

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2002-0038

WASTE DISCHARGE REQUIREMENTS
FOR
COUNTY OF SISKIYOU
FOR
CORRECTIVE ACTION AND CLOSURE OF THE
BLACK BUTTE CLASS III MUNICIPAL SOLID WASTE LANDFILL
SISKIYOU COUNTY

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

1. The County of Siskiyou (hereafter Discharger) owns a municipal solid waste landfill about 2 miles north of the City of Mount Shasta, in Section 32, T41N, R4W, MDB&M, as shown in Attachment A, which is incorporated herein and made part of this Order. This is an existing facility that was first operated by Siskiyou County in 1969.
2. The landfill property was formerly owned by the U. S. Department of Agriculture, Forest Service. Siskiyou County purchased the property on 2 November 1994. The facility is comprised of Assessor's Parcel Number (APN) 21-60-050.
3. The 60-acre facility consists of an unlined waste management unit (WMU-1) covering 28.9 acres, as shown in Attachment B, which is incorporated herein and made part of this Order. Additionally, the site had a wastewater treatment plant sludge-drying surface impoundment (WMU-3) in the northwest part of the property that was clean closed in 1995. Also in the northwest part of the property were two septage ponds (WMU-2) that were closed in place in September 1996. Woodwaste has been stockpiled at the north end of WMU-1. The woodwaste is currently used for daily cover when there is no threat of precipitation. Any remaining woodwaste that is not used for daily cover will be closed in place with the rest of WMU-1.
4. The facility receives nearly 20 tons of waste per day. Approximately 10,900 tons of waste were disposed at the site during 2000.
5. The Discharger has proposed a four-phased closure of the site as part of a Corrective Action Program in response to elevated measurements of chlorides, sulfates, total dissolved solids, and specific conductance in groundwater down gradient of WMU-1. The proposed corrective action consists of capping the site with a flexible membrane liner to reduce precipitation and storm water infiltration into the wastes. Construction of a solid waste transfer station during summer 2002 is included with the third phase of corrective action and will provide disposal options for the surrounding community. Final landfill closure will be completed by fall 2003.
6. The facility was previously regulated by Waste Discharge Requirements (WDRs) Order No. 89-230, issued on 8 December 1989, which is no longer in conformance with Title 27, California Code of Regulations, Division 2, Subdivision 1 (hereafter Title 27), or Title 40 of the Code of Federal

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Regulations, Part 258 (hereafter Subtitle D). On 17 September 1993, the Board adopted Order No. 93-200, amending Order No. 89-230 and implementing State Water Resources Control Board Resolution No. 93-62, *Policy for Regulation of Discharges of Municipal Solid Waste*. These WDRs are being updated to incorporate the minimum performance goals and prescriptive standards contained in Title 27, Subtitle D, and Order No. 93-200, and to reflect the Corrective Action Program and four-phased closure of the site.

SITE DESCRIPTION

7. The site is on the west flank of Mount Shasta and south base of Black Butte plug dome. Site geology consists of volcanic soils with high permeabilities. Native soils underlying the site have a measured hydraulic conductivity ranging from 1×10^{-2} cm/sec to 1 cm/sec.
8. The closest Holocene faults are a complex of faults located in Butte Valley approximately 24 miles east of the site. The maximum estimated earthquake magnitude of this fault is 6.6 on the Richter scale with a ground acceleration estimated to be 0.16g. A closer Quaternary fault six miles long that runs across the summit of Mount Shasta is considered to be a greater risk to the site. Based on the Mount Shasta fault, the maximum probable ground acceleration for the site is 0.38g.
9. Land uses within 1,000 feet of the facility are zoned non-prime agriculture and light industrial. The closest residence and domestic well is located $\frac{1}{2}$ mile west of the site.
10. The facility receives an average of 37.01 inches of precipitation per year as measured at the Mount Shasta City Station. Mean annual evaporation is approximately 35 inches.
11. The 100-year, 24-hour precipitation event is estimated to be 7.39 inches, based on Department of Water Resources' bulletin entitled *Rainfall Analysis for Drainage Design, Volume 1*, dated October 1976.
12. The waste management facility is not within a 100-year flood plain.
13. There are three known municipal, domestic, industrial, or agricultural groundwater supply wells within one mile of the site. No surface springs or other sources of groundwater supply have been observed. The nearest down gradient private domestic supply well is located at a residence $\frac{1}{2}$ mile west of the site.

WASTE AND SITE CLASSIFICATION

14. Until the site closes in Fall 2002, the Discharger proposes to continue to discharge municipal solid wastes, which are defined in §20164 of Title 27. Nonhazardous solid wastes includes municipal solid wastes, as referred to in the Code of Federal Regulations, Title 40, Part 258.2.

SURFACE AND GROUNDWATER CONDITIONS

15. The *Water Quality Control Plan for the Sacramento River Basin and San Joaquin River Basin, Fourth Edition* (hereafter Basin Plan), designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin.
16. There is no surface water discharge from the facility because site soils are extremely permeable. However, topographic surface drainage is toward Wagon Creek, a tributary of the Sacramento River, in the Mount Shasta Hydrologic Area (525.20) of the Sacramento River Basin. The designated beneficial uses of Wagon Creek and the Sacramento River, as specified in the Basin Plan, are domestic; municipal; agricultural supply; industrial service and process supply; hydroelectric power generation; water contact and non-contact water recreation; aesthetic enjoyment; navigation; groundwater recharge; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves.
17. The landfill is on the west edge of Mount Shasta and the south base of Black Butte in the Cascade Range geologic province of California. The site is underlain by Quaternary-age, and possibly as recent as Holocene-age, volcanic deposits consisting of interbedded mudflows, lava, and tuff deposits. Well logs for the site indicate that the geologic materials as deep as 200 feet beneath the site consist generally of loose angular boulder to cobble-sized clasts either with or without a fine-grained matrix. Two small steam vents are located on the eastern side of the landfill about 250 feet south-southwest of monitoring well OB-2A.
18. The first encountered groundwater is about 30 to 70 feet below the native ground surface. Groundwater elevations in the year 2000 ranged from 3,793 feet MSL to 3,833 feet MSL. The groundwater is unconfined. The depth to groundwater fluctuates seasonally as much as three to five feet.
19. Monitoring data from the year 2000 indicates background groundwater quality has an electrical conductivity (EC) ranging between 117 and 144 $\mu\text{mhos/cm}$, with total dissolved solids (TDS) ranging between 118 and 140 mg/l.
20. The direction of groundwater flow is toward the west-southwest. The average groundwater gradient is approximately 0.027 feet per foot. The average groundwater velocity is approximately 2,800 feet per year.
21. The designated beneficial uses of the groundwater, as specified in the Basin Plan, are domestic and municipal, agricultural, and industrial supply.

GROUNDWATER MONITORING

22. The landfill has five wells that are used to regularly monitor groundwater quality. Wells OB-1, OB-2A, OB-3A, and OB-4M were installed in 1986. A fifth well, OB-5, was installed in 2000. Wells OB-1, OB-3A, OB-4M, and OB-5 are down or cross gradient compliance wells. Well OB-2A is up gradient of the site and provides background water quality data. Well OB-4M, located near

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former WMU-2, was monitored from 1986 to 1996. Sampling from this well ceased when former WMU-2 was closed. Regular monitoring of well OB-4M resumed in 2001. Another monitoring well, designated as "Entrance Well" and located just north of the site access gate, was installed in 1974. Monitoring data from the Entrance Well is considered suspect due to inadequate construction characteristics, and this well is no longer sampled. Destruction of the Entrance Well will be a condition of site closure. There is no vadose zone monitoring system at the landfill.

