

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

ORDER NO. R5-2008-0138

WASTE DISCHARGE REQUIREMENTS  
FOR  
COUNTY OF SHASTA  
FOR OPERATION OF  
REDDING REGIONAL SEPTAGE DISPOSAL FACILITY

SHASTA COUNTY

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

1. Waste Discharge Requirements (WDR) Order No. 94-018, adopted by the Regional Water Board on 28 January 1994, prescribes requirements for the discharge of septage waste to surface impoundments (hereafter Ponds).
2. Septage, as referenced herein, is from domestic sources and is limited to (a) the solids pumped from septic tanks, and (b) wastes from portable toilets. The solids consist of a mixture of water, sewage solids, inert material (i.e. rags, rocks, grit, etc.) and microorganisms. For the purpose of this Order, septage does not include restaurant or grease trap wastes, car wash pumpings, or other industrial wastes.
3. County of Shasta (hereafter Discharger) owns and operates the Redding Regional Septage Disposal Facility (hereafter Facility), on about 19 acres of the 160 acre Assessor's Parcel Number 207-170-010, to treat and dispose of septage received from privately owned septic pumper trucks. There are no other septage receiving facilities within 70 miles of the Facility capable of receiving waste generated from Shasta County septic tanks.
4. The 19-acre Facility is approximately 3.5 miles west of the City of Anderson in Section 30, T30N, R4W, MDB&M, as shown in Attachment A, which is incorporated herein and made part of this Order.
5. The Facility originally consisted of 10 unlined ponds with a storage capacity of 17.7 million gallons. In 2007, the Discharger added 5 lined ponds with a storage capacity of 15.5 million gallons, as shown in Attachment B, which is incorporated herein and made part of this Order. The total storage capacity of the fifteen ponds is 33.2 million gallons.

6. On 16 January 2008, the Discharger submitted a Report of Waste Discharge to reflect the new lined ponds and change in Facility operations. The purpose of this Order is to rescind WDR Order No. 94-018 and prescribe Facility requirements that are adequate and consistent with the current Regional Water Board plans and policies.

### **SITE DESCRIPTION**

7. Soils at the Facility are described in the "Soil Survey of Shasta County Area, California, USDA Soil Conservation Service, August 1974" as Newtown gravelly loam. Newtown gravelly loam generally has low permeability and moderate to high erosion hazard. Infiltration testing of the native material was conducted prior to construction of the new ponds. The permeability results of the upper silty, gravel, sandy soil ranged from  $1.9 \times 10^{-3}$  cm/sec to  $3.3 \times 10^{-3}$  cm/sec and the permeability of the clay soils ranged from  $4.7 \times 10^{-6}$  cm/sec to  $8.5 \times 10^{-6}$  cm/sec.
8. The subsurface geology consists of the Red Bluff Formation (approximately 5 to 7 feet thick) underlain by the Tehama Formation. The Red Bluff Formation consists of alluvial deposits of poorly sorted cobbles, gravel, sand, silt, and clay. The Tehama Formation consists of dense silt and clay interbedded with sand and gravel.
9. No evidence of faulting has been reported at the site. The nearest mapped fault is 7.5 miles east-northeast of the site but is not active. The nearest potentially active fault (showing Quaternary-age displacement) is the Battle Creek Fault, located 14 miles east of the site. The maximum probable earthquake near-field event on the Battle Creek fault is an  $M_w$  6.0 event with a peak horizontal ground acceleration of 0.24 g. The maximum credible earthquake near-field event on the Battle Creek fault is an  $M_w$  6.5 event that generates expected free-field bedrock peak horizontal ground acceleration of 0.29 g.
10. Land use within 1,000 feet of the Facility is designated for solid waste disposal (Anderson Class III Municipal Solid Waste Landfill), light agriculture, and open space. The surrounding vegetation consists of oaks, chaparral and grasses.
11. The average annual precipitation for the area is 30 inches as reported from the US Bureau of Reclamation Davis Ranch (DVR) station and the average annual evaporation is approximately 60 inches as reported by the California Department of Water Resources Bulletin 73-79 *Evaporation from Water Surfaces in California*.

12. The 100-year, 24-hour precipitation event is estimated to be 5.5 inches, based a map published by the National Oceanic and Atmospheric Administration (NOAA) in *NOAA Atlas 2, Volume XI, Isopluvials of 100-Year 24-Hour Precipitation for Northern Half of California in Tenths of an Inch*.
13. The 1,000-year, 24-hour precipitation event is estimated to be 6.86 inches, based on data for Station Anderson STP (DWR #A00 0201 30) for the years 1976 through 2000, compiled and analyzed by the Department of Water Resources, Red Bluff. For the same station and the same years of record, the 100-year wet season precipitation is 59.84 inches.
14. The Facility is not within the 100-year flood plain [FEMA Flood Map ID 0603580900C].
15. No natural wetlands have been identified at the site. However, in a 2007 biological survey, nine features were identified including six wet meadows totaling less than 0.1 acre, one seasonal pond (0.001 acre), and two constructed ditches.
16. There are 48 known water supply wells within one mile of the site.

### **FACILITY DESCRIPTION**

17. The Facility consists of an access road, two waste discharge pads, five lined ponds with leak detection system (1-A, 1-B, 2, 3, 4) and ten unlined ponds (W-1, W-2, W-3, W-4, W-5, E-1, E-2, E-3, E-4, E-5) constructed in-series. 1-A and 1-B are primary waste receiving ponds; E-4 and E-5 are terminal ponds. The Facility ponds have a storage capacity of 33.2 million gallons.
18. In December 2007, the Discharger performed a Capacity Study for the new ponds to determine the maximum annual septage volume the Facility could receive and maintain compliance with the WDR. As part of the capacity study, the Discharger submitted a water balance assuming a 100-year precipitation rate of 55 inches per year and an average precipitation rate of 30 inches per year. The Facility was considered over capacity if the incoming volume of septage resulted in less than two-feet of freeboard in either ponds E-4 or E-5. The water balance determined that the Facility will be able to operate, and maintain adequate freeboard, with an annual septage intake of up to 13 million gallons. This Order prohibits septage discharges exceeding 13 million gallons.
19. The Discharger has currently authorized twenty haulers to discharge septage at the Facility. A security fence and a key-card activated gate restrict access.

