area used for spawning or growth of aquatic resources, including shellfish and migratory fish.

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 update cycle for 1B discharges is five 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 Central Valley Water Board's website at:

http://www.waterboards.ca.gov/resources/fees/docs/fy12_13_fee_schedule_wdr.pdf

PROCEDURAL REQUIREMENTS

108. 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.
109. The Regional 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.
110. The Regional Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED, pursuant to Sections 13263 and 13267 of the California Water Code, that Order No. R5-2004-0022 is rescinded, except for purposes of enforcement, and that the Nevada County Department of Public Works, its agents, successors, and assigns, in order to meet the provisions of Division 7 of the California Water Code and the regulations adopted thereunder, shall comply with the following:

A. DISCHARGE PROHIBITIONS

1. Landfill Units

- a. The discharge of 'hazardous' or 'designated' waste, as defined under Title 27, section 20164, to either of the closed landfill units at the site (i.e., Landfill Units 1 and 2), is prohibited.
- b. The discharge of new or additional waste to either of the closed landfill units at the site is prohibited, except for inert liquids applied for postclosure maintenance purposes consistent with Discharge Specification B.1.c.
- c. The discharge or return of leachate and/or landfill gas condensate to the landfill units is specifically prohibited.
- d. The relocation or removal of solid waste from a closed landfill unit is prohibited, except as approved by the Regional Board consistent with this Order and Title 27 regulations (e.g., removal of unauthorized wastes).

2. Surface Impoundments

- a. The discharge of 'hazardous' waste, as defined under Title 27, section 20164, to either of the Class II surface impoundments at the site (i.e., SI-1 and SI-2) is prohibited.
- b. The discharge of solid wastes to the Class II surface impoundments at the site is prohibited, except for solids settled out and accumulated from authorized discharges to an impoundment.
- c. The discharge of semisolid wastes to the Class II surface impoundments is prohibited, except for nonhazardous discharges to SI-1 meeting the following criteria:
 - i. The waste is one of the types listed in Finding 74; and
 - ii. The waste has a moisture content of at least 80%; and/or
 - iii. The waste contains at least 80% free liquids by volume.
- d. The Class II surface impoundments shall not be used for waste disposal purposes or indefinite storage.
- e. Non-inert liquids stored in SI-1 (including any commingled liquids under Discharge Specification B.2.d) or the leachate tank farm shall not be applied or used onsite as operations water.

3. All Units

- a. The discharge of wastes outside of a waste management unit or portions of a waste management unit specifically designed for their containment is prohibited.

- b. The discharge of solid or liquid waste or leachate to surface waters, surface water drainage courses, or groundwater, is prohibited.
- c. The discharge of groundwater, storm water, or wastewater to surface water or any surface water drainage courses is prohibited without an NPDES permit authorizing the discharge.
- d. The discharge of waste within 100 feet of surface waters is prohibited.
- e. The Discharger shall comply with all other waste discharge prohibitions applicable to each unit contained in Section III of the September 2003 *Standard Provisions and Reporting Requirements, Industrial Facilities* (SPRR), which are attached hereto and made part of this Order by reference.

B. DISCHARGE SPECIFICATIONS

1. Landfill Units

- a. Non-inert liquids collected from the landfill units, including leachate, landfill gas condensate, and impacted groundwater (e.g., from sump subdrains or dewatering activities) shall be discharged either to the leachate tank farm or SI-1 or as backup pending disposal at an authorized offsite facility.
- b. The depth of fluid on the base liner of Landfill Unit 2 shall not exceed 30 centimeters (approximately 12 inches) per 40 C.F.R. § 258.40(a)(2). This regulation is interpreted by the Central Valley Water Board to exclude the leachate sump. The Discharger shall immediately notify the Central Valley Water Board staff by telephone, and follow up in writing within seven days if monitoring reveals that the depth of fluid on any portion of the base liner (excluding the sump) exceeds 30 centimeters. The written notification shall include a timetable for remedial or corrective action necessary to achieve compliance with the leachate depth limitation.
- c. Inert liquids (i.e., groundwater, surface water, or storm water) may be applied to the final cover for postclosure maintenance purposes (e.g., dust control, limited irrigation of vegetative cover) consistent with Section 21090(a)(5)(B). Only clean soil meeting project specifications may be used for repair of the landfill cover.

2. Surface Impoundments

- a. The discharges to SI-1 shall be limited to the following:
 - i. Inert liquids (i.e., groundwater, surface water, storm water) to be beneficially re-used in postclosure maintenance operations consistent with Title 27 Section 21090(a)(5)(B); and/or
 - ii. The temporary storage/treatment of the non-inert liquids listed in Finding 74 (a) through (g) pending offsite disposal.
- b. The discharge of wastes to SI-2 shall be limited to the inert liquids specified in

Discharge Specification B.2.a.i above.

- c. A freeboard of at least two (2.0) feet shall be maintained in the surface impoundments at all times. To ensure compliance with this requirement, the Discharger shall maintain at least 2.9 feet (2.0 feet plus the amount needed to hold the design storm to the nearest tenth of a foot) of freeboard at all times except in the event of a storm equal to or exceeding the 1,000-year, 24-hour design storm event in which case at least two (2.0) feet of freeboard must be maintained.
 - d. The commingling of inert and non-inert liquids in SI-1 shall be kept to a minimum to prevent unnecessary buildup of hydraulic head on the liner and the reduction of freeboard.
 - e. The Discharger shall record onsite rainfall to track the magnitude of storm events and shall record surface impoundment freeboard levels in accordance with the attached monitoring and reporting program.
 - f. The Discharger shall immediately notify Central Valley Water Board staff by telephone and email and immediately take measures to regain surface impoundment capacity in the event that freeboard levels are equal to or less than 2.9 feet (2.0 feet plus the amount needed to hold the design storm to the nearest tenth of a foot).
 - g. Leachate collected and recovered from the LCRS of a Class II surface impoundment shall be either returned to the impoundment from which it came or pumped directly to the above-ground tank farm pending disposal at an authorized offsite facility.
 - h. Solids and semi-solid wastes removed from the Class II surface impoundments shall be tested in accordance with the SPRR (See Section XI, Standard Condition B.10) and, if non-inert, disposed of at an appropriate offsite facility. Inert solids and semi-solids from the impoundments may be beneficially reused onsite provided that they are not discharged to the any of the units. See also SPRR, Section XI.B.10.
3. All Units
- a. Leachate generation from a unit shall not exceed 85% of the design capacity of the LCRS or sump pump(s), whichever is lower. If leachate generation exceeds the minimum needed for efficient pump operation, then the Discharger shall notify the Regional Board in writing within seven (7) days. Notification shall include a time table for corrective action necessary to reduce leachate generation.
 - b. The Discharger shall notify the Regional Board within seven days if fluid is detected in a previously dry leachate collection and removal system or

unsaturated zone monitoring system, or if a progressive increase is detected in the volume of fluid in a leachate collection and removal system. See Title 27 Section 21710(c)(3).

- c. The Discharger shall maintain the depth of the fluid in the sump of each 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).
- d. The Discharger shall comply with all other waste discharge specifications applicable to each unit contained in Sections V and XI of the SPRR. See also Facility Specification C.4 (operations plan) and Reporting Requirements I and I.2 (liner leakage notification).

C. FACILITY SPECIFICATIONS

1. 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.
2. The Discharger shall maintain a copy of this Order at the facility and make it available at all times to facility operating personnel, who shall be familiar with its contents, and to regulatory agency personnel.
3. The Discharger shall operate and maintain the active landfill gas extraction system for the closed landfill units, including associated facilities and monitoring systems, until such time as it can be demonstrated that landfill gas is no longer a threat to water quality, as documented by the Discharger and approved by the Executive Officer. See also SPRR Standard Condition XI.B.6.
4. The Discharger shall develop and implement an approved operations and maintenance plan for the Class II surface impoundments at the site consistent with these WDRs and Title 27 regulations. At a minimum, the plan shall describe expected flows and water/liquids balance; waste types; treatment, storage and disposal methods; commingling; contingency plans in the event of facility breakdown or failure; seasonality issues; coordination with above-ground tank farm; inspection and maintenance programs and other information relevant to impoundment operations and maintenance that could potentially affect water quality. See Provision J.6,d and Discharge Specification V.C, SPRR.
5. The Discharger shall comply with all other facility specifications and standard conditions applicable to the facility contained in Sections VI and XI.B, respectively, of the SPRR.

D. STORM WATER SPECIFICATIONS

1. Annually, prior to the anticipated rainy season, but no later than 31 October, any necessary erosion control measures shall be implemented and any necessary construction, maintenance, or repairs of precipitation and drainage control facilities shall be completed to prevent storm water flows from:
 - i. Contacting or percolating through wastes;
 - ii. Causing erosion or inundation of the landfill cover or other areas of site;
 - iii. Causing sedimentation and clogging of the storm drains; and/or
 - iv. Discharging sediment loads to surface waters.
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. Discharges to the onsite sedimentation basins shall be limited to non-contact storm water.
4. As noted in Findings 31 and 33, storm water from the facility is discharged to a surface water. The Discharger shall therefore obtain coverage under the NPDES General Storm Water Permit for Industrial Activities and maintain a Storm Water Pollution Prevention Plan and monitoring and reporting program under that permit.
5. Diversion and drainage facilities shall be designed, constructed, and maintained to [Title 27, § 20365(c)]:
 - i. Accommodate the anticipated volume of precipitation and peak flows from surface runoff and under the precipitation conditions for the waste management unit.
 - ii. Effectively divert sheet flow runoff laterally, via the shortest distance, into the drainage and collection facilities.
 - iii. Prevent surface erosion.
 - iv. Control and intercept run-on, in order to isolate uncontaminated surface waters from water that might have come into contact with waste.
 - v. Take into account:
 - 1) For closed waste management units and for closed portions of units, the expected final contours of the closed unit, including its planned drainage pattern.
 - 2) For operating portions of waste management units other than surface impoundments, the unit's drainage pattern at any given time.
 - 3) The possible effects of the waste management unit's drainage pattern on and by the regional watershed.

- 4) 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.
- 5) 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.
6. 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)].
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)].

E. DESIGN AND CONSTRUCTION SPECIFICATIONS

1. Landfill Units

- a. Construction of a new landfill unit, or lateral or vertical expansion of an existing landfill unit at the site, is prohibited.
- b. All landfill final cover slopes shall be capable of withstanding a maximum probable earthquake. See also Construction Specification VII.E.
- c. The Discharger shall design, construct, and maintain storm water conveyance systems for Class III units for a 100-year, 24-hour storm event [Title 27, § 21750(e)(3)].

2. Surface Impoundments

- a. Class II units shall be designed to withstand a maximum credible earthquake without damage to the unit's foundation; containment structures; piping; and systems that control leachate, surface drainage and erosion, liquid management.
- b. The Discharger shall design, construct, and maintain storm water conveyance systems for Class II units for a 1,000-year, 24-hour storm event [Title 27, § 21750(e)(3)]. See also Standard Condition XI.C.1, SPRR.
- c. Materials used to construct liners shall have appropriate physical and chemical properties to ensure containment of discharged wastes over the operating life, closure, and post-closure maintenance period of the surface impoundments.

- d. Class II surface impoundments shall have a flow totalizer to measure leachate volumes pumped from the sump in order to track leakage rates.
 - e. Class II surface impoundments shall have an unsaturated zone monitoring system consisting of a pan lysimeter beneath the entire sump area of the impoundment.
 - f. Class II surface impoundments and any overflow basins shall have permanent markings on the liner, or a permanent freeboard gauge so that the freeboard can be observed and recorded at any time. The markings or gauge shall have increments no greater than six inches.
3. All Units
- a. Materials used to construct LCRSs shall have appropriate physical and chemical properties to ensure the required transmission of leachate over the life of the surface impoundments and the post-closure maintenance period.
 - b. The Discharger shall comply with all other construction-related specifications and standard conditions applicable to each unit contained in the Sections VII, XI.A, and XI.B, respectively, of the SPRR.

F. CLOSURE AND POSTCLOSURE SPECIFICATIONS

1. Landfill Units
- a. Throughout the postclosure period, the Discharger shall carry out all necessary landfill postclosure maintenance and monitoring activities consistent with the plans and schedules in the final postclosure maintenance plan (final PCMP), as updated and approved by the Central Valley Water Board, CalRecycle, and the LEA. See Title 27, section 20950(a)(1).
 - b. Areas with slopes greater than 10%, surface drainage courses, and areas subject to erosion by wind or water shall be maintained to prevent such erosion.
 - c. The erosion-resistant layer shall be maintained with native or other vegetation capable of providing effective erosion resistance.
 - d. The ponding of any liquid on the final cover of the landfill unit is prohibited.
 - e. The final cover of closed landfills shall be designed, graded, and maintained to prevent ponding and soil erosion due to high run-off velocities [Title 27, § 21090(b)(1)(A)].
 - f. Following closure of any MSW landfill units, the Discharger shall notify the Executive Officer that the deed to the landfill facility property, or some other instrument that is normally examined during a title search, has been recorded and a copy placed in the operating record. The notation on the deed shall in perpetuity notify any potential purchaser of the property that the land has been

used as a landfill facility and that use of the land is restricted to the planned use described in the post-closure maintenance plan [Title 27 § 20515(a)(4) and §21170, and 40 C.F.R. § 258.60(i)].

- g. Construction or repair of the 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)].
 - h. The Discharger shall incorporate into the closure and post-closure maintenance plan a cover-integrity monitoring and maintenance program which includes at least the following: a periodic leak search, periodic identification of other problem areas, prompt cover repair, and vegetation maintenance [Title 27 § 21090(a)(4)].
 - i. 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)].
 - j. 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)].
 - k. The Discharger shall complete an aerial topographic survey (or alternative survey meeting Title 27 standards approved by Regional Board staff) of the final cover upon completion of closure activities for that portion of the landfill. The final cover surveys shall include an initial survey and map [Title 27 § 21090(e)(1)]. Every **five years** after completion of the initial survey, the Discharger shall conduct an aerial (or approved alternative) survey of the closed landfill cover and submit an iso-settlement map accurately depicting the estimated total change in elevation of each portion of the final cover's low-hydraulic-conductivity layer [Title 27 § 21090(e)(2)]. A copy of the updated topographic map shall be submitted as specified in the MRP of this Order. See MRP, Section B.6.
 - l. By **1 May 2014**, the Discharger shall submit an updated final PCMP for the closed landfill units that reflects changes in postclosure maintenance and monitoring needs at the site since the plan was last submitted and approved (1996) and the postclosure maintenance and monitoring requirements of this Order. An updated PCMP shall also be submitted any time there is a change that will increase the amount of the post-closure maintenance cost estimate. [Title 27 § 21769(b)]. See Finding 93 and Provision J.5.b.
2. Surface Impoundments
 - a. The Discharger shall, by **15 May 2014**, develop and submit a preliminary closure and postclosure maintenance plan (PC/PCMP) for the Class II surface

- impoundments that meets the requirements of Title 27 sections 21769(b) and 21400. The PC/PCMP shall include a lump sum estimate of the cost of carrying out all actions necessary to clean close each Unit, prepare detailed design specifications, develop the final closure and post-closure maintenance plan, and to carry out the first thirty years of post-closure maintenance, if clean closure may be infeasible or incomplete. See Closure and Postclosure Specification F.2.a, F.2.b, and Provision J.6.b.
- b. The proposed clean closure plan in the PC/PCMP submitted above shall include complete removal and authorized disposal/treatment of all liquids, precipitates, settled solids, liner materials, and adjacent natural geologic materials contaminated by wastes. If complete clean closure of the unit is infeasible, the PC/PCMP shall also include plans and cost estimates for closure and postclosure maintenance of the unit (or any anticipated portion remaining after attempted clean closure) as a landfill in accordance with Title 27 section 21400(b)(2)(A) or as a land treatment unit in accordance with Title 27 section 21400(b)(2)(B).
 - c. The Discharger shall submit an updated PC/PCMP any time there is a change that will increase the amount of the closure and/or post-closure maintenance cost estimate.
 - d. Consistent with the schedule in the most recently updated PC/PCMP, the Discharger shall submit an amended RWD prior to anticipated closure of either of the Class II surface impoundments at the site. The RWD shall include a final closure and post-closure maintenance plan (FC/PCMP) for the impoundment(s) that contains all applicable information required in Title 27 section 21769(c) and 21400, including an itemized cost analysis, clean closure plan and schedule, any proposed final treatment procedures, map, changes to the unit description presented in the most recent RWD, land use of the clean-closed unit, and a construction quality assurance plan that has been prepared by a California-registered civil engineer or certified engineering geologist.
3. All Units
- a. 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)].
 - b. The Discharger shall comply with all other closure and post-closure-related specifications and conditions applicable to each unit contained in the SPRR, including, but not limited to, those in Sections III, IV, and XI.

