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Dept. of Environmental
Protection

DEC 17 2009

Southwest District

**MONITORING REPORT
FDEP LONG TERM CARE PERMIT NUMBER 69720-001-SF
CITY OF BARTOW LANDFILL (CRAZY ACRES)
BARTOW, FLORIDA**

Prepared for:
MR. WILLIAM PICKARD
PUBLIC WORK DIRECTOR
CITY OF BARTOW
450 NORTH WILSON AVENUE
BARTOW, FLORIDA 33830
AND
THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
SOUTHWEST DISTRICT, SOLID WASTE SECTION
13051 NORTH TELECOM PARKWAY
TEMPLE TERRACE, FLORIDA 33637-0926

Prepared by:
IMPERIAL TESTING LABORATORIES
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LAKELAND, FLORIDA 33811
(863) 647-2877
PROJECT NUMBER 8290

December 2009



December 16, 2009

Mr. John Morris, P.G.
Solid Waste Section, Southwest District
Florida Department of Environmental Protection
13051 North Telecom Parkway, Temple Terrace, Florida 33637-0926

FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION
DEC 17 2009
SOUTHWEST DISTRICT
TAMPA

RE: Long Term Closure, Monitoring Report
City of Bartow Trash Landfill (Crazy Acres)
US Highway 17, State Road 60 Bypass and US Highway 98, Bartow, FL
FDEP Permit No. SF53-281851, Polk County

Dear Mr. Morris:

On behalf of the City of Bartow, Imperial Testing Laboratories (Imperial) is pleased to provide you with the most current monitoring report for the referenced site. All the drilling, soil, and water sampling techniques utilized in obtaining the data are those approved by FDEP in Imperial's former Comprehensive Quality Assurance Plan (No. 8703669G) or the FDEP Standard Operating Procedure for Field Activities, DEP-SOP-001/01. **Figure 1** represents a site map and was used to depict the assessment data.

Summary of Work

Groundwater Monitoring

Imperial staff initiated groundwater monitoring on December 2, 2009. Imperial staff sampled monitor wells TW-A, TW-B, TW-C, and TW-D. **Table 1** summarizes the monitor well details. Imperial staff, using the current depth to groundwater and the well depth and diameter, calculated first the casing volume. **Table 2** summarizes depth to groundwater and groundwater elevation data. **Table 2** also includes a historical groundwater hydrograph. **Figure 3** illustrates groundwater contours.

A technician, using the current depth to groundwater and the well depth and diameter, calculated first the casing volume. The cumulative purge volume, after the first casing volume is determined by the consistent readings of temperature conductivity, turbidity, pH and dissolved oxygen (DO) as specified in FS 2200.

The flexible polyethylene tubing is connected to a variable speed peristaltic pump of which is constructed of non-reactive and non-leaching materials. If the water column exceeds 25-feet below land surface, a technician will use the available variable speed electric submersible pump, of which associated hardware is constructed of stainless steel.

Imperial staff places disposable and flexible polyethylene tubing in the well, depending on field conditions in three different locations. If the intent is to minimize the volume of purge water, the well screen is less than or equal to 10 feet and the well screen is fully submerged in the water column the tubing or submersible pump is placed midpoint the screen interval. If the same as above applies, but the screen interval is partially submerged then the tubing or submersible pump is placed midway between the measured water level and the bottom of screen. Finally, if monitor well conditions do not allow minimizing purge volume or different equipment is used between purging and sampling the tubing or submersible pump is placed near the top of the water column to ensure that stagnant water in the casing is removed.

The purging rate is adjusted to meet or not exceed the well recovery rate. The purge rate ranges between 0.02 to 0.1 gpm (or 100 to 500 mL/min). During purging the well the technician attempts to minimize drawdown. At least one well volume is purged before measuring for temperature, conductivity, turbidity, pH and DO, thereafter readings are taken every $\frac{1}{4}$ well volume, but at greater than 2-minute intervals. Purging ceases after three consecutive readings stabilize within ± 0.2 degrees Centigrade, ± 0.2 standard units pH, $\pm 5\%$ of Specific Conductance reading, DO level of less than or equal to 20 percent saturation, and Turbidity less than or equal to 20 Nephelometric Turbidity Units (NTUs). Also, at least (3) pump, tubing and flow cell volumes are purged before collecting a sample. If DO levels less than 20 percent saturation or Turbidity less than 20 NTUs cannot be achieved then purging may cease after three consecutive readings stabilize within ± 0.2 mg/l or $\pm 10\%$ saturation DO and ± 5 NTUs Turbidity. If after 5 well volumes the previously cited parameters do not stabilize the technician will check and calibrate the instruments and check/adjust the purge rate to encourage stabilization. Samples are collected immediately after purging is complete, or within (6) hours, with the purging equipment (polyethylene tubing and variable speed peristaltic or submersible pump, where applicable).

During sampling the technician is careful not to touch the rim of the sample container with sample equipment or hands. A technician shall fill labeled sample containers in accordance with FS 1000 and FS 2000. At this site for the required parameters, a sample can be collected directly from the discharge tube, regardless of which pump is used. The samples are placed on wet ice within 15 minutes of sample collection. Samples are preserved to a temperature of less than 4 degrees Centigrade, but not freezing. The pump is cleaned and field decontaminated before each well is sampled and new disposable polyethylene tubing installed. All the sample containers are pre-cleaned by the laboratory subcontractor.

The samples were analyzed for ammonia, arsenic, calcium, chloride, copper, iron, mercury, nitrate, sodium, total dissolved solids (TDS), zinc, DO, pH, specific conductivity, turbidity, and other parameters listed in 40 CFR Part 258. **Table 3** summarizes the groundwater analytical results.

Exceedances in secondary standards were realized for iron, selenium, thallium, TDS and pH in the compliance wells (TW-B, TW-C, and TW-D). These analytical results are typical and are consistent with historical data other than Selenium, and Thallium, which are part of the revised sampling protocol. Selenium and Thallium appear to be a background concentration of the aquifer, given it was detected in the background well (TW-A). This is supported by the literature, indicating natural sources of Selenium and Thallium are found in clays and soils, associated with sulfide and potassium minerals, respectively. As historically admitted by the FDEP Water Quality and Potable Water Treatment Section, these standards are geared more for aesthetic concerns (taste, odor, color, clarity, staining). Secondary Standards were set up as a result not necessarily as health targets. As stated in Chapter 62-550.320, Florida Administrative Code "This section applies only to community water systems. (These standards may also (or may not) apply as groundwater quality standards as referenced in Chapter 62-520, Florida Administrative Code)." Admittedly, Rule 62-520.420(1), Florida Administrative Code states that: "Groundwater classified as G-I or G-II (this site is G-II) shall meet primary and secondary drinking water quality standards." So there appears to be a difference of opinion (or professional position) within the FDEP.

The former MCL (maximum contaminant limit) for arsenic is 50-ppb. The new MCL is 10-ppb. The arsenic concentrations are less than the former MCL. Given the landfill closed prior to the Rule change we recommend the previous 50-ppb MCL applies.

Methane Monitoring

The goal of this task was to determine if the landfill has stabilized. In order to be eligible for a 10 year long term period the landfill must be, by definition, stabilized, as addressed in former Rule 17-701.020(64) or 62-701.200(79), Florida Administrative Code, which "means that biological and chemical decomposition of the wastes has ceased or diminished to a level so that such decomposition no longer poses a pollution, health or safety hazard." If stabilized, one would measure little to no methane in the center of the landfill, given organic soils will also naturally generate some methane.

As part of the Closure Plan of Action, on August 27, 2003, Imperial installed two methane-monitoring probes, MP-1 and MP-2 in the center of the landfill. **Table 5** provides the probe details and **Figure 1** illustrates the probe locations. These methane-monitoring probes are permanent and secured at land surface with a 2" diameter brass plug, inside 3-1/2" fill-box, for future monitoring. The intent of these probes was to determine if the landfill had stabilized at its center. As part of Permit Number 69720-001-SF/14 the perimeter methane probes (MP-3 through MP-12) were installed on March 29, 2006. MP-1 and MP-2 (center methane probes) had been converted to passive vents. Historical, temporary, and now permanent perimeter probes have demonstrated no offsite migration of methane, as indicated most recently on December 2, 2009 (see **Figure 3**).

The probes are screened from three to ten feet below land surface. The annulus for the screen interval is packed with 6/20 sand from 2 to 10-feet below land surface. Imperial technicians have collected methane readings from the cited points. **Table 5** summarizes the methane readings. The methane readings indicate that the landfill had not stabilized, but exhibited approximately another 50% reduction over the past year of passive venting. For the August 28, and 29, 2003 readings, technicians used a HeathTech Detecto Pac III flame ionization detector organic vapor analyzer. For the September 3, 2003, readings, technicians used a Gastec GT-201 LEL meter. Imperial technicians used a HeathTech Detecto Pac III flame ionization detector organic vapor analyzer for the December 4, 2006, December 12, 2007, December 8, 2008 and December 2, 2009 readings.

The current methane monitoring readings collected on December 2, 2009 from the perimeter wells demonstrated a "0" ppm reading, except MP-9, which demonstrated a 4-ppm reading. This reading can be considered a negligible reading; given native soils can intermittently emit low methane levels.

Trend Analysis

As part of the monitoring report, submitted are supporting graphs of contaminants of concern that have historical exceedances above maximum contaminant levels (MCLs). Imperial has summarized iron, total dissolved solids (TDS) and pH to determine any potential trend. Imperial has graphed historical levels of iron, total dissolved solids (TDS) and pH as **Table 4**.

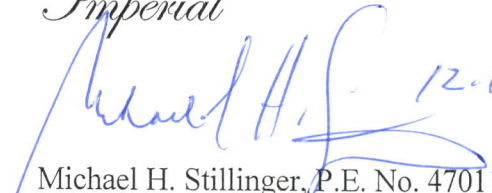
Accompanying the historical levels' contaminants of concern are the historical groundwater elevations of the most downgradient compliance well, TW-D. Historical background levels exhibit significant fluctuations. There appears to be no overall increase or decrease in background or compliance well levels for iron, total dissolved solids (TDS) and pH. There also appears to be no correlation between changing water table elevations with iron, or total dissolved solids and pH. Increases in water table elevations correlate with increases in sulfate levels. In general, these cited parameters detected in the downgradient compliance wells (TW-B, TW-C and TW-D) are either below or not significantly higher than the upgradient background well, TW-A. For example, iron concentrations in TW-A are sometimes less, in between or higher than the iron concentrations found in the compliance wells. In addition, pH levels of TW-A appear in between the compliance wells. Finally, there appears to be some correlation between total dissolved solids and specific conductance. Generally increases in TDS correlate with increases in specific conductance.

Summary and Conclusions

The cited data indicates that the landfill appears to be slowly stabilizing, given the methane generated continues to decrease each year measured. Also, there is no evidence of offsite methane migration. There are measured methane reductions the past three years that indicated passive venting is providing a positive response. Imperial submits this report to fulfill Permit Specific Condition Number 10.

Please contact the undersigned at (863)-647-2877 if any questions arise or if any additional information is required. Thank you.

Sincerely,

Imperial

12-16-09
Michael H. Stillinger, P.E. No. 47011
Vice President of Engineering

Attachments

- | | |
|------------|---|
| Table 1 | Monitor Well Summary |
| Table 2 | Groundwater Elevation Table, with Groundwater Hydrograph |
| Table 3 | Groundwater Monitoring Well Analytical Summary |
| Table 4 | Trend Analysis |
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| | |
| Figure 1 | Site Map |
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| Figure 3 | Methane Gas Test Point Readings |
| | |
| Appendix A | FDEP Forms 62-522.900 (2) Groundwater Monitoring Reports |
| Appendix B | Groundwater Sampling Field Reports and Chain of Custody Forms |
| Appendix C | Laboratory Analytical Report |

Cc: Mr. William Pickard, Public Works Director, City of Bartow, 450 N. Wilson Ave., Bartow, FL 33830
Imperial Project File No. 8290

TABLES

TABLE 1: MONITOR WELL SUMMARY

DEC 17 2009

Facility Name : City of Bartow Trash Landfill (Crazy Acres)
Facility Permit No.: 69720-001-SF/14 (former SF53-281851)

All Measurements in Feet
Southwest District

WELL NUMBER	TW-A	TW-B	TW-C	TW-D
INSTALLATION DATE	05/29/91	05/30/91	05/30/91	12/11/91
SWFWMD Permit Number	513757-03	513757-03	513757-03	519536-02
FDEP Well Number	405316925	405316926	405316927	405316928
MW ROLE	background	compliance	compliance	compliance
LATITUDE	27-54-18.44	27-54-18.44	27-54-18.44	27-54-18.44
LONGITUDE	81-49-41.68	81-49-41.68	81-49-41.68	81-49-41.68
AQUIFER	Upper Artesian	Upper Artesian	Upper Artesian	Upper Artesian
WELL DIAMETER	4"	4"	4"	4"
WELL DEPTH	40'	40'	40'	32'
STICK UP, ALS	1.8'	1.6'	2.0'	1.5'
CASING TYPE	PVC	PVC	PVC	PVC
CASING LENGTH, FEET	19	14	20	16
SCREEN INTERVAL	Open hole 19-40'	Open hole 14-40'	Open hole 20-40'	16-32'
TOC ELEVATION	102.94	99.07	100.2	98.2
LAND SURFACE ELEVATION	99.90	96.50	96.70	95.30
TOP OF SCREEN ELEVATION	80.90	82.50	76.70	79.30
BOTTOM OF WELL ELEVATION	59.90	56.50	56.70	63.30
DRILLING PROCEDURE	Mud Rotary	Mud Rotary	Mud Rotary	Mud Rotary
LITHOLOGY	0-3' Sand: black, fine grain	0-3' Sand: black, fine grain	0-2' Sand: black, fine grain	0-1' Sand: tan, medium grain
	3-10' Clay w/ sand: gray, hard	3-8' Clay w/ sand: gray, hard	2-10' Clay w/ sand: cream, hard	1-10' Sand w/ Clay: brown, fine grain
	10-19' Clay w/ sand: white, hard	8-14' Clay: white, hard	10-20' Clay: light brown, hard	10-20' Clay w/ sand: tan, fine grain
	19-40' Limerock	14-40' Limerock	20-40' Limerock	20-32' Clay w/ Sand: white, fine grain

NOTES:

Well depths are measured from land surface (not from top of casing)

In the November 1984 FDEP Groundwater investigation Report No. 84-15 (Table 1, p.11), the authors cite that MW-6 is screened from 37 to 42 feet below land surface; top of casing elevation is 117.49 feet AMSL; casing diameter is 2-inches.

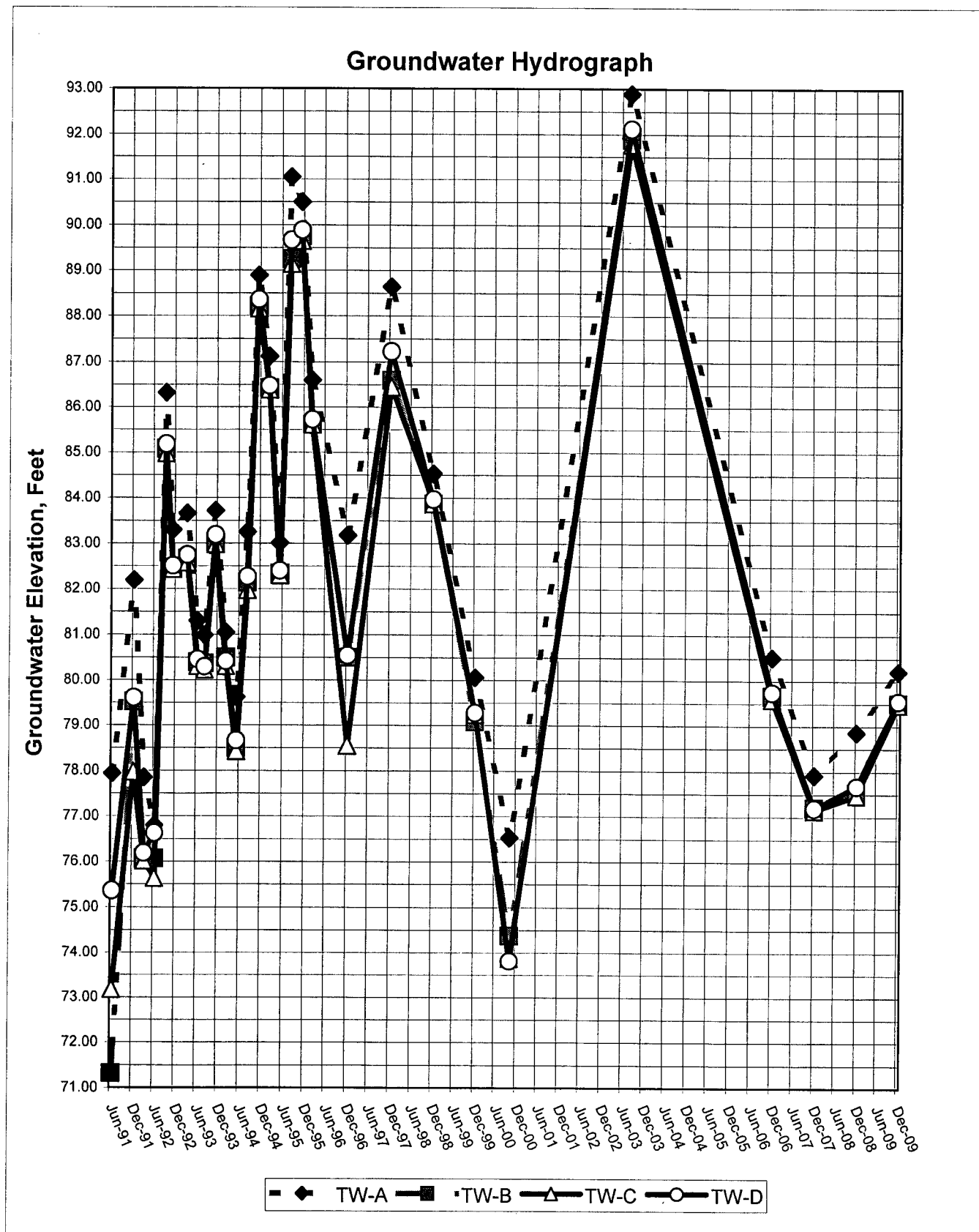
The top of casing elevations for TWs A-D are based on the National Geodetic Vertical Datum (NGVD).

The monitoring wells Latitude and Longitude have been revised on August 9, 2005 and based on the measurements taken from the USGS Bartow Quadrangle.

TABLE 2: GROUNDWATER ELEVATION TABLE

Facility Name : City of Bartow Trash Landfill (Crazy Acres)
Facility Permit No.: 69720-001-SF/14 (former SF53-281851)

All Measurements + Feet
No Data = Blank



Background well: TW-A; Compliance Wells, TW-B, TW-C, TW-D

The June 25, 1991 elevation data for TW-D is interpolated from correlations from the December 19, 1991 data.

