California Regional Water Quality Control Board
North Coast Region

MONITORING AND REPORTING PROGRAM
ORDER NO. R1-2005-0032

FOR

TYRIS CORPORATION
AND
LOUISIANA PACIFIC CORPORATION
AT THE

(FORMER) LP-CLOVERDALE
WOODWASTE DISPOSAL SITE

CLASS III LANDFILLS

COUNTY OF SONOMA

The Discharger shall maintain water quality monitoring systems that are appropriate for detection monitoring and corrective action, and that comply with Subchapter 3, Chapter 3, Subdivision 1, Division 2, Title 27, CCR, and any other applicable provisions therein.

Compliance with this Monitoring and Reporting Program (MRP), and with the companion Standard Provisions and Reporting Requirements, is ordered by Waste Discharge Requirements (WDRs) Order No.R1-2005-32. Failure to comply with this MRP, or with the General Monitoring and Reporting Requirements, constitutes non-compliance with the WDRs and with Division 7 of the California Water Code, which can result in the imposition of civil monetary liability.

I. REPORTING

The Discharger shall report monitoring data and information as required in this Monitoring and Reporting Program and as required in the General Monitoring 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.

A narrative discussion of the monitoring results, including notations of any water quality violations shall precede tabular summaries of the water quality data. 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 and submitted within the Annual Report. Graphs for the same constituent shall be plotted at the same scale to facilitate visual comparison of monitoring data.

The results of any monitoring done more frequently than required at the locations specified herein shall be reported to the Regional Water Board in the monitoring report(s) for that period.

A. REQUIRED REPORTS

1. Detection Monitoring Report

Detection Monitoring Reports (DMRs) shall be prepared and submitted to the Regional Water Board quarterly by the 15th day of the month following the end of each calendar quarter. The reports shall include the results of all monitoring programs listed herein. The established monitoring and reporting period is as follows:

QUARTER	QUARTER No.	REPORTING DATE	
February, March, April	1	May 15	
May, June, July	2	August 15	
August, September, October	3	November 15	
November, December, January	4	February 15	**Annual Report Date**

2. Annual Report

An Annual Report, which summarizes the monitoring results for the prior four quarters, shall be submitted to the Regional Water Board **by February 15, Annually**. The report shall contain both tabular and graphical summaries of the detection and corrective action monitoring data and a discussion of the progress toward re-establishment of compliance with WDRs and the Water Quality Protection Standard (WQPS). In lieu of submitting a separate report, the Annual Report information may instead be included with the first quarter Detection Monitoring Report.

3. Water Quality Protection Standard Report

As noted above, any changes to the Water Quality Protection Standard are to be included in the Annual Report. An updated Water Quality Protection Standard Plan is needed for this Site to establish background concentration data as per Compliance Time Schedule Item # 22 of the Waste Discharge Requirements.

4. Constituents-of-Concern (COC)

The results of COC monitoring shall be submitted with, or reported in, the Annual Report for that year.

5. Notification of Release and Re-test

For any WMU, if the results of a detection monitoring program show that there is a measurably significant increase in an indicator parameter or waste constituents over the WQPS at or beyond the points of compliance (i.e., measurably significant evidence of an exceedance or release), the Discharger shall:

a. immediately notify the Regional Water Board by telephone or fax of the exceedance,

b. within seven days of the initial findings, follow up with written notification (or acknowledgment of the Regional Water Board's finding),

c. within 30 days of the initial finding, re-sample for the constituent(s) or parameter(s) at the point where the standard was exceeded, and

d. within 60 days of the initial finding, submit the results of the re-sampling and statistical analysis, indicating whether or not an exceedance or release was confirmed by the re-test.

6. Existing Release - Amended Programs

Within 30 days of confirmation of an exceedance from an existing release, the Discharger shall submit, for Regional Water Board staff approval, an amendment to the Corrective Action Program, describing measures planned or taken to mitigate the exceedance. The Discharger shall also note any necessary changes to the DMP and Corrective Action Monitoring Program monitoring locations as a result of the exceedance.

7. Responding to a Release Discovery

Upon verifying measurably significant evidence of a release from a WMU according to Section 20420(j) of Title 27 and Section A.6 of this MRP, the Discharger shall follow the procedures and timeline described in Section 20420(k) of Title 27.

