

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD—
LOS ANGELES REGION

CENTRE PLAZA DRIVE

...INTEREY PARK, CA 91754-2156

266-7500



November 15, 1993

Mr. John Gulledge
County Sanitation Districts
of Los Angeles County
P.O. Box 4998
Whittier, CA 90607-4998

**WASTE DISCHARGE REQUIREMENTS, EASTERN CANYONS EXPANSION -PUENTE
HILLS LANDFILL, UNINCORPORATED LOS ANGELES COUNTY (FILE NO. 57-220)**


Reference is made to our letter dated October 13, 1993, which transmitted a copy of revised tentative waste discharge requirements for your proposed discharge in the Eastern Canyons.

Pursuant to Section 13263 of the California Water Code, this Regional Board, at a public meeting held on November 1, 1993, reviewed the revised tentative Order, considered all factors in the case, and adopted Order No. 93-070 and Monitoring and Reporting Program CI No. 7336 (copy attached) relative to the discharge. We are also enclosing a revised Monitoring and Reporting Program CI No. 2294 (Order No. 90-046) for Main Canyon and Canyon 9, which parallels the requirements for the Eastern Canyons.

Please reference all technical and monitoring reports to the corresponding Compliance File numbers (CI 7336 and CI 2294). We would appreciate it if you would not combine other reports, such as progress or technical reports, with your monitoring reports, but would submit each report as a separate document.

In addition, we have no objections to your August 1993 workplan (submitted as an addendum document to your report of waste discharge) for installation of low permeability test pads to determine if onsite geologic materials are suitable as liner and final cover components.

Should you have any questions, please contact Blythe Ponek-Bacharowski at (213) 266-7580.


RODNEY H. NELSON
Senior Engineering Geologist
Landfills Unit

enclosures
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94-1032

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STATE OF CALIFORNIA
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PUENTE HILLS LANDFILL
MAILING LIST

The California Regional Water Quality Control Board, Los Angeles
Region I/II

The County Sanitation Districts of Los Angeles County
(hereinafter "discharger") operates the Puente Hills Landfill,
a 125-acre, Class III waste management facility located at
2600 Workman Hill Road, in an unincorporated area of Los
Angeles County.

Current permitted fill operations at the waste management
facility encompass approximately 100 of the 125 acres and are
the subject of Waste Discharge Requirements (WDRs) adopted by
this Regional Board in Order No. 93-014 (Monitoring and
Reporting Program 1994) adopted on March 24, 1993, and
subsequently amended by Order No. 93-015 on March 17, 1993.

On July 10, 1993, the Los Angeles County Board of Supervisors
issued Conditional Use Permit Case No. 93-256 (4) for the
discharger which provides for the lateral and vertical
expansion of the waste management facility for 10 years or
upon completion of the approved fill design, whichever is
earlier. The approved fill design allows placement of
approximately 27 million tons of refuse over the existing 500-
acre waste management facility and encompasses 100-acre
portion of the Eastern Canyon area, in portions of Canyons 3,
4, 5, and adjoining ridges, as shown on Attachment "A" which
is incorporated herein and made part of this Order.

In associated Conditional Use Permit and Oak Tree Permit No.
93-257 (4), the discharger has been authorized to establish a
Historic Recovery and Hill Loading facility on 27 acres of
land located on the west side of the waste management facility
property adjacent to Workman Hill Road.

Revised October 15, 1993

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

MONITORING AND REPORTING PROGRAM NO. 2294
FOR
COUNTY SANITATION DISTRICTS OF LOS ANGELES COUNTY
(Puente Hills Landfill - Main Canyon and Canyon 9)

(File No. 57-220)

I. GENERAL REPORTING REQUIREMENTS

- A. The discharger shall implement this Monitoring and Reporting Program beginning 60 days from the date of this Program. Monitoring reports shall be submitted to the Regional Board monthly, due 45 days from the last day of the month of the monitoring period. Subsequent to receipt of any reports required by this Monitoring and Reporting Program, it shall be revised accordingly.
- B. The discharger shall submit all monitoring data in hard copy form and also on computer diskette (5-1/4 inch, 360 or 1200 kilobytes, or 3-1/2 inch, 1.44 or 2.01 megabyte). The monitoring data submitted on diskette should be in ASCII format, and presented in a cumulative, updated form with each submittal. Monitoring data submitted in hard copy form should be in discrete, noncumulative form.
- C. All chemical, bacteriological, and toxicity analyses shall be conducted at a laboratory certified for such analyses by the State Department of Health Services Environmental Laboratory Accreditation Program, or approved by the Executive Officer. Laboratory analyses must follow methods approved by the United States Environmental Protection Agency, and the laboratory must meet EPA Quality Assurance/Quality Control criteria.
- D. For any analyses performed for which no procedures are specified in the EPA guidelines or in this Monitoring Program, the constituent or parameter analyzed, and the method or procedure used, must be specified in the report.
- E. The discharger may submit additional data to the Regional Board not required by this program in order to simplify reporting to other regulatory agencies.
- F. Quarterly monitoring shall be performed during the months of March, June, September and December. Annual monitoring shall be performed during the month of September. In the event monitoring is not performed as above because of unforeseen circumstances, substitute monitoring shall be performed as soon as possible after these times, and the reason for the delay shall also be given.

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- G. This Monitoring and Reporting Program includes the attached "General Monitoring and Reporting Provisions". If there is any conflict between provisions stated herein and the "General Monitoring and Reporting Provisions", these provisions stated herein will prevail.
- H. Where the units for a parameter are listed as $\mu\text{g/L}$ (ppb), suitable analytical techniques shall be used to achieve this precision. All method detection limits shall be below the current Maximum Contaminant Levels (MCLs) promulgated by the California Department of Health Services, or the minimum limit of detection specified in EPA Methods or Appendix A, 40 CFR 136, if the MCL is not achievable.
- I. Analytical data reported as "less than ..." shall be reported as less than a numeric value, or below the limit of detection for that particular analytical method (also give the limit of detection).
- J. All analytical samples obtained for this Program shall be grab samples.
- K. If the discharger performs analyses for any parameter more frequently than required by this program using approved analytical methods, the results of those analyses shall be included in the monitoring report.
- L. The waste-load-checking program currently being implemented at the waste management shall remain in effect. The results of the waste-load-checking program shall be reported in each monitoring report. In the event that hazardous wastes or other unacceptable materials are detected, the type, source, and disposition of those wastes shall also be reported.
- M. The discharger shall retain records of all monitoring information, including all calibration and maintenance records regarding monitoring instrumentation, and copies of all data submitted to regulatory agencies for a period of at least five years. This period may be extended by request of the Regional Board at any time, and shall be extended during the course of any unresolved litigation regarding all or any part of the entire waste management facility.

N. Records of monitoring information shall include:

1. The date, exact place, procedure, and time of sampling or measurement;
 2. The individual(s) who performed the sampling or measurement;
 3. The date(s) analyses were performed on the samples;
 4. The individual(s) who performed the analyses;
 5. The analytical techniques or methods used; and
 6. The results of the analyses or measurements.
- O. The discharger shall comply with the attached "Standard Provisions Implementing Subtitle D" (Standard Provisions) in determining and reporting if a statistically significant increase is observed for any Constituent of Concern (COC).
- P. For any monitored waste parameter which is listed as such by the EPA or by the State of California, the discharger shall compare such data to the most stringent allowable concentrations under all existing Federal and State regulations.
- Q. The discharger shall comply with the Standard Provisions in establishing an evaluation monitoring program and a corrective action program, should a statistically significant increase be observed for any COC.

II. WASTE DISPOSAL REPORTING REQUIREMENTS

- A. The first report to the Regional Board shall include a map of the site, and shall indicate the area(s) where disposal is taking place or will begin. This map shall be updated monthly, and summarized and submitted with the annual report due March 1. If a new area is landfilled, it shall be identified in the corresponding monthly report.
- B. A waste disposal report containing the following information shall be filed with this Regional Board each month:
1. A tabular list of the estimated average monthly quantities (in cubic yards and tons) and types of materials (including dewatered sewage sludge) deposited each month.

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2. An estimate of the remaining capacity (in cubic yards and tons), and the remaining life of the site in years and months.
 3. A certification that all wastes deposited were deposited in compliance with the Regional Board's requirements, and that no wastes were deposited outside of the boundaries of the waste management area as specified in the Regional Board's requirements.
 4. A description of the location and an estimate of the seepage rate or flow of all known seeps and springs at the site.
 5. The estimated amount of water used at the waste management area for landscape irrigation, compaction, dust control etc., during the month. (If a source other than drinking water is used, the sources and amounts of water from each source shall also be reported.)
 6. Quantities of liquid pumped from the leachate monitoring sumps and/or extraction wells, including dates of removal, and the ultimate point of disposal, if other than an onsite leachate treatment plant. If no liquid was detected or pumped during the reporting period, a statement to that effect shall be submitted.
- C. In addition to reporting the quantity of dewatered sewage sludge deposited each month as noted in IIB above, quarterly samples of incoming sludge shall be obtained and analyzed as follows:
1. A time-composite sludge sample shall be collected during a 24-hour period. The composite sample will consist of 12 subsamples taken at two-hour intervals. The subsamples shall be mixed as completely as possible into a single sample. The total percent solids of the sample shall be reported.
 2. An extraction solution of the sludge shall be prepared for analyses using the Waste Extraction Test (WET) Method as contained in Title 22, California Code of Regulations, Section 66261.24, Appendix II (Title 22). All testing shall be done on 48-hour extracts. The extracts shall be analyzed for Soluble Threshold Limit Concentration (STLC)

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for the following metals: aluminum, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, molybdenum, nickel, selenium, silver, thallium, tin, vanadium, and zinc.

