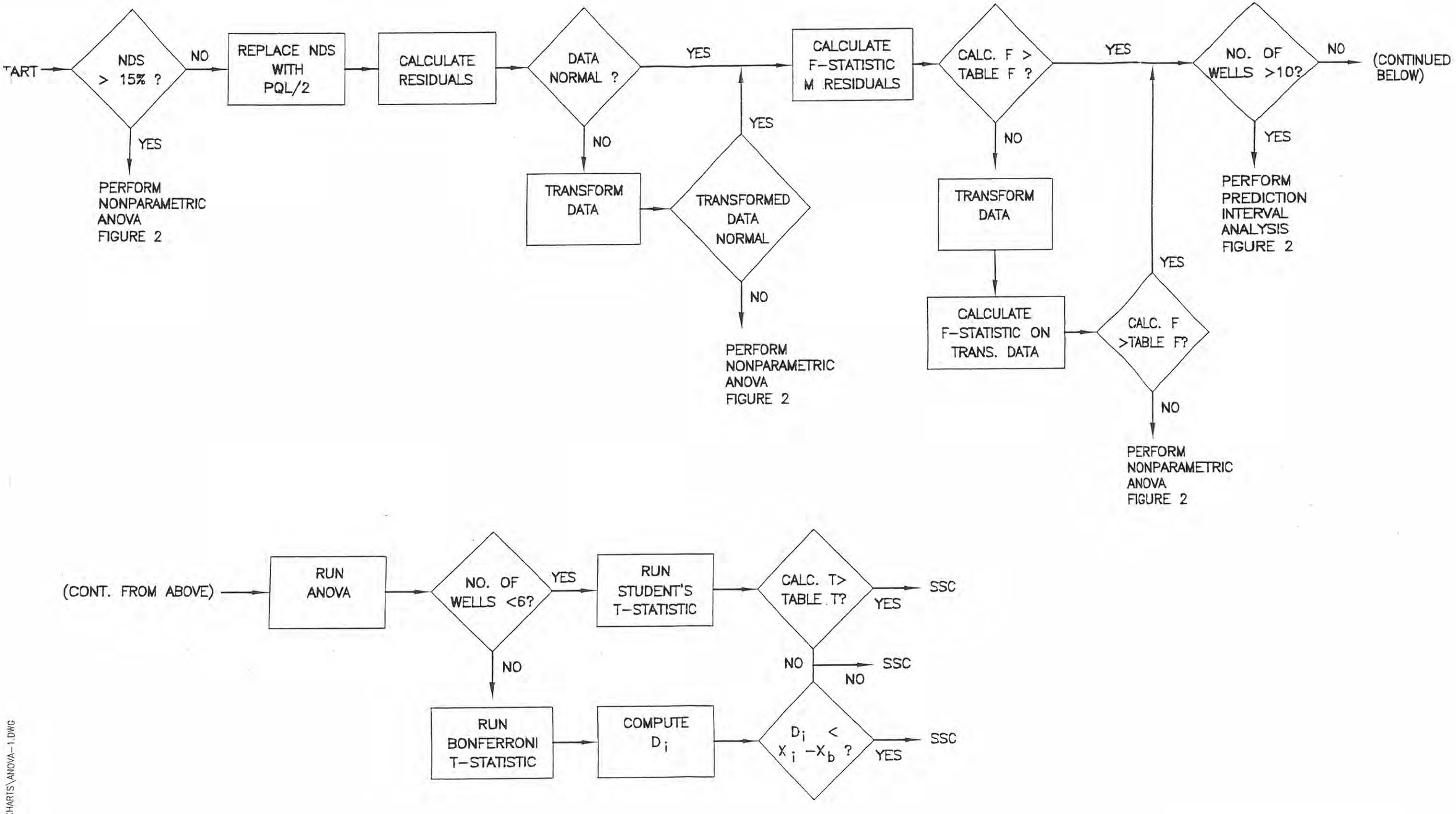
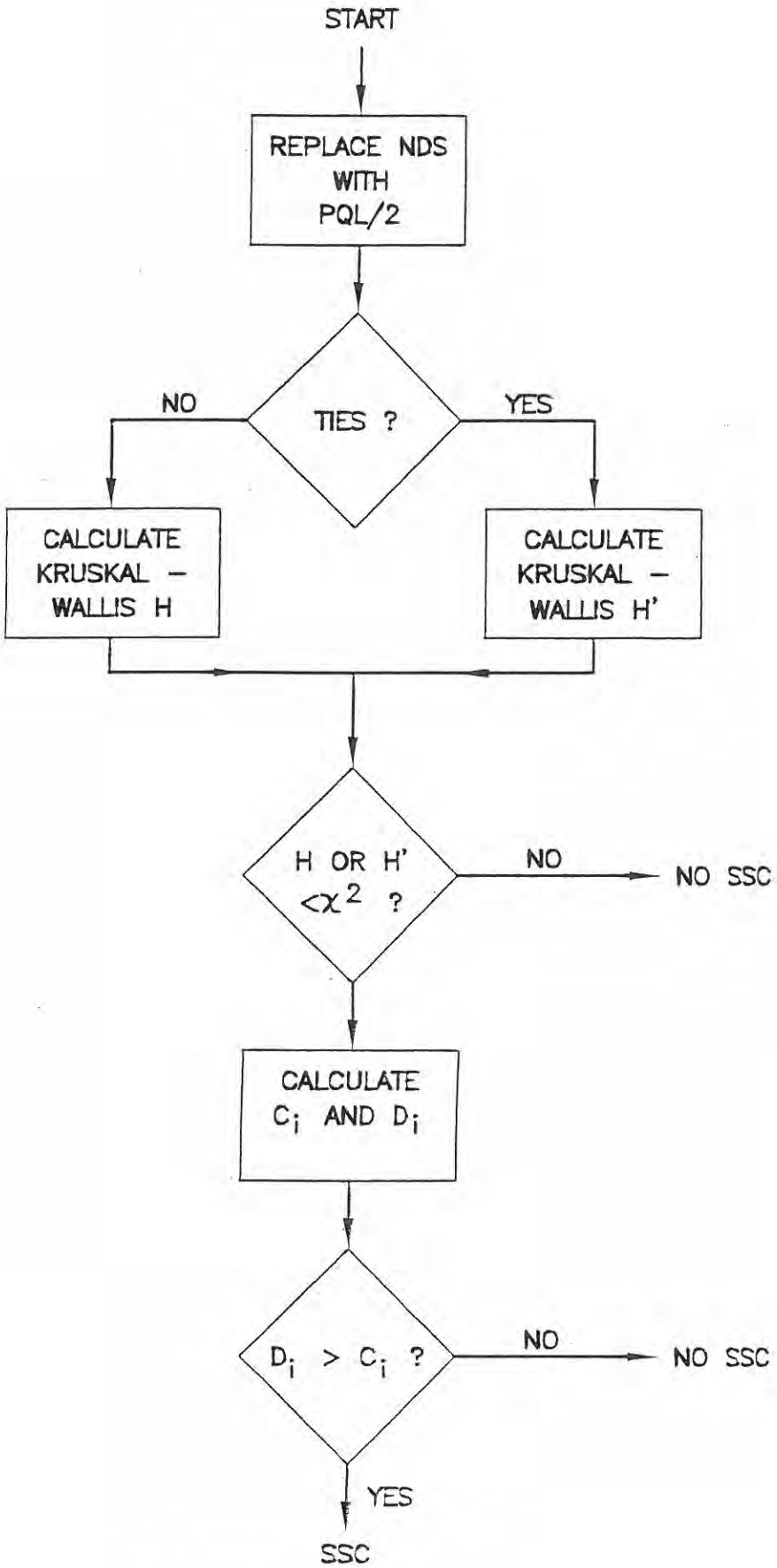
FIGURES 1 THROUGH 6

FLOWCHARTS FOR SELECTING STATISTICAL METHODS



ANOVA FLOWCHART 1
(PARAMETRIC ONE-WAY ANOVA)
FIGURE 1

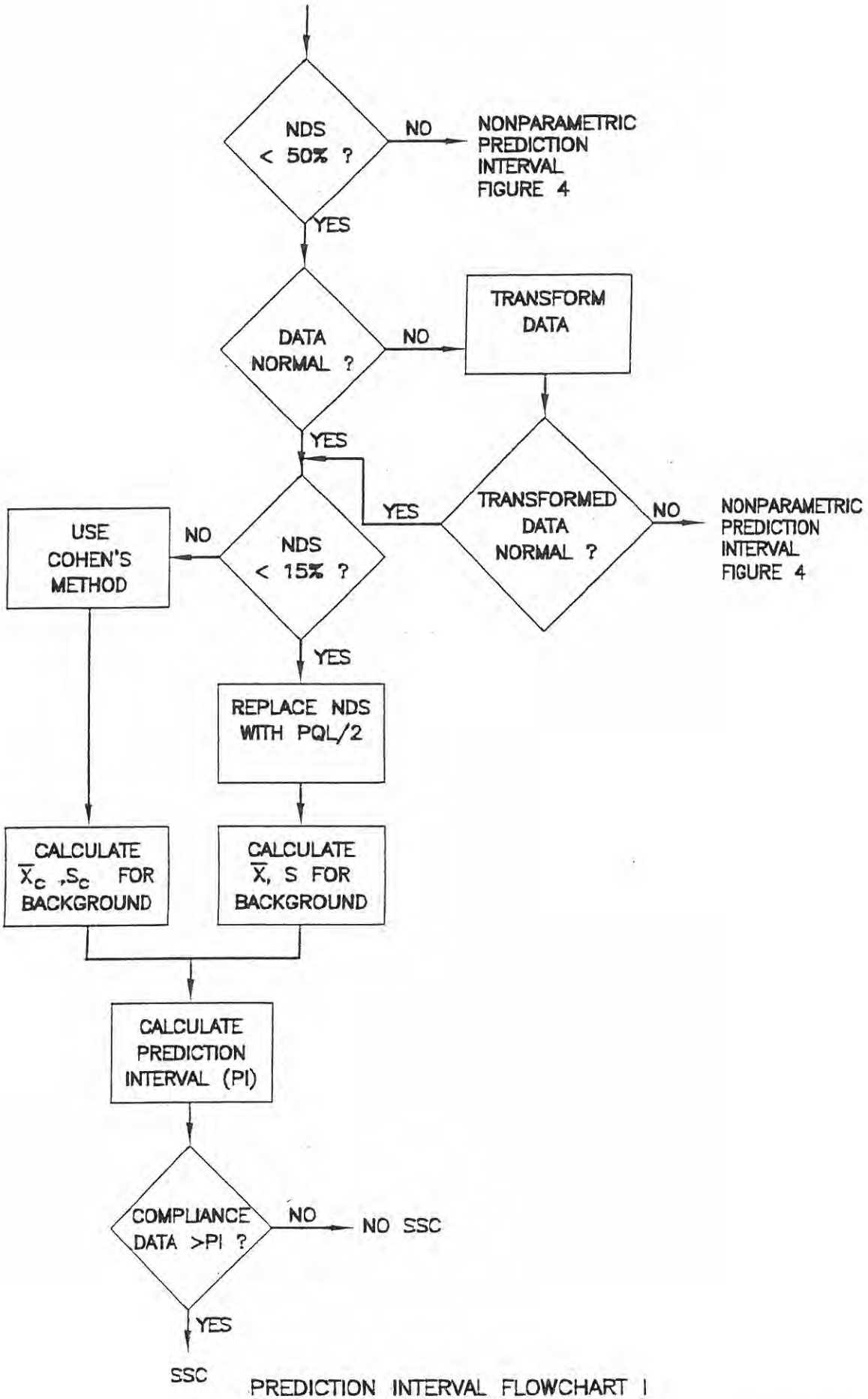
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ANOVA FLOWCHART II
(NONPARAMETRIC ONE–WAY ANOVA)

FIGURE 2

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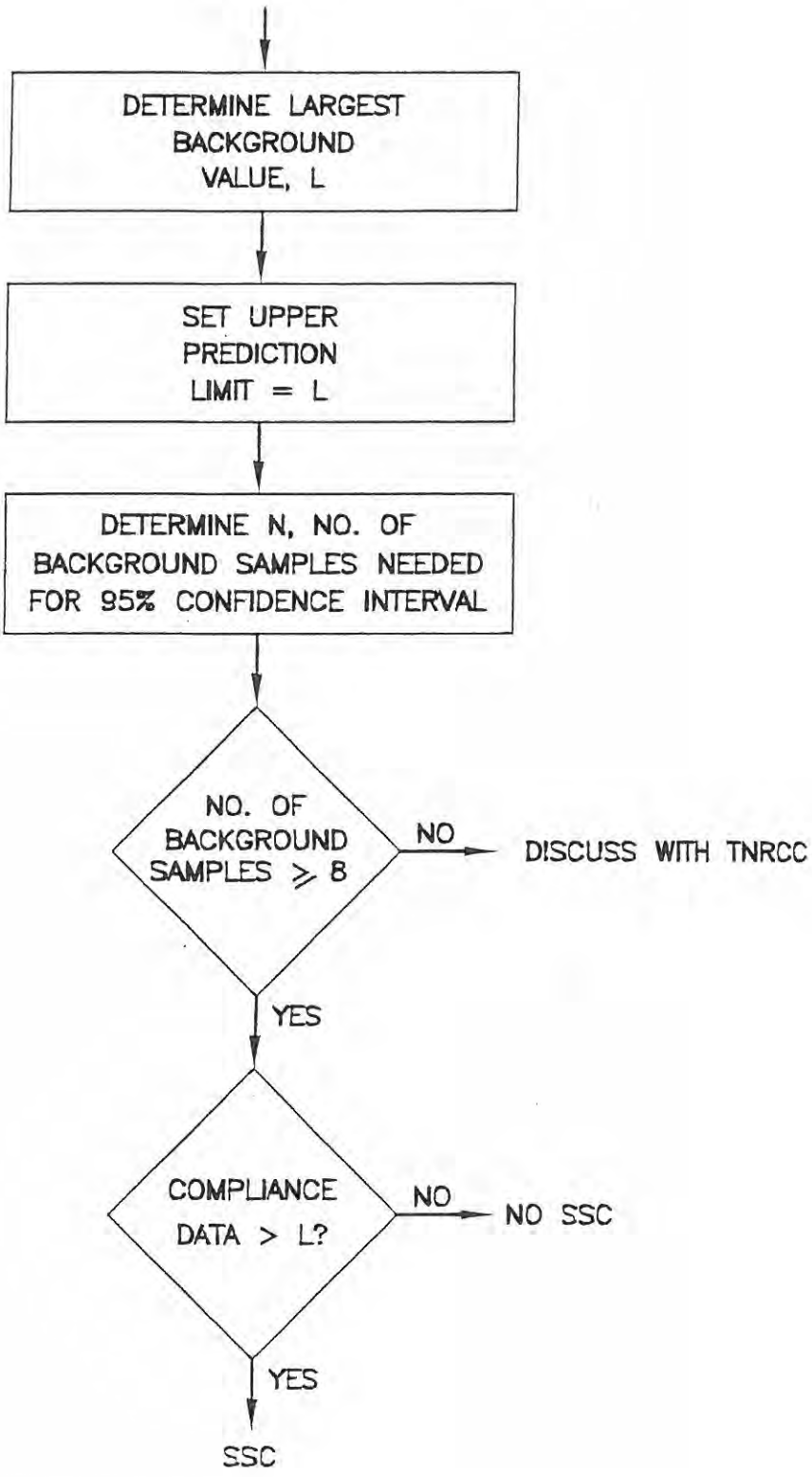


PREDICTION INTERVAL FLOWCHART I
(PARAMETRIC PREDICTION INTERVAL)

FIGURE 3

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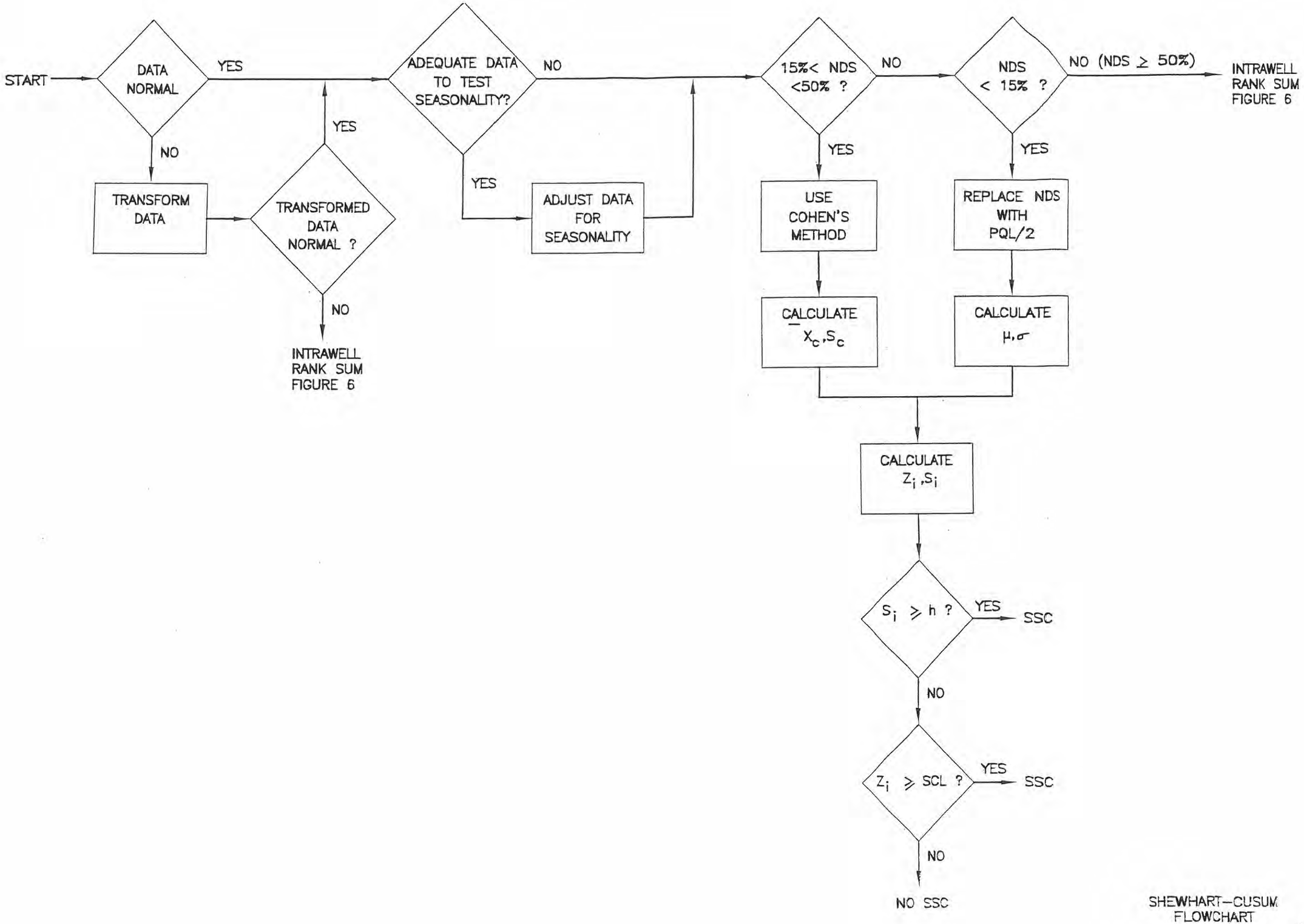
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FROM PREDICTION INTERVAL FLOWCHART I
FIGURE 3



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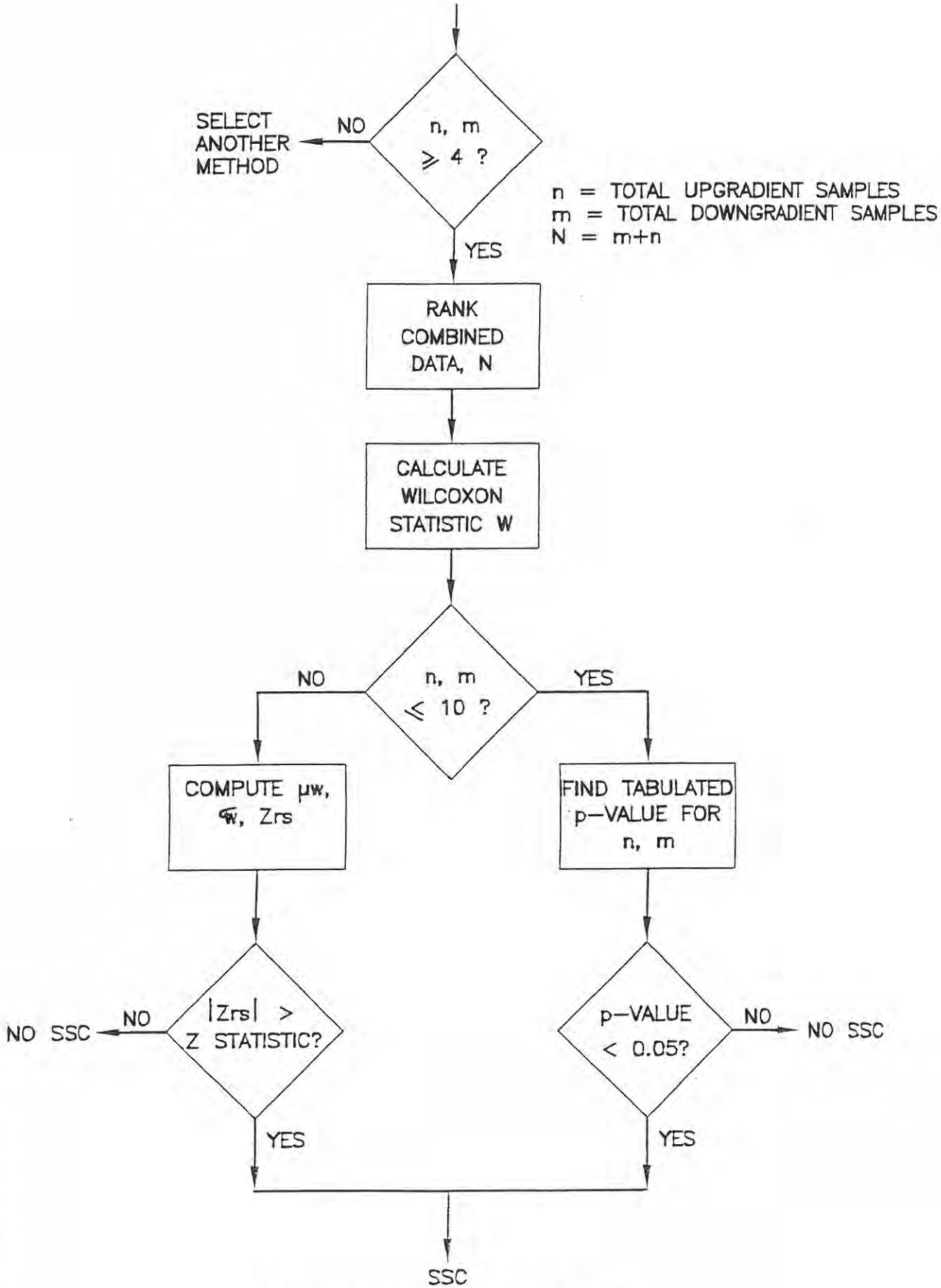
PREDICTION INTERVAL FLOWCHART II
(NONPARAMETRIC PREDICTION INTERVAL)

FIGURE 4



SHEWHART–CUSUM FLOWCHART
FIGURE 5

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MANN-WHITNEY OR INTRAWELL WELL RANK-SUM FLOWCHART

FIGURE 6

I:\GLW\54088\001\001\MAN-WHIT

CITY OF SAN ANGELO LANDFILL
CITY OF SAN ANGELO, TOM GREEN COUNTY, TEXAS
TCEQ PERMIT NO. MSW-79

PERMIT MODIFICATION

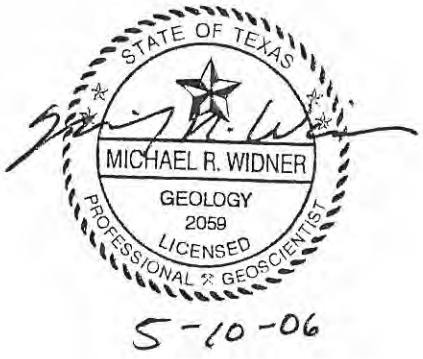
ATTACHMENT 12C
GROUNDWATER REMEDIATION PLAN

Prepared for

City of San Angelo

Technically Complete December 2005
Permit Modification Issued March 2, 2006

Revised May 2006



5-10-06

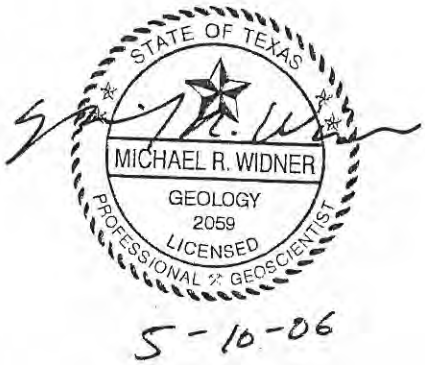
Prepared by

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FIGURES



1 INTRODUCTION

1.1 Background

The San Angelo Landfill was originally permitted by the State of Texas in 1976 as the City of San Angelo Landfill for the City of San Angelo. Groundwater monitoring was originally conducted under Texas Department of Health (TDH) rules and included sampling and analysis for a list of inorganic and organic indicator parameters.

In 1995 a Permit Modification was approved by the Texas Natural Resources Conservation Commission (TNRCC) to upgrade the landfill to comply with the Environmental Protection Agency (EPA) Subtitle D Regulations. The Subtitle D groundwater monitoring system included MW-2, 4, 5, 6R, 7R, 8, 9, 10, and 11. Downgradient wells consisted of MW-4, 5, 6R, 8, 9, 10, and 11. Monitoring Wells MW-2 and MW-7R are designated as upgradient wells. In accordance with the Subtitle D rules the City of San Angelo began analyzing the groundwater for 19 inorganic constituents and 47 volatile organics. The City conducted eight quarters of background monitoring beginning in February 1994 and background sampling was completed in March 1996.

Landfill gas probes were installed in June 1994 to comply with the approved Subtitle D landfill gas plan. Results from the monitoring of perimeter landfill gas probes from 1994 indicated landfill gas migration in GMP–2, 3, and 4. These probes are located along the western boundary of the site. Throughout the late 1990's intermittent landfill gas migration occurred in GMP–9 and 10.

Beginning with the first Subtitle D background groundwater monitoring event (February 1994) the following monitoring wells indicated landfill gas-related volatile organic compounds (VOC) levels above the Primary Drinking Water Standard Maximum Contaminant Levels (MCL):

MW-4 - tetrachloroethylene (PCE) at 15.0 ppb, cis-1,2-dicloroethylene at 12.7 ppb,

MW-5 - tetrachloroethylene (PCE) at 36.2 ppb, trichloroethylene (TCE) at 7.43 ppb,

MW-6R - tetrachloroethylene (PCE) at 62.5 ppb, trichloroethylene (TCE) at 9.25 ppb, methylene chloride at 5.73 ppb, p-dichlorobenzene (1,4) at 5.08 ppb.

Apparently due to natural drought conditions, groundwater levels began declining in March 1995. The groundwater levels dropped below the screened intervals of MW-6 and MW-7. The TNRCC requested these wells be replaced at deeper depths and labeled MW-6R and MW-7R. TNRCC approved the screen interval in upgradient well MW-7R to be placed in Choza shale. As groundwater levels dropped beginning in 1997,

the upper parts of the screened intervals in most of the groundwater monitoring wells were exposed to unsaturated conditions and landfill gas apparently began to migrate into those wells. Landfill gas VOCs began to be regularly detected in most of the downgradient site monitoring wells (Figures 12C.2 through 12C.25). In some cases the levels of contaminants in monitoring wells has declined following rises in groundwater levels above the screened intervals thereby blocking migrating landfill gas from direct access to the inside well casing of the monitoring wells.

As part of the attempt to identify and possibly delineate the presence of a contaminant plume, additional off-site monitoring wells MW-59, 60, and 61 were installed in August 1999. They have been periodically sampled since that time. In addition, during 1996 the City of San Angelo conducted sampling of privately owned wells adjacent to the site to determine if the nearby water wells had been affected. Several volatile organic compounds were identified and the City of San Angelo volunteered to bring city water to each of those homes and businesses. There was not a definitive link established between the groundwater impacts at the landfill and the contaminants found in the nearby wells or other monitoring wells downgradient of the landfill.

Tetrachloroethene (PCE) and trichloroethene (TCE) are typical LFG related groundwater contaminants. PCE in groundwater naturally degrades into a series of other organic compounds including; TCE, 1,1-DCE, cis-1,2-dicloroethylene, and eventually vinyl chloride. Each of these contaminants has been detected in groundwater at the San Angelo Landfill.

A corrective action plan that included groundwater extraction wells and landfill gas vent trenches to control gas migration was discussed in an August 2000 public meeting held to discuss possible remedies of corrective action.

While groundwater monitoring extraction and treatment has been conducted as part of the approved corrective action by the City of San Angelo, the nature and extent of groundwater plume related to the landfill has not been established. There are multiple possible sources other than the landfill including many industrial sites south and downgradient of the landfill.

1.2 Status of Groundwater Monitoring

Groundwater in the alluvial Leona gravel is currently being monitored on a semi-annual basis in site monitoring wells. MW-2 and MW-7R are upgradient wells although MW-7R is actually not screened in the Leona gravel aquifer but rather in the underlying Choza shale which is the aquiclude beneath the uppermost aquifer beneath the site. The most recent groundwater monitoring indicated LFG related constituents in MW-4, 6R, 9, and 10.

Table 12-1 shows the initial detections, the maximum detections, and the most recent detections of VOCs for each of the groundwater monitoring wells.

Table 12.1 San Angelo Landfill
Volatile Organic Compound Detections

MW	Initial Detection		Maximum Detection		Current Detection	
	Date	Concentration	Date	Concentration	Date	Concentration
1,1 dichloroethane (MCL = 7.00 ug/L)						
MW-5	2/18/1994	11.60	2/18/1994	11.60	5/25/2005	<3.00
MW-6R	3/23/1995	5.55	3/23/1995	5.55	5/24/2005	<3.00
MW-9	1/25/2000	3.00	7/22/2002	11.80	5/24/2005	<3.00
MW-10	1/25/2000	5.00	8/8/2000	9.00	5/24/2005	<3.00
MW-11	9/14/1999	4.00	7/9/2001	12.00	5/24/2005	<3.00
MW-60/os	9/14/1999	6.00	9/14/1999	6.00	5/25/2005	<3.00
MW-60/os	1/25/2000	6.00	1/25/2000	6.00	5/25/2005	<3.00
cis 1,2-dichloroethylene (MCL = 7.00 ug/L)						
MW-4	2/18/1994	12.70	2/18/1994	12.70	5/25/2005	5.56
MW-5	9/29/1998	6.00	9/29/1998	6.00	n/t	n/t
MW-6R	7/23/2002	5.19	4/8/2004	5.24	5/24/2005	3.12
MW-7R	9/14/1999	5.00	9/14/1999	5.00	5/24/2005	<3.00
MW-8	7/22/2002	5.50	7/22/2002	5.50	5/24/2005	<3.00
MW-9	9/29/1998	8.00	11/8/2004	59.20	5/24/2005	6.28
MW-10	1/25/2000	19.00	4/8/2004	63.70	5/24/2005	37.4
MW-60/os	9/14/1999	13.00	9/14/1999	13.00	5/25/2005	11.2
MW-60/os	1/25/2000	13.00	1/25/2000	13.00	5/25/2005	11.2
MW-61/os	9/14/1999	7.00	8/7/2000	11.00	5/24/2005	<3.00
MW-63/os	1/26/2000	5.00	4/8/2004	6.71	5/25/2005	<3.00
tetrachloroethylene (MCL = 5.00 ug/L)						
MW-4	2/18/1994	15.00	9/24/1996	18.60	5/25/2005	3.03
MW-5	2/18/1994	36.20	11/19/1996	48.40	5/24/2005	<3.00
MW-6R	2/18/1994	62.50	2/18/1994	62.50	5/24/2005	<3.00
MW-7R	9/14/1999	10.00	9/14/1999	10.00	5/24/2005	<3.00
MW-8	3/24/1995	5.89	11/19/1996	9.60	5/24/2005	4.92
MW-9	7/7/1995	5.88	1/25/2000	26.00	5/24/2005	<3.00
MW-10	9/29/1998	9.00	1/25/2000	19.00	5/24/2005	3.71
MW-60/os	9/23/1999	16.00	1/25/2000	19.00	5/25/2005	5.26
MW-61/os	9/14/1999	27.00	8/7/2000	42.00	5/24/2005	6.58
MW-63/os	1/26/2000	17.00	1/26/2000	17.00	5/25/2005	<3.00
trichloroethylene (MCL = 5.00 ug/L)						
MW-4	4/30/1996	5.36	1/25/2000	13.00	5/25/2005	<3.00
MW-5	12/18/1994	7.43	11/19/1996	13.80	5/24/2005	<3.00
MW-6R	2/18/1994	9.25	2/18/1994	9.25	5/24/2005	<3.00
MW-8	7/22/2002	3.62	7/22/2002	3.62	5/24/2005	<3.00
MW-9	1/25/2000	4.00	11/8/2004	18.00	5/24/2005	<3.00
MW-10	1/25/2000	5.00	7/22/2002	9.83	5/24/2005	3.69
MW-11	7/22/2002	3.94	7/22/2002	3.94	5/24/2005	<3.00
MW-60/os	9/14/1999	4.00	8/7/2000	5.00	5/25/2005	<3.00
MW-61/os	9/14/1999	8.00	9/23/99 & 8/7/00	9.00	5/24/2005	<3.00
MW-63/os	1/26/2000	5.00	7/9/2001	5.30	5/25/2005	<3.00
vinyl chloride (MCL = 2.00 ug/L)						
MW-6R	7/23/2002	3.61	7/23/2002	3.61	5/24/2005	<3.00
MW-8	7/22/2002	4.18	7/22/2002	4.18	5/24/2005	<3.00
MW-9	1/25/2000	2.00	7/22/2002	7.49	5/24/2005	<3.00
MW-10	1/25/2000	3.00	4/8/2004	9.15	5/24/2005	6.66
MW-11	7/22/2002	4.18	7/22/2002	4.18	5/24/2005	<3.00

* All Results reported in ug/L

1.3 Status of Corrective Action

In August 2000, a public meeting was held to discuss possible remedies or corrective action. The TNRCC approved a corrective action plan, which included installing passive vent trenches along the southern and western portion of the site and installation of three groundwater extraction wells, EW-2, EW-3 on the southern boundary of the site and EW-4 approximately 1,500 feet southeast of the site (Figure 12C.1). Time series graphs (Figures 12C.2 thru 12C.25) are inconclusive regarding the effectiveness of either remediation of the landfill gas impacted groundwater contaminants or in controlling the migration of affected groundwater.

Each extraction well produces approximately 18,000 gallons per day and is discharged to the sanitary sewer system for treatment at a wastewater treatment plant. While groundwater corrective action activities were implemented, the overall remediation efforts were primarily focused on controlling landfill gas migration. From March 1995 to September 2002 a series of landfill gas vent trenches and landfill gas vents was installed along the western boundary of the site. The gas vents and vent trenches have been unable to control the migration of landfill gas. The City of San Angelo is making preparations for the installation of an active landfill gas collection system.

1.3.1 Rationale for Temporarily Suspending Groundwater Extraction

1.3.1.1 Background

Extraction Wells

In August 2000, a public meeting was held to discuss possible remedies of corrective action for the groundwater contamination and landfill gas migration at the COSA Landfill. The TNRCC approved a corrective action plan, that included installation of three groundwater extraction wells, EW-2 and EW-3 on the southern boundary of the site and EW-4 approximately 2,600 feet southeast of the site (Figure 12C.1). Each extraction well produces approximately 18,000 gallons per day and is discharged to the sanitary sewer system for treatment at a wastewater treatment plant.

The extraction well screens were designed to extract water primarily from the Leona Gravel formation. This is the same formation that is being monitored as the uppermost aquifer in the COSA groundwater monitoring well system. Well screens in EW-2 and EW-3 (the wells that are located on the south boundary of the site) are screened into the upper portion (10 to 15 feet) of the underlying Choza Shale which is the aquiclude beneath the uppermost aquifer. The portion of the screens that is into the shale probably serves as an operational sump for the pumping equipment and temporary storage and is not necessary for the proper extraction of groundwater, but also does not create any problems. The well screen in EW-4 was designed to extract water from the gravel interval but was also designed to be more than 100 feet into the underlying Choza Shale. It is not clear what purpose that might have been served and, while it may not create any detrimental issues, there is no need for a wellbore to penetrate that much of the protective aquiclude.

Groundwater from the extraction wells was sampled and analyzed for the constituents of concern (COC) in late 2000 following their installation. Groundwater from those wells was again sampled and analyzed for the COC during the regularly scheduled groundwater monitoring event in May 2005. Results of those events are included in Table 12.2

Table 12.2

City of San Angelo
Extraction Well Detected VOC Concentrations (µg/L)

	EW. 2		EW. 3		EW. 4	
Constituent	**Nov '00**	**May '05**	**Nov '00**	**May '05**	**Nov '00**	**May '05**
Trichloroethene	ND	ND	ND	4.56	ND	ND
Tetrachloroethene	13	ND	6	5.07	32	3.72
1,1-Dichloroethane	5	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	18	10.4	ND	12.7	7	ND
Vinyl Chloride	6	4.17	ND	ND	ND	ND

Analysis of extracted groundwater does not provide a definitive conclusion as to the effectiveness or need for continued operation of the extraction wells. Note that in EW-2, four of the five constituents have declined over the five-year period. Conversely, in EW-3 two of the five constituents have increased AND vinyl chloride has not been detected at all.

Contaminant Constituent Levels in Groundwater Monitoring Wells

The target for corrective action is the landfill gas related groundwater contaminants, TCE, PCE, 1,1-DCE, cis-1,2-DCE, and vinyl chloride. As described in Section 1.1 of this attachment and as shown on Figures 12C.8, 12C.12, 12C.13, 12C.15 through 12C.22, and 12C.25 the constituents of concern have risen dramatically since groundwater extraction began. The groundwater extraction is clearly not effectively remediating the groundwater.

Several offsite groundwater monitoring wells (MW-59, 60, and 61 located about 2,600 feet southeast of the site and near EW-4; and MW-62, 63, 64, and 65 located more than 1.5 miles southeast of the site) have been monitored periodically as part of the corrective action plan. Analytical results of the COC from those wells (located distant from the landfill) frequently shows contaminant levels that are higher than the site monitoring wells and higher than in MW-59, 60, and 61. For instance, in the November 2004 sampling event tetrachloroethene (PCE) was not detected in MW-6R at the southernmost permit boundary while in MW-61 (2,600 feet south of the site) the concentration of PCE was .010 µg/L and the concentration of PCE in MW-63 (located more than 1.5 miles south of the site) was the highest at .0132 µg/L. The distribution of those constituent concentrations suggests that the contamination indicated in those wells did not come from the landfill.

Groundwater Flow Velocity

As discussed in Attachment 12A, groundwater flow velocity calculations for the groundwater flow in the uppermost aquifer (Leona gravel) is less than 1 foot per year. Based on those flow rates, contaminated groundwater from the landfill could not have migrated to the offsite monitoring wells that are located between 2,600 feet and 8,000 feet from the landfill, suggesting that the contamination in those wells (and in EW-4) is from a source other than the landfill.

1.3.1.2 Conclusions

An evaluation of the performance and effectiveness of the extraction wells, as well as an evaluation of the applicability of extracting groundwater as a corrective action, has not been completed for more than five years. The COSA is recommending that the operation of the groundwater extraction wells be temporarily suspended so that those evaluations may take place and the corrective action plan may be calibrated with this evaluation. There are five primary reasons why the extraction should be temporarily suspended. They are:

1. The extraction wells are not effective and clearly not the appropriate corrective action for these landfill gas related groundwater contaminants.
2. The most effective method for control of landfill gas related groundwater contaminants is a landfill gas collection system. An LFG system design is proposed in Attachment 9 of this plan.
3. Groundwater extraction may contribute to the lowering of groundwater levels in the vicinity of the groundwater monitoring wells allowing migrating landfill gas to enter monitoring well screens and causing the local contamination of groundwater.
4. Contaminated groundwater being extracted in EW-4 located 2,600 feet south of the site could not be coming from the landfill. Continuing to extract groundwater from EW-4 without knowledge of the cause of the contamination is inappropriate.
5. Temporarily stopping the extraction of groundwater will allow for the evaluation of groundwater hydraulics and effectiveness of the method and therefore provide the potential for calibration of the system based on the data. That study is proposed in the Phase 2 – Hydrogeologic Evaluation section of this plan.

2 PROPOSED GROUNDWATER CORRECTIVE ACTION

2.1 Phase 1 – Collection of Additional Information

The City of San Angelo proposes the following changes to the groundwater monitoring system. The changes related to the existing groundwater monitoring system and the existing Groundwater Sampling and Analysis Plan (GWSAP) are included as permit modifications in Attachments 12A and 12B. In addition, continued evaluation of the effectiveness and appropriateness of the existing remedy is proposed. A Groundwater Corrective Action Plan schedule is included in this section.

2.1.1 Groundwater Monitoring Well Installation

Due to landfill gas possibly migrating through the vadose zone and into the groundwater monitoring wells that are only partially saturated by groundwater, the City of San Angelo proposes the following:

1. Plug and replace MW-4, 5, 8, 9, 10, and 11. MW-4R, MW-5R, 8R, 9R, 10R, and 11R will be screened to the base of Leona gravel. Until background sampling in the new downgradient point-of-compliance monitoring wells is complete, the original wells will continue to be the downgradient point-of-compliance groundwater monitoring wells. Following establishment of background in the new wells, the old wells will be plugged upon approval of the TCEQ. Because MW-7R was screened deep in the underlying aquiclude and thus provided no useful upgradient analytical information for the groundwater zone at this site, it was plugged during the monitoring well installation event. MW-7RR is screened in the appropriate zone and is currently providing useable upgradient analytical information.
2. Add three new wells; one well between new MW-11R and MW-6R (new MW-12); one well between MW-6R and new MW-5R (new MW-13); and one well between new MW-5R and new MW-4R (new MW-14). The additional wells will decrease the spacing between wells on the downgradient south perimeter of the site.
3. Plug Irrigation Well No. 1.
4. Prepare monitor well installation/plugging report. The report will be prepared in accordance with TCEQ standards and in accordance with the regulations outlined in 30 TAC §330.320 through §330.235, regarding groundwater-monitoring systems for municipal solid waste landfills.

2.1.2 Groundwater Extraction Wells

1. Temporarily suspend groundwater extraction in extraction wells EW-2, EW-3 and EW-4 (Figure 12C.1) to evaluate and measure draw-down/recovery in adjacent monitoring wells. The rationale for temporarily suspending groundwater extraction is discussed in Section 1.3.1.

2.1.3 Groundwater Sampling

In addition to the continued semi-annual sampling of the inorganic constituents in existing site monitoring wells:

1. Conduct quarterly sampling for VOCs in the site monitoring wells which are not proposed for replacement (MW-2 and MW-6R).

2. Conduct quarterly sampling of the off-site monitoring wells (MW-59, 60, and 61) for VOCs beginning in October 2005 on the same schedule shown for the proposed new wells in Table 12B-1

3. Conduct eight quarterly background sampling events for the newly installed monitoring wells for the heavy metals and VOCs (listed in Table 12B-3).

4. Continue the existing sampling program (semi-annual sampling events for heavy metals, VOCs, and inorganic indicator constituents) in MW-4, 5, 8, 9, 10, and 11 until background is established in the replacement wells.

2.2 Phase 2 – Hydrogeologic Evaluation

Evaluate hydrogeologic conditions and the groundwater monitoring system in relation to the existing and possible corrective actions.

2.2.1 Aquifer Evaluation

1. Conduct correlation of hydrogeologic and stratigraphic units; evaluation of groundwater flow direction and rate; evaluation of constituents' concentration in groundwater.

2. Evaluation will include other sources of contamination including industrial users adjacent to and downgradient from the landfill.

3. Conduct pumping and slug tests on various wells to determine hydraulic conductivity and to confirm groundwater velocities.

2.3 Phase 3 - Corrective Action

The following corrective action elements will be developed in general accordance as applicable with the seven steps identified in USEPA document 600/R-96/055, *Guidance for the Data Quality Objectives Process*, EPA QA/G-4, August 2000.

2.3.1 Nature and Extent of Contamination

We will prepare a Nature and Extent Study in accordance with §330.235(g)(1)(A) to characterize the nature and extent of contamination in groundwater at the landfill.

2.3.2 Assessment of Corrective Measures

As required by 330.235 (g)(1)(D), we will initiate an Assessment of Corrective Measures to evaluate the effectiveness of the potential corrective measures.

2.3.3 Selection of Remedy

As required by 330.237, a selection of remedy will be agreed upon that will protect human health and environment, attain the groundwater protection standards, and reduce or eliminate the source of release.