TABLE 3 : GROUNDWATER MONITORING WELL ANALYTICAL SUMMARY

Facility Name: City of Bartow Trash Landfill (Crazy Acres)

Facility Permit No.: 69720-001-SF/14 (former SF53-281851)

Sample		Ammonia as N, mg/l	Antimony, ppb	Arsenic, ppb	Barium, ppb	Beryllium, ppb	Cadmium, ppb	Chloride, mg/l	Chromium, ppb	Cobalt, ppb	Copper, ppb	Iron, mg/l	Lead, ppb	Mercury, ppb	Nickel, ppb	Nitrate as N, mg/l	Selenium, ppb	Silver, ppb	Sodium, mg/l	TDS, mg/l	Thallium, ppb	Vanadium, ppb	Zinc, ppb	pH	Specific Conductivity, umhos	Dissolved Oxygen, mg/l	Turbidity, NTUs		
Well No.	Date																												
TW-A	Std.	MCL	6.0	50	2000	4.0	5.0	250	100	420	1000	0.3	15	2.0	100	10	50	100.0	160	500	2.0	49	5000	80	6.26	1270	NA	--	
	12/18/1991	0.1	<1					32.7			60	4.57	11				0.36			22.8	644					6.33	1140		314
	3/27/1992	<0.01						26				0.77				0.29			31.6	1100					6.53	1202			
	6/30/1992	0.15						22.8				4.17				0.01			28.3	1088					6.81	1650			
	9/22/1992	0.06						28.9				0.26				0.54			31.0	1280					6.47	1560		9	
	11/19/1992		<10					28.4				50	1.55	<1			4.28			31.7	1215			320		6.58	1400		
	3/16/1993	0.03						29.3				0.51				2.26			29.1	1155					6.74	1310			
	6/24/1993	0.08						30.6				0.83				3.4			31.6	1170					6.67	1380		12.5	
	8/11/1993	0.04						33.5					0.28			2.65			32.9	1115					6.6	1200			
	11/19/1993		<10						27.7			<20	0.63	<1			1.63			30.6	1080			80		6.72	1300		
	2/16/1994	0.27						28.8				0.96				0.91			28.2	1082					6.67	1360			
	5/18/1994	0.09						27.5				1.54				0.29			29.7	840					7.08	1150			
	8/16/1994	0.09						26.3					1.02			0.74			29.8	850					6.6	1200			
	11/17/1994			<10					32.7			<20	0.4	<1			1.83			32.7	1185			56		6.43	1580		2.1
	2/10/1995	<0.01						23.9					0.12			2.65			25.4	1180						6.62	1400		
5/22/1995	0.06						22.4					0.32			2.13			33.9	1175						6.83	1320			
8/18/1995	0.11							28.2				0.87			1.81			32.7	1036						6.7	1420			
11/10/1995			<10					26.6			<20	0.37	<1			1.69			64.3	1426			<5.0		6.52	1650		1.3	
12/27/1996	2.16		9					31			<20	5.15	1			<0.05			30.8	684			124		5.65	1120		2.07	
12/15/1997	0.09		<1					20.8			<20	0.14	<1			<0.05			25.8	854			6		6.14	760		0.42	
12/14/1998	--		<2.0					16.1			150	7.91	4			1.56			23.0	1124			281		6.5	1020		7.2	
12/20/1999	<0.01		<1.0					13.1			20	0.81	<1.0			<0.05			18.6	892			0.063		7.12	4300		3.51	
8/29/2003	<0.01		<2.0					32.1				1.78				<0.05			21.9	808					6.68				2
12/4/2006	0.1		<6.00	8.7	<5.00	<2.00	2.00	16.6	<1.00	<1.00	<2.0	0.0701	<4.00	<1.00	14.4	<2.0	14.2	<1.00	14.7	508	20.4	<5.00	<1.0	6.64	1099		0.17	1.81	
12/4/2007	<0.01		<3.10	22.4	<0.500	<0.200	<0.600	20.7	12.1	<0.300	<2.0	0.153	<1.50	<1.00	12.8	<2.0	42.1	<5.10	20.0	804	12.2	<5.60	<0.200	6.51	734		0.20	4.46	
12/8/2008	4.43		<3.70	<9.0	5.601	<0.400	<0.400	23.0	<3.10	<1.10	<0.0355	<2.50	<1.00	<0.100	11.0	<0.500	14.4	<5.70	19.0	889	14.4	<7.40	3.40	7.11	798		0.26	3.1	
12/22/2009	<0.014		<3.70	<2.90	<0.600	<0.400	<0.400	25.3	<3.10	<1.10	<2.40	<0.0244	<2.50	<0.100	11.8	0.357	51.9	<5.70	19.6	1010	41.9	<7.40	<0.800	6.49	952		0.26	0.11	
TW-B	12/18/1991	0.98		1				44.8			<20	1.24	<1			<0.01			34.0	970			40		6.23	1130	NA	11.5	
	3/27/1992	0.18						35				0.69				<0.01			23.9	728					6.38	1010			
	6/30/1992	0.14						31.8				0.44				0.43			21.5	776					6.72	880			
	9/22/1992	1.22						28.9				7.02				0.04			31.9	1020					6.55	1500			
	11/19/1992			6				47.5			<20	6.02	2			0.01			34.7	996			100		6.51	1405		30	
	3/16/1993	1.28						41.1				3.69				0.05			31.2	1020					6.51	1410			
	6/24/1993	1.3						44.3				6.33				<0.01			33.8	1020					6.8	1380			
	8/11/1993	1.56						49.2				5.61				<0.01			33.8	985					6.57	1290			
	11/19/1993			5				37.8			50	5.52	4			<0.01			30.6	975			70		6.79	1210		73.5	
	2/16/1994	1.85						41.8				6.07				<0.01			31.4	1036					6.4	1450			
	5/18/1994	0.14						35.9				0.45				0.08			23.1	668					6.97	1280			
	8/16/1994	1.34						38.7				2.18				<0.01			33.3	930					7.41	1190			
	11/17/1994			1				30.8			<20	2.55	4			0.19			26.8	764			39		6.39	1100		30	
	2/10/1995	2.41						37.8				7.24				<0.01			31.8	844					6.79	1250			
	5/22/1995	2.45						38.3				8.35				<0.01			36.8	835					6.97	1200			
8/18/1995	0.19						17.6					0.57			0.13			13.8	576					7.1	740				
11/10/1995			<1					20.5			20	1.98	<1			0.08			19.3	588			34		6.85	900		18	
12/27/1996	2.26		8				30.3			<20	6.16	1			<0.05			30.2	650			29		5.45	1100		2.72	1.95	
12/15/1997	0.33		2				14.7			<20	1.12	3			<0.05			13.7	560			29		6	900		0.24	6.15	
12/14/1998			<2					25			<20	6.09	<1			<0.05			25.3	774			37		6.37	840		3.02	
12/20/1999	1.16		4					20.9			<20	5.07	<1			<0.05			27.1	1000			33		7.01	4800		3.55	
11/17/2000	0.43		7					28.8			23	4.74	5			<0.05			19.1	644			346		6.79	192		2.3	
8/28/2003	<0.1		<4					13.3			10	0.2871				<2.0			18.9	637			8.4		6.54	560		0.49	10.95
12/4/2006	1.2		7.8	17.2	8.80	<2.00	1.80	16.2	<1.00	<1.00	<2.0	4.44	<4.00	<1.00	19.9	<2.0	28.1	<1.00	18.6	610	23.3	<5.00	26.4		6.41	1371		0.38	1.90
12/4/2007	0.61		<3.10	27.3	<0.500	<0.200	<0.600	15.8	13.30	2.90	<2.0	0.842	<1.50	<1.00	20.9	<2.0	66.4	<5.10	16.2	758	<2.80	<5.60	9.7		6.30	743		0.06	8.00
12/8/2008	3.92		<3.70	<2.90	5.901	<0.400	<0.400	14.8	<3.10	<1.10	<2.40	0.66	<2.50	<0.100	21.1	0.306	29.8	<5.70	16.5	931	16.0	7.60	13.9		6.91	880		0.80	9.10
12/22/2009	0.845		<3.70	<2.90	<0.600	<0.400	<0.400	14.7	<3.10	<1.10	<2.40	0.487	<2.50	<0.100	1														

TABLE 3 : GROUNDWATER MONITORING WELL ANALYTICAL SUMMARY

Facility Name: City of Bartow Trash Landfill (Crazy Acres)

Facility Permit No.: 69720-001-SF/14 (former SF53-281851)

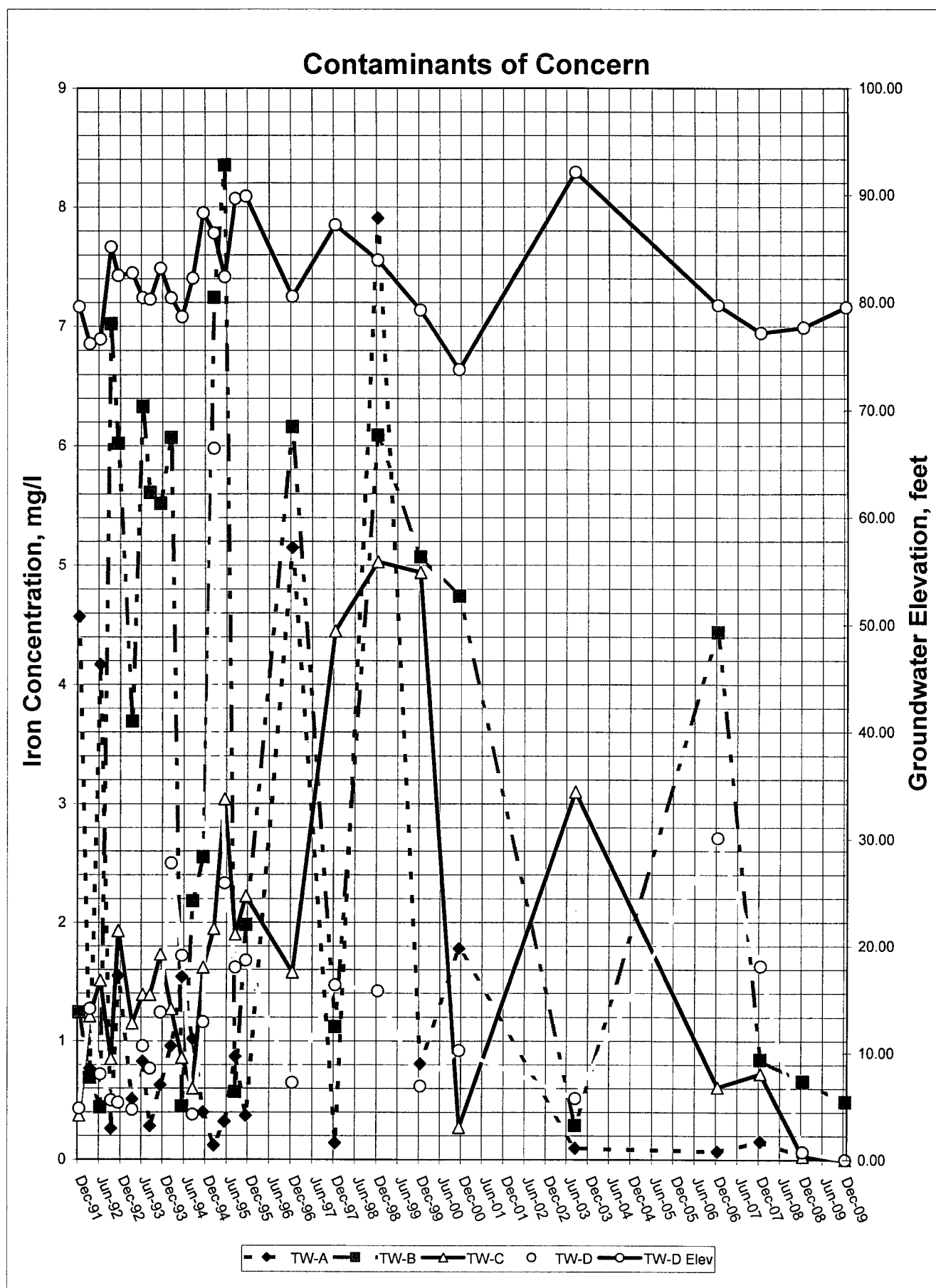
Sample		Ammonia as N, mg/l	Antimony, ppb	Arsenic, ppb	Barium, ppb	Beryllium, ppb	Cadmium, ppb	Chloride, mg/l	Chromium, ppb	Cobalt, ppb	Copper, ppb	Iron, mg/l	Lead, ppb	Mercury, ppb	Nickel, ppb	Nitrate as N, mg/l	Selenium, ppb	Silver, ppb	Sodium, mg/l	TDS, mg/l	Thallium, ppb	Vanadium, ppb	Zinc, ppb	pH	Specific Conductivity, umhos	Dissolved Oxygen, mg/l	Turbidity, NTUs	
Well No.	Date																											
Std.	MCL		6.0	50	2000	4.0	5.0	250	100	420	1000	0.3	15	2.0	100	10	50	100.0	160	500	2.0	49	5000		6.5-8.5			
TW-C Compliance	12/18/1991	0.06		1				28.2			<20	0.37	2			4.12			34.3	1295			90		6.78	1270	NA	2.9
	3/27/1992	0.06						44				1.21				<0.1			39.4	1055					6.38	1170		
	6/30/1992	0.1						45.4				1.51				0.09			35.2	1066					6.48	1140		
	9/22/1992	0.5						45.5				0.85				0.03			32.1	1050					6.54	1300		
	11/19/1992			2				47.3			<20	1.93	1			<0.01			36.8	1095			260		6.67	1500		17
	3/16/1993	0.05						40.1				1.15				0.03			32.4	1140					6.64	1420		
	6/24/1993	0.53						42.2				1.39				<0.01			35.0	1145					6.79	1100		
	8/11/1993	0.58						45.6				1.39				0.01			34.5	926					6.61	1220		
	11/19/1993			3				38.6			20	1.73		2		0.15			42.2	1048			120		6.66	1300		18.5
	2/16/1994	0.84						39.7				1.27				<0.01			30.2	1154					6.56	1400		
	5/18/1994	0.43						38.4				0.86				<0.01			34.2	1042					6.55	1320		
	8/16/1994	0.74						39.7			<20	1.62	1			<0.01			34.4	980			49		7.48	1280		4.5
	11/17/1994			2				36.1				1.95				0.21			31.9	824					6.7	1120		
	2/10/1995	1.7						36.7				3.04				0.1			37.9	955					6.67	1320		
	5/22/1995	1.97						38.9					1.9			<0.01			23.5	848					7.05	1020		
	8/18/1995	0.95						27.2				<20	2.22	<1		<0.01			24.8	684			159		6.64	1140		29
	11/10/1995				4			26.3				<20	1.58	<1.0		0.53			26.5	710			97		5.92	1080	3.02	1.416
12/27/1996	<0.01		<1.0				21.7				<20	1.58	<1.0		0.53			26.5	710			97		5.92	1080	3.02	1.416	
12/15/1997	1.07		4				24.9				<20	4.45	6		0.32			26.0	790			1		5.88	710	0.61	10.04	
12/14/1998			<2				26.3				<20	5.03	<1		<0.05			25.4	806			39		6.39	820	3.7	7.49	
12/20/1999	0.55		4				19.1				<20	4.94	<1		<0.05			24.8	1048			54		6.93	5300	3.48	2.6	
11/7/2000	1.29		<1				19.1				<20	0.27	<1		0.61			24.6	828			28		7.06	473			
8/28/2003	1.77		<4					13.3			7.0	3.1			<2.0			23.7	837					6.42	680	1.05	1.18	
12/4/2006	6.6		<6.00	13.7	8.00	<2.00	2.00	15.6	<1.00	<1.00	<2.0	0.61	<4.00	<1.00	17.3	<2.0	21.2	<1.00	16.5	608			34.4		6.47	1295	0.21	0.09
12/4/2007	0.63		<3.10	26.0	4.10	<0.200	<0.600	17.4	18.8	5.90	<2.0	0.725	<1.50	<1.00	26.3	<2.0	61.7	<5.10	18.6	924					6.42	838	0.07	19.7
12/8/2008	3.7		<3.70	8.10	1	<0.400	<0.400	17.2	<3.10	<1.10	<2.40	0.0282	<2.50	<0.100	14.2	<0.295	26.5	<5.70	18.2	1060					6.89	950	1.15	0
12/2/2009	0.051		<3.70	<2.90	<0.600	<0.400	<0.400	13.2	<3.10	<1.10	<2.40	<0.0244	<2.50	<0.100	5.5	0.382	63.6	<5.70	12.6	812					6.36	828	0.23	0.53
TW-D Compliance	12/18/1991	0.39		1				21.2			<20	0.43	10			0.01			35.8	1050			30		6.35	860	NA	1.8
	3/27/1992	<0.01						33				1.27				0.19			26.3	650					6.54	900		
	6/30/1992	0.12						41.9				0.72				0.29			27.3	782					6.49	900		
	9/22/1992	0.06						26.9				0.5				0.93			19.3	612					6.98	1000		
	11/19/1992			<1				30			<20	0.48	1			0.7			20.4	615			190		6.45	980		5.7
	3/16/1993	0.05						35.5				0.42				0.47			21.4	628					6.6	1060		
	6/24/1993	0.08						32.1				0.96				0.34			22.6	680					6.82	930		
	8/11/1993	0.06						35.3				0.77				0.68			22.1	628					6.67	980		
	11/19/1993			<1				25.7			30	1.24	2			0.2			20.0	484			80		7.03	860		13.5
	2/16/1994	0.29						29.7				2.5				0.18			19.2	744					6.64	1040		
	5/18/1994	1.3						41				1.72				<0.01			32.2	656					7.21	970		
	8/16/1994	0.1						30.1			<20	0.38				0.11			24.1	678					7.48	900		
	11/17/1994			<1				18.6			<20	1.16	4			0.2			15.9	640			87		6.54	920		32
	2/10/1995	0.1						19.1				5.98				<0.05			16.5	496					6.9	740		
	5/22/1995	0.07						20.8				2.33				<0.05			20.3	510					6.91	780		
	8/18/1995	<0.01						17.6				1.62				<0.05			14.2	516					6.95	660		
	11/10/1995	<0.01		<1				17.2			<20	1.68	<1			<0.01			14.1	426			40		6.52	1650		1.3
12/27/1996	<0.01		<1				19.8			<20	0.65	4			<0.05			15.8	430			37		5.55	720	2.23	36.1	
12/15/1997	0.12						19.7			<20	1.47	5			<0.05			19.0	602			82		5.41	640	3.95	5.84	
12/14/1998			<2				16			20	1.42	2			<0.05			15.0	500			89		6.54	680	3.57	19.73	
12/20/1999	<0.01		<1				17.3			<20	0.62	<1			<0.05			19.6	690			29		7.08	4100	3.63	2.6	
11/7/2000	0.2		<1				23.3			<20	0.92	1			<0.05			24.7	768			110		6.64	235			
8/28/2003	<0.10		<4				13.7			<2.0	0.5157				<2.0			19.4	696					6.18	600	0.36	5.05	
12/4/2006	0.3		<6.00	15.9	7.40	<2.00	1.80	14.3	<1.00	<1.00	<2.0	4.0	2.71	<4.00	9.9	<2.0	25.2	<1.00	13.0	498			97.6		6.42	1022	0.24	18.8
12/4/2007	0.21		<3.10	30.0	<0.500	<0.200	<0.600	15.8	12.6	<0.300	4.9	1.63	<1.50	<1.00	11.5	<2.0	68.9	<5.10	15.1	664			33.6		6.33	678	0.11	28.9
12/8/2008	3.24		<3.70	<2.90	5.50	<0.400	<0.400	12.2	<3.10	<1.10	<2.40	0.0666	<2.50	<0.100	9.70	<0.295	29.9	<5.70	14.1	739			14.7		6.93	775	0.56	0.36
12/2/2009	0.025		<3.70	<2.90	<0.600	<0.400	<0.400	8.99	<3.10	<1.10	<2.40	<0.0244	<2.50	<0.100	5.20	0.944	59	<5.70	10.5	643			42.9		6.47	772	0.21	0.37

Notes: Primary Drinking Water Parameters are: Arsenic, Lead, Nitrate, and Sodium. Secondary Drinking Water Standards are Chloride, Copper, Iron, pH, TDS and Zinc. There are no drinking water standards for specific conductance, dissolved oxygen or total organic carbon. Turbidity applies towards drinking water treatment before disinfection for public consumption.