3. The digested sludge itself shall also be analyzed semi-annually for the following parameters: polychlorinated biphenyls (PCBs), trichloroethylene (TCE), perchloroethylene (PCE), carbon tetrachloride, DDT, DDE, DDD, Endrin, Lindane, Methoxychlor, Toxaphene, 2,4-D and 2,4,5-TP (Silvex).
 4. These results shall be reported in the corresponding monthly report.
 5. Paragraph IK above applies to sludge analyses in the event that the discharger performs more monitoring than required.
- D. Treated municipal solid waste incinerator ash shall be tested quarterly and reported using the following schedule:
1. Analyses shall be made on composite samples collected either over a four-hour period (or longer) or using ASTM Procedure C172-85 (Sampling Freshly Mixed Concrete) to ensure a sample representative of the waste stream. Other sampling procedures may be used with written approval from the Executive Officer.
 2. An extraction solution of the treated incinerator ash shall be prepared for analyses using the WET Method as described in Title 22. All testing shall be done on 48-hour extracts. The extracts shall be analyzed for STLC for the following metals: cadmium, copper, lead and zinc.
 3. The discharger shall tabulate and report the quantity of treated incinerator ash deposited each calendar month and the number of loads (in tons) deposited from the Commerce Refuse-to-Energy Facility (CREF) and the Southeast Resource Recovery Facility (SERRF) in Long Beach. The treated incinerator ash shall be discharged and reported at the Puente Hills Landfill as nonhazardous solid waste.

- E. The discharger shall report all unacceptable (to this site) wastes inadvertently received at this site and their disposition. The following details shall be included:
1. The source (if known), including the hauler, of the unacceptable wastes and date received and/or discovered.
 2. Identification of waste (if known) and the amount of waste.
 3. The name and address of the hauler who removed the waste from this site.
 4. The ultimate point of disposal for the waste.
 5. The discharger's actions to prevent recurrence of the attempted depositing of unacceptable wastes by this source or individual (if applicable).

If no unacceptable wastes were received (or discovered) during the month, the report shall so state.

III. GROUND WATER MONITORING

A. Provisions and General Requirements

1. For the purposes of this Program, the terms "Monitoring Well", "Extraction Well", "Observation Well", "Piezometer", and "Sump" are synonymous.
2. The ground water monitoring program must be carried out during the active life of this waste management facility, during the closure and postclosure maintenance, and during any interim periods when no wastes are deposited at the waste management facility.
3. Analytical results for ground water monitoring shall be submitted with the corresponding monthly waste disposal report. If a well was not sampled (or measured) during the reporting period, the reason for the omission shall be given. If no fluid was detected in a monitoring well, a statement to that effect (in lieu of analyses) shall be submitted.

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4. Monthly observations and measurements of the static water levels shall be made on all monitoring wells, and records of such observations shall be submitted with the monthly reports. All monitoring wells shall be sounded each September to determine total depth. Wells affected by pumping shall be measured prior to pumping insofar as is possible.
5. Duplicate samples shall be taken for all metals analyses. Unfiltered samples shall be tested for total metals, and field-filtered samples (.45 microns) shall be tested for dissolved metals. Both samples must be preserved with nitric acid; however, care shall be taken that the dissolved metals samples are not exposed to acids until after filtering.
6. No filtering of samples taken for VOC's analyses shall be permitted.
7. The velocity and direction of ground water flow under the waste management facility shall be determined quarterly for the first year and every third quarter thereafter. In the case where this cannot be determined with meaningful results, a statement to the nature of the ground water flow and general flow characteristic will suffice. ("Third" means the July-to-September quarter.)
8. Pumping data regarding fluid pumped from each well (other than for analytical samples) shall be reported to the Regional Board each month in the monthly waste disposal report and shall include:
 - a. Date and quantity of fluid pumped, and the method of disposal or reuse purpose, if reused.
 - b. If no fluid was pumped during the month from any monitoring well, a statement to that effect shall be submitted.

B. Monitoring Well Network

The following shall constitute the ground water monitoring network for this waste management facility:

Well Identification By Area

<u>Barrier One</u>	<u>Barrier Two</u>	<u>Barrier 3</u>	<u>Lysimeters</u>
MW4	M24A	M31A	L-2 (West)
MW5	M27B	M32B	L-3 (West)
RMW6	M28A	M33A	L-5 (East)
MW10	M29B	M34B	
	M30B		

Within 60 days following the date of this Program, the discharger shall submit a technical report which justifies the adequacy of the existing ground water monitoring network to detect any release from the waste management facility. In addition, within 60 days following the date of this Program, the discharger shall submit a workplan, acceptable to the Executive Officer to evaluate background water quality in the vicinity of the waste management facility. The workplan shall contain design specifications, proposed locations, and supporting rationale for monitoring wells, or alternative methods. The proposed monitoring wells will be used to obtain ground water samples representative of water quality equivalent to conditions anticipated to be naturally occurring at the downgradient boundaries of the waste management facility. The workplan shall also include a schedule for implementation within 60 days after approval by the Executive Officer.

C. Sampling and Analyses

1. Routine quarterly sampling and analyses shall consist of the following conventional parameters:

<u>Parameters</u>	<u>Units</u>
pH ^[1]	pH Units
Electrical conductivity	μmhos/cm
BOD ₅ 20°C	mg/L
COD	mg/L
Total dissolved solids (TDS)	mg/L
Boron	mg/L
Alkalinity ^[1]	mg/L
Ammonia (as N)	mg/L
Bicarbonate (HCO ₂)	mg/L
Calcium	mg/L
Chloride	mg/L
Iron (total and dissolved)	mg/L
Total hardness (as CaCO ₃)	mg/L
CO ₂ ^[1]	mg/L
Fluoride	mg/L
Sulfate	mg/L
Sodium	mg/L
Potassium	mg/L
Nitrate (as N)	mg/L
Total organic carbon	mg/L
Total organic halogens	μg/L

[1] Although field determination is the preferred procedure for pH determination in the presence of dissolved carbon dioxide, pH may be determined in the laboratory if the total elapsed time between sampling and testing is less than 6 hours, and the sample is properly sealed during transit. Each report shall certify that these conditions were met if laboratory determination of these parameters was done in lieu of field determination.

2. Routine quarterly sampling and analyses shall consist of the following Constituents of Concern (COCs):

See Attachment I, "Appendix I and Appendix II Constituents". After one year of quarterly monitoring, the Regional Board shall re-evaluate the frequency of monitoring these constituents.

IV. BARRIER EXTRACTION WELL MONITORING

A. Provisions

1. The extraction well monitoring program must be carried out during the active life of this waste management facility and during the closure and postclosure maintenance periods.

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2. Analytical results for the extraction well monitoring shall be submitted with the corresponding monthly waste disposal report. If all wells are dry and samples cannot be obtained, the report shall so state.
3. Provisions A-5, A-6, and A-8 of the Ground Water Monitoring section above shall be applicable to this section insofar as is possible.

B. Sampling and Analyses

1. Upon completion of all future proposed extraction well systems, the following monitoring program shall apply:

<u>Parameter</u>	<u>Units of Analysis</u>	<u>Minimum Frequency</u>
Flow	gpd	quarterly
pH	units	quarterly
BOD ₅ 20°C	mg/L	quarterly
COD	mg/L	quarterly
TDS	mg/L	quarterly
Chloride	mg/L	quarterly
Sulfate	mg/L	quarterly

2. The leachate collection and removal system (LCRS) shall be sampled quarterly at all barriers. These samples shall be analyzed for those COCs listed on Attachment I, "Appendix I and Appendix II Constituents". After one year of quarterly monitoring, the Regional Board shall re-evaluate the frequency of monitoring these constituents.

V. MONITORING OF EXTRACTED WASTEWATER PROPOSED FOR USE ONSITE

A. Provisions

1. If extracted wastewater from monitoring wells or barriers is not proposed for reuse onsite, the remainder of this monitoring program shall not apply to the Puente Hills Landfill.
2. If extracted water is at any time proposed for reuse onsite, the remainder of this monitoring program must be carried out during the active life of this waste management facility, during the closure and postclosure maintenance periods, and during periods when no waste is being deposited at the site.

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3. Analytical results for extracted wastewater monitoring shall be submitted with the corresponding monthly waste disposal report. If a wastewater source was not sampled or measured during a reporting period, a reason for the omission shall be given. If a wastewater source was not used during a reporting period, a statement to that effect shall be submitted.

B. Sampling and Analyses

1. A sampling station shall be established where representative samples of each wastewater source can be obtained. Water samples shall be obtained at a sampling station prior to being mixed with other sources of water.
2. Metals analyses shall be conducted for both total and dissolved metal concentrations.
3. The following shall constitute the monitoring program for the onsite use of extracted wastewater:

<u>Parameter</u>	<u>Units</u>	<u>Minimum Frequency of Analyses</u>
Flow ^[1]	gpd	daily
pH	units	quarterly
COD	mg/L	quarterly
Nitrate(as N)	mg/L	quarterly
Oil and grease	mg/L	quarterly
BNA ^[2]	mg/L	quarterly
Heavy metals ^[3]	mg/L	quarterly
Purgeable organics ^[4]	mg/L	quarterly
<u>Radioactivity</u>		
Gross Alpha particle activity ^[5]	pCi/L	annually
Gross Beta particle activity	pCi/L	annually

[1] Total daily and monthly volume of wastewater used shall be reported. In the event that the wastewater is commingled with other water, the volume of water from each source, and the total water used, shall be reported.

[2] BNA shall include all base/neutral compounds and acid extractable organic priority pollutant compounds. If these parameters are monitored on influent samples of onsite use waters, monitoring of wastewater samples for these parameters will not be required.

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[3] Heavy metals shall include the sample analyses results of the following metals: arsenic, barium, cadmium, chromium, copper, iron, lead, manganese, mercury, nickel, selenium, silver and zinc. Concentrations for each parameter shall be reported. If these parameters are monitored on influent samples of onsite use waters, monitoring of wastewater samples for these parameters will not be required.

[4] Purgeable organic compounds shall include all purgeable priority pollutants, plus acetone and 2-butanone.

[5] If gross alpha particle activity exceeds 5 pico Curies per liter (pCi/L), measurement for radium-226 shall be made. If radium-226 exceeds 3 pCi/L, measurement for radium-228 shall be made.

4. Once each year, during the month of September, all extracted wastewater proposed for onsite use shall be sampled and analyzed for the COCs listed on Attachment I, "Appendix I and Appendix II Constituents". Duplication of analyses of parameters in V.B.3 is not necessary.

C. Reporting of Extracted Wastewater Used Onsite

1. At least 30 days prior to the discharger's onsite use of extracted wastewater, a technical report must be submitted for the Executive Officer's approval concerning the complete description of each existing and/or proposed extracted wastewater sampling station together with the data to support the conclusion that the proposed station will provide samples representative of the entire flow from that source.
2. Each monitoring report shall include:
 - a. A statement that, during the reporting period, all extracted wastewater was used only as specified, and for the uses specified, in the waste discharge requirements.
 - b. Approximate acreage receiving extracted wastewater for irrigation (if any).
 - c. Analytical results for extracted wastewater, submitted with the corresponding monthly report. If a wastewater source was not sampled or measured during the reporting period, the reason for the omission shall be given. If no wastewater was extracted or used from a source, a statement to that effect shall be provided in lieu of analyses.

