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WASTE DISCHARGE REQUIREMENTS ORDER R5-2020-0011 AND MONITORING AND REPORTING PROGRAM



Order Information

Program	Title 27
Discharger:	TRC Companies Inc. and GBF Holdings, LLC
Facility:	Contra Costa Sanitary Landfill
Address:	Intersection of Somersville Road and James Donlon Boulevard, Antioch
County:	Contra Costa County
CIWQS ID:	226856
Prior Order(s):	R5-2003-0021

I, PATRICK PULUPA, Executive Officer, hereby certify that the following is a full, true, and correct copy of the orders adopted by the California Regional Water Quality Control Board, Central Valley Region, on 20 February 2020.

PATRICK PULUPA, Executive Officer

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GLOSSARY

ADC.....	Alternative Daily Cover
<i>Antidegradation Policy</i>	<i>Statement of Policy with Respect to Maintaining High Quality Waters in California</i> , State Water Board Resolution 68-16
APN.....	Accessor's Parcel Number
<i>Basin Plan</i>	Water Quality Control Plan for the Sacramento River Basin and San Joaquin River Basin
bgs	below ground surface
BOD	Biochemical Oxygen Demand
BMP	Best Management Practice
BPTC.....	Best Practicable Treatment and Control
C&D.....	Construction and Demolition Materials
CalRecycle	California Department of Resources Recovery and Recycling
CAP	Corrective Action Program
CAMP	Corrective Action Monitoring Program
CB	Cement Bentonite
C.C.R.	California Code of Regulations
CCSL.....	Contra Costa Sanitary Landfill
CEQA.....	California Environmental Quality Act
CEQA Guidelines	California Code of Regulations, Title 14, section 15000 et seq.
C.F.R.....	Code of Federal Regulations
COCs	Constituents of Concern
COD	Chemical Oxygen Demand
C-Soil	Contaminated Soil

CSM	Conceptual Site Model
CQA	Construction Quality Assurance
DEIR.....	Draft Environmental Impact Report
DMP	Detection Monitoring Program
DOC	Dissolved Organic Carbon
DSZ.....	Deep Saturated Zone
DTSC	California Department of Toxic Substances Control
DWR.....	California Department of Water Resources
EC	Electrical Conductivity
EFS	Engineering Feasibility Study
EIR	Environmental Impact Report
EMP	Evaluation Monitoring Plan
FCPMP.....	Final Closure and Post-Closure Maintenance Plan
FEIR	Final Environmental Impact Report
FEMA	Federal Emergency Management Agency
ft.....	feet or foot
GCL.....	Geosynthetic Clay Liner
GWETS	Groundwater Extraction and Treatment System
HDPE	High-Density Polyethylene
H&SC	Health and Safety Code
ISCR/EISB	in-situ chemical reduction/enhanced in-situ bioremediation
JTD.....	Joint Technical Document
LCRS.....	Leachate Collection and Removal System

LDSZ	Lower Deep Saturated Zone
LEA	Local Enforcement Agency
LFG	Landfill Gas
MCE	Maximum Credible Earthquake
MCL	Maximum Contaminant Level
MDB&M	Mount Diablo Base and Meridian
MDL	Method Detection Limit
µg/L	Micrograms per Liter
mg/L	Milligrams per Liter
MPE	Maximum Probable Earthquake
msl	Mean Sea Level
MRP	Monitoring and Reporting Program
MSW	Municipal Solid Waste
MSWLF	Municipal Solid Waste Landfill
MW	Monitoring Well
NOAA	National Oceanic and Atmospheric Administration
PCE	Perchloroethylene
PCPMP	Preliminary Closure and Post-Closure Maintenance Plan
RAP	Remedial Action Plan
RCRA	Resource Conservation and Recovery Act
ROWD	Report of Waste Discharge
SAP	Sampling and Analysis Plan
SB	Soil-Bentonite

SPRRs	Standard Provisions and Reporting Requirements
Subtitle D.....	USEPA-promulgated MSW regulations under RCRA (see 40 C.F.R. part 258)
SVE	Soil Vapor Extraction
TCE	Trichloroethylene
TDS	Total Dissolved Solids
Title 22	California Code of Regulations, Title 22
Title 23	California Code of Regulations, Title 23
Title 27	California Code of Regulations, Title 27
U.S.C.....	United States Code
USEPA.....	United States Environmental Protection Agency
USZ	Upper Saturated Zone
VOCs.....	Volatile Organic Compounds
WDRs.....	Waste Discharge Requirements
WMU	Waste Management Unit
WQPS	Water Quality Protection Standard

FINDINGS

The Central Valley Regional Water Quality Control Board (Central Valley Water Board) hereby finds as follows:

Introduction

1. GBF Holdings, LLC, a wholly owned subsidiary of TRC Companies Inc. (Discharger), owns and operates the Contra Costa Sanitary Landfill (CCSL, Facility), which is located near the intersection of Somersville Road and James Donlon Boulevard of Antioch in Contra Costa County, Section 27, Township 2 North, Range 1 East, Mount Diablo Base and Meridian (MDB&M). The Facility's location is depicted on the Site Location Map in **Attachment A**.
2. The Facility is comprised of the following Contra Costa County Assessor's Parcel Numbers (APNs):

Table 1—Facility Parcels (APNs)

WMU	Parcel Number
Contra Costa Sanitary Landfill (closed landfill)	076-021-016

3. TRC Companies, Inc. and GBF Holdings, LLC, as the Facility's owner and operator, are responsible for compliance with this Order.
4. This Order encompasses the post-closure maintenance and corrective action of the following waste management units (WMUs) at the Facility:

Table 2—Units Permitted Under Order

WMU	Unit Type	Class	Size	Unit Type
Contra Costa Sanitary Landfill	Landfill	Class III	82 acres	Closed

Materials Accompanying this Order

5. The following materials are attached to this Order, and incorporated herein:
 - Attachment A** Site Location Map
 - Attachment B** Site Plan
 - Attachment C** Groundwater and Surface Water Monitoring Networks

Information Sheet

Standard Provisions and Reporting Requirements for Waste Discharge Requirements for Nonhazardous Solid Waste Discharges regulated by Subtitle D and/or Title 27 – December 2015 (SPRRs)

6. Attached and incorporated as part of this Order is the separately-issued **Monitoring and Reporting Program R5-2020-0011** (MRP), which includes the requirements for a Water Quality Protection Standard (WQPS) (Title 27, § 20390 et seq.) compliance with the operative MRP (including subsequent amendments) that is required under this Order.
7. The Facility is under corrective action due to groundwater pollution and other environmental impacts per Department of Toxic Substances Control (DTSC) Consent Order HAS-CO-01/02-007 between DTSC and GBF Holdings, LLC dated 13 July 2001 (Consent Order).
8. Additional information set forth in the attached **Information Sheet** is incorporated herein as part of these findings.

Classifications

9. The Facility's landfills are subject to federal municipal solid waste (MSW) regulations promulgated under the Resource Conservation Recovery Act (RCRA), 42 U.S.C. section 6901 et seq. Typically referred to as "Subtitle D," these MSW regulations are now codified as 40 C.F.R. part 258, and implemented in part through the provisions California Code of Regulations (C.C.R), title 27 (Title 27) and in accordance with State Water Resources Control Board (State Water Board) Resolution 93-62.
10. The Facility overlies two former waste disposal sites called the GBF Landfill (eastern side) and the adjacent Pittsburg landfill (western side) those were consolidated in 1987 into a municipal solid waste landfill, which was operated as a single continuous landfill CCSL. The CCSL received and piled solid waste on top of the consolidated landfills from 1987 to 1992 (see **Information Sheet** for facility history). On 31 January 2003, the Central Valley Water Board adopted R5-2003-0021, classifying the Facility's WMUs as Class III units for the discharge of municipal solid waste. This Order continues such classifications, which are set forth above in **Table 2**.
11. On 1 February 2019, the Discharger submitted an updated Report of Waste Discharge (ROWD) as part of its Joint Technical Document (JTD) for the Facility. Information in the ROWD, case files, monitoring reports and corrective action reports were used in the development of this Order. This order includes information related to:

- a. A summary of work completed at the Facility since the time of Order No. R5-2003-0021
 - b. An update to the corrective actions at the Facility
 - c. An update to the financial assurances required for the Facility
 - d. Requirements for post-closure maintenance
12. The Facility is a closed landfill. The Discharger has not proposed construction of any new WMU at the site. This Order does not authorize the discharge of any additional waste at the Facility as specified in Section B.1.

Site Description

13. The Facility is situated on a 84.23-acre property comprised of Contra Costa County Assessor's Parcel Number (APN) 076-021-016. The address associated with the Facility is intersection of Somersville Road and James Donlon Blvd, California 94509.
14. The site is located at the base of the Los Medanos foothills, in northeastern Contra Costa County, on a gently sloping plain which extends northward to the San Joaquin River. The primary drainage course in the vicinity of the site is Markley Creek, a deeply incised intermittent stream channel which drains the foothills to the south. The Contra Costa Canal, a concrete-lined channel, is located approximately 200 feet to the north of the site's northwest boundary. Monitoring well data indicate that the depth to groundwater below the channel bottom is approximately 50 ft in this area.
15. Land uses within 1,000 feet (ft) of the Facility are residential, other closed landfills, and open space. The closest residential developments are approximately 300 ft from the eastern boundary of the site and 500 ft from the southern boundary of the site. Additional residential developments are planned for areas around this site. The 17-acre Antioch landfill, a closed burn dump, is immediately west and northwest of the site, and the 16-acre Lynch landfill is southwest of the site. The Antioch landfill is owned by the City of Antioch, and the Lynch landfill is owned by Good Chance Management LLC (see Attachment A for approximate location of Antioch and Lynch Landfills).
16. There are 2 agricultural supply wells (one stock watering and one irrigation well) within one mile of the Facility.
17. Class III WMUs must be designed and constructed to withstand a maximum probable earthquake (MPE), whereas Class II WMUs must withstand a maximum credible earthquake (MCE). (Title 27, § 20370.) According to the Discharger's site-specific seismic analysis for the Facility, such seismic events occurring along

the Greenville fault at a closest rupture distance of 4.6 miles would result in the following:

Table 3—Site-Specific Seismic Analysis

Seismic Event	Magnitude	Peak Ground Acceleration	Return Period
MPE	6.9	0.44g	521 Years

18. Based on data from the nearest weather station (Antioch Pump Plant 3, Western Regional Climate Center), the Facility has an annual average precipitation of 13.22 inches, and a mean pan evaporation of 71.11 inches per year.
19. WMUs must be constructed to accommodate stormwater runoff from 24-hour precipitation events with a return period of 100 years for Class III WMUs, and a return period of 1,000 years for Class II WMUs. (See Title 27, § 20320.) According to National Oceanic and Atmospheric Administration’s (NOAA) Precipitation Frequency Atlas 14, Volume 6 (rev. 2014), the Facility’s 100-year and 1,000-year, 24-hour rainfall events are estimated to result in 4.81 and 6.96 inches of precipitation, respectively. [Source: [NOAA Precipitation Frequency Data Server](https://hdsc.nws.noaa.gov/hdsc/pfds/) (https://hdsc.nws.noaa.gov/hdsc/pfds.)]
20. Stormwater detention basins are situated in the southeastern corner of the facility and on the East Parcel, as depicted in **Attachment B**. These basins are dry during summer months and occasionally contain minor stormwater runoff in the winter, which will discharge to City of Antioch storm sewer system if filled. Surface runoff from eastern and southern area of the closed landfill is discharged to the stormwater detention basin and from western and northern area of the closed landfill is discharged to Markley Creek.
21. According to the [Federal Emergency Management Agency’s \(FEMA\) Flood Insurance Rate Map](https://msc.fema.gov/portal/), available online at (https://msc.fema.gov/portal), the Facility is not located within a 100-year floodplain.

Groundwater and Surface Water Conditions

22. The Facility overlies three aquifer zones - the upper, the deeper and the lower deeper saturated zones, are recognized at this location. The first continuous groundwater [upper saturated zone (USZ)] is first encountered between approximately 80 and 100 ft below ground surface (bgs) in the vicinity of the site. Groundwater potentiometric elevations in the upper saturated zone range from approximately 115 to 95 ft (NGVD 1929) in the vicinity of the site. The deeper saturated zone (DSZ) and lower deeper saturated zone (LDSZ) are encountered at approximately 160 ft and 200 ft bgs, respectively. Groundwater in all three zones is semi-confined.

23. The downgradient direction of groundwater in the upper aquifer zones is toward the north. The average groundwater gradient in the upper aquifer zone is approximately 0.02 foot per foot in the south adjacent to the landfill to 0.01 foot per foot at the northern extent of the contaminant plume.
24. Monitoring data indicate background groundwater quality in the upper aquifer zone has an electrical conductivity (EC) ranging between 640 and 998 micromhos/cm, with total dissolved solids (TDS) ranging between 350 and 940 mg/l.
25. Surface drainage is toward Markley Creek, an intermittent stream that is tributary to the San Joaquin River. The site is in the North Diablo Range Hydrologic unit 543.00 of the San Joaquin River Basin.

Groundwater Separation

26. Per Title 27, existing WMUs must “be operated to ensure that wastes will be a minimum of five feet (5 ft.) above the highest anticipated elevation of underlying ground water.” (Title 27, § 20240, subd. (c).)

“Five-Foot Separation -All new landfills, waste piles, and surface impoundments shall be sited, designed, constructed, and operated to ensure that wastes will be a minimum of five feet (5 ft.) above the highest anticipated elevation of underlying ground water.”

27. The wastes and the ponds are separated from groundwater by a vadose zone between approximately 40 to 100 ft thick below the landfill.

Monitoring Networks

28. Groundwater is monitored in three aquifer zones with a combined well network for detection of additional releases and for corrective action. The monitoring network has been designed to comply with both Central Valley Water Board and DTSC requirements in a single combined sampling and analysis plan (SAP) to eliminate unnecessary effort and expense. The monitoring wells in the LDSZ are currently monitored for groundwater elevations and VOCs only, per the DTSC requirements.

29. The Facility's **groundwater** monitoring network consists of the following monitoring wells (existing) compliance with Title 27:

Table 4—Groundwater Monitoring Well Network

Well	Program	Monitored Unit	Water-Bearing Zone	Status
MW-9	Detection	Closed landfill	USZ	Operational
PZ-38R	Detection	Closed landfill	USZ	Operational
MW-11	Detection	Closed landfill	USZ	Operational
G-3	Detection, Corrective Action	Closed landfill	USZ	Operational
G-4	Detection, Corrective Action	Closed landfill	USZ	Operational
G-5	Detection, Corrective Action	Closed landfill	USZ	Operational
G-6	Detection, Corrective Action	Closed landfill	USZ	Operational
MW-7	Corrective action	Closed landfill	USZ	Operational
MW-8	Corrective action	Closed landfill	USZ	Operational
MW-12	Corrective Action	Closed landfill	USZ	Operational
MW-14	Corrective action	Closed landfill	USZ	Operational
MW-21	Detection, Corrective Action	Closed landfill	USZ	Operational
MW-22	Detection, Corrective Action	Closed landfill	USZ	Operational
MW-23	Detection, Corrective Action	Closed landfill	USZ	Operational
MW-24	Detection	Closed landfill	USZ	Operational
MW-26	Corrective action	Closed landfill	USZ	Operational
MW-27	Corrective action	Closed landfill	USZ	Operational
MW-28	Corrective action	Closed landfill	USZ	Operational
MW-29	Corrective action	Closed landfill	USZ	Operational
MW-36	Corrective action	Closed landfill	USZ	Operational

Well	Program	Monitored Unit	Water-Bearing Zone	Status
MW-42	Corrective action	Closed landfill	USZ	Operational
MW-43	Corrective action	Closed landfill	USZ	Operational
MW-54	Corrective action	Closed landfill	USZ	Operational
MW-69	Corrective action	Closed landfill	USZ	Operational
MW-70	Corrective action	Closed landfill	USZ	Operational
LM-3	Corrective action	Closed landfill	USZ	Operational
MW-37	Detection	Closed landfill	DSZ	Operational
MW-32	Detection, Corrective Action	Closed landfill	DSZ	Operational
MW-33	Detection, Corrective Action	Closed landfill	DSZ	Operational
MW-34	Corrective action	Closed landfill	DSZ	Operational
MW-35	Corrective action	Closed landfill	DSZ	Operational
MW-41	Corrective action	Closed landfill	USZ	Operational
MW-61	Corrective action	Closed landfill	DSZ	Operational
MW-62	Corrective Action	Closed landfill	DSZ	Operational
MW-63	Corrective action	Closed landfill	LDSZ	Operational
MW-64	Corrective action	Closed landfill	LDSZ	Operational

30. The groundwater monitoring data indicate that the LDSZ has been impacted by the releases from the former landfills in downgradient of northern boundary. Two groundwater monitoring wells (MW-63 and 64) are being used to monitoring the groundwater quality in the LDSZ per the DTSC requirements, and these two wells have been paired with other wells to monitoring groundwater vertical gradient in USZ and DSZ at the same locations. Based on the analytical results presented in Technical Memorandum Updated Hydrogeologic Conceptual Model submitted in August 2001, several VOCs were detected at elevated concentration in MW-63 and the vertical gradient of groundwater between DSZ and LDSZ is downward. Further, dissolved hydrocarbon gases (methane, ethane, ethene, propene, propane) and elevated concentration of chloride and sulfate were detected in MW-63 based on Annual Phase I evaluation report submitted to DTSC on 13 January 2006. No VOCs were historically detected in MW-64. In 2011, the groundwater monitoring program was modified to monitor only groundwater elevation and VOCs in MW-63 (Groundwater Monitoring

Modification Request, 9 March 2011). Therefore, the LSDZ has not been monitored for general chemistry and monitoring parameters since 2011. Title 27 section 20415, subdivision (b)(1) requires installing sufficient monitoring points and background monitoring points installed at appropriate locations and depths to yield groundwater samples from portions of saturation, including other aquifers, under all groundwater monitoring programs [detection monitoring program (DMP), evaluation monitoring program (EMP) and corrective action program (CAP)]. The Discharger shall submit a report that evaluates the adequacy of the groundwater monitoring program at the facility complying with Title 27 monitoring program requirements and propose installation of groundwater wells to monitor the LDSZ, as described in Time Schedule J.A. Additionally, the Discharger shall provide Monitoring System Certification as described in Time Schedule J.B.

31. The Discharger submitted the *Technical Report – Status of Existing Vadose Zone Monitoring System* on 15 May 2001 and requested for exemption from unsaturated zone monitoring. The report found that the two vadose zone monitoring wells installed to monitor the perched groundwater along the northern perimeter of the landfill were dry to their full depths, and two of the three suction lysimeters (one in upgradient and two in downgradient) were not located. An attempt to obtain a pore-water sample from the downgradient lysimeter on the north side of the landfill was unsuccessful. The low moisture content and fine-grained character of the solids in the vadose zone are not conducive to collection of soil pore liquid with suction lysimeter which required soil sample moisture content exceeding 32 percent, where vadose zone soil consisted average moisture content of 18 percent. Further, the report quotes the Water Quality Solid Waste Assessment Test Report (EBA, 1987) to the effect that the Central Valley Water Board granted a variance to requirements for vadose zone probes because they were impractical to install in any meaningful fashion.
32. The Facility is an existing, leaking, unlined, landfill without a leachate collection system. The Discharger has demonstrated that suction lysimeters will not operate under the soil conditions that exist under the landfill and that retrofitting the landfill with leachate collection system and pan lysimeter will be unreasonably burdensome. Therefore, the Discharger has demonstrated to the satisfaction of the Central Valley Water Board that that there is no unsaturated zone monitoring device or method designed to operate under the subsurface conditions existent at the site. Per Title 27, section 20415, subdivision (d)(5), the Facility is exempt from the requirement to establish an unsaturated zone monitoring system.

33. The Facility’s **surface water** monitoring network consists of the existing monitoring points at Markley Creek, as provided in Table 5:

Table 5—Surface Water Monitoring Network

Monitoring Point	Location	Program	Monitored Unit	Status
MC-1	Downstream	Detection	Closed landfill	Operational
MC-2	Upstream	Detection	Closed landfill	Operational

34. As of the adoption of this Order, the above-described networks do not comply with the monitoring requirements of Title 27. (See Title 27, §§ 20415–20435.) Requirements set forth in these WDRs are intended to bring the monitoring network into compliance with Title 27.

Water Quality Impacts / Corrective Action

35. Groundwater contamination at the site is characterized by volatile organic compounds (VOCs), dissolved metals and elevated concentration of general water quality parameters. The groundwater downgradient (north) from the site is contaminated by releases from the former GBF and Pittsburg landfills up to a distance of at least 2,500 ft from northern boundary of the site. Groundwater contaminant plumes emanate from the western and eastern sides of the northern landfill boundary (Technical Memorandum Updated Hydrogeologic Conceptual Model, 23 August 2001). The groundwater monitoring data indicate that the eastern plume impacted groundwater in all three aquifers (USZ, DSZ, and LDSZ) and the western plume impacted groundwater in USZ and DSZ. Based on Revised Conceptual Site Model Investigation Report, submitted to DTSC in March 2014, there are a series of discrete plume “fingers”, particularly on the eastern side of the Facility, that have likely been controlled historically by preferential high-permeability geologic pathways.
36. The Facility has a known and well-studied release that includes hazardous constituents. Groundwater monitoring data provide evidence of a release from the landfill. Specifically, carbon tetrachloride, vinyl chloride, 1,2-dichloroethane, 1,1-dichloroethane, 1,1-dichloroethylene, 1,2-dichloroethylene, 1,2-dichloropropane, perchloroethylene, trichloroethylene, benzene, arsenic, cadmium, total chromium, lead, mercury, and silver have been detected in concentrations greater than maximum contaminant levels (MCLs) downgradient of the landfill. Elevated concentrations of general water quality parameters (Total Dissolved Solids [TDS], pH, and Electrical Conductivity) and several of the metals (aluminum, antimony, iron, manganese, vanadium and zinc) also have been detected.