G. FINANCIAL ASSURANCE SPECIFICATIONS

1. Landfill Units

- a. The Discharger shall obtain and maintain assurances of financial responsibility with CalRecycle for post-closure maintenance of the closed landfill units in at least the amount of the estimate provided in the currently approved final Postclosure Maintenance Plan (PCMP), as annually adjusted for inflation. See Finding 95 and Title 27, Sections 20950(f) and 22207(a).
- b. The Discharger shall obtain and maintain assurances of financial responsibility with CalRecycle for initiating and completing corrective action for all known or reasonably foreseeable releases from the closed landfill units in at least the amount of the currently approved cost estimate, as adjusted for inflation. See Finding 97 and Title 27, §§ 20380(b), 22221, and 22222.
- c. Reports regarding required financial assurances for landfill postclosure maintenance and corrective action, respectively, shall be submitted to the Central Valley Water Board by **1 July** of each year. These reports may be the same as those submitted to CalRecycle for this purpose. If CalRecycle determines that the amount of coverage and/or mechanism is inadequate for either type of financial assurance, then within 90 days of notification, the Discharger shall submit an acceptable mechanism to CalRecycle and the Central Valley Water Board for at least the amount of the approved cost estimate.

2. Surface Impoundments

- a. The Discharger shall obtain and maintain assurances of financial responsibility with the Central Valley Water Board for closure and post-closure maintenance of the Class II surface impoundments in at least the amount of the cost estimate in the approved Preliminary Closure and Postclosure Maintenance Plan (PC/PCMP), as annually adjusted for inflation. See Finding 92, Provision J.5.b, and Title 27, §§ 20950(f) and 22207(a).
- b. By **1 July 2014**, the Discharger shall submit a report showing that it has established an irrevocable fund with the Central Valley Water Board named as beneficiary to ensure closure and postclosure maintenance of the Class II surface impoundments in accordance with the approved cost estimates in the PC/PCMP submitted under this Order, as approved by Board staff and annually adjusted for inflation.
- c. The Discharger shall obtain and maintain assurances of financial responsibility for initiating and completing corrective action for all known or reasonably foreseeable releases from the Class II surface impoundments at the site in the amount of [Title 27, §20380(b), § 22221, and § 22222]. See also Financial Assurances Provision IV.A, SPRR.

- d. By **15 April 2014**, the Discharger shall submit for Central Valley Water Board staff approval a report providing cost estimates for corrective action sufficient to address a known or reasonably foreseeable release from the Class II surface impoundments at the site pursuant to Title 27 Section 22222. (Presumably these estimates will be based on a reasonably foreseeable release scenario given that no release has been confirmed at either unit and the units are in detection monitoring).
 - e. By **1 July 2014**, pursuant to Title 27 Section 22222, the Discharger shall submit a report showing that it has established an irrevocable fund with the Central Valley Water Board named as beneficiary to ensure corrective action funds are available to address a known or reasonably foreseeable release from the Class II surface impoundments at the site.
3. All Units
- a. The financial assurance mechanism(s) provided for closure, postclosure maintenance, and/or corrective action, as applicable to each unit, shall be among those listed in Title 27 Section 22228 for which the Discharger is eligible. For financial assurance mechanisms requiring funding, the Discharger shall either fully fund the mechanism by **1 July 2014** or may propose a payment schedule. If the Discharger proposes a payment schedule to fund the mechanism, it shall submit a report by **1 July 2015** 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 July 2014**.
 - b. By **1 July** of each year, the Discharger shall submit a report to the Central Valley Water Board that reports the balances of the required financial assurances funds or the amounts of the Guarantees and the adjustments to account for inflation in accordance with Title 27 Section 22236.
 - c. The Discharger shall comply with the financial assurance provisions applicable to each unit contained in Section IV of the SPRR.

H. MONITORING SPECIFICATIONS

1. The Discharger shall comply with the detection and corrective action monitoring program provisions of Title 27 for groundwater, surface water, and the unsaturated zone, and in accordance with MRP No. R5-2014-0022 and the SPRR.

Water Quality Protection Standard

2. The Discharger shall comply with the Water Quality Protection Standard as specified in this Order, MRP No. R5-2014-0022, and the SPRR.
3. 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].

4. 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).
5. 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 waste management unit that extends through the uppermost aquifer underlying the unit) shall not exceed the concentration limits established pursuant to MRP No. R5-2014-0022.
6. For each monitoring event, the Discharger shall determine whether the waste management unit is in compliance with the Water Quality Protection Standard using procedures specified in MRP No. R5-2014-0022 and the Standard Monitoring Specifications in Section I of the SPRRs dated September 2003 which are attached hereto and made part of this Order by reference.
7. 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)].

Background Monitoring (All Units)

8. 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)].
9. 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.
10. 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)].

11. 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).

Detection Monitoring (Surface Impoundments)

12. For each Unit, the discharger shall collect all data necessary for selecting the appropriate data analysis methods pursuant to ¶(e)(7-9) and for establishing the background values specified pursuant to ¶(e)(10). At a minimum, this data shall include analytical data obtained during quarterly sampling of all Background Monitoring Points for a period of one year, including the times of expected highest and lowest annual elevations of the ground water surface. [Title 27, § 20415(e)(6)].
13. 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.]. See Finding 53 and Provision J.6.e.
14. 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.].
15. 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 (B)4, and §20420(b)].
16. 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.
17. 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.

18. **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 H.19 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 H.20 provides the procedure for analytes that are detected in 10% or greater of the background samples such as naturally occurring constituents like chloride.
19. **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:
 - i. The data contains two or more analytes that equal or exceed their respective MDLs; or
 - ii. 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)]:
 - i. In the event that the Discharger or Central Valley Water Board staff concludes (pursuant to paragraph H.19.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.
 - ii. **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:

- iii. **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
- iv. Carry out the requirements of SPRR Section X, RESPONSE TO A RELEASE if a release has been confirmed.
- v. 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.

20. 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)].
 - i. In the event that the Discharger or Central Valley Water Board staff concludes (pursuant to paragraph H.20.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)(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.

- ii. **Confirmation of a Release.** As soon as the retest data are available, the Discharger shall evaluate the results pursuant to paragraph H.20.b.i 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 SPRR Section X, **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.
 21. 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)].
 22. An unsaturated zone monitoring system shall be established for each waste management unit [Title 27, § 20415(d)].
 23. 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)].
 24. 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)].
- Corrective Action Monitoring (Closed Landfill Units)
25. The Corrective Action monitoring program shall include a sufficient number of Monitoring Points installed at appropriate locations and depths to yield ground water samples from the uppermost aquifer that represent the quality of ground water passing the Point of Compliance and at other locations in the uppermost aquifer to

provide the data needed to evaluate the effectiveness of the corrective action program. See Title 27, section 20415(b)(1)(D). As noted in Finding 45, additional monitoring wells are needed at Landfill Unit 1 to meet this standard. Provision J.5.e therefore requires that the Discharger submit a work plan for the installation of these wells.

26. 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.

Monitoring Well Design and Construction

27. All monitoring systems shall be designed and certified by a registered geologist or a registered civil engineer [Title 27, § 20415(e)(1)].
28. 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)].
29. 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)]. 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)].
30. The Discharger shall submit a work plan for review and approval at least 60 days prior to installation or abandonment of groundwater monitoring wells.
31. 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.
32. 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)].

Sample Collection and Analysis

33. 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)].
34. 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.

35. 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)].
36. Appropriate sample preparation techniques shall be used to minimize matrix interferences.
37. The laboratory reporting limit (RL) for all reported monitoring data shall be set no greater than the practical quantitation limit (PQL).
38. 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.
39. Groundwater elevation, temperature, electrical conductivity, turbidity, and pH are to be accurately measured at each well each time groundwater is sampled [Title 27, § 21415(e)(13)].
40. 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)].
41. 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)].
42. The Discharger shall comply with all other monitoring specifications and provisions applicable to monitoring each unit contained in the SPRR, including, but not limited to, those in Sections IX (Provisions for Monitoring) and X (Response to Release) and in accordance with the definitions in Section XII.

I. REPORTING REQUIREMENTS

1. If leachate/liquid generation in the LCRS of a Class II surface impoundment

- exceeds the Action Leakage Rate (ALR) described in Finding 67, the Discharger shall:
- a. **Immediately** notify Central Valley Water Board staff by telephone and email.
 - b. Submit written notification within seven days that includes a time schedule to locate and repair leak(s) in the liner system.
 - c. If repairs do not result in a leakage rate less than the required ALR, the Discharger shall submit written notification within seven days that includes a time schedule for replacement of the upper liner of the surface impoundment or other action necessary to reduce leachate production.
 - d. Complete repairs or liner replacement in accordance with the approved time schedule under “b” and/or “c”, above.
2. If leachate is detected in the pan lysimeter of surface impoundment SI-1, indicating a leak in the containment structures, the Discharger shall:
- a. **Immediately** notify Central Valley Water Board staff by telephone and email that the containment structures have failed.
 - b. **Immediately** sample and test the liquid in accordance with the unsaturated zone monitoring requirements in MRP R5-2014-0022.
 - c. Submit written notification of the release to Central Valley Water Board staff within **seven days** including a time schedule to repair the containment structures.
 - d. Complete repairs of the containment structures in accordance with the approved time schedule.
3. In the event of any change in control or ownership of the facility or disposal areas, the Discharger must notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to this office. To assume operation as Discharger under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. 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 paragraph of General Provision K.2.e in the Standard Provisions and Reporting Requirements 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. If approved by the Executive Officer, the transfer request will be submitted to the Central Valley Water Board for its consideration of transferring the ownership of this Order at one of its regularly scheduled meetings. See also SPRR, section III.F.

4. The Discharger or persons employed by the Discharger shall comply with all notice and reporting requirements of the State Department of Water Resources with regard to construction, alteration, destruction, or abandonment of all monitoring wells used for compliance with this Order or with MRP No. R5-2014-0022, as required by Water Code sections 13750 through 13755.
5. **Within 90 days** of adoption of this Order, the Discharger shall establish and maintain an account with the SWRCB's GeoTracker geographic information system data base, including a full declaration of the names and locations of all waste management units and Field Points (the GeoTracker name for monitoring points), plus a declaration of all COCs, and shall begin uploading word-searchable pdf copies of all monitoring program reports and associated laboratory sheets (the latter in GeoTracker's proprietary format) required under these WDRs. The Discharger shall also upload any additional monitoring program reports or report features required by the Executive Officer beginning with the Reporting Period following notification to submit such additional reports/report-features.
6. The Discharger shall report, in writing, to the RWQCB on the effectiveness of the corrective action program. The discharger shall submit these reports **at least semi annually**. More frequent reporting shall be required by the RWQCB as necessary to ensure the protection of human health or the environment. [Title 27, section 20430(h)]
7. If the Discharger determines that the corrective action program does not satisfy the provisions of this section, the discharger shall, within 90 days of making the determination, submit an amended report of waste discharge to make appropriate changes to the program.
8. The Discharger shall comply with all other notification and reporting requirements applicable to each unit contained in the SPRR, including, but not limited to, those in Sections III (General Provisions), VIII (Reporting Requirements), and X (Response to Release).

J. PROVISIONS

1. The Discharger shall comply with the Standard Provisions and Reporting Requirements, dated September 2003, which are hereby incorporated into this Order. The Standard Provisions and Reporting Requirements contain important provisions and requirements with which the Discharger must comply. A violation of any of the Standard Provisions and Reporting Requirements is a violation of these waste discharge requirements.
2. Pursuant to Water Code section 13267, the Discharger shall comply with Monitoring and Reporting Program No. R5-2014-0022, which is attached to and made part of this Order. A violation of MRP No. R5-2014-0022 is a violation of these waste discharge requirements.

3. The Discharger shall comply with all applicable provisions of Title 27 and Subtitle D that are not specifically referred to in this Order.
4. 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.
5. Pursuant to Section 13267 of the California Water Code, the Discharger shall submit the following reports relevant to the closed landfill units at the site.

Report		Due Date
a.	A completion report for installation of the landfill gas controls installed at the site in 2004.	1 April 2014
b.	Updated Final Postclosure Maintenance Plan (final PCMP) for Landfill Units 1 and 2 per Closure and Postclosure Maintenance Specification F.1.l herein and Title 27, section 21769(b).	1 May 2014
c.	Financial assurances demonstration report for postclosure maintenance, and corrective action.	1 July each year beginning 2014
d.	A report documenting previous final cover surveys conducted at the site and the methodology used to track differential settlement per Postclosure Specification F.1.k.	15 August 2014
e.	A workplan for installation of additional corrective action monitoring wells at Landfill Unit 1 (including a well in the southeastern portion of the site) per Monitoring Specification H.25. See Finding 45.	15 September 2015
f.	A Well Installation Report for the above wells.	15 December 2015

All of the reports required above shall be prepared by a California-registered civil engineer or certified engineering geologist.

6. The following reports relevant to the two Class II surface impoundments at the site shall be submitted pursuant to Section 13267 of the California Water Code and shall be prepared by a California-registered civil engineer or certified engineering geologist:

Report		Due Date
a.	A report providing corrective action cost estimates for the two Class II surface impoundments per Financial Assurances Specification G.2.d.	15 April 2014

b.	A preliminary closure and postclosure maintenance plan (PC/PCMP) for the Class II surface impoundments at the site per Closure and Postclosure Maintenance per Specification F.2. and Title 27, sections 21769(b) and 21400.	15 May 2014
c.	Financial assurances demonstration report for closure, postclosure maintenance, and corrective action per Financial Assurances Specifications G.2.e and G.3	1 July each year beginning 2014
d.	An operations plan for the two Class II surface impoundments per Facility Specification C.4 and Title 27, section 21760(b).	15 September 2014
e.	A workplan for installation of a Point of Compliance monitoring well downgradient of surface impoundment SI-1 per Monitoring Specification H.13.	15 September 2015
f.	A Well Installation Report for the above wells.	15 December 2015

All of the reports required above shall be prepared by a California-registered civil engineer or certified engineering geologist.