TABLE 4 : TREND ANALYSIS

Facility Name : City of Bartow Trash Landfill (Crazy Acres)
Facility Permit No.: 69720-001-SF/14 (former SF53-281851)

Analytical Results = mg/l

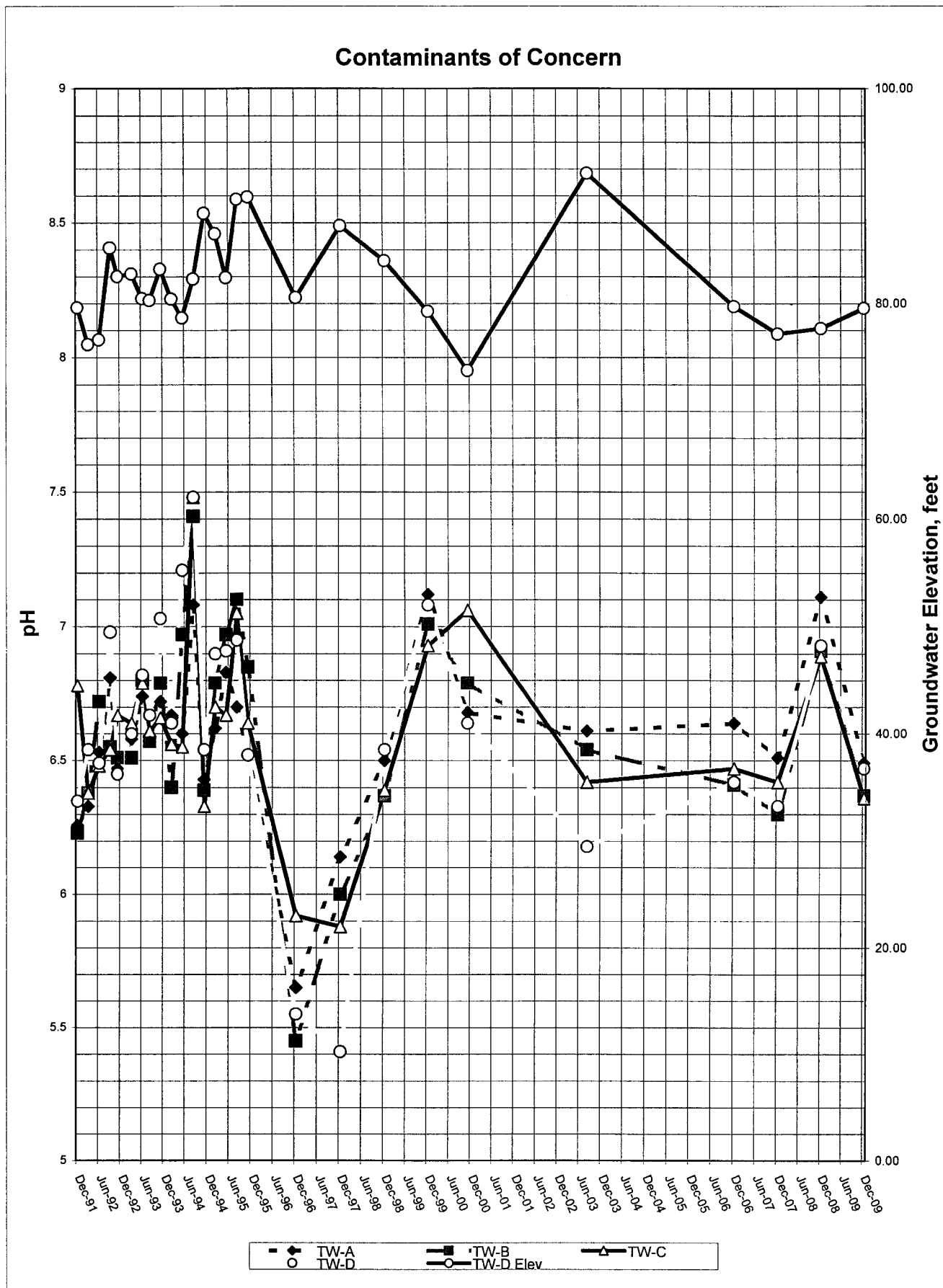


Background well: TW-A; Compliance Wells, TW-B, TW-C, TW-D

TABLE 4 : TREND ANALYSIS

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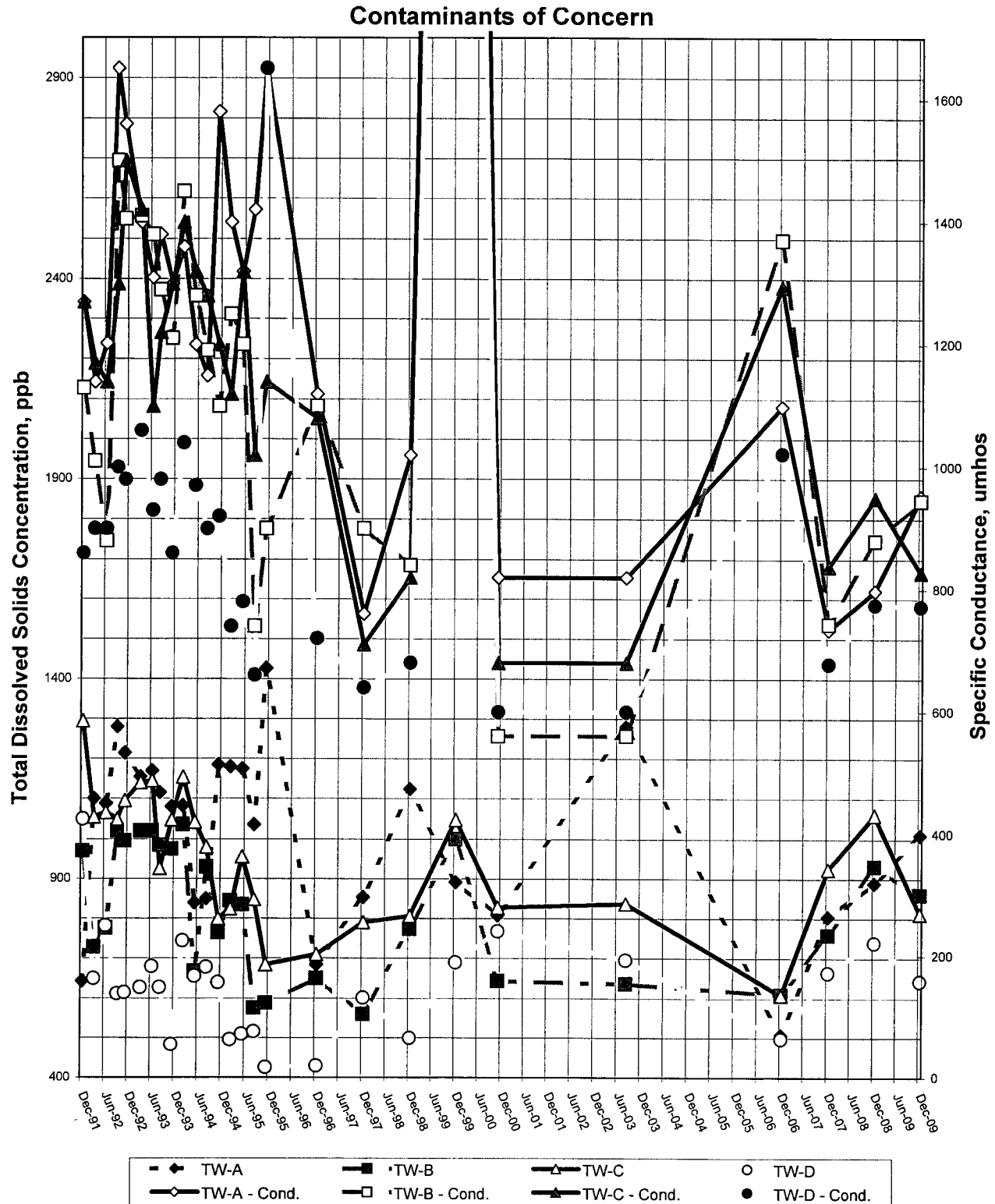


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TABLE 4 : TREND ANALYSIS

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Analytical Results = mg/l



Background well: TW-A; Compliance Wells, TW-B, TW-C, TW-D

Specific Conductance could not be measured on October 24, 2000, used August 28, 2003 data to continue (not breakup) trend analysis.

TABLE 5: METHANE MONITORING

Facility Name : City of Bartow Trash Landfill (Crazy Acres)
Facility Permit No.: 69720-001-SF/14 (former SF53-281851)

All Measurements = ppm
No Data = Blank

PROBE NUMBER	MP-1	MP-2	MP-3	MP-4	MP-5	MP-6
PROBE DIAMETER	2"	2"	2"	2"	2"	2"
PROBE DEPTH	10'	10'	10'	10'	10'	10'
ACCESS	2" Brass Plug inside 3.5" fillbox	2" Brass Plug inside 3.5" fillbox	2" Brass Plug inside 3.5" fillbox	2" Brass Plug inside 3.5" fillbox	2" Brass Plug inside 3.5" fillbox	2" Brass Plug inside 3.5" fillbox
SCREEN INTERVAL	3-10'	3-10'	3-10'	3-10'	3-10'	3-10'
LITHOLOGY	0-4' Sand: gray, fine to medium grained sand	0-8' Sand: gray, fine to medium grained sand				
	4-10' gray to light gray clayey sand	8-10' gray to light gray clayey sand				
Additional Notes	Encounter Carpet 4 to 7', 9.5 to 10'	Encounter Carpet 7' to 10'				
Installation Date	8-27-03	8-27-03	3-29-06	3-29-06	3-29-06	3-29-06

[illegible]

NOTES:

During hollow stem auger drilling of MP-1 & 2, the DTW encountered was approximately 6-feet below land surface; encountered carpet in both bore holes from approximately 4 to 10-feet below land surface.

On August 28, & 29, 2004 used a HeathTec Detecto-Pak III Flame Ionization Dectector.

On September 3, 2003 used a GasTec GT-201 LEL meter.

On December 12, 2007, encountered loose pad at MP-3

TABLE 5: METHANE MONITORING

Facility Name : City of Bartow Trash Landfill (Crazy Acres)
Facility Permit No.: 69720-001-SF/14 (former SF53-281851)

All Measurements = ppm
No Data = Blank

PROBE NUMBER	MP-7	MP-8	MP-9	MP-10	MP-11	MP-12
PROBE DIAMETER	2"	2"	2"	2"	2"	2"
PROBE DEPTH	10'	10'	10'	10'	10'	10'
ACCESS	2" Brass Plug inside 3.5" fillbox	2" Brass Plug inside 3.5" fillbox	2" Brass Plug inside 3.5" fillbox	2" Brass Plug inside 3.5" fillbox	2" Brass Plug inside 3.5" fillbox	2" Brass Plug inside 3.5" fillbox
SCREEN INTERVAL	3-10'	3-10'	3-10'	3-10'	3-10'	3-10'
LITHOLOGY						
Additional Notes						
Installation Date	3-29-06	3-29-06	3-29-06	3-29-06	3-29-06	3-29-06

[illegible]

NOTES:

Proposed Methane Monitoring Points shall be permanent and installed within 90 days of permit issuance.

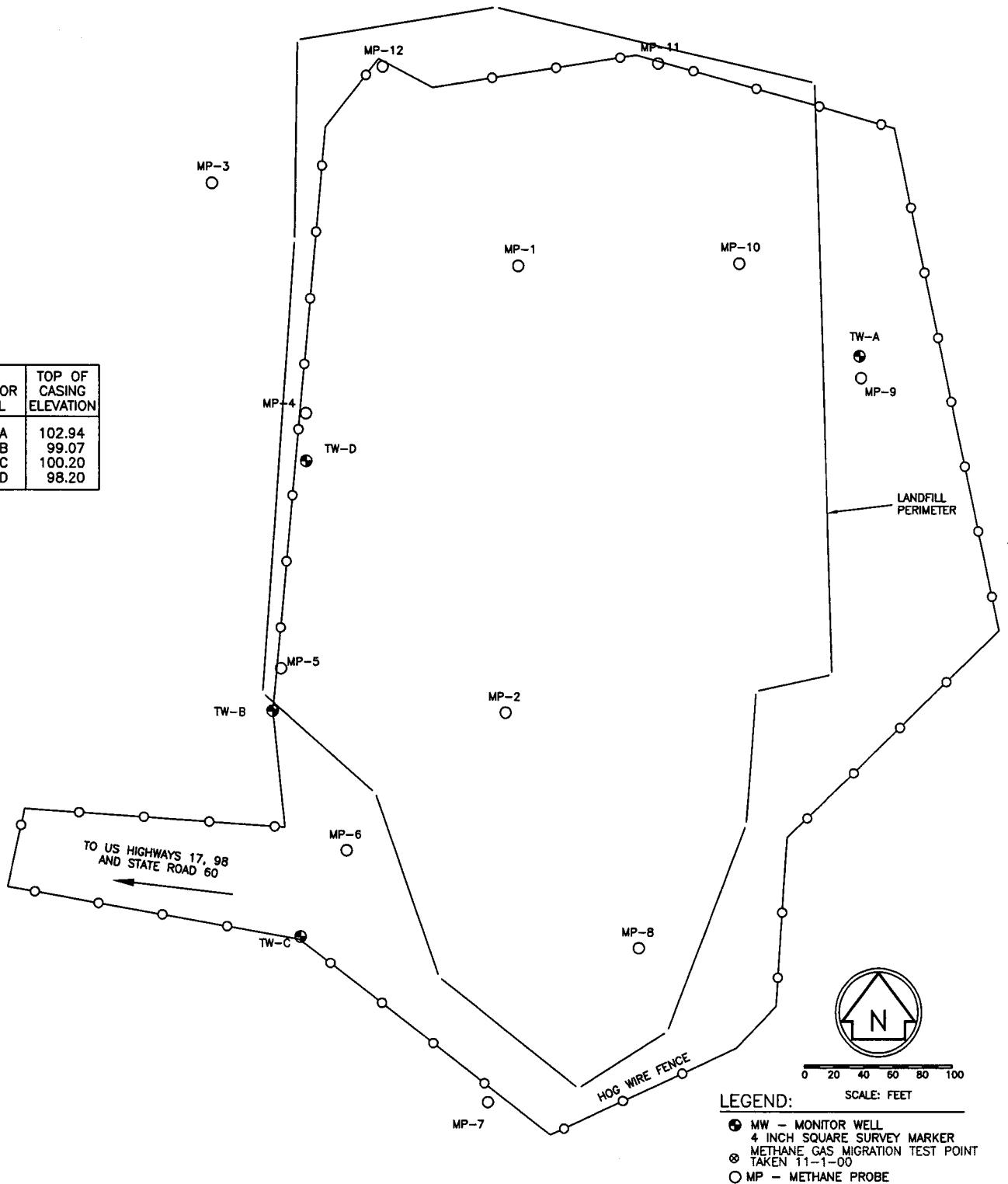
On August 9, 2005 the table was revised to include MP-3 through MP-12 as part of Pending Permit No. 69720-001-SF.

On November 30, 2006, repaired pads on MP-4 through MP-6 & MP-8 through MP-12, repaired stick up on MP-1

