

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2010-_____

FOR
THUNDERBOLT WOOD TREATING COMPANY, INC.
LOVALVO LEONARD & GRACE TRUST, LOVALVO FAMILY 2005 TRUST
CLASS II SURFACE IMPOUNDMENT
STANISLAUS COUNTY

This Monitoring and Reporting Program is issued to Thunderbolt Wood Treating Company, Inc. (facility owner and operator) and Lovalvo Leonard & Grace Trust, Lovalvo Family 2005 Trust (landowner), hereafter referred to jointly as Discharger. Compliance with this Monitoring and Reporting Program (MRP), and with the companion Standard Provisions and Reporting Requirements dated September 2003 (hereafter "Standard Provisions"), is ordered by Waste Discharge Requirements Order No. R5-2010-_____ (WDRs). Failure to comply with this MRP, or with the Standard Provisions, constitutes noncompliance with the WDRs and with California Water Code Section 13267, which can result in the imposition of civil monetary liability.

A. MONITORING

The Discharger shall comply with the monitoring program provisions of Title 27 for groundwater and the vadose zone in accordance with this MRP and the Monitoring Specifications in Standard Provisions.

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, vadose zone monitoring devices, and leachate monitoring points shall be sampled and analyzed for monitoring parameters and constituents of concern as indicated and listed in the tables of this MRP.

The Discharger may, upon approval, 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. All metals analyses shall be for dissolved metals.

The Discharger shall conduct monitoring and inspections as described in the summary table below. Detailed monitoring and inspection requirements are provided in the following sections of this MRP.

Facility Monitoring and Inspection Summary		
Activity	Inspection/Monitoring Frequency	Notes
Monitoring		
Surface Impoundment Monitoring	Weekly, Monthly, Quarterly	See Section A.1
Groundwater Monitoring	Quarterly, Semiannually	See Section A.2
Vadose Zone Monitoring	Semiannually	See Section A.3
LCRS Monitoring	Weekly, Quarterly	See Section A.4
Inspections		
Annual Facility Inspection	Annual	See Section A.5.a
Storm Events	Following Major Storm Event	See Section A.5.b
Other Facility Inspections	Per Summary Table in A.5.c	See Section A.5.c

1. Surface Impoundment

Samples shall be collected from the surface impoundment in accordance with the table below:

Surface Impoundment Monitoring			
<u>Parameters</u>	<u>Units</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
Field Parameter			
Freeboard	feet and tenths gallons	Daily/Weekly ¹	Semiannually
Remaining Capacity		Monthly	Semiannually
Monitoring Parameters			
pH	pH units	Quarterly	Semiannually
Electrical Conductivity	umhos/cm	Quarterly	Semiannually
Arsenic	ug/L	Quarterly	Semiannually
Copper	ug/L	Quarterly	Semiannually
Chromium, total	ug/L	Quarterly	Semiannually
Chromium, hexavalent	ug/L	Quarterly	Semiannually
Boron	ug/L	Quarterly	Semiannually
Zinc	ug/L	Quarterly	Semiannually
Ammonia as N	mg/L	Quarterly	Semiannually
Total Nitrogen	mg/L	Quarterly	Semiannually

¹ Freeboard shall be measured daily from 1 October to 1 May, and weekly otherwise.

2. Groundwater

The Discharger shall operate and maintain a groundwater monitoring system that complies with the applicable provisions of Section 20415 of Title 27. Quarterly water level measurements shall be taken in all monitoring wells.

