

**1R - 289**

**AGWMR**

**06/26/2008**



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Matthew P. Hudson  
Remediation Project  
Manager

Upstream Business Unit  
Chevron Environmental  
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June 26, 2008

Mr. Glenn von Gonten  
New Mexico Oil Conservation Division  
1220 So. St. Francis Drive  
Santa Fe, New Mexico 87505

**Subject: 2007 Annual Groundwater Monitoring Reports**

Dear Glenn:

Please find enclosed one copy each of the 2007 Annual Groundwater Monitoring Reports for the following sites:

- 1R-254: G.L. Erwin "A and B" Federal NCT-2 Tank Battery, Lea County, NM
- 1R-255: J.R. Philips Tank Battery No. 2, Lea County, NM
- 1R-258: Former New Mexico State "F" Tank Battery, Lea County, NM
- 1R-289: Cooper-Jal Unit South Injection Station, Lea County, NM

Should you have any questions regarding these reports, please contact me at (713) 372-1046.

Sincerely,

Matthew P. Hudson

Enclosures

cc: Patricia Caperton, NMOCD-Hobbs (electronic copies of reports)  
Luke Markham, Conestoga-Rovers & Associates  
James Ornelas, Conestoga-Rovers & Associates  
Todd Wells, Conestoga-Rovers & Associates



## 2007 ANNUAL GROUNDWATER MONITORING REPORT

**COOPER-JAL UNIT SOUTH INJECTION STATION**

**CASE NO. 1R289**

**OGRID NO. 4323**

**NW/4, NW/4, SE/4, SECTION 24, T-24-S, R-36-E**

**LATITUDE: N 32° 12' 7.3" LONGITUDE: W 103° 12' 59.9"**

**LEA COUNTY, NEW MEXICO**

**Prepared For:**

**Mr. Matt Hudson**

**CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY**

**Upstream Business Unit**

**1400 Smith Street, Room 40038**

**Houston, Texas 77002**

**Prepared by:  
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**JUNE 17, 2008**

**REF. NO. 039123 (4)**

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## 1.0 INTRODUCTION

This Annual Groundwater Monitoring Report presents groundwater data collected during the 2007 reporting period by Conestoga-Rovers & Associates (CRA) on behalf of Chevron Environmental Management Company (CEMC) at the Cooper-Jal Unit South Injection Station (hereafter referred to as the "Site"). Groundwater sampling events were performed on May 30, 2007 and on November 14-16, 2007.

The Site is located on Lea County Road J7, approximately 5.5 miles northwest of Jal, New Mexico and situated in Unit Letter J, northwest quarter (NW/4) of the northwest quarter (NW/4) of the southeast quarter (SE/4), Section 24, Township 24 South, Range 36 East, Lea County, New Mexico. The Site is relatively flat and improved with bermed above-ground storage tanks (ASTs), hardened caliche roadways, and oil and gas production equipment that includes four production wells. Land use in the vicinity of the Site is undeveloped rangeland vegetated with indigenous grass, livestock ranching and oil and gas production. The topography slopes southeast toward Monument Draw located approximately 7.5 miles southeast of the Site. A Site Location Map is presented as FIGURE 1.

Site assessment activities were initiated in 1993 when Environmental Spill Control, Inc. (ESCI) of Hobbs, New Mexico performed a subsurface assessment of an unlined earthen emergency produced water overflow pit that was located adjacent to the west edge of the Site. During the investigation, five boreholes were installed to depths ranging from 15 feet to 100 feet below ground surface (bgs). The investigation revealed the presence of hydrocarbon-affected soil. In 1996, Texaco Exploration and Production, Inc. (Texaco) filed a notice of intent to close the pit with the New Mexico Oil Conservation Division (NMOCD). Approximately 1,248 cubic yards of hydrocarbon-affected material were removed from the pit. During the closure activities, the excavation was lined with approximately 1,091 cubic yards of imported clay and backfilled with 3,360 cubic yards of imported caliche. Texaco submitted the pit closure report to the NMOCD in December 1996.

In 1997, the NMOCD requested additional assessment activities to define the vertical extent of affected soil beneath the pit. Assessment activities performed by Highlander Environmental Corporation revealed elevated soil chloride concentrations. In October 1997, monitor well MW-1 was installed near the former pit. Groundwater samples collected from the well contained chloride concentrations above the New Mexico Water Quality Control Commission (NMWQCC) Human Health Standards for Groundwater. Subsequent assessment activities through May 1998 included the installation of 14 monitor wells. In 1998, electromagnetic (EM-34) terrain conductivity surveys were performed to identify areas of elevated soil chloride concentrations.

In June 1998, Texaco prepared a groundwater corrective action plan to mitigate chloride concentrations and to provide plume containment by extracting groundwater from the affected groundwater-bearing unit. Subsequent assessment activities performed in 1999 included the installation of wells MW-11, RW-1 and RW-2. Wells MW-12 and MW-13 were installed in 2001. Semi-annual groundwater monitoring activities have been performed by CRA since 2005 along with annual reporting to the NMOCD for this Site.

2.0 REGULATORY FRAMEWORK

The NMOCD guidelines require groundwater to be analyzed for potential contaminants as defined by the NMWQCC regulations. In addition, the NMWQCC regulations present the Human Health Standards for Groundwater. The constituent of concern in affected groundwater at the Site is chloride. In this report, groundwater analytical results for chloride and four additional analytes are compared to the NMWQCC standards as shown in the following table:

Analyte	NMWQCC Standard for Groundwater (mg/L)
Chloride	250
Fluoride	1.6
Nitrate (NO <sub>3</sub> as N)	10
Sulfate (SO <sub>4</sub> )	600
Total Dissolved Solids (TDS)	1,000

### 3.0 GROUNDWATER SAMPLING AND ANALYSIS

Groundwater at the Site is monitored with a network of 17 monitor wells and two recovery wells in accordance with the *Work Plan for Plume Delineation and Modification to Proposed Groundwater Monitoring Schedule* (Larson & Associates, November 18, 1998). Wells MW-8, MW-9, MW-9A, MW-10 and MW-11 are the only wells sampled during the first semi-annual monitoring event. The remaining 14 wells are sampled annually during the second semi-annual monitoring event. A Site Details Map is presented as FIGURE 2. Groundwater sampling events were performed on May 30, 2007 and on November 14-16, 2007.

The stratification of chloride-impacted groundwater is monitored with selectively screened wells in the affected groundwater-bearing unit. Wells MW-1 through MW-5 and MW-7 through MW-13 are screened across the basal 10 feet to 20 feet of the groundwater-bearing unit. These wells were drilled and completed to the Chinle Formation "Red Beds" underlying the Ogallala Aquifer and are referred to as the "deep wells" in this report. Wells MW-2A, MW-4A, MW-5A and MW-9A are screened across the water table interface with approximately five feet of screen above the water table and 15 feet of screen below the water table. These wells are referenced as the "shallow wells." Wells MW-6, MW-11, RW-1 and RW-2 are screened across the entire saturated zone of the groundwater-bearing unit and are referred to as "fully penetrating" wells.

Prior to purging the monitor wells, static fluid levels were measured with an electric interface probe to the nearest hundredth of a foot and recorded. Purging was considered complete when three well volumes had been removed or the well was purged dry. Geochemical field parameters including pH, temperature and conductivity were collected during the purging/sampling process. All non-disposable groundwater sampling equipment was decontaminated with a soap (Liquinox®) and potable water wash, a potable water rinse and a final deionized water rinse to minimize potential cross-contamination between each monitor well. Subsequent to the purging process, groundwater samples were collected using clean, disposable PVC bailers. Laboratory-supplied sample containers were then filled directly from the disposable PVC bailers.

Groundwater samples were placed on ice in insulated coolers and chilled to a temperature of approximately 4°C (40°F). The coolers were sealed for shipment and proper chain-of-custody documentation accompanied the samples to the laboratory (Pace Analytical Services, Inc. located in St. Rose, Louisiana) for analysis of major cations, anions and TDS by various Environmental Protection Agency (EPA) Methods. The fluids recovered and generated during the sampling event were containerized in a dedicated Polyethylene tank located onsite and subsequently managed at an NMOCD-permitted salt water disposal (SWD) facility by Nabors Well Services LTD. (Nabors).

#### 3.1 POTENTIOMETRIC SURFACE AND GRADIENT

Groundwater elevation data are presented in TABLE I. Groundwater gradient maps for May 2007 and November 2007 are presented on FIGURES 3 and 4, respectively. Depth to groundwater ranged from 130.52 feet to 144.54 feet below top of casing on May 29, 2007 and from 130.42 feet to 144.54 feet below top of casing on November 13, 2007.

Although the Site's network of wells is completed at various intervals (shallow, deep and fully penetrating), the groundwater elevations appear to be consistent with historical levels with groundwater flow to the southeast. The gradient observed in 2007 was 0.003 feet/foot for both May and November events.

### 3.2 ANALYTICAL RESULTS

Analytical results are summarized in TABLE II. An isoconcentration map of the chloride concentration for the May 2007 groundwater monitoring event is presented as FIGURE 5. Chloride isoconcentration maps for the shallow and deep wells for November 2007 are presented as FIGURES 6 and 7, respectively.

The analytical results generally fall within historical ranges. During the May 2007 sampling event, one monitor well (MW-9A) exceeded the NMWQCC groundwater standards for chloride and TDS. In addition, two monitor wells (MW-9 and MW-11) exceeded the NMWQCC groundwater standard for fluoride. In November 2007, twelve wells (MW-1, MW-2, MW-4, MW-4A, MW-5, MW-7, MW-9A, MW-10, MW-12, MW-13, RW-1 and RW-2) exceeded the NMWQCC groundwater standards for chloride and TDS. In addition, three wells (MW-1, MW-6 and MW-11) exceeded the NMWQCC groundwater standard for fluoride. Three wells (MW-1, MW-4 and MW-5) also exceeded the NMWQCC groundwater standard for sulfate. Nitrate concentrations were below NMWQCC groundwater standards during the 2007 sampling events. Copies of the certified analytical reports and chain-of-custody documentation are attached in APPENDIX A.

4.0 PLANNED ACTIVITIES

The first semi-annual 2008 groundwater monitoring event is scheduled for May 2008. On October 1, 1999, Texaco Exploration and Production, Inc. filed applications with the New Mexico Office of the State Engineer (NMOSE) to Divert Underground Waters for proposed recovery wells RW-1 (CP-884) and RW-2 (CP-885). The objective for the application to divert underground water was to remove chloride-impacted groundwater as a corrective action. However, LA reported that the NMOSE denied the appropriation permits on concerns that NMOSE's internal 40-year aquifer drawdown projections exceeded NMOSE criteria.

CRA understands that the Capitan Underground Water Basin underlying the Site has been declared a "Critical" underground water basin and closed to new appropriations. CRA and CEMC will coordinate with the NMOCD and NMOSE to further evaluate the diversion of underground water as a corrective action. Subsequently, the proposed groundwater remediation method may be modified, as appropriate, to achieve the NMWQCC cleanup standards and/or meet regulatory obligations.

## 5.0 SUMMARY OF FINDINGS

Based on groundwater monitoring activities performed at the Site, CRA presents the following summary:

- Groundwater at the Site is monitored with a network of 17 monitor wells and two recovery wells. Wells MW-8, MW-9, MW-9A, MW-10 and MW-11 are sampled semi-annually. The remaining 14 wells are sampled annually during the second semi-annual sampling event.
- Depth to groundwater ranged from 130.52 feet to 144.54 feet below top of casing on May 29, 2007 and from 130.42 feet to 144.54 feet below top of casing on November 13, 2007. Groundwater flow at the Site is to the southeast at a gradient of 0.003 feet/foot.
- The analytical results generally fall within historical ranges with higher chloride concentrations in the basal portion of the Ogallala aquifer. During the May 2007 sampling event, one monitor well (MW-9A) exceeded the NMWQCC groundwater standards for chloride and TDS. In addition, two monitor wells (MW-9 and MW-11) exceeded the NMWQCC groundwater standard for fluoride. In November 2007, twelve wells (MW-1, MW-2, MW-4, MW-4A, MW-5, MW-7, MW-9A, MW-10, MW-12, MW-13, RW-1 and RW-2) exceeded the NMWQCC groundwater standards for chloride and TDS. In addition, three wells (MW-1, MW-6 and MW-11) exceeded the NMWQCC groundwater standard for fluoride. Three wells (MW-1, MW-4 and MW-5) also exceeded the NMWQCC groundwater standard for sulfate. Nitrate concentrations were below NMWQCC groundwater standards during the 2007 sampling events.
- The first semi-annual 2008 groundwater monitoring event is scheduled for May 2008. CRA and CEMC will coordinate with the NMOCD and NMOSE to further evaluate the diversion of underground water as a corrective action. Subsequently, the proposed groundwater remediation method may be modified, as appropriate, to achieve the NMWQCC cleanup standards and/or meet regulatory obligations.

All of Which is Respectfully Submitted,  
**CONESTOGA-ROVERS & ASSOCIATES**



Todd Wells  
Project Manager

Thomas C. Larson  
Senior Project Manager

# JAL NW QUADRANGLE NEW MEXICO

LAT= 32° 12' 07.3" N  
LONG= 103° 12' 59.9" W

PHOTOREVISED 1977



USGS MAP SERIES 1:24,000



(Miles)



(Feet)

CONTOUR INTERVAL 10 FEET



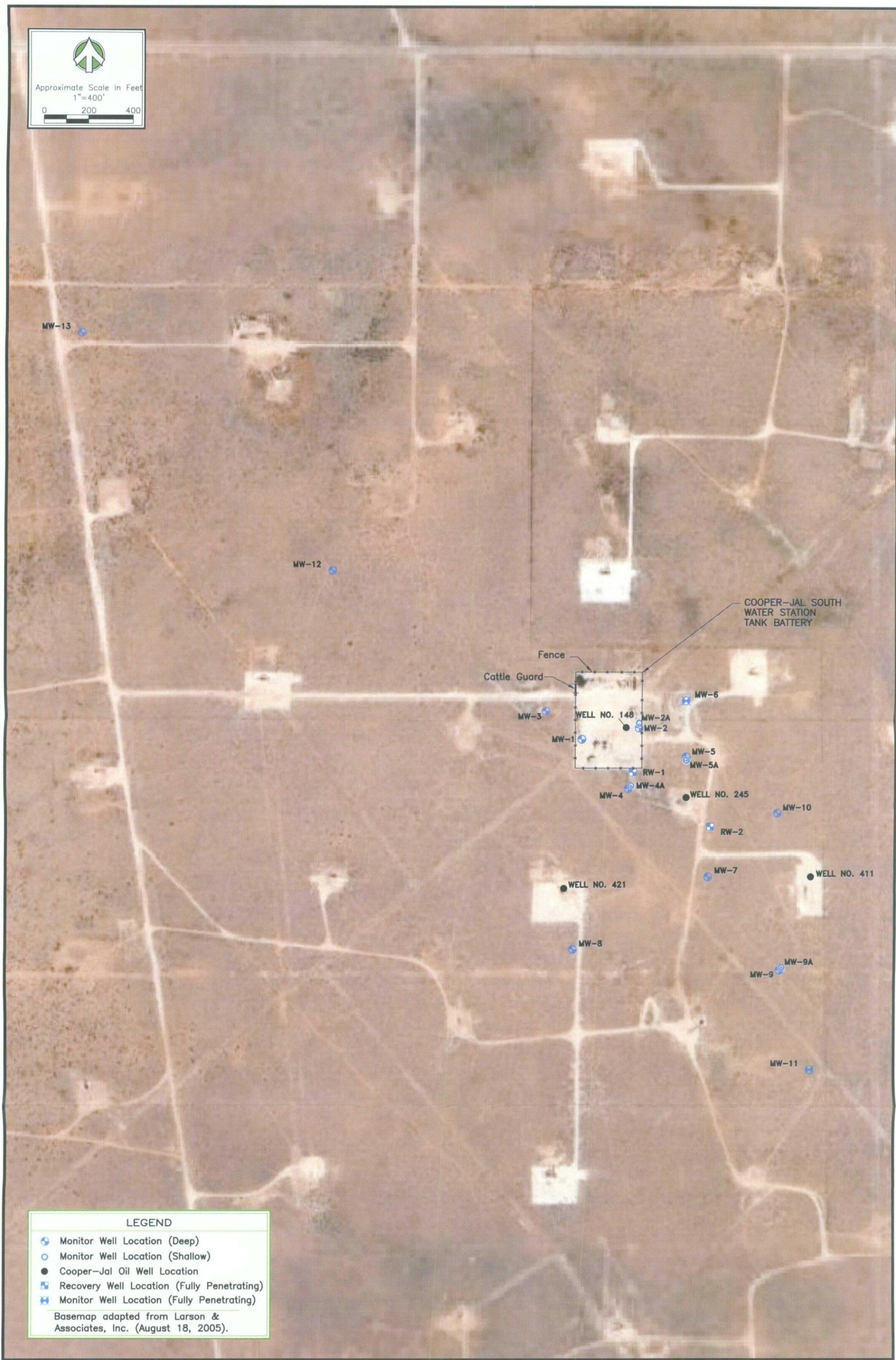
NORTH

039123 SLR 032408



SITE LOCATION MAP  
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
COOPER-JAL UNIT SOUTH INJECTION STATION  
LEA COUNTY, NEW MEXICO

JOB No.  
039123  
FIGURE  
1



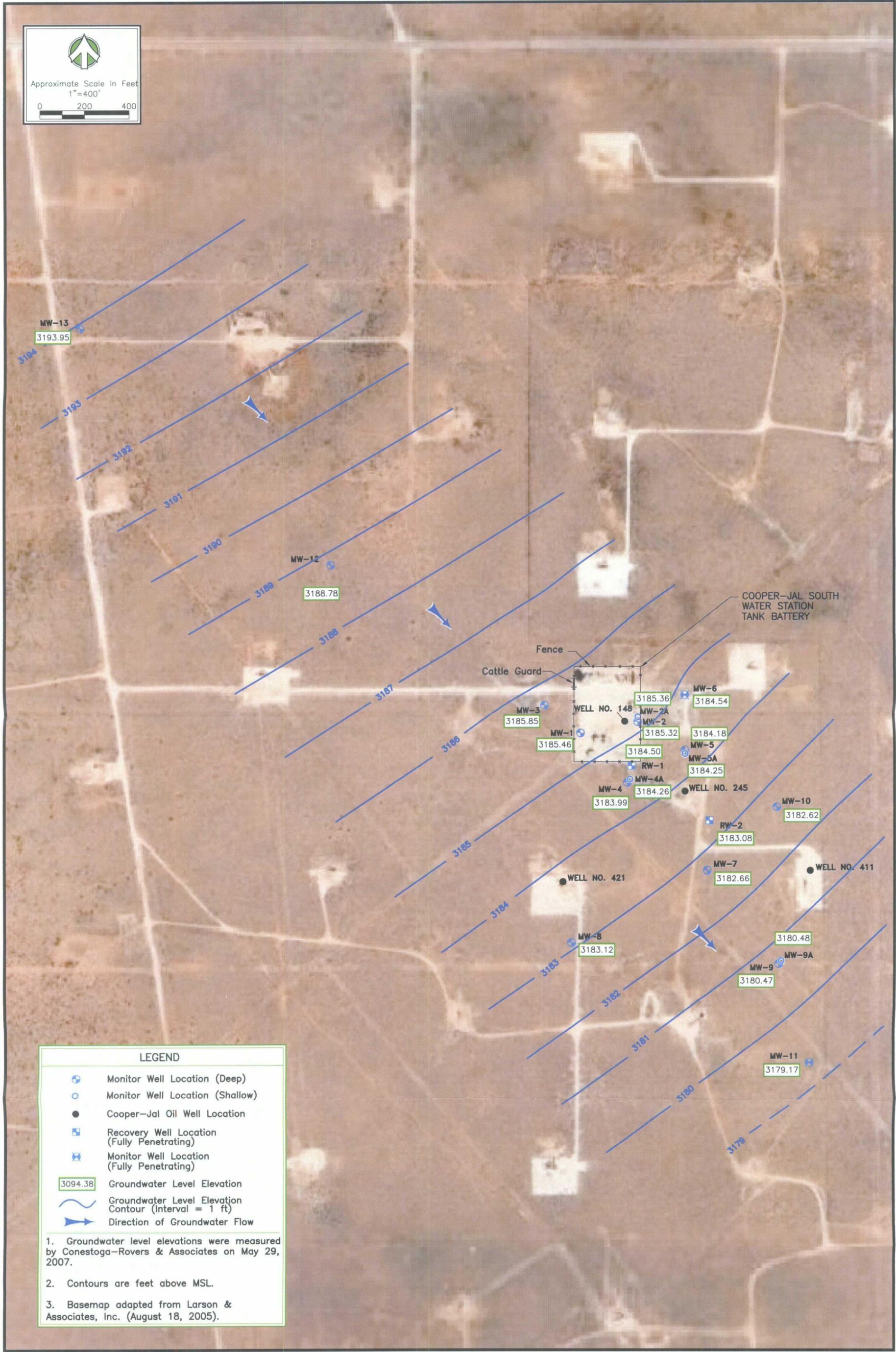
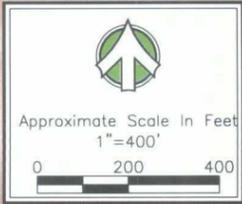
LEGEND	
	Monitor Well Location (Deep)
	Monitor Well Location (Shallow)
	Cooper-Jal Oil Well Location
	Recovery Well Location (Fully Penetrating)
	Monitor Well Location (Fully Penetrating)
Basemap adapted from Larson & Associates, Inc. (August 18, 2005).	

031923 1H07 SLR 032508



SITE DETAILS MAP  
 CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
 COOPER-JAL UNIT SOUTH INJECTION STATION  
 LEA COUNTY, NEW MEXICO

JOB No.  
039123  
 FIGURE  
2



**LEGEND**

- Monitor Well Location (Deep)
- Monitor Well Location (Shallow)
- Cooper-Jal Oil Well Location
- Recovery Well Location (Fully Penetrating)
- Monitor Well Location (Fully Penetrating)
- Groundwater Level Elevation
- Groundwater Level Elevation Contour (Interval = 1 ft)
- Direction of Groundwater Flow

1. Groundwater level elevations were measured by Conestoga-Rovers & Associates on May 29, 2007.

2. Contours are feet above MSL.

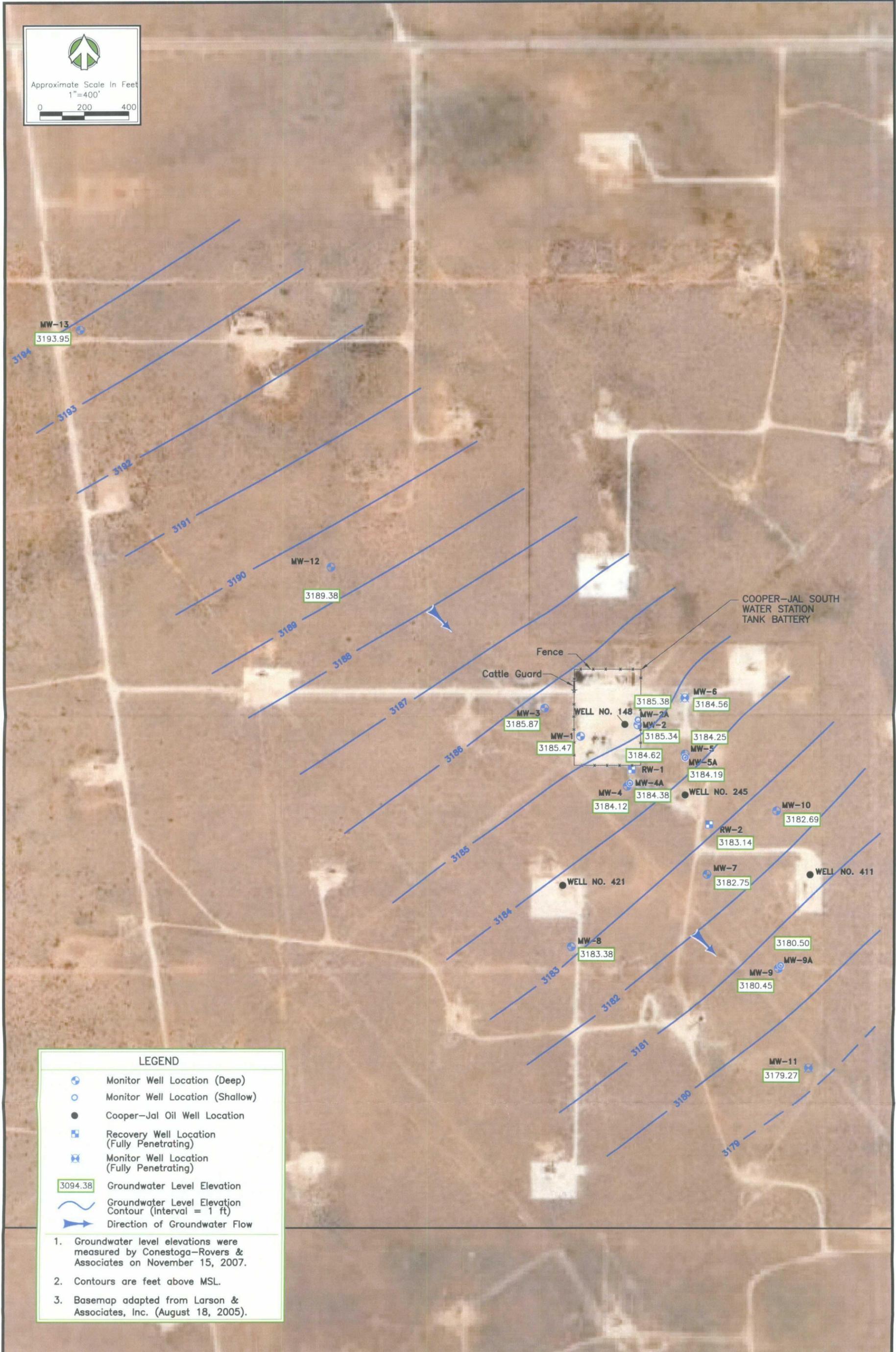
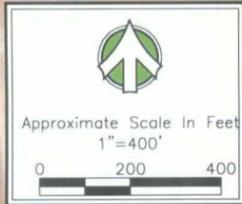
3. Basemap adapted from Larson & Associates, Inc. (August 18, 2005).

031923 2007 SLR 032508



GROUNDWATER GRADIENT MAP – MAY 2007  
 CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
 COOPER-JAL UNIT SOUTH INJECTION STATION  
 LEA COUNTY, NEW MEXICO

JOB No.  
039123  
FIGURE  
3



COOPER-JAL SOUTH WATER STATION TANK BATTERY

Fence  
Cattle Guard

LEGEND	
	Monitor Well Location (Deep)
	Monitor Well Location (Shallow)
	Cooper-Jal Oil Well Location
	Recovery Well Location (Fully Penetrating)
	Monitor Well Location (Fully Penetrating)
	Groundwater Level Elevation
	Groundwater Level Elevation Contour (Interval = 1 ft)
	Direction of Groundwater Flow

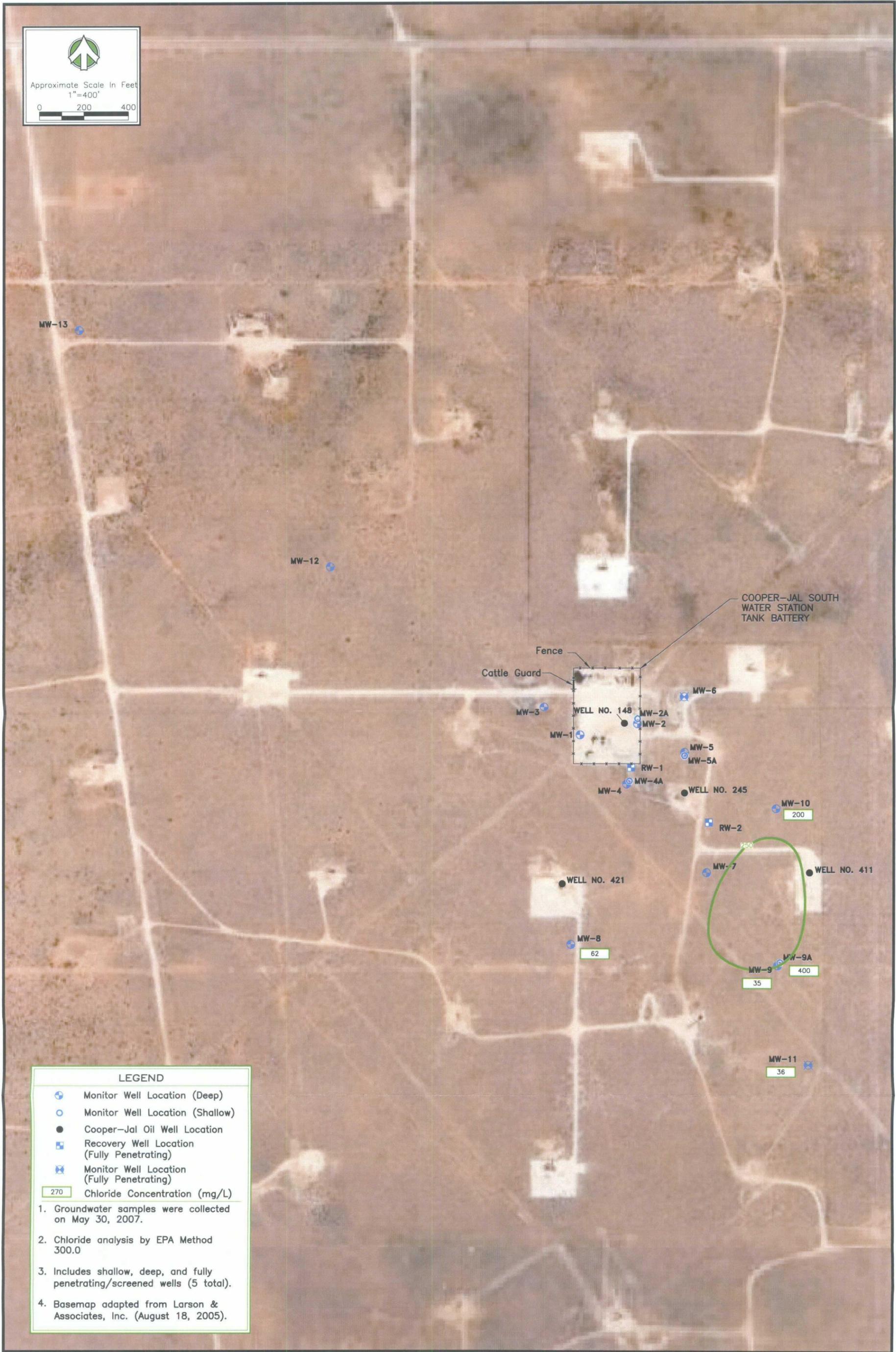
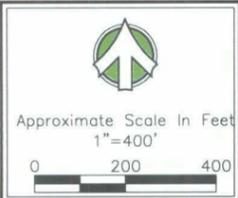
1. Groundwater level elevations were measured by Conestoga-Rovers & Associates on November 15, 2007.
2. Contours are feet above MSL.
3. Basemap adapted from Larson & Associates, Inc. (August 18, 2005).

