

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2003-0160

WASTE DISCHARGE REQUIREMENTS
FOR
LIQUID WASTE MANAGEMENT, INC.,
McKITTRICK WASTE TREATMENT SITE
CLASS II DISPOSAL FACILITY
McKITTRICK, KERN COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Regional Board) finds that:

1. Liquid Waste Management, Inc., a wholly owned subsidiary of USA Waste of California, Inc. (a Delaware Corporation), a wholly owned subsidiary of Waste Management, Inc. (a Delaware Corporation), is currently doing business as McKittrick Waste Treatment Site. Liquid Waste Management, Inc. is hereafter referred to as “Discharger”.
2. On 19 September 1997, the Regional Board adopted Waste Discharge Requirements (WDRs) Order No. 97-191, which prescribes waste discharge requirements for the existing waste management units (WMUs) at the McKittrick Waste Treatment Site.
3. On 19 September 1997, the Regional Board adopted Cease and Desist Order No. 97-192, which ordered MWTS to close five former Class II-1 unlined surface impoundments. In accordance with the Order all impoundments have been closed and Orders 97-191 and 97-192 have been rescinded.
4. On 17 September 1999, the Regional Board adopted WDR Order No. 99-125 to address changes in operations, construction of new WMUs, and to revise the monitoring and reporting program for existing and new WMUs.
5. This Order is being issued to revise the WDRs, adding the description of existing WMU Module B-1, addressing the proposed construction of WMU Module C-1, and revision of the monitoring and reporting program. It is being issued in compliance with Title 27, California Code of Regulations (CCR), Division 2, Subdivision 1, Section 20005, et seq. (hereafter Title 27).
6. The Water Quality Control Plan for the Tulare Lake Basin, Second Edition, (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin. This Order implements the Basin Plan.

LOCATION & DESCRIPTION

7. The 50-acre facility, Assessor's Parcel Number 157-240-11-00-5, is in the N 1/2 of Section 29, T30S, R22E, MDB&M, in the foothills of the Temblor Range. The facility is approximately one mile south of the town of McKittrick, at the intersection of State Highways 33 and 58, as shown in Attachment A, which is attached to and made part of this Order. Attachment B, which shows the plan view of the facility, the location of the proposed new waste management unit, and the proposed future expansion of the landfill, is also attached to and made part of this Order.
8. Ground surface elevations at the site range from 1,270 to 1,470 feet above Mean Sea Level. The site topography rises in a westward direction at an average slope of approximately eight percent. Land within 1,000 feet of the facility is or has been previously used for oil and gas exploration and production. An on-site oil well was abandoned in compliance with California Division Of Oil, Gas and Geothermal Resources procedures.
9. The McKittrick Thrust Fault is designated inactive by the California Division of Mines and Geology, (Fault Activity Map of California and Adjacent Areas, 1994). This fault has been mapped across the northeast portion of the site. The San Andreas Fault lies nine miles west of the site. The maximum credible earthquake of magnitude 8.25 on the San Andreas Fault could result in on-site peak horizontal ground accelerations of 0.7g. There are no known Holocene Faults within 200 feet of any existing or proposed WMUs. The site is not in an area subject to rapid geologic change.
10. Based on data from the Department of Water Resources, Bulletin No. 195, the estimated mean annual precipitation near the facility is 4.8 inches, and the estimated 1,000-year, 24-hour precipitation event is 2.3 inches.
11. As indicated by the Flood Insurance Rate Map, Community-Parcel Number 060075-0950 B, dated 29 September 1986, the facility is not within a 100-year flood plain.
12. Based on data from the Department of Water Resources, Bulletin No. 73-79, the estimated average annual Class A pan evaporation is 100 inches.

SURFACE WATER & GROUNDWATER CONDITIONS

13. The area on and around the site has been incised by a northeasterly trending drainage system where ephemeral streams flow following infrequent rainstorms. Three drainage channels converge on the western and southwestern boundaries of the site.

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14. The fractured Monterey Shale aquifer underlying the site is of poor water quality. Large natural variations in water quality caused by evaporation have resulted in soluble salts concentrating in the shallow groundwater and springs. Total Dissolved Solids (TDS) concentrations are generally much higher in the shallow groundwater and springs than in deep groundwater. TDS concentrations typically exceed 20,000 mg/L in the springs, vary from 2,700 mg/L to greater than 12,000 mg/L in shallow groundwater from approximately 5-70 ft. depth, and vary from 3,250 mg/L to greater than 4,500 mg/L in deep groundwater from approximately 90-150 ft. depth. Meteoric groundwater recharge from ephemeral stream percolation and precipitation is considered insignificant compared to the natural occurrence of more saline upwelling connate groundwater.
15. The site is underlain by folded and fractured Upper Miocene Monterey Shale, which has tar seeps and groundwater springs naturally emanating from fractures. The tar seeps contain naturally occurring petroleum-related hydrocarbons. A majority of the seeps occur along the northern portion of the site, near the McKittrick Thrust Fault. Several of the shallow groundwater monitoring wells were decommissioned due to impacts from naturally occurring petroleum. Low concentrations of organics, apparently associated with the naturally occurring petroleum, have been detected during routine groundwater monitoring, demonstrating a continued impact on groundwater quality.
16. The springs flow all year at variable rates, averaging approximately 1 to 1-1/2 gallons per minute (gpm). Spring water recharge is thought to be from upwelling connate groundwater, originating from the interconnected vertical fracture system. An upward vertical groundwater gradient exists and groundwater discharges as either springs or in shallow subsurface flow towards the east-northeast.
17. Based upon field tests, the hydraulic conductivities of the geologic materials underlying the site vary from 4.2×10^{-3} cm/sec to 3.7×10^{-7} cm/sec. The higher hydraulic conductivities are representative of the shallow groundwater zone (generally less than 100 feet deep), where groundwater flows in highly fractured and weathered bedrock. This flow is characteristic of horizontal flow through a granular, porous coarse-grained medium. The lower hydraulic conductivities are representative of the lower groundwater zone (generally greater than 100 feet deep), where the fracture intensity is much less and the hydraulic conductivities are representative of groundwater flow through a fine-grained (siltstone to claystone) matrix.
18. Depth to first encountered groundwater varies between less than 5 feet to greater than 35 feet. The average horizontal hydraulic gradient is 0.035 ft/ft to the northeast. Based upon the hydraulic conductivities derived from the field tests, groundwater flow rates within the bedrock vary from less than 1 foot/year to greater than 1,000 feet/year