20. Septage is generally delivered in vacuum trucks that are weighed upon entry. The truck weight is recorded on a sequentially numbered manifest system prior to discharging waste to either primary pond.
21. The Discharger constructed ponds 1-A, 1-B, 2, 3, and 4 in 2007. Primary ponds 1-A and 1-B are constructed (from top to bottom) with 0.3 foot of asphalt pavement covering the bottom of the pond, 1 foot of cover soil, a 24-oz non-woven geotextile, a 60-mil white HDPE geomembrane, and a second 24-oz non-woven geotextile over compacted subgrade. Ponds 2, 3, and 4 are constructed (from top to bottom) with one foot of cover soil, a 24-oz non-woven geotextile, a 60-mil white HDPE geomembrane, and a second 24-oz non-woven geotextile over compacted subgrade. A leak detection system is constructed beneath the liner system above the subgrade at low elevation collection troughs. The leak detection system consists of a 4-inch schedule 80 perforated PVC pipe surrounded by 3/8-inch permeable material (gravel). Leak detection monitoring system sumps are located at each pond as shown in Attachment B.
22. Ponds 1-A and 1-B alternately receive incoming septage, where solids are allowed to settle. Before the pond liquid reaches capacity, it discharges through a pipe or weir to the next hydraulically down gradient in-series pond, as shown on Attachment B. Excepting E-4 and E-5, each successive pond is similarly constructed such that a pipe or weir ensures discharge to the next pond before storage capacity and freeboard are exceeded. To maintain capacity, the Discharger periodically removes the Pond 1-A and 1-B solids and, following approval, transports the waste to Anderson Solid Waste Class III Landfill for disposal.
23. Based on MRP data submitted since 1994, waste in primary ponds is higher strength than the remaining decant ponds. Wastewater at the Facility is characterized in the following tables. Trace levels of volatile organic compounds, including chloroform and bis (2-ethylhexyl) phthalate have been detected in ponds W-1 through E-5. The concentrations of VOCs in the bottom sludge are unknown. Ponds samples obtained during Regional Water Board staff inspections in March 2006 and April 2006 resulted in concentrations of biological oxygen demand in Ponds E-1 through E-5 ranging from 11 to 27 mg/L and chemical oxygen demand ranging from 214 to 456 mg/L; total coliform samples ranged from 8 to 300 MPN/100 ml and fecal coliform samples ranged from <2 to 50 MPN/100 ml.

WDR Order No. 94-018 requires the Discharger to monitor the pond liquids. The table below presents the results of pond monitoring for September 2006 through September 2007.

CONSTITUENT	UNITS	PRIMARY PONDS (W-1 and W-2)		EVAPORATION PONDS (E-4 and E-5)	
		Min/Max	Average	Min/Max	Average
Specific Conductance	µmhos/cm	1988/4488	3087	1609/2260	1992
pH	units	7.2/9.8	7.8	7/9.1	7.9
Total Dissolved Solids	mg/L	885/2300	1443	1200/1400	1300
Nitrate (as N)	mg/L	<0.01/0.13	<0.05	<0.01	<0.01
Chloride	mg/L	173/479	276.6	401/446	423.5
<b>EVAPORATION POND E-3</b>					
Arsenic	µg/L	10/21	14.7	21	
Cadmium	µg/L	<1.0/2	<5	<1	
Total Chromium	µg/L	3/11	4.7	7	
Copper	µg/L	48/464	191.7	2	
Lead	µg/L	<3/14	4.7	<3	
Mercury	µg/L	<0.07/0.66	0.22	<0.07	
Nickel	µg/L	20/47	32.7	27	
Zinc	µg/L	4/3110	1139	6	
Formaldehyde	µg/L	<10/160	59.7	<10	

VOCs	Date	Units	W-2	W-3	W-4	W-5	E-1	E-2
Acetone	Sep-07	µg/L	45	14	157	9	21	31
2-Butanone	Sep-07	µg/L	6	9	61			2
Carbon Disulfide	Sep-07	µg/L	0.09	0.09		1		
Chlorobenzene	Sep-07	µg/L				2		
Chloromethane	Sep-07	µg/L		0.1		0.2	0.3	0.2
1,4-Dichlorobenzene	Sep-07	µg/L	1		11			
Dichloromethane	Sep-07	µg/L	0.2	0.2	0.2	1		
Ethylbenzene	Sep-07	µg/L			0.3			
Hexachlorobutadiene	Sep-07	µg/L	0.1					
2-Hexanone	Sep-07	µg/L			2			
4-Methyl-2-Pentanone	Sep-07	µg/L	0.2	0.2	2		0.2	0.2
Napthalene	Sep-07	µg/L	0.06		0.4	0.08		
Toluene	Sep-07	µg/L	0.6	0.1		0.1	0.2	0.2
Xylene (total)	Sep-07	µg/L	0.2		1			0.2

### SURFACE WATER AND GROUNDWATER CONDITIONS

24. The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition*, (Basin Plan) designates beneficial uses, establishes water quality objectives and contains implementation plans and policies adopted by the State Water Board. Pursuant to California Water Code Section 13263(a), waste discharge requirements must implement the Basin Plan.
25. Surface drainage along the southwest portion of the property is toward an unnamed tributary to Cottonwood Creek, a tributary of the Sacramento River, in the Lower Cottonwood Hydrologic Area (508.20) of the Sacramento Hydrologic

Basin. Surface drainage along the north and east portions of the property is toward unnamed tributaries of Anderson Creek, a tributary of the Sacramento River, in the Enterprise Flat Hydrologic Area (508.10) of the Sacramento Hydrologic Basin.

