STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION
895 Aerovista Place, Suite 101
San Luis Obispo, California 93401-7906

MONITORING AND REPORTING PROGRAM NO. R3-2011-0019
Proposed for Adoption at the May 4-5, 2011 Board Meeting

FOR
RECOLOGY PACHECO PASS
CLASS III WASTE MANAGEMENT UNIT
SANTA CLARA COUNTY

Monitoring and Reporting Program Order No. R3-2010-0019 (MRP) is issued by the Regional Water Quality Control Board, Central Coast Region (hereafter "Water Board") pursuant to California Water Code (CWC) §13267. Pursuant to CWC §13268, a violation of §13267 requirements may subject you to civil liability of up to $1,000 per day for each day in which the violation occurs.

Recology Pacheco Pass (hereafter "Discharger") owns and operates the Recology Pacheco Pass Class III Landfill and Inert Waste Landfill (hereafter "Landfill"). The Discharger is subject to this MRP because it owns and operates the Landfill. The MRP is required to assess compliance with the CWC, applicable state and federal regulations, and Waste Discharge Requirements Order No. R3-2011-0019.

PART I: MONITORING AND OBSERVATION SCHEDULE

Unless otherwise indicated, the Discharger must report all monitoring and observations as outlined in **Part IV**. Unless otherwise noted, California Code of Regulations (CCR) Title 27, Division 2, Chapter 3, Subchapter 3, Article 1 are applicable to the Landfill.

A. SITE INSPECTIONS

The Discharger must inspect the Landfill, in accordance with the following schedule, and record (including photographs, when appropriate) at a minimum, the Standard Observations listed below:

1. **Site Inspection Schedule**:

    a. During the wet season (**October 1 through April 30**), following each storm event that produces onsite stormwater runoff, with inspections performed at least **monthly**. For purposes of this MRP, onsite runoff is defined as: 1) surface water flow that produces a discharge to a sediment/retention basin, or

2) surface water flow resulting from a minimum of one inch of rain within a 24-hour period.

b. During the dry season (**May 1 through September 30**), a minimum of one inspection each **three month period**.

2. **Standard Observations**:

a. For the Landfill - this includes inspections at the Waste Management Units (WMUs), along the perimeter of the WMUs, and waste diversion or recycling areas.
   i. Whether stormwater drainage ditches and sediment/retention basins contain liquids.
   ii. Evidence of liquid leaving or entering the Landfill, estimated size of affected area, and estimated flow rate (show affected area on map).
   iii. Presence of odors – characterization, source, and distance from source.
   iv. Evidence of ponding over the WMUs (show affected area on map).
   v. Evidence of erosion or exposed waste.
   vi. Evidence of waste in the drainage system (e.g., ditches and stormwater sediment/retention basins).
   vii. Inspection of stormwater discharge locations for evidence of non-stormwater discharges.
   viii. Integrity of drainage systems during wet season.

b. For Receiving Waters
   i. Floating and suspended materials of waste origin; presence or absence, source, and size of affected area.
   ii. Discoloration and turbidity – description of color, source, and size of affected area.
   iii. Presence of odors – characterization, source, and distance from source.
   iv. Evidence of beneficial use – presence of water-associated wildlife.
   v. Estimated flow rate to the receiving water.
   vi. Weather conditions – wind direction and estimated velocity, total precipitation during the previous five days and on the day of observation.

B. ADDITIONAL DRAINAGE SYSTEMS INSPECTIONS

The Discharger must inspect all drainage control systems following each onsite runoff-producing storm event and record the following:

1. General conditions of the stormwater facilities;
2. Whether stormwater sedimentation/retention basins and drainage ditches contain liquids and if basins are discharging;
3. To insure that the terms of the State Water Resources Control Board (State Water Board) Order No. 97-03-DWQ, General Permit No. CAS000001 are properly implemented, document compliance with the Landfill-specific Stormwater Pollution Prevention Plan; and

4. Steps taken to correct any problems found during the inspections, as required under **Part IA** of this Monitoring and Reporting Program, and date(s) when corrective action was taken. Include photographic documentation.

C. RAINFALL DATA

The Discharger must record the following information from the nearest monitoring station:

1. Total daily precipitation, in inches, during each **three month period** (October through December, January through March, April through June, and July through September).
2. Precipitation, in inches, during the most intense 24-hour rainfall event occurring within each contiguous **three month period**.
3. Number and date of storms (greater than or equal to one inch in 24 hours) received during the **three month period.**

D. POLLUTION CONTROL SYSTEMS

The Discharger must inspect all pollution control systems (e.g., leachate collection and removal system (LCRS), and gas collection and removal system) and record the following information:

1. Landfill LCRS

   a. Routine Operational Checks.
      i. **Weekly** – Inspect all systems for containment and collection system integrity. Include monthly inspection check-off sheets with annual monitoring reports.
      ii. Perform routine preventative maintenance focused on keeping the system at design operation. The Discharger must summarize and report all scheduled and unscheduled maintenance.
      iii. **Annually** – Leachate collection and removal system testing and demonstration as required by CCR Title 27 §20340(d). Report results in the Annual Summary Report required by MRP, **Part IV.B**. The Discharger must develop results of annual testing in a manner that makes one year's test comparable to previous and subsequent tests. The Discharger must specifically address the absence or presence of bio-fouling in the inspection report.
      iv. All lined WMUs will have the location of their respective liners surveyed and markers placed at readily observable locations observable by Landfill operations staff discharging leachate back to lined modules, and by state inspectors.

b. Data Collection:
   i. **Weekly** – Record volume of leachate collected. Report monthly and annual volume of leachate collected. Report disposal method utilized. When more than one disposal method is used, record volume specific for each method.
   ii. **Annually** – Analyze leachate for monitoring parameters as specified in **Part I E.2, Table 1**. The Discharger must take samples directly from any LCRS that provides sufficient liquid to sample and is representative of leachate from the waste mass.
   iii. Compute pollutant mass removed using leachate concentration data and collection volume. Report monthly, semiannual, and annual running totals.

