

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. \_\_\_\_\_  
FOR

FOR THE  
MA-RU HOLDING COMPANY, INC. AND  
BONZI SANITATION LANDFILL

FOR  
OPERATION, CLOSURE AND CORRECTIVE ACTION  
AT THE  
BONZI SANITATION LANDFILL  
STANISLAUS COUNTY

The Discharger shall comply with this Monitoring and Reporting Program, with Title 27, California Code of Regulations, Section 20005, et seq. (hereafter Title 27), and with the *Standard Provisions and Reporting Requirements for Waste Discharge Requirements for Nonhazardous Solid Waste Discharges Regulated by Title 27 and/or Subtitle D (27 CCR §20005 et seq. and 40 CFR 258)*, dated April 2000, is ordered by Waste Discharge Requirements Order No. \_\_\_\_\_.

**A. REQUIRED MONITORING REPORTS**

<u>Report</u>	<u>Due</u>
1. Groundwater Monitoring (Section D.1)	<b>See Table I</b>
2. Annual Monitoring Summary Report (Section E.5.)	<b>Annually</b>
3. Unsaturated Zone Monitoring (Section D.2)	<b>See Table II</b>
4. Leachate Monitoring (Section D.3)	<b>See Table III</b>
5. Surface Water Monitoring (Section D.4)	<b>See Table IV</b>
6. Facility Monitoring (Section D.5)	<b>As necessary</b>
7. Corrective Action System & Land Application Area Monitoring (Section D.6)	
. Response to a Release (Standard Provisions and Reporting Requirements)	<b>As necessary</b>

**B. REPORTING**

The Discharger shall report monitoring data and information as required in this Monitoring and Reporting Program and as required in Order No. \_\_\_\_\_ and the Standard Provisions and Reporting Requirements. Reports which do not comply with the required format will be **REJECTED** and the Discharger shall be deemed to be in noncompliance with the waste discharge requirements. In reporting the monitoring data required by this program, the Discharger shall arrange the data in tabular form so that the date, the constituents, the concentrations, and the units are readily discernible. The data shall be summarized in such a manner so as to illustrate clearly the compliance with waste discharge requirements or the lack thereof. Data shall also be submitted in a digital format acceptable to the Executive Officer.

Each monitoring report shall include a compliance evaluation summary as specified in E. Reporting Requirements, below.

Field and laboratory tests shall be reported in each monitoring report. Monthly, quarterly, semiannual, and annual monitoring reports shall be submitted to the Board in accordance with the following schedule for the calendar period in which samples were taken or observations made.

<u>Sampling Frequency</u>	<u>Reporting Frequency</u>	<u>Reporting Periods End</u>	<u>Report Date Due</u>
Monthly	Quarterly	Last Day of Month	<b>by Semiannual Schedule</b>
Quarterly	Semiannually	30 June 31 December	<b>31 July</b> <b>31 January</b>
Semiannually	Semiannually	30 June 31 December	<b>31 July</b> <b>31 January</b>
Annually	Annually	31 December	<b>31 January</b>
5-Year	Every 5 years	31 December	<b>31 January 2011</b>

The Discharger shall submit an **Annual Monitoring Summary Report** to the Board covering the previous monitoring year. The annual report shall contain the information specified in E. Reporting Requirements, below, and a discussion of compliance with the waste discharge requirements and the Water Quality Protection Standard.

The results of **all monitoring** conducted at the site shall be reported to the Board in accordance with the reporting schedule above for the calendar period in which samples were taken or observations made.

## C. WATER QUALITY PROTECTION STANDARD AND COMPLIANCE PERIOD

### 1. Water Quality Protection Standard Report

For each waste management unit (Unit), the Water Quality Protection Standard shall consist of all constituents of concern, the concentration limit for each constituent of concern, the point of compliance, and all water quality monitoring points for each monitored medium.

The Water Quality Protection Standard for naturally occurring waste constituents consists of the constituents of concern, the concentration limits, and the point of compliance and all monitoring points. The Water Quality Protection Standard, or any modification thereto, shall be submitted in a report for review and approval.

The report shall:

- a. Identify **all distinct bodies of surface and ground water** that could be affected in the event of a release from a Unit or portion of a Unit. This list shall include at least the uppermost aquifer and any permanent or ephemeral zones of perched groundwater underlying the facility.
- b. Include a map showing the monitoring points and background monitoring points for the surface water monitoring program, groundwater monitoring program, and the unsaturated zone monitoring program. The map shall include the point of compliance in accordance with §20405 of Title 27.
- c. Evaluate the perennial direction(s) of groundwater movement within the uppermost groundwater zone(s).

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

### 2. Constituents of Concern

The constituents of concern include all the waste constituents, their reaction products, and hazardous constituents that are reasonably expected to be in or derived from waste contained in the Unit. The constituents of concern for all Units at the facility are those listed in Tables I through IV for the specified monitored medium, and Table VI. The Discharger shall monitor all constituents

of concern every five years, or more frequently as required in accordance with a Corrective Action Program.

