CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

Fresno Office	Sacramento Office (Main)	Redding Office
1685 "E" Street	11020 Sun Center Drive #200	364 Knollcrest Drive #205
Fresno, CA 93706-2007	Rancho Cordova, CA 95670-6114	Redding, CA 96002

Regional Board Website (https://www.waterboards.ca.gov/centralvalley)

[TENTATIVE] MONITORING & REPORTING PROGRAM (MRP) R5-20XX-XXXX

ORDER INFORMATION

Order Type(s):	Monitoring & Reporting Program (MRP)
Status:	TENTANTIVE
Program:	Title 23, Chapter 15; Title 27
Region 5 Office:	Fresno
Discharger(s):	Clean Harbors Buttonwillow, LLC
Facility:	Clean Harbors Buttonwillow
Address:	2500 Lokern Road, Buttonwillow, CA
County:	Kern County
Parcel Nos.:	099-290-17-00-5; 099-261-32-00-6
WDID:	5D152032001
Prior Order(s):	83-007, 86-199, 89-150, 96-094, 98-165, R5-2012-0111

CERTIFICATION

I, PATRICK PULUPA, Executive Officer, hereby certify that the following is a full, true, and correct copy of the order adopted by the California Regional Water Quality Control Board, Central Valley Region, on _____ [Month] [Year].

_____

PATRICK PULUPA,
Executive Officer

REGIONAL BOARD INFORMATION

Sacramento Office (Main)
Rancho Cordova, CA 95670-6114
11020 Sun Center Drive #200
Telephone: (916) 464-3291

Fresno Office
1685 "E" Street
Fresno, CA 93706-2007
Telephone: (559) 445-5116

Redding Office
364 Knollcrest Drive #205
Redding, CA 96002
Telephone: (530) 224-4845

Regional Board Website
https://www.waterboards.ca.gov/centralvalley

TABLE OF CONTENTS

TABLE INDEX v

GLOSSARY vi

PREFACE 1

MONITORING & REPORTING PROGRAM 2

A. General Provisions 2

1. Incorporation of Standard Provisions and Reporting Requirements (SPRRs). 2
2. Monitoring Provisions in WDRs Order 2
3. Compliance with Titles 23 and 27 3
4. Sampling and Analysis Plan (SAP) 3

B. Detection Monitoring Program (DMP) 3

1. Groundwater 3
   a. Required Network 3
   b. Sample Collection and Analysis 12
   c. Five-Year COCs 14
   d. Groundwater Conditions 15
2. Unsaturated Zone 16
   a. Required Network 16
   b. Neutron Probe Tube (NPT) Monitoring 19
   c. Soil Pore Gas Monitoring 19
   d. Monthly Lysimeter Inspection 19
   e. Five-Year COCs 21
3. Surface Water 21

TABLE OF CONTENTS

4. Summary of Water Quality Protection Standard (WQPS) Components 21
   a. Compliance Period 22
   b. Monitoring Points 22
   c. Point of Compliance (POC) 22
   d. Constituents of Concern (COCs) 22
   e. Monitoring Parameters 23
   f. Five-Year COCs 23
   g. Concentration Limits 23
   h. Retesting Procedures 24

C. Additional Facility Monitoring 25

1. Surface Impoundment 25
2. Leachate Collection & Removal System (LCRS) 25
   a. Annual LCRS Testing 25
   b. Monthly Sump Inspection 26
   c. First Detection of Leachate in Sump 26
   d. Five-Year COCs 27
3. Incoming Waste 27
4. Leachate Seepage 28
5. Regular Visual Inspection 28
6. Annual Facility Inspections 29
7. Major Storm Events 30
8. Five-Year Iso-Settlement Surveys (Closed Landfills) 30

D. Reporting Requirements 30

TABLE OF CONTENTS

1. Semiannual Monitoring Reports (SMRs) 31
2. Annual Monitoring Reports (AMRs) 33
3. Leachate Seep Reporting 34
4. Annual Facility Inspection Report 34
5. Major Storm Event Reports 35
6. Survey and Iso-Settlement Map (Closed Landfill Units) 35
7. Financial Assurances Report 35
8. Water Quality Protection Standard Report 35
9. General Reporting Provisions 36
   a. Transmittal Letters 36
   b. Monitoring Data and Reports 37
   c. Compliance with SPRRs 38
   d. Additional Requirements for Monitoring Reports 38

E. Record Retention Requirements 38

ATTACHMENT A—VOLATILE ORGANIC COMPOUNDS, DETECTION MONITORING PARAMETERS 40

ATTACHMENT B—FIVE-YEAR COCS (CLASS I WMUs) 42

ATTACHMENT C—FIVE-YEAR COCS (CLASS II WMUS) 47

ATTACHMENT D—VOLATILE ORGANIC COMPOUNDS, EXTENDED LIST FIVE-YEAR COCS (CLASS II) 48

ATTACHMENT E—SEMI-VOLATILE ORGANIC COMPOUNDS FIVE-YEAR COCS (CLASS II) 52

ATTACHMENT F—ORGANOCHLORINE PESTICIDES 58

FIVE-YEAR COCS (CLASS II) 58

TABLE OF CONTENTS

ATTACHMENT G—CHLORINATED HERBICIDES FIVE YEAR COCS (CLASS II) ... 60

ATTACHMENT H—ORGANOPHOSPHOROUS PESTICIDES FIVE YEAR COCS (CLASS II) ... 61

TABLE INDEX

Table 1—Groundwater Monitoring Network 4

Table 2— Groundwater Detection Monitoring, General Chemistry Parameters 12

Table 3—Groundwater Detection Monitoring, Constituent Parameters 14

Table 4—Groundwater Detection Monitoring, Five-Year COCs 15

Table 5—Groundwater Detection Monitoring, Groundwater Conditions 15

Table 6—Unsaturated Zone Monitoring Network 16

Table 7—Unsaturated Zone Detection Monitoring (Soil Pore Gas), Constituent Parameters 19

Table 8—Unsaturated Zone Detection Monitoring (Lysimeters), Physical Parameters . 20

Table 9—Unsaturated Zone Detection Monitoring (Lysimeters), Constituent Parameters 20

Table 10—Unsaturated Zone Detection Monitoring (Lysimeter), Five-Year COCs 21

Table 11—Surface Impoundment Monitoring 25

Table 12—LCRS Sump Monitoring, Monthly Inspection Parameters 26

Table 13—LCRS Sump Monitoring, Parameters for Subsequent Monitoring 27

Table 14—LCRS Sump Monitoring, Five-Year COCs 27

Table 15—Leachate Seep Monitoring, Physical Parameters 28

Table 16—Leachate Seep Monitoring, Constituent Parameters 28

Table 17—Criteria for Regular Visual Inspections 29

Table 18—Regular Visual Inspection Schedule 29

Table 19—Summary of Required Reports 30

GLOSSARY

AMR .....Annual Monitoring Report

BG .....Background

CalRecycle .....California Department of Resources Recycling and Recovery

C.F.R. .....Code of Federal Regulations

CIWQS .....California Integrated Water Quality System Project

COC .....Constituents of Concern

DD .....Downdip Monitoring

DMP .....Detection Monitoring Program

DTSC .....Department of Toxic Substances Control

EC .....Electrical Conductivity

Five-Year COCs .....Five-Year Constituents of Concern

GeoTracker .....State Water Board's Data Management System for Sites with Potential Groundwater Impact

GP .....Gas Probe

IPZ.....Intermediate Perched Zone

HWFP.....Hazardous Waste Facility Permit (DTSC)

LCRS .....Leachate Collection and Removal System

LFG .....Landfill Gas

LWTZ .....Lower Water Table Zone

MDL .....Method Detection Limit

Method TO-15 VOCs.....Volatile Organic Compounds associated with USEPA Method TO-15

GLOSSARY

MRP .....Monitoring and Reporting Program

MW.....Monitoring Well

N/A.....Not Applicable

POC .....Point of Compliance for Water Quality Protection Standard

PZ.....Piezometer

QA/QC .....Quality Assurance/Quality Control

Qualified Professional .....Professional Civil Engineer or Geologist licensed by the State of California

RCRA.....Resource Conservation and Recovery Act, 42 U.S.C. § 6901 et seq.

RL .....Reporting Limit

RMSP.....Revised Monitoring System Plan

ROWD / JTD .....Report of Waste Discharge / Joint Technical Document

SAP.....Sampling and Analysis Plan

SGP.....Soil Pore Gas

SI.....Surface Impoundment

SMR .....Semiannual Monitoring Report

SPRRs / Standard Provisions ...*Standard Provisions and Reporting Requirements for Chapter 15 (23 CCR 2510, et seq.) and Part 258 (40 CFR 258),* September 1993 Edition

TDS.....Total Dissolved Solids

Title 22.....California Code of Regulations, Title 22

GLOSSARY

Title 23.....California Code of Regulations, Title 23

Title 27.....California Code of Regulations, Title 27

UPZ.....Upper Perched Zone

USEPA.....United States Environmental Protection Agency

VOCs .....Volatile Organic Compounds

WDRs.....Waste Discharge Requirements

WL.....Water Level

WMU .....Waste Management Unit

WQPS .....Water Quality Protection Standard

UNITS

°F .....Degrees Fahrenheit

Gallons/Day .....Gallons per Day

mg/L.....Milligrams per Liter

µg/L.....Micrograms per Liter

µmhos/cm .....Microsiemens per Centimeter

µg/cm^3 .....Micrograms per Cubic Centimeter

ng/L.....Nanograms per Liter

NTUs.....Nephelometric Turbidity Units

PREFACE

Adopted by the California Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board) pursuant to Water Code section 13267, subdivision (b)(1), this Order establishes a Monitoring and Reporting Program (MRP) for Clean Harbors Buttonwillow, LLC (Discharger), which owns and/or operates the Clean Harbors Buttonwillow facility (Facility) in Kern County. Additional information regarding the Facility is set forth in the enumerated findings of Waste Discharge Requirements Order R5-20XX-XXXX (WDRs Order). Except as otherwise provided in the following MRP, these findings are incorporated herein.