23. The Discharger's Detection Monitoring Program for groundwater at this site satisfies the requirements contained in Title 27. However, groundwater sample data indicates evidence of a release as shown by elevated concentrations of several monitoring parameters in down gradient compliance wells when compared to background well OB-2A. The Discharger has implemented a Corrective Action Program (CAP) in accordance with Section 20430 of Title 27 that primarily consists of capping the landfill with a synthetic flexible membrane liner of high density polyethylene (HDPE) to reduce precipitation and storm water infiltration into the underlying wastes and installation of a gas extraction/venting system. Trend analyses of groundwater monitoring data from the down gradient compliance wells will be evaluated to determine the effectiveness of the CAP.
24. Volatile organic compounds (VOCs) are often detected in a release from a landfill, and are the primary waste constituents detected in groundwater beneath a municipal solid waste landfill. Since volatile organic compounds are not naturally occurring and thus have no background value, they are not amenable to the statistical analysis procedures contained in Title 27 for the determination of a release of wastes from a Unit.
25. Sections 20415(e)(8) and (9) of Title 27 provide for the non-statistical evaluation of monitoring data that will provide the best assurance of the earliest possible detection of a release from a WMU in accordance with §20415(b)(1)(B)2.-4. of Title 27. However, Title 27 does not specify a specific method for non-statistical evaluation of monitoring data.
26. The Board may specify a non-statistical data analysis method pursuant to Section 20080(a)(1) of Title 27. Section 13360(a)(1) of the California Water Code allows the Board to specify requirements to protect underground or surface waters from leakage from a solid waste site, which includes a method to provide the best assurance of determining the earliest possible detection of a release.
27. In order to provide the best assurance of the earliest possible detection of a release of non-naturally occurring waste constituents from a WMU, this Order specifies a non-statistical method for the evaluation of monitoring data.
28. The specified non-statistical method for evaluation of monitoring data provides two criteria (or triggers) for making the determination that there has been a release of non-naturally occurring waste constituents from a WMU. The presence of two non-naturally occurring waste constituents above their respective method detection limit (MDL), or one non-naturally occurring waste constituent detected above its practical quantitation limit (PQL), indicates that a release of waste from a WMU has occurred. Following an indication of a release, verification testing will be conducted to determine whether there has been a release from the WMU, or there is a source of the detected

constituents other than the landfill, or the detection was a false detection. Although the detection of one non-naturally occurring waste constituent above its MDL is sufficient to provide for the earliest possible detection of a release, the detection of two non-naturally occurring waste constituents above the MDL as a trigger is appropriate due to the higher risk of false-positive analytical results and the corresponding increase in sampling and analytical expenses from the use of one non-naturally occurring waste constituent above its MDL as a trigger.

GROUNDWATER DEGRADATION

29. The Discharger's detection monitoring program has indicated that concentrations of several parameters, including specific conductance (SC), total dissolved solids (TDS), organic carbon, chloride, sulfate, total Kjeldahl nitrogen, calcium, magnesium, sodium, potassium, alkalinity, and bicarbonate are elevated in down gradient well OB-1 relative to background well OB-2A. Well OB-5 has higher SC, TDS, calcium, alkalinity, and bicarbonate relative to well OB-2A. Well OB-4M has higher SC, TDS, chloride, and nitrate relative to well OB-2A. Statistical trend analysis of year 2000 monitoring data indicates that 50 percent of the monitored parameters in OB-1 show increasing trends with no parameters decreasing; OB-2A shows 20 percent increasing with 5 percent decreasing; OB-3A shows no parameters increasing and 40 percent decreasing, and OB-4M shows 5 percent increasing and 10 percent of the parameters decreasing. Organic compounds have occasionally been detected in groundwater at the site, but no consistency or trend has been identified.
30. An evaluation monitoring program is currently being developed by the Discharger. In addition to delineating the boundaries of the release, the evaluation monitoring program will be used to determine the effectiveness of the landfill CAP.

CORRECTIVE ACTION

31. The Discharger proposed closing the landfill as a corrective action response to the groundwater degradation described in Finding No. 29 above.
32. The corrective action is being undertaken in phases over the course of four years to allow the Discharger sufficient time to obtain funding for the project.
33. The first phase of the CAP was completed in October 2000 and consisted of grading and compacting 14 acres of the foundation layer in WMU-1 to achieve final closure contours and improve lateral drainage of storm water off of the landfill surface. Pond fines with a lower permeability than site soils were placed in a six-inch lift along the upper portions of the WMU. Steeper slopes below the upper lift were covered with plastic tarps. Surface outbreaks of leachate were collected in a 21,000 gallon portable storage vessel. Collected leachate was filtered through carbon vessels to remove organic compounds before being transported to the Montague Airport Septage Ponds for disposal. Erosion control best management practices were implemented to contain sediment on site. Active waste disposal operations continued on the upper north portion of WMU-1.

34. Phase II of the CAP was completed in December 2001 and consisted of capping the 14 acre area of WMU-1 that was prepared during Phase I. The cap consisted of 60 mil high density polyethylene (HDPE) followed by an erosion resistant layer constructed with appropriately sized rock from on-site. Storm water ponds were constructed at strategic locations around the hydraulically cross and down gradient perimeter of WMU-1 to contain precipitation on-site and allow for infiltration. Landfill gas extraction/venting wells were installed to prevent landfill gas from adversely impacting groundwater. Active waste disposal operations continued on the upper north portion of WMU-1.
35. Phase III of the CAP is scheduled for summer/fall of 2002 and will include construction of a solid waste transfer station just south of WMU-1. Wastes will no longer be landfilled once the transfer station becomes operational and receives all necessary permits and approvals. Recyclables and salvaged materials will be moved from the northwest portion of the landfill to an area adjacent to the new transfer station. The remaining areas of WMU-1 that have not been capped during Phase I or II will be winterized and prepared for final closure during Phase IV, which will be constructed in summer/fall 2003.
36. Phase IV is the final stage of site closure and will be completed by fall 2003. Phase IV will consist of capping the remaining portions of WMU-1 that were not capped during the first three phases of site closure and completion of the perimeter gas monitoring system. WMU-2 will either be capped in a manner similar to WMU-1 or cleaned-closed with all residual septage sludge disposed in WMU-1, in accordance with Title 27.

CEQA AND OTHER CONSIDERATIONS

37. The action to revise waste discharge requirements for this facility is exempt from the provisions of the California Environmental Quality Act, (Public Resources Code Section 21000, et seq.), in accordance with Section 15301, Title 14, California Code of Regulations. The Siskiyou County Board of Supervisors approved a Mitigated Negative Declaration on 9 January 2002 for the closure of the landfill and construction of the new solid waste transfer in accordance with the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000, et seq.) and the State CEQA Guidelines. Compliance with these waste discharge requirements, including implementation of the monitoring and reporting program, will mitigate or avoid significant impacts on water quality.
38. Section 13267(b) of California Water Code provides that: "In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of discharging, or who proposed to discharge within its region, or any citizen or domiciliary, or political agency or entity of this state who had discharged, discharges, or is suspected of discharging, or who proposed to discharge waste outside of its region that could affect the quality of the waters of the state within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the board requires. The burden, including costs of these reports, shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from

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the reports. The monitoring and reporting program required by this Order and the attached "Monitoring and Reporting Program No. R5-2002-0038" are necessary to assure compliance with these waste discharge requirements. The Discharger operates the facility that discharges the waste subject to this Order.

39. This order implements:

- a. *The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition;*
- b. The prescriptive standards and performance goals of Chapters 1 through 7, Subdivision 1, Division 2, Title 27, of the California Code of Regulations, effective 18 July 1997, and subsequent revisions;
- c. The prescriptive standards and performance criteria of RCRA Subtitle D, Part 258; and
- d. State Water Resources Control Board Resolution No. 93-62, *Policy for Regulation of Discharges of Municipal Solid Waste*, adopted 17 June 1993.

PROCEDURAL REQUIREMENTS

40. All local agencies with jurisdiction to regulate land use, solid waste disposal, air pollution, and to protect public health have approved the use of this site for the discharges of waste to land stated herein.
41. The Board notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge, and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
42. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.
43. Any person adversely affected by this action of the 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 will be provided on request.

IT IS HEREBY ORDERED, pursuant to Sections 13263 and 13267 of the California Water Code, that Order No. 89-230 is rescinded, (and Attachment 1 of Order No. 93-200 is amended to delete the Black Butte Class III Landfill, which is on line No. 39), and that Siskiyou County, its agents, successors, and assigns, in order to meet the provisions of Division 7 of the California Water Code and the regulations adopted there under, shall comply with the following:

A. PROHIBITIONS

1. The discharge of 'hazardous waste' or 'designated waste' is prohibited. For the purposes of this Order, the term 'hazardous waste' is as defined in Title 23, California Code of Regulations, Section 2510 et seq., and 'designated waste' is as defined in Section 13173 of the California Water Code.
2. The discharge of wastes outside of a Unit or portions of a Unit specifically designed for their containment is prohibited.
3. The discharge of waste to a closed Unit is prohibited.
4. The discharge shall not cause the release of pollutants, or waste constituents in a manner which could cause a condition of nuisance, degradation, contamination, or pollution of groundwater to occur, as indicated by the most appropriate statistical or non-statistical data analysis method and retest method listed in this Order, the Monitoring and Reporting Program, or the Standard Provisions and Reporting Requirements.
5. The discharge of solid or liquid waste or leachate to surface waters, surface water drainage courses, or groundwater is prohibited.
6. The discharge shall not cause any increase in the concentration of waste constituents in soil pore gas, soil pore liquid, soil, or other geologic materials outside of the Unit if such waste constituents could migrate to waters of the State — in either the liquid or the gaseous phase — and cause a condition of nuisance, degradation, contamination, or pollution.

