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Golder Associates Inc.

8933 Western Way, Suite 12
Jacksonville, FL USA 32256
Telephone (904) 363-3430
Fax (904) 363-3445

Golder Associates

December 18, 2002

993-2632.1

Mr. Greg Mathes
Trail Ridge Landfill, Inc.
5110 U.S. Highway 301, South
Jacksonville, Florida 32234

RE: BIENNIAL EVALUATION OF GROUNDWATER, SURFACE WATER, AND LEACHATE MONITORING PROGRAM (2001-2002)
TRAIL RIDGE LANDFILL
JACKSONVILLE, FLORIDA

Dear Mr. Mathes:

In accordance with Specific Condition Number 41(v) of the Trail Ridge Landfill (TRLF) operating permit, Golder Associates Inc. (Golder) has prepared this report to document our review of the historical groundwater, surface water, and leachate data and present our recommendations regarding the adequacy of the existing monitoring program for the TRLF located in Jacksonville, Florida. In brief, it is our recommendation that the following be considered for the monitoring system:

1. Eliminate monitoring well MWB-11I from the sampling schedule. The well has consistently produced turbid samples and attempts to redevelop the well have not been successful.

2. Replace monitoring well MWB-11I with monitoring well MWB-11I(R) on the sampling schedule. While it does not produce non-turbid samples, samples from MWB-11I(R) are generally less turbid than samples from MWB-11I.

3. Consideration should be given to beginning a program of redeveloping select wells that are showing elevated turbidity levels and that have historically had more than one detected exceedance of the groundwater standard for lead. The wells recommended for redevelopment include MWB-13I, MWB-32I, and MWB-34I.

INTRODUCTION

The purpose of this report is to summarize and interpret the groundwater, surface water, and leachate quality data collected during the semi-annual sampling events that took place in 2001 and 2002 at the TRLF. The data reviewed for this biennial assessment was obtained during the routine semi-annual monitoring events that took place in January 2001, July 2001, January 2002, and June 2002. This report contains the data interpretation criteria specified in the Florida Administrative Code (FAC), Chapter 62-701 and in accordance with the site's operating permit (Number 0013493-002-SC), Specific Condition Number 41(v). The report includes:

Tables and graphs of the water quality data.

1) A comparison of water quality results between upgradient and downgradient wells and surface water points, a trend analysis of any parameters detected, and a summary of all exceedances of applicable water standards.

2) A comparison of shallow, intermediate, and deep zone wells.

3) A discussion of erratic and /or poorly correlated data.

4) An interpretation of the groundwater contour maps, including an evaluation of groundwater flow rates.

5) An evaluation of the adequacy of the water quality monitoring frequency and sample locations based upon site conditions.

6) A summary of the physical condition of the monitoring system based on visual observation and sampling records.

These criteria are addressed in interpreting the data from each of the groundwater monitoring wells, surface water sample points, and leachate samples collected at TRLF.

BACKGROUND

In preparing this report we have reviewed information that was provided either by Columbia Analytical Services, Inc. or Trail Ridge Landfill, Inc. and included:

- Groundwater, Surface Water, and Leachate Data from 2001 to 2002;
- Groundwater potentiometric maps and water level data from 2001 to 2002;
- Report entitled "Biennial Evaluation of Groundwater, Surface Water, and Leachate Monitoring Program (1999-2000), Trail Ridge Landfill, Jacksonville, Florida", (Golder, December 21, 2000); and
- Report entitled "Evaluation of Historical Data and Recommendations for Groundwater, Surface Water and Leachate Monitoring, Trail Ridge Landfill, Jacksonville, Florida", (Golder, September 26, 2002).

EXISTING MONITORING PROGRAM

Regulatory Requirements

In accordance with the permitting and monitoring requirements of Chapter 62-522.300, FAC, an installation discharging to groundwater may not cause a violation of the applicable water quality standards in the receiving groundwater at or beyond the prescribed zone of discharge (ZOD), as established by permit or rule. The allowable ZOD for Trail Ridge Landfill (TRLF) is defined in Specific Condition 41 of the site's operating permit. Specific Condition 41 states that the

horizontal ZOD shall be limited to 100 feet from the water management area; or to the property boundary; or to the shortest distance between the locations of the compliance monitoring wells and the waste management area; whichever is less.

Pursuant to water quality standards established by Chapter 62-520.420, Florida Administrative Code (FAC), and by Specific Condition 41 of the site permit, the reported groundwater and surface water data for TRLF is compared to the Florida Primary Drinking Water Standards (PDWS) and Secondary Drinking Water Standards (SDWS) as listed in Chapter 62-550, FAC. Concentrations above the applicable water standards have been noted in the semi-annual reports submitted to the FDEP in accordance with Specific Condition 41 of the permit.

Site Specific Program

This biennial groundwater quality assessment is designed to interpret two years of data, by comparing the data collected to background conditions, identifying when and where analytes have exceeded allowable standards, determining trends, discussing erratic data, and evaluating the adequacy of the monitoring program.

The monitoring parameters from each sample point were evaluated qualitatively and compared to background groundwater conditions. Analytes that have exceeded the applicable Florida Drinking Water Standards are discussed. Groundwater parameters with concentrations above laboratory detection limits are included in Table 1, surface water data in Table 2, and leachate data in Table 3.[1]

Groundwater

The groundwater monitoring wells sampled routinely (on a semi-annual basis) during 2001 and 2002 were as follows:

Location	Wells
Background	MWB-2S, MWB-2I MWB-3S, MWB-3I MWB-31D
Phase I	MWB-7S, MWB-7I, MWB-7D MWB-11S, MWB-11I, MWB-11IR MWB-12S, MWB-12I, MWB-12D MWB-19S, MWB-19I, MWB-19D MWB-20S MWB-21S MWB-22S
Phase II	MWB-17S, MWB-17I, MWB-17D
Phase III	MWB-13S, MWB-13I MWB-33S MWB-34S, MWB-34I, MWB-34D
Phase V	MWB-27S, MWB-27I, MWB-27D MWB-29S, MWB-29I, MWB-29D MWB-32S, MWB-32I, MWB-32D

[1] In accordance with the Site permit, leachate monitoring data is compared to the limits established under 40 CFR, Part 261.24.

There are a total of 33 compliance and detection wells and 5 background wells on site that are sampled (see Figure 1). The monitoring wells are installed around the perimeter of the landfill and are screened in three zones within the Surficial Aquifer (Shallow, Intermediate and Deep zones). By zone, there are 16 shallow wells, 13 intermediate wells, and 9 deep wells. The monitoring wells are sampled and analyzed semi-annually for the parameters listed in Appendix A. Samples are collected using dedicated bladder pumps (WellWizard®) after at least three well volumes are removed[2] and the pH, specific conductivity, dissolved oxygen and temperature readings have stabilized. The groundwater parameters include field measurements, inorganic indicator parameters, trace metals, and volatile organic compounds (VOCs). The sampling and analysis procedures are in conformance with Chapter 62-160, FAC and Chapter 62-522, FAC.

Surface Water

Surface water flow at the site mimics the topography, with runoff in a predominantly eastward direction and drainage features trending west-east. There are two surface water monitoring sites (designated SW-1 and SW-2). Monitoring location SW-1 is located in a wetland, approximately 200 feet east of the landfill's stormwater retention pond. Monitoring location SW-2 is located in a west-east trending drainage feature, approximately 500 feet north of the landfill. SW-2 is considered a background sampling location, since it does not receive run-off directly from the landfill area. In accordance with Chapter 62-701, FAC, surface water monitoring is performed on a semi-annual basis in conjunction with the groundwater monitoring schedule. Surface water sampling parameters are listed in Appendix A.

Leachate

The landfill leachate is sampled and analyzed semi-annually in conjunction with the groundwater and surface water sampling. Leachate collection pipes that lie on top of the primary liner terminate at the leachate collection sumps. Theses sumps also collect any leachate flowing along the secondary leak detection system. The sump is designed so that the leachate from the primary and secondary systems is separated. Therefore, it is necessary to have two pumps in each sump, one for the primary leachate collection system and one for the secondary leachate collection system.

The leachate is pumped from the sumps through primary and secondary force mains to six 20,000-gallon storage tanks. Tanks 1 through 5 (interconnected) receive the leachate collected from all of the primary leachate collection sumps via one force main. Tank 6 receives leachate that is pumped through a separate force main from the secondary leachate collection sumps. Previous sampling procedures required sampling of all six tanks. However, since tanks 1 through 5 contain the same leachate, sampling procedures were reduced during the last permit renewal for the Site (1997) to the collection of two (2) samples (one for the secondary leachate collection tank and one composite sample of the five primary leachate collection tanks). At the same frequency as the groundwater and surface water samples are collected (semi-annually), a composite sample from the primary leachate tanks is collected (sample designated LCS) and a sample of the secondary leachate from Tank 6 is collected (sample designated LDSS). The leachate samples collected are analyzed for a list of parameters consisting of metals, inorganics, VOCs, and indicator parameters (see Appendix A).

[2] It is noted that many of the monitoring wells are equipped with packers (PurgeMizers®) that prior to purging are inflated, thus effectively isolating the screened interval and reducing the overall well volume that is required to be purged.

EVALUATION OF HISTORICAL DATA

Hydraulic Evaluation

For the evaluation of hydraulics, Golder reviewed the groundwater contour maps dating from 2001 to 2002, which have been provided to the FDEP in semi-annual reports. The contour maps reviewed included separate maps for the shallow, intermediate and deep hydrogeologic zones (see Appendix B). This review process included examining the average gradient across the site, and on a well-by-well basis, determining groundwater flow direction at each of the wells that are located around the perimeter of the landfill and routinely monitored.

The average horizontal gradient across the site indicates that groundwater flow directions and gradients in the three zones are very similar, with the deep zone, on average, having a slightly flatter gradient than the intermediate and shallow zones. It is noted that this observation may at least partially be a result of having fewer data points for the deep zone, resulting in larger interpolations between data points than in the shallow zone. There were no obvious seasonal trends in gradient fluctuations.

As noted in previous reports, groundwater flow direction in all three zones is predominantly eastward. Current data reflects little change or variation in flow direction in any of the three zones.

Groundwater Quality

Table 1 summarizes water quality data for all 33 groundwater monitoring wells and 5 background wells, considering only those parameters for which recorded concentrations are above the laboratory detection limits. Values of those parameters above primary or secondary drinking water standards have been shaded. The most common exceedance of drinking water standards (in nearly every well) was that for total iron. Although the total iron values are high, no clear trend exists over the 2-year period (see Figure 2). For those locations and events when filtered samples were collected, dissolved iron exceeded the SDWS in only intermediate wells (MWB-19I, MWB-11I, MWB11IR, MWB-27I, and MWB-29I) (see Figure 3). Review of data since 1996, indicates that concentrations of iron are consistently above the SDWS in nearly all the monitoring wells sampled.

Values of pH consistently fell below the SDWS minimum of 6.5 standard units (s.u.) in all but seven wells. The higher pH values (within the SDWS range) corresponded with the deep zone wells. This difference, as noted in prior semi-annual reports and the "Evaluation of Historical Data and Recommendations Report" (Golder, September 2002),[3] can likely be explained by the different lithology in the deep zone (carbonate material), which can provide a buffering effect to the passing groundwater. The low pH values corresponding to the shallow wells (and to a lesser extent, the intermediate wells) are consistent with the surrounding soil in this region and can be explained by the local vegetative cover. A slight trend of increasing pH is possibly occurring in the MWB-17 Phase II wells (see Figure 4b). However, a review of pH data since 1996 suggests no significant trend of increasing pH levels over the 6-year period.

During the period of 2001 to 2002, the SDWS for color was exceeded during one or more sampling events in 20 of 38 wells sampled (see Figure 5). The color exceedances were encountered in 12 of the 16 shallow wells, 7 of the 13 intermediate wells and 1 of the 9 deep

[3] Included as part of the 2002 Permit Renewal Application for the Site.

wells. The groundwater at these locations is commonly tinted brown. As with the low pH, the most likely cause for this condition is tannic acid and humic material in the shallow soils. There is a distinction between shallow and intermediate color values. With the exception of the MWB-11 intermediate wells, the shallow wells appear to be consistently higher in color than the intermediate wells, as would be expected by presence of the shallow humic material.

Detections of total lead were reported in eight wells, but only one (MWB-11I) showed an exceedance of the PDWS of 0.015 mg/L (see Figure 6). All four sampling events for MWB-11I exceeded the standard, with an increasing trend. However, if the latest lead result (June 2002) was disregarded, no increasing trend is apparent. Other monitoring wells showed no trend. It is noted that MWB-11I had the highest lead concentration reported during the 2-year period (0.14 mg/L). However, when compared to MWB-11IR (the replacement well for MWB-11I) the concentration reported for that same sampling date (June 2002) was significantly lower (0.0069 mg/L). The most likely explanation for this difference was the elevated turbidity in the MWB-11I sample (872 NTU) versus the MWB-11IR sample (63.8 NTU).

MWB-11I had concentrations of chromium above the PDWS (0.1 mg/L). Chromium was detected above the PDWS during only one sampling event (June 2002, see Figure 7). As with lead, elevated levels of turbidity may account for this exceedance.

Vanadium, although not regulated by drinking water standards, exceeded the groundwater target cleanup level (GCTL - Chapter 62-777 F.A.C., Table I) of 0.049 mg/L in two wells (MWB-11I and MWB-11IR, see Figure 8). All four sampling events for MWB-11I exceeded the GCTL, while only the January 2002 event for MWB-11IR exceeded the GCTL. While MWB-11I shows an increasing trend, as with lead and chromium, this trend may be attributed to the elevated turbidity in the June 2002 sampling event.

Chloride, acetone, arsenic, sodium, sulfide, cobalt, nickel, beryllium, selenium, cadmium, zinc, copper and total and dissolved barium all had detections above the reportable limits, but below the drinking water standards. Chloride, barium and sodium were present in every well, while the others had more sporadic appearances. Several, including acetone, arsenic, cobalt, cyanide and selenium were found in only one sample each. Barium appeared to show a slight increasing trend in MWB-11S, -20S, -19I, -11I and -33S; however, none of the other parameters displayed any obvious trends.

Methylene chloride was the only VOC detected (in MWB-34D and MWB-27S) during the 2001 to 2002 semi-annual sampling events. For MWB-27S, the PMCL was exceeded for methylene chloride only in July 2001. These detections are considered likely to be laboratory artifacts.

Surface Water

Table 2 summarizes the data from the two surface water monitoring locations, considering only those parameters for which recorded concentrations are above the laboratory detection limits. With the exception of copper, iron, lead, and fecal coliform, all detections were within the Class III surface water standards. Of these constituents, fecal coliform was the most commonly noted exceedance (3 times during the two-year period), followed by copper, iron, and lead (2 times during the two-year period). As these constituents have been historically detected in both upgradient and downgradient monitoring locations, they are not considered to be caused by the landfill.

Leachate

In accordance with Specific Condition #44 of the Operating Permit, the results of toxicity characteristic leaching procedure (TCLP) testing of leachate samples are compared to the regulatory limits listed in 40 CFR, Part 261.24. A review of the TCLP data indicates that there were no parameters detected in excess of the limits established by this regulation between 2001 and 2002.

Table 3 summarizes the 2001 to 2002 semi-annual data for the leachate samples retrieved from the primary (LCS) and secondary (LDSS) sump storage tanks analyzed by toxicity leaching test procedure (TCLP) analyses and compared to the standards outlined in 40 CFR, Part 261.24. Concentration vs. time plots for some of the detected constituents are included in Figures 11 and 12. It should be noted that some of the variations in the plots are related to non-detect results that are assigned a value equivalent to one-half the method detection limit (MDL). From event to event, the MDL for a given parameter changes due to laboratory dilutions and/or matrix interferences.

CONCLUSIONS AND RECOMMENDATIONS

Groundwater

The groundwater flow directions and gradients have been consistent during the last two years of operation. Flow directions in all three zones of the surficial aquifer that are monitored (shallow, intermediate, and deep) are predominantly eastward. The wells along the west (up-gradient) side appear to provide adequate background data and the wells along the east (down-gradient) side of the landfill provide adequate coverage. The presence of an upward hydraulic gradient along the east edge of the landfill provides additional assurance that any possible release from the landfill would be detected by wells screened in the three zones monitored at the site.

Background monitoring well data suggests that exceedances of the SDWS for iron, color, and pH are related to the natural groundwater quality conditions of the area. Additionally, sodium and chloride were detected over the laboratory detection limits in background wells and must also be considered as natural groundwater constituents in this area. There is no apparent trend (either increasing or decreasing) with any of the above constituents in the wells, further indicating a relatively stable background groundwater quality condition. Comparison of available data suggests, that with the exception of the MWB-11 intermediate wells (influenced to a great extent by high turbidity levels - see discussion below), background/upgradient and downgradient groundwater quality is very similar.

Noted elevated color levels and lower pH values in many of the groundwater wells over time are not likely indicative of a landfill influence. Lower pH and higher color values in the shallow zone are likely the result of high levels of tannic acid and humic material in the shallow soils. As noted above, low pH values (below the SDWS) and high color values are consistent with values presented in previous semi-annual reports and are not considered to be a major concern.

In general, there were no significant trends for the analyzed parameters, with the possible exception of barium. Although there were no drinking water exceedances, barium was detected in almost every monitoring well in the last 2 years. Historical data since 1996 indicates that with some exceptions barium detections began in January 2000; however, this increasing trend may be

the result of changing background conditions, since background well data also suggests that, with some exceptions, detections began in January 2000 (See Table 1).

Review of the historical data since 1996 has indicated no detections of methylene chloride. Methylene chloride is often associated with field or laboratory artifacts, and is therefore not believed to be related to the Site.

Monitoring well MWB-11I had the greatest number of exceedances of PDWS (lead and chromium) in addition to exceedances of SDWS for pH, color, and iron. There appears to be a generally increasing trend in the concentrations of these constituents in MWB-11I. However, as noted in the 2000-2001 biennial report, there has been a high degree of field turbidity with suspended solids contributing to metal exceedances. This trend has continued during the 2001 to 2002 sampling period.

Comparison Between MWB-11I and MWB-11IR

The table below indicates the differences in parameter concentrations between MWB-11I and replacement well MWB-11IR, taken during the June 2002 sampling event. Included is the turbidity value for each sample. The table shows consistently higher metals concentrations for the more turbid sample.

Parameter	MWB-11I	MWB-11IR
Turbidity (NTU)	872	63.8
Iron (mg/L)	7.8	1.2
Lead (mg/L)	0.14	0.0069
Chromium (mg/L)	0.16	ND
Sodium (mg/L)	3.3	3.0
Vanadium (mg/L)	0.18	0.027

Repeated efforts to redevelop MWB-11I have failed to lower the elevated turbidity levels. MWB-11IR was installed near MWB-11I, but slightly above a narrow silty clay layer that was intersecting the MWB-11I screen. Three subsequent sampling efforts have provided comparative data to suggest that both groundwater sampling points consistently produce analyses with similar metals, but the replacement well, with much lower turbidity, produces significantly reduced concentrations. Although turbidity levels remain higher than desired, the depth of the replacement well above the silt unit, gives a more accurate indication of intermediate depth groundwater in the vicinity of the MWB-11 well cluster (see Figure 13).

PDWS Exceedances

The table below summarizes the parameters and associated wells where exceedances of Florida's PDWS have occurred. Considering the regional groundwater quality of the surficial aquifer, exceedances of pH, color, and iron standards (which are SDWS constituents) have been excluded from the table.

Well	January 2001	July 2002	January 2002	June 2002
MWB-11I	Pb	Pb	Pb	Pb, Cr
MWB-27S		Meth. Chloride		

As noted previously, the detection of metals in MWB-11I is attributed to, in part, the continued high turbidity and suspended solids contained in groundwater samples from this well.

Comparisons Between Shallow, Intermediate and Deep Wells

The monitoring wells sampled at TRLF are screened in one of three monitoring zones (shallow, intermediate and deep). The shallow zone is most susceptible to meteorological changes, and as such, shows slightly more variability seasonally. Low pH values in the shallow zone (<5) and higher color values are consistent with greater influence of tannic acid, as noted previously. The deep zone pH (generally >6) reflects the buffering effect of the carbonate lithology, while the intermediate zone pH is between that of the shallow and the deep. As is apparent in the above summary table, the intermediate zone contained higher concentrations of metals than either the shallow or deep zone. Higher metal concentrations generally correspond to higher turbidity levels for the intermediate wells (specifically MWB-11I and MWB-11IR) and higher total dissolved solids values for the deep zones.

Surface Water

The surface water data reviewed indicates that there have not been any significant impacts to surface water quality as a result of the landfill's presence. Arsenic, barium, copper, lead, nickel, chromium, phosphorus and chlorophyll A were detected over the laboratory detection limit, but did not exceed the surface water standards, where applicable. Iron and pH were above (below for pH) their respective SDWS, which is consistent with the groundwater results. Fecal coliform peaked to between 500 and 600 per 100 milliliters (per 100 mL) in July 2001. Fecal coliform is consistently detected at concentrations of 100 per 100 mL or lower. This unusually high concentration (but still below the Class III, recreation standard for surface water) may be the result of a rainstorm just prior to sampling and/or the presence of an unusually large number of birds in the area. Other detections seem consistent with local soil conditions (see Table 2).

Leachate

Concentrations for leachate parameters have been relatively consistent throughout each groundwater event. The only noted variation is the presence of two VOCs in the latest sampling event. It should noted that, while the permit requires the leachate samples to be analyzed with detection limits at or below groundwater standards, the criteria for evaluating the data are the standards established under 40 CFR Part 261.24. During the 2001-2002 reporting period, there were no exceedances of the standards established under 40 CFR Part 261.24.

Summary of the Physical Condition of the Monitoring System

With the exception of MWB-11I, indications are that the monitoring system is working properly. Elevated metal concentrations and turbidity in MWB-11I suggest a continuing suspended solids problem, which is likely the result of the screened interval intersected a silty clay unit. The latest three sampling efforts have included both MWB-11I and MWB-11IR. The resulting data has indicated a drastic reduction in turbidity (although still above 20 NTU) and a significant associated reduction in metals concentrations. As indicated in September 2002, Golder report, Golder recommends to eliminate monitoring well MWB-11I from the sampling schedule and replace it with monitoring well MWB-11IR.

The issue of high turbidity levels should be addressed by redevelopment. Some of the wells are over 10 years old and have likely accumulated fines (silt- and clay-sized particles) in their filter packs. Consideration should be given to beginning a program of redeveloping select wells that are showing elevated turbidity levels and that have had more than one detected exceedance of the

groundwater standard for lead. The wells recommended for redevelopment include MWB-13I, MWB-32I, and MWB-34I. If the redevelopment proves successful it should be expanded to those other wells that are producing turbid samples.

The current monitoring well distribution, including location and screened intervals, provide adequate coverage of the landfill. Visual observation indicates no need for change to the existing monitoring system, with the exception of the above noted.

If you have any questions or comments regarding this report, please call.

Sincerely,

GOLDER ASSOCIATES INC.

Richard Poff
Staff Hydrogeologist

Kenneth B. Karably, P.G.
Principal

Attachments

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TABLES AND FIGURES

Table 1

SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER
PERMIT RENEWAL WATER QUALITY DATA REPORT

TRAIL RIDGE LANDFILL
BALDWIN, FLORIDA

Well	Component	PMCL	SMCL	Jan-01	Jul-01	Jan-02	Jun-02
Phase 1		(mg/L)	(mg/L)*	(mg/L)	(mg/L)	(mg/L)	(mg/L)
MWB-19S	pH		6.5-8.5	**4.64**	**4.46**	**5.09**	**5.17**
	Dissolved Oxygen	--	--	**1.6**	**1.8**	**0.8**	**0.9**
	Specific Conductance	--	--	**92**	**86**	**124**	**130**
	Color		15	**20**	**30**	**150**	NS
	Total Dissolved Solids		500	**62**	**69**	**62**	**98**
	Chloride		250	**11.8**	**11**	**11**	**13**
	Iron - Total		0.3	**1.1**	**1.1**	**0.26**	**0.21**
	Lead - Total	0.015		<0.002	**0.0026**	<0.002	<0.001
	Chromium - Total	0.1		<0.005	<0.03	<0.02	<0.03
	Nickel - Total	0.1		<0.005	0.014	<0.05	<0.002
	Nitrogen as Ammonia	--	--	**0.26**	**0.26**	**0.26**	**0.22**
	Sodium - Total	160		**5.6**	**6.6**	**5.9**	**6.3**
	Sulfide			NS	NS	NS	**1.1**
	Vanadium - Total	--	--	<0.004	<0.004	<0.01	<0.01
	Zinc - Total		5	<0.02	<0.03	<0.03	<0.03
	Beryllium - Total	0.004		<0.0020	<0.003	<0.002	<0.001
	Cadmium - Total	0.005		<0.0010	<0.001	<0.001	<0.0005
	Barium - Total	2		**0.034**	**0.027**	**0.012**	<0.01
	Disolved Iron		0.3	NS	NS	NS	NS
	Dissolved Barium	2		NS	NS	NS	NS
	Dissolved Lead	0.015		NS	NS	NS	NS
MWB-11S	pH		6.5-8.5	**4.07**	**4.09**	**4.13**	**4.44**
	Dissolved Oxygen	--	--	**1.3**	**1.5**	**1.4**	**1.5**
	Specific Conductance	--	--	**91**	**115**	**233**	**189**
	Color		15	**5**	**5**	**5**	NS
	Total Dissolved Solids		500	**44**	**47**	**130**	**100**
	Chloride		250	**11.8**	**12**	**24**	**19**
	Iron - Total		0.3	**0.2**	**0.68**	**1.2**	**1.6**
	Lead - Total	0.015		<0.002	<0.002	<0.002	<0.005
	Chromium - Total	0.1		<0.005	<0.03	<0.005	<0.03
	Nitrogen as Ammonia	--	--	**0.03**	<0.1	**0.11**	<0.1
	Sodium - Total	160		**5.4**	**6.4**	**12**	**9.6**
	Sulfide			NS	NS	NS	**1.2**
	Vanadium - Total	--	--	<0.004	<0.004	<0.01	<0.01
	Zinc - Total		5	<0.02	<0.03	<0.03	<0.03
	Beryllium - Total	0.004		<0.0020	<0.003	<0.002	<0.0025
	Cadmium - Total	0.005		<0.0010	<0.001	<0.001	<0.0025
	Barium - Total	2		**0.03**	**0.035**	**0.045**	**0.065**
	Dissolved Iron		0.3	NS	NS	NS	NS
	Dissolved Barium	2		NS	NS	NS	NS
	Dissolved Lead	0.015		NS	NS	NS	NS

Notes:
* Except pH and color
ND - Parameter not detected at concentrations above the laboratory detection limit
NS - Not sampled
NA - Not available
Bold - Above laboratory detection limits
Shaded - Above Florida regulated limits for drinking water standards (Primary or Secondary) as under Chapter 62-550 F.A.C.
PMCL - Primary Drinking Water Standards
SMCL - Secondary Drinking Water Standards

Table 1

SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER
PERMIT RENEWAL WATER QUALITY DATA REPORT

TRAIL RIDGE LANDFILL
BALDWIN, FLORIDA

Well	Component	PMCL	SMCL	Jan-01	Jul-01	Jan-02	Jun-02
Phase 1		(mg/L)	(mg/L)*	(mg/L)	(mg/L)	(mg/L)	(mg/L)
MWB-12S	pH		6.5-8.5	**5.71**	**4.73**	**5.16**	**5.45**
	Dissolved Oxygen	--	--	**1.9**	**1.7**	**2.3**	**2.3**
	Specific Conductance	--	--	**99**	**90**	**85**	**91**
	Color		15	**100**	**150**	**75**	NS
	Total Dissolved Solids		500	**62**	**70**	**62**	**94**
	Chloride		250	**9.6**	**9.8**	**5.1**	**10**
	Iron - Total		0.3	**0.13**	**0.14**	**0.11**	**0.1**
	Lead - Total	0.015		<0.002	<0.002	<0.002	<0.001
	Chromium - Total	0.1		<0.005	<0.005	<0.03	<0.03
	Nitrogen as Ammonia	--	--	**0.39**	**0.44**	**0.26**	<0.1
	Sodium - Total	160		**4.1**	**4.4**	**3.1**	**3.4**
	Sulfide			NS	NS	NS	**1.4**
	Vanadium - Total	--	--	<0.004	<0.045	<0.01	<0.01
	Zinc - Total		5	<0.02	<0.1	<0.03	<0.03
	Beryllium - Total	0.004		<0.0020	<0.002	<0.002	<0.001
	Cadmium - Total	0.005		<0.0010	<0.001	<0.001	<0.0005
	Barium - Total	2		**0.0055**	**0.0067**	<0.01	<0.01
	Dissolved Iron		0.3	NS	NS	NS	NS
	Dissolved Barium	2		NS	NS	NS	NS
	Dissolved Lead	0.015		NS	NS	NS	NS
MWB-20S	pH		6.5-8.5	**4.00**	**4.26**	**3.95**	**4.19**
	Dissolved Oxygen	--	--	**1.2**	**1.1**	**0.9**	**0.9**
	Specific Conductance	--	--	**152**	**140**	**190**	**191**
	Color		15	<5	**5**	**20**	
	Total Dissolved Solids		500	**59**	**82**	**68**	**130**
	Chloride		250	**16.7**	**7.3**	**14**	**17**
	Iron - Total		0.3	**0.72**	**0.74**	**0.51**	**0.49**
	Lead - Total	0.015		<0.002	<0.002	<0.002	<0.001
	Chromium - Total	0.1		<0.005	<0.03	<0.02	<0.03
	Copper - Total		1	**0.0091**	<0.005	<0.025	
	Nitrogen as Ammonia	--	--	**0.46**	**0.66**	**0.68**	**1.1**
	Sodium - Total	160		**8.1**	**8.5**	**8.4**	**9.41**
	Vanadium - Total	--	--	<0.004	<0.004	<0.01	<0.01
	Zinc - Total		5	<0.02	<0.03	<0.03	<0.03
	Beryllium - Total	0.004		<0.0020	<0.003	<0.002	<0.001
	Cadmium - Total	0.005		<0.0010	<0.001	<0.001	<0.0005
	Barium - Total	2		**0.046**	**0.041**	**0.047**	**0.053**
	Dissolved Iron		0.3	NS	NS	NS	NS
	Dissolved Barium	2		NS	NS	NS	NS
	Dissolved Lead	0.015		NS	NS	NS	NS

Notes:
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ND - Parameter not detected at concentrations above the laboratory detection limit
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Table 1

SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER
PERMIT RENEWAL WATER QUALITY DATA REPORT

TRAIL RIDGE LANDFILL
BALDWIN, FLORIDA

Well	Component	PMCL	SMCL	Jan-01	Jul-01	Jan-02	Jun-02
Phase 1		(mg/L)	(mg/L)*	(mg/L)	(mg/L)	(mg/L)	(mg/L)
MWB-22S	pH		6.5-8.5	**5.16**	**5.04**	**5.08**	
	Dissolved Oxygen	--	--	**1.4**	**1.3**	**1.8**	
	Specific Conductance	--	--	**101**	**71**	**122**	
	Color		15	**50**	**100**	**25**	
	Total Dissolved Solids		500	**47**	**72**	**83**	
	Chloride		250	**9.17**	**3.9**	**8.2**	
	Iron - Total		0.3	**0.24**	**0.12**	**0.23**	
	Lead - Total	0.015		<0.002	<0.002	<0.002	
	Chromium - Total	0.1		<0.005	<0.005	<0.03	
	Nitrogen as Ammonia	--	--	**0.39**	**0.24**	**0.36**	
	Sodium - Total	160		**5.1**	**3.6**	**5.4**	
	Vanadium - Total	--	--	<0.004	<0.045	<0.01	
	Zinc - Total		5	<0.02	<0.1	<0.03	
	Beryllium - Total	0.004		<0.0020	<0.002	<0.002	
	Cadmium - Total	0.005		<0.0010	<0.001	<0.001	
	Barium - Total	2		**0.0078**	**0.0055**	<0.01	
	Dissolved Iron		0.3	NS	NS	NS	
	Dissolved Barium	2		NS	NS	NS	
	Dissolved Lead	0.015		NS	NS	NS	
MWB-7S	pH		6.5-8.5	NA	**4.71**	**4.69**	**4.17**
	Dissolved Oxygen	--	--	NA	1.5	1	1.7
	Specific Conductance	--	--	NA	120	127	89
	Color		15	**20**	**20**	**220**	NS
	Total Disolved Solids		500	**80**	**79**	**77**	**62**
	Chloride		250	**11.8**	**11**	**11**	**10**
	Iron - Total		0.3	**0.28**	**0.28**	**0.32**	**0.28**
	Lead - Total	0.015		<0.002	<0.002	<0.002	<0.001
	Chromium - Total	0.1		<0.005	<0.03	<0.02	<0.03
	Nitrogen as Ammonia	--	--	**1.2**	**1.6**	**0.66**	<0.1
	Sodium - Total	160		**6.7**	**7.5**	**6.2**	**6.1**
	Vanadium - Total	--	--	<0.004	<0.004	<0.01	<0.01
	Zinc - Total		5	<0.02	<0.03	<0.03	<0.03
	Beryllium - Total	0.004		<0.0020	<0.003	<0.002	<0.001
	Cadmium - Total	0.005		<0.0010	<0.001	<0.001	<0.0005
	Barium - Total	2		**0.0091**	**0.0099**	**0.015**	<0.01
	Disolved Iron		0.3	NS	NS	NS	NS
	Disolved Barium	2		NS	NS	NS	NS
	Disolved Lead	0.015		NS	NS	NS	NS

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PERMIT RENEWAL WATER QUALITY DATA REPORT

TRAIL RIDGE LANDFILL
BALDWIN, FLORIDA

Well	Component	PMCL	SMCL	Jan-01	Jul-01	Jan-02	Jun-02
Phase 1		(mg/L)	(mg/L)*	(mg/L)	(mg/L)	(mg/L)	(mg/L)
MWB-21S	pH		6.5-8.5	**4.51**	**4.38**	**4.88**	**5.01**
	Dissolved Oxygen	--	--	**1.3**	**1.2**	**1**	**1**
	Specific Conductance	--	--	**46**	**49**	**159**	**49**
	Color		15	**20**	**50**	**75**	NS
	Total Disolved Solids		500	**26**	**32**	**110**	**54**
	Chloride		250	**7.53**	**6.7**	**9.2**	**6.7**
	Iron - Total		0.3	**0.63**	**0.74**	**1.1**	**0.74**
	Lead - Total	0.015		<0.002	<0.002	<0.002	<0.005
	Chromium - Total	0.1		<0.03	<0.02	<0.03	<0.03
	Nitrogen as Ammonia	--	--	**0.05**	<0.1	**0.15**	<0.1
	Sodium - Total	160		**3.4**	**3.5**	**4.9**	**3.3**
	Sulfide			NS	NS	NS	**1**
	Vanadium - Total	--	--	<0.004	<0.004	<0.01	<0.01
	Zinc - Total		5	<0.02	<0.03	<0.03	<0.03
	Beryllium - Total	0.004		<0.0020	<0.003	<0.002	<0.0025
	Cadmium - Total	0.005		<0.010	<0.001	<0.001	<0.0025
	Barium - Total	2		**0.025**	**0.025**	**0.074**	**0.028**
MWB-19I	pH		6.5-8.5	**4.92**	**4.56**	**4.97**	**5.21**
	Dissolved Oxygen	--	--	**1.6**	**1.5**	**0.9**	**0.9**
	Specific Conductance	--	--	**44**	**38**	**44**	**39**
	Color		15	**30**	**150**	**50**	NS
	Total Disolved Solids		500	**47**	**55**	**48**	**44**
	Chloride		250	**6.42**	**5.8**	**5.7**	**5.4**
	Iron - Total		0.3	**0.94**	**1.1**	**0.89**	**0.96**
	Lead - Total	0.015		**0.0022**	**0.0025**	<0.002	**0.0024**
	Chromium - Total	0.1		<0.005	<0.03	<0.02	<0.03
	Cobalt	--	--	**0.0043**	**0.0036**	<0.03	<0.05
	Nickel - Total	0.1		**0.006**	**0.0056**	**0.0072**	**0.0072**
	Nitrogen as Ammonia	--	--	**0.03**	<0.1	<0.1	<0.1
	Sodium - Total	160		**3.4**	**3.5**	**3.5**	**3.3**
	Vanadium - Total	--	--	**0.0067**	**0.0062**	<0.01	<0.01
	Cadmium - Total	0.005		**0.0012**	**0.0013**	**0.0012**	**0.0011**
	Barium - Total	2		**0.098**	**0.09**	**0.098**	**0.092**
	Disolved Sodium	160		**3.6**	**3.5**	**4**	**4.7**
	Disolved Iron		0.3	**0.45**	**0.4**	**0.47**	**0.62**
	Disolved Copper		1	<0.005	<0.005	<0.025	<0.025
	Disolved Barium	2		**0.046**	**0.047**	**0.054**	**0.072**
	Disolved Lead	0.015		<0.002	<0.002	<0.002	<0.001

Notes:
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Table 1

SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER
PERMIT RENEWAL WATER QUALITY DATA REPORT

TRAIL RIDGE LANDFILL
BALDWIN, FLORIDA

Well	Component	PMCL	SMCL	Jan-01	Jul-01	Jan-02	Jun-02
Phase 1		(mg/L)	(mg/L)*	(mg/L)	(mg/L)	(mg/L)	(mg/L)
MWB-11I	pH		6.5-8.5	**5.07**	**4.79**	**5.30**	**5.11**
	Dissolved Oxygen	--	--	**0.9**	**1.1**	**1.8**	**1.9**
	Specific Conductance	--	--	**41**	**44**	**47**	**39**
	Turbidity			**1000**	**851**	**744**	**872**
	Color		15	**75**	**500**	**250**	NS
	Total Dissolved Solids		500	**91**	**84**	**73**	**95**
	Chloride		250	**9.02**	**5.4**	**5**	**7.6**
	Iron - Total		0.3	**2**	**2.2**	**1.9**	**7.8**
	Lead - Total	0.015		**0.04**	**0.04**	**0.05U(a)**	**0.14**
	Chromium - Total	0.1		**0.039**	**0.0062**	**0.1U(a)**	**0.16**
	Nitrogen as Ammonia	--	--	**0.05**	<0.1	<0.1	<0.1
	Sodium - Total	160		**3.2**	**3.8**	**3.7**	**3.3**
	Sulfide			NS	NS	NS	**1.4**
	Vanadium - Total**	--	--	**0.052**	**0.049**	**0.072**	**0.18**
	Zinc - Total		5	<0.02	<0.03	<0.03	<0.03
	Beryllium - Total	0.004		**0.0021**	**0.004**	**0.04U(a)**	<0.0025
	Cadmium - Total	0.005		<0.0010	<0.0010	**0.2U(a)**	<0.0025
	Barium - Total	2		**0.3**	**0.29**	**0.27**	**0.68**
	Dissolved Sodium	160		**3.2**	**3.7**	**3.7**	**3.6**
	Dissolved Iron		0.3	**0.42**	**0.45**	**0.5**	**1.7**
	Dissolved Barium	2		**0.045**	**0.0051**	**0.054**	**0.19**
	Dissolved Lead	0.015		<0.002	<0.002	**0.006**	<0.002
MWB-11IR	pH		6.5-8.5		**4.72**	NA	**5.22**
	Dissolved Oxygen	--	--		**1.2**	NA	**1.8**
	Specific Conductance	--	--		**39**	NA	**37**
	Turbidity				**130.3**	NA	**63.8**
	Color		15		**500**	**500**	NS
	Total Dissolved Solids		500		**48**	**60**	**67**
	Chloride		250		**5.9**	**5.4**	**5.3**
	Iron - Total		0.3		**1.5**	**2.0**	**1.2**
	Lead - Total	0.015			**0.0097**	**0.014**	**0.0069**
	Chromium - Total	0.1			<0.03	**0.029**	<0.03
	Sodium - Total	160			**3.3**	**3.3**	**3**
	Sulfide				NS	NS	**1.3**
	Vanadium - Total**	--	--		**0.037**	**0.052**	**0.027**
	Barium - Total	2			**0.073**	**0.097**	**0.06**
	Dissolved Sodium	160			**3.4**	**3.4**	**3.5**
	Dissolved Iron		0.3		**0.66**	**0.49**	**0.39**
	Dissolved Barium	2			**0.022**	**0.028**	**0.024**
	Dissolved Lead	0.015			**0.0097**	**0.014**	**0.0069**