depending upon hydraulic gradients, the degree of fracturing, the degree of weathering, and the grain size of the rock matrix.

19. In 1991, 1,1-DCA was detected in spring SP-1 and has been consistently detected since that time with a maximum concentration of 170 µg/L in 1992. Concentrations have been decreasing and since 1998, the concentrations have been below 5 µg/L. In 1999, MTBE was detected in the spring and has been consistently detected since that time with concentrations varying from ND to 25 µg/L. The site is currently in corrective action which consists of monitoring the natural attenuation.
20. A hydrogeologic conceptual model for the site was submitted in 1998. The model indicates that all the shallow groundwater that could potentially be affected by facility operations likely discharges at or near the spring. This is indicated by the fact that 1,1-DCA and MTBE have been consistently detected only at the spring sample locations SP-1 and SP-1A
21. The Water Quality Control Plan for the Tulare Lake Basin, Second Edition, 1995 (Basin Plan) provides that groundwater and spring water within one-half (1/2) mile of the Discharger's site are not a source or potential source of municipal or domestic supply. The Basin Plan also classifies the groundwater and spring water within one-half mile of the Discharger site as having no beneficial uses.

WASTE CLASSIFICATION

22. The Discharger accepts nonhazardous solid and/or liquid wastes including scrubber wastes, oily wastes, neutralized acid wastes, drilling mud, brines, tank bottom sediments, miscellaneous wastes generated in the oil fields, and a wide variety of other wastes from industry and cleanup projects. The Discharger is allowed to accept nonhazardous waste containing total lead in excess of 350 mg/kg, provided an extract obtained from the waste (by the California Waste Extraction Test) contains lead concentrations of less than 5.0 mg/L.

WASTE MANAGEMENT UNIT DESIGN & CONSTRUCTION

Existing Class II WMUs

23. Liner containment systems for the existing Class II WMUs have been demonstrated to comply with the Class II prescriptive standards and performance goals of CCR, Title 27, or were previously approved as engineered alternatives as provided for by Title 27, and consist of the following elements (described from bottom to top):

- a. Landfill Module A - A compacted subgrade with an integral 75 by 150 foot underdrain/dewatering system consisting of a 12-inch gravel layer wrapped in geotextile filter fabric and incorporating a 6-inch perforated HDPE pipe connected to a sideslope riser pipe; a smooth, 60-mil HDPE geomembrane capillary break; compacted fill (to achieve the 5 foot separation from groundwater); 24 inches of clay compacted to a permeability of 1×10^{-6} cm/s; a 60-mil HDPE geomembrane; a filter/cushion fabric; a 12-inch granular leachate collection and removal system (LCRS); a geocomposite drainage layer on the sideslopes; and a 12-inch protective soil cover.
- b. Surface Impoundment IE - A six-inch compacted soil subgrade; a 60-mil textured geomembrane; a geotextile filter/cushion fabric; a 12-inch granular LCRS; a geotextile filter/cushion fabric; 18 inches of clay compacted to a permeability of 1×10^{-7} cm/s; a 60-mil textured geomembrane; and a protective soil cover and gravel on the impoundment bottom and sidewalls.
- c. Surface Impoundment IF - A six-inch compacted soil subgrade foundation; a 60-mil HDPE geomembrane secondary liner; a blanket geocomposite LCRS with a collection sump; and a 60-mil primary HDPE geomembrane liner.
- d. Surface Impoundment IK - A six-inch compacted soil subgrade foundation; a 60-mil HDPE geomembrane secondary liner; a blanket geocomposite LCRS system with a collection sump; a geosynthetic clay liner; a 60-mil HDPE geomembrane primary liner; and a 12-inch protective sand layer on the bottom and gravel on the sidewalls.
- e. Landfill WMU Module B-1 - A six-inch compacted soil subgrade foundation; a reinforced geosynthetic clay liner with a permeability of less than 5×10^{-9} cm/sec; a 60-mil HDPE geomembrane; a gravel LCRS on the base and a geocomposite LCRS on the sideslopes; and a 1-foot operations layer.