B. DISCHARGE SPECIFICATIONS

1. Non-hazardous solid wastes shall be discharged to the active disposal area of WMU-1 until site closure is complete, but no later than 1 October 2003.
2. The discharge shall remain within the designated disposal area at all times.

C. FACILITY SPECIFICATIONS

1. The Discharger shall, in a timely manner, remove and relocate any wastes discharged at this facility in violation of this Order.
2. The Discharger shall immediately notify the Board of any flooding, unpermitted discharge of waste, equipment failure, slope failure, or other change in site conditions, which could impair the integrity of waste or leachate containment facilities or precipitation and drainage control structures.

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3. Water used for facility maintenance shall be limited to the minimum amount necessary for dust control, and construction.
4. The Discharger shall maintain in good working order any facility, control system, or monitoring device installed to achieve compliance with the waste discharge requirements.
5. Methane and other landfill gases shall be adequately vented, removed from the Unit, or otherwise controlled to prevent the danger of adverse health effects, nuisance conditions, or the impairment of the beneficial uses of surface water or groundwater due to migration through the unsaturated zone. An in-fill passive gas venting system was installed during Phase II of site closure. A perimeter gas monitoring system will be installed during Phase III or IV of site closure.
6. Surface drainage within the waste management facility shall either be contained on-site or be discharged in accordance with applicable storm water regulations.
7. The Discharger shall maintain a *Storm Water Pollution Prevention Plan and Monitoring Program and Reporting Requirements* in accordance with State Water Resources Control Board Order No. 97-03-DWQ, or retain all storm water on-site.
8. Annually, prior to the anticipated rainy season but no later than **15 October**, any necessary erosion control measures shall be implemented, and any necessary construction, maintenance, or repairs of precipitation and drainage control facilities shall be completed to prevent erosion or flooding of the facility and to prevent surface drainage from contacting or percolating through wastes. Any erosion control work completed at the site shall be discussed in the Annual Monitoring Summary Report.

D. CORRECTIVE ACTION/CLOSURE SPECIFICATIONS

1. The Corrective Action Program consists of closure and capping the landfill to prevent infiltration of storm water. Closure construction will occur in phases over four years. Landfill closure shall include construction and installation of a low permeability landfill cap that consists of 18 inches of compacted six-inch minus site soils overlain by six inches of pond fines to act as a cushion beneath the HDPE layer and form the foundation layer; a textured synthetic flexible membrane liner of HDPE to act as the barrier layer overlain by a protective eight ounce filter fabric; followed by an erosion resistant layer consisting of 12 inches of one-inch minus site soils overlain by six inches of six-inch minus site soils. This landfill cover shall be designed and constructed to function with minimum maintenance.
2. Materials used to construct the landfill cap shall have appropriate physical and chemical properties to ensure containment of discharged wastes over the closure and post-closure maintenance period and for as long as the wastes pose a threat to waters of the State.
3. The closed landfill area shall be graded to at least a three percent grade and maintained to prevent ponding.

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4. Storm water shall be directed away from the landfill cap and waste management units and into detention basins designed for 100 year return storm events to allow for passive infiltration into the porous site soils.
5. Prior to construction of any portion of the landfill cap, a construction quality assurance (CQA) plan shall be submitted to and approved by Regional Board staff.
6. The closed landfill shall be provided with two permanent monuments, installed by a licensed land surveyor, from which the location and elevation of all wastes, containment structures, and monitoring facilities can be determined throughout the post-closure maintenance period.
7. Landfill closure and all containment structures shall be designed and constructed under the direct supervision of a California registered civil engineer or certified engineering geologist and shall be certified by that individual as meeting the prescriptive standards and performance goals of Title 27.
8. The Discharger shall comply with the Corrective Action Program provisions of Section 20430, Title 27.
9. The Discharger shall submit semi-annual progress reports evaluating the effectiveness of the landfill closure and Corrective Action Program. These progress reports shall be included with the Second and Fourth Quarter Monitoring Reports annually until the Corrective Action Program is completed.
10. The Corrective Action Program may be terminated when the Discharger demonstrates that the concentrations of all Monitoring Parameters and Constituents of Concern are reduced to levels below their respective concentration limits (established in the Water Quality Protection Standard pursuant to Section 20390 of Title 27) throughout the entire zone affected by the release for a period of at least three consecutive years.
11. As part of corrective action at the site, the Discharger shall destroy the entrance well located just north of the front gate to the facility. Proof of destruction shall be submitted in accordance with the schedule established in Provisions G.13. of this Order.
12. The Discharger shall submit an updated Engineering Feasibility Study based on data collected during the Evaluation Monitoring Program.
13. The Discharger shall complete all construction activities associated with closure of the entire landfill by **1 October 2003**.
14. If after implementing the Corrective Action Program described above, the Regional Board or the Discharger, upon review of the evaluation monitoring data, find the Corrective Action Program is ineffective or inadequate to meet the Corrective Action Program goals described above, these waste discharge requirements may be modified to require additional corrective action measures.

E. EVALUATION MONITORING SPECIFICATIONS

1. The Discharger shall submit for Executive Officer review and approval a groundwater Evaluation Monitoring Program that demonstrates compliance with Section 20425 of Title 27. The Evaluation Monitoring Program shall be used to assess the nature and extent of the release from the landfill and to evaluate the effectiveness of the corrective action project and the landfill cover.
2. In accordance with the Evaluation Monitoring Program, the Discharger shall collect and analyze all data necessary to assess the nature and the vertical and horizontal extent of the landfill release. A sufficient number of down gradient monitoring wells will need to be installed to delineate the release.
3. The Discharger shall complete the Evaluation Monitoring Program and submit an updated Engineering Feasibility Study in accordance with the schedule established in Provisions G.13. of this Order.
4. The Discharger shall comply with the Evaluation Monitoring Program provisions of Title 27 for groundwater in accordance with Monitoring and Reporting Program No. R5-2002-0038.
5. The Discharger shall provide Board staff a minimum of **one week** notification prior to commencing any field activities related to the installation, repair, or abandonment of monitoring devices, and a minimum 48 hour notification prior to the collection of samples associated with a detection monitoring program, evaluation monitoring program, or corrective action program.
6. The Discharger shall prepare and submit an updated Water Quality Protection Standard Report in accordance with Title 27, Monitoring and Reporting Program No. R5-2002-0038, the Standard Provisions and Reporting Requirements, dated April 2000, and the time schedule established in Provisions G.13. of this Order.
7. The Discharger shall comply with the Water Quality Protection Standard as specified in this Order, Monitoring and Reporting Program No. R5-2002-0038, and the Standard Provisions and Reporting Requirements, dated April 2000.
8. The Water Quality Protection Standard for organic compounds, which are not naturally occurring and not detected in background groundwater samples shall be taken as the detection limit of the analytical method used (i.e., US-EPA methods 8260 and 8270). The presence of non-naturally occurring organic compounds in samples above the Water Quality Protection Standard from detection monitoring wells is evidence of a release from the Unit.
9. The concentrations of the constituents of concern in waters passing the Point of Compliance shall not exceed the concentration limits established pursuant to Monitoring and Reporting Program No. R5-2002-0038.

10. For each monitoring event, the Discharger shall determine whether the landfill is in compliance with the Water Quality Protection Standard using procedures specified in Monitoring and Reporting Program No. R5-2002-0038 and §20415(e) of Title 27.
11. For any given monitored medium, the samples taken from all monitoring points and background monitoring points to satisfy the data analysis requirements for a given reporting period shall all be taken **within a span not to exceed 30 days**, unless the Executive Officer approves a longer time period, and shall be taken in a manner that ensures sample independence to the greatest extent feasible.
12. The Discharger shall submit for Executive Officer review and approval a Sample Collection and Analysis Plan. The Sample Collection and Analysis Plan shall at a minimum include:
 - a. Sample collection procedures describing purging techniques, sampling equipment, and decontamination of sampling equipment;
 - b. Sample preservation information and shipment procedures;
 - c. Sample analytical methods and procedures;
 - d. Sample quality assurance/quality control (QA/QC) procedures; and
 - e. Chain of Custody control.
13. Specific methods of collection and analysis must be identified. Sample collection, storage, and analysis shall be performed according to the most recent version of USEPA Methods, such as the latest editions, as applicable, of: (1) *Methods for the Analysis of Organics in Water and Wastewater* (USEPA 600 Series), (2) *Test Methods for Evaluating Solid Waste* (SW-846, latest edition), and (3) *Methods for Chemical Analysis of Water and Wastes* (USEPA 600/4-79-020), and in accordance with the approved Sample Collection and Analysis Plan.
14. If methods other than USEPA-approved methods or Standard Methods are used, the exact methodology shall be submitted for review and approval by the Executive Officer prior to use.
15. The **methods of analysis and the detection limits** used must be appropriate for the expected concentrations. For the monitoring of any constituent or parameter that is found in concentrations which produce more than 90% non-numerical determinations (i.e., "trace" or "ND") in data from background monitoring points for that medium, the analytical method having the lowest method detection limit (MDL) shall be selected from among those methods which would provide valid results in light of any matrix effects or interferences.
16. **"Trace" results** - results falling between the MDL and the practical quantitation limit (PQL) - shall be reported as such, and shall be accompanied both by the estimated MDL and PQL values for that analytical run.
17. **MDLs and PQLs** shall be derived by the laboratory for each analytical procedure, according to State of California laboratory accreditation procedures. These MDLs and PQLs shall reflect the

detection and quantitation capabilities of the specific analytical procedure and equipment used by the lab, rather than simply being quoted from USEPA analytical method manuals. In relatively interference-free water, laboratory-derived MDLs and PQLs are expected to closely agree with published USEPA MDLs and PQLs.