7. By **31 July 2014**, the Discharger shall submit a revised Water Quality Protection Standard Report for all units at the site consistent with Title 27 regulations and the requirements of this Order.
8. By **31 July 2014**, and semi-annually thereafter, the Discharger shall submit a report on the progress of corrective action at the closed landfill units per Reporting Specification I.6. Each progress report shall address the following issues:
 - a. The source of the impact.
 - b. The nature and extent of the release.
 - c. Whether the size of the plume and concentrations of constituents within have increased, decreased or have not changed.
 - d. The ongoing effectiveness of landfill closure as a corrective action.
 - e. The ongoing effectiveness of LFG extraction as a corrective action.
 - f. The need for additional or improved corrective action measures and/or monitoring wells.

The reports shall include or reference plans for the installation of any additional monitoring wells necessary to define the extent of the release and/or monitor the progress of corrective action. See also MRP Sections I.1.e.ii and I.5.

9. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of

persons registered to practice in California pursuant to California Business and Professions Code sections 6735, 7835, and 7835.1. As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.

10. The Central Valley Water Board will review this Order periodically and may revise requirements when necessary.
11. This Order shall take effect upon the date of adoption.

If, in the opinion of the Executive Officer, the Discharger fails to comply with the provisions of this Order, the Executive Officer may refer this matter to the Attorney General for judicial enforcement, may issue a complaint for administrative civil liability, or may take other enforcement actions. Failure to comply with this Order may result in the assessment of Administrative Civil Liability of up to \$10,000 per violation, per day, depending on the violation, pursuant to the Water Code, including sections 13268, 13350 and 13385. The Central Valley Water Board reserves its right to take any enforcement actions authorized by law.

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

http://www.waterboards.ca.gov/public_notices/petitions/water_quality

or will be provided upon request.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify 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 7 February 2014.

PAMELA C. CREEDON, Executive Officer

JDM

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2014-0022
FOR

CORRECTIVE ACTION, POSTCLOSURE MAINTENANCE, AND
SURFACE IMPOUNDMENT OPERATIONS

NEVADA COUNTY DEPARTMENT OF PUBLIC WORKS
MCCOURTNEY ROAD LANDFILL

CLASS III LANDFILLS AND CLASS II SURFACE IMPOUNDMENTS
NEVADA 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 No. R5-2014-0022, and the Standard Provisions and Reporting Requirements for Industrial Facilities (SPRRs) dated September 2003. 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 comply with the detection and corrective action monitoring program provisions of Title 27 for groundwater, surface water, and the unsaturated zone in accordance with the monitoring and response to release provisions (i.e., Sections IX and X) of the SPRRs and monitoring specifications (i.e., Section H) of the WDRs. All groundwater monitoring wells at which detection monitoring is conducted and/or along the Point of Compliance of a unit shall constitute Monitoring Points under the Water Quality Protection Standard. All groundwater monitoring wells, unsaturated zone monitoring devices, leachate, 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.

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 (MRP). This MRP includes the following monitoring programs for each unit at the site:

1. Groundwater Monitoring

The Discharger shall operate and maintain groundwater monitoring systems that comply with the provisions of Title 27, sections 20415 through 20430, as applicable to the waste management units at the site. All groundwater monitoring systems shall be certified by a California-licensed professional civil engineer or geologist as meeting the requirements of Title 27. The landfill units are currently in corrective action monitoring and the surface impoundments are currently in detection monitoring.

a. The groundwater monitoring points shall be as follows:

i. Landfill Unit 1

Table A.1.a.i Landfill Unit 1 Monitoring Wells			
<u>Program</u>	<u>Well</u>	<u>Zone</u>	<u>Location</u>
Background	MW-19	Upper	South
	DW-2	Lower	West
	MWs -A. 4, &17	Upper	North
4A	Lower		
Corrective Action	MWs-2, 14, &16	Upper	Northeast
	MWs-5, 6, 13, 20A, & 22 ¹	Upper	East
	6A, 20B	Lower	
Detection	MWs-3, 9 &11 ¹	Upper	South

1. The groundwater monitoring points shall include all future wells installed at the unit per WDR Provision J.5.e (or as otherwise required to comply with Title 27 requirements), as approved by Central Valley Water Board staff.

ii. Landfill Unit 2

Table A.1.a.ii Landfill Unit 2 Monitoring Wells			
<u>Program</u>	<u>Well</u>	<u>Zone</u>	<u>Location</u>
Background	PZ-115	Upper	South
	DW-2	Lower	West
Corrective Action	DW-1	Upper	North
	PZ-105	Upper	East
	PZ-103	Lower	East

iii. Class II Surface Impoundments (contiguously monitored)

Table A.1.a.iii Surface Impoundment Monitoring Wells			
<u>Program</u>	<u>Well</u>	<u>Zone</u>	<u>Location</u>
Background	MW-3	Upper	North-NW
	DW-2	Lower	West-SW
Detection	--- ¹	Upper	East

1. The groundwater monitoring points shall include all future wells installed at the unit per WDR Provision J.6.e (or as otherwise required to comply with Title 27 requirements), as approved by Central Valley Water Board staff.

b. Monitoring Schedule

Monitoring at each unit shall include field parameter testing and groundwater sampling. Groundwater samples shall be collected and analyzed in accordance with the following schedule using the applicable test methods for each constituent listed in Table C.3 attached to this Order.

Table A.1.b Groundwater Monitoring Schedule – All Units			
<u>Parameters</u>	<u>Units</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
<u>Field Parameters</u>			
Groundwater Elevation ¹	Feet & 100ths, MSL	Quarterly	Semiannually
Temperature	oF	Semiannually	Semiannually
Electrical Conductivity	umhos/cm	Semiannually	Semiannually
pH	pH units	Semiannually	Semiannually
Turbidity	NTU	Semiannually	Semiannually
<u>Monitoring Parameters</u>			
Bicarbonate Alkalinity	mg/L	Semiannually	Semiannually
Chloride	mg/L	Semiannually	Semiannually
Nitrate as N	mg/L	Semiannually	Semiannually
Sulfate	mg/L	Semiannually	Semiannually
Total Dissolved Solids (TDS)	mg/L	Semiannually	Semiannually
Volatile Organic Compounds (VOCs)	ug/L	Semiannually	Semiannually
<u>Constituents of Concern</u> (See Table C.3 below)		Every 5 years	Every 5 years

The Discharger shall measure the groundwater elevation in each well quarterly, determine groundwater flow direction, and estimate groundwater flow rates in the uppermost aquifer and in any zones of perched water and in any additional portions of the zone of saturation monitored. 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). Groundwater samples shall be collected semiannually from the background wells, detection monitoring wells, corrective action monitoring wells as applicable to each unit, and any additional wells added as part of the approved groundwater monitoring system. The Discharger shall collect, preserve, and transport groundwater samples in accordance with the approved Sample Collection and Analysis Plan.

2. Unsaturated Zone Monitoring

The Discharger shall operate and maintain unsaturated zone detection and corrective action monitoring systems at the landfill units and surface impoundments that comply with the applicable provisions of Title 27, sections 20415 through 20430. The unsaturated zone monitoring system at the site shall consist of soil-pore water and soil-pore gas monitoring, as specified below.

a. Landfill Units

The soil-pore water monitoring network for the closed landfill units at the site shall consist of the following:

Table A.2.a Unsaturated Zone Monitoring Points – Landfill Units			
<u>Unit</u>	<u>Program</u>	<u>Lysimeter</u>	<u>Location</u>
Landfill Unit 1	Background	---	---
	Corrective Action	LY-3 LYs-1, 2, & 4 LVs-1 to 4	NW perimeter Eastern perimeter 89-90 Cell LCRS line
Landfill Unit 2	Background	LV-7	SW of unit
	Corrective Action	----	----

b. Class II Surface Impoundments

The soil-pore water monitoring network for the two Class II surface impoundments at the site shall consist of the following:

Table A.2.b Unsaturated Zone Monitoring Points – Surface Impoundments			
<u>Unit</u>	<u>Program</u>	<u>Lysimeter</u>	<u>Location</u>
SI-1	Background	L-1	NE of SI-1
	Detection	Ls-11 to 15; & Ls-17 to 19 Ls-2 & 3; Ls-5 to 10	Beneath SI-1 SI-1 perimeter
SI-2	Background	LV-14	Between SI-1 & SI-2
	Detection	LV-13	Beneath SI-2

c. Monitoring Schedule

Soil-pore water samples shall be collected from the monitoring network listed

above and analyzed in accordance with the following schedule using the applicable test methods for each constituent listed in Table C.3 attached to this Order.

Table A.2.c Soil-Pore Water Monitoring Schedule -- All Units			
<u>Parameters</u>	<u>Units</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
<u>Field Parameters</u>			
Electrical Conductivity	umhos/cm	Semiannually	Semiannually
pH	pH units	Semiannually	Semiannually
<u>Monitoring Parameters</u>			
Bicarbonate Alkalinity	mg/L	Semiannually	Semiannually
Chloride	mg/L	Semiannually	Semiannually
Nitrate as N	mg/L	Semiannually	Semiannually
TDS	mg/L	Semiannually	Semiannually
Volatile Organic Compounds	ug/L	Semiannually	Semiannually
<u>Constituents of Concern</u> (See Table C.3 below)		Every 5 years	Every 5 years

3. Surface Water Monitoring

The Discharger shall operate a surface water detection monitoring system for any facility where runoff from waste management unit areas flows or could flow to waters of the United States. The monitoring system shall comply with the applicable provisions of Title 27, sections 20415 and 20420.

a. Ephemeral Stream

As noted in the WDRs, the landfill was sited in a ravine with an ephemeral stream running through it. Storm water that once fed the stream is now captured by the landfill's storm water drainage system and discharged to the landfill's sedimentation basins. Spring water that once fed the stream is captured by subdrain interceptor piping and pumped with leachate to the above-ground tank farm for temporary storage pending offsite disposal. Upstream surface water monitoring at the site is therefore infeasible and downstream flows consist primarily of discharges from the sedimentation basins. Monitoring of the ephemeral stream is therefore not required under this MRP. Surface water monitoring at the site may therefore be limited to storm water monitoring.

b. Storm Water

The Discharger shall monitor storm water runoff to the landfill perimeter sedimentation basins prior to discharge to ephemeral stream east of the facility.

i. Monitoring Points

The storm water monitoring points for the facility are:

Table A.3.b.i Storm Water Monitoring Points – All Units		
<u>Monitoring Point</u>	<u>Status</u>	<u>Location</u>
SW-101	Detection	East Sedimentation Basin (SB-E)
SW-102	Detection	South Sedimentation Basin 2 (SB-S2)
SW-103	Detection	North Sedimentation Basin (SB-N)
SW-104	Background	Northwest
SW-105	Background	Southeast

ii. Monitoring Schedule

Storm water samples shall be collected at each of the above monitoring points and analyzed in accordance with the following schedule using the applicable test methods for each constituent listed in Table C.3 attached to this Order.

Table A.3.b.ii Storm Water Monitoring Schedule – All Units			
<u>Parameters</u>	<u>Units</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
<u>Field Parameters</u>			
Temperature	°F	Semiannually	Semiannually
Electrical Conductivity	umhos/cm	Semiannually	Semiannually
pH	pH units	Semiannually	Semiannually
Turbidity	NTU	Semiannually	Semiannually
<u>Monitoring Parameters</u>			
Total Dissolved Solids	mg/L	Semiannually	Semiannually
Chloride	mg/L	Semiannually	Semiannually
Sulfate	mg/L	Semiannually	Semiannually
Nitrate as N	mg/L	Semiannually	Semiannually
<u>Constituents of Concern</u> (See Table C.3 below)		Every 5 years	Every 5 years

Storm water monitoring shall also be conducted in accordance with the NPDES General Storm Water Permit for Industrial Activities required under Storm Water Specification D.4 of the WDRs.

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

4. Surface Impoundment

Surface impoundment monitoring shall be conducted in accordance with the following schedule. Samples collected from each impoundment shall be analyzed using the applicable test methods listed in Table C.3 attached to this Order.

Table A.4 - Surface Impoundment Monitoring			
<u>Parameters</u>	<u>Units</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
<u>Field Parameters</u>			
Freeboard	feet and tenths	Weekly ¹	Semiannually
Flow In ²	gallons	Monthly	Semiannually
Flow Out ²	gallons	Monthly	Semiannually
Net Flow ³	gallons	Monthly	Semiannually
Change in Freeboard	feet and tenths	Monthly	Semiannually
Remaining Capacity (excluding freeboard)	gallons	Monthly	Semiannually
Remaining volume stored	gallons	Monthly	Semiannually
pH	pH units	Semiannually	Semiannually
Electrical Conductivity	umhos/cm	Semiannually	Semiannually
<u>Monitoring Parameters</u>			
Total Dissolved Solids	mg/L	Semiannually	Semiannually
Chloride	mg/L	Semiannually	Semiannually
Sulfate	mg/L	Semiannually	Semiannually
Nitrate as N	mg/L	Semiannually	Semiannually
Dissolved Metals ⁴	ug/L	Semiannually	Semiannually
VOCs ⁴	ug/L	Semiannually	Semiannually
<u>Constituents of Concern⁴</u> (See Table C.3 below)		Every 5 years	Every 5 years

- Freeboard shall be measured weekly and within 24 hours after onsite rainfall of greater than two inches in a 24 hour period. Freeboard shall be measured from the top of the surface impoundment down to the water level in the impoundment and can be measured using markings on the primary geomembrane liner or a free-standing gauge.
- Flow into or out of the Class II surface impoundment as measured and recorded at totalizing meter.
- Difference between calculated (or estimated) inflow and outflow.
- Monitoring and reporting for these constituents not required at SI-2 nor at SI-1 where flow monitoring (i.e., under this Section and Section A.6 below) indicates that the impoundment contains only inert liquids.

5. LCRS Monitoring, Action Leakage Rate, and Annual LCRS Testing

The Discharger shall operate and maintain the leachate collection and recovery

system (LCRS) sumps and conduct leachate monitoring of each unit in accordance with Title 27, applicable WDR specifications, and this monitoring program.

a. Closed Landfill Units

The LCRS monitoring points for the closed landfill units shall be:

Table A.5.c LCRS Monitoring Points – Landfill Units			
<u>Unit</u>	<u>Monitoring Point</u>	<u>Source</u>	<u>Liquid</u>
Landfill Unit 1	PS-1	OLM and 89-90 Cell subdrain piping	Leachate mixed with groundwater
Landfill Unit 2	PS-2	90-91 Cell Sump	Leachate

All LCRS sumps shall be inspected monthly for the presence of leachate, and flow shall be recorded in accordance with the following table. If leachate is detected in a previously dry sump, the Discharger shall verbally notify Central Valley Water Board staff within seven days and shall immediately sample and test the leachate for Field and Monitoring Parameters listed in Table A.5.c. Leachate in the LCRS sump shall then be sampled for all parameters and constituents in accordance with the frequencies listed in the following table whenever liquid is present.