37. The DTSC is the lead agency for corrective actions at the site through the Consent Order. Findings 38-55 summarize the history of feasibility studies and activities related to the corrective actions conducted at the Facility since the time of closure to adoption of this order.
38. The DTSC approved its remedy selection document for hazardous substances release sites, Remedial Action Plan (RAP) prepared pursuant to the Consent Order HAS 87/88-012A for this Facility, in June 1997. The proposed corrective action alternative included pump and treat system with extraction wells both near the landfill and near the leading edge of the contaminant plumes, groundwater monitoring and institutional controls, minimum four-ft thick landfill cap (minimum two ft of foundation layer, one ft of barrier later and one ft of vegetative layer), and existing landfill gas (LFG) collection and destruction system. The Consent Order allowed the Discharger to implement a pump and treat groundwater extraction system with extraction wells in two phases: Phase I to include installation of the extraction wells near the landfill and Phase II to include installation of the extraction wells near the leading edge of the plume, after three-year operation of the Phase I system.

Additionally, the RAP presented the chemicals of concern [Constituents of concern (COCs)] in groundwater as antimony; arsenic; barium; cadmium; chromium; copper; iron; lead; manganese; mercury; nickel; selenium; vanadium; zinc; acetone; vinyl chloride; benzene; chloroform; dichloromethane; carbon tetrachloride; tetrachloroethene; 1,1,2,2-tetrachloroethane; trichloroethene; 1,1-dichloroethene; 1,1-dichloroethane; 1,2-dichloroethene (total); 1,2-dichloroethane; methyl ethyl ketone; 1,4-dichlorobenzene; 1,3-dichlorobenzene; 1,2-dichlorobenzene; chlorobenzene; 1,2-dichloropropane; bromoform; 4-methyl-2-pentanone; toluene; ethylbenzene; xylenes; phenol; isophorone; dimethyl phthalate; bis(2-ethylhexyl)phthalate; alpha-BHC; 4,4-DDE; heptachlor; heptachlor epoxide; dalapon; and dichloroprop. The criteria used to identify the COCs were the chemicals that are considered carcinogens, chemicals detected in more than five percent of the groundwater samples collected from monitoring wells at the site and vicinity, and chemicals from which the spatial pattern of their detection in groundwater appears to be related to the site.

The report also provided the remedial action objectives which are to control the spread of contamination to protect uncontaminated groundwater and to attain acceptable standards which protect the beneficial uses of the waters of the State. Groundwater beneath the site and the vicinity of the site is covered by the Basin Plan which lists the beneficial uses of the groundwater (see Finding 77). The cleanup standards for groundwater at the Site [which is designated for use as domestic or municipal supply (MUN)] are to cleanup to background or, at a minimum, to clean up to the more stringent of either the California or federal MCLs, if feasible, pursuant to the RWQCB's Basin Plan for the Sacramento River and San Joaquin River Basins.

39. The Discharger completed closure construction of the landfill in spring of 2002. Central Valley Water Board issued Certificate of Closure of the landfill on 7 August 2002.
40. The existing, operating LFG collection and destruction system consists of vertical LFG extraction wells (up to 30 wells generally operate at any time); condensate collection piping, tanks and pump station; and an enclosed flare. The LFG extraction wells are 24 inches in diameter and vary in depth from approximately 35 to 85 ft within the refuse. The LFG collection piping is kept under vacuum by a blower located at the flare area. The extracted LFG is discharged to the flare for destruction and condensate in the piping system is discharged to the tanks and pumped to groundwater extraction and treatment system (GWETS) for treatment.
41. In 2003, a Covenant and Environmental Restriction, DOC-2003-0462064-00, was put in place for the property as an institutional control to protect present or future human health, or safety of the environment as a result of the presence of hazardous materials on the land as defined in Health and Safety Code section 25260.
42. In 2003, Phase I implementation Report for Groundwater Extraction and Treatment System (GWETS) was submitted to the DTSC and Central Valley Water Board. The remedial action consisted of installation of a groundwater extraction and treatment system along the northern boundary of the landfill (Phase I system). The extraction system consists of 30 wells and was designed for a maximum flow rate of 30 gallons per minute. The treated groundwater is discharged to Delta Diablo Sanitation District under Special Discharge Permit No. 0302566-S. The DTSC reviewed Report of Completion of Remedial Action for Landfill Closure Activities GBF/Pittsburg Landfill Site, dated 20 October 2004 and requested the Discharger to determine the need for Phase II system based on operation and maintenance of the GWETS and evaluation of the Phase I system.
43. TRC, on behalf of GBF Holdings, LLC, submitted the *Semiannual Groundwater and Surface Water Monitoring and Groundwater Treatment System Evaluation Report* on 13 January 2006. The report included an evaluation of the installed GWETS along with the semiannual monitoring data and standard observations. After reviewing the report, the DTSC requested the Discharger to evaluate the trend of some chemicals in future monitoring reports since the concentration of those chemicals show increasing trends in certain downgradient wells, in a letter dated on 13 March 2006. Further, the letter required the Discharger to submit the Remedial Design for the Phase II GWETS pursuant to Section 5.4(m) of the DTSC's Consent Order HAS-CO 01/02-007.
44. TRC on behalf of GBF Holdings, LLC. Submitted the Remedial Action Plan Technical Scope and Schedule for the Phase II Remedial Action Alternative Evaluation on 13 December 2006. The scope included:

- a. A hydrogeologic study of the leading edge of the plume to determine whether hydrogeologic conditions are similar to those further to the south;
 - b. Documentation to determine whether natural attenuation is occurring in the plume;
 - c. A demonstration that the current conceptual pump-and-treat alternative is not practicable for remediating the leading edge of the plume;
 - d. An analysis as to whether a middle-of-the plume active remedial alternative would be feasible; and
 - e. A determination whether an enhanced in-situ remediation remedial alternative will be effective.
45. From 2007 through 2009, the Discharger submitted work plans for aquifer, tracer and injection tests, natural attenuation sampling plan, First Five-Year Remedial Action Review and soil vapor intrusion. The first five-year remedial action review report ¹ submitted on 1 July 2010, evaluated the effectiveness of the GWETS and reported that the pumping does not appear to have had a significant effect on long-term concentration trends of chemicals that were already established prior to the GWETS. Further, the report analyzed additional remedial alternatives that could be tested in the Phase I area in order to potentially speed progress towards the remedial action objectives. The report recommended that implementability studies for enhanced in-site bioremediation (EISB) to be conducted for the site, in order to evaluate applicability and substrate dosing rate; and the studies may include bench and/or field pilot testing. The DTSC reviewed the First Five-Year Remedial Action Review Report and requested the Discharger to submit a workplan to conduct a bench-scale treatability study to evaluate the EISB strategies at the site.
46. From 2010 through 2013, the Discharger conducted soil vapor investigation and evaluations with the objective to identify and evaluate the vapor exposure pathway to indoor air related to the off-site plume emanating from the former GBF/Pittsburg landfill. TRC prepared Conceptual Site Model Investigation Report (CSM) to fill geologic and analytical data gaps associated with migration of soil vapor and groundwater impacted with VOCs from the Facility and submitted to DTSC on 30 September 2013. The Discharger submitted revised CSM on 17 March 2014 and the DTSC approved the revised CSM on 23 May 2014.

¹ Submittal of Final First Five-Year Remedial Action Review Report and Response to Comments, GBF/Pittsburg Landfill, Contra Costa County, California

Based on the CSM investigation, studies and findings, the source, pathways and receptors detailed in the CSM are summarized below:

- a. The landfill is the source of soil vapor impacts in the downgradient residential neighborhoods.
 - b. Landfill contaminants migrated to the vadose zone and then to the USZ groundwater via percolation/infiltration. The contaminants in the vadose zone may partition between the liquid and gas phase. Generally, COCs from the waste migrated into the vadose zone, creating an ongoing source(s) of soil vapor contamination.
 - c. Impacts to groundwater occurred through infiltration/percolation of contaminants through the vadose zone and eventually into the saturated zone. Though the GWETS has been in operation since November 2003, a contaminant groundwater plume had already migrated off-site over many decades of landfill use. Further, complex hydrogeology limits the effectiveness of the GWETS approach.
 - d. Transport media at the landfill includes soil vapor and groundwater.
 - e. The geology in the site vicinity is highly heterogeneous, consisting of alluvial plain sediments of mostly low permeability clays and silts, with interbeds of poorly sorted sands and locally-occurring gravels, and site geological model was developed to reveal these features.
 - f. Exposure of contaminants related to the landfill can occur through inhalation of impacted vapor through intrusion of vapors from the subsurface into overlying structures and dermal absorption and ingestion of impacted groundwater.
47. In accordance with the approved *Groundwater Treatability Study Work Plan* dated 25 October 2010, TRC submitted Groundwater Treatability Study report which presented a description and summary of field sampling procedures and laboratory analytical results related to the evaluation of Enhanced In-Situ Bioremediation (EISB) on 1 June 2011.
48. On behalf of GBF Holdings LLC, TRC submitted *Enhanced In Situ Bioremediation Pilot Study Report* on 30 October 2012 in accordance with the approved, revised Pilot Study Workplan dated 24 October 2011. The purpose of the pilot study was to evaluate the effectiveness and ease of implementation of injecting the selected amendment at the landfill boundary and the downgradient portion of the western plume. The report concluded that injecting into the existing extraction wells was not an effective means of delivering the amendment to the aquifer. The Discharger proposed to evaluate alternative delivery mechanisms and possibly different amendment and to submit a workplan detailing additional

treatability studies. The DTSC approved the report on 22 February 2013. The Revised Enhanced In Situ Bioremediation Pilot Study Addendum Report, dated 17 June 2013, concluded that amendment EHC-L[®] may promote partial reductive dichlorination of PCE and TCE in groundwater and consequentially, in soil vapor and the extent of its effectiveness is unclear due to substrate delivery issues and obscured post-injection groundwater data. The DTSC approved the report on 20 June 2013.

49. On 11 July 2014, TRC submitted the final *Feasibility Study for Phase I Groundwater and Soil Vapor* report upon DTSC's request following the review of the CSM report, to evaluate remedial measures to prevent contaminated soil vapor and groundwater from migrating offsite. The alternatives evaluated for groundwater remediations were:

- No action/institutional controls/monitoring,
- Expanded groundwater extraction well network,
- Steel sheet pile barrier with groundwater extraction, and
- Geomembrane composite wall with groundwater extraction.

The alternatives evaluated for soil vapor remediation were:

- No action/institutional controls/monitoring,
- Soil vapor extraction (SVE),
- Steel sheet pile barrier with SVE, and
- Geomembrane composite wall with SVE.

The report recommended pilot studies prior to final remedy selection for Phase I due to various implementational, safety and operational unknowns for certain components of the different alternatives. The Discharger proposed workplans for following elements:

- A 75-ft long test installation of geomembrane composite wall.
- Four SVE tests will be performed along the contemplated wall alignment to assess radius of influence, flow rate and concentrations.
- Initial treatability testing for phyto-irrigation applicability.

The DTSC approved the report on 4 August 2014.

50. On 23 October 2014, TRC submitted the *Phase II Pilot Study Report* which focused on evaluating the implementability and effectiveness of in-situ chemical reduction/enhanced in-situ bioremediation (ISCR/EISB) using EHC for treatment of the downgradient (Phase II) groundwater plume. The report concluded that because of significant implementation challenges were encountered in the study areas, the ISCR (using zero valent iron) and EISB (using an organic carbon amendment) are precluded from being practical options in the study areas. Further, the report recommended to evaluate and discuss remedial alternatives in the *Phase II Feasibility Study Report*. On 14 January 2015 The DTSC approved the report with its Geologic Services Unit's recommendations which provided additional information to evaluate both the western and eastern downgradient plumes in terms of retaining EISB as an option.
51. On 31 May 2016, TRC submitted Focused Feasibility Study (FFS) For Phase I Groundwater and Soil Vapor report which documented the results from the implementation of the *Phase I Pilot Study Workplan* (April 2014). Along the northern landfill boundary, a test wall (70-foot long, 125-foot deep GSE Curtain Wall), a composite wall consisting of a geomembrane inserted into a three-foot wide-open trench supported by a bentonite slurry mixtures. The conclusions and implications for remedy selection based on the pilot study results are summarized below.
 - a. Composite wall constructability –barrier wall approach is feasible since additional geologic investigation confirmed that there is a thick, competent, and continuous confining layer to which the barrier wall can be keyed into, under the USZ along the northern boundary of the landfill. Further cement/bentonite wall is a preferable option considering the time required to install the geomembrane in the trench and the time required for the slurry to harden.
 - b. Soil vapor extraction (SVE) and treatment – the capture of soil vapor using a pneumatic barrier would be complex and operationally challenging long-term because of the lack of uniformity throughout the underlying soil column. Installing a barrier wall would not only provide a secure barrier against migration, but would streamline SVE installation and operational requirements.
 - c. Aquifer test – Ensuring capture of site groundwater is known to be complex and operationally challenging. Installing a barrier wall would not only provide a secure barrier against migration, but would also streamline the GWETS well installation and operational requirements, because fewer wells and piezometer monitoring points would be needed.
 - d. Groundwater treatment - Given the high salt content of the groundwater influent stream and tendency for precipitation, phyto-irrigation is not a

viable alternative to GWETS because of the significant maintenance required to either remove dissolved solids in pre-treatment, or keep the irrigation lines clear and the soil well-drained.

The Discharger re-visited two alternatives from the *Phase I Feasibility Study* for soil vapor and groundwater, and performed focused feasibility analysis of those two alternatives. The two alternatives are: the expanded groundwater extraction well network/groundwater extraction and treatment system with SVE; and the geomembrane composite wall with GWETS and SVE. Further, a cement-bentonite (CB) wall with GWETS and SVE is also added to the analysis as third alternative. The focused feasibility analysis recommended a CB wall along the northern boundary of the landfill, an expansion of the existing GWETS, and implementation of a soil vapor extraction system. On 12 January 2017, the DTSC approved the *Focused Feasibility Study, Phase I Groundwater and Soil Vapor* report.

52. On 19 December 2016, the Discharger submitted the *Upgradient Investigation Report* to address concerns regarding rising groundwater elevations in the vicinity of monitoring well PZ-38R (Previously PZ-38) in order to refine the southern boundary of the hydrologic model. Based on the findings from this investigation, monitoring wells MW-9 and PZ-38R have been determined to be screened within the USZ. Based on the geologic interpretation of the upgradient area of the site, it is believed that the elevation of the USZ increases rapidly south of the site due to steep northward dip of the Wolfskill Formation. The USZ likely thins or reaches the surface at the base of the foothills south of the site. The DTSC approved the report on 7 February 2017.
53. On 5 December 2017, the Discharger submitted the *Pre-Design Investigation Report* which documented the findings from the investigation that the clay confining layer is continuous along the planned wall alignment, allowing for the wall to be properly keyed in place and all soil generated from trenching for wall construction is appropriate for on-site re-use. On 28 March 2018, DTSC approved the report with the condition that the soil generated from trenching may be re-used only within the deed restricted area which excludes the East Parcel.
54. On 17 March 2017, the Discharger submitted Slurry Design and Compatibility Testing Workplan which presented the scope of work for testing the compatibility of slurry mixtures with the site's contaminated groundwater, soil conditions, and wet/dry weather cycles. On 9 February 2018, the Discharger submitted the Revised Slurry Design and Compatibility Testing Workplan to include soil-bentonite (SB) demonstration section. The SB wall option had been eliminated from previous studies because site logistics and limited space along the planned wall alignment prevented implementation of traditional SB which requires an on-site mixing plant, and in-situ mixing and equipment had not previously been developed to reach the required nominal wall depth of 125 fbg. To reduce the

space limitations, a DeWind one-pass Trencher (OPT) was proposed to be used rather than a crane and clamshell bucket. The report proposed approximately 200 ft long SB demonstration section on the East Parcel following slurry design. The DTSC approved the Revised Slurry Design and Compatibility Testing Workplan on 12 September 2018.

55. The DTSC provided the engineering feasibility study (EFS) documents to the Central Valley Water Board and requested to comment regarding the cleanup goals and requirements in order to properly evaluate the alternatives for corrective action. On 2 October 2018, The Central Valley Water Board staff commented in a letter² to the DTSC staff that the EFS, and recent monitoring reports, focus almost entirely on VOC impacts to groundwater. While VOCs are an important consideration in the cleanup effort, all constituents impacting beneficial uses of groundwater, including metals and inorganic constituents, also need to be addressed. To comply with the State Board Resolution 92-49, the source must be removed completely or completely isolated before MNA can be evaluated. Therefore, the Central Valley Water Board staff indicate that the Discharger should re-evaluate the recommendations in the EFS for treatment to achieve compliance with the WDRs and restore beneficial uses for local groundwater within a reasonable timeframe. In addition, Central Valley Water Board staff stated that it did not appear that the analysis required by the MRP for all COCs and monitoring parameters is being completed or reported in monitoring reports. This information is critical to completing the EFS and evaluating corrective action alternatives. TRC on behalf of GBF Holdings, LLC, has submitted the revised *Feasibility Study for Phase II Groundwater and Soil Vapor* on 8 October 2019 and the DTSC approved the Phase II FS with conditions on 21 November 2019. The conditions included requirements for active remediation at MW-69 and MW-55, and that performance metrics be established.
56. The Discharger has not established concentration limits for each COC in each medium pursuant to Title 27 requirements. TRC, on behalf of the Discharger, submitted the *Final Groundwater and Surface Water Monitoring Plan* dated 18 April 2002, which incorporated the Central Valley Water Board's MRP and DTSC monitoring requirements into an integrated and cohesive program. Subsequently, on 9 March 2011, the Discharger submitted the *Groundwater Monitoring Modification Request* to continue to most effectively assess the performance of the GWETS and natural attenuation in the plume based on the factors that the GWETS has been in operation for over seven years at that time, over eight additional years of data from monitoring network, and decreasing or stable concentration trends established in a majority of the monitoring wells.

² Comments on Engineering Feasibility Study, Contra Costa Sanitary Landfill, Contra Costa County.

Neither the monitoring plan nor the groundwater monitoring modification request proposed concentration limits for naturally occurring COCs or a statistical method of data analysis. Pursuant to Title 27, section 20390, the Discharger shall submit a Water Quality Protection Standard (WQPS) report proposing statistical data analysis methods to calculate concentration limits and the concentration limits for each COC, as described in Time Schedule J.C. Title 27, section 20164 defines COCs as any waste constituent(s), reaction product(s), and hazardous constituent(s) that is reasonably expected to be in or derived from waste contained in a waste management unit.

Landfill Closure

57. The Discharger completed closure of the landfill with a final cover in the spring of 2002. The CQA report was approved and the closure certification was issued by Central Valley Water Board on 7 August 2002.
58. The Discharger adequately demonstrated, to the satisfaction of the Central Valley Water Board, that construction of a prescriptive final cover in accordance with the Title 27 prescriptive standard would be unreasonably and unnecessarily burdensome in comparison to the constructed engineered alternative. The Discharger further demonstrated that the constructed engineered alternatives described in **Finding 59** are not only consistent with the performance goals of the prescriptive standard, as described above, and afford at least equivalent water quality protections.
59. The final landfill cover system for the top deck, north side slope and west side slope consists of, in ascending order:
 - a. A foundation layer composed of not less than 24-inches of engineered fill;
 - b. A low conductivity layer composed of a geosynthetic clay liner (GCL); and
 - c. A vegetation layer composed of not less than 18-inches of lightly compacted soil.
60. The final landfill cover system of the south side slope and east side slope consists of, in ascending order:
 - a. A foundation layer composed of not less than 24-inches of compacted engineered fill;
 - b. A low conductivity layer composed of not less than 12-inches of compacted clay, compacted to attain a hydraulic conductivity of 1×10^{-6} cm/sec or less; and

- c. A vegetation layer composed of not less than 18-inches of lightly compacted soil.
61. The Discharger performed water balance/evapotranspiration final cover for closure of the landfills and presented the analysis results in the *Infiltration Analysis Hydraulic Evaluation of Landfill Performance* report (July 1999). The results of the analysis indicated that the final cover discussed in Findings 59 and 60 would result in infiltration percentages less than or equal to the prescriptive cover system.
62. The final cover slopes are within Title 27 limits (i.e., 1¾ horizontal ft for every 1 foot of vertical gain) and supported by a static and dynamic slope stability analysis. The Slope and Seismic Stability Analyses (Revised in July 1999) demonstrated that side slopes will remain stable under static condition and calculated earthquake-induced displacement would be 11 inches at 3:1 finish slope under dynamic condition. Additionally, the earthquake-induced displacement would be less than one inch along the foundation layer/waste interface on the maximum finish slope of 3:1.
63. The Discharger adequately demonstrated, to the satisfaction of the Central Valley Water Board, that construction of a 15-ft mid-slope benches at every 50 vertical ft of height in accordance with the Title 27 prescriptive standard would be unreasonably and unnecessarily burdensome in comparison to the constructed engineered alternative which was mid-slope drainage collection system. The use of vegetated earthen v-ditches was found to be consistent with the performance goals of the prescriptive standard. Constructing prescriptive standard mid-slope benches would have required the acquisition of adjacent property and the construction of a thickened fill wedge below the bench. The constructed engineered alternatives are consistent with the performance goals of the prescriptive standard and, as described above, afford at least equivalent water quality protections.
64. The existing LFG collection and destruction system is operational at the Facility. See Finding 40. The Bay Area Air Quality Management District regulates emissions from of the LFG and destruction system.