18. If the laboratory suspects that, due to a change in matrix or other effects, the true detection limit or quantitation limit for a particular analytical run differs significantly from the laboratory-derived MDL/PQL values, the results shall be flagged accordingly, along with estimates of the detection limit and quantitation limit actually achieved. **The MDL shall always be calculated such that it represents the lowest achievable concentration associated with a 99% reliability of a nonzero result.** The PQL shall always be calculated such that it represents the lowest constituent concentration at which a numerical value can be assigned with reasonable certainty that it represents the constituent's actual concentration in the sample. Normally, PQLs should be set equal to the concentration of the lowest standard used to calibrate the analytical procedure.
19. All **QA/QC data** shall be reported, along with the sample results to which they apply, including the method, equipment, analytical detection and quantitation limits, the percent recovery, an explanation for any recovery that falls outside the QC limits, the results of equipment and method blanks, the results of spiked and surrogate samples, the frequency of quality control analysis, and the name and qualifications of the person(s) performing the analyses. Sample results shall be reported unadjusted for blank results or spike recoveries. In cases where contaminants are detected in QA/QC samples (i.e., field, trip, or lab blanks), the accompanying sample results shall be appropriately flagged.
20. Unknown chromatographic peaks shall be reported, flagged, and tracked for potential comparison to subsequent unknown peaks that may be observed in future sampling events. Identification of unknown chromatographic peaks that recur in subsequent sampling events may be required.
21. The statistical method shall account for data below the practical quantitation limit (PQL) with one or more statistical procedures that are protective of human health and the environment. Any PQL validated pursuant to §20415(e)(7) of Title 27 that is used in the statistical method shall be **the lowest concentration (or value) that can be reliably achieved** within limits of precision and accuracy specified in the WDRs for routine laboratory operating conditions that are available to the facility. The Discharger's technical report, pursuant to §20415(e)(7) of Title 27, shall consider the PQLs listed in Appendix IX to Chapter 14 of Division 4.5 of Title 22, California Code of Regulations, for guidance when specifying limits of precision and accuracy. For any given constituent monitored at a background or down-gradient monitoring point, an indication that falls between the MDL and the PQL for that constituent (hereinafter called a "trace" detection) shall be identified and used in appropriate statistical or non-statistical tests. Nevertheless, for a statistical method that is compatible with the proportion of censored data (trace and ND indications) in the data set, the Discharger can use the laboratory's concentration

estimates in the trace range (if available) for statistical analysis, in order to increase the statistical power by decreasing the number of "ties".

22. The Discharger may propose an alternate statistical method [to the methods listed under 27 CCR §20415(e)(8)(A-D)] in accordance with §20415(e)(8)(E) of Title 27, for review and approval by the Executive Officer. Upon receiving written approval from the Executive Officer, alternate statistical procedures may be used for determining the significance of analytical results for common laboratory contaminants (i.e., methylene chloride, acetone, diethylhexyl phthalate, and di-n-octyl phthalate). Nevertheless, analytical results involving detection of these analytes in any background or down-gradient sample shall be reported and flagged for easy reference by Board staff.
23. The Discharger shall use the following non-statistical method for the VOC_{water} and VOC_{spg} (Soil Pore Gas) Monitoring Parameters and for all Constituents of Concern, which are not amenable to the statistical tests above (i.e., less than 10% of the data from background samples that equal or exceed their respective MDL). The term VOC_{water} is defined in Specification 24.a., VOC_{spg} is defined in Specification 24.b., and COC is defined in Specification 24.c. Each qualifying constituent at a monitoring point shall be determined based on either:
- The data from a single sample for that constituent, taken during that reporting period from that monitoring point; or
 - The data from the sample that contains the largest number of qualifying constituents, where several independent samples have been analyzed for that constituent at a given monitoring point.

Background for water samples or soil-pore gas samples shall be represented by the data from all samples taken from applicable background monitoring points during that reporting period (at least one sample from each background monitoring point).

24. The method shall be implemented as follows:
- For the Volatile Organic Compounds Monitoring Parameter For Water Samples [VOC_{water}]:* For any given monitoring point, the VOC_{water} Monitoring Parameter is a composite parameter addressing all "qualifying VOCs" (in this case, VOCs that are detected in less than 10% of background samples).

The Discharger shall conduct verification testing (see Evaluation Monitoring Specifications E.25. and E.27 below, as appropriate) to determine whether a release of VOC_{water} Monitoring Parameter has occurred if the data for any monitoring point meets either of the following triggering conditions:
 - The data contains two or more qualifying VOCs that equal or exceed their respective MDLs; or
 - The data contains one qualifying VOC that equals or exceeds its PQL.

- b. *For the Volatile Organic Compounds Monitoring Parameter For Soil Pore Gas Samples [VOC_{spg}]*: the VOC_{spg} Monitoring Parameter is a composite parameter for soil pore gas addressing all "qualifying VOCs" detectable using either GC or GC/MS analysis for at least a ten liter sample of soil pore gas (e.g., collected in a vacuum canister). It involves the same scope of VOCs as does the VOC_{water} Monitoring Parameter. For the VOC_{spg} test, "qualifying VOCs" consist of all those VOCs, which are detectable in less than 10% of background soil pore gas samples.

The Discharger shall conduct verification testing (see Evaluation Monitoring Specifications E.25. and E.27 below, as appropriate) to determine whether a release of VOC_{spg} Monitoring Parameter has occurred if the data for any monitoring point meets either of the following triggering conditions:

- 1) The data contains two or more qualifying VOCs that equal or exceed their respective MDLs; or
 - 2) The data contains one qualifying VOC that equals or exceeds its PQL.
- c. *For Constituents of Concern*: For five-yearly testing of all Constituents of Concern (COCs), the "qualifying constituents" consist of COCs that are detected in less than 10% of applicable background samples.

The Discharger shall conduct verification testing (see Evaluation Monitoring Specifications E.25. and E.27. below, as appropriate) to determine whether a release of COCs has occurred if the data for any monitoring point meets either of the following triggering conditions:

- 1) The data contains two or more qualifying constituents that equal or exceed their respective MDLs; or
 - 2) The data contains one qualifying constituent that equals or exceeds its PQL.
25. **Non-Statistical Method Retest.** A non-statistical test method may be used by the Discharger to analyze the monitoring data for which it is impractical to conduct a statistical analysis. A non-statistical test method shall include a procedure to verify that there is "measurably significant" evidence of a release from the Unit. For the VOC_{water}, VOC_{spg}, and non-statistical COC test, the Discharger shall use a discrete retest consisting of two new samples from each indicating monitoring point. The Discharger shall conduct the retest for the standard non-statistical method as follows:
- a. **VOC_{water} and VOC_{spg}.** Because the VOC composite Monitoring Parameter (for water or soil pore gas) is a single parameter which addresses an entire family of constituents likely to be present in any landfill release, **the scope of the laboratory analysis for each of the two retest samples shall include all VOCs detectable in that retest sample.** Therefore, a confirming retest, in accordance with Evaluation Monitoring Specification E.24.a. and b. above, for either triggering condition in either of the two retest samples, shall have validated

the original indication even if the detected constituents in the confirming retest sample(s) differs from those detected in the sample which initiated the retest.

- b. **For Constituents of Concern.** Because all Constituents of Concern that are jointly addressed in the non-statistical test above, remain as individual Constituents of Concern, **the scope of the laboratory analysis for the non-statistical retest of Constituents of Concern shall address only those constituents detected in the sample which initiated the retest.** Therefore, the list of "qualifying constituents" for use in the retest, under Evaluation Monitoring Specification E.24.c., shall consist of those constituents which provided the original indication at that monitoring point. If the retest meets either triggering condition in either of the two retest samples, the retest shall have validated the original indication.

26. **Response to Detection in Background of VOCs** (or any other constituent which is not naturally in the background and thus is not amenable to statistical analysis):

- a. Any time the laboratory analysis of a sample from a background monitoring point, sampled for VOCs, shows either:
- 1) Two or more VOCs at or above their respective MDL; or
 - 2) One VOC at or above its respective PQL.