031923 2007 SLR 032508



GROUNDWATER GRADIENT MAP – NOVEMBER 2007  
 CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
 COOPER-JAL UNIT SOUTH INJECTION STATION  
 LEA COUNTY, NEW MEXICO

JOB No.  
039123  
FIGURE  
4



**LEGEND**

- Monitor Well Location (Deep)
- Monitor Well Location (Shallow)
- Cooper-Jal Oil Well Location
- Recovery Well Location (Fully Penetrating)
- Monitor Well Location (Fully Penetrating)

Chloride Concentration (mg/L)

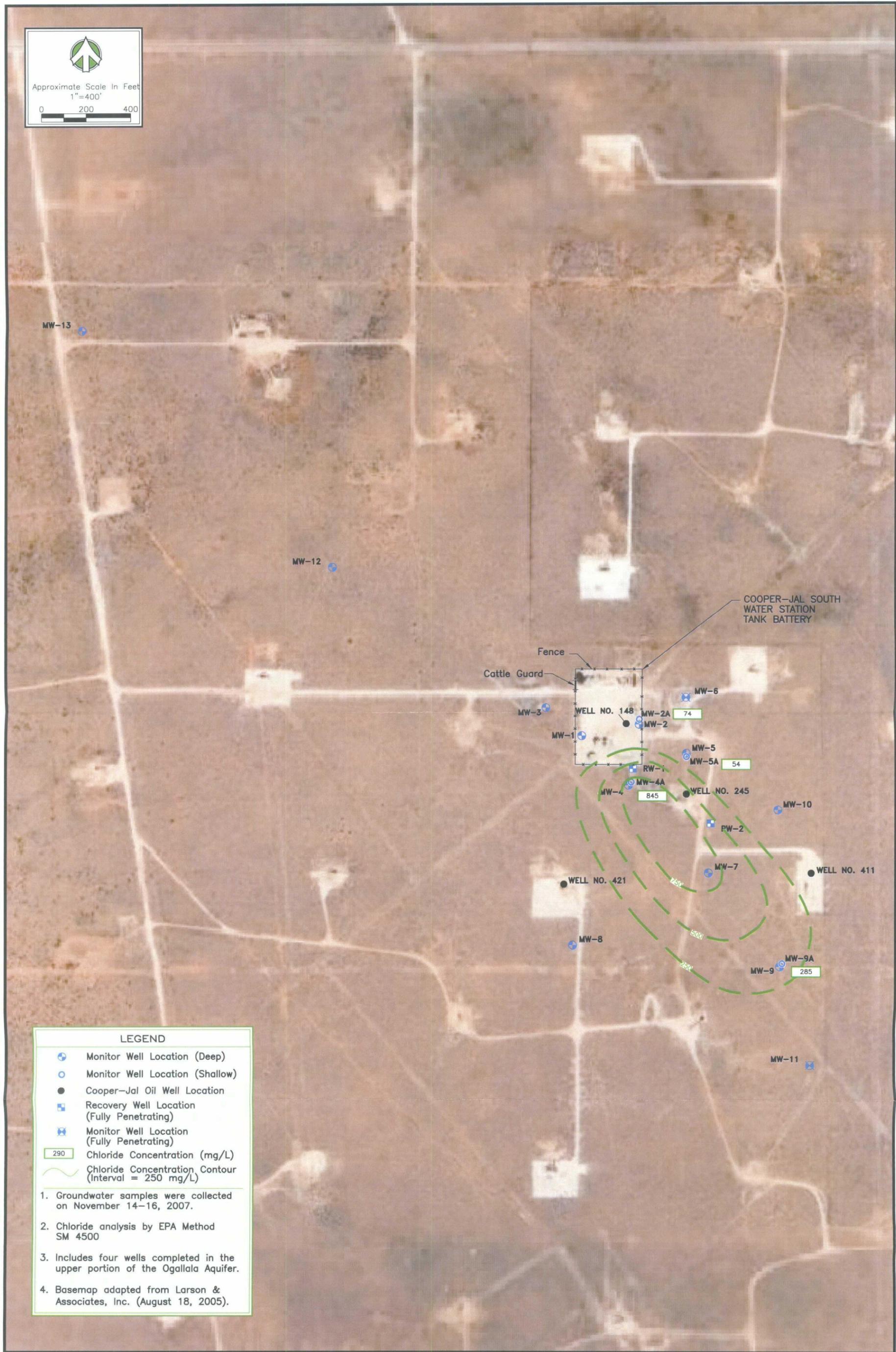
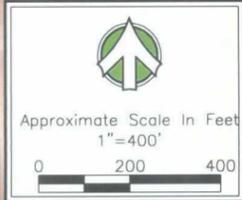
1. Groundwater samples were collected on May 30, 2007.
2. Chloride analysis by EPA Method 300.0
3. Includes shallow, deep, and fully penetrating/screened wells (5 total).
4. Basemap adapted from Larson & Associates, Inc. (August 18, 2005).

031923 2007 SLR 061808



CHLORIDE ISOCONCENTRATION MAP - MAY 2007  
 CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
 COOPER-JAL UNIT SOUTH INJECTION STATION  
 LEA COUNTY, NEW MEXICO

JOB No. 039123  
 FIGURE 5



**LEGEND**

- Monitor Well Location (Deep)
- Monitor Well Location (Shallow)
- Cooper-Jal Oil Well Location
- Recovery Well Location (Fully Penetrating)
- Monitor Well Location (Fully Penetrating)
- Chloride Concentration (mg/L)
- Chloride Concentration Contour (Interval = 250 mg/L)

1. Groundwater samples were collected on November 14-16, 2007.
2. Chloride analysis by EPA Method SM 4500
3. Includes four wells completed in the upper portion of the Ogallala Aquifer.
4. Basemap adapted from Larson & Associates, Inc. (August 18, 2005).

031923 2007 SLR 061808



SHALLOW GROUNDWATER CHLORIDE ISOCONCENTRATION MAP - NOVEMBER 2007  
 CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
 COOPER-JAL UNIT SOUTH INJECTION STATION  
 LEA COUNTY, NEW MEXICO

JOB No.  
039123  
FIGURE  
6



MW-12  
258

COOPER-JAL SOUTH  
WATER STATION  
TANK BATTERY

Fence  
Cattle Guard



**LEGEND**

- Monitor Well Location (Deep)
- Monitor Well Location (Shallow)
- Cooper-Jal Oil Well Location
- Recovery Well Location (Fully Penetrating)
- Monitor Well Location (Fully Penetrating)
- Chloride Concentration (mg/L)
- Chloride Concentration Contour (Interval Variable Range = 250-10,000 mg/L)

1. Groundwater samples were collected on November 14-16, 2007.
2. Chloride analysis by EPA Method SM 4500.
3. Includes deep and fully penetrating/screened wells.
4. Basemap adapted from Larson & Associates, Inc. (August 18, 2005).

031923 2007 SLR 061808



DEEP GROUNDWATER CHLORIDE ISOCONCENTRATION MAP - NOVEMBER 2007

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
COOPER-JAL UNIT SOUTH INJECTION STATION  
LEA COUNTY, NEW MEXICO

JOB No.  
039123

FIGURE  
7

TABLE I  
GROUNDWATER GAUGING SUMMARY  
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
COOPER-JAL UNIT INJECTION STATION  
LEA COUNTY, NEW MEXICO

Well ID TOC Elevation	Collection Date	Depth to Groundwater (ft TOC)	Casing Diameter (in)	Groundwater Elevation (ft)	Well Depth (ft TOC)	Well Screen Interval (ft bgs)
MW-1 3320.17	05/18/98	135.05	2	3185.12	172.38	153-173
	05/25/99	134.93	---	3185.24	---	---
	02/08/01	134.80	---	3185.37	---	---
	05/10/02	134.77	---	3185.40	---	---
	10/22/02	134.89	---	3185.28	---	---
	05/20/03	135.17	---	3185.00	---	---
	11/24/03	134.70	---	3185.47	---	---
	05/11/04	134.75	---	3185.42	---	---
	11/15/04	134.76	---	3185.41	---	---
	05/17/05	134.29	---	3185.88	---	---
	11/15/05	134.93	---	3185.24	---	---
	05/08/06	134.68	---	3185.49	---	---
	11/13/06	134.62	---	3185.55	---	---
	05/29/07	134.71	---	3185.46	---	---
11/16/07	134.70	---	3185.47	---	---	
MW-2 3319.86	05/18/98	135.00	2	3184.86	170.60	163-173
	05/25/99	134.79	---	3185.07	---	---
	02/08/01	134.63	---	3185.23	---	---
	05/10/02	134.65	---	3185.21	---	---
	10/22/02	134.72	---	3185.14	---	---
	05/20/03	134.95	---	3184.91	---	---
	11/24/03	134.56	---	3185.30	---	---
	05/11/04	134.55	---	3185.31	---	---
	11/15/04	134.53	---	3185.33	---	---
	05/17/05	134.39	---	3185.47	---	---
	11/15/05	134.77	---	3185.09	---	---
	05/08/06	134.52	---	3185.34	---	---
	11/13/06	134.44	---	3185.42	---	---
	05/29/07	134.54	---	3185.32	---	---
11/14/07	134.52	---	3185.34	---	---	
MW-2A 3319.86	05/18/98	134.80	2	3185.06	142.30	130-145
	05/25/99	134.73	---	3185.13	---	---
	02/08/01	134.58	---	3185.28	---	---
	05/10/02	134.50	---	3185.36	---	---
	10/22/02	134.66	---	3185.20	---	---
	05/20/03	135.80	---	3184.06	---	---
	11/24/03	134.60	---	3185.26	---	---
	05/11/04	134.53	---	3185.33	---	---
	11/15/04	134.58	---	3185.28	---	---
	05/17/05	134.47	---	3185.39	---	---
	11/15/05	134.74	---	3185.12	---	---
	05/08/06	134.46	---	3185.40	---	---
	11/13/06	134.39	---	3185.47	---	---
	05/29/07	134.50	---	3185.36	---	---
11/14/07	134.48	---	3185.38	---	---	

TABLE I  
GROUNDWATER GAUGING SUMMARY  
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
COOPER-JAL UNIT INJECTION STATION  
LEA COUNTY, NEW MEXICO

Well ID TOC Elevation	Collection Date	Depth to Groundwater (ft TOC)	Casing Diameter (in)	Groundwater Elevation (ft)	Well Depth (ft TOC)	Well Screen Interval (ft bgs)
MW-3 3318.21	05/18/98	132.65	2	3185.56	171.93	161-171
	05/25/99	132.52	---	3185.69	---	---
	02/08/01	132.40	---	3185.81	---	---
	05/10/02	132.40	---	3185.81	---	---
	10/22/02	132.49	---	3185.72	---	---
	05/20/03	132.75	---	3185.46	---	---
	11/24/03	132.29	---	3185.92	---	---
	05/11/04	132.38	---	3185.83	---	---
	11/15/04	132.46	---	3185.75	---	---
	05/17/05	132.32	---	3185.89	---	---
	11/15/05	132.55	---	3185.66	---	---
	05/08/06	132.32	---	3185.89	---	---
	11/13/06	132.27	---	3185.94	---	---
	05/29/07	132.36	---	3185.85	---	---
11/16/07	132.34	---	3185.87	---	---	
MW-4 3319.74	05/18/98	136.01	2	3183.73	171.41	161-171
	05/25/99	135.57	---	3184.17	---	---
	02/08/01	135.87	---	3183.87	---	---
	05/10/02	135.67	---	3184.07	---	---
	10/22/02	135.90	---	3183.84	---	---
	05/20/03	136.00	---	3183.74	---	---
	11/24/03	135.70	---	3184.04	---	---
	05/11/04	135.34	---	3184.40	---	---
	11/15/04	135.76	---	3183.98	---	---
	05/17/05	135.69	---	3184.05	---	---
	11/15/05	135.85	---	3183.89	---	---
	05/08/06	135.60	---	3184.14	---	---
	11/13/06	135.59	---	3184.15	---	---
	05/29/07	135.75	---	3183.99	---	---
11/14/07	135.62	---	3184.12	---	---	
MW-4A 3319.58	05/18/98	135.68	2	3183.90	146.00	128-143
	05/21/99	135.65	---	3183.93	---	---
	05/25/99	135.90	---	3183.68	---	---
	02/08/01	135.34	---	3184.24	---	---
	05/10/02	135.30	---	3184.28	---	---
	10/22/02	135.51	---	3184.07	---	---
	05/20/03	135.55	---	3184.03	---	---
	11/24/03	135.31	---	3184.27	---	---
	05/11/04	135.72	---	3183.86	---	---
	11/15/04	135.38	---	3184.20	---	---
	05/17/05	135.32	---	3184.26	---	---
	11/15/05	135.52	---	3184.06	---	---
	05/08/06	135.26	---	3184.32	---	---
	11/13/06	135.20	---	3184.38	---	---
05/29/07	135.32	---	3184.26	---	---	
11/14/07	135.20	---	3184.38	---	---	

**TABLE I**  
**GROUNDWATER GAUGING SUMMARY**  
**CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY**  
**COOPER-JAL UNIT INJECTION STATION**  
**LEA COUNTY, NEW MEXICO**

Well ID TOC Elevation	Collection Date	Depth to Groundwater (ft TOC)	Casing Diameter (in)	Groundwater Elevation (ft)	Well Depth (ft TOC)	Well Screen Interval (ft bgs)
MW-5 3321.10	05/18/98	137.42	2	3183.68	173.65	161-171
	05/25/99	137.28	---	3183.82	---	---
	02/08/01	137.18	---	3183.92	---	---
	05/10/02	137.10	---	3184.00	---	---
	10/22/02	137.04	---	3184.06	---	---
	05/20/03	137.45	---	3183.65	---	---
	11/24/03	137.01	---	3184.09	---	---
	05/11/04	137.01	---	3184.09	---	---
	11/15/04	137.08	---	3184.02	---	---
	05/17/05	137.00	---	3184.10	---	---
	11/15/05	137.18	---	3183.92	---	---
	05/08/06	136.90	---	3184.20	---	---
	11/13/06	136.81	---	3184.29	---	---
	05/29/07	136.92	---	3184.18	---	---
11/14/07	136.85	---	3184.25	---	---	
MW-5A 3321.07	05/18/98	137.20	2	3183.87	143.85	126-141
	05/25/99	137.11	---	3183.96	---	---
	02/08/01	136.99	---	3184.08	---	---
	05/10/02	136.90	---	3184.17	---	---
	10/22/02	137.17	---	3183.90	---	---
	05/20/03	137.24	---	3183.83	---	---
	11/24/03	136.91	---	3184.16	---	---
	05/11/04	136.88	---	3184.19	---	---
	11/15/04	136.92	---	3184.15	---	---
	05/17/05	136.83	---	3184.24	---	---
	11/15/05	137.06	---	3184.01	---	---
	05/08/06	136.80	---	3184.27	---	---
	11/13/06	136.74	---	3184.33	---	---
	05/29/07	136.82	---	3184.25	---	---
11/14/07	136.88	---	3184.19	---	---	
MW-6 3321.15	05/18/98	136.73	2	3184.42	169.25	120-170
	05/25/99	136.61	---	3184.54	---	---
	02/08/01	136.50	---	3184.65	---	---
	05/10/02	136.40	---	3184.75	---	---
	10/22/02	136.57	---	3184.58	---	---
	05/20/03	136.85	---	3184.30	---	---
	11/24/03	136.38	---	3184.77	---	---
	05/11/04	136.41	---	3184.74	---	---
	11/15/04	136.08	---	3185.07	---	---
	05/17/05	136.58	---	3184.57	---	---
	11/15/05	136.82	---	3184.33	---	---
	05/08/06	136.58	---	3184.57	---	---
	11/13/06	136.49	---	3184.66	---	---
	05/29/07	136.61	---	3184.54	---	---
11/15/07	136.59	---	3184.56	---	---	

**TABLE I**  
**GROUNDWATER GAUGING SUMMARY**  
**CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY**  
**COOPER-JAL UNIT INJECTION STATION**  
**LEA COUNTY, NEW MEXICO**

Well ID TOC Elevation	Collection Date	Depth to Groundwater (ft TOC)	Casing Diameter (in)	Groundwater Elevation (ft)	Well Depth (ft TOC)	Well Screen Interval (ft bgs)
MW-7 3318.39	05/18/98	136.19	2	3182.20	166.15	151-166
	05/25/99	135.98	---	3182.41	---	---
	02/08/01	135.87	---	3182.52	---	---
	05/10/02	135.67	---	3182.72	---	---
	10/22/02	135.89	---	3182.50	---	---
	05/20/03	136.12	---	3182.27	---	---
	11/24/03	135.71	---	3182.68	---	---
	05/11/04	135.74	---	3182.65	---	---
	11/15/04	135.78	---	3182.61	---	---
	05/17/05	135.68	---	3182.71	---	---
	11/15/05	135.90	---	3182.49	---	---
	05/08/06	135.64	---	3182.75	---	---
	11/13/06	135.58	---	3182.81	---	---
	05/29/07	135.73	---	3182.66	---	---
11/15/07	135.64	---	3182.75	---	---	
MW-8 3317.14	05/18/98	134.36	2	3182.78	171.92	155-170
	05/25/99	134.21	---	3182.93	---	---
	02/08/01	134.08	---	3183.06	---	---
	05/10/02	133.95	---	3183.19	---	---
	10/22/02	134.18	---	3182.96	---	---
	05/20/03	134.38	---	3182.76	---	---
	11/24/03	133.99	---	3183.15	---	---
	05/11/04	134.02	---	3183.12	---	---
	11/15/04	134.11	---	3183.03	---	---
	05/17/05	133.97	---	3183.17	---	---
	11/15/05	134.21	---	3182.93	---	---
	05/08/06	133.94	---	3183.20	---	---
	11/13/06	133.9	---	3183.24	---	---
	05/29/07	134.02	---	3183.12	---	---
11/15/07	133.76	---	3183.38	---	---	
MW-9 3312.79	05/18/98	132.89	2	3179.90	161.40	149-164
	05/25/99	132.68	---	3180.11	---	---
	02/08/01	132.52	---	3180.27	---	---
	05/10/02	137.20	---	3175.59	---	---
	10/22/02	132.56	---	3180.23	---	---
	05/20/03	132.75	---	3180.04	---	---
	11/24/03	132.35	---	3180.44	---	---
	05/11/04	132.39	---	3180.40	---	---
	11/15/04	132.43	---	3180.36	---	---
	05/17/05	132.26	---	3180.53	---	---
	11/15/05	132.60	---	3180.19	---	---
	05/08/06	132.26	---	3180.53	---	---
	11/13/06	132.19	---	3180.60	---	---
	05/29/07	132.32	---	3180.47	---	---
11/14/07	132.34	---	3180.45	---	---	

**TABLE I**  
**GROUNDWATER GAUGING SUMMARY**  
**CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY**  
**COOPER-JAL UNIT INJECTION STATION**  
**LEA COUNTY, NEW MEXICO**

Well ID TOC Elevation	Collection Date	Depth to Groundwater (ft TOC)	Casing Diameter (in)	Groundwater Elevation (ft)	Well Depth (ft TOC)	Well Screen Interval (ft bgs)
MW-9A 3312.56	05/18/98	132.65	2	3179.91	144.15	127-142
	05/25/99	132.43	---	3180.13	---	---
	02/08/01	132.37	---	3180.19	---	---
	05/10/02	137.20	---	3175.36	---	---
	10/22/02	132.35	---	3180.21	---	---
	05/20/03	132.55	---	3180.01	---	---
	11/24/03	132.10	---	3180.46	---	---
	05/11/04	132.14	---	3180.42	---	---
	11/15/04	132.19	---	3180.37	---	---
	05/17/05	132.06	---	3180.50	---	---
	11/15/05	132.35	---	3180.21	---	---
	05/08/06	132.02	---	3180.54	---	---
	11/13/06	131.09	---	3181.47	---	---
	05/29/07	132.08	---	3180.48	---	---
11/14/07	132.06	---	3180.50	---	---	
MW-10 3319.30	05/18/98	137.18	2	3182.12	164.15	151-166
	05/25/99	137.04	---	3182.26	---	---
	02/08/01	136.88	---	3182.42	---	---
	05/10/02	136.80	---	3182.50	---	---
	10/22/02	136.91	---	3182.39	---	---
	05/20/03	137.13	---	3182.17	---	---
	11/24/03	136.71	---	3182.59	---	---
	05/11/04	136.77	---	3182.53	---	---
	11/15/04	136.82	---	3182.48	---	---
	05/17/05	136.34	---	3182.96	---	---
	11/15/05	136.95	---	3182.35	---	---
	05/08/06	136.65	---	3182.65	---	---
	11/13/06	136.59	---	3182.71	---	---
	05/29/07	136.68	---	3182.62	---	---
11/15/07	136.61	---	3182.69	---	---	
MW-11 3309.69	03/23/99	131.12	4	3178.57	165.71	125-165
	05/25/99	130.91	---	3178.78	---	---
	02/08/01	130.11	---	3179.58	---	---
	05/10/02	135.60	---	3174.09	---	---
	10/22/02	130.76	---	3178.93	---	---
	05/20/03	131.03	---	3178.66	---	---
	11/24/03	130.57	---	3179.12	---	---
	05/11/04	130.61	---	3179.08	---	---
	11/15/04	130.65	---	3179.04	---	---
	05/17/05	131.56	---	3178.13	---	---
	11/15/05	130.70	---	3178.99	---	---
	05/08/06	130.41	---	3179.28	---	---
	11/13/06	130.42	---	3179.27	---	---
	05/29/07	130.52	---	3179.17	---	---
11/14/07	130.42	---	3179.27	---	---	

**TABLE I**  
**GROUNDWATER GAUGING SUMMARY**  
**CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY**  
**COOPER-JAL UNIT INJECTION STATION**  
**LEA COUNTY, NEW MEXICO**

Well ID TOC Elevation	Collection Date	Depth to Groundwater (ft TOC)	Casing Diameter (in)	Groundwater Elevation (ft)	Well Depth (ft TOC)	Well Screen Interval (ft bgs)
MW-12 3328.43	05/10/02	139.57	2	3188.86	165.50	156.68-171.65
	10/22/02	139.73	---	3188.70	---	---
	05/20/03	139.72	---	3188.71	---	---
	11/24/03	139.69	---	3188.74	---	---
	05/11/04	139.64	---	3188.79	---	---
	11/15/04	139.68	---	3188.75	---	---
	05/17/05	139.58	---	3188.85	---	---
	11/15/05	139.83	---	3188.60	---	---
	05/08/06	139.55	---	3188.88	---	---
	11/13/06	139.53	---	3188.90	---	---
	05/29/07	139.65	---	3188.78	---	---
11/16/07	139.05	---	3189.38	---	---	
MW-13 3338.49	05/10/02	144.45	2	3194.04	167.40	156.68-171.65
	10/22/02	144.49	---	3194.00	---	---
	05/20/03	144.9	---	3193.59	---	---
	11/24/03	144.37	---	3194.12	---	---
	05/11/04	144.47	---	3194.02	---	---
	11/15/04	144.56	---	3193.93	---	---
	05/17/05	144.36	---	3194.13	---	---
	11/15/05	144.60	---	3193.89	---	---
	05/08/06	144.29	---	3194.20	---	---
	11/13/06	144.38	---	3194.11	---	---
	05/29/07	144.54	---	3193.95	---	---
11/16/07	144.54	---	3193.95	---	---	
RW-1 3318.50	05/21/99	134.32	5	3184.18	171.25	130.41-174.37
	05/25/99	134.24	---	3184.26	---	---
	02/08/01	134.15	---	3184.35	---	---
	05/10/02	134.00	---	3184.50	---	---
	10/22/02	134.17	---	3184.33	---	---
	05/20/03	134.40	---	3184.10	---	---
	11/24/03	134.02	---	3184.48	---	---
	05/11/04	134.01	---	3184.49	---	---
	11/15/04	134.06	---	3184.44	---	---
	05/17/05	133.97	---	3184.53	---	---
	11/15/05	134.20	---	3184.30	---	---
	05/08/06	133.93	---	3184.57	---	---
	11/13/06	133.92	---	3184.58	---	---
05/29/07	134.00	---	3184.50	---	---	
11/15/07	133.88	---	3184.62	---	---	

**TABLE I**  
**GROUNDWATER GAUGING SUMMARY**  
**CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY**  
**COOPER-JAL UNIT INJECTION STATION**  
**LEA COUNTY, NEW MEXICO**

Well ID TOC Elevation	Collection Date	Depth to Groundwater (ft TOC)	Casing Diameter (in)	Groundwater Elevation (ft)	Well Depth (ft TOC)	Well Screen Interval (ft bgs)
RW-2	02/08/01	135.58	5	3183.04	154.63	134.22-172.73
3318.62	05/10/02	135.55	---	3183.07	---	---
	10/22/02	135.55	---	3183.07	---	---
	05/20/03	135.58	---	3183.04	---	---
	11/24/03	135.54	---	3183.08	---	---
	05/11/04	135.48	---	3183.14	---	---
	11/15/04	135.43	---	3183.19	---	---
	05/17/05	135.46	---	3183.16	---	---
	11/15/05	135.65	---	3182.97	---	---
	05/08/06	135.42	---	3183.20	---	---
	11/13/06	135.47	---	3183.15	---	---
	05/29/07	135.54	---	3183.08	---	---
	11/15/07	135.48	---	3183.14	---	---

**Notes:**

1. TOC - Top of Casing.
2. bgs - below ground surface.
3. A - Indicates shallow groundwater monitor well.

TABLE II  
GROUNDWATER ANALYTICAL SUMMARY  
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
COOPER-JAL UNIT INJECTION STATION  
LEA COUNTY, NEW MEXICO

Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride	Fluoride	Nitrate - N	Sulfate	Calcium	Magnesium	Potassium	Sodium	TDS	
														New Mexico Water Quality Control Commission Groundwater Standard
		250	1.60	10	600	1,000	1,000	50.00	630.0	520.0	50.00	4,300.0	1,000	
MW-1	9/16/97	--	--	280	8,500	--	--	1,100	520.0	630.0	50.00	4,300.0	15,000	
	2/25/98	--	--	280	5,600	--	--	570	285.0	520.0	116.00	2,900.0	9,300	
	2/14/01	<1.0	306	306	11,000	4.40	7.70	1,000	374.0	780.0	236.00	5,236.0	20,000	
	5/17/02	<1.0	208	208	237	5.83	3.28	86.9	45.7	20.1	11.90	184.0	784	
	10/23/02	--	--	--	168	--	--	96.8	--	--	--	--	696	
	5/21/03	<1.0	290	290	6,600	<8.00	10.90	875	238.0	475.0	96.50	3,410.0	13,200	
	11/25/03	<1.0	250	250	402	7.03	2.72	125	19.2	22.0	18.50	294.0	1,158	
	5/12/04	<1.0	264	264	504	7.31	2.70	136	17.2	23.1	22.40	355.0	1,328	
	11/16/04	<1.0	232	232	384	4.94	3.30	103	29.2	22.7	25.40	373.0	952	
	11/16/05	<10.0	262	262	1,210 D1	3.0	2.4	215 D1	85.400	92.600	23.000	847.000	2,640 N	
	11/14/06	<10.0	200	200	96	4.2	2.0	76	13.200	6.490	15.600	172.000	624	
	11/16/07	<10.0	255	255	4,250 D1	3.7	3.90 D1	602 D1	154.000	187.000	54.000	2100.000 D1	10,900	
	MW-2	2/25/98	--	--	210	5,900	--	--	760	840.0	380.0	30.00	2,650.0	9,400
		4/9/98	--	--	290	8,200	--	--	990	1,100.0	490.0	29.00	3,430.0	15,000
2/14/01		<1.0	184	184	7,400	2.30	4.10	870	1,025.0	488.0	48.50	3,189.0	15,000	
5/17/02		<1.0	160	160	3,200	1.72	3.18	483	587.0	239.0	35.60	1,160.0	6,040	
10/23/02		--	--	--	2,920	--	--	451	--	--	--	--	6,770	
5/22/03		<1.0	158	158	2,550	2.04	3.87	386	448.0	176.0	20.00	1,020.0	5,880	
11/25/03		<1.0	160	160	3,330	<4.00	5.63	446	555.0	227.0	32.00	1,120.0	6,760	
5/12/04		<1.0	146	146	1,750	1.750	2.78	246	308.0	112.0	29.70	549.0	3,965	
11/16/04		<1.0	120	120	430	<1.00	2.13	56.9	104.0	29.4	22.40	158.0	832	
11/16/05		<10.0	171	171	4,720 D1	0.72	2.6	645 D1	594.000	209.000	20.800	3,290.000	10,000 N	
11/14/06		<10.0	160	160	3,500	0.78 N	2.1	470	535.000	212.000	21.000	1,540.000	8,260	
11/14/07		<10.0	178	178	3,280 D1	0.76	1.93	462 D1	449.000	152.000	16.200	1,310.000 D1	9,110	
MW-2A		2/26/98	--	--	190	280	--	--	330	144.0	36.0	5.70	215.0	1,200
		2/14/01	<1.0	162	162	44	1.30	2.30	76	64.4	16.7	7.02	45.5	390
	5/15/02	<1.0	176	176	36.6	<1.00	2.34	79.1	57.6	13.9	4.35	43.8	435	
	10/23/02	--	--	--	44.3	--	--	97	--	--	--	--	425	
	5/22/03	<1.0	168	168	40.5	<1.00	2.18	75.5	67.2	14.3	3.76	47.9	418	
	11/25/03	<1.0	166	166	43.1	1.00	2.23	77.4	51.7	14.4	3.98	43.8	452	
	5/12/04	<1.0	176	176	44.8	<1.00	2.24	76.5	62.9	15.0	3.66	43.6	440	
	11/16/04	<1.0	164	164	52.5	1.22	2.78	75.4	68.8	15.3	3.98	49.1	428	
	11/16/05	<10.0	151	151	56.8	0.60	2.3	75.1 D1	157.000	18.000	4.200	49.800	630 N	
	11/14/06	<10.0	180	180	49	0.55	1.6	76	69.800	15.600	3.470	49.900	488	
	11/14/07	<10.0	170	170	74.6	0.58	1.51	66.8 D1	666.000	15.300	<5.000	45.400	504	

TABLE II  
GROUNDWATER ANALYTICAL SUMMARY  
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
COOPER-JAL UNIT INJECTION STATION  
LEA COUNTY, NEW MEXICO

Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride	Fluoride	Nitrate - N	Sulfate	Calcium	Magnesium	Potassium	Sodium	TDS
New Mexico Water Quality Control Commission Groundwater Standard													
MW-3	2/27/98	--	--	190	452	--	--	406	200.0	50.0	11.00	237.0	1,500
	2/14/01	<1.0	158	158	34	1.60	2.40	100	54.5	19.0	7.61	48.6	440
	5/17/02	<1.0	158	158	30.6	1.56	2.35	102	55.6	18.4	5.04	50.0	433
	10/23/02	--	--	--	35.4	--	--	104	--	--	--	--	419
	5/22/03	<1.0	156	156	30.6	1.17	2.25	96.3	53.2	17.8	5.39	54.6	435
	11/25/03	<1.0	160	160	31.4	1.35	2.30	103	46.5	18.0	5.19	51.7	440
	5/12/04	<1.00	164	164	32.3	1.20	2.38	101	52.2	16.8	4.77	47.5	448
	11/16/04	<1.00	166	166	35.1	1.53	2.77	95.4	56.3	23.6	12.70	58.9	424
	11/17/05	<10.0	171	171	96.3	0.97	2.2	108 D1	89.200	22.100	8.870	93.400	840 N
	11/15/06	<1.0	170	170	30	0.92 N	1.7	96	51.300	17.300	4.300	57.200	505
	11/16/07	<10.0	170	170	39.7	0.93	1.58	88.2 D1	50.800	16.300	<5.000	50.600	570
MW-4	2/27/98	--	--	230	12,000	--	--	1,300	1,700.0	880.0	48.00	5,300.0	22,000
	4/9/98	--	--	240	13,000	--	--	1,500	1,740.0	840.0	42.00	5,400.0	23,000
	2/14/01	<1.0	232	232	15,000	1.80	6.80	1,500	--	--	--	--	29,000
	5/17/02	<1.0	232	232	11,300	2.01	6.09	1,380	1,610.0	814.0	60.90	4,310.0	22,600
	10/23/02	--	--	--	11,300	--	--	1,320	--	--	--	--	23,200
	5/22/03	<1.0	220	220	11,300	<10.00	12.30	1,370	1,450.0	659.0	47.30	4,140.0	62,500
	11/26/03	<1.0	218	218	12,100	<8.00	12.30	1,400	1830.0	889.0	62.00	4,620.0	54,450
	5/11/04	<1.00	214	214	14,200	<8.00	8.97	1,560	1800.0	829.0	60.70	4,850.0	65,450
	11/17/04	<1.00	222	222	13,600	<20.00	31.50	1,410	2020.0	972.0	73.60	5,900.0	25,200
	11/17/05	<10.0	181	181	9,440 D1	0.82	0.20	45.8 D1	849.000	387.000	28.100	3,880.000	28,300 N
	11/15/06	<1.0	260	260	14,000	<5.0 C	5.2	1,400	1,760.000	897.000	58.800	6,150.000	28,700
	11/14/07	<10.0	255	255	14,800 D1	0.54	7.15 D1	1,410 D1	1,170.000	382.000	48.000	4,760.000 D1	36,300
MW-4A	2/27/98	--	--	180	1,600	--	--	410	470.0	130.0	11.00	620.0	3,300
	2/14/01	<1.0	154	154	1,600	1.40	2.80	210	--	--	--	--	4,000
	5/15/02	<1.0	156	156	577	<1.00	2.23	121	200.0	49.5	10.30	125.0	1,610
	10/23/02	--	--	--	478	--	--	114	--	--	--	--	1,430
	5/22/03	<1.0	154	154	844	<1.00	2.43	160	279.0	58.9	10.10	248.0	2,200
	11/26/03	<1.0	158	158	1,060	<4.00	5.82	182	337.0	79.3	15.20	329.0	2,585
	5/11/04	<1.00	156	156	984	<2.00	3.30	179	297.0	66.5	11.50	279.0	2,300
	11/17/04	<1.00	164	164	1,110	<2.00	4.62	186	369.0	75.4	14.90	413.0	2,235
	11/16/05	<10.0	181	181	827 D1	<0.5	2.2	160 D1	335.000	61.400	9.230	382.000	2,340 N
	11/15/06	<1.0	620	620	960	<0.50	2.6	170	227.000	53.500	8.100	406.000	2,870
	11/14/07	<10.0	311	311	845 D1	0.35	3.60 D1	167 D1	205.000	44.900	7.330	334.000	2,650

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CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
COOPER-JAL UNIT INJECTION STATION  
LEA COUNTY, NEW MEXICO

Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride	Fluoride	Nitrate - N	Sulfate	Calcium	Magnesium	Potassium	Sodium	TDS					
														New Mexico Water Quality Control Commission Groundwater Standard				
														250	1.60	10	600	1,000
MW-5	2/26/98	--	--	180	6,600	--	--	910	1,400.0	470.0	31.00	2,400.0	12,000					
	2/14/01	<1.0	166	166	7,700	1.80	4.10	910	--	--	--	--	18,000					
	5/17/02	<1.0	156	156	4,040	1.53	4.56	586	757.0	319.0	60.90	1,260.0	8,340					
	10/23/02	--	--	--	3,900	--	--	94.8	--	--	--	--	422					
	5/22/03	<1.0	158	158	3,170	<4.00	6.52	550	644.0	215.0	49.90	1,240.0	7,860					
	11/25/03	<1.0	168	168	5,120	<4.00	6.77	739	978.0	365.0	54.90	1,680.0	11,940					
	5/11/04	<1.0	160	160	6,760	<3.00	4.65	1,030	1,180.0	417.0	40.30	2,120.0	20,380					
	11/17/04	<1.0	172	172	6,750	<1.0	16.60	786	1,210.0	486.0	40.60	2,300.0	11,980					
	11/17/05	<10.0	161	161	2,140 D1	0.79	0.16	334 D1	339,000	126,000	10,800	791,000	7,120 N					
	11/14/06	<10.0	160	160	2,000	0.60	1.5	300	437,000	173,000	14,200	918,000	4,420					
	11/14/07	<10.0	161	161	5,790 D1	0.37	4.01 D1	668 D1	812,000	240,000	23,300	1,850,000 D1	16,300					
MW-5A	2/26/98	--	--	170	190	--	--	180	107.0	23.0	3.50	117.0	740					
	2/15/01	<1.0	164	164	140	1.20	2.10	130	90.2	27.9	8.70	74.6	670					
	5/15/02	<1.0	182	182	53.5	<1.00	2.23	84.4	63.2	16.1	4.69	43.6	475					
	10/23/02	--	--	--	50	--	--	616	--	--	--	--	8,670					
	5/22/03	<1.0	158	158	32.5	<1.00	2.10	69.9	55.5	13.8	3.41	41.5	416					
	11/25/03	<1.0	332	332	34.1	1.05	2.20	75.5	60.9	14.6	4.08	45.0	422					
	5/11/04	<1.00	164	164	38.8	<1.00	2.25	75.8	60.9	15.0	3.40	43.2	484					
	11/17/04	<1.00	152	152	39.6	1.37	2.66	74.3	58.1	13.6	3.83	48.5	430					
	11/16/05	<10.0	191	191	40.2	0.82	2.1	75.2 D1	176,000	17,800	4,220	45,300	570 N					
	11/14/06	<10.0	240	240	47	0.64	1.5	79	90,400	16,100	3,580	51,400	588					
	11/14/07	<10.0	227	227	54.4	0.66	1.45	68.7 D1	73,700	14,000	<5,000	44,200	528					
MW-6	2/26/98	--	--	200	260	--	--	400	180.0	44.0	6.20	205.0	1,200					
	2/14/01	<1.0	158	158	59	1.70	2.20	99	67.5	22.1	7.67	52.3	470					
	5/17/02	<1.0	162	162	37.8	1.62	2.14	99.3	63.1	19.6	5.12	48.6	427					
	10/23/02	--	--	--	46.1	--	--	109	--	--	--	--	331					
	5/22/03	<1.0	162	162	40.3	1.24	2.13	94.4	61.7	17.4	4.23	51.9	464					
	11/25/03	<1.0	154	154	53.6	1.40	2.18	98	53.6	18.7	4.97	51.7	482					
	5/11/04	<1.00	156	156	54.4	1.23	2.19	97	59.0	18.1	4.22	47.8	506					
	11/16/04	<1.00	162	162	57.9	1.64	2.68	99.8	66.6	19.6	5.16	57.0	464					
	11/17/05	<10.0	201	201	101	0.97	0.35	97.8 D1	103,000	20,200	4,100	59,100	730 N					
	11/15/06	<10.0	750	750	68	0.99	1.5	93	64,600	20,400	4,230	57,100	507					
	11/15/07	<10.0	284	284	162	51	1.35	96.3 D1	84,100	25,200	<5,000	62,100	630					

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GROUNDWATER ANALYTICAL SUMMARY  
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
COOPER-JAL UNIT INJECTION STATION  
LEA COUNTY, NEW MEXICO

Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride	Fluoride	Nitrate - N	Sulfate	Calcium	Magnesium	Potassium	Sodium	TDS
MW-7	5/14/98	--	--	230	430	--	--	340	214.0	66.0	13.00	165.0	1,200
	2/14/01	<1.0	150	150	510	1.70	2.40	150	--	--	--	--	1,500
	5/16/02	<1.0	150	150	75.7	1.59	2.27	97.4	68.6	23.2	6.63	54.3	501
	10/22/02	--	--	--	88.6	--	--	109	--	--	--	--	490
	5/22/03	<1.0	140	140	173	1.17	2.14	88.9	85.5	28.2	6.18	64.6	631
	11/26/03	<1.0	136	136	189	1.29	2.23	93.5	95.7	31.0	7.91	63.6	704
	5/13/04	<1.00	130	130	267	1.11	2.18	94.7	107.0	34.7	6.59	62.9	914
	11/16/04	<1.00	130	130	367	1.49	2.72	97.3	142.0	49.3	8.61	87.9	870
	11/17/05	<10.0	121	121	456 DI	0.53	0.28	106 DI	412.000	64.700	12.100	100.000	1,440 N
	11/15/06	<10	240	240	550	0.63	1.5	110	202.000	70.300	7.400	102.000	2,100
	11/15/07	<10.0	189	189	458 DI	1.20	1.39	176 DI	144.000	59.500	9.950	148.000	1,880
MW-8	5/13/98	--	--	200	270	--	--	390	190.0	60.0	12.00	170.0	1,200
	2/14/01	<1.0	156	156	49	1.80	2.50	100	59.9	21.5	7.84	52.9	400
	5/16/02	<1.0	158	158	32.9	1.57	2.33	101	56.6	19.2	5.20	49.5	432
	10/22/02	--	--	--	40.8	--	--	104	--	--	--	--	392
	5/22/03	8	160	168	33.2	1.40	2.32	98.3	53.9	18.3	9.31	46.4	410
	11/26/03	<1.0	142	142	31.7	1.39	2.38	95.6	55.3	18.2	5.31	50.2	443
	5/12/04	<1.00	154	154	36.3	1.39	2.38	101	53.0	17.3	4.56	48.1	435
	11/16/04	<1.00	170	170	39.8	1.94	2.94	103	57.8	18.6	5.63	56.4	435
	5/17/05	4	152	156	41	1.64	2.94	105	61.0	18.6	5.78	47.3	434
	11/17/05	<10.0	171	171	113	1.1	<0.05	115 DI	83.400	21.700	5.740	102.000	750 N
	5/9/06	<10	160	160	210	0.89	1.4	200	72.700	33.300	7.120	125.000	896
11/14/06	<10	150	150	230	1.1	1.2	200	74.200	38.300	9.610	162.000	912	
5/30/07	<10	141	141	62	1.2	1.74	120	54.100	19.100	<5	59.300	500	
11/15/07	<10.0	159	159	43.1	1.33	1.56	94.2 DI	52.100	17.200	<5.000	49.800	540	
MW-9	5/14/98	--	--	190	350	--	--	470	207.0	61.0	12.00	200.0	1,300
	2/15/01	<1.0	156	156	35	2.60	2.40	110	60.4	19.8	7.47	47.0	430
	5/16/02	<1.0	160	160	31.7	2.22	2.28	99.4	60.8	17.6	5.32	50.1	440
	10/23/02	--	--	--	39	--	--	102	--	--	--	--	436
	5/22/03	<1.0	160	160	31	1.75	2.19	93.3	52.2	15.8	4.75	50.2	455
	11/26/03	<1.0	150	150	31.8	1.99	2.34	99.8	57.7	16.6	4.69	46.3	452
	5/12/04	<1.00	164	164	33.6	1.79	2.29	99.2	54.8	16.0	4.27	43.5	467
	11/16/04	8	154	162	367	1.49	2.72	97.3	63.2	17.8	5.59	55.5	433
	5/17/05	4	154	154	44.2	2.43	3.05	117	58.8	16.7	5.94	44.1	434
	11/17/05	<10.0	161	161	83.5	1.3	0.14	111 DI	149.000	26.200	7.430	80.400	790 N
	5/9/06	<10	170	170	37	1.8	1.8	99	52.700	15.000	3.210	45.500	428
11/15/06	<10	150	150	210	1.1	1.2	190	70.500	8.640	152.000	152.000	905	
5/30/07	<10	153	153	35	2.1	1.69	110	52.200	15.800	<5	44.700	464	
11/14/07	<10.0	151	151	186	1.49	1.48	156 DI	74.100	39.400	8.730	141.000	808	

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GROUNDWATER ANALYTICAL SUMMARY  
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
COOPER-JAL UNIT INJECTION STATION  
LEA COUNTY, NEW MEXICO

Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride	Fluoride	Nitrate - N	Sulfate	Calcium	Magnesium	Potassium	Sodium	TDS
		600											
		10											
		1.60											
		250											
MW-9A	5/14/98	--	--	280	600	--	--	770	338.0	96.0	12.00	334.0	1,000
	2/15/01	<1.0	142	142	85	1.40	2.20	71	71.6	19.2	6.94	46.0	2,200
	5/15/02	<1.0	136	136	148	<1.00	2.18	65.3	62.9	16.1	4.62	46.8	400
	10/23/02	--	--	--	168	--	--	75.5	--	--	--	--	651
	5/22/03	<1.0	126	126	207	<1.00	2.09	62.1	102.0	25.2	4.80	55.7	672
	11/26/03	<1.0	118	118	216	1.14	2.26	62.7	107.0	25.1	5.31	53.2	648
	5/12/04	<1.00	122	122	242	<1.00	2.10	64.7	105.0	26.2	5.11	26.2	950
	11/16/04	<1.00	114	114	296	1.24	2.74	67.5	130.0	33.1	6.24	70.3	826
	5/17/05	<1.00	112	112	354	1.04	2.85	77.1	131.0	31.7	6.39	60.5	828
	11/17/05	<10.0	121	121	310 D1	0.82	0.31	74.7 D1	337.000	41.400	8.080	74.500	1,520 N
	5/9/06	<10	670	670	270	0.67	1.6	78	111.000	27.100	3.880	58.700	992
	11/15/06	<10	1,600	1,600	290	0.62	1.6	72	126.000	33.400	4.740	68.400	1,280
	5/30/07	<10	586	586	400	0.7	1.69	83	153.000	36.900	<5	71.800	1,450
	11/14/07	<10.0	605	605	285 D1	0.62	1.52	64.7 D1	153.000	35.400	5.030	70.700	1,430
MW-10	5/14/98	--	--	240	360	--	--	450	211.0	62.0	11.00	190.0	1,400
	2/15/01	<1.0	140	140	190	2.00	2.30	97	108.0	32.3	8.20	61.0	660
	5/17/02	<1.0	152	152	204	1.93	2.19	99.1	109.0	31.7	7.60	62.4	713
	10/22/02	--	--	--	213	--	--	108	--	--	--	--	758
	5/22/03	<1.0	152	152	213	1.45	2.17	96.6	109.0	29.9	8.65	74.2	764
	11/26/03	<1.0	152	152	220	1.54	2.26	103	120.0	35.7	6.96	64.0	752
	5/13/04	<1.00	158	158	232	1.39	2.23	102	114.0	31.6	5.95	57.2	802
	11/17/04	<1.00	170	170	245	1.73	2.78	104	121.0	35.7	7.07	70.3	764
	5/17/05	<1.00	150	150	233	1.77	2.80	106	113.0	32.3	6.83	60.2	776
	11/17/05	<10.0	151	151	205 D1	1.2	0.26	111 D1	482.000	47.400	13.100	82.400	970 N
	5/9/06	<10	190	190	180	1.4	1.6	98	93.300	27.100	4.310	60.400	724
	11/16/06	<10	320	320	190	1.2	1.6	92	101.000	30.000	4.750	64.100	900
	5/30/07	<10	340	340	200	1.4	1.68	110	101.000	28.600	<5	62.400	820
	11/15/07	<10.0	189	189	251 D1	1.44	1.44	152 D1	104.000	33.400	6.010	84.700	1,010

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LEA COUNTY, NEW MEXICO

Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride	Fluoride	Nitrate - N	Sulfate	Calcium	Magnesium	Potassium	Sodium	TDS	
														New Mexico Water Quality Control Commission Groundwater Standard
														1,000
														250
														10
														600
MW-11	1/22/99	30	<1.0	30	46	2.30	4.20	94	33.0	7.0	9.10	58.0	370	
	2/15/01	<1.0	156	156	37	2.40	2.40	120	64.0	19.1	7.83	50.1	360	
	5/16/02	<1.0	160	160	31.9	2.13	2.33	98.8	63.5	17.2	4.83	47.0	444	
	10/23/02	--	--	--	37.2	--	--	102	--	--	--	--	447	
	5/22/03	12	154	166	32.3	1.74	2.28	96.7	62.3	0.0	4.63	47.6	437	
	11/26/03	<1.0	160	160	32.4	1.83	2.23	96.4	59.2	16.6	4.67	48.6	448	
	5/12/04	<1.00	164	164	34.6	1.71	2.38	97.7	54.8	15.7	4.28	46.2	457	
	11/16/04	<1.00	160	160	39	2.17	2.81	100	65.2	16.8	5.14	54.3	454	
	5/17/05	4	158	162	43.1	1.87	2.82	94.6	68.4	16.9	6.45	44.0	429	
	11/17/05	<10.0	161	161	58.1	1.5	2.1	91.3 D1	75.000	17.700	4.550	64.700	700 N	
	5/9/06	<10	180	180	37	1.8	1.7	100	54.100	16.200	3.260	46.900	456	
	11/14/06	<10	170	170	34	1.8	1.8	110	58.000	18.200	4.130	53.400	532	
	5/30/07	<10	142	142	36	1.9	1.79	120	54.000	16.700	<5	50.800	456	
	11/14/07	<10.0	189	189	42.3	1.98	1.54	95.6 D1	57.200	17.400	<5.000	52.400	452	
MW-12	5/15/02	<1.0	160	160	58.3	1.09	2.44	91.3	53.5	15.9	5.52	50.3	462	
	10/23/02	--	--	--	65	--	--	102	--	--	--	--	477	
	5/22/03	<1.0	148	148	91.1	1.04	2.30	87.7	74.2	21.0	4.89	57.6	516	
	11/25/03	<1.0	142	142	93.1	1.18	2.36	90.9	74.7	20.9	5.41	52.5	548	
	5/12/04	<1.00	458	458	72.9	1.04	2.35	86.7	58.1	19.0	5.92	51.8	489	
	11/15/04	<1.00	184	184	79.8	1.39	2.83	88.8	59.7	21.5	16.50	77.4	512	
	11/17/05	<10.0	151	151	109	0.93	0.12	94.6 D1	193.000	26.600	13.400	87.500	700 N	
	11/16/06	<10	270	270	120	0.71	1.7	84	82.300	27.000	4.820	62.200	620	
	11/16/07	<10.0	170	170	258 D1	1.21	1.55	191 D1	77.200	42.700	11.000	154.000	1,270	
MW-13	5/13/02	<1.0	100	100	517	<1.00	1.61	437	116.0	76.0	19.40	269.0	1,596	
	10/23/02	--	--	--	549	--	--	370	--	--	--	--	1,740	
	5/22/03	<1.0	186	186	944	<2.00	2.33	361	289.0	101.0	15.30	458.0	3,060	
	11/25/03	<1.0	226	226	1,460	<2.00	2.22	372	369.0	117.0	20.00	478.0	3,445	
	5/12/04	<1.00	234	234	1,550	<4.00	4.58	369	384.0	114.0	18.60	485.0	4,240	
	11/15/04	<1.00	226	226	1,870	<2.00	4.92	384	510.0	164.0	16.50	627.0	3,600	
	11/17/05	<10.0	201	201	722 D1	1.0	2.5	206 D1	786.000	91.600	19.700	276.000	2,350 N	
	11/16/06	<10	1,500	1,500	2,000	<0.50 N	2.7	500 N	529.000	176.000	14.200	493.000	5,060	
	11/16/07	<10.0	236	236	2,000 D1	0.33	3.05 D1	312 D1	361.000	105.000	11.400	553.000 D1	6,320	

TABLE II  
GROUNDWATER ANALYTICAL SUMMARY  
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
COOPER-JAL UNIT INJECTION STATION  
LEA COUNTY, NEW MEXICO

Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride	Fluoride	Nitrate - N	Sulfate	Calcium	Magnesium	Potassium	Sodium	TDS	
														New Mexico Water Quality Control Commission Groundwater Standard
														1,000
														250
														1.60
														10
														600
RW-1	5/27/99	0	224	224	8,700	2.70	7.00	840	679.0	521.0	34.00	3,290	14,000	
	5/22/03	<1.0	190	190	2,410	2.46	4.23	345	162.0	145.0	25.40	1,780.0	5,260	
	11/26/03	<1.0	184	184	1,990	<4.00	20.00	324	199.0	147.0	38.60	1,080.0	5,050	
	5/11/04	<1.00	148	148	491	1.32	2.65	109	66.3	23.4	11.20	252.0	1,224	
	11/17/04	<1.0	160	160	633	1.65	3.23	121	89.7	43.5	18.00	382.0	1,314	
	11/17/05	<10.0	221	221	895 D1	1.0	1.4	166 D1	122.000	70.900	8.400	493.000	2,380 N	
	11/16/06	<1.0	380	380	11,000	<0.50	<20 HC	1,100	539.000	694.000	43.300	5,580.000	22,000	
	11/15/07	<10.0	359	359	2,380 D1	1.26	3.74 D1	252 D1	141.000	137.000	16.000	1100.000 D1	5,280	
DUJ	11/15/07	<10.0	208	208	2,620 D1	1.24	3.85 D1	316 D1	136.000	133.000	15.500	1040.000 D1	5,360	
RW-2	5/22/03	324	<4.00	780	1,580	<2.00	2.43	23.9	1,060.0	<0.500	20.20	258.0	4,310	
	11/26/03	64	<4.00	704	1,480	<5.00	5.81	38.3	988.0	<0.500	23.80	240.0	3,535	
	5/13/04	36.0	<4.00	578	1,770	<3.00	3.19	67	898.0	<0.500	21.60	260.0	4,175	
	11/17/04	104.0	<4.00	692	2,280	<10.0	<10.0	116	1180.0	<0.500	18.50	415.0	3,915	
	11/17/05	281	<10.0	422	1,770 D1	0.89	0.60	175 D1	861.000	16.600	13.100	361.000	7,350 N	
	11/16/06	49	150	199	2,500	0.57	1.9	370	978.000	48.800	18.000	437.000	5,270	
	11/15/07	170	37.8	208	1,680 D1	0.49	1.52	166 D1	586.000	<5.000	11.200	245.000	5,590	

Notes:

1. Shaded cells indicate New Mexico Water Quality Control Commission (NMWQCC) exceedance.
2. Results shown in mg/L.
3. N - See narrative in laboratory report for a detailed explanation.
4. D1 - The analysis was performed at a dilution due to the high analyte concentration.
5. H - The analysis was performed past holding time.
6. C - Elevated detection limit due to matrix effect.



**Pace Analytical Services, Inc.**  
1000 Riverbend Blvd. Suite F  
Saint Rose, LA 70087

Phone: 504.469.0333  
Fax: 504.469.0555  
LELAP # 02006

June 18, 2007

Luke Markham  
CRA  
2135 S. Loop 250 West  
Midland, TX 79701

RE: Project: 2069969  
RE: Project ID: COOPER-JAL

Dear Luke Markham:

Enclosed are the analytical results for sample(s) received by the laboratory on May 31, 2007. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Cindy Olavesen



**REPORT OF LABORATORY ANALYSIS**

This report shall not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc.

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1000 Riverbend Blvd. Suite F  
St. Rose, LA 70087  
Phone: 504.469.0333  
Fax: 504.469.0555  
LELAP # 02006



Report of Laboratory Analysis  
Project Number: 2069969



6/18/2007 11:40:52



# Sample Cross Reference Report

**Pace Analytical Services, Inc.**  
1000 Riverbend Blvd. Suite F  
St. Rose, LA 70087  
Phone: 504.469.0333  
Fax: 504.469.0555  
LELAP # 02006

Client: CRA MIDLAND

Project: COOPER-JAL

Project No.: 2069969

Sample ID	Lab ID	Matrix	Collection Date/Time		Received Date/Time	
MW-8 53007	20524301	Water	05/30/2007	11:40	05/31/2007	10:00
MW-9 53007	20524302	Water	05/30/2007	11:30	05/31/2007	10:00
MW-9A 53007	20524303	Water	05/30/2007	11:25	05/31/2007	10:00
MW-10 53007	20524304	Water	05/30/2007	11:50	05/31/2007	10:00
MW-11 53007	20524305	Water	05/30/2007	10:45	05/31/2007	10:00
DUP 53007	20524306	Water	05/30/2007		05/31/2007	10:00

6/18/2007 11:40:55

**New Orleans Laboratory Certifications**  
Louisiana Dept. of Environmental Quality (LELAP) - 02006  
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Louisiana Dept. of Health and Hospitals / Drinking Water - LA060023  
Florida Dept. of Health (NELAC) - E87595  
Kansas Dept. of Health Environment - E-10266  
U.S. Dept. of Agriculture Foreign Soil Permit - S-47270  
Pennsylvania DEP (NELAC) 68-04202



## Project Narrative

**Pace Analytical Services, Inc.**  
1000 Riverbend Blvd. Suite F  
St. Rose, LA 70087  
Phone: 504.469.0333  
Fax: 504.469.0555  
LELAP # 02006

---

**Project: 2069969**

---

**Sample Receipt Condition:**

All samples were received in accordance with EPA protocol.

**Holding Times:**

All holding times were met.

**Blanks:**

All blank results were below reporting limits.

**Laboratory Control Samples:**

All LCS recoveries were within QC limits.

**Matrix Spikes and Duplicates:**

MS or MSD recoveries outside of QC limits are qualified in the Report of Quality Control section.

---

6/18/2007 11:41:21

New Orleans Laboratory Certifications  
Louisiana Dept. of Environmental Quality (LELAP) - 02006  
Arkansas Dept. of Environmental Quality - 88-0681  
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# Project Narrative



**Pace Analytical Services, Inc.**  
1000 Riverbend Blvd. Suite F  
St. Rose, LA 70087  
Phone: 504.469.0333  
Fax: 504.469.0555  
LELAP # 02006

**Project: 2069969**

Analytical Method	Batch	Sample used for QC
EPA 6010	86770	Project sample MW-8 53007
SM 2320B	86634	Batch sample from another client
SM 2540C	86681	Client sample MW1 53107 from project 2070014

6/18/2007 11:41:24

For the sample used as the original for the DUP or MS/MSD for the batch:

Project sample means a sample from this project was used.

Client sample means a sample from the same client but in a different project was used.

Batch sample means a sample from the a different client was used.

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# Report of Laboratory Analysis

**Pace Analytical Services, Inc.**  
 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

**Client ID:** MW-8 53007

**Client:** CRA MIDLAND

**Project:** COOPER-JAL

**Site:** None

**Lab ID:** 20524301

**Project No.:** 2069969

**Description:** None

**Matrix:** Water

**% Moisture:** n/a

**Collected:** 05/30/07

**Received:** 05/31/07

ParameterName	Method	Batch	DF	Result	Qu	Units	Reporting Limit	Prep.	Analysis	Reg. Limit
Calcium, Dissolved	EPA 6010	86770	1	54100		ug/L	5000	05-Jun-07	09-Jun-07 00:32	KJR
Magnesium, Dissolved	EPA 6010	86770	1	19100		ug/L	5000	05-Jun-07	09-Jun-07 00:32	KJR
Potassium, Dissolved	EPA 6010	86770	1	ND		ug/L	5000	05-Jun-07	09-Jun-07 00:32	KJR
Sodium, Dissolved	EPA 6010	86770	1	59300		ug/L	5000	05-Jun-07	09-Jun-07 00:32	KJR

4 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.  
 PF other than 1 denotes sample Prep Factor which accounts for a non-routine sample size.  
 DF denotes Dilution Factor of final sample.  
 Reporting/Detection Limit is corrected for sample size, dilution and moisture content if applicable.  
 Qu lists qualifiers. Specific qualifiers are defined at the end of the report.  
 For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.  
 (1a) pH less than 2.0 or greater than 12.5 is hazardous for corrosivity.  
 (1b) Flash point less than 140 degrees F is hazardous for ignitibility.

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# Report of Laboratory Analysis

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 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

Client ID: MW-9 53007

Client: CRA MIDLAND

Project: COOPER-JAL

Site: None

Lab ID: 20524302

Project No.: 2069969

Description: None

Matrix: Water

%Moisture: n/a

Collected: 05/30/07

Received: 05/31/07

ParameterName	Method	Batch	DF	Result	Qu	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Calcium, Dissolved	EPA 6010	86770	1	52200		ug/L	5000	05-Jun-07	09-Jun-07 00:48	KJR
Magnesium, Dissolved	EPA 6010	86770	1	15800		ug/L	5000	05-Jun-07	09-Jun-07 00:48	KJR
Potassium, Dissolved	EPA 6010	86770	1	ND		ug/L	5000	05-Jun-07	09-Jun-07 00:48	KJR
Sodium, Dissolved	EPA 6010	86770	1	44700		ug/L	5000	05-Jun-07	09-Jun-07 00:48	KJR

4 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.  
 PF other than 1 denotes sample Prep Factor which accounts for a non-routine sample size.  
 DF denotes Dilution Factor of final sample.  
 Reporting/Detection Limit is corrected for sample size, dilution and moisture content if applicable.  
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# Report of Laboratory Analysis

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 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006



**Client ID:** MW-9A 53007

**Client:** CRA MIDLAND

**Project:** COOPER-JAL

**Site:** None

**Lab ID:** 20524303

**Project No.:** 2069969

**Description:** None

**Matrix:** Water

**% Moisture:** n/a

**Collected:** 05/30/07

**Received:** 05/31/07

ParameterName	Method	Batch	DF	Result	Qu	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Calcium, Dissolved	EPA 6010	86770	1	153000		ug/L	5000	05-Jun-07	11-Jun-07 15:15	KJR
Magnesium, Dissolved	EPA 6010	86770	1	36900		ug/L	5000	05-Jun-07	11-Jun-07 15:15	KJR
Potassium, Dissolved	EPA 6010	86770	1	ND		ug/L	5000	05-Jun-07	11-Jun-07 15:15	KJR
Sodium, Dissolved	EPA 6010	86770	1	71800		ug/L	5000	05-Jun-07	11-Jun-07 15:15	KJR

4 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.  
 PF other than 1 denotes sample Prep Factor which accounts for a non-routine sample size.  
 DF denotes Dilution Factor of final sample.  
 Reporting/Detection Limit is corrected for sample size, dilution and moisture content if applicable.  
 Qu lists qualifiers. Specific qualifiers are defined at the end of the report.  
 For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.  
 (1a) pH less than 2.0 or greater than 12.5 is hazardous for corrosivity.  
 (1b) Flash point less than 140 degrees F is hazardous for ignitibility.

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# Report of Laboratory Analysis

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 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

Client ID: MW-10 53007

Client: CRA MIDLAND

Project: COOPER-JAL

Site: None

Lab ID: 20524304

Project No.: 2069969

Description: None

Matrix: Water

%Moisture: n/a

Collected: 05/30/07

Received: 05/31/07

ParameterName	Method	Batch	DF	Result	Qu	Units	Reporting Limit	Prep.	Analysis	Reg. Limit
Calcium, Dissolved	EPA 6010	86770	1	101000		ug/L	5000	05-Jun-07	11-Jun-07 15:19	KJR
Magnesium, Dissolved	EPA 6010	86770	1	28600		ug/L	5000	05-Jun-07	11-Jun-07 15:19	KJR
Potassium, Dissolved	EPA 6010	86770	1	ND		ug/L	5000	05-Jun-07	11-Jun-07 15:19	KJR
Sodium, Dissolved	EPA 6010	86770	1	62400		ug/L	5000	05-Jun-07	11-Jun-07 15:19	KJR

4 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.  
 PF other than 1 denotes sample Prep Factor which accounts for a non-routine sample size.  
 DF denotes Dilution Factor of final sample.  
 Reporting/Detection Limit is corrected for sample size, dilution and moisture content if applicable.  
 Qu lists qualifiers. Specific qualifiers are defined at the end of the report.  
 For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.  
 (1a) pH less than 2.0 or greater than 12.5 is hazardous for corrosivity.  
 (1b) Flash point less than 140 degrees F is hazardous for ignitability.

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 New Orleans Laboratory Certifications  
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# Report of Laboratory Analysis

**Pace Analytical Services, Inc.**  
 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

Client ID: MW-11 53007

Client: CRA MIDLAND

Project: COOPER-JAL

Site: None

Lab ID: 20524305

Project No.: 2069969

Description: None

Matrix: Water

%Moisture: n/a

Collected: 05/30/07

Received: 05/31/07

ParameterName	Method	Batch	DF	Result	Qu	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Calcium, Dissolved	EPA 6010	86770	1	54000		ug/L	5000	05-Jun-07	11-Jun-07 15:23	KJR
Magnesium, Dissolved	EPA 6010	86770	1	16700		ug/L	5000	05-Jun-07	11-Jun-07 15:23	KJR
Potassium, Dissolved	EPA 6010	86770	1	ND		ug/L	5000	05-Jun-07	11-Jun-07 15:23	KJR
Sodium, Dissolved	EPA 6010	86770	1	50800		ug/L	5000	05-Jun-07	11-Jun-07 15:23	KJR

4 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.  
 PF other than 1 denotes sample Prep Factor which accounts for a non-routine sample size.  
 DF denotes Dilution Factor of final sample.  
 Reporting/Detection Limit is corrected for sample size, dilution and moisture content if applicable.  
 Qu lists qualifiers. Specific qualifiers are defined at the end of the report.  
 For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.  
 (1a) pH less than 2.0 or greater than 12.5 is hazardous for corrosivity.  
 (1b) Flash point less than 140 degrees F is hazardous for ignitibility.

6/18/2007 11:41:28

**New Orleans Laboratory Certifications**  
 Louisiana Dept. of Environmental Quality (LELAP) - 02006  
 Arkansas Dept. of Environmental Quality - 88-0681  
 Louisiana Dept. of Health and Hospitals / Drinking Water - LA060023  
 Florida Dept. of Health (NELAC) - E87595  
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 Pennsylvania DEP (NELAC) 68-04202



# Report of Laboratory Analysis

**Pace Analytical Services, Inc.**  
 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

Client ID: DUP 53007

Client: CRA MIDLAND

Project: COOPER-JAL

Site: None

Lab ID: 20524306

Project No.: 2069969

Description: None

Matrix: Water

%Moisture: n/a

Collected: 05/30/07

Received: 05/31/07

ParameterName	Method	Batch	DF	Result	Qu	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Calcium, Dissolved	EPA 6010	86770	1	55500		ug/L	5000	05-Jun-07	11-Jun-07 15:27	KJR
Magnesium, Dissolved	EPA 6010	86770	1	19600		ug/L	5000	05-Jun-07	11-Jun-07 15:27	KJR
Potassium, Dissolved	EPA 6010	86770	1	ND		ug/L	5000	05-Jun-07	11-Jun-07 15:27	KJR
Sodium, Dissolved	EPA 6010	86770	1	65600		ug/L	5000	05-Jun-07	11-Jun-07 15:27	KJR

4 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.  
 PF other than 1 denotes sample Prep Factor which accounts for a non-routine sample size.  
 DF denotes Dilution Factor of final sample.  
 Reporting/Detection Limit is corrected for sample size, dilution and moisture content if applicable.  
 Qu lists qualifiers. Specific qualifiers are defined at the end of the report.  
 For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.  
 (1a) pH less than 2.0 or greater than 12.5 is hazardous for corrosivity.  
 (1b) Flash point less than 140 degrees F is hazardous for ignitability.

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 New Orleans Laboratory Certifications  
 Louisiana Dept. of Environmental Quality (LELAP) - 02006  
 Arkansas Dept. of Environmental Quality - 88-0681  
 Louisiana Dept. of Health and Hospitals / Drinking Water - LA060023  
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# Report of Laboratory Analysis

**Pace Analytical Services, Inc.**  
 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

**Client ID:** MW-8 53007

**Client:** CRA MIDLAND

**Project:** COOPER-JAL

**Site:** None

**Lab ID:** 20524301

**Project No.:** 2069969

**Description:** None

**Matrix:** Water

**% Moisture:** n/a

**Collected:** 05/30/07

**Received:** 05/31/07

ParameterName	Method	Batch	DF	Result	Qu	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Alkalinity, Carbonate (CaCO <sub>3</sub> )	SM 2320B	86634	1	ND		mg/L	10.0	31-May-07	31-May-07 15:15	TAE
Alkalinity, Total	SM 2320B	86634	1	141.		mg/L	10.0	31-May-07	31-May-07 15:15	TAE
Alkalinity, Bicarbonate (CaCO <sub>3</sub> )	SM 2320B	86634	1	141.		mg/L	10.0	31-May-07	31-May-07 15:15	TAE
Nitrogen, Nitrate	SM 4500-NO <sub>3</sub>	86787	1	1.74		mg/L	0.100	05-Jun-07	05-Jun-07 12:09	
Total Dissolved Solids	SM 2540C	86681	1	500.		mg/L	4.00	01-Jun-07	01-Jun-07 15:15	TAE

5 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.  
 PF other than 1 denotes sample Prep Factor which accounts for a non-routine sample size.  
 DF denotes Dilution Factor of final sample.  
 Reporting/Detection Limit is corrected for sample size, dilution and moisture content if applicable.  
 Qu lists qualifiers. Specific qualifiers are defined at the end of the report.  
 For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.  
 (1a) pH less than 2.0 or greater than 12.5 is hazardous for corrosivity.  
 (1b) Flash point less than 140 degrees F is hazardous for ignitability.