II. MONITORING PROGRAMS

A. SOLID WASTE MONITORING

The Discharger shall monitor monthly all wastes extracted from both Eastern and Western Waste Units and report quarterly as follows:

Table II.A: Nonhazardous Solid Waste Monitoring

Parameter	Units	Monitoring Frequency	Reporting Frequency
Quantity discharged	cubic yards or tons	Monthly	Quarterly
Type of material discharged	---	Monthly	Quarterly
Cell sequencing plan	---	Monthly	Quarterly
Capacity of each landfill/phase remaining	Percent	Monthly	Annually

B. ROUTINE MAINTENANCE

The Discharger shall inspect the disposal site weekly. At a minimum, the Discharger shall inspect the integrity of the cover material, drainage structures, potential erosion areas, and leachate piping and storage facilities. The Discharger shall include inspection logs, problem areas, special occurrences, and corrective actions taken in quarterly monitoring reports**.**

C. CONSTITUENTS OF CONCERN

Except as otherwise indicated in this Order, the Discharger shall monitor each media of each existing landfill unit for applicable Constituents of Concern. The monitoring locations, analytical methods, and frequency of analyses are as follows:

1. Monitoring Locations

a. Leachate - SPR-1 and leachate wells as identified in Table II.C.1

b. Groundwater – All groundwater monitoring wells

2. Monitoring Schedule

TABLE II.B
CONSTITUENTS OF CONCERN MONITORING

Constituents of Concern	Units	Frequency
Carbonate	mg/l	**Every 5 years**
Bicarbonate Alkalinity	mg/l	**Every 5 years**
Volatile Organic Compounds (EPA Method 8260)	ug/l	**Every 5 years**
Semi-Volatile Organic Compounds (EPA Method 8270)	ug/l	**Every 5 years**
Organochlorine Pesticide, PCBs (EPA Method 8080)	ug/l	**Every 5 years**
Chlorophenoxy Herbicides (EPA Method 8150)	ug/l	**Every 5 years**
Organophosphorus Compounds (EPA Method 8141)	ug/l	**Every 5 years**
Inorganics (dissolved)	mg/l	**Every 5 years**
MTBE	ug/l	**Every 5 years**

D. LEACHATE MONITORING

1. Monitoring Locations

The leachate monitoring locations within each Waste Management Unit (WMU) shall be the following locations until such times as the station is physically removed and/or the clean closure landfill reclamation phase is completed. Monitoring reports shall record the current status of each station.

TABLE II.C.1
LEACHATE MONITORING LOCATIONS

WMU	Location
Eastern Landfill	B2, future East sump
Western Landfill	B3, future West Sump
Western Landfill	Spring-SPR-1

2. Monitoring Schedule

Leachate monitoring shall be conducted as specified in Table II.C.2.

TABLE II.C.2
LEACHATE MONITORING PROGRAM

Parameter	Units	Frequency	Reporting
Field Parameters			
Freeboard in Leachate Collection System	Feet/tenths	Daily	Quarterly
Presence of liquid	Visually confirmed	Monthly	Quarterly
SPR-1	gpm	Monthly	Quarterly
Volume outhauled	Gallons	Per Day	Quarterly
Specific Conductance	μmhos/cm	Quarterly	Quarterly
PH	pH units	Quarterly	Quarterly
Monitoring Parameters			
Sodium	mg/l	Quarterly	Quarterly
Magnesium	mg/l	Quarterly	Quarterly
Potassium	mg/l	Quarterly	Quarterly
Calcium	mg/l	Quarterly	Quarterly
Iron	mg/l	Quarterly	Quarterly
Speciated Alkalinity	mg/l	Quarterly	Quarterly
Floride	mg/l	Quarterly	Quarterly
Manganese	mg/l	Quarterly	Quarterly
Hardness	mg/l	Quarterly	Quarterly
COD	mg/l	Quarterly	Quarterly
Tannins and Lignins	mg/l	Quarterly	Quarterly
Total Dissolved Solids TDS)	mg/l	Quarterly	Quarterly
Chlorides	mg/l	Quarterly	Quarterly
Sulfates	mg/l	Quarterly	Quarterly
Nitrogen Series	mg/l	Quarterly	Quarterly
Total VOC's (8260)	ug/l	Quarterly	Quarterly
TPHg/TPHd	ug/l	Quarterly	Quarterly
MTBE	ug/l	Quarterly	Quarterly
Constituents of Concern			
Table II.B constituents	ug/l	Annually	Annually