COUNTY SANITATION DISTRICTS
OF LOS ANGELES COUNTY
PUENTE HILLS LANDFILL
(MAIN CANYON AND CANYON 9)
Monitoring and Reporting Program
CI No. 2294

Order No. 90-046

- d. Records of operational problems, mechanical breakdowns, and diversions to emergency storage or disposal associated with any violation, or potential violations of waste discharge requirements.
 - e. Any corrective actions taken.
3. If all or a portion of the extracted wastewater was not reused because of a failure to meet the limits specified in the waste discharge requirements, the report shall so state and identify the disposition of the wastewater.

Ordered By:

Robert P. Ghirelli
ROBERT P. GHIRELLI, D.Env.
Executive Officer

Date:

November 1, 1993

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

GENERAL MONITORING AND REPORTING PROVISIONS

1. All sampling, sample preservation, and analyses shall be performed in accordance with the latest edition of "Guidelines Establishing Test Procedures for Analysis of Pollutants", promulgated by the United States Environmental Protection Agency.
2. All chemical, bacteriological, and bioassay analyses shall be conducted at a laboratory certified for such analyses by the State Department of Health.
3. Effluent samples shall be taken downstream of any addition to the treatment works, prior to mixing with receiving waters.
4. The discharger shall calibrate and perform maintenance procedures on all monitoring equipment to ensure accuracy of measurements, or shall ensure that both activities will be conducted.
5. A grab sample is defined as an individual sample collected in fewer than 15 minutes.
6. A composite sample is defined as a combination of no fewer than eight individual samples obtained over the specified sampling period. The volume of each individual sample is proportional to the discharge flow rate at the time of sampling. The sampling period shall equal the discharge period, or 24 hours, whichever period is shorter.
7. For every item where the requirements are not met, the discharger shall submit a statement of the actions undertaken or proposed which will bring the discharge into full compliance with requirements at the earliest time and submit a timetable for correction.
8. By January 30 of each year, the discharger shall submit an annual report to the Board. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year. In addition, the discharger shall discuss the compliance record and the corrective actions taken, or planned, which may be needed to bring the discharge into full compliance with the waste discharge requirements.
9. The discharger shall maintain all sampling and analytical results, including strip charts; date, exact place, and time of sampling; date analyses were performed; analyst's name, analytical techniques used; and results of all analyses. Such records shall be retained for a minimum of three years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge of when requested by the Board.

10. In reporting the monitoring data, the discharger shall arrange the data in tabular form so that the data, the constituents, and the concentrations are readily discernible. The data shall be summarized to demonstrate compliance with waste discharge requirements and, where applicable, shall include results of receiving water observations.

11. Monitoring reports shall be signed by:
- a. In the case of corporations, by a principal executive officer at least of the level of vice-president or his duly authorized representative, if such representative is responsible for the overall operation of the facility from which the discharge originates;
 - b. In the case of a partnership, by a general partner;
 - c. In the case of a sole proprietorship, by the proprietor;
 - d. In the case of a municipal, state or other public facility, by either a principal executive officer, ranking elected official, or other duly authorized employee.

12. Each report shall contain the following completed declaration:

"I declare under penalty of perjury that the foregoing is true correct.

Executed on the _____ day of _____ at _____.

_____ (Signature)

_____ (Title)"

13. The discharger shall mail a copy of each monitoring report to the following:

California Regional Water Quality Control Board
Los Angeles Region
101 Centre Plaza Drive
Monterey Park, CA 91754-2156

ATTN: Technical Support Unit

14. If no flow occurred (or no waste was deposited) during the reporting period, the report shall so state.

15. These records and reports are public documents and shall be made available for inspection during business hours at the office of the California Regional Water Quality Control Board, Los Angeles Region. Records or reports which might disclose trade secrets, etc., may be excluded from this provision as provided in Section 13267 (b) of the Porter-Cologne Water Quality Control Act, if requested.

**CHAPTER 15 PROGRAM NOTE #7:
SUGGESTED LABORATORY METHODS
FOR ANALYZING APPENDIX I AND
APPENDIX II CONSTITUENTS**

August 2, 1993

The State Water Resources Control Board's Resolution No. 93-62 (Policy) was approved by the Office of Administrative Law and became effective on July 28, 1993. The Policy directs Regional Water Boards to implement the USEPA's municipal solid waste landfill regulations (40 CFR Part 258, "federal MSW regulations") throughout the state by revising the the waste discharge requirements (WDRs) of all dischargers having landfills subject to those regulations. One aspect of the federal MSW regulations that has caused considerable confusion is the requirement to monitor and analyze for certain constituents listed in Appendices I and II to Part 258—Appendix I is a subset of the Appendix II constituents used for monitoring.

Ms. Mae Hoe, principal chemist for the Central Valley Regional Water Board, has compiled the following list of suggested USEPA analytical methods—all are from SW-846—with an eye toward controlling cost by using the least number of methods while at the same time maintaining low detection limits and high reliability. If you have any questions, please telephone Mae Hoe [(916) 255-3034 // CALNET 494-3034].

Inorganics (by USEPA Method)

Barium	6010
Beryllium	6010
Chromium	6010
Cobalt	6010
Copper	6010
Silver	6010
Tin	6010
Vanadium	6010
Zinc	6010
Antimony	7041
Arsenic	7061
Cadmium	7131
Lead	7421
Mercury	7471
Nickel	7520
Selenium	7741
Thallium	7841
Cyanide	9010
Sulfide	9030

Volatile Organics (USEPA Method 8260):

- Acetone
- Acetonitrile (Methyl cyanide)

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

(Volatile Organics, cont.)

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

**Semivolatile Organics (USEPA Method 8270 —
base, neutral, & acid extractables):**

Acenaphthene
Acenaphthylene
Acetophenone
2-Acetylaminofluorene (2-AAF)
Aldrin
4-Aminobiphenyl
Anthracene
Benzo[a]anthracene (Benanthracene)
Benzo[b]fluoranthene
Benzo[k]fluoranthene
Benzo[g,h,i]perylene
Benzo[a]pyrene
Benzyl alcohol
alpha-BHC
beta-BHC
delta-BHC
gamma-BHC (Lindane)
Bis[2-chloroethoxy] methane
Bis[2-chloroethyl] ether (Dichloroethyl ether)
Bis[2-chloro-1-methylethyl] ether (Bis[2-
chloroisopropyl] ether; DCIP)
4-Bromophenyl phenyl ether
Butyl benzyl phthalate (Benzyl butyl phthalate)
Chlordane
p-Chloroaniline
Chlorobenzilate
p-Chloro-m-cresol (4-Chloro-3-methylphenol)
2-Chloronaphthalene
2-Chlorophenol
4-Chlorophenyl phenyl ether
Chrysene
o-Cresol (2-Methylphenol)
m-Cresol (3-Methylphenol)
p-Cresol (4-Methylphenol)
4,4-DDD
4,4-DDE
4,4-DDT
Diallate
Dibenz[a,h]anthracene
Dibenzofuran
Di-n-butyl phthalate
o-Dichlorobenzene (1,2-Dichlorobenzene)
m-Dichlorobenzene (1,3-Dichlorobenzene)
p-Dichlorobenzene (1,4-Dichlorobenzene)
3,3'-Dichlorobenzidine
2,4-Dichlorophenol
2,6-Dichlorophenol

(Semivolatile Organics, cont.)

Dieldrin
 Diethyl phthalate
 p-[Dimethylamino]azobenzene
 3,12-Dimethylbenz[a]anthracene
 3,3-Dimethylbenzidine
 2,4-Dimethylphenol (m-Xylenol)
 Dimethyl phthalate
 m-Dinitrobenzene
 4,6-Dinitro-o-cresol (4,6-Dinitro-2-methylphenol)
 2,4-Dinitrophenol
 2,4-Dinitrotoluene
 2,6-Dinitrotoluene
 Di-n-octyl phthalate
 Diphenylamine
 Endosulfan I
 Endosulfan II
 Endosulfan sulfate
 Endrin
 Endrin aldehyde
 Ethyl methacrylate
 Ethyl methanesulfonate
 Famphur
 Flouranthene
 Flourene
 Heptachlor
 Heptachlor epoxide
 Hexachlorobenzene
 Hexachlorobutadiene
 Hexachlorocyclopentadiene
 Hexachloroethane
 Hexachloropropene
 Indeno[1,2,3-c,d]pyrene
 Isophorone
 Isosafrole
 Kepone
 Methapyrilene
 Methoxychlor
 3-Methylcholanthrene
 Methyl methanesulfonate
 2-Methylnaphthalene
 Naphthalene
 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 (Methylethyl-nitrosamine)
 N-Nitrosopiperidine
 N-Nitrosopyrrolidine
 5-Nitro-o-toluidine
 Pentachlorobenzene
 Pentachloronitrobenzene (PCNB)
 Pentachlorophenol
 Phenacetin
 Phenanthrene
 Phenol
 p-Phenylenediamine
 Polychlorinated biphenyls (PCBs; Aroclors)
 Pronamide
 Pyrene
 Safrole
 1,2,4,5-Tetrachlorobenzene
 2,3,4,6-Tetrachlorophenol
 o-Toluidine
 Toxaphene
 1,2,4-Trichlorobenzene
 2,4,5-Trichlorophenol
 2,4,6-Trichlorophenol
 0,0,0-Triethyl phosphorothioate
 sym-Trinitrobenzene (1,3,4-Trinitrobenzene)

Organophosphorus Compounds (USEPA Method 8141):

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

Chlorinated Herbicides (USEPA Method 8151):

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)

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CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

STANDARD PROVISIONS FOR IMPLEMENTING SUBTITLE D

In order to implement a Municipal Solid Waste Landfill Permit Program that satisfies the requirements of Section 4005 of the Solid Waste Disposal Act (Subtitle D of the Resources Conservation and Recovery Act of 1976), the Regional Board will implement the Federal Subtitle D regulations to the extent that the Subtitle D regulations are more stringent than applicable Title 23 California Code of Regulations, Chapter 15 requirements, as authorized in Section 2510, Chapter 15, and as adopted by State Board Resolution No. 93-62.