Notes:
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** Vanadium compared to Groundwate Cleanup Target Level of 0.049 mg/L
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Table 1

SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER
PERMIT RENEWAL WATER QUALITY DATA REPORT

TRAIL RIDGE LANDFILL
BALDWIN, FLORIDA

Well	Component	PMCL	SMCL	Jan-01	Jul-01	Jan-02	Jun-02
Phase 1		(mg/L)	(mg/L)*	(mg/L)	(mg/L)	(mg/L)	(mg/L)
MWB-12I	pH		6.5-8.5	**5.27**	**5.00**	**5.20**	**5.26**
	Dissolved Oxygen	--	--	**0.9**	**0.9**	**1**	**1**
	Specific Conductance	--	--	**56**	**41**	**50**	**40**
	Color		15	**5**	<5	**5**	NS
	Total Dissolved Solids		500	**40**	**49**	**46**	**59**
	Chloride		250	**5.41**	**5.5**	**5.4**	**5.1**
	Iron - Total		0.3	**0.38**	**0.44**	**0.4**	**0.42**
	Lead - Total	0.015		<0.002	<0.002	<0.002	<0.001
	Chromium - Total	0.1		<0.005	<0.005	<0.03	<0.03
	Nitrogen as Ammonia	--	--	**0.06**	<0.1	<0.1	<0.1
	Sodium - Total	160		**3.1**	**3.2**	**3.3**	**3.48**
	Sulfide			NS	NS	NS	**1.6**
	Vanadium - Total	--	--	<0.004	<0.045	<0.01	<0.01
	Zinc - Total		5	<0.02	<0.1	<0.03	<0.03
	Beryllium - Total	0.004		<0.0020	<0.002	<0.002	<0.001
	Cadmium - Total	0.005		<0.0010	<0.001	<0.001	<0.0005
	Barium - Total	2		**0.047**	**0.049**	**0.052**	**0.053**
	Dissolved Iron		0.3	NS	NS	NS	NS
	Dissolved Lead	0.015		NS	NS	NS	NS

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SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER
PERMIT RENEWAL WATER QUALITY DATA REPORT

TRAIL RIDGE LANDFILL
BALDWIN, FLORIDA

Well	Component	PMCL	SMCL	01/31/01	07/18/01	01/16/02	06/26/02
Phase 1		(mg/L)	(mg/L)*	(mg/L)	(mg/L)	(mg/L)	(mg/L)
MWB-7I	pH		6.5-8.5	**5.14**	**4.95**	**5.05**	**5.11**
	Dissolved Oxygen	--	--	**1.3**	**1.2**	**0.8**	**0.7**
	Specific Conductance	--	--	**51**	**44**	**49**	**43**
	Color		15	<5	<5	**5**	NS
	Total Dissolved Solids		500	**39**	**51**	**30**	**35**
	Chloride		250	**5.74**	**5.4**	**5.3**	**5.8**
	Iron - Total		0.3	**0.36**	**0.38**	**0.39**	**0.36**
	Lead - Total	0.015		<0.002	<0.002	<0.002	<0.001
	Chromium - Total	0.1		<0.005	<0.03	<0.02	<0.03
	Nitrogen as Ammonia	--	--	**0.03**	<0.1	<0.1	<0.1
	Sodium - Total	160		**3.2**	**3.2**	**3.3**	**3.2**
	Vanadium - Total	--	--	<0.004	<0.004	<0.01	<0.01
	Zinc - Total		5	<0.02	<0.03	<0.03	<0.03
	Beryllium - Total	0.004		<0.0020	<0.003	<0.002	<0.001
	Cadmium - Total	0.005		<0.0010	<0.001	<0.001	<0.0005
	Barium - Total	2		**0.055**	**0.053**	**0.057**	**0.051**
	Dissolved Iron		0.3	NS	NS	NS	NS
	Dissolved Barium	2		NS	NS	NS	NS
	Dissolved Lead	0.015		NS	NS	NS	NS
MWB-19D	pH		6.5-8.5	**7.11**	**4.85**	**6.84**	**6.91**
	Dissolved Oxygen	--	--	**1.3**	**2.2**	**0.7**	**0.6**
	Specific Conductance	--	--	**362**	**68**	**378**	**351**
	Color		15	**20**	**10**	**25**	NS
	Total Disolved Solids		500	**202**	**194**	**210**	**200**
	Chloride		250	**4.85**	**4.7**	**4.3**	**4.4**
	Arsenic - Total	0.05		<0.005	<0.005	<0.005	**0.003**
	Iron - Total		0.3	**3.3**	**3.7**	**2.4**	**2.4**
	Lead - Total	0.015		<0.002	<0.002	<0.002	**0.0012**
	Chromium - Total	0.1		<0.005	<0.03	<0.02	<0.03
	Nickel - Total	0.1		<0.005	**0.0059**	<0.05	**0.0037**
	Nitrogen as Ammonia	--	--	**0.11**	**0.11**	**0.16**	<0.1
	Sodium - Total	160		**4.3**	**4.6**	**4.7**	**4.4**
	Sulfide			NS	NS	NS	**1.0**
	Vanadium - Total	--	--	**0.0089**	**0.01**	<0.01	**0.01**
	Zinc - Total		5	<0.02	<0.03	<0.03	<0.03
	Beryllium - Total	0.004		<0.0020	<0.003	<0.002	<0.001
	Cadmium - Total	0.005		<0.0010	<0.001	<0.001	<0.0005
	Barium - Total	2		**0.11**	**0.11**	**0.11**	**0.1**
	Disolved Iron		0.3	NS	NS	NS	NS
	Disolved Barium	2		NS	NS	NS	NS
	Disolved Lead	0.015		NS	NS	NS	NS

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BALDWIN, FLORIDA

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Phase 1		(mg/L)	(mg/L)*	(mg/L)	(mg/L)	(mg/L)	(mg/L)
MWB-12D	pH		6.5-8.5	**6.91**	**6.74**	**6.85**	**6.87**
	Dissolved Oxygen	--	--	**0.9**	**0.8**	**0.8**	**0.8**
	Specific Conductance	--	--	**432**	**415**	**399**	**388**
	Color		15	**15**	**15**	**15**	NS
	Total Dissolved Solids		500	**191**	**220**	**210**	**260**
	Chloride		250	**4.84**	**4.6**	**4.1**	**4.2**
	Iron - Total		0.3	**0.73**	**0.66**	**0.92**	**0.67**
	Lead - Total	0.015		<0.002	<0.002	<0.002	<0.001
	Chromium - Total	0.1		<0.005	<0.005	**0.042**	<0.03
	Nitrogen as Ammonia	--	--	**0.15**	**0.17**	**0.22**	<0.1
	Nickel	0.1		**0.0095**	<0.005	<0.05	<0.002
	Sodium - Total	160		**5.3**	**4.9**	<0.1	**5.7**
	Sulfide			NS	NS	NS	**1.1**
	Vanadium	--	--	<0.004	<0.045	<0.01	<0.01
	Zinc - Total		5	<0.02	<0.1	<0.03	<0.03
	Beryllium - Total	0.004		<0.0020	<0.002	<0.002	<0.001
	Cadmium - Total	0.005		<0.0010	<0.001	<0.001	<0.0005
	Barium - Total	2		**0.11**	**0.12**	**0.11**	**0.11**
	Dissolved Iron		0.3	NS	NS	NS	NS
	Dissolved Barium	2		NS	NS	NS	NS
	Dissolved Lead	0.015		NS	NS	NS	NS
MWB-7D	pH		6.5-8.5	**7.47**	**6.79**	**6.98**	**6.84**
	Dissolved Oxygen	--	--	**1.0**	**0.9**	**0.6**	**0.6**
	Specific Conductance	--	--	**339**	**365**	**353**	**345**
	Color		15	**5**	**5**	**10**	NS
	Total Dissolved Solids		500	**183**	**180**	**180**	**190**
	Chloride		250	**4.78**	**4.3**	**4.6**	**4**
	Iron - Total		0.3	**0.27**	**0.33**	**0.31**	**0.29**
	Lead - Total	0.015		<0.002	<0.002	<0.002	<0.001
	Chromium - Total	0.1		<0.005	<0.03	<0.02	<0.03
	Nitrogen as Ammonia	--	--	**0.13**	**0.13**	**0.17**	<0.1
	Sodium - Total	160		**4.6**	**4.8**	**4.6**	**4.4**
	Vanadium	--	--	<0.004	<0.004	<0.01	<0.01
	Zinc - Total		5	<0.02	<0.03	<0.03	<0.03
	Beryllium - Total	0.004		<0.0020	<0.003	<0.002	<0.001
	Cadmium - Total	0.005		<0.0010	<0.001	<0.001	<0.0005
	Barium - Total	2		**0.076**	**0.075**	**0.079**	**0.072**
	Dissolved Iron		0.3	NS	NS	NS	NS
	Dissolved Barium	2		NS	NS	NS	NS
	Dissolved Lead	0.015		NS	NS	NS	NS

Notes:
* Except pH and color
ND - Parameter not detected at concentrations above the laboratory detection limit
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Table 1

SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER
PERMIT RENEWAL WATER QUALITY DATA REPORT

TRAIL RIDGE LANDFILL
BALDWIN, FLORIDA

Well	Component	PMCL	SMCL	Jan-01	Jul-01	Jan-02	Jun-02
Phase 2		(mg/L)	(mg/L)*	(mg/L)	(mg/L)	(mg/L)	(mg/L)
MWB-17S	pH		6.5-8.5	**5.01**	**5.09**	**4.87**	**5.17**
	Dissolved Oxygen	--	--	**1.8**	**1.9**	**1.8**	**1.7**
	Specific Conductance	--	--	**105**	**136**	**70**	**89**
	Color		15	**20**	**50**	**150**	NS
	Total Dissolved Solids		500	**63**	**90**	**53**	**62**
	Chloride		250	**11.4**	**13**	**6.4**	**10**
	Iron - Total		0.3	**0.2**	**0.18**	**0.35**	**0.28**
	Lead - Total	0.015		<0.002	<0.002	<0.002	<0.001
	Chromium - Total	0.1		<0.005	<0.03	<0.02	<0.03
	Nitrogen as Ammonia	--	--	**0.54**	**1.3**	**0.32**	<0.1
	Sodium - Total	160		**7**	**10**	**4.8**	**6.1**
	Vanadium - Total	--	--	<0.004	<0.004	<0.01	<0.01
	Zinc - Total		5	<0.02	<0.03	<0.03	<0.03
	Beryllium - Total	0.004		<0.0020	<0.003	<0.002	<0.001
	Cadmium - Total	0.005		<0.0010	<0.001	<0.001	<0.0005
	Barium - Total	2		**0.0059**	**0.0054**	**0.012**	<0.01
	Dissolved Iron		0.3	NS	NS	NS	NS
	Dissolved Barium	2		NS	NS	NS	NS
	Dissolved Lead	0.015		NS	NS	NS	NS
MWB-17I	pH		6.5-8.5	**4.58**	**4.52**	**4.88**	**5.13**
	Dissolved Oxygen	--	--	**1.3**	**1.1**	**1.1**	**1.0**
	Specific Conductance	--	--	**41**	**35**	**39**	**32**
	Color		15	<5	**5**	**5**	NS
	Total Dissolved Solids		500	**46**	**42**	**37**	**53**
	Chloride		250	**6.05**	**5.4**	**5.2**	**5.3**
	Iron - Total		0.3	**0.32**	**0.35**	**0.34**	**0.34**
	Lead - Total	0.015		<0.002	<0.002	<0.002	<0.001
	Copper - Total	1		<0.005	<0.005	<0.025	<0.025
	Chromium - Total	0.1		<0.005	<0.03	<0.02	<0.03
	Nitrogen as Ammonia	--	--	0.03	<0.1	<0.1	<0.2
	Sodium - Total	160		**3.3**	**3.3**	**3.3**	**3.2**
	Sulfide			NS	NS	NS	**1.3**
	Vanadium	--	--	<0.004	<0.004	<0.01	<0.01
	Zinc - Total		5	<0.02	<0.03	<0.03	<0.03
	Beryllium - Total	0.004		<0.0020	<0.003	<0.002	<0.001
	Cadmium - Total	0.005		<0.0010	<0.001	<0.001	<0.0005
	Barium - Total	2		**0.039**	**0.036**	**0.041**	**0.036**
	Dissolved Iron		0.3	NS	NS	NS	NS
	Dissolved Lead	0.015		NS	NS	NS	NS

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Table 1

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PERMIT RENEWAL WATER QUALITY DATA REPORT

TRAIL RIDGE LANDFILL
BALDWIN, FLORIDA

Well	Component	PMCL	SMCL	Jan-01	Jul-01	Jan-02	Jun-02
Phase 2		(mg/L)	(mg/L)*	(mg/L)	(mg/L)	(mg/L)	(mg/L)
MWB-17D	pH		6.5-8.5	**5.52**	**5.31**	**5.61**	**6.24**
	Dissolved Oxygen	--	--	**1.3**	**1.0**	**1.0**	**0.9**
	Specific Conductance	--	--	**79**	**69**	**87**	**66**
	Color		15	<5	**5**	**5**	NS
	Total Disolved Solids		500	**51**	**55**	**67**	**73**
	Chloride		250	**6.51**	**6.2**	**5.8**	**5.8**
	Iron - Total		0.3	**0.66**	**0.71**	**0.66**	**0.63**
	Lead - Total	0.015		<0.002	<0.002	<0.002	<0.001
	Chromium - Total	0.1		<0.005	<0.03	<0.02	<0.03
	Nitrogen as Ammonia	--	--	**0.06**	<0.1	<0.1	<0.1
	Sodium - Total	160		**3.4**	**3.3**	**3.5**	**3.4**
	Sulfide			NS	NS	NS	**1.0**
	Vanadium - Total	--	--	<0.004	<0.004	<0.01	<0.01
	Zinc - Total		5	<0.02	<0.03	<0.03	<0.03
	Beryllium - Total	0.004		<0.0020	<0.003	<0.002	<0.001
	Cadmium - Total	0.005		<0.0010	<0.001	<0.001	<0.0005
	Barium - Total	2		**0.037**	**0.035**	**0.039**	**0.037**

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Table 1

SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER
PERMIT RENEWAL WATER QUALITY DATA REPORT

TRAIL RIDGE LANDFILL
BALDWIN, FLORIDA

Well	Component	PMCL	SMCL	Jan-01	Jul-01	Jan-02	Jun-02
Phase 3		(mg/L)	(mg/L)*	(mg/L)	(mg/L)	(mg/L)	(mg/L)
MWB-13S	pH		6.5-8.5	**4.97**	**4.83**	**4.81**	**5.43**
	Dissolved Oxygen	--	--	**3.1**	**2.8**	**1.3**	**1.4**
	Specific Conductance	--	--	**113**	**103**	**126**	**160**
	Color		15	**75**	**5**	**25**	n/a
	Total Dissolved Solids		500	**66**	**56**	**74**	**110**
	Chloride		250	**12.3**	**8.9**	**11**	**23**
	Acetone	--	--	<0.05	<0.05	**0.1**	
	Iron - Total		0.3	**10**	**0.15**	**0.96**	**0.57**
	Lead - Total	0.015		<0.002	<0.002	<0.002	<0.001
	Chromium - Total	0.1		<0.005	**0.011**	<0.03	<0.03
	Copper - Total		1	**0.0087**	<0.005	<0.025	
	Nitrogen as Ammonia	--	--	**0.43**	**0.28**	**0.37**	**0.4**
	Selenium - Total	0.05		<0.005	<0.005	**0.015 U(a)**	**0.0076**
	Sodium - Total	160		**5.6**	**5.4**	**6.7**	**13**
	Sulfide			NS	NS	NS	**1.2**
	Vanadium - Total	--	--	<0.004	<0.045	**0.022**	**0.034**
	Zinc - Total		5	<0.02	<0.1	<0.03	<0.03
	Beryllium - Total	0.004		<0.0020	<0.002	<0.002	<0.001
	Cadmium - Total	0.005		<0.0010	<0.001	<0.001	<0.0005
	Barium - Total	2		**0.02**	**0.0086**	<0.01	<0.01
	Dissolved Iron		0.3	NS	NS	NS	NS
	Dissolved Barium	2		NS	NS	NS	NS
	Dissolved Lead	0.015		NS	NS	NS	NS
MWB-13I	pH		6.5-8.5	**5.00**	**4.91**	**5.08**	**5.11**
	Dissolved Oxygen	--	--	**1.6**	**1.7**	**1.8**	**1.6**
	Specific Conductance	--	--	**46**	**38**	**45**	**36**
	Color		15	**75**	**50**	**30**	NS
	Total Dissolved Solids		500	**43**	**51**	**51**	**42**
	Chloride		250	**5.89**	**5.9**	**5.2**	**5.2**
	Iron - Total		0.3	**0.48**	**0.42**	**0.45**	**0.38**
	Lead - Total	0.015		<0.002	<0.002	<0.002	<0.001
	Chromium - Total	0.1		<0.005	<0.005	<0.03	<0.03
	Nitrogen as Ammonia	--	--	**0.05**	<0.1	<0.1	<0.1
	Sodium - Total	160		**3.2**	**3**	**3.4**	**3.4**
	Sulfide			NS	NS	NS	**1.6**
	Vanadium - Total	--	--	<0.004	<0.045	<0.01	<0.01
	Zinc - Total		5	<0.02	<0.1	<0.03	<0.03
	Beryllium - Total	0.004		<0.0020	<0.002	<0.002	<0.001
	Cadmium - Total	0.005		<0.0010	<0.001	<0.001	<0.0005
	Barium - Total	2		**0.034**	**0.03**	**0.034**	**0.034**
	Dissolved Iron		0.3	**0.3**	**0.33**	**0.29**	NS
	Dissolved Barium	2		**0.029**	**0.03**	**0.027**	NS
	Dissolved Lead	0.015		<0.002	<0.002	<0.002	NS

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Table 1

SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER
PERMIT RENEWAL WATER QUALITY DATA REPORT

TRAIL RIDGE LANDFILL
BALDWIN, FLORIDA

Well	Component	PMCL	SMCL	Feb-01	Jul-01	Jan-02	Jun-02
Phase 3		(mg/L)	(mg/L)*	(mg/L)	(mg/L)	(mg/L)	(mg/L)
MWB-33S	pH		6.5-8.5	**4.74**	**4.85**	**4.75**	**4.69**
	Dissolved Oxygen	--	--	**2.4**	**2.2**	**1.9**	**1.7**
	Specific Conductance	--	--	**107**	**68**	**83**	**71**
	Color		15	**15**	**10**	**75**	NS
	Total Disolved Solids		500	**69**	**34**	**60**	**30**
	Chloride		250	**10.6**	**6.1**	**6.6**	**6.8**
	Iron - Total		0.3	**0.1**	**0.16**	**0.16**	**0.28**
	Lead - Total	0.015		<0.002	<0.002	<0.002	<0.005
	Chromium - Total	0.1		<0.005	<0.03	<0.02	<0.03
	Nitrogen as Ammonia	--	--	**0.19**	<0.1	**0.15**	<0.1
	Sodium - Total	160		**5.3**	**3.7**	**4**	**3.9**
	Vanadium - Total	--	--	**0.0089**	**0.011**	**0.029**	<0.01
	Zinc - Total		5	<0.02	<0.03	<0.03	<0.03
	Beryllium - Total	0.004		<0.0020	<0.003	<0.002	<0.0025
	Cadmium - Total	0.005		<0.0010	<0.001	<0.001	<0.0025
	Barium - Total	2		**0.018**	**0.028**	**0.039**	**0.047**
	Disolved Iron		0.3	NS	NS	NS	NS
	Disolved Barium	2		NS	NS	NS	NS
	Disolved Lead	0.015		NS	NS	NS	NS
MWB-34S	pH		6.5-8.5	**4.69**	**4.52**	**5.40**	**5.18**
	Dissolved Oxygen	--	--	**2.4**	**2.2**	**1.2**	**1.3**
	Specific Conductance	--	--	**129**	**243**	**210**	**181**
	Color		15	**50**	**10**	**150**	NS
	Total Disolved Solids		500	**94**	**130**	**140**	**100**
	Chloride		250	**11.6**	**18**	**13**	**15**
	Iron - Total		0.3	**0.34**	**0.49**	**0.33**	**0.57**
	Lead - Total	0.015		<0.002	<0.002	<0.002	<0.001
	Chromium - Total	0.1		<0.005	<0.03	<0.02	<0.03
	Nitrogen as Ammonia	--	--	**0.28**	**0.32**	**0.46**	**0.24**
	Sodium - Total	160		**6**	**12**	**10**	**9.4**
	Vanadium - Total	--	--	**0.018**	**0.014**	**0.016**	**0.018**
	Zinc - Total		5	<0.02	<0.03	<0.03	<0.03
	Beryllium - Total	0.004		<0.0020	<0.003	<0.002	<0.001
	Cadmium - Total	0.005		<0.0010	<0.001	<0.001	<0.0005
	Barium - Total	2		**0.027**	**0.047**	**0.015**	**0.023**
	Disolved Iron		0.3	NS	NS	NS	NS
	Disolved Barium	2		NS	NS	NS	NS
	Disolved Lead	0.015		NS	NS	NS	NS

Notes:
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Table I

SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER
PERMIT RENEWAL WATER QUALITY DATA REPORT

TRAIL RIDGE LANDFILL
BALDWIN, FLORIDA

Well	Component	PMCL	SMCL	Feb-01	Jul-01	Jan-02	Jun-02
Phase 3		(mg/L)	(mg/L)*	(mg/L)	(mg/L)	(mg/L)	(mg/L)
MWB-34I	pH		6.5-8.5	**5.23**	**5.32**	**5.33**	**5.31**
	Dissolved Oxygen	--	--	**0.8**	**1.1**	**1.1**	**1.2**
	Specific Conductance	--	--	**51**	**43**	**49**	**53**
	Color		15	**50**	**10**	**10**	NS
	Total Disolved Solids		500	**46**	**45**	**53**	**56**
	Chloride		250	**6.14**	**5.4**	**4.7**	**5.1**
	Iron - Total		0.3	**1.1**	**0.76**	**0.83**	**0.68**
	Lead - Total	0.015		**0.0059**	**0.0038**	**0.0028**	**0.0018**
	Chromium - Total	0.1		**0.0058**	<0.03	<0.02	<0.03
	Nitrogen as Ammonia	--	--	0.055	<0.1	<0.1	<0.1
	Sodium - Total	160		**3.3**	**3.3**	**3.3**	**3.4**
	Vanadium - Total	--	--	**0.0042**	<0.004	<0.01	<0.01
	Zinc - Total		5	<0.03	<0.03	<0.03	<0.0200
	Beryllium - Total	0.004		<0.0020	<0.003	<0.002	<0.001
	Cadmium - Total	0.005		<0.0010	<0.001	<0.001	<0.0005
	Barium - Total	2		**0.066**	**0.056**	**0.058**	**0.055**
	Disolved Iron		0.3	NS	NS	NS	NS
	Disolved Barium	2		NS	NS	NS	NS
	Disolved Lead	0.015		NS	NS	NS	NS
MWB-34D	pH		6.5-8.5	**7.71**	**6.84**	**7.33**	**7.37**
	Dissolved Oxygen	--	--	**2.1**	**1.7**	**1.4**	**1.3**
	Specific Conductance	--	--	**434**	**470**	**451**	**414**
	Color		15	**15**	**15**	**10**	NS
	Total Disolved Solids		500	**250**	**230**	**220**	**230**
	Chloride		250	**5.68**	**5.2**	**4.9**	**4.6**
	Methylene Chloride	0.005		NS	**0.005**	<0.005	<0.005
	Iron - Total		0.3	**0.46**	**0.5**	**0.5**	**0.45**
	Lead - Total	0.015		<0.002	<0.002	<0.002	<0.001
	Chromium - Total	0.1		<0.005	<0.03	<0.02	<0.03
	Copper - Total		1	<0.005	**0.0067**	<0.025	<0.025
	Nitrogen as Ammonia	--	--	**0.2**	**0.18**	**0.2**	<0.1
	Sodium - Total	160		**6.1**	**6.2**	**6.4**	**6.3**
	Vanadium - Total	--	--	<0.004	<0.004	<0.01	<0.01
	Zinc - Total		5	<0.02	<0.03	<0.03	<0.03
	Beryllium - Total	0.004		<0.0020	<0.003	<0.002	<0.001
	Cadmium - Total	0.005		<0.0010	<0.001	<0.001	<0.0005
	Barium - Total	2		**0.1**	**0.1**	**0.11**	**0.099**
	Disolved Iron		0.3	NS	NS	NS	NS
	Disolved Barium	2		NS	NS	NS	NS
	Disolved Lead	0.015		NS	NS	NS	NS

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PERMIT RENEWAL WATER QUALITY DATA REPORT

TRAIL RIDGE LANDFILL
BALDWIN, FLORIDA

Well	Component	PMCL	SMCL	Jan-01	Jul-01	Jan-02	Jun-02
Phase 5		(mg/L)	(mg/L)*	(mg/L)	(mg/L)	(mg/L)	(mg/L)
MWB-27S	pH		6.5-8.5	**5.09**	**4.58**	**4.46**	**5.03**
	Dissolved Oxygen	--	--	**1.3**	**1.5**	**1.7**	**1.8**
	Specific Conductance	--	--	**74**	**67**	**70**	**56**
	Color		15	**75**	**25**	**150**	NS
	Total Dissolved Solids		500	**52**	**42**	**46**	**39**
	Chloride		250	**5.66**	**5.7**	**5.6**	**5.7**
	Iron - Total		0.3	**0.29**	**0.44**	**0.9**	**1.2**
	Lead - Total	0.015		<0.002	<0.002	<0.002	<0.001
	Chromium - Total	0.1		<0.005	<0.005	<0.03	<0.03
	Methylene Chloride	0.005		<0.005	**0.007**	<0.005	<0.005
	Nitrogen as Ammonia	--	--	**0.08**	**0.12**	<0.1	<0.1
	Sodium - Total	160		**4**	**3.7**	**3.2**	**3.7**
	Sulfide			NS	NS	NS	**1.3**
	Vanadium - Total	--	--	<0.004	<0.045	<0.01	<0.01
	Zinc - Total		5	<0.02	<0.1	<0.03	<0.03
	Beryllium - Total	0.004		<0.0020	<0.002	<0.002	<0.001
	Cadmium - Total	0.005		*<0.0010*	<0.001	<0.001	<0.0005
	Barium - Total	2		**0.027**	**0.035**	**0.036**	**0.023**
	Dissolved Iron		0.3	NS	NS	**0.081**	NS
	Dissolved Barium	2		NS	NS	**0.028**	NS
MWB-27I	pH		6.5-8.5	**5.27**	**5.02**	**5.38**	**5.36**
	Dissolved Oxygen	--	--	**1.1**	**1.0**	**1**	**0.9**
	Specific Conductance	--	--	**64**	**57**	**64**	**54**
	Color		15	**20**	**15**	**10**	NS
	Total Dissolved Solids		500	**66**	**56**	**67**	**71**
	Chloride		250	**5.8**	**5.4**	**5.7**	**5.3**
	Iron - Total		0.3	**0.55**	**0.43**	**0.61**	**0.45**
	Lead - Total	0.015		<0.002	<0.002	<0.002	<0.001
	Chromium - Total	0.1		<0.005	<0.005	<0.03	<0.03
	Nitrogen as Ammonia	--	--	**0.06**	<0.1	<0.1	<0.1
	Sodium - Total	160		**3.4**	**2.9**	**3.7**	**3.7**
	Sulfide			NS	NS	NS	**1**
	Vanadium - Total	--	--	<0.004	<0.045	<0.01	<0.01
	Zinc - Total		5	<0.02	<0.1	<0.03	<0.03
	Beryllium - Total	0.004		<0.0020	<0.002	<0.002	<0.001
	Cadmium - Total	0.005		<0.0010	<0.001	<0.001	<0.0005
	Barium - Total	2		**0.05**	**0.052**	**0.056**	**0.054**
	Dissolved Sodium	160		**3.8**	**3.5**	**3.5**	NS
	Dissolved Iron		0.3	**0.45**	**0.46**	**0.41**	NS
	Dissolved Barium	2		**0.048**	**0.048**	**0.043**	NS
	Dissolved Lead	0.015		<0.002	<0.002	<0.002	NS

Notes:
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Table 1

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PERMIT RENEWAL WATER QUALITY DATA REPORT

TRAIL RIDGE LANDFILL
BALDWIN, FLORIDA

Well	Component	PMCL	SMCL	Jan-01	Jul-01	Jan-02	Jun-02
Phase 5		(mg/L)	(mg/L)*	(mg/L)	(mg/L)	(mg/L)	(mg/L)
MWB-27D	pH		6.5-8.5	**5.65**	**5.47**	**5.98**	**5.97**
	Dissolved Oxygen	--	--	**1.0**	**1.0**	**1.7**	**1.6**
	Specific Conductance	--	--	**100**	**103**	**106**	**103**
	Color		15	**5**	**5**	**10**	NS
	Total Disolved Solids		500	**63**	**80**	**38**	**66**
	Chloride		250	**5.69**	**5.7**	**5.4**	**5.4**
	Iron - Total		0.3	**1.3**	**1**	**1.4**	**1.3**
	Lead - Total	0.015		<0.002	<0.002	<0.002	<0.001
	Chromium - Total	0.1		<0.005	<0.005	<0.03	<0.03
	Nitrogen as Ammonia	--	--	0.08	<0.1	<0.1	<0.1
	Sodium - Total	160		**3.8**	**3.1**	**3.9**	**4.1**
	Sulfide			NS	NS	NS	**1.5**
	Vanadium - Total	--	--	<0.004	<0.045	<0.01	<0.01
	Zinc - Total		5	<0.02	<0.1	<0.03	<0.03
	Beryllium - Total	0.004		<0.0020	<0.002	<0.002	<0.001
	Cadmium - Total	0.005		<0.0010	<0.001	<0.001	<0.0005
	Barium - Total	2		**0.052**	**0.051**	**0.058**	**0.058**
	Disolved Iron		0.3	NS	NS	NS	NS
	Disolved Barium	2		NS	NS	NS	NS
	Disolved Lead	0.015		NS	NS	NS	NS
MWB-29S	pH		6.5-8.5	**4.29**	**5.24**	**4.33**	**5.13**
	Dissolved Oxygen	--	--	**1.5**	**0.7**	**1.1**	**1.1**
	Specific Conductance	--	--	**40**	**76**	**39**	**34**
	Color		15	**15**	**5**	**10**	NS
	Total Disolved Solids		500	**37**	**33**	**27**	**23**
	Chloride		250	**5.23**	**5.9**	**5.6**	**5.3**
	Iron - Total		0.3	**0.29**	**0.34**	**0.28**	**0.2**
	Lead - Total	0.015		<0.002	<0.002	<0.002	<0.001
	Chromium - Total	0.1		<0.005	<0.005	<0.03	<0.03
	Nitrogen as Ammonia	--	--	**0.06**	<0.1	<0.1	<0.1
	Sodium - Total	160		**0.06**	<0.1	<0.1	<0.1
	Sufide			NS	NS	NS	**1.1**
	Vanadium - Total	--	--	<0.004	<0.045	<0.01	<0.01
	Zinc - Total		5	<0.02	<0.1	<0.03	<0.03
	Beryllium - Total	0.004		<0.0020	<0.002	<0.002	<0.001
	Cadmium - Total	0.005		<0.0010	<0.001	<0.001	<0.0005
	Barium - Total	2		**0.0071**	**0.0083**	**0.01**	<0.01
	Disolved Iron		0.3	NS	NS	NS	NS
	Disolved Barium	2		NS	NS	NS	NS
	Disolved Lead	0.015		NS	NS	NS	NS

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PERMIT RENEWAL WATER QUALITY DATA REPORT

TRAIL RIDGE LANDFILL
BALDWIN, FLORIDA

Well	Component	PMCL	SMCL	Jan-01	Jul-01	Jan-02	Jun-02
Phase 5		(mg/L)	(mg/L)*	(mg/L)	(mg/L)	(mg/L)	(mg/L)
MWB-29I	pH		6.5-8.5	**4.95**	**4.29**	**4.64**	**5.36**
	Dissolved Oxygen	--	--	**1.0**	**1.5**	**1.3**	**1.4**
	Specific Conductance	--	--	**48**	**37**	**46**	**37**
	Color		15	**30**	**10**	**10**	NS
	Total Disolved Solids		500	**32**	**45**	**22**	**33**
	Chloride		250	**4.98**	**4.8**	**5**	**5**
	Iron - Total		0.3	**0.51**	**0.42**	**0.5**	**0.41**
	Lead - Total	0.015		**0.003**	**0.0021**	<0.002	<0.001
	Chromium - Total	0.1		<0.005	<0.005	<0.03	<0.03
	Nitrogen as Ammonia	--	--	**0.04**	<0.1	<0.1	<0.1
	Sodium - Total	160		**3.2**	**2.7**	**3.2**	**3.1**
	Sulfide			NS	NS	NS	**1.2**
	Vanadium - Total	--	--	<0.004	<0.045	<0.01	<0.01
	Zinc - Total		5	<0.02	<0.1	<0.03	<0.03
	Beryllium - Total	0.004		<0.0020	<0.002	<0.002	<0.001
	Cadmium - Total	0.005		<0.0010	<0.001	<0.001	<0.0005
	Barium - Total	2		**0.044**	**0.044**	**0.046**	**0.044**
	Dissolved Sodium	160		**3.3**	**3.3**	**3.5**	**3.3**
	Disolved Iron		0.3	**0.43**	**0.46**	**0.4**	**0.37**
	Disolved Barium	2		**0.042**	**0.03**	**0.041**	**0.042**
	Disolved Lead	0.015		<0.002	<0.002	<0.002	<0.001
MWB-29D	pH		6.5-8.5	**5.47**	**4.31**	**5.54**	**5.43**
	Dissolved Oxygen	--	--	**0.8**	**1.1**	**0.8**	**0.7**
	Specific Conductance	--	--	**90**	**42**	**81**	**70**
	Color		15	**5**	**5**	**10**	NS
	Total Disolved Solids		500	**65**	**68**	**58**	**50**
	Chloride		250	**6.37**	**6.1**	**6.1**	**6.1**
	Iron - Total		0.3	**1.2**	**1.2**	**1.1**	**1**
	Lead - Total	0.015		<0.002	<0.002	<0.002	<0.001
	Chromium - Total	0.1		<0.005	<0.005	<0.03	<0.03
	Nitrogen as Ammonia	--	--	**0.1**	<0.1	**0.1**	<0.1
	Sodium - Total	160		**3.6**	**3.6**	**3.9**	**3.7**
	Vanadium - Total	--	--	<0.004	<0.045	<0.01	<0.01
	Zinc - Total		5	<0.02	<0.1	<0.03	<0.03
	Beryllium - Total	0.004		<0.0020	<0.002	<0.002	<0.001
	Cadmium - Total	0.005		<0.0010	<0.001	<0.001	<0.0005
	Barium - Total	2		**0.053**	**0.051**	**0.054**	**0.048**
	Disolved Iron		0.3	NS	NS	NS	NS
	Disolved Lead	0.015		NS	NS	NS	NS

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PERMIT RENEWAL WATER QUALITY DATA REPORT

TRAIL RIDGE LANDFILL
BALDWIN, FLORIDA

Well	Component	PMCL	SMCL	Jan-01	Jul-01	Jan-02	Jun-02
Background		(mg/L)	(mg/L)*	(mg/L)	(mg/L)	(mg/L)	(mg/L)
MWB-2S	pH		6.5-8.5	**4.15**	**6.45**	**4.15**	**4.08**
	Dissolved Oxygen	--	--	**1.6**	**1.3**	**1.9**	**1.8**
	Specific Conductance	--	--	**63**	**402**	**83**	**91**
	Color		15	<5	**5**	**5**	NS
	Total Disolved Solids		500	**28**	**40**	**35**	**52**
	Chloride		250	**6.42**	**6.6**	**8.5**	**11**
	Iron - Total		0.3	**0.34**	**0.48**	**0.4**	**0.37**
	Lead - Total	0.015		<0.002	<0.002	<0.002	<0.001
	Chromium - Total	0.1		<0.005	<0.005	<0.03	<0.03
	Nitrogen as Ammonia	--	--	**0.04**	<0.1	<0.1	<0.1
	Sodium - Total	160		**3.9**	**3.5**	**5.3**	**5.4**
	Vanadium - Total	--	--	<0.004	<0.045	<0.01	<0.01
	Zinc - Total		5	<0.02	<0.1	<0.03	<0.03
	Beryllium - Total	0.004		<0.0020	<0.002	<0.002	<0.001
	Cadmium - Total	0.005		<0.0010	<0.001	<0.001	<0.0005
	Cyanide - Total	0.2		NS	NS	NS	**0.0193**
	Barium - Total	2		**0.013**	**0.016**	**0.019**	**0.019**
	Disolved Iron		0.3	NS	NS	NS	NS
	Disolved Barium	2		NS	NS	NS	NS
	Disolved Lead	0.015		NS	NS	NS	NS
MWB-2I	pH		6.5-8.5	**4.54**	**4.07**	**4.58**	**4.61**
	Dissolved Oxygen	--	--	**1.3**	**1.5**	**1.1**	**1.0**
	Specific Conductance	--	--	**47**	**66**	**45**	**41**
	Color		15	**5**	**10**	**5**	NS
	Total Disolved Solids		500	**36**	**48**	**42**	**12**
	Chloride		250	**7.4**	**7.5**	**6.6**	**7**
	Iron - Total		0.3	**0.44**	**0.37**	**0.38**	**0.37**
	Lead - Total	0.015		<0.002	<0.002	<0.002	<0.001
	Chromium - Total	0.1		<0.005	<0.005	<0.03	<0.03
	Nitrogen as Ammonia	--	--	**0.04**	<0.1	<0.1	<0.1
	Sodium - Total	160		**4.5**	**4.2**	**4.2**	**4.2**
	Vanadium - Total	--	--	<0.004	<0.045	<0.01	<0.01
	Zinc - Total		5	<0.02	<0.1	<0.03	<0.03
	Beryllium - Total	0.004		<0.0020	<0.002	<0.002	<0.001
	Cadmium - Total	0.005		<0.0010	<0.001	<0.001	<0.0005
	Cyanide - Total	0.2		NS	NS	NS	0.0241
	Barium - Total	2		**0.021**	**0.02**	**0.02**	**0.021**
	Disolved Iron		0.3	NS	NS	NS	NS
	Disolved Barium	2		NS	NS	NS	NS
	Disolved Lead	0.015		NS	NS	NS	NS

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PERMIT RENEWAL WATER QUALITY DATA REPORT