Groundwater samples shall be collected from the compliance wells (MW-1, MW-3, MW-4, MW-4b, MW-4c, MW-7), the background well (MW-12), and any

additional wells added as part of the approved groundwater monitoring system. The Discharger shall also monitor these and other monitoring wells at the site as required by the Site Cleanup Program. Prior to sampling, the groundwater elevations shall be measured and the wells shall be purged of at least three well volumes until temperature, pH, and electrical conductivity have stabilized. Depth to groundwater shall be measured to the nearest 0.01 feet. Samples shall be collected and analyzed for the monitoring parameters in accordance with the methods and frequency specified in the following table:

Groundwater Monitoring			
<u>Parameters</u>	<u>Units</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
<u>Field Parameter</u>			
Groundwater Elevation	feet & hundredths, MSL	Quarterly ¹	Semiannually
Temperature	°F	Semiannually	Semiannually
Electrical Conductivity	umhos/cm	Semiannually	Semiannually
pH	pH units	Semiannually	Semiannually
Turbidity	NTU	Semiannually	Semiannually
<u>Monitoring Parameters</u>			
Arsenic	ug/L	Semiannually	Semiannually
Copper	ug/L	Semiannually	Semiannually
Chromium, total	ug/L	Semiannually	Semiannually
Chromium, hexavalent	ug/L	Semiannually	Semiannually
Boron	ug/L	Annually	Annually
Zinc	ug/L	Annually	Annually
Ammonia as N	mg/L	Annually	Annually
Total Nitrogen	mg/L	Annually	Annually

¹ Quarterly groundwater elevation monitoring is required by Section 20415(e)(15) of Title 27.

3. Vadose Zone Monitoring

The Discharger shall operate and maintain a vadose zone detection monitoring system that complies with the applicable provisions of Section 20415 of Title 27. Vadose zone samples shall be collected from vadose zone wells V-2, V-5, and V-6. The collected samples shall be analyzed for the listed constituents in accordance with the methods and frequency specified in the following table.

Vadose Zone Monitoring			
<u>Parameters</u>	<u>Units</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
<u>Field Parameter</u>			
Electrical Conductivity	umhos/cm	Semiannually	Semiannually
pH	pH units	Semiannually	Semiannually
<u>Monitoring Parameters</u>			
Arsenic	ug/L	Semiannually	Semiannually
Copper	ug/L	Semiannually	Semiannually
Chromium, total	ug/L	Semiannually	Semiannually
Chromium, hexavalent	ug/L	Semiannually	Semiannually
Boron	ug/L	Semiannually	Semiannually
Zinc	ug/L	Semiannually	Semiannually
Ammonia as N	mg/L	Semiannually	Semiannually
Total Nitrogen	mg/L	Semiannually	Semiannually

4. LCRS Monitoring

The LCRS tank shall be inspected daily for leachate. The LCRS tank shall be sampled and analyzed for the following:

LCRS Monitoring			
<u>Parameters</u>	<u>Units</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
<u>Field Parameter</u>			
Presence of leachate in tank	observation	Daily	Semiannually
Flow Rate	gallons/day	Weekly	Semiannually
Electrical Conductivity	umhos/cm	Quarterly	Semiannually
pH	pH units	Quarterly	Semiannually
<u>Monitoring Parameters</u>			
Arsenic	ug/L	Semiannually	Semiannually
Copper	ug/L	Semiannually	Semiannually
Chromium, total	ug/L	Semiannually	Semiannually
Chromium, hexavalent	ug/L	Semiannually	Semiannually
Boron	ug/L	Semiannually	Semiannually
Zinc	ug/L	Semiannually	Semiannually
Ammonia as N	mg/L	Semiannually	Semiannually
Total Nitrogen	mg/L	Semiannually	Semiannually

Leachate in the LCRS tank shall be returned to the surface impoundment following sample collection; however, sampling is only required semiannually.

All LCRSs shall be tested **annually** to demonstrate operation in conformance with waste discharge requirements. The results of these tests shall be reported in the Annual Monitoring Report and shall include comparison with earlier tests made under comparable conditions.