Post-Closure Maintenance

65. The Discharger's Final Closure and Post-Closure Maintenance Plan (FCPMP), Amendment No.3 dated 1 February 2019, provides for post-closure maintenance of the closed landfill for the entire post-closure maintenance period of at least 30 years, and until it is demonstrated that the Facility no longer poses a threat to the public health and safety and the environment. (See Title 27, §§ 20950(a)(1), 21180(a).) The FCPMP includes the following components:

- a. Inspection and maintenance of final cover(s), drainage feature(s), all groundwater and surface water monitoring points, any onsite landfill gas extraction systems, any required groundwater corrective action systems, and Facility security systems.
 - b. Workplans for inspection, maintenance and monitoring during the post-closure maintenance period.
66. Semiannual Groundwater and Surface Water Monitoring and Groundwater Treatment System Evaluation Report submitted on 13 January 2006, documented that grass fires occurred on 5 July and 3 October 2005, and burned approximately 85 acres of the landfill surface. Based on the standard observations of the landfill cover as indicated in the report, the fires were limited to the surface and resulted in significant damage to the vegetation and the landfill gas collection system; however, the landfill cover remained intact and no damage was done to the groundwater treatment system, the groundwater wells or the flare system. The Discharger applied best management practices (BMPs) to reduce the potential for sediment loading and runoff, and re-graded fire-blocks along the southern and western faces of the landfill. Healthy and dense vegetation growth was observed during the site visit by Central Valley Water Board staff on 9 April 2019. The Discharger shall maintain/perform fire control measures at the Facility per the FCPMP.
67. Title 27, section 21090, subdivision (a) provides that designs having any slopes steeper than a horizontal to vertical (H:V) ratio of 3:1, or having a geosynthetic component, shall have these aspects of their design specifically supported in the slope stability report required under section 21750, subdivision (f)(5). Construction of the pilot barrier wall required temporary disturbance and repair of final cover and removal of waste along the northern toe slope to provide adequate equipment access and working space, as documented in the *Focused Feasibility Study for Phase I Groundwater and Soil Vapor* report dated 31 May 2016. Upon completion of the pilot wall, the landfill slope was rebuilt with clean compacted fill to a slope 2.2:1, H:V, leaving approximately a 22-foot wide access road. The new GCL was extended from toe slope to the pilot wall and covered with 1.5 ft of vegetative-layer soil. Based on *Slope and Seismic Stability Analyses* (revised July 1999) provided in the ROWD, Slope stability analysis of the closed landfill cover was performed on steepest slope of 3:1 and calculated earthquake-induced displacement 11 inches at the critical section. The stability analysis also calculated the earthquake-induced displacement of less than 1 inch for the foundation layer/waste interface on the maximum finish slope inclination of 3:1. The Discharger shall submit a stability analysis report for the modified slope along the northern toe of the landfill, as described in Time Schedule J.D. Any disturbance or modification to the landfill cover/slope for implementation of future corrective action, requires stability analysis of waste/cover interface and slope, and a workplan as described in Time Schedule J.E.

68. A five-year iso-settlement map prepared in November 2016 and presented in Second 2017 Semiannual and Annual Groundwater and Surface Water Monitoring Report indicated that some settlement has occurred since the landfill closure in 2002. Average settlement was 1 to 2 ft at the top deck and less than 1 foot on the slopes. The maximum settlement of up to 5 ft, has occurred at the eastern end of the top deck. Further, though the maximum settlement in isolated area has occurred up to 2 ft, the rate of settlement of the landfill top deck area has remained steady within an average of less than 0.5 ft since reported in 2012. The Discharger documented that there does not appear to be indication of differential settlements that could effect final cover continuity or the drainage conditions during standard observations. As part of each five-year iso-settlement mapping, the Discharger shall evaluate the final cover, especially in areas where the maximum settlement of up to 5 ft has occurred and in isolated areas where the maximum settlement of up to 2 ft has occurred, to ensure that the integrity of the final cover and positive drainage were not impaired by the settlement, as described in Time Schedule J.F.

Financial Assurances

69. The Discharger's ROWD includes costs estimates for:
- a. **Post-Closure Maintenance** (§§ 22210–22212); and
 - b. **Corrective Action** for reasonably foreseeable releases (§§ 22220–22222).
70. As of the date of this Order, the Discharger's cost estimates, calculated in accordance with Title 27, are as follows:

Table 6—Current Cost Estimates (Financial Assurances)

Requirement	Estimated Cost
Post-Closure Maintenance (annual)	\$ 197,062 in 2017 dollars
Non-Water Foreseeable Release Corrective Action	\$ 159,608 in 2017 dollars

71. The Discharger maintains financial assurances (certificate of insurance) for post-closure maintenance and non-water foreseeable release corrective action with CalRecycle in at least the estimated cost amounts in Table 6. As of the date of this Order, the post-closure maintenance fund and corrective action fund balances are in **Table 7**.

Table 7—Current Fund Balances (Financial Assurances)

Requirement	Current Balance
Post-Closure Maintenance	\$ 3,138,996 in 2019 dollars
Corrective Action	\$ 166,056 in 2019 dollars

72. DTSC approved cost estimate of \$5,052,670 (in 2015 dollars) for operation and maintenance of groundwater extraction and treatment system (known release corrective action) on 7 July 2015 and the Discharger maintains a financial assurances (letter of credit) with DTSC in at least the estimated cost amounts above.

California Environmental Quality Act

73. The issuance of this Order, which prescribes requirements and monitoring of waste discharges at an **existing Facility**, with negligible or no expansion of its existing use, is exempt from the procedural requirements of the California Environmental Quality Act (CEQA), Public Resources Code section 21000 et seq., pursuant to California Code of Regulations, title 14, section 15301 (CEQA Guidelines). The discharges authorized under this Order are substantially within parameters established under prior WDRs, particularly with respect to character and volume of discharges.

Other Regulatory Matters

74. This Order is issued in part pursuant to Water Code section 13263, subdivision (a), which provides as follows:

The regional board, after any necessary hearing, shall prescribe requirements as to the nature of any proposed discharge, existing discharge, or material change in an existing discharge..., with relation to the conditions existing in the disposal area ... into which, the discharge is made or proposed. The requirements shall implement any relevant water quality control plans that have been adopted, and shall take into consideration the beneficial uses to be protected, the water quality objectives reasonably required for that purpose, other waste discharges, the need to prevent nuisance, and the provisions of [Water Code] Section 13241.

75. This Order implements the Central Valley Water Board's *Water Quality Control Plan for the Sacramento and San Joaquin River Basins (Basin Plan)*, which designates beneficial uses for surface water and groundwater and establishes water quality objectives (WQOs) necessary to preserve such beneficial uses. (See Wat. Code, § 13241 et seq.)

76. According to the operative *Basin Plan*, designated **beneficial uses of the nearest surface water** include: municipal and beneficial use (MUN); agricultural supply (AGR); industrial process supply (PRO); industrial power (POW); water contact recreation (REC-1); non-water contact recreation (REC-2); warm freshwater habitat (WARM); cold freshwater habitat (COLD); wildlife habitat (WILD); and spawning, reproduction and/or early development (SPWN).
77. Per the operative *Basin Plan*, designated **beneficial uses of groundwater** at the Facility include: municipal and domestic water supply (MUN); agricultural supply (AGR); industrial process supply (PRO); and industrial service supply (IND).
78. The State Water Resources Control Board's *Statement of Policy with Respect to Maintaining High Quality Waters in California*, Resolution 68-16 (*Antidegradation Policy*) prohibits the Central Valley Water Board from authorizing degradation of "high quality waters" unless it is shown that such degradation: (1) will be consistent with the maximum benefit to the people of California; (2) will not unreasonably affect beneficial uses, or otherwise result in water quality less than as prescribed in applicable policies; and (3) is minimized through the discharger's best practicable treatment or control.
79. Consistent with Title 27, this Order requires the Discharger to maintain the Facility so as to contain waste within WMUs, thereby preventing degradation of water quality. To the extent that there are releases from Facility WMUs, Discharger will be required to address such releases through a Corrective Action Program. (See Title 27, §§ 20385, 20415, 20430.) Accordingly, this Order complies with the *Antidegradation Policy*.
80. For the purposes of California Code of Regulations, title 23 (Title 23), section 2200, the Facility has a threat-complexity rating of **1- B**, where:
- a. Threat Category "1" reflects waste discharges that can cause long-term loss of receiving water beneficial uses (e.g., drinking water supply loss, water-contact recreation area closures, or posting of areas used for spawning/growth of shellfish or migratory fish); and
 - b. Complexity Category "B" reflects any discharger not included in Category A, with either (1) physical, chemical or biological treatment systems (except for septic systems with subsurface disposal), or (2) any Class II or Class III WMUs.
81. This Order is also issued in part pursuant to Water Code section 13267, subdivision (b)(1), which provides that:
- [T]he regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region ...

shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.

82. The technical reports required under this Order, as well as those required under the separately-issued MRP, are necessary to ensure compliance with prescribed WDRs and the provisions of Title 27, Subtitle D (40 C.F.R. part 258) and State Water Board Resolution 93-62. Additionally, the burdens associated with such reports are reasonable relative to the need for their submission.

Procedural Matters

83. All local agencies with regulatory jurisdiction over land-use, solid waste disposal, air pollution and public health protection have approved the use of the Facility's site for the discharge of waste to land as provided for herein.
84. The Discharger, interested agencies and interested persons were notified of the Central Valley Water Board's intent to prescribe the WDRs in this Order, and provided an opportunity to submit their written views and recommendations at a public hearing. (Wat. Code, § 13167.5; Title 27, § 21730.)
85. At a public meeting, the Central Valley Water Board heard and considered all comments pertaining to the discharges regulated under this Order.
86. The Central Valley Water Board will review and revise the WDRs in this Order as necessary.

REQUIREMENTS

IT IS HEREBY ORDERED, pursuant to Water Code sections 13263 and 13267, that Order R5-2003-0021 is hereby rescinded (except for enforcement purposes), and that the Dischargers and their agents, employees and successors shall comply with the following.

- A. Discharge Prohibitions**—Except as otherwise expressly directed below, the Discharger shall comply with all **Standard Prohibitions** (SPRRs, § C), which are incorporated herein, as well as the following Discharge Prohibitions.
1. Discharges of "hazardous waste" (as defined per Title 23, § 2601) at the Facility are strictly prohibited. The DTSC shall be immediately notified of any such discharges in violation of this Order.

2. Except as specifically authorized in Section B.1 of this Order, discharges of “designated waste” (as defined per Wat. Code, § 13173) are strictly prohibited.
3. Except as expressly authorized per Section B.1 of this Order, leachate and landfill gas (LFG) condensate shall not be discharged to any of the Facility’s WMUs.

B. Discharge Specifications—Except as otherwise expressly directed below, the Discharger shall comply with all Standard Discharge Specifications (SPRRs, § D), which are incorporated herein, as well as the following.

1. The Discharger shall not discharge any waste at the Facility’s WMUs.
2. The Discharger shall promptly remove and relocate all waste discharged at the Facility in violation of this Order. If unable to do so, they shall submit a report to the Central Valley Water Board: explaining how the violative discharge(s) occurred, and why the waste(s) cannot be removed; and proposing waste acceptance program updates to prevent reoccurrences.
3. Landfill gas (LFG) condensate and leachate from landfill WMUs shall not be discharged to other WMUs unless approved in writing by the Central Valley Water Board. (See Title 27, § 20340.)

C. Facility Specifications—The Discharger shall comply with all **Standard Facility Specifications** (SPRRs, § E) which are incorporated herein.

D. Unit Construction—The Discharger shall comply with all *Standard Construction Specifications* and *Standard Storm Water Provisions* (SPRRs, §§ D, L), which are incorporated herein.

E. Post-Closure Maintenance—Except as otherwise directed below, the Discharger shall comply with all *Standard Closure and Post-Closure Specifications* (SPRRs, § G).

1. After final cover installation, the Discharger may perform minor modifications to problematic areas of the final cover, provided that:
 - a. The barrier layer of the final cover (e.g., geomembrane, GCL and/or compacted clay layer) remains intact; and
 - b. The Central Valley Water Board approves of such modifications.
2. The Discharger shall maintain/perform fire control measures as provided in the FCPMP Amendment No.3.

3. The Discharger shall notify the Central Valley Water Board if landfill cover disturbance or slope modification is required to implement future corrective action, and submit a workplan for approval prior to beginning the work.
4. The Discharger shall analyze the stability of the landfill cover if the landfill cover disturbance or slope modification is required to implement future corrective action.
5. Any disturbed area of the final cover shall be repaired in accordance with the Construction Quality Assurance Plan (Revised July 2001).
6. The Discharger shall inspect the final cover and surface drainage, erosion, or gas control structures after an earthquake event as recommended in The Slope and Seismic Stability Analyses (Revised in July 1999).
7. The Discharger shall apply sufficient seed, binder and nutrients to the vegetative/erosion-resistant layer to establish the vegetation proposed in the final closure plan. The Discharger shall also install any necessary erosion and sedimentation controls to protect vegetation while it is being established.
8. The Discharger shall immediately notify any discovery of seepage from the closed landfill to the Central Valley Water Board staff pursuant to the Seep Reporting in MRP.

F. Corrective Action

1. The corrective action at the Facility shall comply with Title 27 requirements.
2. If and when the DTSC determines that termination of corrective action being conducted pursuant to the requirements of the Consent Order is appropriate, the Discharger shall submit a corrective action plan and a cost estimate for any additional corrective action to Central Valley Water Board and CalRecycle for review and approval if the Central Valley Water Board determines that additional corrective action is required at the Facility to meet with Title 27 requirements.

G. Financial Assurances—Except as otherwise directed below, the Discharger shall comply with all *Standard Financial Assurance Provisions* (SPRRs, § H), as well as the following.

1. The Discharger shall maintain with CalRecycle assurances of financial responsibility for the Estimate Cost amounts specified for each category in **Finding 70**, adjusted annually for inflation.

2. A report regarding financial assurances, or a copy of the financial assurances report submitted to CalRecycle, shall be submitted to the Central Valley Water Board **annually**, no later than **1 June**.
3. If CalRecycle determines that the Discharger's financial assurances for the Facility are inadequate, the Discharger shall, within 90 days of such determination:
 - a. Obtain a new financial assurance mechanism for the amount specified by CalRecycle; and
 - b. Submit a report documenting such financial assurances to CalRecycle and the Central Valley Water Board.
4. The Discharger shall maintain with CalRecycle assurances of financial responsibility for additional corrective actions, if the Central Valley Water Board determines that additional corrective action is required to meet Title 27 requirements as mentioned in Corrective Action Specification F.2 above.

H. Monitoring Requirements—Except as otherwise directed below, the Discharger shall comply with all applicable *Standard Monitoring Specifications* (SPRRs, § I) and *Standard Response to Release Specifications* (SPRRs, § J), as well as the following:

1. The Discharger shall comply with all provisions of the separately issued **MRP R5-2020-0011** and any subsequent revisions thereto.
2. The Discharger shall submit a WQPS for Central Valley Water Board staff review and approval as described in Time Schedule J.C. Upon approval, the Discharger shall comply with the WQPS (see MRP and Title 27, § 20390); and shall verify the compliance of each WMU with each subsequent monitoring event.
3. For all WMUs, the Discharger shall implement a groundwater and surface water detection monitoring program (DMP) in accordance with Title 27, sections 20385 and 20415.
4. For each WMU subject to corrective action, the Discharger shall implement a corrective action program (CAP) in accordance with Title 27, sections 20385, 20415 and 20430, and Section I of the SPRRs.

5. Constituents of concern (COC) in water passing through each WMU's Point of Compliance³ shall not exceed concentration limits specified in the operative MRP and update to concentration limits thereafter.

I. General Provisions

Except as otherwise expressly directed below, the discharger shall comply with the Standard General Provisions (SPRRs, § K), as well as the following.

1. Notwithstanding **Section H.1**, the provisions of this Order shall supersede any contrary provision in **MRP R5-2020-0011** and revisions thereto.
2. The Discharger shall comply with all applicable provisions of Title 27 and Code of Federal Regulations, title 40, part 258, including those not specifically referenced in this Order.
3. Measures implemented as part of a Corrective Action Program (e.g., landfill gas or groundwater extraction) shall not be terminated without express written approval by the Executive Officer. Central Valley Water Board staff shall be notified of all extraction system shutdowns lasting longer than 24 hours. For the purposes of this provision, "terminated" does not include:
 - a. Extraction system shutdowns of less than 24 hours (e.g., routine maintenance); and
 - b. Planned periods of extraction system nonoperation, if previously-approved in writing by Central Valley Water Board staff or DTSC.
4. The Discharger shall ensure that operating personnel are familiar with this Order (including all attachments and SPRRs) and the operative MRP, both of which shall be kept onsite and made available at all times to operating personnel and regulatory agency personnel.
5. All reports and monitoring data shall be submitted online in an appropriately-formatted file via the State Water Board's [GeoTracker](http://geotracker.waterboards.ca.gov) Database, at <http://geotracker.waterboards.ca.gov>. (Title 23, §§ 3892(d), 3893.) Additional information regarding electronic submittals is accessible through the "Information" tab on the GeoTracker homepage.

³ The Point of Compliance is a vertical plane situated at the hydraulically downgradient limit of each WMU, extending through the uppermost underlying aquifer. (See Title 27, §§ 20164, 20405.)

After uploading a document via GeoTracker, the submitting party shall notify Central Valley Water Board staff via email at centralvalleysacramento@waterboards.ca.gov, including the following information body of the email:

Attention: Title 27 Compliance & Enforcement Unit or Title 27 Permitting Unit

Report Title: [title of submitted report]

Discharger: TRC Companies and GBF Holdings LLC.

Facility: Contra Costa Sanitary Landfill

County: Contra Costa County

CIWQS ID: 226856

6. All reports and workplans that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geological sciences, shall:
 - a. Be prepared by, or under the direction of, professionals registered to practice in California pursuant to Business and Professions Code sections 6735, 7835 and 7835.1; and
 - b. Bear the signature(s) and seal(s) of the responsible registered professional(s) described above.

J. Time Schedule

The Discharger shall complete all tasks according to the time schedule set forth below:

Task	Compliance Date
A. Evaluation of Groundwater Monitoring Program	30 December 2020
Complying with Title 27 §20415(b), the Discharger shall submit a report evaluating the adequacy of groundwater monitoring system at the Facility. The report shall include a workplan to install groundwater wells to monitoring the LDSZ, and the work plan shall include general information, drilling details, monitoring well design, well development, well surveying coordinates, water level measurements, proposed time schedule and plan signed and stamped by California Licensed civil engineer or geologist.	
B. Monitoring System Certification	45 days after completion of additional groundwater monitoring wells installation
Upon completion of additional groundwater monitoring wells installation, the Discharger shall submit a Monitoring System Certification per Title 27 §20415 (e)(1) that the Facility's monitoring system complies with Title 27 requirements. The certification report shall include description of additional groundwater monitoring well installation.	
C. Water Quality Protection Standard	1 February 2021
Submit a WQPS compliance with Title 27 §20390. The Discharger shall propose a statistical method to establish the concentration limits for naturally occurring COCs in groundwater and surface water monitoring, and concentration limits for each COCs in each medium based on historical background monitoring data.	

Task	Compliance Date
D Stability Analysis of Modified Slope Submit a stability analysis of modified slope along the northern slope toe, to construct the pilot demonstration slurry wall in 2016, compliance with Title 27 §21090(a).	30 July 2020
E. Final Cover Modification Workplan and Stability Analysis Submit a workplan that describes, at a minimum, the scope of the work, area will be disturbed/modified to implement corrective action, characteristics and disposal of spoil, health and safety, and repair work and methods. The workplan shall also include a slope and stability analysis report compliance with Title 27 §21090(a) to Central Valley Water Board staff review and approval if any modification or disturbance to the landfill cover is required for corrective action implementation.	30 days prior to scheduled work.
F. Evaluation of Final Cover Settlement The iso-settlement surveying map indicated that the settlement has occurred in final cover since the closure in 2002. As part of each five-year iso-settlement mapping, the Discharger shall evaluate the final cover for its integrity and continuity of low permeability layers along transition, especially in areas where the maximum settlement of up to 5 ft has occurred and in isolated areas where the maximum settlement of up to 2 ft has occurred, to ensure that the cover maintains positive drainage, and does not represent a potential pathway for infiltration or LFG migration.	1 February 2022

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 Central Valley Water Board action may petition the State Water Board for review in accordance with Water Code section 13320 and California Code of Regulations, title 23, section 2050 et seq. The State Water Board must receive the petition by 5:00 p.m. on the 30th day after the date of this Order; if the 30th day 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](http://www.waterboards.ca.gov/public_notices/petitions/water_quality) (http://www.waterboards.ca.gov/public_notices/petitions/water_quality) applicable to filing petitions are available on the Internet, and will be provided upon request.