2. Landfill Gas Collection and Removal System:

a. Routine Operational Checks:
   i. **Monthly** – inspect system for containment and collection system integrity. Include monthly inspection check-off sheets with annual monitoring reports.
   ii. Perform routine preventative maintenance focused on keeping the system at design operation. The Discharger must summarize and report all scheduled and unscheduled maintenance.
   iii. **Annually** – Submit an annual operational summary for the gas collection system. The summary must outline downtime causes and durations, and major system changes.

b. Data Collection:
   i. **Monthly** – Record volume of gas extracted. Report monthly volume and annual total. Indicate how sampler measured volume measurement.
   ii. **Monthly** – Record volume of gas condensate collected. Report monthly, semiannual and annual sub-totals and report disposal method utilized. When more than one disposal method is utilized, record volume specific for each method.
   iii. **Annually** – Analyze gas collection header as specified in **Part I E.2, Table 1**.
   iv. **Semiannually** – Analyze gas condensate as specified in **Part I E.2, Table 1**.
   v. Compute pollutant mass removed using semiannual concentration data and collection volume. Report monthly, semiannual, and annual running totals.

E. MONITORING LOCATIONS AND ANALYTICAL MONITORING

The Discharger must monitor the Landfill in accordance with the following schedules. Monitoring locations are shown on Landfill Monitoring Network, **Figure 1**. The Discharger must comply with the sampling, analyses, and reporting requirements discussed in **Parts II, III, and IV** of this monitoring and reporting program.

1. Monitoring Periods:

   a. **Quarterly** – The 1st through 4th quarter monitoring periods are January 1 – March 31, April 1 – June 30, July 1 – September 30, and October 1 – December 31, respectively.
   b. **Semiannually** - The 1st and 2nd semiannual monitoring periods are January 1 – June 30, and July 1 – December 31, respectively.
   c. **Annually** – The annual monitoring period is from January 1 – December 31.

2. Monitoring Programs:

   a. The Discharger must sample the following Monitoring Points as described below:

Table 1
Landfill Monitoring

Monitoring Points[1,4]	Monitoring Program			Monitoring Parameters
	Detection	Corrective Action	Monitoring Frequency	
E-6	X		Semiannual	Table 2
E-9	X		Semiannual	Table 2
E-17	X		Semiannual	Table 2
E-18	X		Semiannual	Table 2
E-19	X		Semiannual	Table 2
E-22	X		Semiannual	Table 2
E-25	X		Semiannual	Table 2
E-27	X		Semiannual	Table 2
E-4		X	Semiannual	Table 3
E-6*		X	Semiannual	Table 3
E-7		X	Semiannual	Table 3
E-8		X	Semiannual	Table 3
E-10		X	Semiannual	Table 3
E-21		X	Semiannual	Table 3
E-23		X	Semiannual	Table 2
E-26		X	Semiannual	Table 3
E-3, E-13, E-14, E-15, E-16			Semiannual	Groundwater elevations only
Gas Probes		X	Quarterly[2,3]	Table 4
Gas Collection Header		X	Annual	Table 4
Gas Condensate		X	Annual	Table 3[5]
Leachate – Module A Leachate – Parcel 1	X X		Annual Annual	Table 2 Table 2
Constituents of Concern (COC)[6]	X	X	Once every 5 years	Table 5

1 Groundwater monitoring well elevations must be monitored semiannually corresponding with seasonal high and low groundwater conditions (second quarter and fourth quarter). 2 Testing for volatile organic compounds (VOCs) must be conducted on Landfill gas probes that exhibit impacts from Landfill gas with greater than five percent methane concentration by volume. Testing of Landfill gas probes samples must utilize Method TO-15. 3 Laboratory testing of VOCs must only be conducted on the Landfill gas probe in a nested set that exhibits the greatest impact from Landfill gas. 4 For all **new** Monitoring Points, the Discharger must conduct quarterly monitoring for four consecutive quarters starting from the date first sampled. After completing the initial quarterly samples, monitor semiannually, except as provided under **Part III C**. 5 VOCs per Table 3. 6 Groundwater and leachate according to **Part I E.4**. * Well E-6 is in corrective action for VOCs and detection monitoring for inorganic parameters.

3. Monitoring Parameters:

   a. The Discharger must analyze all samples from all Detection Monitoring Points for the following monitoring parameters:

Table 2
Detection Monitoring

Parameters	Method[1,2]	Units
Volatile Organic Compounds (including Fuel Oxygenates and 1,4-Dioxane)	8260B	µg/L
Bicarbonate Alkalinity	310.1	mg/L
Chloride	300.0	mg/L
Manganese[3]	6010B	mg/L
Nitrate and Nitrite as Nitrogen	300.0	mg/L
Dissolved Oxygen	Field	mg/L
pH	Field	Units
Temperature	Field	ºF/C
Electrical Conductivity (EC)	Field	µmhos/ cm
Turbidity	Field	NTU
Total Well Depth[4]	Field	Feet
Groundwater Elevations	Sounder	Feet