26. The existing and potential beneficial uses of Cottonwood Creek and Anderson Creek, as specified in the Basin Plan, are municipal and agricultural supply, industrial process supply, industrial service supply, recreation, freshwater habitat, fish migration and spawning, and wildlife habitat.
27. The Basin Plan designates the beneficial uses of the Sacramento River as municipal and domestic supply; agricultural supply; water contact recreation; non-contact water recreation; warm freshwater habitat; cold freshwater habitat; migration of aquatic organisms; spawning reproduction and/or early development; and wildlife habitat.
28. The first encountered groundwater has been identified 69 feet below the ground surface (bgs); however, this perched zone appears to be discontinuous. Regional groundwater is approximately 300 feet bgs.
29. To comply with WDR Order No. 94-018, the Discharger installed four lysimeters (L-1 through L-4) and four monitoring wells (MW-1 through MW-4) in September 1991. As shown on Attachment B, lysimeter L-1 is between former primary pond W-1 and W-2, L-2 is between ponds W-2 and W-3, and L-3 is between W-3 and E-1. Lysimeter L-4 is between E-1 and E-2 adjacent to MW-1. In May 2007, prior to construction of Pond 4, MW-2 was destroyed and a new well (MW-5) will be constructed to replace MW-2. The monitoring well and lysimeter construction details are described in the table below:

Well ID	Type	Top of Casing Elevation (MSL)	Depth (ft bgs)	Screen Interval (ft bgs)
MW-1	Monitoring well	u/k	79	69-79
MW-2	Monitoring well (deep) Destroyed	715.45	337	~292-337
MW-3	Monitoring well (deep)	702.95	355	~335-355
MW-4	Monitoring well (deep)	700	353	~333-353
MW-5	to be constructed			
L-1	Lysimeter	u/k	30	n/a
L-2	Lysimeter	u/k	30	n/a
L-3	Lysimeter	u/k	30	n/a
L-4	Lysimeter	u/k	30	n/a

MSL = Mean Sea Level  
 ft bgs = feet below ground surface  
 u/k = unknown  
 n/a = not applicable

30. Vadose zone monitoring, indicates that waste constituents may have migrated approximately 30 feet below ground surface. Concentrations of chloride and electrical conductivity in the vadose zone exceed water quality objectives [Chloride Secondary MCL = 250 mg/L; Agricultural Objective = 106 mg/L] [EC Secondary MCL = 900  $\mu$ mhos/cm; Agricultural Objective = 700  $\mu$ mhos/cm], which may be a result of wastewater strength. This Order requires statistical analysis of monitoring data to determine if there is significant evidence of a release from the unlined ponds. The table below presents average results of vadose zone monitoring for December 2006 through September 2007:

Analyte	Units	L-1	L-2	L-3	L-4
E.C.	$\mu$ mhos/cm	2200	910	700	1417
Temp	$^{\circ}$ C	18	16	16	18
pH		7	7	7	7
Chloride	mg/L	700	248	132	276
Nitrate as N	mg/L	8	0.35	14	0.15

31. Historical data from monitoring wells indicates that the discharge has not impacted groundwater. WDR Order No. 94-018 requires the Discharger to monitor the groundwater. Monitoring data indicates groundwater quality has an electrical conductivity (EC) ranging between 230 and 380  $\mu$ mhos/cm, with total dissolved solids (TDS) ranging between 140 and 250 mg/L, and chloride ranging from 3.5 to 55.1 mg/L. The Discharger has not determined hydraulic gradient because their equipment will not reach the water surface. This Order requires the Discharger to obtain necessary equipment to obtain depth to groundwater measurements.
32. The Basin Plan designates the beneficial uses of underlying groundwater as municipal and domestic supply, agricultural supply, industrial service supply, and industrial process supply.

### CEQA AND OTHER CONSIDERATIONS

33. The Shasta County Board of Supervisors approved a Mitigated Negative Declaration for the expansion project on 5 June 2007. Shasta County Department of Public Works filed a Notice of Determination on 5 June 2007, in accordance with the California Environmental Quality Act (CEQA Public Resources Code section 21000 et seq) and CEQA guidelines (Title 14 CCR 15000 et seq). The Regional Water Board considered the negative declaration and incorporated mitigation measures from the negative declaration into these waste discharge requirements designed to prevent potential significant impacts to designed facilities and to water quality. The project design includes a leak detection system for collecting leachate and mitigating potential water quality

impacts associated with facility operations. This Order adds monitoring requirements for the leachate collection sumps.