Order Attachments

Attachment A— Site Location Map

Attachment B— Site Plan

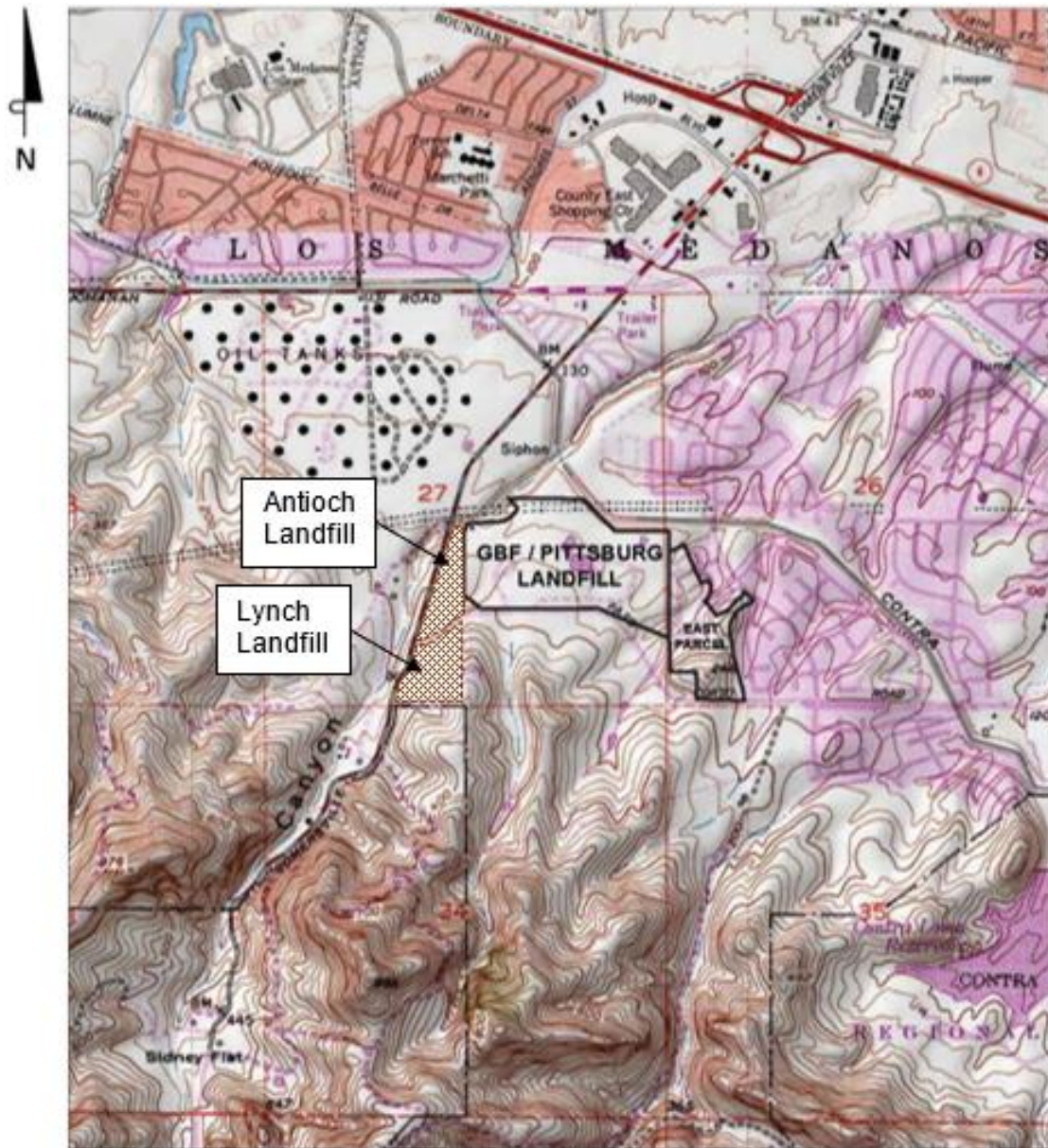
Attachment C— Groundwater and Surface Water Monitoring Networks

Monitoring and Reporting Program

Information Sheet

SPRRs

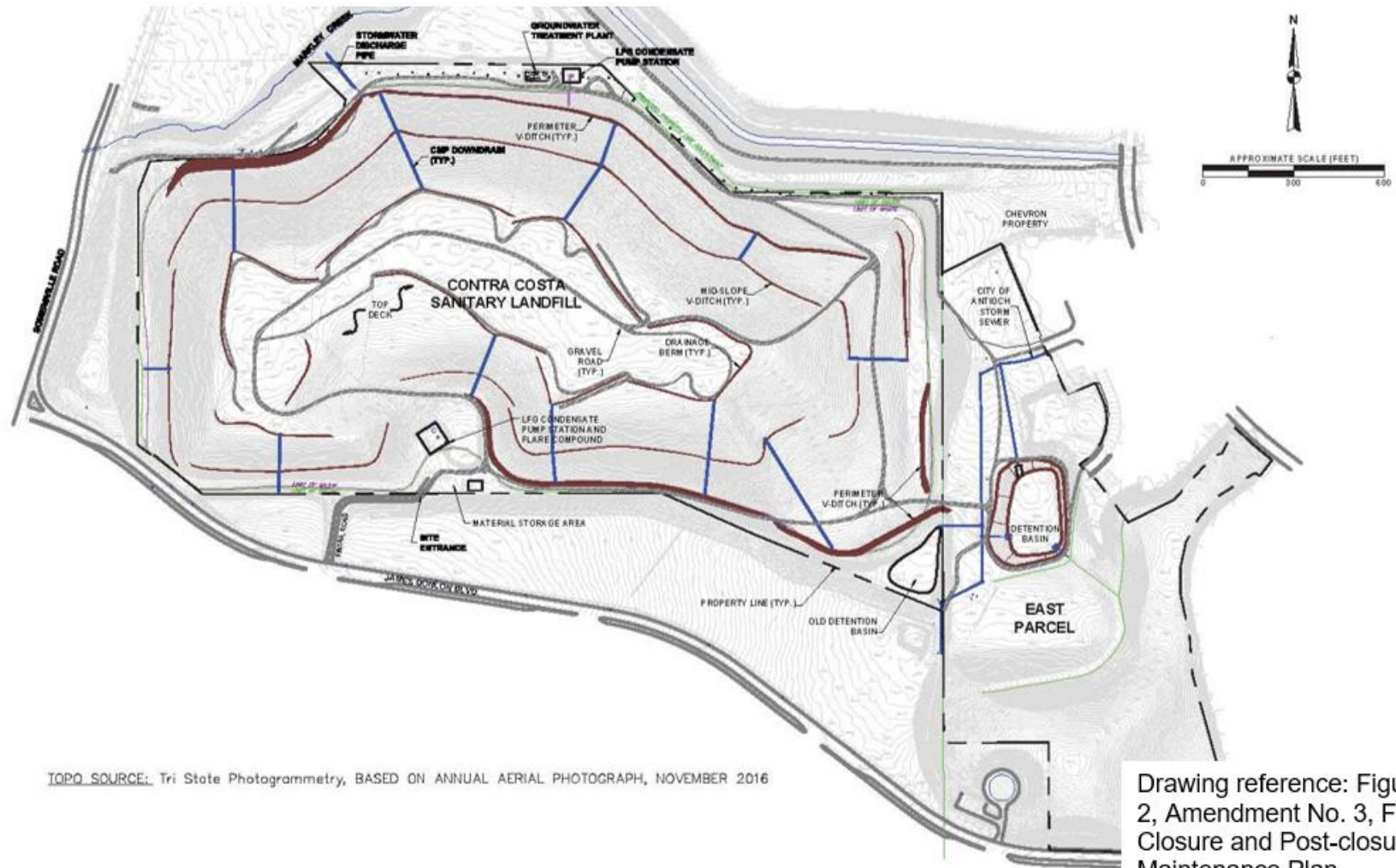
ATTACHMENT A—SITE LOCATION MAP



Note: Antioch and Lynch landfills are shown at approximate location by Central Valley Water Board Staff

Drawing reference: Figure 1, ROWD dated 1 February 2019

ATTACHMENT B—SITE PLAN



TOPPO SOURCE: Tri State Photogrammetry, BASED ON ANNUAL AERIAL PHOTOGRAPH, NOVEMBER 2016

Drawing reference: Figure 2, Amendment No. 3, Final Closure and Post-closure Maintenance Plan, Updated 1 February 2019 (Submitted with ROWD)

ATTACHMENT C—GROUNDWATER AND SURFACE WATER MONITORING NETWORKS



LEGEND

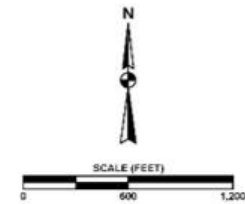
- Groundwater monitoring well screened in upper saturated zone
- Well in upper saturated zone used for water level measurements only (CDM-1, MW-25, MW-64, MW-71 and MW-72)
- Groundwater monitoring well screened in deeper saturated zone
- Groundwater monitoring well screened in lower deeper saturated zone
- Groundwater monitoring well screened in perched zone
- ▲ Approximate location of surface water monitoring points (for WDRs)
- Site boundary
- Creek

NOTES

Wells labeled in red are part of the Waste Discharge Requirements (WDRs) for the Regional Water Quality Control Board.

* = Well is/less not part of the current monitoring plan

AERIAL PHOTO SOURCE: Tri State Photogrammetry, November 2016



Drawing reference: Figure 2, ROWD

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING ORDER R5-2020-0011

MONITORING AND REPORTING PROGRAM
FOR
TRC COMPANIES INC..
AND
GBF HOLDINGS LLC.
CONTRA COSTA SANITARY LANDFILL
CONTRA COSTA COUNTY

Preface

Adopted pursuant to Water Code section 13267, this Order establishes a Monitoring and Reporting Program (MRP) incorporating the prescriptive monitoring and reporting requirements of California Code of Regulations, title 27 (Title 27), section 20005 et seq.

Although incorporated as part of Waste Discharge Requirements Order R5-2020-0011 (WDRs Order), this MRP Order is separately enforceable, and may be separately revised by the Executive Officer under authority delegated pursuant to Water Code section 13223.

Except as otherwise provided below in this MRP Order, each of the Findings set forth in the WDRs Order are incorporated herein.

A. Monitoring Requirements

1. Detection Monitoring Programs (DMPs)

- a. All Detection Monitoring Program (DMP) systems designed and constructed pursuant to this Order shall be certified by a California-licensed professional civil engineer or geologist (Qualified Professional) as meeting the requirements of Title 27.
- b. The Discharger shall revise its DMP system, the groundwater and surface water detection monitoring system (after review and approval by Central Valley Water Board staff) as needed each time a new landfill cell or module is constructed.
- c. The Discharger shall comply with the detection monitoring program provisions of Title 27 for groundwater, and surface water in accordance with Standard Monitoring Specifications in Section I of the SPRRs and the Monitoring Specifications in Section H of the WDRs.

2. Compliance with Sampling and Analysis Plan (SAP)

- a. Samples shall be collected, preserved and transported in accordance with the approved Sampling and Analysis Plan (SAP) - Final Groundwater and Surface Water Monitoring Plan (2002) and modification to it thereafter, and the quality assurance/quality control (QA/QC) standards therein.
- b. The Discharger may use alternative analytical test methods (including new USEPA-approved methods), provided that the alternative methods have method detection limits (MDLs) equal to or lower than the analytical methods specified in this MRP, and are identified in the approved SAP.

3. Groundwater Monitoring

- a. **Required Network**—The Facility’s groundwater monitoring network shall consist of the wells listed below in **Table 8**.

Table 8—Groundwater Monitoring Network

Well	Program	Monitored Unit	Zone
MW-9	Detection, Background	Closed landfill	USZ
PZ-38R	Detection, Background	Closed landfill	USZ
MW-11	Detection, Background	Closed landfill	USZ
G-3	Detection, Corrective Action	Closed landfill	USZ
G-4	Detection, Corrective Action	Closed landfill	USZ
G-5	Detection, Corrective Action	Closed landfill	USZ
G-6	Detection, Corrective Action	Closed landfill	USZ
MW-7	Corrective action	Closed landfill	USZ
MW-8	Corrective action	Closed landfill	USZ
MW-12	Corrective action	Closed landfill	USZ
MW-14	Corrective action	Closed landfill	USZ
MW-21	Detection, Corrective action	Closed landfill	USZ
MW-22	Detection, Corrective action	Closed landfill	USZ
MW-23	Detection, Corrective action	Closed landfill	USZ
MW-24	Detection	Closed landfill	USZ

Well	Program	Monitored Unit	Zone
MW-26	Corrective action	Closed landfill	USZ
MW-27	Corrective action	Closed landfill	USZ
MW-28	Corrective action	Closed landfill	USZ
MW-29	Corrective action	Closed landfill	USZ
MW-36	Corrective action	Closed landfill	USZ
MW-42	Corrective action	Closed landfill	USZ
MW-43	Corrective action	Closed landfill	USZ
MW-54	Corrective action	Closed landfill	USZ
MW-69	Corrective action	Closed landfill	USZ
MW-70	Corrective action	Closed landfill	USZ
LM-3	Corrective action	Closed landfill	USZ
MW-37	Detection, Background	Closed landfill	DSZ
MW-32	Detection, Corrective action	Closed landfill	DSZ
MW-33	Detection, Corrective action	Closed landfill	DSZ
MW-34	Corrective action	Closed landfill	DSZ
MW-35	Corrective action	Closed landfill	DSZ
MW-41	Corrective action	Closed landfill	USZ
MW-61	Corrective action	Closed landfill	DSZ
MW-62	Corrective action	Closed landfill	DSZ
MW-63	Corrective action	Closed landfill	LDSZ
MW-64	Corrective action	Closed landfill	LDSZ

- b. Groundwater samples shall be collected from each well, and analyzed for the field parameters and monitoring parameters specified in **Table 9** (in accordance with the specified schedule).⁴

Table 9—Groundwater DMP, Field Parameters and Monitoring Parameters

Parameter	GeoTracker Code	Units	Sampling Freq.	Reporting Freq.
Field Parameters				
Temperature	TEMP	°F	Semiannually	Semiannual
Electrical Conductivity	SC	µmhos/cm	Semiannually	Semiannual
pH	PH	pH Units	Semiannually	Semiannual
Turbidity	TURB	NTUs	Semiannually	Semiannual
Monitoring Parameters				
TDS	TDS	mg/L	Semiannually	Semiannual
DOC	DOC	mg/L	Semiannually	Semiannual
COD	COD	mg/L	Semiannually	Semiannual
Chloride	CL	mg/L	Semiannually	Semiannual
Carbonate	CACO3	mg/L	Semiannually	Semiannual
Bicarbonate	BICACO3	mg/L	Semiannually	Semiannual
Sulfate	SO4	mg/L	Semiannually	Semiannual
Calcium	CA	mg/L	Semiannually	Semiannual
Magnesium	MG	mg/L	Semiannually	Semiannual
Iron	FE	mg/L	Semiannually	Semiannual
Manganese	MN	mg/L	Semiannually	Semiannual
Potassium	K	mg/L	Semiannually	Semiannual
Sodium	NA	mg/L	Semiannually	Semiannual
Short List VOCs (per Attachment A)	(various)	µg/L	Semiannually	Semiannual

⁴ Monitoring wells established for the Detection Monitoring Program (DMP) constitute the monitoring points for the groundwater Water Quality Protection Standard (WQPS).

- c. Additionally, the Discharger shall analyze for groundwater samples from each well for the Five-Year COCs listed in **Table 10**.⁵

Table 10—Groundwater DMP, Five-Year COC Monitoring Parameters

Parameter	GeoTracker Code	Units	Sampling & Reporting Freq.
Dissolved Inorganics (per Attachment B)	(various)	µg/L	Every 5 Years
Extended List VOCs (per Attachment C)	(various)	µg/L	Every 5 Years
Semi-Volatile Organic Compounds (per Attachment D)	(various)	µg/L	Every 5 Years
Chlorophenoxy Herbicides (per Attachment E)	(various)	µg/L	Every 5 Years
Organophosphorus Compounds (per Attachment E)	(various)	µg/L	Every 5 Years
Organochlorine Pesticide, PCBs	(various)	µg/L	Every 5 Years

- d. Each quarter, the Discharger shall also monitor the overall groundwater conditions specified below in **Table 11**.

Table 11—Groundwater Conditions Monitoring

Parameter	GeoTracker Code	Monitoring Freq.	Reporting Freq.
Elevation (Well-Specific)	ELEV	Quarterly	Semiannually
Gradient	(none)	Quarterly	Semiannually
Flow Rate ⁶	(none)		(SMRs)

4. Unsaturated Zone Monitoring

The Discharger has demonstrated that there are no unsaturated zone monitoring devices or methods designed to operate under subsurface

⁵ Five-Year COCs were last monitored in 2017, and shall be analyzed again in 2022.

⁶ To the extent feasible, the Discharger shall determine ground water flow rate and direction in: (1) the uppermost aquifer; (2) any zones of perched water; and (3) in any additional portions of the zone of saturation monitored pursuant to Title 27, section 20415, subdivision (b)(1).

conditions at the Facility's WMUs. Accordingly, the Facility is exempt from Title 27 unsaturated zone monitoring requirements. (See Title 27, § 20415, subd. (d)(5).)

5. Leachate

The Facility is a closed, unlined, landfill without a leachate collection and removal system (LCRS). Leachate monitoring requirements are not applicable to this facility.

6. Seep Monitoring

Leachate that seeps to the surface from a landfill unit shall be sampled and analyzed for the Field and Monitoring Parameters listed in Table 12 upon detection. 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 D.3 of this MRP, below.

Table 12 – Seep Monitoring

Parameter	GeoTracker Code	Units
<i>Field Parameters</i>		
Total Flow	(none)	Gallons
Flow Rate	FLOW	Gallons/Day
Electrical Conductivity	SC	µmhos/cm
pH	PH	pH Units
<i>Monitoring Parameters</i>		
TDS	TDS	mg/L
Chloride	CL	mg/L
Carbonate	CACO3	mg/L
Bicarbonate	BICACO3	mg/L
Nitrate (as Nitrogen)	NO3N	mg/L
Sulfate	SO4	mg/L
Calcium	CA	mg/L
Magnesium	MG	mg/L
Potassium	K	mg/L

Parameter	GeoTracker Code	Units
Sodium	NA	mg/L
Short List VOCs (see Attachment A)	(various)	µg/L

7. Surface Water Monitoring⁷

- a. **Required Network**—The Dischargers shall operate and maintain a surface water monitoring network consisting of the points listed in Table 13. This network shall comply with the applicable provisions of Title 27, sections 20415 and 20420.

Table 13—Surface Water Monitoring Network

Monitoring Point	Location	Status
MC-1	Downstream (Compliance)	Operational
MC-2	Upstream (Background)	Operational

- b. **Parameters**—Surface water samples shall be collected at each monitoring point location and analyzed for the monitoring parameters and constituents in accordance with the methods and frequency specified in Table 14. All surface water monitoring samples shall be collected and analyzed for the 5-year COCs specified in Table 15 every five years, beginning again in 2022.
- c. Semiannual surface water monitoring is required twice per year when there is water present at the designated surface water monitoring point any time during the reporting period (1 January to 30 June or 1 July to 31 December). Reporting shall include whether there was flow from the Facility to waters of the U.S. when the samples were collected.

⁷ Runoff from a portion of landfill areas within the Facility flows to Markley Creek, which is a waters of the United States.

Table 14—Surface Water DMP: Field Parameters and Monitoring Parameters

Parameter	GeoTracker Code	Units	Sampling Freq.	Reporting Freq.
<i>Field Parameters</i>				
Electrical Conductivity	SC	µmhos/cm	Semiannually	Semiannual
pH	PH	pH Units	Semiannually	Semiannual
Turbidity	TURB	NTUs	Semiannually	Semiannual
Flow to Waters of U.S.	(none)	YES	Semiannually	Semiannual
<i>Monitoring Parameters</i>				
TDS	TDS	mg/L	Semiannually	Semiannual
TSS	TSS	mg/L	Semiannually	Semiannual
Chloride	CL	mg/L	Semiannually	Semiannual
Nitrate (as Nitrogen)	NO3N	mg/L	Semiannually	Semiannual
Sulfate	SO4	mg/L	Semiannually	Semiannual
Total iron	FE	mg/L	Semiannually	Semiannual
Calcium	CA	mg/L	Semiannually	Semiannual
Magnesium	MG	mg/L	Semiannually	Semiannual
Potassium	K	mg/L	Semiannually	Semiannual
Sodium	NA	mg/L	Semiannually	Semiannual
COD	COD	mg/L	Every 5 Years	Every 5 Years

Table 15—Surface Water DMP, Five-Year COC Monitoring Parameters

Parameter	GeoTracker Code	Units	Sampling & Reporting Freq.
Carbonate Alkalinity	CACO3	mg/L	Every 5 Years
Bicarbonate Alkalinity	BICACO3	mg/L	Every 5 Years

Parameter	GeoTracker Code	Units	Sampling & Reporting Freq.
COD	COD	mg/L	Every 5 Years
Inorganics (dissolved) (per Attachment B)	(various)	µg/L	Every 5 Years
Short List VOCs (per Attachment A)	(various)		Every 5 Years
Oil and Grease	OILGREASE		Every 5 Years

B. Additional Facility Monitoring Requirements

- Regular Visual Inspections**—The Discharger shall perform regular visual inspections listed in Table 16, in accordance with the schedule specified in Table 17. Results of these regular visual inspections shall be included in Semiannual Monitoring Reports (SMRs) per Section D.1 of this MRP Order.