Upon detection of leachate in a previously dry spring or collection system, the leachate shall be sampled in accordance with the above schedule and the results included in the monitoring report. If COC constituents are detected that are not already Monitoring Parameters, then the leachate must be re-sampled for those constituents. If confirmed by re-test, then these constituents must be added to the Monitoring Parameter list and analyzed on a quarterly basis.

All areas of the landfill units shall be inspected on a monthly basis. Each unit shall be inspected for spring activity and leachate seeps, adequacy of erosion control and any needed maintenance to demonstrate conformance with the WDRs. The results shall be reported to the Regional Water Board in the Annual Report.

E. GROUNDWATER ELEVATION MONITORING

Groundwater elevations taken prior to purging the well and sampling for Monitoring Parameters shall be used to fulfill the groundwater gradient/direction analyses required. For each monitored groundwater body, the Discharger shall measure the water level in each well and shall determine groundwater gradient and direction at least quarterly, including the times of expected highest and lowest elevations of the water level for the respective groundwater body. Groundwater elevations for all upgradient and downgradient wells for a given groundwater body shall be measured within a period of time short enough to avoid temporal variations in groundwater flow which could preclude accurate determination of groundwater gradient and direction. This information shall be included in the quarterly monitoring reports.

III. DETECTION MONITORING

A. GENERAL

The Discharger shall perform Detection Monitoring on all media potentially affected by a release, including surface water and groundwater. For any given monitored medium, a sufficient number of samples shall be taken from all Monitoring Points and Background Monitoring Points to satisfy the data analysis requirements for a given Reporting Period, and shall be taken in a manner that ensures sample independence to the greatest extent feasible.

The Discharger shall use a Regional Water Board-approved statistical (or non-statistical) procedure to determine whether there has been a measurably significant increase in a constituent over the Water Quality Protection Standard, as set forth in Section 20415(e)(5) of Title 27.

B. GROUNDWATER

The groundwater surface elevation (in feet and hundredths, M.S.L.) in all wells shall be measured on a quarterly basis and used to determine the velocity and direction of groundwater flow. This information shall be displayed on a water table contour map and/or groundwater flow net for the site and included in the quarterly monitoring reports. Additional monitoring wells shall be added to the program as needed.

1. Monitoring Locations

The groundwater detection monitoring points for both Eastern and Western Waste Units, shown in Attachment B, are as follows:

Background Monitoring Wells:

Eastern and Western Landfill Units: MW-2, MW-3

Downgradient Monitoring Wells:

Eastern and Western Landfill Units	MW-4, MW-5

Points of Compliance Wells:

Eastern and Western Waste Units	MW-2, MW-3, MW-4, MW-5

Any additional monitoring wells or stations constructed at the site shall be added to the monitoring network. Samples shall be collected from all installed wells or stations at the frequency and for the parameters specified in Table IIA and IIB, respectively.

2. Monitoring Schedule

The analytes and frequency of groundwater monitoring is as follows:

TABLE III.C.1
GROUNDWATER DETECTION MONITORING PROGRAM

Parameter	Units	Frequency
Field Parameters		
PH	pH units	Quarterly
Specific Conductance	µmhos/cm	Quarterly
Temperature	°C	Quarterly
Groundwater Elevations	Ft./tenths TOC	Quarterly
Dissolved Oxygen	mg/L	Quarterly
Turbidity	Turbidity units	Quarterly
Monitoring Parameters		
Sodium	mg/l	Quarterly
Magnesium	mg/l	Quarterly
Potassium	mg/l	Quarterly
Calcium	mg/l	Quarterly
Iron	mg/l	Quarterly
Speciated Alkalinity	mg/l	Quarterly
Floride	mg/l	Quarterly
Manganese	mg/l	Quarterly
Hardness	mg/l	Quarterly
COD	mg/l	Quarterly
Tannins and Lignins	mg/l	Quarterly
Total Dissolved Solids (TDS)	mg/l	Quarterly
Chlorides	mg/l	Quarterly
Sulfates	mg/l	Quarterly
Nitrogen Series	mg/l	Quarterly
Total VOC's (8260)	ug/l	Quarterly
TPHg/TPHd	ug/l	Quarterly
CAM Metals	mg/l	Annually
Constituents of Concern		
Table II.B constituents	ug/l	Every 5 years