6/18/2007 11:41:31

**New Orleans Laboratory Certifications**  
 Louisiana Dept. of Environmental Quality (LELAP) - 02006  
 Arkansas Dept. of Environmental Quality - 88-0681  
 Louisiana Dept. of Health and Hospitals / Drinking Water - LA060023  
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# Report of Laboratory Analysis

**Pace Analytical Services, Inc.**  
 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

Client ID: MW-9 53007

Client: CRA MIDLAND

Project: COOPER-JAL

Site: None

Lab ID: 20524302

Project No.: 2069969

Description: None

Matrix: Water

%Moisture: n/a

Collected: 05/30/07

Received: 05/31/07

ParameterName	Method	Batch	DF	Result	Qu	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Alkalinity, Carbonate (CaCO <sub>3</sub> )	SM 2320B	86634	1	ND		mg/L	10.0	31-May-07	31-May-07 15:15	TAE
Alkalinity, Total	SM 2320B	86634	1	153.		mg/L	10.0	31-May-07	31-May-07 15:15	TAE
Alkalinity, Bicarbonate (CaCO <sub>3</sub> )	SM 2320B	86634	1	153.		mg/L	10.0	31-May-07	31-May-07 15:15	TAE
Nitrogen, Nitrate	SM 4500-NO <sub>3</sub>	86787	1	1.69		mg/L	0.100	05-Jun-07	05-Jun-07 12:14	
Total Dissolved Solids	SM 2540C	86681	1	464.		mg/L	4.00	01-Jun-07	01-Jun-07 15:15	TAE

5 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.  
 PF other than 1 denotes sample Prep Factor which accounts for a non-routine sample size.  
 DF denotes Dilution Factor of final sample.  
 Reporting/Detection Limit is corrected for sample size, dilution and moisture content if applicable.  
 Qu lists qualifiers. Specific qualifiers are defined at the end of the report.  
 For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.  
 (1a) pH less than 2.0 or greater than 12.5 is hazardous for corrosivity.  
 (1b) Flash point less than 140 degrees F is hazardous for ignitability.

*New Orleans Laboratory Certifications*  
 Louisiana Dept. of Environmental Quality (LELAP) - 02006  
 Arkansas Dept. of Environmental Quality - 88-0681  
 Louisiana Dept. of Health and Hospitals / Drinking Water - LA060023  
 Florida Dept. of Health (NELAC) - E87595  
 Kansas Dept. of Health Environment - E-10266  
 U.S. Dept. of Agriculture Foreign Soil Permit - S-47270  
 Pennsylvania DEP (NELAC) 68-04202

6/18/2007 11:41:31



# Report of Laboratory Analysis

**Pace Analytical Services, Inc.**  
 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

Client ID: MW-9A 53007

Client: CRA MIDLAND

Project: COOPER-JAL

Site: None

Lab ID: 20524303

Project No.: 2069969

Description: None

Matrix: Water

%Moisture: n/a

Collected: 05/30/07

Received: 05/31/07

ParameterName	Method	Batch	DF	Result	Qu	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Alkalinity, Carbonate (CaCO <sub>3</sub> )	SM 2320B	86634	1	ND		mg/L	10.0	31-May-07	31-May-07 15:15	TAE
Alkalinity, Total	SM 2320B	86634	1	586.		mg/L	10.0	31-May-07	31-May-07 15:15	TAE
Alkalinity, Bicarbonate (CaCO <sub>3</sub> )	SM 2320B	86634	1	586.		mg/L	10.0	31-May-07	31-May-07 15:15	TAE
Nitrogen, Nitrate	SM 4500-NO <sub>3</sub>	86787	1	1.69		mg/L	0.100	05-Jun-07	05-Jun-07 12:15	TAE
Total Dissolved Solids	SM 2540C	86681	1	1450		mg/L	4.00	01-Jun-07	01-Jun-07 15:15	TAE

5 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.  
 PF other than 1 denotes sample Prep Factor which accounts for a non-routine sample size.  
 DF denotes Dilution Factor of final sample.  
 Reporting/Detection Limit is corrected for sample size, dilution and moisture content if applicable.  
 Qu lists qualifiers. Specific qualifiers are defined at the end of the report.  
 For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.  
 (1a) pH less than 2.0 or greater than 12.5 is hazardous for corrosivity.  
 (1b) Flash point less than 140 degrees F is hazardous for ignitibility.

6/18/2007 11:41:31  
 New Orleans Laboratory Certifications  
 Louisiana Dept. of Environmental Quality (LELAP) - 02006  
 Arkansas Dept. of Environmental Quality - 88-0681  
 Louisiana Dept. of Health and Hospitals / Drinking Water - LA060023  
 Florida Dept. of Health (NELAC) - E87595  
 Kansas Dept. of Health Environment - E-10266  
 U.S. Dept. of Agriculture Foreign Soil Permit - S-47270  
 Pennsylvania DEP (NELAC) 68-04202



# Report of Laboratory Analysis

**Pace Analytical Services, Inc.**  
 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

Client ID: MW-10 53007

Client: CRA MIDLAND

Project: COOPER-JAL

Site: None

Lab ID: 20524304

Project No.: 2069969

Description: None

Matrix: Water

%Moisture: n/a

Collected: 05/30/07

Received: 05/31/07

ParameterName	Method	Batch	DF	Result	Qu	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Alkalinity, Carbonate (CaCO <sub>3</sub> )	SM 2320B	86634	1	ND		mg/L	10.0	31-May-07	31-May-07 15:15	TAE
Alkalinity, Total	SM 2320B	86634	1	340.		mg/L	10.0	31-May-07	31-May-07 15:15	TAE
Alkalinity, Bicarbonate (CaCO <sub>3</sub> )	SM 2320B	86634	1	340.		mg/L	10.0	31-May-07	31-May-07 15:15	TAE
Nitrogen, Nitrate	SM 4500-NO <sub>3</sub>	86787	1	1.68		mg/L	0.100	05-Jun-07	05-Jun-07 12:16	
Total Dissolved Solids	SM 2540C	86681	1	820.		mg/L	4.00	01-Jun-07	01-Jun-07 15:15	TAE

5 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.  
 PF other than 1 denotes sample Prep Factor which accounts for a non-routine sample size.  
 DF denotes Dilution Factor of final sample.  
 Reporting/Detection Limit is corrected for sample size, dilution and moisture content if applicable.  
 Qu lists qualifiers. Specific qualifiers are defined at the end of the report.  
 For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.  
 (1a) pH less than 2.0 or greater than 12.5 is hazardous for corrosivity.  
 (1b) Flash point less than 140 degrees F is hazardous for ignitability.

6/18/2007 11:41:31  
 New Orleans Laboratory Certifications  
 Louisiana Dept. of Environmental Quality (LELAP) - 02006  
 Arkansas Dept. of Environmental Quality - 88-0681  
 Louisiana Dept. of Health and Hospitals / Drinking Water - LA060023  
 Florida Dept. of Health (NELAC) - E87595  
 Kansas Dept. of Health Environment - E-10266  
 U.S. Dept. of Agriculture Foreign Soil Permit - S-47270  
 Pennsylvania DEP (NELAC) 68-04202



# Report of Laboratory Analysis

**Pace Analytical Services, Inc.**  
 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

**Client ID:** MW-11 53007

**Client:** CRA MIDLAND

**Project:** COOPER-JAL

**Site:** None

**Lab ID:** 20524305

**Project No.:** 2069969

**Description:** None

**Matrix:** Water

**% Moisture:** n/a

**Collected:** 05/30/07

**Received:** 05/31/07

ParameterName	Method	Batch	DF	Result	Qu	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Alkalinity, Carbonate (CaCO <sub>3</sub> )	SM 2320B	86634	1	ND		mg/L	10.0	31-May-07	31-May-07 15:15	TAE
Alkalinity, Total	SM 2320B	86634	1	142.		mg/L	10.0	31-May-07	31-May-07 15:15	TAE
Alkalinity, Bicarbonate (CaCO <sub>3</sub> )	SM 2320B	86634	1	142.		mg/L	10.0	31-May-07	31-May-07 15:15	TAE
Nitrogen, Nitrate	SM 4500-NO <sub>3</sub>	86787	1	1.79		mg/L	0.100	05-Jun-07	05-Jun-07 12:17	
Total Dissolved Solids	SM 2540C	86681	1	456.		mg/L	4.00	01-Jun-07	01-Jun-07 15:15	TAE

5 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.  
 PF other than 1 denotes sample Prep Factor which accounts for a non-routine sample size.  
 DF denotes Dilution Factor of final sample.  
 Reporting/Detection Limit is corrected for sample size, dilution and moisture content if applicable.  
 Qu lists qualifiers. Specific qualifiers are defined at the end of the report.  
 For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.  
 (1a) pH less than 2.0 or greater than 12.5 is hazardous for corrosivity.  
 (1b) Flash point less than 140 degrees F is hazardous for ignitability.

6/18/2007 11:41:31

**New Orleans Laboratory Certifications**  
 Louisiana Dept. of Environmental Quality (LELAP) - 02006  
 Arkansas Dept. of Environmental Quality - 88-0681  
 Louisiana Dept. of Health and Hospitals / Drinking Water - LA060023  
 Florida Dept. of Health (NELAC) - E87595  
 Kansas Dept. of Health Environment - E-10266  
 U.S. Dept. of Agriculture Foreign Soil Permit - S-47270  
 Pennsylvania DEP (NELAC) 68-04202



# Report of Laboratory Analysis

**Pace Analytical Services, Inc.**  
 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

Client ID: DUP 53007

Client: CRA MIDLAND

Project: COOPER-JAL

Site: None

Lab ID: 20524306

Project No.: 2069969

Description: None

Matrix: Water

%Moisture: n/a

Collected: 05/30/07

Received: 05/31/07

ParameterName	Method	Batch	DF	Result	Qu	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Alkalinity, Carbonate (CaCO <sub>3</sub> )	SM 2320B	86634	1	ND		mg/L	10.0	31-May-07	31-May-07 15:15	TAE
Alkalinity, Total	SM 2320B	86634	1	161.		mg/L	10.0	31-May-07	31-May-07 15:15	TAE
Alkalinity, Bicarbonate (CaCO <sub>3</sub> )	SM 2320B	86634	1	161.		mg/L	10.0	31-May-07	31-May-07 15:15	TAE
Nitrogen, Nitrate	SM 4500-NO <sub>3</sub>	86787	1	1.69		mg/L	0.100	05-Jun-07	05-Jun-07 12:18	
Total Dissolved Solids	SM 2540C	86681	1	540.		mg/L	4.00	01-Jun-07	01-Jun-07 15:15	TAE

5 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.  
 PF other than 1 denotes sample Prep Factor which accounts for a non-routine sample size.  
 DF denotes Dilution Factor of final sample.  
 Reporting/Detection Limit is corrected for sample size, dilution and moisture content if applicable.  
 Qu lists qualifiers. Specific qualifiers are defined at the end of the report.  
 For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.  
 (1a) pH less than 2.0 or greater than 12.5 is hazardous for corrosivity.  
 (1b) Flash point less than 140 degrees F is hazardous for ignitibility.

6/18/2007 11:41:31  
 New Orleans Laboratory Certifications  
 Louisiana Dept. of Environmental Quality (LELAP) - 02006  
 Arkansas Dept. of Environmental Quality - 88-0681  
 Louisiana Dept. of Health and Hospitals / Drinking Water - LA060023  
 Florida Dept. of Health (NELAC) - E87595  
 Kansas Dept. of Health Environment - E-10266  
 U.S. Dept. of Agriculture Foreign Soil Permit - S-47270  
 Pennsylvania DEP (NELAC) 68-04202



# Report of Quality Control

**Pace Analytical Services, Inc.**  
 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

Project: 2069969

Parameter	Batch	Blank	ARL	Units	LCS Spike	LCS Found	LCS %Rec	MS Spike	Sample Found	MS Found	MSD Found	MS %Rec	MSD %Rec	MSD RPD	DUP RPD	QC Limits	Max RPD	Qu	
Calcium, Diss	86770	ND 000		ug/L	10000	9270	93	10000	54100.00	61160	54350	71 *	3 *	12		73 - 115	75 - 125	20	Q3
Magnesium, D	86770	ND 000		ug/L	10000	9269	93	10000	19150.00	26520	23880	74 *	47 *	10		73 - 116	75 - 125	20	Q1
Potassium, Dis	86770	ND 000		ug/L	10000	8999	90	10000	4009.00	12500	11270	85	73 *	10		73 - 114	75 - 125	20	
Sodium, Disso	86770	ND 000		ug/L	10000	9188	92	10000	59340.00	66270	60870	69 *	15 *	8		64 - 122	75 - 125	20	Q3

\* denotes recovery outside of QC limits.  
 ARL denotes Adjusted Reporting Limit, corrected for sample size, dilution and moisture content as applicable.  
 MS/MSD RPD is calculated via SW-846 rules on the basis of spiked sample concentrations rather than spike recoveries.

6/18/2007 11:41:34  
**New Orleans Laboratory Certifications**  
 Louisiana Dept. of Environmental Quality (LELAP) - 02006  
 Arkansas Dept. of Environmental Quality - 88-0681  
 Louisiana Dept. of Health and Hospitals / Drinking Water - LA060023  
 Florida Dept. of Health (NELAC) - E87595  
 Kansas Dept. of Health Environment - E-10266  
 U.S. Dept. of Agriculture Foreign Soil Permit - S-47270  
 Pennsylvania DEP (NELAC) 68-04202



# Report of Quality Control

**Pace Analytical Services, Inc.**  
 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

Project: 2069969

Parameter	Batch	Blank	ARL	Units	LCS Spike	LCS Found	LCS %Rec	MS Spike	Sample Found	MS Found	MSD Found	MS %Rec	MSD %Rec	MSD RPD	DUP RPD	QC Limits	Max RPD	Qu
Alkalinity, Tot	86634			mg/L	50	45.8	92		137.00						4	90 - 110	-	20
Total Dissolve	86681	ND	4.00	mg/L	100	106	106		15560.00						3	80 - 120	-	20

\* denotes recovery outside of QC limits.  
 ARL denotes Adjusted Reporting Limit, corrected for sample size, dilution and moisture content as applicable.  
 MS/MSD RPD is calculated via SW-846 rules on the basis of spiked sample concentrations rather than spike recoveries.

6/18/2007 11:41:37  
 New Orleans Laboratory Certifications  
 Louisiana Dept. of Environmental Quality (LELAP) - 02006  
 Arkansas Dept. of Environmental Quality - 88-0661  
 Louisiana Dept. of Health and Hospitals / Drinking Water - LA060023  
 Florida Dept. of Health (NELAC) - E87595  
 Kansas Dept. of Health Environment - E-10266  
 U.S. Dept. of Agriculture Foreign Soil Permit - S-47270  
 Pennsylvania DEP (NELAC) 68-04202



## Report Qualifiers

**Pace Analytical Services, Inc.**  
1000 Riverbend Blvd. Suite F  
St. Rose, LA 70087  
Phone: 504.469.0333  
Fax: 504.469.0555  
LELAP # 02006

---

**Project: 2069969**

---

### QC Qualifiers

Qualifier	Qualifier Description
Q1	The matrix spike recoveries are poor. Acceptable method performance for this analyte has been demonstrated by the laboratory control sample recovery.
Q3	The matrix spike recoveries are poor due to the presence of this analyte in the sample at a concentration greater than 4 times the spiked amount. Acceptable method performance for this analyte has been demonstrated by the laboratory control sample.

6/18/2007 11:41:40

*New Orleans Laboratory Certifications*  
Louisiana Dept. of Environmental Quality (LELAP) - 02006  
Arkansas Dept. of Environmental Quality - 88-0681  
Louisiana Dept. of Health and Hospitals / Drinking Water - LA060023  
Florida Dept. of Health (NELAC) - E87595  
Kansas Dept. of Health Environment - E-10266  
U.S. Dept. of Agriculture Foreign Soil Permit - S-47270  
Pennsylvania DEP (NELAC) 68-04202



# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 2  
 1042649

2069969

**Section A** Required Client Information:  
 Company: CRA  
 Address: 235 S. Loop 250 W. Midland TX, 79703  
 Email To: \_\_\_\_\_

**Section B** Required Project Information:  
 Report To: Luke Markham  
 Copy To: \_\_\_\_\_  
 Purchase Order No.: \_\_\_\_\_

**Section C** Invoice Information:  
 Attention: Luke Markham  
 Company Name: CRA  
 Address: 'SAME'  
 Pace Quote Reference: \_\_\_\_\_  
 Pace Project Manager: \_\_\_\_\_  
 Pace Profile #: \_\_\_\_\_

**Section D** Required Client Information  
 Project Name: CEMC - Cooper - Jal  
 Project Number: 039123  
 Valid Matrix Codes: Normal

**REGULATORY AGENCY**  
 NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  Other: \_\_\_\_\_

**SITE LOCATION**  
 GA  IL  IN  MI  MN  NC  
 OH  SC  WI  OTHER New Mexico

ITEM #	SAMPLE ID	Valid Matrix Codes	MATRIX CODE	G-RAB TYPE	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	Filtered (M) (S)	Requested Analysis:	Pace Project Number Lab I.D.
					DATE	TIME						
1	MW-8	DRINKING WATER	WTG	G	5/30/07	1140	24.1	2	Unpreserved	X	Alkalinity (Calc) (G.C.G.B) (SM 2320 B)	20524301
2	MW-9	DRINKING WATER	WTG	G	5/30/07	1130	26.7	2	Unpreserved	X	Alkalinity (Calc) (G.C.G.B) (SM 2320 B)	302
3	MW-9A	DRINKING WATER	WTG	G	5/30/07	1125	24.1	2	Unpreserved	X	Alkalinity (Calc) (G.C.G.B) (SM 2320 B)	303
4	MW-10	DRINKING WATER	WTG	G	5/30/07	1150	24.2	2	Unpreserved	X	Alkalinity (Calc) (G.C.G.B) (SM 2320 B)	304
5	MW-11	DRINKING WATER	WTG	G	5/30/07	1045	24.6	2	Unpreserved	X	Alkalinity (Calc) (G.C.G.B) (SM 2320 B)	305
6	DUP	DRINKING WATER	WTG	G	5/30/07	---	---	2	Unpreserved	X	Alkalinity (Calc) (G.C.G.B) (SM 2320 B)	306
7	TEMP	DRINKING WATER	WTG	G	5/30/07	---	---	1	Unpreserved	X	Alkalinity (Calc) (G.C.G.B) (SM 2320 B)	

**REQUIREMENTS**  
 REMAINTAINED BY / AFFILIATION: \_\_\_\_\_ DATE: \_\_\_\_\_ TIME: \_\_\_\_\_  
 ACCEPTED BY / AFFILIATION: \_\_\_\_\_ DATE: \_\_\_\_\_ TIME: \_\_\_\_\_

**Additional Comments:**  
 CRA 5/30/07 1400  
 CRA 5/31/07 1000  
 777 Middle Road 5310 Road 4.0

**SAMPLER NAME AND SIGNATURE**  
 PRINT Name of SAMPLER: Cory M. Coleman  
 SIGNATURE of SAMPLER: [Signature]  
 DATE Signed (MM/DD/YY): 05/30/07

**Temp in °C**  
 Received: Y/N  
 on Ice: Y/N  
 Custody Sealed Cooler: Y/N  
 Samples In tact: Y/N





1241 Bellevue Street, Suite 9  
 Green Bay, WI 54302  
 920-469-2436, Fax: 920-469-8827

**Analytical Report Number: 884568**

Client: PACE ANALYTICAL SERVICES, INC.

Lab Contact: Eric Wied

Project Name: CRA

Project Number: 2069969

Lab Sample Number	Field ID	Collection	
		Matrix	Date
884568-001	MW-8 53007 20524301	WATER	05/30/07 11:40
884568-002	MW-9 53007 20524302	WATER	05/30/07 11:30
884568-003	MW-9A 53007 20524303	WATER	05/30/07 11:25
884568-004	MW-10 53007 20524304	WATER	05/30/07 11:50
884568-005	MW-11 53007 20524305	WATER	05/30/07 10:45
884568-006	DUP 53007 20524306	WATER	05/30/07

I certify that the data contained in this Final Report has been generated and reviewed in accordance with approved methods and Laboratory Standard Operating Procedure. Exceptions, if any, are discussed in the accompanying sample comments. Release of this final report is authorized by Laboratory management, as is verified by the following signature. This report shall not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc. The sample results relate only to the analytes of interest tested.

Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

**REPORT OF LABORATORY ANALYSIS**

This report shall not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc..



*[Signature]*  
 Approval Signature

06-15-07  
 Date

Client : PACE ANALYTICAL SERVICES, INC.  
Project Name : CRA  
Project Number : 2069969  
Field ID : MW-8 53007 20524301

Matrix Type : WATER  
Collection Date : 05/30/07  
Report Date : 06/15/07  
Lab Sample Number : 884568-001

INORGANICS

Test	Result	EQL	Dilution	Units	Code	Anl Date/Time	Prep Method	Anl Method
Chloride	62	5.0	1	mg/L	N	06/08/07 08:00 AM	EPA 300.0	EPA 300.0
						Prep Date/Time:		Anl By: GLL
Fluoride	1.2	0.50	1	mg/L		06/08/07 08:00 AM	EPA 300.0	EPA 300.0
						Prep Date/Time:		Anl By: GLL
Sulfate	120	40	10	mg/L		06/12/07 10:34 AM	EPA 300.0	EPA 300.0
						Prep Date/Time:		Anl By: GLL

**Pace Analytical  
Services, Inc.**

**Analytical Report Number: 884568**

1241 Bellevue Street  
Green Bay, WI 54302  
920-469-2436

Client : PACE ANALYTICAL SERVICES, INC.  
Project Name : CRA  
Project Number : 2069969  
Field ID : MW-9 53007 20524302

Matrix Type : WATER  
Collection Date : 05/30/07  
Report Date : 06/15/07  
Lab Sample Number : 884568-002

**INORGANICS**

Test	Result	EQL	Dilution	Units	Code	Anl Date/Time	Prep Method	Anl Method
Chloride	35	5.0	1	mg/L		06/08/07 09:01 AM	EPA 300.0	EPA 300.0
						Prep Date/Time:		Anl By: GLL
Fluoride	2.1	0.50	1	mg/L		06/08/07 09:01 AM	EPA 300.0	EPA 300.0
						Prep Date/Time:		Anl By: GLL
Sulfate	110	40	10	mg/L		06/12/07 11:11 AM	EPA 300.0	EPA 300.0
						Prep Date/Time:		Anl By: GLL

Client : PACE ANALYTICAL SERVICES, INC.

Matrix Type : WATER

Project Name : CRA

Collection Date : 05/30/07

Project Number : 2069969

Report Date : 06/15/07

Field ID : MW-9A 53007 20524303

Lab Sample Number : 884568-003

**INORGANICS**

Test	Result	EQL	Dilution	Units	Code	Anl Date/Time	Prep Method	Anl Method
Chloride	400	50	10	mg/L		06/12/07 11:23 AM	EPA 300.0	EPA 300.0
						Prep Date/Time:		Anl By: GLL
Fluoride	0.70	0.50	1	mg/L		06/08/07 09:13 AM	EPA 300.0	EPA 300.0
						Prep Date/Time:		Anl By: GLL
Sulfate	83	40	10	mg/L		06/12/07 11:23 AM	EPA 300.0	EPA 300.0
						Prep Date/Time:		Anl By: GLL

Client : PACE ANALYTICAL SERVICES, INC.  
Project Name : CRA  
Project Number : 2069969  
Field ID : MW-10 53007 20524304

Matrix Type : WATER  
Collection Date : 05/30/07  
Report Date : 06/15/07  
Lab Sample Number : 884568-004

INORGANICS

Test	Result	EQL	Dilution	Units	Code	Anl Date/Time	Prep Method	Anl Method
Chloride	200	50	10	mg/L		06/12/07 11:35 AM	EPA 300.0	EPA 300.0
						Prep Date/Time:		Anl By: GLL
Fluoride	1.4	0.50	1	mg/L		06/08/07 09:26 AM	EPA 300.0	EPA 300.0
						Prep Date/Time:		Anl By: GLL
Sulfate	110	40	10	mg/L		06/12/07 11:35 AM	EPA 300.0	EPA 300.0
						Prep Date/Time:		Anl By: GLL

Client : PACE ANALYTICAL SERVICES, INC.  
Project Name : CRA  
Project Number : 2069969  
Field ID : MW-11 53007 20524305

Matrix Type : WATER  
Collection Date : 05/30/07  
Report Date : 06/15/07  
Lab Sample Number : 884568-005

**INORGANICS**

Test	Result	EQL	Dilution	Units	Code	Anl Date/Time	Prep Method	Anl Method
Chloride	36	5.0	1	mg/L		06/08/07 09:38 AM	EPA 300.0	EPA 300.0
						Prep Date/Time:		Anl By: GLL
Fluoride	1.9	0.50	1	mg/L		06/08/07 09:38 AM	EPA 300.0	EPA 300.0
						Prep Date/Time:		Anl By: GLL
Sulfate	120	40	10	mg/L		06/12/07 11:47 AM	EPA 300.0	EPA 300.0
						Prep Date/Time:		Anl By: GLL

Client : PACE ANALYTICAL SERVICES, INC.

Project Name : CRA

Project Number : 2069969

Field ID : DUP 53007 20524306

Matrix Type : WATER

Collection Date : 05/30/07

Report Date : 06/15/07

Lab Sample Number : 884568-006

INORGANICS

Test	Result	EQL	Dilution	Units	Code	Anl Date/Time	Prep Method	Anl Method
Chloride	70	5.0	1	mg/L		06/08/07 09:50 AM	EPA 300.0	EPA 300.0
						Prep Date/Time:		Anl By: GLL
Fluoride	1.2	0.50	1	mg/L		06/08/07 09:50 AM	EPA 300.0	EPA 300.0
						Prep Date/Time:		Anl By: GLL
Sulfate	120	40	10	mg/L		06/12/07 11:59 AM	EPA 300.0	EPA 300.0
						Prep Date/Time:		Anl By: GLL

## Qualifier Codes

Flag Applies To Explanation

Flag	Applies To	Explanation
A	Inorganic	Analyte is detected in the method blank. Method blank criteria is evaluated to the laboratory method detection limit. Additionally, method blank acceptance may be based on project specific criteria or determined from analyte concentrations in the sample and are evaluated on a sample by sample basis.
B	Inorganic	The analyte has been detected between the method detection limit and the reporting limit.
B	Organic	Analyte is present in the method blank. Method blank criteria is evaluated to the laboratory method detection limit. Additionally, method blank acceptance may be based on project specific criteria or determined from analyte concentrations in the sample and are evaluated on a sample by sample basis.
C	All	Elevated detection limit.
D	All	Analyte value from diluted analysis or surrogate result not applicable due to sample dilution.
E	Inorganic	Estimated concentration due to matrix interferences. During the metals analysis the serial dilution failed to meet the established control limits of 0-10%. The sample concentration is greater than 50 times the IDL for analysis done on the ICP or 100 times the IDL for analysis done on the ICP-MS. The result was flagged with the E qualifier to indicate that a physical interference was observed.
E	Organic	Analyte concentration exceeds calibration range.
F	Inorganic	Due to potential interferences for this analysis by Inductively Coupled Plasma techniques (SW-846 Method 6010), this analyte has been confirmed by and reported from an alternate method.
F	Organic	Surrogate results outside control criteria.
G	All	The result is estimated because the concentration is less than the lowest calibration standard concentration utilized in the initial calibration. The method detection limit is less than the reporting limit specified for this project.
H	All	Preservation, extraction or analysis performed past holding time.
HF	Inorganic	This test is considered a field parameter, and the recommended holding time is 15 minutes from collection. The analysis was performed in the laboratory beyond the recommended holding time.
J	All	Concentration detected equal to or greater than the method detection limit but less than the reporting limit.
K	Organic	Detection limit may be elevated due to the presence of an unrequested analyte.
L	All	Elevated detection limit due to low sample volume.
M	Organic	Sample pH was greater than 2
N	All	Spiked sample recovery not within control limits.
O	Organic	Sample received overweight.
P	Organic	The relative percent difference between the two columns for detected concentrations was greater than 40%.
Q	All	The analyte has been detected between the limit of detection (LOD) and limit of quantitation (LOQ). The results are qualified due to the uncertainty of analyte concentrations within this range.
S	Organic	The relative percent difference between quantitation and confirmation columns exceeds internal quality control criteria. Because the result is unconfirmed, it has been reported as a non-detect with an elevated detection limit.
U	All	The analyte was not detected at or above the reporting limit.
V	All	Sample received with headspace.
W	All	A second aliquot of sample was analyzed from a container with headspace.
X	All	See Sample Narrative.
Z	Organics	This compound was separated in the check standard but it did not meet the resolution criteria as set forth in SW846.
&	All	Laboratory Control Spike recovery not within control limits.
*	All	Precision not within control limits.
+	Inorganic	The sample result is greater than four times the spike level; therefore, the percent recovery is not evaluated.
<	All	The analyte was not detected at or above the reporting limit.
1	Inorganic	Dissolved analyte or filtered analyte greater than total analyte; analyses passed QC based on precision criteria.
2	Inorganic	Dissolved analyte or filtered analyte greater than total analyte; analyses failed QC based on precision criteria.
3	Inorganic	BOD result is estimated due to the BOD blank exceeding the allowable oxygen depletion.
4	Inorganic	BOD duplicate precision not within control limits. Due to the 48 hour holding time for this test, it is not practical to reanalyze and try to correct the deficiency.
5	Inorganic	BOD result is estimated due to insufficient oxygen depletion. Due to the 48 hour holding time for this test, it is not practical to reanalyze and try to correct the deficiency.
6	Inorganic	BOD laboratory control sample not within control limits. Due to the 48 hour holding time for this test, it is not practical to reanalyze and try to correct the deficiency.
7	Inorganic	BOD result is estimated due to complete oxygen depletion. Due to the 48 hour holding time for this test, it is not practical to reanalyze and try to correct the deficiency.
8	Inorganic	Sample was received unpreserved. Sample was preserved either at the time of receipt or at the time of sample preparation.
9	Inorganic	Sample was received with insufficient preservation. Acid was added either at the time of receipt or at the time of sample preparation.

Test Group Name	884568-001	884568-002	884568-003	884568-004	884568-005	884568-006
CHLORIDE	B	B	B	B	B	B
FLUORIDE	B	B	B	B	B	B
SULFATE	B	B	B	B	B	B

Code	TX Certification
B	Not Certified

Pace Analytical Services, Inc.

QC Summary

1241 Bellevue Street  
Green Bay, WI 54302  
920-469-2436  
Fax: 920-469-8827

Batch: 884568  
Lab Section: WETCHEM  
QC Batch Number: 21645  
Prep Method: EPA 300.0  
Analytical Method: EPA 300.0

QC Type Client Sample ID Lab Sample ID  
MB WCG2192-089MB WCG2192-089MB  
LCS WCG2192-089MBLCS WCG2192-089MBLCS  
MS 884569-010MS 884569-010MS  
MS MW-8 53007 20524301MS 884568-001MS  
MSD 884569-010MSD 884569-010MSD  
MSD MW-8 53007 20524301MS 884568-001MSD

Client Sample ID Lab Sample ID MB ID  
MW-8 53007 20524301 884568-001 MB  
MW-9A 53007 20524303 884568-003 MB  
MW-11 53007 20524305 884568-005 MB

Client Sample ID Lab Sample ID MB ID  
MW-9 53007 20524302 884568-002 MB  
MW-10 53007 20524304 884568-004 MB  
DUP 53007 20524306 884568-006 MB

Test Name	Method Blank Result Conc	LCS Spiked Conc	LCS Recovery %	LCSD Spiked Conc	LCSD Recovery %	LCS/ RPD %	LCS/LCSD Control Limits			Parent Sample Number	Parent Result Conc	MS Spiked Conc	MS Recovery %	MSD Spiked Conc	MSD Recovery %	MS/ MSD RPD %	MS/MSD Control Limits					
							LCL %	UCL %	RPD %								LCL %	UCL %	RPD %			
Chloride	< 5	20.0	99.4	---	---	90	110	20	884568-001	62.0	20.0	83.5	107.8	20.0	84.4	112.2	N	1.0	90	110	20	
Fluoride	< 0.5	2.0	101.0	---	---	90	110	20	884568-001	1.2	2.0	3.2	99.0	2.0	3.2	100.5	0.9	90	110	20		
Sulfate	< 4	16.00	162	101.4	---	90	110	20	884568-001	116.7	160.0	271.7	96.9	160.0	274.2	98.4	0.9	90	110	20		
Chloride	< 5	20.000	199	99.4	---	90	110	20	884569-010	3224.0	2000.0	5474	112.5	N	2000.0	5518	114.7	N	0.8	90	110	20
Fluoride	< 0.5	2.000	2	101.0	---	90	110	20	884569-010	5.9	200.0	214	107.0	200.0	211	105.5	1.4	90	110	20		
Sulfate	< 4	16.000	162	101.4	---	90	110	20	884569-010	938.00	1600.0	2550	100.8	1600.0	2527	99.3	0.9	90	110	20		

Conc = mg/L unless otherwise noted  
C = QC Code, see Qualifier Sheet

Parent Result is reported down to MDL in order to allow Validation of this worksheet  
The %R and RPD results are calculated from raw data values with more significant figures than are reported on this form.