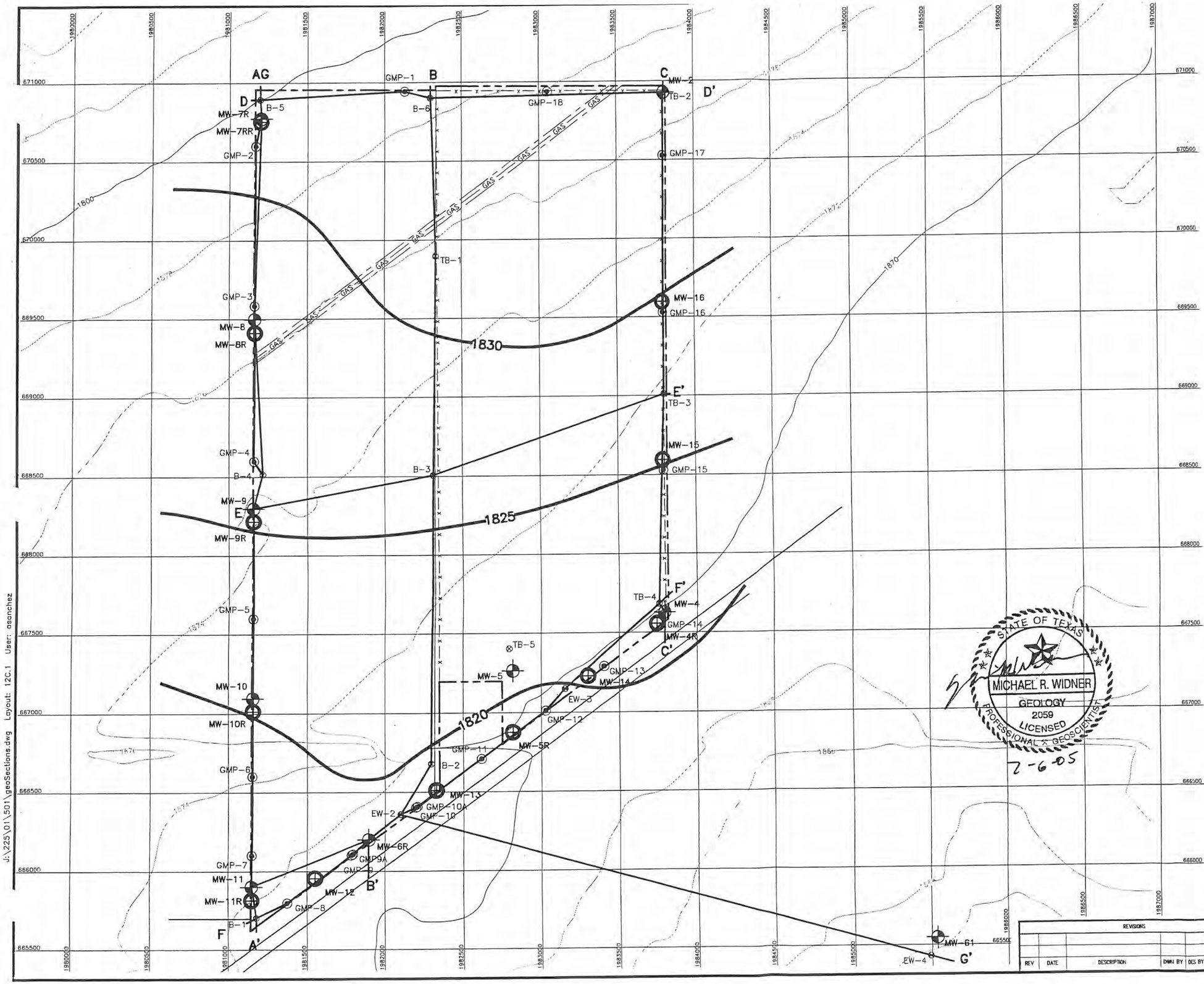
2.4 Project Schedule

The project schedule is listed below.

DESCRIPTION	SCHEDULE
2.1 Phase 1 – Final Groundwater Remediation Plan	
2.1.1 – Groundwater Monitoring Well Installation to begin	January 2006
2.1.2 – Groundwater Extraction Wells suspend extraction	January 2006
2.1.3 – Groundwater Background Sampling of new wells to begin	May 2006
2.2 Phase 2 – Evaluation of Hydrogeologic Conditions & Groundwater System	
2.2.1 – Aquifer Evaluation	March - September 2006
2.3 Phase 3 – Corrective Action Process	
2.3.1 – Nature and Extent	October 2006 - September 2007
2.3.2 – Assessment of Corrective Measures	October 2006 - September 2007
2.3.3 – Selection of Remedy	October 2006 - September 2007

FIGURES

Figure 12C.1, Site Plan and Cross Section Location Map
Figure 12C.2, MW-4: Tetrachloroethane vs. Water Level Graph
Figure 12C.3, MW-4: Trichloroethylene vs. Water Level Graph
Figure 12C.4, MW-4: Cis-1,2-Dichloroethylene vs. Water Level Graph
Figure 12C.5, MW-6R: Tetrachloroethane vs. Water Level Graph
Figure 12C.6, MW-6R: Trichloroethylene vs. Water Level Graph
Figure 12C.7, MW-6R: 1,1-Dichloroethane vs. Water Level Graph
Figure 12C.8, MW-6R: Cis-1,2-Dichloroethylene vs. Water Level Graph
Figure 12C.9, MW-6R: Vinyl Chloride vs. Water Level Graph
Figure 12C.10, MW-7R: Tetrachloroethane vs. Water Level Graph
Figure 12C.11, MW-8: Tetrachloroethane vs. Water Level Graph
Figure 12C.12, MW-8: Cis-1,2-Dichloroethylene vs. Water Level Graph
Figure 12C.13, MW-8: Vinyl Chloride vs. Water Level Graph
Figure 12C.14, MW-9: Tetrachloroethane vs. Water Level Graph
Figure 12C.15, MW-9: Trichloroethylene vs. Water Level Graph
Figure 12C.16, MW-9: 1-1-Dichloroethane vs. Water Level Graph
Figure 12C.17, MW-9: Cis-1,2-Dichloroethylene vs. Water Level Graph
Figure 12C.18, MW-9: Vinyl Chloride vs. Water Level Graph
Figure 12C.19, MW-10: Tetrachloroethane vs. Water Level Graph
Figure 12C.20, MW-10: Trichloroethylene vs. Water Level Graph
Figure 12C.21, MW-10: Cis-1,2-Dichloroethylene vs. Water Level Graph
Figure 12C.22, MW-10: Vinyl Chloride vs. Water Level Graph
Figure 12C.23, MW-11: Trichloroethylene vs. Water Level Graph
Figure 12C.24, MW-11: 1,1-Dichloroethane vs. Water Level Graph
Figure 12C.25, MW-11: Vinyl Chloride vs. Water Level Graph



LEGEND

- PERMIT BOUNDARY
- LIMIT OF WASTE
- GMP-11 — EXISTING GAS MONITORING PROBE
- MW-8 — EXISTING MONITORING WELL
- MW-4R — PROPOSED MONITORING WELL
- B-3 — EXISTING BORING – 1975
- TB-3 — EXISTING BORING – 1983
- EW-2 — EXTRACTION WELL
- LANDFILL GRID SYSTEM
- 1870 — PRELANDFILL CONTOURS
- 1820 — POTENTIOMETRIC GROUNDWATER SURFACE CONTOURS

NOTE:
1. EXISTING CONTOURS FROM USGS SAN ANGELO, NORTH DEM.

STATE OF TEXAS
MICHAEL R. WIDNER
GEOLOGY
2059
LICENSED
PROFESSIONAL GEOSCIENTIST
7-6-05

STATE OF TEXAS
JOHN MICHAEL SNYDER
GEOLOGY
595
LICENSED
PROFESSIONAL GEOSCIENTIST
7-6-05

SITE PLAN AND CROSS-SECTION LOCATION MAP

CITY OF SAN ANGELO SAN ANGELO LANDFILL MSW PERMIT NO. 79A

BIGGS & MATHEWS ENVIRONMENTAL
CONSULTING ENGINEERS
ARLINGTON • DALLAS
MANSFIELD • WICHITA FALLS
817-563-1144

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

DSN. JMS	DATE : 07/05	FIGURE
DWN. RMP	SCALE : GRAPHIC	12C.1
CHK. JMS	DWG : geoSections.dwg	

J:\225\01\501\geoSections.dwg Layout: 12C.1 User: asanchez

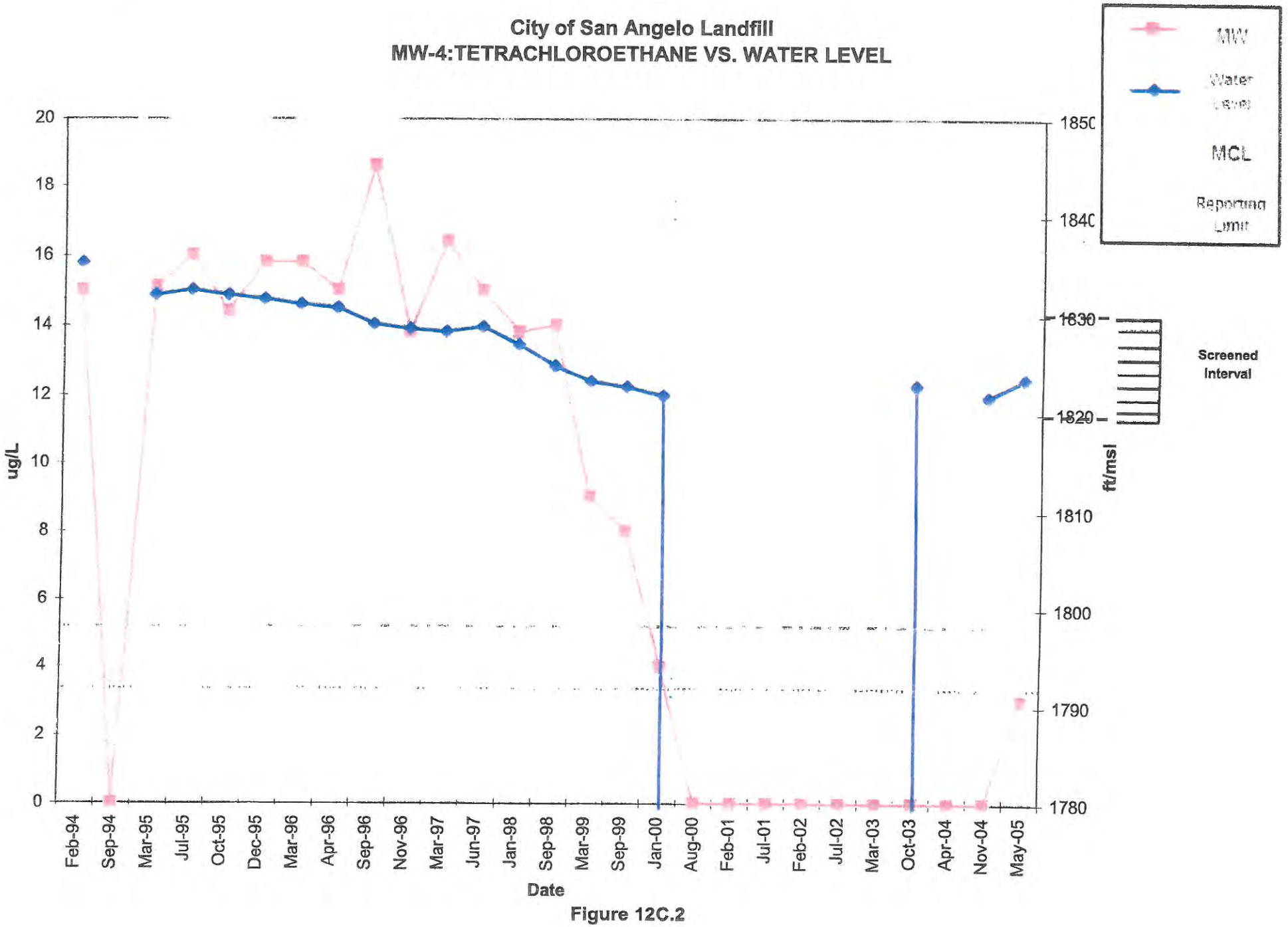

City of San Angelo Landfill
MW-4:TETRACHLOROETHANE VS. WATER LEVEL
MW
Water Level
MCL
Reporting Limit
Screened Interval
ug/L
ft/msl
Date
20
18
16
14
12
10
8
6
4
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1850
1840
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1820
1810
1800
1790
1780
Feb-94
Sep-94
Mar-95
Jul-95
Oct-95
Dec-95
Mar-96
Apr-96
Sep-96
Nov-96
Mar-97
Jun-97
Jan-98
Sep-98
Mar-99
Sep-99
Jan-00
Aug-00
Feb-01
Jul-01
Feb-02
Jul-02
Mar-03
Oct-03
Apr-04
Nov-04
May-05

Figure 12C.2

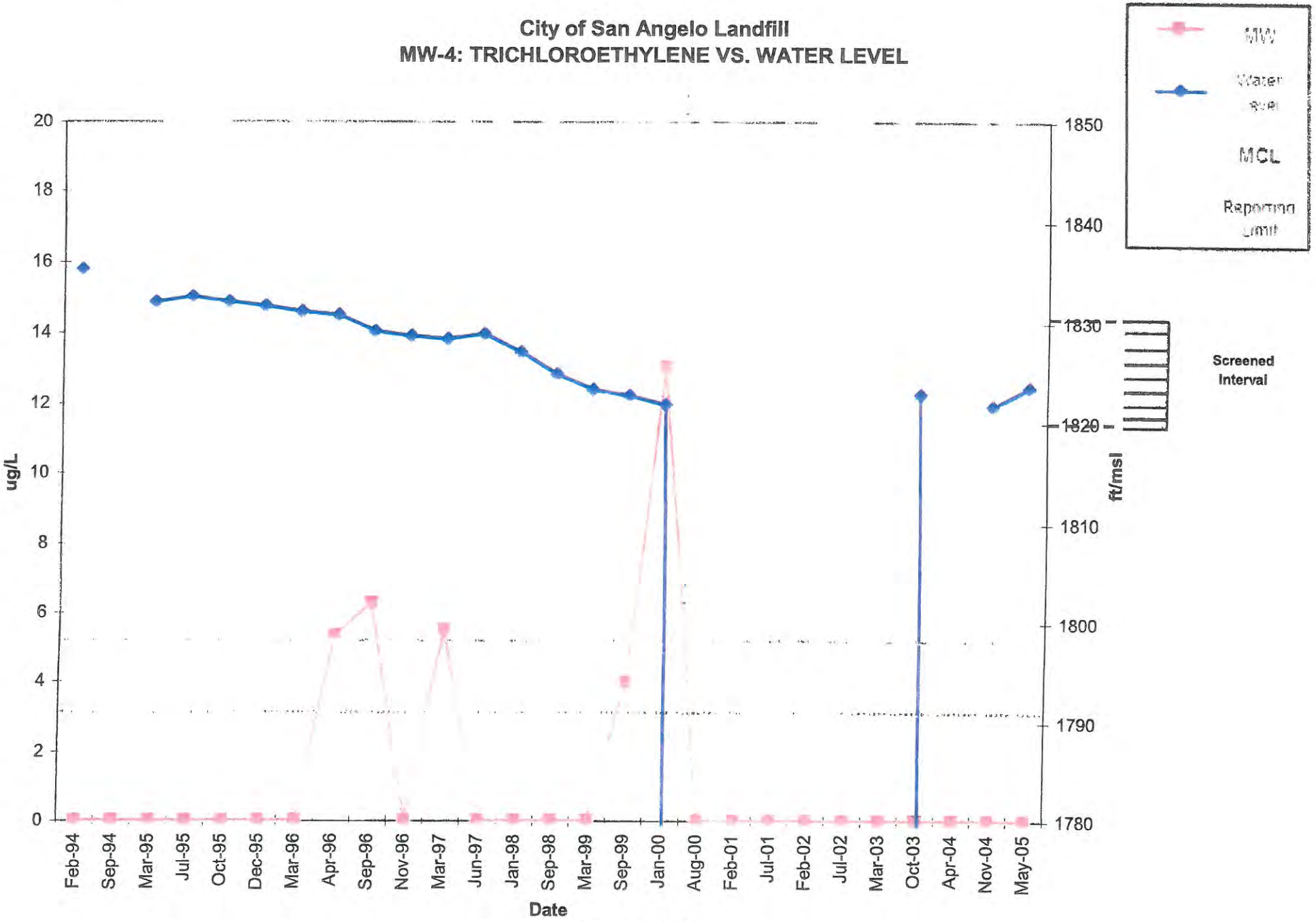

City of San Angelo Landfill
MW-4: TRICHLOROETHYLENE VS. WATER LEVEL
MW
Water level
MCL
Reporting Limit
Screened Interval
ug/L
ft/msl
Date
20
18
16
14
12
10
8
6
4
2
0
1850
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1820
1810
1800
1790
1780
Feb-94
Sep-94
Mar-95
Jul-95
Oct-95
Dec-95
Mar-96
Apr-96
Sep-96
Nov-96
Mar-97
Jun-97
Jan-98
Sep-98
Mar-99
Sep-99
Jan-00
Aug-00
Feb-01
Jul-01
Feb-02
Jul-02
Mar-03
Oct-03
Apr-04
Nov-04
May-05

Figure 12C.3

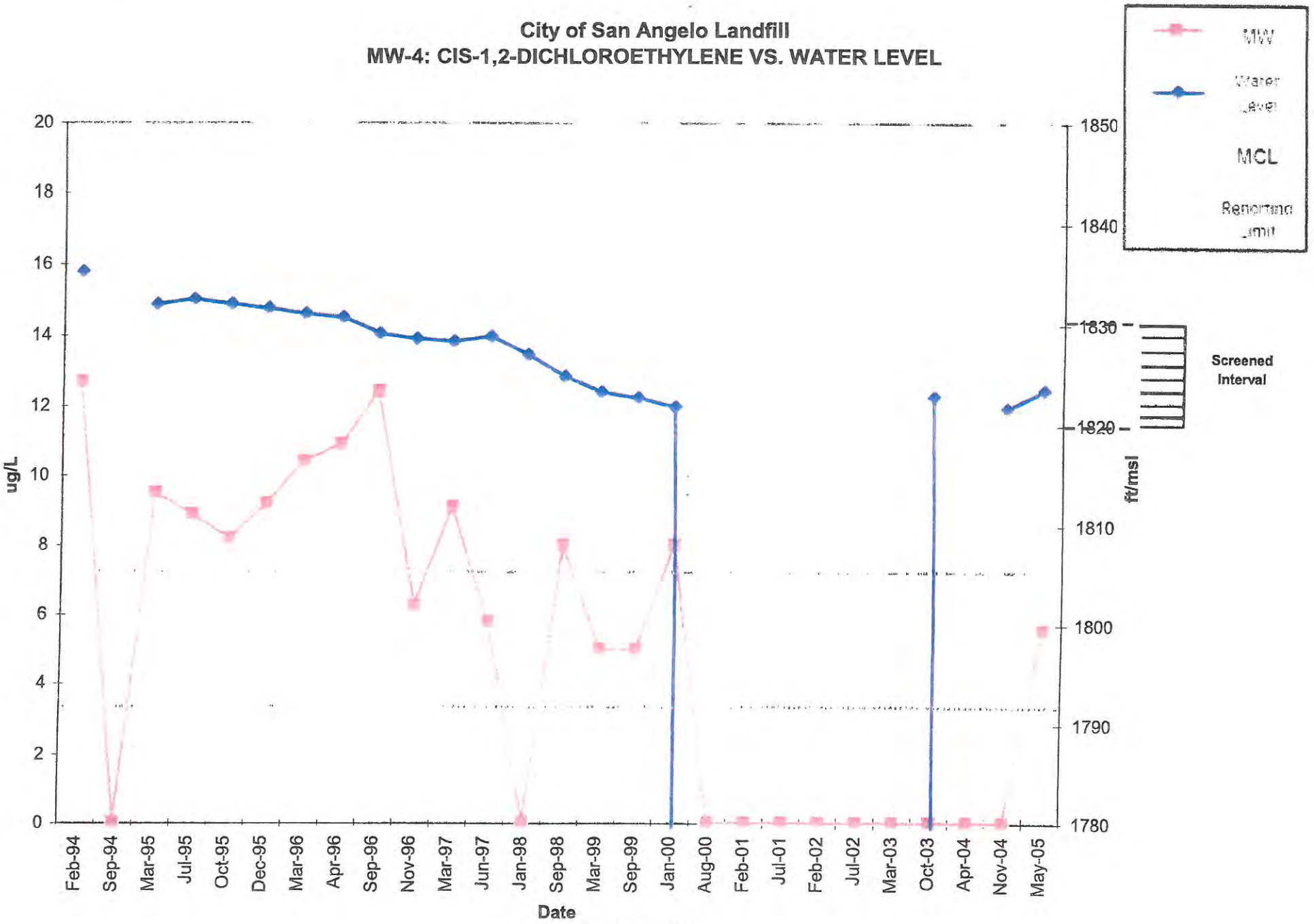

City of San Angelo Landfill
MW-4: CIS-1,2-DICHLOROETHYLENE VS. WATER LEVEL
MW
Water Level
MCL
Reporting Limit
Screened Interval
ug/L
ft/msl
Date
0
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Feb-94
Sep-94
Mar-95
Jul-95
Oct-95
Dec-95
Mar-96
Apr-96
Sep-96
Nov-96
Mar-97
Jun-97
Jan-98
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Mar-99
Sep-99
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Aug-00
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Jul-01
Feb-02
Jul-02
Mar-03
Oct-03
Apr-04
Nov-04
May-05

Figure 12C.4

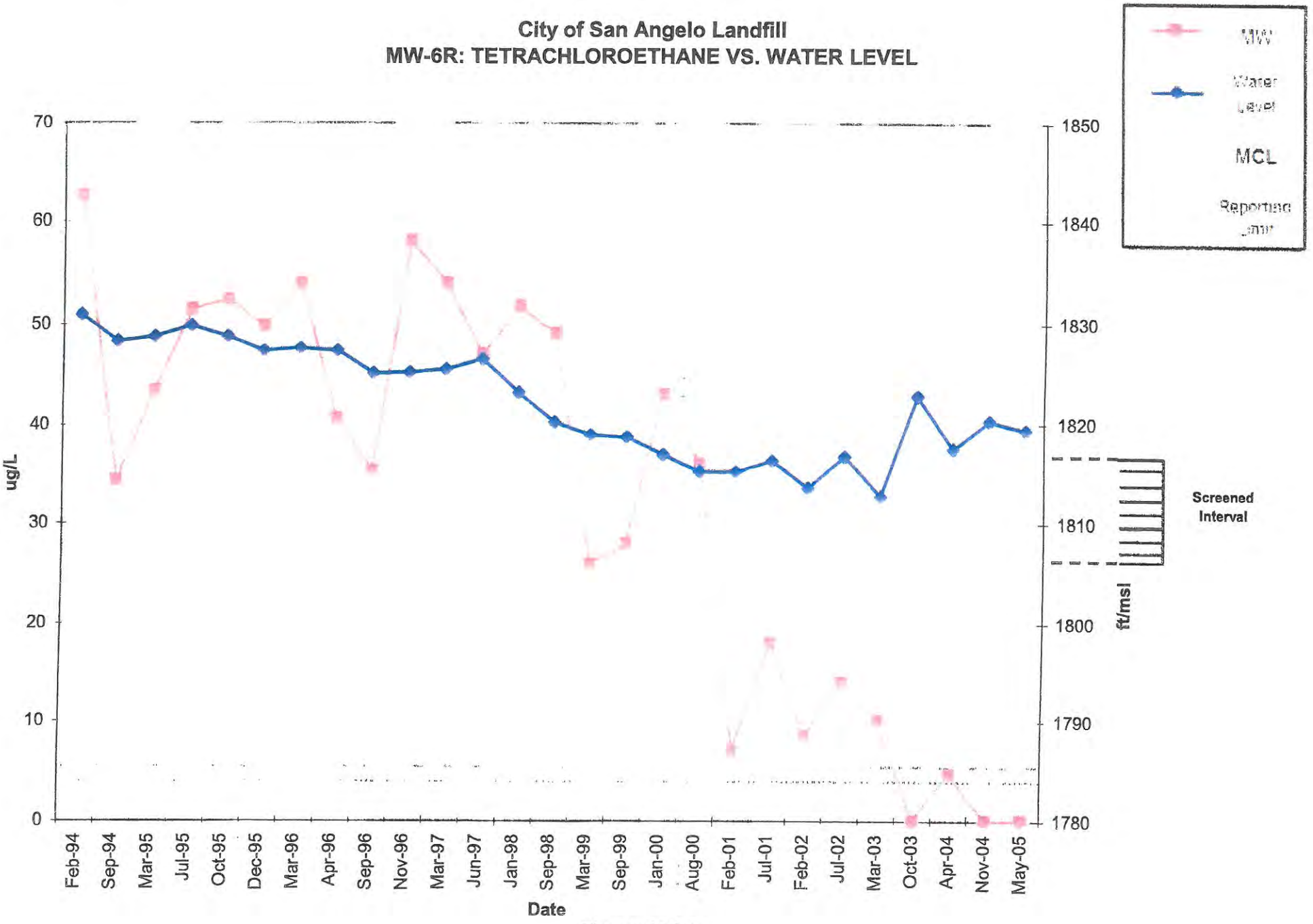

City of San Angelo Landfill
MW-6R: TETRACHLOROETHANE VS. WATER LEVEL
MW
Water Level
MCL
Reporting Limit
ug/L
ft/msl
Screened Interval
Date
70
60
50
40
30
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1850
1840
1830
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1810
1800
1790
1780
Feb-94
Sep-94
Mar-95
Jul-95
Oct-95
Dec-95
Mar-96
Apr-96
Sep-96
Nov-96
Mar-97
Jun-97
Jan-98
Sep-98
Mar-99
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Jan-00
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Jul-01
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Jul-02
Mar-03
Oct-03
Apr-04
Nov-04
May-05

Figure 12C.5

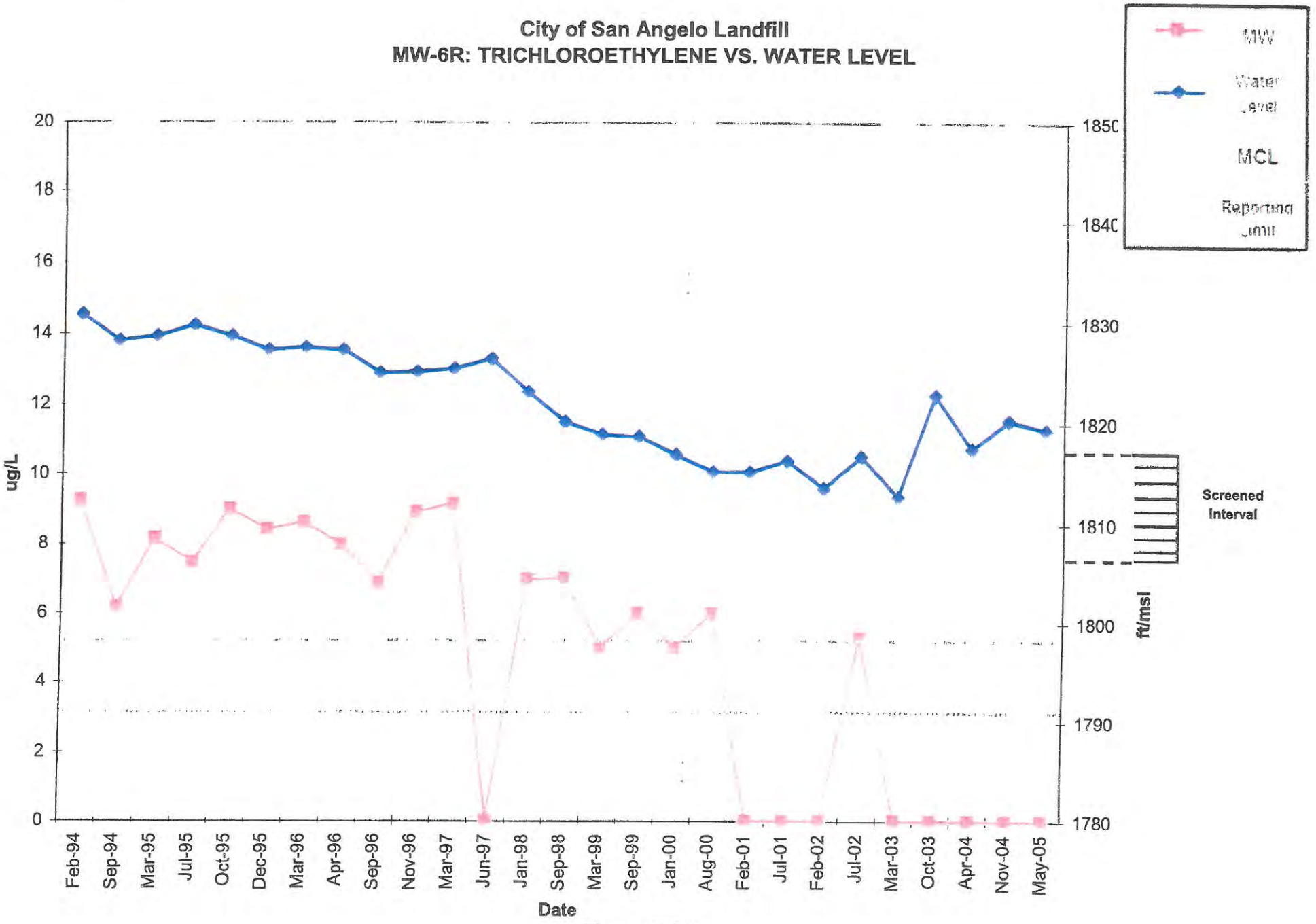

City of San Angelo Landfill
MW-6R: TRICHLOROETHYLENE VS. WATER LEVEL
MW
Water Level
MCL
Reporting Limit
ug/L
ft/msl
Screened Interval
Date
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Apr-04
Nov-04
May-05

Figure 12C.6

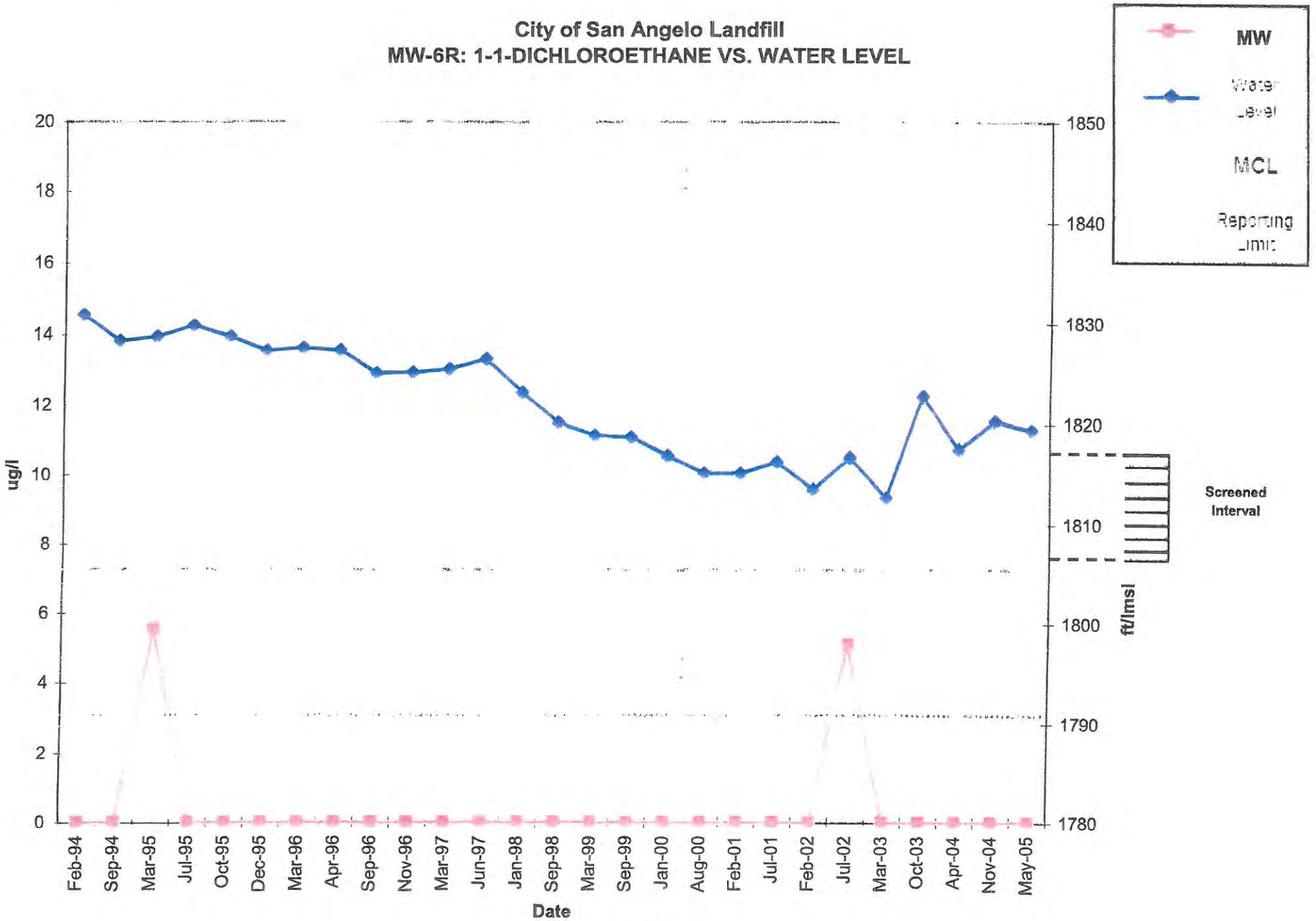

City of San Angelo Landfill
MW-6R: 1-1-DICHLOROETHANE VS. WATER LEVEL
MW
Water Level
MCL
Reporting Limit
Screened Interval
ug/l
ft/lmsl
Date
20
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Apr-04
Nov-04
May-05

Figure 12C.7

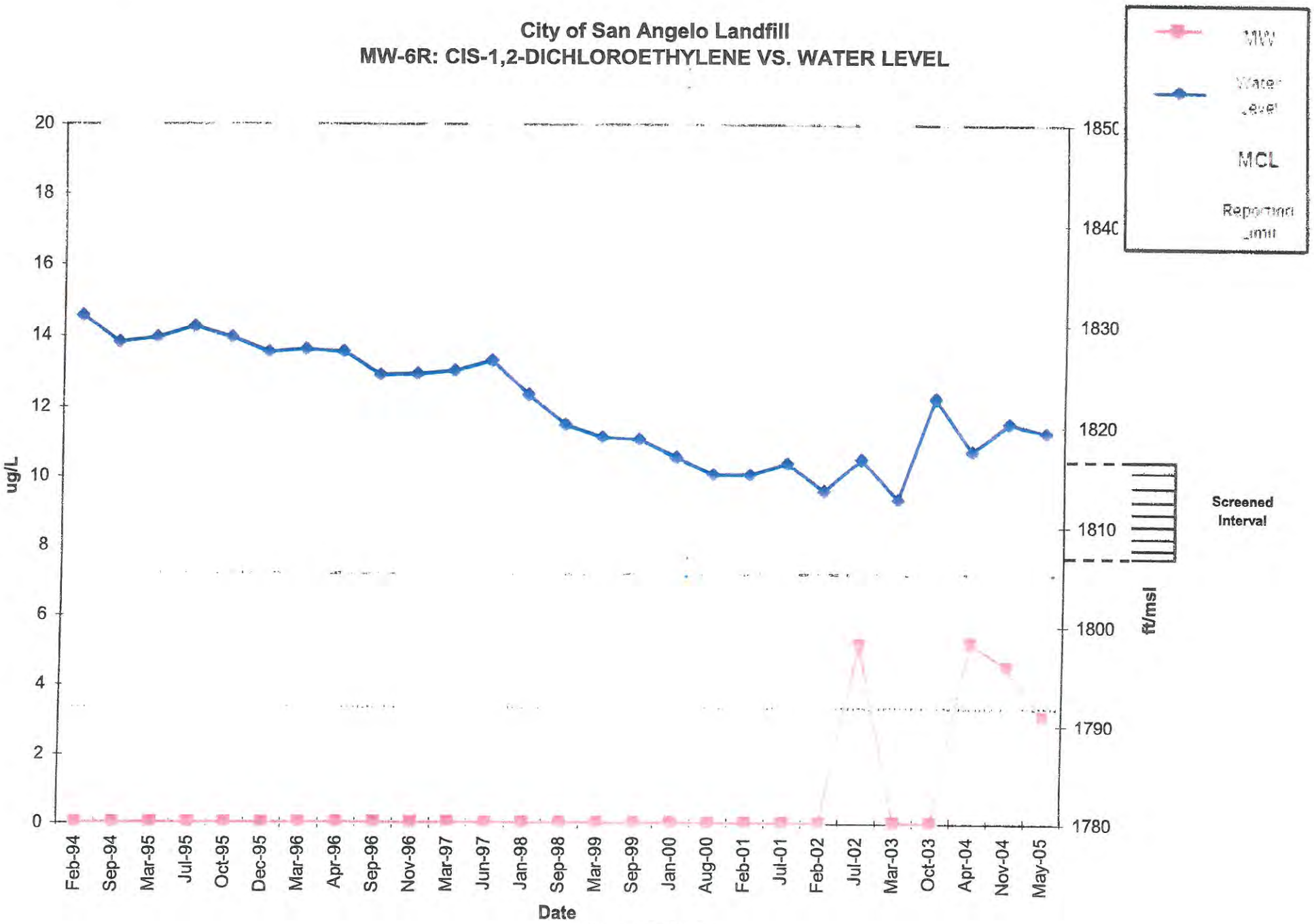

City of San Angelo Landfill
MW-6R: CIS-1,2-DICHLOROETHYLENE VS. WATER LEVEL
MW
Water Level
MCL
Reporting Limit
ug/L
ft/msl
Screened Interval
Date
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Jan-98
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Apr-04
Nov-04
May-05

Figure 12C.8

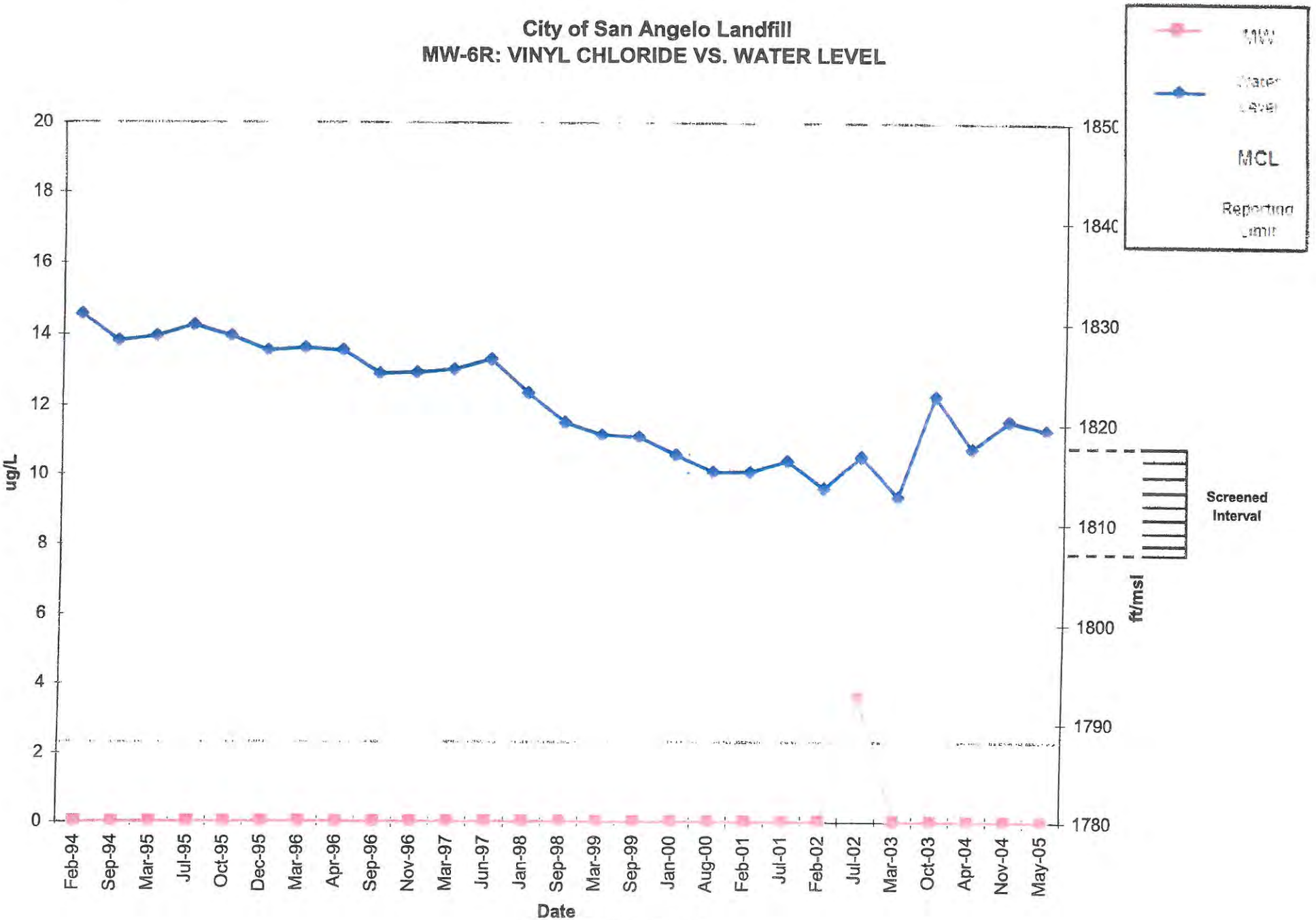

City of San Angelo Landfill
MW-6R: VINYL CHLORIDE VS. WATER LEVEL
MW
Water Level
MCL
Reporting Limit
ug/L
ft/msl
Screened Interval
Date
0
2
4
6
8
10
12
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Feb-94
Sep-94
Mar-95
Jul-95
Oct-95
Dec-95
Mar-96
Apr-96
Sep-96
Nov-96
Mar-97
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Apr-04
Nov-04
May-05