D. SURFACE WATER MONITORING

1. Monitoring Locations

Both unnamed tributaries flowing into the Russian River shall be sampled at the property locations SW2, SW4 and a designated background station. Locations SP-1, SW-2, and SW-4, as shown in Attachment B, constitute the points of compliance for surface waters for both landfill units.

2. Monitoring Schedule

Surface water monitoring shall be conducted as specified in Table III.D. below. Sampling shall begin with the first surface runoff in the fall of each year (October or November) and shall continue in January, February, and April of each wet weather season until the WMUs are removed.

TABLE III.D.
SURFACE WATER MONITORING PROGRAM

Parameter	Units	Frequency
Field Parameters		
Dissolved Oxygen	mg/l	4 Events/Season
Hardness (as $CaC0_3$)	mg/l	4 Events/Season
Specific Conductance	µmhos/cm	4 Events/Season
PH	pH units	4 Events/Season
Temperature	°C	4 Events/Season
Ammonia	mg/l-grab	4 Events/Season
Unionized Ammonia	mg/l-grab	4 Events/Season
Turbidity	Turbidity Units	4 Events/Season
Total Precipitation	In/days	4 Events/Season
Monitoring Parameters		
Total Dissolved Solids (TDS)	mg/l	4 Events/Season
Total Settable Solids	mg/l	4 Events/Season
Total Suspended Solids	mg/l	4 Events/Season
Tannins and Lignins	mg/l	4 Events/Season
Ammonia	mg/l	4 Events/Season
Bicarbonate	mg/l	4 Events/Season
Chlorides	mg/l	4 Events/Season
Sulfates	mg/l	4 Events/Season
Nitrogen Series	mg/l	4 Events/Season
Carbonate	mg/l	4 Events/Season
Chemical Oxygen Demand (COD)	mg/l	Annually
Total Organic Carbon (TOC)	mg/l	Annually
Biological Oxygen Demand (BOD)	mg/l	Annually
Bioassay Test (96 hr.)	percent survival	Annually

Parameter	Units	Frequency
CAM Metals	mg/l	Annually
Constituents of Concern		
Table II.B constituents	mg/l	Every 5 years

The Discharger shall determine at each sampling whether there is either a statistically or non-statistically significant increase over Water Quality Protection Standards for each parameter and constituent analyzed. If a release is detected at the downstream sampling point, the Discharger shall proceed with an Evaluation Monitoring Program to determine the source(s) and extent of the release.

Once the WMUs closure and removal is certified, surface water monitoring is no longer applicable.

IV. CORRECTIVE ACTION

The following information shall be gathered annually as to the progress of groundwater remediation, leachate removal and waste management removal and shall be reported in the format of Tables IV.A.1 and 2 below:

A. CORRECTIVE ACTION MONITORING

1. Monitoring Locations

The corrective action monitoring points for both landfill units, shown in Attachment B, are as follows:

TABLE IV.A.1
CORRECTIVE ACTION MONITORING LOCATIONS

WMU	Source Area	Monitoring Locations
Eastern Waste Unit	Waste Mass	MW2
Eastern Waste Unit	Toe Area	Footprint perimeter
Eastern Waste Unit	Waste Mass	B-2, Future East sump
Western Waste Unit	Toe Area	SPR-1
Western Waste Unit	Toe Area	Footprint perimeter
Western Waste Unit	Waste Mass	B-3, Future West Sump

List includes former detection monitoring wells impacted by the spread of contaminants. Additional well(s) may be needed.