On December 12, 2007, encountered a broken pipe at top of MP-9

FIGURES

MONITOR WELL	TOP OF CASING ELEVATION
TW-A	102.94
TW-B	99.07
TW-C	100.20
TW-D	98.20



8242SITE.DWG



IMPERIAL
3905 KIDRON ROAD, LAKELAND, FL

CITY OF BARTOW TRASH LANDFILL

EAST OF N OF US HWYS 17, 98 AND SR 60, BARTOW, FL

**SITE
MAP**

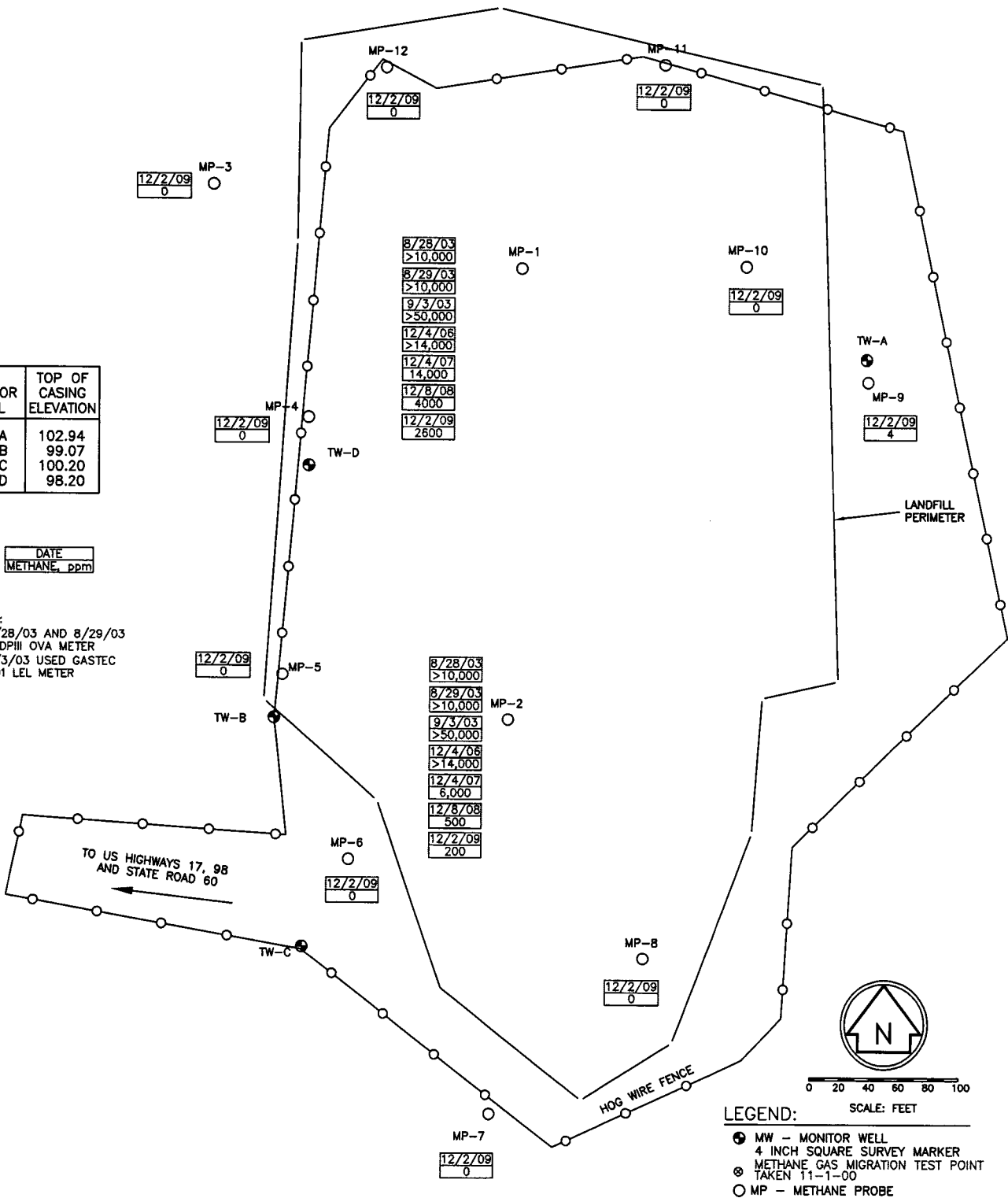
PROJ. NO. 8290

FIGURE NO. 1

MONITOR WELL	TOP OF CASING ELEVATION
TW-A	102.94
TW-B	99.07
TW-C	100.20
TW-D	98.20

DATE
METHANE, ppm

NOTES:
ON 8/28/03 AND 8/29/03
USED DP111 OVA METER
ON 9/3/03 USED GASTEC
GT-201 LEL METER



82429TE.DWG

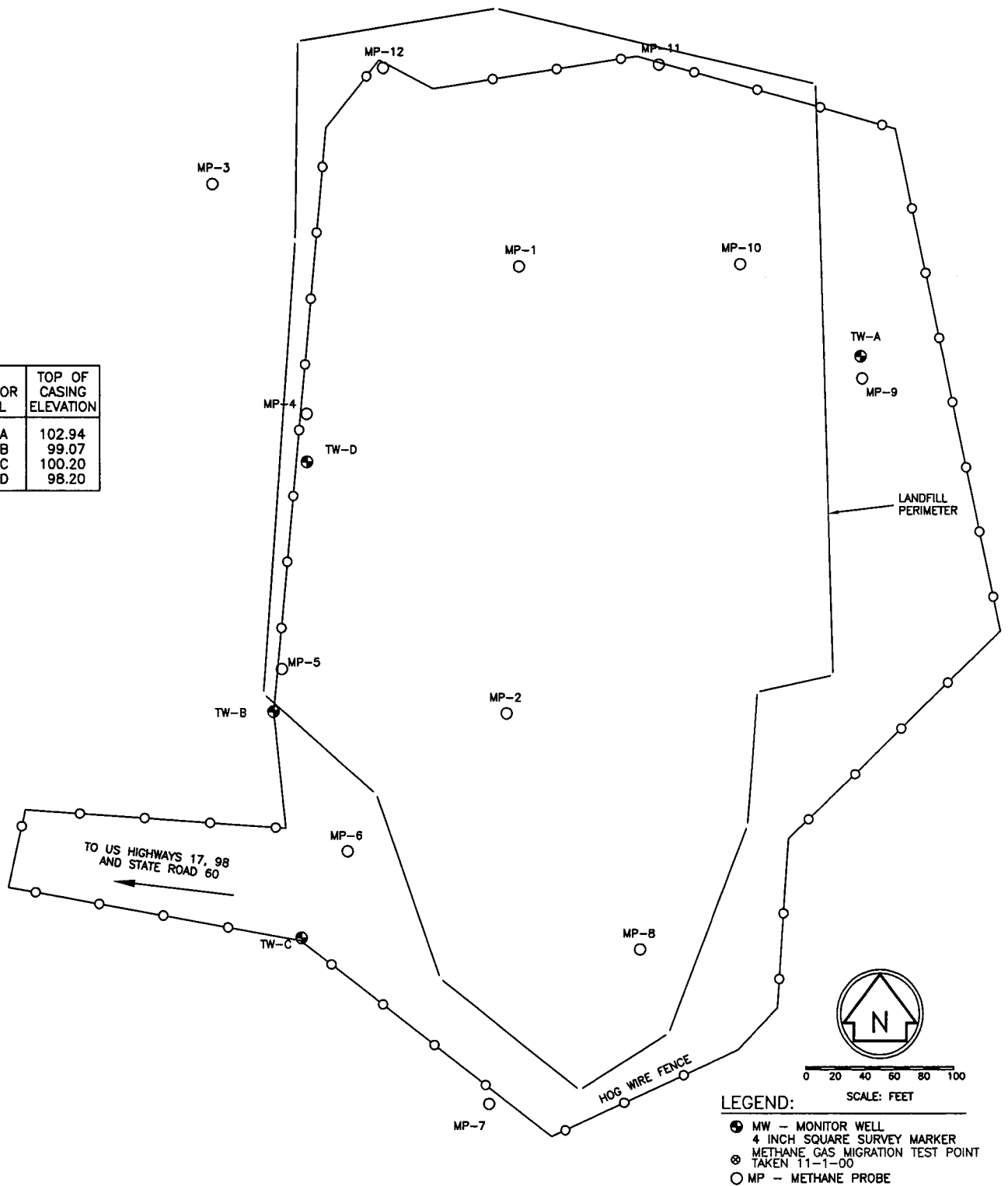


IMPERIAL
3905 KIDRON ROAD, LAKELAND, FL

CITY OF BARTOW TRASH LANDFILL
EAST OF N OF US HWYS 17, 98 AND SR 60, BARTOW, FL

**MONITOR WELL AND METHANE GAS
MIGRATION TEST POINT LOCATION MAP**
PROJ. NO. 8290 FIGURE NO. 3

MONITOR WELL	TOP OF CASING ELEVATION
TW-A	102.94
TW-B	99.07
TW-C	100.20
TW-D	98.20



8242SITE.DWG



IMPERIAL
3905 KIDRON ROAD, LAKELAND, FL

CITY OF BARTOW TRASH LANDFILL

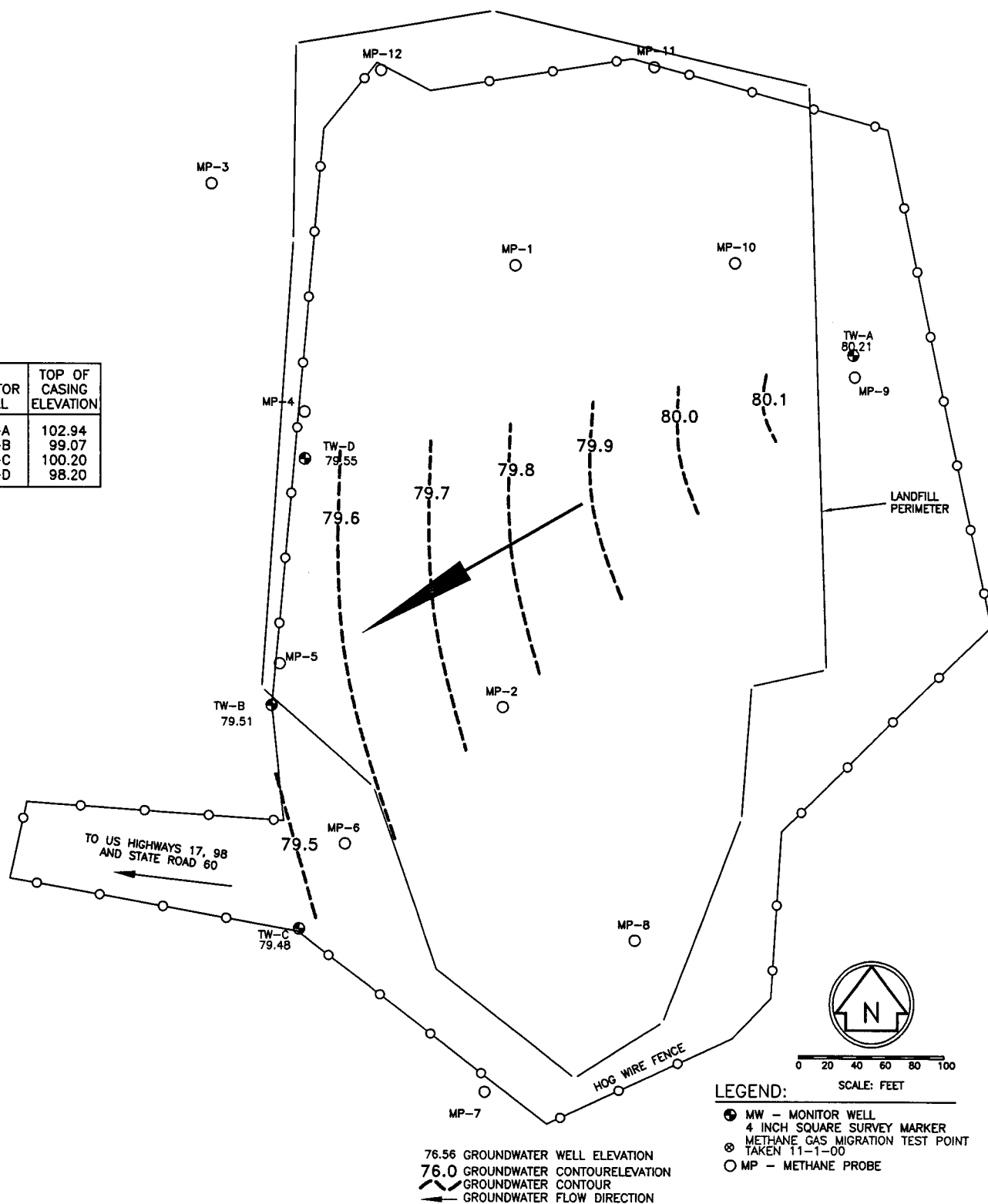
EAST OF N OF US HWYS 17, 98 AND SR 60, BARTOW, FL

SITE
MAP

PROJ. NO. 8290

FIGURE NO. 1

MONITOR WELL	TOP OF CASING ELEVATION
TW-A	102.94
TW-B	99.07
TW-C	100.20
TW-D	98.20



8242 SITE.DWG



IMPERIAL
 3905 KIDRON ROAD, LAKELAND, FL

CITY OF BARTOW TRASH LANDFILL
 EAST OF N OF US HWYS 17, 98 AND SR 60, BARTOW, FL

GROUNDWATER CONTOUR MAP
 DECEMBER 2, 2009

PROJ. NO. 8290 | FIGURE NO. 2



IMPERIAL
3905 KIDRON ROAD, LAKELAND, FL

CITY OF BARTOW TRASH LANDFILL

EAST OF N OF US HWYS 17, 98 AND SR 60, BARTOW, FL

MONITOR WELL AND METHANE GAS
MIGRATION TEST POINT LOCATION MAP

PROJ. NO. 8290	FIGURE NO. 3
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APPENDICES

APPENDIX A

**GROUNDWATER
MONITORING REPORT
FDEP FORMS 62-522.900(2)**

Florida Department of Environmental Protection

Twin Towers Office Bldg. 2600 Blair Stone Road Tallahassee, Florida 323992400

DEP Form # 62-522.900(2)
Form Title <u>Ground Water Monitoring Report</u>
Effective Date _____
DEP Application No. _____

GROUND WATER MONITORING REPORT

Rule 62-522.600(11)

PART I GENERAL INFORMATION

- (1) Facility Name City of Bartow Trash Landfill (a.k.a. Crazy Acres)
- Address U.S. Highway 17, State Road 60 Bypass and U.S. Highway 98 Intersection
- City Bartow Zip 33830
- Telephone Number (863) 647-2877
- (2) The GMS Identification Number 4053M30012
- (3) DEP Permit Number 69720-001-SF, replaces Permit Number SF53-281851
- (4) Authorized Representative Name Michael H. Stillinger, P.E.
- Address 3905 Kidron Road
- City Lakeland Zip 33811
- Telephone Number (863) 647-2877
- (5) Type of Discharge Closed Landfill
- (6) Method of Discharge Closed Landfill

Certification

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Date: 12-16-09

Signature of Owner or Authorized Representative

PART II QUALITY ASSURANCE REQUIREMENTS

Sample Organization Comp QAP # NA

Analytical Lab Comp QAP # /HRS Certification # NELAC Certificate No. E84880

*Comp QAP # /HRS Certification # NA

Lab Name Lakeland Laboratories, LLC

Address 1910 Harden Boulevard, Suite 101, Lakeland, Florida 33803-1829

Phone Number (863) 686-4271

PART III ANALYTICAL RESULTS

Facility GMS #: **4053M30012**Test Site ID #: **3910**

Sampling Date / Time:

12/1/2009 / 13:32

Report Period:

2009 , Year 15

Annual Sampling (not quarterly)

Well Name: **TW-A**

Well Purged (Yes / No)

YesClassification of Groundwater **G-II**Well Type : (**X**) Background

() Intermediate

() Compliance

() Other

Ground Water Elevation (NGVD): **80.21**

or (MSL):

Storet Code	Parameter Monitored	Sampling Method	Field Filtered Yes/No	Analysis Method	Analysis Date / Time		Analysis Results / Units	Detection Limits / Units
00610	Ammonia as N	Grab	No	EPA Method 350.1	12/7/2009	13:00	<0.014 - mg/l	0.014 - mg/l
01097	Antimony	Grab	No	EPA Method 6010B	12/4/2009	13:42	<3.70 - ppb	3.70 - ppb
01002	Arsenic	Grab	No	EPA Method 6010B	12/4/2009	13:42	<2.90 - ppb	2.90 - ppb
01007	Barium	Grab	No	EPA Method 6010B	12/4/2009	13:42	<0.600 - ppb	0.600 - ppb
01012	Beryllium	Grab	No	EPA Method 6010B	12/4/2009	13:42	<0.400 - ppb	0.400 - ppb
01027	Cadmium	Grab	No	EPA Method 6010B	12/4/2009	13:42	<0.400 - ppb	0.400 - ppb
00940	Chloride	Grab	No	Standard Method 4500-Cl E	12/4/2009	9:59	25.3 - mg/l	0.755 - mg/l
01034	Chromium	Grab	No	EPA Method 6010B	12/4/2009	13:42	<3.10 - ppb	3.10 - ppb
01037	Cobalt	Grab	No	EPA Method 6010B	12/4/2009	13:42	<1.10 - ppb	1.10 - ppb
01042	Copper	Grab	No	EPA Method 6010B	12/4/2009	13:42	<2.40 - ppb	2.40 - ppb
01045	Iron	Grab	No	EPA Method 6010B	12/4/2009	13:42	<0.024 - mg/l	0.0244 - mg/l
01051	Lead	Grab	No	EPA Method 6010B	12/4/2009	13:42	<2.50 - ppb	2.50 - ppb
71900	Mercury	Grab	No	EPA Method 7470A	12/8/2009	16:11	<0.100 - ppb	0.100 - ppb
01067	Nickel	Grab	No	EPA Method 6010B	12/4/2009	13:42	11.8 - ppb	1.00 - ppb
00620	Nitrate	Grab	No	Standard Method 4500-NO3 H	12/4/2009	10:00	0.357 l - mg/l	0.295 - mg/l
01147	Selenium	Grab	No	EPA Method 6010B	12/4/2009	13:42	51.9 - ppb	2.50 - ppb
01077	Silver	Grab	No	EPA Method 6010B	12/4/2009	13:42	<5.70 - ppb	5.70 - ppb
00929	Sodium	Grab	No	EPA Method 6010B	12/4/2009	13:42	19.6 - mg/l	0.155 - mg/l
70300	TDS	Grab	No	Standard Method 2540C	12/9/2009	10:00	1010 - mg/l	18.6 - mg/l
01059	Thallium	Grab	No	EPA Method 6010B	12/4/2009	13:42	41.9 - ppb	3.10 - ppb
01087	Vanadium	Grab	No	EPA Method 6010B	12/4/2009	13:42	<7.40 - ppb	7.40 - ppb
01092	Zinc	Grab	No	EPA Method 6010B	12/4/2009	13:42	<0.800 - ppb	0.800 - ppb
00406	pH	Grab	No	Field	12/1/2009	13:32	6.49 - SU	0 - SU
00094	Specific Conductivity	Grab	No	Field	12/1/2009	13:32	952 - umhos	0 - umhos
00299	Dissolved Oxygen	Grab	No	Field	12/1/2009	13:32	0.256 - mg/l	0 - mg/l
82078	Turbidity	Grab	No	Field	12/1/2009	13:32	0.11 - NTUs	0 - NTUs

PART III ANALYTICAL RESULTS

Facility GMS #: **4053M30012**Sampling Date / Time: **12/1/2009 / 12:10**Test Site ID #: **3911**Report Period: **2009 , Year 15**

Annual Sampling (not quarterly)

Well Name: **TW-B**

Well Purged (Yes / No)

YesClassification of Groundwater **G-II**

Well Type : () Background

() Intermediate

Ground Water Elevation (NGVD): **79.51**

(X) Compliance

or (MSL):

() Other

Storet Code	Parameter Monitored	Sampling Method	Field Filtered Yes/No	Analysis Method	Analysis Date / Time		Analysis Results / Units	Detection Limits / Units
00610	Ammonia as N	Grab	No	EPA Method 350.1	12/7/2009	13:00	0.845 - mg/l	0.014 - mg/l
01097	Antimony	Grab	No	EPA Method 6010B	12/4/2009	13:45	<3.70 - ppb	3.70 - ppb
01002	Arsenic	Grab	No	EPA Method 6010B	12/4/2009	13:45	<2.90 - ppb	2.90 - ppb
01007	Barium	Grab	No	EPA Method 6010B	12/4/2009	13:45	<0.600 - ppb	0.600 - ppb
01012	Beryllium	Grab	No	EPA Method 6010B	12/4/2009	13:45	<0.400 - ppb	0.400 - ppb
01027	Cadmium	Grab	No	EPA Method 6010B	12/4/2009	13:45	<0.400 - ppb	0.400 - ppb
00940	Chloride	Grab	No	Standard Method 4500-Cl E	12/4/2009	9:59	14.7 - mg/l	0.755 - mg/l
01034	Chromium	Grab	No	EPA Method 6010B	12/4/2009	13:45	<3.10 - ppb	3.10 - ppb
01037	Cobalt	Grab	No	EPA Method 6010B	12/4/2009	13:45	<1.10 - ppb	1.10 - ppb
01042	Copper	Grab	No	EPA Method 6010B	12/4/2009	13:45	<2.40 - ppb	2.40 - ppb
01045	Iron	Grab	No	EPA Method 6010B	12/4/2009	13:45	0.487 - mg/l	0.0244 - mg/l
01051	Lead	Grab	No	EPA Method 6010B	12/4/2009	13:45	<2.50 - ppb	2.50 - ppb
71900	Mercury	Grab	No	EPA Method 7470A	12/8/2009	16:13	<0.100 - ppb	0.100 - ppb
01067	Nickel	Grab	No	EPA Method 6010B	12/4/2009	13:45	12.0 - ppb	1.00 - ppb
00620	Nitrate	Grab	No	Standard Method 4500-NO3 H	12/4/2009	10:00	0.317 l - mg/l	0.295 - mg/l
01147	Selenium	Grab	No	EPA Method 6010B	12/4/2009	13:45	77.2 - ppb	2.50 - ppb
01077	Silver	Grab	No	EPA Method 6010B	12/4/2009	13:45	<5.70 - ppb	5.70 - ppb
00929	Sodium	Grab	No	EPA Method 6010B	12/4/2009	13:45	15.0 - mg/l	0.155 - mg/l
70300	TDS	Grab	No	Standard Method 2540C	12/9/2009	10:00	860 - mg/l	18.6 - mg/l
01059	Thallium	Grab	No	EPA Method 6010B	12/4/2009	13:45	43.4 - ppb	3.10 - ppb
01087	Vanadium	Grab	No	EPA Method 6010B	12/4/2009	13:45	<7.40 - ppb	7.40 - ppb
01092	Zinc	Grab	No	EPA Method 6010B	12/4/2009	13:45	8.6 - ppb	0.800 - ppb
00406	pH	Grab	No	Field	12/1/2009	12:10	6.37 - SU	0 - SU
00094	Specific Conductivity	Grab	No	Field	12/1/2009	12:10	945 - umhos	0 - umhos
00299	Dissolved Oxygen	Grab	No	Field	12/1/2009	12:10	0.16 - mg/l	0 - mg/l
82078	Turbidity	Grab	No	Field	12/1/2009	12:10	0.21 - NTUs	0 - NTUs

PART III ANALYTICAL RESULTS

Facility GMS #: **4053M30012**Sampling Date / Time: **12/1/2009 / 11:19**Test Site ID #: **3912**Report Period: **2009 , Year 15**

Annual Sampling (not quarterly)

Well Name: **TW-C**Well Purged (Yes / No) **Yes**Classification of Groundwater **G-II**

Well Type : () Background

() Intermediate

Ground Water Elevation (NGVD): **79.48**(☒) Compliance

or (MSL):