- §1 - Definitions
- §2 - 100-Year Floodplain
- §3 - Documenting the Landfill's Existing Footprint
- §4 - MSW Landfills on or Adjoining Wetlands
- §5 - Liquids Acceptance
- §6 - Containment Systems Installed Beyond the Existing Footprint
- §7 - Water Quality Protection Standard
- §8 - Monitoring Parameters
- §9 - Constituents of Concern (COCs) for Landfills Lacking a Functioning LCRS
- §10 - Constituents of Concern (COCs) for Landfills Having a Functioning LCRS
- §11 - Concentration Limits
- §12 - Detection Monitoring Program (DMP) Under Revised Article 5
- §13 - Closure/Post-Closure Plan
- §14 - Deed Notation at MSW Landfills

STANDARD PROVISIONS IMPLEMENTING
SUBTITLE D

§1. DEFINITIONS.

The following terms of art(*) apply to this Order:

- "Affected Persons" means all individuals who either own or occupy land outside the boundaries of the parcel upon which

*Term of art means a word or phrase given a narrow meaning for use within a specific document.

the landfill is located that has been or may be affected by the release of leachate or waste constituents (in gas or liquid phase) from an MSWLF.

- "Background Monitoring Point" means a device (e.g., well) or location (e.g., a specific point along a lakeshore), upgradient or sidegradient from the landfill and assigned by this Order, where water quality samples are taken that are not affected by any release from the landfill and that are used as a basis of comparison against samples taken from downgradient Monitoring Points.
- "Composite liner" means a liner that consists of two or more components, which include a Synthetic Liner in direct and uniform contact with an underlying layer of prepared, low-permeability soil such that the net permeability of the resulting combination is significantly less than would be expected by reference to the permeability of the individual components' layers.
- "Constituents of Concern (COC)" are those constituents which are likely to be in the waste in the MSWLF or which are likely to be derived from waste constituents in the event of a release. The Constituents of Concern are those listed in the Monitoring and Reporting Program for that MSWLF, pursuant to §8(c) of this Order.
- "Existing Footprint" means the portion of land covered by waste discharged to an MSWLF unit. The term includes the area under the active face of the landfill as well as all portions of the landfill unit containing waste that is obscured from view by daily, intermediate, or permanent cover. The term includes only areas covered with waste that is discharged in a manner that is consistent either with past operating practices or with modifications thereof that ensure good

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management of the waste. The term has the same meaning as the area enclosed by the "waste boundaries of an existing MSWLF unit", as used in the definition of the federal term of art "lateral expansion" in 40 CFR §258.2.

- **"Federal Deadline"** means the date listed in 40 CFR §258(j) currently October 9, 1993 when the majority of the provisions in the federal MSW regulations become effective.
- **"Federal MSW regulations"** means the regulations promulgated by the United States Environmental Protection Agency on October 9, 1991 (Title 40, Code of Federal Regulations [CFR], Parts 257 and 258).
- **"Matrix effect"** means any change in the method detection limit or practical quantitation limit for a given analyte as a result of the presence of other constituents—either of natural origin or introduced by man as a result of a release or spill—that are present in the sample of water or soil-pore gas being analyzed.
- **"MDL"**—see **"Method detection limit (MDL)"**
- **"Method detection limit (MDL)"** means the lowest concentration associated with a 99% reliability of a "non-zero" analytical result. The MDL shall reflect the detection capabilities of the specific analytical procedure and equipment used by the laboratory. MDLs reported by the laboratory shall not simply be restated from USEPA analytical method manuals. In relatively interference-free water, laboratory-derived MDLs are expected to closely agree with published USEPA MDLs. If a lab suspects that, due to matrix or other effects, the detection limit for a particular analytical run differs significantly from the laboratory-derived MDL, the results should be flagged accordingly, along with an estimate of the detection limit achieved.
- **"Monitoring Parameters"** means the short list of constituents and parameters used for the majority of monitoring activity at a given MSWLF. The Monitoring Parameters for each MSWLF are listed in §9 of this Order. Monitoring for the short list of Monitoring Parameters constitutes "indirect monitoring", in that the results are used to indicate indirectly the success or failure of adequate containment for the longer list of Constituents of Concern.

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- "Monitoring Point" means a device (e.g., well) or location (e.g., a specific point along a surface waterbody), downgradient from the landfill and that is assigned in this Order, at which samples are collected for the purpose of detecting a release by comparison with samples collected at Background Monitoring Points.
- "MSW" means municipal solid waste.
- "MSW landfill"—for the purpose of this Order, means a Class II or Class III landfill in this region that accepts, or has accepted, municipal solid wastes, and that is subject to regulation under either or both Chapter 15 and the federal MSW regulations.
- "PQL"—see "Practical quantitation limit (PQL)"
- "Practical quantitation limit (PQL)" means the lowest constituent concentration at which a numerical concentration can be assigned with a 99% certainty that its value is within $\pm 10\%$ of the constituent's actual concentration in the sample. The PQL shall reflect the quantitation capabilities of the specific analytical procedure and equipment used by the laboratory. PQLs reported by the laboratory shall not simply be restated from USEPA analytical method manuals. In relatively interference-free water, laboratory-derived PQLs are expected to closely agree with published USEPA PQLs. If the lab suspects that, due to matrix or other effects, the quantitation limit for a particular analytical run differs significantly from the laboratory-derived PQL, the results should be flagged accordingly, along with an estimate of the quantitation limit achieved.
- "Reporting Period" means the duration separating the submittal of a given type of monitoring report from the time the next iteration of that report is scheduled for submittal. Unless otherwise stated, the due date for any given report shall be 30 days after the end of its Reporting Period.
- "Sample size":
 - a. For Monitoring Points, means the number of data points—obtained from a given Monitoring Point during a given Reporting Period—used for carrying out the statistical or non-statistical analysis of a given analyte during a given Reporting Period; or

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- b. For Background Monitoring Points, means the number of new and existing data points collected under Title 23, California Code of Regulations (23CCR) Chapter 15, §2550.7(e)(11 and 12) from all applicable Background Monitoring Points in a given monitored medium—used to collectively represent the background concentration and variability of a given analyte in carrying out statistical or non-statistical analysis of that analyte during a given Reporting Period.
- "Synthetic Liner" means a layer of flexible, man-made material that is installed in accordance with the standard of the industry over an area of land prior to the discharge of waste there.
 - "VOCs" - see "volatile organic compounds (VOCs)"
 - "VOC_{water}" means the composite monitoring parameter encompassing all VOCs that are detectable in less than ten percent of applicable background samples from a monitored water-bearing medium (e.g., the unsaturated zone, the uppermost aquifer, a zone of perched ground water, or a surface water body). This parameter is analyzed via the non-statistical analytical method described elsewhere in this Order to identify a release to waters of the state of VOCs whose presence in background water is detected too infrequently to allow statistical analysis.
 - "Volatile organic compounds (VOCs)" means the suite of organic constituents having a high vapor pressure. The term includes at least the 47 organic constituents listed in Appendix I to 40 CFR Part 258.

§2. 100-YEAR FLOODPLAIN.

The discharger owning or operating an MSWLF that will receive waste on or after the Federal Deadline, and that is located within the floodplain of a 100-year return interval storm shall comply with 40 CFR §§258.11 and 258.16 by doing either of the following:

- A. Report (Floodplain)—The discharger shall submit a report to the Regional Board by the Federal Deadline, that meets the requirements of 40 CFR §258.11 by demonstrating, to the satisfaction of the Regional Board's Executive Officer, that during the flood from a 100-year return interval storm the landfill:

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1. **Flow restriction**—Will not materially restrict the flow of the flood;
 2. **Temporary storage capacity**—Will not materially reduce the temporary water storage capacity of the floodplain; and
 3. **Physical damage**—Will not suffer washout, inundation, or other damage as a result of the flood; or
- B. **Closure absent compliance**—In case the requirements of §(a) of this section are not met to the satisfaction of the Regional Board, the discharger shall close the landfill in accordance with 40 CFR §§258.16 and 258.60, and with Article 8 of Chapter 15.

§3. DOCUMENTING THE LANDFILL'S EXISTING FOOTPRINT.

The discharger owning or operating an MSWLF that will receive waste on or after the Federal Deadline, shall document the Existing Footprint of the waste using photographs and a topographic map, and shall submit a copy of such documentation in the form of a report to the Regional Board, which shall be submitted prior to, or as part of, the first scheduled monitoring report following the Federal Deadline.

§4. MSW LANDFILLS ON OR ADJOINING WETLANDS.

Discharge of municipal solid waste to a wetland as that term is defined in 40 CFR §232.2(r) or to any portion thereof is prohibited, unless the Regional Board finds that the discharger has successfully completed all demonstrations required for such discharge under 40 CFR §258.12(a). Such determination shall be based upon a report containing (a) a copy of the material considered by the U.S. Army Corps of Engineers (Army Corps) in granting a Section 404 Permit for such discharge, (b) each Army Corps response to those submittals, and (c) any additional materials requested by the Regional Board.

§5. LIQUIDS ACCEPTANCE.

The discharge of leachate or landfill gas condensate to an MSWLF is prohibited. As of the Federal Deadline the use of leachate or gas condensate for dust control or irrigation is prohibited unless:

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- A. The landfill gas condensate or leachate is being returned to the landfill that produced it; and
- B. The portion of the landfill to which these materials are discharged is equipped with a containment system meeting the requirements of §6(a)(1 or 3) and(b) of this Order.
- C. The leachate/condensate meets reuse requirements as determined by the Regional Board.

§6. CONTAINMENT SYSTEMS INSTALLED BEYOND THE EXISTING FOOTPRINT.

Discharge prohibition—As of the Federal Deadline, discharges of municipal solid waste to either an MSWLF that has not received waste as of that date, or to any area beyond the Existing Footprint of an MSWLF, are prohibited unless such discharge is to an area equipped with a containment system which is constructed in accordance with the standard of the industry, and which meets the following additional requirements for both liners and leachate collection systems.