Proposed Class II WMUs

24. As shown on Attachment B, the Discharger proposes to continue expansion of Landfill 1 by constructing WMU Module C-1. The proposed liner design is as follows (from bottom to top):
 - a. A twelve-inch compacted soil subgrade foundation; a reinforced geosynthetic clay liner; a 60-mil HDPE geomembrane; a granular LCRS on the base and a geocomposite LCRS on the sideslopes; and a minimum twelve-inch operations layer. Below the LCRS sump there will be a 2-foot low permeability soil liner. A

leak detection system will be constructed beneath the LCRS sump which consists of a twelve-inch subgrade foundations; a reinforced geotextile carrier-type GCL; a 60-mil HDPE geomembrane; and a 12-inch thick layer of granular material.

WASTE MANAGEMENT UNIT CLOSURE

25. The Discharger submitted a preliminary closure plan for closure of the Class II Landfill No. 1. The closure plan satisfies the requirements of Title 27. The cover design meets or exceeds the prescriptive standards and performance goals contained in Title 27.
26. The following former unlined WMUs were closed in accordance with closure plans approved by the Regional Board and the Department of Toxic Substances Control: IA, IB, IC, ID, IE, IF, IG, IH, IJ, IK, IL, IM, IIA, and IIB. Several of the units have been previously combined and then retrofitted.

MONITORING

27. The Discharger submitted a proposed Groundwater Monitoring Program dated January 1998. Attachment B shows the location of the currently approved groundwater detection system monitoring points.
28. Based on the fact that 1,1-DCA and MTBE have consistently been detected only in spring samples SP-1 and SP-1A, the spring sample location SP-1 appears to be the best location to monitor for a release from the WMUs.
29. The Discharger has demonstrated that the installation of unsaturated zone monitoring devices such as suction lysimeters is infeasible based on the site hydrogeology.
30. Beneath the LCRS sump underlying WMUs IE, IF, IK and landfill WMU Module B-1, the Discharger constructed a pan lysimeter consisting of a gravel filled area approximately 15 feet by 30 feet. The gravel is enveloped with filter fabric and rests on a 60-mil geomembrane. This serves as unsaturated zone monitoring in the area of the surface impoundment most likely to experience a leak. Landfill WMU Module C-1 is proposed to be constructed with a leak detection sump filled with granular material enveloped with filter fabric and resting on a 60-mil geomembrane and GCL composite liner. Beneath the leak detection sump of Module C-1 will be an underdrain layer consisting of granular material below the one-foot compacted subgrade.

CEQA AND OTHER LEGAL CONSIDERATIONS

31. Kern County adopted a Mitigated Negative Declaration on 3 August 1992 for the existing operations at the facility (including expansion of Landfill 1), in accordance with the California Environmental Quality Act (CEQA) (Public Resources Code §21000, et seq.) and State CEQA Guidelines. Kern County adopted a mitigated Negative Declaration on 2 February 1998 for future expansion of the landfill into the western parcel of the MWTS facility, in accordance with CEQA. The Regional Board considered the Mitigated Negative Declarations and incorporated measures in these WDRs intended to mitigate any potential significant impacts on water quality.

32. This Order requires the Discharger to submit technical reports as authorized under California Water Code Section 13267(b)(1), which states in part:

“In conducting an investigation specified in subdivision (a), the Regional Board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the Regional Board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the Regional Board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.”

The technical reports required by this Order, and by the attached Monitoring and Reporting Program No. R5-2003-0160, are necessary to assure compliance with these WDRs.

33. The Regional Board has notified the Discharger and interested agencies and persons of its intention to issue WDRs for this facility.

34. The Regional Board, in a public meeting on 17 October 2003, heard and considered all comments pertaining to this proposed Order.

35. Any person adversely affected by this action of the Regional Board may petition the State Water Resources Control Board to review the action. The petition must be received by the State Board within 30 days of the date of issuance of this Order. Copies of the law

and regulations applicable to filing the petition are available at http://www.swrcb.ca.gov/water_laws and will be provided on request.

IT IS HEREBY ORDERED pursuant to California Water Code Sections 13263 and 13267, that Order No. 99-125 is rescinded by this Order and that Liquid Waste Management, Inc., and its agents, successors, and assigns, in order to meet the provisions contained in California Water Code, Division 7, and regulations adopted thereunder, shall comply with the following:

A. PROHIBITIONS

The following discharges are prohibited:

1. The acceptance, treatment, discharge, or storage of 'hazardous waste'. For the purposes of this Order the term 'hazardous waste' is as defined in Title 27.
2. The discharge of solid waste, liquid waste, or leachate to surface waters, surface water drainage courses, or groundwater. The discharge of waste or waste constituents to natural geologic materials, groundwater, or surface water.
3. The discharge of wastes which have the potential to reduce or impair the integrity of containment structures or which, if commingled with other wastes in the unit, could produce violent reaction, heat or pressure, fire or explosion, toxic by-products, or reaction products which in turn:
 - a) require a higher level of containment than provided by the unit;
 - b) are 'hazardous wastes'; or
 - c) impair the integrity of containment structures.
4. Waste containing free liquids, or containerized free liquids, into landfills.
5. Drums or other rigid containers containing waste until a Rigid-Container Waste Acceptance Plan is submitted and approved by the Executive Officer.
6. Radioactive material that is not exempt from regulation and licensing or is not expressly authorized for disposal under the Radiation Control Law, Chapter 8 (commencing with Section 114960) of Part 9 of Division 104 of the Health and Safety Code, or any successor statute that may replace the Radiation Control

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Law; or is prohibited from disposal under Article 1 (commencing with Section 114705) of Chapter 5 of Part 9 of Division 104 of the Health and Safety Code, or any successor statute that may replace Article 1; or is prohibited from disposal by any governmental agency.