() Other

Storet Code	Parameter Monitored	Sampling Method	Field Filtered Yes/No	Analysis Method	Analysis Date / Time		Analysis Results / Units	Detection Limits / Units
00610	Ammonia as N	Grab	No	EPA Method 350.1	12/7/2009	13:00	0.051 l - mg/l	0.014 - mg/l
01097	Antimony	Grab	No	EPA Method 6010B	12/4/2009	13:48	<3.70 - ppb	3.70 - ppb
01002	Arsenic	Grab	No	EPA Method 6010B	12/4/2009	13:48	<2.90 - ppb	2.90 - ppb
01007	Barium	Grab	No	EPA Method 6010B	12/4/2009	13:48	<0.600 - ppb	0.600 - ppb
01012	Beryllium	Grab	No	EPA Method 6010B	12/4/2009	13:48	<0.400 - ppb	0.400 - ppb
01027	Cadmium	Grab	No	EPA Method 6010B	12/4/2009	13:48	<0.400 - ppb	0.400 - ppb
00940	Chloride	Grab	No	Standard Method 4500-Cl E	12/4/2009	9:59	13.2 - mg/l	0.755 - mg/l
01034	Chromium	Grab	No	EPA Method 6010B	12/4/2009	13:48	<3.10 - ppb	3.10 - ppb
01037	Cobalt	Grab	No	EPA Method 6010B	12/4/2009	13:48	<1.10 - ppb	1.10 - ppb
01042	Copper	Grab	No	EPA Method 6010B	12/4/2009	13:48	<2.40 - ppb	2.40 - ppb
01045	Iron	Grab	No	EPA Method 6010B	12/4/2009	13:48	<0.0244 - mg/l	0.0244 - mg/l
01051	Lead	Grab	No	EPA Method 6010B	12/4/2009	13:48	<2.50 - ppb	2.50 - ppb
71900	Mercury	Grab	No	EPA Method 7470A	12/8/2009	16:15	<0.100 - ppb	0.100 - ppb
01067	Nickel	Grab	No	EPA Method 6010B	12/4/2009	13:48	5.50 - ppb	1.00 - ppb
00620	Nitrate	Grab	No	Standard Method 4500-NO3 H	12/4/2009	10:00	0.382 l - mg/l	0.295 - mg/l
01147	Selenium	Grab	No	EPA Method 6010B	12/4/2009	13:48	63.6 - ppb	2.50 - ppb
01077	Silver	Grab	No	EPA Method 6010B	12/4/2009	13:48	<5.70 - ppb	5.70 - ppb
00929	Sodium	Grab	No	EPA Method 6010B	12/4/2009	13:48	12.6 - mg/l	0.155 - mg/l
70300	TDS	Grab	No	Standard Method 2540C	12/9/2009	10:00	812 - mg/l	18.6 - mg/l
01059	Thallium	Grab	No	EPA Method 6010B	12/4/2009	13:48	44.5 - ppb	3.10 - ppb
01087	Vanadium	Grab	No	EPA Method 6010B	12/4/2009	13:48	<7.40 - ppb	7.40 - ppb
01092	Zinc	Grab	No	EPA Method 6010B	12/4/2009	13:48	<0.800 - ppb	0.800 - ppb
00406	pH	Grab	No	Field	12/1/2009	11:19	6.36 - SU	0 - SU
00094	Specific Conductivity	Grab	No	Field	12/1/2009	11:19	828 - umhos	0 - umhos
00299	Dissolved Oxygen	Grab	No	Field	12/1/2009	11:19	0.232 - mg/l	0 - mg/l
82078	Turbidity	Grab	No	Field	12/1/2009	11:19	0.53 - NTUs	0 - NTUs

PART III ANALYTICAL RESULTS

Facility GMS #: **4053M30012**Test Site ID #: **3913**

Sampling Date / Time:

12/1/2009 / 12:47

Report Period:

2009 , Year 15

Annual Sampling (not quarterly)

Well Name: **TW-D**

Well Purged (Yes / No)

Yes

Classification of Groundwater

G-II

Well Type : () Background

() Intermediate

Ground Water Elevation (NGVD):

79.55(**X**) Compliance

or (MSL):

() Other

Storet Code	Parameter Monitored	Sampling Method	Field Filtered Yes/No	Analysis Method	Analysis Date / Time		Analysis Results / Units	Detection Limits / Units
00610	Ammonia as N	Grab	No	EPA Method 350.1	12/7/2009	13:00	0.025 l - mg/l	0.014 - mg/l
01097	Antimony	Grab	No	EPA Method 6010B	12/4/2009	13:51	<3.70 - ppb	3.70 - ppb
01002	Arsenic	Grab	No	EPA Method 6010B	12/4/2009	13:51	<2.90 - ppb	2.90 - ppb
01007	Barium	Grab	No	EPA Method 6010B	12/4/2009	13:51	<0.600 - ppb	0.600 - ppb
01012	Beryllium	Grab	No	EPA Method 6010B	12/4/2009	13:51	<0.400 - ppb	0.400 - ppb
01027	Cadmium	Grab	No	EPA Method 6010B	12/4/2009	13:51	<0.400 - ppb	0.400 - ppb
00940	Chloride	Grab	No	Standard Method 4500-Cl E	12/4/2009	9:59	8.99 - mg/l	0.755 - mg/l
01034	Chromium	Grab	No	EPA Method 6010B	12/4/2009	13:51	<3.10 - ppb	3.10 - ppb
01037	Cobalt	Grab	No	EPA Method 6010B	12/4/2009	13:51	<1.10 - ppb	1.10 - ppb
01042	Copper	Grab	No	EPA Method 6010B	12/4/2009	13:51	<2.40 - ppb	2.40 - ppb
01045	Iron	Grab	No	EPA Method 6010B	12/4/2009	13:51	<0.0244 - mg/l	0.0244 - mg/l
01051	Lead	Grab	No	EPA Method 6010B	12/4/2009	13:51	<2.50 - ppb	2.50 - ppb
71900	Mercury	Grab	No	EPA Method 7470A	12/8/2009	16:17	<0.100 - ppb	0.100 - ppb
01067	Nickel	Grab	No	EPA Method 6010B	12/4/2009	13:51	5.20 - ppb	1.00 - ppb
00620	Nitrate	Grab	No	Standard Method 4500-NO3 H	12/4/2009	10:00	0.944 - mg/l	0.295 - mg/l
01147	Selenium	Grab	No	EPA Method 6010B	12/4/2009	13:51	59.0 - ppb	2.50 - ppb
01077	Silver	Grab	No	EPA Method 6010B	12/4/2009	13:51	<5.70 - ppb	5.70 - ppb
00929	Sodium	Grab	No	EPA Method 6010B	12/4/2009	13:51	10.5 - mg/l	0.155 - mg/l
70300	TDS	Grab	No	Standard Method 2540C	12/9/2009	10:00	643 - mg/l	18.6 - mg/l
01059	Thallium	Grab	No	EPA Method 6010B	12/4/2009	13:51	42.9 - ppb	3.10 - ppb
01087	Vanadium	Grab	No	EPA Method 6010B	12/4/2009	13:51	<7.40 - ppb	7.40 - ppb
01092	Zinc	Grab	No	EPA Method 6010B	12/4/2009	13:51	14.0 - ppb	0.800 - ppb
00406	pH	Grab	No	Field	12/1/2009	12:47	6.47 - SU	0 - SU
00094	Specific Conductivity	Grab	No	Field	12/1/2009	12:47	772 - umhos	0 - umhos
00299	Dissolved Oxygen	Grab	No	Field	12/1/2009	12:47	0.208 - mg/l	0 - mg/l
82078	Turbidity	Grab	No	Field	12/1/2009	12:47	0.37 - NTUs	0 - NTUs

APPENDIX B

**METHANE MONITORING
AND
GROUNDWATER SAMPLING
FIELD REPORTS
AND
CHAIN OF CUSTODY FORMS**

Imperial Testing Laboratories

3905 Kidron Road, Lakeland, FL 33811
Telephone: (863) 647-2877 Fax: (863) 647-1770

WATER LEVEL MEASUREMENTS

SITE NAME **City of Bartow Crazy Acres Landfill** PROJECT #: **8290**
Measuring Point: TOC Water Level Indicator Yes NO
Signed: Date: **December 2**, 2009

Well No.	Depth to Water	Well Depth	Stick UP	Measured By	Notes
TW-A	22.73				
TW-B	19.56				
TW-C	20.72				
TW-D	18.65				

Ambient Field Conditions
Field decon Y N
List personnel and visitors on site
Nic Nicols

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24 (interim revision)
GROUNDWATER SAMPLING LOG

SITE NAME: City of Bartow Crazy Acres Landfill	SITE LOCATION: US Hwy 17, SR 60 Bypass & US Hwy 98, Bartow, Florida
WELL NO: TW-B	SAMPLE ID: GWS
DATE: December 2 , 2009	

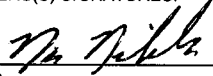
PURGING DATA

WELL	TUBING	WELL SCREEN INTERVAL	STATIC DEPTH	PURGE PUMP TYPE	Peristaltic /
DIAMETER (inches): 4	DIAMETER (inches): 1 1/2	DEPTH 14 feet to 40 feet	TO WATER (feet): 19.56	OR BAILER:	Submersible
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) x WELL CAPACITY (only fill out if applicable)					
= 40 feet - 19.56 feet X 0.65 gallons/foot = 13.286 gallons					
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable)					
= 21' gallons + (21' gallons/foot X 17 feet) + 17 gallons					
INITIAL PUMP OR TUBING DEPTH IN WELL (feet): ~ 21'		FINAL PUMP OR TUBING DEPTH IN WELL (feet): ~ 21'		PURGING INITIATED AT: 11:35	PURGE ENDED AT: 12:09
TOTAL VOLUME PURGED (gallons): 17					

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (µmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle mg/L or % saturation)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
12:03	1.4	1.4	.5	19.56	6.36	22.4	946	2.3	0.32	clear	none
12:06	1.5	15.5	.5	19.56	6.38	22.4	948	2.1	0.16	"	"
12:09	1.5	17.0	.50	19.56	6.37	22.4	945	2.0	0.21	"	"

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal/Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Nic Nicols / Imperial				SAMPLERS(S) SIGNATURES: 			SAMPLING INITIATED AT: 12:10		SAMPLING ENDED AT: 12:15	
PUMP OR TUBING DEPTH IN WELL (feet): ~ 21'				TUBING MATERIAL CODE: Polyethylene			FIELD-FILTERED: Y ☒ FILTER SIZE: _____ µm		FILTRATION EQUIPMENT TYPE: _____	
FIELD DECONTAMINATION: PUMP: Y ☒ TUBING: Y ☒				DUPLICATE: Y ☒						

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			
GWS	1	PE	1.0 liter	H ₂ SO ₄ & Ice	0	6.37	Total Ammonia as N	APP / ESP	1.5 gpm
GWS	1	PE	1.0 liter	ICE	0	6.37	Chlorides	APP / ESP	1.5 gpm
GWS	1	PE	1.0 liter	H ₂ SO ₄ & Ice	0	6.37	Nitrate as N	APP / ESP	1.5 gpm
GWS	1	PE	1.0 liter	ICE	0		TDS	APP / ESP	1.5 gpm
GWS	1	PE	4.0 ounces	H ₂ SO ₄ & Ice	0	6.37	Sb, As, Ba, Be, Cd, Cr, Co, Cu, Fe, Pb, Ni, Se, Ag, Na, Ti, V, Zn	APP / ESP	gpm
GWS	1	PE	4.0 ounces	H ₂ SO ₄ & Ice	0	6.37	Mercury	APP / ESP	
GWS	3	CG	40 ml	ICE	0	6.37	VOAs/VOHs, 82005	SM	<100

REMARKS:

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (specify)
SAMPLING APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump;
EQUIPMENT CODES: RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (specify)

- NOTES:
- The above do not constitute all of the information required by Chapter 62-160, F.A.C.
 - STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ±0.2 units Temperature: ±0.2 °C Specific Conductance: ±5% Dissolved Oxygen: all readings <20% saturation (see Tables FS2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) Turbidity: all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

WELL DIAMETER (inches):	4	TUBING DIAMETER (inches):	1/4 <u>1/2</u>	WELL SCREEN INTERVAL DEPTH	20 feet to 40 feet	STATIC DEPTH	26.72	PURGE PUMP TYPE OR BAILER:	Peristaltic / Submersible
----------------------------	---	------------------------------	-------------------	-------------------------------	--------------------	--------------	-------	-------------------------------	------------------------------

(only fill out if applicable)

$$= 40 \text{ feet} - 20.77 \text{ feet} \times 0.65 \text{ gallons/foot} = 12.532 \text{ gallons}$$

(only fill out if applicable)

$$= \text{gallons} + (\text{gallons/foot} \times \text{feet}) + \text{gallons}$$

INITIAL PUMP OR TUBING
DEPTH IN WELL (feet):

FINAL PUMP OR TUBING
DEPTH IN WELL (feet): ~22'

PURGING 10:44
INITIATED AT:

PURGE
ENDED AT: 11:28

TOTAL VOLUME PURGED (gallons)	17
----------------------------------	----

[illegible]

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88

TUBING INSIDE DIA. CAPACITY (Gal/Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLED BY (PRINT) / AFFILIATION		SAMPLERS(S) SIGNATURES:		SAMPLING INITIATED AT: 11:19		SAMPLING ENDED AT: 11:25	
Nic Nicols / Imperial							
PUMP OR TUBING DEPTH IN WELL (feet): ~22'		TUBING MATERIAL CODE: Polyethylene		FIELD-FILTERED: Y N		FILTER SIZE: _____ µm	
				FILTRATION EQUIPMENT TYPE:			
FIELD DECONTAMINATION: PUMP: Y TUBING: Y				DUPLICATE: Y			

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			
GWS	1	PE	1.0 liter	H ₂ SO ₄ & Ice	0	6.36	Total Ammonia as N	APP / ESP	1.5 gpm
GWS	1	PE	1.0 liter	ICE	0	6.92	Chlorides	APP / ESP	1.5 gpm
GWS	1	PE	1.0 liter	H ₂ SO ₄ & Ice	0	6.36	Nitrate as N	APP / ESP	1.5 gpm
GWS	1	PE	1.0 liter	ICE	0	6.36	TDS	APP / ESP	1.5 gpm
GWS	1	PE	4.0 ounces	H ₂ SO ₄ & Ice	0	6.36	Sb, As, Ba, Be, Cd, Cr, Co, Cu, Fe, Pb, Ni, Se, Ag, Na, Ti, V, Zn	APP / ESP	1.5 gpm
GWS	1	PE	4.0 ounces	H ₂ SO ₄ & Ice	0	6.36	Mercury	APP / ESP	1.5 gpm
GWS	3	CG	40 ml	ICE	0	6.36	VOAs/VOHs: 8260B	SM	100

REMARKS:

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (specify)

SAMPLING APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump;

EQUIPMENT CODES: RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (specify)

NOTES:

1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units Temperature: $\pm 0.2^{\circ}\text{C}$ Specific Conductance: $\pm 5\%$ Dissolved Oxygen: all readings $< 20\%$ saturation (see Tables FS2200-2);
optionally, $\pm 0.2\text{ mg/L}$ or $\pm 10\%$ (whichever is greater) Turbidity: all readings $< 20\text{ NTU}$; optionally $\pm 5\text{ NTU}$ or $\pm 10\%$ (whichever is greater)

IMPERIAL TESTING AND ENGINEERING OVA MEASUREMENTS

Project No./Name 8290 / City of Bartow Crazy Acres Landfill Sample Collection Date Dec. 2, 2009
 Location: US Hwy 17, SR 60 Bypass & US Hwy 98, Bartow, Florida Sample Type: Soil Water
 Boring/Well No: Methane Monitoring Points Total Depth of Boring/Well (BLS) 10-feet
 Instrument Used: PORTA FID II DP II FID Other _____
 Method Used: Head Space Screening Other _____
 OVA Technician: Nic Nicols
 Calibrated At: 100 ppm Methane (CH₄) Temperature _____ F _____ C

Ambient Field Conditions _____

DATE OVA RUN	SAMPLE NUMBER		PPM x SCALE=		TOTAL ppm	NET ppm	OBSERVATIONS
Dec. 2, 2009	MP-1	FILTERED	3080	400	2680	---	
		UNFILTERED	---	---			
Dec. 2, 2009	MP-2	FILTERED	500	240	260	---	
		UNFILTERED	---	---			
Dec. 2, 2009	MP-3	FILTERED	0			---	
		UNFILTERED	---	---			
Dec. 2, 2009	MP-4	FILTERED	0			---	
		UNFILTERED	---	---			
Dec. 2, 2009	MP-5	FILTERED	0			---	
		UNFILTERED	---	---			
Dec. 2, 2009	MP-6	FILTERED	0			---	
		UNFILTERED	---	---			
Dec. 2, 2009	MP-7	FILTERED	0			---	
		UNFILTERED	---	---			
Dec. 2, 2009	MP-8	FILTERED	0			---	
		UNFILTERED	---	---			
Dec. 2, 2009	MP-9	FILTERED	4	0	4	---	
		UNFILTERED	---	---			
Dec. 2, 2009	MP-10	FILTERED	0			---	
		UNFILTERED	---	---			
Dec. 2, 2009	MP-11	FILTERED	0			---	
		UNFILTERED	---	---			
Dec. 2, 2009	MP-12	FILTERED	0			---	
		UNFILTERED	---	---			

Unknown 0

APPENDIX C

LABORATORY ANALYTICAL REPORT

Analytical Report #: 20547

for

Imperial Testing Laboratories

Project Manager: Michael H. Stillinger, PE

Project Name: City of Bartow Crazy Acres Landfill

Project ID: 8290

Project Location: U.S. Highway 17 and S.R; Bartow, FL

11-DEC-09



NELAP Certification Number: E84880

1910 Harden Boulevard, Suite 101

Lakeland, Florida 33803-1829

Phone: (863) 686-4271

Fax: (863) 686-4389



11-DEC-09

Michael H. Stillinger, PE
Imperial Testing Laboratories
3905 Kidron Road
Lakeland, FL 33811

Reference: LAKELAND Work Order No: **20547**
City of Bartow Crazy Acres Landfill
Project Location: U.S. Highway 17 and S.R; Bartow, FL
Project Ref No: 8290
Lab Quote No:

Dear Michael H. Stillinger, PE :

The attached Analytical and QC Summaries list the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Lakeland Laboratories Work Order numbered **20547**.

All work recorded herein has been done in accordance with normal professional standards using accepted testing methodologies and QA/QC procedures. Lakeland Laboratories is limited in liability to the actual cost of the pertinent analysis done. Your samples will be retained by Lakeland Laboratories for a period of 30 days following receipt of the samples. After that time, they will be properly disposed of without further notice, unless there is a pre-arranged contractual arrangement. We reserve the right to return any unused samples, extracts or related solutions to you, if we consider it necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Lakeland Laboratories. This report will be filed for at least 3 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you.