34. The action to update WDRs for this existing facility is exempt from the provisions of the CEQA, in accordance with Title 14, California Code of Regulations (CCR), Section 15301.
35. Domestic sewage discharges are conditionally exempt from Title 27, California Code of Regulations, pursuant to Section 20090, which states;  
  
“Discharges of domestic sewage or treated effluent which are regulated by WDRs issued pursuant to Chapter 9, Division 3, Title 23 of this code, or for which WDRs have been waived, and which are consistent with applicable water quality objectives, and treatment or storage facilities associated with municipal wastewater treatment plants, provided that residual sludges or solid waste from wastewater treatment facilities shall be discharged only in accordance with the applicable SWRCB-promulgated provisions of this division.”
36. The Basin Plan establishes numerical and narrative water quality objectives for surface water and groundwater within the basin. Water quality objectives are the limits or levels of water quality constituents established for the reasonable protection of beneficial uses of water or the prevention of nuisance.
37. State Water Resources Control Board (State Board) Resolution No. 68-16 (hereafter Resolution 68-16 or the “Antidegradation Policy”), requires the Regional Water Board in regulating the discharge of waste to maintain high quality waters of the state until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonable affect beneficial uses, and will not result in water quality less than that described in the State Board and Regional Water Board policies. The Regional Water Board finds that the discharge of waste at this facility has not resulted in degradation of waters of the state. This Order sets forth requirements and monitoring to assure continued protection of beneficial uses of waters of the state.
38. California Water Code Section 13267 states, in part, 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 having discharged or discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region that could affect the qualities of the



waters within its region shall furnish , under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. The Regional Water Board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.”

39. The monitoring and reporting program required by this Order is necessary to assure compliance with these waste discharge requirements.

### **PROCEDURAL REQUIREMENTS**

40. The Regional Water Board notified the Discharger and interested agencies and persons of its intent to prescribe revised waste discharge requirements for the discharges of waste to land, and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
41. The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the revision of Waste Discharge Requirements.
42. Any person adversely affected by this action of the Regional Water Board may petition the State Water Resources Control Board to review the action in accordance with Sections 2050 through 2068, Title 23 CCR. The petition must be received by the State Board Office of Chief Council, P.O. Box 100, Sacramento, CA 95812-0100, within 30 days of the date of adoption of this Order. Copies of the law and regulations applicable to the filing of a petition are available on the Internet at [http://www.waterboards.ca.gov/water\\_laws/](http://www.waterboards.ca.gov/water_laws/) and will be provided upon request.

IT IS HEREBY ORDERED, pursuant to Sections 13263 and 13267 of the California Water Code, that Order No. 94-018 is rescinded, and that County of Shasta, its agents, successors, and assigns, in order to meet the provisions of Division 7 of the California Water Code and the regulations adopted thereunder, shall comply with the following:

#### **A. Discharge Prohibitions**

1. The discharge of waste classified as ‘hazardous’, as defined in Section 2521(a) of Title 23, CCR, Section 2510, et seq., (hereafter Chapter 15), or ‘designated’ as defined in Section 13173 of the California Water Code, is prohibited.

2. The acceptance and discharge of restaurant and grease trap waste, car wash pumpings, and other commercial or industrial wastes is prohibited.
3. The discharge of septage to surface impoundments, exceeding 13 million gallons per year, is prohibited.
4. The discharge of wastes or pollutants from the surface impoundments to surface waters, surface water drainage courses, or groundwater is prohibited.
5. Bypass or overflow of untreated or partially treated waste is prohibited.

**B. Discharge Specifications**

1. Septage shall only be discharged into, and shall be confined to, the surface impoundments specifically designed for their containment, as shown on Attachment B, which is incorporated herein and made part of this Order.
2. The freeboard in surface impoundments E-4 and E-5 shall not be less than two feet (measured vertically to the lowest point of overflow), except if lesser freeboard does not threaten the integrity of the impoundment, no overflow of the impoundment occurs, and lesser freeboard is due to direct precipitation or storm water runoff occurring as a result of annual precipitation with greater than a 100-year recurrence interval, or a storm event with an intensity greater than a 25-year, 24-hour storm event.
3. Unauthorized individuals shall be denied access to the Facility.
4. Water used for facility maintenance shall be limited to the minimum amount necessary for dust control.
5. Surface impoundments shall be maintained to prevent, to the greatest extent possible, inundation, erosion, slope failure, washout, and overtopping under 1,000-year, 24-hour precipitation conditions.
6. Annually, prior to the anticipated rainy season but no later than **15 October**, any necessary erosion and sediment control measures shall be implemented. Any necessary construction, maintenance, or repairs of the Facility to prevent erosion or flooding of the Facility and to prevent surface drainage from entering surface impoundments shall also be completed by the date above.
7. Objectionable odor originating at the Facility shall not be perceived beyond the limits of the property owned by the Discharger.

8. Ponds shall be managed to prevent breeding of mosquitoes. In particular,
  - a. An erosion control program should assume that small coves and irregularities are not created around the perimeter of the water surface.
  - b. Weeds shall be minimized through control of water depth, harvesting, or herbicides.
  - c. Dead algae, vegetation, and debris shall not accumulate on the water surface.

**C. Sludge Disposal**

1. Solids, which accumulate in the surface impoundments, shall be periodically removed to maintain freeboard requirements and to maintain sufficient capacity for the discharge of wastes. Prior to removal of these solids, sufficient samples shall be taken to determine their characterization and waste classification. Disposal of solids shall be in a manner that is consistent with Division 2 of Title 27, CCR and shall be approved by the Executive Officer.

**D. Groundwater Limitations**

1. The discharge shall not cause contamination of underlying groundwater nor cause underlying groundwater to contain waste constituents that are significantly greater, statistically, than background water quality.

**E. Provisions**

1. The Discharger shall comply with Monitoring and Reporting Program No. R5-2008-0138, which is part of this Order, and any revisions thereto as ordered by the Executive Officer.
2. The Discharger shall comply with the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements," (Standard Provisions) dated March 1991, which are part of this Order.
3. In the event of any change in control or ownership of land or waste discharge facilities described herein, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Regional Water Board.