The following constituents of concern have been detected in the samples collected from the Dischargers groundwater monitoring wells: 1,1 dichloroethene, 1,1 dichloroethane, 1,1,1 trichloroethane, 1,2 dichlorobenzene, 1,2 dichloroethane, 1,2 dichloropropane, 1,4 dichlorobenzene, benzene, bromomethane, chlorobenzene, chloroethane, chloroform, chloromethane, cis-1,2-dichloroethene, dibromochloromethane, dichlorodifluoromethane, ethylbenzene, tetrachloroethene, toluene, trans-1,2-dichloroethene, trichloroethylene, trichlorofluoromethane, vinyl chloride, and total xylenes.

The following metals exceeded their water quality protection standard during the 2006 5-year sampling event: antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, molybdenum, nickel, selenium, silver, thallium, vanadium, tin, manganese, mercury and zinc.

a. **Monitoring Parameters**

Monitoring parameters are constituents of concern that are the waste constituents, reaction products, hazardous constituents, and physical parameters that provide a reliable indication of a release from a Unit. The monitoring parameters for all Units are those listed in Tables I through V for the specified monitored medium.

**3. Concentration Limits**

For a naturally occurring constituent of concern, the concentration limit for each constituent of concern shall be determined as follows:

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

The current water quality protection standards include a limited list of constituents in the following table. Consequently, the Discharger is required, by the WDRs, to update the standards by **1 April 2008**

<b>Constituent</b>	<b>Concentration limit</b>
Barium	189 ug/l
Iron	1040 ug/l
Chloride	166 mg/l
Nitrate – N	34.4 mg/l
Total Dissolved Solids	980 mg/l

At a minimum, the revised water quality protection standards must include values for barium and magnésium,

#### **4. Point of Compliance**

The point of compliance for the water standard at each Unit is a vertical surface located at the hydraulically downgradient limit of the Unit that extends through the uppermost aquifer underlying the Unit. The groundwater monitoring wells that are considered point of compliance wells include: 90-2, P-1, 06-08, 90-1, 06-06, MW-6R, 86-1, 85-4, 85-4A, 06-04, 06-03, 85-10, 06-05

#### **5. Compliance Period**

The compliance period for each Unit shall be the number of years equal to the active life of the Unit plus the closure period. The compliance period is the minimum period during which the Discharger shall conduct a water quality monitoring program subsequent to a release from the Unit. The compliance period shall begin anew each time the Discharger initiates an evaluation monitoring program.

### **D. MONITORING**

The Discharger shall comply with the detection monitoring program provisions of Title 27 for groundwater, surface water, and the unsaturated zone, in accordance with Detection Monitoring Specification E.2 and E.4 of Waste Discharge Requirements, Order No. \_\_\_\_\_. All monitoring shall be conducted in accordance with a Sample Collection and Analysis Plan, which include quality assurance/quality control standards, that shall be submitted for review and approval.

All point of compliance monitoring wells established for the detection-monitoring program shall constitute the monitoring points for the groundwater Water Quality Protection Standard. All detection monitoring program groundwater monitoring wells,

unsaturated zone monitoring devices, leachate, and surface water monitoring points shall be sampled and analyzed for monitoring parameters and constituents of concern as indicated and listed in Tables I through IV.

Method detection limits and practical quantitation limits shall be reported. All peaks shall be reported, including those, which cannot be quantified and/or specifically identified. Metals shall be analyzed in accordance with the methods listed in Table VI.

The Discharger may use alternative analytical test methods, including new USEPA approved methods, provided the methods have method detection limits equal to or lower than the analytical methods specified in this Monitoring and Reporting Program.

## **1. Groundwater**

The Discharger shall operate and maintain a groundwater detection monitoring system that complies with the applicable provisions of §20415 and §20420 of Title 27 in accordance with an approved Detection Monitoring Program. The detection monitoring system shall be certified by a California-licensed professional civil engineer or geologist as meeting the requirements of Title 27. The Discharger shall collect, preserve, and transport groundwater samples in accordance with the approved Sample Collection and Analysis Plan.

The Discharger shall determine the groundwater flow rate and direction in the uppermost aquifer and in any zones of perched water and in any additional zone of saturation monitored pursuant to this Monitoring and Reporting Program, and report the results semiannually, including the times of highest and lowest elevations of the water levels in the wells.

Hydrographs of each well shall be submitted showing the elevation of groundwater with respect to the elevations of the top and bottom of the screened interval and the elevation of the pump intake. Hydrographs of each well shall be prepared quarterly and submitted annually.

Groundwater samples shall be collected from the point-of-compliance wells, background wells, corrective action wells and any additional wells added as part of the approved groundwater monitoring system using the following schedule:

MONITORING AND REPORTING PROGRAM NO. \_\_\_\_\_  
 THE MA-RU HOLDING COMPANY, INC. AND  
 BONZI SANITATION LANDFILL  
 OPERATION, CLOSURE AND CORRECTIVE ACTION AT  
 THE BONZI SANITATION LANDFILL, STANISLAUS COUNTY

Well Program	Well ID	
<b>Background</b>	06-10, 86-9, 07-01	
<b>Detection Monitoring</b>	06-09, P-1, MW-6R, 84-13R, 86-1, 85-4, 85-4A, 85-10, 06-04, 06-03	
	06-07, 90-2, 06-08, 90-1, 06-05, 06-06, 06-08	
<b>Corrective Action Monitoring</b>	86-5A, 86-5B, 86-6A, 86-6B, 86-3, 88-1, 86-4, 84-24, 85-7, 06-02, 06-01A, 06-01B, 85-25	

Samples shall be collected and analyzed for the monitoring parameters in accordance with the methods and frequency specified in Table I.