The Discharger shall also monitor the landfill final cover for the presence of leachate seeps. Any observed leachate seepage shall be sampled upon detection and analyzed for the Field and Monitoring Parameters listed in Table A.5.c. The quantity of leachate shall be estimated and reported as Leachate Flow Rate (in gallons/day). Reporting for leachate seeps shall be conducted as required in Section B.3 of this MRP.

b. Class II Surface Impoundments

The LCRS monitoring points for the Class II surface impoundments shall be the LCRS sumps for each impoundment. LCRS monitoring of a surface impoundment is required during all monitoring periods in which there is liquid in the impoundment. The monitoring schedule shall be the same as for the closed landfill units, except where noted in Table A.5.c below. If monthly monitoring of the flow rate into a surface impoundment LCRS shows an exceedance of the Action Leakage Rate required by the WDRs, the Discharger shall follow the procedures in the WDRs under “B. Discharge Specifications”.

c. Monitoring Schedule

Table A.5.c LCRS Monitoring Schedule – All Units			
<u>Parameters</u>	<u>Units</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
<u>Field Parameters</u>			
Presence of leachate/liquid	observation	Monthly	Semiannually
Flow Rate ¹	gallons/day	Monthly	Semiannually
Electrical Conductivity	umhos/cm	Semiannually	Semiannually
pH	pH units	Semiannually	Semiannually
<u>Monitoring Parameters</u>			
Bicarbonate Alkalinity	mg/L	Semiannually	Semiannually
Chloride	mg/L	Semiannually	Semiannually
Nitrate as N	mg/L	Semiannually	Semiannually
Sulfate	mg/L	Semiannually	Semiannually
TDS	mg/L	Semiannually	Semiannually
VOCs ²	ug/L	Semiannually	Semiannually
Dissolved Metals ²	ug/L	Semiannually	Semiannually
<u>Constituents of Concern²</u> (See Table C.3 below)		Every 5 years	Every 5 years

1. For surface impoundments, the flow rate shall be the flow in gallons per day pumped from the LCRS sump back to surface impoundment.
2. Monitoring and reporting for these constituents not required at SI-2..
3. Monitoring and reporting for these constituents not required at SI-1 where impoundment contains only inert liquids as verified by flow monitoring under this section and Section A.6 below.

Annual Testing: All landfill and surface impoundment LCRSs shall be tested annually pursuant to Title 27, section 20340(d) to demonstrate proper operation. The results of these tests shall be reported to the Central Valley Water Board in the Annual Monitoring Report and shall include comparisons with earlier tests made under comparable conditions

6. Liquids Discharge Monitoring

In addition to leachate monitored under Section A.5 above, the Discharger shall monitor flows of all other liquid wastes generated and discharged at the site, including, but not necessarily limited to, landfill subdrain liquid, groundwater from de-watering wells, impacted groundwater, LFG condensate, septage and chemical toilet waste, contact storm water, and MRF/transfer station washwater.

a. Monitoring Locations

The monitoring locations shall be the pump stations or other locations where

the flow is measured or estimated, as outlined in the table below.

Table A.6 Liquids Discharge Monitoring Points				
<u>Monitoring Point</u>	<u>Monitoring Device</u>	<u>Source</u>	<u>Waste Type</u>	<u>Destination</u>
	Inflow Meter 1 ¹	Toe buttress drain	Leachate & groundwater	PS-1
PS-1	Inflow Meter 2 ¹	OLM interceptor trenches & 89-90 Cell LCRS	Leachate and LFG condensate	PS-1
	Outflow Meter ¹	PS-1	Leachate, groundwater & LFG condensate	Central manhole
PS-2	Outflow Meter ²	90-91 Cell LCRS	Leachate	Central manhole
PS-3	Outflow Meter ²	90-91 Cell Interceptor trench & LFG condensate line	Leachate and LFG condensate	Central manhole
90-91 Cell Subdrain Sump	Field Estimate	90-91 Cell Subdrain	Groundwater	PS-2
PS-4	Outflow Meter ³	MRF/Transfer Station	Washwater	Central manhole
Septage Vault	Field Estimate	Facility buildings	Septage and chemical toilet waste	Central manhole
Central manhole	Meter or valve ⁴	Any or all of above		Tank Farm/SI-1
SI-2	Meter or valve ⁴	PW-1	Groundwater	SI-2

1. Automatic meter displaying cumulative flow.
2. Manual meter -- managed by maintenance technician when pumping.
3. Timed metering measuring seconds of flow and converting to gallons.
4. Monitoring device not yet installed.

b. Monitoring Schedule

Other Waste Discharge Monitoring			
<u>Parameters</u>	<u>Units</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
Type of Liquid	---	---	---
Location of Discharge	---	---	---
Quantity Discharged	Gallons	Monthly	Monthly
Average Flow Rate	Gallons per day	Monthly	Monthly

7. Facility Monitoring

a. Annual Facility Inspection

Annually, prior to the anticipated rainy season, but no later than **30 September**, the Discharger shall conduct an inspection of the facility. The inspection shall assess repair and maintenance needed for drainage control systems, cover systems, and groundwater monitoring wells; and shall assess preparedness for winter conditions (including but not limited to erosion and sedimentation control). The Discharger shall take photos of any problems areas before and after repairs. Any necessary construction, maintenance, or repairs shall be completed by **31 October**. 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 landfill side slopes for damage **within 7 days** following major storm events capable of causing damage or significant erosion. The Discharger shall take photos of any problems 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 Iso-Settlement Survey for Closed Units

By **1 June 2016**, and every five years thereafter, the Discharger shall conduct an iso-settlement survey for closed landfill units and produce an iso-settlement map accurately depicting the estimated total change in elevation of each portion of the final cover's engineered soil layer. For each portion of the landfill, this map shall show the total lowering of the surface elevation of the final cover, relative to the baseline topographic map [Title 27, section 21090(e)(1 & 2)]. Reporting shall be in accordance with Section B.6 of this MRP. All final cover surveys shall be conducted in accordance with WDR Closure and Postclosure Specification F.1.i.

d. Standard Observations

The Discharger shall conduct Standard Observations at the landfill 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). Results of Standard Observations shall be submitted in the semiannual monitoring reports required in Section B.1 of this MRP.

8. Additional Corrective Action Monitoring

a. Soil-Pore Gas Monitoring

i. Landfill Units

Soil-pore gas monitoring shall be conducted to monitor LFG migration and the effectiveness of landfill gas control measures. The soil-pore gas monitoring system shall consist of the following:

Table A.8.a.i Soil-Pore Gas Monitoring Points – Landfill Units		
<u>Unit</u>	<u>Piezometer</u>	<u>Gas Well/Probe</u>
Landfill Unit 1	PZ-105 ¹	OPs-4 ¹ , 5, & 9 ² OPs-6, 7, 8, 10, 11, & 12 ³
Landfill Unit 2	PZs-100, 101, 102, 105 ¹ , 113, & 116	OPs-1, 2, & 4 ^{1,2} OP-3 ³
Site Perimeter	---	P-6 through P-9 Ps-1, 2, 3, 4, 5, 10, 11, & 12 ³

1. Monitoring point common to both units (separate sampling for each unit not required)
2. All wells in this row have double (shallow and deep)-nested probes.
3. All wells in this row have triple (shallow, middle, and deep)-nested probes.

ii. Monitoring Schedule

Soil-pore gas samples shall be collected from the monitoring network listed above and analyzed in accordance with the following schedule and corresponding test methods for each constituent listed in Table C.3 attached to this Order.

Table A.8.a.ii Soil-Pore Gas Monitoring Schedule			
<u>Parameters</u>	<u>Units</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
<u>Field Parameters</u> ¹			
Methane	%	Semiannually	Semiannually
Carbon Dioxide	%	Semiannually	Semiannually
Organic Vapors	ppm	Semiannually	Semiannually
<u>Monitoring Parameters</u>			
Volatile Organic Compounds ^{2,3}	µg/cm ³	Semiannually	Semiannually

1. Field gas monitoring shall be conducted using appropriate field meter(s)
2. VOC sampling shall be required in all probes in which meter results show total organic vapors above 50 ppbv during the current monitoring event.
3. VOC analysis shall be conducted using USEPA Method TO-15.

b. Landfill Gas Extraction System

The Discharger shall sample the landfill gas extraction system to assess the effectiveness of the system in removing landfill gas from the landfill as a corrective action measure. Gas samples shall be collected from an appropriate location at each unit (e.g., manifold port or flare inlet) and analyzed for all parameters and constituents consistent with the following schedule:

Table A.8.b Landfill Gas Extraction System Monitoring			
<u>Parameter</u>	<u>Units</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
LFG extraction rate	cu ft/min	Monthly	Semiannually
LFG Composition ¹	---	Monthly	Semiannually
Total VOCs removed during year ²	lbs/yr	Annually	Annually
Cumulative VOCs removed ²	lbs	Annually	Annually

1. Monitoring shall include all Table A.8.a.ii field and monitoring parameters, as applicable to active extraction system.
2. Amounts shall be calculated or estimated per approved monitoring plan.

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 the monitoring reports submitted under this Order and shall include an

evaluation of potential impacts of the facility on the unsaturated zone and compliance with the Water Quality Protection Standard.

B. REPORTING

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

Table B Reporting Schedule			
<u>Section</u>	<u>Report</u>	<u>End of Reporting Period</u>	<u>Due Date</u>
B.1	Semiannual Monitoring Report	30 June, 31 December	1 August, 1 February
B.2	Annual Monitoring Report	31 December	1 February
B.3	Seep Reporting	Continuous	Immediately & 7 Days
B.4	Annual Facility Inspection Report	31 October	15 November
B.5	Major Storm Event Reporting	Continuous	7 days from damage discovery
B.6	Survey and Iso-Settlement Map for Closed Landfills	Every Five Years	By 30 June 2016 and every 5 years thereafter

Reporting Requirements

The Discharger shall submit monitoring reports **semiannually** with the data and information as required in this Monitoring and Reporting Program and as required in WDRs Order No. R5-2014-0022 and the SPRR, particularly the monitoring and response to release provisions (i.e., WDR Section H and SPRR Sections IX and X). 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. Data shall also be submitted in a digital format, such as a computer disk.

Field and laboratory tests 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. In addition, the Discharger shall enter all monitoring data and monitoring reports into the online Geotracker database as required by Division 3 of Title 27.

The results of **all monitoring** conducted under this Order, and of all monitoring of the offsite domestic wells described in Finding 48 conducted by the Discharger outside of this Order, shall be reported to the Central Valley Water Board in accordance with the reporting schedule above 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:

1. 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;
2. Date, time, and manner of sampling;
3. Date and time that analyses were started and completed, and the name of the personnel and laboratory performing each analysis;
4. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used;
5. Calculation of results; and
6. Results of analyses, and the MDL and PQL for each analysis. All peaks shall be reported.

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:
 - 1) The time of water level measurement;
 - 2) 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;
 - 3) 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;

- 4) The type of pump - or other device - used for sampling, if different than the pump or device used for purging; and
 - 5) 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. The estimated quarterly groundwater flow rate and direction in the uppermost aquifer, in any zones of perched water, and in any additional zone of saturation monitored based upon water level elevations taken prior to the collection of the water quality data submitted in the report [Title 27, section 20415(e)(15)].
 - 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 IX, *Provisions for Monitoring*, 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 five 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 Section J: Response to a Release for verified exceedances of a concentration limit.
 - g. An evaluation of the effectiveness of run-off/run-on control facilities.
 - h. A summary of all Standard Observations for the reporting period required in Section A.7.d of this MRP.
 - i. A summary of inspection, leak search, and repair of final covers on any closed landfill units in accordance with an approved final post-closure maintenance plan as required by Closure and Post-Closure Specifications F.1.g through F.1.j of the WDRs.
 - j. Copies of monitoring reports or monitoring data for any groundwater monitoring conducted at the site or in nearby offsite wells (including those domestic wells listed in Finding 48) not required under this Order.

2. Annual Monitoring Report

The Discharger shall submit an Annual Monitoring Report to the Central Valley Water Board by **1 February** covering the reporting period of the previous monitoring year. 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 five calendar years. If a 5-year COC event was performed, then these parameters shall also be graphically presented. 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. 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 such as a computer disk. The Central Valley Water Board regards the submittal of data in hard copy and 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. The results of the annual testing of leachate collection and removal systems required under Facility Specification VI.O of the SPRRs.
- h. Updated concentration limits for each monitoring parameter at each monitoring well based on the new data set.
- i. A comprehensive discussion of any Corrective Action Program required by this MRP.

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.5.c 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 a report describing the results of the inspection and the repair measures implemented, preparations for winter, and include photographs of any problem areas and the repairs. Refer to Section A.7.a of this MRP, above.

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. Refer to Section A.7.b of this MRP, above.

6. **Survey and Iso-Settlement Map for Closed Landfills**

The Discharger shall conduct a survey and submit an iso-settlement map for each closed area of the landfill every five years pursuant to Title 27, section 21090(e). See WDR Closure and Postclosure Specification F.1.i and MRP Section A.7.c herein. The first report under this Order is due by **30 June 2016**.

C. **WATER QUALITY PROTECTION STANDARD AND COMPLIANCE PERIOD**

1. **Water Quality Protection Standard Report**

For each waste management unit, the Water Quality Protection Standard shall consist of all COCs, the concentration limit for each COC, the verification retesting procedure to confirm measurably significant evidence of a release, the point of compliance, and all water quality monitoring points for each monitored medium.

Any proposed changes to the Water Quality Protection Standard other than annual update of the concentration limits shall be submitted in a report for review and approval. The report shall:

- 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 and any permanent or ephemeral zones of perched groundwater underlying the facility.
- b. Include a map showing the monitoring points and background monitoring points for the surface water monitoring program, groundwater monitoring program, and the unsaturated zone monitoring program. The map shall include the point of compliance in accordance with Title 27, section 20405.
- c. Evaluate the perennial direction(s) of groundwater movement within the uppermost groundwater zone(s).
- d. Include a proposed statistical method for calculating concentration limits for monitoring parameters and constituents of concern that are detected in 10% or greater of the background data (naturally-occurring constituents) using a statistical procedure from Title 27, section 20415(e)(8)(A-D)] or section 20415(e)(8)(E).
- e. Include 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).

The Water Quality Protection Standard shall be certified by a California-registered civil engineer or geologist as meeting the requirements of Title 27. If subsequent sampling of the background monitoring point(s) indicates significant water quality changes unrelated to waste management activities at the site, the Discharger may request a further modification of the Water Quality Protection Standard.

The Water Quality Protection Standard under this Order shall therefore be as set forth in the revised Water Quality Protection Standard Report submitted under WDR Provision J.7, as approved by Central Valley Water Board staff. Once approved, the Water Quality Protection Standard shall be updated annually as warranted, using new and historical background monitoring data and approved data analysis methods.

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 each respective medium (i.e., groundwater, soil-pore water, and surface water) at all waste management units are those listed in the monitoring schedule tables in Sections A.1 through A.3.

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 at least every five years [Title 27, sections 20395 and 20420(g)]. The COCs for all waste management units at the facility are those listed in Table C.3 below. The last COC monitoring event under previous WDRs was conducted in November 2011 and reported in the *2011 Annual Monitoring Report* submitted to the Central Valley Water Board in February 2013. The first five-year COC monitoring event under this Order shall therefore be conducted by November 2016 and reported in the 2016 annual monitoring report due by **31 January 2017**.