7. Municipal solid waste or refuse, except on-site generated dry trash.
8. Infectious or bio-hazardous materials, as defined by Health and Safety Code Section 25020.5.
9. Compressed gas cylinders greater than 1 liter.
10. Department of Transportation Class I explosives.

B. SPECIFICATIONS

1. The Discharger shall comply with all applicable sections of Title 27, including sections not specifically referenced in this Order.
2. The Discharger shall comply with the applicable portions of the Standard Provisions and Reporting Requirements, dated April 2000, which are attached to and made part of this Order.
3. Wastes shall only be discharged into, and shall be confined to, approved WMUs specifically designed for their containment, as described in **Findings 23 and 24**.
4. Runoff from tributary areas and internal site drainage shall not contact wastes.
5. The Discharger shall operate and maintain surface impoundments to prevent liquid wastes, precipitates, or sludge from concentrating to hazardous levels.
6. Any surface impoundment which contains oil shall be covered with screening to restrain entry of wildlife.
7. At any WMU where the groundwater separation is less than five feet below the base of the waste, the Discharger shall construct a groundwater drainage system capable of maintaining the separation required by CCR, Title 27. The design will be based on the highest anticipated groundwater elevation.
8. The Discharger shall maintain files that contain appropriate documentation of the nonhazardous nature of each waste stream accepted for on-site disposal or

treatment. The files shall contain any certified analytical results provided by the generator and a description of the waste stream generating process(es), and other information that may be necessary to demonstrate the nonhazardous nature of the incoming waste. The analytical results are to be representative of those constituents characteristically known to occur or likely to occur in the waste or by the waste generation process.

9. The permitted facility shall be fenced and control maintained to prevent unauthorized access.

WASTE MANAGEMENT UNIT CONSTRUCTION

10. The Discharger submitted a liner performance demonstration report for the proposed landfill expansion and the Regional Board concurred with the design. Liner systems for new landfill modules shall consist of the following (from bottom to top): a twelve-inch compacted soil subgrade foundation; a reinforced geosynthetic clay liner; a 60-mil HDPE geomembrane; a granular LCRS on the base and a geocomposite LCRS on the sideslopes; and a minimum twelve-inch operations layer. Below the LCRS sump there will be a 2-foot low permeability soil liner. A leak detection system will be constructed beneath the LCRS sump which consists of a twelve-inch subgrade foundations; a reinforced geotextile carrier-type GCL; a 60-mil HDPE geomembrane; and a 12-inch thick layer of granular material. The Discharger may propose changes to the liner system design prior to construction, provided that approved components are not eliminated, the engineering properties of the components are not substantially reduced, and the proposed liner system results in the protection of water quality equal to or greater than the design prescribed by Title 27 and this Order. Proposed changes or construction or expansion of additional waste management units may be made following approval by the Executive Officer. Substantive changes to the design require reevaluation and Regional Board approval.
11. The Discharger shall notify the Executive Officer at least **10 days prior to** construction of the subgrade, the installation of an unsaturated zone monitoring system, the installation of all soil and synthetic liners for containment and cover systems, and the construction of the LCRS(s) for any WMUs.
12. Visual observations and detailed geologic mapping of foundation conditions underlying each excavation for a WMU shall be made during construction by a California registered geologist. A geologic report and map of the excavation for each WMU shall be submitted to the Executive Officer before discharging waste to the WMU.

13. Discharges to a WMU shall cease if there is any containment system failure of that unit.
14. The Discharger shall install in all surface impoundments a permanent marker delineating the brim of the WMU. The marker is to be maintained as a reference point for measuring the freeboard.

CLOSURE

15. Each unit closed as a landfill shall have the following cover (from the top down): a 1-foot vegetative layer; a geocomposite drainage layer; a 60-mil HDPE geomembrane/GCL composite liner; and a 2-foot foundation layer.
16. The Discharger may propose changes to the cover system design prior to construction, provided that approved components are not eliminated, the engineering properties of the components are not substantially reduced, and the proposed cover system results in the protection of water quality equal to or greater than the design prescribed by Title 27 and this Order. The proposed changes may be made following approval by the Executive Officer. Substantive changes to the design require reevaluation as an engineered alternative and approval by the Regional Board.
17. The Discharger has submitted a preliminary closure and post-closure maintenance plans which incorporates the expansion and proposed future expansions and which has been approved.

MONITORING

18. The groundwater detection monitoring system shall consist of four monitoring wells and two spring seeps (listed in Table III), with locations as shown in Attachment B of this Order. The Discharger may change the numbers and locations of monitoring points if approved by the Executive Officer.
19. The Discharger shall notify the Executive Officer at least **10 days prior** to installing any groundwater monitoring well(s).
20. The Discharger shall comply with Monitoring and Reporting Program No. R5-2003-0160, which is attached to and made part of this Order.