Figure 12C.9

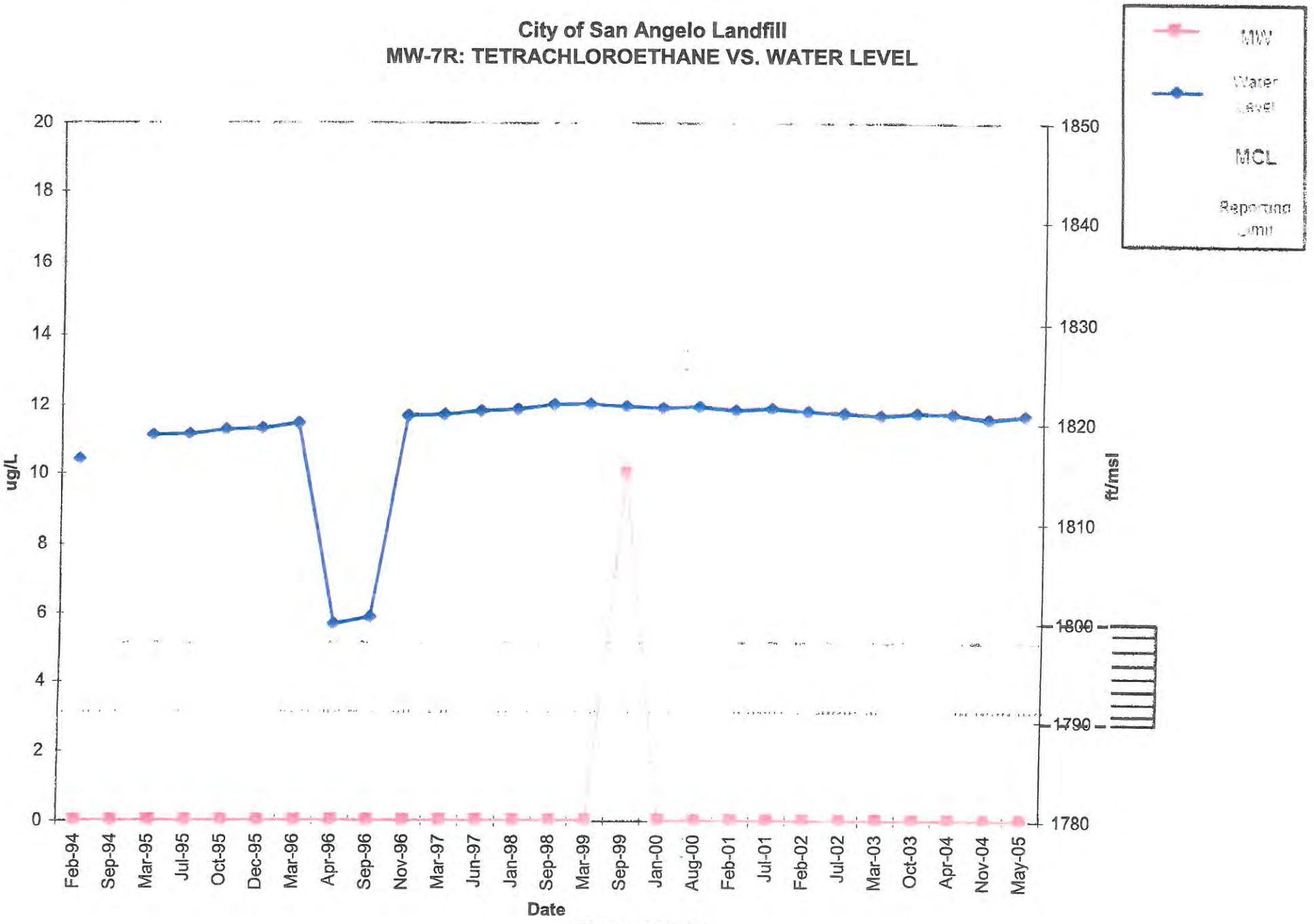


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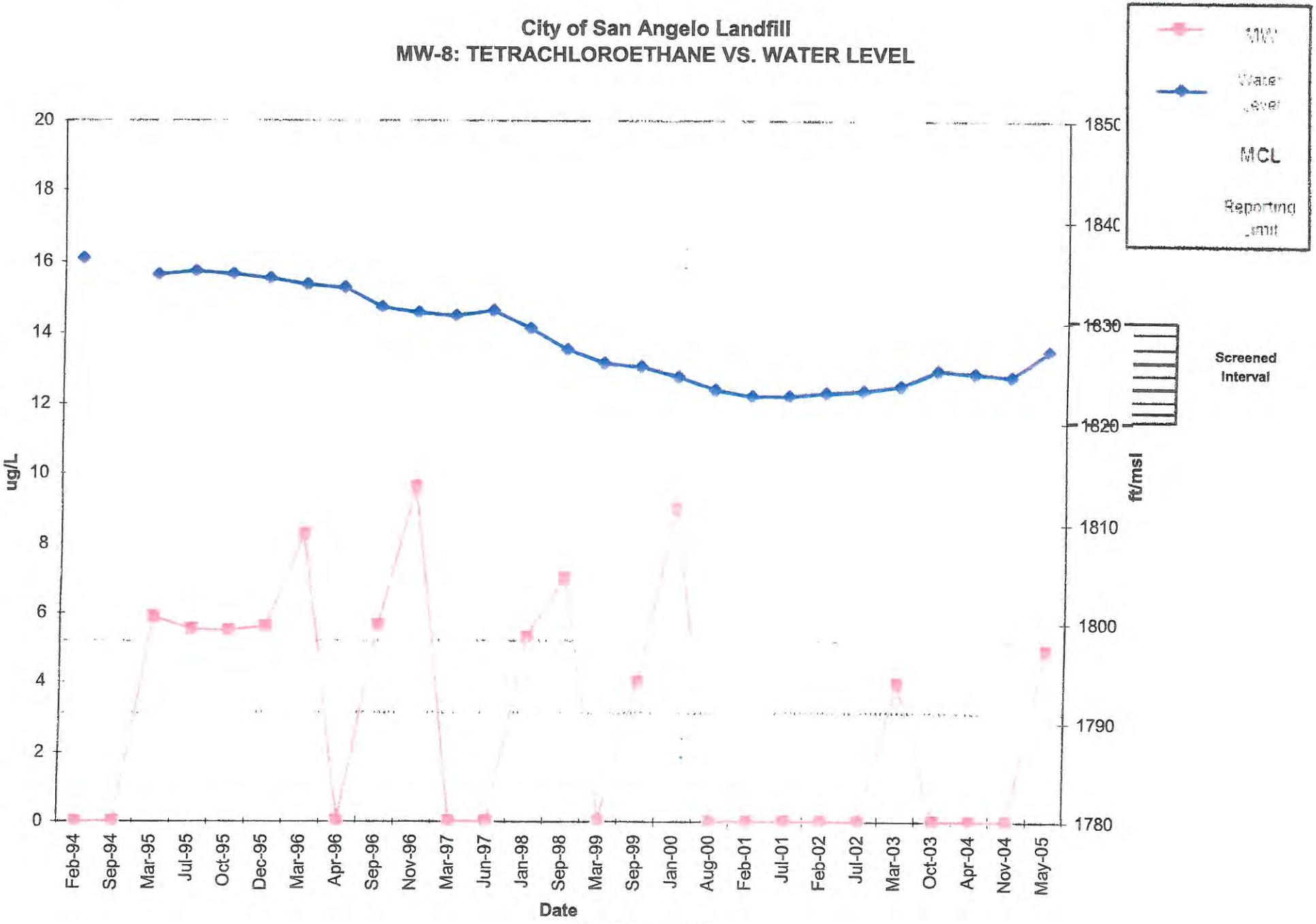


Figure 12C.11

City of San Angelo Landfill
MW-8: CIS-1,2-DICHLOROETHYLENE VS. WATER LEVEL

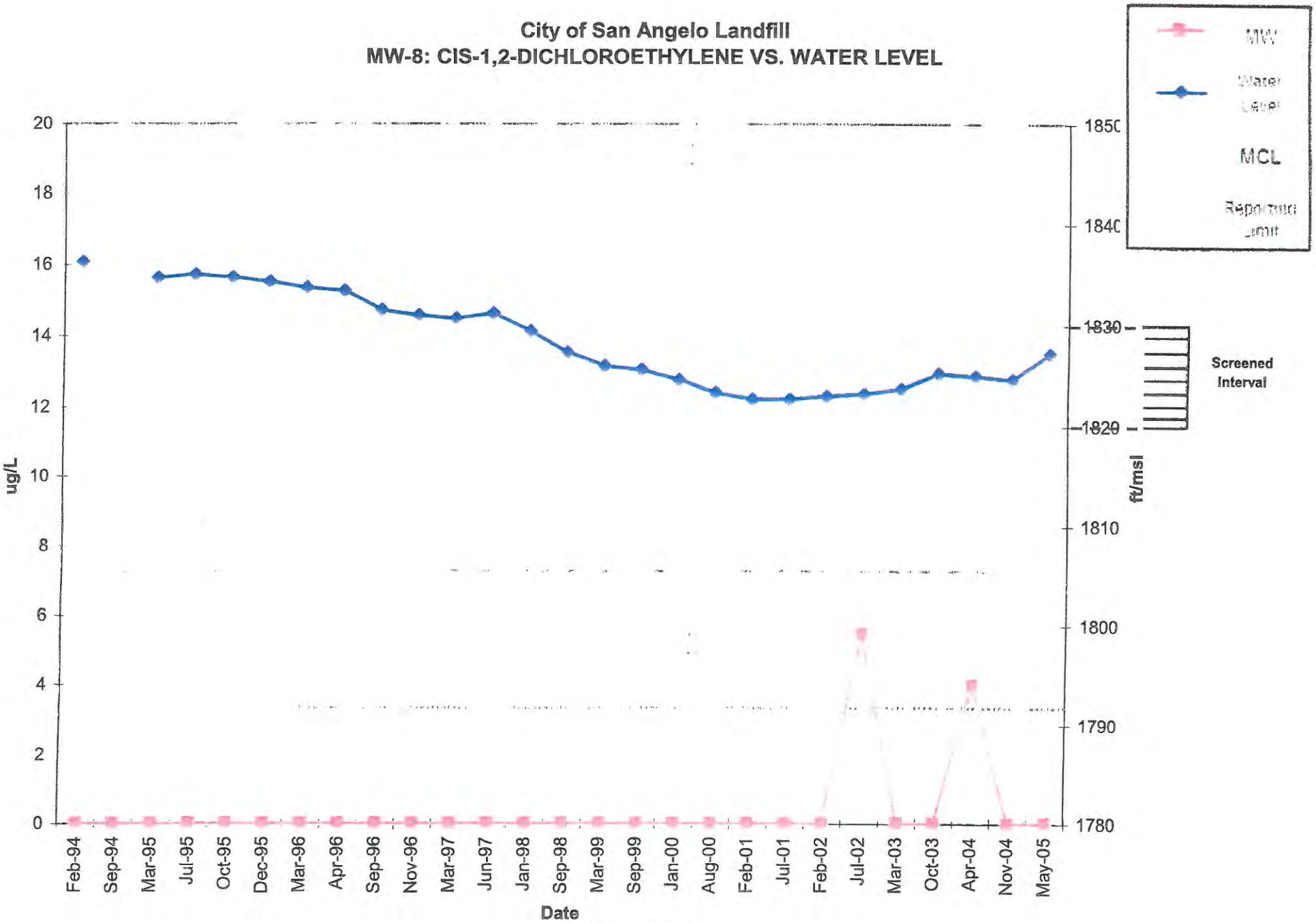


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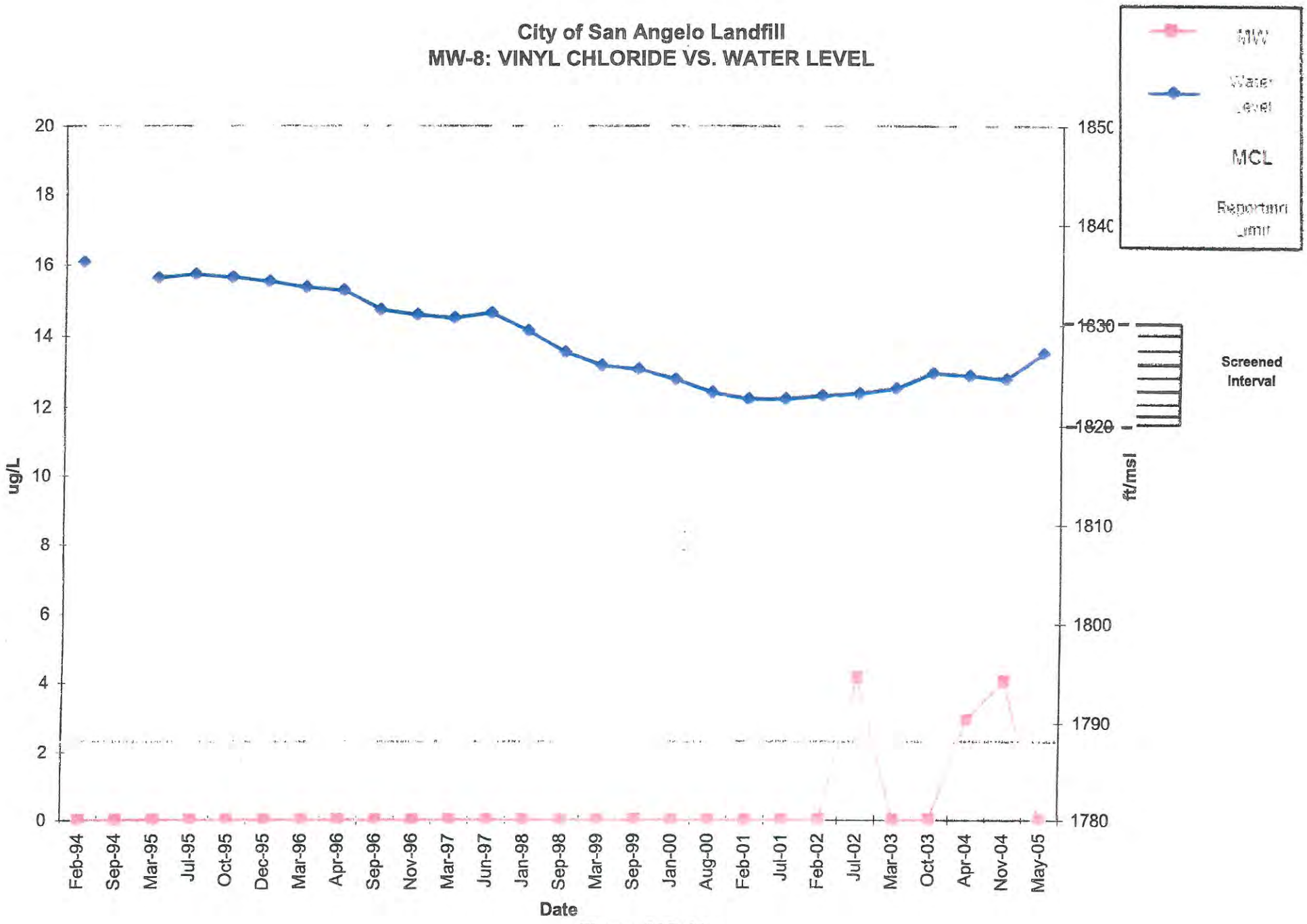


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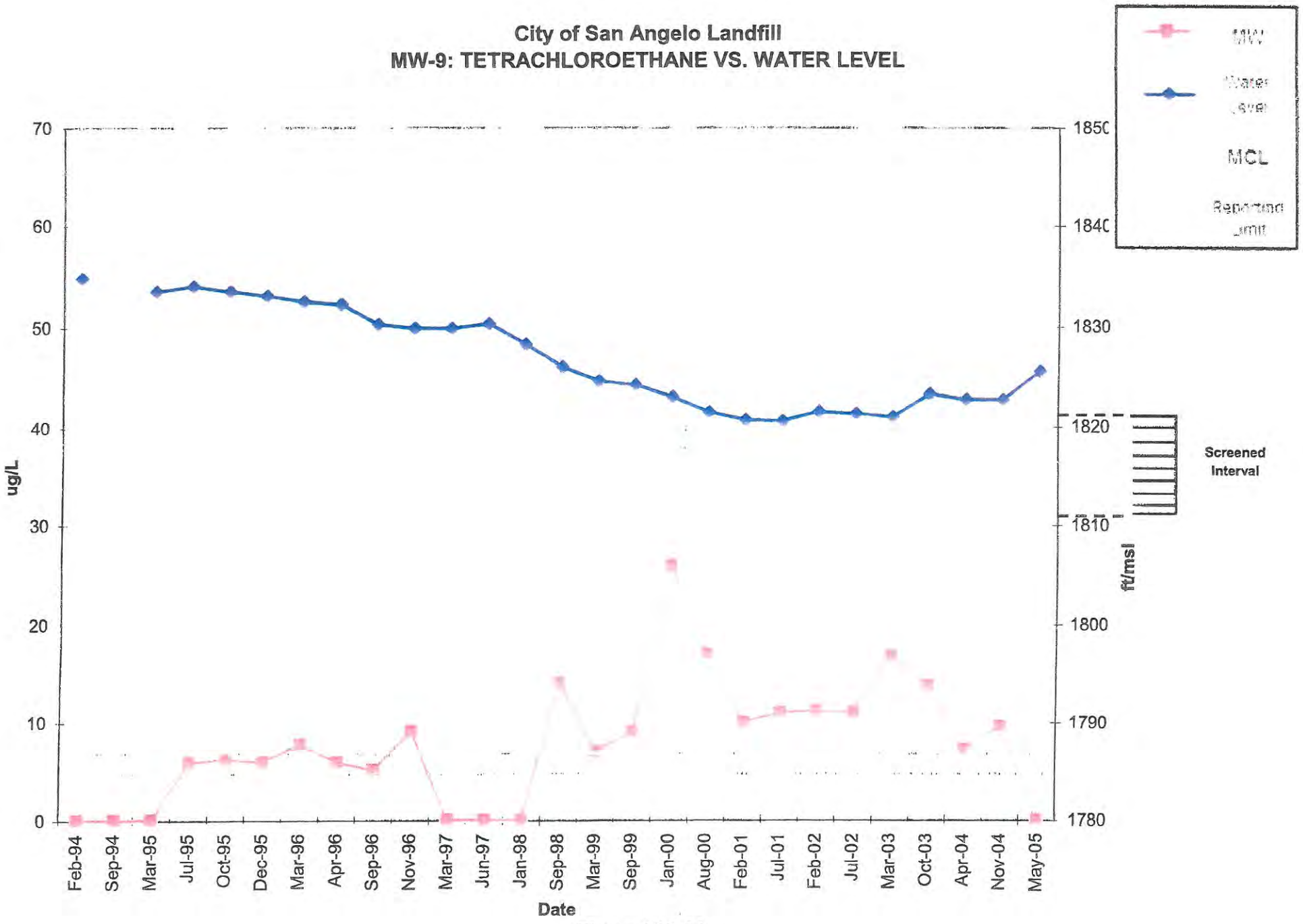


Figure 12C:14

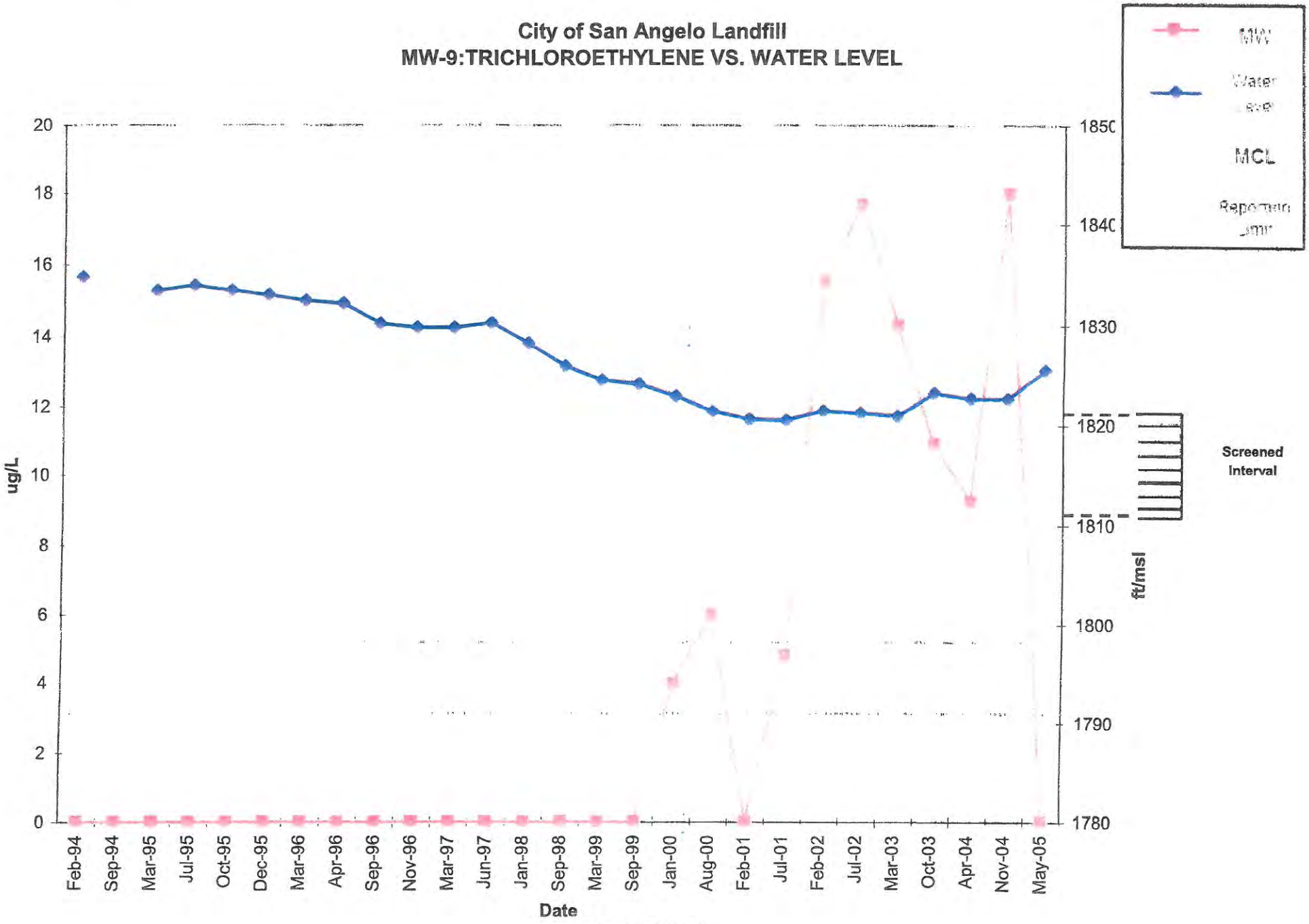


Figure 12C.15

City of San Angelo Landfill

MW-9: 1-1-DICHLOROETHANE VS. WATER LEVEL

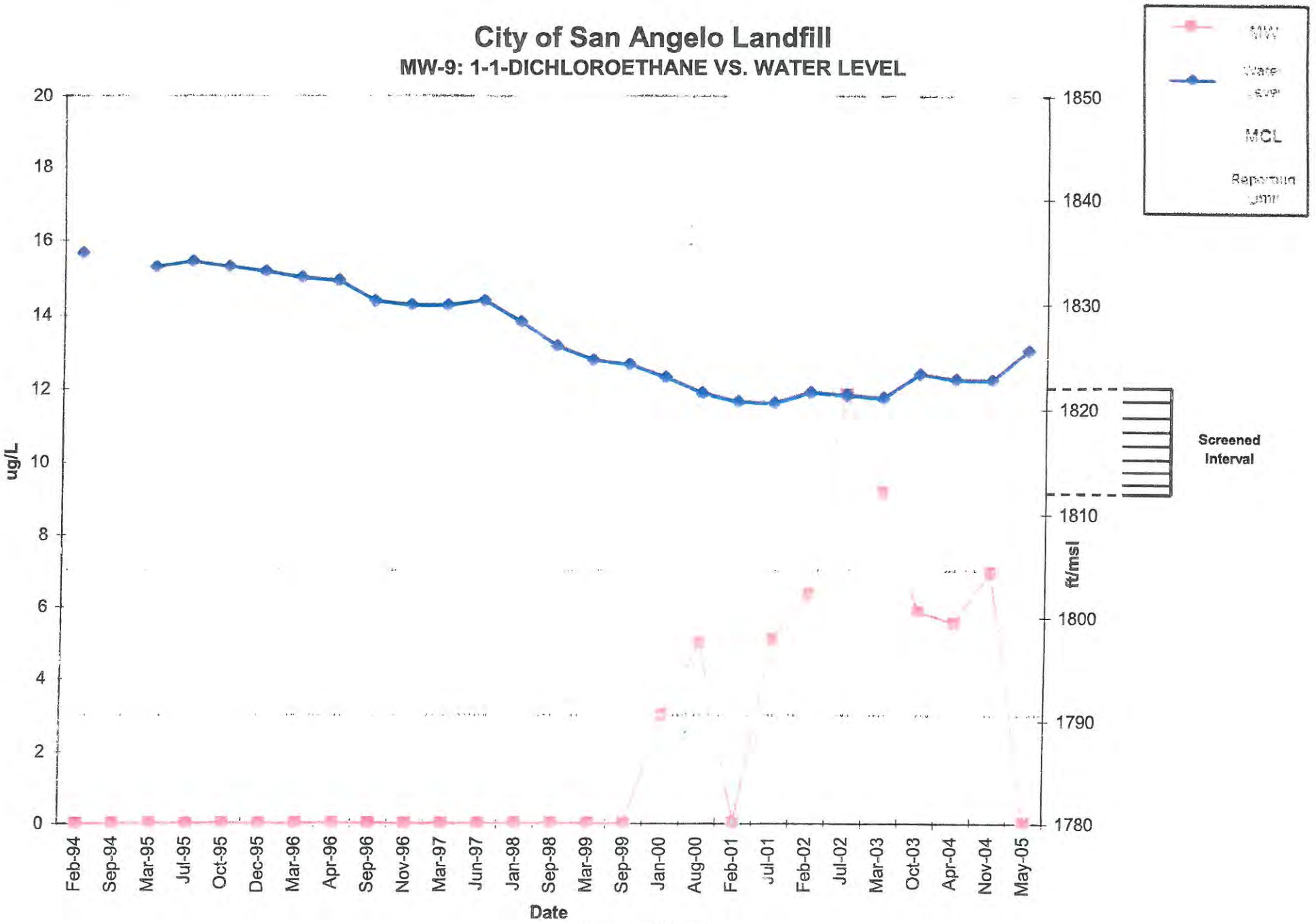


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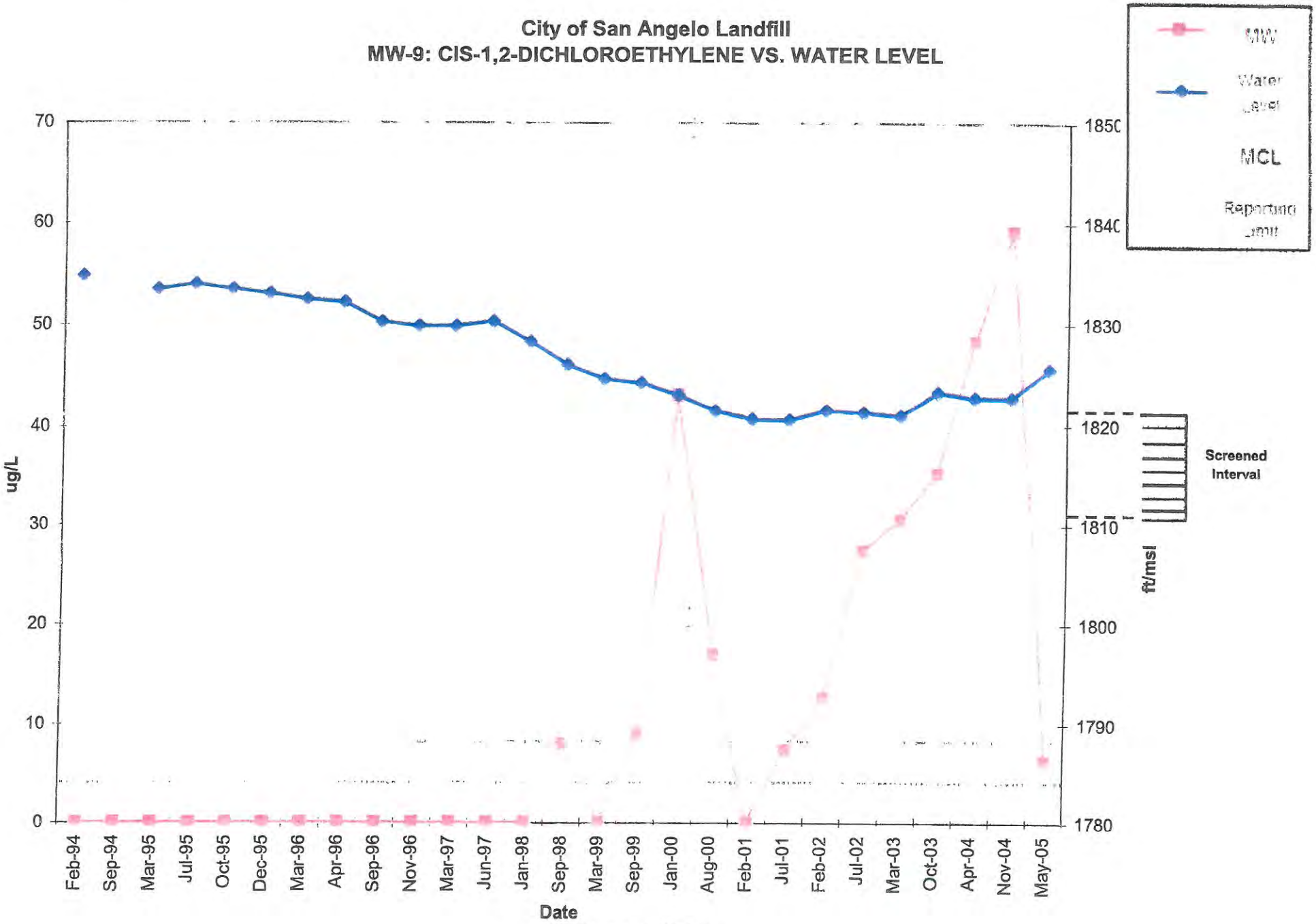


Figure 12C.17

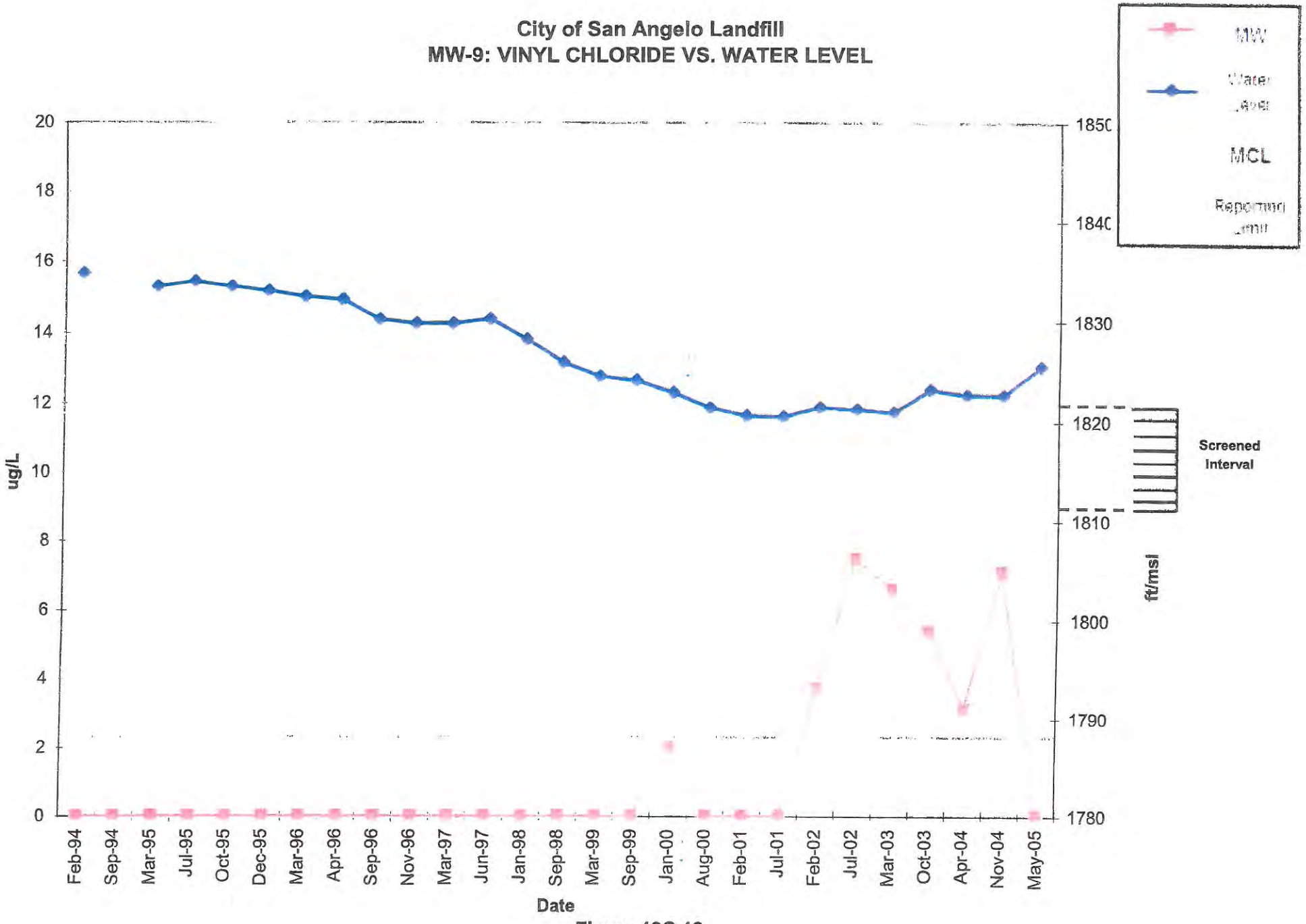


Figure 12C.18

City of San Angelo Landfill
MW-10: TETRACHLOROETHANE VS. WATER LEVEL

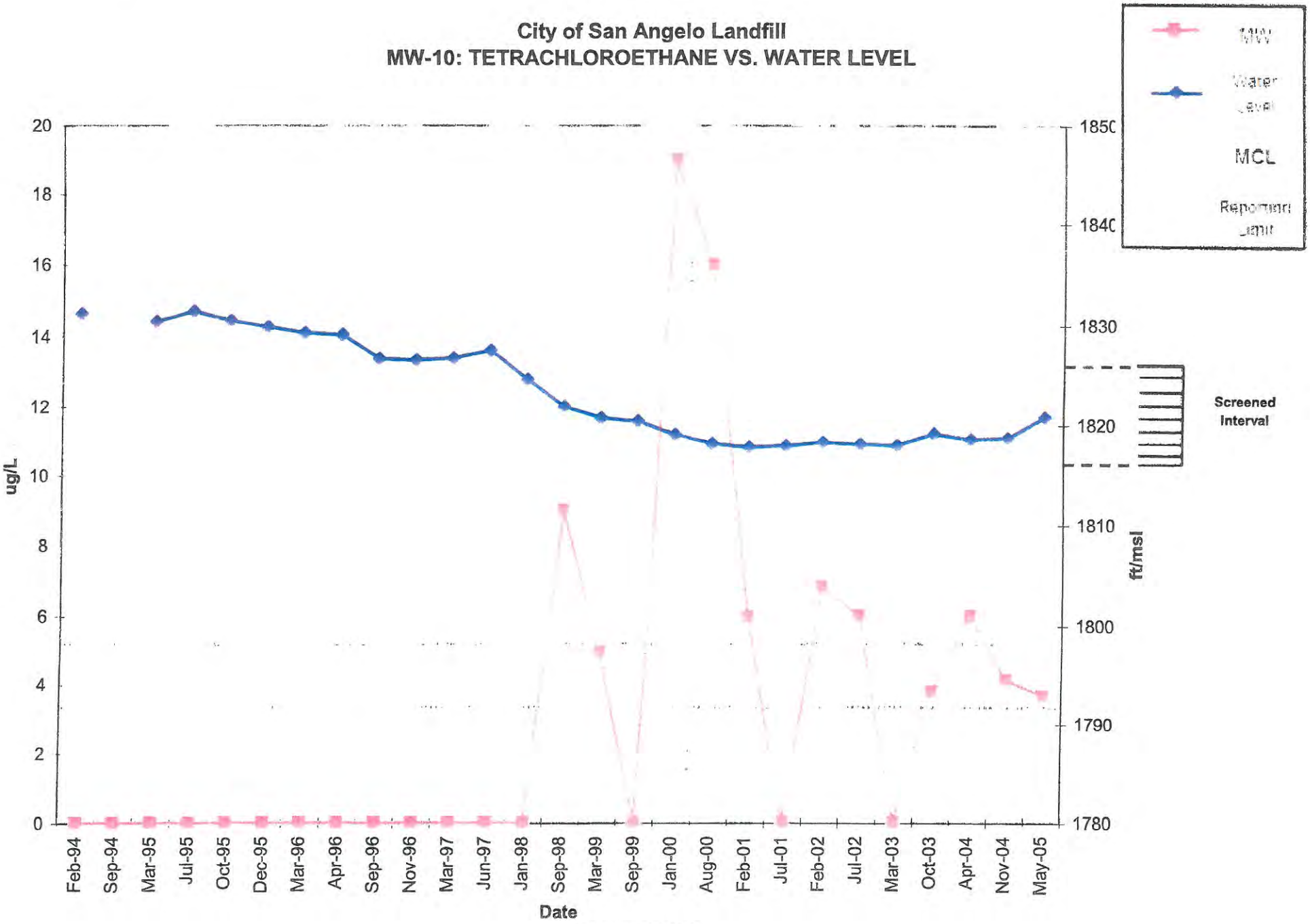


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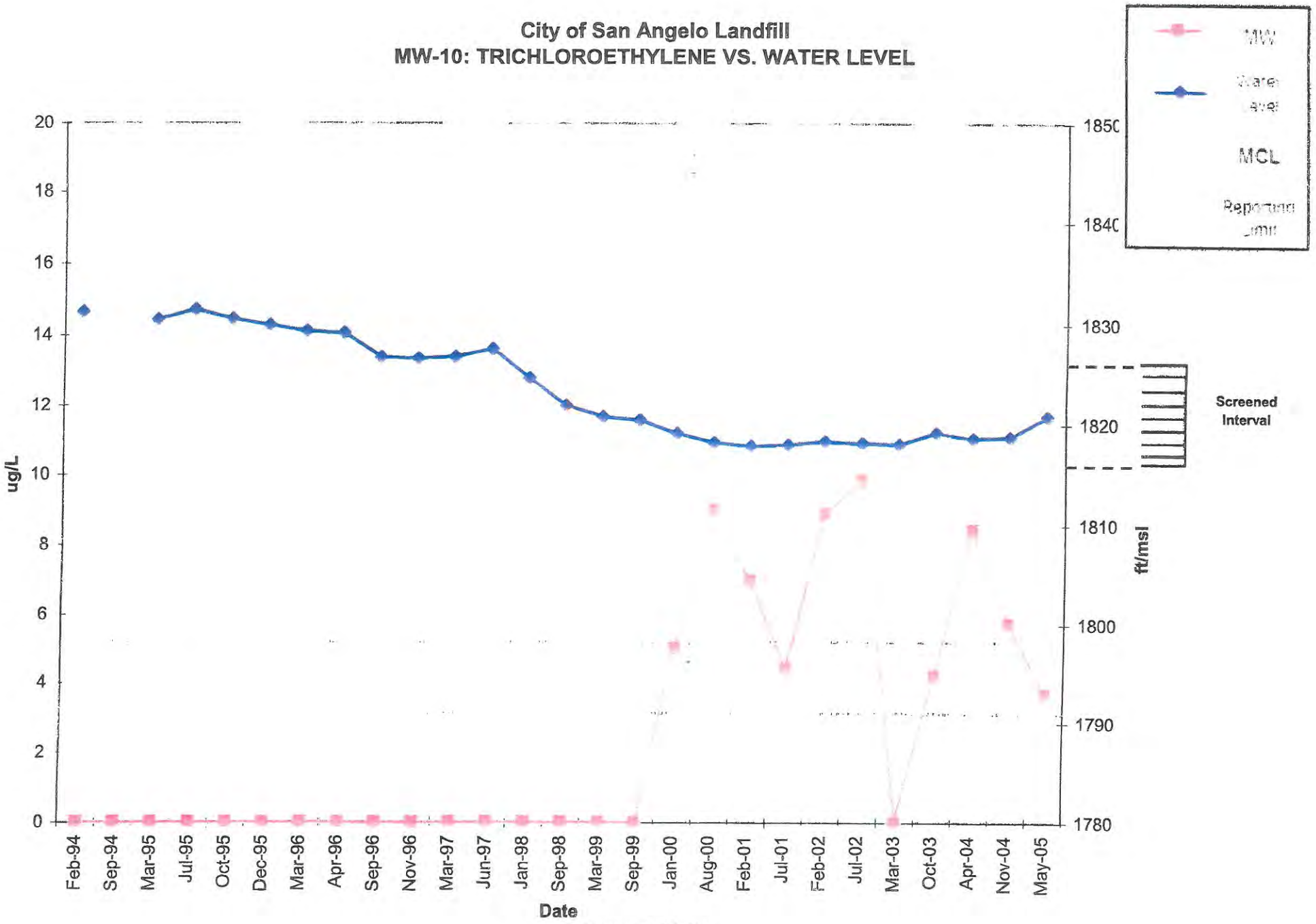


Figure 12C.20

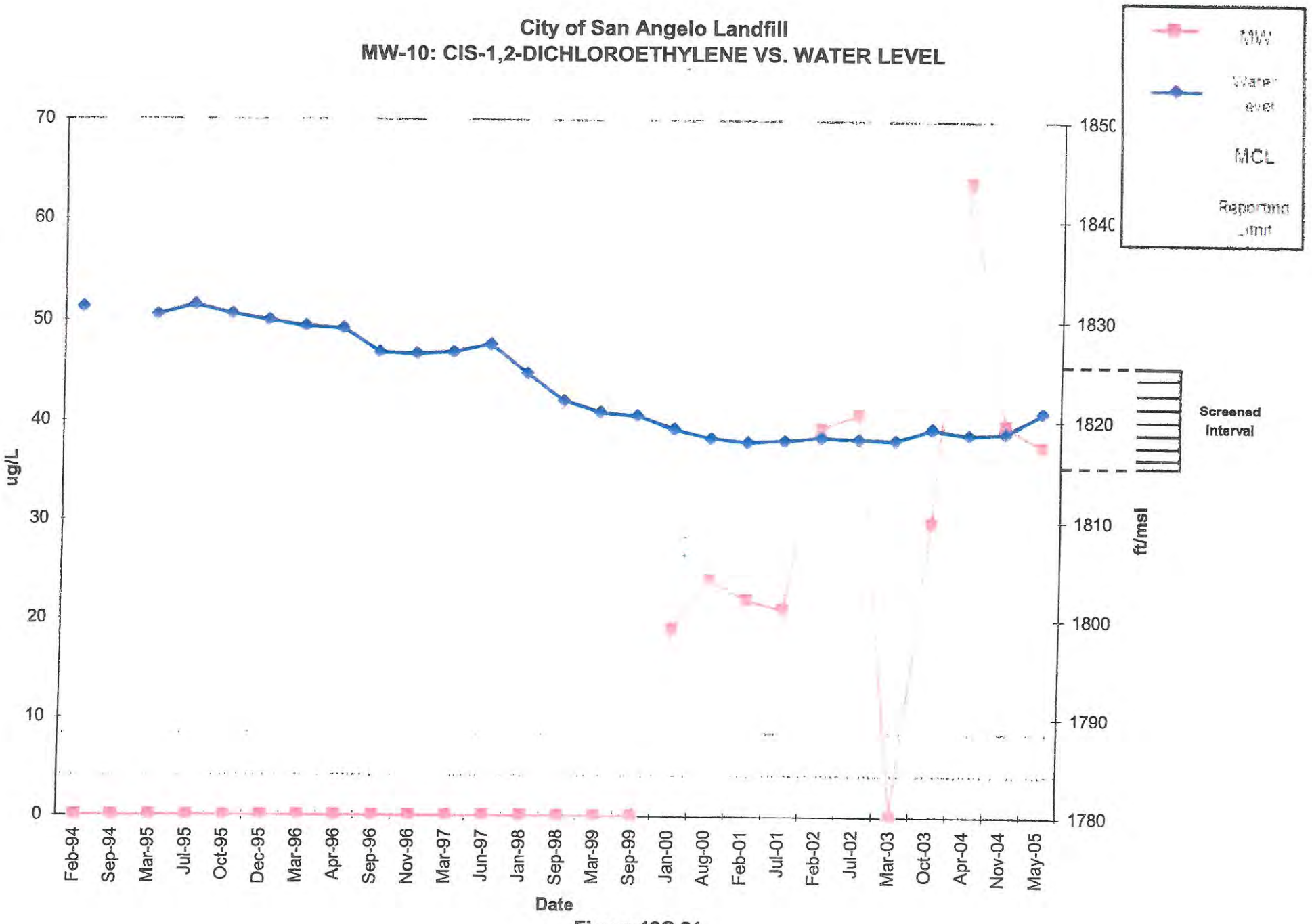


Figure 12C.21

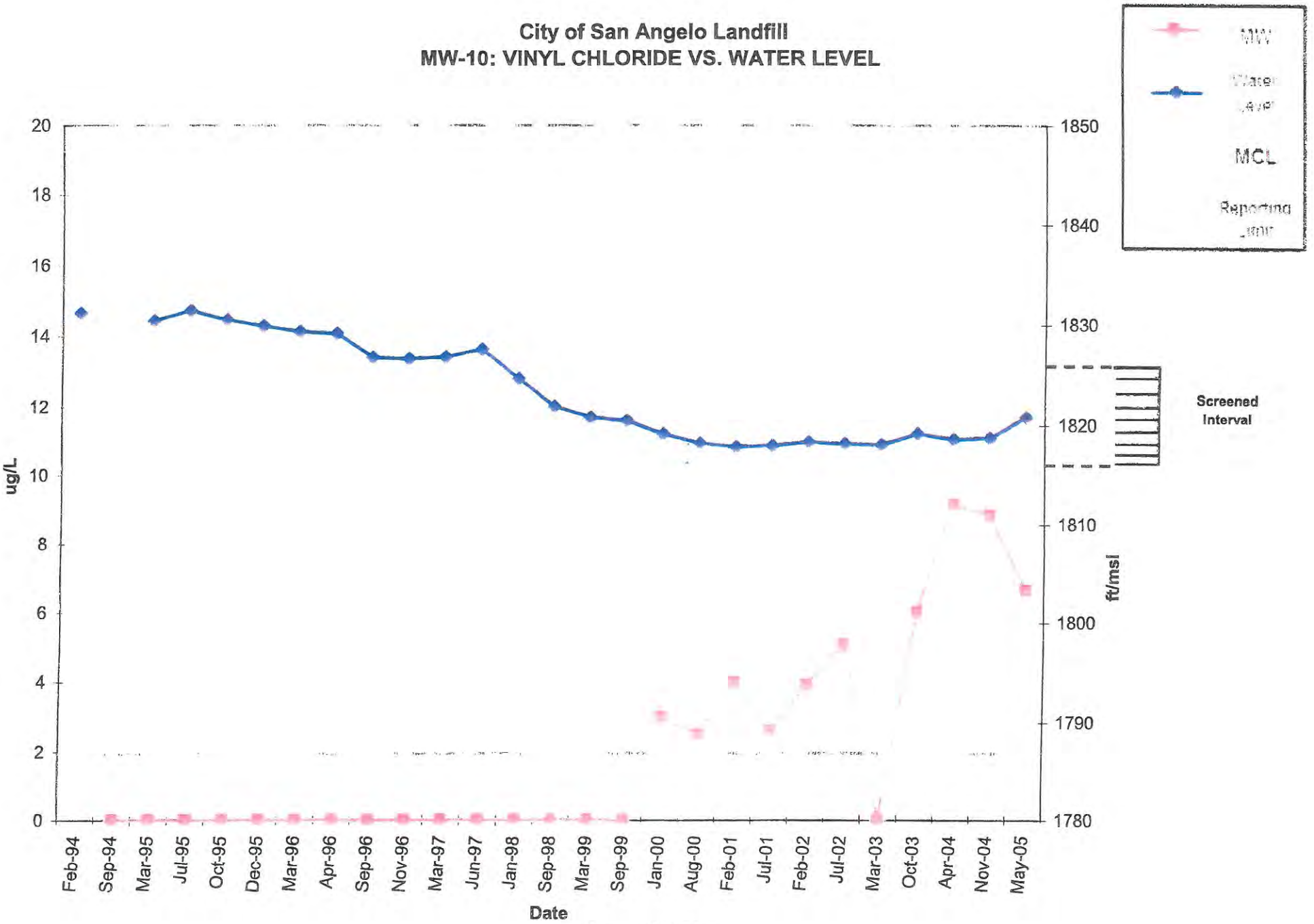


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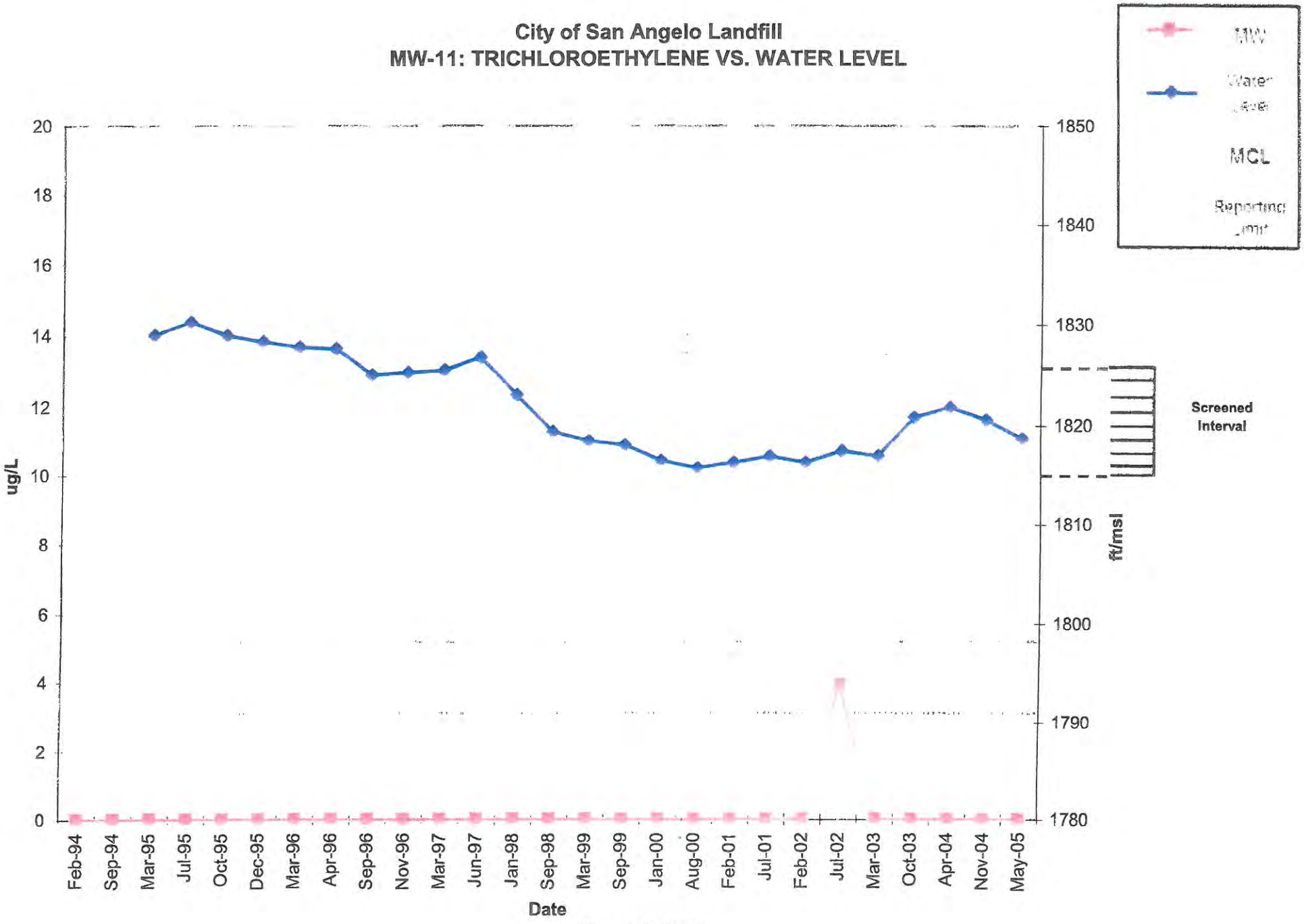