TRAIL RIDGE LANDFILL
BALDWIN, FLORIDA

Well	Component	PMCL	SMCL	Jan-01	Jul-01	Jan-02	Jun-02
Background		(mg/L)	(mg/L)*	(mg/L)	(mg/L)	(mg/L)	(mg/L)
MWB-3S	pH		6.5-8.5	**4.47**	**4.52**	**4.57**	**4.87**
	Dissolved Oxygen	--	--	**2.2**	**1.9**	**1.9**	**1.8**
	Specific Conductance	--	--	**43**	**39**	**51**	**39**
	Color		15	**30**	**5**	**5**	NS
	Total Disolved Solids		500	**43**	**39**	**51**	**39**
	Chloride		250	**4.93**	**6.3**	**3.8**	**4.9**
	Iron - Total		0.3	**0.53**	**0.35**	**0.56**	**1.4**
	Lead - Total	0.015		<0.002	<0.002	<0.002	<0.001
	Chromium - Total	0.1		<0.005	0.011	<0.02	<0.03
	Nitrogen as Ammonia	--	--	<0.1	<0.1	<0.1	<0.1
	Sodium - Total	160		**3.1**	**2.5**	**2.5**	**3.1**
	Vanadium - Total	--	--	<0.004	<0.045	<0.01	<0.01
	Zinc - Total		5	<0.02	<0.1	<0.03	<0.03
	Beryllium - Total	0.004		<0.0020	<0.002	<0.002	<0.001
	Cadmium - Total	0.005		<0.0010	<0.001	<0.001	<0.0005
	Barium - Total	2		**0.0075**	**0.0073**	**0.015**	<0.01
	Disolved Iron		0.3	NS	NS	NS	NS
	Disolved Barium	2		NS	NS	NS	NS
	Disolved Lead	0.015		NS	NS	NS	NS
MWB-3I	pH		6.5-8.5	**4.82**	**4.50**	**4.76**	**4.89**
	Dissolved Oxygen	--	--	**1.6**	**1.4**	**1.1**	**1.0**
	Specific Conductance	--	--	**40**	**36**	**43**	**34**
	Color		15	<5	<5	<5	NS
	Total Disolved Solids		500	**23**	**41**	**38**	**42**
	Chloride		250	**4.67**	**4.6**	**4**	**4.5**
	Iron - Total		0.3	**0.55**	**0.61**	**0.62**	**0.58**
	Lead - Total	0.015		<0.002	<0.002	<0.002	<0.001
	Chromium - Total	0.1		<0.005	**0.0089**	<0.02	<0.03
	Nitrogen as Ammonia	--	--	<0.1	<0.1	<0.1	<0.1
	Sodium - Total	160		**2.8**	**3**	**3**	**2.9**
	Vanadium - Total	--	--	<0.004	<0.045	<0.01	<0.01
	Zinc - Total		5	<0.02	<0.1	<0.03	<0.03
	Beryllium - Total	0.004		<0.0020	<0.002	<0.002	<0.001
	Cadmium - Total	0.005		<0.0010	<0.001	<0.001	<0.0005
	Barium - Total	2		**0.019**	**0.019**	**0.026**	**0.019**
	Disolved Iron		0.3	NS	NS	NS	NS
	Disolved Barium	2		NS	NS	NS	NS
	Disolved Lead	0.015		NS	NS	NS	NS

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TRAIL RIDGE LANDFILL
BALDWIN, FLORIDA

Well	Component	PMCL	SMCL	Jan-01	Jul-01	Jan-02	Jun-02
Background		(mg/L)	(mg/L)*	(mg/L)	(mg/L)	(mg/L)	(mg/L)
MWB-31D	pH		6.5-8.5	**6.91**	n/a	**6.64**	**6.69**
	Dissolved Oxygen	--	--	**1.6**	n/a	**1.6**	**1.5**
	Specific Conductance	--	--	**365**	n/a	**415**	**373**
	Color		15	**10**	**10**	**10**	NS
	Total Disolved Solids		500	**214**	**220**	**230**	**220**
	Chloride		250	**5.56**	**5.5**	**4.6**	**5.2**
	Iron - Total		0.3	**0.19**	**0.38**	**0.67**	**0.63**
	Lead - Total	0.015		<0.002	<0.002	<0.002	<0.001
	Chromium - Total	0.1		<0.005	<0.005	<0.02	<0.03
	Nickel - Total	0.1		0.0072	0.0052	<0.05	<0.002
	Nitrogen as Ammonia	--	--	**0.06**	**0.13**	**0.2**	<0.1
	Sodium - Total	160		**6.9**	**4**	**6.6**	**5.9**
	Vanadium - Total	--	--	<0.004	<0.045	<0.01	<0.01
	Zinc - Total		5	<0.02	<0.1	<0.03	<0.03
	Beryllium - Total	0.004		<0.0020	<0.002	<0.002	<0.001
	Cadmium - Total	0.005		<0.0010	<0.001	<0.001	<0.0005
	Barium - Total	2		**0.086**	**0.092**	**0.093**	**0.08**
	Disolved Iron		0.3	NS	NS	NS	NS
	Disolved Barium	2		NS	NS	NS	NS
	Disolved Lead	0.015		NS	NS	NS	NS

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BALDWIN, FLORIDA

Well	Component	PMCL	SMCL				Jun-02
Phase 5		(mg/L)	(mg/L)*				(mg/L)
MWB-32S	pH		6.5-8.5				**5.30**
	Dissolved Oxygen	--	--				**1.4**
	Specific Conductance	--	--				**76**
	Color		15				NS
	Total Disolved Solids		500				**69**
	Chloride		250				**5.6**
	Iron - Total		0.3				**0.52**
	Lead - Total	0.015					<0.005
	Chromium - Total	0.1					<0.03
	Nitrogen as Ammonia	--	--				<0.1
	Sodium - Total	160					**3.4**
	Sufide						**1.2**
	Vanadium - Total	--	--				**0.011**
	Zinc - Total		5				<0.03
	Beryllium - Total	0.004					<0.0025
	Cadmium - Total	0.005					<0.0025
	Barium - Total	2					**0.036**
	Disolved Iron		0.3				**0.23**
	Disolved Barium	2					**0.024**
	Disolved Lead	0.015					<0.002
MWB-32I	pH		6.5-8.5				**5.39**
	Dissolved Oxygen	--	--				**1.2**
	Specific Conductance	--	--				**40**
	Color		15				NS
	Total Disolved Solids		500				**71**
	Chloride		250				**4.9**
	Iron - Total		0.3				**1.3**
	Lead - Total	0.015					**0.014**
	Chromium - Total	0.1					<0.03
	Nitrogen as Ammonia	--	--				<0.1
	Sodium - Total	160					**2.7**
	Sulfide						**1.2**
	Vanadium - Total	--	--				**0.017**
	Zinc - Total		5				**0.038**
	Beryllium - Total	0.004					<0.0025
	Cadmium - Total	0.005					<0.0025
	Barium - Total	2					**0.1**
	Disolved Iron		0.3				**0.25**
	Disolved Barium	2					**0.033**
	Disolved Lead	0.015					<0.002

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BALDWIN, FLORIDA

Well	Component	PMCL	SMCL				Jun-02
Phase 5		(mg/L)	(mg/L)*				(mg/L)
MWB-32D	pH		6.5-8.5				**6.92**
	Dissolved Oxygen	--	--				**0.9**
	Specific Conductance	--	--				**183**
	Color		15				NS
	Total Disolved Solids		500				**120**
	Chloride		250				**5.2**
	Iron - Total		0.3				**0.97**
	Lead - Total	0.015					<0.005
	Chromium - Total	0.1					<0.03
	Cyanide - Total	0.2					**0.0462**
	Nitrogen as Ammonia	--	--				<0.1
	Sodium - Total	160					**4.6**
	Sufide						**1.1**
	Vanadium - Total	--	--				<0.01
	Zinc - Total		5				<0.03
	Beryllium - Total	0.004					<0.0025
	Cadmium - Total	0.005					<0.0025
	Barium - Total	2					**0.063**
	Disolved Iron		0.3				NS
	Disolved Barium	2					NS
	Disolved Lead	0.015					NS

Notes:
* Except pH and color
ND - Parameter not detected at concentrations above the laboratory detection limit
NS - Not sampled
NA - Not available
Bold - Above laboratory detection limits
Shaded - Above Florida regulated limits for drinking water standards (Primary or Secondary) as under Chapter 62-550 F.A.C.
PMCL - Primary Drinking Water Standards
SMCL - Secondary Drinking Water Standards

TABLE 2

SUMMARY OF DETECTED PARAMETERS IN SURFACE WATER
BIENNIAL WATER QUALITY DATA REPORT

TRAIL RIDGE LANDFILL
BALDWIN, FLORIDA

Sample Point	Component	SWS	Jan-01	Jul-01	Jan-02	Jun-02
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
SW-1	pH		6.86	6.93	4.97	6.48
	Dissolved Oxygen	--	5.5	3.7	4.2	4.2
	Specific Conductance	--	294	339	187	180
	Turbidity	--	24.3	27.8	2.24	7.43
	Total Disolved Solids	--	**259**	**200**	**140**	**200**
	Total Suspended Solids	--	**31**	**72**	<5	**20**
	Total Organic Carbon	--	**26.2**	**18**	**39**	**25**
	Hardness as CaCO3	--	**120**	**130**	**18**	**64**
	BOD	--	<4	**7.7**	<4	<4
	COD	--	**72.2**	**55**	**110**	**120**
	Arsenic - Total	0.05	<0.005	<0.005	<0.005	**0.00095**
	Barium - Total	--	**0.042**	**0.061**	**0.041**	**0.041**
	Chromium - Total	varies	<0.005	<0.005	<0.005	**0.0024**
	Copper - Total	varies	<0.005	<0.005	<0.005	**0.0055**
	Iron - Total	1	**0.37**	**0.73**	**0.92**	**1.5**
	Lead - Total	varies	<0.002	<0.002	<0.002	**0.0023**
	Nickel - Total	varies	<0.005	**0.005**	<0.05	<0.05
	Nitrogen - Total as N	--	**0.98**	**0.69**	**0.84**	**1.9**
	Phosphorus - Total	--	**0.02**	**0.019**	<0.01	**0.13**
	Chlorophyll A	--	**46**	**50**	<0.1	**31**
	Fecal Coliform	200/100 mL	**96**	**500**	**86**	<1
SW-2	pH		5.76	7.56	3.86	5.89
	Dissolved Oxygen	--	6.7	5.7	4	4.3
	Specific Conductance	--	50	41	123	44
	Turbidity	--	11.3	2.63	2.88	1.09
	Total Disolved Solids	--	**41**	**40**	**88**	**53**
	Total Suspended Solids	--	**8**	**22**	<5	<5
	Hardness as CaCO3	--	**8.2**	**11**	**12**	**9**
	COD	--	**98.8**	**1200**	**60**	**16**
	Barium - Total	--	**0.085**	**0.34**	**0.11**	**0.06**
	Chromium - Total	varies	<0.005	**0.0058**	<0.005	<0.002
	Copper - Total	varies	<0.005	ND	<0.005	**0.0066**
	Iron - Total	1	**0.87**	**5.9**	**0.45**	**0.29**
	Lead - Total	varies	<0.002	**0.0033**	<0.002	<0.002
	Nitrogen - Total as N	--	**1.37**	**4.2**	**1.2**	<0.5
	Phosphorus - Total	--	**0.14**	**0.61**	<0.01	**0.01**
	Chlorophyll A	--	**6.8**	**61**	<0.1	**1.4**
	Fecal Coliform	200/100 mL	NA	**600**	**22**	**TNTC**

Notes:
* Except pH
ND - Parameter not detected at concentrations above the laboratory detection limit
NS - Not sampled
NA - Not available
Bold - Above laboratory detection limits
Shaded - Above Florida regulated limits for Class III Predominantly Fresh Waters per Chapter 62-302, F.A.C.
TNTC - Too Numberous To Count
varies - indicates standard is calculated based on the result for the hardness as $CaCO_3$

December 2002 993-2632.1

TABLE 3

SUMMARY OF DETECTED PARAMETERS IN LEACHATE
BIENNIAL WATER QUALITY DATA REPORT

TRAIL RIDGE LANDFILL
BALDWIN, FLORIDA

Sump	Component	Reg. Limit (mg/L)	Feb-01 (mg/L)	Jul-01 (mg/L)	Jan-02 (mg/L)	Jun-02 (mg/L)
LCS	pH (SU)	--	7.73	NA	NA	NA
	Dissolved Oxygen (mg/l)	--	0.4	0.5	NA	NA
	Specific Conductance (uS/cm)	--	9300	7850	NA	NA
	Turbidity (NTU)	--	1000	1000	NA	NA
	Bicarbonate	--	**4500**	NS	NS	NS
	Total Disolved Solids	--	**4400**	**3700**	**2500**	**8700**
	Antimony -Total	--	**0.079**	**0.24**	<0.2	**0.39**
	Arsenic -Total	5.0	**0.23**	**1.0**	<0.125	**1.7**
	Barium - Total	100.0	**0.48**	**2.4**	**0.62**	**8.1**
	Cadmium	1.0	NS	<0.025	<0.02	**0.042**
	Chloride	--	**1600**	**500**	**1040**	**880**
	Chromium - Total	5.0	**0.13**	**0.078**	<0.2	**1.5**
	Cobalt - Total	--	**0.063**	**0.43**	**0.11**	**0.98**
	Copper - Total	--	**0.77**	**4.2**	**1.5**	**2.7**
	Iron - Total	--	**300**	**3800**	**500**	**5900**
	Lead - Total	5.0	**0.076**	**0.26**	<0.1	**0.38**
	Nitrogen, Ammonia	--	**960**	**670**	**530**	**610**
	Mercury -Total	0.2	**0.012**	**0.01**	**0.022**	**0.024**
	Nickel - Total	--	**0.27**	**0.81**	**0.14**	**1.7**
	Sodium - Total	--	**680**	**1020**	>0.1	**710**
	Sulfide	--	**160**	NS	**370**	**650**
	Thallium - Total	--	ND	<0.05	<0.04	<0.05
	Tin	--	**0.027**	NS	<0.5	<0.2
	Vanadium - Total	--	**0.13**	**0.47**	**0.12**	**1.7**
	Zinc - Total	--	**0.35**	**2.0**	**0.33**	**4.0**
	Acetone	--	**6.5**	**1.9**	<0.5	<0.5
	2-Butanone	200.0	**7.9**	**3**	<0.25	<0.25
	1,2-Dibromo-3-Chloropropane	--	<0.1	<0.1	<0.02	**0.1**
	1,4-Dichlorobenzene	--	**0.016**	**0.01**	<0.01	<0.01
	Ethylbenzene	--	**0.038**	**0.039**	**0.021**	<0.01
	Phenol	--	**0.016**	NS	<0.05	<0.05
	Toluene	--	**0.024**	**0.035**	<1	<0.01
	1,2,4-Trichlorobenzene	--	<0.01	NS	<0.07	**0.1**
	Xylene (Total)	--	**0.11**	**0.064**	**0.032**	ND

Notes:
* Except pH
ND - Parameter not detected at concentrations above the laboratory detection limit
NS - Not sampled
NA - Not available
Bold - Above laboratory detection limits
Shaded - Above 40 CFR, Part 261.24 standards (TCLP)

December 2002 993-2632.1

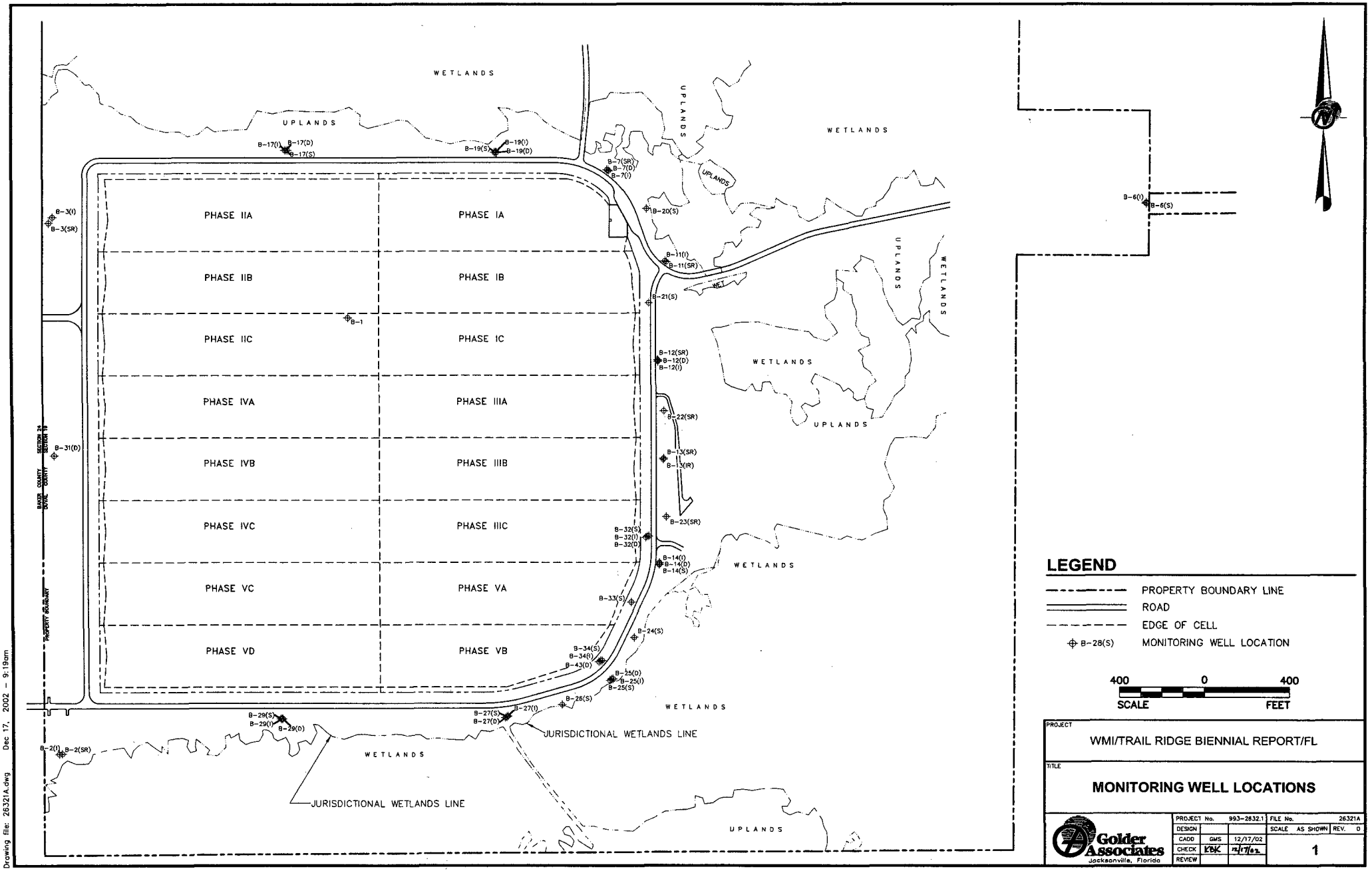
TABLE 3

SUMMARY OF DETECTED PARAMETERS IN LEACHATE
BIENNIAL WATER QUALITY DATA REPORT

TRAIL RIDGE LANDFILL
BALDWIN, FLORIDA

Sump	Component	Reg. Limit (mg/L)	Feb-01 (mg/L)	Jul-01 (mg/L)	Jan-02 (mg/L)	Jun-02 (mg/L)
LDSS	pH (SU)	--	7.77	7.07	NA	NA
	Dissolved Oxygen (mg/l)	--	0.2	0.2	NA	NA
	Specific Conductance (uS/cm)	--	7770	5900	NA	NA
	Turbidity (NTU)	--	3.82	7.82	NA	NA
	Bicarbonate	--	**3300**	**1700**	**2800**	ND
	Total Disolved Solids	--	**4800**	**2700**	**3400**	**2800**
	Antimony -Total	--	<0.02	<0.1	<0.2	**0.011**
	Arsenic -Total	5.0	**0.049**	**0.035**	**0.035**	**0.041**
	Barium - Total	100.0	**0.12**	**0.4**	**0.15**	**0.48**
	Chloride	--	**1300**	**500**	**1000**	**380**
	Chromium - Total	5.0	**0.049**	<0.03	**0.037**	**0.052**
	Cobalt - Total	--	**0.019**	<0.05	<0.03	<0.05
	Copper - Total	--	<0.02	<0.1	0.025	**0.031**
	Iron - Total	--	**19**	**120**	**31**	**150**
	Lead - Total	5.0	ND	<0.05	<0.005	**0.0074**
	Nitrogen, Ammonia	--	**600**	**270**	<200	**150**
	Nickel - Total	--	**0.091**	**ND**	**0.091**	**0.067**
	Sodium - Total	--	**1200**	**540**	**900**	**350**
	Sulfide	--	**370**	NS	**47**	**5.1**
	Vanadium - Total	--	**0.048**	<0.1	**0.032**	**0.042**
	Zinc - Total	--	<0.1	<0.15	<0.15	**0.09**
	Acetophenone	--	**0.037**	NS	<0.01	<0.1
	Acetone	--	**15**	**3.4**	<0.5	**2.6**
	2-Butanone	200.0	**14**	**5.4**	<0.25	**4.6**
	1,2-Dibromo-3-Chloropropane	--	<0.1	<0.1	<0.02	**0.1**
	1,4-Dichlorobenzene	--	**0.012**	<0.01	<0.01	<0.01
	Dimethyl Pthalate	--	**0.026**	NS	<0.005	<0.05
	Ethylbenzene	--	**0.021**	**0.031**	<0.01	**0.01**
	3- and 4-Methylphenol	--	**0.022**	NS	<0.01	NA
	4-Methylphenol	--	NS	NS	NS	**0.11**
	Phenol	--	**0.027**	NS	<0.005	**0.1**
	Toluene	--	**0.027**	**0.091**	<1	**0.061**
	1,2,4-Trichlorobenzene	--	<0.01	NS	<0.07	**0.1**
	Xylene (Total)	--	**0.068**	**0.073**	<0.030	<0.03

Notes:
* Except pH
ND - Parameter not detected at concentrations above the laboratory detection limit
NS - Not sampled
NA - Not available
Bold - Above laboratory detection limits
Shaded - Above 40 CFR, Part 261.24 standards (TCLP)



LEGEND

- PROPERTY BOUNDARY LINE
- ROAD
- EDGE OF CELL
- B-28(S) MONITORING WELL LOCATION

400 0 400
SCALE FEET

PROJECT
WMI/TRAIL RIDGE BIENNIAL REPORT/FL

TITLE
MONITORING WELL LOCATIONS

Golder Associates
Jacksonville, Florida

PROJECT No.	993-2632.1	FILE No.		26321A
DESIGN			SCALE AS SHOWN	REV. 0
CADD	GMS	12/17/02		
CHECK	KBK	12/17/02		1
REVIEW				

Drawing file: 26321A.dwg Dec 17, 2002 - 9:19am

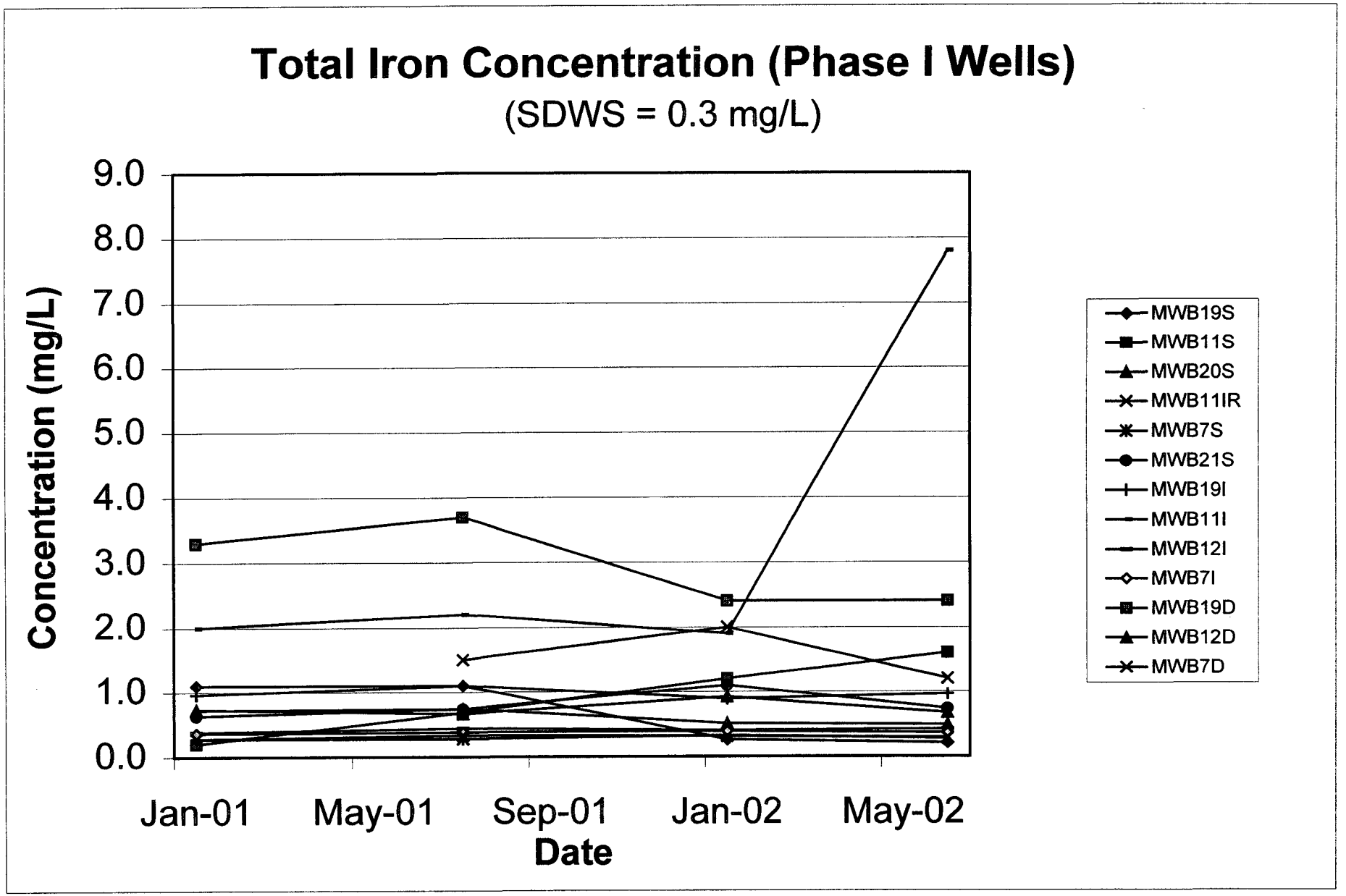

Total Iron Concentration (Phase I Wells)
(SDWS = 0.3 mg/L)
Concentration (mg/L)
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
Jan-01
May-01
Sep-01
Jan-02
May-02
Date
MWB19S
MWB11S
MWB20S
MWB11IR
MWB7S
MWB21S
MWB19I
MWB11I
MWB12I
MWB7I
MWB19D
MWB12D
MWB7D

Figure 2 (a)

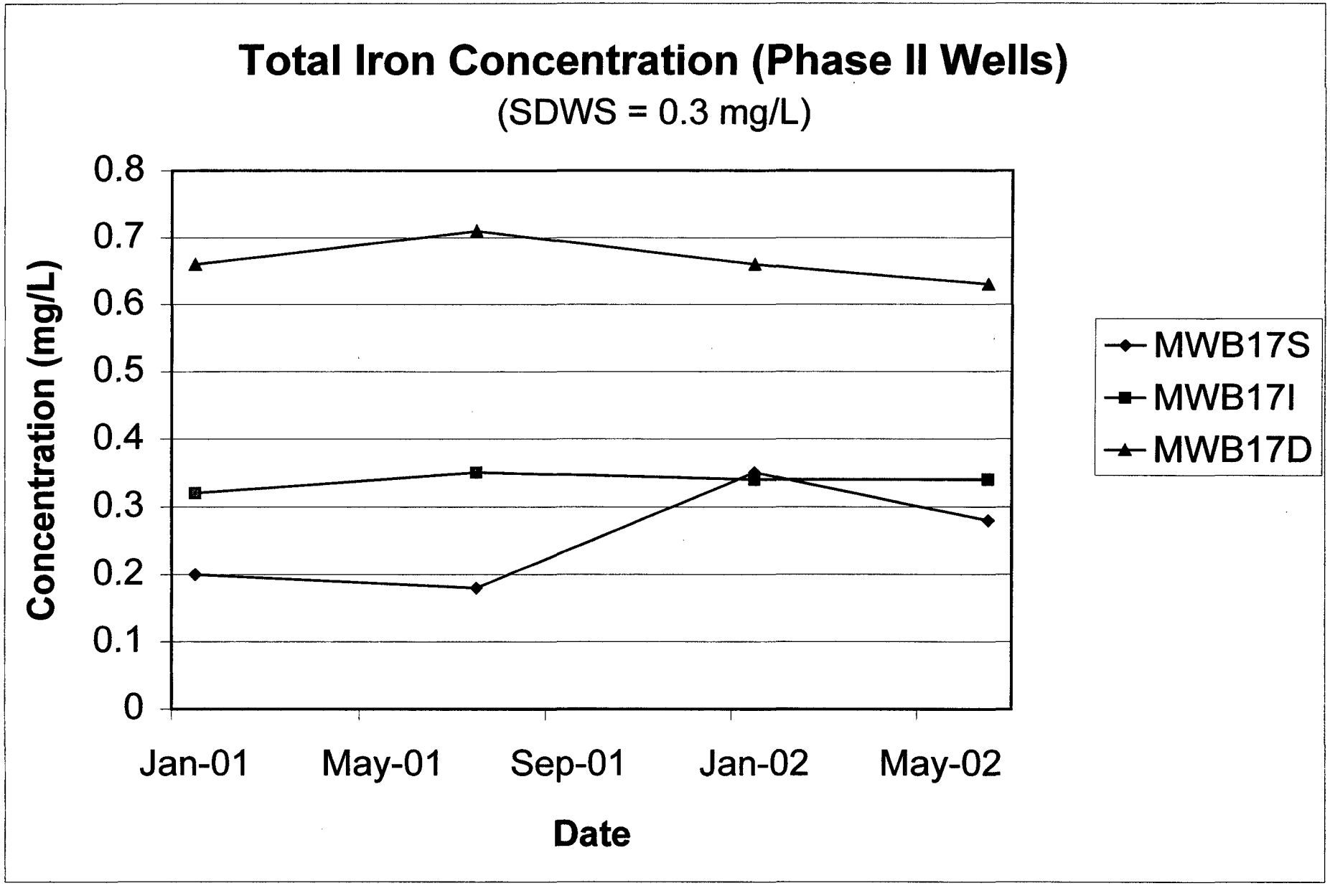

Total Iron Concentration (Phase II Wells)
(SDWS = 0.3 mg/L)
Concentration (mg/L)
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Jan-01
May-01
Sep-01
Jan-02
May-02
Date
MWB17S
MWB17I
MWB17D

Figure 2 (b)

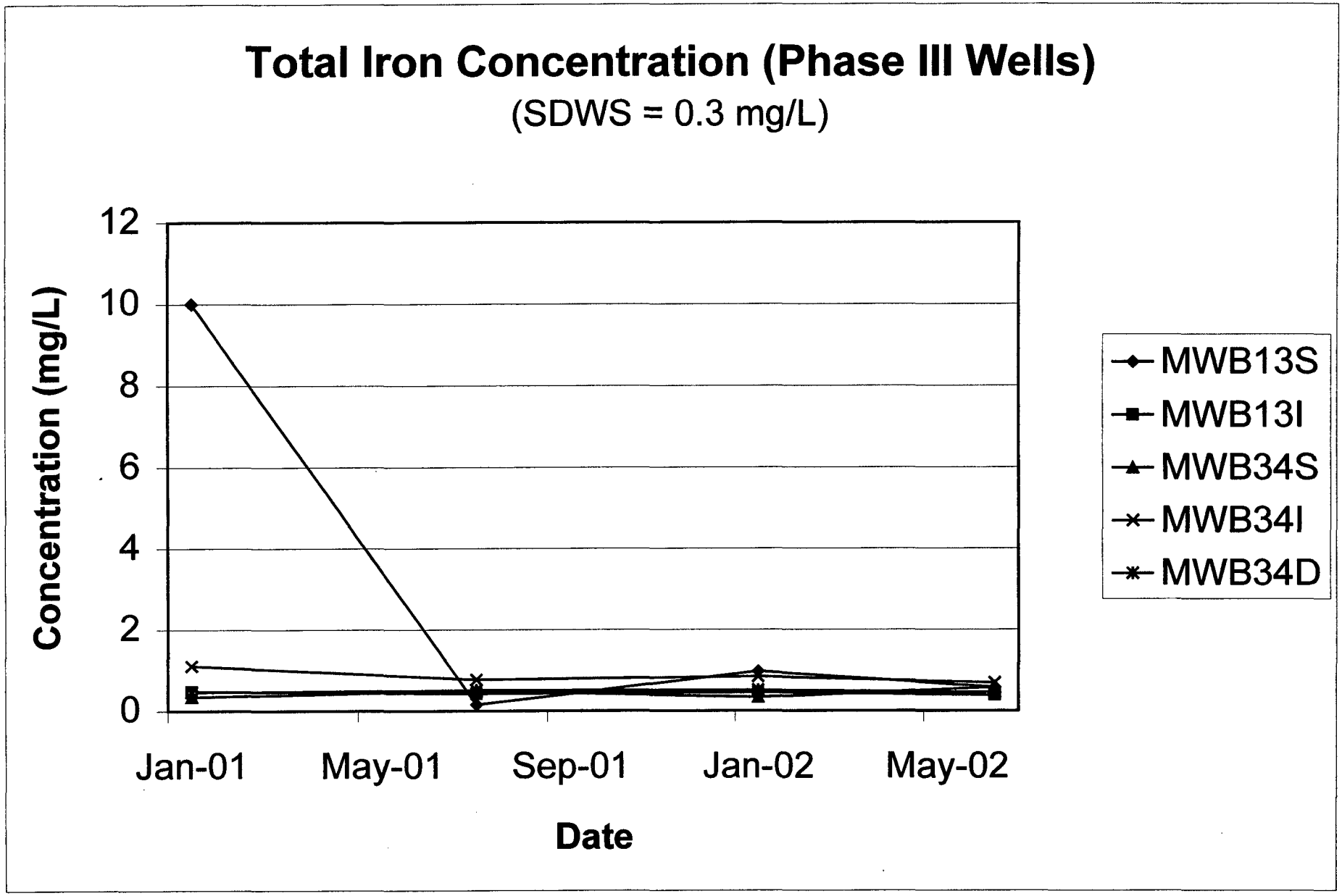

Total Iron Concentration (Phase III Wells)
(SDWS = 0.3 mg/L)
Concentration (mg/L)
12
10
8
6
4
2
0
Jan-01
May-01
Sep-01
Jan-02
May-02
Date
MWB13S
MWB13I
MWB34S
MWB34I
MWB34D

Figure 2 (c)

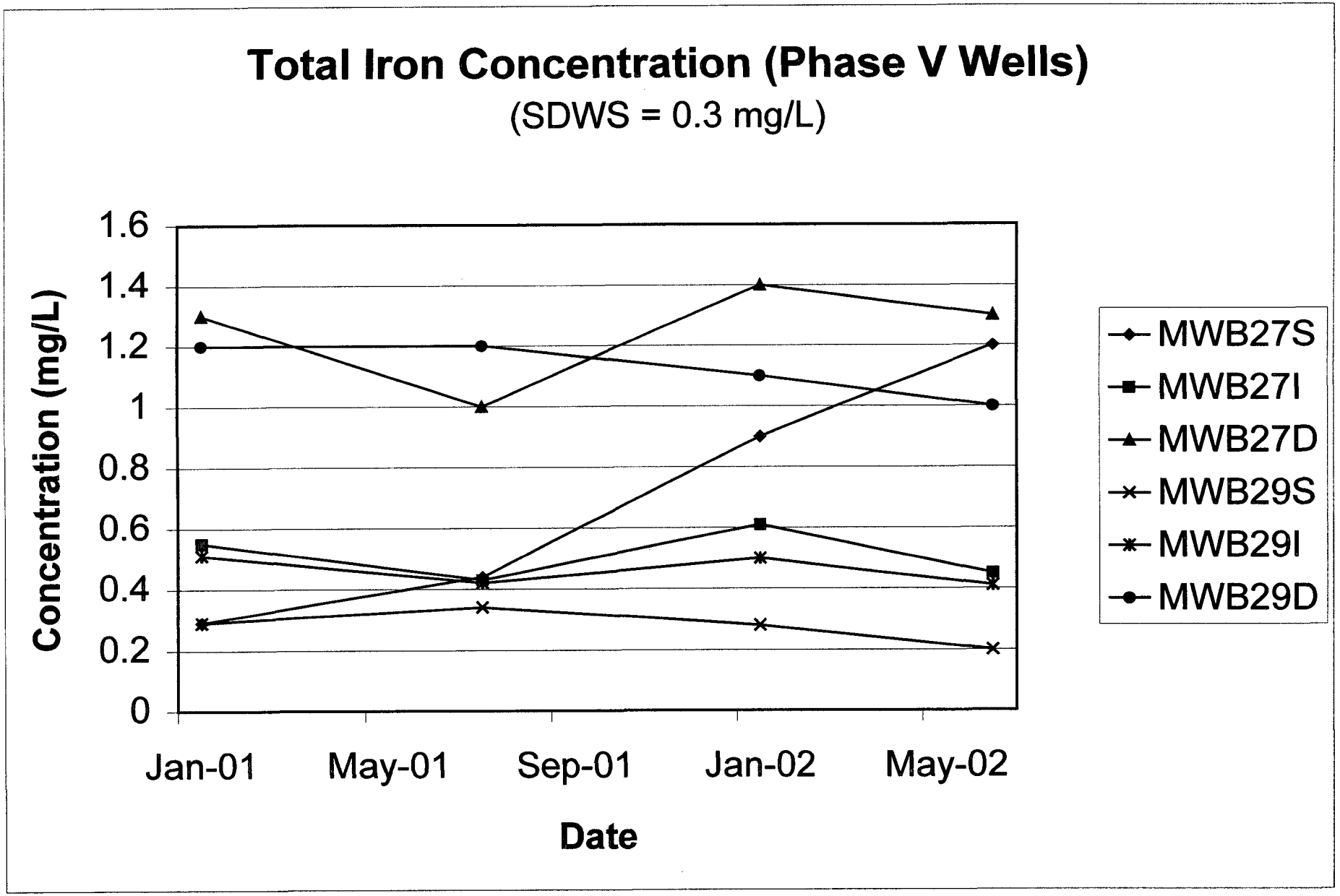

Total Iron Concentration (Phase V Wells)
(SDWS = 0.3 mg/L)
Concentration (mg/L)
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Jan-01
May-01
Sep-01
Jan-02
May-02
Date
MWB27S
MWB27I
MWB27D
MWB29S
MWB29I
MWB29D

Figure 2 (d)

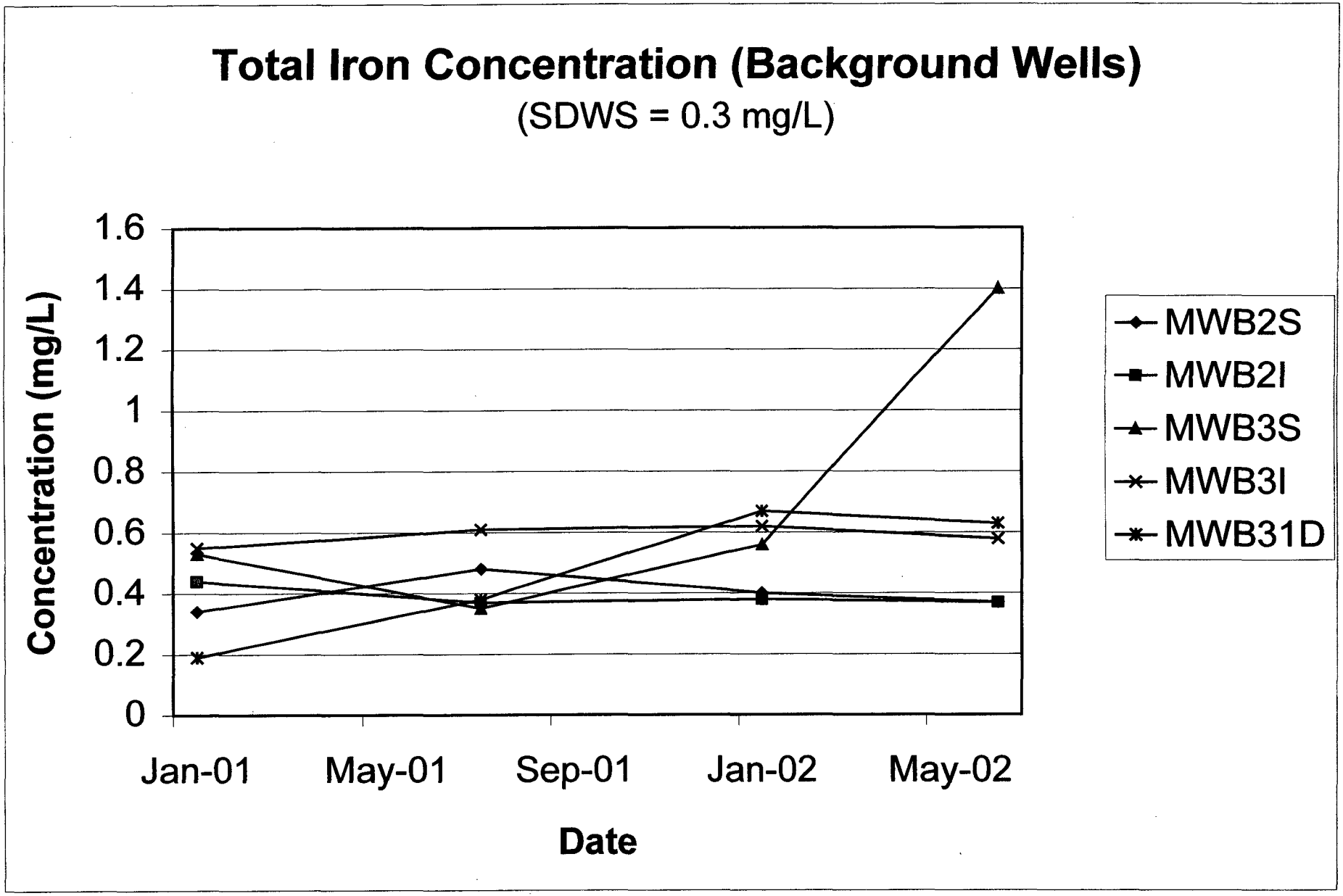

Total Iron Concentration (Background Wells)
(SDWS = 0.3 mg/L)
Concentration (mg/L)
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Jan-01
May-01
Sep-01
Jan-02
May-02
Date
MWB2S
MWB2I
MWB3S
MWB3I
MWB31D