5. Facility Monitoring

a. Annual Facility Inspection

Annually, prior to the anticipated rainy season, but no later than **30 September**, the Discharger shall conduct an inspection of the facility. The inspection shall assess any damage to the surface impoundment, drainage control system, and groundwater monitoring equipment (including wells, *etc.*). Any necessary construction, maintenance, or repairs shall be completed by **31 October**. Reporting shall be conducted as required in Section B.1 of this MRP.

b. Storm Events

The Discharger shall inspect all precipitation, diversion, and drainage facilities for damage **within 7 days** following major storm events (greater than one inch of precipitation in 24 hours), and shall conduct applicable Standard Observations contained in Section XII.S of the Standard Provisions. Necessary repairs shall be completed **within 30 days** of the inspection. Reporting shall be conducted as required in Section B.1 of this MRP.

c. Other Facility Inspection Requirements

The Discharger shall conduct other facility inspection requirements as proposed in the 31 August 2010 Report of Waste Discharge and as summarized in the following table. Reporting shall be conducted as required in Section B.1 of this MRP.

Facility Inspection Requirements Summary		
Activity	Inspection/Monitoring Frequency	Notes
Inspections		
Inspect the indicator light, float switches, and tank levels on the leachate collection and removal system (LCRS)	Daily	Record date of inspection, conditions observed and any resulting action.
Record water level and freeboard in the surface impoundment	Daily from 1 October through 1 May	
Record meter readings from the LCRS, point of discharge to the surface impoundment, and discharge to the sanitary sewer	Weekly	
Visually inspect the integrity of the surface impoundment liner and storm water tanks and make repairs as necessary	Weekly	
Inspect the hardstand and make repairs as necessary	Semiannually	
Pressure test the storm water underground piping system during the dry season	Annually	
Remove debris and sludge from all collection sumps and maintain pumps	Annually, or as needed	
Inspect collection sumps for integrity and repair as needed	Annually	
Facility Inspection and Repairs	Annual inspection by 30 September, complete repairs by 31 October, report by 31 January	
Test the LCRS	Annually, prior to the wet season.	
Perform leak location survey on primary liner and repair	Every three years beginning in 2011	

B. REPORTING

The Discharger shall report all required monitoring data and information, and results of all required facility inspections **semiannually** as required in this Monitoring and Reporting Program and as required in the Standard Provisions. 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. Graphs for the same constituent shall be plotted at the same scale to facilitate visual comparison of monitoring data. 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 an acceptable digital format.

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 or semiannual monitoring reports. The results of any monitoring done more frequently than required at the locations specified herein shall be reported to the Central Valley Water Board.

As required by the California Business and Professions Code Sections 6735, 7835, and 7835.1, all Groundwater Monitoring Reports shall be prepared under the direct supervision of a Registered Engineer or Professional Geologist and signed/stamped by the registered professional.

REQUIRED MONITORING REPORTS AND SUBMITTAL DATES:

1. **Semiannual Groundwater, Vadose Zone, and Leachate Monitoring Reports**

The semiannual monitoring reports shall include all water quality data and observations collected during the reporting period and submitted as follows. Semiannual reports shall be submitted by **31 July** for the first semester and **31 January** for the second semester which is combined with the Annual Monitoring Report, below. At a minimum the sampling and data collection required in the tables of this Monitoring and Reporting Program, Standard Provisions, and Waste Discharge Requirements shall be reported. Groundwater concentrations for each constituent shall be compared with the current concentration limits for each constituent from the latest Annual Monitoring Report, and information about any necessary resampling required in Section C.5 of this MRP. The semiannual report due on 31 January shall also report on the annual facility inspection from Section A.5.a of this MRP and shall include documentation of the inspection and any maintenance or repairs that were completed. The semiannual reports shall also include information from inspections performed after major storm events required in Section A.5.b of this MRP including Standard Observations. The semiannual reports shall also include documentation of all inspections, monitoring, and repairs required in Section A.5.c of this MRP.

2. **Annual Monitoring Report**

The Discharger shall submit an Annual Monitoring Report covering the previous monitoring year. The report is due by **31 January** of each year. The annual report shall contain the information specified in Standard Provisions, Section VIII.B of the "*Reports to be Filed with the Board.*" The Annual Monitoring Report shall also include the results of the annual LCRS testing. The Annual Monitoring Report shall also include the updated concentration limits using the method in Section C.4 of this MRP, below.