Table 16—Regular Visual Inspections

Category	Observations
<i>Within Unit</i>	Evidence of ponded water at any point on unit outside of any contact storm water/leachate diversions structures on the active face of unit (record affected areas on map). Evidence of erosion and/or of day-lighted refuse.
<i>Unit Perimeter</i>	Evidence of leachate seeps, estimated size of affected area and flow rate (record affected areas on map). Evidence of erosion and/or of day-lighted refuse.
<i>Receiving Waters</i>	Floating and suspended materials of waste origin—presence or absence, source and size of affected areas.
	Discoloration and turbidity—description of color, source and size of affected areas.

Table 17—Regular Visual Inspection Schedule

Category	Wet Season (1 Oct. to 30 April)	Dry Season (1 May to 30 Sept.)
Inactive or Closed Units	Monthly	Quarterly

2. **Annual Facility Inspections**—Prior to **30 September** of each year, the Discharger shall inspect the Facility to assess repair and maintenance needs for drainage control systems, cover systems and groundwater monitoring wells; and preparedness for winter conditions (e.g., erosion and sedimentation control).
 - a. If repairs are made as result of the annual inspection, problem areas shall be photographed before and after repairs. Any necessary construction, maintenance, or repairs shall be completed by 31 October.
 - b. Annual facility inspection reporting shall be submitted as required in Section B.4 of this MRP.

3. **Major Storm Events** — Within **seven days** of any storm event capable of causing damage or significant erosion (Major Storm Event), the Dischargers shall inspect the Facility for damage to any precipitation, diversion and drainage facilities, and all landfill side slopes. Necessary repairs shall be completed within 30 days of the inspection. The Discharger shall take photos of any problem areas before and after repairs. Notification and reporting for major storm events shall be conducted as required in Section B.5 of this MRP.

4. **Five-Year Iso-Settlement Surveys for Closed Landfill Units**—The Dischargers shall conduct a five-year iso-settlement survey of each 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 low-hydraulic-conductivity 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, § 21090, subds. (e)(1)-(2).) See Section D.6 for iso-settlement survey reporting requirements.⁸

⁸ The next iso-settlement survey shall be conducted in 2021.

- C. Corrective Action Monitoring**—In addition to the monitoring activities described above, the Dischargers shall monitor its corrective action systems in accordance with provisions of this section.

The Discharger shall conduct corrective action monitoring for both soil vapor (soil pore-gas) and groundwater to demonstrate the effectiveness of corrective action in accordance with Title 27, section 20430 and this MRP.

Groundwater monitoring wells that are in a corrective action monitoring program shall be monitored in accordance with the groundwater monitoring requirements in part A.1 of this MRP.

D. Reporting Requirements

Table 18—Summary of Required Reporting

Report	End of Reporting Period	Due Date
Semiannual	30 June	1 Aug.
Monitoring Reports (SMRs)	31 Dec.	1 Feb.
Annual Monitoring Report (AMRs)	31 Dec.	1 Feb.
Seep Reporting	(continuous)	Immediately (Notice w/in 7 Days)
Annual Facility Inspection Report	31 Oct.	15 Nov.
Major Storm Event Report	(continuous)	7 Days after Discovery of Damage
Iso-Settlement Survey and Mapping Report	Every 5 Years	AMRs

1. **Semiannual Monitoring Reports (SMRs)**—On **1 August** and **1 February**⁹ of each year, the Discharger shall submit a Semiannual Monitoring Reports (SMRs) in accordance with the provisions below.
 - a. For each groundwater monitoring point addressed by the report, a description of:
 - i. The time of water level measurement;
 - ii. The type of pump (or other device) used for purging and the elevation of the pump intake relative to the elevation of the screened interval;
 - iii. The method of purging used to stabilize water in the well bore before the sample is taken including the pumping rate; the equipment and methods used to monitor field pH, temperature, and conductivity during purging; results of pH, temperature, conductivity, and turbidity testing; and the method of disposing of the purge water;
 - iv. The type of pump (or other device) used for sampling, if different than the pump or device used for purging; and
 - v. A statement that the sampling procedure was conducted in accordance with the approved SAP.
 - b. A map or aerial photograph showing the locations of observation stations, monitoring points, and background monitoring points.
 - c. An estimated quarterly groundwater flow rate and direction in:
 - (1) the uppermost aquifer; (2) any zones of perched water; and
 - (3) 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. (See Title 27, § 20415, subd. (e)(15).)
 - d. The times of expected highest and lowest elevations of the water levels in the wells. (See Title 27, § 20415, subd. (e)(15).)

⁹ The 1 Feb. Semiannual Monitoring Report may be combined with the Annual Monitoring Report (due on the same date), provided that the combination is clearly indicated in the title of the report.

- e. Cumulative tabulated monitoring data for all monitoring points and constituents for groundwater, unsaturated zone, leachate, and surface water.
 - i. 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).
 - ii. Units shall be as required in Tables 9 through 15 unless specific justification is given to report in other units. Refer to the SPRRs Section I “Standard Monitoring Specifications” for requirements regarding MDLs and PQLs.
- f. Laboratory statements of results of all analyses evaluating compliance with requirements.
- g. 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 for wells/constituents not already in corrective action monitoring.
- h. A summary of all Standard Observations for the reporting period required in Section A.5.d of this MRP.
- i. A summary of inspection, leak search, and repair of final covers on any closed landfill units in accordance with an approved final post-closure maintenance plan as required by Standard Closure and Post-Closure Maintenance Specifications G.26 through G.29 of the SPRRs.
- j. A comprehensive discussion of any Corrective Action Program required by this MRP under Section C.

- 2. Annual Monitoring Reports (AMRs)**—On **1 February** of each year,¹⁰ the Dischargers shall submit Annual Monitoring Reports (AMRs) containing each of the following components.
- a. Graphs showing historical trends for monitoring parameters¹¹ at each background and compliance monitoring point.
 - i. 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.
 - ii. If a 5-year COC event was performed, than these parameters shall also be graphically presented.
 - iii. 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.
 - iv. The graphs shall plot each datum, rather than plotting mean values.
 - v. 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 years, 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.

¹⁰ See instructions in **Footnote 9** regarding combination of AMR with the 1 Feb. SMR.

¹¹ If analyzed during the annual reporting period, the monitoring parameters for Five-Year COCs (see Tables 10) shall be included in the graphs as well.

- d. Hydrographs of each well showing the elevation of groundwater with respect to the elevations of the top and bottom of the screened interval and the elevation of the pump intake. Hydrographs of each well shall be prepared quarterly and submitted annually.
 - e. A comprehensive discussion of the compliance record, and the result of any corrective actions taken or planned which may be needed to bring the Discharger into full compliance with the waste discharge requirements.
 - f. A written summary of the monitoring results, indicating any changes made or observed since the previous Annual Monitoring Report.
 - g. Updated concentration limits for each monitoring parameter at each monitoring well based on the new data set.
- 3. Seep Reporting**—Upon discovery of seepage from any disposal area within the Facility, the Dischargers shall **immediately** report such seepage to the Central Valley Water Board via telephone or email; and **within seven days**, submit a written report with the following information:
- a. Map(s) depicting the location(s) of seepage;
 - b. Estimated flow rate(s);
 - 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 12 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 Report**—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 B.2 of this MRP, above.
- 5. Major Storm Event Reports**—Immediately following each post-storm inspection described in Section 0 of this MRP, the Dischargers shall notify 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.

6. **Survey and Iso-Settlement Map (Closed Landfill Units)**—The Dischargers shall submit all iso-settlement maps prepared in accordance with Section B.5 of this MRP. (See Title 27, § 21090, subd. (e).) The next maps are due in 2022, and all maps.
7. **Financial Assurances Report**—By 1 June of each year, the Discharger shall submit a copy of the annual financial assurances report due to CalRecycle that updates the financial assurances for closure, post-closure maintenance, and corrective action. (See WDRs Order R5-2020-0011, § G.)

E. **Water Quality Protection Standard (WQPS)**

1. **WQPS Components**

- a. For each WMU, the WQPS shall consist of:
 - i. All Constituents of Concern (COCs);
 - ii. The concentration limit applicable for each COC;
 - iii. The verification retesting procedure to confirm measurably significant evidence of a release;
 - iv. The point of compliance; and
 - v. All water quality monitoring points for each monitored medium.
- b. For naturally occurring constituents, the WQPS shall consist of:
 - i. Naturally occurring COCs;
 - ii. The concentration limits of each naturally occurring COC;
 - iii. The point of compliance; and
 - iv. All monitoring points.

2. WQPS Report

- a. The Discharger shall submit a WQPS report that consists of items in Section E.2.c below, for Central Valley Water Board staff review and approval.
- b. Any proposed changes to the WQPS, other than annual update of the concentration limits, shall be submitted in a WQPS Report for review and approval.
- c. The WQPS report shall:
 - i. Identify all distinct bodies of surface water and groundwater 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.
 - ii. 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.
 - iii. Evaluate the perennial direction(s) of groundwater movement within the uppermost groundwater zone(s).
 - iv. 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).
 - v. Include a retesting procedure to confirm or deny measurably significant evidence of a release (See Title 27, §§ 20415, subd. (e)(8)(E), 20420, subds. (j)(1)-(3).
- d. The WQPS 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 due to either seasonal fluctuations or other reasons unrelated to waste management

activities at the site, the Dischargers may request modification of the WQPS.

- e. The tolerance limits were calculated based on background data from background monitoring well MW-9, MW-10 and MW-11 and presented in Appendix U of GBF/Pittsburg Landfill(s) Respondents Group Remedial Investigation Report submitted in August 1991.
- f. Any proposed changes to the WQPS other than biannual update of the concentration limits shall be submitted in a report for Central Valley Water Board staff review and approval.

3. Monitoring Parameters—A select group of constituents monitored during each sampling event, monitoring parameters are the waste constituents, reaction products, hazardous constituents and physical parameters that provide a reliable indication of a release from a given WMU.

The monitoring parameters are listed in Tables 9 (groundwater), and Tables 14 (surface water).

4. Constituents of Concern (COCs)—COCs include a larger group of waste constituents, their reaction products, and hazardous constituents that are reasonably expected to be in or derived from waste contained in the waste management unit, and are required to be monitored every five years. (See Title 27, §§ 20395, 20420(g).)

The COCs for the WMU at the Facility are those listed in Tables 10 and 15 for the specified monitored medium. The Discharger shall monitor all COCs every five years, or more frequently as required in accordance with a Corrective Action Program. The last 5-year COC report was submitted to the Central Valley Water Board in the 2017 Annual Monitoring Report, and 5-year COCs are due to be monitored again in 2022.

5. Concentration Limits

- a. The concentration limit of each naturally occurring COC shall be determined
 - i. By calculation in accordance with a statistical method in accordance with Title 27, section 20415, subdivision (e)(8); or
 - ii. By an alternate statistical method in accordance with Title 27, section 20415, subdivision (e)(8)(E).

- b. The Discharger shall propose a statistical method in the WQPS to calculate the concentration limits for Central Valley Water Board staff approval, as described in WDR Time Schedule J.C.
- c. The tolerance limits for select parameters using background wells MW-9, MW-10 (no longer exist) and MW-11 as reported in Appendix U of GBF/Pittsburg Landfill(s) Respondents Group Remedial Investigation Report submitted in August 1991, were as in Table 19:

Table 19—Tolerance Limits for Parameters in Background Wells (1991)

Constituents	Tolerance Limit
TDS	777 mg/L
Specific conductivity	1227 umhos/cm
Barium	0.27 mg/L
Total phosphorus	1.10 mg/L
TKN	2.9 mg/L
DOC	130.9 mg/L
Calcium	75.8 mg/L
Magnesium	55.2 mg/L
Potassium	11.6 mg/L
Sulfate	86.6 mg/L
Chloride	194 mg/L
Bicarbonate	424 mg/L
Nitrate	53.6 mg/L
Sodium	250 mg/L

- d. In 2020 first semiannual monitoring report, the Discharger shall propose a new calculated concentration limits for each medium using the background wells in Table 8 for the Central Valley Water Board staff approval. Upon approval of the concentration limits, the Discharger shall update the concentration limits bi-annually thereafter.

6. **Retesting Procedures to Confirm Release**—If monitoring results indicate measurably significant evidence of a release per Section I.45 of the SPRRs, the Dischargers shall:
 - 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 Standard Monitoring Specification I.46 of the SPRRs.
 - 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 Standard Monitoring Specification I.47 of the SPRRs.
7. **Point of Compliance (POC)**—For purposes of the WQPS, POS of each WMU shall be the vertical surface located at the hydraulically down-gradient limit extending through the uppermost underlying aquifer. The point of compliance for groundwater are monitoring wells G-3, G-4, G-5, G-6, MW-21, MW-22, MW-23, and MW-24 in USZ; MW-32 and MW-33 in DSZ; and the point of compliance for surface water is MC-1.

F. Compliance Period

1. The compliance period for each WMU 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 WMU. The compliance period shall restart each time the Discharger initiates an evaluation monitoring program. (See Title 27, § 20410.)

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 Central Valley Water Board action may petition the State Water Board for review in accordance with Water Code section 13320 and California Code of Regulations, title 23, section 2050 et seq. The State Water Board must receive the petition by 5:00 p.m. on the 30th day after the date of this Order; if the 30th day 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 are available on the [Internet](http://www.waterboards.ca.gov/public_notices/petitions/water_quality) (http://www.waterboards.ca.gov/public_notices/petitions/water_quality), and will be provided upon request.

Order Attachments

MRP Glossary

Attachment A— Volatile Organic Compounds, Short List

Attachment B— Dissolved Organics (5-Year COCs)

Attachment C— Volatile Organic Compounds, Extended List (5-Year COCs)

Attachment D— Semi-Volatile Organic Compounds (5-Year COCs)

Attachment E— Chlorophenoxy Herbicides and Organophosphorus Compounds (5-Year COCs)

Attachment F— Surrogates for Metallic Constituents of Concern

MRP GLOSSARY

bgs	Below Ground Surface
BOD	Biochemical Oxygen Demand
CAP	Corrective Action Program
CAMP	Corrective Action Monitoring Program
COCs	Constituents of Concern
DMP	Detection Monitoring Program
EC	Electrical Conductivity
EMP	Evaluation Monitoring Plan
LCRS.....	Leachate Collection and Removal System
LFG	Landfill Gas
MDL.....	Method Detection Limit
µg/L.....	Micrograms per Liter
mg/L	Milligrams per Liter
MSL.....	Mean Sea Level
MRP	Monitoring and Reporting Program
MW.....	Monitoring Well
SPRRs	Standard Provisions and Reporting Requirements
Subtitle D.....	USEPA-promulgated MSW regulations under RCRA (see 40 C.F.R. part 258)
RCRA	Resource Conservation and Recovery Act
ROWD.....	Report of Waste Discharge
TDS.....	Total Dissolved Solids
Title 22	California Code of Regulations, <u>Title 22</u>

Title 23 California Code of Regulations, Title 23

Title 27 California Code of Regulations, Title 27

USEPA..... United States Environmental Protection Agency

VOCs..... Volatile Organic Compounds

WDRs..... Waste Discharge Requirements

WMU Waste Management Unit

WQPS Water Quality Protection Standard

MRP ATTACHMENT A—VOLATILE ORGANIC COMPOUNDS, SHORT LIST

Volatile Organic Compounds— Short List (USEPA Method 8260B)	Geotracker Code
Acetone	ACE
Acrylonitrile	ACRAMD
Benzene	BZ
Bromochloromethane	BRCLME
Bromodichloromethane	BDCME
Bromoform (Tribromomethane)	TBME
Carbon disulfide	CDS
Carbon tetrachloride	CTCL
Chlorobenzene	CLBZ
Chloroethane (Ethyl chloride)	CLEA
Chloroform (Trichloromethane)	TCLME
Dibromochloromethane (Chlorodibromomethane)	DBCME
1,2 Dibromo 3 chloropropane (DBCP)	DBCP
1,2 Dibromoethane (Ethylene dibromide; EDB)	EDB
o Dichlorobenzene (1,2 Dichlorobenzene)	DCBZ12
m Dichlorobenzene (1,3 Dichlorobenzene)	DCBZ13
p Dichlorobenzene (1,4 Dichlorobenzene)	DCBZ14
trans 1,4 Dichloro 2 butene	DCBE14T

MRP ATTACHMENT A—ADDITIONAL PARAMETERS FOR ALL DETECTION MONITORING PROGRAMS

Volatile Organic Compounds— Short List (USEPA Method 8260B)	Geotracker Code
Dichlorodifluoromethane (CFC-12)	FC12
1,1 Dichloroethane (Ethylidene chloride)	DCA11
1,2 Dichloroethane (Ethylene dichloride)	DCA12
1,1 Dichloroethylene (1,1 Dichloroethene; Vinylidene chloride)	DCE11
cis 1,2 Dichloroethylene (cis 1,2 Dichloroethene)	DCE12C
trans 1,2 Dichloroethylene (trans 1,2 Dichloroethene)	DCE12T
1,2 Dichloropropane (Propylene dichloride)	DCPA12
cis 1,3 Dichloropropene	DCP13C
trans 1,3 Dichloropropene	DCP13T
Di-isopropylether (DIPE)	DIPE
Ethanol	ETHANOL
Ethyltertiary butyl ether	ETBE
Ethylbenzene	EBZ
2 Hexanone (Methyl butyl ketone)	HXO2
Hexachlorobutadiene	HCBU
Methyl bromide (Bromomethene)	BRME
Methyl chloride (Chloromethane)	CLME
Methylene bromide (Dibromomethane)	DBMA

MRP ATTACHMENT A—ADDITIONAL PARAMETERS FOR ALL DETECTION MONITORING PROGRAMS

Volatile Organic Compounds— Short List (USEPA Method 8260B)	Geotracker Code
Methylene chloride (Dichloromethane)	DCMA
Methyl ethyl ketone (MEK: 2 Butanone)	MEK
Methyl iodide (Iodomethane)	IME
Methyl t-butyl ether	MTBE
4-Methyl 2 pentanone (Methyl isobutylketone)	MIBK
Naphthalene	NAPH
Styrene	STY
Tertiary amyl methyl ether	TAME
Tertiary butyl alcohol	TBA
1,1,1,2 Tetrachloroethane	TC1112
1,1,2,2 Tetrachloroethane	PCA
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene)	PCE
Toluene	BZME
1,2,4-Trichlorobenzene	TCB124
1,1,1 Trichloroethane (Methylchloroform)	TCA111
1,1,2 Trichloroethane	TCA112
Trichloroethylene (Trichloroethene)	TCE
Trichlorofluoromethane (CFC 11)	FC11

MRP ATTACHMENT A—ADDITIONAL PARAMETERS FOR ALL DETECTION MONITORING PROGRAMS

Volatile Organic Compounds— Short List (USEPA Method 8260B)	Geotracker Code
1,2,3 Trichloropropane	TCPR123
Vinyl acetate	VA
Vinyl chloride	VC
Xylenes	XYLENES

MRP ATTACHMENT B—DISSOLVED ORGANICS (5-YEAR COCs)

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

**MRP ATTACHMENT C—VOLATILE ORGANIC COMPOUNDS, EXTENDED LIST
 (5-YEAR COCs)**

Volatile Organic Compounds USEPA Method 8260, Extended List	GeoTracker Code
Acetone	ACE
Acetonitrile (Methyl cyanide)	ACCN
Acrolein	ACRL
Acrylonitrile	ACRAMD
Allyl chloride (3 Chloropropene)	CLPE3
Benzene	BZ
Bromochloromethane (Chlorobromomethane)	BRCLME
Bromodichloromethane (Dibromochloromethane)	DBCME
Bromoform (Tribromomethane)	TBME
Carbon disulfide	CDS
Carbon tetrachloride	CTCL
Chlorobenzene	CLBZ
Chloroethane (Ethyl chloride)	CLEA
Chloroform (Trichloromethane)	TCLME
Chloroprene	CHLOROPRENE
Dibromochloromethane (Chlorodibromomethane)	DBCME
1,2 Dibromo 3 chloropropane (DBCP)	DBCP
1,2 Dibromoethane (Ethylene dibromide; EDB)	EDB
o Dichlorobenzene (1,2 Dichlorobenzene)	DCBZ12
m Dichlorobenzene(1,3 Dichlorobenzene)	DCBZ13
p Dichlorobenzene (1,4 Dichlorobenzene)	DCBZ14
trans 1,4 Dichloro 2 butene	DCBE14T
Dichlorodifluoromethane (CFC 12)	FC12
1,1 Dichloroethane (Ethylidene chloride)	DCA11
1,2 Dichloroethane (Ethylene dichloride)	DCA12
1,1 Dichloroethylene (1, I Dichloroethene; Vinylidene chloride)	DCE11

MRP ATTACHMENT C—VOLATILE ORGANIC COMPOUNDS, EXTENDED LIST (5-YEAR COCS)