Figure 12C.23

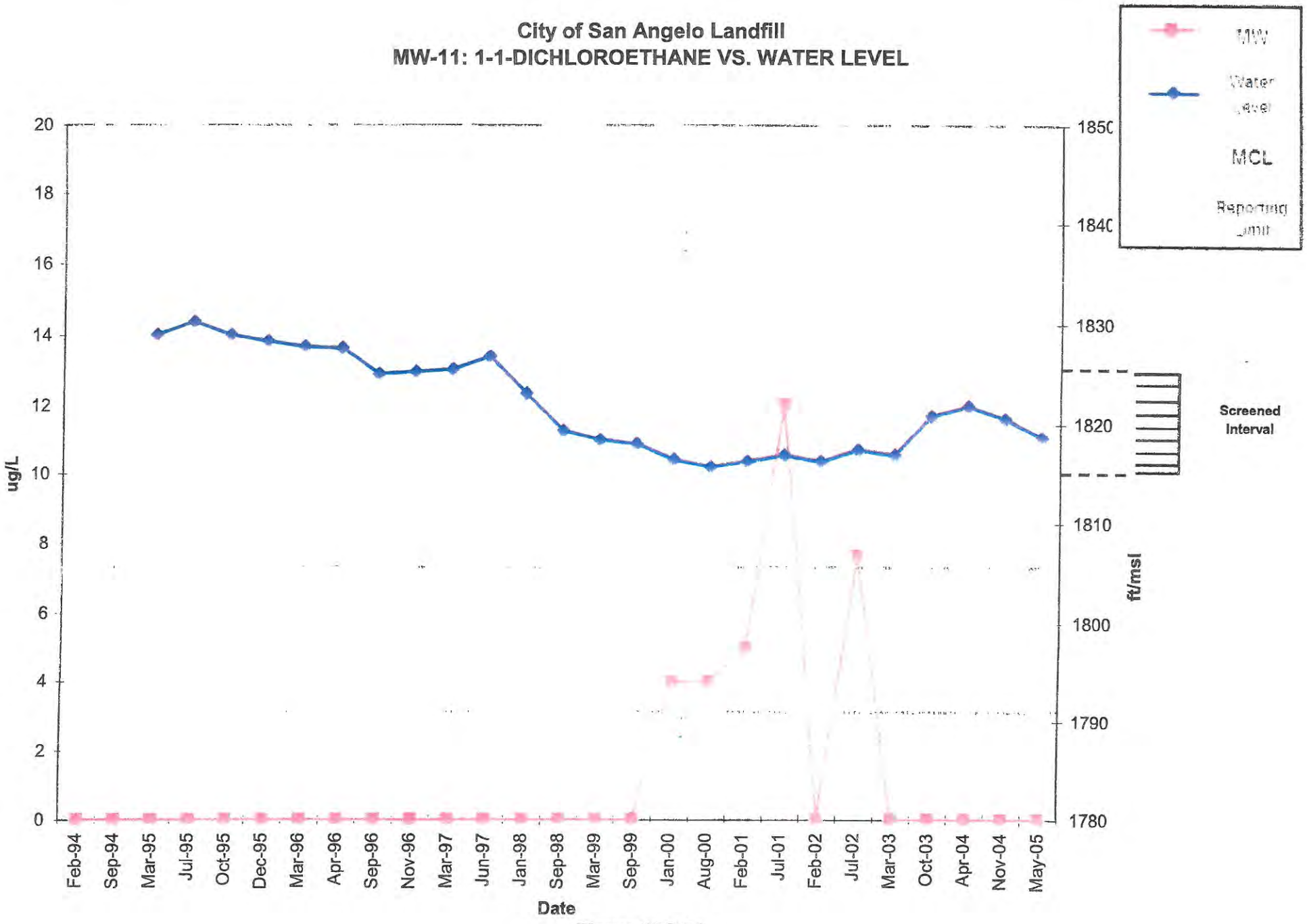


Figure 12C.24

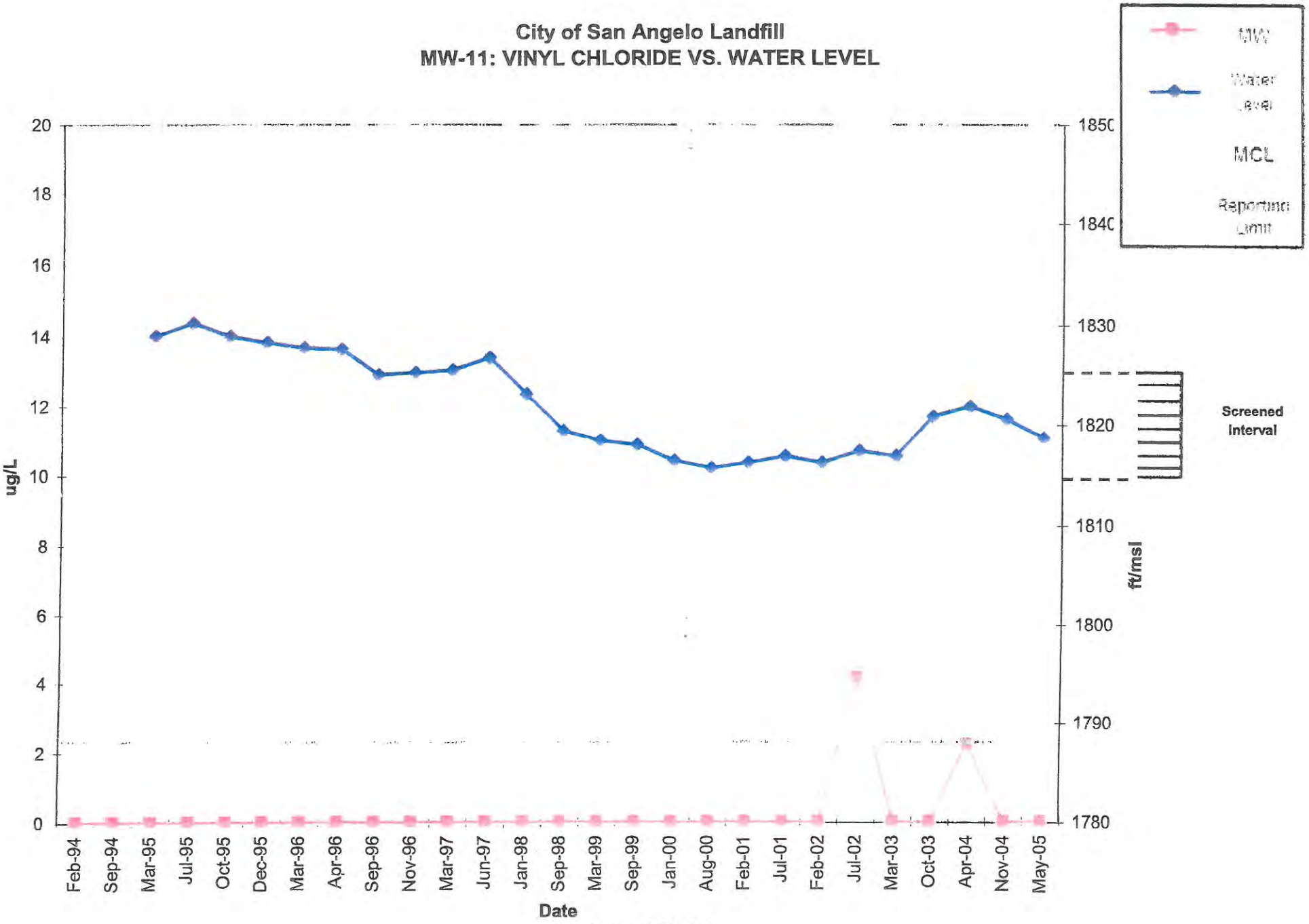


Figure 12C.25

Kathleen Hartnett White, *Chairman*
Larry R. Soward, *Commissioner*
Martin A. Hubert, *Commissioner*
Glenn Shankle, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

March 16, 2007

The Honorable J. W. Lown
Mayor of San Angelo
P. O. Box 1751
San Angelo, Texas 76902-1751

Re: Municipal Solid Waste (MSW) – Tom Green County
City of San Angelo - MSW Permit No. 79A
Permit Modification: Site Operating Plan Call-In
WWC Nos. 11452962 and 11520540, CN602718405 / RN102143294

Dear Mayor Lown:

We have reviewed your application for a municipal solid waste permit modification dated August 24, 2006, received by the MSW Permits Section on August 29, 2006, and the revision dated November 17, 2006, and received on November 27, 2006 requesting modification to the facility Site Operating Plan for consistency with the December 2, 2004, Site Operating Plan Rules. The information presented is technically sufficient for a municipal solid waste permit modification.

Enclosed is a copy of the above referenced modification which is now part of your permit and should be attached thereto as Part IV. The documentation prepared and submitted to support the modification request shall be considered as requirements of the permit.

If you have questions concerning this matter, please contact Mr. Arthur Denny at (512) 239-6610. When addressing written correspondence, please use Mail Code 124 (MC 124).

This action is taken under authority delegated by the Executive Director of the Texas Commission on Environmental Quality.

Sincerely,

Richard C. Carmichael, Ph.D., P.E.
Manager, Municipal Solid Waste Permits Section
Waste Permits Division

RCC/ALD/fp

cc: Mr. Kenneth Welch, P.E., Biggs & Mathews Environmental, Mansfield
Mr. Ron Lewis, P.E., Public Works Director, City of San Angelo
Mr. Jason Quiton, Trashaway Services, Inc., San Angelo

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

MODIFICATION TO

MUNICIPAL SOLID WASTE PERMIT NO. 79

CITY OF SAN ANGELO LANDFILL

Municipal Solid Waste Permit No. 79 is hereby modified as follows:

Description of Change:

This permit modification authorizes revisions to the facility Site Operating Plan to comply with Chapter 330, Site Operating Plan Rules, effective, December 2, 2004. The details of this permit modification are contained in the application dated August 24, 2006, received on August 29, 2006, and the revision dated November 17, 2006, received on November 27, 2006.

Part of Permit Modified:

Part IV, Site Operating Plan, complete replacement

This modification is a part of Permit No. 79 and should be attached thereto.

APPROVED, ISSUED, AND EFFECTIVE in accordance with Title 30 Texas Administrative Code Chapter 305, Section 305.70(l) and 30 TAC Chapter 330, effective December 2, 2004.

ISSUED DATE:

MAR 06 2007

For the Commission

Kathleen Hartnett White, *Chairman*
Larry R. Soward, *Commissioner*
Glenn Shankle, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

March 16, 2007

TO: Persons on the attached mailing list.

RE: City of San Angelo Landfill
MSW Permit No. 79

This letter is your notice that the Texas Commission on Environmental Quality (TCEQ) executive director has issued final approval of the above-named application.

You may file a **motion to overturn** with the chief clerk. A motion to overturn is a request for the commission to review the TCEQ executive director's approval of the application. Any motion must explain why the commission should review the TCEQ executive director's action.

A motion to overturn must be received by the chief clerk within 23 days after the date of this letter. An original and 11 copies of a motion must be filed with the chief clerk in person, or by mail to the chief clerk's address on the attached mailing list. On the same day the motion is transmitted to the chief clerk, please provide copies to the applicant, the Executive Director's attorney, and the Public Interest Counsel at the addresses listed on the attached mailing list. If a motion to overturn is not acted on by the commission within 45 days after the date of this letter, then the motion shall be deemed overruled.

Individual members of the public may seek further information by calling the TCEQ Office of Public Assistance, toll free, at 1-800-687-4040.

Sincerely,

LaDonna Castañuela
Chief Clerk

LDC/ec

MAILING LIST
for
CITY OF SAN ANGELO LANDFILL
MSW PERMIT NO. 79

FOR THE APPLICANT:

The Honorable J. W. Lown
Mayor of San Angelo
P.O. Box 1751
San Angelo, TX 76902

Mr. Kenneth Welch, P.E.
Biggs & Mathews Environmental
1700 Robert Road
Mansfield, TX 76063

Mr. Ron Lewis, P.E.
Public Works Director
P.O. Box 1751
San Angelo, TX 76902

Mr. Jason Quiton
Trashaway Services, Inc.
1422 Hughes
San Angelo, TX 76903

PROTESTANTS/INTERESTED PERSONS:

Mr. Michael Block
4101 Schwartz Road
San Angelo, TX 76904

FOR THE EXECUTIVE DIRECTOR:

Mr. Guy Henry, Senior Attorney
Texas Commission on Environmental Quality
Environmental Law Division MC-173
P.O. Box 13087
Austin, Texas 78711-3087

Mr. Arthur Denny, Technical Staff
Texas Commission on Environmental Quality
Waste Permits Division MC- 124
P.O. Box 13087
Austin, Texas 78711-3087

FOR OFFICE OF PUBLIC ASSISTANCE:

Ms. Jodena Henneke, Director
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SAN ANGELO LANDFILL
TOM GREEN COUNTY, TEXAS
TCEQ PERMIT NO. MSW 79A

PERMIT MODIFICATION

PART IV - SITE OPERATING PLAN

Prepared for

City of San Angelo

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LIST OF ACRONYMS

ADC - Alternative Daily Cover
ADCOP - Alternative Daily Cover Operating Plan
CFR - Code of Federal Regulations
DOT - Department of Transportation
EPA - U.S. Environmental Protection Agency
FMLER - flexible membrane liner evaluation report
FWS - U.S. Fish and Wildlife Service
GLER - geomembrane liner evaluation report
LCS - leachate collection system
LFG - landfill gas
MSDS - Material Safety Data Sheets
msl - mean sea level
MSW - Municipal Solid Waste
NRACM - nonregulated asbestos-containing material
OSHA - Occupational Health and Safety Administration
PCBs - polychlorinated biphenyls
RACM - regulated asbestos-containing material
RCRA - Resource Conservation Recovery Act
SDP - site development plan
SLER - soils and liner evaluation report
SOP - site operating plan
TAC - Texas Administrative Code
TCEQ - Texas Commission on Environmental Quality
TxDOT - Texas Department of Transportation
WWTP - wastewater treatment plant

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1 INTRODUCTION (30 TAC §330.65)

1.1 Introduction (§330.127)

This Site Operating Plan (SOP) has been prepared for the existing San Angelo Landfill. This SOP is consistent with 30 TAC §330.65 and contains the information required by §330.127. This SOP includes provisions for site management and site operating personnel to meet the general and site-specific requirements included in Subchapter D: Operational Standards for Municipal Solid Waste Landfill Facilities for the day-to-day operation of the facility. The City of San Angelo has contracted with Trashaway Waste Services, Inc. for the day-to-day operations of the San Angelo Landfill. This SOP will be retained onsite throughout the active life of the facility and throughout the postclosure care maintenance period.

The San Angelo Landfill is an existing 257-acre, Type I Municipal Solid Waste Disposal Facility (TCEQ MSW Permit No. 79A) owned by the City of San Angelo. The San Angelo Landfill is located in Tom Green County, Texas and provides waste disposal capacity for residences and businesses in the City of San Angelo, Tom Green County, and surrounding areas. The facility is located approximately 3 miles northeast of the City of San Angelo on Old Ballinger Highway. The facility is located outside the city limits of San Angelo, within unincorporated Tom Green County.

The primary function of the facility is municipal solid waste disposal. Support facilities are provided including a compost facility, liquid waste stabilization, uncontaminated wood waste processing area, large item/white goods storage area, and tire storage located within the permit boundary; and gatehouse, scales, equipment maintenance and storage area, and site entrance road located outside the permit boundary. The support facilities located outside of the permit boundary are located on property owned by Trashaway Waste Services, Inc. (the operator of the San Angelo Landfill). This property is fenced as though it is part of the permit boundary.

The existing facility provides waste disposal for individuals and communities within the City of San Angelo, Tom Green County, and surrounding areas. The San Angelo Landfill has projected a waste acceptance rate that varies from 500 tons per day or approximately 143,000 tons per year increasing to a waste acceptance rate of about 700 tons per day or 200,200 tons per year.

This SOP provides guidance for site management and site operating personnel for daily operation of the San Angelo Landfill. This SOP also includes provisions for site management and site operating personnel to meet the general and site-specific requirements for the waste acceptance rate established in the permit.

1.2 General (§330.121)

The operational requirements for the San Angelo Landfill are defined in the approved Site Development Plan (SDP) and Site Operating Plan (SOP). The following documents are operational requirements and are part of the site operating record of the San Angelo Landfill.

Operational requirements are included in the following:

- Municipal Solid Waste Disposal Permit No. 79A
- Certification of Demonstration of Location Restrictions
- Site Development Plan
- Soil and Liner Quality Control Plan
- Runon/Runoff Control Plan
- Final Closure Plan
- Cost for Closure
- Post-closure Plan
- Cost for Post-closure
- Landfill Gas Management Plan
- Leachate and Contaminated Water Plan
- Site Operating Plan
- Groundwater Sampling and Analysis Plan
- Financial Assurance

1.3 Pre-Operation Notice (§330.123)

The facility will provide notice of construction of a new waste disposal area or sector in the form of a Soil Liner Evaluation Report (SLER) and a Flexible Membrane Liner Evaluation Report (FMLER), also referred to as a Geosynthetics Liner Evaluation Report (GLER), to the executive director for review 14 days prior to the placement of waste. The executive director has 14 days to provide a verbal or written response. If no response has been received by the end of the fourteenth day following the executive director's receipt of the report, the operator may begin placing waste.

2 RECORDKEEPING REQUIREMENTS (30 TAC §330.125)

2.1 Documents (§330.125(a))

The San Angelo Landfill will maintain the operating record for the facility at the San Angelo Landfill gatehouse. Consistent with §330.125(a), copies of documents that are part of the approved permitting process that are considered part of the site operating record are listed in Table 2-1.

2.2 Analytical Data (§330.125(b))

The San Angelo Landfill in accordance with §330.125(b), within seven working days following completion or receipt of analytical data, will record and retain in the site operating record those items listed in Table 2-1.

2.3 Notification (§330.125(c))

The San Angelo Landfill, in accordance with §330.125(c), will place all information specified by §330.125(a) and §330.125(b) and the items included in Table 2-1 in the site operating record. The San Angelo Landfill will place this information in the site operating record in accordance with the time period specified by §330.125(b). The San Angelo Landfill will maintain the site operating record in an organized format, which allows the information to be easily located and retrieved. All information contained in the site operating record will be furnished upon request to the executive director and will be made available for inspection by the executive director.

2.4 Record Retention (§330.125(d))

The San Angelo Landfill, in accordance with §330.125(d), will retain and maintain all information contained within the site operating record of the facility and all plans required for the facility for the life of the facility including the postclosure care period.

2.5 Personnel Training Records and Licenses (§330.125(e) and (f))

In accordance with §330.125(e), the San Angelo Landfill will maintain personnel training records in accordance with §335.586(d) and (e). Personnel training requirements will be consistent with Section 3 – Personnel and Training of this Site Operating Plan. Personnel training records for current facility personnel will be maintained until closure of the facility. Records of former employees will be maintained for three years from the date the employee last worked at the facility. Records for each facility personnel will include name, job title, job description, introductory training, continuing training, and documentation of training. In accordance with §330.125(f), the facility will maintain

personnel operator licenses issued in accordance with Chapter 30, Subchapter F, relating to municipal solid waste facility supervisors. Personnel training records and personnel operator licenses will be maintained in the site operating record as listed in Table 2-1.

2.6 Alternative Schedules (§330.125(g))

The executive director, in accordance with §330.125(g), may set alternative schedules for recordkeeping and notification requirements as specified in §330.125(a)-(f), except for notification requirements contained in §§330.541-330.563 for any proposed lateral expansion located within a six-mile radius of any airport runway end used by turbojet or piston-type aircraft or notification relating to landowners whose property overlies any part of the plume of contamination if contaminants have migrated off-site as indicated by groundwater sampling.

2.7 Annual Waste Acceptance Rate (§330.125(h))

As listed in Table 2-1, the San Angelo Landfill will maintain as part of the site operating record, documentation of the annual waste acceptance rate for the facility in accordance with §330.125(h). Records will include maintaining the quarterly solid waste summary reports and the annual solid waste summary report as required by §330.675. The annual waste acceptance rate, as established by the sum of the previous four quarterly summary reports, will be evaluated by the San Angelo Landfill to determine if the waste acceptance rate exceeds the rate estimated in the approved permit and SDP. Should an increase in waste acceptance be established, the facility will determine if the increase is due to a temporary occurrence. Should the waste acceptance rate exceed that established in the approved permit, a permit modification would be prepared in accordance with then applicable TCEQ regulations to propose changes, if required, to manage the increased waste acceptance rate.

The San Angelo Landfill anticipates that the waste acceptance rate for the facility will increase during the site life. The facility has projected a waste acceptance rate that varies from approximately 143,000 tons per year (500 tons per day), increasing to an estimated 200,200 tons per year (700 tons per day). This SOP includes provisions for site management and site operating personnel to the general and site-specific requirements for the waste acceptance rates established in the permit.

Table 2-1
Records to be Maintained in the Site Operating Record

Records to be Maintained in the Site Operating Record	Frequency	Rule Citation
Municipal Solid Waste Disposal Permit No. 79A	Submittal of Permit Application	§330.125(a)
Approved Site Development Plan	Submittal of Permit Application	§330.125(a)
Runon/Runoff Control Plan	Submittal of Permit Application	§330.125(a)
Cost for Closure	Submittal of Permit Application	§§330.125(a) and 330.125(b)(7)
Cost for Post-closure	Submittal of Permit Application	§§330.125(a) and 330.125(b)(7)
Financial Assurance	Submittal of Permit Application	§330.125(a)
Soil and Liner Quality Control Plan	Submittal of Permit Application	§§330.125(a)
Groundwater Sampling and Analysis Plan	Submittal of Permit Application	§§330.125(a)
Final Closure Plan	Submittal of Permit Application	§§330.125(a) and 330.125(b)(6)
Post-closure Maintenance Plan	Submittal of Permit Application	§§330.125(a) and 330.125(b)(6)
Landfill Gas Management Plan	Submittal of Permit Application	§§330.125(a) and 330.159
Leachate and Contaminated Water Plan	Submittal of Permit Application	§330.125(a)
Site Operating Plan	Submittal of Permit Application	§330.125(a)
State and Federal Regulations	Submittal of Permit Application	§330.125(a)
Location Restriction Demonstrations	Submittal of Permit Application	§330.125(b)(1)
Inspection records, training procedures and notification procedures relating to excluding the receipt of prohibited waste	Per occurrence	§330.125(b)(2)
Results from gas monitoring events	Quarterly	§§330.125(b)(3) and 330.159
Remediation plans relating to explosive and other gases, if applicable	Per occurrence	§§330.125(b)(3) and 330.159
Unit design documentation for the placement of leachate or gas condensate in the landfill	Per occurrence	§330.125(b)(4)
Groundwater monitoring and corrective action demonstrations, certifications, findings, monitoring, testing and analytical data, if applicable	As required	§330.125(b)(5)
Closure and postclosure monitoring, testing, and analytical data, if applicable	Groundwater monitoring – semi-annual inspections	§330.125(b)(6)
Cost estimates and financial assurance documentation for closure and postclosure	Annually	§330.125(b)(7)
Facility operation, permit modification, approvals, and technical assistance correspondence and responses	Per occurrence	§330.125(b)(9)

Table 2-1
Records to be Maintained in the Site Operating Record
(Continued)

Records to be Maintained in the Site Operating Record	Frequency	Rule Citation
Special waste manifests, trip tickets, shipping documents, and all other documents relating to special waste	Per occurrence	§330.125(b)(10)
Other documents specified in the permit or by the executive director	As required	§330.125(a) and §330.125(b)(12)
Personnel training records in accordance with §335.586(d)-(e)	As needed	§330.125(e)
Personnel operator licenses	As needed	§330.125(f)
Records to document the annual waste acceptance rate including quarterly solid waste summary reports and annual solid waste summary reports	Quarterly and Annually	§330.125(h)
Load inspection records	Per occurrence	§330.127(5)(B)
Fire occurrence notices	Per occurrence	§330.129
Inspection records and training procedures relating to fire prevention and site safety	As needed	§330.129
Access control breach and repair notices	Per occurrence	§330.131
All site inspection and maintenance documentation noted in Section 8.24 – Site Inspection and Maintenance Schedule	As required	§330.131
A record of each unauthorized material removal event	Per occurrence	§330.133(b)
A record of alternate operating hours	As required	§330.135(d)
Water, crude oil and/or natural gas well location and plugging reports	Within 30 days of discovery	§330.161(a)-(c)
Cover inspection records	As required	§330.165(h)
Current site plan of RACM disposal area	As required	§330.171(c)(3)(B)
RACM acceptance records including the location, depth and volume of each load	Per occurrence	§330.171(c)(3)(B)
RACM contingency plan compliance documentation	Prior to the acceptance of RACM	§330.171(c)(3)(H)
Leachate and contaminated water disposal records	Per occurrence	§330.331(a)(3)

3 PERSONNEL AND TRAINING (30 TAC §330.127(1), (3), & (4))

3.1 Personnel (§330.127(1))

The San Angelo Landfill will be staffed with qualified individuals experienced with municipal solid waste disposal operations and earthmoving construction projects. The City of San Angelo has contracted with Trashaway Waste Services, Inc. for the day-to-day operations of the San Angelo Landfill. Trashaway Waste Services, Inc. employs the landfill manager to oversee daily operations and management of other employees. See Figure 3.1 – Organizational Chart for the personnel organization. Refer to Table 3-1 for a summary of job descriptions, minimum qualifications, and required training for landfill personnel. The number of landfill personnel required for the day-to-day operations of the landfill will be determined by the landfill manager, based on the waste acceptance rate.

The Public Works Director for the City of San Angelo (individual having managerial oversight of the facility) is responsible for overall facility management and is designated as the contact person for regulatory compliance matters.

The landfill manager is responsible for assuring that adequate personnel and equipment are available to provide facility operation in accordance with the Site Development Plan (SDP), Site Operating Plan (SOP), and the TCEQ regulations. The landfill manager is responsible for daily operations, administers the facility's SOP and will also serve as the emergency coordinator. The landfill manager will be on site at least 75 percent of the time. The landfill manager, at a minimum will have a high school diploma or equivalent, experience in earthmoving operations, and experience in municipal solid waste disposal operations. The landfill manager will obtain and maintain a Class A license as a municipal solid waste operator consistent with the requirements of §§30.201, 30.207, 30.210, and 30.212.

The gate attendant(s) stationed at the site entrance is primarily responsible for maintaining complete and accurate records of vehicles and solid waste entering the facility. The gate attendant will be trained in site safety procedures, to weigh vehicles, measure waste volumes if necessary, and to collect waste disposal fees. The gate attendant will be present all hours the San Angelo Landfill is open to the public. The gate attendant will report to the landfill manager. The gate attendant, at a minimum, will have a basic understanding of accounting principles, and basic communication skills.

Equipment operator(s) are responsible for the safe operation of the equipment. As the personnel most closely involved with the actual landfill operation, these employees are responsible for being alert for potentially dangerous conditions, or careless and improper actions on the part of non-employees and other persons while on the premises. Equipment operators monitor and direct unloading vehicles, perform random load inspections, visually check for unauthorized wastes, and are also responsible for maintenance, construction, litter abatement, and general site cleanup. The equipment

operators will intervene as necessary to prevent accidents and report unsafe conditions immediately to the landfill manager. Equipment operators report to the landfill manager. Equipment operators, at a minimum, must be experienced in the operation of heavy equipment, experienced in earthmoving operations, and demonstrate the ability to be trained in municipal solid waste disposal operations. Equipment operators will have a minimum of six months experience in heavy equipment operation or on-the-job training by the landfill manager and training by the landfill manager in SOP requirements for daily cover and unauthorized waste.

Other site personnel or laborer(s) may be employed from time to time in categories such as maintenance, construction, litter abatement, and general site cleanup. Site personnel may be permanent or part-time.

3.2 General Instructions (§330.127(3))

The San Angelo Landfill personnel should have a basic understanding of the contents of this SOP. The landfill manager should have a basic knowledge of the approved Site Development Plan. The San Angelo Landfill personnel will follow the general instructions provided in the Site Operating Plan and Site Development Plan. Refer to Section 8.24 – Site Inspection and Maintenance Schedule for a listing of operational tasks required.

3.3 Training (§330.127(4))

The San Angelo Landfill personnel will be trained consistent with the applicable training requirements as defined in §335.586(a) and (c). Training requirements are also included in Table 3-1 – Site Personnel Summary.

The San Angelo Landfill personnel will receive training through a combination of classroom instruction and on-the-job training. The training program will provide instruction to personnel to allow performance of their duties to ensure facility compliance. This training program will be directed by a senior staff member of the San Angelo Landfill organization. Training will be conducted by the San Angelo Landfill staff, Trashaway Waste Services, Inc. staff or consultants that are experienced and trained in municipal solid waste management procedures. The facility personnel will be trained in procedures relevant to the position for which they are employed. In-house training will address the following topics:

- Municipal Solid Waste Permit No. 79A
- Site Development Plan (applicable sections)
- Site Operating Plan
- Facility emergency monitoring equipment and plans
- Communication and alarm systems
- Customer notification and load inspection procedures
- Identification of prohibited wastes including hazardous wastes and PCB wastes
- Waste handling procedures (acceptable and prohibited wastes)
- Health and safety
- Fire Protection Plan
- Equipment operation and maintenance

- Stormwater Pollution Prevention Plan
- Recordkeeping

The training program will also incorporate the requirements of §335.586(a)(2) to train facility personnel to be able to respond effectively to emergencies by familiarizing personnel with emergency procedures, emergency equipment, and emergency systems, including:

- Procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment
- Communications or alarm systems
- Response to fires or explosions
- Response to groundwater contamination incidents
- Shutdown of operations

The San Angelo Landfill personnel must successfully complete the in-house training program within six months of employment. The in-house training program consists of training and safety meetings conducted at least once per month. The topics addressed are the topics identified as part of the training program above. Personnel will be trained on topics relevant to their position. On-going regular training and safety meetings are scheduled monthly. Should a monthly meeting be cancelled it will be rescheduled or combined with the next regular meeting.

Documentation of training will be placed in the site operating record as required by Section 2 – Recordkeeping Requirements. The landfill manager, equipment operators, gate attendant and other personnel will receive training at TCEQ-sponsored or approved training courses, as deemed appropriate by the landfill manager. The Institute for Infrastructure in Environmental Development (IIED) provides courses in the Class A, B, C, and D certification for municipal solid waste facilities, waste screening, transfer station, and safety. The IIED provides training in accordance with §335.586 and certification in accordance with §§30.201, 30.207, 30.210, and 30.212 as related to licenses for municipal solid waste operators. Other qualified San Angelo Landfill, TCEQ, or other consultants may also provide training as appropriate.

Figure 3.1

Organizational Chart

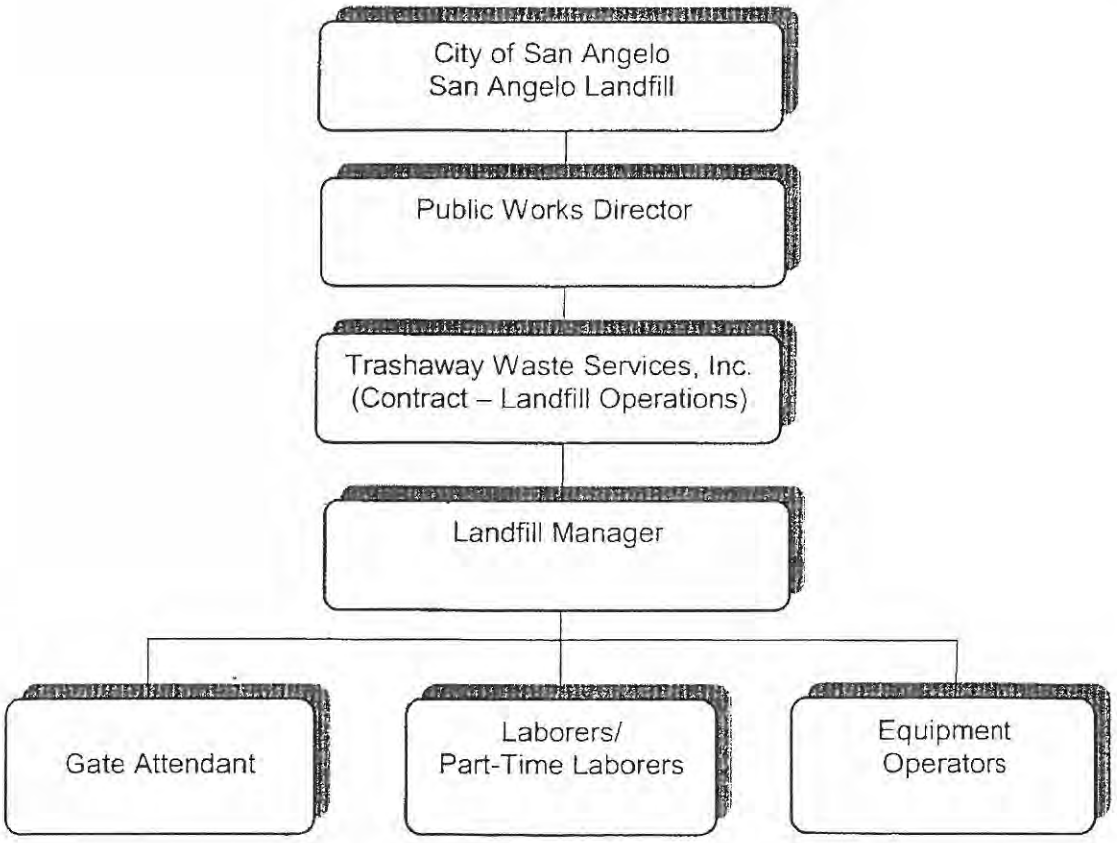


Table 3-1
Site Personnel Summary[1]

Position	Summary of Job Description	Minimum Qualifications	Required Training
Landfill Manager	The landfill manager is responsible for: • Assuring that adequate personnel and equipment are available to provide facility operation in accordance with this SOP, the SDP, TCEQ regulations, and other applicable local, state or federal regulations • The hiring and terminating of other facility personnel • Daily operations, administration of facility's SDP, SOP, and serving as the emergency coordinator • Maintaining the site operating record and required logs • Actual landfill operations • Directing the equipment operators on a daily basis regarding waste disposal operations including the working face, excavation operations, and placement of daily and intermediate cover • Personnel safety during waste and cover constructions • Other tasks as required by the public works director	• A high school diploma or equivalent • Experience in MSW disposal operations • Experience in earthmoving operations • One year of landfill operation experience • May maintain a Class A license as defined in §30.210	• Site Orientation • Site Operations • Endangered Species • Hazardous Waste Identification • Safety • Fire Prevention • Load Inspection • Prohibited Wastes • Emergency Response • SPCC • SWPPP • Litter Control • Random Inspections

Table 3-1
Site Personnel Summary[1]
(Continued)

Position	Summary of Job Description	Minimum Qualifications	Required Training
Gate Attendant	The gate attendant is responsible for: • Being stationed at the site entrance • Maintaining complete and accurate records of vehicles and solid waste entering the facility • Weighing vehicles or measuring waste volumes (if necessary) • Collecting waste disposal fees • Directing vehicles to the working face • Controlling site access • Providing general customer direction and information • Reviewing manifests and other shipping documents • Reviewing and confirming special waste documents • Other tasks as required by the landfill manager within the gatehouse as secondary responsibilities	• Basic understanding of accounting principles • Basic communication skills	• Site Orientation • Endangered Species • Hazardous Waste Identification • Safety • Fire Prevention • Load Inspection • Prohibited Wastes • Emergency Response • SPCC • Random Inspections
Equipment Operator	The equipment operator is responsible for: • The safe operation of equipment • Being alert for potentially dangerous conditions, or careless and improper actions on the part of non-employees and other persons while on the premises • Monitoring and directing unloading vehicles • Performing random load inspections • Visually checking for unauthorized wastes • Maintenance, construction, litter abatement, and general site cleanup • Intervening as necessary to prevent accidents and report unsafe conditions immediately to the landfill manager • Other tasks as required by the landfill manager	• Minimum six months experience in heavy equipment operation • Training by the landfill manager in SOP requirements for daily cover and unauthorized waste	• Site Orientation • Endangered Species • Hazardous Waste Identification • Safety • Fire Prevention • Load Inspection • Prohibited Wastes • Emergency Response • Random Inspections

Table 3-1
Site Personnel Summary[1]
(Continued)

Position	Summary of Job Description	Minimum Qualifications	Required Training
Laborers/ Part-time Laborers	The laborers are responsible for: • Collecting litter • Directing vehicles at the working face • Other tasks as needed including but not limited to maintenance, construction, litter abatement, and general site cleanup	• Ability to be trained in completing the assigned tasks	• Site Orientation • Endangered Species • Safety • Fire Prevention • Emergency Response • Litter Control

[1] More detailed job descriptions along with written description of the type and amount of introductory and continued training provided to each employee will be maintained in the site operating record.

4 EQUIPMENT (30 TAC §330.127(2))

Sufficient equipment will be provided to conduct site operations in accordance with the design and permit conditions.

The following list of equipment is expected to be routinely available for use at the facility. Equipment requirements may vary in accordance with the method of landfill operations or the waste acceptance rate at any given time. Additional equipment will be provided as required for increasing volumes of incoming solid waste. Other equivalent types of equipment by other manufacturers may be substituted on an as-needed basis. The minimum number of pieces of equipment to be provided for daily operations is listed in Table 4-1 on page IV-16.

The estimated waste acceptance rate for the San Angelo Landfill is described in Section 2.7 of this SOP. The site has projected a waste acceptance rate that varies from approximately 143,000 tons per year, or 500 tons per day to a waste acceptance rate of 200,200 tons per year, or 700 tons per day. The size, number, types, and equipment manufacturers will vary during site operations based on operational practices and on the annual waste acceptance rate.

Compactors are typically used for spreading and compacting the refuse and also for compacting the cover material. Dozers are typically used for soil movement and placement and for emergency waste compaction. Scrapers and haul trucks are typically used for excavating both the cover material used in site operations and the future disposal areas. The motor grader is typically used for road maintenance, ditching, surface water control, and final grading of the completed fill areas. The water truck will be used for fire control, dust control, and moisture conditioning of soil materials as necessary. The maintenance truck(s) is used to provide service to the other site operating vehicles. A farm tractor and pickup truck(s) will be used as needed for miscellaneous maintenance, litter control, and personnel use. Backup equipment will be provided from contractors or local rental companies to obtain equipment in the event of a breakdown or maintenance to avoid interruption of waste services.

Equipment operators may perform routine cleaning of landfill equipment, using low-volume, high-pressure, spray equipment at the active area of the landfill. The equipment spraying consists of blowing landfill equipment radiators clear of dust and debris–a manufacturer's recommendation–allowing the equipment to continue operating through the day without accumulated dust and material creating overheating problems. Because the landfill is operating on a lined Subtitle D cell, liquids containing refuse will be handled in the same manner as landfill leachate is handled (see Section 8.23).

The site will be equipped with fire extinguishers of the type, size, location, and number as recommended by the City of San Angelo Fire Department. Each fire extinguisher will be fully-charged and ready for use at all times. Each extinguisher will be inspected on a monthly basis by site personnel and recharged or replaced as necessary. Annual inspections will be performed by a qualified service company, and all extinguishers will

display a current inspection tag. Inspection, recharging, or replacement will be performed following each use. At a minimum, the gatehouse, equipment maintenance and storage area, and all landfill equipment and vehicles will be equipped with fire extinguishers.