A. Standards for liners.

- 1. **Post-Federal Deadline construction**—Except as provided in either §6(a)(3) [for steep sideslopes] or §6(a)(2) [for new discharges to pre-existing liners], after the Federal Deadline, all containment systems shall include a composite liner that consists of an upper synthetic flexible membrane component (Synthetic Liner) and a lower component of soil, and that the Regional Board's Executive Officer agrees meets the following requirements. The composite liner either:

a. Prescriptive Design:

- 1. **Upper component**—Has a Synthetic Liner at least 40-mils thick (or at least 60-mils thick if of high density polyethylene) that is installed in direct and uniform contact with the underlying compacted soil component described in §6(A)(1)(a)2.; and
- 2. **Lower component**—as a layer of compacted soil that is at least two feet thick and that has an hydraulic conductivity of no more than 1×10^{-7} cm/sec (0.1 feet/year); or

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- b. **Alternative design**—Satisfies the performance criteria contained in 40 CFR §§258.40(a)(1) and (c), and satisfies the criteria for an engineered alternative to the above Prescriptive Design [as provided by 23 CCR §2510(b)], where the performance of the alternative composite liner's components, in combination, equal or exceed the waste containment capability of the Prescriptive Design;
- 2. **New discharges to liners constructed prior to the Federal Deadline**—Except as provided in §6(a)(3) [for steep sideslopes], containment systems that will begin to accept municipal solid waste after the Federal Deadline, but which have been constructed prior to the Federal deadline, are not required to meet the provisions of §7(a)(1) if the containment system includes a composite liner meeting the following requirements to the satisfaction of the Regional Board's Executive Officer. The liner must:
 - a. **Prescriptive Design-Feature** as its uppermost component a Synthetic Liner at least 40-mils thick (or at least 60-mils if high density polyethylene) that is installed in direct and uniform contact with the underlying materials: and
 - b. **Performance**—Meet the performance criteria contained in 40 CFR §§258.40(a)(1) and (c);
- 3. **Steep Sideslopes**—Containment systems installed in those portions of an MSWLF where an engineering analysis shows, to the satisfaction of the Regional Board's Executive Officer, that sideslopes are too steep to permit construction of a stable composite liner that meets the prescriptive standards contained in §§6(a)(1 or 2), shall include an alternative liner that, to the satisfaction of the Regional Board's Executive Officer, both meets the performance criteria contained in 40 CFR §§258.40(a)(1) and (c) and either:
 - a. **Composite liner**—Is a composite liner and includes as its uppermost component a Synthetic Liner at least 40-mils thick (or at least 60-mils if high density polyethylene) that is installed in direct and uniform contact with the underlying materials; or
 - b. **Noncomposite liner**—Is not a composite liner, but includes a Synthetic Liner at least 60-mils thick

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(or at least 80-mils if of high density polyethylene) that is installed in direct and uniform contact with the underlying materials.

- B. **Standards for leachate collection**—All liner systems shall include a leachate collection and removal system which, to the satisfaction of the Regional Board's Executive Officer, conveys to a sump [or other appropriate collection area lined in accordance with §6(a)] all leachate reaching the liner, and which does not rely upon unlined or clay-lined areas for such conveyance.

§7. WATER QUALITY PROTECTION STANDARD.

- A. **Monitoring program's beginning date**—Unless the discharger proposes, and the Regional Board approves, an alternative water quality protection standard that meets the requirements of both 23 CCR §2550.2 and 40 CFR §§258.50 et seq., the discharger shall monitor compliance with this Order using a water quality protection standard that is created in accordance with §§B and C of this section. The discharger shall implement the requirements of this section, as follows:

1. **Determination submittal**—Dischargers listed in Section 1 of this Order have until October 9, 1993, to submit a report that demonstrates, to the satisfaction of the Regional Board Executive Officer, that their respective MSWLF is not located within one mile of a drinking water intake, including any well, spring, or surface water intake used for such purpose;
2. **One mile or less**—Unless the Regional Board finds that a landfill is not within one mile of a drinking water intake, the discharger shall submit a monitoring system report by no later than August 9, 1994, that meets the requirements of §§(b) and (c) of this section to the satisfaction of the Regional Board's Executive Officer, and shall implement applicable portions of the water quality monitoring program described in this Order by October 9, 1994;
3. **More than one mile**—For any MSWLF that the Regional Board finds is more than one mile from the closest drinking water intake, the discharger shall submit a monitoring system report by no later than August 9, 1995, that meets the requirements of §§(b) and (c) of this section to the satisfaction of the Regional Board's Executive

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Officer, and shall implement applicable portions of the water quality monitoring program described in this Order by October 9, 1995.

- B. **Concentration Limits**—The Concentration Limit for each Constituent of Concern shall be as determined under §11 of this Order.
- C. **Report required (monitoring system)**—The report required under §(A)(2 or 3) of this section shall:
1. **Identification of ground water bodies**—Identify all distinct bodies of ground water that could be affected in the event of a release from the landfill. This list shall include at least the uppermost aquifer underlying the landfill and any permanent or ephemeral zones of perched water underlying the landfill;
 2. **Monitoring system performance**—Demonstrate that the landfill's existing and proposed monitoring systems satisfy the following requirements:
 - a. **Ground water monitoring system(s)**—The ground water monitoring system for each distinct ground water body identified above must meet the requirements of 40 CFR §258.51(a,c, and d) and 23 CCR §2550.7(b); and
 - b. **Monitoring systems for other media**—Only for dischargers whose waste discharge requirements, as of the effective date of this Order, have not been revised to incorporate the July 1, 1991, revisions to Article 5 of Chapter 15:
 1. **Surface water monitoring system(s)**—An MSWLF in close proximity to any affectable surface water body must meet the requirements of 23 CCR §2550.7(c); and
 2. **Unsaturated zone monitoring system(s)**—An MSWLF overlying an unsaturated zone that can be monitored feasibly must meet the requirements of 23 CCR §2550.7(d);
 3. **Monitoring Points and Background Monitoring Points**—Include a map showing the Monitoring Points and Background Monitoring Points validated under §(b) of this section and showing the Point of Compliance under 23 CCR §2550.5

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(i.e., the downgradient boundary of the unit, with respect to the flow direction of ground water in the uppermost aquifer);

4. **Compliance Period**—Estimate the Compliance Period under 23 CCR §2550.6; and
5. **Constituents of Concern**—Include a list of all Constituents of Concern under §§9 or 10 of this Order.

§8. MONITORING PARAMETERS.

Beginning on the date established under §7(a) of this Order (on October 9 of either 1994 or 1995), the Discharger shall analyze water samples from each water-bearing medium, separately, for the following Monitoring Parameters - unless the Regional Board approves alternative Monitoring Parameters that meet the requirements of both 23 CCR §§2550.0 et seq., and 40 CFR §258.54 and shall test the resulting data using either the statistical and non-statistical methods listed in §12(f) of this Order or alternative methods the Regional Board finds meets the requirements of 23 CCR §2550.7(e)(6-10) and 40 CFR §258.53:

A. **Monitoring Parameters that use statistical methods:**

1. **Metals surrogates** under 40 CFR §258.54(a)(2)—pH, total dissolved solids (TDS), chloride, sulfate, and nitrate-nitrogen;
2. **Each VOC in background**—Each VOC that exceeds its respective MDL in at least ten percent of the samples taken from the Background Monitoring Points for a monitored water-bearing medium (i.e., surface water body, aquifer, perched zone, or soil-pore liquid) during a given Reporting Period; and

B. **Monitoring Parameter that uses non-statistical method**—The composite monitoring parameter "VOC_{water}".

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**§9. CONSTITUENTS OF CONCERN (COCs) FOR LANDFILLS LACKING A
FUNCTIONING LEACHATE COLLECTION AND REMOVAL SYSTEM (LCRS).**

As of the date established under §7(a) of this Order (on October 9 of either 1994 or 1995), for any MSWLF that does not have both a liner and a leachate collection and removal system (LCRS) that produces leachate:

- A. **Known constituents plus Appendix II**—The "COC list" (list of Constituents of Concern required under 23 CCR §2550.3) is hereby revised to include all constituents listed in the waste discharge requirements as of the effective date of this Order, in addition to all constituents listed in Appendix II to 40 CFR Part 258 (Appendix II constituent). The discharger shall monitor all COCs every five years, pursuant to §11(b)(3) of this Order; and
- B. **Background sampling for new constituents**—For each Appendix II constituent that is newly added to the MSWLF's COC list, the discharger shall establish a reference background value by analyzing at least one sample each quarter from each Background Monitoring Point for a period of at least one year, beginning with the date of this Order. Once this reference set of background data is collected, the discharger shall include it as a separate, identified item in the next monitoring report submittal.

**§10. CONSTITUENTS OF CONCERN (COCs) FOR LANDFILLS HAVING A
FUNCTIONING LCRS.**

Beginning on the date established under §7(a) of this Order (on October 9 of either 1994 or 1995), for any MSWLF equipped both with a liner and with a leachate collection and removal system (LCRS) that produces leachate, the discharger shall develop and maintain the Constituent of Concern (under 23 CCR §2550.3, "COC list") as follows.

- A. **Building and augmenting the COC list**—The Constituent of Concern list includes:
 - 1. **Known constituents**—All waste constituents listed in the waste discharge requirements as of the effective date of this Order; and
 - 2. **Ongoing leachate analysis program**—Each constituent listed in Appendix II to 40 CFR Part 258 (Appendix II

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constituent) that is not already a COC for the landfill, and that both:

- a. **October leachate sample and report**—Is detected in a sample of the landfill's leachate which the discharger shall collect during October of each year. The discharger shall report to the Regional Board by no later than January 31 of a given year, the analytical results of the leachate sample taken the previous October, including an identification of all detected Appendix II constituents that are not on the landfill's Constituent of Concern list (non-COCs); and
 - b. **April retest of leachate and report**—Is also detected in a retest leachate sample collected the following April. The discharger need take and analyze this retest sample only in cases where the annual leachate sample, taken the previous October under §(a)(2)(A) of this section, identifies non-COCs. The retest sample shall be analyzed only for the non-COCs detected in the October sample. During any year in which an April leachate retest is carried out, the discharger shall submit a report to the Regional Board, by no later than August 1 of that year, all constituents which must be added to the landfill's COC list as a result of having been detected in both the (previous calendar year's) October sample and in the April retest sample;
- B. Background sampling for new constituents** [23 CCR §2550.7(e)(6)]—For each Appendix II constituent that is newly added to the MSWLF's COC list [pursuant to §(a)(2)(B) of this section], the discharger shall establish a reference background value in each monitored medium by analyzing at least one sample each quarter from each Background Monitoring Point for a period of at least one year following the date the constituent is submitted to the Regional Board as a new COC. Once this reference set of background data is collected, the discharger shall include it as a separate, identified item in the next monitoring report submittal.