Report Date: 6/15/2007  
QC Batch Number: 21645



Sample Condition Upon Receipt

Client Name: Pace - LA

Project # 884568

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: \_\_\_\_\_

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Optional  
Proj. Pub. Date  
Proj. Name

Packing Material:  Bubble Wrap  Bubble Bags  None  Other \_\_\_\_\_

Thermometer Used JB Type of Ice: Wet Blue None  Samples on ice, cooling process has begun

Cooler Temperature 10  
Temp should be above freezing to 6°C

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: AG 6/6/07  
CF 6/6/07

		Comments:	
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.	
Chain of Custody Filled Out:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.	
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.	
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.	
Samples Arrived within Hold Time:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.	
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.	
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7. <u>6/14</u>	
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.	
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.	
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.	
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.	
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.	
-Includes date/time/ID/Analysis Matrix: <u>W</u>			
All containers needing preservation have been checked.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.	
All containers needing preservation are found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input type="checkbox"/> No	Initial when completed	Lot # of added preservative.
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.	
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	15.	
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	16.	
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		
Pace Trip Blank Lot # (if purchased):	_____		

Client Notification/ Resolution:

Field Data Required? Y / N

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Project Manager Review: [Signature]

Date: 06.07.07

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e out of hold, incorrect preservative, out of temp, incorrect containers)

**CHAIN-OF-CUSTODY / Analytical Request Document**  
 The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

**Section A**  
 Required Client Information:

**Section B**  
 Required Project Information:

**Section C**  
 Invoice Information:

Company: CRA  
 Address: 235 S Loop 250 W Midland TX 79703  
 Email To: [blank]  
 Phone: 432-686-6086 Fax: 432-686-9186  
 Requested Due Date/TAT: Normal  
 Project Name: CRAC - (Coker) - T91  
 Project Number: 039123  
 Report To: Luke Markham  
 Copy To: [blank]  
 Purchase Order No.: [blank]  
 Attention: Luke Markham  
 Company Name: CRA  
 Address: Same  
 Pace Quote Reference: [blank]  
 Pace Project Manager: [blank]  
 Pace Profile #: [blank]

Page: 1 of 2  
 1042649  
 REGULATORY AGENCY:  
 NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  Other  
 SITE LOCATION:  
 GA  IL  IN  MI  MN  NC  
 OH  SC  WI  OTHER Address: [blank]

ITEM #	Required Client Information	Valid Matrix Codes	CODE	MATRIX CODE	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	PRESERVATIVES						Temp	Pace Project Number	Lab ID
					DATE	TIME			Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>			
1	MW - 8	530007	001	WT G	5/30/07	1140	21.6	2	X	X	X	X	X	X	X	20524301	884568
2	MW - 9	530007	002	WT G	5/30/07	1130	20.7	2	X	X	X	X	X	X	X	302	
3	MW - 9A	530007	003	WT G	5/30/07	1125	21.1	2	X	X	X	X	X	X	X	303	
4	MW - 10	530007	004	WT G	5/30/07	1150	21.2	2	X	X	X	X	X	X	X	304	
5	MW - 11	530007	005	WT G	5/30/07	1015	21.6	2	X	X	X	X	X	X	X	305	
6	MW - DUP	530007	006	WT G	5/30/07	---	---	2	X	X	X	X	X	X	X	306	
7	MW - TEMP			WT G	5/30/07	---	---	1	X								
8																	
9																	
10																	
11																	
12																	

Additional Comments:

REQUISISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITION
[Signature]	5/30/07	1600	[Signature]	5/31/07	1000	Y/N
[Signature]	5/31/07	1000	[Signature]	5/31/07	1000	Y/N
[Signature]	5/31/07	1000	[Signature]	5/31/07	1000	Y/N
[Signature]	5/31/07	1000	[Signature]	5/31/07	1000	Y/N

**SAMPLER NAME AND SIGNATURE**  
 PRINT Name of SAMPLER: [blank]  
 SIGNATURE of SAMPLER: [Signature]  
 DATE Signed (MM/DD/YY): 5/30/07

Temp in [blank]  
 Received on Ice [blank]  
 Custody Sealed Cooler [blank]  
 Samples Intact [blank]



**Pace Analytical Services, Inc.**  
1000 Riverbend Blvd. Suite F  
St. Rose, LA 70087  
Phone: 504.469.0333  
Fax: 504.469.0555  
LELAP # 02006

November 30, 2007

Luke Markham  
CRA  
2135 S. Loop 250 West  
Midland, TX 79701

RE: Project: 2076070  
RE: Project ID: COOPER JAL

Dear Luke Markham:

Enclosed are the analytical results for sample(s) received by the laboratory on November 16, 2007. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Cindy Olavesen



**REPORT OF LABORATORY ANALYSIS**

This report shall not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc.



## Sample Cross Reference

**Pace Analytical Services, Inc.**  
1000 Riverbend Blvd. Suite F  
St. Rose, LA 70087  
Phone: 504.469.0333  
Fax: 504.469.0555  
LELAP # 02006

Project: 2076070

Client: CRA MIDLAND

Project ID: COOPER JAL

Client Sample ID	Lab ID	Matrix	Collection Date/Time	Received Date/Time
MW6 111507	20569470	Water	11/15/07 12:35	11/16/07 10:20
MW7 111507	20569471	Water	11/15/07 11:15	11/16/07 10:20
MW8 111507	20569472	Water	11/15/07 10:50	11/16/07 10:20
MW10 111507	20569473	Water	11/15/07 11:30	11/16/07 10:20
RW1 111507	20569474	Water	11/15/07 12:10	11/16/07 10:20
RW2 111507	20569475	Water	11/15/07 11:45	11/16/07 10:20
DUP	20569476	Water	11/15/07 00:00	11/16/07 10:20

11/30/2007 11:27:23

Louisiana Dept. of Environmental Quality (LELAP) - 02006  
Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004  
Arkansas Dept. of Environmental Quality - LA050004  
Florida Dept. of Health (NELAC) - E87595  
Kansas Dept. of Health Environmental - E-10266  
Pennsylvania DEP (NELAC) 68-04202  
U.S. Dept. of Agricultural Foreign Soil Permit - S-47270

## Project Narrative



**Pace Analytical Services, Inc.**

1000 Riverbend Blvd. Suite F  
St. Rose, LA 70087

Phone: 504.469.0333

Fax: 504.469.0555

LELAP # 02006

---

**Project:** 2076070

---

---

**Sample Receipt Condition:**

All samples were received in accordance with EPA protocol.

**Holding Times:**

All holding times were met.

**Blanks:**

All blank results were below reporting limits.

**Laboratory Control Samples:**

All LCS recoveries were within QC limits.

**Matrix Spikes and Duplicates:**

MS or MSD recoveries outside of QC limits are qualified in the Report of Quality Control section.



## Project Narrative

**Pace Analytical Services, Inc.**  
1000 Riverbend Blvd. Suite F  
St. Rose, LA 70087

Phone: 504.469.0333  
Fax: 504.469.0555  
LELAP # 02006

---

Project: 2076070

---

Analytical Method	Batch	Sample used for QC
EPA 6010	94708	Client sample MW 2 111407 from project 2076025
SM 2320B	94300	Batch sample from another client
SM 2540C	94314	Project sample MW6 111507
SM 4500-NO3 F	94293	Client sample MW 9A 111407 from project 2076025
EPA 375.4	94301	Project sample MW6 111507
SM 4500-Cl E	94302	Project sample MW6 111507

11/30/2007 11:27:57

For the sample used as the original for the DUP or MS/MSD for the batch:

Project sample means a sample from this project was used.

Client sample means a sample from the same client but in a different project was used.

Batch sample means a sample from the a different client was used.



# Sample Results

**Pace Analytical Services, Inc.**  
 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

Client: CRA MIDLAND

Client ID: MW6 111507

Project: 2076070

Project ID: COOPER JAL

Site: None

Lab ID: 20569470

Matrix: Water

% Moisture: n/a

Description: None

Collected: 11/15/07

Received: 11/16/07

Analyte	Method	Batch	DF	Qu	Result	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Calcium, Dissolved	EPA 6010	94708	1		84100	ug/L	5000	28-Nov-07	29-Nov-07 15:49	KJR
Magnesium, Dissolved	EPA 6010	94708	1		25200	ug/L	5000	28-Nov-07	29-Nov-07 15:49	KJR
Potassium, Dissolved	EPA 6010	94708	1		ND	ug/L	5000	28-Nov-07	29-Nov-07 15:49	KJR
Sodium, Dissolved	EPA 6010	94708	1		62100	ug/L	5000	28-Nov-07	30-Nov-07 00:18	KJR

4 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit or PQL.  
 MDL denotes method detection limit

Limits are corrected for sample size, dilution and moisture content if applicable.  
 Qu lists qualifiers. Specific qualifiers are defined at the end of the report.  
 For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.  
 Regulatory limit may denote an actual regulatory limit or a client-requested notification limit.

11/30/2007 11:28:00

Louisiana Dept. of Environmental Quality (LELAP) - 02006  
 Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004  
 Arkansas Dept. of Environmental Quality - LA050004  
 Florida Dept. of Health (NELAC) - E87595  
 Kansas Dept. of Health Environmental - E-10266  
 Pennsylvania DEP (NELAC) 68-04202  
 U.S. Dept. of Agricultural Foreign Soil Permit - S-47270

# Sample Results



**Pace Analytical Services, Inc.**  
 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

**Client:** CRA MIDLAND

**Client ID:** MW7 111507

**Project:** 2076070

**Project ID:** COOPER JAL

**Site:** None

**Lab ID:** 20569471

**Matrix:** Water

**%Moisture:** n/a

**Description:** None

**Collected:** 11/15/07

**Received:** 11/16/07

Analyte	Method	Batch	DF	Qu	Result	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Calcium, Dissolved	EPA 6010	94708	1		144000	ug/L	5000	28-Nov-07	29-Nov-07 15:54	KJR
Magnesium, Dissolved	EPA 6010	94708	1		59500	ug/L	5000	28-Nov-07	29-Nov-07 15:54	KJR
Potassium, Dissolved	EPA 6010	94708	1		9950	ug/L	5000	28-Nov-07	29-Nov-07 15:54	KJR
Sodium, Dissolved	EPA 6010	94708	1		148000	ug/L	5000	28-Nov-07	30-Nov-07 00:22	KJR

4 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit or PQL.  
 MDL denotes method detection limit

Limits are corrected for sample size, dilution and moisture content if applicable.  
 Qu lists qualifiers. Specific qualifiers are defined at the end of the report.  
 For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.  
 Regulatory limit may denote an actual regulatory limit or a client-requested notification limit.

11/30/2007 11:28:00

Louisiana Dept. of Environmental Quality (LELAP) - 02006  
 Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004  
 Arkansas Dept. of Environmental Quality - LA050004  
 Florida Dept. of Health (NELAC) - E87595  
 Kansas Dept. of Health Environmental - E-10266  
 Pennsylvania DEP (NELAC) 68-04202  
 U.S. Dept. of Agricultural Foreign Soil Permit - S-47270

# Sample Results

**Pace Analytical Services, Inc.**  
 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006



Client: CRA MIDLAND

Client ID: MW8 111507

Project: 2076070

Project ID: COOPER JAL

Site: None

Lab ID: 20569472

Matrix: Water

% Moisture: n/a

Description: None

Collected: 11/15/07

Received: 11/16/07

Analyte	Method	Batch	DF	Qu	Result	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Calcium, Dissolved	EPA 6010	94708	1		52100	ug/L	5000	28-Nov-07	29-Nov-07 15:59	KJR
Magnesium, Dissolved	EPA 6010	94708	1		17200	ug/L	5000	28-Nov-07	29-Nov-07 15:59	KJR
Potassium, Dissolved	EPA 6010	94708	1		ND	ug/L	5000	28-Nov-07	29-Nov-07 15:59	KJR
Sodium, Dissolved	EPA 6010	94708	1		49800	ug/L	5000	28-Nov-07	30-Nov-07 00:26	KJR

4 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit or PQL.  
 MDL denotes method detection limit

Limits are corrected for sample size, dilution and moisture content if applicable.  
 Qu lists qualifiers. Specific qualifiers are defined at the end of the report.  
 For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.  
 Regulatory limit may denote an actual regulatory limit or a client-requested notification limit.

11/30/2007 11:28:00

Louisiana Dept. of Environmental Quality (LELAP) - 02006  
 Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004  
 Arkansas Dept. of Environmental Quality - LA050004  
 Florida Dept. of Health (NELAC) - E87595  
 Kansas Dept. of Health Environmental - E-10266  
 Pennsylvania DEP (NELAC) 68-04202  
 U.S. Dept. of Agricultural Foreign Soil Permit - S-47270



# Sample Results

**Pace Analytical Services, Inc.**  
 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

Client: CRA MIDLAND

Client ID: MW10 111507

Project: 2076070

Project ID: COOPER JAL

Site: None

Lab ID: 20569473

Matrix: Water

%Moisture: n/a

Description: None

Collected: 11/15/07

Received: 11/16/07

Analyte	Method	Batch	DF	Qu	Result	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Calcium, Dissolved	EPA 6010	94708	1		104000	ug/L	5000	28-Nov-07	29-Nov-07 16:04	KJR
Magnesium, Dissolved	EPA 6010	94708	1		33400	ug/L	5000	28-Nov-07	29-Nov-07 16:04	KJR
Potassium, Dissolved	EPA 6010	94708	1		6010	ug/L	5000	28-Nov-07	29-Nov-07 16:04	KJR
Sodium, Dissolved	EPA 6010	94708	1		84700	ug/L	5000	28-Nov-07	30-Nov-07 00:31	KJR

4 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit or PQL.  
 MDL denotes method detection limit

Limits are corrected for sample size, dilution and moisture content if applicable.  
 Qu lists qualifiers. Specific qualifiers are defined at the end of the report.  
 For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.  
 Regulatory limit may denote an actual regulatory limit or a client-requested notification limit.

11/30/2007 11:28:00

Louisiana Dept. of Environmental Quality (LELAP) - 02006  
 Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004  
 Arkansas Dept. of Environmental Quality - LA050004  
 Florida Dept. of Health (NELAC) - E87595  
 Kansas Dept. of Health Environmental - E-10266  
 Pennsylvania DEP (NELAC) 68-04202  
 U.S. Dept. of Agricultural Foreign Soil Permit - S-47270

# Sample Results

**Pace Analytical Services, Inc.**  
 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006



Client: CRA MIDLAND

Client ID: RW1 111507

Project: 2076070

Project ID: COOPER JAL

Site: None

Lab ID: 20569474

Matrix: Water

%Moisture: n/a

Description: None

Collected: 11/15/07

Received: 11/16/07

Analyte	Method	Batch	DF	Qu	Result	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Calcium, Dissolved	EPA 6010	94708	1		141000	ug/L	5000	28-Nov-07	29-Nov-07 16:09	KJR
Magnesium, Dissolved	EPA 6010	94708	1		137000	ug/L	5000	28-Nov-07	29-Nov-07 16:09	KJR
Potassium, Dissolved	EPA 6010	94708	1		16000	ug/L	5000	28-Nov-07	29-Nov-07 16:09	KJR
Sodium, Dissolved	EPA 6010	94708	5	D1	1100000	ug/L	25000	28-Nov-07	30-Nov-07 09:26	KJR

4 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit or PQL.  
 MDL denotes method detection limit

Limits are corrected for sample size, dilution and moisture content if applicable.  
 Qu lists qualifiers. Specific qualifiers are defined at the end of the report.  
 For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.  
 Regulatory limit may denote an actual regulatory limit or a client-requested notification limit.

11/30/2007 11:28:00

Louisiana Dept. of Environmental Quality (LELAP) - 02006  
 Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004  
 Arkansas Dept. of Environmental Quality - LA050004  
 Florida Dept. of Health (NELAC) - E87595  
 Kansas Dept. of Health Environmental - E-10266  
 Pennsylvania DEP (NELAC) 68-04202  
 U.S. Dept. of Agricultural Foreign Soil Permit - S-47270

# Sample Results



Pace Analytical Services, Inc.  
1000 Riverbend Blvd. Suite F  
St. Rose, LA 70087  
Phone: 504.469.0333  
Fax: 504.469.0555  
LELAP # 02006

Client: CRA MIDLAND

Client ID: RW2 111507

Project: 2076070

Project ID: COOPER JAL

Site: None

Lab ID: 20569475

Matrix: Water

%Moisture: n/a

Description: None

Collected: 11/15/07

Received: 11/16/07

Analyte	Method	Batch	DF	Qu	Result	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Calcium, Dissolved	EPA 6010	94708	1		586000	ug/L	5000	28-Nov-07	29-Nov-07 16:14	KJR
Magnesium, Dissolved	EPA 6010	94708	1		ND	ug/L	5000	28-Nov-07	29-Nov-07 16:14	KJR
Potassium, Dissolved	EPA 6010	94708	1		11200	ug/L	5000	28-Nov-07	29-Nov-07 16:14	KJR
Sodium, Dissolved	EPA 6010	94708	1		245000	ug/L	5000	28-Nov-07	30-Nov-07 00:35	KJR

4 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit or PQL.  
MDL denotes method detection limit

Limits are corrected for sample size, dilution and moisture content if applicable.  
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.  
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.  
Regulatory limit may denote an actual regulatory limit or a client-requested notification limit.

11/30/2007 11:28:00

Louisiana Dept. of Environmental Quality (LELAP) - 02006  
Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004  
Arkansas Dept. of Environmental Quality - LA050004  
Florida Dept. of Health (NELAC) - E87595  
Kansas Dept. of Health Environmental - E-10266  
Pennsylvania DEP (NELAC) 68-04202  
U.S. Dept. of Agricultural Foreign Soil Permit - S-47270



# Sample Results

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 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

Client: CRA MIDLAND

Client ID: DUP

Project: 2076070

Project ID: COOPER JAL

Site: None

Lab ID: 20569476

Matrix: Water

% Moisture: n/a

Description: None

Collected: 11/15/07

Received: 11/16/07

Analyte	Method	Batch	DF	Qu	Result	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Calcium, Dissolved	EPA 6010	94708	1		136000	ug/L	5000	28-Nov-07	29-Nov-07 16:30	KJR
Magnesium, Dissolved	EPA 6010	94708	1		133000	ug/L	5000	28-Nov-07	29-Nov-07 16:30	KJR
Potassium, Dissolved	EPA 6010	94708	1		15500	ug/L	5000	28-Nov-07	29-Nov-07 16:30	KJR
Sodium, Dissolved	EPA 6010	94708	5	D1	1040000	ug/L	25000	28-Nov-07	30-Nov-07 09:33	KJR

4 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit or PQL.  
 MDL denotes method detection limit

Limits are corrected for sample size, dilution and moisture content if applicable.  
 Qu lists qualifiers. Specific qualifiers are defined at the end of the report.  
 For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.  
 Regulatory limit may denote an actual regulatory limit or a client-requested notification limit.

11/30/2007 11:28:01

Louisiana Dept. of Environmental Quality (LELAP) - 02006  
 Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004  
 Arkansas Dept. of Environmental Quality - LA050004  
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 1000 Riverbend Blvd, Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

Client: CRA MIDLAND

Client ID: MW6 111507 Project: 2076070  
 Project ID: COOPER JAL Site: None  
 Lab ID: 20569470 Matrix: Water %Moisture: n/a  
 Description: None Collected: 11/15/07 Received: 11/16/07

Analyte	Method	Batch	DF	Qu	Result	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Alkalinity, Carbonate (CaCO)	SM 2320B	94300	1		ND	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Hydroxide (CaCO)	SM 2320B	94300	1		284.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Total	SM 2320B	94300	1		284.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Bicarbonate (CaCO <sub>3</sub> )	SM 2320B	94300	1		284.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Chloride	SM 4500-Cl	94302	1		162.	mg/L	1.00	16-Nov-07	16-Nov-07 17:29	MHM
Nitrogen, Nitrate	SM 4500-N	94293	1		1.35	mg/L	0.100	16-Nov-07	16-Nov-07 17:04	MHM
Sulfate	EPA 375.4	94301	5	D1	96.3	mg/L	5.00	16-Nov-07	16-Nov-07 15:35	MHM
Total Dissolved Solids	SM 2540C	94314	1		630.	mg/L	4.00	19-Nov-07	19-Nov-07 13:00	SMS2

8 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit or PQL.  
 MDL denotes method detection limit

Limits are corrected for sample size, dilution and moisture content if applicable.  
 Qu lists qualifiers. Specific qualifiers are defined at the end of the report.  
 For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.  
 Regulatory limit may denote an actual regulatory limit or a client-requested notification limit.

11/30/2007 11:28:04

Louisiana Dept. of Environmental Quality (LELAP) - 02006  
 Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004  
 Arkansas Dept. of Environmental Quality - LA050004  
 Florida Dept. of Health (NELAC) - E87595  
 Kansas Dept. of Health Environmental - E-10266  
 Pennsylvania DEP (NELAC) 68-04202  
 U.S. Dept. of Agricultural Foreign Soil Permit - S-47270

# Sample Results

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 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006



**Client:** CRA MIDLAND

**Client ID:** MW7 111507  
**Project ID:** COOPER JAL  
**Lab ID:** 20569471  
**Description:** None

**Project:** 2076070  
**Site:** None  
**Matrix:** Water      **% Moisture:** n/a  
**Collected:** 11/15/07      **Received:** 11/16/07

Analyte	Method	Batch	DF	Qu	Result	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Alkalinity, Carbonate (CaCO)	SM 2320B	94300	1		ND	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Hydroxide (CaCO)	SM 2320B	94300	1		189.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Total	SM 2320B	94300	1		189.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity,Bicarbonate (CaCO3)	SM 2320B	94300	1		189.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Chloride	SM 4500-Cl	94302	10	D1	458.	mg/L	10.0	16-Nov-07	16-Nov-07 17:31	MHM
Nitrogen, Nitrate	SM 4500-N	94293	1		1.39	mg/L	0.100	16-Nov-07	16-Nov-07 17:05	MHM
Sulfate	EPA 375.4	94301	5	D1	176.	mg/L	5.00	16-Nov-07	16-Nov-07 15:35	MHM
Total Dissolved Solids	SM 2540C	94314	1		1880	mg/L	4.00	19-Nov-07	19-Nov-07 13:00	SMS2

8 parameter(s) reported

11/30/2007 11:28:04

ND denotes Not Detected at or above the adjusted reporting limit or PQL.  
 MDL denotes method detection limit

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 Regulatory limit may denote an actual regulatory limit or a client-requested notification limit.

Louisiana Dept. of Environmental Quality (LELAP) - 02006  
 Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004  
 Arkansas Dept. of Environmental Quality - LA050004  
 Florida Dept. of Health (NELAC) - E87595  
 Kansas Dept. of Health Environmental - E-10266  
 Pennsylvania DEP (NELAC) 68-04202  
 U.S. Dept. of Agricultural Foreign Soil Permit - S-47270

# Sample Results

Pace Analytical Services, Inc.

1000 Riverbend Blvd. Suite F  
St. Rose, LA 70087

Phone: 504.469.0333

Fax: 504.469.0555

LELAP # 02006



Client: CRA MIDLAND

Client ID: MW8 111507

Project: 2076070

Project ID: COOPER JAL

Site: None

Lab ID: 20569472

Matrix: Water

%Moisture: n/a

Description: None

Collected: 11/15/07

Received: 11/16/07

Analyte	Method	Batch	DF	Qu	Result	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Alkalinity, Carbonate (CaCO)	SM 2320B	94300	1		ND	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Hydroxide (CaCO)	SM 2320B	94300	1		159.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Total	SM 2320B	94300	1		159.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Bicarbonate (CaCO3)	SM 2320B	94300	1		159.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Chloride	SM 4500-Cl	94302	1		43.1	mg/L	1.00	16-Nov-07	16-Nov-07 17:29	MHM
Nitrogen, Nitrate	SM 4500-N	94293	1		1.56	mg/L	0.100	16-Nov-07	16-Nov-07 17:08	MHM
Sulfate	EPA 375.4	94301	5	D1	94.2	mg/L	5.00	16-Nov-07	16-Nov-07 15:35	MHM
Total Dissolved Solids	SM 2540C	94314	1		540.	mg/L	4.00	19-Nov-07	19-Nov-07 13:00	SMS2

8 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit or PQL.  
MDL denotes method detection limit

Limits are corrected for sample size, dilution and moisture content if applicable.  
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.  
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.  
Regulatory limit may denote an actual regulatory limit or a client-requested notification limit.

11/30/2007 11:28:04

Louisiana Dept. of Environmental Quality (LELAP) - 02006  
Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004  
Arkansas Dept. of Environmental Quality - LA050004  
Florida Dept. of Health (NELAC) - E87595  
Kansas Dept. of Health Environmental - E-10266  
Pennsylvania DEP (NELAC) 68-04202  
U.S. Dept. of Agricultural Foreign Soil Permit - S-47270

# Sample Results

**Pace Analytical Services, Inc.**  
 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006



Client: CRA MIDLAND

Client ID: MW10 111507

Project: 2076070

Project ID: COOPER JAL

Site: None

Lab ID: 20569473

Matrix: Water

% Moisture: n/a

Description: None

Collected: 11/15/07

Received: 11/16/07

Analyte	Method	Batch	DF	Qu	Result	Reporting		Prep.	Analysis		Reg. Limit
						Units	Limit				
Alkalinity, Carbonate (CaCO)	SM 2320B	94300	1		ND	mg/L	10.0	16-Nov-07	16-Nov-07	15:40	TAE
Alkalinity, Hydroxide (CaCO)	SM 2320B	94300	1		189.	mg/L	10.0	16-Nov-07	16-Nov-07	15:40	TAE
Alkalinity, Total	SM 2320B	94300	1		189.	mg/L	10.0	16-Nov-07	16-Nov-07	15:40	TAE
Alkalinity, Bicarbonate (CaCO <sub>3</sub> )	SM 2320B	94300	1		189.	mg/L	10.0	16-Nov-07	16-Nov-07	15:40	TAE
Chloride	SM 4500-Cl	94302	10	D1	251.	mg/L	10.0	16-Nov-07	16-Nov-07	17:31	MHM
Nitrogen, Nitrate	SM 4500-N	94293	1		1.44	mg/L	0.100	16-Nov-07	16-Nov-07	17:09	MHM
Sulfate	EPA 375.4	94301	5	D1	152.	mg/L	5.00	16-Nov-07	16-Nov-07	15:35	MHM
Total Dissolved Solids	SM 2540C	94314	1		1010	mg/L	4.00	19-Nov-07	19-Nov-07	13:00	SMS2

8 parameter(s) reported

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 MDL denotes method detection limit

Limits are corrected for sample size, dilution and moisture content if applicable.  
 Qu lists qualifiers. Specific qualifiers are defined at the end of the report.  
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 Regulatory limit may denote an actual regulatory limit or a client-requested notification limit.

11/30/2007 11:28:04

Louisiana Dept. of Environmental Quality (LELAP) - 02006  
 Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004  
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 Kansas Dept. of Health Environmental - E-10266  
 Pennsylvania DEP (NELAC) 68-04202  
 U.S. Dept. of Agricultural Foreign Soil Permit - S-47270



# Sample Results

**Pace Analytical Services, Inc.**  
 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

Client: CRA MIDLAND

Client ID: RW1 111507

Project: 2076070

Project ID: COOPER JAL

Site: None

Lab ID: 20569474

Matrix: Water

%Moisture: n/a

Description: None

Collected: 11/15/07

Received: 11/16/07

Analyte	Method	Batch	DF	Qu	Result	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Alkalinity, Carbonate (CaCO)	SM 2320B	94300	1		ND	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Hydroxide (CaCO)	SM 2320B	94300	1		359.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Total	SM 2320B	94300	1		359.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Bicarbonate (CaCO <sub>3</sub> )	SM 2320B	94300	1		359.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Chloride	SM 4500-Cl	94302	100	D1	2380	mg/L	100.	16-Nov-07	16-Nov-07 17:46	MHM
Nitrogen, Nitrate	SM 4500-N	94293	5	D1	3.74	mg/L	0.500	16-Nov-07	16-Nov-07 18:01	MHM
Sulfate	EPA 375.4	94301	50	D1	252.	mg/L	50.0	16-Nov-07	16-Nov-07 17:34	MHM
Total Dissolved Solids	SM 2540C	94314	1		5280	mg/L	4.00	19-Nov-07	19-Nov-07 13:00	SMS2

8 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit or PQL.  
 MDL denotes method detection limit

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 Qu lists qualifiers. Specific qualifiers are defined at the end of the report.  
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11/30/2007 11:28:04

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 Pennsylvania DEP (NELAC) 68-04202  
 U.S. Dept. of Agricultural Foreign Soil Permit - S-47270

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1000 Riverbend Blvd. Suite F  
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Phone: 504.469.0333

Fax: 504.469.0555

LELAP # 02006



Client: CRA MIDLAND

Client ID: RW2 111507

Project: 2076070

Project ID: COOPER JAL

Site: None

Lab ID: 20569475

Matrix: Water

%Moisture: n/a

Description: None

Collected: 11/15/07

Received: 11/16/07

Analyte	Method	Batch	DF	Qu	Result	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Alkalinity, Carbonate (CaCO <sub>3</sub> )	SM 2320B	94300	1		170.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Hydroxide (CaCO <sub>3</sub> )	SM 2320B	94300	1		ND	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Total	SM 2320B	94300	1		208.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Bicarbonate (CaCO <sub>3</sub> )	SM 2320B	94300	1		37.8	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Chloride	SM 4500-Cl	94302	10	D1	1680	mg/L	10.0	16-Nov-07	16-Nov-07 17:29	MHM
Nitrogen, Nitrate	SM 4500-N	94293	1		1.52	mg/L	0.100	16-Nov-07	16-Nov-07 17:11	MHM
Sulfate	EPA 375.4	94301	5	D1	166.	mg/L	5.00	16-Nov-07	16-Nov-07 15:38	MHM
Total Dissolved Solids	SM 2540C	94314	1		5590	mg/L	4.00	19-Nov-07	19-Nov-07 13:00	SMS2

8 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit or PQL.  
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11/30/2007 11:28:04

Louisiana Dept. of Environmental Quality (LELAP) - 02006  
Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004  
Arkansas Dept. of Environmental Quality - LA050004  
Florida Dept. of Health (NELAC) - E87595  
Kansas Dept. of Health Environmental - E-10266  
Pennsylvania DEP (NELAC) 68-04202  
U.S. Dept. of Agricultural Foreign Soil Permit - S-47270



# Sample Results

**Pace Analytical Services, Inc.**  
 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

Client: CRA MIDLAND

Client ID: DUP  
 Project ID: COOPER JAL  
 Lab ID: 20569476  
 Description: None

Project: 2076070  
 Site: None  
 Matrix: Water      %Moisture: n/a  
 Collected: 11/15/07      Received: 11/16/07

Analyte	Method	Batch	DF	Qu	Result	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Alkalinity, Carbonate (CaCO)	SM 2320B	94300	1		ND	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Hydroxide (CaCO)	SM 2320B	94300	1		208.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Total	SM 2320B	94300	1		208.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Bicarbonate (CaCO <sub>3</sub> )	SM 2320B	94300	1		208.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Chloride	SM 4500-Cl	94302	100	D1	2620	mg/L	100.	16-Nov-07	16-Nov-07 17:46	MHM
Nitrogen, Nitrate	SM 4500-N	94293	5	D1	3.85	mg/L	0.500	16-Nov-07	16-Nov-07 18:02	MHM
Sulfate	EPA 375.4	94301	50	D1	316.	mg/L	50.0	16-Nov-07	16-Nov-07 17:34	MHM
Total Dissolved Solids	SM 2540C	94314	1		5360	mg/L	4.00	19-Nov-07	19-Nov-07 13:00	SMS2

8 parameter(s) reported

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 MDL denotes method detection limit

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Louisiana Dept. of Environmental Quality (LELAP) - 02006  
 Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004  
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 Florida Dept. of Health (NELAC) - E87595  
 Kansas Dept. of Health Environmental - E-10266  
 Pennsylvania DEP (NELAC) 68-04202  
 U.S. Dept. of Agricultural Foreign Soil Permit - S-47270

11/30/2007 11:28:04



# Inorganics Quality Control

**Pace Analytical Services, Inc.**  
 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

Project: 2076070

Parameter	Batch	Blank	ARL	Units	LCS Spike	LCS Found	LCS %Rec	MS Spike	Sample Found	MS Found	MSD Found	MS %Rec	MSD %Rec	MSD RPD	DUP RPD	QC Limits	Max RPD	Qu
Calcium, Diss	94708	ND	100	ug/L	10000	10610	106	10000	49500.00	443200	456100	0 *	66 *	3 *		78 - 118 75 - 158	2	Q3
Magnesium, D	94708	ND	100	ug/L	10000	10510	105	10000	51600.00	155800	157300	41 *	56 *	1		78 - 116 75 - 135	3	Q3
Potassium, Dis	94708	ND	100	ug/L	10000	10450	105	10000	16170.00	26150	26470	100	103	1		77 - 117 21 - 149	2	
Sodium, Disso	94708	ND	100	ug/L	10000	10230	102	10000	08000.00	1047000	1024000	0 *	0 *	2		76 - 121 75 - 190	2	Q3

\* denotes recovery outside of QC limits.