Then the Discharger shall:

- a) **Immediately** notify the Board by phone;
 - b) Follow up with written notification by certified mail **within seven days**;
 - c) Obtain **two** new independent VOC samples from that background monitoring point; and
 - d) Send such samples for laboratory analysis of all detectable VOCs **within thirty days**.
- b. If either or both the new samples validates the presence of VOC(s), using the above criteria, the Discharger shall:
- 1) **Immediately** notify the Board about the VOC(s) verified to be present at that background monitoring point, and follow up with written notification submitted by certified mail **within seven days** of validation; and
 - 2) If the Discharger believes that the VOC(s) in background is from a source other than the Unit, then:
 - a) **Within seven days** of determining "measurably significant" evidence of a release, submit to the Board by certified mail a Notification of Intent to make such a demonstration pursuant to §20420(k)(7) of Title 27; and
 - b) **Within 90 days** of determining "measurably significant" evidence of a release, submit a report to the Board that demonstrates that a source other than the Unit caused the evidence, or that the evidence resulted from error in sampling, analysis or

evaluation, or from natural variation in groundwater, surface water, or the unsaturated zone.

- c. If the Executive Officer determines, after reviewing the submitted report(s), that the VOC(s) detected originated from a source other than the Unit(s), the Executive Officer will make appropriate changes to the monitoring program.
27. If the Executive Officer determines, after reviewing the submitted report, that the detected VOC(s) most likely originated from the Unit(s), the Discharger shall **immediately** implement the requirements of XI. Response To A Release, C. Release Has Been Verified, contained in the Standard Provisions and Reporting Requirements.

F. REPORTING REQUIREMENTS

1. In the event the Discharger does not comply or will be unable to comply with any prohibition or limitation of this Order for any reason, the Discharger shall notify the appropriate Board office by telephone **as soon as** it or its agents have knowledge of such noncompliance or potential for noncompliance, and shall confirm this notification in writing **within two weeks**. The written notification shall state the nature, time, and cause of noncompliance, and shall describe the measures being taken to prevent recurrences and shall include a timetable for corrective actions.
2. 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 post-closure 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.
3. 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.

4. 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 Sample Collection 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) and for the perimeter of the Unit. 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.
- g. The quantity and types of wastes discharged and the locations in the Unit where waste has been placed since submittal of the last such report.
5. 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 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 Constituents of Concern and Monitoring Parameters, and an estimated date that the results will be submitted to the Board; and
 - e. Corrective measures underway or proposed, and corresponding time schedule.
6. The Discharger shall submit an **Annual Monitoring Summary Report** to the 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 down gradient data. Graphical analysis of monitoring data may be used to provide significant evidence of a release.
 - b. Unless otherwise exempted by the Executive Officer, all monitoring analytical data obtained during the previous reporting periods, shall be submitted in tabular form as well as in a digital file format acceptable to the Executive Officer. The Board regards the submittal of data in hard copy and in digital format as "...the form necessary for..." statistical analysis [§20420(h)], in that this facilitates periodic review by the 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.

G. PROVISIONS

1. The Discharger shall maintain a copy of this Order at the facility and make it available at all times to facility operating personnel, who shall be familiar with its contents, and to regulatory agency personnel.
2. The Discharger shall comply with all applicable provisions of Title 27 and 40 Code of Federal Regulations Part 258 (Subtitle D) that are not specifically referred to in this Order.
3. The Discharger shall comply with Monitoring and Reporting Program No. R5-2002-0038, which is incorporated into and made part of this Order.
4. The Discharger shall comply with the applicable portions of 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 et seq.)*, dated April 2000, which are hereby incorporated into this Order.
5. All reports and transmittal letters shall be signed by persons identified below:
 - a. For a corporation: by a principal executive officer of at least the level of senior vice-president.
 - b. For a partnership or sole proprietorship: by a general partner or the proprietor
 - c. For a municipality, state, federal or other public agency: by either a principal executive officer or ranking elected or appointed official.
 - d. A duly authorized representative of a person designated in a, b or c above if;
 - 1) The authorization is made in writing by a person described in a, b, or c of this provision;
 - 2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a Unit, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and

3) The written authorization is submitted to the Board.

Any person signing a document under this Section shall make the following certification:

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

6. The Discharger shall take all reasonable steps to minimize any adverse impact to the waters of the State resulting from noncompliance with this Order. Such steps shall include accelerated or additional monitoring as necessary to determine the nature, extent, and impact of the noncompliance.
7. The owner of the waste management facility shall have the continuing responsibility to assure protection of waters of the state from discharged wastes and from gases and leachate generated by discharged waste during the active life, closure, and post-closure maintenance period of the Unit(s) and during subsequent use of the property for other purposes.
8. The fact that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with this Order shall not be regarded as a defense for the Discharger's violations of the Order.
9. To assume ownership or operation under this Order, the succeeding owner or operator must apply in writing to the Board requesting transfer of the Order within 14 days of assuming ownership or operation of this facility. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Board, and a statement. The statement shall comply with the signatory requirements contained in Provision G.5. and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer of this Order shall be approved or disapproved by the Board.
10. The Discharger shall establish cost estimates for initiating and completing corrective action for all known and reasonably foreseeable releases from the landfill, and submit these estimates to the Executive Officer for review and approval.
11. The Discharger shall obtain and maintain assurances of financial responsibility for initiating and completing corrective action for all known or reasonably foreseeable releases from the landfill in an amount approved by the Executive Officer, and shall submit the financial assurance mechanism for review and approval to the Financial Assurances Section of the California Integrated Waste Management Board.

WASTE DISCHARGE REQUIREMENTS ORDER NO. R5-2002-0038
THE COUNTY OF SISKIYOU
FOR CORRECTIVE ACTION AND CLOSURE OF
BLACK BUTTE CLASS III MUNICIPAL SOLID WASTE LANDFILL
SISKIYOU COUNTY

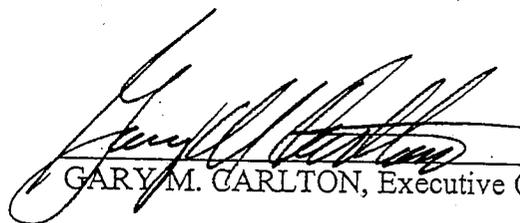
12. The Discharger is required to maintain financial assurance mechanisms for closure and post-closure maintenance costs as specified in Chapter 6 of Title 27. The Discharger is required to submit the financial assurance mechanism to the Financial Assurances Section of the California Integrated Waste Management Board, which determines if the mechanism meets the requirements of Chapter 6, Title 27, and if the amount of coverage is adequate.
13. The Discharger shall complete the tasks contained in these waste discharge requirements in accordance with the following time schedule:

<u>Task</u>	<u>Compliance Date</u>
A. Sample Collection and Analysis Plan	
1. Submit a Sample Collection and Analysis Plan (See Evaluation Monitoring Specification E.12.)	Approved 7/19/02 1 July 2002
B. Water Quality Protection Standard Report	
1. Submit updated Water Quality Protection Standard Report (See Section C. of Monitoring and Reporting Program No. R5-2002-0038.)	Approved 11/25/02 1 July 2002
C. Evaluation Monitoring Program	
1. Complete Evaluation Monitoring Program and submit updated Engineering Feasibility Study (See Evaluation Monitoring Specification E.3.)	1 October 2002
D. Corrective Action Program	
1. Submit proof of destruction for site entrance well (See Corrective Action Specifications D.11.)	Completed 11/24/02 1 October 2002
2. Complete landfill closure activities (See Corrective Action Specification D.13.)	1 October 2003

WASTE DISCHARGE REQUIREMENTS ORDER NO. R5-2002-0038
THE COUNTY OF SISKIYOU
FOR CORRECTIVE ACTION AND CLOSURE OF
BLACK BUTTE CLASS III MUNICIPAL SOLID WASTE LANDFILL
SISKIYOU COUNTY

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I, GARY M. CARLTON, Executive Officer, do hereby certify that 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 1 March 2002.


GARY M. CARLTON, Executive Officer

DPS: sae

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2002-0038
FOR
COUNTY OF SISKIYOU
FOR
CORRECTIVE ACTION AND CLOSURE OF THE
BLACK BUTTE CLASS III MUNICIPAL SOLID WASTE LANDFILL
SISKIYOU COUNTY

Compliance 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. R5-2002-0038.