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§11. CONCENTRATION LIMITS.

As of the date established under §7(a) of this Order (on October 9 of either 1994 or 1995), the concentration limit for any given Constituent of Concern or Monitoring Parameter in a given monitored medium (e.g., the uppermost aquifer) at an MSWLF shall be as follows, and shall be used as the basis of comparison with data from the Monitoring Points in that monitored medium:

- A. **Background per revised Article 5**—The background value established in the WDRs by the Regional Board for that constituent and medium, pursuant to 23 CCR §§2550.4 and 2550.7(e) (6,7,10, and 11);
- B. **Concurrent background**—The constituent's background value, established anew during each Reporting Period using only data from all samples collected during that Reporting Period from the Background Monitoring Points for that monitored medium. Either:
 - 1. The mean (or median, as appropriate) and standard deviation (or other measure of central tendency, as appropriate) of the constituent's background data; or
 - 2. The constituent's MDL, in cases where less than 10% of the background samples exceed the constituent's MDL; or
- C. **CLGB (Concentration Limit Greater Than Background) option for corrective action**—A concentration limit greater than background, as approved by the Regional Board for use during-or-after corrective action [see 23 CCR §§2550.4(c-i)].

§12. DETECTION MONITORING PROGRAM (DMP) UNDER REVISED ARTICLE 5.

The following detection monitoring program begins on the date established under §7(a) of this Order (on October 9 of either 1994 or 1995), unless and until the Regional Board revises the waste discharger requirements for the landfill to include an alternative detection monitoring program that complies both with the federal MSW regulations and with the most recent revisions to Article 5 of Chapter 15.

- A. **SAMPLING AND ANALYTICAL METHODS**—Sample collection, storage, and analysis shall be performed according to the most recent version of Standard USEPA Methods (USEPA publication "SW-846"), and in accordance with an approved sampling and analysis plan. Water and waste analysis shall be performed by a laboratory approved for these analyses by the State of

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California. Specific methods of analysis must be identified. If methods other than USEPA-approved methods or Standard USEPA Methods are used, the exact methodology must be submitted for review and must be approved by the Regional Board Executive Officer prior to use. The director of the laboratory whose name appears on the certification shall supervise all analytical work in his/her laboratory and shall sign all reports of such work submitted to the Regional Board. All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurements. In addition, the discharger is responsible for seeing that the laboratory analysis of all samples from Monitoring Points and Background Monitoring Points meets the following restrictions:

1. **Method selection**—The methods of analysis and the detection limits used shall be appropriate for the expected concentrations. For detection monitoring of any constituent or parameter that is found in concentrations which produce more than 90% non-numerical determinations (i.e., "trace" or nondetect (ND)) in data from Background Monitoring Points for that medium, the analytical method having the lowest method detection limit (MDL) shall be selected from among those methods which would provide valid results in light of any Matrix Effects involved;
2. **"Trace" results**—Analytical results falling between the MDL and the practical quantitation limit (PQL) shall be reported as "trace", and shall be accompanied both by the (nominal or estimated) MDL and PQL values for that analytical run;
3. **Nominal MDL and PQL**—MDLs and PQLs shall be derived by the laboratory for each analytical procedure, according to State of California laboratory accreditation procedures. These nominal 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. If the lab 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 nominal MDL/PQL values, the results shall be flagged accordingly, along with an estimate of the detection limit and quantitation limit actually achieved;

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4. **QA/QC data**—All QA/QC data shall be reported, along with the sample results to which it applies, including the method, equipment, and analytical detection limits, the recovery rates, an explanation for any recovery rate that is less than 80%, the results of equipment and method blanks, the results of spiked and surrogate samples, the frequency of quality control analysis, and the name of the person(s) performing the analyses. Sample results shall be reported unadjusted for blank results or spike recovery. 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;
5. **Common laboratory contaminants**—Upon receiving written approval from the Executive Officer, an alternative statistical or non-statistical procedure can be used for determining the significance of analytical results for a constituent that is a common laboratory contaminant (e.g., methylene chloride, acetone, diethylhexyl phthalate, and di-n-octyl phthalate) during any given Reporting Period in which QA/QC samples show evidence of laboratory contamination for that constituent. Nevertheless, analytical results involving detection of these analytes in any background or downgradient sample shall be reported and flagged for easy reference by Regional Board staff;
6. **Unknowns**—Unknown chromatographic peaks shall be reported, along with an estimate of the concentration of the unknown analyte. When unknown peaks are encountered, second column or second method confirmation procedures shall be performed to attempt to identify and more accurately quantify the unknown analyte; and
7. **MDL and PQL**—The MDL and PQL shall be determined in accordance with the definitions of those terms in §1 of this Order.

B. **REQUIRED MONITORING REPORTS.**

1. **Detection monitoring report twice-annually**—For each monitored medium, all Monitoring Points assigned to detection monitoring [under §§7(b)(2) and 8(c) of this Order], and all Background Monitoring Points shall be monitored once each Winter/Spring and Summer/Fall (Winter/Spring and Summer/Fall Reporting Periods end on

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March 31 and September 30, respectively) for the Monitoring Parameters listed in §8 of this Order. Monitoring for Monitoring Parameters shall be carried out in accordance with §§(d)(2) and (f) of this section, and the report shall meet the requirements of §(b)(4) of this section.

2. **Annual summary report**—The discharger shall submit an annual report to the Regional Board covering the previous monitoring year. The Reporting Period ends March 31. This report may be combined with the Winter/Spring detection monitoring report under §(b)(1) of this section, and shall meet the requirements of §(b)(4) of this section in addition to the following:

- a. **Graphical Presentation of Analytical Data** [under 23 CCR §2550.7(e)(14)]—For each Monitoring Point and Background Monitoring Point, submit in graphical format the laboratory analytical data for all samples taken within at least the previous five calendar years. Each such graph shall plot the concentration of one or more constituents over time for a given Monitoring Point or Background Monitoring Point, at a scale appropriate to show trends or variations in water quality. The graphs shall plot each datum, rather than plotting mean values. For any given constituent or parameter, the scale for background plots shall be the same as that used to plot downgradient data. On the basis of any aberrations noted in the plotted data, the Executive Officer may direct the discharger to carry out a preliminary investigation [23 CCR §2510(d)(2)], the results of which will determine whether or not a release is indicated;

- b. **Table and diskette(s)**—Submit all monitoring analytical data obtained during the previous two six-month (Monitoring Parameter) Reporting Periods, in tabular form as well as on diskettes (either in MS-DOS/ASCII format or in another file format acceptable to the Regional Board's Executive Officer). Data sets too large to fit on a single diskette may be submitted on disk in a commonly available compressed format (e.g., PK-ZIP or NORTON BACKUP) acceptable to the Regional Board Executive Officer. The Regional Board regards the submittal of data in hard copy and on diskette as "...the form necessary for..." statistical analysis [23 CCR

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- §2550.8(h)], in that this facilitates periodic review by the Regional Board's statistical consultant;
- c. **Compliance record discussion**—Submit a comprehensive discussion of the compliance record, and of any corrective actions taken or planned which may be needed to bring the discharger into full compliance with the landfill's waste discharge requirements;
 - d. **Waste allocation map**—Submit a map showing the area, if any, in which filling has been completed during the previous calendar year;
 - e. **Summary of changes**—Submit a written summary of monitoring results and monitoring system(s), indicating any changes made or observed since the previous annual report; and
 - f. **Leachate control**—For units having leachate monitoring/control facilities, submit an evaluation of their effectiveness, pursuant to 23 CCR §§2543(b,c, & d).
3. **COC Report at least every five years**—In the absence of a release being indicated [i.e., under §§(b)(2)(A), (c)(3), (c)(6)(C), or (f)(3) of this section], the discharger shall monitor all constituents of concern (COCs) and submit a report (COC Report) as follows:
- a. **Reporting Period for COCs**—The discharger shall sample all Monitoring Points and Background Monitoring Points for each monitored medium for all COCs every fifth year, beginning with the Spring of 1996 (first Reporting Period ends March 31, 1996), with subsequent COC monitoring efforts being carried out every fifth year thereafter alternately in the Fall (Reporting Period ends September 30) and Spring (Reporting Period ends March 31). The COC Report may be combined with any Monitoring Parameter Report [under §(b)(1) of this section] or Annual Summary Report [under §(b)(2) of this section] having a Reporting Period that ends at the same time. The COC Report shall meet the requirements of §(b)(4) of this section;
 - b. **Monitoring Parameters not repeated**—The discharger shall monitor for all Constituents of Concern in

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accordance with §§(d)(2) and (f) of this section, provided that such monitoring need only encompass those Constituents of Concern that do not also serve as Monitoring Parameters.

4. **Minimum monitoring report contents**—All reports shall be submitted no later than one month following the end of their respective Reporting Period. The reports shall be comprised of at least the following, in addition to the specific contents listed for each respective report type under §§(b)(1,2, or 3) of this section:
 - a. **Transmittal letter**—A letter summarizing the essential points in the report. This letter shall include a discussion of any requirement violations found since the last such report was submitted, and shall describe actions taken or planned for correcting those violations. If the discharger has previously submitted a detailed time schedule for correcting said requirement violations, a reference to the correspondence transmitting such schedule will be satisfactory. If no violations have occurred since the last submittal, this shall be stated in the transmittal letter. Each monitoring report and the transmittal letter shall be signed by a principal executive officer at the level of vice president or above, or by his/her duly authorized representative, if such representative is responsible for the overall operation of the facility from which the discharge originates. The transmittal letter shall contain a statement by this official, under penalty of perjury, that to the best of the signer's knowledge the report is true, complete, and correct;
 - b. **Compliance evaluation summary**—For Detection Monitoring and COC Reports only, a compliance evaluation summary containing at least:
 1. **Flow rate/direction**—For each monitored ground water body, a description and graphical presentation (e.g., arrow on a map) of the velocity and direction of ground water flow under/around the Unit, based upon water level elevations taken during the collection of the water quality data submitted in the report;

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2. **Well information**—For each monitoring well addressed by the report, a description of the method and time of water level measurement, and a description of the method of purging used both before sampling to remove stagnant water in the well, and after sampling to remove the water that was in the well bore while the sample was being taken; and
 3. **Sampling Information**—For each Monitoring Point and Background Monitoring Point addressed by the report, a description of the type of pump—or other device—used and its vertical placement for sampling, and a detailed description of the sampling procedure (number and description of the samples, field blanks, travel blanks, and duplicate samples taken; the type of containers and preservatives used, the date and time of sampling, the name and qualifications of the person actually taking the samples, and any other observations);
- c. **Map**—A map (or copy of an aerial photograph) showing the locations of observation stations, Monitoring Points, and Background Monitoring Points;
 - d. **Laboratory data**—For Detection Monitoring and COC Reports only, the laboratory results of all analyses, in compliance with §(a) of this section;
 - e. **Leachate and run on/off control statement**—A statement as to the condition and performance of any leachate monitoring and control facilities, and of the run-off/run-on control facilities; and
 - f. **Waste placement and type**—The quantity and types of wastes discharged and the locations in the landfill where waste has been placed since submittal of the last such report.