We thank you for selecting Lakeland Laboratories Incorporated to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Sincerely,

James M. Crawford
Quality Assurance Officer

1910 Harden Boulevard, Suite 101
Lakeland, Florida 33803-1829
Phone: (863) 686-4271
Fax: (863) 686-4389



Certificate of Analysis Summary 20547

Imperial Testing Laboratories, Lakeland, FL

Project Name: City of Bartow Crazy Acres Landfill

Project Id: 8290

Date Received in Lab: Dec-03-09 04:43 pm

Contact: Michael H. Stillinger, PE

Report Date: 11-DEC-09

Project Location: U.S. Highway 17 and S.R.; Bartow, FL

Project Manager: Mark A. Alessandroni, PE

<i>Analysis Requested</i>	<i>Lab Id:</i> <i>Field Id:</i> <i>Depth:</i> <i>Matrix:</i> <i>Sampled:</i>	20547-001 TW-A	20547-002 TW-B	20547-003 TW-C	20547-004 TW-D
		GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
		Dec-02-09 13:37	Dec-02-09 12:15	Dec-02-09 11:27	Dec-02-09 12:51
Chloride by SM4500-Cl E	<i>Extracted:</i> <i>Analyzed:</i> <i>Units/RL:</i>	Dec-04-09 09:59 mg/L PQL	Dec-04-09 09:59 mg/L PQL	Dec-04-09 09:59 mg/L PQL	Dec-04-09 09:59 mg/L PQL
Chloride		25.3 1.00	14.7 1.00	13.2 1.00	8.99 1.00
Mercury by EPA 7470A	<i>Extracted:</i> <i>Analyzed:</i> <i>Units/RL:</i>	Dec-08-09 15:35 Dec-08-09 16:11 ug/L PQL	Dec-08-09 15:35 Dec-08-09 16:13 ug/L PQL	Dec-08-09 15:35 Dec-08-09 16:15 ug/L PQL	Dec-08-09 15:35 Dec-08-09 16:17 ug/L PQL
Mercury		U 1.00	U 1.00	U 1.00	U 1.00
Nitrate (as N) by SM4500-NO3 H	<i>Extracted:</i> <i>Analyzed:</i> <i>Units/RL:</i>	Dec-04-09 10:00 mg/L PQL	Dec-04-09 10:00 mg/L PQL	Dec-04-09 10:00 mg/L PQL	Dec-04-09 10:00 mg/L PQL
Nitrate (as N)		0.357 I 0.500	0.317 I 0.500	0.382 I 0.500	0.944 0.500
Residue, Filterable (TDS) by SM2540C	<i>Extracted:</i> <i>Analyzed:</i> <i>Units/RL:</i>	Dec-09-09 10:00 mg/L PQL	Dec-09-09 10:00 mg/L PQL	Dec-09-09 10:00 mg/L PQL	Dec-09-09 10:00 mg/L PQL
Total Dissolved Solids		1010 20.0	860 20.0	812 20.0	643 20.0
Total Metals by EPA 6010B	<i>Extracted:</i> <i>Analyzed:</i> <i>Units/RL:</i>	Dec-04-09 08:53 Dec-04-09 13:42 ug/L PQL	Dec-04-09 08:53 Dec-04-09 13:45 ug/L PQL	Dec-04-09 08:53 Dec-04-09 13:48 ug/L PQL	Dec-04-09 08:53 Dec-04-09 13:51 ug/L PQL
Antimony		U 10.0	U 10.0	U 10.0	U 10.0
Arsenic		U 5.00	U 5.00	U 5.00	U 5.00
Barium		U 10.0	U 10.0	U 10.0	U 10.0
Beryllium		U 3.00	U 3.00	U 3.00	U 3.00
Cadmium		U 1.00	U 1.00	U 1.00	U 1.00
Chromium		U 5.00	U 5.00	U 5.00	U 5.00
Cobalt		U 2.00	U 2.00	U 2.00	U 2.00
Copper		U 10.0	U 10.0	U 10.0	U 10.0
Iron		U 30.0	487 30.0	U 30.0	U 30.0
Lead		U 5.00	U 5.00	U 5.00	U 5.00
Nickel		11.8 5.00	12.0 5.00	5.50 5.00	5.20 5.00
Selenium		51.9 5.00	77.2 5.00	63.6 5.00	59.0 5.00
Silver		U 10.0	U 10.0	U 10.0	U 10.0
Sodium		19600 D 500	15000 D 500	12600 D 250	10500 D 250
Thallium		41.9 4.00	43.4 4.00	44.5 4.00	42.9 4.00
Vanadium		U 20.0	U 20.0	U 20.0	U 20.0
Zinc		U 5.00	8.60 5.00	U 5.00	14.0 5.00



Certificate of Analysis #: 20547

Imperial Testing Laboratories, Lakeland, FL
City of Bartow Crazy Acres Landfill



Sample Id: TW-A	Matrix: GROUND WATER	Date Received: Dec-03-09 16:43
Lab Sample Id: 20547-001	Date Collected: Dec-02-09 13:37	% Moisture:
Sample Depth:		Basis: Wet

Analytical Method: Chloride by SM4500-Cl E	Prep Method:
Date Analyzed: Dec-04-09 09:59	Analyst: SARMCK
Seq Number: 68760	Date Prep:
	Tech: SARMCK

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Chloride	16887-00-6	25.3	1.00	0.755	mg/L		1

Analytical Method: Mercury by EPA 7470A	Prep Method: SW3010A
Date Analyzed: Dec-08-09 16:11	Analyst: TRAWIL
Seq Number: 68800	Date Prep: Dec-08-09 15:35
	Tech: TRAWIL

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Mercury	7439-97-6	U	1.00	0.100	ug/L	U	1

Analytical Method: Nitrate (as N) by SM4500-NO3 H	Prep Method:
Date Analyzed: Dec-04-09 10:00	Analyst: SARMCK
Seq Number: 68761	Date Prep:
	Tech: SARMCK

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Nitrate (as N)	7727-37-9	0.357 I	0.500	0.295	mg/L	I	1

Analytical Method: Residue, Filterable (TDS) by SM2540C	Prep Method:
Date Analyzed: Dec-09-09 10:00	Analyst: SARMCK
Seq Number: 68810	Date Prep:
	Tech: SARMCK

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Total Dissolved Solids	TDS	1010	20.0	18.6	mg/L		1

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Results of liquid samples are reported on a wet-weight basis unless otherwise indicated. Results of solid samples are reported on a dry-weight basis unless otherwise indicated.

Imperial Testing Laboratories, Lakeland, FL
City of Bartow Crazy Acres Landfill

Sample Id: TW-A	Matrix: GROUND WATER	Date Received: Dec-03-09 16:43
Lab Sample Id: 20547-001	Date Collected: Dec-02-09 13:37	% Moisture:
Sample Depth:		Basis: Wet

Analytical Method: Total Metals by EPA 6010B		Prep Method: SW3010A	
Date Analyzed: Dec-04-09 13:42	Analyst: TRAWIL	Date Prep: Dec-04-09 08:53	Tech: TRAWIL
Seq Number: 68773			

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Antimony	7440-36-0	U	10.0	3.70	ug/L	U	1
Arsenic	7440-38-2	U	5.00	2.90	ug/L	U	1
Barium	7440-39-3	U	10.0	0.600	ug/L	U	1
Beryllium	7440-41-7	U	3.00	0.400	ug/L	U	1
Cadmium	7440-43-9	U	1.00	0.400	ug/L	U	1
Chromium	7440-47-3	U	5.00	3.10	ug/L	U	1
Cobalt	7440-48-4	U	2.00	1.10	ug/L	U	1
Copper	7440-50-8	U	10.0	2.40	ug/L	U	1
Iron	7439-89-6	U	30.0	24.4	ug/L	U	1
Lead	7439-92-1	U	5.00	2.50	ug/L	U	1
Nickel	7440-02-0	11.8	5.00	1.00	ug/L		1
Selenium	7782-49-2	51.9	5.00	2.50	ug/L		1
Silver	7440-22-4	U	10.0	5.70	ug/L	U	1
Sodium	7440-23-5	19600 D	500	155	ug/L	D	50
Thallium	7440-28-0	41.9	4.00	3.10	ug/L		1
Vanadium	7440-62-2	U	20.0	7.40	ug/L	U	1
Zinc	7440-66-6	U	5.00	0.800	ug/L	U	1

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Results of liquid samples are reported on a wet-weight basis unless otherwise indicated. Results of solid samples are reported on a dry-weight basis unless otherwise indicated.



Certificate of Analysis #: 20547



Imperial Testing Laboratories, Lakeland, FL
City of Bartow Crazy Acres Landfill

Sample Id: TW-B	Matrix: GROUND WATER	Date Received: Dec-03-09 16:43
Lab Sample Id: 20547-002	Date Collected: Dec-02-09 12:15	% Moisture:
Sample Depth:		Basis: Wet

Analytical Method: Chloride by SM4500-Cl E			Prep Method:		
Date Analyzed: Dec-04-09 09:59	Analyst: SARMCK	Date Prep:	Tech: SARMCK		
	Seq Number: 68760				

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Chloride	16887-00-6	14.7	1.00	0.755	mg/L		1

Analytical Method: Mercury by EPA 7470A			Prep Method: SW3010A		
Date Analyzed: Dec-08-09 16:13	Analyst: TRAWIL	Date Prep: Dec-08-09 15:35	Tech: TRAWIL		
	Seq Number: 68800				

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Mercury	7439-97-6	U	1.00	0.100	ug/L	U	1

Analytical Method: Nitrate (as N) by SM4500-NO3 H			Prep Method:		
Date Analyzed: Dec-04-09 10:00	Analyst: SARMCK	Date Prep:	Tech: SARMCK		
	Seq Number: 68761				

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Nitrate (as N)	7727-37-9	0.317 I	0.500	0.295	mg/L	I	1

Analytical Method: Residue, Filterable (TDS) by SM2540C			Prep Method:		
Date Analyzed: Dec-09-09 10:00	Analyst: SARMCK	Date Prep:	Tech: SARMCK		
	Seq Number: 68810				

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Total Dissolved Solids	TDS	860	20.0	18.6	mg/L		1

*

Results of liquid samples are reported on a wet-weight basis unless otherwise indicated. Results of solid samples are reported on a dry-weight basis unless otherwise indicated.



**LAKELAND
LABORATORIES**

Certificate of Analysis #: 20547

Imperial Testing Laboratories, Lakeland, FL
City of Bartow Crazy Acres Landfill



Sample Id: TW-B	Matrix: GROUND WATER	Date Received: Dec-03-09 16:43
Lab Sample Id: 20547-002	Date Collected: Dec-02-09 12:15	% Moisture:
Sample Depth:		Basis: Wet

Analytical Method: Total Metals by EPA 6010B		Prep Method: SW3010A	
Date Analyzed: Dec-04-09 13:45	Analyst: TRAWIL	Date Prep: Dec-04-09 08:53	Tech: TRAWIL
	Seq Number: 68773		

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Antimony	7440-36-0	U	10.0	3.70	ug/L	U	1
Arsenic	7440-38-2	U	5.00	2.90	ug/L	U	1
Barium	7440-39-3	U	10.0	0.600	ug/L	U	1
Beryllium	7440-41-7	U	3.00	0.400	ug/L	U	1
Cadmium	7440-43-9	U	1.00	0.400	ug/L	U	1
Chromium	7440-47-3	U	5.00	3.10	ug/L	U	1
Cobalt	7440-48-4	U	2.00	1.10	ug/L	U	1
Copper	7440-50-8	U	10.0	2.40	ug/L	U	1
Iron	7439-89-6	487	30.0	24.4	ug/L		1
Lead	7439-92-1	U	5.00	2.50	ug/L	U	1
Nickel	7440-02-0	12.0	5.00	1.00	ug/L		1
Selenium	7782-49-2	77.2	5.00	2.50	ug/L		1
Silver	7440-22-4	U	10.0	5.70	ug/L	U	1
Sodium	7440-23-5	15000 D	500	155	ug/L	D	50
Thallium	7440-28-0	43.4	4.00	3.10	ug/L		1
Vanadium	7440-62-2	U	20.0	7.40	ug/L	U	1
Zinc	7440-66-6	8.60	5.00	0.800	ug/L		1

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Results of liquid samples are reported on a wet-weight basis unless otherwise indicated. Results of solid samples are reported on a dry-weight basis unless otherwise indicated.



Certificate of Analysis #: 20547



Imperial Testing Laboratories, Lakeland, FL
City of Bartow Crazy Acres Landfill

Sample Id: TW-C	Matrix: GROUND WATER	Date Received: Dec-03-09 16:43
Lab Sample Id: 20547-003	Date Collected: Dec-02-09 11:27	% Moisture:
Sample Depth:		Basis: Wet

Analytical Method: Chloride by SM4500-Cl E			Prep Method:		
Date Analyzed: Dec-04-09 09:59	Analyst: SARMCK	Date Prep:	Tech: SARMCK		
	Seq Number: 68760				

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Chloride	16887-00-6	13.2	1.00	0.755	mg/L		1

Analytical Method: Mercury by EPA 7470A			Prep Method: SW3010A		
Date Analyzed: Dec-08-09 16:15	Analyst: TRAWIL	Date Prep: Dec-08-09 15:35	Tech: TRAWIL		
	Seq Number: 68800				

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Mercury	7439-97-6	U	1.00	0.100	ug/L	U	1

Analytical Method: Nitrate (as N) by SM4500-NO3 H			Prep Method:		
Date Analyzed: Dec-04-09 10:00	Analyst: SARMCK	Date Prep:	Tech: SARMCK		
	Seq Number: 68761				

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Nitrate (as N)	7727-37-9	0.382 I	0.500	0.295	mg/L	I	1

Analytical Method: Residue, Filterable (TDS) by SM2540C			Prep Method:		
Date Analyzed: Dec-09-09 10:00	Analyst: SARMCK	Date Prep:	Tech: SARMCK		
	Seq Number: 68810				

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Total Dissolved Solids	TDS	812	20.0	18.6	mg/L		1

*

Results of liquid samples are reported on a wet-weight basis unless otherwise indicated. Results of solid samples are reported on a dry-weight basis unless otherwise indicated.

Sample Id: TW-C	Matrix: GROUND WATER	Date Received: Dec-03-09 16:43
Lab Sample Id: 20547-003	Date Collected: Dec-02-09 11:27	% Moisture:
Sample Depth:		Basis: Wet

Analytical Method: Total Metals by EPA 6010B		Prep Method: SW3010A	
Date Analyzed: Dec-04-09 13:48	Analyst: TRAWIL	Date Prep: Dec-04-09 08:53	Tech: TRAWIL
Seq Number: 68773			

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Antimony	7440-36-0	U	10.0	3.70	ug/L	U	1
Arsenic	7440-38-2	U	5.00	2.90	ug/L	U	1
Barium	7440-39-3	U	10.0	0.600	ug/L	U	1
Beryllium	7440-41-7	U	3.00	0.400	ug/L	U	1
Cadmium	7440-43-9	U	1.00	0.400	ug/L	U	1
Chromium	7440-47-3	U	5.00	3.10	ug/L	U	1
Cobalt	7440-48-4	U	2.00	1.10	ug/L	U	1
Copper	7440-50-8	U	10.0	2.40	ug/L	U	1
Iron	7439-89-6	U	30.0	24.4	ug/L	U	1
Lead	7439-92-1	U	5.00	2.50	ug/L	U	1
Nickel	7440-02-0	5.50	5.00	1.00	ug/L		1
Selenium	7782-49-2	63.6	5.00	2.50	ug/L		1
Silver	7440-22-4	U	10.0	5.70	ug/L	U	1
Sodium	7440-23-5	12600 D	250	77.5	ug/L	D	25
Thallium	7440-28-0	44.5	4.00	3.10	ug/L		1
Vanadium	7440-62-2	U	20.0	7.40	ug/L	U	1
Zinc	7440-66-6	U	5.00	0.800	ug/L	U	1

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Results of liquid samples are reported on a wet-weight basis unless otherwise indicated. Results of solid samples are reported on a dry-weight basis unless otherwise indicated.



Certificate of Analysis #: 20547

Imperial Testing Laboratories, Lakeland, FL
City of Bartow Crazy Acres Landfill



Sample Id: TW-D	Matrix: GROUND WATER	Date Received: Dec-03-09 16:43
Lab Sample Id: 20547-004	Date Collected: Dec-02-09 12:51	% Moisture:
Sample Depth:		Basis: Wet

Analytical Method: Chloride by SM4500-Cl E	Prep Method:
Date Analyzed: Dec-04-09 09:59	Analyst: SARMCK
Seq Number: 68760	Date Prep:
	Tech: SARMCK

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Chloride	16887-00-6	8.99	1.00	0.755	mg/L		1

Analytical Method: Mercury by EPA 7470A	Prep Method: SW3010A
Date Analyzed: Dec-08-09 16:17	Analyst: TRAWIL
Seq Number: 68800	Date Prep: Dec-08-09 15:35
	Tech: TRAWIL

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Mercury	7439-97-6	U	1.00	0.100	ug/L	U	1

Analytical Method: Nitrate (as N) by SM4500-NO3 H	Prep Method:
Date Analyzed: Dec-04-09 10:00	Analyst: SARMCK
Seq Number: 68761	Date Prep:
	Tech: SARMCK

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Nitrate (as N)	7727-37-9	0.944	0.500	0.295	mg/L		1

Analytical Method: Residue, Filterable (TDS) by SM2540C	Prep Method:
Date Analyzed: Dec-09-09 10:00	Analyst: SARMCK
Seq Number: 68810	Date Prep:
	Tech: SARMCK

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Total Dissolved Solids	TDS	643	20.0	18.6	mg/L		1

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Results of liquid samples are reported on a wet-weight basis unless otherwise indicated. Results of solid samples are reported on a dry-weight basis unless otherwise indicated.

Sample Id: TW-D	Matrix: GROUND WATER	Date Received: Dec-03-09 16:43
Lab Sample Id: 20547-004	Date Collected: Dec-02-09 12:51	% Moisture:
Sample Depth:		Basis: Wet

Analytical Method: Total Metals by EPA 6010B

Prep Method: SW3010A

Date Analyzed: Dec-04-09 13:51

Analyst: TRAWIL

Date Prep: Dec-04-09 08:53

Tech: TRAWIL

Seq Number: 68773

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Antimony	7440-36-0	U	10.0	3.70	ug/L	U	1
Arsenic	7440-38-2	U	5.00	2.90	ug/L	U	1
Barium	7440-39-3	U	10.0	0.600	ug/L	U	1
Beryllium	7440-41-7	U	3.00	0.400	ug/L	U	1
Cadmium	7440-43-9	U	1.00	0.400	ug/L	U	1
Chromium	7440-47-3	U	5.00	3.10	ug/L	U	1
Cobalt	7440-48-4	U	2.00	1.10	ug/L	U	1
Copper	7440-50-8	U	10.0	2.40	ug/L	U	1
Iron	7439-89-6	U	30.0	24.4	ug/L	U	1
Lead	7439-92-1	U	5.00	2.50	ug/L	U	1
Nickel	7440-02-0	5.20	5.00	1.00	ug/L		1
Selenium	7782-49-2	59.0	5.00	2.50	ug/L		1
Silver	7440-22-4	U	10.0	5.70	ug/L	U	1
Sodium	7440-23-5	10500 D	250	77.5	ug/L	D	25
Thallium	7440-28-0	42.9	4.00	3.10	ug/L		1
Vanadium	7440-62-2	U	20.0	7.40	ug/L	U	1
Zinc	7440-66-6	14.0	5.00	0.800	ug/L		1

Sample Id: MW-10 D	Matrix: GROUND WATER	Date Received: Dec-02-09 15:50
Lab Sample Id: 20518-006 D	Date Collected: Dec-02-09 12:14	% Moisture:
Sample Depth:		Basis: Wet

Analytical Method: Mercury by EPA 7470A

Prep Method: SW3010A

Date Analyzed: Dec-08-09 15:47

Analyst: TRAWIL

Date Prep: Dec-08-09 15:35

Tech: TRAWIL

Seq Number: 68800

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Mercury	7439-97-6	U	1.00	0.100	ug/L		1

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Results of liquid samples are reported on a wet-weight basis unless otherwise indicated. Results of solid samples are reported on a dry-weight basis unless otherwise indicated.



Certificate of Analysis #: 20547



Imperial Testing Laboratories, Lakeland, FL
City of Bartow Crazy Acres Landfill

Sample Id: MW-10 S	Matrix: GROUND WATER	Date Received: Dec-02-09 15:50
Lab Sample Id: 20518-006 S	Date Collected: Dec-02-09 12:14	% Moisture:
Sample Depth:		Basis: Wet

Analytical Method: Mercury by EPA 7470A	Prep Method: SW3010A
Date Analyzed: Dec-08-09 15:43	Analyst: TRAWIL
Seq Number: 68800	Date Prep: Dec-08-09 15:35
	Tech: TRAWIL

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Mercury	7439-97-6	98	1.00	0.100	%		1

Analytical Method: Total Metals by EPA 6010B	Prep Method: SW3010A
Date Analyzed: Dec-04-09 12:19	Analyst: TRAWIL
Seq Number: 68773	Date Prep: Dec-04-09 08:53
	Tech: TRAWIL

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Antimony	7440-36-0	99	10.0	3.70	%		1
Arsenic	7440-38-2	99	5.00	2.90	%		1
Barium	7440-39-3	101	10.0	0.600	%		1
Beryllium	7440-41-7	106	3.00	0.400	%		1
Cadmium	7440-43-9	95	1.00	0.400	%		1
Chromium	7440-47-3	96	5.00	3.10	%		1
Cobalt	7440-48-4	99	2.00	1.10	%		1
Copper	7440-50-8	95	10.0	2.40	%		1
Iron	7439-89-6	0	30.0	24.4	%		1
Lead	7439-92-1	93	5.00	2.50	%		1
Nickel	7440-02-0	93	5.00	1.00	%		1
Selenium	7782-49-2	102	5.00	2.50	%		1
Silver	7440-22-4	88	10.0	5.70	%		1
Sodium	7440-23-5	0	10.0	3.10	%		1
Thallium	7440-28-0	91	4.00	3.10	%		1
Vanadium	7440-62-2	101	20.0	7.40	%		1
Zinc	7440-66-6	95	5.00	0.800	%		1

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Results of liquid samples are reported on a wet-weight basis unless otherwise indicated. Results of solid samples are reported on a dry-weight basis unless otherwise indicated.