The monitoring parameters shall also be evaluated each reporting period with regards to the cation/anion balance, and the results shall be graphically presented using a Stiff diagram, a Piper graph, or a Schueller plot. Samples for the constituents of concern specified in Table I shall be collected and analyzed in accordance with the methods listed in Table VI every five years.

Groundwater elevations shall be collected quarterly from all monitoring wells included in the system.

All newly installed wells or replaced wells shall be monitored on a quarterly basis for the constituents of concern specified in Table I.

There are at least six known domestic, irrigation and municipal wells (listed below) that are downgradient of the facility, which are or may be affected by the plume of groundwater pollution emanating from the Bonzi Landfill.

The Helmer Well will be sampled on a conditional basis. If the upgradient-monitoring well 86-4 has any Constituent of Concern (COC) above its Water Quality Protection Standard, then the Helmer Well must be sampled within seven days for the detected COC. If a COC is detected in the Helmer Well or monitoring well 86-4 continues to have detections, the Helmer Well will be sampled on the same frequency as monitoring well 86-4.

### Offsite Groundwater Wells

Address	Use
Riverdale Community Well	<b>Municipal</b>
Ace Well – 2736 Hatch Road	<b>Domestic</b>
VFW Well – 2801 Hatch Road	<b>Domestic</b>
Helmer Well – 2954 Hatch Road	<b>Domestic</b>
Waste Management Inc. - 2769 Hatch Road	<b>Domestic and Industrial</b>

All water quality monitoring data collected in accordance with this Order, including actual values of constituents and parameters, shall be maintained in the facility Operating Record as well as distributed amongst the well owners listed in the table above.

Groundwater samples shall be collected semi annually from the offsite wells, as part of the approved corrective action monitoring program. Samples shall be collected and analyzed for the monitoring parameters in accordance with the methods and frequency specified in Table I.

Within **45 days** of the sample collection the Discharger shall submit the sampling results report to Regional Water Board, the well owners, and Stanislaus County. This report shall include: an evaluation of each well's water chemistry, and documentation that the owners received the data for their well with an explanation of the results.

## 2. Unsaturated Zone Monitoring

The Discharger shall operate and maintain an unsaturated zone detection monitoring system that complies with the applicable provisions of §20415 and §20420 of Title 27 in accordance with an approved Detection Monitoring Program. The Discharger shall collect, preserve, and transport samples in accordance with the quality assurance/quality control standards contained in the approved Sample Collection and Analysis Plan.

In addition to the existing landfill gas monitoring program where points are measured monthly for methane, oxygen, carbon dioxide and pressure using a landfill gas analyzer and magnehelic(tm) pressure gauge, a two-tiered program will be implemented for evaluating volatile organic compounds (VOCs) in the vadose zone. In the first tier, a portable ionization detector (PID) with an ionization potential of 11.7Ev will be used to assess the presence of VOCs at the 39 landfill gas monitoring points on a monthly basis. The results of this monitoring will be reported in the monthly landfill gas monitoring reports. If during the Tier- 1 monitoring, the presence of volatile organic compounds are

detected at concentrations greater than  $1 \mu\text{g}/\text{cm}^3$ , then a sample will be collected. The vapor probe will then need to be monitored on a semi-annual basis. The Tier-2 semi-annual sampling program will consist of collecting a sample from the monitoring probe(s) for analysis of VOCs by EPA Method TO-15. If the results received from the Tier-2 sample collection are non-detect for VOCs by Method TO-15, the monitoring probe will return to the Tier-1 program.

All monitoring parameters shall be graphed so as to show historical trends at each monitoring point. Every five years, regardless of historical data, all vapor monitoring points, shall have a sample collected and analyzed in accordance with the methods listed in Table VI.

### **3. Leachate/Seep Monitoring**

Leachate that seeps to the surface from any Unit shall be sampled and analyzed for the Monitoring Parameters and Constituents of Concern listed in Table III upon detection. The quantity of leachate shall be *estimated* and reported as Leachate Flow Rate (in gallons/day). Leachate shall be monitored at wells 92-A1L and 92-C1L. Wells 92-A1L and 92-C1L shall be checked monthly for liquid. The volume of liquid removed from these wells shall be measured and reported. Leachate shall then be sampled and analyzed annually during the fourth quarter thereafter, with a retest during the following second quarter if constituents are detected that have not been previously detected. Leachate samples shall be collected and analyzed for the listed constituents in accordance with the methods and frequency specified in Table III. The constituents of concern list shall include all constituents listed in Table VI. The quantity of leachate pumped from each sump shall be measured and reported monthly as Leachate Flow Rate (in gallons).

### **4. Waste Sorting Area Monitoring**

The Discharger shall monitor runoff from the 102,000 square feet open aired concrete covered tipping/processing area. The sampling shall consist of a maximum of two samples per month, from rain events that produce runoff from the pad area. The individual grab samples shall be collected from the pad area's stormwater runoff discharge point, as well as from the depressed area in front of WMU IV.

All monitoring parameters shall be graphed to show historical trends at each sample location. Each monitoring point shall include a surveyed coordinates that may be tied into the groundwater monitoring system network.

Within **45 days** of the sample collection the Discharger shall submit the

sampling results report to Regional Water Board.