3. Response to a Release

If the Discharger determines that there is either 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) or physical evidence of a release, the Discharger shall immediately notify the Central Valley Water 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 and implement the resampling procedure in Section C.5 of this MRP and the requirements in Sections X.C and/or X.D of the Standard Provisions if a release is confirmed.

4. Water Quality Protection Standard Report

The Discharger submitted a Water Quality Protection Standard as part of the August 2010 Report of Waste Discharge (ROWD), including an amendment dated 21 September 2010, and 31 August 2010 *Proposed Revision Background Constituent Levels* report. These documents contain the proposed method for calculating concentration limits and protocol for actions required if concentration limits are exceeded. Requirements based on these proposals are provided in the next section of this MRP.

C. WATER QUALITY PROTECTION STANDARD

1. Water Quality Protection Standard

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 Discharger submitted a Water Quality Protection Standard as part of the August 2010 ROWD. Elements of the Water Quality Protection Standard are given in sections below.

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 the facility are pH, electrical conductivity, arsenic, total chromium, hexavalent chromium, copper, boron, zinc, ammonia as N, and total nitrogen.

3. Monitoring Points

Groundwater:

Compliance Wells: MW-1, MW-3, MW-4, MW-4b, MW-4c, MW-7
Background Well: MW-12

Well locations are shown on Attachment B. Note that well designations on Attachment B are shown as "M1", "M3", etc. instead of MW-1, MW-3. Groundwater monitoring points shall also include any well or wells constructed after adoption of this MRP for purposes of monitoring groundwater for the Class II surface impoundment

Vadose Zone:

V-2, V-5, V-6

4. Concentration Limits

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

- a. By calculation in accordance with a statistical method pursuant to Section 20415 of Title 27; or
- b. By an acceptable alternate statistical method in accordance with Section 20415 of Title 27.

The Discharger submitted a proposed method for calculating concentration limits in the August 2010 ROWD, and the 31 August 2010 *Proposed Revision Background Constituent Levels* report. The proposed method used by the Discharger is to use the computer program SigmaPlot 11.0 to calculate the mean and standard deviation of the background data from MW-12 for each constituent, and to then calculate the 95% upper confidence limit that is two standard deviations above the mean. The resulting value is the concentration limit for that constituent. The Discharger shall report the concentration limits in each semiannual and annual monitoring report, and shall update them annually to take the new semiannual data into account. The concentration limits using data

available in 2010 are as follows: pH 6.72-7.82, electrical conductivity 1,034 umhos/cm, total nitrogen 39.9 mg/L, ammonia 1.00 mg/L, dissolved arsenic 3.01 ug/L, dissolved total chromium 20.68 ug/L, dissolved hexavalent chromium 5.61 ug/L, and dissolved copper 7.10 ug/L. These are to be updated annually as required in Section B.2 of this MRP.

5. Resampling Procedure

The Discharger shall implement the resampling procedure proposed in the 21 September 2010 supplemental information submitted for the ROWD, as follows. If monitoring results are above the concentration limit for a chemical of concern in a well for which a release has not already been confirmed for that constituent, the Discharger shall resample the well for that constituent within 30 days. If the resample is above the concentration limit, the Discharger shall collect two additional samples on a monthly interval. The results of the four total samples shall be averaged and compared to the concentration limit using a parametric analysis of variance (ANOVA) test. If the ANOVA test indicates that results are measurably significant above the concentration limit, then a release is confirmed and the Discharger shall follow procedures for response to a release in Sections X.C and/or X.D of the Standard Provisions.

6. Point of Compliance

The point of compliance for the Concentration Limits given in C.4 is a vertical surface located at the hydraulically downgradient limit of the Class II surface impoundment that extends through the uppermost aquifer underlying the Unit.

A letter transmitting the self-monitoring reports shall accompany each report. Such a letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. The transmittal letter shall contain a statement by the discharger, or the discharger's authorized agent, under penalty of perjury, that to the best of the signer's knowledge the report is true, accurate, and complete.

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

PAMELA C. CREEDON, Executive Officer

(Date)