4. The Discharger must comply with all conditions of this Order, including timely submittal of technical and monitoring reports as directed by the Executive Officer. Violations may result in additional enforcement action.
5. If the final surface impoundments (E-4 or E-5) have less than two feet of freeboard and the impoundment integrity is threatened, or overflow is predicted, then the Discharger shall immediately cease the discharge of waste to the impoundments and shall notify the Regional Water Board verbally within **24 hours** and in writing within **seven days**. Written notification shall include a timetable for remedial action.
6. The Discharger shall, in a timely manner, remove and relocate any wastes discharged at this Facility in violation of this Order.
7. The Discharger shall maintain a copy of this Order at the County Office, Department of Public Works, and will make it available at all times to facility operating personnel, who shall be familiar with its contents, and to regulatory agency personnel.
8. The Discharger shall be responsible for informing all waste haulers using the Facility of conditions contained in this Order.
9. The Regional Water Board will review this Order periodically and revise requirements when necessary.
10. The Discharger shall comply with the following task schedule:

<b>Task</b>	<b>Completion Date</b>
Complete construction of new monitoring well (MW-5)	15 December 2008
Submit well construction as built report	15 January 2009

I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 11 September 2008.

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PAMELA C. CREEDON, Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM ORDER NO. R5-2008-0138

FOR  
COUNTY OF SHASTA  
FOR OPERATION OF  
REDDING REGIONAL SEPTAGE DISPOSAL FACILITY  
SHASTA COUNTY

Monitoring and Reporting Program Order No. R5-2008-0138 is issued pursuant to Water Code section 13267, which authorizes the Regional Water Board to require submittal of technical and monitoring reports. Compliance with this Monitoring and Reporting Program, and with the companion Standard Provisions and Reporting Requirements, is ordered by Waste Discharge Requirements Order No. R5-2008-0138. Failure to comply with this Program, or with the Standard Provisions and Reporting Requirements dated March 1991, constitutes noncompliance with the WDRs and with the Water Code, which can result in the imposition of civil monetary liability.

**A. REPORTING**

This Discharger shall report monitoring data and information as required in this Monitoring and Reporting Program and as required in the Standard Provisions and Reporting Requirements. Reports, which do not comply with the required format, will be **REJECTED** and the Discharger shall be deemed to be in noncompliance with the WDRs. 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. Historical and current monitoring data shall be graphed at least once annually. A short discussion of the monitoring results, including notations of any water quality violations shall precede the tabular summaries. Data shall also be submitted in a digital format acceptable to the Executive Officer

Method detection limits and practical quantitation limits shall be reported. All peaks shall be reported, including those, which cannot be quantified and/or specifically identified. Field and laboratory tests shall be reported in the quarterly monitoring reports. The results of any monitoring done more frequently than required at the locations specified herein shall be reported to the Regional Water Board.

**B. REQUIRED MONITORING REPORTS AND SUBMITTAL DATES**

All monitoring reports shall include observations and water quality data collected during the reporting period and submitted per the **Reporting Due Dates** of this Monitoring and Reporting Program.

**1. Reporting Due Dates**

The Discharger shall submit an Annual Monitoring Summary Report to the Board, **by 1 February** covering the previous monitoring year.

<b>Table 1 – Report Submittal Dates</b>		
<b>Reporting Type</b>	<b>Reporting Period</b>	<b>Report Date Due</b>
Quarterly	1 January – 31 March	<b>30 April</b>
	1 April – 30 June	<b>31 July</b>
	1 July – 30 September	<b>31 October</b>
	1 October – 31 December	<b>1 February</b>
Semiannually	1 January – 30 June	<b>31 July</b>
	1 July – 31 December	<b>1 February</b>

**2. 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 an impoundment. The monitoring parameters for all impoundments are those listed in Tables 2 through 5 for the specified monitored medium.

**3. Concentration Limits**

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

- a. By calculation in accordance with a statistical method such as an analysis of variance (ANOVA); or
- b. By an alternate statistical method acceptable to the Executive Officer to verify that there is “measurably significant” evidence of a release from the wastewater surface impoundments.

**4. Point of Compliance**

The point of compliance for the water standard is a vertical surface located at the hydraulically downgradient limit of the impoundments that extends through the uppermost aquifer underlying the Facility.

**5. Response to a Release**

If the Discharger determines that there is significant statistical evidence of a release (i.e. the initial statistical comparison or non-statistical comparison indicates, for any Constituent of Concern or Monitoring Parameter, that a release is tentatively identified), the Discharger shall immediately notify the Board verbally as to the Monitoring Point(s) and constituent(s) or parameter(s) involved, shall provide written notification by certified mail within seven days of such determination.

**C. MONITORING**

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

unsaturated zone monitoring devices, leachate, and surface water monitoring points shall be sampled and analyzed for monitoring parameters and constituents of concern as indicated and listed in Tables 2 through 4.

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

**1. Waste Discharge Monitoring**

The Discharger shall monitor all wastes discharged to surface impoundments on a **monthly** basis and report the results in the **quarterly** Detection Monitoring Reports:

Table 2 - Waste Discharge Monitoring		
<u>Parameters</u>	<u>Units</u>	<u>Frequency</u>
Quantity Discharged	gallons	Monthly

**2. Surface Impoundment**

Surface water samples shall be collected from the surface impoundments according to the following schedule:

Table 3 - Surface Impoundment Monitoring		
<u>Field Parameter</u>	<u>Units</u>	<u>Frequency</u>
Freeboard	Feet & Tenths	Monthly
Temperature	°C	Quarterly
Dissolved Oxygen	mg/L	Quarterly
Specific Conductance	µmhos/cm	Quarterly
pH	pH scale	Quarterly
<u>Monitoring Parameters</u>		
Total Dissolved Solids	mg/L	Semiannually
Total Suspended Solids	mg/L	Semiannually
Chemical Oxygen Demand	mg/L	Semiannually
Biological Oxygen Demand	mg/L	Semiannually
Volatile Organic Compounds (EPA Method 8260)	µg/L	Annually
Chloride	mg/L	Semiannually
Sulfate	mg/L	Semiannually
Nitrate – Nitrogen	mg/L	Semiannually
Total Kjeldahl Nitrogen (TKN)	mg/L	Semiannually
Metals CAM (17)	mg/L	Annually

**3. Groundwater**

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

The first major groundwater unit is encountered approximately 300 feet below ground surface. Four, 4-inch diameter, groundwater monitoring wells (MW-1 through MW-4) were completed in Summer 2005. Soil borings also identified perched groundwater at 69 feet below ground surface; however this perched zone appeared to be discontinuous.