## 5. Groundwater Treatment System Effluent

The groundwater treatment system effluent discharge point shall be monitored as it enters the retention pond on a weekly basis for VOCs (by EPA method 8260B) and monthly for arsenic (by EPA method 7062), chromium (by EPA method 7196A) and total dissolved solids.

## 6. Facility Monitoring

### a. Facility Inspection

Annually, prior to the anticipated rainy season, but no later than **30 September**, the Discharger shall conduct an inspection of the facility. The inspection shall assess damage to the drainage control system, groundwater-monitoring equipment (including wells, etc.), and shall include the Standard Observations contained in Section F.4.f., below. Any necessary construction, maintenance, or repairs shall be completed by **31 October**. By **15 November** of each year, the Discharger shall submit an annual report describing the results of the inspection and the repair measures implemented, including photographs of the problem and the repairs.

### b. Storm Events

The Discharger shall inspect all precipitation, diversion, and drainage facilities for damage **within 7 days** following *major storm events*. Necessary repairs shall be completed **within 30 days** of the inspection. The Discharger shall report any damage and subsequent repairs within 45 days of completion of the repairs, including photographs of the problem and the repairs.

### c. Waste Management Unit Capacity

Annually, the Discharger shall submit an updated certified grading plan, which includes a certified topographic map of the upper surface of WMUs II and III; the percent of remaining capacity; and a revised schedule of the remaining lifespan of the waste management unit.

## 6. Corrective Action System & Land Application Area Monitoring

### a. Groundwater Extraction / Landfill Gas Treatment System.

**i. By the tenth day of each month**, the Discharger shall submit a progress report on the status of the groundwater and landfill gas corrective action measures during the previous month. The report shall include: total hours of operation of all remediation systems/per day (estimated for holidays and weekends); the exact time of any system failure and restart; a description of any repairs; an evaluation of the performance of each individual extraction point (both landfill gas and groundwater); the volume of water discharged from the system; the flow (in gallons) from each well on a daily basis; the amount of kilowatts used by the gas extraction system; the mass of contaminants removed by the gas extraction system and the groundwater extraction system; and the location of discharge of the treated water. A copy of any notifications shall be included in the facility operating record.

**ii.** The Discharger shall also submit a quarterly progress report on the status of the corrective action measures during the previous quarter. The report shall evaluate the data from the monthly monitoring program, and shall include:

- The total hours of operation of all remediation systems/per day (estimated for holidays and weekends);
- The total hours of operation of all extraction wells/per day;
  - A graph that shows the total hours of operation of all extraction wells/per day;
- The total volume of water (gallons) extracted from each well/per day;
  - A graph that shows the volume of water (gallons) extracted from each well/per day.
- The amount of down time for the system in the month/per hour;
  - A graph that shows the down time for the system over time/per day.
- The amount of time (hours) needed for repair;
- The action taken to repair the system;
- An evaluation of the performance of each individual extraction point (both landfill gas and groundwater);
- The quarterly water levels from each groundwater well included in the corrective action-monitoring program;
- The volume of water (gallons) discharged from the system;
- The volume of water (gallons) discharged from the retention basin;
- The amount of kilowatts used by both the gas extraction system;;
- The mass of contaminants removed by the gas extraction system and the groundwater extraction system; and
- The location of discharge of the treated water.

b. Groundwater Retention Basin:

The groundwater retention basin shall be monitored as follows:

Constituent/ Parameter	Units	Sample Type	Sampling Frequency	Reporting Frequency
Waste Water Chemistry – Table I constituents		Grab	Quarterly	Quarterly
Freeboard	0.1 feet	Staff Gauge Measurement	Weekly	Quarterly

c. Land Application Area Effluent Monitoring

During periods of discharge to the land application areas, the Discharger shall monitor the quantity and quality of the discharge. The Discharger shall establish one or more permanent monitoring stations within the wastewater conveyance system as needed to ensure that all samples are representative of the actual discharge to the fields. At a minimum, the Discharger shall monitor the effluent wastewater as follows:

Constituent/ Parameter	Units	Sample Type	Sampling Frequency	Reporting Frequency
Flow to each field	gallons	Measurement	Daily	Monthly
pH	pH units	Grab	Weekly	Monthly
Total dissolved solids	mg/L	Grab	Monthly	Quarterly
Nitrate Nitrogen	mg/L	Grab	Monthly	Quarterly

d. Daily Pre-Application Inspections

The Discharger shall inspect the land application areas at least **once daily** prior to and during irrigation events, and observations from those inspections shall be documented for inclusion in the monthly monitoring reports. The following items shall be documented for each check or field to be irrigated on that day:

MONITORING AND REPORTING PROGRAM NO. \_\_\_\_\_  
 THE MA-RU HOLDING COMPANY, INC. AND  
 BONZI SANITATION LANDFILL  
 OPERATION, CLOSURE AND CORRECTIVE ACTION AT  
 THE BONZI SANITATION LANDFILL, STANISLAUS COUNTY

- a. Evidence of erosion;
- b. Containment berm condition;
- c. Condition of each standpipe and flow control valve (if applicable);
- d. Proper use of valves;
- e. Soil saturation;
- f. Ponding;
- g. Tailwater ditches and potential runoff to off-site areas;
- h. Potential and actual discharge to surface water;
- i. Odors that have the potential to be objectionable at or beyond the property boundary; and
- j. Insects.