The MRP also contains supplemental findings related to monitoring and reporting activities, and/or Facility conditions. For the purposes of California Code of Regulations, title 23, Chapter 15 (Title 23) (see Title 23 §§2591, 2550.0-2550.11; title 27 (Title 27) (see Title 27 §§ 21720, 20380-20435); the findings and provisions of this Order are incorporated as part of the WDRs Order.

Although adopted with the WDRs Order, this is a separate order subject to subsequent revision by the Executive Officer in accordance with delegated authority per Water Code section 13223. For the purposes of Titles 23 and 27, such revisions shall be automatically incorporated as part of the WDRs Order.

MONITORING & REPORTING PROGRAM

IT IS HEREBY ORDERED, pursuant to Water Code section 13267, that all previously issued Monitoring and Reporting Program(s) for the discharge of solid waste at the Facility are rescinded (except for enforcement purposes), and that the Discharger and their agents, employees, and successors shall comply with the following Monitoring and Reporting Program (MRP). The Discharger shall not implement any changes until a revised MRP is issued by the Central Valley Water Board or its Executive Officer.

In addition to the WDRs, the Discharger operates its Class I WMUs under a RCRA equivalent Hazardous Waste Facility Permit (HWFP) issued by DTSC. DTSC recently renewed the HWFP on 19 June 2026, which incorporated the *Revised Monitoring System Plan* (RMSP). On 25 February 2026, the Discharger submitted a *Joint Technical Document* for the expansion of the Facility to include three additional Class II WMUs, which included the *Groundwater Monitoring Plan, WMUs 36, 37, and 38* (GWMP) dated December 2025. As such, this Order is being issued to reflect the revised monitoring requirements for the Class I WMUs that are incorporated in the HWFP and RMSP and that are detailed in the GWMP for the new Class II WMUs. Monitoring requirements may differ slightly from the HWFP for monitoring points for the Class II WMUs, which are not regulated by DTSC. This MRP incorporates the sampling requirements, sampling procedures, and monitoring networks of the most recently approved RMSP and any subsequently approved revisions.

A. General Provisions

1. Incorporation of Standard Provisions and Reporting Requirements (SPRRs)

The Discharger shall comply with all relevant provisions of the *Standard Provisions and Reporting Requirements for Chapter 15 (23 CCR 2510, et seq.) and Part 258 (40 CFR 258), September 1993 Edition* (1993 SPRRs) for its Class I WMUs (See, e.g., 1993 SPRRs *Provisions for Monitoring* and *Response to a Release*) and the *Waste Discharges to Land Regulated by Title 27 of CCR (former Chapter 15) and/or Subtitle D of RCRA, April 2016 Edition* (2016 SPRRs), which are incorporated herein for its Class II WMUs (See, e.g., 2016 SPRRs §§ I (*Standard Monitoring Specifications*) and J (*Response to Release*).

2. Monitoring Provisions in WDRs Order

The Discharger shall comply with all “Monitoring Provisions” in the Facility’s operative WDRs Order, which are also incorporated herein.

3. Compliance with Titles 23 and 27

The Discharger shall comply with all provisions of Titles 23 and 27 as they pertain to activities described in this MRP (including SPRRs).

4. Sampling and Analysis Plan (SAP)

All samples shall be collected, preserved and transported in accordance with the approved Sampling Analysis Plan (SAP) and the Quality Assurance/Quality Control (QA/QC) standards specified therein. The approved SAP is included in Appendix B of the RMSP and Appendix A of the GWMP. 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 SAP or any subsequently approved revisions.

B. Detection Monitoring Program (DMP)

To detect a release at the earliest possible time (see Title 23, § 2550.8, subd. (b); Title 27, § 20420, subd. (b)), the Discharger shall implement a Detection Monitoring Program (DMP) for groundwater, surface water, and the unsaturated zone in accordance with the provisions of Title 23, sections 2550.7 and 2550.8, and Title 27, sections 20415 and 20420. Groundwater, unsaturated zone, and surface water[1] detection monitoring networks shall be revised (as needed) with the construction of each new landfill cell or module.

1. Groundwater

a. Required Network

The Facility's groundwater monitoring well network consists of the wells listed in **Table 1**.[2] As of the date of this Order, the network

---

[1] I.e., to the extent that surface water detection monitoring is required under this Order.

[2] Non-background monitoring wells at the Point of Compliance constitute "Monitoring Points" for purposes of the Water Quality Protection Standard (WQPS).

meets the requirements of Title 23 and Title 27. (Title 23, §2550.7, Title 27, § 20415, subd. (b).)

Table 1—Groundwater Monitoring Network

Well	Well Type	Monitored WMU (Program)	Water-Bearing Zone	WL Monitoring Frequency[7]	5-Year COC Monitoring Frequency[8]	Detection Monitoring Frequency[9]
I-1[1]	Interface	WL Only	UPZ	Semiannual	Not Required	Semiannual
I-3[1]	Interface	WL Only	UPZ	Semiannual	Not Required	Semiannual
MW-127RU[1]	MW	34, 35 (DD) 18,21 (POC)	UPZ	Semiannual	Every 5 Years	Semiannual
MW-131RU[1,2]	MW	28, 33 (DD) 22, 36 (POC)	UPZ	Semiannual	Every 5 Years	Semiannual
MW-135U[1,2]	MW/PZ[3]	37 (POC)	UPZ	Semiannual	Every 5 Years	Semiannual
MW-146RU[1,2]	MW	28, 33 (DD) 21, 36 (POC)	UPZ	Semiannual	Every 5 Years	Semiannual
MW-147RU[1,2]	MW	28, 33 (DD) 23, 36 (POC)	UPZ	Semiannual	Every 5 Years	Semiannual
MW-159RU[1,2]	MW	28, 33 (DD) 27, 37 (POC)	UPZ	Semiannual	Every 5 Years	Semiannual
MW-QU[1,2]	MW/PZ[3]	37 (POC)	UPZ	Semiannual	Every 5 Years	Semiannual
P-101[1]	PZ	WL Only	UPZ	Semiannual	Not Required	Not Required
P-103I-1[1]	PZ	WL Only	UPZ	Semiannual	Not Required	Not Required

Well	Well Type	Monitored WMU (Program)	Water-Bearing Zone	WL Monitoring Frequency[7]	5-Year COC Monitoring Frequency[8]	Detection Monitoring Frequency[9]
P-109[1]	PZ	WL Only	UPZ	Semiannual	Not Required	Not Required
P-120U[1]	PZ	WL Only	UPZ	Semiannual	Not Required	Not Required
P-127U1[1]	PZ	WL Only	UPZ	Semiannual	Not Required	Not Required
P-130U[1,2]	PZ	WL Only	UPZ	Semiannual	Not Required	Not Required
P-131U[1]	PZ	WL Only	UPZ	Semiannual	Not Required	Not Required
P-138U[1]	PZ	WL Only	UPZ	Semiannual	Not Required	Not Required
P-139U[1,2]	PZ	WL Only	UPZ	Semiannual	Not Required	Not Required
P-140U[1]	PZ	WL Only	UPZ	Semiannual	Not Required	Not Required
P-141U[1,2]	PZ	WL Only	UPZ	Semiannual	Not Required	Not Required
P-142U[1,2]	PZ	WL Only	UPZ	Semiannual	Not Required	Not Required
P-143U[1,2]	PZ	WL Only	UPZ	Semiannual	Not Required	Not Required
P-145U[1]	PZ	WL Only	UPZ	Semiannual	Not Required	Not Required
P-146U[1]	PZ	WL Only	UPZ	Semiannual	Not Required	Not Required
P-147U[1]	PZ	WL Only	UPZ	Semiannual	Not Required	Not Required

Well	Well Type	Monitored WMU (Program)	Water-Bearing Zone	WL Monitoring Frequency[7]	5-Year COC Monitoring Frequency[8]	Detection Monitoring Frequency[9]
P-158U1[1]	PZ	WL Only	UPZ	Semiannual	Not Required	Not Required
P-159U[1]	PZ	WL Only	UPZ	Semiannual	Not Required	Not Required
P-160U[1]	PZ	WL Only	UPZ	Semiannual	Not Required	Not Required
P-161U[1,2]	PZ	WL Only	UPZ	Semiannual	Not Required	Not Required
P-161RU[1]	PZ	WL Only	UPZ	Semiannual	Not Required	Not Required
P-2U[1,2]	PZ	WL Only	UPZ	Semiannual	Not Required	Not Required
P-3U[1]	PZ	WL Only	UPZ	Semiannual	Not Required	Not Required
P-4RU[2]	PZ	WL Only	UPZ	Semiannual	Not Required	Not Required
P-4U[1]	PZ	WL Only	UPZ	Semiannual	Not Required	Not Required
P-5U[1]	PZ	WL Only	UPZ	Semiannual	Not Required	Not Required
P-TU1[1]	PZ	WL Only	UPZ	Semiannual	Not Required	Not Required
MW-125I[1,2]	MW/PZ[3]	36 (POC)	IPZ	Semiannual	Every 5 Years	Semiannual
MW-128RI[1]	MW	21	IPZ	Semiannual	Every 5 Years	Semiannual
MW-132I[1,2]	MW/PZ[3]	37 (POC)	IPZ	Semiannual	Every 5 Years	Semiannual