Sample Id: MW-10 SD	Matrix: GROUND WATER	Date Received: Dec-02-09 15:50
Lab Sample Id: 20518-006 SD	Date Collected: Dec-02-09 12:14	% Moisture:
Sample Depth:		Basis: Wet

Analytical Method: Mercury by EPA 7470A	Prep Method: SW3010A
Date Analyzed: Dec-08-09 15:45	Analyst: TRAWIL
Seq Number: 68800	Date Prep: Dec-08-09 15:35
	Tech: TRAWIL

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Mercury	7439-97-6	96	1.00	0.100	%		1

Analytical Method: Total Metals by EPA 6010B	Prep Method: SW3010A
Date Analyzed: Dec-04-09 12:22	Analyst: TRAWIL
Seq Number: 68773	Date Prep: Dec-04-09 08:53
	Tech: TRAWIL

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Antimony	7440-36-0	102	10.0	3.70	%		1
Arsenic	7440-38-2	104	5.00	2.90	%		1
Barium	7440-39-3	104	10.0	0.600	%		1
Beryllium	7440-41-7	109	3.00	0.400	%		1
Cadmium	7440-43-9	99	1.00	0.400	%		1
Chromium	7440-47-3	99	5.00	3.10	%		1
Cobalt	7440-48-4	102	2.00	1.10	%		1
Copper	7440-50-8	98	10.0	2.40	%		1
Iron	7439-89-6	0	30.0	24.4	%		1
Lead	7439-92-1	96	5.00	2.50	%		1
Nickel	7440-02-0	97	5.00	1.00	%		1
Selenium	7782-49-2	110	5.00	2.50	%		1
Silver	7440-22-4	89	10.0	5.70	%		1
Sodium	7440-23-5	0	10.0	3.10	%		1
Thallium	7440-28-0	95	4.00	3.10	%		1
Vanadium	7440-62-2	103	20.0	7.40	%		1
Zinc	7440-66-6	98	5.00	0.800	%		1

*

Results of liquid samples are reported on a wet-weight basis unless otherwise indicated. Results of solid samples are reported on a dry-weight basis unless otherwise indicated.



Certificate of Analysis #: 20547

Imperial Testing Laboratories, Lakeland, FL
City of Bartow Crazy Acres Landfill



Sample Id: TW-A D	Matrix: GROUND WATER	Date Received: Dec-03-09 16:43
Lab Sample Id: 20547-001 D	Date Collected: Dec-02-09 13:37	% Moisture:
Sample Depth:		Basis: Wet

Analytical Method: Chloride by SM4500-Cl E			Prep Method:		
Date Analyzed: Dec-04-09 09:59	Analyst: SARMCK	Date Prep:	Tech: SARMCK		
	Seq Number: 68760				

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Chloride	16887-00-6	25.6	1.00	0.755	mg/L		1

Analytical Method: Nitrate (as N) by SM4500-NO3 H			Prep Method:		
Date Analyzed: Dec-04-09 10:00	Analyst: SARMCK	Date Prep:	Tech: SARMCK		
	Seq Number: 68761				

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Nitrate (as N)	7727-37-9	0.444 I	0.500	0.295	mg/L		1

Analytical Method: Residue, Filterable (TDS) by SM2540C			Prep Method:		
Date Analyzed: Dec-09-09 10:00	Analyst: SARMCK	Date Prep:	Tech: SARMCK		
	Seq Number: 68810				

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Total Dissolved Solids	TDS	987	20.0	18.6	mg/L		1

Sample Id: TW-A S	Matrix: GROUND WATER	Date Received: Dec-03-09 16:43
Lab Sample Id: 20547-001 S	Date Collected: Dec-02-09 13:37	% Moisture:
Sample Depth:		Basis: Wet

Analytical Method: Chloride by SM4500-Cl E			Prep Method:		
Date Analyzed: Dec-04-09 09:59	Analyst: SARMCK	Date Prep:	Tech: SARMCK		
	Seq Number: 68760				

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Chloride	16887-00-6	109	1.00	0.755	%		1

Analytical Method: Nitrate (as N) by SM4500-NO3 H			Prep Method:		
Date Analyzed: Dec-04-09 10:00	Analyst: SARMCK	Date Prep:	Tech: SARMCK		
	Seq Number: 68761				

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Nitrate (as N)	7727-37-9	94	0.500	0.295	%		1

*

Results of liquid samples are reported on a wet-weight basis unless otherwise indicated. Results of solid samples are reported on a dry-weight basis unless otherwise indicated.



**LAKELAND
LABORATORIES**

Certificate of Analysis #: 20547

Imperial Testing Laboratories, Lakeland, FL
City of Bartow Crazy Acres Landfill



Sample Id: TW-A SD	Matrix: GROUND WATER	Date Received: Dec-03-09 16:43
Lab Sample Id: 20547-001 SD	Date Collected: Dec-02-09 13:37	% Moisture:
Sample Depth:		Basis: Wet

Analytical Method: Chloride by SM4500-Cl E	Prep Method:
Date Analyzed: Dec-04-09 09:59 Analyst: SARMCK Date Prep:	Tech: SARMCK
Seq Number: 68760	

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Chloride	16887-00-6	109	1.00	0.755	%		1

Analytical Method: Nitrate (as N) by SM4500-NO3 H	Prep Method:
Date Analyzed: Dec-04-09 10:00 Analyst: SARMCK Date Prep:	Tech: SARMCK
Seq Number: 68761	

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Nitrate (as N)	7727-37-9	95	0.500	0.295	%		1

Sample Id: 27565-1-BKS	Matrix: WATER	Date Received:
Lab Sample Id: 27565-1-BKS	Date Collected:	% Moisture:
Sample Depth:		Basis: Wet

Analytical Method: Total Metals by EPA 6010B	Prep Method: SW3010A
Date Analyzed: Dec-04-09 12:25 Analyst: TRAWIL Date Prep: Dec-04-09 08:53 Tech: TRAWIL	
Seq Number: 68773	

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Antimony	7440-36-0	99	10.0	3.70	%		1
Arsenic	7440-38-2	97	5.00	2.90	%		1
Barium	7440-39-3	101	10.0	0.600	%		1
Beryllium	7440-41-7	102	3.00	0.400	%		1
Cadmium	7440-43-9	98	1.00	0.400	%		1
Chromium	7440-47-3	98	5.00	3.10	%		1
Cobalt	7440-48-4	102	2.00	1.10	%		1
Copper	7440-50-8	98	10.0	2.40	%		1
Iron	7439-89-6	99	30.0	24.4	%		1
Lead	7439-92-1	97	5.00	2.50	%		1
Nickel	7440-02-0	98	5.00	1.00	%		1
Selenium	7782-49-2	98	5.00	2.50	%		1
Silver	7440-22-4	94	10.0	5.70	%		1
Sodium	7440-23-5	98	10.0	3.10	%		1
Thallium	7440-28-0	97	4.00	3.10	%		1
Vanadium	7440-62-2	98	20.0	7.40	%		1
Zinc	7440-66-6	95	5.00	0.800	%		1

*

Results of liquid samples are reported on a wet-weight basis unless otherwise indicated. Results of solid samples are reported on a dry-weight basis unless otherwise indicated.

Sample Id: 27565-1-BLK	Matrix: SOLID	Date Received:
Lab Sample Id: 27565-1-BLK	Date Collected:	% Moisture:
Sample Depth:		Basis: Wet

Analytical Method: Total Metals by EPA 6010B			Prep Method: SW3010A	
Date Analyzed: Dec-04-09 12:03	Analyst: TRAWIL	Date Prep: Dec-04-09 08:53	Tech: TRAWIL	
Seq Number: 68773				

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Antimony	7440-36-0	U	0.800	0.339	mg/kg	U	1
Arsenic	7440-38-2	U	0.400	0.166	mg/kg	U	1
Barium	7440-39-3	U	0.250	0.073	mg/kg	U	1
Beryllium	7440-41-7	U	0.100	0.006	mg/kg	U	1
Cadmium	7440-43-9	U	0.020	0.012	mg/kg	U	1
Chromium	7440-47-3	U	0.400	0.209	mg/kg	U	1
Cobalt	7440-48-4	U	0.050	0.031	mg/kg	U	1
Copper	7440-50-8	U	0.400	0.284	mg/kg	U	1
Iron	7439-89-6	U	1.00	0.218	mg/kg	U	1
Lead	7439-92-1	U	0.400	0.126	mg/kg	U	1
Nickel	7440-02-0	U	0.100	0.030	mg/kg	U	1
Selenium	7782-49-2	U	0.400	0.214	mg/kg	U	1
Silver	7440-22-4	U	0.520	0.415	mg/kg	U	1
Sodium	7440-23-5	U	0.500	0.117	mg/kg	U	1
Thallium	7440-28-0	U	0.400	0.204	mg/kg	U	1
Vanadium	7440-62-2	U	0.800	0.200	mg/kg	U	1
Zinc	7440-66-6	U	0.200	0.055	mg/kg	U	1

*

Results of liquid samples are reported on a wet-weight basis unless otherwise indicated. Results of solid samples are reported on a dry-weight basis unless otherwise indicated.

Sample Id: 27565-1-BSD	Matrix: WATER	Date Received:
Lab Sample Id: 27565-1-BSD	Date Collected:	% Moisture:
Sample Depth:		Basis: Wet

Analytical Method: Total Metals by EPA 6010B			Prep Method: SW3010A	
Date Analyzed: Dec-04-09 12:28		Analyst: TRAWIL	Date Prep: Dec-04-09 08:53	Tech: TRAWIL
Seq Number: 68773				

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Antimony	7440-36-0	97	10.0	3.70	%		1
Arsenic	7440-38-2	95	5.00	2.90	%		1
Barium	7440-39-3	101	10.0	0.600	%		1
Beryllium	7440-41-7	99	3.00	0.400	%		1
Cadmium	7440-43-9	97	1.00	0.400	%		1
Chromium	7440-47-3	97	5.00	3.10	%		1
Cobalt	7440-48-4	101	2.00	1.10	%		1
Copper	7440-50-8	98	10.0	2.40	%		1
Iron	7439-89-6	97	30.0	24.4	%		1
Lead	7439-92-1	96	5.00	2.50	%		1
Nickel	7440-02-0	98	5.00	1.00	%		1
Selenium	7782-49-2	94	5.00	2.50	%		1
Silver	7440-22-4	93	10.0	5.70	%		1
Sodium	7440-23-5	97	10.0	3.10	%		1
Thallium	7440-28-0	95	4.00	3.10	%		1
Vanadium	7440-62-2	94	20.0	7.40	%		1
Zinc	7440-66-6	95	5.00	0.800	%		1

Sample Id: 27604-1-BKS	Matrix: WATER	Date Received:
Lab Sample Id: 27604-1-BKS	Date Collected:	% Moisture:
Sample Depth:		Basis: Wet

Analytical Method: Mercury by EPA 7470A		Prep Method: SW3010A	
Date Analyzed: Dec-08-09 15:37	Analyst: TRAWIL	Date Prep: Dec-08-09 15:35	Tech: TRAWIL
Seq Number: 68800			

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Mercury	7439-97-6	96	1.00	0.100	%		1

Sample Id: 27604-1-BLK	Matrix: WATER	Date Received:
Lab Sample Id: 27604-1-BLK	Date Collected:	% Moisture:
Sample Depth:		Basis: Wet

Analytical Method: Mercury by EPA 7470A		Prep Method: SW3010A	
Date Analyzed: Dec-08-09 15:35	Analyst: TRAWIL	Date Prep: Dec-08-09 15:35	Tech: TRAWIL
Seq Number: 68800			

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Mercury	7439-97-6	U	1.00	0.100	ug/L	U	1

*

Results of liquid samples are reported on a wet-weight basis unless otherwise indicated. Results of solid samples are reported on a dry-weight basis unless otherwise indicated.



**LAKELAND
LABORATORIES**

Certificate of Analysis #: 20547

Imperial Testing Laboratories, Lakeland, FL
City of Bartow Crazy Acres Landfill



Sample Id: 27604-1-BSD	Matrix: WATER	Date Received:
Lab Sample Id: 27604-1-BSD	Date Collected:	% Moisture:
Sample Depth:		Basis: Wet

Analytical Method: Mercury by EPA 7470A	Prep Method: SW3010A
Date Analyzed: Dec-08-09 15:39	Analyst: TRAWIL
Seq Number: 68800	Date Prep: Dec-08-09 15:35
	Tech: TRAWIL

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Mercury	7439-97-6	94	1.00	0.100	%		1

Sample Id: 68760-1-BKS	Matrix: WATER	Date Received:
Lab Sample Id: 68760-1-BKS	Date Collected:	% Moisture:
Sample Depth:		Basis: Wet

Analytical Method: Chloride by SM4500-Cl E	Prep Method:
Date Analyzed: Dec-04-09 09:59	Analyst: SARMCK
Seq Number: 68760	Date Prep:
	Tech: SARMCK

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Chloride	16887-00-6	113	1.00	0.755	%		1

Sample Id: 68760-1-BLK	Matrix: WATER	Date Received:
Lab Sample Id: 68760-1-BLK	Date Collected:	% Moisture:
Sample Depth:		Basis: Wet

Analytical Method: Chloride by SM4500-Cl E	Prep Method:
Date Analyzed: Dec-04-09 09:59	Analyst: SARMCK
Seq Number: 68760	Date Prep:
	Tech: SARMCK

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Chloride	16887-00-6	U	1.00	0.755	mg/L	U	1

Sample Id: 68760-1-BSD	Matrix: WATER	Date Received:
Lab Sample Id: 68760-1-BSD	Date Collected:	% Moisture:
Sample Depth:		Basis: Wet

Analytical Method: Chloride by SM4500-Cl E	Prep Method:
Date Analyzed: Dec-04-09 09:59	Analyst: SARMCK
Seq Number: 68760	Date Prep:
	Tech: SARMCK

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Chloride	16887-00-6	107	1.00	0.755	%		1

*

Results of liquid samples are reported on a wet-weight basis unless otherwise indicated. Results of solid samples are reported on a dry-weight basis unless otherwise indicated.

Sample Id: 68761-1-BKS	Matrix: WATER	Date Received:
Lab Sample Id: 68761-1-BKS	Date Collected:	% Moisture:
Sample Depth:		Basis: Wet

Analytical Method: Nitrate (as N) by SM4500-NO3 H	Prep Method:
Date Analyzed: Dec-04-09 10:00	Analyst: SARMCK
Seq Number: 68761	Date Prep:
	Tech: SARMCK

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Nitrate (as N)	7727-37-9	96	0.500	0.295	%		1

Sample Id: 68761-1-BLK	Matrix: WATER	Date Received:
Lab Sample Id: 68761-1-BLK	Date Collected:	% Moisture:
Sample Depth:		Basis: Wet

Analytical Method: Nitrate (as N) by SM4500-NO3 H	Prep Method:
Date Analyzed: Dec-04-09 10:00	Analyst: SARMCK
Seq Number: 68761	Date Prep:
	Tech: SARMCK

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Nitrate (as N)	7727-37-9	U	0.500	0.295	mg/L	U	1

Sample Id: 68761-1-BSD	Matrix: WATER	Date Received:
Lab Sample Id: 68761-1-BSD	Date Collected:	% Moisture:
Sample Depth:		Basis: Wet

Analytical Method: Nitrate (as N) by SM4500-NO3 H	Prep Method:
Date Analyzed: Dec-04-09 10:00	Analyst: SARMCK
Seq Number: 68761	Date Prep:
	Tech: SARMCK

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Nitrate (as N)	7727-37-9	89	0.500	0.295	%		1

Sample Id: 68810-1-BKS	Matrix: WATER	Date Received:
Lab Sample Id: 68810-1-BKS	Date Collected:	% Moisture:
Sample Depth:		Basis: Wet

Analytical Method: Residue, Filterable (TDS) by SM2540C	Prep Method:
Date Analyzed: Dec-09-09 10:00	Analyst: SARMCK
Seq Number: 68810	Date Prep:
	Tech: SARMCK

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Total Dissolved Solids	TDS	102	20.0	18.6	%		1

*

Results of liquid samples are reported on a wet-weight basis unless otherwise indicated. Results of solid samples are reported on a dry-weight basis unless otherwise indicated.



Certificate of Analysis #: 20547



Imperial Testing Laboratories, Lakeland, FL
City of Bartow Crazy Acres Landfill

Sample Id: 68810-1-BLK	Matrix: WATER	Date Received:					
Lab Sample Id: 68810-1-BLK	Date Collected:	% Moisture:					
Sample Depth:		Basis: Wet					
Analytical Method: Residue, Filterable (TDS) by SM2540C		Prep Method:					
Date Analyzed: Dec-09-09 10:00	Analyst: SARMCK	Tech: SARMCK					
	Seq Number: 68810						
Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Total Dissolved Solids	TDS	U	20.0	18.6	mg/L	U	1

*

Results of liquid samples are reported on a wet-weight basis unless otherwise indicated. Results of solid samples are reported on a dry-weight basis unless otherwise indicated.

Quality Control Sample Legend

Lakeland Labs Quality Control Sample Legend

This analytical report may include results for various quality assurance/quality control (QA/QC) samples prepared and analyzed as required within various sample preparation and analytical batches. In-house sample identification is based on the Lakeland Labs Work Order No. followed by the Work Order Item No. For example, the second item on Work Order No. 10000 would be assigned Lab Sample ID 10000-002. The QA/QC sample identifications are affixed with suffixes to differentiate them from the actual sample results. For QA/QC samples generated in-house such as method blanks, blank spikes, blank spike duplicates, etc., the preparation or analytical batch number is used instead of the Work Order No. To assist the data reviewer, the following legend provides information on the various QA/QC samples and the suffixes used to denote them:

- BLK Method Blank. A method blank, also known as a laboratory control blank (LCB), is a sample of a matrix similar to the batch of associated samples (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences are present at concentrations that impact the analytical results for sample analyses.
- BKS Blank Spike. A blank spike, also known as a calibration verification or laboratory control sample (LCS), is a sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes. It is generally used to establish intra-laboratory or analyst-specific precision and bias (accuracy) or to assess the performance of all or a portion of the measurement system. Successful analysis of the blank spike sample demonstrates an analytical system's ability to accurately measure target analyte concentrations.
- BSD Blank Spike Duplicate. A blank spike duplicate, also known as a laboratory control sample duplicate (LCSD), is a second blank spike sample, often bracketing a group of samples within a batch. Successful analysis of the blank spike duplicate sample demonstrates not only an analytical system's continuing ability to accurately measure target analyte concentrations, but also, when compared with the blank spike results, the system's precision.
- S Matrix Spike (MS). A matrix spike is a sample prepared by adding a known mass of target analyte(s) to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. Matrix spikes are used, for example, to determine the effect of the matrix on a method's recovery efficiency.
- SD Matrix Spike Duplicate (MSD). A matrix spike duplicate is a second replicate matrix spike prepared in the laboratory and analyzed to obtain a measure of the precision of the recovery for each analyte.
- D Matrix Duplicate (MD). A matrix duplicate is a second replicate matrix prepared in the laboratory and analyzed to obtain a measure of precision.
- MRL Method Reporting Limit. A method reporting limit standard is an analyte-free matrix similar to the sample matrices spiked with one or more of the target analytes at a concentration equal to or less than the method reporting limit (also known as the practical quantitation limit or PQL). Successful analysis of the MRL standard demonstrates the analytical system's ability to identify the spiked analytes of interest at the MRL/PQL.

Flagging Criteria

FLORIDA Flagging Criteria

Data were reviewed by the Department Supervisor and QA Director

- A Value reported is the mean (average) of two or more determinations. This code shall be used if the reported value is the average of results for two or more discrete and separate samples. These samples shall have been processed and analyzed independently. Do not use this code if the data are the result of replicate analysis on the same sample aliquot, extract or digestate.
- B Results based upon colony counts outside the acceptable range. This code applies to microbiological tests and specifically to membrane filter colony counts. The code is to be used if the colony count is generated from a plate in which the total number of coliform colonies is outside the method indicated ideal range. This code is not to be used if a 100 mL sample has been filtered and the colony count is less than the lower value of the ideal range.
- J Estimated value. A "J" value shall be accompanied by a narrative justification for its use. Where possible, the organization shall report whether the actual value is less than or greater than the reported value. A "J" value shall not be used as a substitute for K, L, M, T, V, or Y, however, if additional reasons exist for identifying the value as estimate (e.g., matrix spiked failed to meet acceptance criteria), the "J" code may be added to a K, L, M, T, V, or Y. The following are some examples of narrative descriptions that may accompany a "J" code:
 - J1: No known quality control criteria exist for the component;
 - J2: The reported value failed to meet the established quality control criteria for
either precision or accuracy (the specific failure must be identified);
 - J3: The sample matrix interfered with the ability to make any accurate determination;
 - J4: The data are questionable because of improper laboratory or field protocols
- Q Sample held beyond the accepted holding time. This code shall be used if the value is derived from a sample that was prepared or analyzed after the approved holding time restrictions for sample preparation or analysis.
- T Value reported is less than the laboratory method detection limit. The value is reported for informational purposes, only and shall not be used in statistical analysis.
- U Indicates that the compound was analyzed for but not detected. This symbol shall be used to indicate that the specified component was not detected. The value associated with the qualifier shall be the laboratory method detection limit. Unless requested by the client, less than the method detection limit values shall not be reported (see "T" above).
- V Indicates that the analyte was detected in both the sample and the associated method blank. Note: the value in the blank shall not be subtracted from associated samples.
- Y The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.