Table 4-1
Equipment Dedicated to the San Angelo Landfill[1]

Equipment	Typical Size	Number	Number	Function
LANDFILL OPERATIONS		Less than 700 tpd	701 to 2000 tpd	
Compactor(s)	CAT 826, 836	1	2	Trash compaction
Dozer(s)	CAT D6, D7	1	1	Soil movement and placement
Scraper(s)[2] -or- Track Hoe[2]	CAT 621F CAT 963B	1 1	1 1	Soil excavation and hauling Soil excavation
Haul Truck(s)[2]	30 cy	1	2	Soil hauling
Loader[5]	3 cy bucket	1	1	Soil movement
Motor Grader[5]	CAT 120A, 12G	1	1	Roadway maintenance
Farm Tractor	35 HP	1	1	Miscellaneous maintenance (contract equipment)
Maintenance Truck(s)	½ ton	1	1	Facility equipment maintenance
Pickup Truck(s)	½ ton	1	1	Personnel use, litter control, maintenance
Water Truck(s)[5]	1,000 gallons	1	1	Fire control, dust control, earthfill compaction
Pump(s)	10 to 500 gpm	1	1	Stormwater pumping
COMPOST OPERATIONS				
Chipper and/or Tub Grinder[6]	500 tons per hour	1	1	Grinding feedstock and uncontaminated wood waste processing, chipping
Windrow Turner[6]	1,200 cy per hour	1	1	Mix compost windrows
Trommel Screen[6]		1	1	Screen material

[1] Size, number, types, and equipment manufacturers of the heavy equipment and miscellaneous vehicles and equipment may vary based on operational needs and annual waste acceptance rate.
[2] Soil excavation will be conducted with scraper(s) or track hoe(s) and haul truck(s). The landfill will determine appropriate excavation equipment as landfill is developed.
[3] Backup equipment will be provided from contractors or local rental companies to obtain equipment in the event of equipment breakdown or maintenance to avoid interruption of waste services.
[4] Typical size is minimum size to be provided.
[5] Equipment may also be used in composting operations. Loader may be used in compost operations to move compost and/or deliver feedstock. The water truck may be used for dust suppression around the composting operations and the motor grader may be used for road maintenance of site roads accessing the compost operations.
[6] Chipper and/or tub grinder, windrow turner, and trommel screen are only used during woodwaste processing or if composting is being conducted. This equipment may be provided by contract operations.

5 DETECTION AND PREVENTION OF DISPOSAL OF PROHIBITED WASTES (30 TAC §330.127(5))

5.1 General

The San Angelo Landfill, in accordance with 30 TAC §330.127(5), has established procedures for the detection and prevention of the disposal of prohibited wastes, including regulated hazardous waste, as defined in 40 Code of Federal Regulations (CFR) Part 261, and of polychlorinated biphenyls (PCB) wastes as defined in 40 CFR 761, unless authorized by the United States Environmental Protection Agency. The detection and prevention program will include training site personnel to know in detail what the regulated wastes are, how to perform a random inspection, how to control site access, what training will be provided for site personnel, and what procedures are required in the event of identification of prohibited wastes. The detection and prevention program includes the following steps:

- Random inspections of incoming loads
- Records of all inspections
- Training for appropriate facility personnel to recognize prohibited waste, regulated hazardous waste, and PCB waste
- Notification to the TCEQ Executive Director of any incident involving the receipt or disposal of regulated hazardous waste or PCB waste at the landfill
- Provisions for remediation of the incident
- Identification and sampling to ensure no free liquids including unstabilized sludges will be accepted (as determined y the paint filter test)

5.2 Load Inspection Procedure (§330.127(5)(A))

A properly trained qualified facility staff person at the working face will visually inspect waste loads. Compactor vehicles will be visually inspected as waste is discharged at the working face. Should any indication of prohibited waste be detected, appropriate facility personnel will stop unloading of the vehicle to allow facility personnel to conduct a thorough evaluation of the load. The driver will be directed to a load inspection area located near the working face over an approved lined area, where the load will be discharged from the vehicle. The load inspector will break up the waste pile and inspect the material for any hazardous or prohibited waste. Known prohibited waste will be placed back into the vehicle and the driver will be instructed to depart the site. Should any regulated hazardous waste be detected, the entire load will be refused.

In addition to the above procedure, incoming loads will be inspected on a random basis. The landfill manager will be responsible for determining the random inspection schedule, with a minimum of one inspection per week. The driver of the randomly selected load will be notified at the gatehouse and instructed to proceed as above to a load inspection area located over an approved lined area. Additional waste screening will take place as described in Section 8.2 of this SOP.

The load inspectors will wear personal protective equipment that meet or exceed OSHA standards.

5.3 Recordkeeping (§330.127(5)(B))

The landfill manager is required to maintain and include in the site operating record the following:

- Load inspection reports for randomly inspected loads
- Records of regulated hazardous or PCB waste notifications
- Personnel training records

Load inspection reports, recorded on standardized forms, will be completed for each inspected load. The reports will include at a minimum, the date and time of inspection, the name and address of the hauling company and driver, the type of vehicle, the size and source of the load, contents of the load, indicators of prohibited waste, and results of the inspection. A copy of the load inspection report form is included in Appendix IVA of this SOP.

The TCEQ will be notified whenever regulated hazardous or PCB waste is detected. Records of the notification will be kept in the site operating record and will include the date and time of notification, the individual contacted, and the information reported.

Personnel training records will be maintained in the site operating record and will include evidence of successful completion of the training, type of training received, and the name of the instructor.

5.4 Training (§330.127(5)(C))

Landfill manager, equipment operators, and gate attendant will maintain a thorough understanding of this SOP and will be trained in the following areas:

- Customer notification and load inspection procedures
- Identification of regulated hazardous, PCB, and prohibited waste
- Waste handling procedures
- Health and safety procedures
- Recordkeeping

Documentation of training will be placed in the site operating record. Refer to Table 3-1, Site Personnel Summary, for a tabular listing of training requirements.

5.5 Notification (§330.127(5)(D))

The TCEQ Executive Director and any local pollution agency with jurisdiction that has requested to be notified, will be notified of any incident involving the receipt or disposal of regulated hazardous waste or PCB waste at the landfill. Records of notifications will be maintained in the site operating record including date and time of notification, the individual contacted, and the information reported.

5.6 Managing Prohibited Wastes (§330.127(5)(E))

Unknown wastes undergoing analysis must be properly segregated and protected against the elements, secured against unauthorized removal, and isolated from other waste and activities.

Known prohibited wastes detected during the inspection will be returned immediately to the hauler. If the hauler is not available, the waste will be safely stored until provisions for removal can be arranged.

If regulated hazardous or PCB wastes are detected, the TCEQ will be notified. As soon as is practical, the hauler will be required to remove the hazardous or PCB waste from the site. Prior to removal, the hauler must obtain an EPA identification number, package the waste in accordance with TxDOT regulations, and properly manifest the waste designating a permitted facility to treat, store, or dispose of the hazardous waste.

6 GENERAL INSTRUCTIONS (30 TAC §330.127(6))

6.1 General Site Safety

Site safety will be promoted by properly trained personnel using well-maintained equipment to perform standard work procedures. Site safety will be enhanced by limiting access to the active areas to only authorized personnel. In the event of an emergency, planned emergency response procedures will be followed.

All site personnel will receive site-specific training within the first six months of employment consisting of the following:

- Safe work practices
- Nature of anticipated hazards
- Equipment and vehicle safety
- Site access controls
- Hazardous material identification and communication
- Fire safety
- Emergency response
- Employee rights and responsibilities

A record of training will be maintained in each employee's personnel file to confirm that each employee has received the proper training.

Well-maintained equipment is vital to the safe conduct of daily landfilling operations. Therefore, all site equipment will be maintained in proper working order and all safety guards, backup alarms, and engine kill switches will be operational. Equipment operators will perform an equipment check at the beginning of each workday. Problems will be documented on the daily equipment inspection book and turned in to the landfill manager. Fire extinguishers and first aid kits will be inspected monthly by the equipment operators. Records of all inspections will be maintained as part of the site operating record.

Access to the site will be limited to authorized personnel as described in Section 8 of this SOP. Access is controlled by a combination of signs and physical barriers. Site personnel are responsible to be alert for the entrance of unauthorized personnel or the entrance of authorized personnel into prohibited areas.

In the event of an emergency, site personnel will assess the situation, notify the landfill manager or designated supervisor, and take appropriate actions such as rendering aid, calling for assistance, or closing access to the emergency scene. Emergency numbers will be posted beside the telephone in the site office.

These include:

Office	Phone
Ambulance	911
San Angelo Fire Department	911 or 325-657-4498
San Angelo Police Department	911 or 325-657-4355

6.2 Preparedness and Prevention Measures

Preparedness and prevention measures have been developed to minimize both frequency and severity of accidents and emergency situations threatening human health. Preparedness and prevention measures depend largely on the attentiveness and state of readiness of facility personnel. Preparedness and prevention measures have been developed for one general category and two specific areas of the site: the gatehouse and the onsite access routes. These preparedness and prevention measures are detailed in the following sections.

6.2.1 General

General preparedness and prevention measures that will be followed are:

- Employee breaks or rest periods will be provided to minimize fatigue, improve alertness, and thereby reduce accident potential.
- Access controls will provide for the safety of non-landfill personnel.
- Routine preventive maintenance of equipment will be provided.
- Daily and weekly site inspections of the working areas will be performed by the landfill manager or designated supervisor.
- Appropriate personnel safety equipment will be kept onsite and maintained in good repair.
- Adequate turning area for hauling vehicles will be provided.
- Scavenging and unauthorized salvaging will not be allowed.
- Waste unloading will be restricted to designated areas only.

- Site personnel will be alert for possible hazardous or other unauthorized wastes.
- Nonapproved wastes will be controlled or contained and removed as necessary.

6.2.2 Gatehouse

Preventative measures that will be followed in the gatehouse include the following:

- Screen all incoming waste loads for unauthorized wastes.
- Monitor to see that all wastes loads are adequately covered, or otherwise protected or contained.
- Visually observe incoming vehicles for evidence of improper operation, faulty equipment, or other conditions that could be hazardous to personnel or other persons onsite.
- Maintain access to appropriate emergency equipment and first-aid materials.
- Provide emergency telephone numbers that are conspicuously posted in the gatehouse and office.
- Display signs warning transporters that wastes including regulated hazardous wastes and other nonallowable special wastes are prohibited.

6.2.3 Landfill Entrance Road, Haul Road, and Access Road

Landfill haul road and access road preventative measures include the following:

- Display speed limit, directional, and other precautionary signs.
- Provide road passable for two-way traffic.
- Maintain roadway free from obstructions.
- Enforce requirements for safe operation of vehicles onsite.

7 FIRE PROTECTION PLAN (30 TAC §330.129)

7.1 Fire Prevention Procedures

The following steps will be taken regularly by designated landfill personnel to prevent fires:

- Open burning of waste is prohibited at all times.
- Burning waste from incoming waste loads will be prevented from being dumped in the active area of the landfill. The gate attendant and equipment operators will be alert for signs of burning waste such as smoke, steam, or heat being released from incoming waste loads.
- Fuel spills will be contained and cleaned up immediately.
- Landfill equipment will not remain on the active working face of the site overnight.
- Dead trees, brush, or vegetation adjacent to the active waste disposal area will be removed immediately, and grass and weeds mowed so that forest, grass, or brush fires cannot spread to the landfill.
- Smoking is not allowed on the active areas of the landfill.
- The site will be equipped with fire extinguishers of the type, size, location, and number as recommended by the City of San Angelo Fire Department. Each fire extinguisher will be fully-charged and ready for use at all times. Each extinguisher will be inspected on a monthly basis by site personnel and recharged or replaced as necessary. Annual inspections will be performed by a qualified service company, and all extinguishers will display a current inspection tag. Inspection, recharging, or replacement will be performed following each use. At a minimum, the gatehouse, equipment maintenance and storage area, and all landfill equipment and vehicles will be equipped with fire extinguishers.
- The gatehouse and equipment maintenance and storage area are not within the facility permit boundary. Fire extinguishers will be provided in these facilities.
- The City of San Angelo Fire Department will respond to a reported fire at the facility. Therefore, the landfill manager will contact the City of San Angelo Fire Department annually to coordinate an on-site tour of the facility. This tour will include a description of on-site combustible materials, the locations of on-site

combustible materials, the on-site road network, the location of on-site water sources, and the location of the Atmos Energy Easement.

- Equipment that is used at the working face may be routinely cleaned through the use of high pressure water or steam cleaners. The high pressure water or steam cleaning will remove combustible waste and caked material which can cause equipment overheating and increase fire potential. The amount of water used to clean the equipment at the working face will be minimized.

- A common fire fighting technique that can be quickly employed to fight a landfill fire is smothering with soil. The faster that soil can be placed over the fire, the more effective this method will be in controlling and extinguishing the fire. The stockpiled daily cover may be used for firefighting purposes.

- A stockpile of earthen material will be maintained so that it is available at all times to extinguish a fire. The stockpile will be located within the permit boundary of the landfill. The landfill equipment conducting daily waste filling operations will be suitable for placement of additional soil from the earthen stockpile for fire control.

- The stockpile of earthen material available will be sized to cover the working face with a minimum six-inch layer of earthen material. The San Angelo Landfill will limit the active working face to ½ acre or less. Earthen material stockpile shall be provided based on the following calculations:

Size of Working Face		Area of Working Face			Total Size of Stockpile
		Sq Ft	Cu Ft	Cu Yd	
L	W	L x W	Sq Ft x 0.5	Cu Ft / 27	Cu Yd x 1.15
150	100	15000	7500	278	320
150	125	18750	9375	347	400
150	150	22500	11250	417	488

- The landfill equipment identified in Table 4-1 is sufficient to cover the active working face with a minimum six-inch soil layer from the earthen material stockpile, within one hour of detecting a fire.

- A soil stockpile will be provided adjacent to the active working face. The dozer and compactor will achieve a production rate of approximately 200 cubic yards per hour for a total hourly production rate of approximately 400 cubic yards. A minimum stockpile of at least 320 cubic yards will be provided adjacent to the active working face.

- A soil stockpile or soil borrow area will be provided within 1,000 feet of the active working face. Haul trucks will achieve a production rate of approximately 20 cubic yards per load with a required total round trip of five minutes. The total volume of soil to be provided by two haul trucks is approximately 480 cy.

- The existing landfill equipment identified in Table 4-1 will provide the required volume of soil for a 1/2-acre active working face.

- The woody waste area will be maintained at least 1,000 feet from the active working face. The woody waste area will be surrounded by a graded area of earthen material. This graded area will create a firebreak to prevent a fire from spreading to adjacent land should a fire occur within the woody waste area.

7.2 Specific Fire-Fighting Procedures

The following procedures will be followed in the event of a fire:

- Below is a three step system for assessing the extent of a fire and alternatives for extinguishing a fire:

    1. This use of fire extinguishers is just for surface fires. If a fire extinguisher is not enough, the site will use a more comprehensive method to fight the fire (Steps 2 and 3).

    2. Cutting or removing the burning material from the area and moving it to an area where it can be extinguished with soil or water. This will keep the fire from spreading to other areas. If the burning material is not located in an area which is conducive to cutting or removing the burning material, then Step 3 will be used.

    3. Extinguishing the fire through the application of water or soil without removing the burning material from the area.

  In all situations, the fire area should be monitored to ensure that the fire is out.

- If a fire occurs on a vehicle or piece of equipment, the City of San Angelo Fire Department should be contacted immediately. The equipment operator should bring the vehicle or equipment to a safe stop. If safety of personnel will allow, the vehicle must be parked away from fuel supplies, uncovered solid wastes, and other vehicles. The engine should be shut off and the brake engaged to prevent movement of the vehicle or piece of equipment. Fire extinguishers should be used to extinguish fire if possible, without risk to the equipment operator until arrival of the Fire Department.

- If a fire is in the working face, the City of San Angelo Fire Department should be contacted immediately. The working face should immediately be covered with earthen material from the stockpile to smother the fire until arrival of the Fire Department.

- If a fire occurs at the woody waste area, the City of San Angelo Fire Department should be contacted immediately. The graded area of earthen material surrounding the woody waste area will be maintained until the Fire Department responds. The Fire Department will extinguish any fire within the woody waste area.

- Firefighting methods include smothering with soil, separating burning material from other waste, and spraying with water from the water truck or water pumped from nearby ponds or streams. If detected soon enough, a small fire may be fought with a hand-held fire extinguisher. At a minimum, a fire extinguisher will be located at the gatehouse, equipment maintenance and storage area, and on each piece of equipment. Under this circumstance, the fire area should also be watered or otherwise controlled to ensure that the fire is out.

7.3 General Rules for Fires

The following rules will be implemented in the event of a fire at the San Angelo Landfill:

- Contact the City of San Angelo Fire Department by calling 911 immediately.
- Immediately contact the gatehouse and landfill manager.
- Equipment operators will be equipped with two-way radios or cell phones.
- Alert other facility personnel.
- Assess extent of fire, possibilities for the fire to spread, and alternatives for extinguishing the fire.
- If it appears that the fire can be safely fought with available fire fighting devices until arrival of the Fire Department, attempt to contain or extinguish the fire.
- Upon arrival of Fire Department personnel, direct them to the fire and provide assistance as appropriate.
- Do not attempt to fight the fire alone.
- Do not attempt to fight the fire without adequate personal protective equipment.
- Be familiar with the use and limitations of firefighting equipment available onsite.

7.4 Fire Protection Training

Landfill personnel will be trained in the contents of Section 7 – Fire Protection Plan. The following topics will be addressed:

- Fire prevention
- Fire safety
- Fire fighting procedures
- Facility evacuation procedures

Refer to Table 3-1, Site Personnel Summary, for a tabular listing of training requirements.

7.5 TCEQ Notification

The San Angelo Landfill will make every reasonable effort to contact the TCEQ region office immediately upon detection of a fire, if the fire is not extinguished within ten minutes of detection. At a minimum, the TCEQ region office will be contacted no later than four hours by phone, and in writing within 14 days. The notification will include a description of the fire and resulting response.

8 OPERATIONAL PROCEDURES (30 TAC §330.127(3))

8.1 Access Control (§330.131)

Public access to the landfill will be controlled by an existing perimeter fence located along the permit and property boundary. The gatehouse, scales, and site entrance road are located outside of the permit boundary. These facilities are located on property owned by Trashaway Waste Services, Inc. (the operator of the San Angelo Landfill). This property is fenced as though it is part of the permit boundary. Public access to the landfill from Old Ballinger Highway is limited to the gated site entrance road through the gatehouse area located along the southern boundary. The gate attendant controls access and monitors all vehicles entering and exiting the site. There are three service entries located at the southwest, southeast, and northeast corners of the site.

8.1.1 Site Security

Site security measures are designed to prevent unauthorized persons from entering the site, to protect the facility and its equipment from possible damage caused by trespassers, and to prevent disruption of facility operations caused by unauthorized site entry.

Unauthorized entry into the site is minimized by controlling access to the landfill site with the perimeter fence and gate at the entrance. A perimeter fence is located along the permit and property boundary on the north, east, west, and south sides of the site. Perimeter fencing consisting of barbed wire, woven wire, wooden fencing, plastic fencing, pipe fencing, or other suitable material will be provided. A gate constructed of suitable fencing materials is located on the entrance road. The gate will be locked when the landfill is not accepting waste from public haulers.

The two service entries located at the southeast and northeast corners of the site are gated. These entries will be locked at all times when authorized personnel are not using them.

The southwest service entry provides access between the adjacent property owner and the landfill. This gate is used by the neighboring meat packing plant to transport dead animals and slaughterhouse waste to the landfill without accessing public roads. Waste that enters through this gate proceeds to the gatehouse prior to disposal at the landfill. This gate will be locked at all times when authorized persons are not using it.

Entrance to the landfill is monitored by the gate attendant during site operating hours at the gatehouse. Outside operating hours, the gate to the site will be locked.

Entry to the active portion of the site will be restricted to designated personnel, approved waste haulers, and properly identified persons whose entry is authorized by site management. Visitors may be allowed on the active area only when accompanied by a site representative. Landfill personnel have access to two-way radios or cell phones to notify the landfill manager if unauthorized access is observed.

8.1.2 Traffic Control

Public access to the landfill site will be provided via the entrance road from Old Ballinger Highway. Signs will be located along the entrance road directing traffic to the gatehouse. The gate attendant will restrict site access to authorized vehicles and direct these vehicles appropriately.

Waste hauling vehicles will be directed to appropriate fill areas by signs located along the landfill haul road and access road. These vehicles will deposit their loads and depart the site. Private, commercial, or public solid waste vehicles will not be allowed access to any areas other than the active portion of the landfill. Site personnel will provide traffic directions as necessary to facilitate safe movement of vehicles.

Within the site, signs will be placed along the landfill haul road and access road at a frequency adequate for users to be able to understand where disposal areas are and which roads are to be used. Roads not being used for access to disposal areas will be blocked or otherwise marked for no entry.

8.1.3 Inspection and Maintenance

The perimeter fence and gates will be inspected twice monthly. Refer to Section 8.24 of this SOP for site inspection and maintenance schedule. Maintenance will be performed as necessary. Should a breach be detected during inspection or at any other time, every effort will be made to make repairs within 8 hours of detection. Notification is not required if permanent repair is made within 8 hours. Should repair require more than 8 hours, the TCEQ region office and any local pollution agency with jurisdiction that has requested to be notified, will be notified of the breach within 24 hours. Temporary repair will be performed within 24 hours of detection and permanently repaired within the time specified to the TCEQ region office following notification.

8.2 Unloading Wastes (§330.133)

The landfill is authorized to receive municipal solid waste and those special solid wastes allowable under §330.171 and industrial wastes under §330.173. The categories of wastes that are prohibited at this site by state and federal regulations are discussed in Section 5 of this SOP. Special wastes will be handled at this landfill, in accordance with TCEQ regulations and Section 8.20, Disposal of Special Wastes, and Section 8.21, Disposal of Industrial Wastes, of this SOP.

Trained personnel will monitor the incoming waste on the trucks at the gatehouse and at the unloading area/active working face. These personnel will be familiar with the rules and regulations governing the various types of waste that can or cannot be accepted

into this facility, including knowledge of §330.171 and §330.173. The personnel will also have a basic understanding of both industrial and hazardous waste and their transportation and disposal requirements. Trained personnel at the active working face will be on-duty during waste acceptance hours to observe waste unloading.

Trained personnel at the active working face will have the authority and responsibility to reject loads which contain prohibited wastes. These personnel will also have the authority to have prohibited waste removed by the waste haul vehicle or transporter, immediately upon discovery.

Trained personnel at the active working face will immediately notify the landfill manager of suspected prohibited waste. The landfill manager may assess appropriate surcharges to the waste hauler, transporter, or generator. The landfill manager will direct staff to remove or manage prohibited waste appropriately.

Any prohibited waste that is not discovered by landfill personnel until after it is unloaded shall be returned to the vehicle that delivered the waste. That party shall be responsible for the proper disposal of this rejected waste. In the event the unauthorized waste is not discovered until after the vehicle that delivered it is gone, the waste shall be segregated and controlled as necessary. An effort shall first be made to identify the entity that deposited the prohibited waste and have them return to the site and properly dispose of the waste. In the event that identification is not possible, the San Angelo Landfill will notify the TCEQ and seek guidance on how to dispose of the waste. A record of unauthorized waste removal will be maintained in the site operating record.

The unloading of solid waste in unauthorized areas is prohibited. Solid waste unloading will be controlled to prevent disposal in locations other than those specified by site management. Any waste deposited in an unauthorized area will be promptly removed and disposed of properly at the current working face. Control will also be used to confine the working face to a minimum width consistent with the rate of incoming waste, while allowing for safe and efficient operation. The maximum size of the unloading area will be 1/2 acre with a maximum width of approximately 150 feet. There will be one waste unloading area each day within the active working face.

Uncontaminated woody waste from residential and commercial sources such as, but not limited to, yard trimmings (leaves, grass clippings, yard and garden debris, and brush), wood and wood materials, including stumps, roots, or vegetation, sawdust, pallets, manufacturing rejects and other similar woody waste deemed suitable by the landfill manager will be placed in the landfill's brush collection/chipping/mulching area and ground or chipped for use at the onsite composting facility or to promote vegetation and control erosion on daily or intermediate cover areas. Control will also be used to confine the woody waste area to a minimum width consistent with the rate of incoming woody waste, while allowing for safe and efficient operation. The maximum size of the woody waste unloading area will be 50 feet by 100 feet.

The compost area will not be larger than 450 feet by 450 feet. Control will be used to confine the composting area to a minimum area consistent with the rate of incoming feedstock, while allowing for safe and efficient operation. The compost area and operations are further discussed in Appendix IVB – Compost Plan. The San Angelo Landfill conducts its composting operation consistent with the static aerated pile method.

The liquid waste stabilization area will not be larger than 300 feet by 400 feet. Control will be used to confine the liquid waste stabilization area to a minimum area consistent with the rate of incoming liquid waste, while allowing for safe and efficient operation. The liquid waste stabilization area is further discussed in Appendix IVC – Liquid Stabilization Plan.

The large items/white goods unloading and storage area will not be larger than 50 feet by 200 feet. Control will be used to confine the large item/white goods area to a minimum area consistent with the rate of incoming large items/white goods, while allowing for safe and efficient operation. The large items/white goods storage area is further discussed in Section 8.9.

Signs with directional arrows and portable traffic barricades will help to restrict traffic to designated disposal locations. Signs will be placed along the access route to the current disposal area or other designated disposal areas that may be established. In addition, rules for waste disposal and prohibited waste will be prominently displayed on signs at the site entrance. Refer to Section 5 of this SOP for additional waste handling procedures.

8.3 Facility Hours of Operation (§330.135)

The San Angelo Landfill is authorized for waste acceptance from 7:00 a.m. to 7:00 p.m., Monday through Saturday. The site is closed on Sunday. There is no hourly limitation on conducting waste acceptance, filling, construction, earthmoving, or other activities within the facility waste acceptance hours. The San Angelo Landfill is authorized for site operations from 5:00 a.m. to 9:00 p.m., Monday through Saturday. Site operations include construction, earthmoving, monitoring, and other non-waste acceptance operations. The San Angelo Landfill will post on the entrance sign the hours for waste acceptance. The San Angelo Landfill will record in the site operating record the dates, times, and duration when any alternative operating hours are utilized as specified in Table 2-1.

8.4 Site Sign (§330.137)

A sign will be visible from the gated entrance to the site. This sign will measure at least 4 feet by 4 feet, and have lettering of at least 3 inches in height. The sign will state the name of the site, type of site, hours and days of operation, and the TCEQ permit number. An emergency 24-hour contact phone number and the City of San Angelo emergency fire department phone number will also be included. The emergency contact phone number will reach an individual with the authority to obligate the facility at all times the facility is closed. The site sign will be readable from the facility entrance.

Signs prohibiting receipt of prohibited wastes including hazardous waste and PCB waste, closed drums, smoking, scavenging and untarped loads will be posted at the gatehouse. In addition, a sign will be posted to keep all vehicles on the roadway and that anyone unloading waste in unauthorized areas will be prosecuted.

8.5 Control of Windblown Solid Waste and Litter (§330.139)

The working face will be maintained and operated in a manner to control windblown solid waste. Windblown material and litter will be collected and properly managed to control unhealthy, unsafe, or unsightly conditions by the following methods:

- Waste transportation vehicles using this facility will be required to use adequate covers or other means of containment. The adequacy of covers or containment of incoming wastes will be checked at the gatehouse. A sign will be prominently displayed at the gatehouse stating that all loads shall be properly covered.

- The active working face will be limited to as small an area as practical for the safe operation of the incoming waste hauling vehicles, and operation of compaction equipment, and delivery and placement of daily cover soils.

- Daily cover will be applied as frequently as needed, to assist with the control of windblown waste.

- The facility will provide litter control fences, as necessary, at appropriate locations near the working face and elsewhere. The litter control fences will be constructed of wire or plastic mesh screens attached to portable or permanent frames or temporary fences. The litter control fence will be of sufficient height and will be located as close as practical to the active area to control windblown waste and litter.

- Windblown waste and litter along the entrance road, the gatehouse area, within the permit boundary, and that has accumulated along the permit boundary will be collected once a day during facility operations and returned to the active working face.

- Should windblown waste or litter escape the facility control measures and cross the permit boundary onto adjacent property, the facility will contact the adjacent property owners to seek permission for litter pick-up. The facility is bound by public roads to the north, south, and east where mandatory litter pick-up will take place in accordance with §330.145 and Section 8.8.

- Adjacent filled areas will provide protection from the prevailing winds. Earth berms will be used to assist in control of windblown wastes by providing a windbreak against prevailing winds. Due to the variability of wind direction, the facility personnel will use their discretion in using any additional wind breaks.

8.6 Easements and Buffer Zones (§330.141)

8.6.1 Easements (§330.141(a))

Solid waste unloading, storage, disposal, or facility operations will not occur within any easement, buffer zone, or right-of-way that crosses the site. No solid waste disposal will

occur within 25 feet of the centerline of any utility line or pipeline easement, unless otherwise authorized by TCEQ. All easements will be clearly marked as specified in Section 8.7 of this SOP. Pipelines and utility easements will be marked with posts extending a minimum of six feet above ground surface at intervals that do not exceed 300 feet. There are no easements or right-of-ways located within the San Angelo waste disposal footprint. An Atmos Energy Easement traverses the facility permit boundary in the northern portion of the permit boundary.

8.6.2 Buffer Zones (§330.141(b))

The buffer zone is defined as the area between the permit boundary and the limit of waste disposal. The limit of waste is generally located along the inside edge of the perimeter road. No solid waste unloading, storage, disposal, or processing operations will occur within any buffer zone. The buffer zones will provide for safe passage for fire-fighting and other emergency vehicles. The buffer zones vary around the perimeter of the site, but in no case are they less than 50 feet. All buffer zones will be clearly marked as specified in Section 8.7 of this SOP.

8.7 Landfill Markers and Benchmark (§330.143)

Landfill markers will be installed to clearly mark significant features as described in §330.143(b). The markers will be steel or wooden posts (or other TCEQ approved material) and will extend at least 6 feet above the ground surface. The markers will not be obscured by vegetation and will be placed in sufficient numbers to clearly show the required boundaries. Markers that are removed or destroyed will be replaced within 15 days of their removal, completion of construction project, or destruction. Landfill markers will be inspected monthly and will be maintained and repaired within 15 days as required. The landfill markers will be maintained so that they are visible during operating hours. Refer to Section 8.24 of this SOP for site inspection and maintenance schedule. Inspection records will be maintained in the site operating record. Markers will be repainted as needed to retain visibility. Guidelines for type, placement, and color coding of markers are outlined below.

The required landfill markers are:

Landfill Markers

Marker	Color
Site Boundary	Black
Buffer Zone	Yellow
Grid System	White
SLER/GLER	Red
Easements or Right-of-Ways	Green

- Site Boundary – Site boundary markers will be painted black. The markers will be placed at each corner of the site and along each boundary line at intervals no greater than 300 feet. Fencing may be placed within these markers, as required. In areas where the fence is located on the permit boundary, the fence posts may be painted black and used as site boundary markers. In no case will the posts be less than 6 feet in height.

- Buffer Zone – Buffer zone markers will be painted yellow. The markers will be placed along each buffer zone boundary at intervals of 300 feet. The buffer zone distances vary along the permit boundary. The buffer zones will be a minimum of 50 feet wide.

- Landfill Grid System – Grid markers will be painted white. The grid system will consist of lettered markers along two opposite sides, and numbered markers along the other two sides. Markers will be spaced no greater than 100 feet apart measured along perpendicular lines. Alternately, a 2-inch diameter pipe placed over steel T-posts (or equivalent) may be used for grid markers. At a minimum, grid markers will delineate the area expected to receive waste within the next 3 years. The grid markers will be maintained during the active life of the site and throughout the postclosure period.

- SLER/GLER Area – SLER/GLER markers will be painted red. The markers will be placed so that all areas for which a SLER/GLER has been submitted and approved by the TCEQ are readily determinable. Such markers are to provide site workers immediate knowledge of the extent of approved disposal areas. These markers will be located so that they are not destroyed during operations until operations extend into the next SLER/GLER. The location of these markers will be tied into the landfill grid system and will be reported on each SLER/GLER submitted. SLER/GLER markers will not be placed inside the evaluated areas.

- Easements and Right-of-Ways – Easement and right-of-way markers will be painted green. The markers will be placed along the centerline of an easement, along the boundary right-of-way, at each corner within the site, and at the intersection with the permit boundary. Where it is impractical to place a marker, the marker will be offset from the easement right-of-way and the offset distance will be clearly painted on the marker.

A permanent benchmark has been set within the permit boundary. The existing site benchmark used for surveying controls is located within the permit boundary. The permanent benchmark is a United States Coast and Geodetic Survey benchmark consisting of a bronze survey marker stamped with elevation and survey date and set in concrete. The benchmark will be maintained so that it is visible during operating hours.

8.8 Material Along the Route to the Site (§330.145)

The San Angelo Landfill will take steps to ensure that vehicles hauling waste to the site are enclosed or provided with a tarpaulin, net, or other means to properly secure the load. These steps are necessary to prevent the escape of any part of the load by

blowing or spilling. The landfill will post signs at the entrance gate and gatehouse notifying haulers of this requirement and enforcement measures (reporting offenders to the local law enforcement agency, adding surcharges). The San Angelo Landfill will provide for the cleanup of waste materials spilled along and within the right-of-way of Old Ballinger Highway, Covington Road, 50th Street, US Highway 67, State Highway 277, East FM 2105, and North Bell Street for a distance of 2 miles in either direction from the entrance road connection to Old Ballinger Highway. Cleanup for the spilled materials will be performed once per day. The landfill manager will consult with TxDOT officials concerning cleanup of state highways and right-of-ways consistent with §330.145. The San Angelo Landfill will provide additional cleanup should TxDOT request an increased frequency for cleanup of spilled materials along Old Ballinger Highway.

8.9 Disposal of Large Items (§330.147)

A large item/white goods (ovens, dishwashers, refrigerators, etc.) storage area will be provided near the gatehouse. The large items and white goods include items such as ovens, dishwashers, freezers, air conditioners, and other large items. These items will be recycled to prevent a nuisance and to preclude discharge but will not be stored in excess of 180 days.

Refrigerators, freezers, air conditioning units, or other items containing chlorinated fluorocarbon (CFC) refrigerant will be handled in accordance with 40 CFR §82.156(f), as amended. Refrigerators, freezers, air conditioning units, or other items containing CFC will not be accepted unless the CFC contained in the item has been captured and sent to an approved CFC disposal site or recycling facility and the generator or transporter provides written certification that the CFC has been evacuated from the unit. The generator, transporter, or customer may also contract with the landfill to have the CFC removed prior to disposal. Items such as electrical equipment, which contains PCBs, will be excluded from waste fill. Procedures for detecting and excluding PCBs are provided in Section 5.

Large items that are not recycled will be disposed of at the working face. Care will be taken during disposal of large items to ensure that: (1) large items are excluded from the initial 5 feet of waste placed over the protective cover of a liner, (2) large items are placed such that they do not interfere with continued waste filling, and (3) that other smaller municipal solid waste is placed and compacted around them.

8.10 Odor Management Plan (§330.149)

The San Angelo Landfill will manage odors associated with waste acceptance and disposal operations consistent with this odor management plan. This plan addresses sources of odors and includes general instructions to control odors or sources of odors.

Measures to control odors and sources of odors may include, but are not limited to, the following items:

- The facility will accept wastes that may generate odors including municipal water and wastewater treatment plant sludges, grease trap waste, grit trap waste, other liquid waste from municipal sources, feedstock, and dead animals. The sludges and other liquid wastes are required to pass a paint filter test prior to disposal at the active working face. Liquid wastes may be stabilized onsite in accordance with Appendix IVC - Liquid Stabilization Plan.

- Other sources of odors may include ponded water, decomposition of wastes, leachate, contaminated water, landfill gas, liquid stabilization ponds, and compost area.

- The gate attendant will identify and notify the landfill manager of those loads that contain wastes that generate significant odors and need special attention during waste disposal activities.

- Wastes identified that are considered to generate significant odors are usually classified as special wastes. Refer to Section 8.20 – Disposal of Special Wastes for waste disposal procedures for special wastes.

- Unloading of these wastes will be consistent with procedures established in Section 8.2 – Unloading of Waste, which limits the unloading areas to minimum widths, allowing prompt processing of wastes or placement of daily cover over wastes that may produce odors.

- Spills of these odor producing wastes will be managed by collecting and transporting these wastes to the appropriate unloading area for prompt processing or disposal and placement of daily cover.

- Daily cover consisting of a minimum of 6 inches of soil will be placed over these wastes disposed of at the active working face consistent with the procedures established in Section 8.18 – Landfill Cover.

- Waste that is determined to require additional procedures, such as dead animals, will be isolated within the active working face and immediately covered with a minimum of 3 feet of other solid waste or a minimum of 2 feet of soil upon receipt at the active working face. Additional daily cover soil will be placed if needed.

- Ponded water at the site will be controlled as detailed in Section 8.19 of this SOP. Odors will be eliminated through removal of ponded water and regrading of areas consistent with Section 8.18 – Landfill Cover.

- The facility has a LFG extraction system installed. The effectiveness of this LFG extraction system will be assessed. All necessary repairs to the system or expansion of the system will be made, as needed, to control odors.

- The landfill manager may evaluate the use of misters and chemical deodorizers when other controls do not reduce or eliminate significant odors.

- Composting and liquid waste solidification operations are conducted within the limits of waste disposal, at least 50 feet from the permit boundary. Both operations are conducted on the north side of the facility where the nearest residence is over 3,000 feet away south of Old Ballinger Highway.

- Leachate and contaminated water will be managed in accordance with the Leachate and Contaminated Water Plan. Note that leachate will be transferred from the leachate collection system directly to a leachate force main and connected to the City of San Angelo sanitary sewer system. Leachate will be treated at the City's offsite wastewater treatment plant. Leachate may also be transferred either directly to an enclosed liquid transfer vehicle or a future onsite enclosed leachate storage tank. Leachate may also be recirculated in accordance with the Leachate and Contaminated Water Plan.

8.11 Disease Vector Control (§330.151)

The need for vector control (control of rodents, flies, mosquitoes, etc.) will be minimized through daily site operations. Activities designed to control on-site populations of disease vectors include minimization of the size of the active working face; placement and compaction of daily, intermediate, and final cover; adherence to the ponded water plan; and following the detailed procedures described in this SOP. The San Angelo Landfill will conduct inspections as required by Section 8.24 – Site Inspection and Maintenance Schedule to observe waste disposal operations and to document placement of daily cover, intermediate cover, final cover, and ponded water. Should daily operations at all waste unloading areas not control vectors, a licensed professional will apply pesticides to ensure that proper chemicals are used and that they are properly applied.

8.12 Site Access Roads (§330.153)

The San Angelo Landfill has constructed an asphalt paved entrance road from Old Ballinger Highway to the gatehouse for waste hauling vehicles, operating personnel, and visitors. In addition, an all-weather access road has been constructed from the gatehouse to the active disposal area. Other internal landfill roads will be constructed with a crushed-stone surface or other suitable material. The paved entrance and access road and the crushed-stone surfaced internal roads will provide mud control for the waste hauling vehicles prior to exiting the site and returning to public access roads. During wet weather conditions the landfill manager will routinely inspect the site and implement measures to further minimize mud tracking onto public access roads, as necessary. It is not anticipated that mud or other debris will be tracked onto Old Ballinger Highway given its all-weather surface. Speed bumps have been constructed along the site exit road to help reduce mud tracking onto public access roads. Should mud or other associated debris be tracked onto Old Ballinger Highway, the material will be removed daily.

The landfill haul roads and access roads will be maintained in a reasonably dust-free condition by daily periodic spraying from a water truck or other more permanent measures. Grading equipment will be used weekly or as needed to control or remove mud accumulations on internal roads including the entrance road. Stockpiles of crushed stone, concrete rubble, masonry demolition debris, or other similar material will be available for use in maintaining passable internal access roads including regrading to minimize depressions, ruts, and potholes. The site entrance road, landfill haul road, and access roads will be maintained in a clean and safe condition. Litter and debris will be picked up daily and returned to the active working face. Refer to Section 8.24 of this SOP for site inspection and maintenance schedule.

8.13 Salvaging and Scavenging (§330.155)

Salvaging will not be allowed to interfere with prompt sanitary disposal of solid waste or to create public health nuisances. Salvaged materials will be considered as potential recycled materials and will be stored near the gatehouse. Salvaged items will be removed from the site often enough to prevent the items from becoming a nuisance, to preclude the discharge of pollutants from the area, and to prevent an excessive accumulation of the material at the site but will not be stored in excess of 180 days. Special wastes received at the site will not be salvaged. Pesticide, fungicide, rodenticide, or herbicide containers will not be salvaged unless they are salvaged through a state-supported recycling program. Scavenging will be prohibited at all times.

8.14 Endangered Species Protection (§330.157)

No endangered or threatened species have been documented at the site nor has a critical habitat for such species been identified at the site. Neither the facility nor its operation will result in the destruction or adverse modification of the critical habitat of endangered or threatened species, or cause the taking of any endangered or threatened species.

8.15 Landfill Gas Control (§330.159)

The control and monitoring of LFG for the San Angelo Landfill will be in accordance with the Landfill Gas Management Plan. The Landfill Gas Management Plan was developed in accordance with Subchapter I, Landfill Gas Management. The gas management plan provides for inclusion of applicable documentation in the site operating record, and for submittal to the executive director.

8.16 Oil, Gas, and Water Wells (§330.161)

8.16.1 Water Wells (§330.161(a))

There are no abandoned or producing water wells known to exist on the project site.

If any water well located within the facility boundary is discovered during the course of facility development, the facility manager shall, within 30 days of such a discovery, notify the executive director in writing regarding the location of such well. In addition, unless the well will be used for water supply at the facility, the notification to the executive director must include certification that such well has been capped, plugged, and closed in accordance with all applicable rules and regulations of the TCEQ or other appropriate state agency. Any water well used for supply at the facility may remain in use as long as it is located outside of the waste footprint and is not impacted by landfill operations. TCEQ shall be notified of the location of any well used to supply water at the facility. Water wells should be properly designed to prevent cross-contamination from the waste management unit to the water well production zone.

Any well to be capped, plugged, and closed will be exposed, the casing cut to a minimum of 2 feet below ground surface (or, if the well location is within the proposed landfill footprint, a minimum of 2 feet below the excavation depth), and the well shall be capped and plugged in accordance with all applicable rules and regulations of the TCEQ, the Railroad Commission of Texas, or other applicable state agency. A copy of the well plugging report required to be submitted to the appropriate state agency must also be submitted to the executive director of the TCEQ within 30 days after the well has been plugged.

The facility operator must submit for TCEQ executive director approval a permit modification identifying any proposed changes to the liner installation plan as a result of any well abandonment.

8.16.2 Oil and Gas Wells (§330.161(b))

There are no abandoned or producing crude oil, natural gas, other wells associated with mineral recovery, known to exist on the project site.

If any crude oil or natural gas well, or other well associated with mineral recovery that is under the jurisdiction of the Railroad Commission of Texas is discovered within the facility boundary during the course of facility development, the facility manager shall, within 30 days of such a discovery, notify the executive director in writing regarding the location of such well(s). Within 30 days after plugging of any such well, the facility operator shall provide the executive director with written certification that the well has been properly capped, plugged, and closed in accordance with all applicable rules and regulations of the Railroad Commission of Texas.

Producing crude oil or natural gas wells that do not affect or hamper landfill operations may be operated within the facility boundary, if identified in the permit for the facility or in a written notification to the executive director. Any future changes to the landfill facility development resulting from oil or gas exploration or production activities must be incorporated into the facility permit. If such changes involve revisions to the approved final contours and approved final slopes with no height or capacity increase over the maximum permitted height or capacity, due to sequence of development changes that reduce the waste disposal area and/or revisions to the drainage control plan that significantly alter internal stormwater run-on/run-off control without impacting offsite drainage or increasing landfill disposal capacity, authorization for such changes should be sought by way of a permit modification pursuant to 30 TAC §330.305(70)(j)(11)

and/or (13), as appropriate. Changes beyond the scope of those described above may require authorization by way of a permit amendment.

Any well to be capped, plugged, and closed will be exposed, the casing cut to a minimum of 2 feet below ground surface (or, if the well location is within the proposed landfill footprint, a minimum of 2 feet below the excavation depth), and the well shall be capped and plugged in accordance with all applicable rules and regulations of the TCEQ, the Railroad Commission of Texas, or other applicable state agency. A copy of the well plugging report required to be submitted to the appropriate state agency must also be submitted to the executive director of the TCEQ within 30 days after the well has been plugged.

The facility operator must submit for TCEQ executive director approval a permit modification identifying any proposed changes to the liner installation plan as a result of any well abandonment.

8.17 Compaction (§330.163)

Compaction of incoming waste provides more efficient use of available space and reduces the amount of settling after the fill is complete. Compaction of the waste will be accomplished by a landfill compactor or similar equipment. The site dozer will be used to compact waste should the compactor be temporarily out of service for repairs. Adequate compaction will be accomplished to minimize future consolidation and settlement and provide for the proper application of intermediate and final cover. The incoming waste will be spread in layers and thoroughly compacted.