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**.

<b>Table 4 - Groundwater Monitoring</b>		
<u>Field Parameter</u>	<u>Units</u>	<u>Frequency</u>
Groundwater Elevation	Ft., & hundredths, MSL	Quarterly
Temperature	°C	Semiannually
Dissolved Oxygen	mg/L	Semiannually
Specific Conductance	µmhos/cm	Semiannually
pH	pH number	Semiannually
<u>Monitoring Parameters</u>		
Total Dissolved Solids	mg/L	Semiannually
Volatile Organic Compounds (EPA Method 8260)	µg/L	Annually
Chloride	mg/L	Semiannually
Sulfate	mg/L	Semiannually
Nitrate – Nitrogen	mg/L	Semiannually
Total Kjeldahl Nitrogen (TKN)	mg/L	Semiannually
Metals CAM (17)	mg/L	Annually

#### **4. Unsaturated Zone Monitoring**

The Discharger shall collect, preserve, and transport samples in accordance with the quality assurance/quality control standards contained in an approved Sample Collection and Analysis Plan.

Unsaturated zone samples shall be collected from the monitoring devices and background monitoring devices of the approved unsaturated zone monitoring



system. The collected samples shall be analyzed for the listed constituents in accordance with the methods and frequency specified in Table 5. All monitoring parameters shall be graphed so as to show historical trends at each monitoring point.

The unsaturated zone monitoring network consists of four suction lysimeters (L-1 through L-4), constructed to a total depth of 30 feet below ground surface.

Unsaturated zone monitoring reports shall be included with the corresponding semiannual groundwater monitoring and shall include an evaluation of potential impacts of the facility on the unsaturated zone.

<b>Table 5- Unsaturated Zone Monitoring</b>		
<u>Field Parameter</u>	<u>Units</u>	<u>Frequency</u>
Sample volume	mL	Semiannually
Temperature	°C	Semiannually
Specific Conductance	µmhos/cm	Semiannually
pH	pH number	Semiannually
<u>Monitoring Parameters</u>		
Total Dissolved Solids	mg/L	Semiannually
Volatile Organic Compounds (EPA Method 8260)	µg/L	Annually
Chloride	mg/L	Semiannually
Sulfate	mg/L	Semiannually
Nitrate – Nitrogen	mg/L	Semiannually
Total Kjeldahl Nitrogen (TKN)	mg/L	Semiannually
Metals CAM (17)	mg/L	Annually

## 5. Facility Monitoring

### a. Facility Inspection

Annually, prior to the anticipated rainy season, but no later than **30 September**, the Discharger shall conduct an inspection of the facility. The inspection shall include pond liners and leak detection monitoring sumps and assess potential damage to the ponds, drainage control system, groundwater monitoring equipment (including wells, etc.), and shall include the Standard Observations contained in section F.4.f. of Standard Provisions and Reporting Requirements. Any necessary construction, maintenance, or repairs shall be completed by **31 October**. The Discharger shall submit results of the inspection and the repair measures implemented, including photographs of the problem and the repairs with the annual monitoring report.

**b. Storm Events**

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

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

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

\_\_\_\_\_ 11 September 2008  
Date

KB/KLC: sae

## INFORMATION SHEET

ORDER NO. R5-2008-0138  
COUNTY OF SHASTA  
REDDING REGIONAL SEPTAGE DISPOSAL FACILITY  
SHASTA COUNTY

Shasta County owns and operates the Redding Regional Septage Disposal Facility approximately 3.5 miles west of the City of Anderson. The Facility was constructed in 1976 and originally consisted of 10 unlined surface impoundments covering approximately 15 acres and with a storage capacity of 17.7 million gallons. In 2007, five additional septage ponds were constructed to accommodate increasing waste flow rates. The new ponds were constructed with a composite liner and leak detection system. Incoming septage enters a primary pond (Pond 1-A or 1-B), where solids are allowed to settle and the decanted liquid flows over a weir to the next pond hydraulically downgradient in series. Each successive pond in series is similarly constructed such that a weir ensures spillover to the next pond in succession before storage capacity and freeboard of the pond in use is exceeded, except for the terminal ponds (E-4 and E-5). An average of 550,000 gallons per month was received at the septage ponds in 2005. The annual volume of waste received at the Facility has increased at an average rate of 3 percent per year since 1994. The Facility was originally designed for a flow rate of 9,000 gallons per day (gpd, approximately 270,000 gallons/month) and when operation began in 1977 received about 5,000 gpd. The current pond configuration covers a surface area of 18.85 acres, and can receive up to 13 million gallons annually.

Originally, the facility configuration consisted of two separate series of five ponds. Each series had a primary receiving pond (W-1 and E-1) that served as a waste stabilization lagoon and four evaporation ponds. The pond series were used on an alternating basis so that one chain would be accepting septage while the other could be cleaned out. In 2000, the pond chain was reconfigured into a single chain. Ponds W-1 and W-4 alternated as primary ponds and flow was routed to the eight remaining ponds. E-4 and E-5 are both terminal ponds. Ponds 1-A and 1-B now alternate as primary receiving ponds, and flow is routed to the remaining ponds.