C. PROVISIONS

1. The Discharger shall, **by 1 June of each year**, submit for approval by the Executive Officer, assurances of financial responsibility for initiating and completing corrective action for all known or reasonably foreseeable releases from the WMUs. The Discharger shall adjust the cost estimate annually to account for inflation and any changes in facility design, construction, or operations.
2. The Discharger shall, subject to approval by the Executive Officer, establish an irrevocable closure fund or provide other means to ensure closure and post-closure maintenance of each WMU in accordance with the approved closure and post closure maintenance plans. The Discharger shall, **by 1 June of each year**, adjust the cost estimate annually to account for inflation and any changes in facility design, construction, or operations.
3. The Discharger shall submit a final construction certification report following completion of a new, or closure of a former WMU. The final construction report shall include, but not be limited to, construction record drawings for the WMU, a construction QA/QC report with a written summary of the QA/QC program and all test results and analyses, and the certification, seal, and signature of an appropriately registered individual(s) in the State of California, stating that construction was completed in accordance with plans and regulations. The certification report shall be submitted **within 60 days** following completion of construction and/or closure of any WMU.
4. Before closure of any WMU, the Discharger may be required to submit an updated closure plan that incorporates new engineering technology, construction methods, and materials, that will ensure consistency with the then current State policy and regulations.
5. The Discharger shall provide proof to the Regional Board **within 60 days after completing final closure** that the deed to the facility property, or some other instrument that is normally examined during title search, has been modified to include, in perpetuity, a notation to any potential purchaser of the property stating that: (1) the parcel has been used as a Class II disposal/treatment site; (2) land use options for the parcel are restricted in accordance with the post-closure land uses set forth in the post-closure plan and in WDRs for the facility; and (3) in the event that the Discharger defaults on carrying out either the post-closure maintenance plan or any corrective action needed to address a release, the responsibility for carrying out such work falls to the property owner.

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6. The Discharger shall submit a Rigid-Container Waste Acceptance Plan **within 60 days** from adoption of this order.
7. The Regional Board will review this Order periodically and may revise requirements when necessary.
8. Conditions may be added to the facility's design, operating plan, or post-closure plans as necessary to protect human health or the environment.
9. The Discharger shall document the removal and relocation of any wastes discharged at this site in violation of this Order.
10. The Discharger may be required to submit technical reports as directed by the Executive Officer as provided for in California Water Code Section 13267.
11. This Order does not authorize violation of any federal, state, or local laws or regulations.

I, THOMAS R. PINKOS, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 17 October 2003.

THOMAS R. PINKOS, Executive Officer

TAF:taf/rac

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2003-0160

FOR
LIQUID WASTE MANAGEMENT, INC.
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Compliance with this Monitoring and Reporting Program, Title 27, California Code of Regulations, Division 2, Subdivision 1, Section 20005 and following (hereafter Title 27), and with the Standard Provisions and Reporting Requirements for Title 27 (27 CCR §20005, et seq.) and Subtitle D (40 CFR 258), dated April 2000, is ordered by Waste Discharge Requirements (WDRs) Order No. R5-2003-0160.

Failure to comply with this Program, or with the Standard Provisions and Reporting Requirements, constitutes noncompliance with the WDRs and the Water Code, which can result in the imposition of civil monetary liability.

A. REQUIRED REPORTS

<u>Report</u>	<u>Due</u>
1. Groundwater and Surface Water Monitoring (Section D.1.)	Semi -Annually
2. Incoming Waste (Section D.2)	
a. Incoming Waste Monitoring	Quarterly
b. Industrial Waste Stream Analysis	Annually
3. Leachate Collection and Removal System (Section D.3)	
a. LCRS Monitoring	Quarterly
b. Integrity Testing	Annually
4. Unsaturated Zone Monitoring (Section D.4)	Quarterly
5. Surface Impoundment Monitoring (Section D.5)	
a. pH and Fluid Level Measurements	Quarterly
b. Annual Sampling and Analysis	Annually
6. Facility Monitoring (Section D.6)	As necessary
7. Annual Monitoring Summary Report (Standard Provisions and Reporting Requirements)	Annually

B. REPORTING

The Discharger shall report monitoring data and information as required in this Monitoring and Reporting Program and as required by appropriate sections of the Standard Provisions and Reporting Requirements. Reports that 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. Monitoring reports shall be submitted by the 30th day of the month following the calendar quarter in which the samples were taken or observations made. 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.

C. WATER QUALITY PROTECTION STANDARD AND COMPLIANCE PERIOD

For each waste management unit (WMU), the water quality protection standard consists of 1) a list of constituents of concern and monitoring parameters, 2) concentration limits for each constituent of concern and each monitoring parameter, and 3) the points of compliance.

The compliance period is the minimum period during which the Discharger shall conduct water quality monitoring subsequent to a release. This water quality protection standard shall apply during the active life of the WMU, the closure period, the post-closure maintenance period, or as long as waste poses a threat to water quality.

1. Constituents of Concern and Monitoring Parameters

Constituents of concern are the waste constituents and reaction by-products of waste disposal that are reasonably expected to be in or derived from waste contained in the WMU. The constituents of concern for all WMUs at the facility are those listed in Table I.