Figure 2 (e)

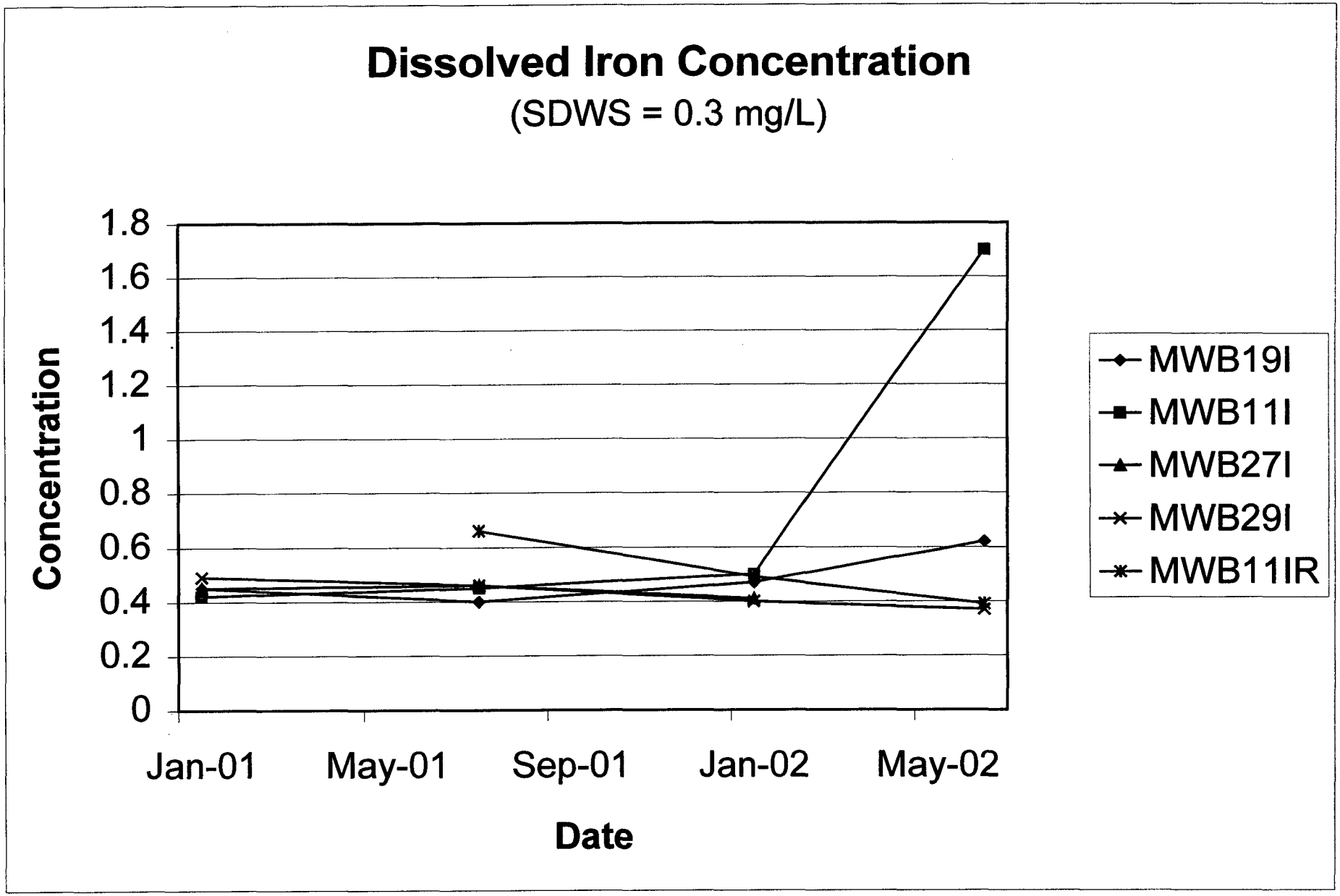

Dissolved Iron Concentration
(SDWS = 0.3 mg/L)
Concentration
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Jan-01
May-01
Sep-01
Jan-02
May-02
Date
MWB19I
MWB11I
MWB27I
MWB29I
MWB11IR

Figure 3

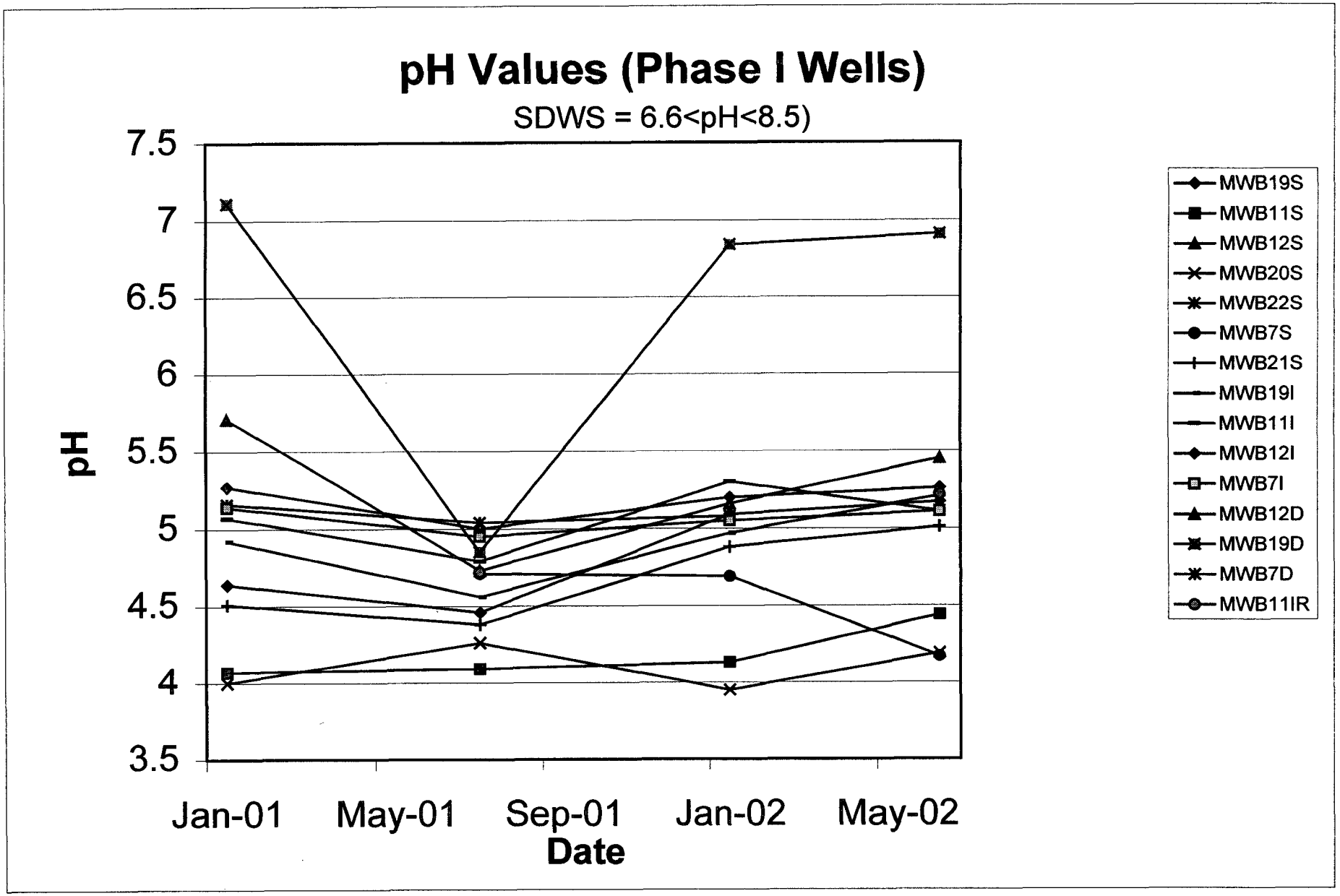

pH Values (Phase I Wells)
SDWS = 6.6<pH<8.5)
7.5
7
6.5
6
5.5
5
4.5
4
3.5
pH
Jan-01
May-01
Sep-01
Jan-02
May-02
Date
MWB19S
MWB11S
MWB12S
MWB20S
MWB22S
MWB7S
MWB21S
MWB19I
MWB11I
MWB12I
MWB7I
MWB12D
MWB19D
MWB7D
MWB11IR

Figure 4 (a)

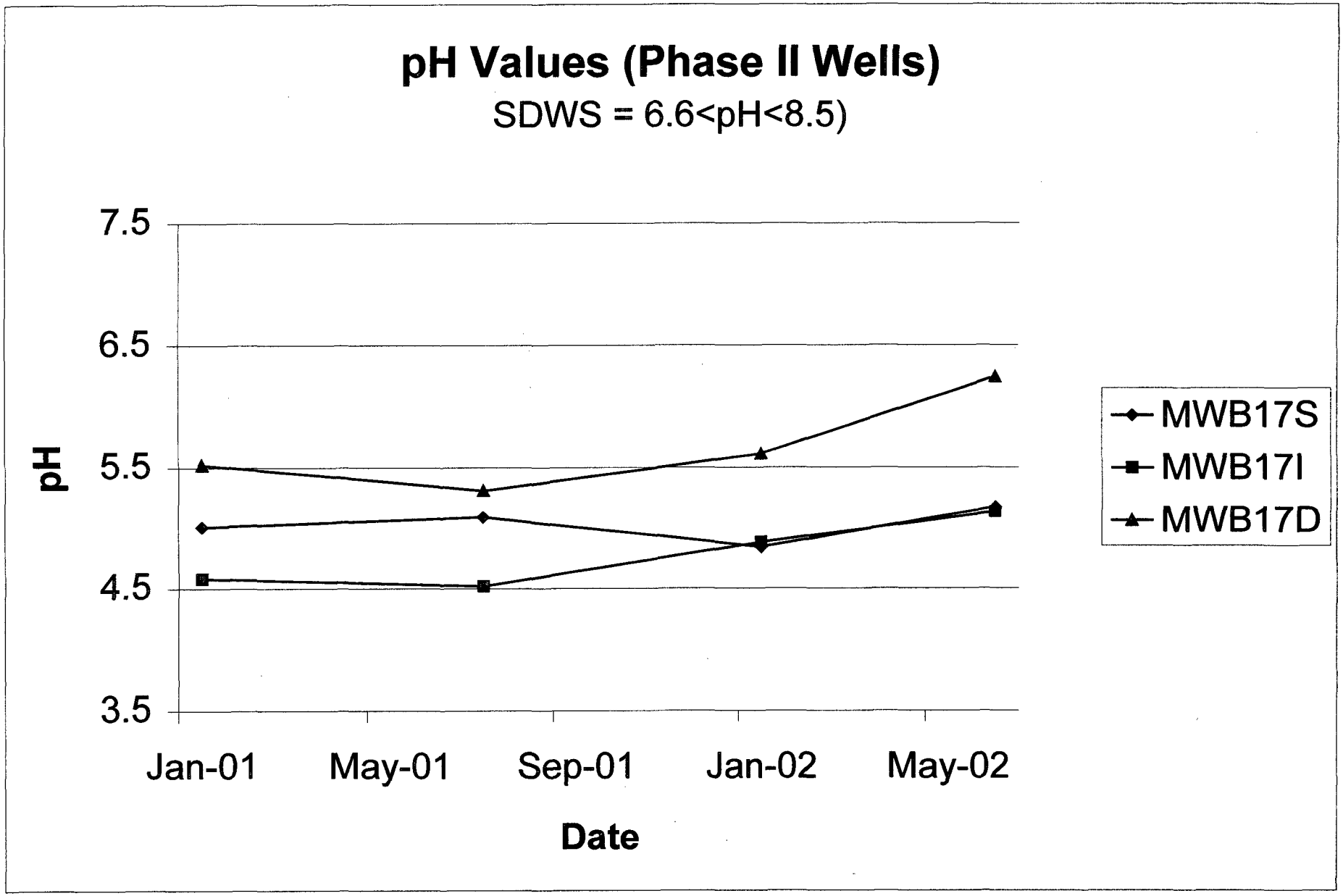

pH Values (Phase II Wells)
SDWS = 6.6<pH<8.5)
7.5
6.5
5.5
4.5
3.5
pH
Jan-01
May-01
Sep-01
Jan-02
May-02
Date
MWB17S
MWB17I
MWB17D

Figure 4(b)

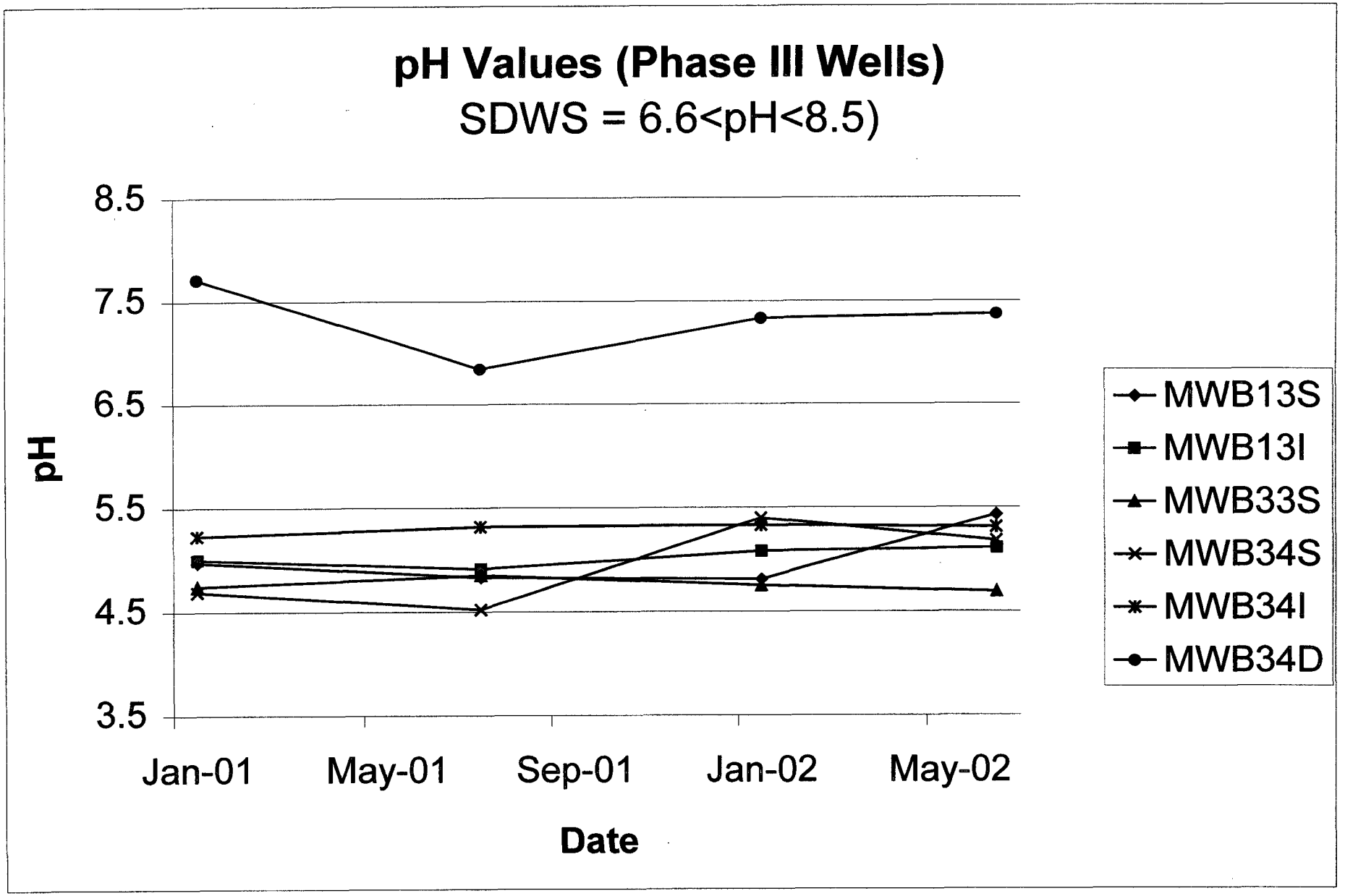

pH Values (Phase III Wells)
SDWS = 6.6<pH<8.5)
8.5
7.5
6.5
5.5
4.5
3.5
pH
Jan-01
May-01
Sep-01
Jan-02
May-02
Date
MWB13S
MWB13I
MWB33S
MWB34S
MWB34I
MWB34D

Figure 4(c)

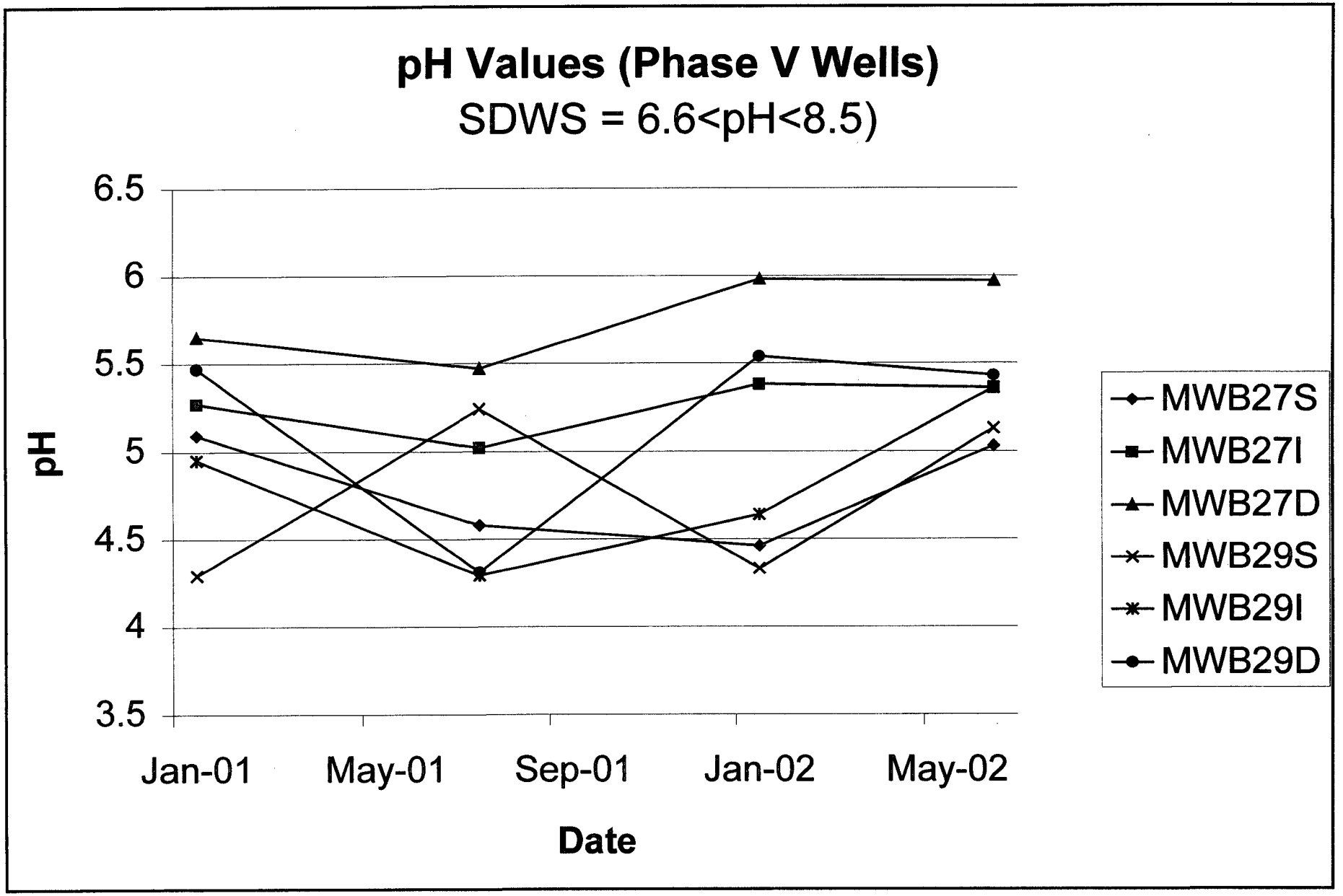

pH Values (Phase V Wells)
SDWS = 6.6<pH<8.5)
6.5
6
5.5
5
4.5
4
3.5
pH
Jan-01
May-01
Sep-01
Jan-02
May-02
Date
MWB27S
MWB27I
MWB27D
MWB29S
MWB29I
MWB29D

Figure 4(d)

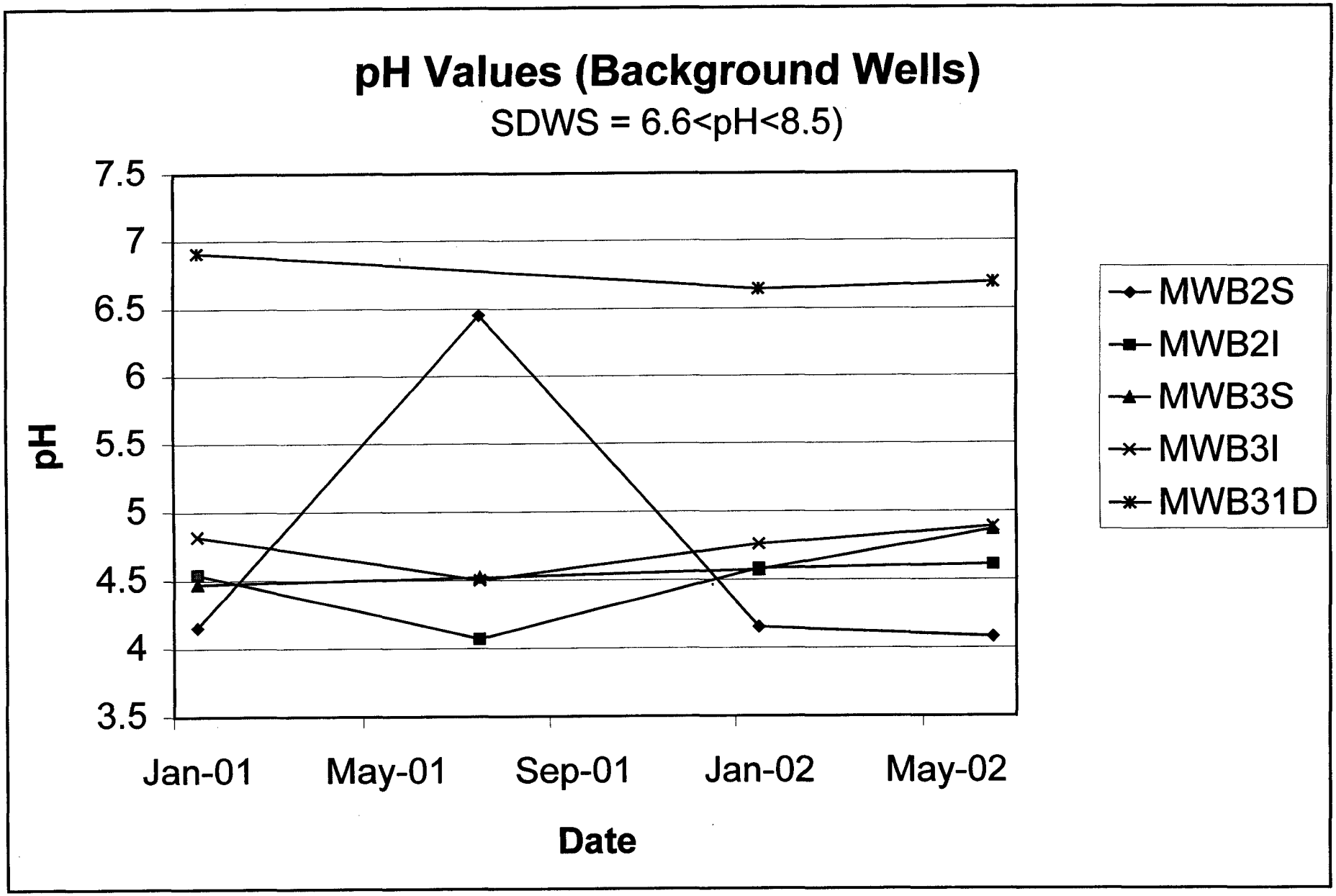

pH Values (Background Wells)
SDWS = 6.6<pH<8.5)
7.5
7
6.5
6
5.5
5
4.5
4
3.5
pH
Jan-01
May-01
Sep-01
Jan-02
May-02
Date
MWB2S
MWB2I
MWB3S
MWB3I
MWB31D

Figure 4(e)

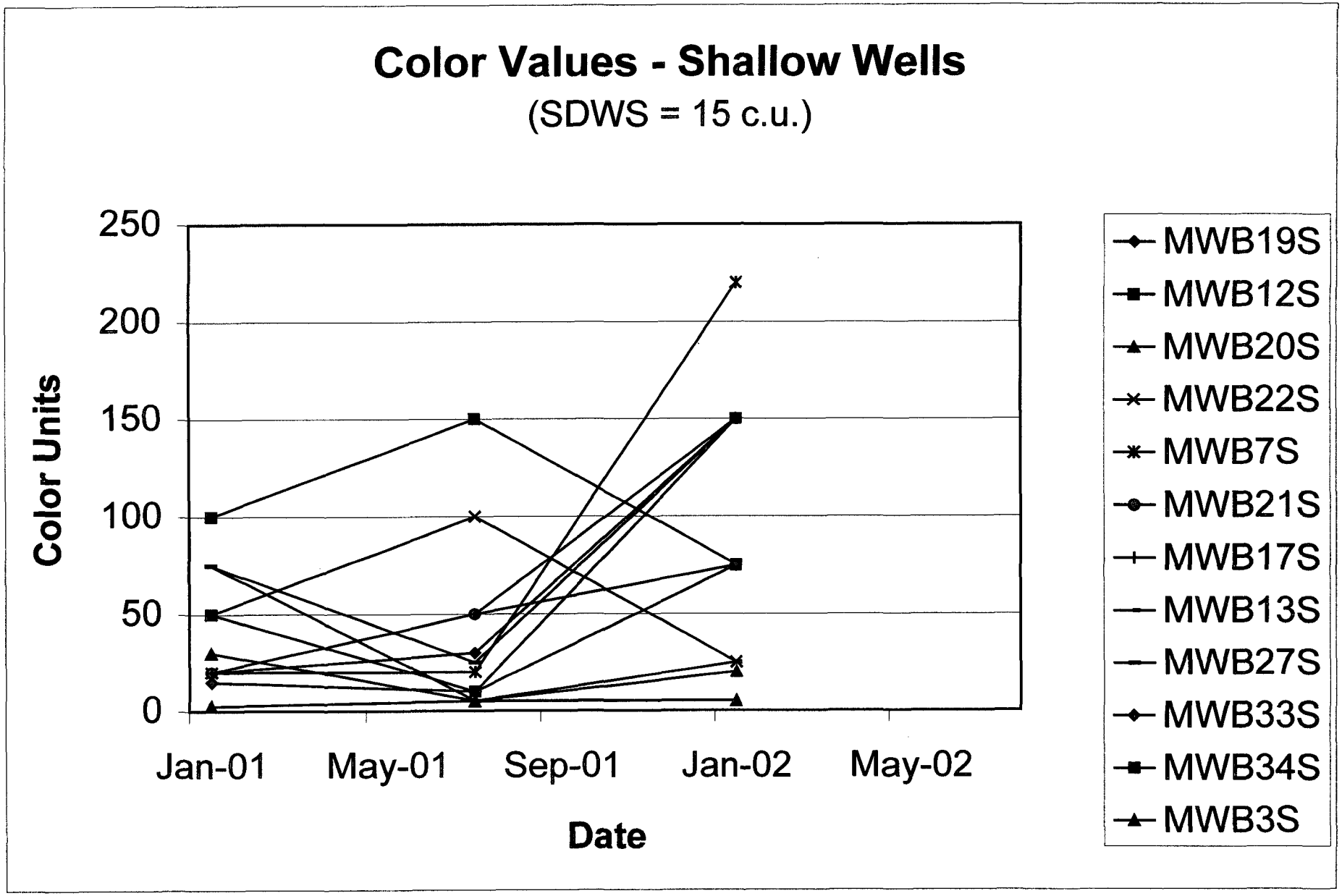

Color Values - Shallow Wells
(SDWS = 15 c.u.)
Color Units
250
200
150
100
50
0
Jan-01
May-01
Sep-01
Jan-02
May-02
Date
MWB19S
MWB12S
MWB20S
MWB22S
MWB7S
MWB21S
MWB17S
MWB13S
MWB27S
MWB33S
MWB34S
MWB3S

Figure 5 (a)

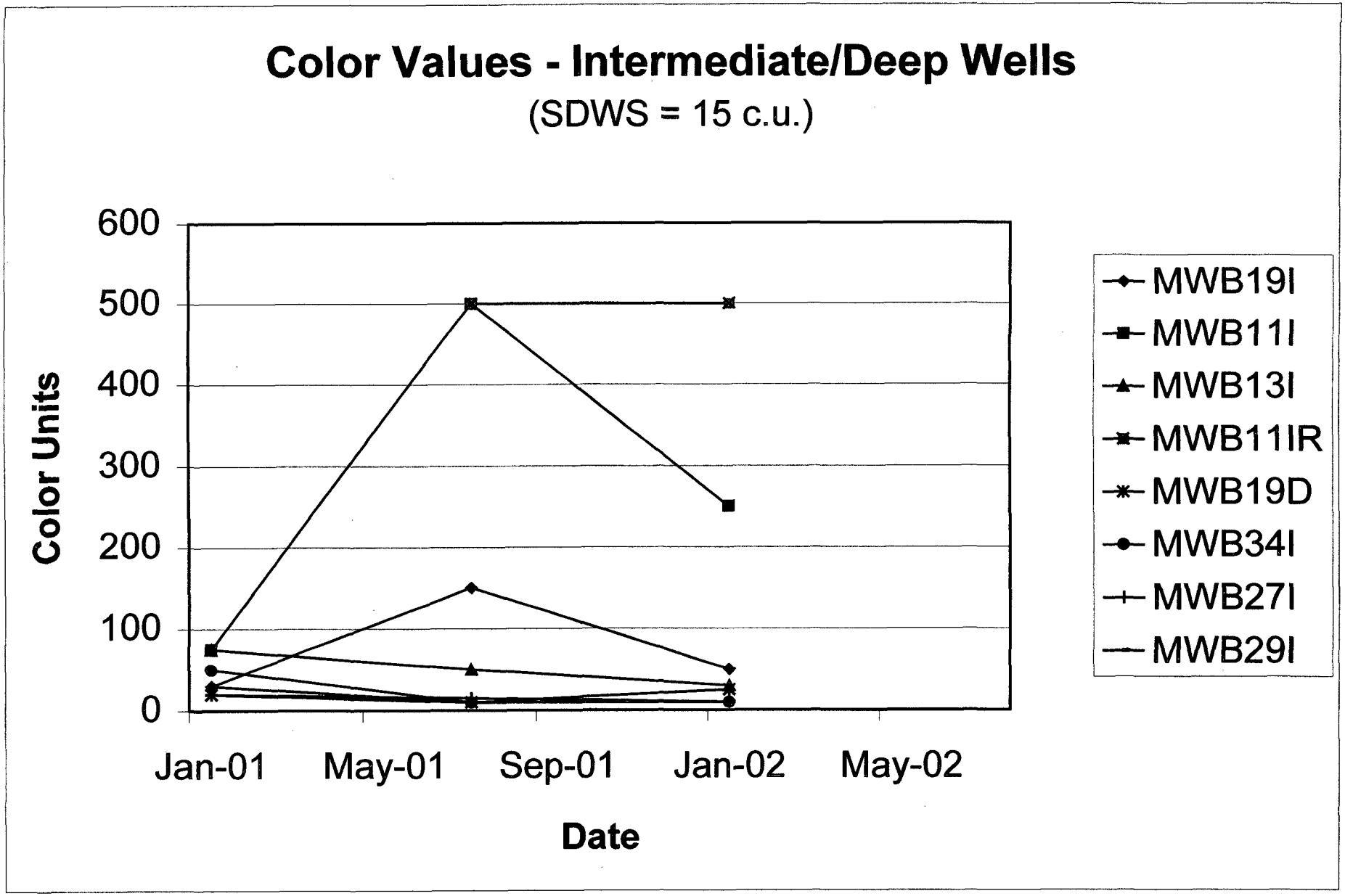

Color Values - Intermediate/Deep Wells
(SDWS = 15 c.u.)
Color Units
600
500
400
300
200
100
0
Jan-01
May-01
Sep-01
Jan-02
May-02
Date
MWB19I
MWB11I
MWB13I
MWB11IR
MWB19D
MWB34I
MWB27I
MWB29I

Figure 5 (b)

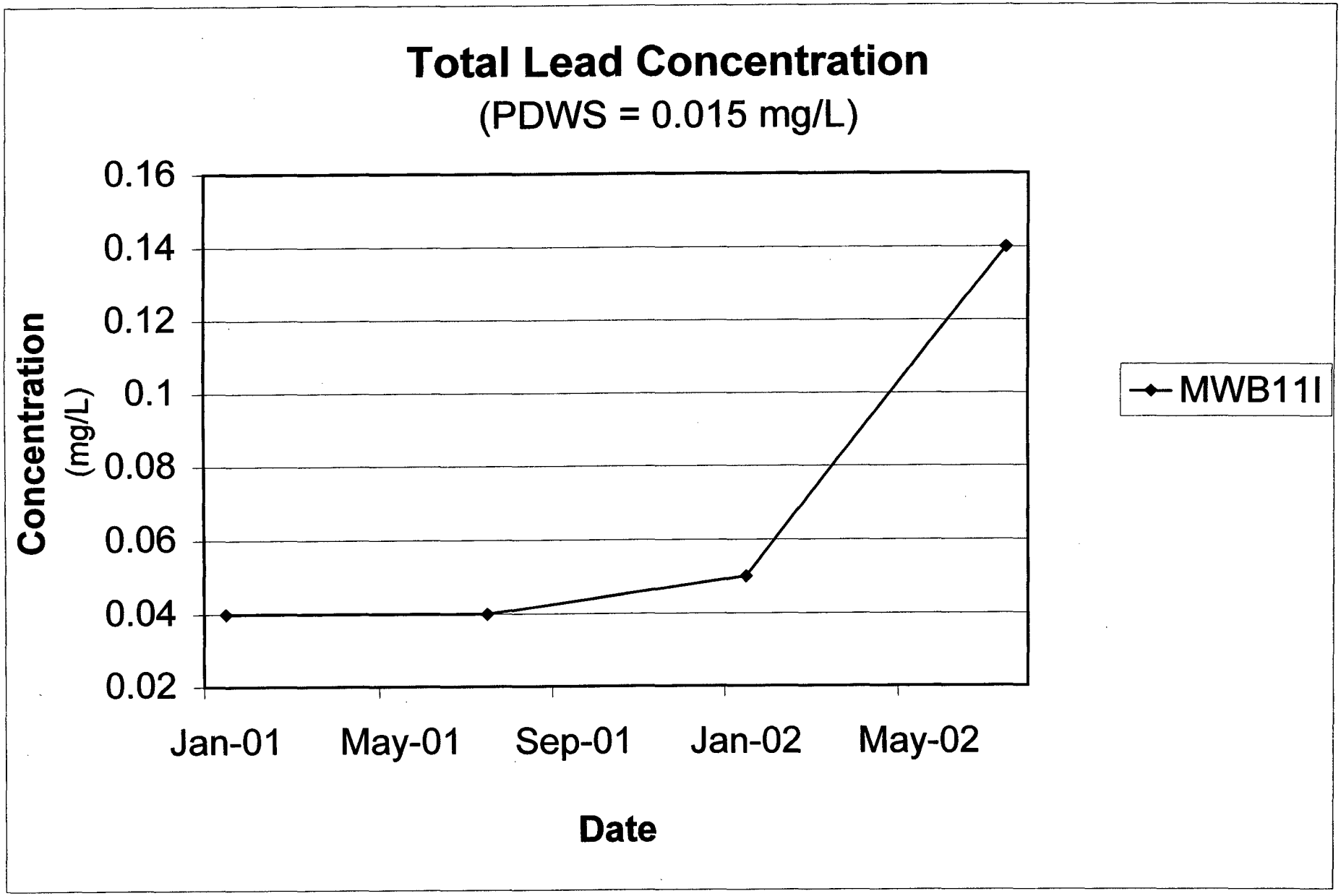

Total Lead Concentration
(PDWS = 0.015 mg/L)
Concentration (mg/L)
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
Jan-01
May-01
Sep-01
Jan-02
May-02
Date
MWB11I

Figure 6

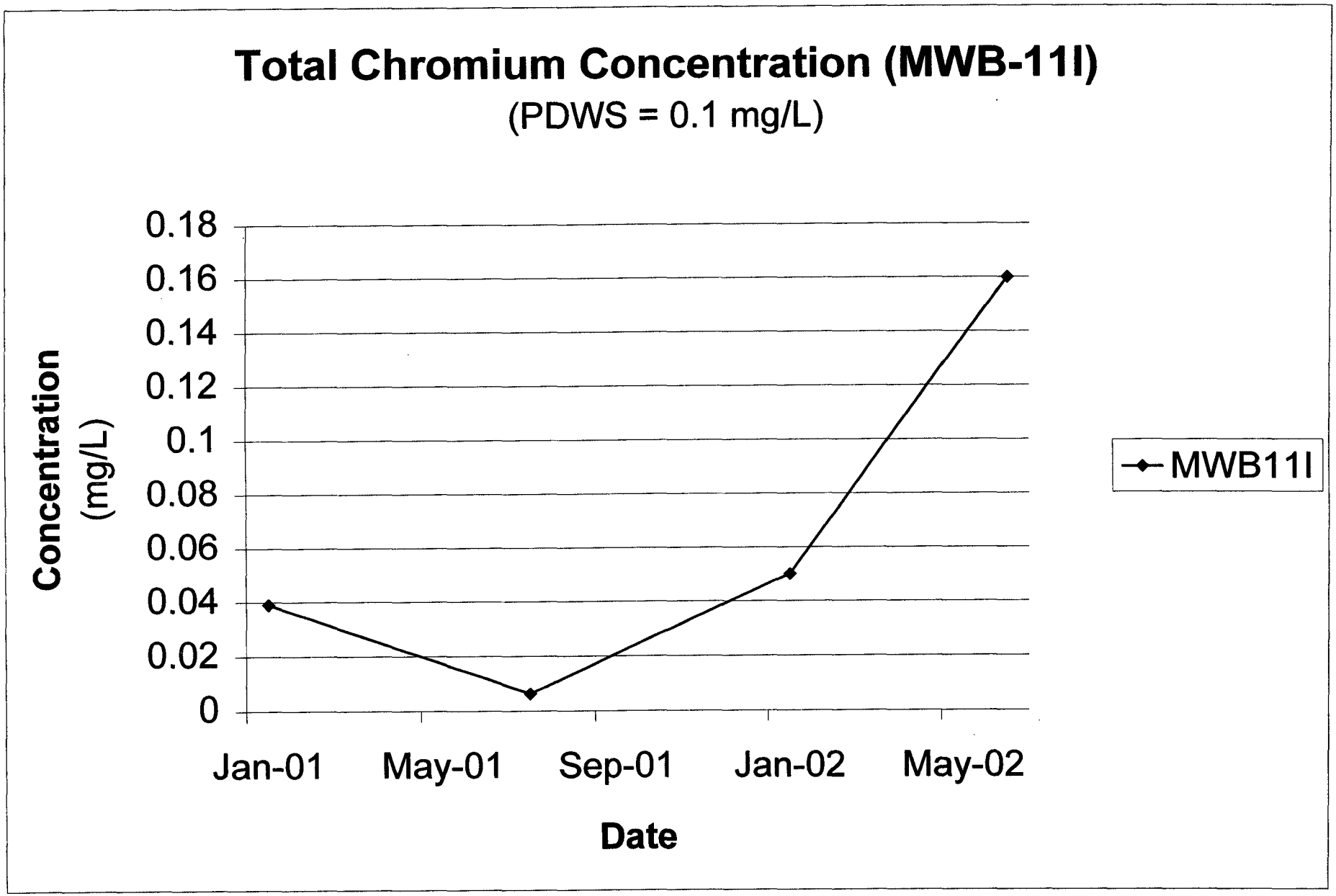

Total Chromium Concentration (MWB-11I)
(PDWS = 0.1 mg/L)
Concentration (mg/L)
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
Jan-01
May-01
Sep-01
Jan-02
May-02
Date
MWB11I