4. **Concentration Limits**

As noted in WDR Finding 55, the Discharger does not yet have an approved list of concentration limits for monitoring. The proposed concentration limits for monitoring for all media shall therefore be included in the Revised Water Quality Protection Standard Report required under WDR Provision J.7.

For a naturally occurring (i.e., statistical) constituent of concern, the concentration limit for each constituent of concern shall be determined as follows:

- a. By calculation in accordance with a statistical method pursuant to Title 27, section 20415(e)(8); or
- b. By an alternate statistical method meeting the requirements of Title 27, section 20415(e)(8)(E).

Groundwater

Detection Monitoring - The concentration limits for non-statistical constituents of concern (e.g., VOCs) shall be non-detect. The concentration limits for statistical constituents of concern (e.g., inorganics) shall be determined based on an interwell monitoring procedure using upgradient or sidegradient monitoring data, unless the Discharger is able to demonstrate to the satisfaction of the Executive Officer that an intrawell approach is more representative of background conditions at the site due to the presence of significant spatial variability in the groundwater geochemistry not attributable to a release from the unit.

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. An intrawell statistical

procedure (e.g., the Sens Slope Method) shall be used for trend analysis to monitor corrective action progress.

Unsaturated Zone

Concentration limits for naturally occurring constituents in the unsaturated zone shall be developed based on a representative background lysimeter (e.g., sufficiently far from the unit so as not to be affected by a release from it) at each unit or, where applicable, historical data predating the placement of waste in the unit.

Surface Water

Concentration limits for naturally occurring constituents in surface water shall be developed based on a representative background monitoring point upstream of the facility.

5. Retesting Procedures for Confirming Evidence of a Release

If monitoring results indicate measurably significant evidence of a release, as described in Standard Monitoring Specification H.18 of the WDRs, then:

- a. For analytes that are detected in less than 10% of the background samples (such as non-naturally occurring constituents), the Discharger shall use the non-statistical retesting procedure required in Monitoring Specification H.19 of the WDRs.
- b. For analytes that are detected in 10% or greater of the background samples (naturally occurring constituents), the Discharger shall use one of the statistical retesting procedure as required in Monitoring Specification H.20 of the WDRs.

6. Point of Compliance

The Point of Compliance for the water standard at each waste management unit is a vertical surface located at the hydraulically down gradient limit of the Unit that extends through the uppermost aquifer underlying the unit. The following are the Point of Compliance monitoring wells:

<u>Unit</u>	<u>Point of Compliance Monitoring Wells</u>
Unit 1	MW-11--- ¹
Unit 2	PZ-105
SI-1	--- ²
SI-2	--- ³

- 1. Additional Point of Compliance wells required for this unit per WDR Provision J.5.e.
- 2. Point of Compliance well required for this Unit per Provision J.6.e.
- 3. Unit contiguously monitored with SI-1.

7. 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].

8. Monitoring Points

A monitoring point is a well, device, or location specified in the waste discharge requirements at 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 Program.

Ordered by: _____
PAMELA C. CREEDON, Executive Officer

7 February 2014

JDM

**TABLE C.3
 CONSTITUENTS OF CONCERN
 & APPROVED USEPA ANALYTICAL METHODS**

General Minerals

	USEPA Method
Bicarbonate	2320B
Calcium	200.7/600
Carbonate	2320B
Chloride	300
Magnesium	200.7/600
Nitrate – Nitrogen	300
Potassium	200.7/600
Sodium	200.7/600
Sulfate	300
Total Dissolved Solids	2540C

Volatile Organic Compounds:

USEPA Method 8260B

Acetone
 Acetonitrile (Methyl cyanide)
 Acrolein
 Acrylonitrile
 Allyl chloride (3-Chloropropene)
 Benzene
 Bromochloromethane (Chlorobromomethane)
 Bromodichloromethane (Dibromochloromethane)
 Bromoform (Tribromomethane)
 Carbon disulfide
 Carbon tetrachloride
 Chlorobenzene
 Chloroethane (Ethyl chloride)
 Chloroform (Trichloromethane)
 Chloroprene
 Dibromochloromethane (Chlorodibromomethane)
 1,2-Dibromo-3-chloropropane (DBCP)
 1,2-Dibromoethane (Ethylene dibromide; EDB)
 o-Dichlorobenzene (1,2-Dichlorobenzene)
 m-Dichlorobenzene (1,3-Dichlorobenzene)
 p-Dichlorobenzene (1,4-Dichlorobenzene)
 trans- 1,4-Dichloro-2-butene
 Dichlorodifluoromethane (CFC 12)

1,1 -Dichloroethane (Ethylidene chloride)
1,2-Dichloroethane (Ethylene dichloride)
1,1 -Dichloroethylene (1, 1-Dichloroethene; Vinylidene chloride)
cis- 1,2-Dichloroethylene (cis- 1,2-Dichloroethene)
trans- 1,2-Dichloroethylene (trans- 1,2-Dichloroethene)
1,2-Dichloropropane (Propylene dichloride)
1,3-Dichloropropane (Trimethylene dichloride)
2,2-Dichloropropane (Isopropylidene chloride)
1,1 -Dichloropropene
cis- 1,3-Dichloropropene
trans- 1,3-Dichloropropene
Di-isopropylether (DIPE)
Ethanol
Ethyltertiary butyl ether
Ethylbenzene
Ethyl methacrylate
Hexachlorobutadiene
2-Hexanone (Methyl butyl ketone)
Isobutyl alcohol
Methacrylonitrile
Methyl bromide (Bromomethane)
Methyl chloride (Chloromethane)
Methyl ethyl ketone (MEK; 2-Butanone)
Methyl iodide (Iodomethane)
Methyl t-butyl ether
Methyl methacrylate
4-Methyl-2-pentanone (Methyl isobutyl ketone)
Methylene bromide (Dibromomethane)
Methylene chloride (Dichloromethane)
Naphthalene
Propionitrile (Ethyl cyanide)
Styrene
Tertiary amyl methyl ether
Tertiary butyl alcohol
1,1,1,2-Tetrachloroethane
1,1,1,2,2-Tetrachloroethane
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene; PCE)
Toluene
1,2,4-Trichlorobenzene
1,1,1 -Trichloroethane (Methylchloroform)
1,1,2-Trichloroethane
Trichloroethylene (Trichloroethene; TCE)
Trichlorofluoromethane (CFC- 11)
1,2,3-Trichloropropane
Vinyl acetate
Vinyl chloride (Chloroethene)
Xylene (total)

Inorganics (dissolved):

USEPA Method

Aluminum	6010
Antimony	7041
Barium	6010
Beryllium	6010
Cadmium	7131A
Chromium	6010
Cobalt	6010
Copper	6010
Silver	6010
Tin	6010
Vanadium	6010
Zinc	6010
Iron	6010
Manganese	6010
Arsenic	7062
Lead	7421
Mercury	7470A
Nickel	7521
Selenium	7742
Thallium	7841
Cyanide	9010C
Sulfide	9030B

Semi-Volatile Organic Compounds:

USEPA Method 8270D - base, neutral, & acid extractables

Acenaphthene
Acenaphthylene
Acetophenone
2-Acetylaminofluorene (2-AAF)
Aldrin
4-Aminobiphenyl
Anthracene
Benzo[a]anthracene (Benzanthracene)
Benzo[b]fluoranthene
Benzo[k]fluoranthene
Benzo[g,h,i]perylene
Benzo[a]pyrene
Benzyl alcohol
Bis(2-ethylhexyl) phthalate
alpha-BHC
beta-BHC
delta-BHC
gamma-BHC (Lindane)
Bis(2-chloroethoxy)methane
Bis(2-chloroethyl) ether (Dichloroethyl ether)
Bis(2-chloro-1-methylethyl) ether (Bis(2-chloroisopropyl) ether; DCIP)
4-Bromophenyl phenyl ether
Butyl benzyl phthalate (Benzyl butyl phthalate)
Chlordane

p-Chloroaniline
Chlorobenzilate
p-Chloro-m-cresol (4-Chloro-3-methylphenol)
2-Chloronaphthalene
2-Chlorophenol
4-Chlorophenyl phenyl ether
Chrysene
o-Cresol (2-methylphenol)
m-Cresol (3-methylphenol)
p-Cresol (4-methylphenol)
4,4'-DDD
4,4'-DDE
4,4'-DDT
Diallate
Dibenz[a,h]anthracene
Dibenzofuran
Di-n-butyl phthalate
3,3'-Dichlorobenzidine
2,4-Dichlorophenol
2,6-Dichlorophenol
Dieldrin
Diethyl phthalate
p-(Dimethylamino)azobenzene
7,12-Dimethylbenz[a]anthracene
3,3'-Dimethylbenzidine
2,4-Dimethylphenol (m-Xylenol)
Dimethyl phthalate
m-Dinitrobenzene
4,6-Dinitro-o-cresol (4,6-Dinitro-2-methylphenol)
2,4-Dinitrophenol
2,4-Dinitrotoluene
2,6-Dinitrotoluene
Di-n-octyl phthalate
Diphenylamine
Endosulfan I
Endosulfan II
Endosulfan sulfate
Endrin
Endrin aldehyde
Ethyl methanesulfonate
Famphur
Fluoranthene
Fluorene
Heptachlor
Heptachlor epoxide
Hexachlorobenzene
Hexachlorocyclopentadiene
Hexachloroethane
Hexachloropropene
Indeno(1,2,3-c,d)pyrene
Isodrin
Isophorone

Isosafrole
Kepone
Methapyrilene
Methoxychlor
3-Methylcholanthrene
Methyl methanesulfonate
2-Methylnaphthalene
1,4-Naphthoquinone
1-Naphthylamine
2-Naphthylamine
o-Nitroaniline (2-Nitroaniline)
m-Nitroaniline (3-Nitroaniline)
p-Nitroaniline (4-Nitroaniline)
Nitrobenzene
o-Nitrophenol (2-Nitrophenol)
p-Nitrophenol (4-Nitrophenol)
N-Nitrosodi-n-butylamine (Di-n-butylnitrosamine)
N-Nitrosodiethylamine (Diethylnitrosamine)
N-Nitrosodimethylamine (Dimethylnitrosamine)
N-Nitrosodiphenylamine (Diphenylnitrosamine)
N-Nitrosodipropylamine (N-Nitroso-N-dipropylamine; Di-n-propylnitrosamine)
N-Nitrosomethylethylamine (Methylethylnitrosamine)
N-Nitrosopiperidine
N-Nitrosopyrrolidine
5-Nitro-o-toluidine
Pentachlorobenzene
Pentachloronitrobenzene (PCNB)
Pentachlorophenol
Phenacetin
Phenanthrene
Phenol
p-Phenylenediamine
Polychlorinated biphenyls (PCBs; Aroclors)
Pronamide
Pyrene
Safrole
1,2,4,5-Tetrachlorobenzene
2,3,4,6-Tetrachlorophenol
o-Toluidine
Toxaphene
2,4,5-Trichlorophenol
0,0,0-Triethyl phosphorothioate
sym-Trinitrobenzene

Chlorophenoxy Herbicides:

USEPA Method 8151A

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

Organophosphorus Compounds:

USEPA Method 8141B

Atrazine
Chlorpyrifos
0,0-Diethyl 0-2-pyrazinyl phosphorothioate (Thionazin)
Diazinon
Dimethoate
Disulfoton
Methyl parathion (Parathion methyl)
Parathion
Phorate
Simazine

INFORMATION SHEET

ORDER NO. R5-2014-0022
NEVADA COUNTY DEPARTMENT OF PUBLIC WORKS
MCCOURTNEY ROAD LANDFILL
NEVADA COUNTY

Background Information

The McCourtney Road Landfill is a closed, Class III landfill on Wolf Mountain Road near McCourtney Road about four miles southwest of Grass Valley. The 157-acre facility is on a 244-acre site owned by the County of Nevada Department of Public Works (Discharger). The landfill operated from 1973 to 1992, accepting primarily household wastes. The landfill stopped accepting wastes in November 1992 upon start-up of an onsite transfer station. In 1998, the landfill was closed (i.e., graded and capped) in accordance with Title 27 regulations.

The landfill consists of two closed units referred to as "Landfill 1" and "Landfill 2". Landfill Unit 1 consists of two cells that were operated as separate units when the landfill was active. The largest of these cells, referred to as the "Old Landfill Mass", comprised 24.9 acres and was unlined. The other cell, referred to as the "89-90 Cell", comprised 6.3 acres, of which only 1.9 acres was lined. Landfill Unit 2 consists of a 5.1-acre, compositely (i.e., Subtitle D)-lined landfill unit formerly referred to as the "90-91 Cell". The 90-91 cell was the last constructed and operated unit at the site prior to cessation of landfill operations in 1992.

The facility also includes two Class II surface impoundments under Title 27 regulations, including a 5.2 million gallon (MG) impoundment referred to as Surface Impoundment 1 (SI-1) and a 1.3 MG impoundment referred to as Surface Impoundment 2 (SI-2). SI-1 was used primarily for leachate storage and SI-2 primarily for landfill operations water storage. Other landfill-related facilities at the site include a landfill gas extraction system, leachate collection sumps, dewatering facilities, an above-ground tank farm, liquids conveyance systems (e.g., pumps, pipelines, valves); storm water drainage controls, a materials recovery facility/transfer station; and various monitoring systems (e.g., gas, groundwater). The site also includes various former operations areas that have since been clean-closed, decommissioned, and/or incorporated into other landfill facilities (see Attachment 1).

The Old Landfill Mass operated from 1972 to 1989, the 89-90 Cell from 1989 to 1990, and the 90-91 Cell from 1990 to 1992. Average landfill disposal rates ranged from about 70 to 120 tons per day on an annual basis. The maximum height of the landfill waste column is about 80 feet corresponding to the approximate center of the Old Landfill Mass and deepest portion of an underlying ravine in which the landfill was sited.

Site Description

Surface elevations at the site range from about 2400 feet MSL in the upper reaches of the ravine on the western side of the site to about 2100 feet MSL on the eastern side of the site near the landfill toe embankment. The embankment was constructed across the downstream end of the ravine as part of the landfill containment system.

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The site geology is complex, consisting of faulted, folded, fractured, and sheared metamorphic rock. Two primary shear zones have been identified at the site, one trending N20°W and a subordinate conjugate trending N30°E have been identified that likely significantly influence groundwater flow. See Attachment 2. A ravine north of the site may also redirect fracture flow to the northeast along its direction of shear. The uppermost aquifer occurs in weathered/fractured bedrock at depths ranging from about 101 feet bgs at the head of the ravine on the west side of the site to about 12 feet bgs on the east side of the facility near the landfill toe embankment. Shallow perched groundwater and natural springs also exist at the site. The overall direction of groundwater flow is believed to be to the east, but may vary at any given location due to fracturing and other geologic or hydrogeological heterogeneities. For example, a secondary direction of flow may exist to the north or northeast. The average groundwater gradient based on piezometric data is about 0.08 ft/ft to the east.