A. REQUIRED MONITORING REPORTS

<u>Report</u>	<u>Due</u>
1. Groundwater Monitoring (Section D.1)	See Table I
2. Annual Monitoring Summary Report (Order No. R5-2002-0038, F6.)	31 January
3. Leachate Monitoring (Section D.2)	See Table II
4. Facility Monitoring (Section D.3. & Order No. R5-2002-0038, F.3 & F.4.)	Quarterly
5. Response to a Release (Standard Provisions and Reporting Requirements)	As necessary

B. REPORTING

The Discharger shall report monitoring data and information as required in this Monitoring and Reporting Program and as required in Order No. R5-2002-0038 and 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. 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.

MONITORING AND REPORTING PROGRAM NO. R5-2002-0038
 COUNTY OF SISKIYOU
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 BLACK BUTTE CLASS III MUNICIPAL SOLID WASTE LANDFILL
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Each monitoring report shall include a compliance evaluation summary as specified in Reporting Requirements F.4., of Order No. R5-2002-0038.

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	by Quarterly Schedule
Quarterly	Quarterly	31 March 30 June 30 September 31 December	30 April 31 July 31 October 31 January
Semiannually	Semiannually ¹	30 June 31 December	31 July 31 January
Annually	Annually ²	31 December	30 April for Leachate 31 July for All Others

¹Semiannual samples shall be obtained during the second and fourth quarters annually.

²Annual samples, except leachate samples, shall be obtained during the second quarter of each year and sample results shall be submitted with the Second Quarter Monitoring Report. Leachate samples shall be obtained during the first quarter of each year and the results shall be submitted with the First Quarter Monitoring Report.

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 Reporting Requirements F.6., of Order No. R5-2002-0038, 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.

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 Executive Officer shall review and approve the Water Quality Protection Standard, or any modification thereto, for each monitored medium.

The report shall:

- a. Identify **all distinct bodies of surface and groundwater** 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 groundwater 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).

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. The Discharger shall monitor all constituents of concern every five years, or more frequently as required in accordance with the Evaluation and Corrective Action Monitoring Program.

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 III for the specified monitored medium.

3. **Concentration Limits**

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

- a. Background concentrations by calculation in accordance with a statistical method pursuant to §20415 of Title 27; or
- b. Background concentrations by an alternate statistical method acceptable to the Executive Officer in accordance with §20415 of Title 27; or
- c. Under the Corrective Action Program, the Discharger may propose a concentration limit greater than background (CLGB). If the Board finds that the proposed CLGB is acceptable, then a revision of the Waste Discharge Requirements will be required.

For non-naturally occurring constituents of concern (COC), the concentration limit shall be the method detection limit for the respective COC.

4. **Point of Compliance**

The point of compliance for the water standard at each Unit is a vertical surface located at the hydraulically down gradient limit of the Unit that extends through the uppermost aquifer underlying the Unit.

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 and post-closure maintenance 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 Evaluation Monitoring and Corrective Action Program provisions of Title 27 for groundwater in accordance with Evaluation Monitoring Specification E.4. and E.6. and Corrective Action Specifications D.8. of Waste Discharge Requirements, Order No. R5-2002-0038. All monitoring shall be conducted in accordance with a Sample Collection and Analysis Plan, which include quality assurance/quality control standards that are acceptable to the Executive Officer.

Currently, five monitoring wells are utilized for the Evaluation Monitoring and Corrective Action Program. Wells OB-1, OB-3A, OB-4M, and OB-5 are down or cross gradient compliance wells. Well OB-2A is up gradient of the Unit and provides background water quality data. All point of compliance monitoring wells established for the Evaluation Monitoring and Corrective Action Program shall constitute the monitoring points for the groundwater Water Quality Protection Standard. All Evaluation Monitoring and Corrective Action Program groundwater monitoring wells and leachate 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 that cannot be quantified and/or specifically identified. Metals shall be analyzed in accordance with the methods listed in Table IV.

The Discharger may, with the approval of the Executive Officer, use alternative analytical test methods, including new USEPA approved methods, provided the methods are listed in the Sample Collection and Analysis Plan and 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 evaluation and corrective action monitoring system that complies with the applicable provisions of §20415, §20425, and §20430 of Title 27 in accordance with an Evaluation Monitoring and Corrective Action Program approved by the Executive Officer. 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 quarterly, 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, and any additional wells added as part of the approved groundwater monitoring system. 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 Schoeller plot. Samples for the Constituents of Concern specified in Table I shall be collected and analyzed in accordance with the methods listed in Table IV annually.

2. Leachate Monitoring

The Unit leachate sample collection and observation point shall be inspected monthly for leachate generation. Upon detection of leachate in a previously dry leachate collection and removal system, leachate shall be sampled **immediately** and analyzed for the constituents listed in Table II. Leachate shall then be sampled and analyzed annually during the first 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 II. The Constituents of Concern list shall include all constituents listed in Table IV. The leachate flow rate (in gallons/day) shall be estimated based on visual observations and measurements at the sample collection and observation point in the lower lift of WMU-1. Leachate that seeps to the surface from the Unit shall be sampled upon detection and analyzed for the constituents listed in Table II. The quantity of leachate shall be *estimated* and reported as Leachate Flow Rate (in gallons/day). Any leachate seeps observed at the surface of the Unit will require prompt repairs to the synthetic liner covering the site.

3. Facility Monitoring

a. Facility Inspection

- 1) The Discharger shall submit a status report evaluating the effectiveness of the Corrective Action Program at the site with the Second and Fourth Quarter Monitoring Reports each year that the Corrective Action Program is in effect. Specifically, evaluation of the Corrective Action Program should assess the integrity of the synthetic

MONITORING AND REPORTING PROGRAM NO. R5-2002-0038
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BLACK BUTTE CLASS III MUNICIPAL SOLID WASTE LANDFILL
SISKIYOU COUNTY

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liner covering the Unit, evaluate trends in the groundwater monitoring data, and determine whether the landfill gas extraction/venting system is functioning properly.

- 2) 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.), gas extraction/venting system, and shall include the Standard Observations contained in Reporting Requirements F.4.f., of Order No. R5-2002-0038. Any necessary construction, maintenance, or repairs shall be completed by **31 October**. The Discharger shall submit an annual report with the Fourth Quarter Monitoring Report describing the results of the inspection and the repair measures implemented, including photographs of any problems or repairs.

b. **Storm Events**

- 1) 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.

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

Ordered by:


GARY M. CARLTON, Executive Officer

1 March 2002

Date

DPS: sae

MONITORING AND REPORTING PROGRAM NO. R5-2002-06...
 COUNTY OF SISKIYOU
 FOR CORRECTIVE ACTION AND CLOSURE OF THE
 BLACK BUTTE CLASS III MUNICIPAL SOLID WASTE LANDFILL
 SISKIYOU COUNTY

TABLE I
GROUNDWATER EVALUATION AND CORRECTIVE ACTION MONITORING PROGRAM

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
Field Parameters		
Groundwater Elevation	Ft. & hundredths, M.S.L.	Quarterly
Temperature	°C	Quarterly
Electrical Conductivity	µmhos/cm	Quarterly
pH	pH units	Quarterly
Turbidity	Turbidity units	Quarterly
Monitoring Parameters		
Total Dissolved Solids (TDS)	mg/L	Quarterly
Chloride	mg/L	Quarterly
Carbonate	mg/L	Quarterly
Bicarbonate	mg/L	Quarterly
Nitrate - Nitrogen	mg/L	Quarterly
Sulfate	mg/L	Quarterly
Calcium	mg/L	Quarterly
Magnesium	mg/L	Quarterly
Potassium	mg/L	Quarterly
Sodium	mg/L	Quarterly
Volatile Organic Compounds* (USEPA Method 8260B, see Table III)	µg/L	Semiannually
Constituents of Concern (see Table IV)		
Total Organic Carbon	mg/L	Annually
Inorganics (dissolved)	mg/L	Annually
Volatile Organic Compounds* (USEPA Method 8260B, extended list)	µg/L	Annually
Semi-Volatile Organic Compounds (USEPA Method 8270C)	µg/L	Annually
Chlorophenoxy Herbicides (USEPA Method 8151A)	µg/L	5 years
Organophosphorus Compounds (USEPA Method 8141A)	µg/L	5 years

*Note: The volatile organic compound (VOC) analysis required under Constituents of Concern shall replace the required VOC analysis for the second quarter of each year under Monitoring Parameters, above.