Landfill personnel will be onsite full time during the placement of the first 5 feet of waste over the liner system. They will verify and document that the initial 5 feet of waste does not contain large bulky items which could damage the liner system or which cannot be compacted to the required density.

8.18 Landfill Cover (§330.165)

8.18.1 Soil Management

Management of soil for use in and around the landfill area will be an ongoing process at the San Angelo Landfill. In general, soil for use as daily cover, intermediate cover, final cover, and other uses will be available onsite. This onsite soil will be obtained from excavation that is ongoing as part of the initial development of future landfill cells. This onsite material may be available near the working face (the exact distance varying daily, weekly, etc., depending on the exact stage of development).

In addition to this available material located on the landfill property, a stockpile of material will be kept available on site. The stockpile will consist of soil that has not previously come in contact with waste, and will be of sufficient volume to provide at least 1 days application of 6 inches of daily cover over the working face. As this stockpile is used, it will be replenished as soon as practical. A time span on the order of days may

occur prior to replenishment of this stockpile. The soil may also be used in emergency situations for fire control.

8.18.2 Daily Cover (§330.165(a))

Daily cover of waste is necessary to control disease vectors, windblown waste, odors, fires, scavenging, and to promote runoff from the fill area. At least 6 inches of well-compacted soil cover material that has not been previously mixed with garbage, rubbish, or other solid waste will be placed over all solid waste received during that same day.

To ensure that the daily cover soil will be adequate (i.e., minimize vectors, contaminated storm-water runoff, odors, etc.) the following procedures will be followed:

- The daily cover will be sloped to drain.
- The daily cover will be compacted with a minimum of two passes with the dozer tracks to minimize infiltration of storm water, graded to drain, and will not have any waste visibly protruding through it.
- The landfill manager (or designee) will document where daily cover has been placed and visually inspect during placement that a minimum of 6 inches (compacted thickness) of daily cover soil has been placed and that no waste is exposed through it. The landfill manager (or designee) shall document, on a daily basis, the daily cover placement area and indicate that he has visually verified the thickness and condition in the Cover Inspection Record, as discussed in Section 8.18.8.
- After each rainfall event, the landfill manager (or designee) will inspect all daily cover areas for erosion, exposed waste or other damage, and repair as necessary. Runoff from damaged or eroded areas will be handled as contaminated water until repairs are completed.
- The landfill manager (or designee) will inspect for seeps from daily cover. Seepage areas will be excavated and backfilled with crushed stone or other suitable materials to provide a pathway for leachate to reach the leachate collection system. After backfilling, daily cover will be replaced over former seepage areas.

Inactive areas with 6 inches of daily cover must be inspected daily for erosion, ponded water, seeps, protruding waste, or other detrimental conditions that may cause contaminated runoff from the daily cover. All areas that receive waste and then become inactive for longer than 180 days will receive intermediate or final cover. This 12-inch-thick layer of cover soil will be classified as "intermediate cover" as described in Section 8.18.3 of this SOP. Once the area becomes active again, the top 6 inches of the intermediate cover not previously mixed with solid waste may be stripped off for use as daily cover in other areas. Final cover is described in Section 8.18.6 of this SOP.

8.18.3 Intermediate Cover (§330.165(c))

All areas that receive waste and then become inactive for longer than 180 days will be covered with an additional 6 inches of well compacted cover material, for a total cover thickness of at least 12 inches. The intermediate cover will be graded to prevent erosion and ponding of water. The additional 6 inches of earthen material will be capable of sustaining native plant growth and will be seeded or sodded following its application for erosion control. Plant growth and other erosion control features placed as part of the intermediate cover will be maintained. The intermediate cover layer may be covered with woodchips or mulch from the onsite woodwaste chipping operations as vegetation is being established on the intermediate cover slopes to prevent erosion. Runoff from areas that have received intermediate cover are considered to have not come into contact with the active working face or leachate and are considered uncontaminated stormwater runoff.

8.18.4 Alternate Material Daily Cover (§330.165(d))

The San Angelo Landfill is authorized to use alternate material daily cover (ADC). The facility, by inclusion of this notification to the executive director, is authorized to use ADC in accordance with §330.165(d). The ADC is limited to a 24-hour period after which either waste or daily cover, as defined in §330.165(a) and applied as described in Section 8.18.2 of this SOP, must be placed. The ADC will be placed in accordance with Appendix IVD – Alternative Daily Cover Operating Plan.

8.18.5 Temporary Waiver (§330.165(e))

The San Angelo Landfill does not anticipate requesting a waiver from the requirements from §330.165(a), (c), and (d). Should the landfill decide to request a waiver due to extreme seasonal climatic conditions, the landfill will request a waiver in accordance with this section.

8.18.6 Final Cover (§330.165(f))

Final cover placement will occur as areas of the site are filled to the design top-of-waste grades. Final cover placement over individual areas will be in accordance with the Final Closure Plan and will permit ongoing landfilling operations to continue until the time of final closure. Surface water will be managed throughout the active life of the site to minimize infiltration into the filled areas and to minimize contact with solid waste. Erosion of final or intermediate cover will be repaired promptly by restoring the cover material, grading, compacting, and seeding it as necessary. Such periodic inspections and restorations are required during the entire operational life and for the postclosure maintenance period. Refer to Section 8.24 of this SOP for a site inspection and maintenance schedule.

In general, final cover placement over completed portions of the site will consist of the following steps:

- Survey controls will be implemented to control the filling of solid waste to the bottom level of the daily/intermediate cover layer elevation.
- The final cover system layers will be constructed. Testing of the various components of the final cover system will be performed in accordance with the Final Closure Plan.
- A final cover certification report complete with an as-built survey will be prepared by an independent registered professional engineer and submitted to the TCEQ for approval.
- The TCEQ-approved final cover certification report will be maintained in the site operating record and the cover inspection record, as described in Section 8.18.8, will be updated to reflect the area where final cover has been placed. The TCEQ region office will also be notified that final cover placement has occurred at the site.

8.18.7 Erosion of Cover (§330.165(g))

The landfill will inspect intermediate cover at the site on a weekly basis. The final cover system including the erosion control structures will be maintained during and after construction. During the active life of the site, the landfill manager will inspect the final cover system on a weekly basis. Erosion gullies or washed-out areas of the intermediate or final cover which are deep enough to jeopardize the intermediate or final cover will be repaired within 5 days of detection. Repair of final cover includes restoring cover, grading, compacting, and seeding as required. An eroded area is considered to be deep enough to jeopardize the intermediate or final cover if it exceeds 4 inches in depth as measured perpendicular with the horizontal slope face or surface. Should additional time be required for repairs due to weather related delays, the landfill will request from the TCEQ region office approval of an alternate schedule. Documentation of weather delays for the repairs will be included in the cover inspection record. Weekly inspections and restorations are required for the active life of the landfill. Refer to Section 8.24 for site inspection and maintenance schedule. Documentation of dates of inspections, detection of erosion, and completion of repairs are required in accordance with Section 8.18.8 – Cover Inspection Record.

Postclosure care inspection and repair procedures of the final cover are outlined in the Post-closure Plan.

8.18.8 Cover Inspection Record (§330.165(h))

Throughout the landfill operation, a cover inspection record will be maintained and be readily available for inspection in accordance with §330.165(h). For daily, intermediate cover, and alternate daily cover, the record will specify the date cover was accomplished (no exposed waste), area covered (by use of the grid system), how it was placed, and when it was completed. For final cover, the record will show the final cover area

completed, date cover was applied and thickness of final cover. The final cover certification report for each area will be referenced in the record. Each entry in the record will be certified by the signature of the landfill manager that the work was accomplished as stated in the record. The cover inspection record will document inspections required under Section 8.18.7 – Erosion of Cover, §330.165(g) including findings, and corrective actions taken.

8.19 Ponded Water (§330.167)

The San Angelo Landfill will prevent ponding of water over areas that have received waste through site operations including grading and maintenance. The Ponded Water Plan provides direction to the landfill operations for the prevention and elimination of ponded water. The Ponded Water Plan is as follows:

- The landfill will place daily cover, intermediate cover, and final cover in accordance with requirements established in Section 8.18 – Landfill Cover.
- The landfill will inspect the surface of areas that have received waste and landfill cover consistent with Section 8.18 – Landfill Cover and Section 8.24 – Site Inspection and Maintenance Schedule.
- Site grading and maintenance as required by Section 8.18 will minimize the ponding of water over areas containing waste.
- Should ponding of water occur, the ponded water will be removed and the depressions filled within 7 days or as soon as practicably possible. Landfill cover will be repaired consistent with procedures specified in Section 8.18.
- If the ponded water has come into contact with waste, or waste-contaminated soils, it will be treated as leachate and handled in accordance with the Leachate and Contaminated Water Plan.

8.20 Disposal of Special Wastes (§330.171)

Special wastes, as defined in §330.3, may be accepted for disposal at the facility in accordance with §330.171(b) and (c).

As specified in §330.171(b)(2), requests for approval to accept special wastes must be submitted by the generator to the TCEQ executive director or the San Angelo Landfill. The request must include the following:

- A complete description of the chemical and physical characteristics of each waste and the quantity and rate at which each waste is produced and/or the expected frequency of disposal, including a statement if waste is or is not a Class I industrial waste as defined in §330.3.

- An operational plan containing the proposed procedures for handling each waste and listing required protective equipment for operating personnel and onsite emergency equipment.

- A contingency plan outlining responsibility for containment and cleanup of any accidental spills occurring during the delivery and/or disposal operation.

The approval for acceptance and disposal of special wastes at the San Angelo Landfill will be waste-specific consistent with §330.171(b)(1). The executive director may authorize the receipt of special waste with a written concurrence from the San Angelo Landfill. The landfill is not required to accept the waste.

In addition, the following special wastes in Sections 8.20.1 through 8.20.6 may be accepted at the facility without prior written authorization in accordance with §330.171(c).

8.20.1 Sludges

Stabilized sludges, grease trap waste, grit trap waste, liquid waste from slaughterhouse wastes, or liquid waste from municipal sources will be accepted if the material has been treated or processed, and has passed the paint filter test and is certified to contain no free liquid, as prescribed in §330.171(c)(7). The San Angelo Landfill will provide for the solidification of liquid wastes that are accepted at the landfill in accordance with the approved Liquid Waste Solidification Plan as authorized by TCEQ. Refer to Appendix IVC – Liquid Stabilization Plan for procedures. Typically, WWTP sludges will be tested at the waste water treatment plant. Material that passes the paint filter test will be allowed to be disposed of at the working face. Material that fails the paint filter test will not be removed from the solidification basin until it passes the paint filter test.

8.20.2 Dead Animals

The site may receive dead animals or slaughterhouse wastes that are delivered to the site independent of other wastes. Dead animals and slaughterhouse wastes will be buried and covered with a minimum of 3 feet of other solid waste or a minimum of 2 feet of earthen material immediately upon receipt in accordance with §330.171(c)(2).

8.20.3 Empty Containers

Empty containers, which have been used for pesticides, herbicides, fungicides, or rodenticides, will be accepted and disposed of in accordance with 30 TAC §330.171(c)(5). Empty containers will be disposed if they have been triple rinsed prior to receipt, rendered unusable prior to receipt, and covered by the end of the same working day with solid waste or daily cover.

8.20.4 Nonregulated Asbestos-Containing Materials

Non-regulated asbestos-containing materials (non-RACM) may be accepted for disposal provided the wastes are placed on the active working face and covered in accordance with §330.171(c)(4) and Section 8.18 of this SOP. Under no circumstances shall any material containing non-RACM be placed on any surface or roadway which is subject to vehicular traffic or disposed of by any other means by which the material could be crumbled into a friable state.

8.20.5 Conditionally Exempt Small Quantity Generator (CESQG)

Municipal hazardous waste from a conditionally exempt small quantity generator (CESQG) may be accepted at the facility in accordance with §330.171(c)(6), provided the amount of waste does not exceed 220 pounds per month per generator.

8.20.6 Regulated Asbestos-Containing Material (RACM)

RACM may be accepted at the San Angelo Landfill as defined in 40 Code of Federal Regulations §61 in accordance with §330.171(c)(3), and in accordance with MSW Permit No. 79. The San Angelo Landfill has not accepted RACM nor does it plan to accept RACM in the future. Should the San Angelo Landfill decide to accept RACM in the future, the facility will accept this waste in accordance with §330.171(c)(3).

Prior to receipt of RACM at this facility, the landfill manager will dedicate a specific area of the site for receipt of RACM and notify the TCEQ in writing of the designated area. As the operation continues, the landfill manager will notify the TCEQ in writing of any new dedicated areas for RACM.

RACM disposal locations will be identified by survey (Registered Professional Land Surveyor) and identified on a current site drawing at the site. The survey required for RACM disposal will be documented in the landfill liner certification reports submitted to the TCEQ, prior to disposal of any waste in the cell or unit. Each load of RACM that arrives on-site will be documented including the volume of material, and the location and depth of its disposal.

Delivery of RACM will be coordinated with the landfill manager so that the waste will arrive during times that it can be properly managed by site personnel, in accordance with §330.171(c)(3)(D).

RACM will be accepted at the site only if it is contained in tightly closed containers or bags, or wrapped as necessary with 6-mil-thick polyethylene, in accordance with §330.171(c)(3)(E).

RACM will be unloaded and placed in accordance with §330.171(c)(3)(F) and (G). RACM will be placed in landfill units such that it will not be exposed as a result of erosion or weathering. At a minimum, the RACM will be placed at least 20 feet away from exterior final sideslopes, and at least 10 feet below final grade. During unloading and placement of RACM in the waste fill, care will be exercised to prevent breaking open the bags or containers. One foot of soil cover or 3 feet of asbestos-free municipal

solid waste will be placed over the RACM immediately after it is placed in the landfill unit.

In accordance with §330.171(c)(3)(H), the following contingency plan is established for acceptance of RACM. In the event of accidental spills (e.g. ruptured bags or containers) the following procedures will be followed:

1. Should the asbestos bag or container be ruptured at the working face while in process of disposal, the material will immediately be wetted prior to covering.

2. Should spill occur other than on the working face, the landfill manager or his designated contact will be notified.

3. Facility personnel will put on the required PPE, Tyvex suits, and respirators prior to securing the spill area. Facility personnel will be trained in asbestos handling, PPE, and will be fit tested for the respirators. Any other person in the immediate area will be removed from the area unless proper PPE is observed.

4. The spilled asbestos-containing material will be wetted immediately to control emissions prior to clean up.

5. The asbestos-containing material will then be put in a plastic-lined ADT or roll-off box. The material will be immediately transported to the active working face of the landfill where the asbestos disposal is occurring that particular date.

6. There will be no temporary storage of the material. The material will be loaded immediately and taken to the active working face of the landfill where the asbestos disposal is occurring on that particular date.

7. Emergency response (third party) personnel will be notified if facility personnel are not available to clean up spilled materials.

In accordance with §330.171(c)(3)(I), RACM that has been designated as Class I industrial solid waste, and that arrives at the facility will be disposed of in accordance with §330.173(c) and in accordance with this section of the Site Operating Plan. RACM which has been designated as Class I industrial solid waste will be handled in accordance with §330.173(g)-(i).

In accordance with §330.171(c)(3)(C), upon closure of the facility, a notation indicating that the site accepted RACM will be placed in the deed record. This notation will indicate where the RACM was disposed of on the property by showing its location on a site diagram. A copy of this documentation will be provided to the TCEQ.

8.21 Disposal of Industrial Wastes (§330.173)

Industrial waste (nonhazardous) is defined by §330.3 as solid waste resulting from or incidental to any process of industry or manufacturing, or mining or agricultural operations. Class I wastes will not be accepted at the facility. Class II and Class III industrial solid wastes may be accepted at the facility, provided disposal of these wastes

does not interfere with proper operation of the facility. Class II and III industrial waste will be accepted as classified below:

> Class II Industrial Solid Waste – any individual solid waste or combination of industrial solid wastes that cannot be described as Class I or Class III, as defined in §335.506 (relating to Class II waste determination).
>
> Class III Industrial Solid Waste – any inert and essentially insoluble industrial solid waste, including materials such as rock, brick, glass, dirt, and certain plastics and rubber, etc. that are not readily decomposable as defined in §335.507 (relating to Class III waste determination).

8.22 Visual Screening of Deposited Wastes (§330.175)

The San Angelo Landfill is located in Tom Green County. Visual screening of deposited waste is provided as part of normal waste disposal operations and sequence of development. During below-ground disposal operations, the landfill will not require visual screening of deposited waste. As the landfill is developed above ground, the landfill will construct final cover as the landfill reaches final contours.

8.23 Contaminated Water Discharge

The landfill manager will take all steps necessary to control and prevent the discharge of contaminated water from the facility. Should the discharge of contaminated water become necessary, the landfill manager will obtain specific written authorization from the TCEQ prior to discharge. All water coming in contact with waste, or contaminated soils will be treated as leachate. Runon and runoff for the 25-year, 24-hour storm event will be controlled following the procedures set forth in the Runon/Runoff Control Plan and the Leachate and Contaminated Water Plan. Temporary berms will be used to minimize the amount of water contaminated at the active working face. The landfill will be operated consistent with §330.15(h)(1)-(4) regarding discharge of solid wastes or pollutants into waters of the United States.

8.24 Site Inspection and Maintenance Schedule

ITEM	TASK	FREQUENCY	INSPECTOR	TYPE OF INSPECTION
Fence/Gate	Inspect perimeter fence and gate for damage, gaps, intrusions and the like. Make repairs if necessary.	Twice a month	Landfill Manager or Designee	Document in the Site Operating Record
Windblown Waste	Police working face area, wind fences, access roads, entrance area, and perimeter fence for loose trash. Clean up as necessary.	Daily	Landfill Manager or Designee	Document in the Site Operating Record
Waste Spilled on Route to the Site	Police the entrance area and all roads at least 2 miles from the site entrance for loose trash. Clean up as necessary.	Daily	Landfill Manager or Designee	Document in the Site Operating Record
Landfill Markers	Inspect all landfill markers for damage, color coding, and general location. Correct or replace damaged markers within 15 days of discovery.	Monthly	Landfill Manager or Designee	Document in the Site Operating Record
Site Access Road	Inspect site access road for damage from vehicle traffic, erosion, or excessive mud accumulation. Maintain as needed with crushed rock or stone.	Weekly, more often during wet weather or extended dry weather periods	Landfill Manager or Designee	Document in the Site Operating Record
Daily Cover	Inspect for proper placement, thickness, and compaction. Correct problems as needed.	Daily at the active face. All daily cover areas will be inspected daily, and after each rainfall event	Landfill Manager or Designee	Document in the Site Operating Record
Intermediate Cover	Inspect for proper placement, thickness, erosion, compaction and for presence of waste or other contamination. Correct problems as needed.	Weekly and within 24-hours of a rainfall event of 0.5 inches or more. Repair erosion within five days of detection	Landfill Manager or Designee	Document in the Site Operating Record

8.24 Site Inspection and Maintenance Schedule (Continued)

ITEM	TASK	FREQUENCY	INSPECTOR	TYPE OF INSPECTION
Final Cover	Inspect for proper placement, thickness, compaction, slope, settlement and erosion. Maintenance will be ongoing throughout postclosure care period. Correct problems as needed.	Weekly and within 24-hours of a rainfall event of 0.5 inches or more. Repair erosion within five days of detection	Landfill Manager or Designee	Document in the Site Operating Record
Leachate	Record depth of leachate in sump, as required.	Monthly	Landfill Manager or Designee	Document in the Site Operating Record
Ponded Water	Inspect daily cover, intermediate cover, and final cover areas for potential areas that may pond water. Regrade as required. Remove ponded water over intermediate and final cover areas. Contaminated ponded water removed in accordance with the Leachate and Contaminated Water Plan.	Daily at active face and daily cover areas. Weekly for intermediate and final cover areas. Remove ponded water within 7 days of detection.	Landfill Manager or Designee	Document in the Site Operating Record
Dust Control	Inspect site access road, landfill haul roads, and other internal roads. Provide dust control by periodic spraying from water truck or other more permanent measures.	Daily	Landfill Manager or Designee	Document in the Site Operating Record
Fire Extinguishers	Inspect fire extinguishers and recharge or replace as necessary.	Monthly, by site personnel; annually by a qualified service company; and after each use	Landfill Manager or Designee	Document in the Site Operating Record
Liquid Waste Solidification Area	Inspect liquid waste solidification area, as required in accordance with Appendix IVC – Liquid Stabilization Plan.	Daily when liquid waste solidification area in operation	Landfill Manager or Designee	Document in the Site Operating Record

9 SEQUENCE OF DEVELOPMENT (30 TAC §330.127(2))

The San Angelo Landfill will continue with its approved sequence of development, Sectors 10 through 14.

LOAD INSPECTION REPORT

Date and Time of Inspection: _____

Inspector's Name: _____

Name of Hauling Company: _____ Phone Number: _____

Address: _____ City: _____ State: _____ Zip: _____

Driver's Name: _____ Vehicle License Number: _____

Type of Vehicle: _____ (e.g., roll-off, front loader, dump truck)

Size of Load, yards: _____ Sources of Wastes: _____

LOAD CONTENTS

Waste	Est. % by Vol.	Waste	Est. % by Vol.
Household wastes		Yard waste, brush, stumps	
Wood		Containers	
Metal		Bulk liquids	
Paper, cardboard		Powders, dusts	
Plastic, rubber, glass		Soil	

PROHIBITED WASTE INDICATORS

	YES	NO
Labeled hazardous waste		
Batteries		
Oil		
Medical		
Radioactive		
Ashes		
Soils		
Odors, unusual		
Colors, unusual		
Heat, excessive		
Smoke		

INSPECTION RESULTS

Prohibited wastes identified? _____

Further action required? (e.g., none, lab tests, notification) _____

Samples sent to lab? _____ Lab Name: _____ Phone: _____

Tests requested: _____

_____ _____

Driver Signature Load Inspector Signature

Actual form may vary.

APPENDIX IVB

COMPOST PLAN

(APPROVED BY TCEQ AS PERMIT MODIFICATION NOVEMBER 2003)

Kathleen Hartnett White, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
Larry R. Soward, *Commissioner*
Margaret Hoffman, *Executive Director*

Compost Plan

TEXAS COMMISSION ON ENVIRONMENTAL

Protecting Texas by Reducing and Preventing Pollution

November 5, 2003

Mr. Will H. Wilde, P.E., R.P.S.
Public Works Director
City of San Angelo
P.O. Box 1751
San Angelo, TX 76902

Re: City of San Angelo Landfill - Permit No. MSW-79A
Permit Modification
Mail Log File No. 03-3586
RN102289576, CN600251615

Dear Mr. Wilde:

We have reviewed your application for a permit modification, dated July 9, 2003, received by the Municipal Solid Waste Permits Section on July 16, 2003, and revised October 22, 2003, requesting a change to the Compost Plan (Attachment C of the Site Operating Plan). The changes are being made to comply with the requirements of the Guidelines for Participation in the Compost Refund Program, as issued by the TCEQ on June 13, 2003, and effective September 1, 2003. The information presented is technically sufficient for a Municipal Solid Waste Permit Modification. Enclosed is a copy of the permit modification which is now part of your permit and should be attached thereto. The documentation prepared and submitted to support the modification request shall be considered as requirements of the permit.

If you have any questions concerning this matter, please contact Mr. Mario Agustin Perez, Sr., of my staff at (512) 239-6681. When addressing written correspondence, please use Mail Code 124 (MC-124).

Sincerely,

Richard C. Carmichael

Richard C. Carmichael, Ph.D., P.E., CIH
Manager, Municipal Solid Waste Permits Section
Waste Permits Division

RCC/map

cc: Mr. Ron Jones, P.E., Greystone Engineering, 3321 Foster Street, San Angelo, TX 76903
Mr. Brent Wade, Waste Section Manager - TCEQ Region 8, San Angelo

Enclosure

P.O. Box 13087 • Austin, Texas 78711-3087 • 512/239-1000 • Internet address: www.tceq.state.tx.us

printed on recycled paper using soy-based ink

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

MODIFICATION TO

MUNICIPAL SOLID WASTE PERMIT No. MSW-79A

City of San Angelo Landfill

Municipal Solid Waste Permit No. MSW-79A is hereby modified as follows:

Description of Change:

Revisions to update the existing Compost Plan (Attachment C of the Site Operating Plan), to comply with the requirements of the Guidelines for Participation in the Compost Refund Program, as issued by the TCEQ on June 13, 2003, and effective on September 1, 2003. The revisions include changes in the existing Compost Plan to include information regarding equipment necessary to compost yard waste, to incorporate additional measurement procedures for material processed, and designation of the specific location at the facility where records detailing expenses will be maintained. An alternate location for composting records may be proposed and considered through a modification request and upon TCEQ approval. The request for the permit modification to the Compost Plan was received by the TCEQ on July 16, 2003, and revised October 22, 2003, in letters dated July 9, 2003, and October 17, 2003, submitted for the City of San Angelo by Mr. Will H. Wilde, P.E.

Part of Permit Modified: Compost Plan (Attachment C of the Site Operating Plan).

This modification is a part of Permit No. MSW-79A and should be attached thereto.

APPROVED, ISSUED, AND EFFECTIVE in accordance with Title 30 Texas Administrative Code Section 305.70(l). No public notice is required for this modification. This modification is a minor change and does not substantially alter the permit.

ISSUED DATE:

NOV 0 5 2003

Margaret Hoffman

For the Commission

APPENDIX C

COMPOST PLAN

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COMPOST PLAN FOR

THE SAN ANGELO MSWLF (Permit #79)

1.0 Introduction

The City of San Angelo MSWLF operates a Notification Tier Compost Facility inside the landfill's permit boundaries. The primary benefit of the compost facility is the recovery of 15-20% from the waste stream and conversion of this material into a useful, marketable product.

The facility is classified as a Notification Tier Facility because acceptable feedstock includes the following organic materials:

- Animal carcasses;
- Source-separated yard trimmings;
- Clean wood material;
- Vegetative material;
- Paper; and
- Manure.

Any type of operation, facility, or industry that produces the above listed materials as defined in 30 TAC 332.2 and Section 6.0 of this Plan are acceptable feedstock sources.

This plan has been developed in order to meet general regulatory requirements as follows:

(1) Composting activities shall be conducted in a manner which prevents the discharge of material to or the pollution of surface or groundwater in accordance with the provisions of the Texas Water Code, Chapter 26.

(2) Composting shall be conducted in a sanitary manner which shall prevent the creation of nuisance conditions as mandated by the Texas Health and Safety Code, Chapters 341 and 382, and the Texas Water Code, Chapter 26 as defined in these regulations, and any other applicable regulations or statutes.

(3) The compost facility will not alter runon/runoff controls.

(4) Facility operations shall be conducted in a manner which protects human health and welfare, and the environment. Operations must comply with applicable federal laws and regulations and State laws.

This plan has been prepared to provide guidance in meeting the above requirements and includes information on the following subjects:

- General Composting Information;
- Site Description, Management, Personnel, and Equipment;
- Acceptable Feedstock and Site-Specific Composting Processes;
- Product Marketing;

- Stormwater and Air Quality Controls;
- Measurements of materials;
- Record-keeping and reporting requirements; and
- Calculation of compost credit.

Once approved by the TCEQ Municipal Solid Waste Division, this plan shall become part of the facility's Operating Record. Any deviation from this plan or any other approved plans in the Operating Record will be a violation of 31 TAC 330 (relating to Municipal Solid Waste). A copy of the plan shall be kept either at the facility or at an alternate location approved by the Executive Director.

Although the intent of the plan is to meet or exceed all TCEQ regulations, plan users must be aware that the plan does not supersede TCEQ regulations. Personnel should therefore understand TCEQ regulations to ensure proper facility management and compliance.

If questions should arise, supervisory personnel should refer to 30 TAC 332 and contact the TCEQ Municipal Solid Waste Division at the following address:

TEXAS COMMISSION on ENVIRONMENTAL QUALITY
Municipal Solid Waste Division
12100 Park 35 Circle
Austin, Texas 78753
Telephone: (512)239-6695

Additionally, the Region 8 TCEQ staff at San Angelo may be contacted at the following address:

TEXAS COMMISSION on ENVIRONMENTAL QUALITY
Municipal Solid Waste Division Region 8
TCEQ - REGION 8
622 South Oakes, Suite K
San Angelo, TX 76903
Telephone: (915)655-9479

2.0 General Composting Information

Numerous surveys have shown that yard wastes comprise at least 15-20% by weight of the municipal solid waste stream. In a nationwide waste characterization study, the EPA estimated that yard trimmings alone comprise 15.9% of the municipal solid waste stream.

In recent years, recovery of materials for recycling and composting has been steadily increasing. From 1990-1993, the amount of recovered materials increased 18% (EPA, 1994). In 1993, 19% of the total weight of yard trimmings was recovered nationwide. A further reduction in yard trimmings, in particular, needs to be achieved to reduce the nation's overall waste tonnage (EPA, 1994).

The composting process is the controlled, biological decomposition of organic materials through microbial activity. The final product is stabilized compost, a dark, nutrient-rich and odorless soil conditioner. Factors that must be optimized to hasten the composting process are oxygen, pH, aeration,

and moisture. The type of feedstock also determines the required time for compost maturation.

A properly constructed compost pile will contain approximately 67% high carbon materials and 33% high nitrogen materials, all thoroughly moistened. Typical high carbon sources include dry leaves, hay, dry weeds, and garden trash. High nitrogen sources include manure, fresh grass clippings, and fertilizers.

Although the facility is classified as a Notification Tier Facility, and therefore not required to determine the final product grade (30 TAC 332.72), the following table may be useful for evaluating and marketing the final product.

Table 2.1 Compost classification.

TEST METHOD	CLASSIFICATION		
	SEMI-MATURE	MATURE	CURED
Reduction of organic matter	20-40%	40-60%	>60%

3.0 Site Description

The landfill is regionally located in central Tom Green County of west-central Texas. Geographic coordinates are N 31^0-30'-21" and W 100^0-01'-33".

More locally, the landfill is along the northeast edge of the San Angelo City Limits (Figures 3.1 and 3.2). South of the landfill is Old Ballinger Highway. Along the north side is 50th Street and to the east is Covington Road.

Farmland adjoins the landfill on the east and north sides.

Adjoining the landfill on the west is farmland with a private airstrip. Farther to the west along Pruitt Drive are light industrial facilities (Figure 3.1). Across Old Ballinger Highway to the south at a distance of approximately 250-ft is a low density residential area (Figure 3.1). The residential area is separated from the landfill by the AT&SF Railroad and Old Ballinger Highway.

Nearest surface water is at the Concho River located 3.2 miles south of the facility. An intermittent tributary to the Concho River is 1.8 miles west of the facility (Figure 3.1). The facility is not within the 100-yr flood plain (refer to Figure 4.2 in the Leachate and Contaminated Water Plan).

The compost facility shall at all times be located within the facility boundaries (Figure 3.2). The setback distance shall be at least 50-ft from all property boundaries to the edge of any area receiving, processing, or storing feedstock or finished product. Composting activities shall not be located on a landfill cap unless prior approval is obtained from the Executive Director.

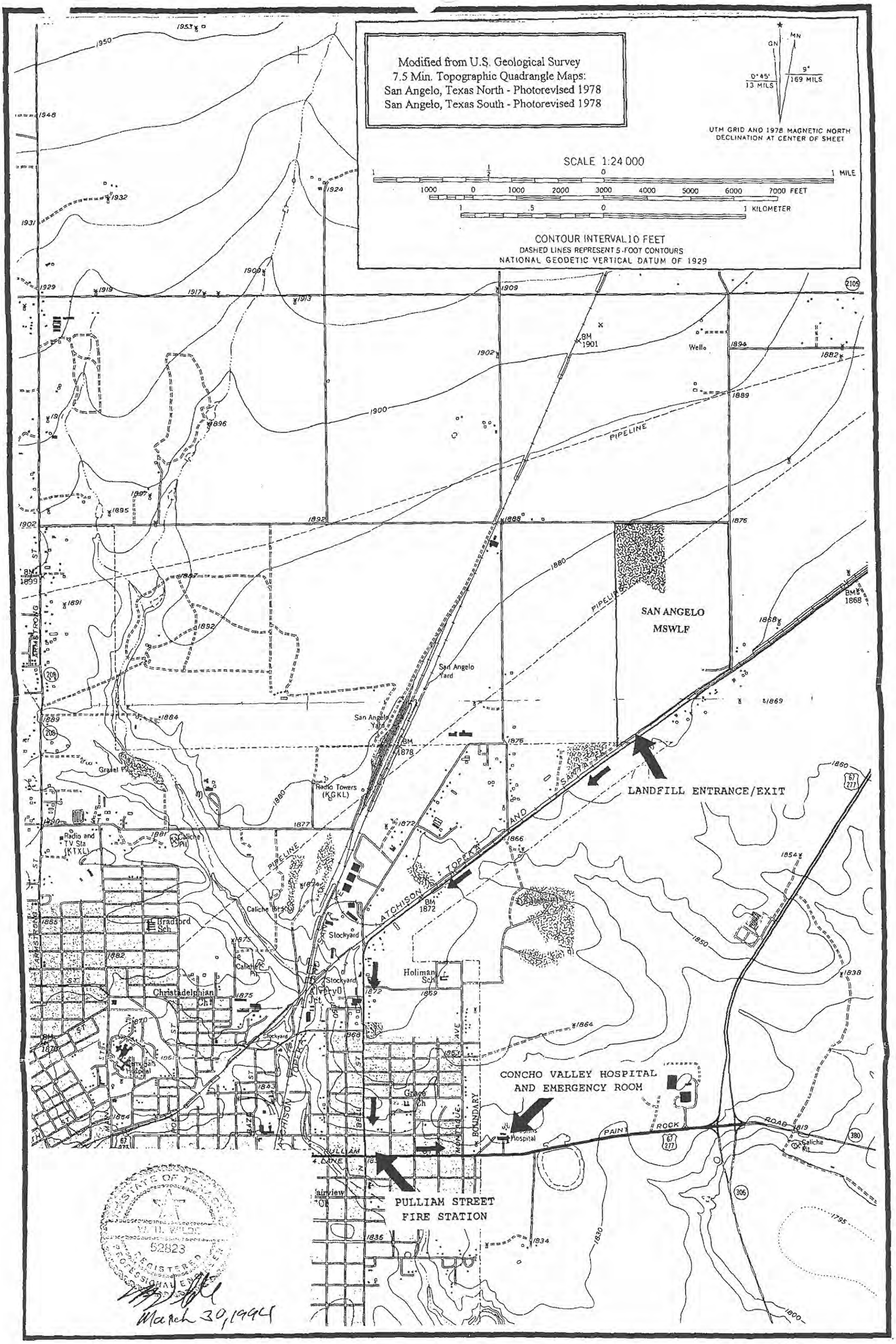
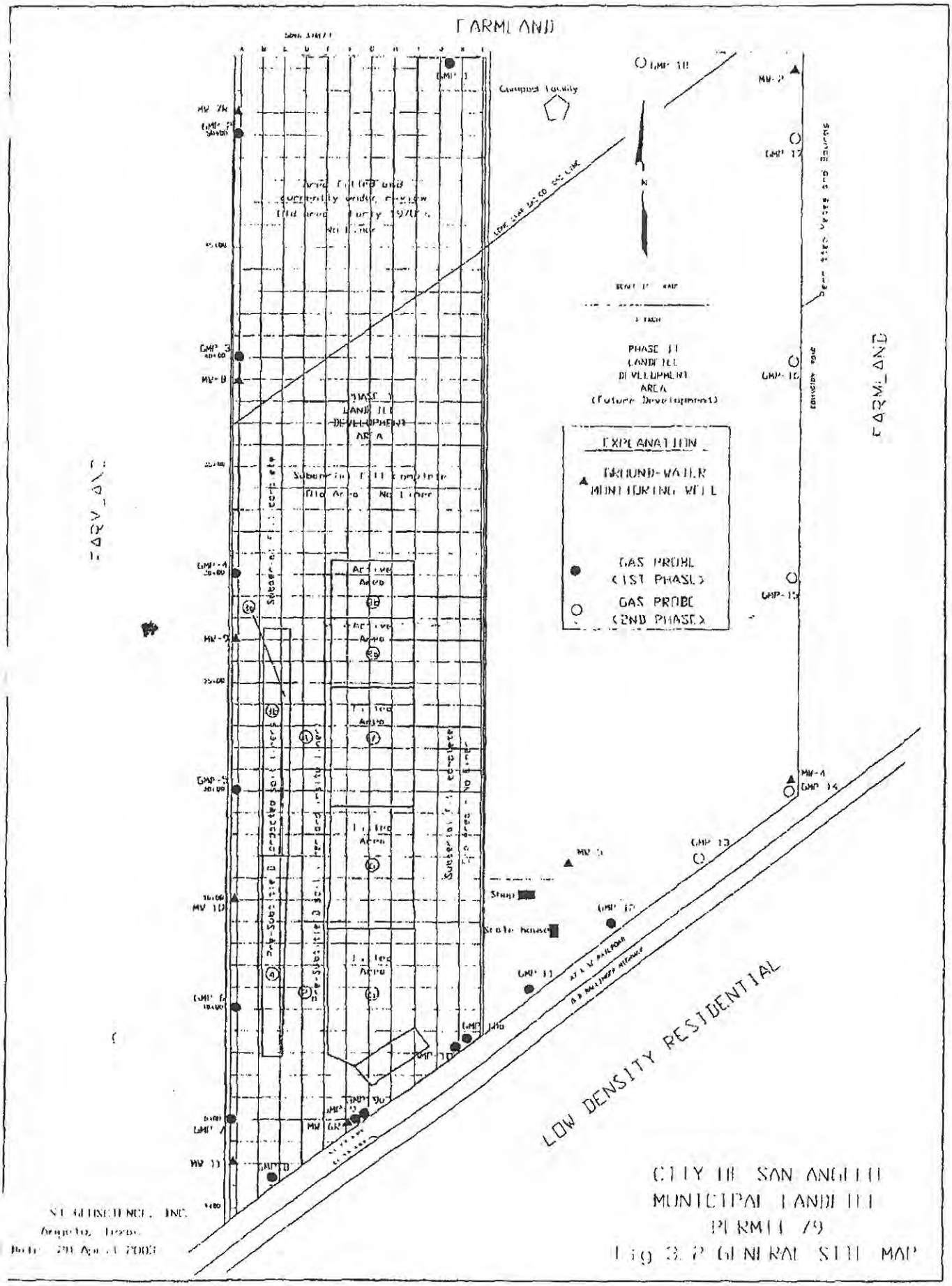


Figure 4.2.1 Area Map Showing Emergency Facilities.


FARMLAND
FARMLAND
FARMLAND
PHASE II
LANDFILL
DEVELOPMENT
AREA
(Future Development)
PHASE I
LANDFILL
DEVELOPMENT
AREA
EXPLANATION
GROUND-WATER
MONITORING WELL
GAS PROBE
(1ST PHASE)
GAS PROBE
(2ND PHASE)
Compost Facility
LOW DENSITY RESIDENTIAL
CITY OF SAN ANGELO
MUNICIPAL LANDFILL
PERMIT 79
Fig 3.2 GENERAL SITE MAP

4.0 Site Management

Operating hours for receipt of feedstock, incorporation of feedstock into the process, retrieval of product from the process, and/or shipping product are during normal site operating hours. Normal hours are anytime between 7:00 a.m. and 7:00 p.m. unless otherwise approved in the landfill permit or Site Development Plan. Operating hours shall be posted on the Site Sign at the landfill entrance.

To gain access to the compost area, vehicles must first enter through the front gate and immediately stop at the scale house/field office. The attendant will inspect the condition and contents. If the contents are acceptable, the driver will be informed of traffic control, maximum speed, and safety, then granted access to the facility. Site signs will be spaced along the route indicating directions, flow patterns, and the 10-mph speed limit to the compost area.

At the compost area, an operator will conduct a second load inspection. If the operator also finds that the load is acceptable, the driver will then be shown where to unload.

In case of emergencies, nearest medical facilities are listed in Appendix A of the Site Operating Plan.

5.0 Personnel

Personnel required to properly manage the compost facility include a Compost Supervisor, supporting operators, and the gate attendant.

The Compost Supervisor will be responsible for management of the composting facility according to the Compost Plan. The Compost Supervisor shall direct the supporting operators and gate attendant during all activities including feedstock receipt, stockpiling, processing, and distribution. The Compost Supervisor shall also be knowledgeable of the biochemical compost process and optimal compost conditions.

All employees involved with the compost facility shall be knowledgeable of Safety Procedures as described in the Safety/Contingency Plan (Appendix A of the Site Operating Plan).

6.0 Feedstock

Acceptable feedstock materials for a Notification Tier Compost Facility include any of the following materials:

- Animal carcasses;
- Yard trimmings;
- Clean wood material;
- Vegetative material;
- Paper; and
- Manure.

(Source: 30 TAC 332.3)

Before accepting any feedstock, the Compost Supervisor and operators must be knowledgeable of the definitions of these materials. The TCEQ defines the above listed materials as follows:

Yard trimmings consist of leaves, grass clippings, yard and garden debris, and brush, including clean woody vegetative material not greater than 6-in diameter, that results from landscaping maintenance and land-clearing operations. Yard trimmings do not include stumps, roots, or shrubs with intact root balls.

Clean wood material is wood or wood materials, including stumps, roots, or vegetation with intact rootball, sawdust, pallets and manufacturing rejects. Clean wood material does not include wood that has been treated, coated or painted by materials such as, but not limited to, paints, varnished, wood preservatives, or other chemical products. Clean wood material also does not include demolition material where the material is contaminated by materials such as but not limited to paint or other chemicals, glass, electrical wiring, metal and sheetrock.

Vegetative material is fruit, vegetable, or grain material whether raw, processed, liquid, solid, or cooked. Vegetative material does not include oils and/or greases that are derived from these same materials.

Paper is a material made from plant fibers (such as but not limited to wood pulp, rice hulls, and kenaf).

Manure is animal excreta and residual materials that have been used for bedding, sanitary, or feeding purposes for such animals.

Any type of operation, facility, or industry that produces any of the above listed materials are acceptable feedstock sources. Currently, most feedstock sources are from City of San Angelo residents, tree trimming companies, and landscape maintenance companies. There are a few industrial sources that supply mostly clean wood material and yard trimmings.

7.0 Waste Screening

Waste screening shall be conducted to ensure against acceptance of unauthorized or prohibited materials at the compost facility. The gate attendant, Compost Supervisor, and compost attendant(s) shall be responsible for waste screening. These employees shall be familiar with the landfill's waste screening plan as described in Appendix B of the Site Operating Plan, and, knowledgeable of acceptable feedstock (Section 6.0). If unacceptable materials are found, methods described in the waste screening plan will be followed.

8.0 Process

Proper operational procedures must be observed to ensure for a good quality, marketable product. The following section describes general operational procedures.

After the feedstock is delivered to the compost area and inspected by the compost operator, the feedstock will be

stockpiled until a sufficient volume is available for grinding. If the feedstock is bagged, the bags will be removed and contents inspected for unauthorized debris. Empty bags will either be properly landfilled or reused by the hauler.

Feedstock will then be processed in the tub grinder using precautions for minimizing dust (Section 12.0). The coarsely shredded material will then be used to form windrows approximately 5-ft tall with 3:1 side slopes. Water may be added to increase windrow moisture to the optimal percentage.

A windrow turner will be used to turn the windrows every 1-3 weeks except during the pathogen reduction period which requires more frequent turning as follows:

1. Using the static aerated pile method, materials will be maintained at 55 degrees C or higher for 3 days.

2. For windrow materials, temperature will be maintained at 55 degrees C or higher for 15 days with a minimum of 5 windrow turnings.

After reaching maturity, the compost will be screened by a trommel and placed into the finished compost stockpile. At this time, the product is available for sale. Currently, the product is sold in bulk form, but if future market conditions warrant, a bagging process may be used.

Water used for the composting process shall be uncontaminated. Landfill leachate shall not be used in any composting process. Fungicides, herbicides, insecticides or other pesticides that contain constituents listed in 40 CFR Part 261, Appendix VIII-Hazardous Constituents or on the Hazardous Substance List as

defined in CERCLA 1980 shall not be applied to or incorporated into feedstocks, in-process materials, or processed materials. Any release of a chemical of concern shall be corrected by following requirements in the Texas Risk Reduction Program.

9.0 Equipment

An adequate amount of well-maintained equipment is required to operate the compost facility in an efficient manner and in compliance with Municipal Solid Waste Department Regulations (MSWDR). It is the responsibility of the Compost Supervisor to evaluate equipment needs and make additions as necessary. Table 9.1 lists the current equipment and information for each piece of equipment.

Table 9.1 Current compost equipment.