Well	Well Type	Monitored WMU (Program)	Water-Bearing Zone	WL Monitoring Frequency[7]	5-Year COC Monitoring Frequency[8]	Detection Monitoring Frequency[9]
MW-146I[2,4]	MW	36 (POC)	IPZ	Semiannual	Every 5 Years	Semiannual
MW-147I[2,4]	MW	36 (POC)	IPZ	Semiannual	Every 5 Years	Semiannual
MW-149RI/PZ[1,2]	MW	Background (Class I) 37 (POC)	IPZ	Semiannual	Every 5 Years	Semiannual
MW-171I[2,4]	MW	37 (POC)	IPZ	Semiannual	Every 5 Years	Semiannual
P-128I[1]	PZ	WL Only	IPZ	Semiannual	Not Required	Not Required
P-137RI[1,2]	PZ	WL Only	IPZ	Semiannual	Not Required	Not Required
P-148I[1,2]	PZ	WL Only	IPZ	Semiannual	Not Required	Not Required
P-CRI[1]	PZ	WL Only	IPZ	Semiannual	Not Required	Not Required
P-RI[1]	PZ	WL Only	IPZ	Semiannual	Not Required	Not Required
MW-139L[2,4]	MW	36, 37, 38 (BG)	LWTZ	Semiannual	Every 5 Years	Semiannual
MW-151RRL[1]	MW	35 (POC)	LWTZ	Semiannual	Every 5 Years	Semiannual
MW-152RRL[1]	MW	35 (POC)	LWTZ	Semiannual	Every 5 Years	Semiannual
MW-153RRL[1]	MW	35 (POC)	LWTZ	Semiannual	Every 5 Years	Semiannual

Well	Well Type	Monitored WMU (Program)	Water-Bearing Zone	WL Monitoring Frequency[7]	5-Year COC Monitoring Frequency[8]	Detection Monitoring Frequency[9]
MW-163RL[1]	MW	35 (POC)	LWTZ	Semiannual	Every 5 Years	Semiannual
MW-164RL[1,5]	MW	35 (POC)	LWTZ	Semiannual	Every 5 Years	Semiannual
MW-165RL[1]	MW	33 (POC)	LWTZ	Semiannual	Every 5 Years	Semiannual
MW-166RL[1,2]	MW	33 (POC) 36, 37, 38 (BG)	LWTZ	Semiannual	Every 5 Years	Semiannual
MW-167RL[1,2]	MW	28 (POC) 36, 37, 38 (BG)	LWTZ	Semiannual	Every 5 Years	Semiannual
MW-168RL[1,2]	MW	33 (POC) 36, 37, 38 (BG)	LWTZ	Semiannual	Every 5 Years	Semiannual
MW-169RL[1]	MW	34 (POC)	LWTZ	Semiannual	Every 5 Years	Semiannual
MW-170RL[1]	MW	31 (POC)	LWTZ	Semiannual	Every 5 Years	Semiannual
MW-PRL[1,2]	MW/PZ[3]	36, 37, 38 (BG)	LWTZ	Semiannual	Every 5 Years	Semiannual
MW-126RRL[2,4]	MW	36 (POC)	LWTZ	Semiannual	Every 5 Years	Semiannual
MW-142L[2,4]	MW	37 (POC)	LWTZ	Semiannual	Every 5 Years	Semiannual
MW-150RRL[2,4]	MW	36 (POC)	LWTZ	Semiannual	Every 5 Years	Semiannual
MW-172L[2,4]	MW	38 (POC)	LWTZ	Semiannual	Every 5 Years	Semiannual

Well	Well Type	Monitored WMU (Program)	Water-Bearing Zone	WL Monitoring Frequency[7]	5-Year COC Monitoring Frequency[8]	Detection Monitoring Frequency[9]
MW-QL[2,4]	MW	37 (POC)	LWTZ	Semiannual	Every 5 Years	Semiannual
P-102L[1]	PZ	WL Only	LWTZ	Semiannual	Not Required	Not Required
P-102RL[1]	PZ	WL Only	LWTZ	Semiannual	Not Required	Not Required
P-112L[1]	PZ	WL Only	LWTZ	Semiannual	Not Required	Not Required
P-118L[1]	PZ	WL Only	LWTZ	Semiannual	Not Required	Not Required
P-119L[1]	PZ	WL Only	LWTZ	Semiannual	Not Required	Not Required
P-119RL[1]	PZ	WL Only	LWTZ	Semiannual	Not Required	Not Required
P-121L[1]	PZ	WL Only	LWTZ	Semiannual	Not Required	Not Required
P-126L[1]	PZ	WL Only	LWTZ	Semiannual	Not Required	Not Required
P-126RL[1]	PZ	WL Only	LWTZ	Semiannual	Not Required	Not Required
P-133L[1,2]	PZ	WL Only	LWTZ	Semiannual	Not Required	Not Required
P-150L[1]	PZ	WL Only	LWTZ	Semiannual	Not Required	Not Required
P-150RL[1]	PZ	WL Only	LWTZ	Semiannual	Not Required	Not Required
P-151RL[1]	PZ	WL Only	LWTZ	Semiannual	Not Required	Not Required

Well	Well Type	Monitored WMU (Program)	Water-Bearing Zone	WL Monitoring Frequency[7]	5-Year COC Monitoring Frequency[8]	Detection Monitoring Frequency[9]
P-152RL[1]	PZ	WL Only	LWTZ	Semiannual	Not Required	Not Required
P-153RL[1]	PZ	WL Only	LWTZ	Semiannual	Not Required	Not Required
P-154L[1]	PZ	WL Only	LWTZ	Semiannual	Not Required	Not Required
P-156L[1]	PZ	WL Only	LWTZ	Semiannual	Not Required	Not Required
P-163L[1]	PZ	WL Only	LWTZ	Semiannual	Not Required	Not Required
P-164L[1,2]	PZ	WL Only	LWTZ	Semiannual	Not Required	Not Required
P-165L[1]	PZ	WL Only	LWTZ	Semiannual	Not Required	Not Required
P-166L[1]	PZ	WL Only	LWTZ	Semiannual	Not Required	Not Required
P-167L[1]	PZ	WL Only	LWTZ	Semiannual	Not Required	Not Required
P-168L[1]	PZ	WL Only	LWTZ	Semiannual	Not Required	Not Required
P-169L[1]	PZ	WL Only	LWTZ	Semiannual	Not Required	Not Required
P-170L[1]	PZ	WL Only	LWTZ	Semiannual	Not Required	Not Required

Table 1 Notes:

1. Monitoring network for the current facility (WMUs 18, 21, 22, 23, 27, 28, 31, 33, 34, and 35).

2. Monitoring network for the WMUs 36, 37, and 38.

3. Piezometer for the Class I monitoring network converted to monitoring well for the Class II monitoring network.

4. Newly constructed monitoring well.

5. Piezometer for the Class II monitoring network.

6. Semi-annual monitoring shall be done during the months of February and August.

7. COCs are listed in Table 3-2A and 3-2B of the RMSP for the Class I WMUs and Table 2 of the GWMP for the Class II WMUs. For the Class I WMUs, the complete list of compounds associated with the analytical methods SW-846 8260, 8270C, and 8151 will be analyzed and reported; however, parameters not included in the COC list are not considered COCs. For the Class II WMUs, the complete list of compounds associated with the analytical methods EPA 8260B, 8270C, 8081A, 8151A, and 8141A will be analyzed and reported and considered COCs.

8. The monitoring parameters to be analyzed as part of the Detection Monitoring Program are listed in Tables 4-1, 4-2, and 4-3 of the RMSP for the Class I WMUs and Table 2 of the GWMP for the Class II WMUs.

9. Semi-annual verification for absence of groundwater in interface wells, collect grab sample if more than one foot of water is present

10. All downdip MWs will be sampled if insufficient water is present to sample any Upper or Intermediate Perched Zone POC wells. These wells are required to be sampled in accordance with this MRP and any subsequent revisions to monitor the Class II WMUs that are not regulated by DTSC.

b. Sample Collection and Analysis

Groundwater samples shall be collected from each background, downdip, POC, and other well and analyzed for Monitoring Parameters listed in **Table 2** (Physical Parameters) and **Table 3** (Constituent Parameters), in accordance with the specified schedule for each parameter. (Title 23, § 2550.8, subds. (e)-(f).); Title 27, § 20420, subds. (e)-(f).)

Table 2— Groundwater Detection Monitoring, General Chemistry Parameters

Chemistry Parameter	USEPA Analytical Method	Sampling Frequency	Reporting Frequency
Specific Conductance[1]	9050	Detection Monitoring Frequency (DMF) of Table 1	Semiannual
pH[1]	9040	DMF of Table 1	Semiannual
Temperature[1]	170.1	DMF of Table 1	Semiannual
Turbidity[1]	180.1	DMF of Table 1	Semiannual
Metals & Inorganics			
Aluminum	6010B	DMF of Table 1	Semiannual
Antimony	6010B	DMF of Table 1	Semiannual
Barium	6010B	DMF of Table 1	Semiannual
Cadmium	6010B	DMF of Table 1	Semiannual
Chromium[2]	6010B	DMF of Table 1	Semiannual
Iron	6010B	DMF of Table 1	Semiannual
Lead	6020	DMF of Table 1	Semiannual
Manganese	6010B	DMF of Table 1	Semiannual
Mercury	7470A	DMF of Table 1	Semiannual
Molybdenum	6010B	DMF of Table 1	Semiannual
Nickel	6010B	DMF of Table 1	Semiannual
Potassium	6010B	DMF of Table 1	Semiannual
Silicon[2]	6010B	DMF of Table 1	Semiannual
Total Dissolved Solids	160.1	DMF of Table 1	Semiannual
Total Organic Carbon	9060	DMF of Table 1	Semiannual
Organics			
Acetone[3]	8260B	DMF of Table 1	Semiannual

Chemistry Parameter	USEPA Analytical Method	Sampling Frequency	Reporting Frequency
Methylene chloride[3]	8260B	DMF of Table 1	Semiannual
2-Butanone[3]	8260B	DMF of Table 1	Semiannual
2-Chloroethyl vinyl ether[3]	8260B	DMF of Table 1	Semiannual
2-Hexanone[3]	8260B	DMF of Table 1	Semiannual
4-Methyl-2-pentanone[3]	8260B	DMF of Table 1	Semiannual
Vinyl acetate[3]	8260B	DMF of Table 1	Semiannual

Table 2 Notes:

1. These parameters are measured in the field.
2. Parameter for the monitoring network of WMUs 36, 37, and 38.
3. Groundwater will be analyzed for these parameters but not statistically analyzed.
4. See Glossary for definitions of terms and abbreviations in table

Please note: The Discharger may use new analytical methods when the EPA published new test methods if the Method Detection Limit is equal to or lower than the current one.