TABLE II
LEACHATE DETECTION MONITORING PROGRAM

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
Field Parameters		
Total Flow	Gallons	Monthly
Flow Rate	Gallons/Day	Monthly
Electrical Conductivity	μ mhos/cm	Monthly
pH	pH units	Monthly
Monitoring Parameters		
Total Dissolved Solids (TDS)	mg/L	Annually
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
Constituents of Concern (see Table IV)		
Total Organic Carbon	mg/L	Annually
Inorganics (dissolved)	mg/L	Annually
Volatile Organic Compounds (USEPA Method 8260B, extended list)	μ g/L	Annually
Semi-Volatile Organic Compounds (USEPA Method 8270C)	μ g/L	Annually
Chlorophenoxy Herbicides (USEPA Method 8151A)	μ g/L	Annually
Organophosphorus Compounds (USEPA Method 8141A)	μ g/L	Annually

TABLE III
**MONITORING PARAMETERS FOR EVALUATION AND CORRECTIVE ACTION
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 (ETBE)
Ethylbenzene
2-Hexanone (Methyl butyl ketone)

TABLE III
MONITORING PARAMETERS FOR EVALUATION AND CORRECTIVE ACTION
MONITORING

Continued

Hexachlorobutadiene
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 (MtBE)
4-Methyl-2-pentanone (Methyl isobutylketone)
Naphthalene
Styrene
Tertiary amyl methyl ether (TAME)
Tertiary butyl alcohol (TBA)
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 IV
CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

<u>Inorganics (dissolved):</u>	<u>USEPA Method</u>
Aluminum	6010
Antimony	7041
Barium	6010
Beryllium	6010
Cadmium	7131A
Chromium	6010
Cobalt	6010
Copper	6010
Silver	6010
Tin	6010
Vanadium	6010
Zinc	6010
Iron	6010
Manganese	6010
Arsenic	7062
Lead	7421
Mercury	7470A
Nickel	7521
Selenium	7742
Thallium	7841
Cyanide	9010B
Sulfide	9030B

Volatile Organic Compounds:

USEPA Method 8260B

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 IV

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 (ETBE)
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 (MtBE)
Methyl methacrylate
4-Methyl-2-pentanone (Methyl isobutyl ketone)
Methylene bromide (Dibromomethane)
Methylene chloride (Dichloromethane)
Naphthalene
Propionitrile (Ethyl cyanide)
Styrene
Tertiary amyl methyl ether (TAME)
Tertiary butyl alcohol (TBA)
1,1,1,2-Tetrachloroethane
1,1,2,2-Tetrachloroethane
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene; PCE)

TABLE IV

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 8270C - 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 IV

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 IV
CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

Continued

Kepon
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-Nitrosospyrrolidine
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

TABLE IV
CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS
Continued

sym-Trinitrobenzene

Chlorophenoxy Herbicides:

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 8141A

Atrazine

Chlorpyrifos

0,0-Diethyl 0-2-pyrazinyl phosphorothioate (Thionazin)

Diazinon

Dimethoate

Disulfoton

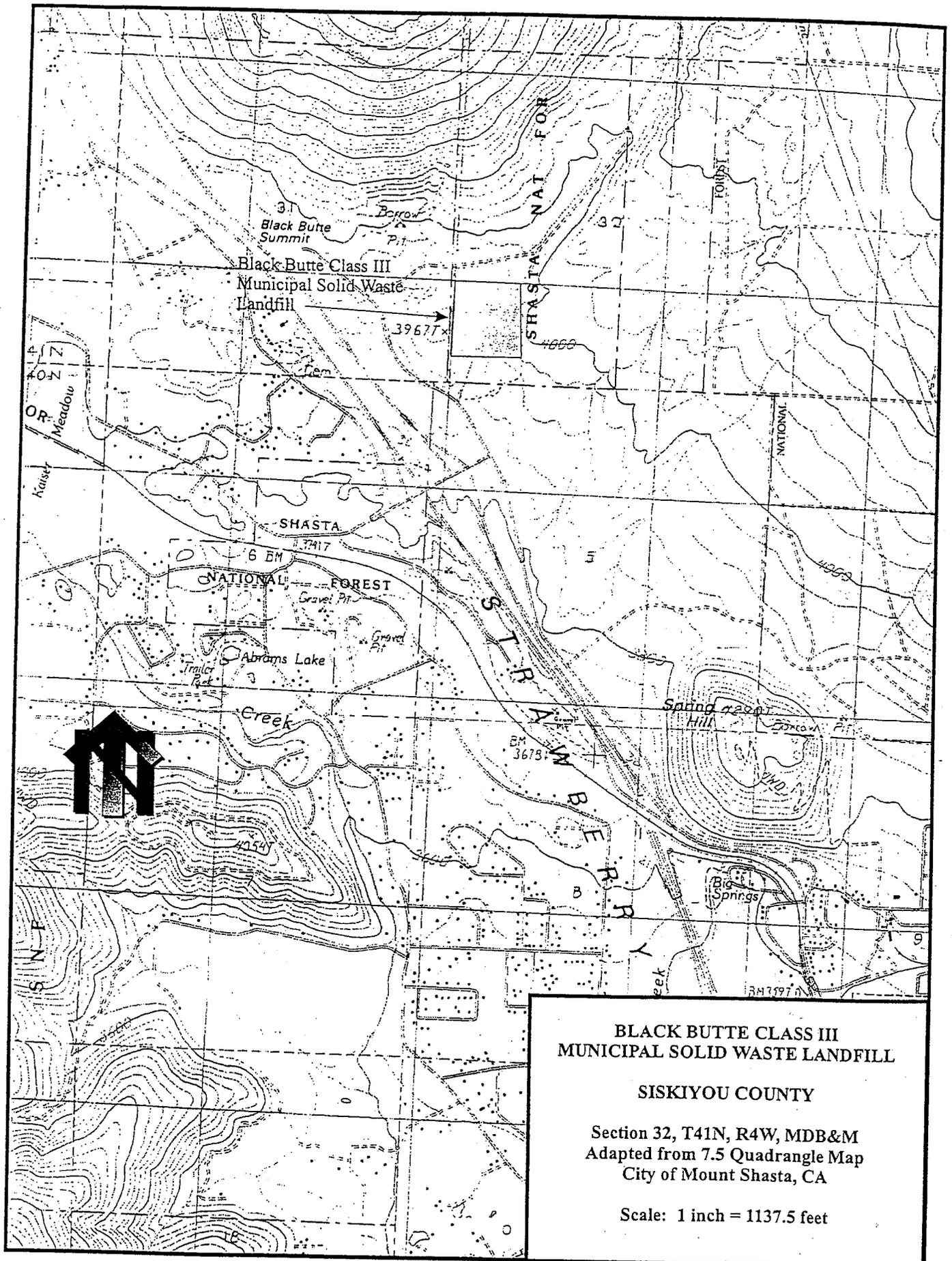
Ethion

Methyl parathion (Parathion methyl)

Parathion

Phorate

Simazine



Waste Management Unit Number 3
Former Wastewater Surface Impoundment
For City of Dunsmuir
Clean Closed - 1995