Temperature; wind direction and relative strength; and other relevant field conditions shall also be observed and recorded. The notations shall also document any corrective actions taken based on observations made. A copy of entries made in the log during each month shall be submitted as part of the Monthly Monitoring Report. If no irrigation with wastewater takes place during a given month, then the monthly monitoring report shall so state.

e. Routine monitoring

The Discharger shall perform the following routine monitoring and loading calculations during all months when land application occurs, and shall present the data in the Monthly and Annual Monitoring Reports.

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Precipitation	0.1 in.	Rain Gauge <sub>1</sub>	Daily	Monthly, Annually
Irrigation fields and checks receiving wastewater	--	Observation	Daily	Monthly, Annually
Hydraulic loading rate				
Wastewater	in.	Calculated <sup>2</sup>	Daily	Quarterly
Fresh water	in.	Calculated <sup>2</sup>	Daily	Quarterly
Nitrogen loading rate, other sources (fertilizer, etc.)	lb/ac/mo	Calculated <sub>2,3</sub>	Monthly	Quarterly
Total dissolved solids loading rate	lb/ac/mo	Calculated <sub>2,3</sub>	Monthly	Quarterly

<sup>1</sup> Data obtained from the nearest National Weather Service rain gauge is acceptable.

<sup>2</sup> Rate shall be calculated for each irrigation check.

- <sup>3</sup> Loading rates for supplemental nitrogen shall be calculated using the actual load and the application area.

## **E. REPORTING REQUIREMENTS**

1. The Discharger shall retain records of all monitoring information, including all calibration and maintenance records, all original strip chart recordings of continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order. Records shall be maintained throughout the life of the facility including the postclosure period.

Such legible records shall show the following for each sample:

- a. Sample identification and the monitoring point or background monitoring point from which it was taken, along with the identity of the individual who obtained the sample;
  - b. Date, time, and manner of sampling;
  - c. Date and time that analyses were started and completed, and the name of the personnel and laboratory performing each analysis;
  - d. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used;
  - e. Calculation of results; and
  - f. Results of analyses, and the MDL and PQL for each analysis.
2. A transmittal letter explaining the essential points shall accompany each report. At a minimum, the transmittal letter shall identify any violations found since the last report was submitted, and if the violations were corrected. If no violations have occurred since the last submittal, this shall be stated in the transmittal letter. The transmittal letter shall also state that a discussion of any violations found since the last report was submitted, and a description of the actions taken or planned for correcting those violations, including any references to previously submitted time schedules, is contained in the accompanying report.
  3. Each monitoring report shall include a compliance evaluation summary. The summary shall contain at least:
    - a. For each monitoring point and background monitoring point addressed by the report, a description of:
      - 1) The time of water level measurement;

- 2) The type of pump - or other device - used for purging and the elevation of the pump intake relative to the elevation of the screened interval;
  - 3) The method of purging (the pumping rate; the equipment and methods used to monitor field pH, temperature, and conductivity during purging; the calibration of the field equipment; results of the pH, temperature, conductivity, and turbidity testing; and the method of disposing of the purge water) to remove all portions of the water that was in the well bore while the sample was being taken;
  - 4) The type of pump - or other device - used for sampling, if different than the pump or device used for purging; and
  - 5) A statement that the sampling procedure was conducted in accordance with the approved Sampling and Analysis Plan.
- b. A map or aerial photograph showing the locations of observation stations, monitoring points, and background monitoring points.
  - c. For each groundwater body, a description and graphical presentation of the gradient and direction of groundwater flow under/around the Unit, and the groundwater flow rate, based upon water level elevations taken prior to the collection of the water quality data submitted in the report.
  - d. Laboratory statements of results of all analyses evaluating compliance with requirements.
  - e. An evaluation of the effectiveness of the leachate monitoring and control facilities, and of the run-off/run-on control facilities.
  - f. A summary and certification of completion of all **Standard Observations** for the Unit(s), for the perimeter of the Unit, and for the receiving waters. Standard observations for ACTIVE landfill units shall be conducted **weekly** during the wet season (1 October to 30 April) and **monthly** during the dry season (1 May to 30 September). Standard observations for INACTIVE or CLOSED landfill units shall be conducted **monthly** during the wet season (1 October to 30 April) and **quarterly** during the dry season (1 May to 30 September). Standard The Standard Observations shall include:
    - 1) For the Unit:
      - a) Evidence of ponded water at any point on the facility (show affected area on map);
      - b) Evidence of odors - presence or absence, characterization, source, and distance of travel from source; and