Volatile Organic Compounds USEPA Method 8260, Extended List	GeoTracker Code
cis 1,2 Dichloroethylene (cis 1,2 Dichloroethene)	DCE12C
trans 1,2 Dichloroethylene (trans 1,2 Dichloroethene)	DCE12T
1,2 Dichloropropane (Propylene dichloride)	DCPA12
1,3 Dichloropropane (Trimethylene dichloride)	DCPA13
2,2 Dichloropropane (Isopropylidene chloride)	DCPA22
1,1 Dichloropropene	DCP11
cis 1,3 Dichloropropene	DCP13C
trans 1,3 Dichloropropene	DCP13T
Di-isopropylether (DIPE)	DIPE
Ethanol	ETHANOL
Ethyltertiary butyl ether	ETBE
Ethylbenzene	EBZ
Ethyl methacrylate	EMETHACRY
Hexachlorobutadiene	HCBU
2 Hexanone (Methyl butyl ketone)	HXO2
Isobutyl alcohol	ISOBTOH
Methacrylonitrile	METHACRN
Methyl bromide (Bromomethane)	BRME
Methyl chloride (Chloromethane)	CLME
Methyl ethyl ketone (MEK; 2 Butanone)	MEK
Methyl iodide (Iodomethane)	IME
Methyl t-butyl ether	MTBE
Methyl methacrylate	MMTHACRY
4 Methyl 2 pentanone (Methyl isobutyl ketone)	MIBK
Methylene bromide (Dibromomethane)	DBMA
Methylene chloride (Dichloromethane)	DCMA
Naphthalene	NAPH

MRP ATTACHMENT C—VOLATILE ORGANIC COMPOUNDS, EXTENDED LIST (5-YEAR COCS)

Volatile Organic Compounds USEPA Method 8260, Extended List	GeoTracker Code
Propionitrile (Ethyl cyanide)	PACN
Styrene	STY
Tertiary amyl methyl ether	TAME
Tertiary butyl alcohol	TBA
1,1,1,2 Tetrachloroethane	TC1112
1,1,2,2 Tetrachloroethane	PCA
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene; PCE)	PCE
Toluene	BZME
1,2,4 Trichlorobenzene	TCB124
1,1,1 Trichloroethane (Methylchloroform)	TCA111
1,1,2 Trichloroethane	TCA112
Trichloroethylene	TCE
(Trichloroethene; TCE)	FC11
Trichlorofluoromethane (CFC 11)	TCPR123
1,2,3 Trichloropropane	VA
Vinyl acetate	VC
Vinyl chloride (Chloroethene)	XYLENES

MRP ATTACHMENT D—SEMI-VOLATILE ORGANIC COMPOUNDS (5-YEAR COCs)

Semi-Volatile Organic Compounds USEPA Methods 8270C or 8270D (Base, Neutral & Acid Extractables)	GeoTracker Code
Acenaphthene	ACNP
Acenaphthylene	ACNPY
Acetophenone	ACPHN
2 Acetylaminofluorene (2 AAF)	ACAMFL2
Aldrin	ALDRIN
4 Aminobiphenyl	AMINOBP4
Anthracene	ANTH
Benzo[a]anthracene (Benzanthracene)	BZAA
Benzo[b]fluoranthene	BZBF
Benzo[k]fluoranthene	BZKF
Benzo[g,h,i]perylene	BZGHIP
Benzo[a]pyrene	BZAP
Benzyl alcohol	BZLAL
Bis(2 ethylhexyl) phthalate	BIS2EHP
alpha BHC	BHCALPHA
beta BHC	BHCBETA
delta BHC	BHCDELTA
gamma BHC (Lindane)	BHCGAMMA
Bis(2 chloroethoxy) methane	BCEM
Bis(2 chloroethyl) ether (Dichloroethyl ether)	BIS2CEE
Bis(2 chloro 1 methylethyl) ether (Bis(2 chloroisopropyl) ether; DCIP)	BIS2CIE
4 Bromophenyl phenyl ether	BPPE4
Butyl benzyl phthalate (Benzyl butyl phthalate)	BBP
Chlordane	CHLORDANE
p Chloroaniline	CLANIL4
Chlorobenzilate	CLBZLATE

MRP ATTACHMENT D—SEMI-VOLATILE ORGANIC COMPOUNDS (5-YEAR COCs)

Semi-Volatile Organic Compounds USEPA Methods 8270C or 8270D (Base, Neutral & Acid Extractables)	GeoTracker Code
p Chloro m cresol (4 Chloro 3 methylphenol)	C4M3PH
2 Chloronaphthalene	CNPH2
2 Chlorophenol	CLPH2
4 Chlorophenyl phenyl ether	CPPE4
Chrysene	CHRYSENE
o Cresol (2 methylphenol)	MEPH2
m Cresol (3 methylphenol)	MEPH3
p Cresol (4 methylphenol)	MEPH4
4,4' DDD	DDD44
4,4' DDE	DDE44
4,4' DDT	DDT44
Diallate	DIALLATE
Dibenz[a,h]anthracene	DBAHA
Dibenzofuran	DBF
Di n butyl phthalate	DNBP
3,3' Dichlorobenzidine	DBZD33
2,4 Dichlorophenol	DCP24
2,6 Dichlorophenol	DCP26
Dieldrin	DIELDRIN
Diethyl phthalate	DEPH
p (Dimethylamino) azobenzene	PDMAABZ
7,12 Dimethylbenz[a]anthracene	DMBZA712
3,3' Dimethylbenzidine	DMBZD33
2,4 Dimehtylphenol (m Xylenol)	DMP24
Dimethyl phthalate	DMPH
m Dinitrobenzene	DNB13
4,6 Dinitro o cresol (4,6 Dinitro 2 methylphenol)	DN46M

MRP ATTACHMENT D—SEMI-VOLATILE ORGANIC COMPOUNDS (5-YEAR COCs)

Semi-Volatile Organic Compounds USEPA Methods 8270C or 8270D (Base, Neutral & Acid Extractables)	GeoTracker Code
2,4 Dinitrophenol	DNP24
2,4 Dinitrotoluene	DNT24
2,6 Dinitrotoluene	DNT26
Di n octyl phthalate	DNOP
Diphenylamine	DPA
Endosulfan I	ENDOSULFANA
Endosulfan II	ENDOSULFANB
Endosulfan sulfate	ENDOSULFANS
Endrin	ENDRIN
Endrin aldehyde	ENDRINALD
Ethyl methanesulfonate	EMSULFN
Famphur	FAMPHUR
Fluoranthene	FLA
Fluorene	FL
Heptachlor	HEPTACHLOR
Heptachlor epoxide	HEPT-EPOX
Hexachlorobenzene	HCLBZ
Hexachlorocyclopentadiene	HCCP
Hexachloroethane	HCLEA
Hexachloropropene	HCPR
Indeno(1,2,3 c,d) pyrene	INP123
Isodrin	ISODRIN
Isophorone	ISOP
Isosafrole	ISOSAFR
Kepone	KEP
Methapyrilene	MTPYRLN
Methoxychlor	MTXYCL

MRP ATTACHMENT D—SEMI-VOLATILE ORGANIC COMPOUNDS (5-YEAR COCs)

Semi-Volatile Organic Compounds USEPA Methods 8270C or 8270D (Base, Neutral & Acid Extractables)	GeoTracker Code
3 Methylcholanthrene	MECHLAN3
Methyl methanesulfonate	MMSULFN
2 Methylnaphthalene	MTNPH2
1,4 Naphthoquinone	NAPHQ14
1 Naphthylamine	AMINONAPH1
2 Naphthylamine	AMINONAPH2
o Nitroaniline (2 Nitroaniline)	NO2ANIL2
m Nitroaniline (3 Nitroaniline)	NO2ANIL3
p Nitroaniline (4 Nitroaniline)	NO2ANIL4
Nitrobenzene	NO2BZ
o Nitrophenol (2 Nitrophenol)	NTPH2
p Nitrophenol (4 Nitrophenol)	NTPH4
N Nitrosodi n butylamine (Di n butylNitrosamine)	NNSBU
N Nitrosodiethylamine (Diethylnitrosamine)	NNSE
N Nitrosodimethylamine (Dimethylnitrosamine)	NNSM
N Nitrosodiphenylamine (Diphenylnitrosamine)	NNSPH
N Nitrosodipropylamine (N Nitroso N dipropylamine; Di n propylNitrosamine)	NNSPR
N Nitrosomethylethylamine (Methylethylnitrosamine)	NNSME
N Nitrosopiperidine	NNSPPRD
N Nitrosopyrrolidine	NNSPYRL
5 Nitro o toluidine	TLDNONT5
Pentachlorobenzene	PECLBZ
Pentachloronitrobenzene (PCNB)	PECLNO2BZ
Pentachlorophenol	PCP
Phenacetin	PHNACTN
Phenanthrene	PHAN

MRP ATTACHMENT D—SEMI-VOLATILE ORGANIC COMPOUNDS (5-YEAR COCs)

Semi-Volatile Organic Compounds USEPA Methods 8270C or 8270D (Base, Neutral & Acid Extractables)	GeoTracker Code
Phenol	PHENOL
p Phenylenediamine	ANLNAM4
Polychlorinated biphenyls (PCBs; Aroclors)	PCBS
Pronamide	PRONAMD
Pyrene	PYR
Safrole	SAFROLE
1,2,4,5 Tetrachlorobenzene	C4BZ1245
2,3,4,6 Tetrachlorophenol	TCP2346
o Toluidine	TLDNO
Toxaphene	TOXAP
2,4,5 Trichlorophenol	TCP245
0,0,0 Triethyl phosphorothioate	TEPTH
sym Trinitrobenzene	TNB135

**MRP ATTACHMENT E—CHLOROPHENOXY HERBICIDES AND
 ORGANOPHOSPHORUS COMPOUNDS (5-YEAR COCs)**

Chlorophenoxy Herbicides USEPA Method 8151A	GeoTracker Code
2,4 D (2,4 Dichlorophenoxyacetic acid)	24D
Dinoseb (DNBP; 2 sec Butyl 4,6 dinitrophenol)	DINOSEB
Silvex (2,4,5 Trichlorophenoxypropionic acid; 2,4,5 TP)	SILVEX
2,4,5 T (2,4,5 Trichlorophenoxyacetic acid)	245T
Organophosphorus Compounds USEPA Method 8141B	
Atrazine	ATRAZINE
Chlorpyrifos	CLPYRIFOS
0,0 Diethyl 0 2 pyrazinyl phosphorothioate (Thionazin)	ZINOPHOS
Diazinon	DIAZ
Dimethoate	DIMETHAT
Disulfoton	DISUL
Methyl parathion (Parathion methyl)	PARAM
Parathion	PARAE
Phorate	PHORATE
Simazine	SIMAZINE

MRP ATTACHMENT F—SURROGATES FOR METALLIC CONSTITUENTS OF CONCERN

Surrogates for Metallic Constituents of Concern	GeoTracker Code
pH	PH
Total Dissolved Solids	TDS
Electrical Conductivity	SC
Chloride	CL
Sulfate	S04
Nitrate–Nitrogen	NO3N

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

Order R5-2020-0011

WASTE DISCHARGE REQUIREMENTS
For
TRC COMPANIES, INC.
and
GBF HOLDINGS, LLC
CONTRA COSTA SANITARY LANDFILL
CONTRA COSTA COUNTY

INFORMATION SHEET

Contra Costa Sanitary Landfill (CCSL) is an approximately 82-acre Class III closed landfill Facility located near the intersection of Somersville Road and James Donlon Boulevard in Contra Costa County, California. The CCSL overlies two former waste disposal sites called the Pittsburg and GBF landfills. The Pittsburg landfill covered 24 acres on the west side of the property and permitted to accept Group II and III materials only, under a land use permit issued in 1958. However, some hazardous materials (including 20,000 pounds of M-2 Incendiary oil Thickener” containing magnesium paste, gasoline and isobutyl methacrylate) were deposited on the site in 1975. The Pittsburg Disposal Service inc. and others operated this landfill for the City of Pittsburg from 1946 until 1987.

The GBF site covered 59 acres on the east side of the property. This site was permitted to accept Group I materials in 1960s. The eastern area included the GBF landfill, a solid waste landfill and at least 10 unlined industrial waste disposal ponds operated from the early 1960s to 1974. The ponds were constructed to dispose liquid industrial waste (acids, solvents, caustics, titanium dioxide, cyanide, medical wastes, oils, sulfonation tars, sludges, liquid metal wastes, etc) for solar evaporation or percolation of the liquid wastes into the ground. In 1974, the Central Valley Water Boards determined that the site did not meet criteria for classification as a Class I disposal site and ordered the site converted to a Class II operation. Between 1974 and 1978, the ponds were closed by removing some oil and then placing solid waste to absorb the remaining liquid. Drums and other waste containers were left in the trenches. Beginning in 1974, Class III municipal waste was piled on top of the closed ponds. The GBF landfill subsequently expanded over the pond and trench area.

In 1987, the two landfills were consolidated and solid waste of the Contra Costa Sanitary Landfill expanded over the top of Pittsburg landfill. From 1987 to January 2001 both sites were owned and operated by Contra Costa Waste Services as Contra Costa Sanitary Landfill a single, contiguous landfill (see Attachment B of the WDRs, Site Plan, which is incorporated herein and made part of this Order). The Facility stopped receiving waste on March 31, 1992 and in 1993, Contra Costa Waste Service began to

place a cover on the landfill. In January 2001, ownership of the Facility was transferred to GBF Holdings LLC a subsidiary of TRC Companies Inc. (Discharger). The Facility received final cover complying with Title 27 in 2002.

Volatile Organic Compounds (VOCs), elevated concentrations of metals and elevated inorganic water quality parameters have been detected in downgradient monitor wells since monitoring began in 1986. The groundwater plume has migrated at least 2500 ft downgradient of the former landfill. Groundwater cleanup actions at this Facility are ongoing under a California Department of Toxic Substances Control (DTSC) Consent Order for Remedial Action.

The DTSC is the lead agency for groundwater remediation at the site. Post-closure maintenance of the Facility is regulated by the WDRs issued by the Central Valley Water Board.

As approved in the Remedial Action Plan (RAP, 1997), the Discharger closed the landfill with final cover consisting of minimum two ft of foundation layer, one ft of barrier later and one ft of vegetative layer; has deed restriction on the property as an institutional control; continues groundwater monitoring; installed and operates groundwater extraction and treatment system (GWETS); and continues to operate the existing landfill gas collection and destruction system. The Consent Order allowed the Discharger to implement a pump and treat groundwater extraction system with extraction wells in two phases: Phase I to include installation of the extraction wells near the landfill and Phase II to include installation of the extraction wells near the leading edge of the plume, after three-year operation of the Phase I system.

Following the evaluation of implemented GWETS in northern boundary of the Facility in last one decade, the Discharger has proposed additional corrective actions to be implemented in Phase I and II areas in 2017 and 2019, respectively. See WDRs Findings 38 to 55 for history of corrective action. The DTSC has approved the feasibility study reports with a condition to implement active remediation at two monitoring wells (MW-55 and MW-69) at leading edge of the plume. The approved additional remedial action will include soil-bentonite barrier wall along the northern boundary of the Facility, an expansion of the existing GWETS, implementation of soil vapor extraction and active remediation at the leading edge of the plume.

The Discharger maintains assurances of financial responsibility (insurance) with CalRecycle for post-closure maintenance of the Facility and reasonably foreseeable (non-water) corrective action, and a letter of credit with DTSC for known water release corrective action.

WDR Revision:

This Order implements post-closure maintenance and corrective action requirements for the closed Class III landfill. Notable revisions to the Facility's WDRs include:

- a. A summary of work completed at the Facility since the time of Order No. R5-2003-0021
- b. An update to the corrective actions at the Facility
- c. An update to the financial assurances required for the Facility
- d. Requirements for post-closure maintenance

STANDARD PROVISIONS AND REPORTING REQUIREMENTS

(DECEMBER 2015)

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

STANDARD PROVISIONS AND REPORTING REQUIREMENTS
FOR
WASTE DISCHARGE REQUIREMENTS
FOR
NONHAZARDOUS SOLID WASTE DISCHARGES
REGULATED BY SUBTITLE D AND/OR TITLE 27
(40 C.F.R. section 258 and Title 27, § 20005 et seq.)

December 2015

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A. APPLICABILITY

1. These Standard Provisions and Reporting Requirements (SPRRs) are applicable to nonhazardous solid waste disposal sites that are regulated by the Central Valley Regional Water Quality Control Board (hereafter, Central Valley Water Board) pursuant to the provisions of California Code of Regulations, title 27 ("Title 27"), section 20005 et seq., and municipal solid waste (MSW) landfills that are subject to the Federal Subtitle D regulations contained in 40 Code of Federal Regulations section 258 (hereafter, "Subtitle D" or "40 C.F.R. § 258.XX") in accordance with State Water Resources Control Board (State Water Board) Resolution 93-62. The Subtitle D regulations are only applicable to MSW landfills and therefore any requirements in these SPRRs that are referenced as coming from Subtitle D are not applicable to non-MSW waste management units such as Class II surface impoundments, Class II waste piles, and non-MSW landfill units. All Subtitle D requirements in these SPRRs are referenced with "[40 C.F.R. § 258.XX]" after the requirement.
2. "Order," as used throughout this document, means the Waste Discharge Requirements (WDRs) to which these SPRRs are incorporated.
3. The requirements prescribed herein do not authorize the commission of any act causing injury to the property of another, and do not protect the Discharger from liabilities under federal, state, or local laws. This Order does not convey any property rights or exclusive privileges.
4. The provisions of this Order are severable. If any provision of this Order is held invalid, the remainder of this Order shall not be affected.
5. If there is any conflicting or contradictory language between the WDRs, the Monitoring and Reporting Program (MRP), or the SPRRs, then language in the WDRs shall govern over either the MRP or the SPRRs, and language in the MRP shall govern over the SPRRs.
6. If there is a site-specific need to change a requirement in these SPRRs for a particular landfill facility, the altered requirement shall be placed in the appropriate section of the WDRs and will supersede the corresponding SPRRs requirement. These SPRRs are standard and cannot be changed as part of the permit writing process or in response to comments, but they will be periodically updated on an as-needed basis.
7. Unless otherwise stated, all terms are as defined in Water Code section 13050 and in Title 27, section 20164.

B. TERMS AND CONDITIONS

1. Failure to comply with any waste discharge requirement, monitoring and reporting requirement, or Standard Provisions and Reporting Requirement, or

other order or prohibition issued, reissued, or amended by the Central Valley Water Board or the State Water Board, or intentionally or negligently discharging waste, or causing or permitting waste to be deposited where it is discharged into the waters of the state and creates a condition of pollution or nuisance, is a violation of this Order and the Water Code, which can result in the imposition of civil monetary liability [Wat. Code, § 13350(a)]

2. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to [Wat. Code, § 13381]:
 - a. Violation of any term or condition contained in this Order;
 - b. Obtaining this Order by misrepresentation, or failure to disclose fully all relevant facts;
 - c. A change in any condition that results in either a temporary or permanent need to reduce or eliminate the authorized discharge; or
 - d. A material change in the character, location, or volume of discharge.
3. Before initiating a new discharge or making a material change in the character, location, or volume of an existing discharge, the Discharger shall file a new report of waste discharge (ROWD), or other appropriate joint technical document (JTD), with the Central Valley Water Board [Wat. Code, § 13260(c) and § 13264(a)]. A material change includes, but is not limited to, the following:
 - a. An increase in area or depth to be used for solid waste disposal beyond that specified in waste discharge requirements;
 - b. A significant change in disposal method, location, or volume (e.g., change from land disposal to land treatment);
 - c. A change in the type of waste being accepted for disposal; or
 - d. A change to previously-approved liner systems or final cover systems that would eliminate components or reduce the engineering properties of components.
4. Representatives of the Central Valley Water Board may inspect the facilities to ascertain compliance with the waste discharge requirements. The inspection shall be made with the consent of the owner or possessor of the facilities or, if the consent is refused, with a duly issued warrant. However, in the event of an emergency affecting the public health or safety, an inspection may be made without consent or the issuance of a warrant [Wat. Code, §13267(c)].

5. The Central Valley Water Board will review this Order periodically and will revise these waste discharge requirements when necessary [Wat. Code, § 13263(e) and Title 27, § 21720(b)].
6. Except for material determined to be confidential in accordance with California law and regulations, all reports prepared in accordance with terms of this Order shall be available for public inspection at the offices of the Central Valley Water Board [Wat. Code, § 13267(b)]. Data on waste discharges, water quality, geology, and hydrogeology shall not be considered confidential.
7. A discharge of waste into the waters of the state is a privilege, not a right. No discharge of waste into waters of the state, whether or not the discharge is made pursuant to waste discharge requirements, shall create a vested right to continue the discharge [Wat. Code, § 13263(g)].
8. Technical and monitoring reports specified in this Order are requested pursuant to the Water Code [§13267(b)]. Failure to furnish the reports by the specified deadlines or falsifying information in the reports, are misdemeanors that may be liable civilly in accordance with §13268(b) of the Water Code [Wat. Code, §13268(a)].

C. STANDARD PROHIBITIONS

1. The discharge of liquid or semi-solid waste (waste containing less than 50 percent solids) is prohibited, except for the following when proposed in the ROWD/JTD and approved by this Order:
 - a. Dewatered sewage or water treatment sludge as described in Title 27, section 20220(c) provided it is discharged above a composite liner with a leachate collection and removal system (LCRS) [Title 27, § 20200(d)(3)].
 - b. Leachate and/or landfill gas condensate that is returned to the composite-lined waste management unit (with an LCRS) from which it came [Title 27, § 20340(g) and 40 C.F.R. § 258.28].
2. The discharge of wastes which have the potential to reduce or impair the integrity of containment structures or which, if commingled with other wastes in the waste management unit, could produce violent reaction, heat or pressure, fire or explosion, toxic by-products, or reaction products, which, in turn:
 - a. require a higher level of containment than provided by the unit; or
 - b. are 'restricted wastes'; or
 - c. impair the integrity of containment structures;is prohibited [Title 27, § 20200(b)].