Equipment	Equipment Use	Est. % Time in process	Est. labor hours
Loader	move compost, deliver feedstock	90	40hr/wk
Tub Grinder	grind feedstock	100	8hr/wk
Windrow turner	mix compost windrows	100	8hr/wk
Trommel screen	screen material	100	40hr/wk
Water truck	dust suppression	20	8hr/wk
Motor grader	road maintenance	10	8hr/wk

The estimated time for each piece of equipment is time spent during the composting process. The water truck is used for dust suppression and for road maintenance at the compost facility. The motor grader is also used for road maintenance.

The water truck and motor grader were purchased by the landfill operator (Trashaway Services, Inc). The other items were purchased by the City of San Angelo. Costs are recovered by depreciation using standard accounting methods. More accounting information may be obtained by calling the City of San Angelo Finance Department at 325/657-4239.

All vehicles should be equipped with a fire extinguisher, first-aid kit, rollover protection, and seat belts. A warning device should be installed and in proper working order to indicate whenever a vehicle is in reverse.

10.0 Marketing

Established markets in which mature compost is now being sold from the San Angelo facility include local residents, landscapers, and municipal properties owned by the City of San Angelo. Additional markets that are currently being targeted include but are not limited to the following:

Athletic fields
Farms
Golf Courses
Growers/Nurseries
Grounds Management
Land Reclamation
Landscape
Parks
Roadside facilities
Other Municipalities

In the future, a marketing plan may be prepared to further determine target markets, outline distribution channels, create a pricing structure, and designate the geographic marketing area. Local markets will especially be pursued.

11.0 Stormwater Control

The location of the compost facility within the landfill boundaries will not alter the perimeter runon/runoff control system described in the Runon/Runoff Control Plan. Peak runoff volumes have been calculated for numerous sub-areas by using the Rational Method, and perimeter ditches were designed to handle peak runoff volume during a 25-yr, 24-hr storm event (refer to Runon/Runoff Control Plan).

12.0 Air Quality

Pursuant to the Texas Clean Air Act (382.051), the compost facility is entitled to an air quality standard permit by complying with the following requirements:

(1) The setback distance shall be at least 50-ft from all property boundaries to the edge of the area(s) receiving, processing or storing feedstock or finished product.

(2) All permanent in-plant roads and vehicle work areas shall be watered, treated with dust-suppressant chemicals, or paved and cleaned as necessary to achieve maximum dust control emissions. Vehicular speeds on non-paved roads shall not exceed 10 mph.

(3) Except for initial start-up and shut-down, the receiving chamber on all grinders shall be adequately filled prior to commencement of grinding and remain filled during grinding operations to minimize emissions from the receiving chamber, or, grinding operations shall occur inside an enclosed structure. In addition, all grinders that are not enclosed inside a building shall be equipped with low-velocity fog nozzles spaced to create a continuous fog curtain, or, the operator shall have portable watering equipment available during the grinding operation. These controls shall be used as necessary for maximum dust control when stockpiling ground material.

(4) Any conveyor which off-loads materials from grinders at a point which is not enclosed inside a building shall have available a water or mechanical dust suppression system. These controls shall be used as necessary for maximum dust control when stockpiling ground material.

(5) Prior to receiving any material with a high odor potential the operator shall insure that there is an adequate volume of bulking material to blend with/cover the material, and shall begin processing the material in a manner that prevents nuisances.

The Compost Supervisor shall be responsible for ensuring compliance with the above listed requirements.

If there are any changes to the composting operation that would change the classification from a notification tier facility to a registration or permit facility as authorized under 332 TAC 332.3, the operation shall obtain an air quality standard permit for a registration or permitted composting operation.

13.0 Measurements of Materials

Measurements of materials shall be made during each quarter to meet requirements for record-keeping (Section 14.0), reporting (Section 15.0), and calculating the compost credit (Section 16.0). As a minimum, measurements shall be made on the following:

- Finished compost that is ready for beneficial reuse;
- The volume of finished compost removed from the facility and used offsite; and
- The volume of finished compost used onsite.

All volume measurements shall be reported in cubic yards. Measurements for the first item above shall be made by either using one, or a combination of standard measuring devices such as an engineering tape and/or a level rod. After measuring, the material shall be marked or segregated to insure that its volume will not be included in measurements of materials in the next quarter.

The last 2 items may be measured by recording the volumes and the number of containers in which the finished compost was loaded and transported.

14.0 Record-keeping Requirements

In order to receive a compost credit, the following records must be kept either onsite or at an approved alternate location and available to TCEQ personnel for compliance-auditing purposes:

- A signed, dated statement showing the volume of finished compost that is ready for beneficial reuse;

- A signed, dated record with receipts showing any compost removed from the compost facility and used for offsite beneficial use. This record shall indicate the date, volume, and recipient;

- A signed, dated record showing any compost removed from the compost facility and used for onsite beneficial use. This record shall indicate date, volume, and beneficial use(s);

- Documentation that any brush and/or mulch sent off-site for composting and beneficial reuse has actually been composted and reused; and

- Documentation of expenses for composting. The documentation must show the equipment and operator expenses for composting operations.

15.0 Reporting Requirements

To be eligible for the compost credit, a completed TCEQ compost refund form must be attached to the landfill's quarterly report. A current form is available from the TCEQ.

16.0 Compost Credit

The credit is equal to the equipment and operator expenses incurred as a direct result of composting operations.

Total credit during any fiscal year (September 1 - August 31) will not exceed either of the following:

- All allowable equipment and operator expenses for composting;
- 15% of the solid waste fees for the same fiscal year; or
- 20% of the of the solid waste fees for the same fiscal year if the facility bans disposal of yard waste.

17.0 References

U.S. Environmental Protection Agency (EPA), 1994, Characterization of Municipal Solid Waste in the United States: 1994 Update. EPA/530-S-94-042. U.S. EPA, Waste Management Division, Washington, D.C.

Wiedenfeld, C.C. and P.H. Flores, 1976, Soil Survey of Tom Green County, Texas: United States Department of Agriculture, Soil Conservation Service, in cooperation with the Texas Agricultural Experiment Station.

NOTICE OF INTENT TO OPERATE A COMPOST FACILITY
TNRCC COMPOST FORM NO. 1

Applicant Information:

Applicant Name:	City of San Angelo
Customer Reference Number - if known* **(9 digits)**	**CN**

* If you do not have this number, complete the customer information section of the Core Data Form (TNRCC-10400) and submit it with this application.

Facility Information:

Facility Name:	City of San Angelo MSWLF
Regulated Entity Reference Number - if known* **(9 digits)**	**RN**

* If you do not have this number, complete the regulated entity information section of the Core Data Form (TNRCC-10400) and submit it with this application.

Property Owners Information:

Name:	City of San Angelo MSWLF
Customer Reference Number - if known* **(9 digits)**	**CN**

* If you do not have this number, complete the customer information section of the Core Data Form (TNRCC-10400) and submit it with this application.

Contact Information:

Name	Bobby Pilkington
Title	General Manager

Site Location:

1. Provide a city or county roadway map with the site shown and labeled (attach as an exhibit).
2. Provide a description of how to get to the site from an intersection of two state roadways:
   Turn west from US 277 and Old Ballinger Hwy. Landfill is 1-mile.
3. Provide as an attachment, a list of adjacent property owners and their mailing address.
4. Legal description of the property
   2 Tracts of land out of WCRR Company Survey 179, Abs 4032, Tom Green County, Texas

Feed Stock Information:

	Feed Stock	Quantity (include rate of processing per day, month, or year.)
	Meat	
X	Dead Animal Carcasses	appx. 9000 lb/week (carcasses and/or blood)
	Fish	
	Oils and Greases	
	Dairy	
	Other (describe)	
	Other (describe)	

Process Description: (please provide enough detail in accordance with 30 TAC Chapter 332, Section 332.23).

Feedstock will be inspected by the operator to ensure that only acceptable materials are processed. A tub grinder will be used to shred the material. Shredded material will be placed in appx 5-ft tall windrows with appx 3:1 sideslopes. Water will be added as needed to maintain optimum moisture. A windrow turner will be used to turn the windrows every 1-3 weeks except during the pathogen reduction period which requires more frequent turning as follows: (1) Using the static aerated pile method, materials will be maintained at 55 deg C or higher for 3 days. (2) For windrow materials, temperature will be maintained at 55 deg C or higher for 15 days with a min. of 5 windrow turnings. After reaching maturity, the material will be screened by a trommel and placed into a finished compost pile.

Applicant's

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." [30 TAC §305.44(b)]

Bobby Pilkington

Signature of the Owner/Operator

4/10/06

Date

Bobby J. Pilkington

Printed Name

General Mgr.

Title

Attachments

This form is required by 30 Texas Administrative Code §332.21, and must be submitted prior to operating a composting facility that is required to notify the TNRCC as set forth in 30 TAC Chapter 332. The facility may begin operation thirty days following submittal of this form. Owners/operators are only required to meet the provisions set forth in §332.4 "General Requirements" and §332.22 "Operations Requiring Notification" of Chapter 332.

If you have any questions, please contact the Permits Section in the Municipal Solid Waste Division of TNRCC at (512) 239-6781.

Please submit completed form and, if needed, one or more TNRCC Core Data Form (TNRCC-10400) to:

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION
Waste Permits Division
MC 124/Municipal Solid Waste Permits Section
P.O. Box 13087
Austin, Texas 78711-3087

TNRCC Core Data Form

TNRCC Use Only

SECTION I: General Information

1. Reason for Submission *Example: new wastewater permit; IHW registration; change in customer information; etc.*
Compost facility - change from exempt tier to notification tier

2. Attachments ☑ Yes ☐ No
Describe Any Attachments: *(ex: Title V Application, Waste Transporter Application, etc.)*
Location map and adjacent property owners list

3. Customer Reference Number-*if issued*
CN *(9 digits)*

4. Regulated Entity Reference Number-*if issued*
RN *(9 digits)*

SECTION II: Customer Information

5. Customer Role *(Proposed or Actual)* -- As It Relates to the Regulated Entity Listed on This Form

Please check one of the following: ☐Owner ☑Operator ☐Owner and Operator
☐Occupational Licensee ☐Volunteer Cleanup Applicant ☐Other:

TNRCC Use Only ☐ Superfund ☐ PST ☐ Respondent

6. General Customer Information
☑New Customer ☐Change to Customer Information ☐Change in Regulated Entity Ownership ☐No Change*
*If "No Change" and Section I is complete, skip to Section III - Regulated Entity Information.

7. Type of Customer: ☐Individual ☐Sole Proprietorship - D.B.A. ☐Partnership ☑Corporation
☐Federal Government ☐State Government ☐County Government ☐City Government
Other Government Other

8. Customer Name *(If an individual, please print last name first)*
Trashaway Services, Inc.

9. Mailing Address: 1422 Hughes Street

City	State	ZIP	ZIP + 4
San Angelo	TX	76903	

10. Country Mailing Information *if outside USA*

11. E-Mail Address *if applicable*
bpilk4665@cox-internet.com

12. Telephone Number
(915) 655 - 6869

13. Extension or Code

14. Fax Number *if applicable*
(915) 659 - 4573

15. Federal Tax ID *(9 digits)*
650963067

16. State Franchise Tax ID Number *if applicable*

17. DUNS Number *if applicable (9 digits)*

18. Number of Employees
☑0-20 ☐21-100 ☐101-250 ☐251-500 ☐501 and higher

19. Independently Owned and Operated?
☑YES ☐NO

SECTION III: Regulated Entity Information

20. General Regulated Entity Information
☑New Regulated Entity ☐Change to Regulated Entity Information ☐No Change*
*If "No Change" and Section I is complete, skip to Section IV - Preparer Information.

21. Regulated Entity Name *(If an individual, please print last name first)*
City of San Angelo Municipal Solid Waste Landfill

22. Street Address: (No P.O. Boxes)	City of San Angelo Municipal Solid Waste Landfill Old Ballinger Highway - 2-mi northeast of San Angelo			
	City San Angelo	State TX	ZIP 76903	ZIP + 4
23. Mailing Address	Trashaway Services, Inc. 1422 Hughes Street			
	City San Angelo	State TX	ZIP 76903	ZIP + 4
24. E-Mail Address:				
25. Telephone Number (915) 655 - 6869	26. Extension or Code	27. Fax Number *if applicable* (915) 659 - 4573		
28. Primary SIC Code *(4 digits)* 4953	29. Secondary SIC Code *(4 digits)*	30. Primary NAICS Code *(5 or 6 digits)*	31. Secondary NAICS Code *(5 or 6 digits)*	
32. What is the Primary Business of this entity? *(Please do not repeat the SIC or NAICS description.)* Solid Waste Disposal				
Questions 33 - 37 address geographic location. Please refer to the instructions for applicability.				
33. County: Tom Green				
34. Description of Physical Location 1 mile west from intersection of US HWY 277 and Old Ballinger Highway				
35. Nearest City San Angelo		State TX	Nearest ZIP 76903	

36. Latitude (N)			37. Longitude (W)		
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
31	30	13	100	23	24

38. TNRCC Programs In Which This Regulated Entity Participates *Not all programs have been listed. Please add to this list as needed. If you don't know or are unsure, please mark "unknown."*

☐ Animal Feeding Operation	☐ Petroleum Storage Tank	☐ Water Rights
☐ Title V – Air	☐ Wastewater Permit	☐ _____
☐ Industrial & Hazardous Waste	☐ Water Districts	☐ _____
☑ Municipal Solid Waste	☐ Water Utilities	☐ Unknown
☐ New Source Review - Air	☐ Licensing - TYPE(s) _____	

SECTION IV: Preparer Information

39. Name Kyle Combest		40. Title Env. Geologist
41. Telephone Number (915) 655 - 4302	42. Extension or Code	43. Fax Number *If applicable* (915) 655 - 4304
44. E-Mail Address: kcombest@combestgeoscience.com		

TNRCC Core Data Form

TNRCC Use Only

SECTION I: General Information

1. Reason for Submission *Example: new wastewater permit; IHW registration; change in customer information; etc.*
Compost facility - change from exempt tier to notification tier

2. Attachments ☑ Yes ☐ No
Describe Any Attachments: *(ex: Title V Application, Waste Transporter Application, etc.)*
Location map and adjacent property owners list

3. Customer Reference Number-*If Issued*
CN *(9 digits)*

4. Regulated Entity Reference Number-*if issued*
RN *(9 digits)*

SECTION II: Customer Information

5. Customer Role *(Proposed or Actual)* -- As It Relates to the Regulated Entity Listed on This Form

Please check one of the following: ☑ Owner ☐ Operator ☐ Owner and Operator
☐ Occupational Licensee ☐ Volunteer Cleanup Applicant ☐ Other: _____

TNRCC Use Only ☐ Superfund ☐ PST ☐ Respondent

6. General Customer Information
☑ New Customer ☐ Change to Customer Information ☐ Change in Regulated Entity Ownership ☐ No Change*
*If "No Change" and Section I is complete, skip to Section III - Regulated Entity Information.

7. Type of Customer: ☐ Individual ☐ Sole Proprietorship - D.B.A. ☐ Partnership ☐ Corporation
☐ Federal Government ☐ State Government ☐ County Government ☑ City Government
Other Government _____ Other _____

8. Customer Name *(If an individual, please print last name first)*
City of San Angelo, Texas

9. Mailing Address: City of San Angelo
P.O. Box 1751

City	State	ZIP	ZIP + 4
San Angelo	TX	76902	1751

10. Country Mailing Information *if outside USA*

11. E-Mail Address *if applicable*

12. Telephone Number
(915) 657 - 4206

13. Extension or Code

14. Fax Number *if applicable*
(915) 655 - 6397

15. Federal Tax ID *(9 digits)*
756000659

16. State Franchise Tax ID Number *if applicable*

17. DUNS Number *if applicable (9 digits)*
113544576

18. Number of Employees
☐ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☑ 501 and higher

19. Independently Owned and Operated?
☑ YES ☐ NO

SECTION III: Regulated Entity Information

20. General Regulated Entity Information
☑ New Regulated Entity ☐ Change to Regulated Entity Information ☐ No Change*
*If "No Change" and Section I is complete, skip to Section IV - Preparer Information.

21. Regulated Entity Name *(If an individual, please print last name first)*
City of San Angelo Municipal Solid Waste Landfill

22. Street Address:	City of San Angelo Municipal Solid Waste Landfill			
(No P.O. Boxes)	Old Ballinger Highway - 2-mi northeast of San Angelo			
	City San Angelo	State TX	ZIP 76903	ZIP + 4
23. Mailing Address	City of San Angelo			
	P.O. Box 1751			
	City San Angelo	State TX	ZIP 76902	ZIP + 4 1751

24. E-Mail Address:

25. Telephone Number	26. Extension or Code	27. Fax Number *if applicable*
(915) 657 - 4206		(915) 655 - 6397

28. Primary SIC Code *(4 digits)*	29. Secondary SIC Code *(4 digits)*	30. Primary NAICS Code *(5 or 6 digits)*	31. Secondary NAICS Code *(5 or 6 digits)*
4953			

32. What is the Primary Business of this entity? *(Please do not repeat the SIC or NAICS description.)*
Solid Waste Disposal

Questions 33 - 37 address geographic location. Please refer to the instructions for applicability.

33. County: Tom Green

34. Description of Physical Location
1 mile west from intersection of US HWY 277 and Old Ballinger Highway

35. Nearest City	State	Nearest ZIP
San Angelo	TX	76903

36. Latitude (N)			37. Longitude (W)		
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
31	30	13	100	23	24

38. TNRCC Programs In Which This Regulated Entity Participates *Not all programs have been listed. Please add to this list as needed. If you don't know or are unsure, please mark "unknown."*

☐ Animal Feeding Operation	☐ Petroleum Storage Tank	☐ Water Rights
☐ Title V – Air	☐ Wastewater Permit	☐ _____
☐ Industrial & Hazardous Waste	☐ Water Districts	☐ _____
☑ Municipal Solid Waste	☐ Water Utilities	☐ Unknown
☐ New Source Review - Air	☐ Licensing - TYPE(s) _____	

SECTION IV: Preparer Information

39. Name	40. Title
Kyle Combest	Env. Geologist

41. Telephone Number	42. Extension or Code	43. Fax Number *if applicable*
(915) 655 - 4302		(915) 655 - 4304

44. E-Mail Address: kcombest@combestgeoscience.com

WM. C. WILSON, JR. CONALD L. WILLIAMS FREDERICK O. LANGOHR

WILSON, WILLIAMS, LANGOHR
AND ASSOCIATES
LICENSED STATE LAND &
REGISTERED PUBLIC SURVEYORS
PHONE 915/653-3916 – P. O. BOX 3326
1514 WEST BEAUREGARD AVE.
SAN ANGELO, TEXAS 76902

Description
131.535 acres

Being 131.535 acres of land out of the middle part of W. C. R.R. Co. Survey 179, Abstract 4032, Tom Green county, Texas and being all of that certain "131" acre tract conveyed from City National Bank of San Angelo to the City of San Angelo, Texas by deed dated January 10, 1978 and recorded in Volume 669 at page 562 of the Deed Records of Tom Green County, Texas. Said 131.535 acres of land being described by metes and bounds as follows:

Beginning at a 5/8" iron rod having coordinates on the Texas Coordinate System-Central Zone of Y=670,958.53 feet and X=1,981,165.72 feet, set in the South line of an East-West county road known as "50th Street" or "Dump Ground Road" for the N.W. corner of this tract from which the N.W. corner of said Survey 179 bears N.0°15'02"E. 25.00 feet and N.89°40'11"W. 2600.72 feet.

Thence with the South line of said county road, S.89°40'11"E. 1169.44 feet to a 5/8" iron rod having coordinates of Y=670,951.80 feet and X=1,982,335.14 feet, set for the N.E. corner of this tract in the West line of that certain "131.7" acre tract conveyed from S. A. McCarroll, et ux to D. D. Wall by deed dated July 13, 1939 and recorded in Volume 201 at page 550 of said Deed Records from which a 5/8" iron rod set for the N.W. corner of said "131.7" acre tract in the North line of said Survey 179 bears N.0°15'02"E. 25.00 feet.

Thence with the West line of said "131.7" acre tract, parallel to the West line of said Survey 179, S.0°15'02"W., at 3.67 feet pass 2.11 feet N.89°40'11"W. from a N.W. fence corner post, in all 4468.93 feet to a 5/8" iron rod having coordinates of Y=666,482.91 feet and X=1,982,315.60 feet set for the S.E. corner of this tract in the N.W. right-of-way line of A. T. & S. F. Railroad from which a 3/4" iron pipe found near a S.W. fence corner for the occupied S.W. corner of that certain "5" acre tract conveyed from D. D. Wall to I. J. Curtsinger, County Judge by deed dated March 8, 1948 and recorded in Volume 267 at page 77 of said Deed Records bears N.53°43'15"E. 40.82 feet and S.0°03'18"W. 0.96 feet.

Thence with said N.W. Railroad right-of-way line parallel to and 50.00 feet from the centerline of said railroad, S.53°43'15"W. 1326.36 feet to a 5/8" iron rod having coordinates of Y=665,698.08 et and X=1,981,246.36 feet set in the South line of said Survey .9 for an angle corner of this tract from which a fence corner post

found at the S.E. corner of said Survey 179 bears S.89°51'58"E. 2563.15 feet. Said corner post for the S.E. corner of Survey 179 being the same one described in deed from John Gordon McGill, et al to Paul Gregory, et ux dated May 21, 1975 and recorded in Volume 625 at page 873 of said Deed Records.

Thence with the South line of said Survey 179 and the North line of J. Poitevent Survey 1113, N.89°51'58"W. 103.64 feet to a 5/8" iron rod having coordinates of Y=665,698.32 feet and X=1,981,142.72 feet set for the S.W. corner of this tract from which a 3/4" iron pipe found in road for the S.W. corner of said Survey 179 bears N.89°51'58"W. 2600.72 feet.

Thence parallel to the West line of said Survey 179, N.0°15'02"E., at 10.99 feet pass the West edge of a S.E. fence corner post, at 1477.94 feet pass the East edge of a N.E. fence corner post, in all 5260.27 feet to the place of beginning and containing 131.535 acres of land.

NOTE: Courses, distances and coordinates recited herein refer to the Texas Coordinate System-Central Zone.

Surveyed on the ground under my supervision April 27, 1983.



Douglas A. Baker
Douglas A. Baker
Registered Public Surveyor No. 3992
San Angelo, Texas

WILSON, WILLIAMS, LANGOHR
AND ASSOCIATES
LICENSED STATE LAND &
REGISTERED PUBLIC SURVEYORS
PHONE 915-653-3916 - P. O. BOX 3330
1514 WEST BEAUREGARD AVE.
SAN ANGELO, TEXAS 76902

Description
137.449 Acres

Being 137.449 acres of land including 2.359 acres in county roads on the North and East sides, 1.912 acres fenced out on the West side and 7.680 acres in Old U.S. Highway 67 (no easement found in abstract) and A. T. & S. F. Railroad Right-of-way on the South side as described in deed from John Gaddis to The Gulf Colorado and Santa Fe Railway Co. dated June 2, 1888 and recorded in Volume Y at page 109 of the Deed Records of Tom Green County, Texas and being subject to that certain 30 foot wide strip on the East side described in deed for road purposes from W. A. Gaddis to Oscar Frink, County Judge dated December 4, 1916 and recorded in Volume 78 at page 563 of said Deed Records. Said 137.449 acres also being subject to a Right-of-way deed from S.A. McCarroll, et al to Western Gas Service Co. dated August 9, 1927 and recorded in Volume 138 at page 13 of said Deed Records and to a Right-of-way deed from D. D. Wall to Lone Star Gas Co. dated April 6, 1949 and recorded in Volume 283 at page 19 of said Deed Records. Said 137.449 acres being all of that certain "131.7" acre tract conveyed from S. A. McCarroll, et ux to D. D. Wall by deed dated July 13, 1939 and recorded in Volume 201 at page 550 of said Deed Records except that certain "5" acres conveyed from D. D. Wall to I. J. Curtsinger, County Judge by deed dated March 8, 1948 and recorded in Volume 267 at page 77 of said Deed Records. Said 137.449 acres being out of the N.E. part of W. C. R.R. Co. Survey 179, Abstract 4032, Tom Green County, Texas and being described by metes and bounds as follows:

Beginning at a 5/8" iron rod having coordinates on the Texas Coordinate System-Central Zone of Y=670,976.79 feet and X=1,982,335.25 feet set in pavement in an East-West county road, known as "50th Street" or "Dump Ground Road" for the N.W. corner of this tract from which a 5/8" iron rod set for the N.E. corner of that certain "131" acre tract conveyed from the First City National Bank of San Angelo to the City of San Angelo by deed dated January 10, 1978 and recorded in Volume 669 at page 562 of id Deed Records bears S.0°15'02"W. 25.00 feet. Said beginning " iron rod being in the North line of said Survey 179 located 70.16 feet S.89°40'11"E. from its N.W. corner.

Thence with the North line of said Survey 179 and the North line of said "131.7" acre tract, S.89°40'11"E., at 2.11 feet a N.W. fence corner post bears S.0°15'02"W. 28.67 feet, at 1162.93 feet cross gas line, at 1450.63 feet pass the West line of said 30 foot wide strip described in deed recorded in Volume 78 at page 561, at 1468.45 feet a N.E. fence corner post bears S.0°07'24"W. 28.67 feet, in all 1485.63 feet to a 5/8" iron rod having coordinates of Y=670,968.23 feet and X=1,983,820.86 feet, set in a North-South county road for the N.E. corner of said Survey 179 and the N.E. corner of this tract in a West line of J. Poitevent Survey 1113 from which the N.W. corner of J. Pollan Survey 3 bears N.0°07'24"E.

Thence with the East line of said Survey 179, the East line of said "131.7" acre tract, the East line of said 30 foot wide strip and the West line of said Survey 1113, S.0°07'24"W., at 3385.81 feet pass a 5/8" iron rod having coordinates of Y=667,582.44 feet and X=1,983,813.57 feet set in the N.W. right-of-way line of said A. T. & S. F. Railroad for the S.E. corner of said 30 foot wide strip from which its S.W. corner bears S.53°43'15"W. 37.29 feet and the point of intersection of said N.W. right-of-way with the fenced West line of said North-South county road bears S.53°43'15"W. 23.09 feet, in all 3609.45 feet to a point in the S.E. right-of-way line of said Old U.S. Highway No. 67 for the deed call S.E. corner of said "131.7"

...re tract from which a fence corner post for the S.E. corner of ...d Survey 179 bears S.0°07'24"W. 1657.71 feet. Said fence corner ...st for the S.E. corner of Survey 179 being the same one described in deed from John Gordon McGill, et al to Paul L. Greogry & Wife dated May 21, 1975 and recorded in Volume 625 at page 873 of said Deed Records.

Thence with the S.E. right-of-way line of Old U.S. Highway 67 and the S.E. line of said "131.7" acre tract, S.53°43'15"W. 1858.81 feet to a point for the Deed call S.W. corner of said "131.7" acre tract.

Thence across said highway and railroad right-of-way, parallel to the West line of said Survey 179 with the West line of said "131.7" acre tract N.0°15'02"E. 224.01 feet to a 5/8" iron rod having coordinates of Y=666,482.91 feet and X=1,982,315.60 feet set in the N.W. right-of-way line of A. T. & S. F. Railroad for the S.E. corner of said "131" acre tract from which a 3/4" iron pipe found in road for the S.W. corner of said Survey 179 bears S.53°43'15"W. 1326.36 feet and N.89°51'58"W. 2704.36 feet.

Thence with said N.W. right-of-way line, to and with the S.E. line of said "5" acre tract, N.53°43'15"E., at 40.82 feet the S.W. corner of said "5" acre tract from which a found 3/4" iron pipe bears S.0°03'18"E. 0.96 feet, in all 536.35 feet to a point for the S.E. corner of said "5" acre tract from which a Cedar corner post bears S.0°08'10"E. 0.48 feet.

Thence with the fenced East line of said "5" acre tract, N.0°08'10"W. 398.49 feet to a Cedar corner post for the N.E. corner of said "5" acre tract.

Thence with the fenced North line of said "5" acre tract, S.89°55'40"W. 398.02 feet to a 2" iron pipe fence corner post in a North-South fence for the occupied N.W. corner of said "5" acre tract.

Thence with the fenced West line of said "5" acre tract, S.0°03'18"W. 691.32 feet to the said S.W. corner of said "5" acre tract.

...ce with said N.W. right-of-way line of A. T. & S. F. Railroad, ...3°43'15"W. 40.82 feet to said 5/8" iron rod for the S.E. corner of said "131" acre tract.

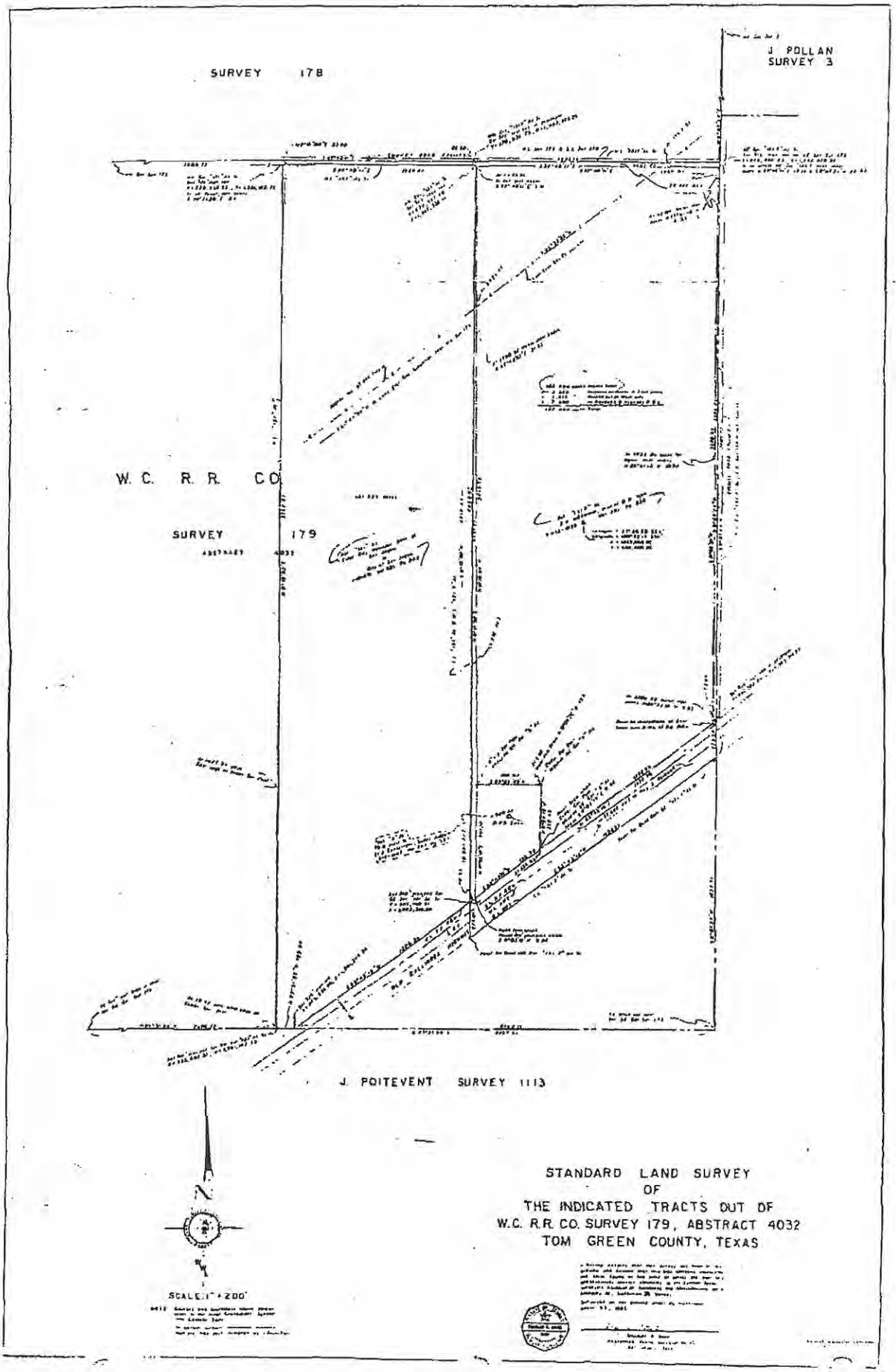
Thence with the East line of said "131" acre tract and the West line of said "131.7" acre tract, parallel to the West line of said Survey 179, N.0°15'02"E., at 3625.46 feet cross said gas line, at 4465.26 feet pass 2.11 feet N.89°40'11"W. from first said N.W. fence corner post, at 4468.93 feet pass said 5/8" iron rod set for the N.E. corner of said "131" acre tract, in all 4493.93 feet to the place of beginning and containing 137.449 acres of land.

NOTE: Courses, distances and coordinates recited herein refer to to the Texas Coordinate System-Central Zone.

Surveyed on the ground April 27, 1983.

STATE OF TEXAS
DOUGLAS A. BAKER
3992
REGISTERED PUBLIC SURVEYOR

Douglas A. Baker
Registered Public Surveyor No. 3992
San Angelo, Texas


J POLLAN
SURVEY 3
SURVEY 178
W. C. R. R. CO
SURVEY 179
J. POITEVENT SURVEY 1113
N
SCALE: 1" = 200'
STANDARD LAND SURVEY
OF
THE INDICATED TRACTS OUT OF
W.C. R.R. CO. SURVEY 179, ABSTRACT 4032
TOM GREEN COUNTY, TEXAS

APPENDIX IVC

LIQUID STABILIZATION PLAN

(APPROVED BY TCEQ AS PERMIT MODIFICATION OCTOBER 2003)

Robert J. Huston, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
Kathleen Hartnett White, *Commissioner*
Margaret Hoffman, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

October 9, 2003

Mr. Will H. Wilde, P.E., R.P.S.
Public Works Director
City of San Angelo
P.O. Box 1751
San Angelo, TX 76902

Re: Municipal Solid Waste (MSW) - Tom Green County
City of San Angelo Landfill - Permit No. MSW-79
Notice Permit Modification: Addition of a Solidification Facility and Liquid Waste Acceptance Plan
RN 102289576, CN 600251615, Mail Log No. 03-2712

Dear Mr. Wilde:

Enclosed is a copy of the above referenced permit modification for a municipal solid waste facility issued pursuant to Chapter 361, Texas Health and Safety Code prepared for your permit modification request dated January 28, 2003, received in this office on February 4, 2003, and revised on April 29, 2003 and July 10, 2003. The request is to modify the referenced existing permit by adding a Solidification Facility and Liquid Waste Acceptance Plan, in accordance with Title 30 of the Texas Administrative Code (TAC), Section (§) 305.70. The documentation, including the application, prepared and submitted to support the modification request shall be considered a part of this permit and shall be considered as operational requirements of this permit.

If you have any questions or comments regarding this letter, please contact Mr. Mario A. Perez, Sr., at MC-124, P.O. Box 13087, Austin, Texas 78711-3087; telephone number (512) 239-6681.

Sincerely,

Richard C. Carmichael, Ph.D., P.E., CIH
Manager, MSW Permits Section
Waste Permits Division

RCR/map

cc: Mr. Ron Jones, P.E., Greystone Engineering, 3321 Foster Street, San Angelo, TX 76903
Mr. Adam Hernandez, TCEQ Region 8 - San Angelo

Enclosure

P.O. Box 13087 • Austin, Texas 78711-3087 • 512/239-1000 • Internet address: www.tceq.state.tx.us
printed on recycled paper using soy-based ink

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

MODIFICATION TO

MUNICIPAL SOLID WASTE PERMIT Nº MSW- 79

CITY OF SAN ANGELO LANDFILL

Municipal Solid Waste Permit No. MSW- 79 is hereby modified as follows:

Description of Change:

The addition of a Liquid Waste Solidification Plan which includes the process description, site development plan and site operating plan for the management of liquid solidification.

The addition of a Liquid Waste Acceptance Plan which includes the evaluation criteria, record-keeping requirements, spill control contingency plan, and procedures for the acceptance, handling, processing, and disposal of liquid wastes.

Permit Section Revised:
Addition of a Liquid Waste Solidification Plan, dated July 10, 2003, signed and sealed by Mr. Ronald W. Jones, P.E., of Greystone Engineering, Inc.
Addition of a Liquid Waste Acceptance Plan, dated July 10, 2003, signed and sealed by Mr. Ronald W. Jones, P.E., of Greystone Engineering, Inc.

Please be aware that after the date of issuance of this modification and within 180 days following the TCEQ publishing technical guidance for the development of a Site Operating Plan (SOP) for a municipal solid waste management facility, the permittee shall review their SOP for compliance with the published guidance and provide revisions as necessary as a modification to the SOP of this permit for agency approval.

This modification is a part of Permit No. MSW-79 and should be attached thereto.

APPROVED, ISSUED, AND EFFECTIVE in accordance with 30 Texas Administrative Code (TAC) Section (§)305.70(k)(6).

ISSUED DATE: OCT 01 2003

Margaret Hoffman

For the Commission

CITY OF SAN ANGELO LANDFILL
SAN ANGELO, TEXAS

TCEQ MSW PERMIT NO. 0079A

LIQUID WASTE SOLIDIFICATION PLAN

Prepared for
The City of San Angelo, Texas
July 10, 2003

Prepared By
Greystone Engineering, Inc.
3321 Foster Street
San Angelo, Texas 76903
915-942-6645



Ronald W Jones

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1	INTRODUCTION	3
2	SITE DEVELOPMENT PLAN	3
3	PROCESS DESCRIPTION	3
	3.1 Overview	3
	3.2 Inspections	4
	3.3 Solidification at the Permanent Solidification Area	4
4	SITE OPERATING PLAN	5
4	ADDITIONAL ITEMS	5

Figure 01 Liquid Waste Solidification Site Location Map & Prevailing Wind Direction
Figure 02 Liquid Waste Solidification Site Dimension Layout
Figure 03 Liquid Waste Solidification Site Typical Sections (Dimension)
Figure 04 Liquid Waste Solidification Site Typical Sections (Construction)

1. INTRODUCTION

The City of San Angelo Landfill will provide for the solidification of liquid wastes that are accepted at the landfill. The liquid wastes will be solidified with absorbent materials prior to placement in the active area of the landfill.

This system will be a "permanent solidification" process.

2. SITE DEVELOPMENT PLAN

The site of the system will be in the north central part of the currently permitted landfill site immediately south of 50th Street. The system liner construction will consist of:

- an earthen basin lined with a 60 mil HDPE Flexible Membrane Liner (FML);
- 6" of select cover material placed over the FML and subsequently compacted and
- 18" of select material stabilized with 7% cement placed over the 6" lift of cover material in a maximum of 9" lifts and subsequently compacted.

The system will consist of an East basin and a West basin which will have an available depth of 5' with a minimum of 2' of freeboard. When necessary the basins will communicate via a 12" conduit through a separation wall. The flowline of the 12" conduit will be 2' below the top of the separation wall and screens will be installed at the East terminus and West terminus of the 12" conduit.

Ancillary facilities for the system include an "unloading pad" which will be constructed South of and contiguous to the system basins. The "unloading pad" will be constructed with a 3% maximum longitudinal slope toward the basins in order that spilled liquid waste will drain into the basins.

3. PROCESS DESCRIPTION

3.1 Overview

Incoming liquid wastes that require solidification will be placed directly into the permanent solidification facility basins for processing. The only incoming liquid waste which will be accepted is that which can be emptied directly into the solidification basins.

Transporters will be advised that liquid waste will not be accepted at the facility until further notice during

- periods of inclement weather,

- periods when solidification activities cannot take place due to lack of available volume in the solidification basins or
- other periods when solidification cannot occur.

3.2 Inspections

The staff of the landfill operator will perform inspections of the solidification area each day the process is operated. Any spillage will be immediately removed from the site and placed into the solidification process. This material will also be solidified in accordance with the procedures stated herein.

3.3 Solidification at the Permanent Solidification Area

The San Angelo landfill will provide for the solidification of liquid wastes at the herein described solidification area for routine acceptance of such wastes from area generators or transporters.

- Select admixture material will be added and typically mixed with a front end loader or similar type equipment.
- Typical admixture materials include cement, lime, uncontaminated on site soils, or other absorbent materials. Mix ratios of admixture to the liquids being solidified will be variable and dependent upon the type of admixture employed including but not limited to its absorptive capacity and initial moisture content.
- A site location map, a site dimension layout and site typical sections are set forth at Figures 01, 02, 03 and 04.

Mixing will occur only in the solidification basins and such mixing will continue until a consistent solidified material is obtained. Representative samples of the mix will be collected. If any free liquid is observed in such samples, additional admixtures will be induced into the material to be solidified and mixed until a uniform consistency of the material is achieved.

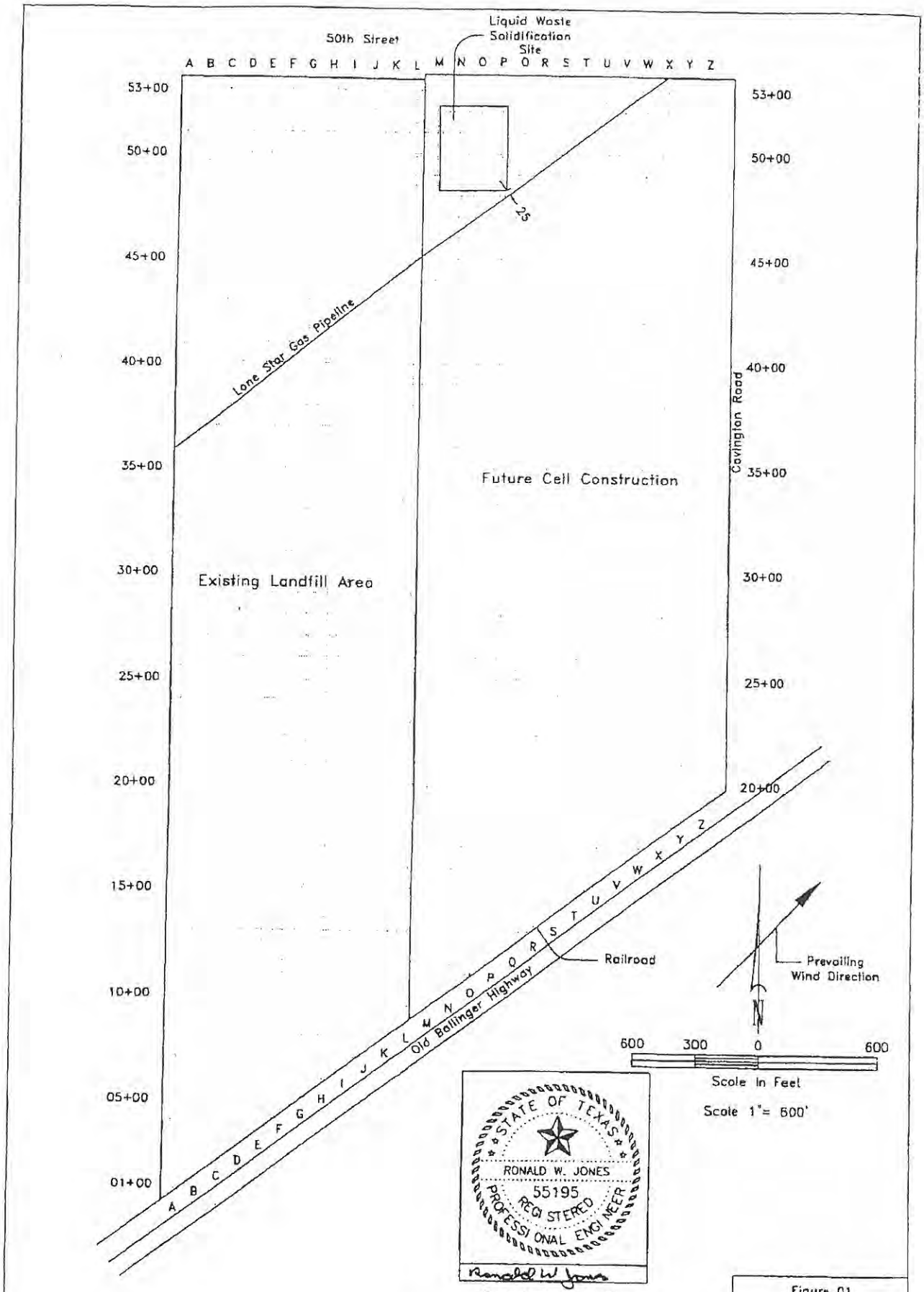
- A representative sample will then be collected and the Paint Filter Test (EPA Method 9095, SW-846) will be conducted. If the sample passes the Paint Filter Test, the solidified material will be removed from the basin and placed in the active working face of the landfill.
- If the sample fails the Paint Filter Test then additional admixture will be induced into the material and mixed until the solidified material passes the Paint Filter Test.
- The frequency of the Paint Filter Tests will be variable but with adequate testing performed to insure that each batch of material is mixed until appropriately solidified.
- Typically verification that no free liquids are present in the material will require at least one Paint Filter Test per basin of solidified liquid.