1 Or most recently approved United States Environmental Protection Agency (US EPA) method that provides the lowest practicable detection limits.
2 Statistical and non-statistical assessment methods, as required by **Part III**, must be used to evaluate the sampling results of laboratory-derived parameters.
3 Samples for metals shall be field filtered through a 0.45 micron in-line filter prior to laboratory analysis for dissolved metals.
4 Measured every three years.

   b. The Discharger must analyze all samples from Corrective Action Program assessment Monitoring Points for the following:

Table 3
Corrective Action Monitoring

Parameters	Method [1,2]	Units
Volatile Organic Compounds (including Fuel Oxygenates)	8260B	µg/L
Bicarbonate Alkalinity	310.1	mg/L
Chloride	300.0	mg/L
Manganese[3]	6010B	mg/L
Nitrate and Nitrite as Nitrogen	300.0	mg/L
Dissolved Oxygen	Field	mg/L
pH	Field	Units
Temperature	Field	ºF/C
EC	Field	µmhos/ cm
Turbidity	Field	NTU
Groundwater Elevations	Sounder	Feet

1 Or most recently approved US EPA method that provides the lowest practicable detection limits.
2 Statistical and non-statistical assessment methods, as required by **Part III**, must be used to evaluate the sampling results of laboratory-derived parameters.
3 Samples for metals shall be field filtered through a 0.45 micron in-line filter prior to laboratory analysis for dissolved metals.

c. **Soil Pore Gas –** The Discharger must analyze all gas and unsaturated zone gas monitoring locations for the following monitoring parameters:

Table 4
Gas Probes Monitoring

Parameters	Method[1]	Units
Volatile Organic Compounds (including MtBE)	Field (quarterly)	ppmv
	TO-15[2]	ppbv
Methane	Field	ppm
Carbon Dioxide	Field	ppmv and percentage
Oxygen	Field	ppmv and percentage

1 Or most recently approved US EPA method that provides the lowest practicable detection limits.
2 Laboratory testing utilizing Method TO-15 for VOCs must be conducted on Landfill gas probes that exhibit impacts from Landfill gas with greater than five percent methane concentration by volume.

4. Constituents of Concern Monitoring:

   COC listed in **Table 5** either directly include or include by reference all constituents listed in Appendix I and II 40 CFR, Part 258. Monitoring for COC must include only those analytes in **Table 5** that are not analyzed as part of the routine monitoring program. The Discharger must collect and analyze samples for COCs **once every five years**. The Discharger is required to conduct the next COC sampling event in **Summer 2014**. Analysis of COC must be carried out **once every five years** at each of the Landfill's groundwater Monitoring Points (Detection and Corrective Action), and leachate sumps. If there is an indication of release (**Part IV.C.4**), then the Discharger is also required to monitor for COC. Additionally, within three months of installing a new groundwater monitoring point, the Discharger must collect and analyze samples for COCs.

   a. **COC Monitoring –** The Discharger must analyze all groundwater and leachate samples for the following:

Table 5
Constituents of Concern

Constituents	Method[1,2]	Units
Antimony	6010B	mg/L
Arsenic	6020	mg/L
Barium	6010B	mg/L
Beryllium	6010B	mg/L
Cadmium	6010B	mg/L
Chromium	6010B	mg/L
Cobalt	6010B	mg/L
Copper	6010B	mg/L
Cyanide	335.4	mg/L
Lead	6020	mg/L
Mercury	7470	mg/L
Nickel	6010B	mg/L
Selenium	6020	mg/L
Silver	6010B	mg/L
Sulfide	376.2	mg/L
Thallium	6020	mg/L
Tin	6010B	mg/L
Vanadium	6010B	mg/L
Zinc	6010B	mg/L
Chlorophenoxy Herbicides	8151	µg/L
Organochlorine Pesticides	8081	µg/L
PCBs	8082	µg/L
Organophosphorus Pesticides	8141	µg/L
Semi-Volatile Organic	8270	µg/L

Compounds[3]		
Volatile Organic Compounds, Appendix II[4]	8260B	µg/L
1 Or most recently approved US EPA method that provides the lowest practicable detection limits. 2 Samples for metals shall be field filtered through an in-line 0.45 micron filter prior to laboratory analysis for dissolved metals. 3 Semi-Volatile Organic Compounds must include 1,4-Dioxane, pentachloroethane, 2-picoline, and pyridine. 4 Includes Fuel Oxygenates.		

5. Stormwater Monitoring:

The Discharger must collect two (twice per year) stormwater samples pursuant to State Water Board Order No. 97-03-DWQ, General Permit No. CAS000001, as follows:

a. Within one hour of the first stormwater discharge of the wet season (October 1 through April 30), and within normal business hours.

b. During at least one other storm event of the wet season, following a minimum of three working days without a stormwater discharge from the preceding storm event.

A storm event is an event that produces surface water runoff from the Landfill to waters of the state. Collect (unfiltered) samples at discharge points and analyze for constituents listed in **Table 6**.