3. The discharge of wastes outside of a waste management unit or portions of a unit specifically designed for their containment is prohibited.
4. The discharge of solid waste containing free liquid or which may contain liquid in excess of the moisture holding capacity as a result of waste management operations, compaction or settlement is prohibited.
5. The discharge of waste to a closed landfill unit is prohibited.
6. The discharge of waste constituents to the unsaturated zone or to groundwater is prohibited.
7. The discharge of solid or liquid waste or leachate to surface waters, surface water drainage courses, or groundwater is prohibited.

D. STANDARD DISCHARGE SPECIFICATIONS

1. The Discharger is responsible for accurate characterization of wastes, including a determination of whether or not wastes will be compatible with containment features and other wastes at the waste management unit and whether or not the wastes are required to be managed as a hazardous waste [Title 27, § 20200(c)] or designated waste [Title 27, § 20210].
2. Leachate and landfill gas condensate collected from a waste management unit shall be discharged to the unit from which it came, or discharged to an appropriate waste management unit in accordance with Title 27 and in a manner consistent with the waste classification of the liquid [Title 27, § 20200(d) and § 20340(g)].
3. The discharge of leachate or landfill gas condensate is restricted to those portions of a waste management unit that has a composite liner system and LCRS meeting the Federal Subtitle D requirements [40 C.F.R. § 258.28].
4. Leachate and condensate returned to a composite-lined landfill unit (when approved by this Order) shall be discharged and managed such that it does not cause instability of the waste, does not cause leachate seeps, does not generate additional landfill gas that is not extracted from the landfill by an active landfill gas extraction system, does not cause contaminants to enter surface water runoff, and does not cause leachate volumes to exceed the maximum capacity of the LCRS.
5. Any discharge of waste outside the portion of the landfill that was already covered with waste as of the landfill unit's respective Federal Deadline constitutes a "lateral expansion" and requires the installation of an approved composite liner system and LCRS [40 C.F.R. § 258.40(b)].

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

E. STANDARD FACILITY SPECIFICATIONS

1. All waste management units shall be designed, constructed, and operated to ensure that wastes, including leachate, will be a minimum of 5 feet above the highest anticipated elevation of underlying groundwater [Title 27, § 20240(c)], including the capillary fringe.
2. Surface and subsurface drainage from outside of a waste management unit shall be diverted from the unit [Title 27, § 20365(e)].
3. Interim cover is daily and intermediate cover [Title 27, § 20750(a)]. Interim cover over wastes discharged to a landfill shall be designed and constructed to minimize percolation of liquids through the wastes [Title 27, § 20705(b)].
4. Intermediate cover consisting of compacted earthen material of at least twelve (12) inches shall be placed on all surfaces of the fill where no additional solid waste will be deposited within **180 days** [Title 27, § 20700(a)].
5. During wet weather conditions, the facility shall be operated and graded to minimize leachate generation.
6. The Discharger shall **immediately** notify the Central Valley Water Board staff of any slope failure occurring at a waste management unit. Any failure which threatens the integrity of containment features or the waste management unit shall be promptly corrected in accordance with an approved method [Title 27, § 21710(c)(2)].
7. 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.
8. The Discharger shall limit water used for facility maintenance within landfill areas to the minimum amount necessary for dust control and construction.
9. The Discharger shall maintain in good working order any facility, control system, or monitoring device installed to achieve compliance with the waste discharge requirements.

10. The Discharger shall lock all groundwater monitoring wells with a lock on the well cap or monitoring well box. All monitoring devices shall be clearly labeled with their designation including all monitoring wells, LCRS risers, and lysimeter risers and shall be easily accessible for required monitoring by authorized personnel. Each monitoring device shall be clearly visible and be protected from damage by equipment or vehicles.
11. The Discharger shall ensure that methane and other landfill gases are adequately vented, removed from landfill units, or otherwise controlled to prevent the danger of adverse health effects, nuisance conditions, degradation, or the impairment of the beneficial uses of surface water or groundwater due to migration through the unsaturated zone.
12. The Discharger shall maintain the depth of the fluid in the sump of each landfill 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).
13. The depth of fluid on the landfill liner shall not exceed **30 centimeters** (cm) [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 liner (excluding the sump) exceeds 30 cm (approximately 12 inches). The written notification shall include a timetable for remedial or corrective action necessary to achieve compliance with the leachate depth limitation.
14. Each LCRS shall be tested at least annually to demonstrate proper operation. The results of the tests shall be compared with earlier tests made under comparable conditions [Title 27, § 20340(d)].
15. The Discharger shall maintain a *Storm Water Pollution Prevention Plan and Monitoring Program and Reporting Requirements* in accordance with State Water Board Order No. 2014-0057-DWQ (Industrial General Permit) or most recent general industrial storm water permit), or retain all storm water on-site.
16. Internal site drainage from surface or subsurface sources shall not contact or percolate through wastes.
17. New MSW landfill units or lateral expansions of existing units shall not be sited in a "wetland" [as defined in 40 C.F.R. § 232.29(r)] unless there is no practical alternative; steps have been taken to assure no net loss of wetland; the landfill unit will not degrade the wetland; the unit will not jeopardize threatened or endangered species or produce adverse modification of a critical habitat or violate any requirement of the Marine Protection, Research, and Sanctuaries Act of 1972 [40 C.F.R. § 258.12].

F. STANDARD CONSTRUCTION SPECIFICATIONS

1. The Discharger shall submit for review and approval at least **90 days** prior to proposed construction, design plans and specifications for new landfill modules that include the following:
 - a. Detailed construction drawings showing all required liner system components, the LCRS, leachate sump, unsaturated zone monitoring system, any proposed landfill gas monitoring and extraction points, and access to the LCRS for required annual testing.
 - b. A Construction Quality Assurance (CQA) Plan prepared by a California-registered civil engineer or certified engineering geologist, and that meets the requirements of Title 27, section 20324.
 - c. A geotechnical evaluation of the area soils, evaluating their use as the base layer or reference to the location of this information in the ROWD/JTD [Title 27, § 21750(f)(4)].
 - d. Information about the seismic design of the proposed new module (or reference to the location of this information in the ROWD/JTD) in accordance with Title 27, section 20370.
 - e. A revised water quality monitoring plan for groundwater detection monitoring (or information showing the existing plan is adequate) in accordance with Title 27, section 20415.
 - f. An Operation Plan (or reference to the location of this information in the ROWD/JTD) meeting the requirements of Title 27, section 21760(b).
2. All containment structures shall be designed by, and construction shall be supervised by, a California registered civil engineer or a certified engineering geologist, and shall be certified by that individual as meeting the prescriptive standards, or approved engineered alternative design, in accordance with this Order prior to waste discharge.
3. The Discharger shall not proceed with construction until the construction plans, specifications, and all applicable construction quality assurance plans have been approved. Waste management units shall receive a final inspection and approval of the construction by Central Valley Water Board staff before use of the unit commences [Title 27, § 20310(e)].
4. Any report, or any amendment or revision of a report, that proposes a design or design change that might affect a waste management unit's containment features or monitoring systems shall be approved by a California registered civil engineer or a certified engineering geologist [Title 27, § 21710(d)].

5. Materials used in containment structures shall have appropriate chemical and physical properties to ensure that such structures do not fail to contain waste because of pressure gradients, physical contact with waste or leachate, chemical reactions with soil or rock, climatic conditions, the stress of installation, or because of the stress of daily operations [Title 27, § 20320(a)].
6. Waste management units and their respective containment structures shall be designed and constructed to limit, to the greatest extent possible, ponding, infiltration, inundation, erosion, slope failure, washout, and overtopping [Title 27, § 20365(a)].
7. The Discharger shall design storm water conveyance systems for Class III units for a 100-year, 24-hour storm event, and shall design storm water conveyance systems for Class II units for a 1,000-year, 24-hour storm event [Title 27, § 21750(e)(3)].
8. All Class III landfill units shall be designed to withstand the maximum probable earthquake and Class II waste management units shall be designed to withstand maximum credible earthquake without damage to the foundation or to the structures that control leachate, or surface drainage, or erosion, or gas [Title 27, § 20370(a)].
9. The Discharger shall perform stability analyses that include components to demonstrate the integrity of the landfill foundation, final slopes, and containment systems under both static and dynamic conditions throughout the landfill's life including the closure period and post-closure maintenance period [Title 27, § 21750(f)(5)].
10. New waste management units and expansions of existing units shall not be located on a known Holocene fault [Title 27, § 20260(d)].
11. Liners shall be designed and constructed to contain the fluid, including landfill gas, waste, and leachate [Title 27, § 20330(a)].
12. Hydraulic conductivities shall be determined primarily by appropriate field test methods in accordance with accepted civil engineering practice. The results of laboratory tests with both water and leachate, and field tests with water, shall be compared to evaluate how the field permeabilities will be affected by leachate. It is acceptable for the Discharger to use appropriate compaction tests in conjunction with laboratory hydraulic conductivity tests to determine field permeabilities as long as a reasonable number of field hydraulic conductivity tests are also conducted [Title 27, § 20320(c)].
13. Hydraulic conductivities specified for containment structures other than the final cover shall be relative to the fluids (leachate) to be contained. Hydraulic conductivities for the final cover shall be relative to water [Title 27, § 20320(b)].

14. A test pad for each barrier layer and final cover shall be constructed in a manner duplicating the field construction. Test pad construction methods, with the designated equipment, shall be used to determine if the specified density/moisture-content/hydraulic conductivity relationships determined in the laboratory can be achieved in the field with the compaction equipment to be used and at the specified lift thickness [Title 27, § 20324(g)(1)(A)].
15. Performance requirements for geosynthetic membranes shall include, but are not limited to, a need to limit infiltration of water, to the greatest extent possible; a need to control landfill gas emissions; mechanical compatibility with stresses caused by equipment traffic, and for final covers the result of differential settlement over time and durability throughout the post-closure maintenance period [Title 27, § 20324(i)(1)].
16. The Discharger shall ensure proper preparation of the subgrade for any liner system that includes a GCL so as to provide a smooth surface that is free from rocks, sticks, or other debris that could damage or otherwise limit the performance of the GCL.
17. The Discharger shall propose an electronic leak location survey of the top liner for any new landfill module in the construction quality assurance plan unless the Discharger demonstrates that a leak location survey is not needed.
18. Leachate collection and removal systems are required for Class II landfills and surface impoundments, MSW landfills, and for Class III landfills which have a liner or which accept sewage or water treatment sludge [Title 27, § 20340(a)].
19. All new landfill units or lateral expansions of existing units that require a LCRS shall have a blanket-type LCRS that covers the bottom of the unit and extends as far up the sides as possible. The LCRS shall be of sufficient strength and thickness to prevent collapse under the pressures exerted by overlying wastes, waste cover materials, and by any equipment used at the unit [Title 27, § 20340(e)].
20. The LCRS shall be designed, constructed, maintained, and operated to collect and remove twice the maximum anticipated daily volume of leachate from the waste management unit [Title 27, § 20340(b)].
21. Leachate collection and removal systems shall be designed and operated to function without clogging through the scheduled closure of the landfill unit and during the post-closure maintenance period.
22. The LCRS shall be designed to maintain the depth of fluid over any portion of the LCRS of no greater than 30 cm [40 C.F.R. § 258.40(a)(2)], excluding the leachate sump. The leachate sump, leachate removal pump, and pump controls shall be designed and set to maintain a fluid depth no greater than the minimum needed for efficient pump operation [Title 27, § 20340(c)].

23. All construction of liner systems and final cover systems shall be performed in accordance with a Construction Quality Assurance Plan certified by a registered civil engineer or a certified engineering geologist [Title 27, § 20323].
24. The Construction Quality Assurance program shall be supervised by a registered civil engineer or a certified engineering geologist who shall be designated the CQA officer [Title 27, § 20324(b)(2)].
25. The Discharger shall ensure that a third party independent of both the Discharger and the construction contractor performs all of the construction quality assurance monitoring and testing during the construction of a liner system.
26. The Discharger shall notify Central Valley Water Board staff at least **14 days** prior to commencing field construction activities including construction of a new lined cell or module, construction of a final cover, or any other construction that requires Central Valley Water Board staff approval under this Order.
27. The Discharger shall submit for review and approval at least **60 days** prior to proposed discharge, final documentation required in Title 27 Section 20324(d)(1)(C) following the completion of construction of a new lined landfill module. The report shall be certified by a registered civil engineer or a certified engineering geologist and include a statement that the liner system was constructed in accordance with the approved design plans and specifications, the CQA Plan, the requirements of the WDRs, and that it meets the performance goals of Title 27. The report shall contain sufficient information and test results to verify that construction was in accordance with the design plans and specifications, the construction quality assurance plan, and the performance goals of Title 27.
28. The Discharger shall not discharge waste onto a newly constructed liner system until the final documentation report has been reviewed and an acceptance letter has been received.
29. Prior to placement of waste in a new landfill unit, the Discharger shall monitor any pan lysimeter for the unit that has received enough rainfall to flood the LCRS sump. If liquid is detected in the pan lysimeter, the Discharger shall verify that the liquid is not from a leak in the primary liner system before waste can be accepted to the new module.

G. STANDARD CLOSURE AND POST-CLOSURE SPECIFICATIONS

1. The Discharger shall submit a final or partial final closure and post-closure maintenance plan at least **two years** prior to the anticipated date of closure [Title 27, § 21780(d)(1)].

2. The Discharger shall notify the Central Valley Water Board in writing that a landfill unit or portion of a unit is to be closed either at the same time that the California Department of Resources Recycling and Recovery (CalRecycle) is notified or **180 days** prior to beginning any final closure activities, whichever is sooner [Title 27, § 21710(c)(5)(A)]. The notice shall include a statement that all closure activities will conform to the most recently approved final or partial final closure plan and that the plan provides for site closure in compliance with all applicable federal and state regulations [Title 27, § 21710(c)(5)(C)].
3. Initiation of closure activities shall begin within **30 days** of final waste receipt, or within **one year** of receipt of most recent waste if additional capacity remains [40 C.F.R. § 258.60(f)].
4. Closure activities shall be completed within **180 days** of the beginning of closure activities unless an extension is granted by the Executive Officer [40 C.F.R. § 258.60(g)].
5. The Discharger shall carry out both mandatory closure and normal closure of a waste management unit or a portion of a unit in accordance with a closure and post-closure maintenance plan approved by the Central Valley Water Board [Title 27, § 20950(a)(1)] through the issuance of closure waste discharge requirements.
6. The Discharger shall notify the Central Valley Water Board that a preliminary closure and post-closure maintenance plan has been prepared and placed in the operating record by the date of initial receipt of waste at any new MSW landfill unit or lateral expansion of any existing unit [40 C.F.R. § 258.60(d)]. This notification shall be included in the cover letter transmitting the preliminary closure and post-closure maintenance plan.
7. In addition to the applicable provisions of Title 27, the preliminary closure and/or the post-closure maintenance plans for MSW landfill units shall include the following:
 - a. A description of the steps necessary to close all MSW landfill units at any point during their active life in accordance with the cover design requirements [40 C.F.R. § 258.60(c)];
 - b. An estimate of the largest area of the landfill unit(s) ever requiring a final cover at any time during the active life of the unit(s) [40 C.F.R. § 258.60(c)(2)];
 - c. An estimate of the maximum inventory of wastes ever on-site over the active life of the waste management facility [40 C.F.R. § 258.60(c)(3)]; and
 - d. A schedule for completing all activities necessary to satisfy the closure criteria in 40 C.F.R. section 258.60 [40 C.F.R. § 258.60(c)(4)].

8. The final closure and post-closure maintenance plan for the waste management unit shall include at least the following: an itemized cost analysis, closure schedule, any proposed final treatment procedures, map, changes to the unit description presented in the most recent ROWD, federal requirements for a MSW facility, land use of the closed unit, and a construction quality assurance plan [Title 27, § 21769(c) & (d)].
9. Closure of each waste management unit shall be under the direct supervision of a registered civil engineer or certified engineering geologist [Title 27, § 20950(b)].
10. 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)].
11. The final grading design shall be designed and approved by a registered civil engineer or certified engineering geologist [Title 27, § 21090(b)(1)(C)].
12. All final cover designs shall include a minimum 1-foot thick erosion resistant layer [Title 27, § 21090(a)(3)(A)].
13. The Discharger shall close the landfill with minimum 15-foot wide benches every 50 vertical feet [Title 27, § 21090(a)].
14. Final cover slopes shall not be steeper than a horizontal to vertical ratio of one and three quarters to one and designs having any slopes steeper than a horizontal to vertical ratio of three to one, or having a geosynthetic component, shall have these aspects of their design specifically supported in the slope stability report required in Title 27, section 21750(f)(5) [Title 27, § 21090(a)].
15. For any portions of the final cover installed after July 18, 1997, for which the Central Valley Water Board has not approved a slope and foundation stability report on or before that date, the Discharger shall meet the requirements of Title 27, section 21750(f)(5) [Title 27, § 21090(a)(6)].
16. Areas with slopes greater than ten percent, surface drainage courses, and areas subject to erosion by wind or water shall be designed and constructed to prevent such erosion [Title 27, § 21090(b)(2)].
17. The Discharger shall design storm water conveyance systems for closed Class III units for a 100-year, 24-hour storm event, and shall design storm water conveyance systems for closed Class II units for a 1,000-year, 24-hour storm event [Title 27, § 21750(e)(3)].
18. Closed landfill units shall be provided with at least two permanent surveying monuments, installed by a licensed land surveyor or by a registered civil engineer, from which the location and elevation of all wastes, containment

structures, and monitoring facilities can be determined throughout the post-closure maintenance period [Title 27, § 20950(d)].

19. 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)].
20. 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)].
21. 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)].
22. The Discharger shall complete a final cover survey 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**, the Discharger shall conduct a 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)].
23. Within **30 days** of completion of all closure activities, the Discharger shall certify that all closure activities were performed in accordance with the most recently approved final closure plan and CQA Plan, and in accordance with all applicable regulations. The Discharger shall also certify that closed landfill units shall be maintained in accordance with and approved post-closure maintenance plan [Title 27, § 21710(c)(6)].
24. Within **180 days** of completion of closure construction activities, the Discharger shall submit final documentation of closure, including the Certification of Closure. The closure documents shall include a final construction quality assurance report and any other documents necessary to support the certification [Title 27, § 21880].
25. The post-closure maintenance period 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)].

26. The Discharger shall conduct a periodic leak search to monitor of the integrity of the final cover in accordance with the schedule in the approved final post-closure maintenance plan [Title 27, § 21090(a)(4)(A)].
27. The Discharger shall periodically inspect and identify problems with the final cover including areas that require replanting, erosion, areas lacking free drainage, areas damaged by equipment operations, and localized areas identified in the required five-year iso-settlement survey [Title 27, § 21090(a)(4)(B)].
28. The Discharger shall repair the 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)].
29. Throughout the post-closure maintenance period, the Discharger shall maintain the structural integrity and effectiveness of all containment structures, maintain the final cover as necessary to correct the effects of settlement and other adverse factors, continue to operate the LCRS as long as leachate is generated and detected, maintain the monitoring systems, prevent erosion and related damage of the final cover due to drainage, and protect and maintain surveyed monuments [Title 27, § 21090(c)].
30. Post-closure maintenance shall be conducted for a minimum period of **30 years** or until the waste no longer poses a threat to environmental quality, whichever is greater [Title 27, § 21180(a) and Title 27, § 21900(a)].

H. STANDARD FINANCIAL ASSURANCE PROVISIONS

1. The Discharger shall establish an irrevocable fund for closure and post-closure maintenance to ensure closure and post-closure maintenance of each classified unit in accordance with an approved closure and post-closure maintenance plan [Title 27, § 20950(f) and § 22207(a)].
2. The Discharger shall obtain and maintain assurances of financial responsibility for initiating and completing corrective action for all known and reasonably foreseeable releases from the waste management unit [Title 27, §20380(b), § 22221, and § 22222].

I. STANDARD MONITORING SPECIFICATIONS

1. The water quality monitoring program shall include appropriate and consistent sampling and analytical procedures and methods designed to ensure that monitoring results provide a reliable indication of water quality at all monitoring points and background monitoring points [Title 27, § 20415(e)(4) and 40 C.F.R. § 258.53(b)].

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

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

8. For any given monitored medium, the samples taken from all monitoring points and background monitoring points to satisfy the data analysis requirements for a given reporting period shall all be taken **within a span not to exceed 30 days**, unless a longer time period is approved, and shall be taken in a manner that

ensures sample independence to the greatest extent feasible. Specific methods of collection and analysis must be identified. Sample collection, storage, and analysis shall be performed according to the most recent version of USEPA Methods, such as the latest editions, as applicable, of: (1) Methods for the Analysis of Organics in Water and Wastewater (USEPA 600 Series), (2) Test Methods for Evaluating Solid Waste (SW-846, latest edition), and (3) Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020), and in accordance with the approved Sample Collection and Analysis Plan. Appropriate sample preparation techniques shall be used to minimize matrix interferences.