4 SITE OPERATING PLAN

- The personnel employed in the operations of the liquid waste solidification site will be a front end loader operator who will be under the supervision of the landfill manager or his designee. A gate attendant will perform the functions set forth in the Liquid Waste Acceptance Plan under the supervision of the landfill manager or his designee.
- The loader which is utilized for the induction of the admixtures into the liquid waste as well as the mixing will be a Caterpillar 950 loader or equal.
- Detailed procedures which will be followed by the landfill staff are set forth herein at Item 3, Process Description and at Item 5, Additional Items.
- No instructions, other than those set forth herein, will be necessary for the operation of the liquid waste solidification facility.

5. ADDITIONAL ITEMS

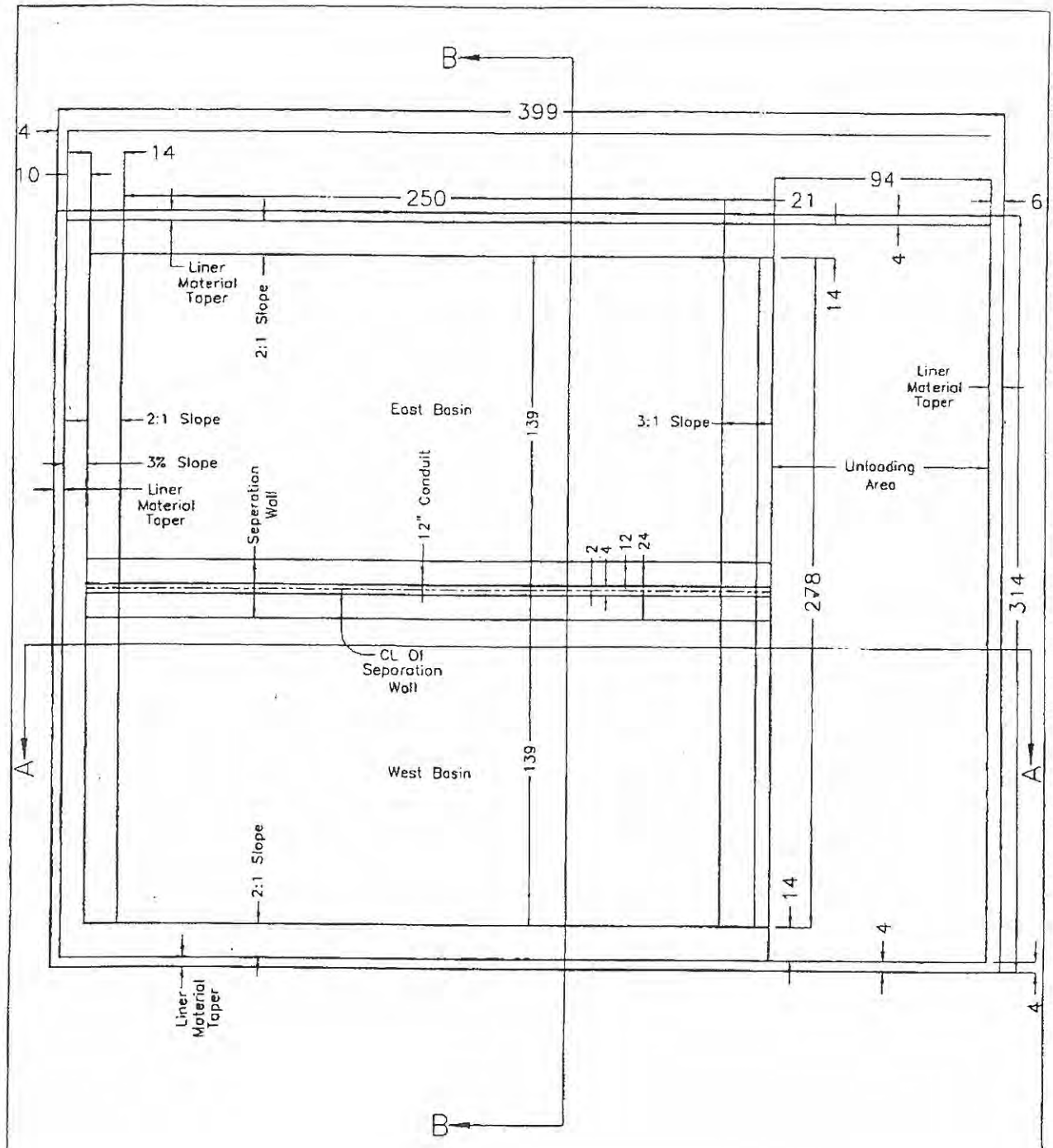
- Solidification admixtures which are highly dispersible will not be used during windy periods. No solidification will take place when winds are of sufficient velocity to disperse any of the admixture materials outside of the permitted landfill boundary.
- The solidification basins will be constructed at elevations which will prevent run on and run off from a rainfall event.
- The solidification site is remote from existing residences, businesses or other facilities that would be affected by odors which may be created at the solidification site.
- The current liquid waste annual disposal volume at the City of San Angelo's wastewater treatment facility is approximately 2.3 million gallons. The volume of the proposed basins excluding the 2' of freeboard is 2.7 million gallons.
- The 24 hour - 100 year rainfall event for the landfill site is 8.5 inches. This value is taken from The U.S. Department of Commerce, Technical Paper No. 40, Rainfall Frequency Atlas of the United States. As the available freeboard for the solidification basins is 24.0 inches the 24 hour – 100 year rainfall event will not cause overflow of the solidification basins.
- The free liquids present in the upper portions of the solidification basins will be removed from the solidification process and utilized for dust control.



The seal appearing on this document was authorized by Ronald W. Jones, P.E. 55195 on July 10, 2003

Figure 01
Liquid Waste Solidification Site
Location Map & Prevailing Wind Direction

D:\S\COSA_LF\LIQUID_2003\FIG_01C.DWG



STATE OF TEXAS
RONALD W. JONES
55195
REGISTERED
PROFESSIONAL ENGINEER

Ronald W Jones

The seal appearing on this document was authorized by Ronald W. Jones, P.E. 55195 on July 10, 2003

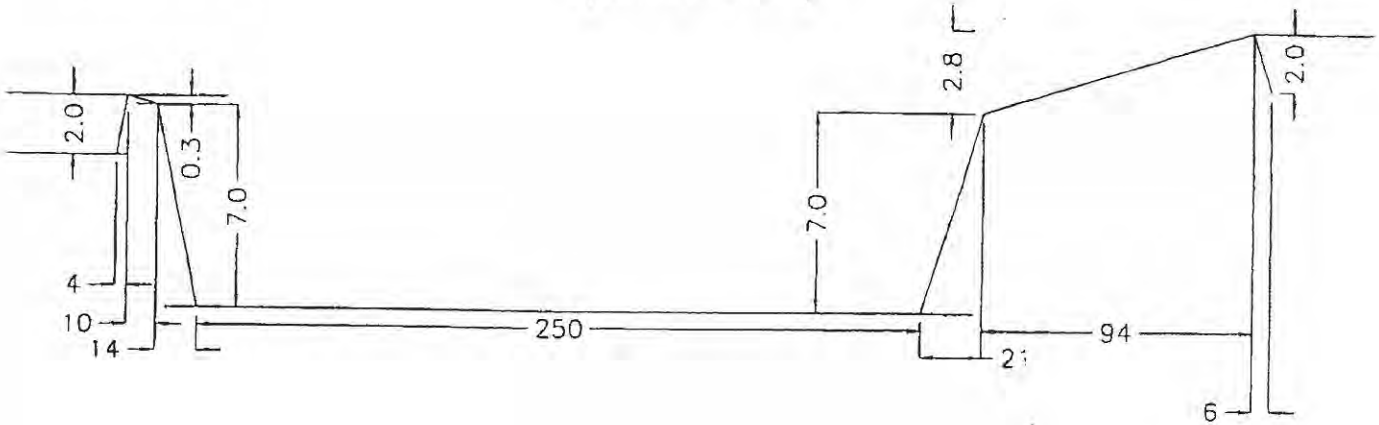
Horizontal Scale
1" = 60'

Figure 02
Liquid Waste
Solidification Site
Dimension Layout

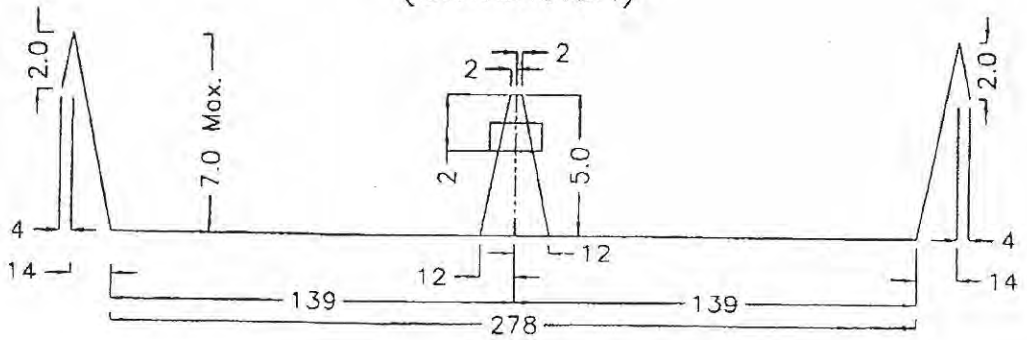
D:\S\COSA_LF\LIQUID_2003\FIG_02C.DWG

IVC-10

Section A–A (Dimension)



Section B–B (Dimension)



STATE OF TEXAS
RONALD W. JONES
55195
REGISTERED
PROFESSIONAL ENGINEER

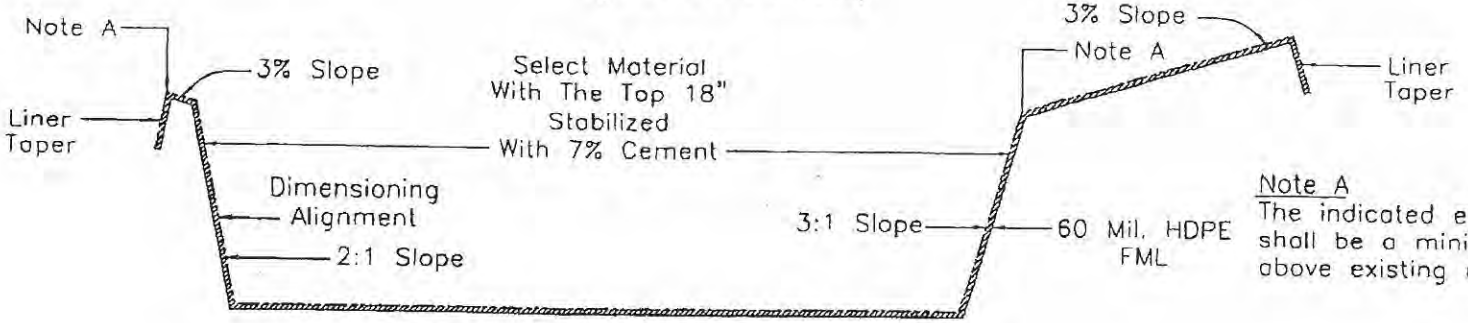
The seal appearing on this document was authorized by Ronald W. Jones, P.E. 55195 on July 10, 2003

Horizontal Scale
1" = 60'
Vertical NTS

Figure 03
Liquid Waste
Solidification Site
Typical Sections
(Dimension)

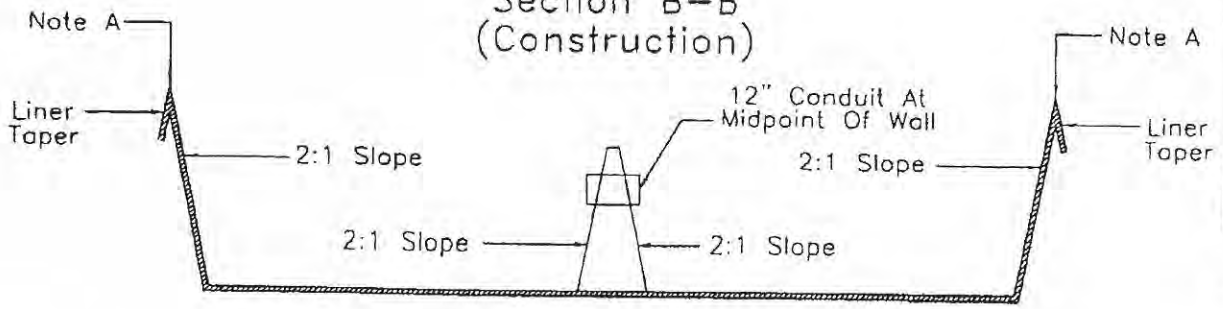
D:\S\COSA_LF\LIQUID_2003\FIG_03C.DWG

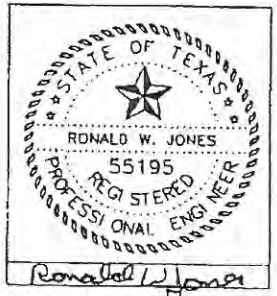
Section A–A (Construction)



Note A
The indicated elevation shall be a minimum of 2' above existing elevations.

Section B–B (Construction)

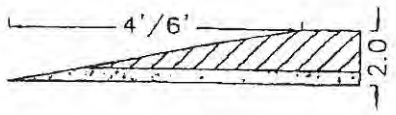




The seal appearing on this document was authorized by Ronald W. Jones, P.E. 55195 on July 10, 2003

Horizontal Scale
1" = 60'
Vertical NTS

Liner Taper



Typical Liner Section

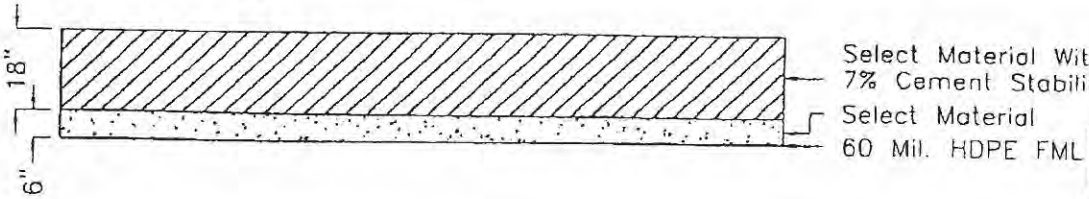


Figure 04
Liquid Waste Solidification Site
Typical Sections (Construction)

D:\S\COSA_LF\LIQUID_2003\FIG_04B.DWG

SAN ANGELO LANDFILL
TOM GREEN COUNTY, TEXAS
TCEQ PERMIT NO. MSW 79

PERMIT MODIFICATION
APPENDIX IVD
ALTERNATIVE DAILY COVER OPERATING PLAN

Prepared for

City of San Angelo

August 2006



Prepared by

BIGGS & MATHEWS ENVIRONMENTAL
1700 Robert Road • Mansfield, Texas 76063 • 817-563-1144

CONTENTS

1 INTRODUCTION (30 TAC §330.165(d)) IVD-1

2 MATERIAL CHARACTERISTICS (30 TAC §330.165(d)(1)(A,B,D AND E)) . IVD-2
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2.2 Chemical Characteristics IVD-2
2.3 Effectiveness IVD-2

3 OPERATIONAL METHODS (30 TAC §330.165(d)(1)(C)) IVD-3
3.1 Tarp ADC Materials IVD-3

4 ADC VERIFICATION AND INSPECTION PROCEDURES (30 TAC §330.165(d)(2)) IVD-4
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4.2 Verification and Inspection Procedures IVD-4

APPENDIX IVD-A
DURASHIELD/THOROSHIELD

APPENDIX IVD-B
Fabrisoil

APPENDIX IVD-C
Geomembrane Materials

APPENDIX IVD-D
Temporary Authorization Approval Letters



1 INTRODUCTION
(30 TAC §330.165(d))

This Alternative Daily Cover Operating Plan (ADCOP) has been prepared for the San Angelo Landfill consistent with §330.165(d). The purpose of this ADCOP is to address the following issues.

- Description and thickness of the proposed Alternative Daily Cover (ADC) material
- Effect of the ADC on vectors, fire, odors, and windblown litter
- Operation methods to be utilized at the site when using the ADC
- Chemical composition of the material

As specified in the Site Operating Plan (SOP), ADC may be used to cover exposed waste except when the landfill is to be closed for a period greater than 24 hours (unless otherwise approved by the TCEQ). ADC may also be used to cover exposed waste in lieu of soil daily cover. However, if the area in which ADC has been used is not filled over with waste within 24 hours, the area will be covered with a minimum of six inches of daily cover soil.

The ADC material listed in this ADCOP has been allowed for use at the site on a temporary basis. The ADC material has been demonstrated to be used effectively for a period of 6-months. Refer to Appendix IVD-D for a copy of the Temporary Authorization Approval received from the TCEQ.

2 MATERIAL CHARACTERISTICS
(30 TAC §330.165(d)(1)(A,B,D and E))

2.1 Description of Tarps

The following types of tarp may be used at the site. Other tarp materials by other manufacturers that have similar characteristics may be used at the City of San Angelo Landfill. In accordance with §330.165(d)(1)(A), the ADC materials are as follows:

- DURASHIELD – DURASHIELD 10,000 and THOROSHIELD 850 are manufactured by THOR Enterprises, Ltd. The site will use the fire retardant version of this ADC material. The tarp is manufactured in panels. The thickness of the tarp material is approximately 20 mils. This material is reported to have a 5,000-pound tensile strength. Additional information is provided in Appendix IVD-A.

- Fabrisoil – Fabrisoil is an engineered geotextile manufactured by Phillips 66. The material deploys in panels. The thickness of the geotextile material is approximately 20 mils. Additional information is provided in Appendix IVD-B.

- Tarps – Tarps consisting of other materials such as flexible membrane liner panels may be used as ADC. The flexible membrane liner panels will be heat welded together. The flexible membrane will consist of 60 mil HDPE geomembrane panels that are excess material from liner construction projects. Additional information is provided in Appendix IVD-C.

2.2 Chemical Characteristics

In accordance with §330.165(d)(1)(D) the chemical characteristics of each ADC material are included in Appendices IVD-A through IVD-C. The liner or tarp materials are manufactured products consisting of polyethylene or polypropylene materials. Each of the ADC materials are not reactive, ignitable, or corrosive under the expected conditions (e.g., high temperature, intense sunlight).

2.3 Effectiveness

In accordance with §330.165(d)(1)(B), the ADC materials to be used at the San Angelo Landfill have proven to be effective on vectors, fires, odors, and windblown litter and waste. The materials identified for use as ADC materials have been used on other facilities operated in Texas. Materials effectiveness will be included in the status reports as required by §330.165(d)(2) and Section 4 of this ADCOP.

3 OPERATIONAL METHODS
(30 TAC §330.165(d)(1)(C))

The following subsection discusses the operational procedures that will be used to employ the approved ADC materials. For each type of ADC, landfill personnel will verify that the waste fill area has been covered with the minimum required thickness at the completion of each working day.

3.1 Tarp ADC Materials

The DURASHIELD, Fabrisoil, and other tarp or liner materials will be deployed as listed below.

- Panels of ADC material will be pulled over the working face.
- The perimeter of the tarps will be anchored approximately every 20 feet with dirt, tires, sandbags, or similar material to keep the tarp in place and prevent vector intrusion.
- The tarps will be removed the following morning and stored in an inactive area.

4 ADC VERIFICATION AND INSPECTION PROCEDURES (30 TAC §330.165(d)(2))

4.1 ADC Performance

Each of the ADC materials included in this plan have been successfully used at other MSW landfill sites in Texas to control, vectors, fires, odors, and windblown litter and waste. By separating the waste material at the active face from the atmosphere, the tarp ADC material will prevent wind from contacting the waste material and windblown waste will therefore be prevented. In addition, the tarp will serve as a physical barrier, which will prevent access of the active face area by vectors. A fire-retardant version of the tarp will be used in order to control fires. By creating a physical barrier between the waste and atmosphere, tarps will minimize odor potential (e.g., odors generated by landfill gas at the working face are trapped beneath the tarp).

4.2 Verification and Inspection Procedures

At the end of each working day landfill personnel will inspect the working face to confirm that the minimum thickness of an approved ADC has been placed over the working face in accordance with this ADCOP. Landfill personnel will routinely assess the effectiveness of each ADC in controlling vectors, fires, odors, and windblown waste. Daily application of ADC will be documented and maintained in the site operating record.

In the event that the ADC does not control vectors, fires, odors, or windblown waste, then the ADC application process will be re-evaluated to ensure that this ADC material adequately covers the working face and serves its intended purpose. Any required changes to the ADC operational procedures will be documented in the site operating record.

APPENDIX IVD-A

DURASHIELD/THOROSHIELD

WOVEN POLYOLEFIN FABRIC

NOVA-THENE®

NOVA-THENE
FR10-6A
DATA SHEET

DS10000FR

DESCRIPTION:	Premium flame retardant coated fabrics for mining applications.
COUNT:	Nominal 10 x 10 tapes/inch
WEIGHT:	7.0 oz per square yard (235 gsm)
TENSILE STRENGTH: (Grab Method)	Warp - 200 lbs (890 N) ASTM D751 (Meth. A)
	Weft - 200 lbs (890 N)
TEAR STRENGTH: (Conqui Method)	Warp - 62 lbs (275 N) ASTM D751 (Meth. B)
	Weft - 62 lbs (275 N)
MULLEN BURST:	440 p.s.i. (3035 kPa) ASTM D751
COATING THICKNESS:	2.2 mil average, two sides (56 microns)
SCRIM TYPE:	Clear tapes (1600 denier F.R.)
COLOUR:	Pale yellow
WIDTH:	Up to 144 inches (3660 mm)

These values are typical data and are not intended as limiting specifications.

MSHA certification number: MSHA 7B-161/1

BMAR Canada Certification No. 878

With anti-static grid (FR10-6 ASTAT) No. 879

DS 0890

Polymer International a division of Intertape Polymer Inc.
P.O. Box 458, Aitken Avenue, Truro, Nova Scotia, Canada B2N 5G6 Tel.: (902) 895-1601 FAX: (902) 893-4794

FACSIMILE COVER PAGE

To:	DAVID MASK	Time:	10:29:12
From :	DAVE URBAN	Date:	02/08/96
Subject:	QU SPEC SHEET -TSB50 DS10,000FR		
ages (including cover):	4		

GOOD MORNING

PLEASE SEE FOLLOWING

BOTH MATERIAL MEED NFPA 701 LARGE SCALE
FIRE TEST (STRICTEST PROCEDURE)
BOTH ARE IMPERMEABLE WHICH MEANS OUT FLOW OF ODORS
AND INFLOW OF WATER ARE CONTAINED

LITTER IS CONTAINED AS WELL IF THE EDGES ARE
SECURED WITH TIRES, CABLE, SAND BAGS ETC TO
KEEP THE WIND FROM GETTING UNDER THE COVER.

DISEASE VECTORS ARE CONTAINED AS WELL WITH AN
IMPERMEABLE MATERIAL BY NOT ALLOWING FLIES AND
MOSQUITOES TO GET TO THE GARBAGE.

BASICALLY YOU ARE FORMING AN IMPENTRABLE LAYER
OVER THE TRASH BY PUTTING THE MATERIAL DOWN.

THANKS,
/E

MATERIAL SAFETY DATA SHEET

OCTOBER 1990

SECTION 1: PRODUCT IDENTIFICATION

Name: Dura Shield 10,000 FR

Description: Extrusion Laminated Polyolefin

Manufacturer: Thor Enterprises

Address: 12910 Broadmeade
Austin, TX 78754
Telephone: 800/223-8467

SECTION 2: HAZARDOUS INGREDIENTS

These products are not considered to be hazardous, and are not classed as "controlled products". They principally comprise polyethylene which is non hazardous. Colored fabrics contain minor quantities of proprietary pigment additives some of which in their pure forms are a health hazard. In low concentration locked in the fabric structure however they do not make the fabric a hazardous product. More details on specific products and colors may be available on request.

SECTION 3: PHYSICAL DATA

B

oiling Point:	Not applicable (N/A)
Melting Point Range:	105 degrees - 145 degrees C
Specific Gravity:	Typically 0.94 - 0.98 (Material will float)
Solubility in Water:	0
% Volatiles:	<0.1
Appearance.	Flexible sheet
Odor:	N/A

THOROSHIELD™ SPECIFICATIONS

HIGH STRENGTH NYLON-REINFORCED PROTECTIVE SHEETING

PRODUCT DESIGNATION: *THOROSHIELD 850 FR*

SPECIFICATIONS: Biaxially oriented cross laminated fire retardant polyolefin sheet, extrusion laminated to top and bottom of non-wicking, non-layered scrim reinforcement. Contains no vinyls or adhesives - 5 ply.

PROPERTY		TEST METHOD(S)	VALUE
Standard Weight		ASTM D 1910-75 FED STD 191; Method 5041	6.1 oz/yd² 4.2 #/msf
Thickness		ASTM D 2103 FED STD 191; Method 5030	16 mils (0.001")
Tensile Strength (3" Grab)	MD TD	ASTM D 882; D 638 FED STD 406; Method 1013	132 #/inch width 136 #/inch width
Elongation	MD TD	ASTM D 882-88 FED STD 406; Method 1013	22.4% scrim 28% scrim 800+ % film
Tear Strength (PPT)		ASTM D 2582	14000 grams
Impact Strength		ASTM D 781	285 psi
Life Expectancy (Temperature Range)		FED STD 191; Method 5804 ASTM D 1693; D 746	24-30 months -40°F to +175°F
Seam Strength	(Peel) (Shear)	FED STD 91; Method 5970 ASTM D 1708	7.0 psi 95%
Bacterial Resistance		ANSI/ASTM G 22-76	Inert; No Loss
Fungi Resistance		ANSI/ASTM G 21-70; 75	Inert; No Loss
Leachable Chlorides		ASTM 512	Less than .001 ppm
Fire Retardancy		NFPA 701 large scale	Pass

ThoroShield protective fabrics are manufactured 100% in the U.S.A. ThoroShield is available in Stock Rolls from 4'x100' to 40'x100'; Grommetted Tarpaulins of any size(s) with grommets at 3' centers in a triple-folded, double-stitched, nylap reinforced hem; five-sided pallet and lumber covers, super-size covers and liners up to 30,000 square feet each: tubing and bags; with such options as velcro-closures, drawstrings, and pipeloops.

THE INFORMATION CONTAINED IN THIS DATA SHEET IS, TO OUR BEST KNOWLEDGE, TRUE AND ACCURATE. NOTHING CONTAINED HEREIN IS TO BE CONSTRUED AS A RECOMMENDATION TO USE ANY PRODUCT AS SUITABLE FOR A PARTICULAR APPLICATION. NO WARRANTIES ARE EXPRESSED OR IMPLIED THAT THIS WILL MEET ANY STANDARDS OTHER THAN THOSE STATED HERE AND WHEN USED UNDER NORMAL CONDITIONS. IN ALL CASES, INDEPENDENT TESTING IS RECOMMENDED TO VERIFY THE PROPERTIES AND VALUES REQUIRED FOR A PARTICULAR APPLICATION. SEE SALES TERMS AND CONDITIONS FOR COMPLETE DESCRIPTION OF WARRANTIES AND PURCHASE DETAILS.

APPENDIX IVD-B

FABRISOIL

PHILLIPS 66 ENGINEERED GEOTEXTILES

Fabrisoil®

Landfill Daily Cover

CASE HISTORY

No. 21 November, 199(

PROJECT: Rowan County landfill, Salisbury, N.C.

PROBLEM: Determine the most economical way to cover daily refuse. Traditionally refuse added daily is covered by soil. Hauling and spreading soil is costly, time-consuming, and takes up valuable landfill space.

SOLUTION: Fabrisoil – a unique reusable landfill daily cover fabric manufactured by Phillips Fibers Corporation – offers a more economical, technically superior system than using soil for daily cover.

COST SAVINGS: Based on an average working face of 100 ft. by 100 ft., Rowan County officials expect to save almost $600,000 per year using Fabrisoil, instead of soil, for daily cover.*

LANDFILL DESIGN

Rowan County landfill, Salisbury, N.C. – a 375 acre site – has initially allotted 22 acres for solid (household and municipal) waste. Constructed in eight cells, each 2½ acres in size and 65 feet deep when filled.

It is the first landfill in North Carolina to comply with the new state regulations mandating use of a liner for a solid waste landfill.



Each of the 8 cells comprising the present Rowan County landfill is 2½ acres and 65 ft. deep when filled.

A 60 mil HDPE liner was installed for leachate collection over a natural clay base. A 12 oz./yd. geotextile fabric was placed with 12" of gravel on top; next an 8 oz. geotextile was placed followed by 12" of dirt. Design was by Dewberry & Davis of Raleigh, N.C.

The initial 22-acre site is expected to be filled in 5-7 years.

* Contact Phillips for detailed information.

INSTALLATION

Fabrisoil is strong and sturdy enough to be repeatedly pulled into place over compacted refuse by existing landfill equipment such as a dozer or compactor. Fabrisoil is unrolled along the working face. Attach the leading edge of the unrolled panel to your equipment (i.e., the top of the blade). Attach with rope, chains, hooks, or clamps.

If the area is small (e.g., 30 x 50 ft.), two men can easily install Fabrisoil, pulling it by the edges along the refuse.

Secure the edges with tires or sandbags at the end of each day.

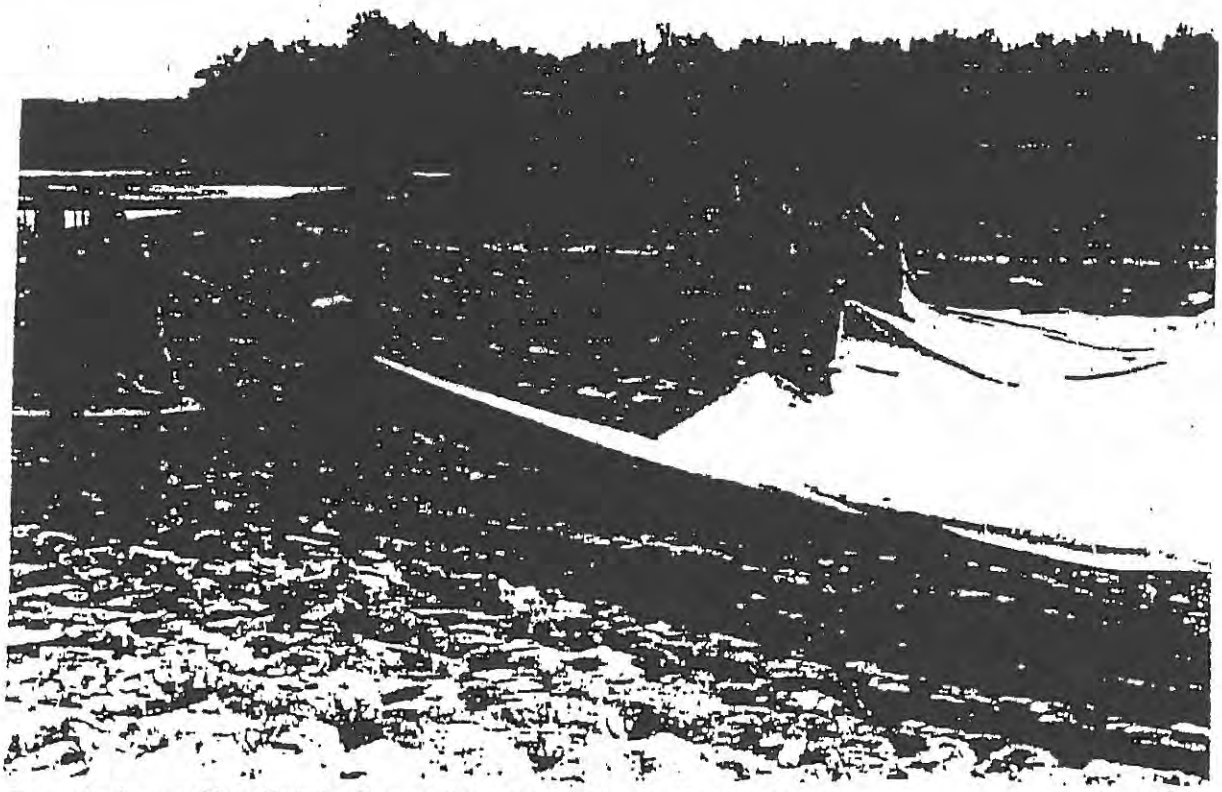
To remove Fabrisoil the next day, simply remove tires or sandbags. Pull the Fabrisoil panel across itself (to reduce drag) and deposit the fabric in an inactive area.

OTHER INSTALLATION CONSIDERATIONS

Fabrisoil is designed as landfill daily cover commonly on a 3:1 slope. For best results it is recommended that the area to be covered should be kept as close as possible to square, not exceeding 120 ft. by 120 ft. in size. Larger areas may take three pieces of landfill equipment to pull Fabrisoil across the compacted refuse.



Fabrisoil is strong and sturdy enough to be pulled into place over compacted refuse by existing landfill equipment.



Completing pulling Fabrisoil over the 100 ft. by 100 ft. working face.

ORDERING FABRISOIL

Panels of Fabrisoil can be constructed to landfill operators' specifications. Determine the size of the area to be covered, allowing 5' - 10' extra on each measurement to ensure refuse is completely covered.

Fabrisoil is shipped to your landfill with panels folded accordion-style, then rolled up.

SUMMARY

Following benefits of Fabrisoil are being gained by landfill operators:

- Cost effective
- Extends the life of a landfill by saving valuable airspace
- Provides complete cover
- Easy to install
- Reusable
- Controls disease vectors
- Reduces need for dirt (soil)
- Suppresses vapors and odors
- Minimizes surface water infiltration
- Allows for cover in wet and frozen conditions
- Chemically inert and environmentally safe
- Prevents litter blow-away and waste erosion
- Lowers maintenance cost and increases tipping revenues
- Ensures maximum recovery of methane and leachate
- Extends the planning period for your next landfill site



Fabrisoil provides complete cover, is easy to install even in wet or freezing conditions, suppresses vapors and odors, prevents litter blow-away, and controls disease vectors. Fabrisoil is shipped tailored to specifications of individual landfills with ruggedly sewn seams.

For information call:



WESTERN ZONE
1900 Point West Way
Suite 261
Sacramento, CA 95815
(916) 924-3151
(800) 437-6600

WITHIN California
(800) 952-5769

EASTERN ZONE
Box 66
Greenville, SC 29602
(803) 242-6600
(800) 845-5737
except South Carolina

PHILLIPS FIBERS CORPORATION
A SUBSIDIARY OF PHILLIPS 66 COMPANY
ENGINEERED PRODUCTS MARKETING
P.O. BOX 66, GREENVILLE, SC 29602 (803) 242-6600

document reports accurate and reliable information to the best of our knowledge, but our suggestions and recommendations cannot be anteed because the conditions of use are beyond our control. Information presented herein is given without reference to any patent questions uch may be encountered in the use thereof. Such questions should be investigated by those using this information. Phillips Fibers Corporation ssumes no responsibility for the use of information presented herein and hereby expressly disclaims all liability in regards to such use.

*Trademark Phillips Petroleum Company

01115BR

FABRISOIL*

DAILY COVER MATERIAL SPECIFICATION

August 1990

The daily cover shall be a fabricated panel of nonwoven material. The nonwoven material shall be made from polypropylene staple fibers formed into a stable network by needlepunching and then heat set on both surfaces. Nonwoven construction is specified to provide the elongation and seam strength critical to the daily cover application. The staple fiber, needlepunched, heat set construction provides a three dimensional structure which resists getting caught on trash, and will not delaminate when reused. Polypropylene is specified because of its light weight and because of its low moisture absorption and resistance to microbial growth helping to keep it odor free if it is used repeatedly. The daily cover shall conform to the following minimum specific properties, each of which represents a critical performance property for daily cover as briefly described beneath each property.

PROPERTY/TEST METHOD	MINIMUM VALUE
ELONGATION/ASTM D-4632 (Ability to conform to irregular surfaces and not bridge voids, to accept limited traffic, and to resist the rigors of reuse)	50%
MULLEN BURST/ASTM D-3786 (Biaxial resistance to puncture from protruding landfill objects and compactor damage)	290 psi
APPARENT OPENING SIZE/ASTM D-4751 (Denotes a tight structure for odor control, vector control and reusability)	120 (maximum opening size)
AIR PERMEABILITY/ASTM D-737 (Restricts air movement for odor control and dispersion yet allows landfill drying)	100-250 cfm/ft^2
WATER REPELLENCY/FTMS-5522 (Modified) (To resist precipitation infiltration into the landfill)	30 grams of water, maximum
MOISTURE ABSORPTION (fiber polymer)/ASTM D-1909 (To resist the odor and contamination associated with moisture gain)	0.[illegible] maximum by weight
SEAM STRENGTH/ASTM D-1683 (To eliminate separation of sewn panels which would require field seam repair and allow sewn-in handling features along panel edges)	100% material strength in the seam (panel material fails away from seam)
FRICTION/ASTM PROPOSED TEST METHOD (To resist wind uplift and to promote internal stability and equipment operating safety)	32° (coefficient of static friction)
EEL ADHESION/ASTM D-2724 (To prevent delamination of panel material allowing repetitive use durability)	Material structure shall not delaminate (peel apart)

*Registered Trademark of Phillips Petroleum Company

APPENDIX IVD-C

GEOMEMBRANE MATERIALS

MATERIAL SAFETY DATA SHEET

POLY-AMERICA LP
2000 WEST MARSHALL DRIVE
GRAND PRAIRIE, TEXAS 75051

PRODUCT	GEOMEMBRANE HD

IMPORTANT:
Poly-America LP urges each customer or recipient of this Material Safety Data Sheet to study it carefully to become aware of and understand the hazards associated with the product. The reader should consider consulting reference works or individuals who are experts in ventilation, toxicology or fire prevention, as necessary or appropriate to use and understand the data contained in this MSDS.

NOTICE:
This product is not FDA, CPSC or NSF compliant. It is unsuitable for use in applications such as direct or indirect food contact, toys, medical device or pharmaceutical applications or for potable water application.

SECTION I — IDENTIFICATION

Chemical Name:	CAS Number:
Polyethylene	9002-88-4
Ethylene-Butene Copolymer	25087-34-7

SECTION II — COMPOSITION

Polymer resins may be described by one of the following:

	CAS No.	AGGIH TLV	AGGIH STEL	OSHA PEL	OSHA STEL	WL%	Carcinogenic Listing *
Polyethylene	9002-88-4	N/L	N/L	N/L	N/L	97-99	N/L
Ethylene-Butene Copolymer	25213-02-09	N/L	N/L	N/L	N/L	97-99	N/L
Carbon Black	1333-86-4	N/L	N/L	N/L	N/L	1.5-3.0	N/L
Additive	Various	N/L	N/L	N/L	N/L	<1	N/L

* 1= OSHA 2= IARC 3= NTP 4= Others N/L= Not listed

SECTION III — PHYSICAL PROPERTIES

Emergency Overview This material is NOT HAZARDOUS by OSHA Hazard Communication

Boiling Point:	Not applicable	**Form:**	Woven and Non-Woven Fabric
Vapor Pressure:	Not applicable	**Odor:**	None
Solubility in Water:	Nil	**Density:**	.930 - .960 gm/cc

SECTION IV — FIRE AND EXPLOSION HAZARD DATA

Flash Point:	600 – 650°F
Flammable Limits:	Not applicable
Fire Fighting:	Use water to extinguish the fire and cool surfaces. Other types of extinguishers may also be used. Use NIOSH approved self-contained breathing apparatus when fighting fires in enclosed areas. Use flooding quantities of water until well after the fire is out.
Decomposition Products:	CO2; H2, and under lean oxygen conditions, CO

SECTION V REACTIVITY

Stability:	Stable
Conditions to Avoid:	Temperatures over 300°C can cause degradation.
Reactive Polymerization:	Does not occur
Incompatibility:	None

SECTION VI HEALTH

Eye:	Solid of dust may cause irritation or corneal injury due to mechanical action
Inhalation:	Negligible hazard at ambient temperature.
Skin Contact:	Negligible hazard
Exposure Limits:	No limit established for polyethylene
Ingestion:	Minimal toxicity
First Aid:	If ingested, no known health effect. Skin contact with molten plastic should be treated with cold water before plastic is removed, then wrap in clean gauze and seek medical attention

SECTION VII EMPLOYEE PROTECTION

This product as it is shipped to customers is non-hazardous. The user needs should determine PPE.

SECTION VIII HANDLING AND STORAGE

This product is normally shipped in rolls for field application. Store and stack as recommended by the manufacturer. The plastic will burn in the presence of open flame. Do not weld or use open flame where product is stored without proper fire fighting prevention procedures.

SECTION IX ENVIRONMENTAL PROTECTION

Geocomposite materials are considered non-hazardous. Recycle old or unused plastic when possible. Otherwise, dispose in landfills or incinerators in accordance with local, state, and federal regulations.

SECTION X TRANSPORT INFORMATION

Non-regulated

SECTION XI ADDITONAL INFORMATION

Regulatory Requirements:

DOT: Not Applicable

HMIS: **Health:** 0
Reactivity: 0
Flammability: 1

PREPARED BY: Safety / Environmental Coordinator
PREPARATION DATE: September 1, 1997 UPDATE: January 14, 2003

EMERGENCY PHONE NUMBER:
Monday – Friday 1-800-527-3322 extension 7215
Weekends & Nights 1-800-527-3322 extension 7241

The opinions expressed are those of qualified experts within Poly-America LP. We believe that the information contained is current as of the date of this Material Safety Data Sheet. Since the use of this information and these opinions and the conditions of use of the product are not within the control of Poly-America LP, it is the user's obligation to determine the conditions of safe use of this product.

APPENDIX IVD-D

TEMPORARY AUTHORIZATION APPROVAL LETTERS

Kathleen Hartnett White, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
Larry R. Soward, *Commissioner*
Glenn Shankle, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

February 6, 2006

The Honorable J. W. Lown
Mayor of San Angelo
P. O. Box 1751
San Angelo, Texas 76902-1751

Re: City of San Angelo Landfill - MSW Permit No. 79
Request for Temporary Authorization
WWC Tracking No. 11194164
CN600251615 / RN102289576

Dear Mayor Lown:

We have reviewed your request dated December 2, 2005 and received by the MSW Permits Section on December 7, 2005 for a temporary authorization to revise your Alternative Material Daily Cover Operating Plan (ADCOP). Our evaluation indicates that the information presented is sufficient to allow a temporary change to the ADCOP for the temporary use of Durashield 10,000FR and 60 mil High Density Polyethylene (HDPE) tarps as Alternative Material Daily Cover (ADC), for a term not to exceed 180 days in accordance with 30 TAC §305.70(m)(1). This trial period will enable the City of San Angelo to continue working with the TCEQ to obtain full authorization to use the alternate daily cover on a permanent basis.

Enclosed is a copy of the referenced temporary authorization which should be maintained in your files. The documentation prepared and submitted to support the temporary authorization request are considered requirements of the permit.

If you have any questions concerning this matter, please contact Mr. Arthur Denny at (512) 239-6610. When addressing written correspondence, please use Mail Code 124 (MC 124).

Sincerely,

Richard C. Carmichael, Ph.D., P.E.
Manager, Municipal Solid Waste Permits Section
Waste Permits Division

RCC/ALD/ff

Enclosure

cc: Mr. Mike Widner, Field Service Manager, Biggs & Mathews Environmental Mansfield
Mr. Ron Lewis, P.E., Public Works Director, City of San Angelo

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

TEMPORARY AUTHORIZATION TO MUNICIPAL SOLID WASTE PERMIT NO. 79 SAN ANGELO LANDFILL

Municipal Solid Waste Permit No. 79 is hereby authorized as follows:

Description of change(s):

San Angelo Landfill , MSW Permit No. 79 is hereby authorized to modify their Alternative Material Daily Cover Operation Plan (ADCOP) to include the following types of materials to be used for Alternative Material Daily Cover (ADC). These materials are hereby approved to be used on a temporary-trial basis only, subject to the following conditions.

1. Types of materials to be added to the ADCOP shall be limited to the following categories:
   A. Durashield 10,000FR, 20 mils thick tarp panels manufactured by Thor Enterprises, Ltd.
   B. Tarps, 60 mils thick flexible membrane liner panels heat welded from liner projects.

2. Each ADC material listed herein may only be used up to 180 days, following the implementation-approval date. The materials shall be applied as specified in the ADCOP.

3. The implementation-trial period shall begin 15 days after the date of this letter, unless an alternate approval date is requested in writing by the permittee.

4. In accordance with Title 30 Texas Administrative Code (30 TAC), Chapter 330, Section (§)330.133(c)(2), written progress (status) reports for each ADC material shall be submitted on a bimonthly basis to the executive director during the 180-day trial period (i.e. three reports). The reports shall contain information describing the effectiveness of the alternative material, any problems that may have occurred, and any corrective action required as a result of such problems.

5. The ADC materials shall not be used if the landfill operations are shut down for a period greater than 24 hours.

The documentation prepared and submitted to support the temporary authorization request shall be considered as requirements of the permit.

APPROVED, ISSUED, AND EFFECTIVE in accordance with 30 TAC, §305.70(m)(1) for 180 days.

ISSUED DATE:

FEB 06 2006

For the Commission