Ponds E-4 and E-5 were originally designed as emergency overflow ponds. Shasta County proposed installation of valves in each of the ponds so that clean rainwater could be discharged while the ponds were not in use for septage disposal. In a January 1999 letter, Regional Water Board staff approved the proposal, however in order to discharge, the ponds must contain only rainwater and the gate valves must remain locked except when the discharge of rainwater has been approved by the Regional Water Board. As a result of the increasing septage disposal rates, Ponds E-4 and E-5 typically contain septage year round and are no longer considered emergency overflow ponds.

On 8 April 2005, Regional Water Board staff reviewed a 28 March 2005 20-Year Capacity Study and Proposed Expansion of the Redding Regional Septage Ponds, prepared by Shasta County Department of Public Works. The 20-Year capacity study revealed that septage intake is increasing at a rate of approximately 300,000 gallons per year and that the ponds were near maximum capacity. Even normal septage intake and average rainfall would result in exceedence of the storage capacity of the Facility. Shasta County concluded that the Facility

immediately needed an additional 13.5 million gallons of storage capacity to retain projected septage and rainfall from a 100-year event.

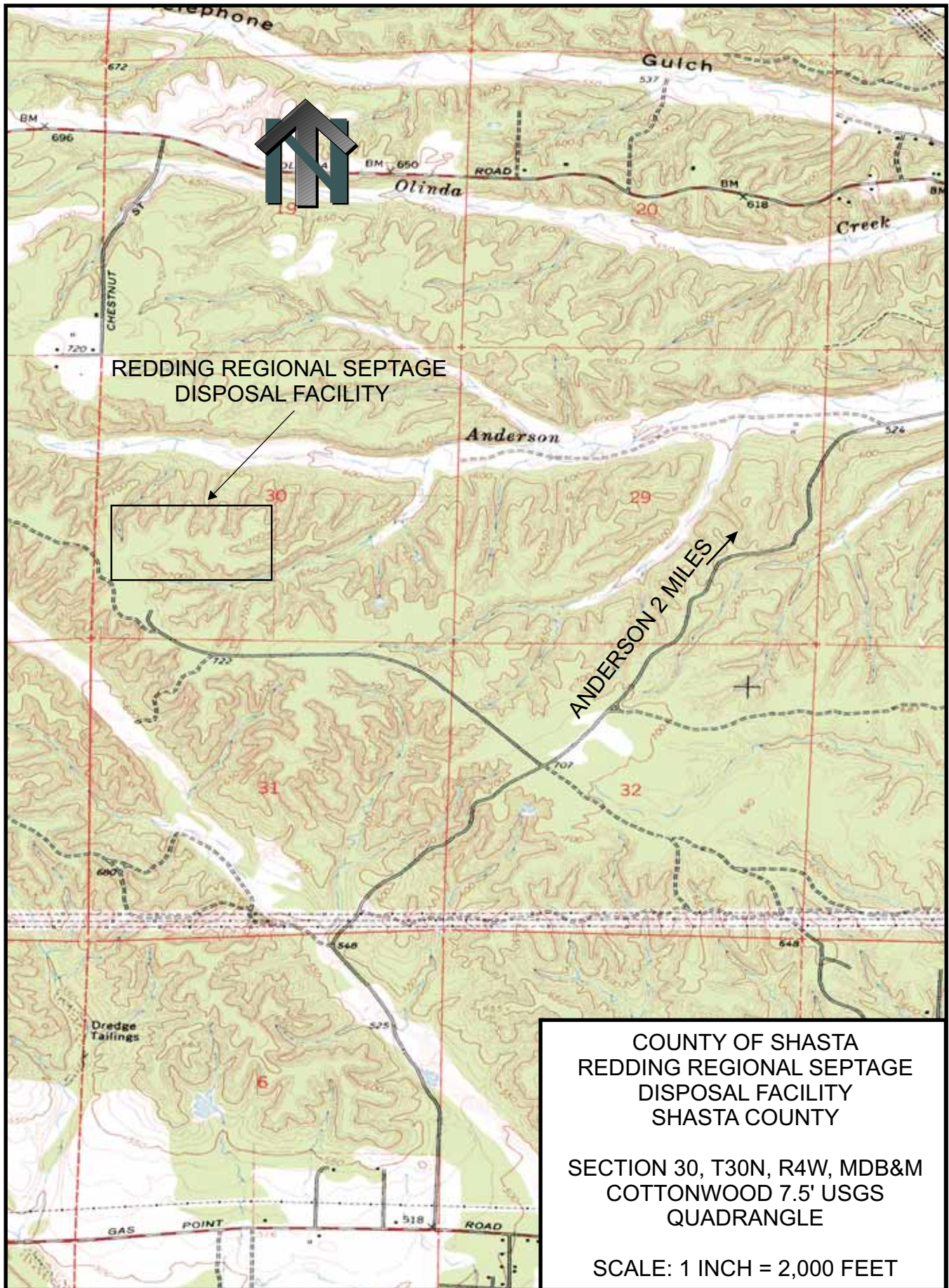
On 13 March 2006, Shasta County notified Regional Water Board staff that the Redding Regional Septage Ponds were full and wastewater was overtopping Pond E-5. On 30 March 2006, Regional Water Board staff issued a Notice of Violation for discharging wastewater from Ponds E-4 and E-5 and not maintaining adequate freeboard.