Table 3—Groundwater Detection Monitoring, Constituent Parameters

Constituent Parameter	USEPA Analytical Method	Sampling Frequency	Reporting Frequency
Arsenic	6020	DMF of Table 1	Semiannual
Beryllium	6010B	DMF of Table 1	Semiannual
Boron	6010B	DMF of Table 1	Semiannual
Calcium	6010B	DMF of Table 1	Semiannual
Chloride	300/300.1	DMF of Table 1	Semiannual
Cobalt	6010B	DMF of Table 1	Semiannual
Copper	6010B	DMF of Table 1	Semiannual

Constituent Parameter	USEPA Analytical Method	Sampling Frequency	Reporting Frequency
Magnesium	6010B	DMF of Table 1	Semiannual
Selenium	6020	DMF of Table 1	Semiannual
Silver	6010B	DMF of Table 1	Semiannual
Sodium	6010B	DMF of Table 1	Semiannual
Sulfate	300/300.1	DMF of Table 1	Semiannual
Thallium	6010B	DMF of Table 1	Semiannual
Vanadium	6010B	DMF of Table 1	Semiannual
Zinc	6010B	DMF of Table 1	Semiannual
Detection Monitoring Parameters VOC List (Attachment A)	8260B	DMF of Table 1	Semiannual

See Glossary for definitions of terms and abbreviations in table.

c. Five-Year COCs

The Discharger shall analyze for groundwater samples from each background, downdip, other, and POC well for the Five-Year Constituents of Concern (Five-Year COCs) listed in **Table 4**. Five-Year COCs were last monitored in 2026 and shall be analyzed again in 2031. All newly constructed wells shall be sampled and analyzed for the Five-Year COCs during the initial sampling of the well. (Title 23, § 2550.8, subd. (g).; Title 27, § 20420, subd. (g).)

Table 4—Groundwater Detection Monitoring, Five-Year COCs

Five-Year COCs	Analytical Method	Sampling & Reporting Frequency
COCs for Current Facility (WMUs 18, 21, 22, 23, 27, 28, 31, 33, 34, and 35) (Attachment B)	(various)	Every 5 Years

Five-Year COCs	Analytical Method	Sampling & Reporting Frequency
COCs for WMUs 36, 37, and 38 (Attachment C)	(various)	Every 5 Years

See Glossary for definitions of terms and abbreviations in table.

d. Groundwater Conditions

The Discharger shall monitor the Groundwater Conditions specified in **Table 5**, with the result of such monitoring being reported semiannually per **Section D.1**.[3] (Title 23, §2550.7, subd. (b)(1); Title 27, § 20415, subd. (b)(1).)

Table 5—Groundwater Detection Monitoring, Groundwater Conditions

Groundwater Condition	Monitoring Frequency	Reporting Frequency
Elevation (Well-Specific)	Semiannual	Semiannual
Gradient	Semiannual	Semiannual
Flow Rate	Semiannual	Semiannual

2. Unsaturated Zone

a. Required Network

The Facility's unsaturated zone monitoring network consists of the pan lysimeter, soil-gas probes, and neutron probe access tube

[3] To the extent feasible, this information shall be determined separately for: (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. (Title 23, §2550.7, subd. (e)(15); Title 27, § 20415, subd. (e)(15).)

monitoring points specified in **Table 6**. As of the date of this Order, the network meets the requirements of Titles 23 and 27. (Title 23, §2550.7, subd. (d); Title 27, § 20415, subd. (d).)

Table 6—Unsaturated Zone Monitoring Network

Monitoring Point	Device Type	Monitored Unit	Status
NPT-28	Neutron Probe Tube	WMU 28	Operating
NPT-31-1	Neutron Probe Tube	WMU 31	Operating
NPT-31-2	Neutron Probe Tube	WMU 31	Operating
NPT-31-3	Neutron Probe Tube	WMU 31	Operating
NPT-33-1	Neutron Probe Tube	WMU 33	Operating
NPT-33-2	Neutron Probe Tube	WMU 33	Operating
NPT-33-3	Neutron Probe Tube	WMU 33	Operating
NPT-33-4	Neutron Probe Tube	WMU 33	Operating
NPT-34	Neutron Probe Tube	WMU 34	Operating
NPT-35-1	Neutron Probe Tube	WMU 35 Cell 1	Operating
NPT-35-2	Neutron Probe Tube	WMU 35 Cell 2	Operating
NPT-35-3	Neutron Probe Tube	WMU 35 Cell 3	Operating
NPT-35-4	Neutron Probe Tube	WMU 35 Cell 4	Operating
NPT-35-5	Neutron Probe Tube	WMU 35 Cell 5	Operating
NPT-35-6	Neutron Probe Tube	WMU 35 Cell 6	Operating
NPT-35-7	Neutron Probe Tube	WMU 35 Cell 7	Operating
NPT-35-8	Neutron Probe Tube	WMU 35 Cell 8	Planned
NPT-35-9	Neutron Probe Tube	WMU 35 Cell 9	Planned

Monitoring Point	Device Type	Monitored Unit	Status
PL-36	Pan Lysimeter	WMU 36	Planned
PL-37	Pan Lysimeter	WMU 37	Planned
PL-38	Pan Lysimeter	WMU 38	Planned
GP-28-1	Soil Gas Probe	WMU 28	Planned
GP-28-2	Soil Gas Probe	WMU 28	Planned
GP-28-3	Soil Gas Probe	WMU 28	Planned
GP-28-4	Soil Gas Probe	WMU 28	Planned
GP-33-1	Soil Gas Probe	WMU 33	Planned
GP-33-2	Soil Gas Probe	WMU 33	Planned
GP-33-3	Soil Gas Probe	WMU 33	Planned
GP-33-4	Soil Gas Probe	WMU 33	Planned
GP-33-5	Soil Gas Probe	WMU 33	Planned
GP-33-6	Soil Gas Probe	WMU 33	Planned
GP-34-1	Soil Gas Probe	WMU 34	Planned
GP-34-2	Soil Gas Probe	WMU 34	Planned
GP-34-3	Soil Gas Probe	WMU 34	Planned
GP-34-4	Soil Gas Probe	WMU 34	Planned
GP-35-1	Soil Gas Probe	WMU 35	Planned
GP-35-2	Soil Gas Probe	WMU 35	Planned
GP-35-3	Soil Gas Probe	WMU 35	Planned
GP-35-4	Soil Gas Probe	WMU 35	Planned

Monitoring Point	Device Type	Monitored Unit	Status
GP-35-5	Soil Gas Probe	WMU 35	Planned
GP-35-6	Soil Gas Probe	WMU 35	Planned
GP-35-7	Soil Gas Probe	WMU 35	Planned
GP-35-8	Soil Gas Probe	WMU 35	Planned
GP-35-9	Soil Gas Probe	WMU 35	Planned
GP-35-10	Soil Gas Probe	WMU 35	Planned

See Glossary for definitions of terms and abbreviations in table.

b. Neutron Probe Tube (NPT) Monitoring

The Discharger uses a neutron probe system, rather than liquid recovery types of monitoring, to monitor the unsaturated zone for each of the following **WMUs: 28, 31, 33, 34, and 35 (Cells 1, 2, 3, 4, 5, 6, 7, 8, and 9)**. The Discharger has demonstrated that soil-pore liquid samples cannot be obtained from soils at the Facility under normal conditions. The Discharger has also demonstrated that measurement of moisture changes in the unsaturated zone with a neutron probe system provides the best assurance of early detection of a release from a regulated unit. As of the date of this Order, the network meets the requirements of Title 23.
(Title 23, § 2550.7, subd. (d).) For all new WMUs, the unsaturated zone shall be monitored **monthly** for a period of one year to establish baseline (background) moisture conditions. After the completion of one year of monthly data, the monitoring frequency shall be reduced to **quarterly** with results being reported **annually** per **Section D.2.**

c. Soil Pore Gas Monitoring

Soil Pore Gas (SPG) shall be monitored for Method TO-15 VOCs[4] in accordance with **Table 7.** (Title 23, §2550.8, subd. (d);Title 27, § 20420, subds. (e)-(f).)

Table 7—Unsaturated Zone Detection Monitoring (Soil Pore Gas), Constituent Parameters

Constituent Parameter	Units	Sampling Frequency	Reporting Frequency
Method TO-15 VOCs	µg/m^3	Semiannual	Semiannual

d. Monthly Lysimeter Inspection

Pan lysimeters shall be inspected monthly for the presence of liquid, which shall then be analyzed for the Monitoring Parameters in **Table 8** (Physical Parameters) and **Table 9** (Constituent Parameters). (Title 27, § 20420, subds. (e)-(f).) If liquid is detected in a previously dry pan lysimeter, the Discharger shall notify Central Valley Water Board staff within seven days of the detection.

Table 8—Unsaturated Zone Detection Monitoring (Lysimeters), Physical Parameters

Physical Parameter	GeoTracker Code	Units	Sampling Frequency	Reporting Frequency
Electrical Conductivity	SC	µmhos/cm	Semiannual	Semiannual
pH	PH	pH Units	Semiannual	Semiannual
Volume of Removed Liquid	(none)	Gallons	Quarterly	Semiannual

See Glossary for definitions of terms and abbreviations in table.

[4] Volatile Organic Compounds associated with USEPA Method TO-15.