OB-4M



Waste Management Unit Number 2
Septage Ponds
Closed In Place - 1996

OB-3A

Boundary of Waste Management Unit Number 1

OB-2A

OB-5



Future Expansion
Area For Solid
Waste Transfer
Station

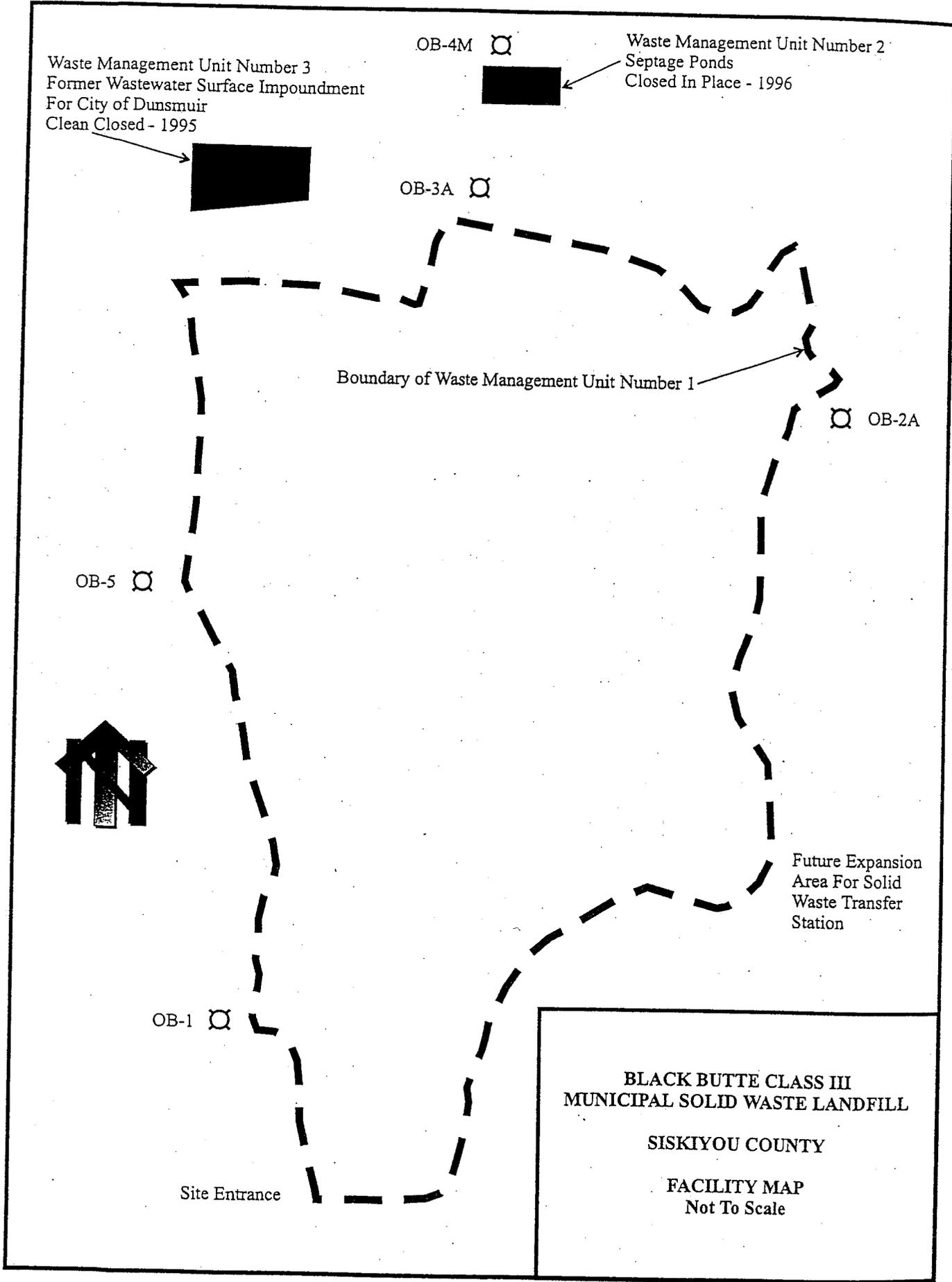
OB-1

Site Entrance

**BLACK BUTTE CLASS III
MUNICIPAL SOLID WASTE LANDFILL**

SISKIYOU COUNTY

**FACILITY MAP
Not To Scale**



INFORMATION SHEET

ORDER NO. R5-2002-0038
COUNTY OF SISKIYOU
FOR CORRECTIVE ACTION AND CLOSURE OF THE
BLACK BUTTE CLASS III MUNICIPAL SOLID WASTE LANDFILL
SISKIYOU COUNTY

The County of Siskiyou owns the Black Butte Class III Municipal Solid Waste Landfill located approximately two miles north of the City of Mount Shasta. The site began operation in 1969 and serves south Siskiyou County, including the cities of Dunsmuir and Mount Shasta. The landfill is undergoing a four phased closure as part of a Corrective Action Program designed to reduce impacts of waste constituents on groundwater quality. A solid waste transfer station will be constructed at the site to provide disposal services for the surrounding communities.

The 60 acre facility consists of one 28.9 acre unlined waste management unit (WMU) for the disposal of municipal solid waste, an unlined surface impoundment that was used for drying wastewater treatment plant sludge, and two unlined septage ponds. The surface impoundment was clean closed in 1995 and the septage ponds were closed in place in September 1996. The facility receives approximately 20 tons of municipal solid waste per day.

The landfill is situated in a southwesterly-trending canyon at the southern base of Black Butte plug dome on the western flank of Mount Shasta in the Cascade Range geomorphic province of California. Site elevation ranges from 3,850 feet above mean sea level (MSL) at the lowest point on the south end of the landfill to 3,970 feet MSL on the side slopes northeast of the site. The landfill is underlain by Quaternary-age, and possibly as recent, as Holocene, volcanic deposits consisting of interbedded mudflows, lava, and tuff deposits. Well logs for the site indicate that geologic materials as deep as 200 feet beneath the site consist generally of loose angular boulder to cobble-sized clasts either with or without a fine-grained matrix. Two small steam vents are located on the eastern side of the landfill about 250 feet south-southwest of monitoring well OB-2A. Native soils underlying the site have very high hydraulic conductivities ranging from 1×10^2 cm/sec to 1 cm/sec. Since site soils are so pervious, no defined drainage courses exist at the site and typically there is no run-on or run-off of storm water.

Groundwater in the vicinity of the site is of very high quality with a Total Dissolved Solid (TDS) concentration of approximately 120 mg/L from background monitoring well OB-2A. Groundwater is located approximately 30 to 70 feet below native ground surface at the landfill with seasonal fluctuations of three to five feet. The aquifer underlying the site is unconfined. Groundwater flow direction is toward the west with an average gradient of approximately 0.027 feet per foot. The groundwater monitoring system consists of one up gradient well providing background water quality data and four down or cross gradient compliance wells.

During the winter of 1999/2000, leachate was observed flowing out of a seep along the toe of the middle lift of the landfill, and draining across the lower lifts before re-infiltrating the wastes near

the front access gate. Review of groundwater monitoring data indicated elevated concentrations of several parameters, including specific conductance (SC), TDS, organic carbon, chloride, sulfate, total Kjeldahl nitrogen, calcium, magnesium, sodium, potassium, alkalinity, and bicarbonate in down gradient well OB-1 relative to background well OB-2A. Wells OB-4M and OB-5 show elevated concentrations of several monitoring parameters including SC, TDS, calcium, chloride, alkalinity, bicarbonate, and nitrate relative to background well OB-2A.

TABLE 1
GROUND WATER MONITORING RESULTS
15 AUGUST 2001

Monitoring Parameter	Unit	OB-2A Background	OB-1 Compliance	OB-3A Compliance	OB-4M Compliance	OB-5 Compliance
Specific Conductance	Umhos/cm	139.1	278	90.2	231	417
TDS	mg/L	123	187	99	185	273
Organic Carbon	mg/L	15.3	25.3	8.7	8.8	56.4
Chloride	mg/L	<1	<1	2	14	2
Sulfate	mg/L	1.48	15.3	1.75	5.75	1.17
Total Kjeldahl Nitrogen	mg/L	<0.2	1.4	<0.2	<0.2	<0.2
Calcium	mg/L	13	22	7	17	62
Magnesium	mg/L	4	7	2	6	11
Sodium	mg/L	7	13	7	10	12
Potassium	mg/L	3	11	2	4	8
Alkalinity	mg/L	68	99	38	41	232
Bicarbonate	mg/L	82	121	46	50	283
Nitrate	mg/L	0.15	0.61	1.11	7.96	<0.05

In response to the conditions described above, the Discharger was requested to submit an Evaluation Monitoring Program and a Corrective Action Program. The Discharger proposed corrective actions that included capping and closing the landfill to prevent infiltration of precipitation through the wastes in an effort to reduce leachate generation. The landfill closure, which began during summer of 2000, will occur in phases over four years. The first phase of the project was completed in October 2000 and consisted of grading and compacting the foundation layer for most of the landfill. Lower permeability pond fines were placed over flatter surfaces while steeper slopes were covered with plastic to reduce precipitation infiltration. Leachate was collected in a 21,000 gallon portable collection vessel, filtered with carbon, and then transported to the Montague Airport Septage Ponds for disposal. Phase II of the landfill closure project occurred during summer/fall of 2001 and consisted of capping the site with a 60 mil synthetic flexible membrane liner made of high density polyethylene (HDPE) and overlain by an erosion resistant layer consisting of site soils and cobbles. In-fill gas wells were also installed for an

ORDER NO. R5-2002
COUNTY OF SISKIYOU
FOR CORRECTIVE ACTION AND CLOSURE OF THE
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SISKIYOU COUNTY

- 3 -

upcoming gas extraction or passive venting system. Phase III will occur during summer 2002, and will consist of constructing a solid waste transfer station south of the landfill, relocating accumulated recyclable materials from the northwest corner of the property to an area adjacent to the new transfer station, and winterizing the remaining portions of WMU-1 that were not capped during the 2001 construction season. The final phase of closure will occur during summer of 2003 and consist of capping the remainder of the site with the HDPE liner and the erosion resistant layer. Once landfill closure is complete, groundwater monitoring data will be evaluated to assess the effectiveness of the Corrective Action Program.

The Black Butte Landfill was previously regulated by Waste Discharge Requirements Order No. 89-230, issued 8 December 1989, which is no longer in conformance with Title 27 of the California Code of Regulations, or Title 40 of the Code of Federal Regulations, Part 258 (Subtitle D). On 17 September 1993, the Board adopted Order No. 93-200 implementing State Water Resources Control Board Resolution No. 93-62, *Policy for Regulation of Discharges of Municipal Solid Waste*. The WDRs are being updated to incorporate the minimum performance goals and prescriptive standards contained in Title 27, Subtitle D, Resolution No. 93-62, and to reflect site closure and the Corrective Action Program.

DPS: sae
1 March 2002