- c) Evidence of erosion and/or of day-lighted refuse.
  - 2) Along the perimeter of the Unit:
    - a) Evidence of liquid leaving or entering the Unit, estimated size of affected area, and flow rate (show affected area on map);
    - b) Evidence of odors - presence or absence, characterization, source, and distance of travel from source; and
    - c) Evidence of erosion and/or of day-lighted refuse.
- 4. The Discharger shall report by telephone any seepage from the disposal area **immediately** after it is discovered. A written report shall be filed with the Regional Water Board **within seven days**, containing at least the following information:
  - a. A map showing the location(s) of seepage;
  - b. An estimate of the flow rate;
  - c. A description of the nature of the discharge (e.g., all pertinent observations and analyses);
  - d. Verification that samples have been submitted for analyses of the Monitoring Parameters and Constituents of Concern listed in Table III of this MRP, and an estimated date that the results will be submitted to the Regional Water Board; and
  - e. Corrective measures underway or proposed, and corresponding time schedule.
- 5. The Discharger shall submit an **Annual Monitoring Summary Report** to the Regional Water Board covering the reporting period of the previous monitoring year. This report shall contain:
  - a. All monitoring parameters and constituents of concern shall be graphed so as to show historical trends at each monitoring point and background monitoring point, for all samples taken within at least the previous five calendar years. Each such graph shall plot the concentration of one or more constituents for the period of record for a given monitoring point or background monitoring point, at a scale appropriate to show trends or variations in water quality. The graphs shall plot each datum, rather than plotting mean values. For any given constituent or parameter, the scale for background plots shall be the same as that used to plot downgradient data. Graphical analysis of monitoring data may be used to provide significant evidence of a release.
  - b. All historical monitoring data, including data for the previous year, shall be submitted in tabular form as well as in a digital file format (i.e. excel worksheet format .xls, or equivalent) . The Regional Water Board regards the submittal of

MONITORING AND REPORTING PROGRAM NO. \_\_\_\_\_  
THE MA-RU HOLDING COMPANY, INC. AND  
BONZI SANITATION LANDFILL  
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THE BONZI SANITATION LANDFILL, STANISLAUS COUNTY

data in hard copy and in digital format as "...the form necessary for..." statistical analysis [Title 27 CCR Section 20420(h)], in that this facilitates periodic review by the Regional Water Board.

- c. A comprehensive discussion of the compliance record, and the result of any corrective actions taken or planned which may be needed to bring the Discharger into full compliance with the waste discharge requirements.
  - d. A map showing the area and elevations in which filling has been completed during the previous calendar year and a comparison to final closure design contours.
  - e. A written summary of the monitoring results, indicating any changes made or observed since the previous annual report.
  - f. An evaluation of the effectiveness of the leachate monitoring/control facilities including the results of the annual testing of leachate collection and removal systems required under VIII.P of the Standard Provisions and Reporting Requirements.
6. Within **45 days** of the sample collection from the offsite wells listed above, the Discharger shall submit the sampling results report to Regional Water Board, the well owners, and Stanislaus County. This report shall include: an evaluation of each well's water chemistry, and documentation that the owners received the data for their well with an explanation of the results.

The Discharger shall implement the above monitoring program on the effective date of this Program.

Ordered by: \_\_\_\_\_  
PAMELA C. CREEDON, Executive Officer

\_\_\_\_\_  
(Date)

hfh:3-Oct-07

**TABLE I**  
**GROUNDWATER DETECTION AND CORRECTIVE ACTION MONITORING PROGRAM**

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
<b>Field Parameters</b>		
Groundwater Elevation	Ft. & hundredths, M.S.L.	Quarterly
Temperature	°C	As required by
Electrical Conductivity	µmhos/cm	Section D1
pH	pH units	
Turbidity	Turbidity units	
<b>Monitoring Parameters</b>		
Total Dissolved Solids (TDS)	mg/L	As required by
Arsenic	mg/L	Section D1
Barium	mg/L	
Chromium	mg/L	
Manganese	mg/L	
Cobalt	mg/L	
Copper	mg/L	
Nickel	mg/L	
Molybdenum	mg/L	
Vanadium	mg/L	
Lead	mg/L	
Tin	mg/L	
Zinc	mg/L	
Chloride	mg/L	
Chloride	mg/L	
Carbonate	mg/L	
Bicarbonate	mg/L	
Nitrate - Nitrogen	mg/L	
Sulfate	mg/L	
Calcium	mg/L	
Magnesium	mg/L	
Potassium	mg/L	
Sodium	mg/L	
Volatile Organic Compounds (USEPA Method 8260, see Table V)	µg/L	
<b>Constituents of Concern (see Table VI)</b>		
Total Organic Carbon	mg/L	5 years
Inorganics (dissolved)	mg/L	5 years
Volatile Organic Compounds (USEPA Method 8260B, extended list)	µg/L	5 years
Semi-Volatile Organic Compounds (USEPA Method 8270C)	µg/L	5 years

MONITORING AND REPORTING PROGRAM NO. \_\_\_\_\_  
 THE MA-RU HOLDING COMPANY, INC. AND  
 BONZI SANITATION LANDFILL  
 OPERATION, CLOSURE AND CORRECTIVE ACTION AT  
 THE BONZI SANITATION LANDFILL, STANISLAUS COUNTY

Chlorophenoxy Herbicides (USEPA Method 8151A)	µg/L	5 years
Organophosphorus Compounds (USEPA Method 8141A)	µg/L	5 years

**TABLE II**

**UNSATURATED ZONE DETECTION MONITORING PROGRAM**

**SOIL-PORE GAS**

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
<b>Monitoring Parameters</b>		
Volatile Organic Compounds (USEPA Method TO-15)	µg/cm <sup>3</sup>	Semiannual
Methane	%	Semiannual