Monitoring parameters are the waste constituents, reaction by-products of waste disposal, and physical parameters that are reasonably expected to be in or derived from waste contained in the WMU. The monitoring parameters for all WMUs at the facility are those listed in Table II.

2. Statistical Evaluation

Inorganic constituents are not reliable indicators of a release from a WMU and analytical results for inorganic constituents will not be statistically analyzed. Possible releases from a WMU will be evaluated statistically using trend analysis of VOC concentrations.

3. Points of Compliance and Monitoring Points

Title 27 defines the point of compliance as the vertical surface located at the hydraulically downgradient limit of the waste management unit that extends through the uppermost aquifer underlying the unit. However, due to the complex hydrogeology beneath the site, the point of compliance for each waste management unit is the spring sample location SP-1.

- a. The approved Monitoring Points for groundwater detection monitoring are the monitoring wells identified in Table III and spring sample location SP-1.
- b. The approved Monitoring Point for surface water detection monitoring is spring sample location SP-1A.
- c. The approved Monitoring Points for the unsaturated zone monitoring program are the collection sumps below each WMU LCRS collection sump.

4. Compliance Period

The compliance period for each WMU shall be the number of years equal to the active life of the WMU 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

1. Groundwater

The Discharger shall collect, preserve, and transport groundwater and spring samples according to the procedures and quality assurance/quality control standards contained in the facility sampling and analysis plan.

The Discharger shall also determine groundwater flow rate and direction, including the times of highest and lowest elevations of the water levels in the wells. All groundwater analytical results and groundwater flow rate calculations and direction determinations shall be reported to the Board semi-annually as specified in Reporting Section B.

Groundwater and spring samples shall be collected from the point of compliance and any additional piezometers, wells, and springs added as part of the approved ground

and surface water monitoring system. Samples shall be collected at the frequencies and analyzed for the constituents listed below.

<u>Constituent</u>	<u>Frequency</u>
Constituents of Concern (Table 1) Monitoring Parameters (Table 2)	Every 5 Years¹ Semi-Annually

¹ Sampling shall alternate between the summer and winter sampling events.

2. Incoming Waste

a. Incoming Waste Monitoring

The Discharger shall monitor all wastes accepted for discharge to WMUs daily and submit quarterly waste monitoring reports to the Board which include the following information:

<u>Parameter</u>	<u>Reporting Units</u>
Solid Waste Type	Tons
Liquid Waste Type	Tons
Location of Discharge	

The Discharger shall implement the Waste Acceptance and Review Program and any additional documentation necessary to demonstrate that all waste is nonhazardous pursuant to Title 22 CCR, Section 66262.11 and Title 27 CCR, Section 20200 (c).

For the purposes of this Order, an industrial solid or liquid waste stream is defined as waste received from a single generator that discharges an industrial or manufacturing waste from the same process and that contains the same constituents and concentrations over time.

b. Industrial Waste Stream Analysis

Confirming documentation of each recurring industrial waste stream from a regular generator shall describe the process generating the waste or constituents characteristic of the waste. Concentrations of the key constituents that are characteristic of the waste shall be confirmed by reanalysis at least once annually. The waste shall be recharacterized any time the industrial or

manufacturing process changes the waste constituents being generated, or a new waste stream is accepted for discharge.

Sample analysis that indicates the waste or a portion of the waste to be hazardous shall be reported separately and not be averaged with other nonhazardous sample results. The hazardous portion shall be removed and confirmation samples taken. Hazardous waste shall be disposed of at an appropriately permitted facility or receive a variance from DTSC.

Chemical analyses shall be performed by an accredited laboratory as required by Water Code Section 13176 and Health and Safety Code Section 100825. For each waste stream, analyses must be provided which clearly identify and adequately characterize the waste constituents that are reasonably expected to be present. Records shall be maintained so that an independent auditor can verify the characteristics of the entire lot of each waste stream. Copies of the annual waste characterization results for each recurring industrial waste are to be available as part of the file.

Other approved analytical methods may be proposed if they provide equal or greater accuracy or precision. If the total concentration for any constituent exceeds ten times the STLC, then the extractable concentration shall be determined using the WET procedure, as per Title 22, CCR, Appendix II of Chapter 18, Division 4.5.

Based on the source or type of waste, analysis for additional parameters or constituents may be needed to fully characterize the waste and to demonstrate that it is nonhazardous. The Discharger is responsible for ensuring that analyses required for adequate characterization are performed prior to acceptance of waste by the facility.

3. Leachate Collection and Removal System

a. LCRS Monitoring

The leachate collection and removal system (LCRS) of each newly constructed WMU shall be inspected for fluid accumulation prior to waste being placed in the unit. The LCRS of operating WMUs shall be inspected daily for fluid. Initial fluids occurring in the LCRS shall be analyzed when first detected, and annually thereafter for the constituents of concern listed in Table I. The results of these analyses shall be evaluated and submitted to the Board within two weeks of receipt from the laboratory. The Discharger shall submit a quarterly report showing the daily fluid levels and the total quantity of fluid removed

from the each LCRS during each month. The report shall be presented in a tabular and graphical format.