Figure 7

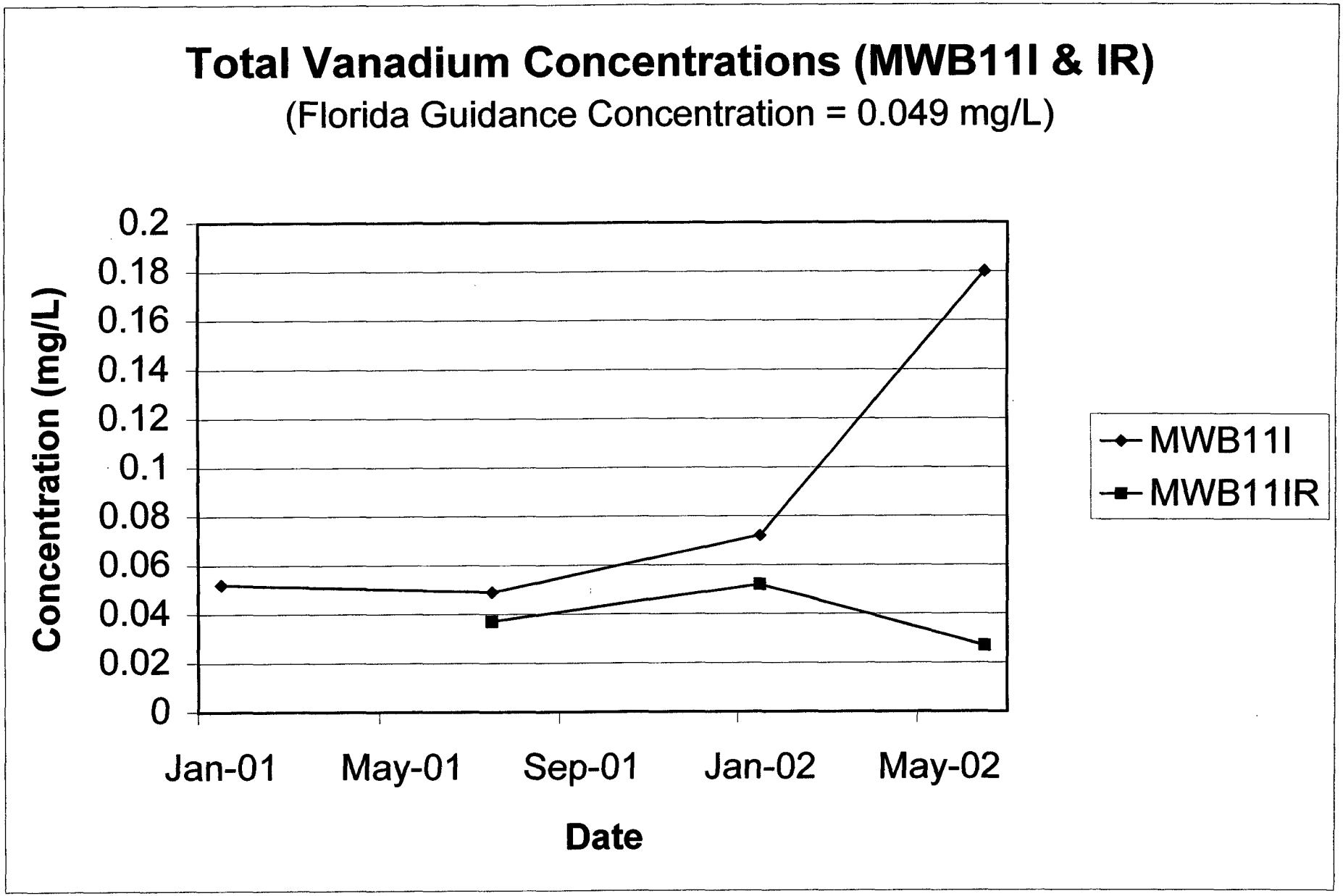

Total Vanadium Concentrations (MWB11I & IR)
(Florida Guidance Concentration = 0.049 mg/L)
Concentration (mg/L)
0.2
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
Jan-01
May-01
Sep-01
Jan-02
May-02
Date
MWB11I
MWB11IR

Figure 8

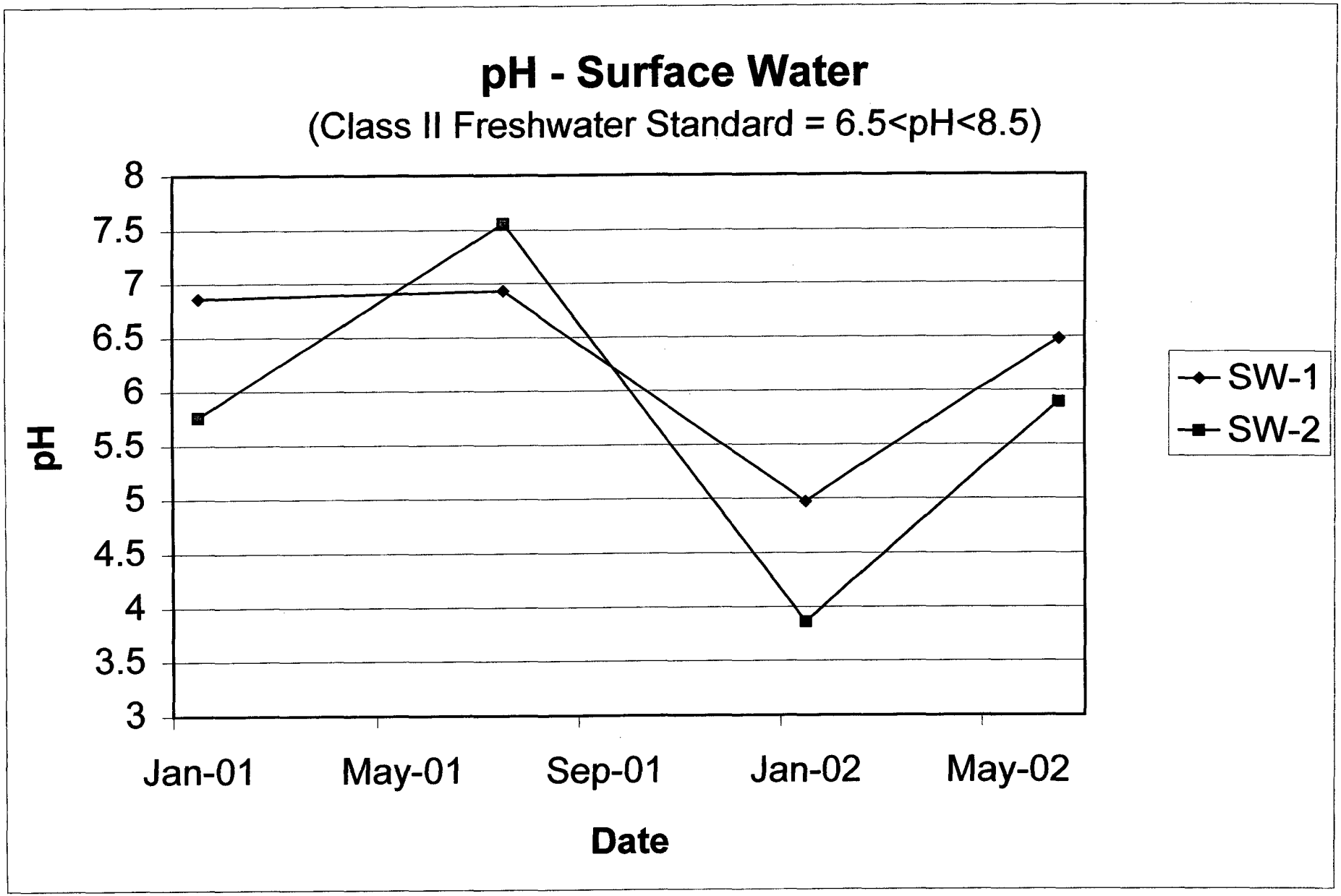

pH - Surface Water
(Class II Freshwater Standard = 6.5<pH<8.5)
8
7.5
7
6.5
6
5.5
5
4.5
4
3.5
3
pH
Jan-01
May-01
Sep-01
Jan-02
May-02
Date
SW-1
SW-2

Figure 9

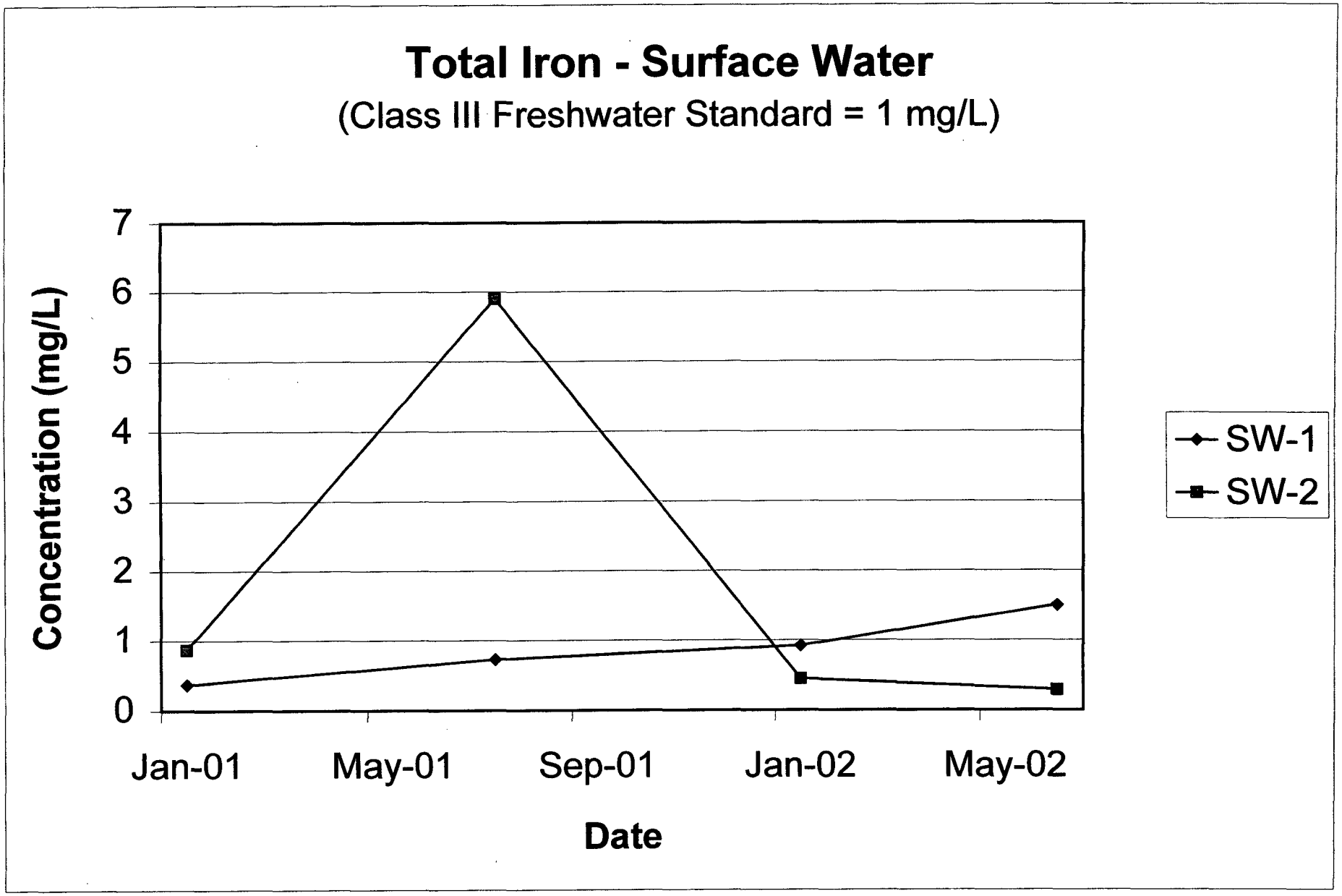

Total Iron - Surface Water
(Class III Freshwater Standard = 1 mg/L)
Concentration (mg/L)
7
6
5
4
3
2
1
0
Jan-01
May-01
Sep-01
Jan-02
May-02
Date
SW-1
SW-2

Figure 10

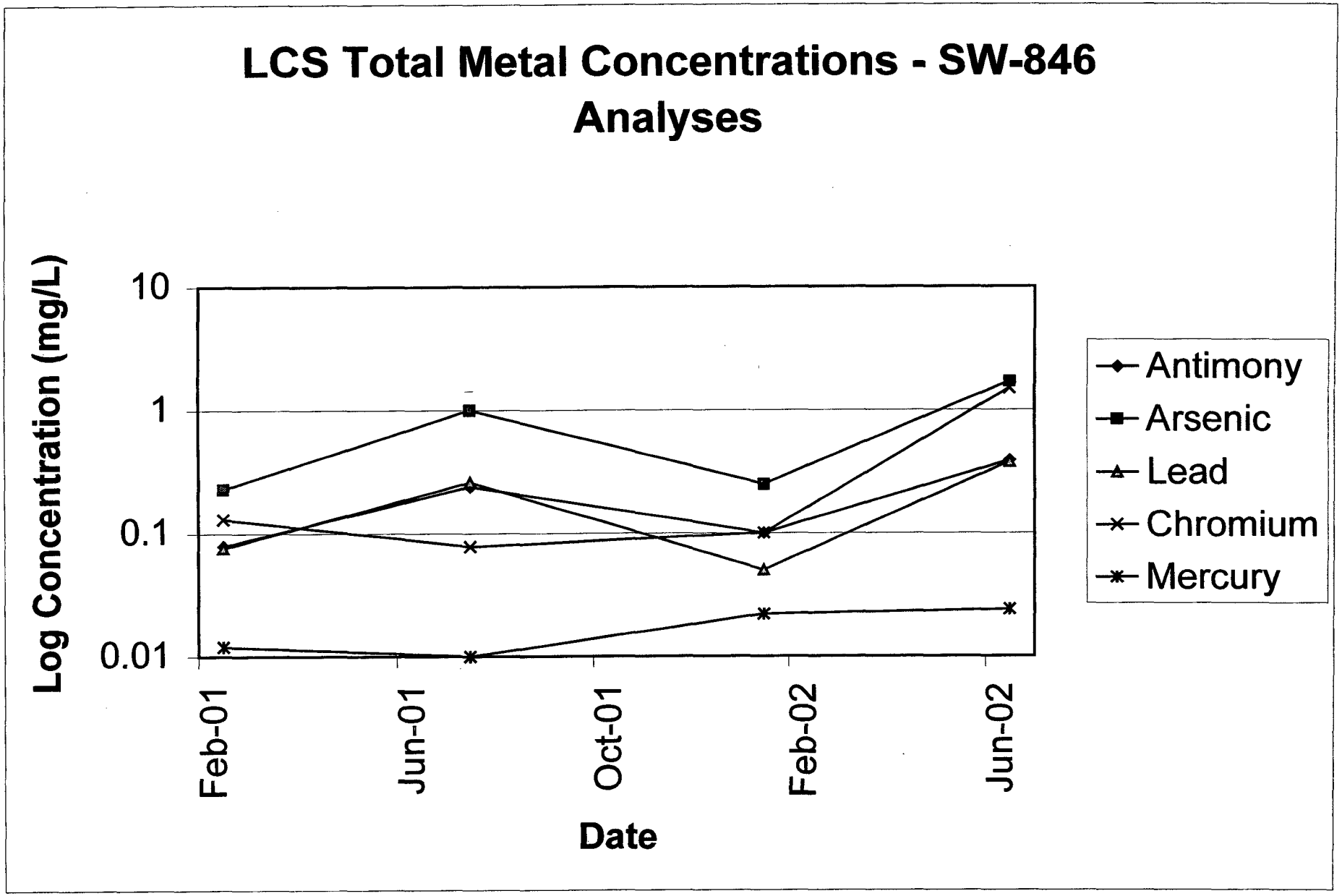

LCS Total Metal Concentrations - SW-846 Analyses
Log Concentration (mg/L)
10
1
0.1
0.01
Feb-01
Jun-01
Oct-01
Feb-02
Jun-02
Date
Antimony
Arsenic
Lead
Chromium
Mercury

Figure 11(a)

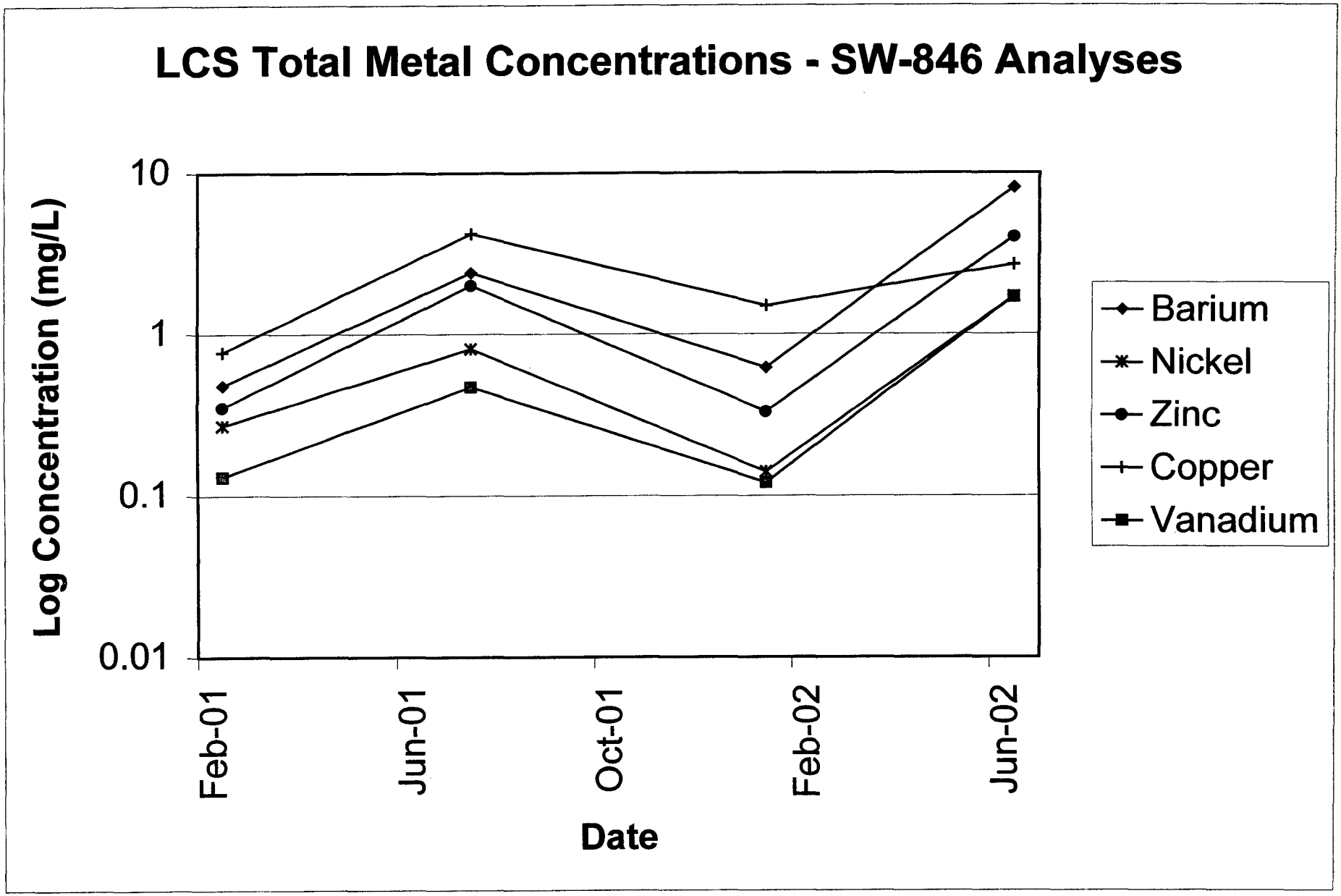

LCS Total Metal Concentrations - SW-846 Analyses
Log Concentration (mg/L)
10
1
0.1
0.01
Feb-01
Jun-01
Oct-01
Feb-02
Jun-02
Date
Barium
Nickel
Zinc
Copper
Vanadium

Figure 11(b)

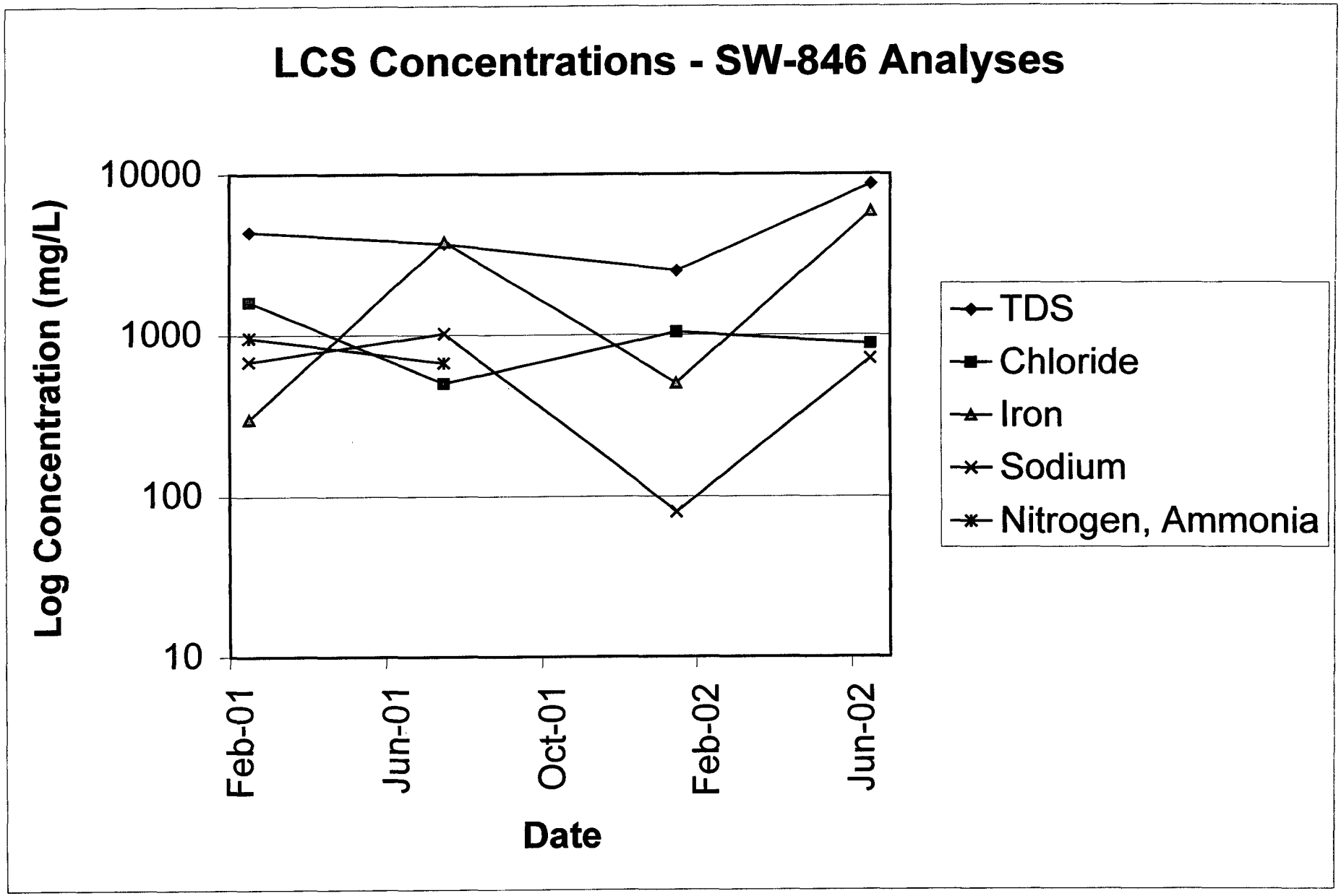

LCS Concentrations - SW-846 Analyses
Log Concentration (mg/L)
10000
1000
100
10
Feb-01
Jun-01
Oct-01
Feb-02
Jun-02
Date
TDS
Chloride
Iron
Sodium
Nitrogen, Ammonia

Figure 11(c)

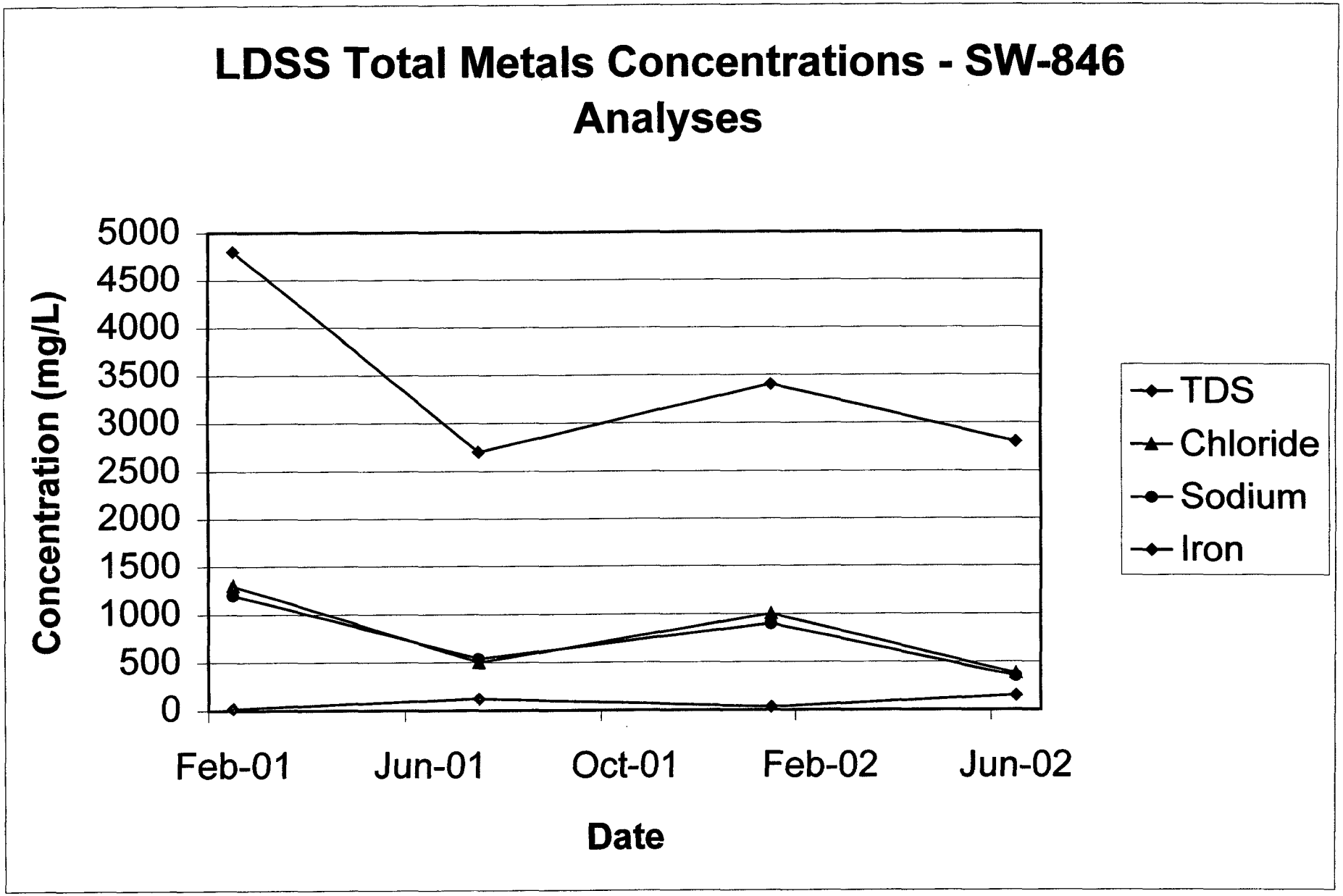

LDSS Total Metals Concentrations - SW-846 Analyses
Concentration (mg/L)
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Feb-01
Jun-01
Oct-01
Feb-02
Jun-02
Date
TDS
Chloride
Sodium
Iron

Figure 12

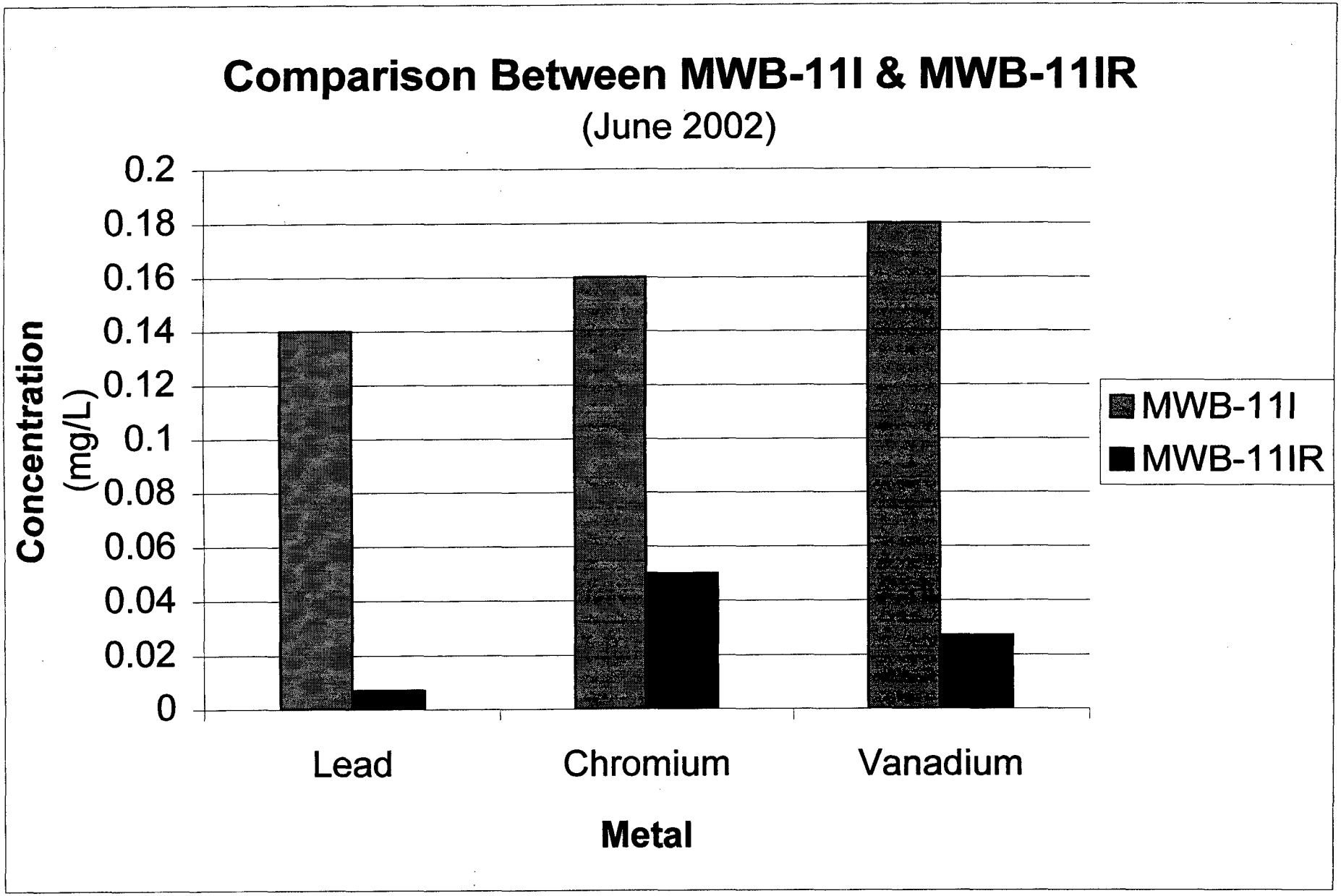

Comparison Between MWB-11I & MWB-11IR
(June 2002)
Concentration (mg/L)
0.2
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
Lead
Chromium
Vanadium
Metal
MWB-11I
MWB-11IR

Figure 13(a)

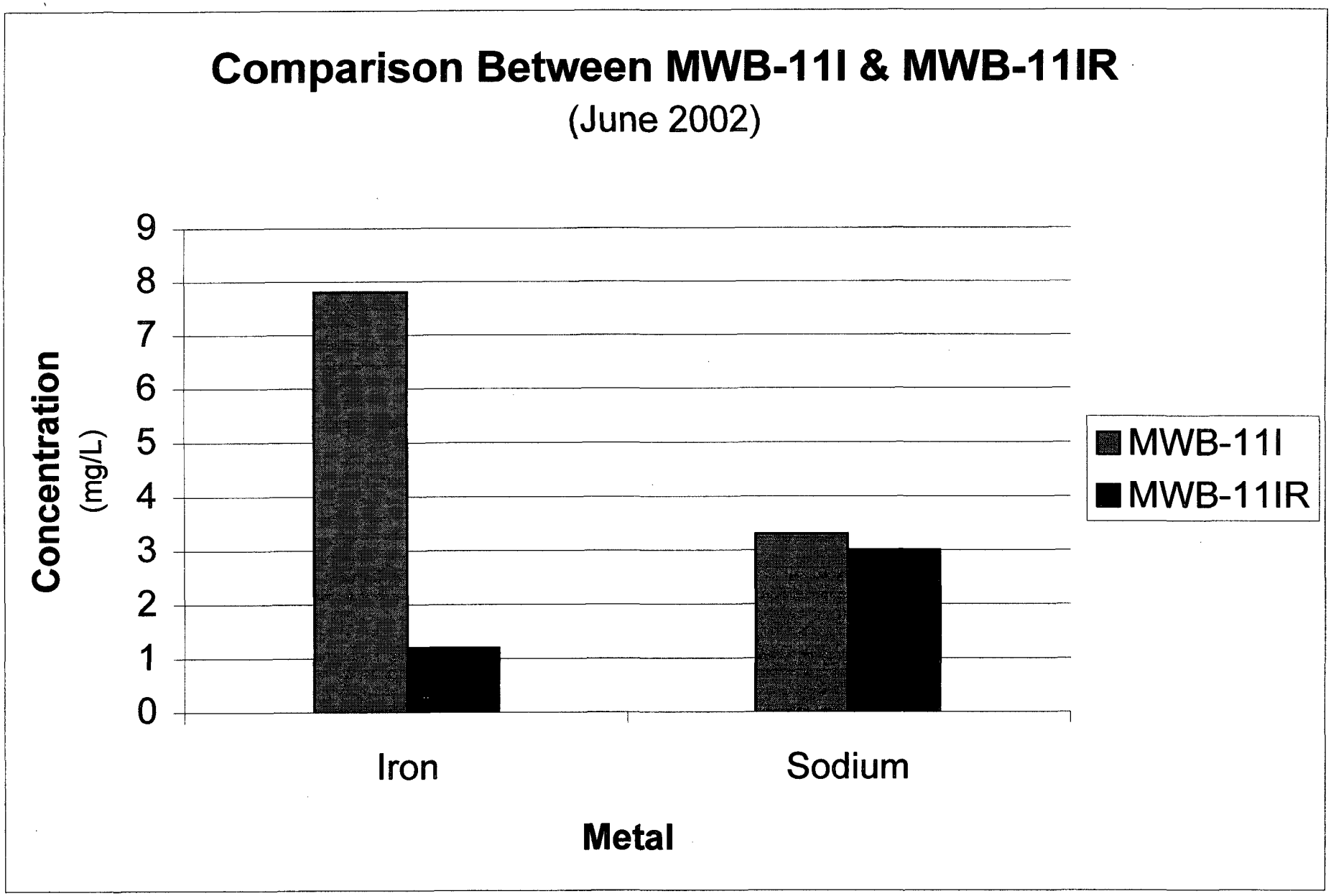

Comparison Between MWB-11I & MWB-11IR
(June 2002)
Concentration
(mg/L)
9
8
7
6
5
4
3
2
1
0
Iron
Sodium
Metal
MWB-11I
MWB-11IR

Figure 13(b)

APPENDIX A

Groundwater Parameters

BACKGROUND PARAMETERS

Field Parameters	Laboratory Parameters
Static water level in wells	Total ammonia - N
Specific conductivity	Chlorides
pH	Iron
Dissolved oxygen	Mercury
Turbidity	Nitrate
Temperature	Sodium
Colors and sheens (by observation)	Total Dissolved Solids (TDS)
	Those parameters listed in 40 CFR Part 258 Appendices I and II

SEMI-ANNUAL PARAMETERS

Field Parameters	Laboratory Parameters
Static water level in wells	Total ammonia - N
Specific conductivity	Chlorides
pH	Iron
Dissolved oxygen	Mercury
Turbidity	Nitrate
Temperature	Sodium
Colors and sheens (by observation)	Total Dissolved Solids (TDS)
	Those parameters listed in 40 CFR Part 258 Appendix I

SURFACE WATER PARAMETERS

Field Parameters	Laboratory Parameters
Specific conductivity	Unionized ammonia N
pH	Total hardness
Dissolved oxygen	Biochemical oxygen demand (BOD5)
Turbidity	Copper
Temperature	Iron
Colors and sheens (by observation)	Mercury
	Nitrate
	Zinc
	Total dissolved solids (TDS)
	Total organic carbon (TOC)
	Fecal Coliform
	Total phosphates
	Chlorophyll A
	Total Nitrogen
	Chemical oxygen demand (COD)
	Total suspended solids (TSS)
	Those parameters listed in 40 CFR Part 258 Appendix I

SPECIFIC CONDITIONS:

c. Leachate collected from the landfill shall be transported to the Buckman Wastewater Treatment Facility. The owner or operator shall obtain approval from the Department prior to disposing leachate to another wastewater treatment facility.

CMS d. The overfill prevention system and the exposed exterior of all leachate storage tanks shall be inspected weekly. If the inspection reveals a tank or equipment deficiency, leak, or any other deficiency which could result in failure of the tank to contain the leachate, remedial measures shall be taken immediately to correct the deficiency. Inspection reports shall be maintained and made available to the Department upon request for the lifetime of the liquid storage system.

CMS e. Sludge or solids taken from the leachate storage tanks, whenever the storage tanks are drained for routine maintenance, inspections, or repair, shall have a hazardous waste determination performed for metals and organics in accordance with 40 CFR 262.11 and FAC Rule 62-730.160. The sludge and solids shall be disposed of in at a permitted facility, based on the results of the testing performed.

f. The Permittee shall perform routine maintenance of the leachate collection and removal system and all associated structures, to ensure proper operation of the system.

g. The Permittee shall, in an appropriate manner, clean out the leachate collection system if and when obvious signs of obstruction(s) are exhibited.

h. Leachate recirculation is not authorized under this permit renewal; however, the Permittee may request to modify the permit to allow leachate recirculation.