ND denotes Not Detected at or above the adjusted reporting limit or PQL.

MS/MSD RPD is calculated via SW-846 rules on the basis of spiked sample concentrations rather than spike recoveries.

11/30/2007 11:28:07

Louisiana Dept. of Environmental Quality (LELAP) - 02006  
 Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004  
 Arkansas Dept. of Environmental Quality - LA050004  
 Florida Dept. of Health (NELAC) - E87595  
 Kansas Dept. of Health Environmental - E-10266  
 Pennsylvania DEP (NELAC) 68-04202  
 U.S. Dept. of Agricultural Foreign Soil Permit - S-47270



# Inorganics Quality Control

**Pace Analytical Services, Inc.**  
 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

Project: 2076070

Parameter	Batch	Blank	ARL	Units	LCS Spike	LCS Found	LCS %Rec	MS Spike	Sample Found	MS Found	MSD Found	MS %Rec	MSD %Rec	MSD RPD	DUP RPD	QC Limits	Max RPD	Qu
Nitrogen, Nitr	94293	ND	0.100	mg/L	1.21	1.124	93									90 - 110	-	
Alkalinity, Tot	94300			mg/L	50	48	96		44.20						0	90 - 110	-	20
Sulfate	94301	ND	1.00	mg/L	34.2	33.59	98	10	96.32	95.26		0 *		3	90 - 110	75 - 125	20	D1, Q3
Chloride	94302	ND	1.00	mg/L	72.1	78.87	109	100	162.40	221.4		59 *		0	90 - 110	75 - 125	20	D1, Q1
Total Dissolve	94314	ND	4.00	mg/L	100	102	102		630.00					2	80 - 120	-	20	

\* denotes recovery outside of QC limits.

ND denotes Not Detected at or above the adjusted reporting limit or PQL.

MS/MSD RPD is calculated via SW-846 rules on the basis of spiked sample concentrations rather than spike recoveries.

11/30/2007 11:28:10

Louisiana Dept. of Environmental Quality (LELAP) - 02006  
 Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004  
 Arkansas Dept. of Environmental Quality - LA050004  
 Florida Dept. of Health (NELAC) - E87595  
 Kansas Dept. of Health Environmental - E-10266  
 Pennsylvania DEP (NELAC) 68-04202  
 U.S. Dept. of Agricultural Foreign Soil Permit - S-47270

## Qualifier Summary

**Pace Analytical Services, Inc.**

1000 Riverbend Blvd. Suite F  
St. Rose, LA 70087

Phone: 504.469.0333

Fax: 504.469.0555

LELAP # 02006



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**Project:** 2076070

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Qualifier	Qualifier Description
D1	The analysis was performed at a dilution due to the high analyte concentration.
Q1	The matrix spike recoveries are poor. Acceptable method performance for this analyte has been demonstrated by the laboratory control sample recovery.
Q3	The matrix spike recoveries are poor due to the presence of this analyte in the sample at a concentration greater than 4 times the spiked amount. Acceptable method performance for this analyte has been demonstrated by the laboratory control sample.

---

11/30/2007 11:28:13

Louisiana Dept. of Environmental Quality (LELAP) - 02006  
Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004  
Arkansas Dept. of Environmental Quality - LA050004  
Florida Dept. of Health (NELAC) - E87595  
Kansas Dept. of Health Environmental - E-10266  
Pennsylvania DEP (NELAC) 68-04202  
U.S. Dept. of Agricultural Foreign Soil Permit - S-47270



Sample Condition

2076070 20-CHEV\_CRAT



1000 Riverbend Blvd., Suite F  
St. Rose, LA 70087

Courier:  Pace Courier  Hackbarth  Fed X  UPS  DHL  USPS  Customer  Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact:  Yes  No

Thermometer Used:  Therm Fisher IR 1  
 Therm Fisher IR 2

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 11-16-07

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present?"	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1
Chain of Custody Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7
Correct Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	9 Lab Filter
Sample Labels match COC:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11
All containers needing preservation have been checked (except VOA, coliform, & O&G).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12
All containers preservation checked found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13 If No, was preservative added? <input type="checkbox"/> Yes <input type="checkbox"/> No If added record lot no.: HNO3 _____ H2SO4 _____
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	17
Pace Trip Blank Lot # (if purchased):	N/A	18

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_

Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_





**Central Analytical Laboratories**

2315 N. Causeway Blvd. Suite 150, Metairie, LA 70001  
(504) 297-3400 Toll Free: (866) 388-3400 Fax: (504) 297-3410

**DELIVER TO:** Pace Analytical Services, Inc.  
1000 Riverbend Blvd  
Suite F  
St. Rose, LA 70087  
Attn: Karen Brown

---

**REPORT OF ANALYSIS**

**ANALYSES PERFORMED BY**  
**Central Analytical Laboratories**

**Report Date :** 11/26/2007  
**Report Number :** E2076070

---



**Central Analytical Laboratories**

**Client:** Pace Analytical Services, Inc.

**Report Number:** E2076070

**Sample Description Summary**

<b>Sample Description</b>	<b>Matrix</b>	<b>Collection Date/Time</b>		<b>CAL Sample ID</b>	<b>Submittal Date/Time</b>	
20569470 - MW6 111507	WATER	11/15/2007	12:35	CE33180	11/20/2007	11:15
20569471 - MW7 111507	WATER	11/15/2007	11:15	CE33181	11/20/2007	11:15
20569472 - MW8 111507	WATER	11/15/2007	10:50	CE33182	11/20/2007	11:15
20569473 - MW10 111507	WATER	11/15/2007	11:30	CE33183	11/20/2007	11:15
20569474 - RW1 111507	WATER	11/15/2007	12:10	CE33184	11/20/2007	11:15
20569475 - RW2 111507	WATER	11/15/2007	11:45	CE33185	11/20/2007	11:15
20569476 - DUP	WATER	11/15/2007	11:57	CE33186	11/20/2007	11:15



**Central Analytical Laboratories**

Louisiana Environmental Laboratory

**LELAP**

Certificate No. 01996

**Client: Pace Analytical Services, Inc.**

**Report Number: E2076070**

Sample analyses are performed according to U. S. Environmental Protection Agency approved methods, or methods cited in this report. Any deviations from, additions to, or exclusions from the designated test method noted in the "CASE NARRATIVE". Unless noted in the "CASE NARRATIVE", all quality control criteria within method control limits.

Results contained herein apply only to the item(s) tested.

If chain of custody documentation was provided, it is documented as an attachment to this report.

Central Analytical Laboratories reserves the right to subcontract those tests for which we are not capable or accredited. Tests which are subcontracted are indicated on the Test Report as "SUB" under the Analyst head

Unless client requests otherwise, all samples will be stored for thirty days after the issue of an Analytical Repo

Central Analytical Laboratories is accredited by the Louisiana Environmental Laboratory Accreditation Program (LELAP). The results shown in this report are certified to be in accordance with the terms of LAC 33:I unless otherwise stated. Analyses for which Central Analytical Laboratories is not accredited, or which have been subcontracted to an unaccredited laboratory are noted in this report; such results are not covered by our accreditation.

This report shall not be reproduced except in full, without written approval by Central Analytical Laboratories. All results are considered confidential by Central Analytical Laboratories.

**John M. Reuther**  
Laboratory Manager



## Central Analytical Laboratories

2315 N. Causeway Blvd., Suite 150, Metairie, LA 70001  
(504) 297-3400 Toll Free: (866) 388-3400 Fax: (504) 297-3410

Client: Pace Analytical Services, Inc.

Report Number : E2076070

### CASE NARRATIVE

#### INORGANIC QUALITY CONTROL

**Holding Times:** All holding times were within method criteria.

**Method Blanks:** All method blanks were found to be within quality control criteria for the method.

**Spike/Duplicate:** Spike and Duplicate recoveries were found to be within acceptable limits of precision and accuracy.

**Laboratory Quality Control Samples:** All analyses met the quality control criteria of the method.

**Calibration Verifications:** All criteria established for the method were met.

**Analysis Comments:** The quantitative results of Fluoride for CE33181-CE33183 (these samples were analyzed in batch FLRIDL-18454) and CE33184-CE33186 (these samples were analyzed in batch FLRIDL-18455) are below the lowest calibration standard of 2.00 mg/l. The results of samples are reported and qualified by the following data from batches FLRIDL-18454 and FLRIDL-18455: 1) Acceptable (LRB) Lab Reagent Blanks (<2 times MDL), 2) Acceptable analyte recoveries of the (LCS) Lab Control Samples in both batches (100% and 103%), 3) Acceptable analyte recoveries of the (CCV) Continuing Calibration Verification standard at the end of each sample batch (104% and 103%), 4) Acceptable analyte recoveries of Laboratory Fortified Matrix (LFM) samples in both batches (92% and 102%) and the relative percent deviation between the LFM samples and duplicates (1.17% and 0.43%).

#### ORGANIC QUALITY CONTROL

**Holding Times:** All holding times were within method criteria.

**Method Blanks:** All method blanks were found to be within quality control criteria for the method.

**Spike/Duplicate:** Spike and Duplicate recoveries were found to be within acceptable limits of precision and accuracy.

**Laboratory Quality Control Samples:** All analyses met the quality control criteria of the method.

**Calibration Verifications:** All criteria established for the method were met.

**Analysis Comments:**

Report Date : 11/26/2007

Page 4 of 12



### Analysis Results

**Description:** 20569470 - MW6 111507  
**CAL Number:** CE33180  
**Submit Date:** 11/20/2007  
**Submit Time:** 11:15 AM  
**Methodology:** Standard Methods for the Examination of Water and Wastewater, APHA, 20th Edition  
Methods for Chemical Analysis of Water and Waste, EPA-600/4-79-020, March 1983  
Test Methods for Evaluating Solid Waste, Physical, Chemical Methods, EPA SW-846, Third Edition, July 1992

**Sampled By:** N. MILLER  
**Sample Date:** 11/15/2007  
**Sample Time:** 12:35 PM  
**Sample Type:** WATER

---

Analyte	Result	Units	MDL	Method	Analyst	Start Date	End Date
Fluoride	51	mg/L	0.05	340.2	CB	11/21/2007 9:50	11/21/2007



### Analysis Results

**Description:** 20569471 - MW7 111507  
**CAL Number:** CE33181  
**Submit Date:** 11/20/2007  
**Submit Time:** 11:15 AM  
**Methodology:** Standard Methods for the Examination of Water and Wastewater, APHA, 20th Edition  
Methods for Chemical Analysis of Water and Waste, EPA-600/4-79-020, March 1983  
Test Methods for Evaluating Solid Waste, Physical, Chemical Methods, EPA SW-846, Third Edition, July 1992

**Sampled By:** N. MILLER  
**Sample Date:** 11/15/2007  
**Sample Time:** 11:15 AM  
**Sample Type:** WATER

---

Analyte	Result	Units	MDL	Method	Analyst	Start Date	End Date
Fluoride	1.20	mg/L	0.05	340.2	CB	11/21/2007 9:50	11/21/2007



### Analysis Results

**Description:** 20569472 - MW8 111507

**Sampled By:** N. MILLER

**CAL Number:** CE33182

**Sample Date:** 11/15/2007

**Submit Date:** 11/20/2007

**Sample Time:** 10:50 AM

**Submit Time:** 11:15 AM

**Sample Type:** WATER

**Methodology:** Standard Methods for the Examination of Water and Wastewater, APHA, 20th Edition  
Methods for Chemical Analysis of Water and Waste, EPA-600/4-79-020, March 1983  
Test Methods for Evaluating Solid Waste, Physical, Chemical Methods, EPA SW-846, Third Edition, July 1992

---

Analyte	Result	Units	MDL	Method	Analyst	Start Date	End Date
Fluoride	1.33	mg/L	0.05	340.2	CB	11/21/2007 9:50	11/21/2007



### Analysis Results

**Description:** 20569473 - MW10 111507  
**CAL Number:** CE33183  
**Submit Date:** 11/20/2007  
**Submit Time:** 11:15 AM  
**Methodology:** Standard Methods for the Examination of Water and Wastewater, APHA, 20th Edition  
Methods for Chemical Analysis of Water and Waste, EPA-600/4-79-020, March 1983  
Test Methods for Evaluating Solid Waste, Physical, Chemical Methods, EPA SW-846, Third Edition, July 1992

**Sampled By:** N. MILLER  
**Sample Date:** 11/15/2007  
**Sample Time:** 11:30 AM  
**Sample Type:** WATER

---

Analyte	Result	Units	MDL	Method	Analyst	Start Date	End Date
Fluoride	1.44	mg/L	0.05	340.2	CB	11/21/2007 9:50	11/21/2007



### Analysis Results

**Description:** 20569474 - RW1 111507  
**CAL Number:** CE33184  
**Submit Date:** 11/20/2007  
**Submit Time:** 11:15 AM  
**Methodology:** Standard Methods for the Examination of Water and Wastewater, APHA, 20th Edition  
Methods for Chemical Analysis of Water and Waste, EPA-600/4-79-020, March 1983  
Test Methods for Evaluating Solid Waste, Physical, Chemical Methods, EPA SW-846, Third Edition, July 1992

**Sampled By:** N. MILLER  
**Sample Date:** 11/15/2007  
**Sample Time:** 12:10 PM  
**Sample Type:** WATER

---

Analyte	Result	Units	MDL	Method	Analyst	Start Date	End Date
Fluoride	1.26	mg/L	0.05	340.2	CB	11/21/2007 9:50	11/21/2007



### Analysis Results

**Description:** 20569475 - RW2 111507  
**CAL Number:** CE33185  
**Submit Date:** 11/20/2007  
**Submit Time:** 11:15 AM  
**Methodology:** Standard Methods for the Examination of Water and Wastewater, APHA, 20th Edition  
Methods for Chemical Analysis of Water and Waste, EPA-600/4-79-020, March 1983  
Test Methods for Evaluating Solid Waste, Physical, Chemical Methods, EPA SW-846, Third Edition, July 1992

**Sampled By:** N. MILLER  
**Sample Date:** 11/15/2007  
**Sample Time:** 11:45 AM  
**Sample Type:** WATER

---

Analyte	Result	Units	MDL	Method	Analyst	Start Date	End Date
Fluoride	0.49	mg/L	0.05	340.2	CB	11/21/2007 9:50	11/21/2007



### Analysis Results

**Description:** 20569476 - DUP  
**CAL Number:** CE33186  
**Submit Date:** 11/20/2007  
**Submit Time:** 11:15 AM  
**Methodology:** Standard Methods for the Examination of Water and Wastewater, APHA, 20th Edition  
Methods for Chemical Analysis of Water and Waste, EPA-600/4-79-020, March 1983  
Test Methods for Evaluating Solid Waste, Physical, Chemical Methods, EPA SW-846, Third Edition, July 1992

**Sampled By:** N. MILLER  
**Sample Date:** 11/15/2007  
**Sample Time:** 11:57 AM  
**Sample Type:** WATER

---

Analyte	Result	Units	MDL	Method	Analyst	Start Date	End Date
Fluoride	1.24	mg/L	0.05	340.2	CB	11/21/2007 9:50	11/21/2007



### QC Batch Results

**Fluoride**

Batch Name: FLRIDL-18454    Batch Number: 18454    QA Sample ID: CE32736

AnalysisStartDate 11/21/2007    AnalysisEndDate 11/21/2007  
AnalysisStartTime 9:50 AM    Analyst: CB

Fluoride	2.9	mg/L
Fluoride - LFM Result	12.90	mg/L
Fluoride - LFM Dupl Result	12.75	mg/L
Fluoride - Blank	Not detected	mg/L
Fluoride-LFM Amount	10.00	mg/L
Fluoride - LFM % Recovery	99.2	%
Fluoride-Relative % Dev	1.2	%
Fluoride - LCS Result	5.02	mg/L
Fluoride - LCS Amount	5.00	mg/L
Fluoride - LCS % Recovery	100	%

**Fluoride**

Batch Name: FLRIDL-18455    Batch Number: 18455    QA Sample ID: CE33186

AnalysisStartDate 11/21/2007    AnalysisEndDate 11/21/2007  
AnalysisStartTime 9:50 AM    Analyst: CB

Fluoride	1.24	mg/L
Fluoride - LFM Result	11.47	mg/L
Fluoride - LFM Dupl Result	11.42	mg/L
Fluoride - Blank	0.07	mg/L
Fluoride-LFM Amount	10.00	mg/L
Fluoride - LFM % Recovery	102	%
Fluoride-Relative % Dev	0.4	%
Fluoride - LCS Result	5.14	mg/L
Fluoride - LCS Amount	5.00	mg/L
Fluoride - LCS % Recovery	103	%

SUBCONTRACTING CHAIN-OF-CUSTODY

Page Analytical Services, Inc.  
1000 Riverbend Blvd., Suite F  
St. Rose, LA 70087  
Phone: 504.469.0333  
Fax: 504.469.0555

Due Date: 11-30-07

Freight Carrier: QAL

Custody Seals: Intact / Broken / Missing

Subcontractor: QAL

Alrbill #:

Samples: Intact / Broken / Missing

Contact:

EPPN #:

Cooler Temperature (C):

2026070 40C

CE33180  
CE33181  
CE33182  
CE33183  
CE33184  
CE33185  
CE33186

PAGE SAMPLE ID	CLIENT SAMPLE ID	SAMPLE DATETIME	MATRIX	SAMPLE #	ANALYSIS METHOD	SAMPLE COMMENTS
20569470	MW6	11/5/07	WT	1		7/2/2007
471	MW7	11/5/07		1		
472	MW8	11/5/07		1		
473	MW10	11/5/07		1		
474	MW1	11/5/07		1		
475	MW2	11/5/07		1		
476	Dep					

REPORT RESULTS TO THE ADDRESS ABOVE TO THE ATTENTION OF KAREN BROWN. If the hardcopy results cannot be delivered by the above due date, please contact Karen Brown at the above number.



**Pace Analytical Services, Inc.**  
1000 Riverbend Blvd. Suite F  
St. Rose, LA 70087  
Phone: 504.469.0333  
Fax: 504.469.0555  
LELAP # 02006

November 30, 2007

Luke Markham  
CRA  
2135 S. Loop 250 West  
Midland, TX 79701

RE: Project: 2076109  
RE: Project ID: COOPER JAL

Dear Luke Markham:

Enclosed are the analytical results for sample(s) received by the laboratory on November 17, 2007. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Cindy Olavesen



**REPORT OF LABORATORY ANALYSIS**

This report shall not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc.



# Sample Cross Reference

**Pace Analytical Services, Inc.**  
1000 Riverbend Blvd. Suite F  
St. Rose, LA 70087  
Phone: 504.469.0333  
Fax: 504.469.0555  
LELAP # 02006

Project: 2076109

Client: CRA MIDLAND

Project ID: COOPER JAL

Client Sample ID	Lab ID	Matrix	Collection Date/Time	Received Date/Time
MW 1 111607	20569692	Water	11/16/07 11:30	11/17/07 08:20
MW 3 111607	20569693	Water	11/16/07 11:15	11/17/07 08:20
MW 12 111607	20569694	Water	11/16/07 10:55	11/17/07 08:20
MW 13 111607	20569695	Water	11/16/07 10:30	11/17/07 08:20

11/30/2007 17:55:41

Louisiana Dept. of Environmental Quality (LELAP) - 02006  
Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004  
Arkansas Dept. of Environmental Quality - LA050004  
Florida Dept. of Health (NELAC) - E87595  
Kansas Dept. of Health Environmental - E-10266  
Pennsylvania DEP (NELAC) 68-04202  
U.S. Dept. of Agricultural Foreign Soil Permit - S-47270

## Project Narrative

**Pace Analytical Services, Inc.**

1000 Riverbend Blvd, Suite F  
St. Rose, LA 70087

Phone: 504.469.0333

Fax: 504.469.0555

LELAP # 02006



---

**Project:** 2076109

---

---

**Sample Receipt Condition:**

All samples were received in accordance with EPA protocol.

**Holding Times:**

All holding times were met.

**Blanks:**

All blank results were below reporting limits.

**Laboratory Control Samples:**

All LCS recoveries were within QC limits.

**Matrix Spikes and Duplicates:**

MS or MSD recoveries outside of QC limits are qualified in the Report of Quality Control section.



## Project Narrative

**Pace Analytical Services, Inc.**  
1000 Riverbend Blvd. Suite F  
St. Rose, LA 70087  
Phone: 504.469.0333  
Fax: 504.469.0555  
LELAP # 02006

---

**Project:** 2076109

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Analytical Method	Batch	Sample used for QC
EPA 6010	94708	Client sample MW 2 111407 from project 2076025
SM 2540C	94426	Project sample MW 1 111607
SM 2320B	94464	Batch sample from another client
EPA 375.4	94357	Project sample MW 1 111607
SM 4500-Cl E	94358	Project sample MW 1 111607
SM 4500-NO3 F	94789	Batch sample from another client

---

For the sample used as the original for the DUP or MS/MSD for the batch:

11/30/2007 17:56:15

Project sample means a sample from this project was used.

Client sample means a sample from the same client but in a different project was used.

Batch sample means a sample from the a different client was used.

# Sample Results

Pace Analytical Services, Inc.

1000 Riverbend Blvd. Suite F  
St. Rose, LA 70087

Phone: 504.469.0333

Fax: 504.469.0555

LELAP # 02006



Client: CRA MIDLAND

Client ID: MW 1 111607

Project: 2076109

Project ID: COOPER JAL

Site: None

Lab ID: 20569692

Matrix: Water

% Moisture: n/a

Description: None

Collected: 11/16/07

Received: 11/17/07

Analyte	Method	Batch	DF	Qu	Result	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Calcium, Dissolved	EPA 6010	94708	1		154000	ug/L	5000	28-Nov-07	29-Nov-07 16:35	KJR
Magnesium, Dissolved	EPA 6010	94708	1		187000	ug/L	5000	28-Nov-07	29-Nov-07 16:35	KJR
Potassium, Dissolved	EPA 6010	94708	1		54000	ug/L	5000	28-Nov-07	29-Nov-07 16:35	KJR
Sodium, Dissolved	EPA 6010	94708	5	D1	2100000	ug/L	25000	28-Nov-07	30-Nov-07 09:38	KJR

4 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit or PQL.  
MDL denotes method detection limit

Limits are corrected for sample size, dilution and moisture content if applicable.  
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.  
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.  
Regulatory limit may denote an actual regulatory limit or a client-requested notification limit.

11/30/2007 17:56:18

Louisiana Dept. of Environmental Quality (LELAP) - 02006  
Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004  
Arkansas Dept. of Environmental Quality - LA050004  
Florida Dept. of Health (NELAC) - E87595  
Kansas Dept. of Health Environmental - E-10266  
Pennsylvania DEP (NELAC) 68-04202  
U.S. Dept. of Agricultural Foreign Soil Permit - S-47270



# Sample Results

**Pace Analytical Services, Inc.**  
 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

Client: CRA MIDLAND

Client ID: MW 3 111607

Project: 2076109

Project ID: COOPER JAL

Site: None

Lab ID: 20569693

Matrix: Water

%Moisture: n/a

Description: None

Collected: 11/16/07

Received: 11/17/07

Analyte	Method	Batch	DF	Qu	Result	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Calcium, Dissolved	EPA 6010	94708	1		50800	ug/L	5000	28-Nov-07	29-Nov-07 16:42	KJR
Magnesium, Dissolved	EPA 6010	94708	1		16300	ug/L	5000	28-Nov-07	29-Nov-07 16:42	KJR
Potassium, Dissolved	EPA 6010	94708	1		ND	ug/L	5000	28-Nov-07	29-Nov-07 16:42	KJR
Sodium, Dissolved	EPA 6010	94708	1		50600	ug/L	5000	28-Nov-07	30-Nov-07 00:39	KJR

4 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit or PQL.  
 MDL denotes method detection limit

Limits are corrected for sample size, dilution and moisture content if applicable.  
 Qu lists qualifiers. Specific qualifiers are defined at the end of the report.  
 For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.  
 Regulatory limit may denote an actual regulatory limit or a client-requested notification limit.

11/30/2007 17:56:18

Louisiana Dept. of Environmental Quality (LELAP) - 02006  
 Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004  
 Arkansas Dept. of Environmental Quality - LA050004  
 Florida Dept. of Health (NELAC) - E87595  
 Kansas Dept. of Health Environmental - E-10266  
 Pennsylvania DEP (NELAC) 68-04202  
 U.S. Dept. of Agricultural Foreign Soil Permit - S-47270

# Sample Results

**Pace Analytical Services, Inc.**  
 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006



**Client:** CRA MIDLAND

**Client ID:** MW 12 111607  
**Project ID:** COOPER JAL  
**Lab ID:** 20569694  
**Description:** None

**Project:** 2076109  
**Site:** None  
**Matrix:** Water      **%Moisture:** n/a  
**Collected:** 11/16/07      **Received:** 11/17/07

Analyte	Method	Batch	DF	Qu	Result	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Calcium, Dissolved	EPA 6010	94708	1		77200	ug/L	5000	28-Nov-07	29-Nov-07 16:47	KJR
Magnesium, Dissolved	EPA 6010	94708	1		42700	ug/L	5000	28-Nov-07	29-Nov-07 16:47	KJR
Potassium, Dissolved	EPA 6010	94708	1		11000	ug/L	5000	28-Nov-07	29-Nov-07 16:47	KJR
Sodium, Dissolved	EPA 6010	94708	1		154000	ug/L	5000	28-Nov-07	30-Nov-07 00:45	KJR

4 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit or PQL.  
 MDL denotes method detection limit

Limits are corrected for sample size, dilution and moisture content if applicable.  
 Qu lists qualifiers. Specific qualifiers are defined at the end of the report.  
 For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.  
 Regulatory limit may denote an actual regulatory limit or a client-requested notification limit.

11/30/2007 17:56:18

*Louisiana Dept. of Environmental Quality (LELAP) - 02006*  
*Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004*  
*Arkansas Dept. of Environmental Quality - LA050004*  
*Florida Dept. of Health (NELAC) - E87595*  
*Kansas Dept. of Health Environmental - E-10266*  
*Pennsylvania DEP (NELAC) 68-04202*  
*U.S. Dept. of Agricultural Foreign Soil Permit - S-47270*



# Sample Results

**Pace Analytical Services, Inc.**  
 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

**Client:** CRA MIDLAND

**Client ID:** MW 13 111607

**Project:** 2076109

**Project ID:** COOPER JAL

**Site:** None

**Lab ID:** 20569695

**Matrix:** Water

**%Moisture:** n/a

**Description:** None

**Collected:** 11/16/07

**Received:** 11/17/07

Analyte	Method	Batch	DF	Qu	Result	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Calcium, Dissolved	EPA 6010	94708	1		361000	ug/L	5000	28-Nov-07	29-Nov-07 16:52	KJR
Magnesium, Dissolved	EPA 6010	94708	1		105000	ug/L	5000	28-Nov-07	29-Nov-07 16:52	KJR
Potassium, Dissolved	EPA 6010	94708	1		11400	ug/L	5000	28-Nov-07	29-Nov-07 16:52	KJR
Sodium, Dissolved	EPA 6010	94708	5	D1	553000	ug/L	25000	28-Nov-07	30-Nov-07 09:43	KJR

4 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit or PQL.  
 MDL denotes method detection limit

Limits are corrected for sample size, dilution and moisture content if applicable.  
 Qu lists qualifiers. Specific qualifiers are defined at the end of the report.  
 For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.  
 Regulatory limit may denote an actual regulatory limit or a client-requested notification limit.

11/30/2007 17:56:19

Louisiana Dept. of Environmental Quality (LELAP) - 02006  
 Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004  
 Arkansas Dept. of Environmental Quality - LA050004  
 Florida Dept. of Health (NELAC) - E87595  
 Kansas Dept. of Health Environmental - E-10266  
 Pennsylvania DEP (NELAC) 68-04202  
 U.S. Dept. of Agricultural Foreign Soil Permit - S-47270

# Sample Results

Pace Analytical Services, Inc.

1000 Riverbend Blvd. Suite F  
St. Rose, LA 70087

Phone: 504.469.0333

Fax: 504.469.0555

LELAP # 02006



Client: CRA MIDLAND

Client ID: MW 1 111607

Project: 2076109

Project ID: COOPER JAL

Site: None

Lab ID: 20569692

Matrix: Water

% Moisture: n/a

Description: None

Collected: 11/16/07

Received: 11/17/07

Analyte	Method	Batch	DF	Qu	Result	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Alkalinity, Carbonate (CaCO <sub>3</sub> )	SM 2320B	94464	1		ND	mg/L	10.0	21-Nov-07	21-Nov-07 10:20	TAE
Alkalinity, Hydroxide (CaCO <sub>3</sub> )	SM 2320B	94464	1		255.	mg/L	10.0	21-Nov-07	21-Nov-07 10:20	TAE
Alkalinity, Total	SM 2320B	94464	1		255.	mg/L	10.0	21-Nov-07	21-Nov-07 10:20	TAE
Alkalinity, Bicarbonate (CaCO <sub>3</sub> )	SM 2320B	94464	1		255.	mg/L	10.0	21-Nov-07	21-Nov-07 10:20	TAE
Chloride	SM 4500-Cl	94358	100	D1	4250	mg/L	100.	19-Nov-07	19-Nov-07 13:38	TAE
Nitrogen, Nitrate	SM 4500-N	94789	5	D1	3.90	mg/L	0.500	30-Nov-07	30-Nov-07 11:43	MHM
Sulfate	EPA 375.4	94357	50	D1	602.	mg/L	50.0	19-Nov-07	19-Nov-07 15:12	TAE
Total Dissolved Solids	SM 2540C	94426	1		10900	mg/L	4.00	20-Nov-07	20-Nov-07 15:30	SMS2

8 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit or PQL.  
MDL denotes method detection limit

Limits are corrected for sample size, dilution and moisture content if applicable.  
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.  
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.  
Regulatory limit may denote an actual regulatory limit or a client-requested notification limit.

11/30/2007 17:56:21

Louisiana Dept. of Environmental Quality (LELAP) - 02006  
Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004  
Arkansas Dept. of Environmental Quality - LA050004  
Florida Dept. of Health (NELAC) - E87595  
Kansas Dept. of Health Environmental - E-10266  
Pennsylvania DEP (NELAC) 68-04202  
U.S. Dept. of Agricultural Foreign Soil Permit - S-47270



# Sample Results

**Pace Analytical Services, Inc.**  
 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

**Client:** CRA MIDLAND

**Client ID:** MW 3 111607

**Project:** 2076109

**Project ID:** COOPER JAL

**Site:** None

**Lab ID:** 20569693

**Matrix:** Water

**%Moisture:** n/a

**Description:** None

**Collected:** 11/16/07

**Received:** 11/17/07

Analyte	Method	Batch	DF	Qu	Result	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Alkalinity, Carbonate (CaCO)	SM 2320B	94464	1		ND	mg/L	10.0	21-Nov-07	21-Nov-07 10:20	TAE
Alkalinity, Hydroxide (CaCO)	SM 2320B	94464	1		170.	mg/L	10.0	21-Nov-07	21-Nov-07 10:20	TAE
Alkalinity, Total	SM 2320B	94464	1		170.	mg/L	10.0	21-Nov-07	21-Nov-07 10:20	TAE
Alkalinity,Bicarbonate (CaCO3)	SM 2320B	94464	1		170.	mg/L	10.0	21-Nov-07	21-Nov-07 10:20	TAE
Chloride	SM 4500-Cl	94358	1		39.7	mg/L	1.00	19-Nov-07	19-Nov-07 11:49	TAE
Nitrogen, Nitrate	SM 4500-N	94789	1		1.58	mg/L	0.100	30-Nov-07	30-Nov-07 11:44	MHM
Sulfate	EPA 375.4	94357	5	D1	88.2	mg/L	5.00	19-Nov-07	19-Nov-07 11:55	TAE
Total Dissolved Solids	SM 2540C	94426	1		570.	mg/L	4.00	20-Nov-07	20-Nov-07 15:30	SMS2

8 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit or PQL.  
 MDL denotes method detection limit

Limits are corrected for sample size, dilution and moisture content if applicable.  
 Qu lists qualifiers. Specific qualifiers are defined at the end of the report.  
 For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.  
 Regulatory limit may denote an actual regulatory limit or a client-requested notification limit.