9. If methods other than USEPA-approved methods or Standard Methods are used, or there is a proposed alternant USEPA method than the one listed in the MRP, the proposed methodology shall be submitted for review and approval prior to use, including information showing its equivalence to the required method.
10. The **methods of analysis and the detection limits** used must be appropriate for the expected concentrations. For the monitoring of any constituent or parameter that is found in concentrations which produce more than 90% non-numerical determinations (i.e., "trace" or "ND") in data from background monitoring points for that medium, the analytical method having the lowest MDL shall be selected from among those methods which would provide valid results in light of any matrix effects or interferences.
11. The laboratory reporting limit (RL) for all reported monitoring data shall be set no greater than the practical quantitation limit (PQL).
12. **"Trace" results** - results falling between the MDL and the PQL - shall be reported as such, and shall be accompanied both by the estimated MDL and PQL values for that analytical run.
13. Laboratory data shall not be altered or revised by the Discharger. If the Discharger observes potential lab errors, it shall identify the issue in the monitoring report and shall describe steps that will be taken to prevent similar errors in the future.
14. **MDLs and PQLs** shall be derived by the laboratory for each analytical procedure, according to State of California laboratory accreditation procedures. These MDLs and PQLs shall reflect the detection and quantitation capabilities of the specific analytical procedure and equipment used by the lab, rather than simply being quoted from USEPA analytical method manuals. In relatively interference-free water, laboratory-derived MDLs and PQLs are expected to closely agree with published USEPA MDLs and PQLs. MDLs and PQLs shall be reported.

15. If the laboratory suspects that, due to a change in matrix or other effects, the true detection limit or quantitation limit for a particular analytical run differs significantly from the laboratory-derived MDL/PQL values, the results shall be flagged in the laboratory report accordingly, along with estimates of the detection limit and quantitation limit actually achieved. The **MDL shall always be calculated such that it represents the lowest achievable concentration associated with a 99% reliability of a nonzero result.** The PQL shall always be calculated such that it represents the lowest constituent concentration at which a numerical value can be assigned with reasonable certainty that it represents the constituent's actual concentration in the sample. Normally, PQLs should be set equal to the concentration of the lowest standard used to calibrate the analytical procedure.
16. All **QA/QC data** shall be reported, along with the sample results to which they apply, including the method, equipment, analytical detection and quantitation limits, the percent recovery, an explanation for any recovery that falls outside the QC limits, the results of equipment and method blanks, the results of spiked and surrogate samples, the frequency of quality control analysis, and the name and signature of a responsible person from the laboratory. **Sample results shall be reported unadjusted for blank results or spike recoveries.** In cases where contaminants are detected in QA/QC samples (i.e., field, trip, or lab blanks), the accompanying sample results shall be appropriately flagged, but the analytical results shall not be adjusted.
17. Unknown chromatographic peaks shall be reported, flagged, and tracked for potential comparison to subsequent unknown peaks that may be observed in future sampling events. Identification of unknown chromatographic peaks that recur in subsequent sampling events may be required.
18. The sampling interval of each monitoring well shall be appropriately screened and fitted with an appropriate filter pack to enable collection of representative groundwater samples [Title 27, § 20415(b)(4)(B)]. Groundwater samples shall not be field-filtered prior to laboratory analysis [40 C.F.R. § 258.53(b)]. Groundwater samples needing filtering (e.g., samples to be analyzed for dissolved metals) shall be filtered by the laboratory prior to analysis.
19. Groundwater elevations shall be measured in each well immediately prior to purging, each time groundwater is sampled. The owner or operator shall determine the rate and direction of groundwater flow each time groundwater is sampled. Groundwater elevations in wells which monitor the same waste management area shall be measured within a period of time short enough to avoid temporal variations in groundwater flow which could preclude accurate determination of groundwater flow rate and direction [40 C.F.R. § 258.53(d)].
20. Monitoring wells, piezometers, and other measurement, sampling, and analytical devices must be operated and maintained so that they perform to design

specifications throughout the life of the monitoring program [40 C.F.R. § 258.51(c)(2)]. Monitoring devices that cannot be operated and maintained to perform to design specifications shall be replaced after review and approval of a report (i.e., work plan) for the proposed replacement devices.

21. 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)].
22. 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)].
23. The Discharger shall submit a work plan for review and approval at least **60 days** prior to installation or abandonment of groundwater monitoring wells.
24. 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.
25. 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].
26. 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].
27. 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)].
28. 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)].
29. 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.].

30. 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.].
31. The Detection Monitoring Program shall also include a sufficient number of monitoring points installed at appropriate depths and locations to yield groundwater samples from other aquifers or perched zones not already monitored to provide the **earliest possible detection** of a release from the waste management unit [Title 27, § 20415(b)(1)(B)3. and 4., and §20420(b)].
32. 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)].
33. An unsaturated zone monitoring system shall be established for each waste management unit [Title 27, § 20415(d)].
34. 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)].
35. 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)].
36. 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)].
37. 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)].
38. 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)].
39. 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)].

40. For statistical analysis of data, the Discharger shall use one of the methods described in Title 27, section 20415(e)(8)(A)-(E). A non-statistical data analysis method can be used if the method can achieve the goal of the particular monitoring program at least as well as the most appropriate statistical method [Title 27, § 20415(e)(8)]. The Discharger shall use a statistical or nonstatistical data analysis method that complies with Title 27, section 20415(e)(7, 8, 9, and 10), to compare the concentration of each constituent of concern or monitoring parameter with its respective background concentration to determine whether there has been a measurably significant evidence of a release from the waste management unit. For any given monitoring point at which a given constituent has already exhibited a measurably significant indication of a release at that monitoring point, the Discharger may propose to monitor the constituent, at that well, using a concentration-versus-time plot.
41. The Discharger may propose an alternate statistical method [to the methods listed under Title 27, section 20415(e)(8)(A-D)] in accordance with Title 27, section 20415(e)(8)(E), for review and approval.
42. The statistical method shall account for data below the practical quantitation limit (PQL) with one or more statistical procedures that are protective of human health and the environment. Any PQL validated pursuant to Title 27, section 20415(e)(7) that is used in the statistical method shall be **the lowest concentration (or value) that can be reliably achieved** within limits of precision and accuracy specified in the WDRs or an approved Sample Collection and Analysis Plan for routine laboratory operating conditions that are available to the facility. The Discharger’s technical report (Sample Collection and Analysis Plan and/or Water Quality Protection Standard Report), pursuant to Title 27, section 20415(e)(7), shall consider the PQLs listed in Appendix IX to Chapter 14 of Division 4.5 of Title 22, CCR, for guidance when specifying limits of precision and accuracy. For any given constituent monitored at a background or downgradient monitoring point, an indication that falls between the MDL and the PQL for that constituent (hereinafter called a “trace” detection) shall be identified and used in appropriate statistical or non-statistical tests. Nevertheless, for a statistical method that is compatible with the proportion of censored data (trace and ND indications) in the data set, the Discharger can use the laboratory’s concentration estimates in the trace range (if available) for statistical analysis, in order to increase the statistical power by decreasing the number of “ties”.
43. 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).

44. 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.
45. **Confirmation of Measurably Significant Evidence of a Release.** Whenever a constituent is detected at a detection monitoring point at a concentration that exceeds the concentration limit from the water quality protection standard, the Discharger shall conduct verification sampling to confirm if the exceedance is due to a release or if it is a false-positive (unless previous monitoring has already confirmed a release for that constituent at that monitoring point). An exceedance of the concentration limit from the water quality protection standard is considered measurably significant evidence of a release that must be either confirmed or denied. There are two separate verification testing procedures:
- a. Standard Monitoring Specification I.46 provides the procedure for analytes that are detected in less than 10% of the background samples such as non-naturally occurring constituents like volatile organic compounds; and
 - b. Standard Monitoring Specification I.47 provides the procedure for analytes that are detected in 10% or greater of the background samples such as naturally occurring constituents like chloride.
46. **Verification Procedure for Analytes Detected in Less than 10% of Background Samples.** The Discharger shall use the following non-statistical method for all analytes that are detected in less than 10% of the background samples. The non-statistical method shall be implemented as follows:
- a. **Initial Determination of Measurably Significant Evidence of a Release.** Identify each analyte in the **current** detection monitoring point sample that exceeds either its respective MDL or PQL, and for which a release has not been previously confirmed. The Discharger shall conclude that the exceedance provides a preliminary indication of a release or a change in the nature or extent of the release, at that monitoring point, if **either**:
 - 1) The data contains two or more analytes that equal or exceed their respective MDLs; or
 - 2) The data contains one or more analyte that equals or exceeds its PQL.

b. **Discrete Retest** [Title 27, § 20415(e)(8)(E) and § 20420(j)(1-3)]:

- 1) In the event that the Discharger or Central Valley Water Board staff concludes (pursuant to paragraph I.46.a., above) that there is a preliminary indication of a release, then the Discharger shall **immediately** notify Central Valley Water Board staff by phone or e-mail and, within **30 days** of such indication, shall collect two new (retest) samples from the monitoring point where the release is preliminarily indicated and analyze them for the constituents that caused the need for the retest.
- 2) **Confirmation of a Release.** As soon as the retest data are available, the Discharger shall conclude that measurably significant evidence of a release is confirmed if (not including the original sample) two or more analytes equal or exceed their respective MDLs or if one or more analyte equals or exceeds its PQL. The Discharger shall then:
 - a) **Immediately** verbally notify the Central Valley Water Board whether or not the retest confirmed measurably significant evidence of a release for the analyte at the monitoring point, and follow up with written notification submitted by certified mail **within seven days** of the verbal notification; and
 - b) Carry out the requirements of Section J, **RESPONSE TO A RELEASE** if a release has been confirmed.
 - c) Add any five-year analyte that is confirmed per this method to the monitoring parameter list such that it is monitored during each regular monitoring event.

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

- a. **Initial Determination of Measurably Significant Evidence of a Release.** The Discharger shall compare the value reported by the laboratory for each analyte to the statistically-derived concentration limit from the most recent report (Annual Monitoring Report or Water Quality Protection Standard Report) that uses the approved statistical procedure. If the value exceeds the concentration limit for that constituent, the Discharger shall conclude that there is measurably significant evidence of a release [Title 27, § 20420(i)].

b. **Retest Method** [Title 27, § 20415(e)(8)(E) and § 20420(j)(1-3)].

- 1) In the event that the Discharger or Central Valley Water Board staff concludes (pursuant to paragraph I.47.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.
- 2) **Confirmation of a Release.** As soon as the retest data are available, the Discharger shall evaluate the results pursuant to paragraph I.47.b.1, above and shall:
 - a) **Immediately** verbally notify the Central Valley Water Board whether or not the retest confirmed measurably significant evidence of a release for the analyte at the monitoring point, and follow up with written notification submitted by certified mail **within seven days** of the verbal notification; and
 - b) Carry out the requirements of Section J, **RESPONSE TO A RELEASE** if a release has been confirmed.
 - c) Add any five-year analyte that is confirmed per this method to the monitoring parameter list such that it is monitored during each regular monitoring event.

48. **Physical Evidence of a Release.** If the Discharger determines that there is a significant **physical** evidence of a release, the Discharger shall immediately

verbally notify Central Valley Water Board staff and provide written notification **by certified mail within 7 days** of such determination, and within **90 days** shall submit an amended report of waste discharge to establish an Evaluation Monitoring Program [Title 27, § 20385(a)(3) and § 20420(l)(1) & (2)].

J. RESPONSE TO A RELEASE

1. Measurably Significant Evidence of a Release Has Been Confirmed. If the Discharger has confirmed that there is measurably significant evidence of a release from a waste management unit pursuant to Standard Monitoring Specification I.46 or I.47, then the Discharger shall:
 - a. **Immediately** sample all monitoring points in the affected medium at that waste management unit and determine the concentration of all monitoring parameters and constituents of concern for comparison with established concentration limits. Because this constituent of concern scan does not involve statistical testing, the Discharger will need to collect and analyze only a single water sample from each monitoring point in the affected medium [Title 27, § 20420(k)(1)].
 - b. **Within 14 days** of confirming measurably significant evidence of a release, the Discharger shall (for releases from MSW landfill units) notify all persons who own the land or reside on the land that directly overlies any portion of the plume of contamination if contaminants have migrated off-site if indicated by sampling of detection monitoring wells [40 C.F.R. § 258.55(g)(1)(iii)].
 - c. **Within 90 days** of confirming measurably significant evidence of a release, the Discharger shall submit an amended report of waste discharge to establish an Evaluation Monitoring Program meeting the requirements of Title 27, sections 20420(k)(5)(A-D), including but not limited to the results of sampling pursuant to paragraph J.1.a, above. The Evaluation Monitoring Program shall be designed for the collection and analysis of all data necessary to assess the nature and extent of the release and to determine the spatial distribution and concentration of each constituent throughout the zone affected by the release [Title 27, § 20420(k)(5) and § 20425(b)]. For releases from MSW landfill units, the Evaluation Monitoring Program shall also include any additional proposals necessary to comply with 40 C.F.R. § 258.55, particularly the additional monitoring well required by 40 C.F.R. § 258.55(g)(1)(ii).
 - d. **Within 180 days** of confirming measurably significant evidence of a release, the Discharger shall submit to the Central Valley Water Board an initial engineering feasibility study for a Corrective Action Program necessary to meet the requirements of Title 27, section 20430. At a minimum, the initial engineering feasibility study shall contain a detailed

description of the corrective action measures that could be taken to achieve background concentrations for all constituents of concern [Title 27, § 20420(k)(6)].

- e. If the Discharger confirms that there is measurably significant evidence of a release from the waste management unit at any monitoring point, the Discharger may attempt to demonstrate that a source other than the waste management unit caused the evidence of a release or that the evidence is an artifact caused by an error in sampling, analysis, or statistical evaluation or by natural variation in groundwater, surface water, or the unsaturated zone. The Discharger may make a demonstration pursuant to Title 27, section 20420(k)(7) in addition to or in lieu of submitting both an amended report of waste discharge or an engineering feasibility study; however, the Discharger is not relieved of the requirements and due dates of Title 27, sections 20420(k)(6) & (7) unless Central Valley Water Board staff agree that the demonstration successfully shows that a source other than the waste management unit caused the evidence of a release or that the evidence resulted from error in sampling, analysis, or statistical evaluation or from natural variation in groundwater, surface water, or the unsaturated zone. In order to make this demonstration, the Discharger shall notify the Central Valley Water Board by certified mail of the intent to make the demonstration **within seven days** of determining measurably significant evidence of a release, and shall submit a report **within 90 days** of determining measurably significant evidence of a release [Title 27, § 20420(k)(7)].
- f. **Within 90 days** of the date that the Evaluation Monitoring Program from paragraph J.1.c is approved (the date is it established), the Discharger shall complete and submit the following:
 - i) **Results and Assessment for the Evaluation Monitoring Program.** A report with the results and assessment based on the approved Evaluation Monitoring Program [Title 27, § 20425(b)].
 - ii) **Updated Engineering Feasibility Study.** An updated engineering feasibility study for corrective action based on the data collected to delineate the release and data from the ongoing monitoring program required under Title 27, section 20425(e) [Title 27, § 20425(c)].
 - iii) **Amended ROWD for a Corrective Action Program.** An amended report of waste discharge to establish a Corrective Action Program meeting the requirements of Title 27, section 20430 based on the data collected to delineate the release and based on the updated engineering feasibility study [Title 27, § 20425(d)].

- g. The Discharger shall (for releases from MSW landfill units) discuss the results of the updated engineering feasibility study, prior to the final selection of a remedy, in a public meeting with interested and affected parties [40 C.F.R. § 258.56(d)].

K. GENERAL PROVISIONS

1. In the event the Discharger does not comply or will be unable to comply with any prohibition or limitation of this Order for any reason, the Discharger shall notify the appropriate Central Valley Water Board office by telephone **as soon as** it or its agents have knowledge of such noncompliance or potential for noncompliance, and shall confirm this notification in writing **within two weeks**. The written notification shall state the nature, time, and cause of noncompliance, and shall describe the measures being taken to prevent recurrences and shall include a timetable for corrective actions.
2. All reports and transmittal letters shall be signed by persons identified below:
 - a. For a corporation: by a principal executive officer of at least the level of senior vice-president.
 - b. For a partnership or sole proprietorship: by a general partner or the proprietor.
 - c. For a municipality, state, federal or other public agency: by either a principal executive officer or ranking elected or appointed official.
 - d. A duly authorized representative of a person designated in a, b or c above if:
 - 1) The authorization is made in writing by a person described in a, b, or c of this provision;
 - 2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a Unit, superintendent, or position of equivalent responsibility (a duly authorized representative may thus be either a named individual or any individual occupying a named position); and
 - 3) The written authorization is submitted to the Central Valley Water Board.

- e. Any person signing a document under this Section shall make the following certification:

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

3. The Discharger shall take all reasonable steps to minimize any adverse impact to the waters of the State resulting from noncompliance with this Order. Such steps shall include accelerated or additional monitoring as necessary to determine the nature, extent, and impact of the noncompliance.
4. The owner of the waste management facility shall have the continuing responsibility to assure protection of waters of the state from discharged wastes and from gases and leachate generated by discharged waste during the active life, closure, and post-closure maintenance period of the waste management units and during subsequent use of the property for other purposes.
5. The fact that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with this Order shall not be regarded as a defense for the Discharger’s violations of this Order.
6. The Discharger shall notify the Central Valley Water Board of a material change in; the types, quantity, or concentrations of wastes discharged; site operations and features; or proposed closure procedures, including changes in cost estimates. This notification shall be given a reasonable time before the changes are made or become effective. No changes shall be made without Central Valley Water Board approval following authorization for closure pursuant to the site Notification of Closure [Title 27, § 21710(a)(4)].
7. The Discharger shall maintain legible records of the volume and type of each waste discharged at each waste management unit or portion of a unit, and the manner and location of discharge. Such records shall be maintained by the Discharger until the beginning of the post-closure maintenance period. These records shall be on forms approved by the State Water Board or Central Valley Water Board and shall be maintained at the waste management facility until the beginning of the post-closure maintenance period. These records shall be available for review by representatives of the State Water Board or Central Valley Water Board at any time during normal business hours. At the beginning of the post-closure maintenance period, copies of these records shall be sent to the Central Valley Water Board [Title 27, § 21720(f)].
8. In the event of any change in landowner or the operator of the waste management facility, the Discharger shall notify the succeeding owner or

operator in writing of the existence of this Order. A copy of that notification shall be sent to the Central Valley Water Board.

9. In the event of any change of ownership or responsibility for construction, operation, closure, or post-closure maintenance of the waste discharge facilities described in this Order, the Discharger shall notify the Central Valley Water Board prior to the effective date of the change and shall include a statement by the new Discharger that construction, operation, closure, or post-closure maintenance will be in compliance with this Order and any revisions thereof [Title 27, § 21710(c)(1)].
10. To assume ownership or operation under this Order, the succeeding owner or operator must apply in writing to the Central Valley Water Board requesting transfer of the Order within **14 days** of assuming ownership or operation of this facility. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Central Valley Water Board, and a statement. The statement shall comply with the signatory requirements contained in General Provision K.2 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the Water Code. Transfer of this Order shall be approved or disapproved by the Central Valley Water Board.

L. STORM WATER PROVISIONS

1. New and existing Class III landfills shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return period [Title 27, § 20260(c)].
2. New and existing Class II landfills shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return period [Title 27, § 20250(c)].
3. The Discharger shall design storm water conveyance systems for Class III units for a 100-year, 24-hour storm event, and shall design storm water conveyance systems for Class II units for a 1,000-year, 24-hour storm event [Title 27, § 21750(e)(3)].
4. MSW landfills located in a 100-year floodplain shall demonstrate that the landfill unit will not restrict the flow of the 100-year flood, reduce the temporary water storage capacity of the floodplain, or result in washout of solid waste so as to pose a hazard to human health or the environment [40 C.F.R. § 258.11(a)].
5. 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)].

6. Precipitation on landfills or waste piles which is not diverted by covers or drainage control systems shall be collected and managed through the LCRS, which shall be designed and constructed to accommodate the precipitation conditions for each class unit [Title 27, § 20365(b)].
7. Diversion and drainage facilities shall be designed, constructed, and maintained to [Title 27, § 20365(c)]:
 - a. accommodate the anticipated volume of precipitation and peak flows from surface runoff and under the precipitation conditions for the waste management unit:
 - b. effectively divert sheet flow runoff laterally, via the shortest distance, into the drainage and collection facilities;
 - c. prevent surface erosion;
 - d. control and intercept run-on, in order to isolate uncontaminated surface waters from water that might have come into contact with waste;
 - e. take into account:
 - i) for closed waste management units and for closed portions of units, the expected final contours of the closed unit, including its planned drainage pattern;
 - ii) for operating portions of waste management units other than surface impoundments, the unit's drainage pattern at any given time;
 - iii) the possible effects of the waste management unit's drainage pattern on and by the regional watershed;
 - iv) the design capacity of drainage systems of downstream and adjacent properties by providing for the gradual release of retained water downstream in a manner which does not exceed the expected peak flow rate at the point of discharge if there were no waste management facility; and
 - f. preserve the system's function. The Discharger shall periodically remove accumulated sediment from the sedimentation or detention basins as needed to preserve the design capacity of the system.
8. 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)].

9. Surface and subsurface drainage from outside of a waste management unit shall be diverted from the unit [Title 27, § 20365(e)].
10. 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)].
11. Any drainage layer in the 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)].