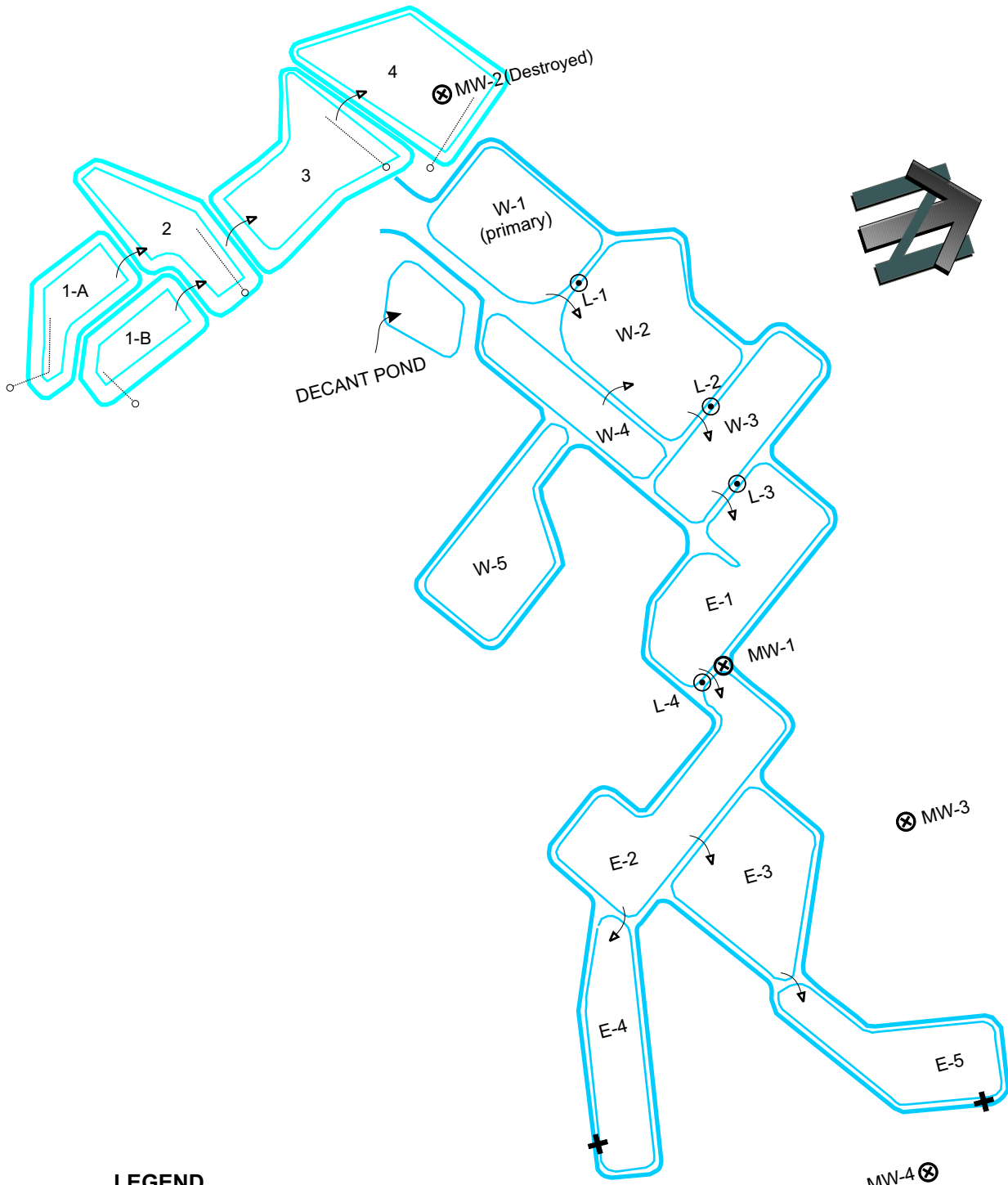
To prevent further discharges from the septage ponds and potential discharge to surface waters or surface water drainage courses and to maintain adequate freeboard, Shasta County completely dried and cleaned out ponds E-4 and E-5 prior to the onset of wet weather in 2006/2007 so that rainwater could be discharged from the clean ponds until the ponds were needed to contain septage. On 16 March 2007, the Regional Water Board adopted Order No. R5-2007-0022, requiring the County of Shasta to cease and desist from violating Waste Discharge Requirements. The Order further required the County to submit final plans, design specifications, and construction quality assurance specifications for the septage pond expansion project by 31 May 2007, and complete construction of the project by 31 October 2007. In November 2007, Shasta County completed construction of the five additional septage ponds.

Historical data from monitoring wells indicates that the discharge has not impacted groundwater. Vadoze zone monitoring however, indicates that waste may have migrated approximately 30 feet below ground surface. The vadose zone monitoring network consists of four suction lysimeters, installed approximately 30 feet below ground surface (bgs). Regional groundwater is identified approximately 300 feet bgs, however a discontinuous perched groundwater layer is also identified 69 feet bgs. Four groundwater monitoring wells were originally constructed in September 1995, which included one shallow well (total depth 79 feet bgs) and three deep wells (total depths approximately 350 feet bgs).

Surface run-off from the Facility is toward Anderson Creek, an intermittent tributary of the Sacramento River, about one-quarter mile north of the site.

Land use within 1,000 feet of the Facility is designated for solid waste disposal (Anderson Class III Municipal Solid Waste Landfill), light agriculture, and open space. The surrounding vegetation consists of oaks, chaparral and grasses. There are no other septage receiving facilities within 70 miles of the facility capable of receiving waste generated from septic tanks in Shasta County.





**LEGEND**

MONITORING WELL	⊗
LYSIMETER	⊙
FLOW PATH	↘
VALVE	+
LEAK DETECTION SUMP MONITORING PORT	○

COUNTY OF SHASTA  
 REDDING REGIONAL SEPTAGE  
 DISPOSAL FACILITY  
 SHASTA COUNTY

SITE MAP

NOT TO SCALE