11/30/2007 17:56:21

Louisiana Dept. of Environmental Quality (LELAP) - 02006  
 Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004  
 Arkansas Dept. of Environmental Quality - LA050004  
 Florida Dept. of Health (NELAC) - E87595  
 Kansas Dept. of Health Environmental - E-10266  
 Pennsylvania DEP (NELAC) 68-04202  
 U.S. Dept. of Agricultural Foreign Soil Permit - S-47270

# Sample Results

**Pace Analytical Services, Inc.**  
 1000 Riverbend Blvd, Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006



Client: CRA MIDLAND

Client ID: MW 12 111607

Project: 2076109

Project ID: COOPER JAL

Site: None

Lab ID: 20569694

Matrix: Water

%Moisture: n/a

Description: None

Collected: 11/16/07

Received: 11/17/07

Analyte	Method	Batch	DF	Qu	Result	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Alkalinity, Carbonate (CaCO)	SM 2320B	94464	1		ND	mg/L	10.0	21-Nov-07	21-Nov-07 10:20	TAE
Alkalinity, Hydroxide (CaCO)	SM 2320B	94464	1		170.	mg/L	10.0	21-Nov-07	21-Nov-07 10:20	TAE
Alkalinity, Total	SM 2320B	94464	1		170.	mg/L	10.0	21-Nov-07	21-Nov-07 10:20	TAE
Alkalinity, Bicarbonate (CaCO <sub>3</sub> )	SM 2320B	94464	1		170.	mg/L	10.0	21-Nov-07	21-Nov-07 10:20	TAE
Chloride	SM 4500-Cl	94358	10	D1	258.	mg/L	10.0	19-Nov-07	19-Nov-07 12:00	TAE
Nitrogen, Nitrate	SM 4500-N	94789	1		1.55	mg/L	0.100	30-Nov-07	30-Nov-07 11:45	MHM
Sulfate	EPA 375.4	94357	5	D1	191.	mg/L	5.00	19-Nov-07	19-Nov-07 11:55	TAE
Total Dissolved Solids	SM 2540C	94426	1		1270	mg/L	4.00	20-Nov-07	20-Nov-07 15:30	SMS2

8 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit or PQL.  
 MDL denotes method detection limit

Limits are corrected for sample size, dilution and moisture content if applicable.  
 Qu lists qualifiers. Specific qualifiers are defined at the end of the report.  
 For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.  
 Regulatory limit may denote an actual regulatory limit or a client-requested notification limit.

11/30/2007 17:56:21

Louisiana Dept. of Environmental Quality (LELAP) - 02006  
 Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004  
 Arkansas Dept. of Environmental Quality - LA050004  
 Florida Dept. of Health (NELAC) - E87595  
 Kansas Dept. of Health Environmental - E-10266  
 Pennsylvania DEP (NELAC) 68-04202  
 U.S. Dept. of Agricultural Foreign Soil Permit - S-47270



# Sample Results

**Pace Analytical Services, Inc.**  
 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

Client: CRA MIDLAND

Client ID: MW 13 111607

Project: 2076109

Project ID: COOPER JAL

Site: None

Lab ID: 20569695

Matrix: Water

% Moisture: n/a

Description: None

Collected: 11/16/07

Received: 11/17/07

Analyte	Method	Batch	DF	Qu	Result	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Alkalinity, Carbonate (CaCO)	SM 2320B	94464	1		ND	mg/L	10.0	21-Nov-07	21-Nov-07 10:20	TAE
Alkalinity, Hydroxide (CaCO)	SM 2320B	94464	1		236.	mg/L	10.0	21-Nov-07	21-Nov-07 10:20	TAE
Alkalinity, Total	SM 2320B	94464	1		236.	mg/L	10.0	21-Nov-07	21-Nov-07 10:20	TAE
Alkalinity, Bicarbonate (CaCO <sub>3</sub> )	SM 2320B	94464	1		236.	mg/L	10.0	21-Nov-07	21-Nov-07 10:20	TAE
Chloride	SM 4500-Cl	94358	10	D1	2000	mg/L	10.0	19-Nov-07	19-Nov-07 13:29	TAE
Nitrogen, Nitrate	SM 4500-N	94789	5	D1	3.05	mg/L	0.500	30-Nov-07	30-Nov-07 13:14	MHM
Sulfate	EPA 375.4	94357	50	D1	312.	mg/L	50.0	19-Nov-07	19-Nov-07 15:12	TAE
Total Dissolved Solids	SM 2540C	94426	1		6320	mg/L	4.00	20-Nov-07	20-Nov-07 15:30	SMS2

8 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit or PQL.  
 MDL denotes method detection limit

Limits are corrected for sample size, dilution and moisture content if applicable.  
 Qu lists qualifiers. Specific qualifiers are defined at the end of the report.  
 For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.  
 Regulatory limit may denote an actual regulatory limit or a client-requested notification limit.

11/30/2007 17:56:22

Louisiana Dept. of Environmental Quality (LELAP) - 02006  
 Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004  
 Arkansas Dept. of Environmental Quality - LA050004  
 Florida Dept. of Health (NELAC) - E87595  
 Kansas Dept. of Health Environmental - E-10266  
 Pennsylvania DEP (NELAC) 68-04202  
 U.S. Dept. of Agricultural Foreign Soil Permit - S-47270



# Inorganics Quality Control

**Pace Analytical Services, Inc.**  
 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

Project: 2076109

Parameter	Batch	Blank	ARL	Units	LCS Spike	LCS Found	LCS %Rec	MS Spike	Sample Found	MS Found	MSD Found	MS %Rec	MSD %Rec	MSD RPD	DUP RPD	QC Limits	Max RPD	Qu	
Calcium, Diss	94708	ND	100	ug/L	10000	10610	106	10000	49500.00	443200	456100	0 *	66 *	3 *		78 - 118	75 - 158	2	Q3
Magnesium, D	94708	ND	100	ug/L	10000	10510	105	10000	51600.00	155800	157300	41 *	56 *	1		78 - 116	75 - 135	3	Q3
Potassium, Dis	94708	ND	100	ug/L	10000	10450	105	10000	16170.00	26150	26470	100	103	1		77 - 117	21 - 149	2	
Sodium, Disso	94708	ND	100	ug/L	10000	10230	102	10000	08000.00	1047000	1024000	0 *	0 *	2		76 - 121	75 - 190	2	Q3

\* denotes recovery outside of QC limits.

ND denotes Not Detected at or above the adjusted reporting limit or PQL.

MS/MSD RPD is calculated via SW-846 rules on the basis of spiked sample concentrations rather than spike recoveries.

11/30/2007 17:56:24

Louisiana Dept. of Environmental Quality (LELAP) - 02006  
 Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004  
 Arkansas Dept. of Environmental Quality - LA050004  
 Florida Dept. of Health (NELAC) - E87595  
 Kansas Dept. of Health Environmental - E-10266  
 Pennsylvania DEP (NELAC) 68-04202  
 U.S. Dept. of Agricultural Foreign Soil Permit - S-47270



# Inorganics Quality Control

**Pace Analytical Services, Inc.**  
 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

Project: 2076109

Parameter	Batch	Blank	ARL	Units	LCS Spike	LCS Found	LCS %Rec	MS Spike	Sample Found	MS Found	MSD Found	MS %Rec	MSD %Rec	MSD RPD	DUP RPD	QC Limits		Max RPD	Qu
Sulfate	94357	ND	1.00	mg/L	34.2	33.24	97	10	602.40	546.8		0 *		1	90 - 110	75 - 125	20	D1, Q3	
Chloride	94358	ND	1.00	mg/L	72.1	75.94	105	100	4253.00	4168		0 *		1	90 - 110	75 - 125	20	D1, Q3	
Total Dissolve	94426	ND	4.00	mg/L	100	114	114		10940.00					1	80 - 120	-	20		
Alkalinity, Tot	94464			mg/L	50	48	96		1447.00					15	90 - 110	-	20		
Nitrogen, Nitr	94789	ND	0.100	mg/L				1	0.07	1.008		94		0	-	80 - 120	20		
Nitrogen, Nitr	94789			mg/L	1.21	1.135	94								90 - 110	-			

\* denotes recovery outside of QC limits.

ND denotes Not Detected at or above the adjusted reporting limit or PQL.

MS/MSD RPD is calculated via SW-846 rules on the basis of spiked sample concentrations rather than spike recoveries.

11/30/2007 17:56:27

Louisiana Dept. of Environmental Quality (LELAP) - 02006  
 Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004  
 Arkansas Dept. of Environmental Quality - LA050004  
 Florida Dept. of Health (NELAC) - E87595  
 Kansas Dept. of Health Environmental - E-10266  
 Pennsylvania DEP (NELAC) 68-04202  
 U.S. Dept. of Agricultural Foreign Soil Permit - S-47270

## Qualifier Summary



**Pace Analytical Services, Inc.**

1000 Riverbend Blvd. Suite F  
St. Rose, LA 70087

Phone: 504.469.0333

Fax: 504.469.0555

LELAP # 02006

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**Project:** 2076109

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Qualifier	Qualifier Description
D1	The analysis was performed at a dilution due to the high analyte concentration.
Q3	The matrix spike recoveries are poor due to the presence of this analyte in the sample at a concentration greater than 4 times the spiked amount. Acceptable method performance for this analyte has been demonstrated by the laboratory control sample.

---

11/30/2007 17:56:30

Louisiana Dept. of Environmental Quality (LELAP) - 02006

Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004

Arkansas Dept. of Environmental Quality - LA050004

Florida Dept. of Health (NELAC) - E87595

Kansas Dept. of Health Environmental - E-10266

Pennsylvania DEP (NELAC) 68-04202

U.S. Dept. of Agricultural Foreign Soil Permit - S-47270



1000 Riverbend Blvd., Suite F  
St. Rose, LA 70087

Sample Condition

2076109 20-CHEV\_CRAT



Courier:  Pace Courier  Hackbarth  Fed X  UPS  DHL  USPS  Customer  Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact:  Yes  No

Thermometer Used:  Therm Fisher IR 1  
 Therm Fisher IR 2

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 11-17-07

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3
Chain of Custody Relinquished:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6
Sufficient Volume:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7
Correct Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	9 <i>lab filter</i>
Sample Labels match COC:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10
All containers received within manufacture's precautionary and/or expiration dates.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11
All containers needing preservation have been checked (except VOA, coliform, & O&G).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12
All containers preservation checked found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13 If No, was preservative added? <input type="checkbox"/> Yes <input type="checkbox"/> No If added record lot no.: HNO3 _____ H2SO4 _____
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	17
Pace Trip Blank Lot # (if purchased):	<u>N/A</u>	18

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_

Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_





**Central Analytical Laboratories**

2315 N. Causeway Blvd. Suite 150, Metairie, LA 70001  
(504) 297-3400 Toll Free: (866) 388-3400 Fax: (504) 297-3410

**DELIVER TO:** Pace Analytical Services, Inc.  
1000 Riverbend Blvd  
Suite F  
St. Rose, LA 70087  
Attn: Karen Brown

---

**REPORT OF ANALYSIS**

ANALYSES PERFORMED BY  
**Central Analytical Laboratories**

Report Date : 11/26/2007  
Report Number : E2076109

---



**Central Analytical Laboratories**

Client: Pace Analytical Services, Inc.

Report Number: E2076109

**Sample Description Summary**

Sample Description	Matrix	Collection Date/Time	CAL Sample ID	Submittal Date/Time
20569692 - MW1 111607	WATER	11/16/2007 11:30	CE33173	11/20/2007 11:15
20569693 - MW3 111607	WATER	11/16/2007 11:15	CE33174	11/20/2007 11:15
20569694 - MW12 111607	WATER	11/16/2007 10:55	CE33175	11/20/2007 11:15
20569695 - MW13 111607	WATER	11/16/2007 10:30	CE33176	11/20/2007 11:15



**Central Analytical Laboratories**



**Client:** Pace Analytical Services, Inc.

**Report Number:** E2076109

Sample analyses are performed according to U. S. Environmental Protection Agency approved methods, or of methods cited in this report. Any deviations from, additions to, or exclusions from the designated test method noted in the "CASE NARRATIVE". Unless noted in the "CASE NARRATIVE", all quality control criteria within method control limits.

Results contained herein apply only to the item(s) tested.

If chain of custody documentation was provided, it is documented as an attachment to this report.

Central Analytical Laboratories reserves the right to subcontract those tests for which we are not capable or accredited. Tests which are subcontracted are indicated on the Test Report as "SUB" under the Analyst head

Unless client requests otherwise, all samples will be stored for thirty days after the issue of an Analytical Repo

Central Analytical Laboratories is accredited by the Louisiana Environmental Laboratory Accreditation Program (LELAP). The results shown in this report are certified to be in accordance with the terms of LAC 33:I unless otherwise stated. Analyses for which Central Analytical Laboratories is not accredited, or which have been subcontracted to an unaccredited laboratory are noted in this report; such results are not covered by our accreditation.

This report shall not be reproduced except in full, without written approval by Central Analytical Laboratories. All results are considered confidential by Central Analytical Laboratories.

  
\_\_\_\_\_  
**John M. Reuther**  
Laboratory Manager



## Central Analytical Laboratories

2315 N. Causeway Blvd., Suite 150, Metairie, LA 70001  
(504) 297-3400 Toll Free: (866) 388-3400 Fax: (504) 297-3410

Client: Pace Analytical Services, Inc.

Report Number : E2076109

### CASE NARRATIVE

#### INORGANIC QUALITY CONTROL

**Holding Times:** All holding times were within method criteria.

**Method Blanks:** All method blanks were found to be within quality control criteria for the method.

**Spike/Duplicate:** Spike and Duplicate recoveries were found to be within acceptable limits of precision and accuracy.

**Laboratory Quality Control Samples:** All analyses met the quality control criteria of the method.

**Calibration Verifications:** All criteria established for the method were met.

**Analysis Comments:** The quantitative results of Fluoride for CE33174-CE33176 are below the lowest calibration standard of 2.00 mg/L. The results of samples are reported and qualified by the following data from batch FLRIDL-18452: 1) Acceptable (LRB) Lab Reagent Blank (<2 times MDL), 2) Acceptable analyte recovery of the (LCS) Lab Control Sample (99.8%), 3) Acceptable analyte recovery of the (CCV) Continuing Calibration Verification standard at the end of sample batch (101%), 4) Acceptable analyte recovery of Laboratory Fortified Matrix (LFM) samples (average recovery of 95%) and the relative percent deviation between the LFM sample duplicates (1.91%).

#### ORGANIC QUALITY CONTROL

**Holding Times:** All holding times were within method criteria.

**Method Blanks:** All method blanks were found to be within quality control criteria for the method.

**Spike/Duplicate:** Spike and Duplicate recoveries were found to be within acceptable limits of precision and accuracy.

**Laboratory Quality Control Samples:** All analyses met the quality control criteria of the method.

**Calibration Verifications:** All criteria established for the method were met.

**Analysis Comments:**

Report Date : 11/26/2007

Page 4 of 9



### Analysis Results

**Description:** 20569692 - MW1 111607

**Sampled By:** N. MILLER

**CAL Number:** CE33173

**Sample Date:** 11/16/2007

**Submit Date:** 11/20/2007

**Sample Time:** 11:30 AM

**Submit Time:** 11:15 AM

**Sample Type:** WATER

**Methodology:** Standard Methods for the Examination of Water and Wastewater, APHA, 20th Edition  
Methods for Chemical Analysis of Water and Waste, EPA-600/4-79-020, March 1983  
Test Methods for Evaluating Solid Waste, Physical, Chemical Methods, EPA SW-846, Third Edition, July 1992

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Analyte	Result	Units	MDL	Method	Analyst	Start Date	End Date
Fluoride	3.7	mg/L	0.05	340.2	CB	11/20/2007 11:00	11/20/2007



### Analysis Results

**Description:** 20569693 - MW3 111607  
**CAL Number:** CE33174  
**Submit Date:** 11/20/2007  
**Submit Time:** 11:15 AM  
**Methodology:** Standard Methods for the Examination of Water and Wastewater, APHA, 20th Edition  
Methods for Chemical Analysis of Water and Waste, EPA-600/4-79-020, March 1983  
Test Methods for Evaluating Solid Waste, Physical, Chemical Methods, EPA SW-846, Third Edition, July 1992

**Sampled By:** N. MILLER  
**Sample Date:** 11/16/2007  
**Sample Time:** 11:15 AM  
**Sample Type:** WATER

---

Analyte	Result	Units	MDL	Method	Analyst	Start Date	End Date
Fluoride	0.93	mg/L	0.05	340.2	CB	11/20/2007 11:00	11/20/2007



### Analysis Results

**Description:** 20569694 - MW12 111607  
**CAL Number:** CE33175  
**Submit Date:** 11/20/2007  
**Submit Time:** 11:15 AM  
**Methodology:** Standard Methods for the Examination of Water and Wastewater, APHA, 20th Edition  
Methods for Chemical Analysis of Water and Waste, EPA-600/4-79-020, March 1983  
Test Methods for Evaluating Solid Waste, Physical, Chemical Methods, EPA SW-846, Third Edition, July 1992

**Sampled By:** N. MILLER  
**Sample Date:** 11/16/2007  
**Sample Time:** 10:55 AM  
**Sample Type:** WATER

---

Analyte	Result	Units	MDL	Method	Analyst	Start Date	End Date
Fluoride	1.21	mg/L	0.05	340.2	CB	11/20/2007 11:00	11/20/2007



### Analysis Results

**Description:** 20569695 - MW13 111607  
**CAL Number:** CE33176  
**Submit Date:** 11/20/2007  
**Submit Time:** 11:15 AM  
**Methodology:** Standard Methods for the Examination of Water and Wastewater, APHA, 20th Edition  
Methods for Chemical Analysis of Water and Waste, EPA-600/4-79-020, March 1983  
Test Methods for Evaluating Solid Waste, Physical, Chemical Methods, EPA SW-846, Third Edition, July 1992

**Sampled By:** N. MILLER  
**Sample Date:** 11/16/2007  
**Sample Time:** 10:30 AM  
**Sample Type:** WATER

---

Analyte	Result	Units	MDL	Method	Analyst	Start Date	End Date
Fluoride	0.33	mg/L	0.05	340.2	CB	11/20/2007 11:00	11/20/2007



### QC Batch Results

**Fluoride**

Batch Name: FLRIDL-18452      Batch Number: 18452      QA Sample ID: CE32754

AnalysisStartDate 11/20/2007      AnalysisEndDate 11/20/2007  
AnalysisStartTime 11:00 AM      Analyst: CB

Fluoride	1.49	mg/L
Fluoride - LFM Result	11.10	mg/L
Fluoride - LFM Dupl Result	10.89	mg/L
Fluoride - Blank	Not detected	mg/L
Fluoride-LFM Amount	10.00	mg/L
Fluoride - LFM % Recovery	95.0	%
Fluoride-Relative % Dev	1.9	%
Fluoride - LCS Result	4.99	mg/L
Fluoride - LCS Amount	5.00	mg/L
Fluoride - LCS % Recovery	99.8	%





**Pace Analytical Services, Inc.**  
1000 Riverbend Blvd. Suite F  
St. Rose, LA 70087  
Phone: 504.469.0333  
Fax: 504.469.0555  
LELAP # 02006

November 30, 2007

Luke Markham  
CRA  
2135 S. Loop 250 West  
Midland, TX 79701

RE: Project: 2076025  
RE: Project ID: COOPER JAL/039123

Dear Luke Markham:

Enclosed are the analytical results for sample(s) received by the laboratory on November 15, 2007. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Cindy Olavesen



**REPORT OF LABORATORY ANALYSIS**

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# Sample Cross Reference

**Pace Analytical Services, Inc.**  
1000 Riverbend Blvd. Suite F  
St. Rose, LA 70087  
Phone: 504.469.0333  
Fax: 504.469.0555  
LELAP # 02006

Project: 2076025

Client: CRA MIDLAND

Project ID: COOPER JAL/039123

Client Sample ID	Lab ID	Matrix	Collection Date/Time	Received Date/Time
MW 2 111407	20569168	Water	11/14/07 14:10	11/15/07 10:00
MW 2A 111407	20569169	Water	11/14/07 14:10	11/15/07 10:00
MW 4 111407	20569170	Water	11/14/07 12:50	11/15/07 10:00
MW 4A 111407	20569171	Water	11/14/07 12:50	11/15/07 10:00
MW 5 111407	20569172	Water	11/14/07 13:35	11/15/07 10:00
MW 5A 111407	20569173	Water	11/14/07 13:35	11/15/07 10:00
MW 9 111407	20569174	Water	11/14/07 12:00	11/15/07 10:00
MW 9A 111407	20569175	Water	11/14/07 12:00	11/15/07 10:00
MW 11 111407	20569176	Water	11/14/07 11:30	11/15/07 10:00

11/30/2007 11:25:45

Louisiana Dept. of Environmental Quality (LELAP) - 02006  
Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004  
Arkansas Dept. of Environmental Quality - LA050004  
Florida Dept. of Health (NELAC) - E87595  
Kansas Dept. of Health Environmental - E-10266  
Pennsylvania DEP (NELAC) 68-04202  
U.S. Dept. of Agricultural Foreign Soil Permit - S-47270

## Project Narrative



**Pace Analytical Services, Inc.**  
1000 Riverbend Blvd. Suite F  
St. Rose, LA 70087  
Phone: 504.469.0333  
Fax: 504.469.0555  
LELAP # 02006

---

Project: 2076025

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Sample Receipt Condition:

All samples were received in accordance with EPA protocol.

Holding Times:

All holding times were met.

Blanks:

All blank results were below reporting limits.

Laboratory Control Samples:

All LCS recoveries were within QC limits.

Matrix Spikes and Duplicates:

MS or MSD recoveries outside of QC limits are qualified in the Report of Quality Control section.



## Project Narrative

**Pace Analytical Services, Inc.**  
1000 Riverbend Blvd. Suite F  
St. Rose, LA 70087  
Phone: 504.469.0333  
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LELAP # 02006

---

Project: 2076025

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Analytical Method	Batch	Sample used for QC
EPA 6010	94708	Project sample MW 2 111407
SM 2540C	94285	Batch sample from another client
SM 2320B	94300	Batch sample from another client
EPA 375.4	94224	Batch sample from another client
SM 4500-CI E	94225	Batch sample from another client
SM 4500-NO3 F	94292	Batch sample from another client
SM 4500-NO3 F	94293	Project sample MW 9A 111407

11/30/2007 11:26:20

For the sample used as the original for the DUP or MS/MSD for the batch:

Project sample means a sample from this project was used.

Client sample means a sample from the same client but in a different project was used.

Batch sample means a sample from the a different client was used.



# Sample Results

**Pace Analytical Services, Inc.**  
 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

Client: CRA MIDLAND

Client ID: MW 2 111407      Project: 2076025  
 Project ID: COOPER JAL/039123      Site: None  
 Lab ID: 20569168      Matrix: Water      %Moisture: n/a  
 Description: None      Collected: 11/14/07      Received: 11/15/07

Analyte	Method	Batch	DF	Qu	Result	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Calcium, Dissolved	EPA 6010	94708	1		449000	ug/L	5000	28-Nov-07	29-Nov-07 14:35	KJR
Magnesium, Dissolved	EPA 6010	94708	1		152000	ug/L	5000	28-Nov-07	29-Nov-07 14:35	KJR
Potassium, Dissolved	EPA 6010	94708	1		16200	ug/L	5000	28-Nov-07	29-Nov-07 14:35	KJR
Sodium, Dissolved	EPA 6010	94708	5	DI	1310000	ug/L	25000	28-Nov-07	29-Nov-07 23:31	KJR

4 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit or PQL.  
 MDL denotes method detection limit

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 Qu lists qualifiers. Specific qualifiers are defined at the end of the report.  
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 Regulatory limit may denote an actual regulatory limit or a client-requested notification limit.

11/30/2007 11:26:23

Louisiana Dept. of Environmental Quality (LELAP) - 02006  
 Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004  
 Arkansas Dept. of Environmental Quality - LA050004  
 Florida Dept. of Health (NELAC) - E87595  
 Kansas Dept. of Health Environmental - E-10266  
 Pennsylvania DEP (NELAC) 68-04202  
 U.S. Dept. of Agricultural Foreign Soil Permit - S-47270



# Sample Results

**Pace Analytical Services, Inc.**  
 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

Client: CRA MIDLAND

Client ID: MW 2A 111407  
 Project ID: COOPER JAL/039123  
 Lab ID: 20569169  
 Description: None

Project: 2076025  
 Site: None  
 Matrix: Water      % Moisture: n/a  
 Collected: 11/14/07      Received: 11/15/07

Analyte	Method	Batch	DF	Qu	Result	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Calcium, Dissolved	EPA 6010	94708	1		66600	ug/L	5000	28-Nov-07	29-Nov-07 14:56	KJR
Magnesium, Dissolved	EPA 6010	94708	1		15300	ug/L	5000	28-Nov-07	29-Nov-07 14:56	KJR
Potassium, Dissolved	EPA 6010	94708	1		ND	ug/L	5000	28-Nov-07	29-Nov-07 14:56	KJR
Sodium, Dissolved	EPA 6010	94708	1		45400	ug/L	5000	28-Nov-07	29-Nov-07 23:45	KJR

4 parameter(s) reported

11/30/2007 11:26:23

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# Sample Results

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 Phone: 504.469.0333  
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 LELAP # 02006



Client: CRA MIDLAND

Client ID: MW 4 111407      Project: 2076025  
 Project ID: COOPER JAL/039123      Site: None  
 Lab ID: 20569170      Matrix: Water      %Moisture: n/a  
 Description: None      Collected: 11/14/07      Received: 11/15/07

Analyte	Method	Batch	DF	Qu	Result	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Calcium, Dissolved	EPA 6010	94708	1		1170000	ug/L	5000	28-Nov-07	29-Nov-07 15:01	KJR
Magnesium, Dissolved	EPA 6010	94708	1		382000	ug/L	5000	28-Nov-07	29-Nov-07 15:01	KJR
Potassium, Dissolved	EPA 6010	94708	1		48000	ug/L	5000	28-Nov-07	29-Nov-07 15:01	KJR
Sodium, Dissolved	EPA 6010	94708	5	D1	4760000	ug/L	25000	28-Nov-07	30-Nov-07 09:14	KJR

4 parameter(s) reported

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# Sample Results

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 Phone: 504.469.0333  
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 LELAP # 02006



Client: CRA MIDLAND

Client ID: MW 4A 111407

Project: 2076025

Project ID: COOPER JAL/039123

Site: None

Lab ID: 20569171

Matrix: Water

% Moisture: n/a

Description: None

Collected: 11/14/07

Received: 11/15/07

Analyte	Method	Batch	DF	Qu	Result	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Calcium, Dissolved	EPA 6010	94708	1		205000	ug/L	5000	28-Nov-07	29-Nov-07 15:06	KJR
Magnesium, Dissolved	EPA 6010	94708	1		44900	ug/L	5000	28-Nov-07	29-Nov-07 15:06	KJR
Potassium, Dissolved	EPA 6010	94708	1		7330	ug/L	5000	28-Nov-07	29-Nov-07 15:06	KJR
Sodium, Dissolved	EPA 6010	94708	1		334000	ug/L	5000	28-Nov-07	29-Nov-07 23:49	KJR

4 parameter(s) reported

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 MDL denotes method detection limit

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11/30/2007 11:26:23

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# Sample Results

**Pace Analytical Services, Inc.**  
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 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

Client: CRA MIDLAND

Client ID: MW 5 111407

Project: 2076025

Project ID: COOPER JAL/039123

Site: None

Lab ID: 20569172

Matrix: Water

% Moisture: n/a

Description: None

Collected: 11/14/07

Received: 11/15/07

Analyte	Method	Batch	DF	Qu	Result	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Calcium, Dissolved	EPA 6010	94708	1		812000	ug/L	5000	28-Nov-07	29-Nov-07 15:11	KJR
Magnesium, Dissolved	EPA 6010	94708	1		240000	ug/L	5000	28-Nov-07	29-Nov-07 15:11	KJR
Potassium, Dissolved	EPA 6010	94708	1		23300	ug/L	5000	28-Nov-07	29-Nov-07 15:11	KJR
Sodium, Dissolved	EPA 6010	94708	5	D1	1850000	ug/L	25000	28-Nov-07	30-Nov-07 09:21	KJR

4 parameter(s) reported

11/30/2007 11:26:23

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 MDL denotes method detection limit

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# Sample Results

**Pace Analytical Services, Inc.**  
 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

Client: CRA MIDLAND

Client ID: MW 5A 111407

Project: 2076025

Project ID: COOPER JAL/039123

Site: None

Lab ID: 20569173

Matrix: Water

% Moisture: n/a

Description: None

Collected: 11/14/07

Received: 11/15/07

Analyte	Method	Batch	DF	Qu	Result	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Calcium, Dissolved	EPA 6010	94708	1		73700	ug/L	5000	28-Nov-07	29-Nov-07 15:26	KJR
Magnesium, Dissolved	EPA 6010	94708	1		14000	ug/L	5000	28-Nov-07	29-Nov-07 15:26	KJR
Potassium, Dissolved	EPA 6010	94708	1		ND	ug/L	5000	28-Nov-07	29-Nov-07 15:26	KJR
Sodium, Dissolved	EPA 6010	94708	1		44200	ug/L	5000	28-Nov-07	29-Nov-07 23:53	KJR

4 parameter(s) reported

11/30/2007 11:26:23

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Louisiana Dept. of Environmental Quality (LELAP) - 02006  
 Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004  
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 Pennsylvania DEP (NELAC) 68-04202  
 U.S. Dept. of Agricultural Foreign Soil Permit - S-47270



# Sample Results

**Pace Analytical Services, Inc.**  
 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

Client: CRA MIDLAND

Client ID: MW 9 111407      Project: 2076025  
 Project ID: COOPER JAL/039123      Site: None  
 Lab ID: 20569174      Matrix: Water      % Moisture: n/a  
 Description: None      Collected: 11/14/07      Received: 11/15/07

Analyte	Method	Batch	DF	Qu	Result	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Calcium, Dissolved	EPA 6010	94708	1		74100	ug/L	5000	28-Nov-07	29-Nov-07 15:32	KJR
Magnesium, Dissolved	EPA 6010	94708	1		39400	ug/L	5000	28-Nov-07	29-Nov-07 15:32	KJR
Potassium, Dissolved	EPA 6010	94708	1		8730	ug/L	5000	28-Nov-07	29-Nov-07 15:32	KJR
Sodium, Dissolved	EPA 6010	94708	1		141000	ug/L	5000	28-Nov-07	29-Nov-07 23:57	KJR

4 parameter(s) reported

11/30/2007 11:26:23

ND denotes Not Detected at or above the adjusted reporting limit or PQL.  
 MDL denotes method detection limit

Limits are corrected for sample size, dilution and moisture content if applicable.  
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Louisiana Dept. of Environmental Quality (LELAP) - 02006  
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 Kansas Dept. of Health Environmental - E-10266  
 Pennsylvania DEP (NELAC) 68-04202  
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# Sample Results

**Pace Analytical Services, Inc.**  
 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

Client: CRA MIDLAND

Client ID: MW 9A 111407  
 Project ID: COOPER JAL/039123  
 Lab ID: 20569175  
 Description: None

Project: 2076025  
 Site: None  
 Matrix: Water      %Moisture: n/a  
 Collected: 11/14/07      Received: 11/15/07

Analyte	Method	Batch	DF	Qu	Result	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Calcium, Dissolved	EPA 6010	94708	1		153000	ug/L	5000	28-Nov-07	29-Nov-07 15:38	KJR
Magnesium, Dissolved	EPA 6010	94708	1		35400	ug/L	5000	28-Nov-07	29-Nov-07 15:38	KJR
Potassium, Dissolved	EPA 6010	94708	1		5030	ug/L	5000	28-Nov-07	29-Nov-07 15:38	KJR
Sodium, Dissolved	EPA 6010	94708	1		70700	ug/L	5000	28-Nov-07	30-Nov-07 00:02	KJR

4 parameter(s) reported

11/30/2007 11:26:23

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Louisiana Dept. of Environmental Quality (LELAP) - 02006  
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 Arkansas Dept. of Environmental Quality - LA050004  
 Florida Dept. of Health (NELAC) - E87595  
 Kansas Dept. of Health Environmental - E-10266  
 Pennsylvania DEP (NELAC) 68-04202  
 U.S. Dept. of Agricultural Foreign Soil Permit - S-47270



# Sample Results

**Pace Analytical Services, Inc.**  
 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

Client: CRA MIDLAND

Client ID: MW 11 111407  
 Project ID: COOPER JAL/039123  
 Lab ID: 20569176  
 Description: None

Project: 2076025  
 Site: None  
 Matrix: Water      % Moisture: n/a  
 Collected: 11/14/07      Received: 11/15/07

Analyte	Method	Batch	DF	Qu	Result	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Calcium, Dissolved	EPA 6010	94708	1		57200	ug/L	5000	28-Nov-07	29-Nov-07 15:44	KJR
Magnesium, Dissolved	EPA 6010	94708	1		17400	ug/L	5000	28-Nov-07	29-Nov-07 15:44	KJR
Potassium, Dissolved	EPA 6010	94708	1		ND	ug/L	5000	28-Nov-07	29-Nov-07 15:44	KJR
Sodium, Dissolved	EPA 6010	94708	1		52400	ug/L	5000	28-Nov-07	30-Nov-07 00:14	KJR

4 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit or PQL.  
 MDL denotes method detection limit

Limits are corrected for sample size, dilution and moisture content if applicable.  
 Qu lists qualifiers. Specific qualifiers are defined at the end of the report.  
 For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.  
 Regulatory limit may denote an actual regulatory limit or a client-requested notification limit.