**TABLE III**  
**LEACHATE DETECTION MONITORING PROGRAM**

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
<b>Field Parameters</b>		
Electrical Conductivity	µmhos/cm	Semiannual
pH	pH units	Semiannual
<b>Monitoring Parameters</b>		
Total Dissolved Solids (TDS)	mg/L	Annually
Arsenic	mg/L	Semiannual
Barium	mg/L	Semiannual
Chromium	mg/L	Semiannual
Manganese	mg/L	Semiannual
Cobalt	mg/L	Semiannual
Copper	mg/L	Semiannual
Nickel	mg/L	Semiannual
Molybdenum	mg/L	Semiannual
Vanadium	mg/L	Semiannual
Lead	mg/L	Semiannual
Tin	mg/L	Semiannual
Zinc	mg/L	Semiannual
Chloride	mg/L	Annually
Carbonate	mg/L	Annually
Bicarbonate	mg/L	Annually
Nitrate - Nitrogen	mg/L	Annually
Sulfate	mg/L	Annually
Calcium	mg/L	Annually
Magnesium	mg/L	Annually
Potassium	mg/L	Annually
Sodium	mg/L	Annually
Volatile Organic Compounds (USEPA Method 8260B, see Table V)	µg/L	Annually
<b>Constituents of Concern (see Table VI)</b>		
Total Organic Carbon	mg/L	5 years
Inorganics (dissolved)	mg/L	5 years
Volatile Organic Compounds (USEPA Method 8260B, extended list)	µg/L	5 years
Semi-Volatile Organic Compounds (USEPA Method 8270C)	µg/L	5 years
Chlorophenoxy Herbicides (USEPA Method 8151A)	µg/L	5 years
Organophosphorus Compounds (USEPA Method 8141A)	µg/L	5 years

**TABLE IV**  
**WASTE SORTING AREA MONITORING PROGRAM**

<u>Parameter</u>	<u>Units</u>	<u>Frequency*</u>
<b>Field Parameters</b>		
pH	pH units	Rain Event
Turbidity	Turbidity units	Rain Event
<b>Monitoring Parameters</b>		
Total Dissolved Solids (TDS)	mg/L	Rain Event
Carbonate	mg/L	Rain Event
Bicarbonate	mg/L	Rain Event
Chloride	mg/L	Rain Event
Nitrate - Nitrogen	mg/L	Rain Event
Sulfate	mg/L	Rain Event
Sodium	mg/L	Rain Event
Tannins and Lignins	mg/L	Rain Event
Volatile Organic Compounds (USEPA Method 8260B, see Table V)	µg/L	Rain Event

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\* No more than two samples per location, per month is required.

**TABLE V**  
**MONITORING PARAMETERS FOR DETECTION MONITORING**

**Surrogates for Metallic Constituents:**

pH  
Total Dissolved Solids  
Electrical Conductivity  
Chloride  
Sulfate  
Nitrate nitrogen

**Constituents included in VOC:**

**USEPA Method 8260B**

Acetone  
Acrylonitrile  
Benzene  
Bromochloromethane  
Bromodichloromethane  
Bromoform (Tribromomethane)  
Carbon disulfide  
Carbon tetrachloride  
Chlorobenzene  
Chloroethane (Ethyl chloride)  
Chloroform (Trichloromethane)  
Dibromochloromethane (Chlorodibromomethane)  
1,2-Dibromo-3-chloropropane (DBCP)  
1,2-Dibromoethane (Ethylene dibromide; EDB)  
o-Dichlorobenzene (1,2-Dichlorobenzene)  
m-Dichlorobenzene (1,3-Dichlorobenzene)  
p-Dichlorobenzene (1,4-Dichlorobenzene)  
trans-1,4-Dichloro-2-butene  
Dichlorodifluoromethane (CFC-12)  
1,1-Dichloroethane (Ethylidene chloride)  
1,2-Dichloroethane (Ethylene dichloride)  
1,1 -Dichloroethylene (1,1 -Dichloroethene; Vinylidene chloride)  
cis-1,2-Dichloroethylene (cis-1,2-Dichloroethene)  
trans-1,2-Dichloroethylene (trans-1,2-Dichloroethene)  
1,2-Dichloropropane (Propylene dichloride)  
cis-1,3-Dichloropropene  
trans-1,3-Dichloropropene  
Di-isopropylether (DIPE)  
Ethanol  
Ethyltertiary butyl ether  
Ethylbenzene  
2-Hexanone (Methyl butyl ketone)  
Hexachlorobutadiene

**TABLE V**  
**MONITORING PARAMETERS FOR DETECTION MONITORING**  
**Continued**

Hexachloroethane  
Methyl bromide (Bromomethene)  
Methyl chloride (Chloromethane)  
Methylene bromide (Dibromomethane)  
Methylene chloride (Dichloromethane)  
Methyl ethyl ketone (MEK: 2-Butanone)  
Methyl iodide (Iodomethane)  
Methyl t-butyl ether  
4-Methyl-2-pentanone (Methyl isobutylketone)  
Naphthalene  
Styrene  
Tertiary amyl methyl ether  
Tertiary butyl alcohol  
1,1,1,2-Tetrachloroethane  
1,1,2,2-Tetrachloroethane  
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene)  
Toluene  
1,2,4-Trichlorobenzene  
1,1,1-Trichloroethane (Methylchloroform)  
1,1,2-Trichloroethane  
Trichloroethylene (Trichloroethene)  
Trichlorofluoromethane (CFC- 11)  
1,2,3-Trichloropropane  
Vinyl acetate  
Vinyl chloride  
Xylenes