C. CONTINGENCY RESPONSES.

1. **Leachate seep**—The discharger shall immediately report by telephone concerning the discovery of any previously unreported seepage from the disposal area. A written report shall be filed with the Regional Board within seven days, containing at least the following information:

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- a. **Map**—A map showing the location(s) of seepage;
 - b. **Flow rate**—An estimate of the flow rate;
 - c. **Description**—A description of the nature of the discharge (e.g., all pertinent observations and analyses); and
 - d. **Corrective measures**—approved (or proposed for consideration) by the Regional Board's Executive Officer.
2. **Response to an initial indication of a release**—Should the initial statistical or non-statistical comparison [under §(f)(1 or 2) of this section, respectively] indicate, for any Constituent of Concern or Monitoring Parameter, that a release is tentatively identified, the discharger shall immediately notify their designated Regional Board staff contact verbally as to the Monitoring Point(s) and constituent(s) or parameter(s) involved, shall provide written notification by certified mail within seven days of such determination [23 CCR §2550.8(j)(1)], and shall carry out a discrete retest in accordance with §§(d)(2) and (f)(3) of this section. If the retest confirms the existence of a release, the discharger shall carry out the requirements of §(c)(4) of this section. In any case, the discharger shall inform the Regional Board of the outcome of the retest as soon as the results are available, following up with written results submitted by certified mail within seven days of completing the retest.
3. **Physical evidence of a release**—If either the discharger or the Regional Board's Executive Officer determines that there is significant physical evidence of a release [23 CCR §2550.1(3)], the discharger shall conclude that a release has been discovered and shall:
- a. **Notify**—Immediately notify the Regional Board of this fact by certified mail (or acknowledge the Regional Board's determination);
 - b. **Investigate**—Carry out the requirements of §(c)(4) of this section for all potentially-affected monitored media; and
 - c. **Additional work**—Carry out any additional investigations stipulated in writing by the Regional

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Board Executive Officer for the purpose of identifying the cause of the indication.

4. Release discovery response—If the discharger concludes that a release has been discovered:
 - a. COC scan—If this conclusion is not based upon monitoring for all Constituents of Concern, pursuant to §(b)(3) of this section, then the discharger shall sample for all Constituents of Concern at all Monitoring Points and submit them for laboratory analysis within thirty days of discovery. Within seven days of receiving the laboratory analytical results, the discharger shall notify the Regional Board, by certified mail, of the concentration of all Constituents of Concern at each Monitoring Point; this notification shall include a synopsis showing, for each Monitoring Point, those constituents that exhibit an unusually high concentration. Because the data from this scan is not to be statistically tested against background, only a single datum is required for *each Constituent of Concern at each Monitoring Point [23 CCR §2550.8(k)(1)];
 - b. Submittal of proposed EMP—The discharger shall, within 90 days of discovering the release, submit a Revised Report of Waste Discharge proposing an Evaluation Monitoring Program that 1.) meets the requirements of 23CCR §2550.8(k)(5) and §2550.9, and 2.) satisfies the requirements of 40 CFR §258.55(g)(1)(ii) by committing to install at least one monitoring well at the facility boundary directly downgradient of the center of the release, immediately after delineating the nature and extent of the release under 23 CCR §2550.9(b);
 - c. Submittal of engineering feasibility study—The discharger shall, within 180 days of discovering the release, submit a preliminary engineering feasibility study meeting the requirements of 23 CCR §2550.8(k)(6); and
 - d. Initiation of nature-and-extent delineation—The discharger shall immediately begin delineating the nature and extent of the release by installing and monitoring assessment wells as necessary to assure that the discharger can meet the requirement [under

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23 CCR §2550.9(b)] to submit a delineation report within 90 days of when the Regional Board directs the discharger to begin the Evaluation Monitoring Program. This report shall show the vertical and horizontal limits of the release for all Constituents of Concern. This delineation effort shall be carried out in addition to any ongoing monitoring program (e.g., detection monitoring program); nevertheless, the discharger's delineation effort shall encompass all relevant monitoring data.

5. **Release beyond facility boundary**—Any time the discharger concludes (or the Regional Board's Executive Officer directs the discharger to conclude) that a release from the Unit has proceeded beyond the facility boundary, the discharger shall so notify all persons who either own or reside upon the land that directly overlies any part of the plume (Affected Persons).
 - a. **Initial notice**—Initial notification to Affected Persons shall be accomplished within 14 days of making this conclusion and shall include a description of the discharger's current knowledge of the nature and extent of the release.
 - b. **Updated notice**—Subsequent to initial notification, the discharger shall provide updates to all Affected Persons, including any persons newly affected by a change in the boundary of the release, within 14 days of concluding there has been any material change in the nature or extent of the release.
 - c. **Submittal**—Each time the discharger sends a notification to Affected Persons [under §§(c)(5)(A or B), above], the discharger shall provide the Regional Board, within seven days of sending such notification, with both a copy of the notification and a current mailing list of Affected Persons.
6. **Response to VOC Detection in Background.**
 - a. **Detection and verification**—Except for VOCs validated as not having come from the landfill, under §(c)(6)(B), any time the laboratory analysis of a sample from a Background Monitoring Point, sampled for VOCs under §(f) of this section, shows either 1.) two or more VOCs at-or-above their respective MDL, or 2.) one VOC at-or-above its respective PQL,

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then the discharger shall immediately notify the Regional Board by phone that possible background contamination has occurred, shall follow up with written notification by certified mail within seven days, and shall obtain two new independent VOC samples from that Background Monitoring Point and send them for laboratory analysis of all detectable VOCs within thirty days. If either or both these retest samples validates the presence of VOC(s) at that Background Monitoring Point, using the above procedure, the discharger shall:

1. **Notification**—Immediately notify the Regional Board about the VOC(s) verified to be present at that Background Monitoring Point, and follow up with written notification submitted by certified mail within seven days of validation; and
 2. **Report**—Within 180 days of validation, submit a report, acceptable to the Executive Officer, which examines the possibility that the detected VOC(s) originated from the Unit (e.g., using concentration gradient analyses) and proposes appropriate changes to the monitoring program.
- b. **VOCs not from landfill**—If, after reviewing the report submitted under §(c)(6)(A)2., the Executive Officer determines that the VOC(s) detected originated from a source other than the Unit, the Executive Officer will make appropriate changes to the monitoring program.
- c. **VOCs likely from landfill**—If, after reviewing the report submitted under §(c)(6)(A)2., the Executive Officer determines that the detected VOC(s) most likely originated from the Unit, the discharger shall conclude that a release has been detected and shall immediately begin carrying out the requirements of §(c)(4) of this section.

D. WATER SAMPLING AND ANALYSIS FOR DETECTION MONITORING.

1. **Water quality monitoring systems**—The monitored media, and the Monitoring Points and Background Monitoring Points for each such medium, are those listed in the Monitoring and Reporting Program for the landfill, pursuant to §7(c) of this Order.

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2. **Thirty-Day Sample Procurement Limitation.**

- a. **Latter third/thirty days**—For any given monitored medium, samples shall be taken from all Monitoring Points and Background Monitoring Points to satisfy the data analysis requirements for a given Reporting Period [under §(b) of this section] shall all be taken during the latter third of the Reporting Period within a span not exceeding 30 days, and shall be taken in a manner that insures sample independence to the greatest extent feasible [23 CCR §2550.7(e)(12)(B)]. Sample procurement shall be carried out as late in the Reporting Period as feasible, considering the time needed to analyze the samples, analyze the resulting data, and to prepare and submit the monitoring report within thirty days after the end of the Reporting Period.
- b. **Elevation/Field Parameters**—Ground water sampling shall also include an accurate determination of the ground water surface elevation and field parameters (temperature, electrical conductivity, turbidity) for that Monitoring Point or Background Monitoring Point [23 CCR §2550.7(e)(13)]. Ground water elevations taken prior to purging the well and sampling for Monitoring Parameters shall be used to fulfill the Spring and Fall ground water flow rate/direction analyses required under §(e), below.
- c. **Data analysis ASAP**—statistical or non-statistical analysis shall be carried out as soon as the monitoring data is available, in accordance with §(f) of this section.

E. **Quarterly Determination of Ground Water Flow Rate/Direction** [23 CCR §2550.7(e)(15)]—For each monitored ground water body, the discharger shall measure the water level in each well and determine ground water flow rate and direction at least quarterly, including the times of expected highest and lowest elevations of the water level for the respective ground water body. This information shall be included in the twice-yearly monitoring reports required under §(b)(1) of this section.

F. **Statistical and Non-Statistical Analysis of Sample Data During a Detection Monitoring Program**—The following data analysis methods shall be used at MSWLFs unless and until the discharger proposes, and the Regional Board revises the waste discharge requirements to include, data analysis methods that

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comply with the July 1, 1991 revision of Article 5 of Chapter 15 (revised Article 5); nevertheless, dischargers who own or operate MSWLFs having waste discharge requirements that have been revised to comply with revised Article 5 shall use the following non-statistical data analysis methods for constituents that cannot be addressed by statistical means and shall use the following statistical analysis scheme on those constituents for which the Regional Board has not yet approved a statistical method.

The discharger subject to this section shall use the most appropriate of the following methods to compare the downgradient concentration of each monitored constituent (or parameter) with its respective background concentration to determine if there has been a release from the Unit. For any given data set, the discharger shall first decide if statistical analysis is possible, by reference to the relative frequency with which the constituent is detected in background samples [see §(f)(1)]. For a constituent that qualifies for statistical analysis, the discharger shall proceed sequentially down the list of statistical analysis methods listed in §§(f)(1)(A C), using the first method for which the data qualifies. Those constituents for which no statistical method [under §(f)(1)] is appropriate shall be analyzed by the non-statistical method in §(f)(2). If the initial statistical/non-statistical analysis tentatively indicates the detection of a release, the discharger shall implement the retest procedure under §(f)(3).