Groundwater Impacts

A 1987 Solid Waste Assessment Test (SWAT) investigation found groundwater impacts down gradient of the landfill to the north, northeast, east and southeast, including various volatile organic compounds (VOCs) and elevated general minerals. Follow-up evaluation monitoring under previous WDRs and a 1991 Stipulated Judgment entered into with CalRecycle delineated impacts to the site boundary and in some nearby domestic wells. The work included development of a site conceptual model; leachate characterization; and various other tasks. Maximum concentrations of total VOCs historically detected in groundwater ranged from about 15 µg/L to 60 µg/L during a peak impact period from about 1993 to 1996. During this period, the highest concentrations of total VOCs were detected between the Old Landfill Mass and 90-91 Cell (e.g., cis-1,2-Dichloroethene up to 43 µg/L).

Monitoring data through the Second Half 2012 indicates that the concentrations of most VOCs detected in groundwater have declined to low to trace levels since the peak impact period of the mid-1990s. Total VOCs now range from about 1.0 µg/L to 15 µg/L in historically impacted wells. Three VOCs remained above water quality objectives, including Carbon Tetrachloride (0.6 µg/L in MW-20A), cis-1,2-Dichloroethene (10.8 µg/L in PZ-105), and Trichloroethylene (0.8 µg/L in MW-4A). No VOCs have been detected in the historically impacted offsite domestic wells since the First Half 2009 and only a few, low to trace level, hits have been detected in the wells since 2003. The significant decline in the concentrations of VOCs in the groundwater at the site may be attributable to the implementation of the corrective action measures described below.

Corrective Action

Interim Measures

Various "short term" corrective action measures were implemented under the Evaluation Monitoring Program prior to landfill closure, including installation of an LCRS gas recovery system at the OLM (1989); cessation of septage pond operations (1990); de-watering of

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the 90-91 Cell (1991); cessation of landfill operations and waste acceptance (1992); cessation of septage transfer operations (1992); testing and decommissioning of the Old Septage Pond Area (1993); and clean closure of the 1976 Cell and White Metal Disposal areas (1995).

Closure

An August 1996 Engineering Feasibility Study (EFS)/Corrective Action Plan (CAP) recommended landfill closure as the primary corrective action measure to address groundwater impacts at the site, which at the time were believed to have been primarily caused by a leachate release. In 1998, the Discharger completed closure of the three landfill units at the site in accordance with a March 1997-approved Final Closure and Postclosure Maintenance Plan. The OLM and 89-90 Cell were closed as a single unit and the 90-91 Cell as a separate unit. Both closed units received an engineered alternative final cover including geosynthetic clay liner (GCL) in deck areas (slopes $\leq 5H:1V$) and one-foot of compacted clay on the side slopes for the required low hydraulic conductivity layer. Precipitation and drainage controls sized for a 24-hour, 100-year storm event were also installed at the units in accordance with Title 27 standards. A closure certification report for the project was approved in August 1999.

Landfill Gas Extraction

In 2004, following a sitewide gas investigation, the Discharger completed installation of a landfill gas (LFG) extraction system at the site pursuant to an amended CAP/design report approved by Regional Board staff in May 2003. The system included three extraction wells at the 90-91 Cell (EWs-1 to 3), 21 extraction wells at the OLM (EWs-4 to 24), and three extraction wells at the 89-90 cell (EWs-25 to 27). The system also included headers, condensate lines, two 400 SCFM blowers, a flare station, and associated facilities. The system began operations in 2006. See WDR Attachment E: Gas Controls.

Liquids Management

Discharges to the Class II surface impoundments at the site historically included leachate from the landfill units and surface impoundments; septage and chemical toilet wastes; LFG condensate; impacted groundwater; contact storm water; monitoring well liquids (e.g., purge water); and washwater from the onsite transfer station. Since 1990, the discharge of septage and chemical toilet wastes has been limited to wastes from onsite sources, and since 1994, the 1.3 MG impoundment has been limited to use as a fire pond.

In March 2013, the Discharger completed installation of a 120,000-gallon above-ground tank farm as the primary storage facility for leachate and other non-inert liquids generated at the site. The tank farm includes eight 15,000-gallon HDPE tanks installed in pairs, a central collection HDPE manhole, HDPE transfer piping, and valves to divert liquid flows to the tank farm instead of the 5.3 MG surface impoundment (SI-1). Concurrent with tank farm start-up in June 2013, SI-1 was taken out of service for cleaning, leak-testing, and

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repair. The impoundment has since returned to service as an operations water pond for dust control and fire suppression purposes. The impoundment is still plumbed to the waste management units, and is considered a backup storage facility for the leachate tank farm in the event of an emergency or other contingency. See Attachment B: Facility Map.

Revised WDRs

These revised WDRs prescribe updated requirements for postclosure maintenance and corrective action monitoring of the two closed Class III landfill units at the facility and for operation and detection monitoring of the two active Class II surface impoundments at the facility. Specific findings and requirements for each type of unit are generally listed separately in the WDRs. The WDR findings describe various changes at the facility since 2004, including the installation of a landfill gas extraction system; corrective action monitoring results for the past 10 years; updated financial assurances information; construction of a leachate tank farm; changes in surface impoundment operations and liquids management; and other information.

Closed Landfill Units

Updated requirements for the closed landfill units in the WDRs include, but are not limited to, the following:

- Waste Discharge -- The discharge or return of leachate or landfill gas (LFG) condensate to the closed landfill units is prohibited. Such liquids must be discharged to either SI-1 or the leachate tank farm. Inert liquids such as groundwater or storm water may be beneficially applied to the units consistent with Title 27 regulations as part of postclosure maintenance operations (e.g., dust control, limited irrigation of landfill vegetative cover). See Discharge Prohibition A.1.c and Discharge Specifications B.1.a and B.1.c.
- Corrective Action -- Provision J.5.a requires that the Discharger submit a completion report for installation of the landfill gas extraction system at the site by **1 April 2014**. (A review of the files indicated that the report had not yet been submitted). The WDRs also require that the Discharger operate and maintain the landfill gas extraction system until such time as it can be demonstrated that landfill gas is no longer a threat to water quality, as approved by the Executive Officer. See Facility Specification C.3.
- Monitoring -- The WDRs require submission of a work plan for installation of additional corrective action monitoring wells at Landfill Unit 1, as necessary, to meet Title 27 performance standards. Additional Point of Compliance wells are needed along the north and east sides of the unit. A compliance well is also needed southeast of the unit to monitor corrective action progress in preventing any future offsite migration and returning to compliance with the Water Quality Protection Standard. The plan is due by **15 September 2015**. See Monitoring Specification H.21 and Provision J.5.e.

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- Postclosure Maintenance -- The WDRs require that the Discharger complete an aerial topographic survey (or alternative survey meeting Title 27 standards) every **five** years in accordance with Title 27 and the MRP to track differential settlement. See Closure and Postclosure Specification F.1.i. Provision C.5.d requires that the Discharger submit a report documenting previous final cover surveys conducted at the site and the methodology used to track differential settlement by **15 August 2014**, while the MRP requires that the first iso-settlement survey under the WDRs be conducted by **1 June 2016**. The Discharger must also develop and submit an updated Final Postclosure Maintenance Plan (PCMP) to reflect requirements in the revised WDRs and changes at the site since the plan was last approved in 1996. See Closure and Postclosure Specification F.1.i.
- Financial Assurances -- The WDRs require that the Discharger provide financial assurances for landfill post-closure maintenance and corrective action (known or reasonably foreseeable release) in at least the amount of the cost estimates in the currently-approved plans for these items, as annually adjusted for inflation. See Financial Assurance Specifications G.1a and G.1.b. Provision J.5.c requires that the Discharger submit a financial assurances demonstration report for these items by **1 July** each year beginning **2014**.

Class II Surface Impoundments

Updated requirements in the WDRs for the active Class II surface impoundments at the site include, but are not limited to, the following:

- Waste Discharge -- The WDRs prohibit the use of the impoundments for waste disposal or indefinite storage. The discharge of solid wastes to either impoundment is also prohibited, except for solids settled out from authorized discharges. Discharges to SI-2 are limited to inert liquids to be beneficially reused onsite as operations water, as proposed by the Discharger. Discharges to SI-1 are specifically limited to nonhazardous (inert or non-inert) liquids of the type historically discharged to the impoundment (e.g., leachate, septage) provided such wastes do not contain excessive solids (i.e., wastes must have a moisture content of at least 80% or contain at least 80% free liquids by volume). See Discharge Specifications A.2.a through A.2.c.
- Detection Monitoring -- A Point of Compliance well needs to be installed immediately down gradient of the surface impoundments at the site to allow detection of a release from the units. See Finding 53 and Monitoring Specification H.13. Provision J.6.e requires submission of a work plan for installation of this well by **15 September 2015**. The WDRs also require submission of a revised Water Quality Protection Standard Report for the units at the site by 31 January 2015, including concentration limits based on interwell monitoring.
- Operations & Maintenance -- The WDRs require that the Discharger develop and implement an approved operations and maintenance plan for the surface

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impoundments consistent with the revised WDRs, as required under Title 27, section 21760(b). The overall purpose of the plan is to ensure that water quality is not threatened by surface impoundment operations. See Facility Specification C.4. Provision J.6.d requires that the plan be submitted by **15 September 2014**.

The WDRs continue the requirement in previous WDRs that the Discharger maintain a minimum freeboard of 2.9 feet at each impoundment to accommodate a design (1,000-year, 24-hour) storm event per Title 27 regulations. In addition, the WDRs require that commingling of inert and non-inert liquids be kept to a minimum to help prevent freeboard violations and to minimize hydraulic head on the liner. (Another reason not to commingle is to prevent an unnecessary increase in the amount of wastewater that must be discharged at an authorized offsite facility). See Discharge Specifications B.2.c and B.2.d.

- Closure -- The WDRs require that the Discharger develop and submit a preliminary closure and postclosure maintenance plan (PC/PCMP) for the Class II surface impoundments per Title 27 requirements, including a lump sum estimate of the cost of carrying out all actions necessary to clean close each impoundment. The PC/PCMP shall also include plans and cost estimates for closure and postclosure maintenance of the unit as a landfill if clean closure may not be feasible. The PC/PCMP is required to be submitted for Board staff approval by **15 May 2014**. See Closure and Postclosure Specifications F.2.a and F.2.b and Provision J.6.b.

An amended RWD containing a final closure and postclosure maintenance plan (FC/PCMP) is required to be submitted prior to anticipated closure of the impoundments per Closure and Postclosure Specification F.2.d.

- Financial Assurances -- The WDRs require that the Discharger provide financial assurances for surface impoundment closure, post-closure maintenance, and corrective action (known or reasonably foreseeable release) in at least the amount of the cost estimates in the approved plans for these items, as annually adjusted for inflation. For closure and postclosure maintenance, such plans would be the PC/PCMP submitted above, as approved by Board staff. For corrective action, such plan would be required to be submitted by **15 April 2014** under Financial Assurance Specification G.1d and Provision J.6.a. Provision J.6.c requires that the Discharger submit a financial assurances demonstration report for these items by **1 July** each year beginning **2014**.

Monitoring and Reporting Program

The monitoring and reporting program (MRP) in the revised WDRs requires corrective action monitoring for the closed landfill units and detection monitoring for the two Class II surface impoundments. The MRP requires monitoring of all Title 27 media at each unit, as applicable, including groundwater, soil-pore water, and surface water. Monitoring frequencies are generally quarterly for field parameters, semiannually for monitoring

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parameters, and every five years for Constituents of Concern. The monitoring parameters generally consist of those constituents that have been detected at elevated concentrations in leachate, landfill gas, and/or groundwater at the site, such as volatile organic compounds (VOCs) and general minerals. Other constituents such as dissolved metals have not been included in semiannual monitoring because they have not been confirmed as part of the release at either unit.

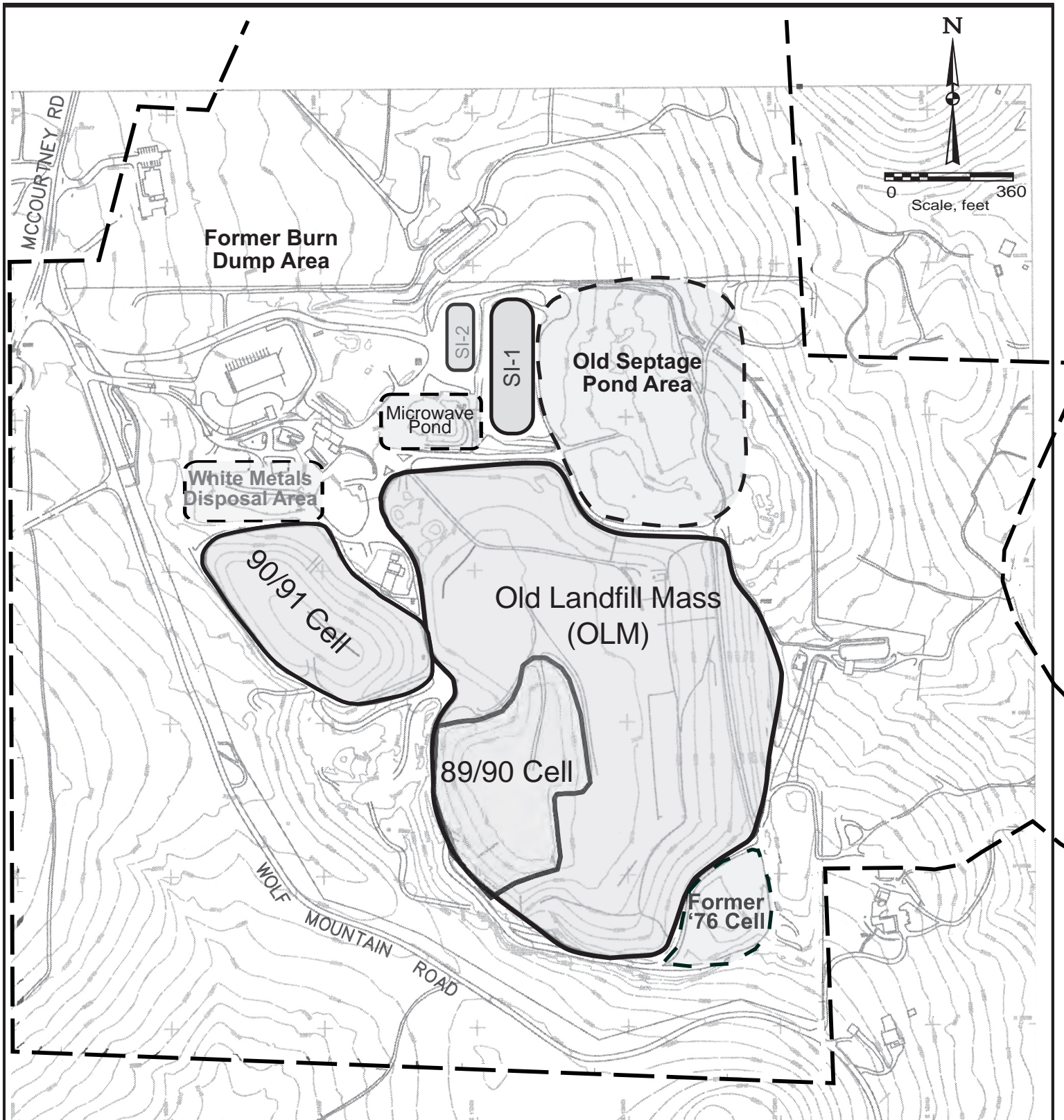
Previous WDRs required that the Discharger monitor the nine offsite domestic wells historically impacted by the landfill. As noted in Findings 50 and 51, these wells appear to have cleaned up over the past 10 years. Under this MRP, the Discharger is not required to continue to monitoring these offsite wells, but is required to install an onsite Title 27 compliant monitoring well upstream of the domestic wells to monitor the progress of corrective action and any potential future threat to the offsite supply wells from the landfill,

The MRP also requires monitoring of all major landfill control systems such leachate, landfill gas, soil gas, and precipitation and drainage controls. Monitoring of these systems is also generally semiannually, except for field parameters.