CMS 44. **Leachate Monitoring.** Leachate shall be sampled semi-annually in conjunction with the groundwater monitoring schedule specified in Specific Condition Number 41o. A composite sample will be taken from the drain valve of each of the five (5) leachate collection system storage tanks (Tanks 1 thru 5) and one (1) sample shall be taken from the drain valve of the leachate detection system storage tank (Tank 6) and shall be analyzed for the following parameters:

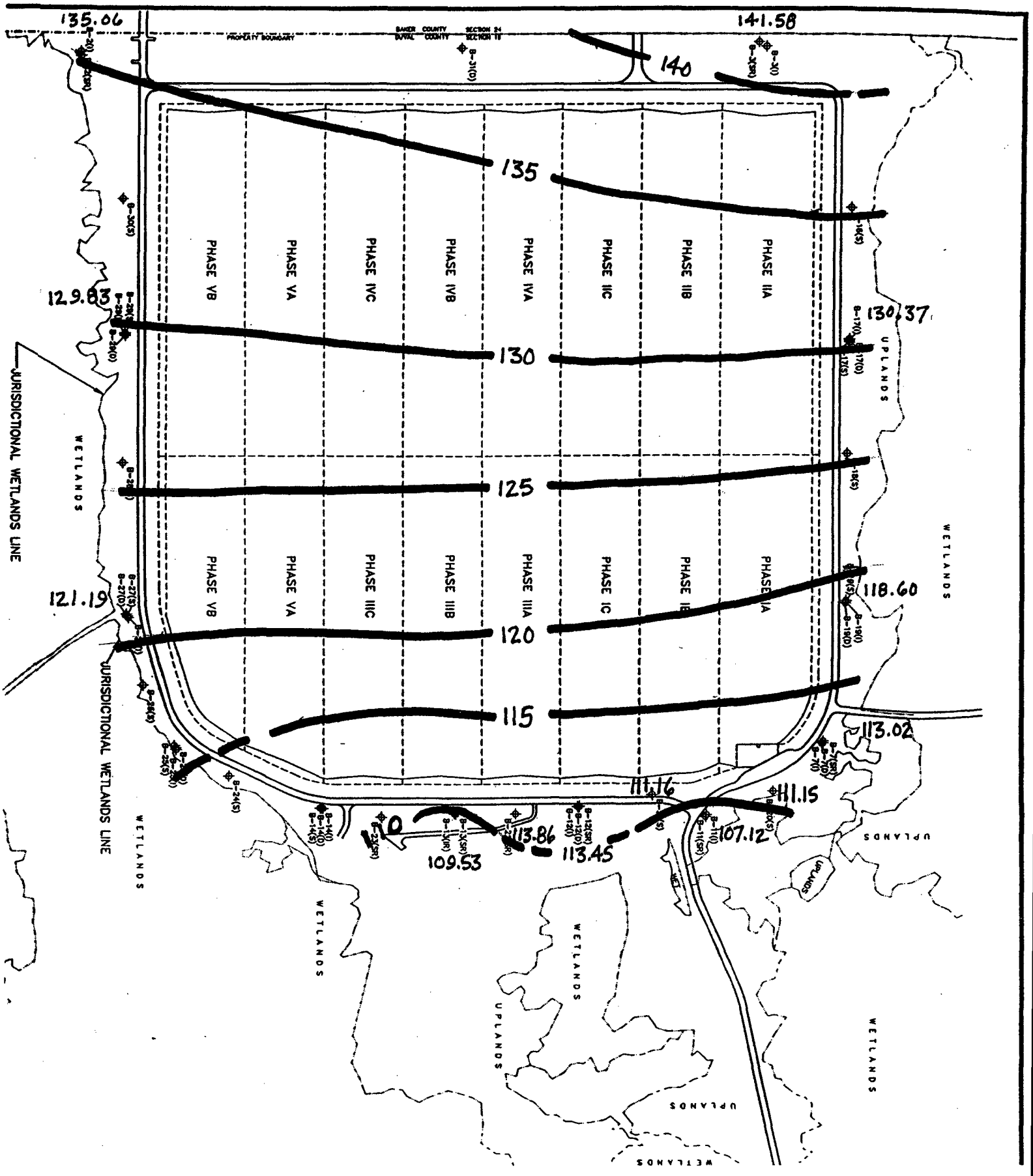
Field Parameters	Laboratory Parameters
Specific conductivity	Total ammonia - N
pH	Nitrate
Dissolved Oxygen	Bicarbonate
Colors, sheens	Chlorides
	Iron
	Mercury
	Sodium
	Total Dissolved Solids (TDS)
	Those parameters listed in 40CFR Part 258, Appendix I

APPENDIX B

Groundwater Contour Maps

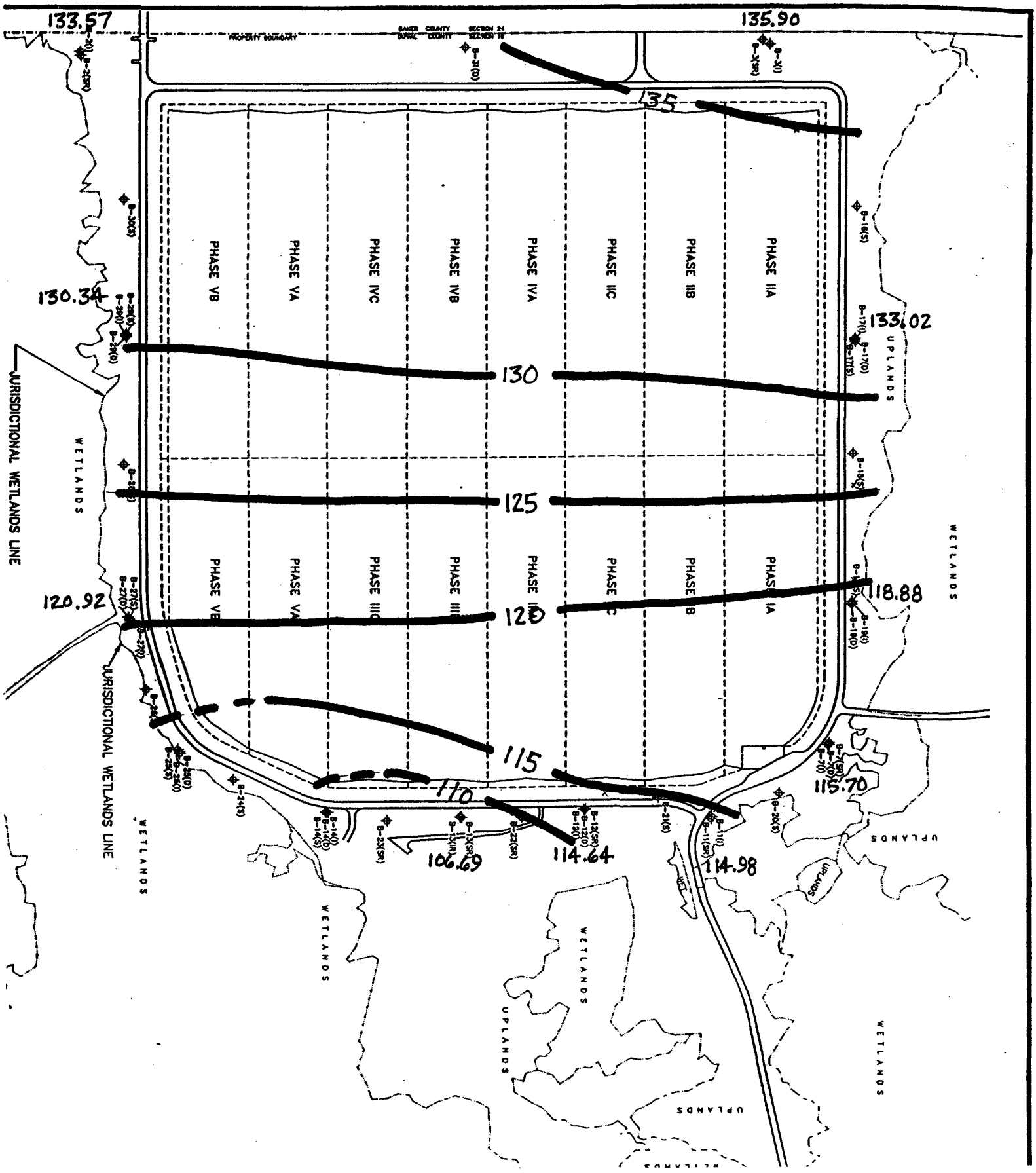
TRAIL RIDGE LANDFILL

SHALLOW WELLS
(January 31, 2001)



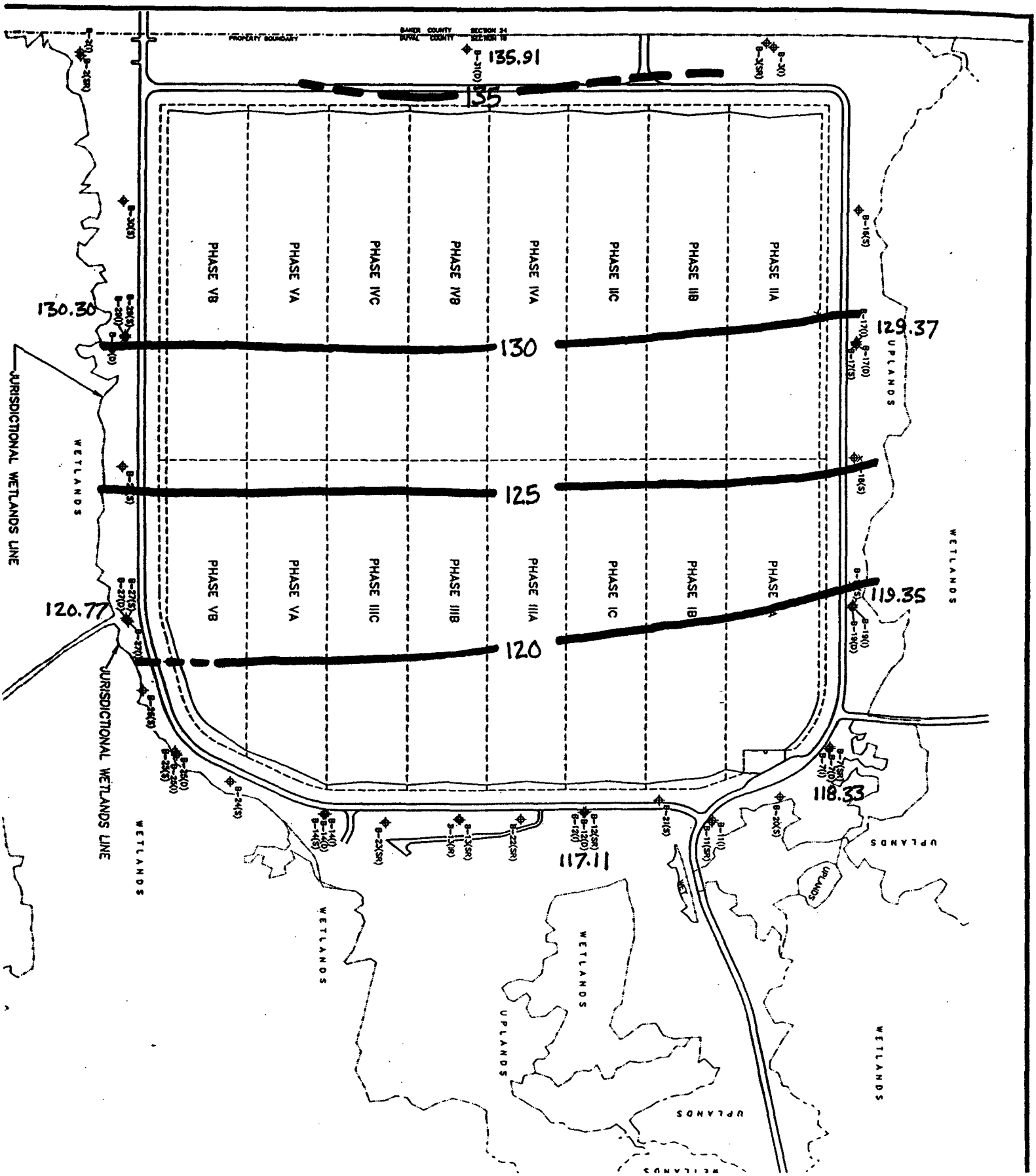
TRAIL RIDGE LANDFILL

INTERMEDIATE WELLS
(January 31, 2001)



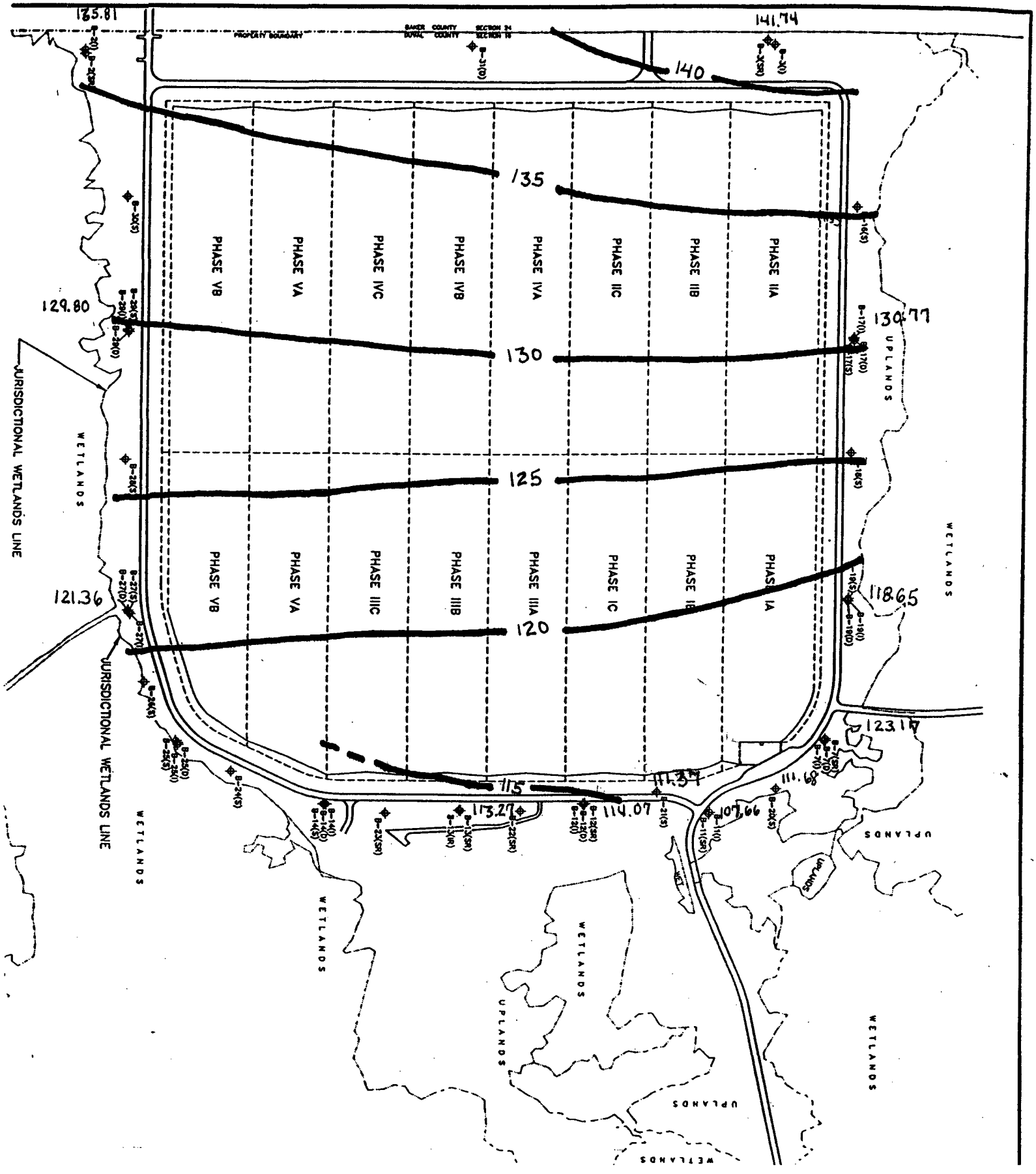
TRAIL RIDGE LANDFILL

DEEP WELLS
(January 31, 2001)



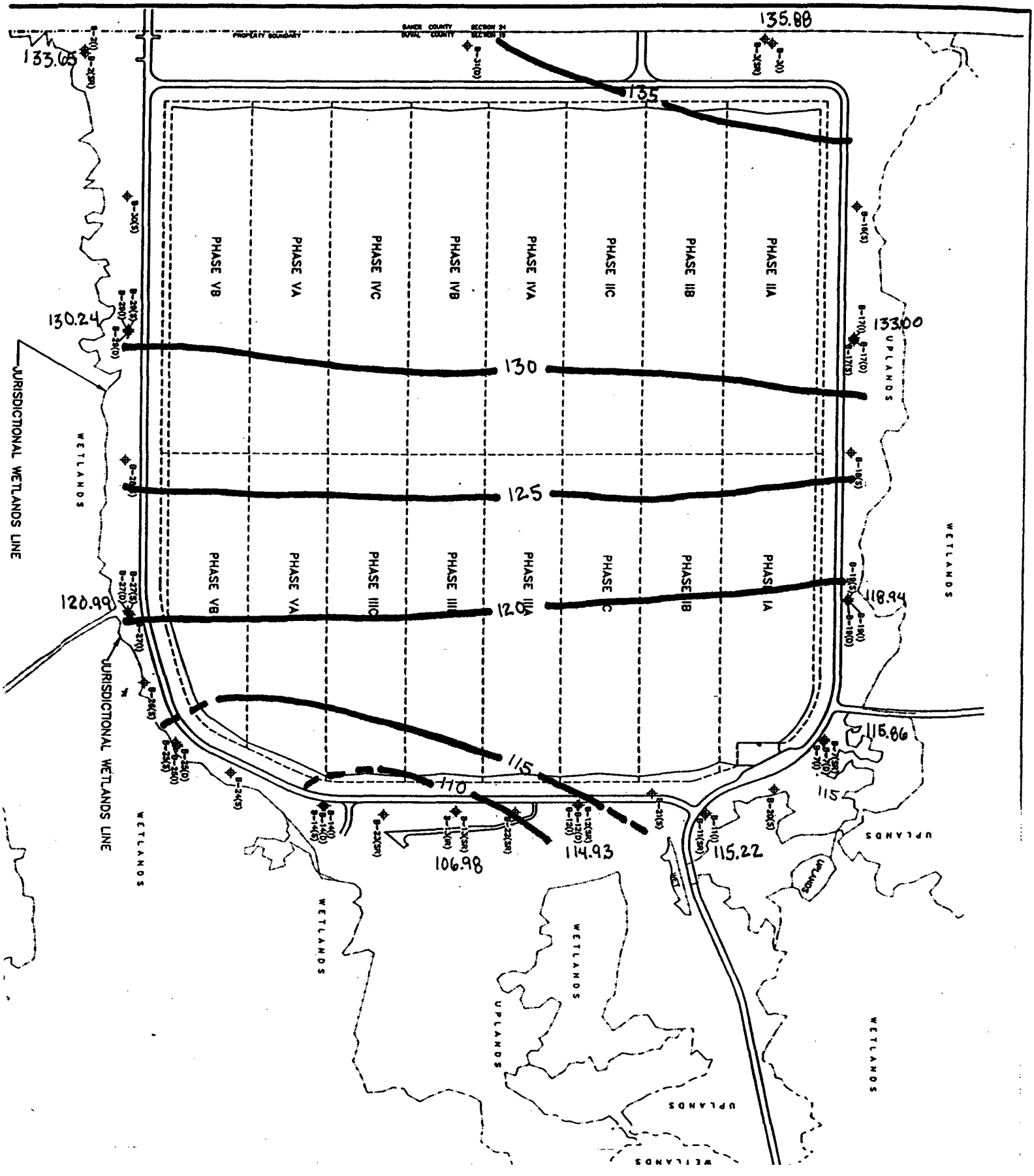
TRAIL RIDGE LANDFILL

SHALLOW WELLS
(July 17, 2001)



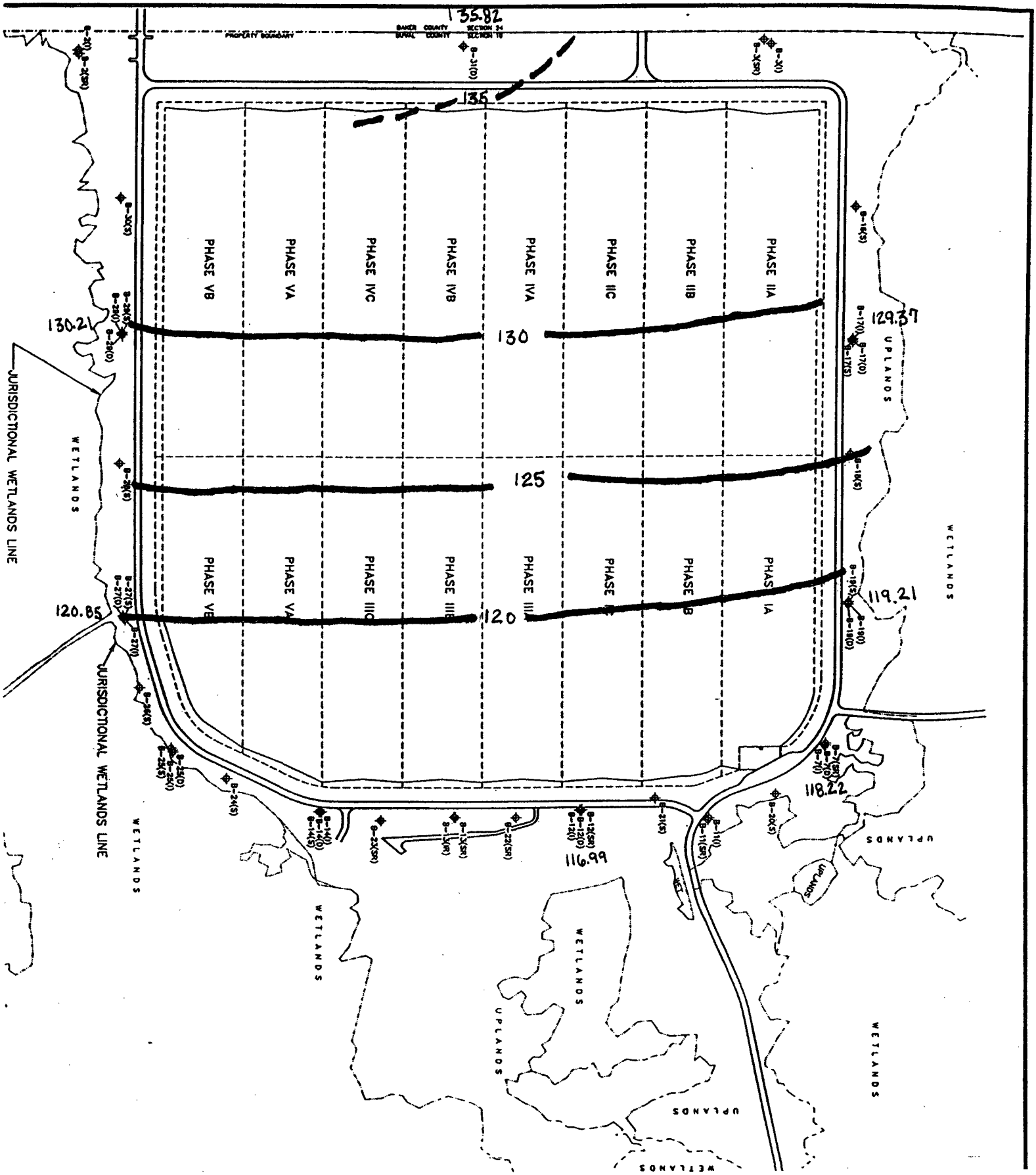
TRAIL RIDGE LANDFILL

INTERMEDIATE WELLS
(July 17, 2001)



TRAIL RIDGE LANDFILL

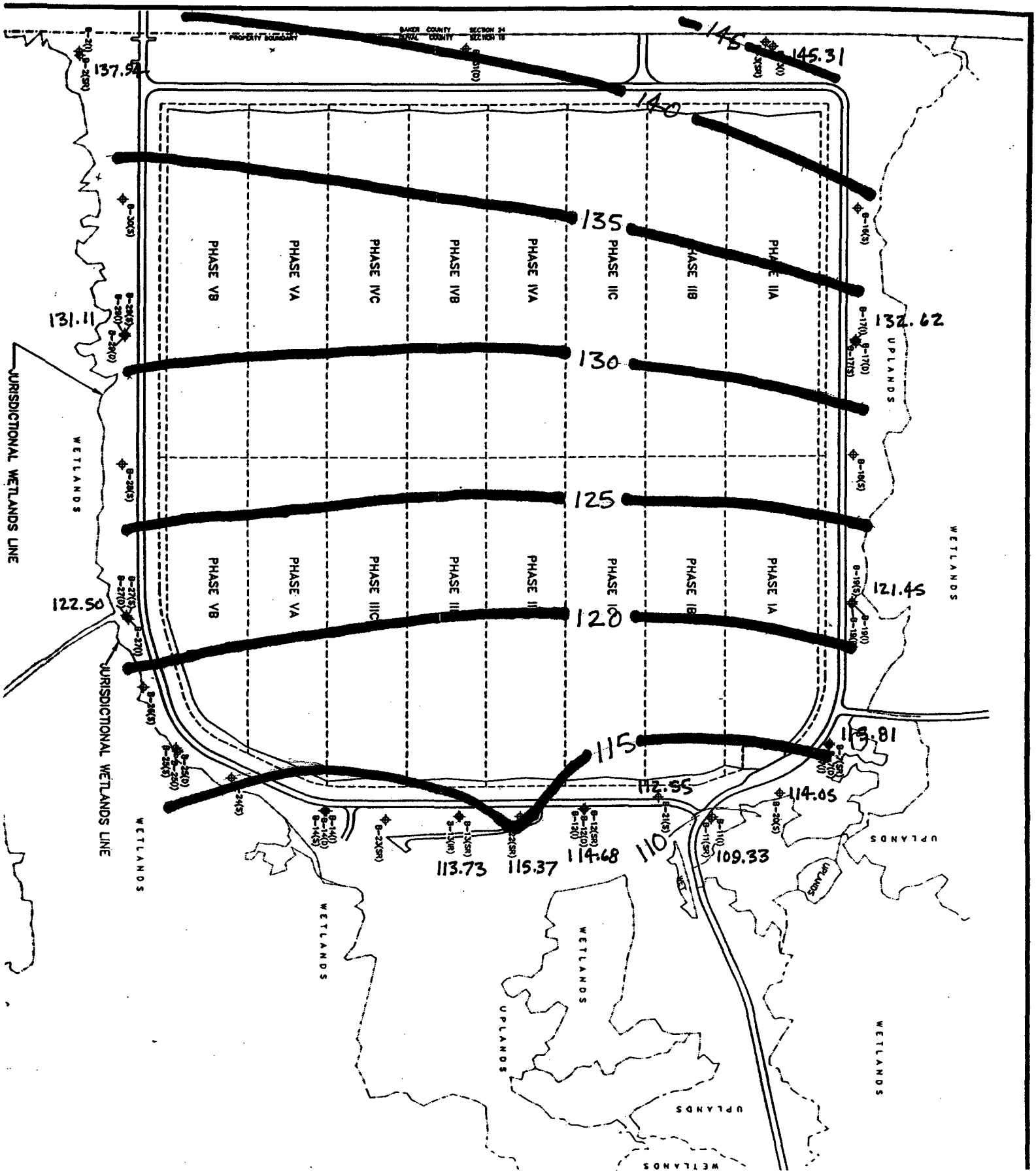
DEEP WELLS
(July 17, 2001)



TRAIL RIDGE LANDFILL

SHALLOW WELLS

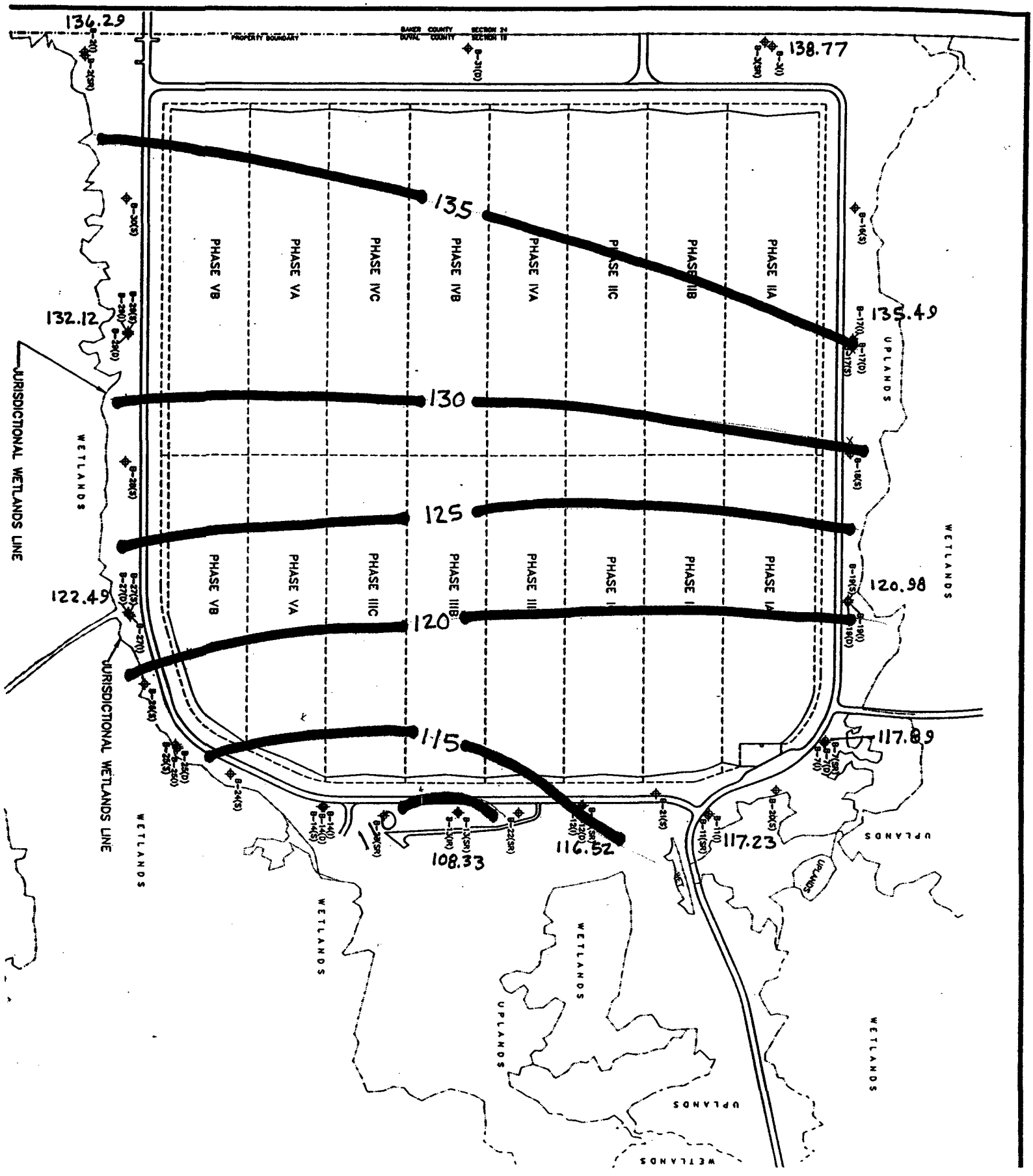
(JANUARY 15, 2002)



TRAIL RIDGE LANDFILL

INTERMEDIATE WELLS

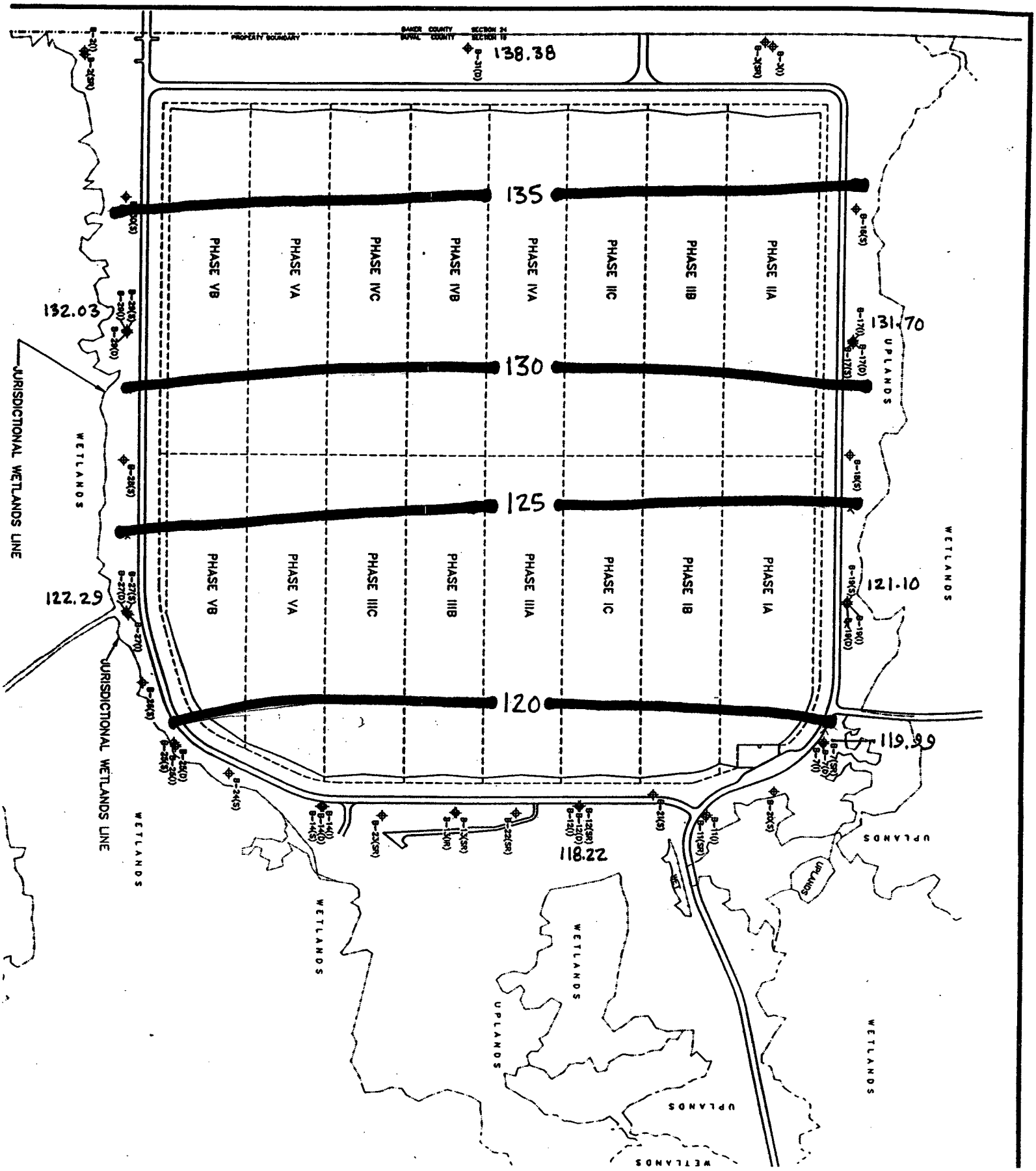
(JANUARY 15, 2002)



TRAIL RIDGE LANDFILL

DEEP WELLS

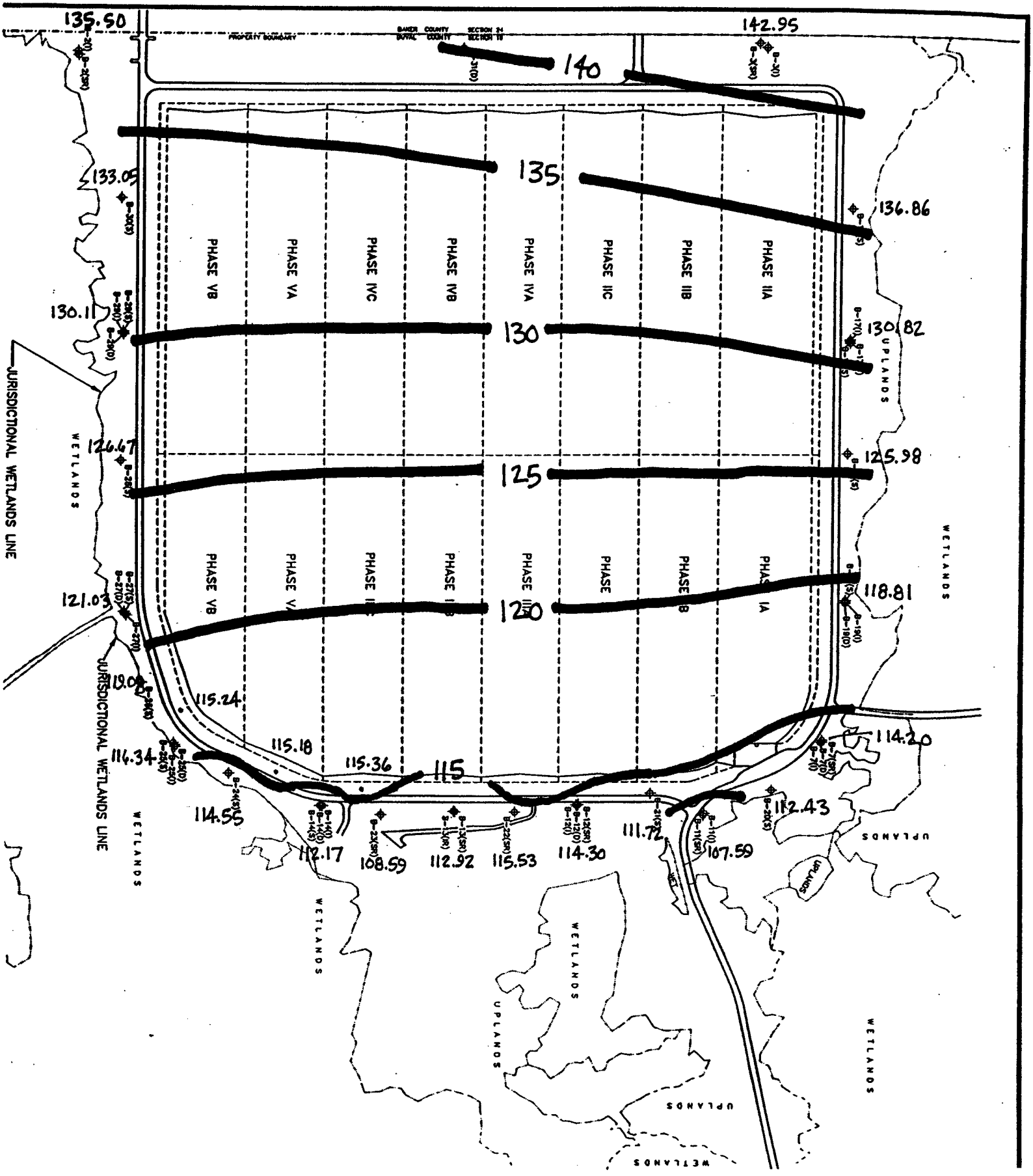
(JANUARY 15, 2002)