Table 6
Stormwater Monitoring Parameters

Parameter	Method[1]	Units[2]
Specific Conductance	120.1	µS/cm
Nitrate & Nitrite as Nitrogen (30-day holding time)	300.0	mg/L
pH	Field	pH Units
Total Organic Carbon or Oil and Grease	5310C or 1664HEM	mg/L mg/L
Total Suspended Solids	160.2	mg/L
Iron (unfiltered)	6010B	mg/L
1 Or most recently approved United States Environmental Protection Agency (US EPA) method that provides the lowest practicable detection limits; or upon receiving prior approval from the Central Coast Water Board Executive Officer, the Discharger may use equivalent analytical methods. 2 mg/L – milligrams per liter; µS/cm – microSiemens per centimeter.		

c. Subchapter N Monitoring: The General Stormwater Permit requires that stormwater discharges meet all applicable provisions of Sections 301 and 402 of the Clean Water Act. Subchapter N of Title 40 Code of Federal Regulations (CFR) establishes effluent guidelines and standards for

stormwater discharges from landfills. If stormwater comes in direct contact with Landfill wastes (e.g., stormwater in contact with open active face; stormwater in contact with any leachate spills, leachate seeps, and/or gas collection condensate spills; stormwater in direct contact with truck wash-water or water that was in direct contact with solid waste at the landfill facility), the Discharger shall collect and analyze stormwater samples for the Subchapter N monitoring parameters listed in **Table 7.** However, if stormwater does not come in direct contact with landfill wastes (e.g., stormwater flows off the cap, cover, intermediate cover, daily cover, and/or final cover of the landfill) then the Discharger will not need to sample for the Subchapter N monitoring parameters.

d. Additional Stormwater Monitoring: If stormwater comes in contact with leachate from spills or seeps, the Discharger shall sample all impacted onsite/offsite stormwater locations for the monitoring parameters included in **Table 2**. These sampling requirements are independent of the two stormwater samples that are collected for the General Stormwater Permit and must be collected whether the facility discharges stormwater offsite or not.

Table 7
Subchapter N Monitoring Parameters

Parameter	Method[1]	Units[2]
Biochemical Oxygen Demand (BOD)	5210B	mg/L
Total Suspended Solids	160.2	mg/L
Ammonia (as Nitrogen)	350.1	µg/L
[alpha]-Terpineol	625/8270C	µg/L
Benzoic Acid	625/8270C	µg/L
p-Cresol	8270C	µg/L
Phenol	625/8015B/8270C	µg/L
Zinc (unfiltered)[3]	6010B	mg/L
pH	Field	pH Units

1 Or most recently approved United States Environmental Protection Agency (US EPA) method that provides the lowest practicable detection limits; or upon receiving prior approval from the Central Coast Water Board Executive Officer, the Discharger may use equivalent analytical methods.
2 mg/L – milligrams per liter; µg/L – micrograms per liter.
3 Included in Table 5.

e. Sedimentation Basin Monitoring: Annually, collect a sediment sample from within each of the stormwater sediment basins, and analyze for the metals listed in §64431, CCR Title 22, Division 4, Chapter 15, Article 4. Sediment sampling is not required if the Discharger removes each basins' accumulated sediments prior to October 1 of each year and discharges the sediments into the Landfill's lined Waste Management Units.

f. When utilizing auto-sampler type stormwater sample collection equipment, the Discharger must stir the collected sample in the auto-sampler chamber immediately prior to filling sample bottles for laboratory analyses (unfiltered samples only).

6. Landfill Gas Monitoring:

   Monitor gas monitoring probes using field meters per California Department of Resources Recycling and Recovery (CalRecycle) requirements for perimeter monitoring (probes subject to on-going review and evaluation by CalRecycle). Whenever gas probes contain methane concentrations greater than five percent in any single sampling event, the Discharger must collect and analyze a gas sample for volatile organic compounds using method TO-15 (or equivalent) in and report the results in ppbv. Submit monitoring results to the Water Board in annual reports and include information specified in CCR Title 27, §20934.

7. Groundwater Flow Rate and Direction:

   a. For each monitored groundwater body, the Discharger must measure the water elevation in every well, at least semiannually, including the times of expected highest and lowest elevations of the water level, and determine the presence of vertical gradients, and groundwater flow rate and direction for the respective groundwater body. Groundwater elevations for all wells in a given groundwater body must be measured within a period of time short enough to avoid temporal variations in groundwater flow which could preclude accurate determination of groundwater flow rate and direction (40 CFR §258.53(d)).
   b. The Discharger must compare observed groundwater characteristics with those from previous determinations, noting the appearance of any trends and of any indications that a change in the hydrogeologic conditions beneath the site has occurred.

8. Sample Procurement Limitation:

   For any given monitored medium, the Discharger must collect samples from Monitoring Points with a span not exceeding 30 days within a given Monitoring Period and collect samples in a manner that ensures sample independence to the greatest extent feasible [§2550.7(e)(12)(B) of Article 5].

PART II: SAMPLE COLLECTION AND ANALYSIS

A. SAMPLING AND ANALYTICAL METHODS

The Discharger must collect, store, and analyze samples according to the most recent version of Standard US EPA methods (US EPA publication “SW-846”), and in accordance with a sampling and analysis plan approved by the Water Board’s

Executive Officer. A laboratory certified for these analyses by the State of California Environmental Laboratory Program must perform all water analyses and they must identify the specific methods of analysis. The director of the laboratory whose name appears in the certification must supervise all analytical work in his/her laboratory and must sign reports of such work submitted to the Water Board. In addition, the Discharger is responsible for seeing that the laboratory analysis of samples from Monitoring Points meets the following restrictions:

1. The methods of analysis and the detection limits used must be appropriate for the expected concentrations. For detection monitoring of any constituent or parameter that is found in concentrations which produce more than 90 percent non-numerical determinations (i.e., trace) in historical data for that medium, the analytical method having the lowest Method Detection Limit (MDL) must be selected.
2. Trace results (results falling between the MDL and the Practical Quantitation Limit [PQL]) must be reported as such.
3. The laboratory must derive MDLs and PQLs for each analytical procedure, according to State of California laboratory accreditation procedures. Both limits are defined in **Part V** and must reflect the detection and quantitation capabilities of the specific analytical procedure and equipment used by the laboratory. If the laboratory suspects that, due to a change in matrix or their effects, the true detection limit or quantitation limit for a particular analytical run differs significantly from the laboratory-derived values, the results must be flagged accordingly, and an estimate of the limit actually achieved must be included.
4. Report Quality Assurance and Quality Control (QA/QC) data along with the sample results to which it applies. Also report sample results that are unadjusted for blank results or spike recovery. The QA/QC data submittal must include:

    a. Method, equipment, and analytical detection limits;
    b. Recovery rates, an explanation for any recovery rate that is outside the US EPA-specified recovery rate;
    c. Results of equipment and method blanks;
    d. Results of spiked and surrogate samples;
    e. Frequency of quality control analysis;
    f. Chain of custody logs; and
    g. Name and qualifications of the person(s) performing the analyses.

5. Report and flag (for easy reference) QA/QC analytical results involving detection of common laboratory contaminants in associated samples.
6. Identify, quantify, and report, to a reasonable extent, non-targeted chromatographic peaks. Perform second column or second method confirmation procedures when significant unknown peaks are encountered to identify and more accurately quantify the unknown analyte(s).

B. CONCENTRATION LIMIT DETERMINATION

1. For the purpose of establishing Concentration Limits for COC and Monitoring Parameters detected in greater than 10 percent of a medium's samples, the Discharger must:

    a. Statistically analyze existing monitoring data (**Part III**), and propose, to the Executive Officer, statistically derived Concentration Limits for each COC and each Monitoring Parameter at each Monitoring Point for which sufficient data exist.
    b. In cases where sufficient data for statistically determining Concentration Limits do not exist, the Discharger must collect samples and analyze for COC and Monitoring Parameter(s), which require additional data. Once sufficient data are obtained, the Discharger must submit proposed Concentration Limit(s) to the Executive Officer for approval. This procedure must take no longer than two calendar years.
    c. Sample and analyze new Monitoring Points, including any added by this Order, until sufficient data are available to establish a proposed Concentration Limit for all COC and Monitoring Parameters. Once sufficient data are obtained, the Discharger must submit the proposed Concentration Limit(s) to the Executive Officer for approval. This procedure must take no longer than two calendar years.

2. Once established, review concentration limits a minimum of annually. Propose new concentration limits, when appropriate.

C. RECORD MAINTENANCE

The Discharger must maintain records in accordance with CCR Title 27 §21720(f) and 40 CFR 258.29, including maintenance and retention of analytical records for a minimum of five years by the Discharger or laboratory. The Discharger must extend the period of retention during the course of any unresolved litigation or when requested by the Executive Officer. Such records must show the following for each sample:

1. Identity of sample and of the Monitoring Point from which it was taken, along with the identity of the individual who obtained the sample.
2. Date and time of sampling.
3. Date and time that analyses were started and completed, and the name of the personnel performing each analysis.
4. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used.
5. Results of analyses, MDL, and PQL for each analysis.
6. A complete chain of custody log.

PART III: STATISTICAL AND NON-STATISTICAL ANALYSIS OF DATA

A. STATISTICAL ANALYSIS

For Detection Monitoring, the Discharger must use statistical methods to analyze COC and Monitoring Parameters that exhibit concentrations that equal or exceed their respective MDL in at least 10 percent of applicable historical samples. The Discharger may propose and use any statistical method that meets the requirements of CCR Title 27, §20414(e)(7). All statistical methods and programs proposed by the Discharger are subject to Executive Officer approval.

B. NON-STATISTICAL METHOD

For Detection Monitoring, the Discharger must use the following non-statistical method for analyzing constituents, which are detected in less than 10 percent of applicable historical samples. This method involves a two-step process:

1. From constituents to whom the method applies, compile a specific list of those constituents, which exceed their respective MDL. The list must be compiled based on either data from the single sample or in cases of multiple independent samples, from the sample, which contains the largest number of constituents.
2. Evaluate whether the listed constituents meet either of two possible triggering conditions. Either the list from a single well contains two or more constituents, or contains one constituent, which equals or exceeds its Practical Quantitation Limit. If either condition is met, and the compound is not a known laboratory artifact, the Discharger must conclude that a release is tentatively indicated and must immediately implement the appropriate re-test procedure under **Part III.C**.

C. RE-TEST PROCEDURE

1. In the event that the Discharger concludes that a release has been tentatively indicated, the Discharger must carry out the reporting requirements of **Part IV.C.2** and, within 30 days of receipt of analytical results, collect two new suites of samples for the indicated COC or Monitoring Parameter(s) at each indicating Monitoring Point, collecting at least as many samples per Monitoring Point as were used for the initial test.
2. Analyze each of the two suites of re-test analytical results using the same statistical method (or non-statistical comparison) that provided the tentative indication of a release. If the test results of either (or both) of the re-tested data suites confirm the original indication, the Discharger must conclude that a release has been discovered and must carry out the requirements of **Part IV.C.4**.
3. The Discharger must carry out re-tests only for the Monitoring Point(s) for which a release is tentatively indicated, and only for the COC or Monitoring Parameter(s) which triggered the indication. When an analyte of the VOCs

composite parameter is re-tested, report the results of the entire VOCs composite.