As noted in the WDRs, the landfill was sited in a ravine with an ephemeral stream running through it. Much of the stormwater and spring water that once fed the stream are captured by the landfill's storm water controls and subdrain systems. As a result, surface water monitoring is limited to storm water monitoring. The MRP also requires that the Discharger obtain coverage under the General Industrial Storm Water Permit.

The site is drained by ephemeral streams that flow to French Ravine about one-half mile east of the site. French Ravine is a tributary of Wolf Creek, which flows into the Bear River and thence the Feather and Sacramento Rivers.

JDM

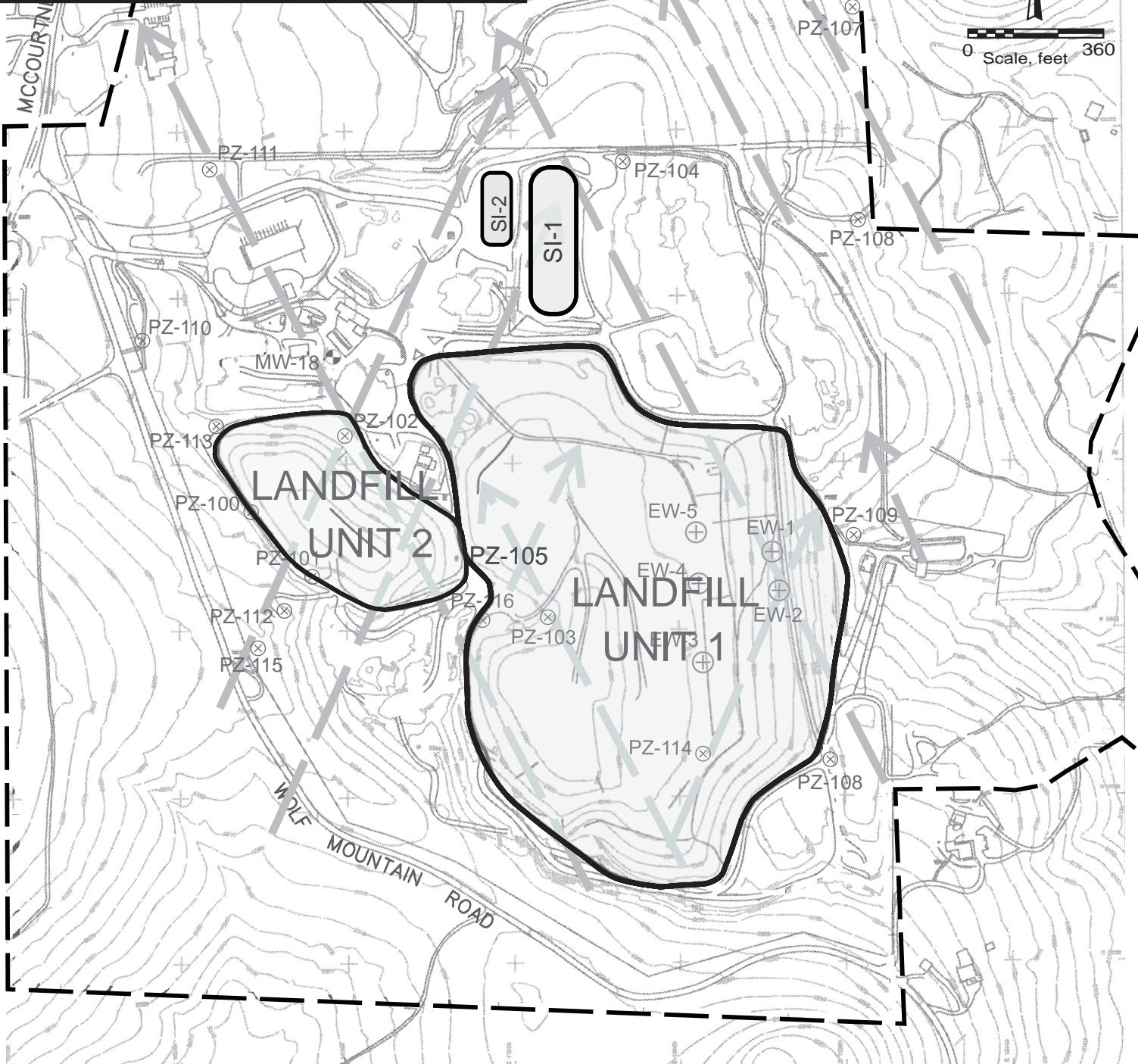


Information Sheet, Attachment 1:
Former Operations Areas
McCourtney Road Landfill
Nevada County
WDR Order No. R5-2014-0022

Information Sheet, Attachment 2:
 Groundwater Elevation Monitoring
 McCourtney Road Landfill
 Nevada County
 WDR Order No. R5-2014-0022

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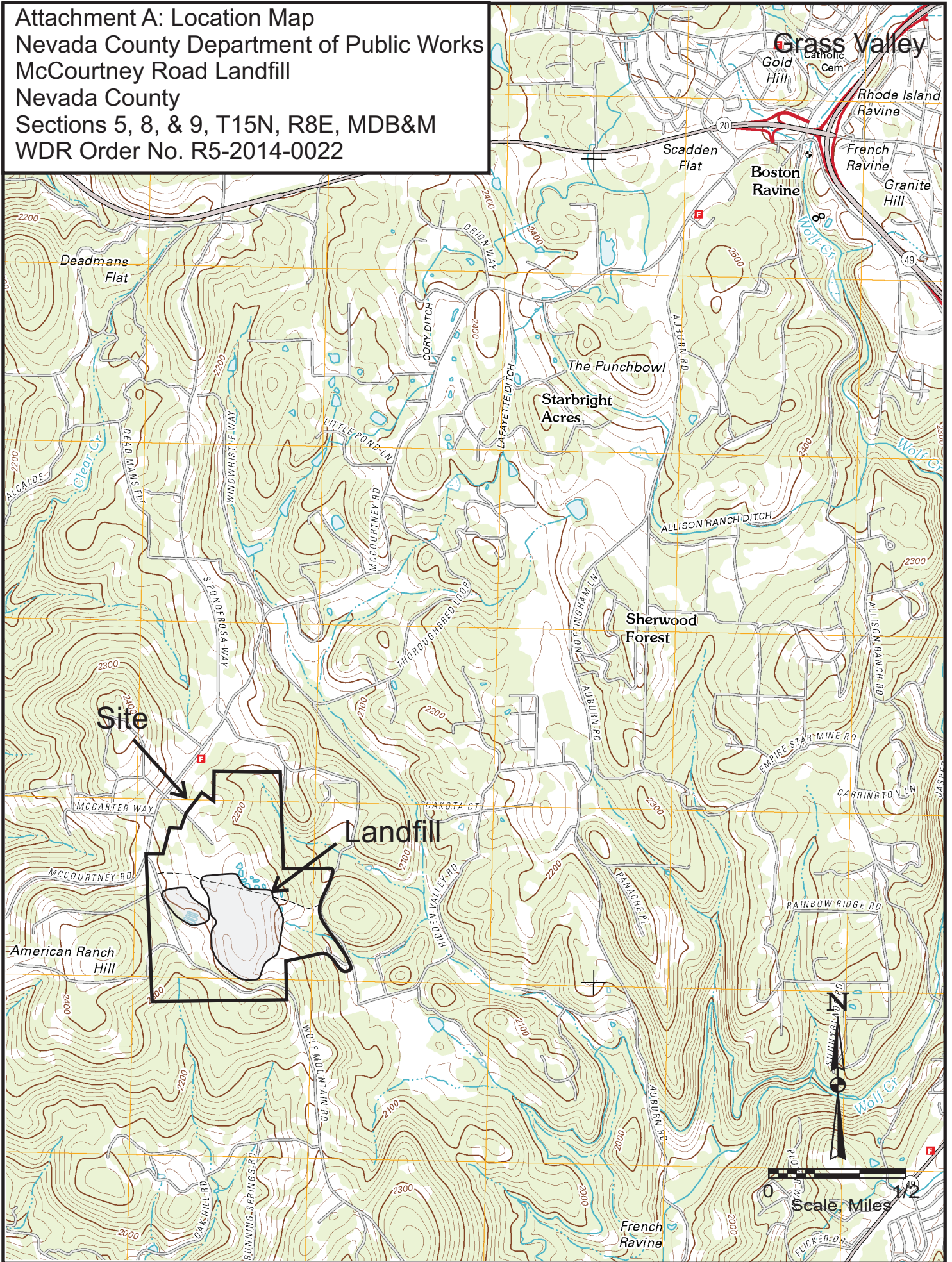
0 Scale, feet 360



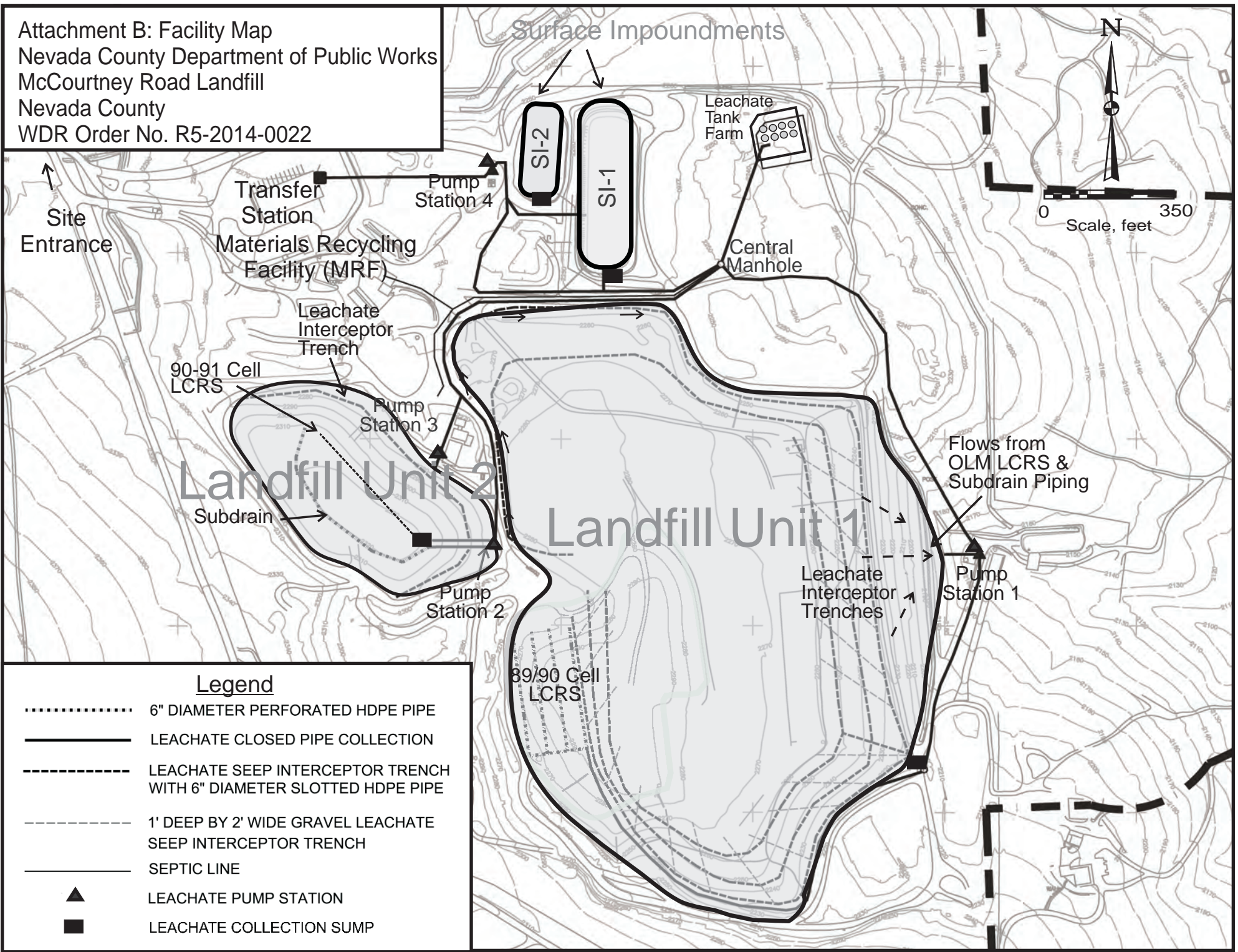
Legend

- ⊗ Piezometer
- ⊙ GW Well Used As Piezometer
- ⊕ Former Leachate Well Used As Piezometer
- Estimated Fault/Shear Zone Location & Fracture Flow Direction

Attachment A: Location Map
Nevada County Department of Public Works
McCourtney Road Landfill
Nevada County
Sections 5, 8, & 9, T15N, R8E, MDB&M
WDR Order No. R5-2014-0022



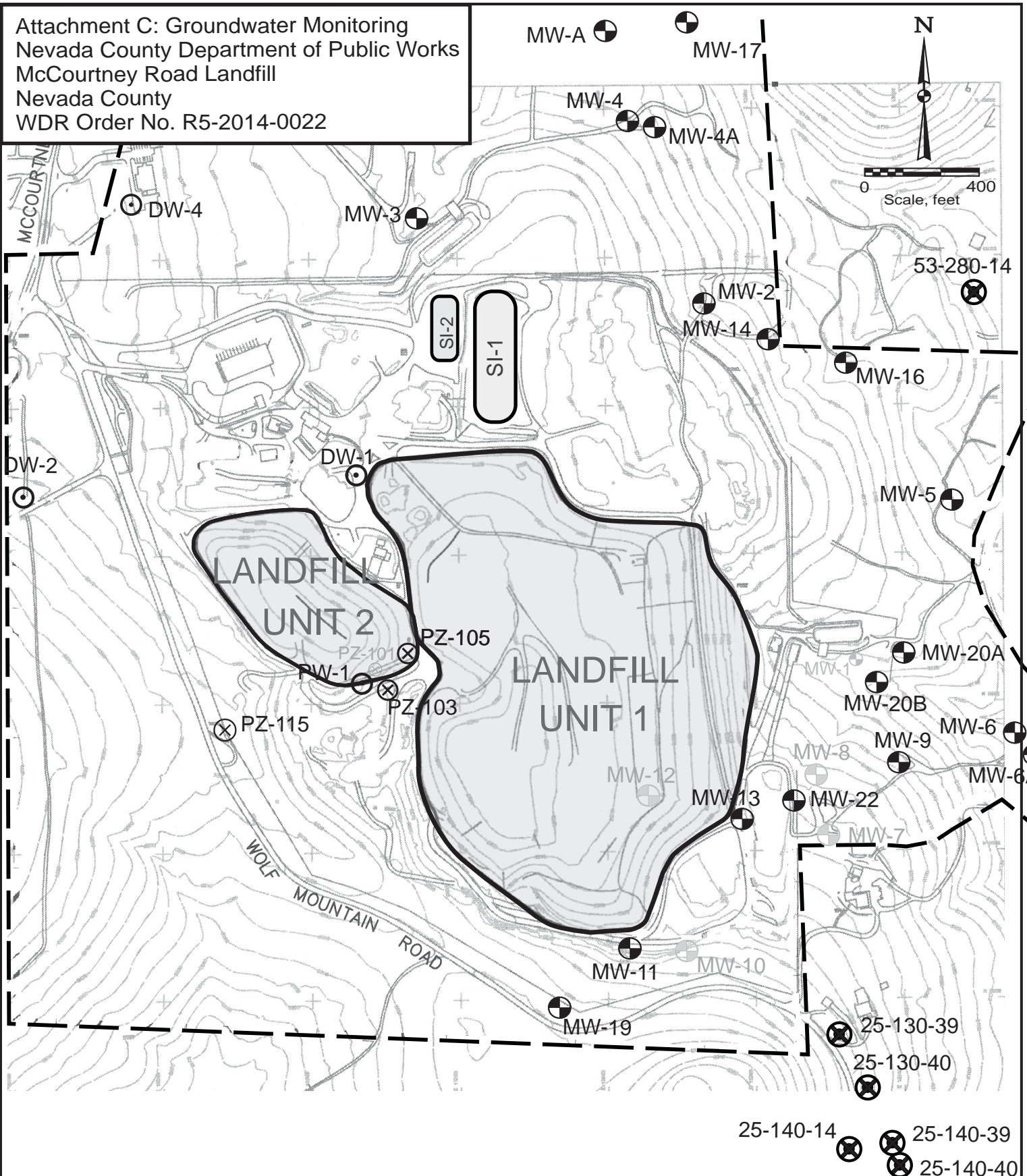
Attachment B: Facility Map
 Nevada County Department of Public Works
 McCourtney Road Landfill
 Nevada County
 WDR Order No. R5-2014-0022