Table 9—Unsaturated Zone Detection Monitoring (Lysimeters), Constituent Parameters

Constituent Parameter	GeoTracker Code	Units	Sampling Frequency	Reporting Frequency
TDS	TDS	mg/L	Semiannual	Semiannual
Chloride	CL	mg/L	Semiannual	Semiannual
Sulfate	SO4	mg/L	Semiannual	Semiannual
Calcium	CA	mg/L	Semiannual	Semiannual
Magnesium	MG	mg/L	Semiannual	Semiannual
Potassium	K	mg/L	Semiannual	Semiannual
Sodium	NA	mg/L	Semiannual	Semiannual
Detection Monitoring Parameter VOCs (Attachment A)	(various)	µg/L	Semiannual	Semiannual

See Glossary for definitions of terms and abbreviations in table.

e. Five-Year COCs

Every five years after liquid is detected, liquid from each pan lysimeter shall be analyzed for the Five-Year COCs listed below in **Table 10**. (Title 27, § 20420, subd. (g).)

Table 10—Unsaturated Zone Detection Monitoring (Lysimeter), Five-Year COCs

Five-Year Constituent	Units	Sampling & Reporting Frequency
Total Organic Carbon	mg/L	Every 5 Years
Extended List VOCs (Attachment D)	µg/L	Every 5 Years

Five-Year Constituent	Units	Sampling & Reporting Frequency
Semi-Volatile Organic Compounds (Attachment E)	µg/L	Every 5 Years
Organochlorine Pesticides (Attachment F)	µg/L	Every 5 Years
Chlorinated Herbicides (Attachment G)	µg/L	Every 5 Years
Organophosphorous Pesticides (Attachment H)	µg/L	Every 5 Years

See Glossary for definitions of terms and abbreviations in table.

3. Surface Water

As of the date of the adoption of this MRP, there are no surface water monitoring requirements for the Facility.

4. Summary of Water Quality Protection Standard (WQPS) Components

The Water Quality Protection Standard (WQPS) is the Title 23 and Title 27 analytical framework through which an individual WMU is monitored for releases and impacts to water quality, i.e., the Detection Monitoring Program (DMP). (See Title 23, 2550.2, subd. (a); Title 27, § 20390, subd. (a).) As explained in further detail below, for the duration of the *Compliance Period*, the *Monitoring Points* situated at a WMU's *Point of Compliance* are sampled and analyzed for *Monitoring Parameters* indicative of a release. If concentrations of *Constituents of Concern* exceed *Concentration Limits*, the results are confirmed through *Retesting Procedures*.

a. Compliance Period

The "compliance period" is the minimum time for which a water quality monitoring will be required—i.e., equal to the sum of active years and the closure period. (Title 23, § 2550.6.; Title 27, § 20410.) The period restarts each time an *Evaluation Monitoring Program* (EMP) is initiated for a given WMU. (*Id*., §§ 2550.6 (a),

2550.7, 2550.6; Id., §§ 20410, subd. (a), 20415, 20425.) If a WMU is in corrective action, the period continues until it is demonstrated that the WMU has been in continuous compliance with its WQPS for at least three years. (Id., § 2550.6, subd. (c).; Id., § 20410, subd. (c).)

b. Monitoring Points

For WQPS purposes, a "monitoring point" is any well, device, or location where monitoring is conducted, and is specified in the Facility's WDRs and subject to the WQPS. (Title 23, § 2601; Title 27, § 20164.) Monitoring Points are listed in **Section B** (Detection Monitoring Program)—specifically **Table 1** (Groundwater) and **Table 6** (Unsaturated Zone).

c. Point of Compliance (POC)

The Point of Compliance (POC) is a vertical plane at the WMU's hydraulically downgradient limit, extending through the uppermost underlying aquifer. (Title 23, §§ 2601, 2550.5(a); Title 27, §§ 10164, 20405, subd. (a).) The Facility's POC monitoring wells are listed in **Table 1**.

d. Constituents of Concern (COCs)

Constituents of Concern (COCs) are waste constituents, reaction products, and hazardous constituents that are reasonably expected to be in or derived from waste contained in a WMU. (Title 23, §§ 2601, 2550.3; Title 27, §§ 20164, 20395.)

e. Monitoring Parameters

Monitoring Parameters are a predetermined set of COCs and measurable physical characteristics (e.g., temp., electrical conductivity, pH), which serve as reliable indicators of a WMU release, and for which samples will therefore be routinely analyzed. (Title 23, §§ 2610, 2550.3(a), 2550.8(e)-(f).; Title 27, §§ 20164, 20395, subd. (a), 20420, subds. (e)-(f).) For the purposes of this MRP, the Monitoring Parameters are:

i. For **Groundwater**, those in **Table 2** and **Table 3**; and

ii. For the Unsaturated Zone, those in **Table 7**, **Table 8** and **Table 9**.

f. Five-Year COCs

In addition to the Monitoring Parameters described above, this Order requires the quinquennial analysis of samples for a larger range of constituents that are reasonably expected to be found in, or derived from, the waste contained within each unit at the Facility. (Title 27, §§ 20395, 20420, subd. (g).) For the purposes of this MRP, the Five-Year COCs are listed in:

i. **Attachment B** (*Current Facility [WMUs* 18, 21, 22, 23, 27, 28, 31, 33, 34, and 35]);

ii. **Attachment C** (*WMUs 36, 37, and 38*);

iii. Any other COCs listed in **Table 4** (*Groundwater*) and **Table 10** (*Unsaturated Zone*)

g. Concentration Limits

The Concentration Limit for each COC is the "background concentration," as determined by the statistical methods outlined in Title 23, section 2550.7 (Title 23, § 2550.4, subds. (a), (b).) and Title 27, section 20415, subdivision (e)(8).[5] (Title 27, § 20400, subds. (a), (b).) Methods for calculating Concentration Limits were proposed in the October 2018 RMSP. The approved methods use the combined Shewhart-CUSUM control chart method for intra-well comparisons as a basis for calculating concentration limits for those naturally occurring constituents that serve as detection monitoring constituent parameters.

The intra-well statistical program requires at least 18 independent (at least a quarter apart) data points. Therefore, Clean Harbors will continue with the inter-well statistical program for new monitoring wells until the required number of datapoints is reached. All wells

[5] Concentration Limits are initially proposed by the discharger, then reviewed and approved by the Central Valley Water Board (subject to any necessary revisions). The limits specified herein are approved and incorporated as part of the Facility's WDRs.

will be evaluated using intra-well statistics once 18 independent samples have been collected. The inter-well statistical program generates prediction limits using historical data from background wells. Therefore, samples from background wells will continue to be collected until intra-well statistics can be used.

Concentration Limits shall be proposed and/or updated on an annual basis, in the Annual Monitoring Report (AMR) submitted per **Section D.2**.

h. Retesting Procedures

For the Class I WMUs, if monitoring results indicate measurably significant evidence of a release, as described in the *Provisions for Monitoring* section of the SPRRs, the Discharger shall follow the retest procedures outlined in the *Response to a Release* section of the 1993 SPRRs.

For the Class II WMUs, if monitoring results indicate measurably significant evidence of a release, as described in Section I.45 of the 2016 SPRRs (Standard Monitoring Specifications), the Discharger shall apply the following:

iv. **Non-Statistical Retesting Procedures (SPRRs, § I.46)** for analytes detected in less than 10 percent of background samples (e.g., non-naturally occurring COCs); and

v. **Statistical Retesting Procedures (SPRRs, § I.46)** for analytes detected in at least 10 percent of background samples (e.g., naturally occurring COCs).

C. Additional Facility Monitoring

1. Surface Impoundment

The Discharger shall measure all liquid levels in all Class II surface impoundments that contain liquid. Liquid levels shall be recorded **weekly** and submitted **semiannually** per **Section D.1.**

a. Sample Collection and Analysis—Samples shall be collected at

the frequencies and analyzed for the constituents listed in **Table 11**.

Table 11—Surface Impoundment Monitoring

Constituents	Sampling Frequency	Reporting Frequency
5-Year COCs (**Table 4**)	Annual	Annual
General Chemistry Parameters (**Table 2**)	Annual	Annual
pH	Monthly	Semiannual
Electrical Conductivity	Monthly	Semiannual
Dissolved Oxygen	Monthly	Semiannual
Hydrogen Sulfide	Monthly	Semiannual
Freeboard	Daily	Semiannual

See Glossary for definitions of terms and abbreviations in table.

2. Leachate Collection & Removal System (LCRS)

The Discharger shall operate and maintain leachate collection and removal system (LCRS) sumps and conduct monitoring of any detected leachate seeps in accordance with Title 23, Title 27, and the following provisions.

a. Annual LCRS Testing

All Leachate Collection and Removal Systems (LCRS) shall be tested annually to demonstrate proper operation, with the results of each test being compared to the results of prior testing. (See Title 23, § 2543, subd. (d).; Title 27, § 20340, subd. (d).)

b. Monthly Sump Inspection

All LCRS sumps shall be inspected monthly for the presence of leachate. As provided in **Table 12**, the total flow and flow rate for leachate in each sump shall be recorded after each inspection and reported semiannually per **Section D.1**.

Table 12—LCRS Sump Monitoring, Monthly Inspection Parameters

Physical Parameter	Units	Sampling Frequency	Reporting Frequency
Flow Rate	Gallons/Day	Monthly	Semiannual
Total Liquid Removed	Gallons	Monthly	Semiannual
Liquid Level	Inches	Daily	Semiannual

See Glossary for definitions of terms and abbreviations in table.

c. First Detection of Leachate in Sump

Upon detecting leachate in a previously dry sump, the Discharger shall notify Central Valley Water Board staff within seven days, and immediately sample and analyze leachate for the parameters in **Table 13**.[6] Thereafter, whenever leachate is present in the same sump, the leachate shall be sampled and analyzed for the same parameters, and in accordance with the specified sampling and reporting schedule in **Table 13**.