PART IV: REPORTING

A. MONITORING REPORT

The Discharger must submit a Monitoring Report annually by **January 31** of each year. Submit the Monitoring Reports in an electronic format, with transmittal letter, text, tables, figures, laboratory analytical data, and appendices in PDF format (one PDF for the entire report). The Discharger is required to upload the full Monitoring Report into Geotracker, as stipulated by California State law. The Monitoring Report must address all facts of the Landfill's monitoring program. The Monitoring Report must include, but should not be limited to the following:

1. Letter of Transmittal:
   A letter transmitting the essential points must accompany each report. The letter must include a discussion of violations caused by the Landfill since submittal of the last such report. If the Discharger has not observed any new violations since the last submittal, the Discharger must state this in the transmittal letter. Both the Monitoring Report and the transmittal letter must be signed as follows: for private facilities, a principal executive officer at the level of vice president; for public agencies, the director of the agency. Upon Water Board Executive Officer approval, the cited signature can be by a California Registered Civil Engineer, or Certified Engineering Geologist, or Professional Geologist who has been given signing authority by the cited signatories. The transmittal letter must contain a statement by the official, under penalty of perjury, that to the best of the signer's knowledge the report is true, complete, and correct.

2. Compliance Summary:
   The summary must contain at least a discussion of compliance with concentration limits, release indications, and any corrective actions taken.

3. Graphical Presentation of Data:
   For each Monitoring Point in each medium, submit, in graphical format, the complete history of laboratory analytical data. Graphs must effectively illustrate trends and/or variations in the laboratory analytical data. Each graph must plot a single constituent concentration over time at one (for intra-well comparison) or more (for inter-well comparisons) Monitoring Points in a single medium. Where applicable, include Maximum Contaminant Levels (MCLs) and/or concentration limits along with graphs of constituent concentrations. When multiple samples are taken, graphs must plot each datum, rather than plotting mean values.

   The Discharger must also determine horizontal gradients, groundwater flow rate, and flow direction for each respective groundwater body. Present this data on a

figure that depicts groundwater contours and flow directions as well as gradient. Include one figure for each water level measuring period in the annual monitoring report.

4. Corrective Action Summary:
   Discuss significant aspects of any corrective action measures conducted during the Monitoring Period and the status of any ongoing corrective action efforts, including constituent trend analysis. Calculate pollutant load removed from the impacted media (water, gas, and leachate) by mass removal system(s). Base the mass removal calculations on actual analytical data as required by **Part I.E**. Present discussion and indications, relating mass removal data to the violation the corrective action is addressing.

5. Laboratory Results:
   Summarize and report laboratory results and statements demonstrating compliance with **Part II**. Include results of analyses performed at the Landfill that are outside of the requirements of this Monitoring and Reporting Program.

6. Sampling Summary:

   a. For each Monitoring Point addressed by the report, a description of: 1) the method and time of water level measurement, 2) the method of purging and purge rate and well recovery time, and 3) field parameter readings.
   b. For each Monitoring Point addressed by the report, a description of the type of sampling device used, its placement for sampling, and a description of the sampling procedure (number of samples, field blanks, travel blanks, and duplicate samples taken; the date and time of sampling; the name and qualification of the person actually taking the samples; and description of any anomalies).

7. Leachate Collection and Detection Systems:
   A summary of the total volume of leachate collected each month since the previous Monitoring Report for both the leachate collection and leachate detection systems. Also, include fluid level measurements in the LCRS(s) along with transducer calibration records. Tabulate and graph the LCRS(s) fluid level measurements and fluid volumes in the annual reports.

8. Standard Observations:
   A summary of Standard Observations (**Part I**) made during the Monitoring Period.

9. Map(s):
   The base map for the Monitoring Report must consist of a current aerial photograph or include relative topographical features, along with Monitoring Points and features of the Landfill facility.

B. ANNUAL SUMMARY REPORT

The Discharger must submit an annual report to the Water Board covering the previous monitoring year. The annual Monitoring Period ends on December 31 each year. Submit the Annual Summary Report no later than **January 31** of each year. The Discharger may combine the Annual Summary Report with the Second Semiannual Monitoring Report of the year. The annual report must include the information outlined in **Part IV.A**. above and the following:

1. Discussion:
   Include a comprehensive discussion of the compliance record as it relates to Waste Discharge Requirements Order No. R3-2011-0019, a review of the past year's significant monitoring system and operational changes, a summary of corrective action results and milestones, and a review of construction projects, with water quality significance, completed or commenced in the past year or planned for the upcoming year.

2. Statistical Limit Review:
   The Discharger must review the statistically derived concentration limits a minimum of annually, and revise them as necessary. The Discharger must discuss data collected during the past year and consider for inclusion in, and determination of, proposed limits for the coming year. For statistical limits that are changed from the previous year, include a comprehensive discussion of the proposed limit for Executive Officer review and consideration.

3. Analytical Data:
   Complete historical analytical data for detected analytes presented in tabular form in Excel™ format or in another file format acceptable to the Executive Officer.

4. Leachate Collection and Detection System:
   The Discharger must submit the results of the annual leachate collection and leachate detection system testing, as required by **Part I.E**. Submit annually testing that shows the leachate is non-hazardous, if leachate is used for dust control.

5. Map(s):
   A map, or set of maps, that indicate(s) the type of cover material in place (final, long-term intermediate, or intermediate) over inactive and completed areas.