Legend

- 6" DIAMETER PERFORATED HDPE PIPE
- LEACHATE CLOSED PIPE COLLECTION
- - - - - LEACHATE SEEP INTERCEPTOR TRENCH WITH 6" DIAMETER SLOTTED HDPE PIPE
- - - - - 1' DEEP BY 2' WIDE GRAVEL LEACHATE SEEP INTERCEPTOR TRENCH
- SEPTIC LINE
- ▲ LEACHATE PUMP STATION
- LEACHATE COLLECTION SUMP

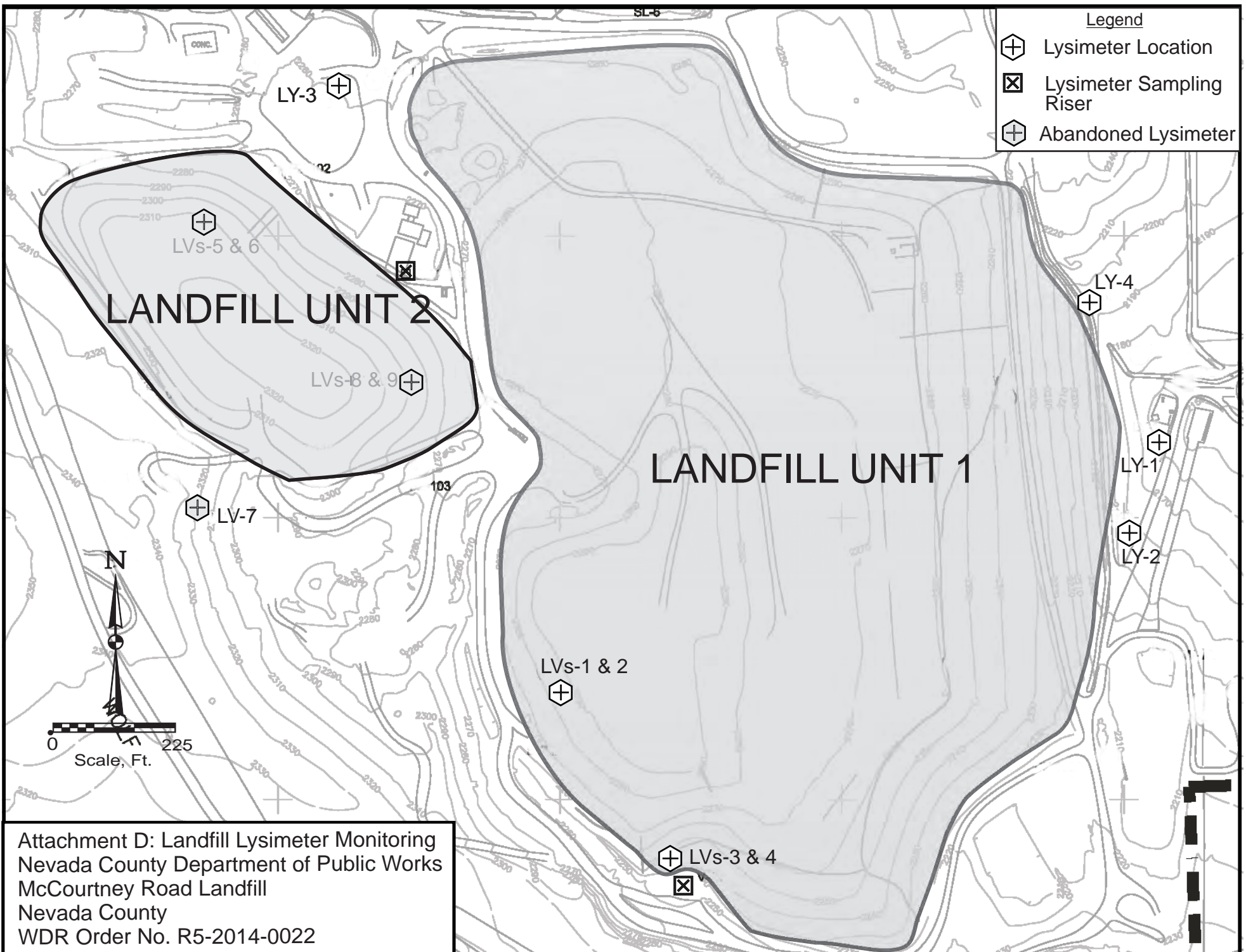
Attachment C: Groundwater Monitoring
 Nevada County Department of Public Works
 McCourtney Road Landfill
 Nevada County
 WDR Order No. R5-2014-0022



Legend

- | | | | |
|--|------------------------------|--|------------------------------|
| | GW Monitoring Well | | Sampled Piezometer |
| | Abandoned GW Monitoring Well | | GW De-watering Well |
| | GW Supply Well | | Privately-Owned Offsite Well |

- 25-140-14
- 25-140-39
- 25-140-40
- 25-140-41
- 25-140-32
- 25-140-33



- Legend
- ⊕ Lysimeter Location
 - ⊗ Lysimeter Sampling Riser
 - ⊕ Lysimeter (with horizontal line) Abandoned Lysimeter

LANDFILL UNIT 2

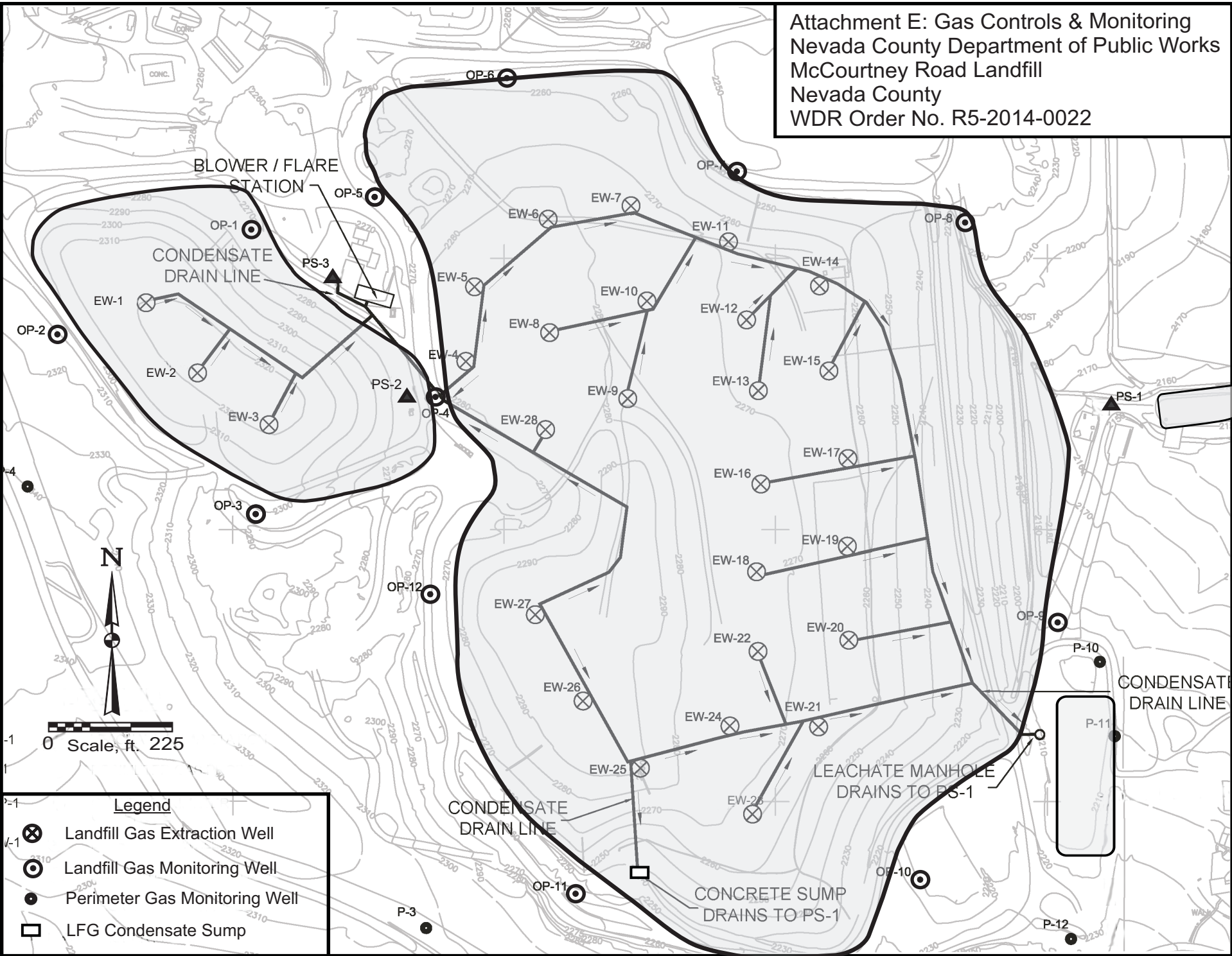
LANDFILL UNIT 1

N

0 225
Scale, Ft.

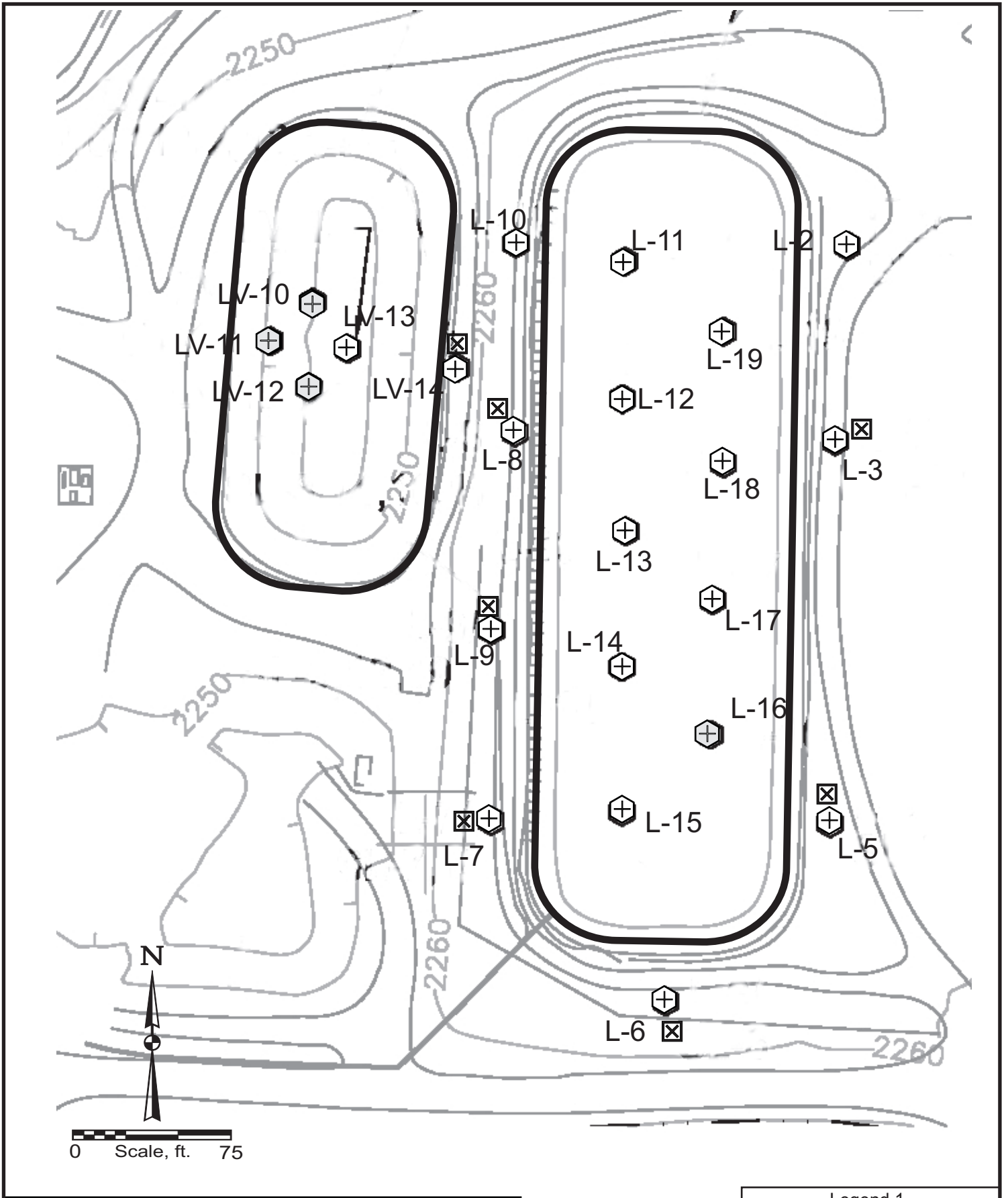
Attachment D: Landfill Lysimeter Monitoring
Nevada County Department of Public Works
McCourtney Road Landfill
Nevada County
WDR Order No. R5-2014-0022

Attachment E: Gas Controls & Monitoring
 Nevada County Department of Public Works
 McCourtney Road Landfill
 Nevada County
 WDR Order No. R5-2014-0022






0 Scale, ft. 225

Legend	
	Landfill Gas Extraction Well
	Landfill Gas Monitoring Well
	Perimeter Gas Monitoring Well
	LFG Condensate Sump



Attachment F: Surface Impoundment Monitoring
 Nevada County Department of Public Works
 McCourtney Road Landfill
 Nevada County
 WDR Order No. R5-2014-0022

Legend 1

-  Lysimeter Location
-  Lysimeter Sampling Riser
-  Abandoned Lysimeter