2. Monitoring Schedule

The monitoring schedule for the corrective action wells is as follows:

TABLE IV.B.1
CORRECTIVE ACTION MONITORING PROGRAM

Parameter	**Units**	**Frequency**
Field Parameters		
pH	pH units	Quarterly
Specific Conductance	µmhos/cm	Quarterly
Temperature	°C	Quarterly
Turbidity	Turbidity units	Quarterly
Monitoring Parameters		
Total Dissolved Solids (TDS)	mg/l	Quarterly
Chlorides	mg/l	Quarterly
Sulfates	mg/l	Quarterly
Nitrate – Nitrogen	mg/l	Quarterly
TPH-D	mg/l	Quarterly
Volatile Organic Compounds	ug/l	Quarterly
Constituents of Concern		
Table II.B constituents	ug/l	Annually

3. Leachate Monitoring Locations

Eastern Waste Unit

The Discharger shall monitor effective removal or drawdown and collection of leachate from the leachate peizometers and/or sump areas until the unit is removed.

Western Waste Unit

The Discharger shall monitor and report the volume and rates of flow into the spring SPR-1. The volume of leachate shall be collected and shall not exceed two thirds of the design capacity of the collection system, until the unit is removed.

V. WATER QUALITY PROTECTION STANDARD

The Water Quality Protection Standard (Standard) consists of the following elements:

A. Constituents of Concern;
B. Concentration Limits;
C. Monitoring Points;
D. Points of Compliance; and
E. Compliance Period.

Each of these is described as follows:

A. Constituents of Concern

The Constituents of Concern (COCs) required under Section 20395 of Title 27 shall include all constituent groups identified in Table II.B. The Discharger shall monitor all COCs every five years or more frequently as required under the corrective action monitoring program.

B. Concentration Limits

1. General

The Concentration Limit for any given Constituent of Concern or Monitoring Parameter in a given monitored medium (i.e., the uppermost aquifer) at a landfill shall be as follows, and shall be used as the basis of comparison with data from the Monitoring Points in that monitored medium:

a. The background value established in the WDRs by the Regional Water Board for that constituent and medium;

b. The constituent's background value, from the Background Monitoring Points for that monitored medium. Either:

1) The mean (or median, as appropriate) and standard deviation (or other measure of central tendency, as appropriate) of the constituent's background data; or
2) The constituent's MDL, in cases where less than 10 percent of the background samples exceed the constituent's MDL; or

c. A concentration limit greater than background, as approved by the Regional Water Board for use during or after corrective action.

2. Groundwater - background values established by monitoring.

3. Surface Water - Concentration limits for S-2 and S-4 and SP-1 shall be calculated from an approved background monitoring point.

These values, and the statistical or non-statistical methods upon which they are based, are subject to ongoing review and approval by Regional Water Board staff. In addition, they shall be updated as necessary to provide ongoing definition of background water quality.

C. Monitoring Points

1. Groundwater - As listed in Tables III.C. for both WMUs.

2. Surface Water- As described in Section III.D.

Upon confirmation of an exceedance from an existing release, the Discharger shall transfer the impacted monitoring point(s) from the Detection Monitoring Program (DMP) to the Corrective Action Monitoring Program (CAMP). Upon confirmation that levels in a previously impacted monitoring point has been reduced below concentration limits, the

Discharger may, with Regional Water Board staff approval, transfer that monitoring point from the CAMP to the DMP.

D. Points of Compliance

The point(s) of compliance at each groundwater monitoring point is the vertical surface located at the downgradient limit of the WMU that extends through the uppermost aquifer underlying the WMU. The points of compliance for surface water monitoring shall be S-2, S-4, and SP-1.

E. Compliance Period

The Compliance period is the number of years equal to the active life of the landfill plus the closure period. Each time the Standard is exceeded (i.e., a release is discovered), the landfill begins a Compliance Period on the date the Regional Water Board directs the Discharger to begin an Evaluation Monitoring Program. If the Discharger's Corrective Action Program has not achieved compliance with the Standard by the scheduled end of the Compliance Period, the Compliance Period is automatically extended until the landfill has been in continuous compliance for at least three consecutive years.

The project, as proposed, intends to complete removal of both the Eastern and Western Waste Units and obtain clean closure certification. A groundwater summary report is to be submitted once removal activities are finished. The Compliance Period for this facility will be significantly shortened and re-evaluated upon demonstration of project completion.

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

Ordered by: _____
Catherine E. Kuhlman,
Executive Officer

June 22, 2005