Flagging Criteria

FLORIDA Flagging Criteria

- * Not analyzed due to interference
- R Significant rain in the past 48 hours. (Significant rain typically involves rain in excess of 1/2 inch within the past 48 hours.) This code shall be used when the rainfall might contribute to a lower than normal value.
- ! Data deviate from historically established concentration ranges.
- + Analyte falls outside current scope of NELAP accreditation.
- X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to effect the recovery of the spike concentration. This condition could also effect the relative percent difference in the MS/MSD.
- D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- F When reporting species: F indicates the female sex. Otherwise it indicates RPD value is outside the acceptable range.
- L Off-scale high. Actual value is known to be greater than value given. To be used when the concentration of the analyte is above the acceptable level for quantitation (exceeds the linear range or highest calibration standard) and the calibration curve is known to exhibit a negative deflection.
- H Value based on field kit determination; results may not be accurate. This code shall be used if a field screening test (i.e., field gas chromatograph data, immunoassay, vendor-supplied field kit, etc.) was used to generate the value and the field kit or method has not been recognized by the Department as equivalent to laboratory methods.

Blank Spike Recovery

Project Name: City of Bartow Crazy Acres Landfill

Work Order #: 20547

Report Date:

11-DEC-09

Project ID:

8290

Lab Batch #: 68810

Sample: 68810-1-BKS

Matrix: Water

Date Analyzed: 12/09/2009

Date Prepared: 12/09/2009

Analyst: SARMCK

Reporting Units: mg/L

Batch #: 1

BLANK /BLANK SPIKE RECOVERY STUDY

Residue, Filterable (TDS) by SM2540C Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Total Dissolved Solids	<18.6	2500	2560	102	80-120	

Blank Spike Recovery [D] = $100 * [C] / [B]$

All results are based on MDL and validated for QC purposes.

Project Name: City of Bartow Crazy Acres Landfill

Report Date 11-DEC-09

Work Order #: 20547

Project ID: 8290

Analyst: SARMCK

Date Prepared: 12/04/2009

Date Analyzed: 12/04/2009

Sample: 68760-1-BKS

Batch #: 1

Matrix: Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Chloride by SM4500-Cl E		Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes												
Chloride		<0.755	20.0	22.6	113	20.0	21.4	107	5	80-120	30	

Analyst: TRAWIL

Date Prepared: 12/08/2009

Date Analyzed: 12/08/2009

Lab Batch ID: 68800

Batch #: 1

Matrix: Water

Units: ug/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Mercury by EPA 7470A		Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes												
Mercury		<0.100	5.00	4.78	96	5.0	4.69	94	2	85-117	25	

Analyst: SARMCK

Date Prepared: 12/04/2009

Date Analyzed: 12/04/2009

Lab Batch ID: 68761

Batch #: 1

Matrix: Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Nitrate (as N) by SM4500-NO3 H		Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes												
Nitrate (as N)		<0.295	4.00	3.84	96	4.0	3.54	89	8	75-125	25	

Relative Percent Difference $RPD = 200 * (D-F) / (D+F)$

Blank Spike Recovery $[D] = 100 * (C) / [B]$

Blank Spike Duplicate Recovery $[G] = 100 * (F) / [E]$

All results are based on MDL and Validated for QC Purposes

Project Name: City of Bartow Crazy Acres Landfill

Report Date 11-DEC-09

Work Order #: 20547

Analyst: TRAWIL

Project ID: 8290

Date Analyzed: 12/04/2009

Lab Batch ID: 68773

Date Prepared: 12/04/2009

Batch #: 1

Matrix: Water

Units: ug/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Total Metals by EPA 6010B											
Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Antimony	<0.339	500	493	99	500.0	484	97	2	75-125	10	
Arsenic	<0.166	500	486	97	500.0	476	95	2	75-125	10	
Barium	<0.073	500	506	101	500.0	505	101	0	75-125	10	
Beryllium	<0.006	500	510	102	500.0	497	99	3	75-125	10	
Cadmium	<0.012	500	490	98	500.0	487	97	1	75-125	10	
Chromium	<0.209	500	490	98	500.0	485	97	1	75-125	10	
Cobalt	<0.031	500	511	102	500.0	506	101	1	75-125	10	
Copper	<0.284	500	491	98	500.0	488	98	1	75-125	10	
Iron	<0.218	500	495	99	500.0	485	97	2	75-125	10	
Lead	<0.126	500	487	97	500.0	478	96	2	75-125	10	
Nickel	<0.030	500	492	98	500.0	488	98	1	75-125	10	
Selenium	<0.214	500	492	98	500.0	472	94	4	75-125	10	
Silver	<0.415	500	472	94	500.0	465	93	1	75-125	10	
Sodium	<0.117	500	488	98	500.0	487	97	0	75-125	10	
Thallium	<0.204	500	484	97	500.0	474	95	2	75-125	10	
Vanadium	<0.200	500	490	98	500.0	470	94	4	75-125	10	
Zinc	<0.055	500	477	95	500.0	474	95	1	75-125	10	

Relative Percent Difference RPD = $200 * [(D-F)/(D+F)]$
Blank Spike Recovery [D] = $100 * (C)/[B]$
Blank Spike Duplicate Recovery [G] = $100 * (F)/[E]$
All results are based on MDL and Validated for QC Purposes



Form 3 - MS / MSD Recoveries



Project Name: City of Bartow Crazy Acres Landfill

Report Date: 11-DEC-09

Work Order #: 20547

Lab Batch ID: 68760

Date Analyzed: 12/04/2009

Reporting Units: mg/L

QC- Sample ID: 20547-001 S

Date Prepared: 12/04/2009

Batch #: 1 Matrix: Ground Water

Analyst: SARMCK

Project ID: 8290

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY											
Reporting Units: mg/L	Chloride by SM4500-Cl E										
	Analytes										
	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	25.3	20.0	47.1	109	20.0	47.0	109	0	80-120	30	

Lab Batch ID: 68800

Date Analyzed: 12/08/2009

Reporting Units: ug/L

QC- Sample ID: 20518-006 S

Date Prepared: 12/08/2009

Batch #: 1 Matrix: Ground Water

Analyst: TRAWIL

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY											
Mercury by EPA 7470A Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
	<0.100	5.00	4.88	98	5.00	4.78	96	2	85-117	25	
Mercury											

Lab Batch ID: 68761

Date Analyzed: 12/04/2009

Reporting Units: mg/L

QC- Sample ID: 20547-001 S

Date Prepared: 12/04/2009

Batch #: 1 Matrix: Ground Water

Analyst: SARMCK

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY												
Reporting Units: mg/L	Nitrate (as N) by SM4500-NO3 H Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
	Nitrate (as N)	0.357	4.00	4.13	94	4.00	4.16	95	1	75-125	25	

Matrix Spike Percent Recovery $[D] = 100 \times (C-A)/B$
Relative Percent Difference $RPD = 200 \times (C-F)/(C+F)$

Matrix Spike Duplicate Percent Recovery $[G] = 100 \times (F-A)/E$

Form 3 - MS / MSD Recoveries

Project Name: City of Bartow Crazy Acres Landfill

Report Date: 11-DEC-09

Project ID: 8290

Work Order #: 20547

Lab Batch ID: 68773

Date Analyzed: 12/04/2009

QC- Sample ID: 20518-006 S

Date Prepared: 12/04/2009

Batch #: 1 Matrix: Ground Water

Analyst: TRAWIL

Reporting Units: ug/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY												
Total Metals by EPA 6010B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag	
	Antimony	<3.70	500	497	99	500	512	102	3	75-125	10	
	Arsenic	<2.90	500	493	99	500	521	104	6	75-125	10	
	Barium	<0.600	500	507	101	500	522	104	3	75-125	10	
	Beryllium	<0.400	500	531	106	500	545	109	3	75-125	10	
	Cadmium	2.00	500	478	95	500	496	99	4	75-125	10	
	Chromium	<3.10	500	482	96	500	496	99	3	75-125	10	
	Cobalt	<1.10	500	497	99	500	510	102	3	75-125	10	
	Copper	6.40	500	481	95	500	494	98	3	75-125	10	
	Iron	41800	500	37400	0	500	38000	0	2	75-125	10	J
	Lead	<2.50	500	463	93	500	481	96	4	75-125	10	
	Nickel	<1.00	500	463	93	500	485	97	5	75-125	10	
Selenium	42.9	500	554	102	500	591	110	6	75-125	10		
Silver	<5.70	500	438	88	500	447	89	2	75-125	10		
Sodium	39400	500	35500	0	500	35900	0	1	75-125	10	J	
Thallium	40.4	500	497	91	500	515	95	4	75-125	10		
Vanadium	<7.40	500	506	101	500	514	103	2	75-125	10		
Zinc	13.7	500	489	95	500	502	98	3	75-125	10		

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*(C-F)/(C+F)

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

Sample Duplicate Recovery

Project Name: City of Bartow Crazy Acres Landfill

Work Order #: 20547

Report Date: 11-DEC-09

Lab Batch #: 68760

Project ID: 8290

Date Analyzed: 12/04/2009

Date Prepared: 12/04/2009

Analyst: SARMCK

QC- Sample ID: 20547-001 D

Batch #: 1

Matrix: Water

Reporting Units: mg/L

SAMPLE / SAMPLE DUPLICATE RECOVERY					
Chloride by SM4500-Cl E	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Chloride	25.3	25.6	1	30	

Lab Batch #: 68800

Date Analyzed: 12/08/2009

Date Prepared: 12/08/2009

Analyst: TRAWIL

QC- Sample ID: 20518-006 D

Batch #: 1

Matrix: Water

Reporting Units: ug/L

SAMPLE / SAMPLE DUPLICATE RECOVERY					
Mercury by EPA 7470A	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Mercury	<0.100	<0.100	NC	25	

Lab Batch #: 68761

Date Analyzed: 12/04/2009

Date Prepared: 12/04/2009

Analyst: SARMCK

QC- Sample ID: 20547-001 D

Batch #: 1

Matrix: Water

Reporting Units: mg/L

SAMPLE / SAMPLE DUPLICATE RECOVERY					
Nitrate (as N) by SM4500-NO3 H	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Nitrate (as N)	0.357	0.444	22	25	

Lab Batch #: 68810

Date Analyzed: 12/09/2009

Date Prepared: 12/09/2009

Analyst: SARMCK

QC- Sample ID: 20547-001 D

Batch #: 1

Matrix: Water

Reporting Units: mg/L

SAMPLE / SAMPLE DUPLICATE RECOVERY					
Residue, Filterable (TDS) by SM2540C	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Total Dissolved Solids	1010	987	2	30	

Spike Relative Difference RPD $200 * |(B-A)/(B+A)|$
All Results are based on MDL and validated for QC purposes.

LAKELAND LABORATORIES, LLC
 1910 HARDEN BOULEVARD, SUITE 101
 LAKELAND, FLORIDA 33803-1829
 PHONE: (863) 686-4271 FAX: (863) 686-4389

FDEP CompQAP No: 220010

20547

Chain of Custody Record

Company:		Imperial Environmental Engineering		Project Name:		City of Bartow Crazy Acres Landfill		Page 1 of 1								
Address:		3905 Kidron Road Lakeland, FL 33811		Project #:		8290		DEP Form #: 62-770.900(2)								
Phone:		647-2877		Project Manager:		Mike Stillinger		Form Title: Chain of Custody Record								
Fax:		647-1770		Project Location:		U.S. Highway 17 and S.R. 60; Bartow, FL		Effective Date: September 23, 1997								
Sampled by [Print Name(s)] / Affiliation		Randy Duncan/Imperial Environmental Engineering		P. O. #:		16346		FDEP Facility No.:								
Sampler(s) Signature(s)		<i>[Signature]</i>		Preservatives (see codes)		I S I N N		Project Name: City of Bartow Trash Landfill								
Sampling Method		Shipment Method		Analyses Requested		Sampling CompQAP No.:		Approval Date:								
Item No.	Field ID No.	Sampled Date	Time	Grab or Composite	Matrix (see codes)	Number of Containers	Chloride	Nitrate	Ammonia	TDS	6010B*	7470A	Hg*	REQUESTED DUE DATE	Remarks	Lab. No.
1	TW-A	12/2/07	1:37	Grab	GW	4	X	X	X	X	X	X	X	/ /		* Fe, Na, Hg, Sb, As, Ba, Be, Cd, Cr
2	TW-B	12/2/07	12:15	Grab	GW	4	X	X	X	X	X	X	X			Co, Cu, Pb, Ni, Se, Ag, Tl, V, Zn
3	TW-C	12/2/07	11:27	Grab	GW	4	X	X	X	X	X	X	X			
4	TW-D	12/2/07	12:51	Grab	GW	4	X	X	X	X	X	X	X			* See attached
Total Number of Containers		16		Relinquished by / Affiliation		Date		Time		Accepted by / Affiliation		Date		Time		
Out:	/ /	Via:		Item No.		1-4		12/2/07		9:40		12/2/07		9:40		
Returned:	/ /	Via:		1-4		12/2/07		16:43		12/2/07		16:43		12/2/07		
Additional Comments:		1/3/08 Prices		Cooler No.(s) / Temperature(s) (°C)		2, 5 °C		Sampling Kit No.		Equipment ID No.						

MATRIX CODES: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water W = Water (Blanks) O = Other (specify)

PRESERVATIVE CODES: H = Hydrochloric acid + ice I = Ice only N = Nitric acid + ice S = Sulfuric acid + ice O = Other (specify)

Florida Analytical, Inc.

4320 Old Hwy. 37 Lakeland, FL 33813 (863) 646-8526 Fax: (863) 646-1042

"A Laboratory Management Partner"

12/10/2009

Lakeland Laboratories LLC
Mr. Jim Crawford
1910 Harden Blvd
Suite 101
Lakeland, FL, 33803

Ref: Analytical Testing
Report Number: 09-338-0200
Project Description: LL. INTERNAL CITY OF BARTOW CRAZY ACRES

Florida Analytical, Inc. received 4 sample(s) on 12/4/2009 for the analyses presented in the following report. Samples collected by Florida Analytical, Inc. are in accordance with DEP-SOP-001/01 (Revised February 1, 2004).

The above referenced project has been analyzed per your instructions. The analyses were performed in our laboratory in accordance with Standard Methods, The Solid Waste Manual SW-846, EPA Methods for Chemical Analysis of Water and Wastes and /or 40 CFR part 136.

The EPA requires that water samples analyzed for pH, dissolved oxygen and total residual chlorine be analyzed in the field. Analyses and results reported which do not indicate "Field" for these parameters were analyzed outside the holding time as specified in Table II of 40 CFR Part 136.3.

The analytical data has been validated using standard quality control measures performed as required by the analytical method. Test results meet all requirements of USEPA and NELAC, unless otherwise noted in this report. Uncertainties in test results are available upon request. This report may not be reproduced in part and results relate only to the samples tested. Qualifiers shown on the data report are defined as follows:

- B Result based on colony counts outside the acceptable range, (microbiology).
- I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J Estimated value, value is not accurate: to be used when:
 - 1. Surrogate recovery limits have been exceeded.
 - 2. No known quality control criterion exists.
 - 3. Report value failed to meet established QC criteria.
 - 4. Sample matrix interference precludes accurate determination.
 - 5. Data is questionable due to improper lab or field protocols.
- Q Sample held beyond the accepted holding time.
- U Compound was analyzed for but not detected.
- Y Laboratory analysis was from an unpreserved or improperly preserved sample.
The data may not be accurate.
- Z Too many colonies were present (TNTC), the numeric value represents the filtration volume.

Please do not hesitate to contact me or client services if you have any questions or need additional information.

Sincerely,



Stephanie Richards
Laboratory Manager

Florida Analytical, Inc.

4320 Old Hwy. 37 Lakeland, FL 33813 (863) 646-8526 Fax: (863) 646-1042

"A Laboratory Management Partner"

00167

Lakeland Laboratories LLC

Mr. Jim Crawford

1910 Harden Blvd

Suite 101

Lakeland, FL 33803

Project ID :

Description : LL, INTERNAL CITY OF BARTOW CRAZY ACRES

Report Date : 12/10/2009

Report Number : 09-338-0200

REPORT OF ANALYSIS

Received : 12/4/2009

Lab No : 90243

Sample ID : TW-A

Matrix: Aqueous

Sampled: 12/2/2009 13:37

Test	Results	Units	MDL	DF	Date / Time Analyzed	By	Analytical Method
Ammonia Nitrogen	0.014 U	mg/L	0.014	1	12/07/09 13:00	SS	EPA-350.1

Lab No : 90244

Sample ID : TW-B

Matrix: Aqueous

Sampled: 12/2/2009 12:15

Test	Results	Units	MDL	DF	Date / Time Analyzed	By	Analytical Method
Ammonia Nitrogen	0.845	mg/L	0.014	1	12/07/09 13:00	SS	EPA-350.1

Lab No : 90245

Sample ID : TW-C

Matrix: Aqueous

Sampled: 12/2/2009 11:24

Test	Results	Units	MDL	DF	Date / Time Analyzed	By	Analytical Method
Ammonia Nitrogen	0.051 I	mg/L	0.014	1	12/07/09 13:00	SS	EPA-350.1

Lab No : 90246

Sample ID : TW-D

Matrix: Aqueous

Sampled: 12/2/2009 12:51

Test	Results	Units	MDL	DF	Date / Time Analyzed	By	Analytical Method
Ammonia Nitrogen	0.025 I	mg/L	0.014	1	12/07/09 13:00	SS	EPA-350.1

Qualifiers/ Definitions

MDL

Method Detection Limit

Florida Analytical, Inc.

4320 Old Hwy. 37 Lakeland, FL 33813 (863) 646-8526 Fax: (863) 646-1042

"A Laboratory Management Partner"

Cooler Receipt Form

Customer Number: **00167**

Customer Name: **Lakeland Laboratories LLC**

Report Number: **09-338-0200**

Shipping Method

☐ FedEx ☐ UPS ☐ US Postal ☒ Client ☐ LMP ☐ Courier ☐ Other:

Shipping container/cooler uncompromised?	☒ Yes	☐ No	☐ Not Present
Custody seals intact on shipping container/cooler?	☐ Yes	☐ No	☒ Not Required
Custody seals intact on sample bottles?	☐ Yes	☐ No	☒ Not Required
Chain of Custody present?	☒ Yes	☐ No	
COC agrees with sample labels?	☒ Yes	☐ No	
Samples in proper containers?	☒ Yes	☐ No	
Sample containers intact?	☒ Yes	☐ No	
Sufficient sample volume for indicated tests?	☒ Yes	☐ No	
All samples received within holding time?	☒ Yes	☐ No	
Container temperature in compliance?	☒ Yes	☐ No	
Water - VOA vials free of headspace?	☐ Yes	☐ No	☒ N/A
Water - Preservation acceptable upon receipt?	☒ Yes	☐ No	☐ N/A
Samples screened for radioactivity (COE only)?	☐ Yes	☐ No	☒ N/A
Special precautions or instructions included?	☐ Yes	☒ No	

Comments:

Any regulatory non-compliance issues will be recorded on non-compliance report.

Signature:

Date & Time:

Florida NELAP Certificate No. 184880

09-338-0200
00167
Dec 4 2009
9:59AM
Lakeland Laboratories LLC
ILL. INTERNATIONAL CITY OF BARTOW CRAZY ACRES LAND

Chain of Custody Record

[illegible]