[6] The sampling and reporting schedules in **Table 13** are applicable for subsequent monitoring only. When notifying Central Valley Water Board staff of the first detection of leachate, the Discharger shall indicate when laboratory results are expected to be available.

Table 13—LCRS Sump Monitoring, Parameters for Subsequent Monitoring

Constituents	Sampling Frequency	Reporting Frequency
General Chemistry Parameters (**Table 2**)	Annual	Annual
Constituent Parameters (**Table 3**)	Annual	Annual
5-Year COCs (**Table 4**)	Annual	Annual

See Glossary for definitions of terms and abbreviations in table.

d. Five-Year COCs

At least once every five years, the Discharger shall sample and analyze any leachate present in the sump for the Five-Year COCs listed in **Table 14**.

Table 14—LCRS Sump Monitoring, Five-Year COCs

Parameter	Units	Sampling & Reporting Frequency
Total Organic Carbon	mg/L	Every 5 Years
Five-Year COCs (Class I WMUs) (Attachment B)	µg/L	Every 5 Years
Five-Year COCs (WMUs 36, 37, 38) (Attachment C)	µg/L	Every 5 Years

See Glossary for definitions of terms and abbreviations in table.

3. Incoming Waste-For the discharge of non-hazardous waste to any Class II WMUs, the Discharger shall provide documentation that the waste is non-hazardous, pursuant to Title 22, section 66262.11. Records shall be maintained and adequate so that an independent auditor can verify that the waste is not hazardous. The Discharger shall report the waste type and quantity of waste accepted for disposal at the Facility on a semiannual basis per Section D.1.

4. Leachate Seepage

Leachate that seeps to the surface from any landfill WMU shall, immediately upon detection, be sampled and analyzed for the Monitoring Parameters in **Table 15** (Physical Parameters) and **Table 16** (Constituent Parameters). See **Section D.3** for Reporting Requirements.) In the event of a reported leachate seep, Central Valley Water Board staff may direct additional sampling and analysis pursuant to Water Code section 13267, subdivision (b)(1).

Table 15—Leachate Seep Monitoring, Physical Parameters

Physical Parameter	GeoTracker Code	Units	Sampling Frequency	Reporting Frequency
Total Flow	(none)	Gallons	Upon Detection	See MRP, § E.3
Flow Rate	FLOW	Gallons/Day	(same)	(same)
Electrical Conductivity	SC	µmhos/cm	(same)	(same)
pH	PH	pH Units	(same)	(same)

See Glossary for definitions of terms and abbreviations in table.

Table 16—Leachate Seep Monitoring, Constituent Parameters

Constituent Parameter	Sampling Frequency	Reporting Frequency
General Chemistry Parameters (Table 2)	Upon Detection	See MRP, § E.3
Constituent Parameters (Table 3)	(same)	(same)

See Glossary for definitions of terms and abbreviations in table.

5. Regular Visual Inspection

The Discharger shall perform regular visual inspections at the Facility in accordance with **Table 17** (Criteria) and **Table 18** (Schedule). Results of

these regular visual inspections shall be included in Semiannual Monitoring Reports per **Section D.1**.

Table 17—Criteria for Regular Visual Inspections

Category	Criteria
Within Unit	• 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 waste.
Unit Perimeter	• Evidence of leachate seep. • Estimated size of affected area (record on map) and flow rate. • Evidence of erosion and/or of day-lighted refuse.
Receiving Waters	• 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 18—Regular Visual Inspection Schedule

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

6. 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, as well as preparedness for winter conditions (e.g., erosion and sedimentation control). 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**. See **Section D.4** for Reporting Requirements.

7. Major Storm Events

Within seven days of any storm event capable of causing damage or significant erosion (Major Storm Event), the Discharger 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. See **Section D.5** for Reporting Requirements.

8. Five-Year Iso-Settlement Surveys (Closed Landfills)

Every five years, the Discharger shall conduct an iso-settlement survey of each closed landfill unit 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, subd. (e)(1)-(2).) See **Section D.6** for Reporting Requirements.

D. Reporting Requirements

Table 19—Summary of Required Reports

Section	Report	Deadline
§ D.1	Semiannual Monitoring Reports (SMRs)	**1 May** (1 January to 30 June) **1 November** (1 July to 31 December)
§ D.2	Annual Monitoring Reports (AMRs)	**30 March**

Section	Report	Deadline
§ D.3	Leachate Seep Reporting	**Immediately upon Discovery of Seepage** (*staff notification*) **Within 7 Days** (*written report*)
§ D.4	Annual Facility Inspection Reports	**15 November**
§ D.5	Major Storm Reporting	**Immediately after Damage Discovery** (*staff notification*) **Within 14 Days of Completing Repairs** (*written report, photos*)
§ D.6	Survey and Iso-Settlement Mapping	**Every Five Years** (Next Due in 2031)
§ D.7	Financial Assurances Reports	**1 March**
§ D.8	Water Quality Protection Standard Reports	**Proposed Revisions** (excluding Concentration Limits)

1. Semiannual Monitoring Reports (SMRs)

The Discharger shall submit Semiannual Monitoring Reports (SMRs) **1 May** (1 Jan. to 30 June) and **1 November** (1 July to 31 Dec.). SMRs shall contain the following materials and information:

a. A statement affirming that all sampling activities referenced in the report were conducted in accordance with the approved SAP (see § A.4).

b. Map(s)/aerial photograph(s) depicting locations of all observation stations, monitoring points referenced in the report.

c. In tabulated format, all monitoring data required to be reported on a semiannual basis, including Groundwater Conditions and

Monitoring Parameters. (See **Section D.9.b** for additional requirements.)

d. For each groundwater monitoring point referenced in the SMR:

   i. The times each water level measurement was taken;

   ii. The type of pump or other device used to purge and elevate pump intake level relative to screening interval;

   iii. The purging methods used to stabilize water in the well bore before sampling (including pumping rate);

   iv. The equipment and methods used for monitoring pH, temperature and electrical conductivity (EC) during purging activity, and the results of such monitoring;

   v. Methods for disposing of purged water; and

   vi. The type of device used for sampling, if different than the one used for purging.

e. Evaluation of concentrations for all Constituent Parameters and Five-Year COCs (when analyzed), comparison to current Concentration Limits, and results of any Retesting Procedures per **Section B.4.h**.

f. In the event of a verified exceedance of Concentration Limit(s), any actions taken per the *Response to Release* sections of the SPRRs for wells and/or constituents not already specifically addressed as a *Previously Verified Exceedance*.

g. Evaluation as to effectiveness of existing leachate monitoring and control facilities, and runoff/run-on control facilities.

h. A summary of any instances where leachate on the landfill liner system exceeded a depth of 30 cm (excluding the leachate sump), and information about the required notification and corrective action.

i. Summaries of all Regular Visual Inspections conducted per **Section C.5** during the reporting period.

j. For closed landfills, summaries of inspections, leak searches and final cover repairs conducted in accordance with an approved Post-Closure Maintenance Plan.

k. Laboratory statements of results of all analyses evaluating compliance with the WDRs.

2. Annual Monitoring Reports (AMRs)

On **30 March** of each year,[7] the Discharger shall submit an Annual Monitoring Report (AMR) containing following materials and information:

a. In tabulated format, all monitoring data for which annual reporting is required under this MRP. (See **Section D.9.b** for additional requirements for monitoring reports.)

b. Graphs of historical trends for all Monitoring Parameters and Five-Year COCs (if such analyses were performed) with respect to each monitoring point over the five prior calendar years.[8]

c. An evaluation of Monitoring Parameters with regard to the cation/anion balance, and graphical presentation of same in a Stiff diagram, Piper graph or Schoeller plot.

d. All historical monitoring data for which there are detectable results, including data for the previous year, shall be submitted in tabular form in a digital file.

e. For each groundwater well, semiannual hydrographs showing the elevation of groundwater with respect to the top and bottom of the screened interval, and the elevation of the pump intake,

---

[7] The Annual Monitoring Report may be combined with the Semiannual Monitoring Report for 1 July through 31 December of the same year, provided that the combination is clearly indicated in the title.

[8] Each graph shall contain individual data points (not mean values) and be appropriately scaled to accurately depict statistically significant trends or variations in water quality.

f. A comprehensive discussion of the Facility's compliance record, and the result of any corrective actions taken or planned which may be needed to attain full compliance with the WDRs.

g. For landfill units, a map showing the areas and elevations of each unit where filling was completed during the previous calendar year; comparison to final closure design contours; and projected years in which each discrete module are expected to be filled.

h. A summary of the monitoring results, indicating any changes made or observed since the previous AMR.

i. A discussion on the results of Annual LCRS Testing conducted in accordance with **Section C.2.a**.

j. Annual updates to the Concentration Limits for all Monitoring Parameters and WQPS Monitoring Points, in accordance with **Section B.4.g** of this Order.

3. Leachate Seep Reporting

Upon discovery of seepage from any disposal area within the Facility, the Discharger shall immediately notify 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 Monitoring Parameters in **Table 15** (*Physical Parameters*) and **Table 16** (*Constituent Parameters*), 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**, the Discharger shall submit a report with results of the Annual Facility Inspection per **Section C.6**. The report shall discuss any repair measures implemented, any preparations for winter, and include photographs of any problem areas and repairs.

5. Major Storm Event Reports

Immediately following each post-storm inspection described in **Section C.7**, the Discharger shall notify Central Valley Water Board staff of any damage or significant erosion (upon discovery). Subsequent repairs shall be reported to the Central Valley Water Board (together with before and after photos of the repaired areas) **within 14 days** of completion.

6. Survey and Iso-Settlement Map (Closed Landfill Units)

The Discharger shall submit all iso settlement maps prepared in accordance with Section C.8. (Title 27, § 21090, subd. (e).)