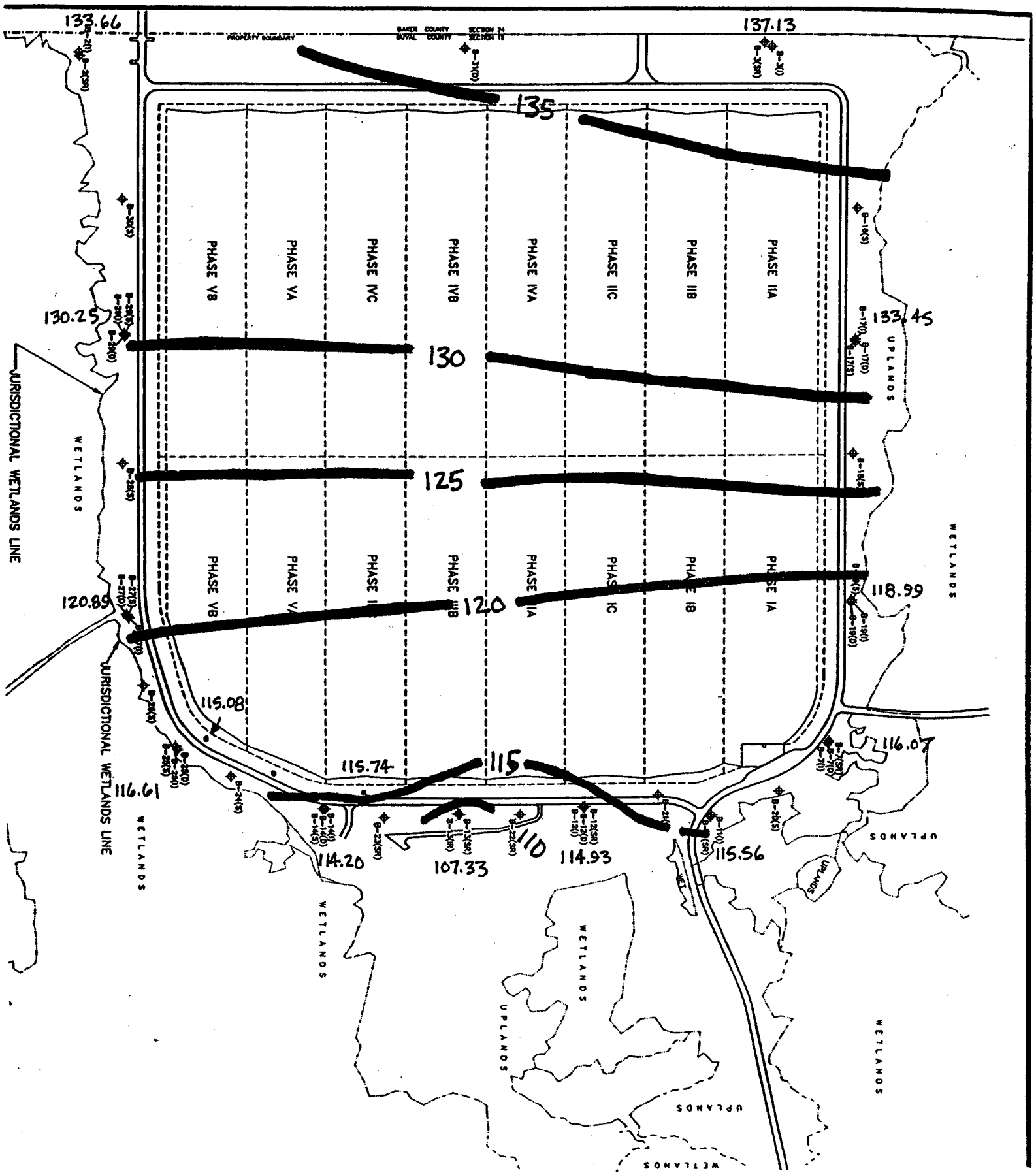
TRAIL RIDGE LANDFILL

SHALLOW WELLS

JUNE 24, 2002



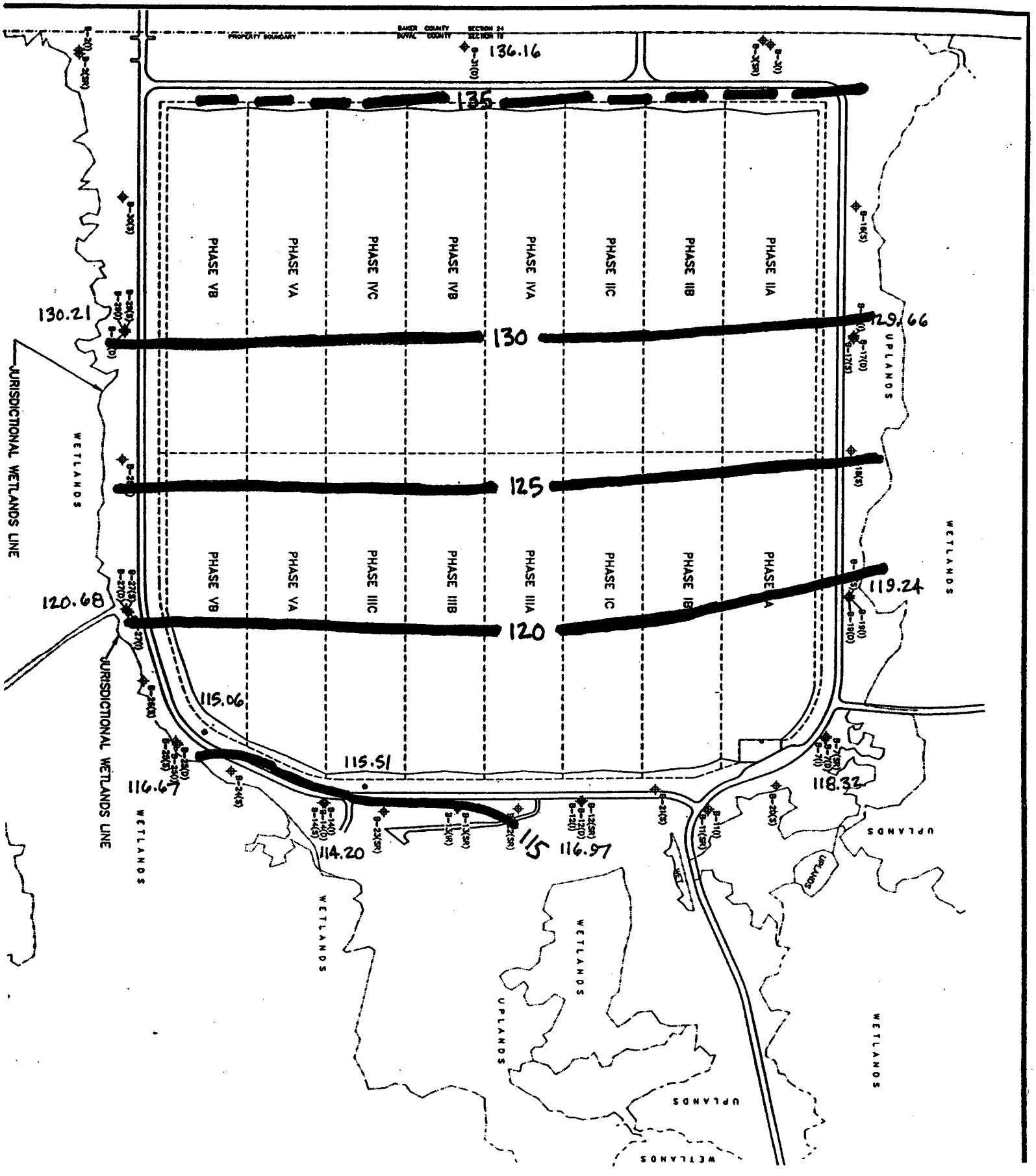
TRAIL RIDGE LANDFILL
INTERMEDIATE WELLS
JUNE 24, 2002



TRAIL RIDGE LANDFILL

DEEP WELLS

JUNE 24, 2002



Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road MS 4565
Tallahassee, Florida 32399-2400

David B. Struhs
Secretary

05/10/02

Ms. Shari Shuman
City of Jacksonville
Treasury Division
117 W. Duval Street, Suite 300
Jacksonville, Florida 32202

Re: WACS 00033628 - Trail Ridge Landfill
WACS 00032129 - North Duval Landfill
WACS 00032126 - East Duval Landfill

Dear Ms. Shuman:

I reviewed the fiscal year end 2001 Independent Auditor's Report submitted to demonstrate financial assurance for the above referenced facilities. The September 30, 2001 escrow balance of $12,300,000 for North Duval, East Duval and Trail Ridge Landfills adequately meets the funding requirements of Rule 62-701.630, Florida Administrative Code (F.A.C.) for the cost estimates dated August 30, 2000.

However, Rule 62-701.630(5), F.A.C., also requires that the audit shall include a list of all deposits and withdrawals made, by date, and indicate the escrow account balances for each landfill separately. This and previous audits submitted have included no such list. To ensure acceptance and approval of future submittals, please direct your auditor to include all required information in the audit report.

In addition, we are not in receipt of cost estimates due between July 1 and September 1, 2001 for North Duval and Trail Ridge Landfills. Please submit updated cost estimates to the Northeast District Office for review and approval, with a copy to the Solid Waste Financial Coordinator at the letterhead address. If you have questions concerning cost estimates, please contact the Northeast District Office. If you have questions concerning financial assurance mechanisms, contact me at (850) 488-0300.

Sincerely,

Frank Hornbrook

Frank Hornbrook
Environmental Specialist
Solid Waste Section

FH

cc: Fred Wick, DEP/TLH
Mary Nogas, DEP/JAX
Chris Pearson, Solid Waste Management

Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road MS 4565
Tallahassee, Florida 32399-2400

David B. Struhs
Secretary

November 9, 2001

Ms. Shari Shuman
City of Jacksonville
Treasury Division
117 W. Duval Street, Suite 300
Jacksonville, Florida 32202

Re: GMS 3116P02787 - Trail Ridge Landfill
GMS 3116M10016 - North Duval Landfill
GMS 3116M10002 - East Duval Landfill

Dear Ms. Shuman:

I reviewed the fiscal year end 2000 Independent Auditor's Report submitted to demonstrate financial assurance for the above referenced facilities. The September 30, 2000 escrow balance of $11,300,000 for North Duval, East Duval and Trail Ridge Landfills adequately meets the funding requirements of Rule 62-701.630, Florida Administrative Code (F.A.C.).

To comply with Rule 62-701.630(5)(c), F.A.C., in future audits, report all deposits and withdrawals made from the escrow account. In addition, please indicate the escrow account balances and transactions separetely for each landfill.

Your last Department approved cost estimates on file are dated August 28, 2000. Facilities using an escrow account to demonstrate financial assurance must provide an annual cost adjustment statement between July 1 and September 1 each year. This statement should be submitted to the Northeast District office for review and approval with a copy to the Solid Waste Financial Coordinator at the letterhead address. If you have questions concerning cost estimates, please contact the Northeast District office. If you have questions concerning financial assurance mechanisms, contact me at (850) 488-0300.

Sincerely,

Frank Hornbrook

Frank Hornbrook
Environmental Specialist
Solid Waste Section

FH

cc: Fred Wick, DEP/TLH
Mary Nogas, DEP/JAX

Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road MS 4565
Tallahassee, Florida 32399-2400

David B. Struhs
Secretary

June 5, 2001

Mr. Richard Cohee
City of Jacksonville
Department of Finance
117 W. Duval Street, Suite 300
Jacksonville, Florida 32202

Re: GMS 3116P02787 - Trail Ridge Landfill
GMS 3116M10016 - North Duval Landfill
GMS 3116M10002 - East Duval Landfill

Dear Mr. Cohee:

A financial assurance file review for the above referenced facilities reveals no fiscal year end 2000 escrow account audit is submitted. Pursuant to Rule 62-701.630(5), Florida Administrative Code (F.A.C.), facilities using an escrow account to demonstrate financial assurance must submit an annual audit of the closing and long-term care landfill management escrow account by March 31 each year. The audit shall be conducted by an independent certified public accountant and consist of reporting the escrow account balance and all deposits and withdrawals made. Within thirty (30) days of the date of this letter, please submit the requested documentation to the Solid Waste Financial Coordinator at the letterhead address.

Remember, facilities using an escrow account to demonstrate financial assurance must provide annual cost estimate updates between July 1 and September 1 each year, in accordance with Rule 62-701.630, F.A.C. These statements should be submitted to the Northeast District office for review and approval, with a copy to the Solid Waste Financial Coordinator.

If you have any questions, please contact me at (850) 488-0300.

Sincerely,

Chad Fetrow
Environmental Specialist
Solid Waste Section

CWF

cc: Mary Nogas, FDEP
Fred Wick, FDEP

Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road MS 4565
Tallahassee, Florida 32399-2400

David B. Struhs
Secretary

M E M O R A N D U M

TO: Solid Waste Management Facility Owners and Operators

FROM: Fred J. Wick, Environmental Manager
Solid Waste Section

DATE: July 5, 2001

SUBJECT: Updating Cost Estimates for Escrow Account Users

This memo is a reminder to owners and operators of solid waste management facilities that use an escrow account to demonstrate proof of financial assurance that it is time to inflation adjust facility closure cost estimates. If you have already submitted your cost estimate update for 2001, please disregard this notice.

Cost estimate adjustments must be made every year between July 1 and September 1. To fully comply with the filing requirements of Rule 62-701.630, Florida Administrative Code, you must complete Form 62-701.900(28). This form is new and is available on-line at

http://www.dep.state.fl.us/dwm/rules/forms/62-701/financial/701_28.pdf

(note the underscore between 701 and 28), or directly from DEP offices. Remember, if you are adjusting your estimate using the 2000 inflation factor (1.020), you still must submit it on Form 62-701.900(28).

Please submit updated cost estimates to the appropriate district office for review and approval, with a copy to the Solid Waste Financial Coordinator at the address above. Contact your district office for further assistance with cost estimates. If you have any questions about your escrow account, please contact Chad Fetrow at (850) 488-0300.

cc: Mary Jean Yon, DEP/TLH
Mary Nogas, DEP/JAX
Bob Butera, DEP/TPA
Lee Hoefert, DEP/WPB
Jack McNulty, DEP/PEN
Jim Bradner, DEP/ORL
Ghaus Minhaj, DEP/FM

DISTRICT	FAC_NAME	CL_DOCU	PCL_DOCU
NE	AUCILLA AREA LF	ES	ES
NE	BAKER COUNTY CENTRAL LF		ES
NE	BRADFORD COUNTY CENTRAL		ES
NE	BRYCEVILLE SLF		ES
NE	CAMP BLANDING LF		ES
NE	CENTRAL UNION LF		ES
NE	DIXIE COUNTY CENTRAL LF		ES
NE	DOCTORS INLET LF		ES
NE	EAST DUVAL SLF		ES
NE	GILCHRIST COUNTY LF		ES
NE	HAMILTON COUNTY SLF	ES	ES
NE	HUNTINGTON SLF		ES
NE	INTERLACHEN SLF		ES
NE	JEFFERSON COUNTY SLF		ES
NE	KEYSTONE HEIGHTS CLASS II LF		ES
NE	KEYSTONE HEIGHTS CLASS III LF		ES
NE	LAFAYETTE CO. CENTRAL LF		ES
NE	LEVY COUNTY LANDFILL	ES	ES
NE	LOFTON CREEK LF		ES
NE	LONG BAY LF		ES
NE	MADISON COUNTY CENTRAL LF		ES
NE	NEW RIVER REGIONAL LANDFILL	ES	ES
NE	NORTH DUVAL LANDFILL		ES
NE	OLD KINGS ROAD LF		ES
NE	PUTNAM CENTRAL - PHASE I		ES
NE	PUTNAM CENTRAL - PHASE II & III	ES	ES
NE	ROSEMARY HILL	ES	ES
NE	SOUTHWEST ALACHUA SLF	ES	ES
NE	SUWANNEE COUNTY CENTRAL LF	ES	ES
NE	TAYLOR COUNTY CENTRAL LF		ES
NE	TRAIL RIDGE LANDFILL	ES	ES
NE	WEST NASSAU SLF	ES	ES
NE	WINFIELD SOLID WASTE FACILITY	ES	ES

England-Thims & Miller, Inc.

ENGINEERS • PLANNERS • SURVEYORS • LANDSCAPE ARCHITECTS

Principals
James E. England, P.E., C.E.O.
Douglas C. Miller, P.E., President
N. Hugh Mathews, P.E., Exec. V.P.
Joseph A. Tarver, Exec. V.P.
Juanita Bader Clem, P.E., V.P.
Jeffrey A. Crammond, P.E., V.P.
Scott A. Wild, P.E., P.S.M., V.P.

FAX TRANSMISSION

To: Mary Nogas, P. E.
Dept. of Environmental Protection

Date: March 7, 2001

From: Francis Dayao

Pages: 17, including cover page

Reference: Trail Ridge Landfill - Incremental Closure

ETM No.:

If you do not receive all pages or have difficulty reading this document, please contact Francis Dayao at (904) 642-8990.

Comments:

Dear Mary:

Please find herewith information regarding the quality assurance/quality control plan for the incremental side slope closure. A copy of the letter from your office (dated July 10, 1996) regarding financial assurance is also attached.

We will call you this afternoon to discuss this further.

Sincerely,

England, Thims & Miller, Inc.

Francis

Attachments

Department of Environmental Protection

Lawton Chiles
Governor

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7590

Virginia B. Wetherell
Secretary

July 10, 1996

Mr. Chris Pearson
City of Jacksonville
Department of Public Utilities
515 North Laura Street
Jacksonville, Florida 32202

Dear Mr. Pearson:

Trail Ridge Landfill
Financial Assurance for Closure
FDEP Permit Number SC16-184444
Duval County - Solid Waste

The Department has completed review of the financial assurance cost estimate dated August 15, 1995 for the closure of the subject landfill. Since the closure cost estimate is for the top portion of the Class I landfill only, the Department requests that the estimate be adjusted to reflect closure of the entire landfill including the side slopes. Although Specific Condition Number 34 of the subject permit requires installation of the final cover system on the exterior side slopes within 180 days of final waste placement in those areas, the closure cost estimate should include the cost of closing the entire Class I landfill. However, annual closure cost estimates may be adjusted to exclude those areas that have received final cover.

Please call Francis Dayao of my staff or me at telephone number (904) 448-4320, if you have any questions regarding this letter.

Sincerely,

Mary C. Nogas, P. E.
Solid Waste Supervisor

MCN:fd

cc: Juanitta Clem, P. E., England, Thims and Miller, Inc.
Fred Wick, FDEP, Tallahassee

England-Thims & Miller, Inc.
Consulting & Design Engineers
3131 St. Johns Bluff Road So. Jacksonville, FL 32246
904-642-8990

PRINCIPALS
James E. England, P.E. President
Robert E. Thims, V.Pres. Sec
Douglas C. Miller, P.E., V. Pres
N. Hugh Mathews, P.E., V. Pres.

September 1, 1993

Ms. Mary C. Nogas, P.E.
Waste Management Section
Northeast District
Department of Environmental Protection
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256

Reference: Trail Ridge Landfill
Permit No. SC16-184444
ET&M No. E93-143

Dear Ms. Nogas:

By this letter and on behalf of Trail Ridge Landfill, Inc., we hereby notify the Department (in accordance with Specific Condition No. 1 of the subject permit) that closure construction of Side Slope Units 5, 6, 7, 8, 9 and 10 will commence on September 7, 1993. The Contractor chosen for this closure construction is J.B. Coxwell Contracting, Inc.

Attached is the Quality Assurance/Quality Control Plan for this project. Upon completion of construction, the necessary QA/QC documentation will be submitted to the Department as a part of the certification documents.

Should you have any questions regarding this information, please do not hesitate to give me or Juanitta Clem a call.

Sincerely,

ENGLAND, THIMS & MILLER, INC.

Douglas C. Miller, P.E.
Vice President

attachment

cc: Greg Mathes
Mary Ardiff
Jim Lukens
Chris Pearson
Jim Horton

TRAIL RIDGE LANDFILL CLOSURE
PHASES I AND II
CONSTRUCTION QA/QC PLAN

This plan addresses the quality assurance and quality control (QA/QC) for the side slope unit closure construction. This plan delineates the quality procedures and standards for the construction.

In the context of this plan, quality assurance and quality control are defined as follows:

Quality Assurance - A planned and systematic pattern of all means and actions designed to provide adequate confidence that items or services meet contractual and regulatory requirements and will perform satisfactorily in service.

Quality Control - Those actions which provide a means to measure and regulate the characteristics of an item or service to contract and regulatory requirements.

The City of Jacksonville is the owner of Trail Ridge Landfill and Trail Ridge Landfill, Inc. is the permittee/operator of the landfill. The landfill began to receive waste in May of 1992. England, Thims & Miller, Inc. is the design engineer. The Contractor for the construction has not been chosen. The name of the Contractor will be provided to the Department of Environmental Protection, once a Contractor is chosen.

The QA/QC Plan for this project includes General QA/QC and Soils QA/QC. The General QA/QC includes periodic observation of the contractor's work to verify substantial compliance with permits, plans, specifications and design concepts. These services will be conducted by England, Thims & Miller, Inc. and will include the following:

General Quality Control Monitor - shall monitor the construction for compliance with the permits, plans, specifications and design including construction to proper lines and grades, maintain weekly progress reports of the construction (including observation data sheets, problem identification and correction logs), make note of any construction deviations, and coordinate qualifying and testing of materials. This individual shall be experienced in civil site construction and solid waste regulations and shall work under the supervisor of the General Quality Assurance Engineer.

General Quality Assurance Engineer - shall supervise the construction monitoring to verify compliance with permits, plans, specification and design concepts. This individual shall be experienced in civil site construction and solid waste regulations/construction and shall be a registered Professional Engineer.

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Rev. 8/25/93

The General QA/QC includes monitoring the construction and construction sequence of the following activities:

1. General Earthwork
2. Underdrain Installation
3. Drainage Installation
4. Gas Well Installation
5. Sodding/Overseeding
6. General Construction Quality Control
7. Prepare As-Built Drawings and Surveys

The Soils QA/QC for this project includes full-time services to periodically observe the Contractor's work and conduct soil material qualifying and testing to verify substantial compliance with the material standards. This work will be conducted by Law Engineering and will include the following:

Soils Quality Control Monitor - shall pre-qualify soil materials, monitor the installation of soil materials, determine where in-place soil materials shall be tested, and test the in-place soil materials. This individual shall be responsible for assuring that all soil materials have been pre-qualified, prior to installation. This individual shall be experienced in civil site construction and soil testing standards and procedures and shall work under the supervisor of the Soils Quality Assurance Engineer.

Soils Quality Assurance Engineer - shall supervise the soil material pre-qualifying and testing of in-place soil materials to assure compliance with the test standards and testing frequency requirements, and verify compliance with the plans, specification and design. This individual shall be experienced in civil site construction and soil testing procedures and shall be a registered Professional Engineer.

The QA/QC Program includes monitoring the construction of the following:

A. Final Cover Installation (Initial Cover, Compacted Clay Layer and Top Soil)

The final cover shall consist of 18" (minimum) of initial cover, 12" (minimum) of compacted clay, and 24" (minimum) of top soil. The compacted clay layer of the final cover must be tied into any existing compacted clay layers, if applicable and must be placed in two 6" (minimum) lifts. The Soils Quality Control Monitor shall observe the construction of the final cover on a full time (on-site) basis. The QA/QC for the final cover is as follows:

1. Tie-In to Existing Cover (When Applicable)

   a. Location - The edge of any existing final cover adjacent to the proposed final cover area.

   b. Standard - The compacted clay layer of any existing final cover and the proposed final cover must be tied together to form one continuous seamless layer.

   c. Frequency - The Soils Quality Control Monitor shall monitor the tie-in on a continuous basis.

2. Initial Cover (Compacted Clay Layer Subgrade)

   a. Location - Any material used to amend the existing soils shall be pre-qualified at the borrow source.

   The soil shall be tested for thickness and density in place after compaction. The location of testing shall be determined by the Soils Quality Control Monitor.

   b. Standard - Any material used to amend the existing soils shall be clean granular soil, free from organics, roots, stumps, rocks and any other deleterious materials.

   The initial cover shall be at least 18" in thickness (compacted).

   Compacted to 90% of Modified Proctor maximum dry density (ASTM D 1557).

   c. Frequency - Any soil used to amend the existing soils shall be tested once per 500 CY of material.

   Depth measurements shall be taken at the frequency of four measurements per acre for the first five acres. Thereafter, depth measurements shall be taken at the frequency of two measurements per acre.

   Density tests shall be conducted at a frequency of four tests per acre for the first five acres. Thereafter, density tests shall be conducted at a frequency of two tests per acre.

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Rev. 8/25/93

3. Compacted Clay Layer

a. Borrow Source - Prior to installation of the compacted clay layer, an appropriate borrow source shall be located. Suitability of the construction materials from that source shall be determined in accordance with the following:

(1) If demonstrated field experience is available from at least three prior successful projects of five or more acres each to document that a given borrow source can meet the requirements of the project specifications, then extensive laboratory testing of the borrow source will not be required. However, the source of material shall be geologically similar to and the methods of excavating and stockpiling the material shall be consistent with those used on the prior projects. Furthermore, a minimum of three representative samples from the appropriate thickness of the in-situ stratum or from stockpiles of the borrow material proposed for compacted clay layer construction shall be submitted to an independent soil testing laboratory to document through index testing that the proposed material is consistent with the material used on prior successful projects. At a minimum, index testing shall consist of percent fines, Atterberg limits and moisture content determinations.

(2) If demonstrated field experience as defined above is not available or cannot be documented, then the following requirements shall be met.

(a) A field exploration and laboratory testing program shall be conducted by an independent soil testing laboratory to document the horizontal and vertical extent and the homogeneity of the soil strata proposed for use as compacted clay material. A sufficient number of index tests from each potential borrow stratum shall be performed to quantify the variability of the borrow materials and to document that the proposed borrow material complies with specifications. At a minimum, the index tests shall consist of percent fines, Atterberg limits and moisture content determinations.

(b) Sufficient laboratory hydraulic conductivity tests shall be conducted on samples representative of the range in variability of the proposed borrow source (ASTM D 5084). For each such sample, test specimens shall be prepared and tested to cover the range of molding conditions (moisture content and dry density) required by project specifications. The hydraulic conductivity tests shall be conducted in triaxial type permeameters. The test specimens shall be consolidated under an isotropic consolidation stress no greater than 10 pounds per square inch and permeated with water under an adequate backpressure to achieve saturation of the test specimens. The inflow to and outflow from the specimens shall be monitored with time and the hydraulic conductivity

calculated for each recorded flow increment. The test shall continue until steady state flow is achieved and relatively constant values of hydraulic conductivity are measured (ASTM D 5084). The borrow source will only be considered suitable if the hydraulic conductivity of the material, as documented on laboratory test specimens, can be shown to meet the requirements of the project specifications at the 98 percent confidence level.

b. Test Strip - Prior to full-scale installation of the compacted clay layer, a field test section or test strip shall be constructed at the site above a prepared subbase. The test strip shall be considered acceptable if the measured hydraulic conductivities of undisturbed samples from the test strip meet the requirements of the project specifications at the 98 percent confidence level. If the test section fails to achieve the desired results, additional test sections shall be constructed. The test strip(s) shall be constructed in accordance with the following requirements:

(1) The test section shall be of sufficient size (20' x 60' minimum) such that full-scale installation procedures can be duplicated within the test section;

(2) The test section shall be constructed using the same equipment for spreading, kneading and compaction and the same construction procedures (e.g., number of passes, moisture addition and homogenization, if needed) that are anticipated for use during full-scale installation;

(3) At a minimum, the compacted clay layer test section shall be subject to the following field and laboratory testing requirements:

(a) A minimum of five random samples of the construction material delivered to the site during test section installation shall be tested for moisture content (ASTM D 2216), percent fines (ASTM D 1140) and Atterberg limits (ASTM D 4318);

(b) At least five field density and moisture determinations shall be performed on each lift of the compacted test section;

(c) Upon completion of the test section lift, the thickness of the lift shall be measured at a minimum of five random locations to check for thickness adequacy; and

(d) A minimum of five Shelby tube or drive cylinder (ASTM D 2937) samples shall be obtained from each lift of the test section for laboratory hydraulic conductivity testing. Laboratory hydraulic conductivity testing shall be conducted in triaxial type permeameters (ASTM D 5084). The

test specimens shall be consolidated under an isotropic consolidation stress no greater than 10 pounds per square inch and permeated with water under an adequate backpressure to achieve saturation of the test specimens. The inflow to and outflow from the specimens shall be monitored with time and the hydraulic conductivity calculated for each recorded flow increment. The test shall continue until steady state flow is achieved and relatively constant values of hydraulic conductivity are measured (ASTM D 5084).

(e) The test strip shall meet or exceed the standards established below. If the test strip fails to meet these standards, the construction methods and/or material will be rejected and the test strip shall be performed again.

c. Compacted Clay Layer Installation - Full scale compacted clay layer installation may begin only after completion of a successful test section. During construction, quality control testing shall be provided to document that the installed layer conforms to project specifications. The compacted clay layer shall be installed in two 6" (minimum) lifts for a total minimum thickness of 12" (minimum).

(1) Location - The compacted clay layer shall be tested in place. The locations of testing shall be determined by the Soils Quality Control Monitor. If there are indications of a change in product quality or construction procedures during construction, additional tests shall be performed to determine compliance.

(2) Standard -

(a) Compacted Clay Layer Subgrade - Compacted to 90% of Modified Proctor maximum dry density (ASTM D 1557).

(b) Field Density - The field density of the clay layer shall not be less than 90% of Standard Proctor Density (ASTM D 698).

(c) Thickness - Each lift (two total) shall be a minimum of 6" thick.

(d) Hydraulic Conductivity - The compacted clay layer shall have an in-place hydraulic conductivity no greater than 1×10^{-7} cm/sec (ASTM D 5084).

(3) Field Testing Frequency -

(a) Prior to the laying of the compacted clay materials, the subbase shall be compacted to the specified density. Density tests shall be conducted at a minimum rate of four tests per acre for the first five acres. Thereafter, density tests shall be conducted at a frequency of two tests per acre;

(b) A minimum of four moisture content and field density determinations shall be conducted per acre per lift of the compacted clay layer for the first five acres per lift. Thereafter, two moisture content and field density determinations shall be conducted per acre per lift of the compacted clay. The degree of compaction shall be checked using the one-point field Proctor test or other appropriate test procedures; and

(c) A minimum of eight thickness measurements shall be conducted per acre per lift of the compacted clay layer for the first five acres per lift. Thereafter, four thickness measurements shall be conducted per acre per lift of the compacted clay layer.

(4) Laboratory Testing Frequency -

(a) Percent fines (ASTM D 1140) of the liner construction material shall be determined at a minimum frequency of four tests per acre per lift of the installed compacted clay layer for the first five acres per lift. Thereafter, the percent fines shall be determined at a minimum frequency of two tests per acre per lift of the compacted clay layer;

(b) Atterberg limits determinations shall be performed on two samples per acre per lift of the installed compacted clay layer for the first five acres per lift. Thereafter, Atterberg limits determinations shall be performed on one sample per acre per lift of the compacted clay layer; and

(c) Hydraulic conductivity testing of Shelby tube or drive cylinder (ASTM D 2937) samples of the compacted clay layer shall be performed at a minimum frequency of two tests per acre per lift for the first five acres per lift. Thereafter, hydraulic conductivity testing shall be performed at a minimum frequency of one test per acre per lift. Laboratory hydraulic conductivity tests shall be conducted in triaxial type permeameters (ASTM D 5084). The test specimens shall be consolidated under an isotropic consolidation stress no greater than 10 pounds per square inch and permeated with water under an adequate backpressure to achieve saturation of the test specimens. The inflow to and outflow from the specimens shall be monitored with time and the hydraulic conductivity

calculated for each recorded flow increment. The test shall continue until steady state flow is achieved and relatively constant values of hydraulic conductivity are measured.

(5) Deficiency - If the test data from a compacted clay layer section does not meet the requirements of the project specifications, additional random samples may be tested from that section. If such additional testing demonstrates that the thickness and hydraulic conductivity meet the requirements of the project specifications at the 95 percent confidence level, that section will be considered acceptable. If not, that section shall be reworked or reconstructed so that it does meet these requirements.

4. Top Soil Layer

a. Location - The top soil shall be pre-qualified at the borrow source.

After placement, the top soil layer shall be tested in place. The location of testing shall be determined by the Soils Quality Control Monitor.

b. Standard - Top soil shall have an organic content of at least 1.5 percent but not more than 10.0 percent (ASTM D 2974) and shall have a pH value between 5.0 and 7.0 (ASTM E 70). Top soil shall be suitable for plant growth and reasonably free of brush, weeds, litter, roots, stumps, stones and any other extraneous or toxic matter harmful to plant growth. Roots greater than 3/8" diameter shall be removed.

The top soil layer shall be at least 21" in thickness (compacted).

Compacted to 90% of Modified Proctor maximum dry density (ASTM D 1557).

c. Frequency - The soil shall be monitored on a continuous basis for extraneous matter.

Organic content and pH shall be tested at the frequency of four tests per acre for the first five acres. Thereafter, the organic content and pH shall be tested at the frequency of two tests per acre.

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Depth measurements shall be taken at the frequency of four measurements per acre for the first five acres. Thereafter, the depth measurements shall be taken at the frequency of two measurements per acre.

Density tests shall be conducted at a frequency of four tests per acre for the first five acres. Thereafter, the density tests shall be conducted at a frequency of two tests per acre.

B. Downcomer Pipes (Clay Encasement)

Downcomer pipes shall be installed in the final cover at the low point of the terraces, to intercept the stormwater between terraces. The downcomer pipes shall include the terrace side drains and terrace underdrain piping.

The downcomer pipes shall be encased in clay as shown on the Construction Drawings. The clay around the pipes shall be compacted into a uniform homogeneous material. Prior to placement of top soil on the downcomer pipes, the pipe shall be inspected by the General Quality Control Monitor.

(1) Location - The compacted clay layer shall be tested in place. The locations of testing shall be determined by the Soils Quality Control Monitor. If there are indications of a change in product quality or construction procedures during construction, additional tests shall be performed to determine compliance.

(2) Standard -

(a) Compacted Clay Layer Subgrade - Compacted to 90% of Modified Proctor maximum dry density (ASTM D 1557) (18" thick).

(b) Field Density - The field density of the clay layer shall not be less than 90% of Standard Proctor Density (ASTM D 698).

(c) Thickness - One foot minimum below pipe.

(d) Hydraulic Conductivity - The compacted clay layer shall have an in-place hydraulic conductivity no greater than 1×10^{-7} cm/sec (ASTM D 5084).

(3) Field Testing Frequency -

(a) Prior to the laying of the compacted clay materials, the subbase shall be compacted to the specified density. Density tests and thickness shall be conducted at a minimum rate of one per 60 L.F. of pipe.

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(b) A minimum of one moisture content and field density determination of the compacted clay layer shall be conducted per 60 L.F. of pipe

(c) A minimum of two thickness measures of the compacted clay layer shall be conducted per 60 L.F. of pipe.

(4) Laboratory Testing Frequency -

(a) Hydraulic conductivity testing of Shelby tube or drive cylinder (ASTM D 2937) samples of the compacted clay layer shall be performed at a minimum frequency of one test per 60 L.F. of pipe. Laboratory hydraulic conductivity tests shall be conducted in triaxial type permeameters (ASTM D 5084). The test specimens shall be consolidated under an isotropic consolidation stress no greater than 10 pounds per square inch and permeated with water under an adequate backpressure to achieve saturation of the test specimens. The inflow to and outflow from the specimens shall be monitored with time and the hydraulic conductivity calculated for each recorded flow increment. The test shall continue until steady state flow is achieved and relatively constant values of hydraulic conductivity are measured.

(5) Deficiency - If the test data from a compacted clay layer section does not meet the requirements of the project specifications, that section shall be reworked or reconstructed so that it does meet these requirements.

C. Underdrain Filter Sand

The underdrains in the terraces shall be surrounded by filter sand as shown on the Contract Drawings. The QA/QC for the filter sand is as follows:

1. Filter Sand

a. Location - The material shall be pre-qualified at the borrow source. A chain-of-custody shall be provided via truck tickets from the source to the project site.

The location of the on-site hydraulic conductivity test shall be from on-site stockpile.

b. Standard - Clean, uniformly graded sand with a uniformity coefficient of 1.5 or greater and an effective grain size of 0.2 mm to 0.5 mm. The sand shall have a hydraulic conductivity no less than 1×10^{-3} cm/sec at a density of 100 percent Modified Proctor. The hydraulic conductivity testing shall be by Constant Head Method (ASTM D 2434).

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c. Frequency - This material shall be pre-qualified at the source at a frequency of 1 test per side slope unit. The hydraulic conductivity of the sand shall be tested once per side slope unit.

D. Gas Wells

Gas wells shall be installed through the final cover at the locations shown on the Construction Drawings. The QA/QC for gas well materials shall be as follows:

1. Gravel

a. Location - The gravel shall be pre-qualified at the borrow source. A chain-of-custody shall be provided via truck tickets from the source to the project site.

b. Standard - The gravel shall be clean, well-rounded gravel with no fines. The gravel shall be 1"-3" in size with an average size of 1.5", FDOT No. 2 Course Aggregate (ASTM D 448)

The gravel shall be non-calcareous (ASTM D 4373)

c. Frequency - The gravel shall be certified by the supplier. The gravel shall be tested once per gas well.

2. Backfill Material

a. Location - The soil shall be pre-qualified at the source by the Soil Quality Control Monitor.

b. Standard - The backfill material shall be a cohesionless soil.

c. Frequency - The soil shall be tested once per gas well.

3. Granular Bentonite

a. Location - The material shall be pre-qualified at the source with documentation provided to the Soils Quality Control Monitor.

b. Standard - The material shall be a homogeneous, inorganic material with at least 50 percent, by weight, passing the No. 200 sieve (ASTM D 1140)

The material shall be chemically inert to methane and carbon dioxide gasses, or any gaseous combination thereof.

c. Frequency - The material shall be certified by the supplier, one time only.

England-Thims & Miller, Inc.
Consulting & Design Engineers
3131 St. Johns Bluff Road So Jacksonville, FL 32246
904-642-8990

PRINCIPALS
James E. England, P.E. President
Robert E. Thims, V.Pres. Sec.
Douglas C. Miller, P.E. V. Pres.
N. Hugh Mathews, P.E. V. Pres.

May 17, 1994

Ms. Mary C. Nogas, P.E.
Waste Management Section
Northeast District
Department of Environmental Protection
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256

Reference: Trail Ridge Landfill
Permit No. SC16-184444
Side Slope Closure Units 9, 10 and 11
ET&M No. E94-17

Dear Ms. Nogas:

By this letter and on behalf of Trail Ridge Landfill, Inc., we hereby notify the Department that the closure construction of Side Slope Units 9, 10 and 11 as required by Specific Condition 34 of the referenced permit shall begin on May 23, 1994. The parties involved in the construction are as follows:

Construction Contractor - J. B. Coxwell Contracting, Inc.
General Quality Assurance Engineer - Juanita Bader Clem, P.E.
Soils Quality Assurance Engineer - James Horton, P.E.
General/Soils Quality Control Monitor - Ken Bunnell

As in the previous closure construction, the field density of the clay layer shall be established by the Soils QA Engineer based upon test strip results and shall be determined by Standard Proctor Density (ASTM D-698). In no case shall the field density be less than 80% of Standard Proctor Density (ASTM D-698). Thus, the field density will be based upon the clay material to be used in the project.

Should you have any questions regarding this construction, please give me a call.

Sincerely,

ENGLAND, THIMS & MILLER, INC.

Juanita Bader Clem

Juanita Bader Clem, P.E.
Project Manager

cc: Greg Mathes
Scott McCallister
Neil Rushing

England-Thims & Miller, Inc.
ENGINEERS • PLANNERS • SURVEYORS • LANDSCAPE ARCHITECTS

Principals
James E. England, P.E., Pres
Robert E. Thims, Exec. V.P.
Douglas C. Miller, P.E., Exec. V.P.
N. Hugh Mathews, P.E., Exec. V.P.

April 21, 1997

Ms. Mary C. Nogas, P.E.
Waste Management Section
Department of Environmental Protection
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256

Reference: Trail Ridge Landfill
Incremental Side Slope Closure
FDEP Permit No. SC16-184444
ET&M No. E96-92-4

Dear Ms. Nogas.

By this letter and on behalf of Trial Ridge Landfill, Inc., we hereby notify the Department that the closure construction of Side Slope Units 1, 2-4 (partial), 7-8 (partial), 12-17 (partial), 18-19 and 20 (partial) as required by Specific Condition 34 of the referenced permit shall begin on April 21, 1997. The parties involved in the construction are as follows:

Construction Contractor - R. B. Baker Construction, Inc.
General Quality Assurance Engineer - Juanita Bader Clem, P.E.
Soils Quality Assurance Engineer - James Horton, P.E.
General/Soils Quality Control Monitor - Buckley Williams

As in the previous closure construction, the field density of the clay layer shall be established by the Soils QA Engineer based upon test strip results and shall be determined by Standard Proctor Density (ASTM D-698). In no case shall the field density be less than 80% of Stand Proctor Density. Thus, the field density will be established based upon the clay material to be used in this project.

If you have any questions regarding this construction, please feel free to give me a call.

Sincerely,

ENGLAND, THIMS & MILLER, INC.