The Regional Board shall be notified in writing within seven days if fluid is detected in a previously dry LCRS or the rate of fluid generation in any LCRS sump exceeds that needed for efficient pump operation. Collected leachate from WMUs shall be managed in conformance with WDRs Order No. R5-2003-0160.

b. LCRS Integrity Testing

All LCRSs shall be tested annually to demonstrate operation in conformance with the WDRs. A report shall be submitted that describes the results of the test and shall include comparison with earlier tests made under comparable conditions.

4. Unsaturated Zone Monitoring

Each WMU shall have an unsaturated zone monitoring system below the lowest point of the unit. It shall be a pan lysimeter system located directly or as near as practicable below the primary LCRS collection sump.

Unsaturated zone collection sumps shall be inspected weekly for fluid accumulation and the results reported to the Board quarterly. Fluids occurring in the unsaturated zone collection sumps shall be sampled and analyzed when first detected, and annually thereafter.

5. Surface Impoundment Monitoring

a. pH and Fluid Level Measurements

Surface impoundments shall be monitored for the parameters listed below. Staff gauges shall be installed at each surface impoundment. The pH measurement and fluid levels shall be recorded weekly and submitted quarterly.

<u>Parameter</u>	<u>Units</u>
pH	
Freeboard fluid level	Tenths of ft.

b. Annual Sampling and Analysis

Any liquid, sludge, or precipitates present in surface impoundments shall be sampled and analyzed annually for the parameters below:

<u>Parameter</u>	<u>Units</u>
Title 22 metals	mg/L
VOCs (EPA 8260)	mg/L
96-Hour Static Acute Bioassay	

6. Facility Monitoring

a. Annual Inspection

The Discharger shall conduct an annual rainy season inspection no later than **30 September**. The inspection shall assess the facility drainage control systems, WMUs, retention basin, groundwater monitoring wells, and fencing. Any necessary construction, maintenance, or repairs shall be completed within 15 days of the inspection. By **15 November**, the Discharger shall submit a report describing the results of the inspection and the repair measures implemented.

b. Storm Events

The Discharger shall immediately notify the Executive Officer following storm events which produce 1.0 inch or more of precipitation within a 24-hour period measured at the facility and shall immediately inspect all cover systems, precipitation, diversion, and drainage control facilities for damage. Necessary repairs shall be implemented **within 15 days** and reported **within 30 days** to the Executive Officer.

c. Seismic Events

The Discharger shall implement the Post-Earthquake Inspection and Response Plan following any seismic event which causes significant ground motion at the site.

Ordered by: _____
THOMAS R. PINKOS, Executive Officer

_____ 17 October 2003
(Date)

TAF:taf/rac

TABLE I
CONSTITUENTS OF CONCERN

Field Parameters:

pH	Specific Conductivity
Total Dissolved Solids	Chloride
Sulfate	

Inorganic Constituents:

Arsenic (EPA Method 6020)	Mercury (EPA Method 7470A)
Barium (EPA Method 6010B)	Nickel (EPA Method 6010B)
Cadmium (EPA Method 6010B)	Selenium (EPA Method 6020)
Chromium (EPA Method 6010B)	Silver (EPA Method 6010B)
Cobalt (EPA Method 6010B)	Sulfide (EPA Method 9030B)
Copper (EPA Method 6010B)	Vanadium (EPA Method 6010B)
Cyanide (EPA Method 9010B or 9012A)	Zinc (EPA Method 6010B)
Lead (EPA Method 7421 or 6010B)	

Volatile Organic Constituents

Constituent List for 8260B Analysis. Report all peaks and traces

Acetone	<i>trans</i> -1,3-Dichloropropene
Benzene	Ethylbenzene
Bromodichloromethane	Isopropylbenzene
Bromoform	p-Isopropyltoluene
Bromomethane	Methylene chloride
n-Butylbenzene	Methyl ethyl ketone
sec-Butylbenzene	Methyl-Isobutyl-Ketone
Carbon disulfide	Methyl-tert-butyl ether
Carbon tetrachloride	Naphthalene
Chlorobenzene	n-Propylbenzene
Chloroethane	Styrene
Chloroform	Tetrachloroethene
Chloromethane	1,1,2,2-Tetrachloroethane
Dibromochloromethane	Toluene
1,2-Dichlorobenzene	1,1,1-Trichloroethane
1,3-Dichlorobenzene	1,1,2-Trichloroethane
1,4-Dichlorobenzene	Trichloroethene
1,1-Dichloroethane	Trichlorofluoromethane
1,2-Dichloroethane	1,2,4-Trimethylbenzene
<i>trans</i> -1,2-Dichloroethene	1,3,5-Trimethylbenzene

TABLE I
CONSTITUENTS OF CONCERN

Continued

1,2-Dichloropropane	Vinyl chloride
<i>cis</i> -1,3-Dichloropropene	Xylenes (total)

Semi-Volatile Organic Constituents - All constituents detectable by EPA Method 8270C.
Report all peaks and traces

Pesticides and PCBs - All constituents detectable by EPA Methods 632 and 8080. Report all peaks and traces

TABLE II
DETECTION MONITORING PARAMETERS

Field Parameters:

pH	Specific Conductivity
Total Dissolved Solids	Chloride
Sulfate	

Inorganic Constituents

Cyanide (EPA Method 9010B or 9012A)