Financial Assurances Report

By **1 March** of each year, the Discharger shall submit the following:

a) A copy of the annual financial assurances reports due to the California Department of Resources Recycling and Recovery (CalRecycle) for WMUs 36, 37, and 38 that updates the financial assurances for closure, post-closure maintenance, and corrective action. (See WDRs Order.)

b) A copy of the annual financial assurances reports due to DTSC for the current Facility that updates the financial assurances for closure, post-closure maintenance, and corrective action. (See WDRs Order.)

8. Water Quality Protection Standard Report

Any proposed changes[9] to the WQPS components (§ B.4), other than periodic update of the Concentration Limits (§ B.4.g), shall be submitted in

[9] If subsequent sampling of the background monitoring point(s) indicates significant water quality changes due to either seasonal fluctuations or other reasons unrelated to

a WQPS Report for review and approval. The report shall be certified by a "Qualified Professional" (see § B), and contain the following:

a. *Potentially Affected Waterbodies*—An identification of all distinct bodies of surface water and groundwater potentially affected by a WMU release (including, but not limited to, the uppermost aquifer and any permanent or ephemeral zones of perched groundwater underlying the Facility);

b. *Map of Monitoring Points*—A map of all groundwater, surface water[10] and unsaturated zone monitoring points (including all background/upgradient and Point of Compliance monitoring points);

c. *Groundwater Movement*—An evaluation of perennial direction(s) of groundwater movement within the uppermost zone(s);

d. *Statistical Method for Concentration Limits*—A proposed statistical method for calculating Concentration Limits for Monitoring Parameters and Five-Year COCs (see § f) detected in at least 10 percent of the background data (naturally-occurring constituents) using a statistical procedure described in Title 23 section 2550.7, subdivisions (e)(8)(A)-(D) or (e)(8)(E) and Title 27 section 20415, subdivisions (e)(8)(A)-(D) or (e)(8)(E); and

e. *Retesting Procedure*—A retesting procedure to confirm or deny measurably significant evidence of a release (Title 23, §§ 2550.7, subd. (e)(8)(E), 2550.8, subd. (j)(1)-(3)) and Title 27, §§ 20415, subd. (e)(8)(E), 20420, subd. (j)(1)-(3)).

---

onsite waste management activities, the Discharger may request modification of the WQPS.

[10] To the extent that surface water monitoring is included in the Detection Monitoring Program.

9. General Reporting Provisions

a. Transmittal Letters

Each report submitted pursuant to this MRP shall be accompanied by a Transmittal Letter providing a brief overview of the enclosed report, as well as the following:

i. Descriptions of any violations found since the last report was submitted, all actions undertaken to correct the violation (referencing any previously submitted time schedules for compliance), and whether the violations were corrected; and

ii. A statement from the submitting party, or its authorized agent, signed under penalty of perjury, certifying that, to the best of the signer's knowledge, the contents of the enclosed report are true, accurate and complete.

b. Monitoring Data and Reports

i. Electronic Submission via GeoTracker

All reports with monitoring data (e.g., SMRs and AMRs) shall be submitted electronically via the State Water Board's Geotracker Database (https://geotracker.waterboards.ca.gov). After uploading a report, the Discharger shall notify Central Valley Water Board staff via email at CentralValleyFresno@WaterBoards.ca.gov. The following information shall be included in the body of the email:

Attention:	Title 27 Unit
Report Title:	[Title of Report]
GeoTracker Upload ID:	[Enter Confirmation Number)
GeoTracker Global ID:	L10006221337
Facility Name:	Clean Harbors Buttonwillow
County:	Kern
CIWQS Place ID:	214782

ii. Data Presentation and Formatting

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, the

concentrations, and the units are readily discernible. Additionally, data shall be summarized in a manner that clearly illustrates compliance/noncompliance with WDRs.

iii. Non-Detections / Reporting Limits

Unless the reporting limits (RL) are specified in the same table, non-detections and sub-RL concentrations shall be reported as "< [limit]" (e.g., "< 5 µg/L").

iv. Units

Absent specific justification, all monitoring data shall be reported in the units specified in the most recently approved RMSP.

c. Compliance with SPRRs

All reports submitted under this MRP shall comply with applicable provisions of the SPRRs.

d. Additional Requirements for Monitoring Reports

Every monitoring report submitted pursuant to this MRP (e.g., SMRs [§ D.1], AMRs [§ D.2]) shall include a discussion of relevant field and laboratory tests, and the results of all monitoring conducted at the site shall be reported to the Central Valley Water Board in accordance with the reporting schedule above for the calendar period in which samples were taken or observations made.

E. Record Retention Requirements

The Discharger shall maintain permanent records of all monitoring information, including without limitation: calibration and maintenance records; original strip chart recordings of continuous monitoring instrumentation; copies of all reports required by this MRP; and records of all data used to complete the application for WDRs. Such records shall be legible, and show the following for each sample:

1. Sample identification and the monitoring point or background monitoring point from which it was taken, along with the identity of the individual who obtained the sample;

2. Date, time and manner of sampling;

3. Date and time that analyses were started and completed, and the name of the personnel and laboratory performing each analysis;

4. A complete list of procedures used (including method of preserving the sample, and the identity and volumes of reagents used);

5. A calculation of results; and

6. The results of all analyses, as well as the MDL and PQL for each analysis (all peaks shall be reported).

LIST OF ATTACHMENTS

ATTACHMENT A—VOLATILE ORGANIC COMPOUNDS, DETECTION MONITORING PARAMETERS
ATTACHMENT B—FIVE-YEAR COCS (CLASS I WMUs)
ATTACHMENT C—FIVE-YEAR COCS (CLASS II WMUS)
ATTACHMENT D—VOLATILE ORGANIC COMPOUNDS, EXTENDED LIST
ATTACHMENT E—SEMI-VOLATILE ORGANIC COMPOUNDS
ATTACHMENT F—ORGANOCHLORINE PESTICIDES
ATTACHMENT G—CHLORINATED HERBICIDES
ATTACHMENT H—ORGANOPHOSPHOROUS PESTICIDES

ENFORCEMENT

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 $5,000 per violation, per day, pursuant to Water Code section 13268. The Central Valley Water Board reserves its right to take any enforcement actions authorized by law.

ADMINISTRATIVE REVIEW

Any person aggrieved by this Central Valley Water Board action may petition the State Water Resources Control Board for review in accordance with Water Code section 13320 and California Code of Regulations, title 23, section 2050 et seq. To be timely, the petition must be received by the State Water Board by 5:00 pm 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 pm on the next business day. The law and regulations applicable to filing petitions are available on the State Water Board website (http://www.waterboards.ca.gov/public_notices/petitions/water_quality). Copies will also be provided upon request.

ATTACHMENT A—VOLATILE ORGANIC COMPOUNDS, DETECTION MONITORING PARAMETERS

USEPA Method 8260B,

Constituent
Benzene
Bromodichloromethane
Bromoform (Tribromomethane)
Bromomethane
Carbon disulfide
Carbon tetrachloride
Chlorobenzene
Chloroethane (Ethyl chloride)
Chloroform (Trichloromethane)
Chloromethane
Dibromochloromethane (Chlorodibromomethane)
1,1 Dichloroethane (Ethylidene chloride)
trans 1,2 Dichloroethene
1,2-Dichloroethane
1,1-Dichloroethene
1,2 Dichloropropane (Propylene dichloride)
cis 1,3 Dichloropropene
trans 1,3 Dichloropropene

Constituent
Ethylbenzene
Styrene
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene)
1,1,2,2-Tetrachloroethane
Toluene
1,1,1 Trichloroethane (Methylchloroform)
1,1,2 Trichloroethane
Trichloroethylene (Trichloroethene)
Vinyl chloride
Xylenes

ATTACHMENT B—FIVE-YEAR COCS (CLASS I WMUs)

Constituent	Analytical Method
ORGANICS	
Acetone	8260B
Acrylonitrile	8260B
Benzene	8260B
Benzyl chloride	8260B
Bromodichloromethane	8260B
Bromodichloromethane	8260B
Bromoform	8260B
Bromomethane	8260B
2-Butanone	8260B
n-Butyl alcohol	8260B or OAI*
Carbon disulfide	8260B
Carbon tetrachloride	8260B
Chlorobenzene	8260B
Chloroethane	8260B
2-Chloroethyl vinyl ether	8260B
Chloroform	8260B
Chloromethane	8260B
o-Cresol	8270
m-Cresol	8270
p-Cresol	8270
Cresol	8270
Dibromochloromethane	8260B

Constituent	Analytical Method
1,4-Dichlorobenzene	8270
1,1-Dichloroethane	8260B
1,2-Dichloroethane	8260B
1,1-Dichloroethylene	8260B
1,2-Dichloroethylene (trans)	8260B
1,2-Dichloropropane	8260B
cis-1,3-Dichloropropene	8260B
trans-1,3-Dichloropropene	8260B
2,4-Dinitrotoluene	8270
2-Ethoxyethanol	OAI
Ethyl acetate	8260B
Ethyl ether	8260B
Ethylbenzene	8260B
Ethylene dibromide	8260B
Hexachlorobenzene	8270
Hexachlorobutadiene	8270
Hexachloroethane	8270
Hexachloropentadiene	8270
cyclo-Hexanone	8260B
2-Hexanone	8260B
Isobutanol	8260B or DAI
Methanol	DAI
Methylene chloride	8260B
4-Methyl-2-pentanone	8260B

Constituent	Analytical Method
Naphthalene	8270
Nitrobenzene	8270
Pentachlorophenol	8270
Phenol	8270
Pyridine	8270
Styrene	8260B
Tetrachloroethane	8260B
Tetrachloroethylene	8260B
Toluene	8260B
1,1,1-Trichloroethane	8260B
Trichloroethane	8260B
1,1,2-Trichloro-1,2,2-trifluoroethane	8260B
Trichloroethylene	8260B
2,4,5-Trichlorophenol	8270C
2,4,6-Trichlorophenol	8270C
Vinyl acetate	8260B
Vinyl chloride	8260B
Xylenes (total)	8260B
PESTICIDES	
Aldrin	8081A
Chlordane	8081A
2,4-D	8151A
DDT,DDE,DDD	8081A