C. CONTINGENCY RESPONSE

1. Leachate Seeps and Spills:
   The Discharger must, within **24 hours**, report by telephone or email the discovery of previously unreported leachate seepage and spills from the disposal area and related LCRS appurtenances (e.g., transfer pipes and hoses, couplings,

tanks, loading areas, etc). File a written report with the Water Board within seven days, containing at least the following information:

a. A map showing the location(s) of seepage along with photographic documentation;
b. An estimate of the flow rate;
c. Location of samples(s) collected for laboratory analyses. Unless otherwise directed by Water Board staff, the Discharger shall sample all leachate seeps and spills for the monitoring parameters in **Table 2**. In the event multiple seeps occur in a similar localized area (slope or bench), the Discharger may use professional judgement to reduce the number of leachate seep or spill samples provided the Discharger collects a representative sample. The Discharger shall photo document sample location, all observed seeps, and document the sample location(s) on a map or diagram. The Discharger is also required to sample stormwater in accordance with **Part I.E.5.d**.
d. A description of the nature of the discharge (e.g. pertinent observations and analysis); and
e. A summary of corrective measures both taken and proposed.

2. Initial Release Indication Response:
Should the initial statistical or non-statistical comparison (under **Part III.A or B**) indicate that a new release is tentatively identified, the Discharger must:

a. Within 24 hours, notify the Water Board verbally or by email of the Monitoring Point(s) and constituent(s) or parameter(s) involved;
b. Provide written notification by certified mail within seven days of such determination; and
c. Either of the following:
   i Carry out a discrete re-test in accordance with **Part III.C**. If the re-test confirms the existence of a release or the Discharger fails to perform the re-test, the Discharger must carry out the requirements of **Part IV.C.4**. In any case, the Discharger must inform the Water Board of the re-test outcome within 24 hours of results becoming available, following up with written results submitted by certified mail within seven days, or;
   ii Make a determination, in accordance with CCR Title 27, §20420(k)(7), that a source other than the WMU(s) caused the release or that the evidence is an artifact caused by an error in sampling, analysis, or statistical evaluation, or by natural variation in the groundwater, surface water, or the unsaturated zone.

3. Physical Evidence of a Release:
If either the Discharger or the Executive Officer determines that there is significant physical evidence of a new release pursuant to CCR Title 27, §20385(a)(3), the Discharger must conclude that a release has been discovered and must:

a. Within seven days notify the Executive Officer of this fact by certified mail (or acknowledge the Executive Officer's determination);
b. Carry out the requirements of **Part IV.C.4**. for potentially-affected medium; and,
c. Carry out any additional investigations stipulated in writing by the Executive Officer for the purpose of identifying the cause of the indication.

4. Release Discovery Response:
If the Discharger concludes that a new release has been discovered the following steps must be carried out:

a. If this conclusion is not based upon monitoring for COC, the Discharger must sample for COC at Monitoring Points in the affected medium. Within seven days of receiving the laboratory analytical results, the Discharger must notify the Executive Officer, by certified mail, of the concentration of COC at each Monitoring Point. This notification must include a synopsis showing, for each Monitoring Point, those constituents that exhibit an unusually high concentration;
b. The Discharger must, within 90 days of discovering the release, submit to the Executive Officer a Revised Report of Waste Discharge proposing an Evaluation Monitoring and Reporting Program that: (1) meets the requirements of CCR Title 27, §20420 and §20425; and (2) satisfies the requirements of 40 CFR §258.55(g)(1)(ii) by committing to install at least one monitoring well directly down gradient of the center of the release;
c. The Discharger must, within 180 days of discovering the release, submit to the Executive Officer a preliminary engineering feasibility study meeting the requirements of CCR Title 27, §20420; and
d. The Discharger must 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 requirements of CCR Title 27, §20425 to submit a delineation report within 90 days of when the Executive Officer directs the Discharger to begin the Evaluation Monitoring Program.

5. Release Beyond Facility Boundary:
Any time the Discharger or the Executive Officer concludes that a new release from the Landfill has migrated beyond the facility boundary, the Discharger must notify persons who either own or reside upon the land that directly overlies any part of the plume and are immediately down gradient of the plume (Affected Persons).

a. Initial notification to Affected Persons must be accomplished within 14 days of making this conclusion and must include a description of the Discharger's current knowledge of the nature and extent of the release.
b. Subsequent to initial notification, the Discharger must provide updates to 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. Each time the Discharger sends a notification to Affected Persons (under a. or b. above), the Discharger must, within seven days of sending such notification, provide the Executive Officer with both a copy of the notification and a current mailing list of Affected Persons.

PART V: DEFINITION OF TERMS

A. AFFECTED PERSONS

Individuals who either own or reside upon the land, which directly overlies any part of that portion of a gas, or liquid phase release that may have migrated beyond the facility boundary.

B. CONCENTRATION LIMITS

The Concentration Limit for any given COC or Monitoring Parameter in a given monitored medium must be either:

1. The constituent's statistically determined background value or tolerance limit, established using an Executive Officer approved method (**Part III**); or
2. In cases where the constituent's MDL is exceeded in less than 10 percent of historical samples, the MDL is the concentration limit defined in **Part II. A.1**.

C. CONSTITUENTS OF CONCERN (COC)

An extensive list of constituents is likely to be present in a typical municipal solid waste landfill. The COC for this Landfill are listed in **Table 5**.

D. MATRIX EFFECT

Any increase in the MDL or PQL for a given constituent as a result of the presence of other constituents, either of natural origin or introduced through a release, that are present in the sample being analyzed.

E. METHOD DETECTION LIMIT (MDL)

The lowest concentration at which a given laboratory, using a given analytical method to detect a given constituent, can differentiate with 99 percent reliability, between a sample which contains the constituent and one which does not. The MDL must reflect the detection capabilities of the specific analytical procedure and equipment used by the laboratory.

F. MONITORED MEDIUM

Those media that are monitored pursuant to this Monitoring and Reporting Program (groundwater, surface water, liquid, leachate, gas condensate, and other as specified).