Volatile Organic Constituents

Constituent List for 8260B Analysis. Report all peaks and traces

Acetone	<i>trans</i> -1,3-Dichloropropene
Benzene	Ethylbenzene
Bromodichloromethane	Isopropylbenzene
Bromoform	p-Isopropyltoluene
Bromomethane	Methylene chloride
n-Butylbenzene	Methyl ethyl ketone
sec-Butylbenzene	Methyl-Isobutyl-Ketone
Carbon disulfide	Methyl-tert-butyl ether
Carbon tetrachloride	Naphthalene
Chlorobenzene	n-Propylbenzene
Chloroethane	Styrene
Chloroform	Tetrachloroethene
Chloromethane	1,1,2,2-Tetrachloroethane
Dibromochloromethane	Toluene
1,2-Dichlorobenzene	1,1,1-Trichloroethane
1,3-Dichlorobenzene	1,1,2-Trichloroethane
1,4-Dichlorobenzene	Trichloroethene
1,1-Dichloroethane	Trichlorofluoromethane
1,2-Dichloroethane	1,2,4-Trimethylbenzene
<i>trans</i> -1,2-Dichloroethene	1,3,5-Trimethylbenzene
1,2-Dichloropropane	Vinyl chloride
<i>cis</i> -1,3-Dichloropropene	Xylenes (total)

TABLE III
MONITORING POINTS

Well M-4
Well M-5
Well M-11
Well M-12R
Spring Seep SP-1
Spring Seep SP-1A

INFORMATION SHEET

ORDER NO. R5-2003-0160
LIQUID WASTE MANAGEMENT, INC.
McKITTRICK WASTE TREATMENT SITE
CLASS II DISPOSAL FACILITY
MCKITTRICK, KERN COUNTY

The McKittrick Waste Treatment Site is a 50-acre Class II solid and liquid waste disposal facility approximately one mile south of the town of McKittrick, near the intersection of State Highways 33 and 58. The site has been in operation since 1972 and regulated by Waste Discharge Requirements (WDRs). Revised WDRs are necessary to address changes in operations, new waste management units, and to revise the monitoring and reporting program.

A variety of nonhazardous industrial and oilfield wastes are discharged or treated at the facility. The discharge of municipal solid waste at this facility is prohibited. The Discharger operates three Class II surface impoundments (IE, IF, IK) for solar evaporation of liquid waste and two Class II landfills (Landfill 1, Modules A & B-1) for solid waste disposal. The first phase of a third landfill WMU module (Module C-1) is proposed for Landfill 1. Remaining modules for B & C will be constructed in phases as the capacity of the current landfill modules are reached. Land surrounding and adjacent to the Discharger's property is used for oil and gas exploration and production. Surface seeps of naturally occurring hydrocarbons (gas and crude oil) occur on and around the site. The occurrence of hydrocarbon seeps predates disposal activities at the facility. Several shallow groundwater monitoring wells have been decommissioned due to impacts from the naturally occurring hydrocarbons. Low concentrations of organics, likely associated with the petroleum seeps, have been detected during routine groundwater monitoring, demonstrating a continuing impact of natural petroleum on groundwater quality.

The Water Quality Control Plan for the Tulare Lake Basin, Second Edition, 1995 (Basin Plan), provides that groundwater and spring water within one-half (1/2) of the Discharger's site are not a source or potential source of municipal or domestic supply. The Basin Plan also classifies the groundwater and spring water within one-half mile of the Discharger's site as having no beneficial uses.

Groundwater is under a piezometric head and occurs in fractures approximately 25 feet beneath the surface in the southern portion of the site, and near ground surface in the northern portion. Naturally occurring petroleum occurs as seeps with groundwater within the same fracture system. Spring water and groundwater quality are very poor. Variation in water quality caused by evaporation has resulted in soluble salts concentrating in the shallow groundwater and springs. Total dissolved solids typically exceed 20,000 mg/L in the springs, vary from 2,700 mg/L to greater than 12,000 mg/L in shallow groundwater, and vary from 3,250 mg/L to greater than 4,500 mg/L in deep groundwater. There are no known Holocene faults on or near the facility.

In 1980 the Department of Toxic Substances Control (DTSC) issued a permit which allowed the facility to discharge wastes considered hazardous into unlined surface impoundments, classified at the time by the Regional Board as Class II-1 WMUs. Cease and Desist Order No. 90-241 issued to Liquid Waste Management, Inc. contained a time schedule that required closure/retrofit of the five remaining unlined

INFORMATION SHEET - ORDER NO. R5-2003-0160
LIQUID WASTE MANAGEMENT, INC.
McKITTRICK WASTE TREATMENT SITE
CLASS II DISPOSAL FACILITY
MCKITTRICK, KERN COUNTY

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impoundments by 31 October 2000. Impoundments IA, IB, IC, ID, IE, IF, IG, IH, IJ, IK, IL, IM, IIA, and IIB were properly closed in accordance with closure plans approved by the DTSC and RWQCB and

the Order rescinded. Three of the impoundments (IE, IF and IK) have since been retrofitted in accordance with the construction standards and performance goals of Title 27.

The ground and surface water detection monitoring system at the facility currently consists of four shallow monitoring wells, and two spring seep locations. Where there is adequate groundwater separation, unsaturated zone monitoring is required and will generally consist of pan lysimeter type collection systems located below the leachate collection sump of each WMU.

TAF:taf/rac:10/17/2003