Juanita Bader Clem, P.E.
Vice President

cc: Greg Mathes
Scott McCallister
Chris Pearson
Jim Horton

Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400
MS #4565

David B. Struhs
Secretary

March 7, 2001

Mr. Richard Cohee
City Treasurer
City of Jacksonville
Department of Finance
117 W. Duval Street, Suite 300
Jacksonville, FL 32202

RE: GMS 3116P02787 - Trail Ridge Landfill, Duval County, Florida
GMS 3116M10016 - North Duval Landfill, Duval County, Florida
GMS 3116M10002 - East Duval Landfill, Duval County, Florida

Dear Mr. Cohee:

I reviewed the Independent Auditors Report for fiscal year end 1999 submitted to demonstrate financial assurance for the above referenced facilities and find it is in order. The September 30, 1999, escrow balance of $11,375,679 adequately meets the funding requirements of Rule 62-701.630, Florida Administrative Code.

However, facilities using an escrow account to demonstrate financial assurance must provide an annual cost adjustment statement (estimate update) between July 1 and September 1 each year. The latest District approved or inflation adjusted closure and long-term care cost estimates on file for the Trail Ridge Landfill and the East Duval Landfill are dated December 8, 1999, and February 9, 2000, respectively, and require adjustment. Within thirty (30) days of the date of this letter, please submit new cost estimates to Mary Nogas at the Northeast District office for review and approval, with a copy to the Solid Waste Financial Coordinator at the letterhead address.

Remember, the fiscal year end 2000 escrow account audit is due by March 31, 2001.

If you have any questions, please contact me at (850) 488-0300.

Sincerely,

Chad Fetrow
Environmental Specialist
Solid Waste Section

CWF

cc: Fred Wick
Mary Nogas

Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road MS 4565
Tallahassee, Florida 32399-2400

David B. Struhs
Secretary

October 4, 2000

Mr. Richard Cohee
City Treasurer
City of Jacksonville
Department of Finance
117 W. Duval Street, Suite 300
Jacksonville, FL 32202

RE: GMS 3116P02787 - Trail Ridge Landfill
GMS 3116M10016 - North Duval Landfill
GMS 3116M10002 - East Duval Landfill

Dear Mr. Cohee:

A file review of the above referenced facilities reveals no fiscal year end 1999 escrow account audit is submitted. Rule 62-701.630(5), Florida Administrative Code, requires submittal of an annual audit of the closure/long-termcare escrow account. The audit shall be conducted by an independent certified public accountant and consist of reporting the escrow account balance and all deposits and withdrawals made. Within thirty (30) days receipt of this letter please submit the annual escrow account audit.

Remember, the fiscal year end 2000 escrow account audit is due by March 31, 2001.

If you have any questions, please contact me at (850) 488-0300.

Sincerely,

Sandra M Maddi

Sandra M. Maddi
Environmental Specialist
Solid Waste Section

SMM

cc: Fred Wick
Mary Nogas

DEPARTMENT OF ENVIRONMENTAL PROTECTION

Interoffice Memorandum

NORTHEAST DISTRICT - JACKSONVILLE

TO: Fred Wick MS 4565

THROUGH: Mary Nogas, P.E. MN

FROM: Sam I. Park SP
Solid Waste Engineer

DATE: March 1, 2001

SUBJECT: Trail Ridge Landfill
Review of the Financial Assurance Annual Cost Adjustments
Permit No. 0013493-002-SC

The Department has completed review of the cost estimates (copy enclosed for your files) received on August 31,2000, submitted to comply with the requirements of Florida Administrative Code Chapter 62-701. The following cost estimates have been approved for the subject facility:

Active Class I Landfill

Closure Construction Cost Estimates - $ 14,933,272

Annual Long-Term Care Cost Estimates - $ 770,104

Total Long-Term Care Cost Estimates - $ 23,103,120 (30 years)

The following is for your information:

Applicant name: Trail Ridge Landfill, Inc.
Contact person: Greg Mathes
Title: District Manager
Phone number: (904) 289-9100

MCN:mbl

Enclosures

cc: Chris Pearson, City of Jacksonville
Juanitta Bader Clem, England Thims & Miller

TRAIL RIDGE LANDFILL, INC.
A WASTE MANAGEMENT COMPANY

5110 U.S. Highway 301, South
Baldwin, FL 32234-3608
(904) 289-9100
(904) 289-9013 Fax

August 30, 2000

Ms. Mary C. Nogas, P.E.
Solid Waste Section
Department of Environmental Protection
8925 Baymeadows Way, Suite B-200
Jacksonville, Florida 32256-7590

Reference: Trail Ridge Landfill
Financial Responsibility
DEP Permit Number 0013493-002-SC

Dear Ms. Nogas:

In accordance with Specific Condition 11 of our Permit, we are enclosing two (2) signed and sealed copies of the Florida Department of Environmental Protection Financial Responsibility Documentation.

If you have any questions regarding this documentation, please feel free to give me a call.

Sincerely,

TRAIL RIDGE LANDFILL, INC.

Greg Mathes
District Manager

GM:lh
Enclosures (2)

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STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

FINANCIAL ASSURANCE COST ESTIMATES

Date: August 28, 2000

Date of FDEP Approval: _____

I. GENERAL INFORMATION

Facility Name: Trail Ridge Class I Landfill GMS No.: GMS 3116P02787

Permit No.: 0013493-002-SC (Renewal of SC16-184444) Expiration Date: November 25, 2002

Address (facility): 5110 U.S. Highway 301, Baldwin, FL 32234

Address (mailing): Same as above

Permittee (operating authority): Trail Ridge Landfill, Inc.

Facility Location: Lat. 30° 14' 00" N Long. 82° 02' 30" W

Description of the Solid Waste Disposal Units included: The entire landfill less closed areas (10 Ac±), after Fill Phase 10. (The estimated worse case).

Landfill Acreage included in this Estimate: 134.0 Acres (71.3 acres of top area and 62.7 acres of side slope)

Date Disposal Unit Began Accepting Waste: May 18, 1992 Design Life of Disposal Unit: 20± years

Type of Landfill: Class I

Closure Plan Approved: Yes

II. TYPE OF FINANCIAL DOCUMENT SUBMITTED TO ENSURE FINANCIAL ASSURANCE:

____	Trust Fund Agreement	____	Performance Bond (only for landfills with an approved closure plan)
____	Letter of Credit	____	Standby Trust Fund Agreement
____	Insurance Certificate	X	Escrow Account
____	Financial Guarantee Bond	____	Other (Explain) _____

III. ESTIMATED CLOSING COST

For the time period in the landfill operation when the extent and manner of its operation makes closing most expensive.

*** **Third Party Estimate/Quote must be provided for each item.**
*** **Costs must be for a third party providing all material and labor.**

All items must be addressed. Attach a detailed explanation for all items marked not applicable (N/A).

DESCRIPTION	UNIT	QUANTITY	UNIT COST	SUBTOTAL	TOTAL***
1. Monitoring Wells: The monitoring wells have been or will be installed prior to closure (as part of operation).					
Borehole Excavation	CY				
Backfill	CY				
Gravel Pack	CY				
Casing	LF				
Screen	EA				
Cap	EA				
			Subtotal Monitor Wells		$0
2. Slope and Fill:					
Excavation	CY	N/A			
Placement/Spreading	SY	648,560	$0.99/SY [a]	$642,074	
Compaction	CY	Included with Placement/Spreading			
Off-Site Material	CY	Included as part of operation			
			Subtotal Slope and Fill		$642,074
3. Cover Material (Barrier Layer):					
(Side Slope) Off-Site Clay	CY	101,156	$17.70/CY [b]	$1,790,461	
On-Site Clay	CY	N/A			
(Top Area) Synthetics - 40 mil	SY	345,092	$2.745/SY [c]	$947,278	
Synthetics - 30 mil	SY	N/A			
Synthetics - GCL	SY	N/A			
			Subtotal Cover Material		$2,737,739

a. Unit price based upon Bid prices from R.B. Baker Construction, Inc. received February 7, 1997 for Closure of Side Slope Units 1-4 and 12-20 and increased by 2% for 1998, 3% for 1999 and 1.015% for 2000 due to inflation.

b. Unit price based upon Bid prices from R.B. Baker Construction, Inc. received April 7, 2000 for Third Construction Increment.

c. Based upon Textured/Two Sides, 40 mil HDPE liner material from Serrot as provided by Jon Edens on August 28, 2000.

DESCRIPTION	UNIT	QUANTITY	UNIT COST	SUBTOTAL	TOTAL***

4. Top Soil Cover:

Off-Site Material (sand)	CY	115,031	$6.15/CY [a]	$707,441	
Off-Site Material (top soil)	CY	317,343	$9.60/CY [b]	$3,046,493	
Delivery	CY	Included with Material			
Spreading	CY	Included with Material			
Compaction	CY	Included with Material			
			Subtotal Top Soil Cover		$3,753,934

5. Stormwater Control:

Excavation, Grading & Recontouring	CY	8,815	$5.60/CY [a]	$49,364	
Stormwater Sideslopes					
Conveyances	LF	4,450	$143.27/LF [b]	$637,552	
Terrace Drains	EA	64	$4,294/EA [b]	$274,816	
Underdrain	LF	43,452	$19.17/LF [b]	$832,975	
			Subtotal Stormwater Control		$1,794,707

6. Gas Migration Control: The Gas Collection System will be constructed during operation.

Wells	FT	44 @ 140 FT	$124.85/FT [c]	$769,076	
6" Pipe and Fittings	LF	7,000	$21.85/LF [c]	$152,950	
8" Pipe and Fittings	LF	1,300	$27.31/LF [c]	$35,503	
10" Pipe and Fittings	LF	4,700	$31.68/LF [c]	$148,896	
Control Valves	EA	5	$2,731.20/EA [c]	$13,656	
Well Head Assembly	EA	44	$2,289/EA [c]	$100,716	
Flare/Blower	EA	1	$135,259/EA [c]	$135,259	
Flame Arrestor	EA	Installed during operation			
Mist Eliminator	EA	Installed during operation			
Flow Meter	EA	Installed during operation			
Monitoring Probes	LF	Installed during operation			
			Subtotal Gas Migration Control		$1,356,056

a. Unit price based upon Bid prices from R.B. Baker Construction, Inc. received April 7, 2000 for Third Construction Increment.

b. Unit price based upon Bid prices from R.B. Baker Construction, Inc. received February 7, 1997 for Closure of Side Slope Units 1-4 and 12-20 and increased by 2% for 1998, 3% for 1999 and 1.015% for 2000 due to inflation.

c. Unit price based upon Bid price from R.B. Baker Construction, Inc. received on June 29, 1998 for construction of the phase I Gas Management system and increased by 3% for 1999 and 1.015% for 2000 due to inflation.

DESCRIPTION	UNIT	QUANTITY	UNIT COST	SUBTOTAL	TOTAL***
7. Revegetation:					
Sodding	SY	648,560	$1.83/SY [a]	$1,186,865	
Soil Preparation/Grading	SY	N/A			
Hydroseeding	AC	Included with Sodding			
Fertilizer	AC	Included with Sodding			
Mulch	AC	N/A			
			Subtotal Revegetation		$1,186,865
8. Landscape Irrigation System: The design does not include an irrigation system.					
Pipe and Fittings	LF				
Pumps	EA				
			Subtotal Landscape Irrigation System		$0
9. Security System: The security system was installed as part of operation.					
Fencing	LF				
Gate(s)	EA				
Sign(s)	EA				
			Subtotal Security System		$0
10. Engineering:					
Closure Plan Report	LS			$20,000	
Certified Engineering Drawings (for construction)	LS			$250,000	
Closure Permit	LS			$50,000	
Other (Detail):					
			Subtotal Engineering		$320,000

a. Unit price based upon Bid prices from R.B. Baker Construction, Inc. received April 7, 2000 for Third Construction Increment.

DESCRIPTION	UNIT	QUANTITY	UNIT COST	SUBTOTAL	TOTAL***
11. Benchmark Installation	EA	Included with Benchmark Survey			
Benchmark Survey	LS			$20,000	
			Subtotal Benchmark Installation		$20,000
12. Certification of Closure	LS			$60,000	
			Subtotal Certification of Closure		$60,000
13. Administrative: [a]		Hours	@ $/Hour		
P.E. Supervisor	HR	104	$125.00/HR	$13,000	
On-Site Engineer	HR	1,300	$75.00/HR	$97,500	
Office Engineer	HR	208	$98.00/HR	$20,384	
On-Site Technician	HR				
Other - (explain)					
	Clerical			$5,824	
	Expenses			$10,000	
			Subtotal Administrative		$146,708
14. Quality Assurance: [a]		Hours	@ $/Hour		
P.E. Supervisor	HR	100	$105.00/HR	$10,500	
On-Site Engineer	HR	1,200	$65.00/HR	$78,000	
Office Engineer	HR	400	$90.00/HR	$36,000	
On-Site Technician	HR	4,800	$40.00/HR	$192,000	
QA Testing	LS			$65,000	
Other - (explain)					
			Subtotal Quality Assurance		$381,500

a. Based upon a construction schedule of 26 weeks.

DESCRIPTION	UNIT	QUANTITY	UNIT COST	SUBTOTAL	TOTAL***

15. Site Specific Costs (explain):

Waste Tire Facility (if applicable) (3,900 Tons @ $75.00/Ton)	$292,500	
Mobilization/Demobilization	$100,000	
Erosion Control	$100,000	
Bonds (0.8% of Construction Costs) [a]	$93,371	
	Subtotal Site Specific Costs	$585,871

16. Contingency 15% of Total $1,947,818

TOTAL CLOSING COSTS $14,933,272

a. Based upon Bid prices from R.B. Baker, received on February 7, 1997 for closure of Side Slope Units 1-4 and 12-20.

NOTE:
This Opinion of Probable Cost is based upon a final closure after Fill Phase 10, which would require final closure design. Further, this Opinion of Probable Cost is without benefit of final closure design.

CERTIFICATION BY ENGINEER

This is to certify that the Financial Assurance Cost Estimates pertaining to the engineering features of this solid waste management facility have been examined by me and found to conform to engineering principals applicable to such facilities. In my professional judgement, the Cost Estimates are a true, correct and complete representation of the financial liabilities for closing and long-term care of the facility, and comply with the requirements of Florida Administrative Code (FAC), Rule 62-701.630 and other Department of Environmental Protection rules, and statutes of the State of Florida. It is understood that the Financial Assurance Cost Estimates shall be revised and submitted to the Department **annually** as required by FAC 62-701.630(4).

Signature

Juanitta Bader Clem, Vice President
Name and Title (please type)

43245
Florida Registration Number (please affix seal)

England, Thims & Miller, Inc.
Company Name

14775 St. Augustine Road
Mailing Address

Jacksonville, Florida 32258
City, State, Zip Code

(904) 642-8990
Telephone Number

Date: 8/28/2000

IV. ESTIMATED COST FOR LONG-TERM CARE

(for 30 yrs., F.A.C. Rule 62-701.600(1)a.1.)

** **Third Party Estimate/Quote must be provided for each item.**
** **Costs must be for a third party providing all material and labor.**

All items must be addressed. Attach a detailed explanation for all items marked not applicable (N/A).

DESCRIPTION	UNIT (A)	QUANTITY (B)	UNIT COST (C)	ANNUAL COST** (D) = (A) x (B) x (C)
1. Groundwater Monitoring	sampling frequency events/yr	# of wells	$/well/event	$/yr
Background	1/5 years = 0.2	37	$1,033 [a]	$7,644
Quarterly	N/A			
Semi-Annual	2	37	$340 [a]	$25,160
Semi-Annual Report	2		$1,500	$3,000 [b]
Biennial Report	1/2 years		$4,200	$2,100 [b]
			Subtotal Groundwater Monitoring	$37,904
2. Gas Monitoring	sampling frequency events/yr	# of locations	$/location/event	$/yr
Monthly	N/A			
Quarterly	4	10	$38	$1,520
Semi-Annual	N/A			
Semi-Annual Report	2		$600	$1,200
			Subtotal Gas Migration Monitoring	$2,720
3. Leachate Monitoring	sampling frequency events/yr	# of locations	$/location/event	$/yr
Monthly	N/A			
Semi-Annual	2	2	$338 [a]	$1,352
Composite	4	1	$814 [a]	$3,256
Annual				
			Subtotal Leachate Monitoring	$4,608

a. Includes sampling and laboratory analysis.

b. Includes all reporting (groundwater, surface water and leachate).

DESCRIPTION	UNIT (A)	QUANTITY (B)	UNIT COST (C)	ANNUAL COST** (D) = (A) x (B) x (C)

4. Surface Water Monitoring

	sampling frequency events/yr	# of locations	$/location/event	$/yr
Monthly	N/A			
Quarterly	2	2	$307 [a]	$1,228
Semi-Annual Report	Included with the Groundwater Monitoring Report.			
			Subtotal Surface Water Monitoring	$1,228

5. Maintenance of Leachate Collection/Treatment Systems

Collection Pipes	LF	N/A		
Sumps, Traps	EA	N/A		
Lift Stations	EA	N/A		
Tanks	EA	N/A		
Impoundments-Liner Repair	SY	N/A		
Sludge Removal	CY	N/A		
Aeration Systems-Floating Aerators	EA	N/A		
Spray Aerators	EA	N/A		
Off-Site Disposal (include transportation and disposal)	1,000 gal	5,657.5	$53.06/1000 gal.[b]	$300,187

On-Site Pretreatment System Maintenance - (Describe)

Other - (Describe)

Replace/Maintain Pumps, Panels, Etc.			$30,000 [c]
		Subtotal Leachate Collection/Treatment System Maintenance	$330,187

a. Includes sampling and laboratory analysis.

b. Annual cost for 1997 has been increased by 2% for 1998, 3% for 1999 and 1.015% for 2000 due to inflation.

c. Unit price based upon Bid prices from R.B. Baker Construction, Inc. received April 7, 2000 for Third Construction Increment.

DESCRIPTION	UNIT (A)	QUANTITY (B)	UNIT COST (C)	ANNUAL COST ** (D)=(A)x(B)x(C)

6. Maintenance of Groundwater - Assume replacement of one well per year.

Monitoring Wells	LS	1	$5,625 [a]	$5,625
		Subtotal Groundwater Monitoring Well Maintenance		$5,625

7. Maintenance of Gas Migration System Assume $30,000 per year for all Maintenance

Piping, Vents	LF			
Blowers	EA			
Flaring Units	EA			
Meters, Valves	EA			
		Subtotal Gas Migration System Maintenance		$30,000

8. Landscape Maintenance

Mowing	AC	155	$233.48/AC [a]	$36,189
Fertilizer	AC	155	$291.85/AC [a]	$45,237
Irrigation	AC	N/A		
		Subtotal Landscape Maintenance		$81,426

9. Benchmark Maintenance EA N/A

Subtotal Benchmark Maintenance $0

10. Administrative/Overhead

		Hours	$/Year	
P.E. Supervisor	HR	2,080	$26.53/HR [b]	$55,182
On-Site Engineer	HR			
Office Engineer	HR			
On-Site Technician	HR	2,080 x 4	$19.10/HR [b]	$158,912
Other (explain):				
Electricity - include Leachate Pumps, Blowers, Lighting, etc.	LS			$26,532 [a]
			Subtotal Administrative	$240,626

a. Annual cost for 1997 has been increased by 2% for 1998, 3% for 1999 and 1.015% for 2000 due to inflation.

b. Labor rates include direct and indirect labor costs, including benefits, etc. The 1997 rates have been increased by 2% for 1998, 3% for 1999 and 1.015% for 2000 due to inflation.

DESCRIPTION	UNIT (A)	QUANTITY (B)	UNIT COST (C)	ANNUAL COST ** (D)=(A)x(B)x(C)
11. Maintenance of Cover				
Seeding, Soil	AC	7.75*	$1,274/AC [a]	$9,874
Regrading	AC	Included with Seeding, Soil		
Liner Repair				
Synthetic	SY	Included with Seeding, Soil		
Clay	CY	N/A		
		Subtotal Cover Integrity Maintenance		$9,874
12. Surface Water Drainage Maintenance				
Ditch Cleaning	LF	10,400	$1.06/LF [a]	$11,024
Stormwater Conveyance Maint.	EA	1	$4,882/EA [a]	$4,882
		Subtotal Drainage Maintenance		$15,906
13. Security System Maintenance				
Fences	LF	Assume $10,000 per year for all maintenance.		
Gate(s)	EA			
Sign(s)	EA			
		Subtotal Security System Maintenance		$10,000
14. Remedial Actions	LS			
		Subtotal Remedial Actions		$0
15. Site Specific Costs (explain)				
		Subtotal Site Specific Costs		$0
		LONG-TERM CARE COSTS ($/yr)		$770,104
		TOTAL LONG-TERM CARE COSTS ($) ($/year times required years of long-term care)		$23,103,120

* 5% of the 155 AC landfill.

a. Annual cost for 1997 has been increased by 2% for 1998, 3% for 1999 and 1.015% for 2000 due to inflation.

CERTIFICATION BY ENGINEER

This is to certify that the Financial Assurance Cost Estimates pertaining to the engineering features of this solid waste management facility have been examined by me and found to conform to engineering principles applicable to such facilities. In my professional judgement, the Cost Estimates are a true, correct and complete representation of the financial liabilities for closing and long-term care of the facility and comply with the requirements of Florida Administrative Code (FAC), Rule 62-701.630 and other Department of Environmental Protection rules, and statutes of the State of Florida. It is understood that the Financial Assurance Cost Estimates shall be revised and submitted to the Department **annually** as required by FAC 62-701.630(4).

Juanitta Bader Clem

Signature

Juanitta Bader Clem, Vice President

Name and Title (please type)

43245

Florida Registration Number (please affix seal)

England, Thims & Miller, Inc.

Company Name

14775 St. Augustine Road

Mailing Address

Jacksonville, Florida 32258

City, State, Zip Code

(904) 642-8990

Telephone Number

Date: 8/28/00

COPY ORIGINAL Rec'd Aug 31, 2000

TRAIL RIDGE LANDFILL, INC.
A WASTE MANAGEMENT COMPANY

5110 U.S. Highway 301, South
Baldwin, FL 32234-3608
(904) 289-9100
(904) 289-9013 Fax

'01 FEB 27 PM 12 27

STATE OF FLORIDA
DEP - NE DISTRICT
JACKSONVILLE

August 30, 2000

Ms. Mary C. Nogas, P.E.
Solid Waste Section
Department of Environmental Protection
8925 Baymeadows Way, Suite B-200
Jacksonville, Florida 32256-7590

Reference: Trail Ridge Landfill
Financial Responsibility
DEP Permit Number 0013493-002-SC

Dear Ms. Nogas:

In accordance with Specific Condition 11 of our Permit, we are enclosing two (2) signed and sealed copies of the Florida Department of Environmental Protection Financial Responsibility Documentation.

If you have any questions regarding this documentation, please feel free to give me a call.

Sincerely,

TRAIL RIDGE LANDFILL, INC.

Greg Mathes
District Manager

GM:lh
Enclosures (2)

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REC'D 2-27-01

England-Thims & Miller, Inc.
ENGINEERS • PLANNERS • SURVEYORS • LANDSCAPE ARCHITECTS

Principals
James E. England, P.E., C.E.O.
Douglas C. Miller, P.E., President
N. Hugh Mathews, P.E., Exec., V.P.
Joseph A. Tarver, Exec., V.P.
Juanitta Bader Clem, P.E., V.P.
Jeffrey A. Crammond, P.E., V.P.
Scott A. Wild, P.E., P.S.M., V.P.

August 28, 2000

Mr. Greg Mathes
Trail Ridge Landfill
5110 U.S. Highway 301
Baldwin, FL 32234

Reference: Trail Ridge Landfill
Financial Responsibility
ET&M Project No. E98-34-16

Dear Mr. Mathes:

On behalf of Trail Ridge Landfill, Inc., please find herein three (3) signed and sealed copies of the Florida Department of Environmental Protection Financial Responsibility Documentation for the referenced facility. We hereby request that you submit this documentation to the Department of Environmental Protection on or before September 1, 2000 to be in compliance with Specific Condition 11 of DEP Permit Number 0013493-002-SC.

If you have any questions regarding this documentation, please feel free to give me a call.

Sincerely,

ENGLAND, THIMS & MILLER, INC.

Juanitta Bader Clem

Juanitta Bader Clem, P.E.
Vice President

Attachment

cc: Chris Pearson w/attachment

14775 St. Augustine Rd. • Jacksonville, FL 32258 • Tel: (904) 642-8990 • Fax: (904) 646-9485

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

FINANCIAL ASSURANCE COST ESTIMATES

Date: August 28, 2000

Date of FDEP Approval: _____

I. GENERAL INFORMATION

Facility Name: Trail Ridge Class I Landfill GMS No.: GMS 3116P02787

Permit No.: 0013493-002-SC (Renewal of SC16-184444) Expiration Date: November 25, 2002

Address (facility): 5110 U.S. Highway 301, Baldwin, FL 32234

Address (mailing): Same as above

Permittee (operating authority): Trail Ridge Landfill, Inc.

Facility Location: Lat. 30° 14' 00" N Long. 82° 02' 30" W

Description of the Solid Waste Disposal Units included: The entire landfill less closed areas (10 Ac±), after Fill Phase 10. (The estimated worse case).

Landfill Acreage included in this Estimate: 134.0 Acres (71.3 acres of top area and 62.7 acres of side slope)

Date Disposal Unit Began Accepting Waste: May 18, 1992 Design Life of Disposal Unit: 20± years

Type of Landfill: Class I

Closure Plan Approved: Yes

II. TYPE OF FINANCIAL DOCUMENT SUBMITTED TO ENSURE FINANCIAL ASSURANCE:

_____	Trust Fund Agreement	_____	Performance Bond (only for landfills with an approved closure plan)
_____	Letter of Credit	_____	Standby Trust Fund Agreement
_____	Insurance Certificate	X	Escrow Account
_____	Financial Guarantee Bond	_____	Other (Explain) _____

III. ESTIMATED CLOSING COST

For the time period in the landfill operation when the extent and manner of its operation makes closing most expensive.

*** **Third Party Estimate/Quote must be provided for each item.**
*** **Costs must be for a third party providing all material and labor.**

All items must be addressed. Attach a detailed explanation for all items marked not applicable (N/A).

DESCRIPTION	UNIT	QUANTITY	UNIT COST	SUBTOTAL	TOTAL***

1. Monitoring Wells: The monitoring wells have been or will be installed prior to closure (as part of operation).

Borehole Excavation	CY				
Backfill	CY				
Gravel Pack	CY				
Casing	LF				
Screen	EA				
Cap	EA				
				Subtotal Monitor Wells	$0

2. Slope and Fill:

Excavation	CY	N/A			
Placement/Spreading	SY	648,560	$0.99/SY [a]	$642,074	
Compaction	CY	Included with Placement/Spreading			
Off-Site Material	CY	Included as part of operation			
				Subtotal Slope and Fill	$642,074

3. Cover Material (Barrier Layer):

(Side Slope) Off-Site Clay	CY	101,156	$17.70/CY [b]	$1,790,461	
On-Site Clay	CY	N/A			
(Top Area) Synthetics - 40 mil	SY	345,092	$2.745/SY [c]	$947,278	
Synthetics - 30 mil	SY	N/A			
Synthetics - GCL	SY	N/A			
				Subtotal Cover Material	$2,737,739

a. Unit price based upon Bid prices from R.B. Baker Construction, Inc. received February 7, 1997 for Closure of Side Slope Units 1-4 and 12-20 and increased by 2% for 1998, 3% for 1999 and 1.015% for 2000 due to inflation.

b. Unit price based upon Bid prices from R.B. Baker Construction, Inc. received April 7, 2000 for Third Construction Increment.

c. Based upon Textured/Two Sides, 40 mil HDPE liner material from Serrot as provided by Jon Edens on August 28, 2000.

DESCRIPTION	UNIT	QUANTITY	UNIT COST	SUBTOTAL	TOTAL***
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Off-Site Material (sand)	CY	115,031	$6.15/CY [a]	$707,441	
Off-Site Material (top soil)	CY	317,343	$9.60/CY [b]	$3,046,493	
Delivery	CY	Included with Material			
Spreading	CY	Included with Material			
Compaction	CY	Included with Material			
			Subtotal Top Soil Cover		$3,753,934
5. Stormwater Control:					
Excavation, Grading & Recontouring	CY	8,815	$5.60/CY [a]	$49,364	
Stormwater Sideslopes Conveyances	LF	4,450	$143.27/LF [b]	$637,552	
Terrace Drains	EA	64	$4,294/EA [b]	$274,816	
Underdrain	LF	43,452	$19.17/LF [b]	$832,975	
			Subtotal Stormwater Control		$1,794,707
6. Gas Migration Control: The Gas Collection System will be constructed during operation.					
Wells	FT	44 @ 140 FT	$124.85/FT [c]	$769,076	
6" Pipe and Fittings	LF	7,000	$21.85/LF [c]	$152,950	
8" Pipe and Fittings	LF	1,300	$27.31/LF [c]	$35,503	
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Control Valves	EA	5	$2,731.20/EA [c]	$13,656	
Well Head Assembly	EA	44	$2,289/EA [c]	$100,716	
Flare/Blower	EA	1	$135,259/EA [c]	$135,259	
Flame Arrestor	EA	Installed during operation			
Mist Eliminator	EA	Installed during operation			
Flow Meter	EA	Installed during operation			
Monitoring Probes	LF	Installed during operation			
			Subtotal Gas Migration Control		$1,356,056

a. Unit price based upon Bid prices from R.B. Baker Construction, Inc. received April 7, 2000 for Third Construction Increment.

b. Unit price based upon Bid prices from R.B. Baker Construction, Inc. received February 7, 1997 for Closure of Side Slope Units 1-4 and 12-20 and increased by 2% for 1998, 3% for 1999 and 1.015% for 2000 due to inflation.

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DESCRIPTION	UNIT	QUANTITY	UNIT COST	SUBTOTAL	TOTAL***

7. Revegetation:

Sodding	SY	648,560	$1.83/SY [a]	$1,186,865	
Soil Preparation/Grading	SY	N/A			
Hydroseeding	AC	Included with Sodding			
Fertilizer	AC	Included with Sodding			
Mulch	AC	N/A			
				Subtotal Revegetation	$1,186,865

8. Landscape Irrigation System: The design does not include an irrigation system.

Pipe and Fittings	LF				
Pumps	EA				
				Subtotal Landscape Irrigation System	$0

9. Security System: The security system was installed as part of operation.

Fencing	LF				
Gate(s)	EA				
Sign(s)	EA				
				Subtotal Security System	$0

10. Engineering:

Closure Plan Report	LS			$20,000	
Certified Engineering Drawings (for construction)	LS			$250,000	
Closure Permit	LS			$50,000	
Other (Detail):					
				Subtotal Engineering	$320,000

a. Unit price based upon Bid prices from R.B. Baker Construction, Inc. received April 7, 2000 for Third Construction Increment.

DESCRIPTION	UNIT	QUANTITY	UNIT COST	SUBTOTAL	TOTAL***
11. Benchmark Installation	EA	Included with Benchmark Survey			
Benchmark Survey	LS			$20,000	
			Subtotal Benchmark Installation		$20,000
12. Certification of Closure	LS			$60,000	
			Subtotal Certification of Closure		$60,000
13. Administrative: [a]		Hours	@ $/Hour		
P.E. Supervisor	HR	104	$125.00/HR	$13,000	
On-Site Engineer	HR	1,300	$75.00/HR	$97,500	
Office Engineer	HR	208	$98.00/HR	$20,384	
On-Site Technician	HR				
Other - (explain)					
	Clerical			$5,824	
	Expenses			$10,000	
			Subtotal Administrative		$146,708
14. Quality Assurance: [a]		Hours	@ $/Hour		
P.E. Supervisor	HR	100	$105.00/HR	$10,500	
On-Site Engineer	HR	1,200	$65.00/HR	$78,000	
Office Engineer	HR	400	$90.00/HR	$36,000	
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QA Testing	LS			$65,000	
Other - (explain)					
			Subtotal Quality Assurance		$381,500

a. Based upon a construction schedule of 26 weeks.

DESCRIPTION	UNIT	QUANTITY	UNIT COST	SUBTOTAL	TOTAL***

15. Site Specific Costs (explain):

Waste Tire Facility (if applicable) (3,900 Tons @ $75.00/Ton)	$292,500	
Mobilization/Demobilization	$100,000	
Erosion Control	$100,000	
Bonds (0.8% of Construction Costs) [a]	$93,371	
	Subtotal Site Specific Costs	$585,871

16. Contingency 15% of Total $1,947,818

TOTAL CLOSING COSTS $14,933,272

a. Based upon Bid prices from R.B. Baker, received on February 7, 1997 for closure of Side Slope Units 1-4 and 12-20.

NOTE:
This Opinion of Probable Cost is based upon a final closure after Fill Phase 10, which would require final closure design. Further, this Opinion of Probable Cost is without benefit of final closure design.

CERTIFICATION BY ENGINEER

This is to certify that the Financial Assurance Cost Estimates pertaining to the engineering features of this solid waste management facility have been examined by me and found to conform to engineering principals applicable to such facilities. In my professional judgement, the Cost Estimates are a true, correct and complete representation of the financial liabilities for closing and long-term care of the facility, and comply with the requirements of Florida Administrative Code (FAC), Rule 62-701.630 and other Department of Environmental Protection rules, and statutes of the State of Florida. It is understood that the Financial Assurance Cost Estimates shall be revised and submitted to the Department **annually** as required by FAC 62-701.630(4).

Signature

Juanitta Bader Clem, Vice President
Name and Title (please type)

43245
Florida Registration Number (please affix seal)

England, Thims & Miller, Inc.
Company Name

14775 St. Augustine Road
Mailing Address

Jacksonville, Florida 32258
City, State, Zip Code

(904) 642-8990
Telephone Number

Date: 8/28/2000

IV. ESTIMATED COST FOR LONG-TERM CARE

(for 30 yrs., F.A.C. Rule 62-701.600(1)a.1.)

** **Third Party Estimate/Quote must be provided for each item.**
** **Costs must be for a third party providing all material and labor.**

All items must be addressed. Attach a detailed explanation for all items marked not applicable (N/A).

DESCRIPTION	UNIT (A)	QUANTITY (B)	UNIT COST (C)	ANNUAL COST** (D) = (A) x (B) x (C)
1. Groundwater Monitoring	sampling frequency events/yr	# of wells	$/well/event	$/yr
Background	1/5 years = 0.2	37	$1,033 [a]	$7,644
Quarterly	N/A			
Semi-Annual	2	37	$340 [a]	$25,160
Semi-Annual Report	2		$1,500	$3,000 [b]
Biennial Report	1/2 years		$4,200	$2,100 [b]
			Subtotal Groundwater Monitoring	$37,904
2. Gas Monitoring	sampling frequency events/yr	# of locations	$/location/event	$/yr
Monthly	N/A			
Quarterly	4	10	$38	$1,520
Semi-Annual	N/A			
Semi-Annual Report	2		$600	$1,200
			Subtotal Gas Migration Monitoring	$2,720
3. Leachate Monitoring	sampling frequency events/yr	# of locations	$/location/event	$/yr
Monthly	N/A			
Semi-Annual	2	2	$338 [a]	$1,352
Composite	4	1	$814 [a]	$3,256
Annual				
			Subtotal Leachate Monitoring	$4,608

a. Includes sampling and laboratory analysis.

b. Includes all reporting (groundwater, surface water and leachate).

DESCRIPTION	UNIT (A)	QUANTITY (B)	UNIT COST (C)	ANNUAL COST** (D) = (A) x (B) x (C)
4. Surface Water Monitoring	sampling frequency events/yr	# of locations	$/location/event	$/yr
Monthly	N/A			
Quarterly	2	2	$307 [a]	$1,228
Semi-Annual Report	Included with the Groundwater Monitoring Report.			
			Subtotal Surface Water Monitoring	$1,228
5. Maintenance of Leachate Collection/Treatment Systems				
Collection Pipes	LF	N/A		
Sumps, Traps	EA	N/A		
Lift Stations	EA	N/A		
Tanks	EA	N/A		
Impoundments-Liner Repair	SY	N/A		
Sludge Removal	CY	N/A		
Aeration Systems-Floating Aerators	EA	N/A		
Spray Aerators	EA	N/A		
Off-Site Disposal (include transportation and disposal)	1,000 gal	5,657.5	$53.06/1000 gal.[b]	$300,187
On-Site Pretreatment System Maintenance - (Describe)				
Other - (Describe)				
Replace/Maintain Pumps, Panels, Etc.				$30,000 [c]
			Subtotal Leachate Collection/Treatment System Maintenance	$330,187

a. Includes sampling and laboratory analysis.

b. Annual cost for 1997 has been increased by 2% for 1998, 3% for 1999 and 1.015% for 2000 due to inflation.

c. Unit price based upon Bid prices from R.B. Baker Construction, Inc. received April 7, 2000 for Third Construction Increment.

DESCRIPTION	UNIT (A)	QUANTITY (B)	UNIT COST (C)	ANNUAL COST ** (D)=(A)x(B)x(C)

6. Maintenance of Groundwater - Assume replacement of one well per year.

Monitoring Wells	LS	1	$5,625 [a]	$5,625
		Subtotal Groundwater Monitoring Well Maintenance		$5,625

7. Maintenance of Gas Migration System Assume $30,000 per year for all Maintenance

Piping, Vents	LF			
Blowers	EA			
Flaring Units	EA			
Meters, Valves	EA			
		Subtotal Gas Migration System Maintenance		$30,000

8. Landscape Maintenance

Mowing	AC	155	$233.48/AC [a]	$36,189
Fertilizer	AC	155	$291.85/AC [a]	$45,237
Irrigation	AC	N/A		
		Subtotal Landscape Maintenance		$81,426

9. Benchmark Maintenance EA N/A

Subtotal Benchmark Maintenance $0

10. Administrative/Overhead

		Hours	$/Year	
P.E. Supervisor	HR	2,080	$26.53/HR [b]	$55,182
On-Site Engineer	HR			
Office Engineer	HR			
On-Site Technician	HR	2,080 x 4	$19.10/HR [b]	$158,912
Other (explain):				
Electricity - include Leachate Pumps, Blowers, Lighting, etc.	LS			$26,532 [a]
			Subtotal Administrative	$240,626

a. Annual cost for 1997 has been increased by 2% for 1998, 3% for 1999 and 1.015% for 2000 due to inflation.

b. Labor rates include direct and indirect labor costs, including benefits, etc. The 1997 rates have been increased by 2% for 1998, 3% for 1999 and 1.015% for 2000 due to inflation.

DESCRIPTION	UNIT (A)	QUANTITY (B)	UNIT COST (C)	ANNUAL COST ** (D)=(A)x(B)x(C)
11. Maintenance of Cover				
Seeding, Soil	AC	7.75*	$1,274/AC [a]	$9,874
Regrading	AC	Included with Seeding, Soil		
Liner Repair				
Synthetic	SY	Included with Seeding, Soil		
Clay	CY	N/A		
		Subtotal Cover Integrity Maintenance		$9,874
12. Surface Water Drainage Maintenance				
Ditch Cleaning	LF	10,400	$1.06/LF [a]	$11,024
Stormwater Conveyance Maint.	EA	1	$4,882/EA [a]	$4,882
		Subtotal Drainage Maintenance		$15,906
13. Security System Maintenance				
Fences	LF	Assume $10,000 per year for all maintenance.		
Gate(s)	EA			
Sign(s)	EA			
		Subtotal Security System Maintenance		$10,000
14. Remedial Actions	LS			
		Subtotal Remedial Actions		$0
15. Site Specific Costs (explain)				
		Subtotal Site Specific Costs		$0
		LONG-TERM CARE COSTS ($/yr)		$770,104
		TOTAL LONG-TERM CARE COSTS ($) ($/year times required years of long-term care)		$23,103,120

* 5% of the 155 AC landfill.

a. Annual cost for 1997 has been increased by 2% for 1998, 3% for 1999 and 1.015% for 2000 due to inflation.

N-30

CERTIFICATION BY ENGINEER

This is to certify that the Financial Assurance Cost Estimates pertaining to the engineering features of this solid waste management facility have been examined by me and found to conform to engineering principles applicable to such facilities. In my professional judgement, the Cost Estimates are a true, correct and complete representation of the financial liabilities for closing and long-term care of the facility and comply with the requirements of Florida Administrative Code (FAC), Rule 62-701.630 and other Department of Environmental Protection rules, and statutes of the State of Florida. It is understood that the Financial Assurance Cost Estimates shall be revised and submitted to the Department **annually** as required by FAC 62-701.630(4).

Juanitta Bader Clem
Signature

Juanitta Bader Clem, Vice President
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