1. **Statistical Methods**—The discharger shall use one of the following statistical methods to analyze Constituents of Concern or Monitoring Parameters which exhibit concentrations which equal or exceed their respective MDL in at least ten percent of the background samples taken during that Reporting Period. Except for pH, which uses a two-tailed approach, the statistical analysis for all constituents and parameters shall be one-tailed (testing only for statistically significant increase relative to background):
 - a. **One-Way Parametric Analyses of Variance (ANOVA), followed by multiple comparisons** [§2550.7(e)(8)(A)]—This method requires at least four independent samples from each Monitoring Point and Background Monitoring Point during each sampling episode. It shall be used when the background data for the parameter or constituent, obtained during a given sampling period, has not more than 15% of the

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data below the PQL. Prior to analysis, all "trace" determinations must be replaced with a value halfway between the PQL and the MDL values reported for that sample run, and all "non-detect" determinations must be replaced with a value equal to half the MDL value reported for that sample run. The ANOVA shall be carried out at the 95% confidence level. Following the ANOVA, the data from each downgradient Monitoring Point shall be tested at a 99% confidence level against the pooled background data. If these multiple comparisons cause the Null Hypothesis (i.e., that there is no release) to be rejected at any Monitoring Point, the discharger shall conclude that a release is tentatively indicated for that parameter or constituent and shall immediately implement the retest procedure under §(f)(3);

- b. One-Way Non-Parametric ANOVA (Kruskal-Wallis Test), followed by multiple comparisons—This method requires at least nine independent samples from each Monitoring Point and Background Monitoring Point; therefore, the discharger shall anticipate the need for taking more than four samples per Monitoring Point, based upon past monitoring results. This method shall be used when the pooled background data for the parameter or constituent, obtained within a given Sampling Period, has not more than 50% of the data below the PQL. The ANOVA shall be carried out at the 95% confidence level. Following the ANOVA, the data from each downgradient Monitoring Point shall be tested at a 99% confidence level against the pooled background data. If these multiple comparisons cause the Null Hypothesis (i.e., that there is no release) to be rejected at any Monitoring Point, the discharger shall conclude that a release is tentatively indicated for that parameter or constituent and shall immediately implement the retest procedure under §(f)(3); or
- c. Method of Proportions—This method shall be used if the "combined data set" (the data from a given Monitoring Point in combination with the data from the Background Monitoring Points) has between 50% and 90% of the data below the MDL for the constituent or parameter in question. This method 1.) requires at least nine downgradient data points per Monitoring Point per Reporting Period, 2.) requires at least thirty data points in the combined

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data set, and 3. requires that $n * P > 5$ (where n is the number of data points in the combined data set and P is the proportion of the combined set that exceeds the MDL); therefore, the discharger shall anticipate the number of samples required, based upon past monitoring results. The test shall be carried out at the 99% confidence level. If the analysis results in rejection of the Null Hypothesis (i.e., that there is no release), the discharger shall conclude that a release is tentatively indicated for that constituent or parameter, and shall immediately implement the retest procedure under §(f)(3).

2. **Non-Statistical Method**—The discharger shall use the following non-statistical method for analyzing all constituents which are not amenable to statistical analysis by virtue of having being detected in less than 10% of applicable background samples. A separate variant of this test is used for the VOC_{water} Composite Monitoring Parameter and for qualifying water Constituents of Concern. Regardless of the test variant used, the method involves a two-step process: a.) from all constituents to which the test variant applies, compile a list of those constituents which exceed their respective MDL in the downgradient sample from a given Monitoring Point, then b.) evaluate whether the listed constituents meet either of the test variant's two possible triggering conditions. For each Monitoring Point, the list described above shall be compiled based on either: the data from the single sample (for that constituent) taken during that Reporting Period from that Monitoring Point, or (where several independent samples have been analyzed for that constituent at a given Monitoring Point) the data from the sample which contains the largest number of detected constituents. Background shall be represented by the data from all samples taken from the appropriate Background Monitoring Points during that Reporting Period (at least one sample from each Background Monitoring Point). The method shall be implemented as follows:

- a. **Version for the Volatile Organics Composite Monitoring Parameter For Water Samples (VOC_{water})**—For any given Monitoring Point, the VOC_{water} Monitoring Parameter is a composite parameter addressing all detectable VOCs, including at least all 47 VOCs listed in Appendix I to 40 CFR Part 258. The discharger shall compile a list of each VOC which

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- 1.) exceeds its MDL in the Monitoring Point sample, and also 2.) exceeds its MDL in less than ten percent of the samples taken during that Reporting Period from that medium's Background Monitoring Points. The discharger shall conclude that a release is tentatively indicated for the VOC_{water} composite Monitoring Parameter if the list either 1.) contains two or more VOCs (\geq MDL), or 2.) contains one VOC that equals or exceeds its PQL;
 - b. **Version for Constituents of Concern**—As part of the Constituent of Concern monitoring effort required under §(b)(3) of this section, for each Monitoring Point, the discharger shall compile a list of constituents of concern that exceed their respective MDL at the Monitoring Point yet do so in less than ten percent of the background samples taken during that Reporting Period. The discharger shall conclude that a release is tentatively indicated if the list either 1. contains two or more constituents (\geq MDL), or 2. contains one constituent which equals or exceeds its PQL.
3. **Discrete Retest [23 CCR §2550.7(e)(8)(E)]**—In the event that the discharger concludes that a release has been tentatively indicated [pursuant to §§(f)(1 or 2), above], the discharger shall collect two new suites of samples (for VOC_{water} or for the indicated Constituent[s] of Concern) from the indicating Monitoring Point within 30 days of such indication. Resampling of the Background Monitoring Points is optional. As soon as the retest data is available, the discharger shall use the same statistical method (or non-statistical comparison) as that which provided the tentative indication of a release to separately analyze each of the two suites of retest data for the affected Monitoring Point. For any indicated Monitoring Parameter or Constituent of Concern, if the test results of either (or both) of the retest data suites confirms the original indication, the discharger shall conclude that a release has been discovered and shall carry out the requirements of §(c)(4) of this section. All retests shall be carried out only for those Monitoring Point(s) at which a release is tentatively indicated, and only for the Constituent(s) of Concern or Monitoring Parameter(s) which triggered the indication there, as follows:

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- a. **ANOVA retest**—If a (parametric or non-parametric) ANOVA method was used in the initial test, the retest shall involve only a repeat of the multiple comparison procedure, carried out separately on each of the two new suites of samples taken from the indicating Monitoring Point;
- b. **Method of Proportions retest**—If the Method of Proportions statistical test was used, the retest shall consist of a full repeat of the statistical test for the indicated constituent or parameter, carried out separately on each of the two new suites of samples from the indicating Monitoring Point;
- c. **Non-Statistical Method retest**—If the non-statistical method was used:
 1. **For VOC_{water}**—Because the VOC_{water} composite Monitoring Parameter is a single parameter which addresses an entire family of constituents likely to be present in any landfill release, the scope of the laboratory analysis for each of the two retest samples shall include all VOCs detectable in that retest sample. Therefore, a confirming retest for either parameter shall have validated the original indication even if the detected constituents in the confirming retest sample(s) differs from those detected in the sample which initiated the retest;
 2. **For COCs**—Because all Constituents of Concern that are jointly addressed in the non-statistical test under §(f)(2)(B), above, remain as individual Constituents of Concern, the scope of the laboratory analysis for the non-statistical retest of Constituents of Concern shall address only those constituents detected in the sample which initiated the retest.

§13. CLOSURE/POST-CLOSURE PLAN.

- A. **Older closed units exempted**—This section applies only to MSWLFs that have received waste on or after October 9, 1991.
- B. **Recently closed units**—The discharger who owns or operates an MSWLF that received waste on or after October 9, 1991, that will have stopped receiving waste by the Federal Deadline,

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and that will have completed final closure within six months after the last receipt of waste shall submit a report to the Regional Board by the Federal Deadline. This report shall either 1.) validate that the landfill's final cover meets the requirements of 40 CFR §258.60(a), or 2.) include any necessary updates to the closure plan and propose changes to the final cover necessary to bring the landfill into compliance with 40 CFR §258.60(a);

- C. **Operating units**—The discharger who owns or operates an MSWLF that received waste on or after October 9, 1991, and that will not have initiated final closure as of the Federal Deadline, shall submit a closure and post-closure maintenance plan (or submit suitable modifications to a pre-existing plan) by the Federal Deadline, that complies with 40 CFR §§258.60 and 258.61 and with Article 8 of Chapter 15.

§14. DEED NOTATION AT MSW LANDFILLS.

- A. **Schedule**—All MSWLFs shall comply with the requirements of §(b) of this section in accordance with the following schedule:
1. **Early closures**—Dischargers owning or operating an MSWLF that completed final closure prior to October 9, 1991, shall comply with §(b) of this section and provide proof of such compliance to the Regional Board by October 9, 1995;
 2. **Closed since October 8, 1991**—For all MSWLFs that completed final closure between the close of business on October 8, 1991, and the effective date of this Order, the discharger shall comply with §(b) of this section and provide proof of such compliance to the Regional Board by the Federal Deadline;
 3. **Operating MSW landfills**—For all MSWLFs that are either operating or have not completed closure, as of the effective date of this Order, the discharger shall comply with §(b) of this section and provide proof of such compliance to the Regional Board within sixty days after completing final closure.
- B. **Notation**—In accordance with the deadline provided under §(a) of this section, the discharger shall provide proof to the Regional Board that the deed to the landfill facility property, or some other instrument that is normally examined

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during title search, has been modified to include, in perpetuity, a notation to any potential purchaser of the property stating that:

1. Parcel history-The parcel has been used as an MSWLF;
2. Parcel use limitations-Land use options for the parcel are restricted in accordance with the post-closure land uses set forth in the post-closure plan and in WDRs for the landfill; and
3. New owner's responsibility-In the event that the discharger defaults on carrying out either the post-closure maintenance plan or any corrective action needed to address a release, then the responsibility for carrying out such work falls to the property owner.