**TABLE VI**  
**CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS**

<b><u>Inorganics (dissolved):</u></b>	<b><u>USEPA Method</u></b>
Aluminum	6020
Antimony	6020
Barium	6020
Beryllium	6020
Cadmium	6020
Chromium	7196A
Chromium <sup>+6</sup>	7199
Cobalt	6020
Copper	6020
Silver	6020
Tin	6020
Vanadium	6020
Zinc	6020
Iron	6020
Manganese	6020
Arsenic	7062
Lead	6020
Mercury	7470A
Nickel	6020
Selenium	7742
Thallium	6020
Cyanide	9010B
Sulfide	9030B

**Volatile Organic Compounds:**

**USEPA Method 8260**

Acetone  
Acetonitrile (Methyl cyanide)  
Acrolein  
Acrylonitrile  
Allyl chloride (3-Chloropropene)  
Benzene  
Bromochloromethane (Chlorobromomethane)  
Bromodichloromethane (Dibromochloromethane)  
Bromoform (Tribromomethane)  
Carbon disulfide  
Carbon tetrachloride  
Chlorobenzene  
Chloroethane (Ethyl chloride)  
Chloroform (Trichloromethane)  
Chloroprene  
Dibromochloromethane (Chlorodibromomethane)

**TABLE VI**

**CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS**

**Continued**

1,2-Dibromo-3-chloropropane (DBCP)  
1,2-Dibromoethane (Ethylene dibromide; EDB)  
o-Dichlorobenzene (1,2-Dichlorobenzene)  
m-Dichlorobenzene (1,3-Dichlorobenzene)  
p-Dichlorobenzene (1,4-Dichlorobenzene)  
trans- 1,4-Dichloro-2-butene  
Dichlorodifluoromethane (CFC 12)  
1,1 -Dichloroethane (Ethylidene chloride)  
1,2-Dichloroethane (Ethylene dichloride)  
1,1 -Dichloroethylene (1, 1-Dichloroethene; Vinylidene chloride)  
cis- 1,2-Dichloroethylene (cis- 1,2-Dichloroethene)  
trans- 1,2-Dichloroethylene (trans- 1,2-Dichloroethene)  
1,2-Dichloropropane (Propylene dichloride)  
1,3-Dichloropropane (Trimethylene dichloride)  
2,2-Dichloropropane (Isopropylidene chloride)  
1,1 -Dichloropropene  
cis- 1,3-Dichloropropene  
trans- 1,3-Dichloropropene  
Di-isopropylether (DIPE)  
Ethanol  
Ethyltertiary butyl ether  
Ethylbenzene  
Ethyl methacrylate  
Hexachlorobutadiene  
Hexachloroethane  
2-Hexanone (Methyl butyl ketone)  
Isobutyl alcohol  
Methacrylonitrile  
Methyl bromide (Bromomethane)  
Methyl chloride (Chloromethane)  
Methyl ethyl ketone (MEK; 2-Butanone)  
Methyl iodide (Iodomethane)  
Methyl t-butyl ether  
Methyl methacrylate  
4-Methyl-2-pentanone (Methyl isobutyl ketone)  
Methylene bromide (Dibromomethane)  
Methylene chloride (Dichloromethane)  
Naphthalene  
Propionitrile (Ethyl cyanide)  
Styrene  
Tertiary amyl methyl ether  
Tertiary butyl alcohol  
1,1,1,2-Tetrachloroethane  
1,1,2,2-Tetrachloroethane  
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene; PCE)

**TABLE III**

**CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS**

**Continued**

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)

**Semi-Volatile Organic Compounds:**

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

Acenaphthene  
Acenaphthylene  
Acetophenone  
2-Acetylaminofluorene (2-AAF)  
Aldrin  
4-Aminobiphenyl  
Anthracene  
Benzo[a]anthracene (Benzanthracene)  
Benzo[b]fluoranthene  
Benzo[k]fluoranthene  
Benzo[g,h,i]perylene  
Benzo[a]pyrene  
Benzyl alcohol  
Bis(2-ethylhexyl) phthalate  
alpha-BHC  
beta-BHC  
delta-BHC  
gamma-BHC (Lindane)  
Bis(2-chloroethoxy)methane  
Bis(2-chloroethyl) ether (Dichloroethyl ether)  
Bis(2-chloro-1-methylethyl) ether (Bis(2-chloroisopropyl) ether; DCIP)  
4-Bromophenyl phenyl ether  
Butyl benzyl phthalate (Benzyl butyl phthalate)  
Chlordane  
p-Chloroaniline  
Chlorobenzilate  
p-Chloro-m-cresol (4-Chloro-3-methylphenol)  
2-Chloronaphthalene  
2-Chlorophenol  
4-Chlorophenyl phenyl ether  
Chrysene

**TABLE VI**

**CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS**

**Continued**

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

**TABLE VI**

**CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS**

**Continued**

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

**Chlorophenoxy Herbicides:**

MONITORING AND REPORTING PROGRAM NO. \_\_\_\_\_  
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THE BONZI SANITATION LANDFILL, STANISLAUS COUNTY

**USEPA Method 8151A**

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

**Organophosphorus Compounds:**

**USEPA Method 8081B**

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