Constituent	Analytical Method
Dieldrin	8081A
Endrin	8081A
Heptachlor epoxide	8081A
Kepone	8081A
Lindane	8081A
Methoxychlor	8081A
Mirex	8081A
Toxaphene	8081A
2,4,5-TP	8151A
METALS	
Aluminum	6010B
Antimony	6010B
Arsenic	6020
Barium	6010
Beryllium	6010
Boron	6010
Cadmium	6010
Calcium	6010
Chloride	300
Chromium	6010
Cobalt	6010
Copper	6010
Iron	6010
Lead	6020

Constituent	Analytical Method
Magnesium	6010
Manganese	6010
Mercury	7470A
Molybdenum	6010
Nickel	6010
Potassium	6010
Selenium	6020
Silicon	6010
Silver	6010
Sodium	6010
Sulfate	300
Thallium	6010
Vanadium	6010
Zinc	6010

ATTACHMENT C—FIVE-YEAR COCS (CLASS II WMUS)

Constituent	Analytical Method
Sulfide (Total)	SM 4500
Tin	6010/200.7
Volatile Organic Compounds – full list *(See **Attachment D**)*	8260B
Semi-Volatile Organic Compounds *(See **Attachment E**)*	8270C
Organochlorine Pesticides *(See **Attachment F**)*	8081A
Chlorinated Herbicides *(See **Attachment G**)*	8151A
Organophosphorus Pesticides *(See **Attachment H**)*	8141A

ATTACHMENT D—VOLATILE ORGANIC COMPOUNDS, EXTENDED LIST FIVE-YEAR COCS (CLASS II)

USEPA Method 8260,
Extended List

Volatile Organic Compound
Acetone
Acetonitrile (Methyl cyanide)
Acrolein
Acrylonitrile
Allyl chloride (3 Chloropropene)
Benzene
Bromochloromethane (Chlorobromomethane)
Bromodichloromethane (Dibromochloromethane)
Bromoform (Tribromomethane)
Carbon disulfide
Carbon tetrachloride
Chlorobenzene
Chloroethane (Ethyl chloride)
Chloroform (Trichloromethane)
Chloroprene
Dibromochloromethane (Chlorodibromomethane)
1,2 Dibromo 3 chloropropane (DBCP)
1,2 Dibromoethane (Ethylene dibromide; EDB)

Volatile Organic Compound
o Dichlorobenzene (1,2 Dichlorobenzene)
m Dichlorobenzene(1,3 Dichlorobenzene)
p Dichlorobenzene (1,4 Dichlorobenzene)
trans 1,4 Dichloro 2 butene
Dichlorodifluoromethane (CFC 12)
1,1 Dichloroethane (Ethylidene chloride)
1,2 Dichloroethane (Ethylene dichloride)
1,1 Dichloroethylene (1, l Dichloroethene; Vinylidene chloride)
cis l ,2 Dichloroethylene (cis 1,2 Dichloroethene)
trans l ,2 Dichloroethylene (trans 1,2 Dichloroethene)
1,2 Dichloropropane (Propylene dichloride)
1,3 Dichloropropane (Trimethylene dichloride)
2,2 Dichloropropane (Isopropylidene chloride)
1,1 Dichloropropene
cis 1,3 Dichloropropene
trans l ,3 Dichloropropene
Di-isopropylether (DIPE)
Ethanol
Ethyltertiary butyl ether
Ethylbenzene
Ethyl methacrylate

Volatile Organic Compound
Hexachlorobutadiene
2 Hexanone (Methyl butyl ketone)
Isobutyl alcohol
Methacrylonitrile
Methyl bromide (Bromomethane)
Methyl chloride (Chloromethane)
Methyl ethyl ketone (MEK; 2 Butanone)
Methyl iodide (Iodomethane)
Methyl t-butyl ether
Methyl methacrylate
4 Methyl 2 pentanone (Methyl isobutyl ketone)
Methylene bromide (Dibromomethane)
Methylene chloride (Dichloromethane)
Naphthalene
Propionitrile (Ethyl cyanide)
Styrene
Tertiary amyl methyl ether
Tertiary butyl alcohol
1,1,1,2 Tetrachloroethane
1,1,2,2 Tetrachloroethane
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene; PCE)

Volatile Organic Compound
Toluene
1,2,4 Trichlorobenzene
1,1,1 Trichloroethane (Methylchloroform)
1,1,2 Trichloroethane
Trichloroethylene (Trichloroethene; TCE)
Trichlorofluoromethane (CFC 11)
1,2,3 Trichloropropane
Vinyl acetate
Vinyl chloride (Chloroethene)
Xylene (total)

ATTACHMENT E—SEMI-VOLATILE ORGANIC COMPOUNDS FIVE-YEAR COCS (CLASS II)

USEPA Methods 8270C or 8270D Base, Neutral & Acids Extractables List

Constituent
Acenaphthene
Acenaphthylene
Acetophenone
2 Acetylaminofluorene (2 AAF)
Aldrin
4 Aminobiphenyl
Anthracene
Benzo[a]anthracene (Benzanthracene)
Benzo[b]fluoranthene
Benzo[k]fluoranthene
Benzo[g,h,i]perylene
Benzo[a]pyrene
Benzyl alcohol
Bis(2 ethylhexyl) phthalate
alpha BHC
beta BHC
delta BHC
gamma BHC (Lindane)

Constituent
Bis(2 chloroethoxy) methane
Bis(2 chloroethyl) ether (Dichloroethyl ether)
Bis(2 chloro 1 methyethyl) ether (Bis(2 chloroisopropyl) ether; DCIP)
4 Bromophenyl phenyl ether
Butyl benzyl phthalate (Benzyl butyl phthalate)
Chlordane
p Chloroaniline
Chlorobenzilate
p Chloro m cresol (4 Chloro 3 methylphenol)
2 Chloronaphthalene
2 Chlorophenol
4 Chlorophenyl phenyl ether
Chrysene
o Cresol (2 methylphenol)
m Cresol (3 methylphenol)
p Cresol (4 methylphenol)
4,4' DDD
4,4' DDE
4,4' DDT
Diallate
Dibenz[a,h]anthracene

Constituent
Dibenzofuran
Di n butyl phthalate
3,3' Dichlorobenzidine
2,4 Dichlorophenol
2,6 Dichlorophenol
Dieldrin
Diethyl phthalate
p (Dimethylamino) azobenzene
7,12 Dimethylbenz[a]anthracene
3,3' Dimethylbenzidine
2,4 Dimehtylphenol (m Xylenol)
Dimethyl phthalate
m Dinitrobenzene
4,6 Dinitro o cresol (4,6 Dinitro 2 methylphenol)
2,4 Dinitrophenol
2,4 Dinitrotoluene
2,6 Dinitrotoluene
Di n octyl phthalate
Diphenylamine
Endosulfan I
Endosulfan II

Constituent
Endosulfan sulfate
Endrin
Endrin aldehyde
Ethyl methanesulfonate
Famphur
Fluoranthene
Fluorene
Heptachlor
Heptachlor epoxide
Hexachlorobenzene
Hexachlorocyclopentadiene
Hexachloroethane
Hexachloropropene
Indeno(1,2,3 c,d) pyrene
Isodrin
Isophorone
Isosafrole
Kepone
Methapyrilene
Methoxychlor
3 Methylcholanthrene

Constituent
Methyl methanesulfonate
2 Methylnaphthalene
1,4 Naphthoquinone
1 Naphthylamine
2 Naphthylamine
o Nitroaniline (2 Nitroaniline)
m Nitroaniline (3 Nitroaniline)
p Nitroaniline (4 Nitroaniline)
Nitrobenzene
o Nitrophenol (2 Nitrophenol)
p Nitrophenol (4 Nitrophenol)
N Nitrosodi n butylamine (Di n butylnitrosamine)
N Nitrosodiethylamine (Diethylnitrosamine)
N Nitrosodimethylamine (Dimethylnitrosamine)
N Nitrosodiphenylamine (Diphenylnitrosamine)
N Nitrosodipropylamine (N Nitroso N dipropylamine; Di n propylnitrosamine)
N Nitrosomethylethylamine (Methylethylnitrosamine)
N Nitrosopiperidine
N Nitrosospyrrolidine
5 Nitro o toluidine
Pentachlorobenzene

Constituent
Pentachloronitrobenzene (PCNB)
Pentachlorophenol
Phenacetin
Phenanthrene
Phenol
p Phenylenediamine
Polychlorinated biphenyls (PCBs; Aroclors)
Pronamide
Pyrene
Safrole
1,2,4,5 Tetrachlorobenzene
2,3,4,6 Tetrachlorophenol
o Toluidine
Toxaphene
2,4,5 Trichlorophenol
0,0,0 Triethyl phosphorothioate
sym Trinitrobenzene

ATTACHMENT F—ORGANOCHLORINE PESTICIDES

FIVE-YEAR COCS (CLASS II)

USPEA Method 8081A List

Constituent
alpha-BHC
beta-BHC
delta-BHC
gamma-BHC (Lindane)
Heptachlor
Heptachlor epoxide
Endosulfan I
Dieldrin
4,4'-DDE
Endrin
Endosulfan II
4,4'-DDD
Endosulfan sulfate
4,4'-DDT
Methoxychlor
Endrin ketone
Endrin aldehyde
alpha-Chlordane

Constituent
gamma-Chlordane
Toxaphene
Aroclor-1016
Aroclor-1221
Aroclor-1232
Aroclor-1242
Aroclor-1248
Aroclor-1254
Aroclor-1260

ATTACHMENT G—CHLORINATED HERBICIDES FIVE YEAR COCS (CLASS II)

USPEA Method 8151A List

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

ATTACHMENT H—ORGANOPHOSPHOROUS PESTICIDES FIVE YEAR COCS (CLASS II)

USEPA Method 8141B List

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