G. MONITORING PARAMETERS

A short list of constituents and parameters used for the majority of monitoring activities. The Monitoring Parameters for this Landfill are listed in **Part I. E**.

H. MONITORING PERIOD (frequency)

The duration of time, during which a sampling event must occur. The Monitoring Period for the various media and programs is specified in **Part I.E**.

I. PRACTICAL QUANTITATION LIMIT (PQL)

The lowest acceptable calibration standard (acceptable as defined for a linear response, or by actual curve fitting) times the sample extract dilution factor times any additional factors to account for Matrix Effect. The PQL must reflect the quantitation capabilities of the specific analytical procedure and equipment used by the laboratory. PQLs reported by the laboratory must not simply be re-stated from US EPA analytical method manuals. Laboratory derived PQLs are expected to agree closely with published US EPA estimated quantitation limits (EQL).

J. RECEIVING WATERS

Any surface water, which actually or potentially receives surface runoff, or groundwater, which pass over, through, or under waste materials or contaminated soils.

K. VOLATILE ORGANIC COMPOUNDS (VOCs) COMPOSITE MONITORING PARAMETER (VOCs composite)

VOCs composite is a composite parameter that encompasses a variety of VOCs. The constituents addressed by the VOCs composite Monitoring Parameter includes all VOCs detectable using US EPA Methods 8260B (water) and TO-15 (gas) or equivalent.

ORDERED BY: _____

Roger W. Briggs, Executive Officer

May 5, 2011
Date

Figure 1: Landfill Monitoring and Control Systems

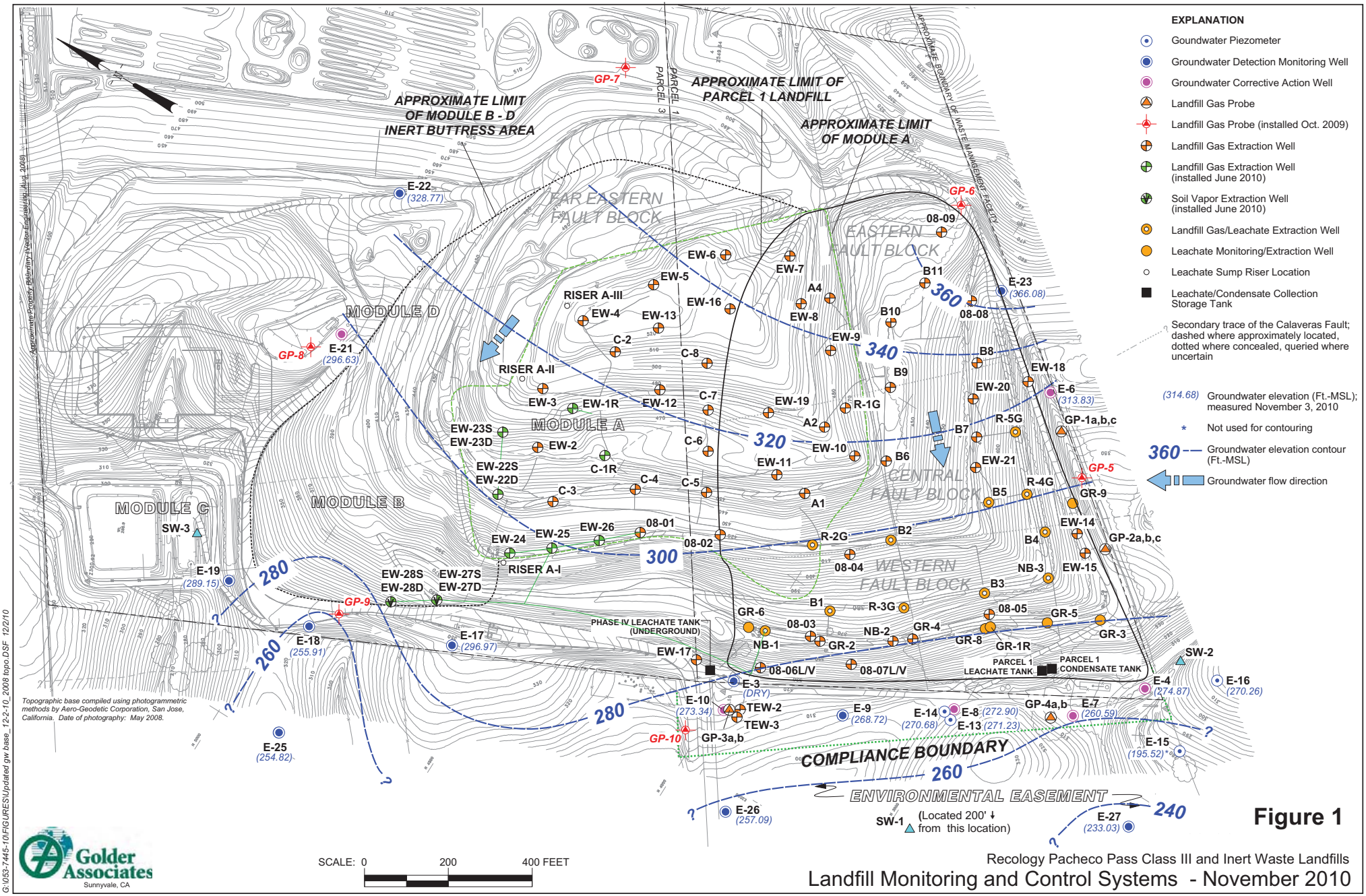

Figure 1

Recology Pacheco Pass Class III and Inert Waste Landfills

Landfill Monitoring and Control Systems - November 2010