11/30/2007 11:26:23

Louisiana Dept. of Environmental Quality (LELAP) - 02006  
 Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004  
 Arkansas Dept. of Environmental Quality - LA050004  
 Florida Dept. of Health (NELAC) - E87595  
 Kansas Dept. of Health Environmental - E-10266  
 Pennsylvania DEP (NELAC) 68-04202  
 U.S. Dept. of Agricultural Foreign Soil Permit - S-47270



# Sample Results

**Pace Analytical Services, Inc.**  
 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

**Client:** CRA MIDLAND

**Client ID:** MW 2 111407  
**Project ID:** COOPER JAL/039123  
**Lab ID:** 20569168  
**Description:** None

**Project:** 2076025  
**Site:** None  
**Matrix:** Water      **%Moisture:** n/a  
**Collected:** 11/14/07      **Received:** 11/15/07

Analyte	Method	Batch	DF	Qu	Result	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Alkalinity, Carbonate (CaCO <sub>3</sub> )	SM 2320B	94300	1		ND	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Hydroxide (CaCO <sub>3</sub> )	SM 2320B	94300	1		178.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Total	SM 2320B	94300	1		178.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Bicarbonate (CaCO <sub>3</sub> )	SM 2320B	94300	1		178.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Chloride	SM 4500-Cl	94225	100	D1	3280	mg/L	100.	15-Nov-07	15-Nov-07 15:04	TAE
Nitrogen, Nitrate	SM 4500-N	94292	1		1.93	mg/L	0.100	16-Nov-07	16-Nov-07 16:49	MHM
Sulfate	EPA 375.4	94224	50	D1	462.	mg/L	50.0	15-Nov-07	15-Nov-07 14:50	TAE
Total Dissolved Solids	SM 2540C	94285	1		9110	mg/L	4.00	16-Nov-07	16-Nov-07 13:30	SMS2

8 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit or PQL.  
 MDL denotes method detection limit

Limits are corrected for sample size, dilution and moisture content if applicable.  
 Qu lists qualifiers. Specific qualifiers are defined at the end of the report.  
 For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.  
 Regulatory limit may denote an actual regulatory limit or a client-requested notification limit.

11/30/2007 11:26:26  
 Louisiana Dept. of Environmental Quality (LELAP) - 02006  
 Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004  
 Arkansas Dept. of Environmental Quality - LA050004  
 Florida Dept. of Health (NELAC) - E87595  
 Kansas Dept. of Health Environmental - E-10266  
 Pennsylvania DEP (NELAC) 68-04202  
 U.S. Dept. of Agricultural Foreign Soil Permit - S-47270

# Sample Results

**Pace Analytical Services, Inc.**  
 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006



Client: CRA MIDLAND

Client ID: MW 2A 111407  
 Project ID: COOPER JAL/039123  
 Lab ID: 20569169  
 Description: None

Project: 2076025  
 Site: None  
 Matrix: Water      % Moisture: n/a  
 Collected: 11/14/07      Received: 11/15/07

Analyte	Method	Batch	DF	Qu	Result	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Alkalinity, Carbonate (CaCO)	SM 2320B	94300	1		ND	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Hydroxide (CaCO)	SM 2320B	94300	1		170.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Total	SM 2320B	94300	1		170.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Bicarbonate (CaCO <sub>3</sub> )	SM 2320B	94300	1		170.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Chloride	SM 4500-Cl	94225	1		74.6	mg/L	1.00	15-Nov-07	15-Nov-07 14:06	TAE
Nitrogen, Nitrate	SM 4500-N	94292	1		1.51	mg/L	0.100	16-Nov-07	16-Nov-07 16:50	MHM
Sulfate	EPA 375.4	94224	5	D1	66.8	mg/L	5.00	15-Nov-07	15-Nov-07 14:12	TAE
Total Dissolved Solids	SM 2540C	94285	1		504.	mg/L	4.00	16-Nov-07	16-Nov-07 13:30	SMS2

8 parameter(s) reported

11/30/2007 11:26:27

ND denotes Not Detected at or above the adjusted reporting limit or PQL.  
 MDL denotes method detection limit

Limits are corrected for sample size, dilution and moisture content if applicable.  
 Qu lists qualifiers. Specific qualifiers are defined at the end of the report.  
 For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.  
 Regulatory limit may denote an actual regulatory limit or a client-requested notification limit.

Louisiana Dept. of Environmental Quality (LELAP) - 02006  
 Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004  
 Arkansas Dept. of Environmental Quality - LA050004  
 Florida Dept. of Health (NELAC) - E87595  
 Kansas Dept. of Health Environmental - E-10266  
 Pennsylvania DEP (NELAC) 68-04202  
 U.S. Dept. of Agricultural Foreign Soil Permit - S-47270



# Sample Results

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 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

**Client:** CRA MIDLAND

**Client ID:** MW 4 111407

**Project:** 2076025

**Project ID:** COOPER JAL/039123

**Site:** None

**Lab ID:** 20569170

**Matrix:** Water

**%Moisture:** n/a

**Description:** None

**Collected:** 11/14/07

**Received:** 11/15/07

Analyte	Method	Batch	DF	Qu	Result	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Alkalinity, Carbonate (CaCO)	SM 2320B	94300	1		ND	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Hydroxide (CaCO)	SM 2320B	94300	1		255.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Total	SM 2320B	94300	1		255.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Bicarbonate (CaCO <sub>3</sub> )	SM 2320B	94300	1		255.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Chloride	SM 4500-Cl	94225	100	D1	14800	mg/L	100.	15-Nov-07	15-Nov-07 15:44	TAE
Nitrogen, Nitrate	SM 4500-N	94292	5	D1	7.15	mg/L	0.500	16-Nov-07	16-Nov-07 17:57	MHM
Sulfate	EPA 375.4	94224	50	D1	1410	mg/L	50.0	15-Nov-07	15-Nov-07 15:00	TAE
Total Dissolved Solids	SM 2540C	94285	1		36300	mg/L	4.00	16-Nov-07	16-Nov-07 13:30	SMS2

8 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit or PQL.  
 MDL denotes method detection limit

Limits are corrected for sample size, dilution and moisture content if applicable.  
 Qu lists qualifiers. Specific qualifiers are defined at the end of the report.  
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11/30/2007 11:26:27

Louisiana Dept. of Environmental Quality (LELAP) - 02006  
 Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004  
 Arkansas Dept. of Environmental Quality - LA050004  
 Florida Dept. of Health (NELAC) - E87595  
 Kansas Dept. of Health Environmental - E-10266  
 Pennsylvania DEP (NELAC) 68-04202  
 U.S. Dept. of Agricultural Foreign Soil Permit - S-47270



# Sample Results

**Pace Analytical Services, Inc.**  
 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

Client: CRA MIDLAND

Client ID: MW 4A 111407  
 Project ID: COOPER JAL/039123  
 Lab ID: 20569171  
 Description: None

Project: 2076025  
 Site: None  
 Matrix: Water      %Moisture: n/a  
 Collected: 11/14/07      Received: 11/15/07

Analyte	Method	Batch	DF	Qu	Result	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Alkalinity, Carbonate (CaCO <sub>3</sub> )	SM 2320B	94300	1		ND	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Hydroxide (CaCO <sub>3</sub> )	SM 2320B	94300	1		311.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Total	SM 2320B	94300	1		311.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Bicarbonate (CaCO <sub>3</sub> )	SM 2320B	94300	1		311.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Chloride	SM 4500-Cl	94225	10	D1	845.	mg/L	10.0	15-Nov-07	15-Nov-07 14:17	TAE
Nitrogen, Nitrate	SM 4500-N	94292	5	D1	3.60	mg/L	0.500	16-Nov-07	16-Nov-07 17:58	MHM
Sulfate	EPA 375.4	94224	5	D1	167.	mg/L	5.00	15-Nov-07	15-Nov-07 14:12	TAE
Total Dissolved Solids	SM 2540C	94285	1		2650	mg/L	4.00	16-Nov-07	16-Nov-07 13:30	SMS2

8 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit or PQL.  
 MDL denotes method detection limit

Limits are corrected for sample size, dilution and moisture content if applicable.  
 Qu lists qualifiers. Specific qualifiers are defined at the end of the report.  
 For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.  
 Regulatory limit may denote an actual regulatory limit or a client-requested notification limit.

11/30/2007 11:26:27

Louisiana Dept. of Environmental Quality (LELAP) - 02006  
 Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004  
 Arkansas Dept. of Environmental Quality - LA050004  
 Florida Dept. of Health (NELAC) - E87595  
 Kansas Dept. of Health Environmental - E-10266  
 Pennsylvania DEP (NELAC) 68-04202  
 U.S. Dept. of Agricultural Foreign Soil Permit - S-47270



# Sample Results

**Pace Analytical Services, Inc.**  
 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

**Client:** CRA MIDLAND

**Client ID:** MW 5 111407

**Project:** 2076025

**Project ID:** COOPER JAL/039123

**Site:** None

**Lab ID:** 20569172

**Matrix:** Water

**% Moisture:** n/a

**Description:** None

**Collected:** 11/14/07

**Received:** 11/15/07

Analyte	Method	Batch	DF	Qu	Result	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Alkalinity, Carbonate (CaCO)	SM 2320B	94300	1		ND	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Hydroxide (CaCO)	SM 2320B	94300	1		161.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Total	SM 2320B	94300	1		161.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Bicarbonate (CaCO <sub>3</sub> )	SM 2320B	94300	1		161.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Chloride	SM 4500-Cl	94225	100	D1	5790	mg/L	100.	15-Nov-07	15-Nov-07 15:04	TAE
Nitrogen, Nitrate	SM 4500-N	94292	5	D1	4.01	mg/L	0.500	16-Nov-07	16-Nov-07 17:59	MHM
Sulfate	EPA 375.4	94224	50	D1	668.	mg/L	50.0	15-Nov-07	15-Nov-07 15:00	TAE
Total Dissolved Solids	SM 2540C	94285	1		16300	mg/L	4.00	16-Nov-07	16-Nov-07 13:30	SMS2

8 parameter(s) reported

11/30/2007 11:26:27

ND denotes Not Detected at or above the adjusted reporting limit or PQL.  
 MDL denotes method detection limit

Limits are corrected for sample size, dilution and moisture content if applicable.  
 Qu lists qualifiers. Specific qualifiers are defined at the end of the report.  
 For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.  
 Regulatory limit may denote an actual regulatory limit or a client-requested notification limit.

Louisiana Dept. of Environmental Quality (LELAP) - 02006  
 Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004  
 Arkansas Dept. of Environmental Quality - LA050004  
 Florida Dept. of Health (NELAC) - E87595  
 Kansas Dept. of Health Environmental - E-10266  
 Pennsylvania DEP (NELAC) 68-04202  
 U.S. Dept. of Agricultural Foreign Soil Permit - S-47270



# Sample Results

**Pace Analytical Services, Inc.**  
 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

**Client:** CRA MIDLAND

**Client ID:** MW 5A 111407  
**Project ID:** COOPER JAL/039123  
**Lab ID:** 20569173  
**Description:** None

**Project:** 2076025  
**Site:** None  
**Matrix:** Water      **% Moisture:** n/a  
**Collected:** 11/14/07      **Received:** 11/15/07

Analyte	Method	Batch	DF	Qu	Result	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Alkalinity, Carbonate (CaCO <sub>3</sub> )	SM 2320B	94300	1		ND	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Hydroxide (CaCO <sub>3</sub> )	SM 2320B	94300	1		227.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Total	SM 2320B	94300	1		227.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Bicarbonate (CaCO <sub>3</sub> )	SM 2320B	94300	1		227.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Chloride	SM 4500-Cl	94225	1		54.4	mg/L	1.00	15-Nov-07	15-Nov-07 14:06	TAE
Nitrogen, Nitrate	SM 4500-N	94292	1		1.45	mg/L	0.100	16-Nov-07	16-Nov-07 16:56	MHM
Sulfate	EPA 375.4	94224	5	D1	68.7	mg/L	5.00	15-Nov-07	15-Nov-07 14:12	TAE
Total Dissolved Solids	SM 2540C	94285	1		528.	mg/L	4.00	16-Nov-07	16-Nov-07 13:30	SMS2

8 parameter(s) reported

11/30/2007 11:26:27

ND denotes Not Detected at or above the adjusted reporting limit or PQL.  
 MDL denotes method detection limit

Limits are corrected for sample size, dilution and moisture content if applicable.  
 Qu lists qualifiers. Specific qualifiers are defined at the end of the report.  
 For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.  
 Regulatory limit may denote an actual regulatory limit or a client-requested notification limit.

Louisiana Dept. of Environmental Quality (LELAP) - 02006  
 Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004  
 Arkansas Dept. of Environmental Quality - LA050004  
 Florida Dept. of Health (NELAC) - E87595  
 Kansas Dept. of Health Environmental - E-10266  
 Pennsylvania DEP (NELAC) 68-04202  
 U.S. Dept. of Agricultural Foreign Soil Permit - S-47270



# Sample Results

**Pace Analytical Services, Inc.**  
 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

Client: CRA MIDLAND

Client ID: MW 9 111407

Project: 2076025

Project ID: COOPER JAL/039123

Site: None

Lab ID: 20569174

Matrix: Water

%Moisture: n/a

Description: None

Collected: 11/14/07

Received: 11/15/07

Analyte	Method	Batch	DF	Qu	Result	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Alkalinity, Carbonate (CaCO)	SM 2320B	94300	1		ND	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Hydroxide (CaCO)	SM 2320B	94300	1		151.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Total	SM 2320B	94300	1		151.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Bicarbonate (CaCO <sub>3</sub> )	SM 2320B	94300	1		151.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Chloride	SM 4500-Cl	94225	1		186.	mg/L	1.00	15-Nov-07	15-Nov-07 14:07	TAE
Nitrogen, Nitrate	SM 4500-N	94292	1		1.48	mg/L	0.100	16-Nov-07	16-Nov-07 16:57	MHM
Sulfate	EPA 375.4	94224	5	D1	156.	mg/L	5.00	15-Nov-07	15-Nov-07 14:12	TAE
Total Dissolved Solids	SM 2540C	94285	1		808.	mg/L	4.00	16-Nov-07	16-Nov-07 13:30	SMS2

8 parameter(s) reported

11/30/2007 11:26:27

ND denotes Not Detected at or above the adjusted reporting limit or PQL.  
 MDL denotes method detection limit

Limits are corrected for sample size, dilution and moisture content if applicable.  
 Qu lists qualifiers. Specific qualifiers are defined at the end of the report.  
 For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.  
 Regulatory limit may denote an actual regulatory limit or a client-requested notification limit.

Louisiana Dept. of Environmental Quality (LELAP) - 02006  
 Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004  
 Arkansas Dept. of Environmental Quality - LA050004  
 Florida Dept. of Health (NELAC) - E87595  
 Kansas Dept. of Health Environmental - E-10266  
 Pennsylvania DEP (NELAC) 68-04202  
 U.S. Dept. of Agricultural Foreign Soil Permit - S-47270



# Sample Results

**Pace Analytical Services, Inc.**  
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 Phone: 504.469.0333  
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 LELAP # 02006

Client: CRA MIDLAND

Client ID: MW 9A 111407  
 Project ID: COOPER JAL/039123  
 Lab ID: 20569175  
 Description: None

Project: 2076025  
 Site: None  
 Matrix: Water      %Moisture: n/a  
 Collected: 11/14/07      Received: 11/15/07

Analyte	Method	Batch	DF	Qu	Result	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Alkalinity, Carbonate (CaCO)	SM 2320B	94300	1		ND	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Hydroxide (CaCO)	SM 2320B	94300	1		605.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Total	SM 2320B	94300	1		605.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Bicarbonate (CaCO <sub>3</sub> )	SM 2320B	94300	1		605.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Chloride	SM 4500-Cl	94225	10	D1	285.	mg/L	10.0	15-Nov-07	15-Nov-07 14:17	TAE
Nitrogen, Nitrate	SM 4500-N	94293	1		1.52	mg/L	0.100	16-Nov-07	16-Nov-07 17:00	MHM
Sulfate	EPA 375.4	94224	5	D1	64.7	mg/L	5.00	15-Nov-07	15-Nov-07 14:12	TAE
Total Dissolved Solids	SM 2540C	94285	1		1430	mg/L	4.00	16-Nov-07	16-Nov-07 13:30	SMS2

8 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit or PQL.  
 MDL denotes method detection limit

Limits are corrected for sample size, dilution and moisture content if applicable.  
 Qu lists qualifiers. Specific qualifiers are defined at the end of the report.  
 For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.  
 Regulatory limit may denote an actual regulatory limit or a client-requested notification limit.

11/30/2007 11:26:27

Louisiana Dept. of Environmental Quality (LELAP) - 02006  
 Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004  
 Arkansas Dept. of Environmental Quality - LA050004  
 Florida Dept. of Health (NELAC) - E87595  
 Kansas Dept. of Health Environmental - E-10266  
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# Sample Results

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 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

Client: CRA MIDLAND

Client ID: MW 11 111407  
 Project ID: COOPER JAL/039123  
 Lab ID: 20569176  
 Description: None

Project: 2076025  
 Site: None  
 Matrix: Water      %Moisture: n/a  
 Collected: 11/14/07      Received: 11/15/07

Analyte	Method	Batch	DF	Qu	Result	Reporting		Prep.	Analysis	Reg. Limit
						Units	Limit			
Alkalinity, Carbonate (CaCO <sub>3</sub> )	SM 2320B	94300	1		ND	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Hydroxide (CaCO <sub>3</sub> )	SM 2320B	94300	1		189.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Total	SM 2320B	94300	1		189.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Alkalinity, Bicarbonate (CaCO <sub>3</sub> )	SM 2320B	94300	1		189.	mg/L	10.0	16-Nov-07	16-Nov-07 15:40	TAE
Chloride	SM 4500-Cl	94225	1		42.3	mg/L	1.00	15-Nov-07	15-Nov-07 14:07	TAE
Nitrogen, Nitrate	SM 4500-N	94293	1		1.54	mg/L	0.100	16-Nov-07	16-Nov-07 17:03	MHM
Sulfate	EPA 375.4	94224	5	D1	95.6	mg/L	5.00	15-Nov-07	15-Nov-07 14:12	TAE
Total Dissolved Solids	SM 2540C	94285	1		452.	mg/L	4.00	16-Nov-07	16-Nov-07 13:30	SMS2

8 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit or PQL.  
 MDL denotes method detection limit

Limits are corrected for sample size, dilution and moisture content if applicable.  
 Qu lists qualifiers. Specific qualifiers are defined at the end of the report.  
 For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.  
 Regulatory limit may denote an actual regulatory limit or a client-requested notification limit.

11/30/2007 11:26:27

Louisiana Dept. of Environmental Quality (LELAP) - 02006  
 Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004  
 Arkansas Dept. of Environmental Quality - LA050004  
 Florida Dept. of Health (NELAC) - E87595  
 Kansas Dept. of Health Environmental - E-10266  
 Pennsylvania DEP (NELAC) 68-04202  
 U.S. Dept. of Agricultural Foreign Soil Permit - S-47270



# Inorganics Quality Control

**Pace Analytical Services, Inc.**  
 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

Project: 2076025

Parameter	Batch	Blank	ARL	Units	LCS Spike	LCS Found	LCS %Rec	MS Spike	Sample Found	MS Found	MSD Found	MS %Rec	MSD %Rec	MSD RPD	DUP RPD	QC Limits LCS	MS/MSD	Max RPD	Qu
Calcium, Diss	94708	ND	100	ug/L	10000	10610	106	10000	49500.00	443200	456100	0 *	66 *	3 *		78 - 118	75 - 158	2	Q3
Magnesium, D	94708	ND	100	ug/L	10000	10510	105	10000	51600.00	155800	157300	41 *	56 *	1		78 - 116	75 - 135	3	Q3
Potassium, Dis	94708	ND	100	ug/L	10000	10450	105	10000	16170.00	26150	26470	100	103	1		77 - 117	21 - 149	2	
Sodium, Disso	94708	ND	100	ug/L	10000	10230	102	10000	08000.00	1047000	1024000	0 *	0 *	2		76 - 121	75 - 190	2	Q3

\* denotes recovery outside of QC limits.

ND denotes Not Detected at or above the adjusted reporting limit or PQL.

MS/MSD RPD is calculated via SW-846 rules on the basis of spiked sample concentrations rather than spike recoveries.

11/30/2007 11:26:31

Louisiana Dept. of Environmental Quality (LELAP) - 02006  
 Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004  
 Arkansas Dept. of Environmental Quality - LA050004  
 Florida Dept. of Health (NELAC) - E87595  
 Kansas Dept. of Health Environmental - E-10266  
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# Inorganics Quality Control

**Pace Analytical Services, Inc.**  
 1000 Riverbend Blvd. Suite F  
 St. Rose, LA 70087  
 Phone: 504.469.0333  
 Fax: 504.469.0555  
 LELAP # 02006

Project: 2076025

Parameter	Batch	Blank	ARL	Units	LCS Spike	LCS Found	LCS %Rec	MS Spike	Sample Found	MS Found	MSD Found	MS %Rec	MSD %Rec	MSD RPD	DUP RPD	QC Limits LCS	MS/MSD	Max RPD	Qu
Sulfate	94224	ND	1.00	mg/L	34.2	33.91	99	10	0.00	13.26		133 *		0	90 - 110	75 - 125		20	Q1
Chloride	94225	ND	1.00	mg/L	72.1	78	108	100	35.88	156.3		120		0	90 - 110	75 - 125		20	
Total Dissolve	94285	ND	4.00	mg/L	100	106	106		568.00					0	80 - 120	-		20	
Nitrogen, Nitr	94292	ND	0.100	mg/L				1	0.66	1.422		76 *		5	-	80 - 120		20	Q1
Nitrogen, Nitr	94292			mg/L	1.21	1.124	93									90 - 110	-		
Nitrogen, Nitr	94293	ND	0.100	mg/L	1.21	1.124	93									90 - 110	-		
Alkalinity, Tot	94300			mg/L	50	48	96		44.20					0	90 - 110	-		20	

\* denotes recovery outside of QC limits.

ND denotes Not Detected at or above the adjusted reporting limit or PQL.

MS/MSD RPD is calculated via SW-846 rules on the basis of spiked sample concentrations rather than spike recoveries.

11/30/2007 11:26:34

Louisiana Dept. of Environmental Quality (LELAP) - 02006  
 Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004  
 Arkansas Dept. of Environmental Quality - LA050004  
 Florida Dept. of Health (NELAC) - E87595  
 Kansas Dept. of Health Environmental - E-10266  
 Pennsylvania DEP (NELAC) 68-04202  
 U.S. Dept. of Agricultural Foreign Soil Permit - S-47270

## Qualifier Summary

**Pace Analytical Services, Inc.**

1000 Riverbend Blvd. Suite F  
St. Rose, LA 70087

Phone: 504.469.0333

Fax: 504.469.0555

LELAP # 02006



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**Project:** 2076025

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Qualifier	Qualifier Description
D1	The analysis was performed at a dilution due to the high analyte concentration.
Q1	The matrix spike recoveries are poor. Acceptable method performance for this analyte has been demonstrated by the laboratory control sample recovery.
Q3	The matrix spike recoveries are poor due to the presence of this analyte in the sample at a concentration greater than 4 times the spiked amount. Acceptable method performance for this analyte has been demonstrated by the laboratory control sample.

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11/30/2007 11:26:37

Louisiana Dept. of Environmental Quality (LELAP) - 02006  
Louisiana Dept. of Health and Hospitals / Drinking Water - LA050004  
Arkansas Dept. of Environmental Quality - LA050004  
Florida Dept. of Health (NELAC) - E87595  
Kansas Dept. of Health Environmental - E-10266  
Pennsylvania DEP (NELAC) 68-04202  
U.S. Dept. of Agricultural Foreign Soil Permit - S-47270



1000 Riverbend Blvd., Suite F  
St. Rose, LA 70087

Sample Condition

2076025 20-CHEV\_CRAT



Courier:  Pace Courier  Hackbarth  Fed X  UPS  DHL  USPS  Customer  Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact:  Yes  No

Thermometer Used:  Therm Fisher IR 1  Therm Fisher IR 2

Type of ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 11-15-07

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	9 Lab filter
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11
All containers needing preservation have been checked (except VOA, coliform, & O&G).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12
All containers preservation checked found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13 If No, was preservative added? <input type="checkbox"/> Yes <input type="checkbox"/> No If added record lot no.: HNO3 _____ H2SO4 _____
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	17
Pace Trip Blank Lot # (if purchased):	N/A	18

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_

Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_





**Central Analytical Laboratories**

2315 N. Causeway Blvd. Suite 150, Metairie, LA 70001  
(504) 297-3400 Toll Free: (866) 388-3400 Fax: (504) 297-3410

**DELIVER TO:** Pace Analytical Services, Inc.  
1000 Riverbend Blvd  
Suite F  
St. Rose, LA 70087  
Attn: Karen Brown

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**REPORT OF ANALYSIS**

ANALYSES PERFORMED BY  
**Central Analytical Laboratories**

Report Date : 11/26/2007  
Report Number : E2076025

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**Central Analytical Laboratories**

**Client:** Pace Analytical Services, Inc.

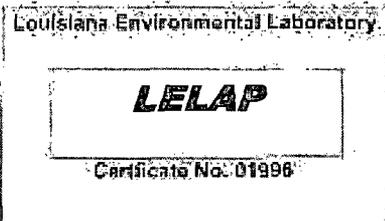
**Report Number:** E2076025

**Sample Description Summary**

<b>Sample Description</b>	<b>Matrix</b>	<b>Collection Date/Time</b>		<b>CAL Sample ID</b>	<b>Submittal Date/Time</b>	
20569168 / MW2 111407	WATER	11/14/2007	14:10	CE32748	11/16/2007	10:40
20569169 / MW2A 111407	WATER	11/14/2007	14:10	CE32749	11/16/2007	10:40
20569170 / MW4 111407	WATER	11/14/2007	12:50	CE32750	11/16/2007	10:40
20569171 / MW4A 111407	WATER	11/14/2007	12:50	CE32751	11/16/2007	10:40
20569172 / MW5 111407	WATER	11/14/2007	13:35	CE32752	11/16/2007	10:40
20569173 / MW5A 111407	WATER	11/14/2007	13:35	CE32753	11/16/2007	10:40
20569174 / MW9 111407	WATER	11/14/2007	12:00	CE32754	11/16/2007	10:40
20569175 / MW9A 111407	WATER	11/14/2007	12:00	CE32755	11/16/2007	10:40
20569176 / MW11 111407	WATER	11/14/2007	11:30	CE32756	11/16/2007	10:40



**Central Analytical Laboratories**



**Client: Pace Analytical Services, Inc.**

**Report Number: E2076025**

Sample analyses are performed according to U. S. Environmental Protection Agency approved methods, or of methods cited in this report. Any deviations from, additions to, or exclusions from the designated test method noted in the "CASE NARRATIVE". Unless noted in the "CASE NARRATIVE", all quality control criteria w within method control limits.

Results contained herein apply only to the item(s) tested.

If chain of custody documentation was provided, it is documented as an attachment to this report.

Central Analytical Laboratories reserves the right to subcontract those tests for which we are not capable or accredited. Tests which are subcontracted are indicated on the Test Report as "SUB" under the Analyst head

Unless client requests otherwise, all samples will be stored for thirty days after the issue of an Analytical Repo

Central Analytical Laboratories is accredited by the Louisiana Environmental Laboratory Accreditation Program (LELAP). The results shown in this report are certified to be in accordance with the terms of LAC 33:I unless otherwise stated. Analyses for which Central Analytical Laboratories is not accredited, or which h been subcontracted to an unaccredited laboratory are noted in this report; such results are not covered by our accreditation.

This report shall not be reproduced except in full, without written approval by Central Analytical Laboratori  
All results are considered confidential by Central Analytical Laboratories.

  
\_\_\_\_\_  
John M. Reuther  
Laboratory Manager



## Central Analytical Laboratories

2315 N. Causeway Blvd., Suite 150, Metairie, LA 70001  
(504) 297-3400 Toll Free: (866) 388-3400 Fax: (504) 297-3410

Client: Pace Analytical Services, Inc.

Report Number : E2076025

### CASE NARRATIVE

#### INORGANIC QUALITY CONTROL

**Holding Times:** All holding times were within method criteria.

**Method Blanks:** All method blanks were found to be within quality control criteria for the method.

**Spike/Duplicate:** Spike and Duplicate recoveries were found to be within acceptable limits of precision and accuracy.

**Laboratory Quality Control Samples:** All analyses met the quality control criteria of the method.

**Calibration Verifications:** All criteria established for the method were met.

**Analysis Comments:** The quantitative results of Fluoride for CE32748-CE32753 (these samples were analyzed in batch FLRIDL-18451) and CE32754-CE32756 (these samples were analyzed in batch FLRIDL-18452) are below the lowest calibration standard of 2.00 mg/L. The results of samples are reported and qualified by the following data from batches FLRIDL-18451 and FLRIDL-18452: 1) Acceptable (LRB) Lab Reagent Blanks (<2 times MDL), 2) Acceptable analyte recoveries of the (LCS) Lab Control Samples in both batches (97% and 99.8%), 3) Acceptable analyte recoveries of the (CCV) Continuing Calibration Verification standards at the end of each sample batch (97% and 101%), 4) Acceptable analyte recoveries of Laboratory Fortified Matrix (LFM) samples in both batches (95%) and the relative percent deviation between the LFM samples and duplicates (1.2% and 1.9%).

#### ORGANIC QUALITY CONTROL

**Holding Times:** All holding times were within method criteria.

**Method Blanks:** All method blanks were found to be within quality control criteria for the method.

**Spike/Duplicate:** Spike and Duplicate recoveries were found to be within acceptable limits of precision and accuracy.

**Laboratory Quality Control Samples:** All analyses met the quality control criteria of the method.

**Calibration Verifications:** All criteria established for the method were met.

**Analysis Comments:**

Report Date : 10/29/2007

Page 4 of 9



### Analysis Results

**Description:** 20569168 / MW2 111407  
**CAL Number:** CE32748  
**Submit Date:** 11/16/2007  
**Submit Time:** 11:14 AM  
**Sampled By:** PACE  
**Sample Date:** 11/14/2007  
**Sample Time:** 2:10 PM  
**Sample Type:** WATER  
**Methodology:** Standard Methods for the Examination of Water and Wastewater, APHA, 20th Edition  
Methods for Chemical Analysis of Water and Waste, EPA-600/4-79-020, March 1983  
Test Methods for Evaluating Solid Waste, Physical, Chemical Methods, EPA SW-846, Third Edition, July 1992

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Analyte	Result	Units	MDL	Method	Analyst	Start Date	End Date
Fluoride	0.76	mg/L	0.05	340.2	CB	11/20/2007 11:00	11/20/2007



### Analysis Results

**Description:** 20569169 / MW2A 111407

**Sampled By:** PACE

**CAL Number:** CE32749

**Sample Date:** 11/14/2007

**Submit Date:** 11/16/2007

**Sample Time:** 2:10 PM

**Submit Time:** 11:14 AM

**Sample Type:** WATER

**Methodology:** Standard Methods for the Examination of Water and Wastewater, APHA, 20th Edition  
Methods for Chemical Analysis of Water and Waste, EPA-600/4-79-020, March 1983  
Test Methods for Evaluating Solid Waste, Physical, Chemical Methods, EPA SW-846, Third Edition, July 1992

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Analyte	Result	Units	MDL	Method	Analyst	Start Date	End Date
Fluoride	0.58	mg/L	0.05	340.2	CB	11/20/2007 11:00	11/20/2007



### Analysis Results

**Description:** 20569170 / MW4 111407

**Sampled By:** PACE

**CAL Number:** CE32750

**Sample Date:** 11/14/2007

**Submit Date:** 11/16/2007

**Sample Time:** 12:50 PM

**Submit Time:** 11:14 AM

**Sample Type:** WATER

**Methodology:** Standard Methods for the Examination of Water and Wastewater, APHA, 20th Edition  
Methods for Chemical Analysis of Water and Waste, EPA-600/4-79-020, March 1983  
Test Methods for Evaluating Solid Waste, Physical, Chemical Methods, EPA SW-846, Third Edition, July 1992

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Analyte	Result	Units	MDL	Method	Analyst	Start Date	End Date
Fluoride	0.54	mg/L	0.05	340.2	CB	11/20/2007 11:00	11/20/2007



### Analysis Results

**Description:** 20569171 / MW4A 111407  
**CAL Number:** CE32751  
**Submit Date:** 11/16/2007  
**Submit Time:** 11:14 AM  
**Methodology:** Standard Methods for the Examination of Water and Wastewater, APHA, 20th Edition  
Methods for Chemical Analysis of Water and Waste, EPA-600/4-79-020, March 1983  
Test Methods for Evaluating Solid Waste, Physical, Chemical Methods, EPA SW-846, Third Edition, July 1992

**Sampled By:** PACE  
**Sample Date:** 11/14/2007  
**Sample Time:** 12:50 PM  
**Sample Type:** WATER

---

Analyte	Result	Units	MDL	Method	Analyst	Start Date	End Date
Fluoride	0.35	mg/L	0.05	340.2	CB	11/20/2007 11:00	11/20/2007



### Analysis Results

**Description:** 20569172 / MW5 111407

**Sampled By:** PACE

**CAL Number:** CE32752

**Sample Date:** 11/14/2007

**Submit Date:** 11/16/2007

**Sample Time:** 1:35 PM

**Submit Time:** 11:14 AM

**Sample Type:** WATER

**Methodology:** Standard Methods for the Examination of Water and Wastewater, APHA, 20th Edition  
Methods for Chemical Analysis of Water and Waste, EPA-600/4-79-020, March 1983  
Test Methods for Evaluating Solid Waste, Physical, Chemical Methods, EPA SW-846, Third Edition, July 1992

Analyte	Result	Units	MDL	Method	Analyst	Start Date	End Date
Fluoride	0.37	mg/L	0.05	340.2	CB	11/20/2007 11:00	11/20/2007



### Analysis Results

**Description:** 20569173 / MW5A 111407

**Sampled By:** PACE

**CAL Number:** CE32753

**Sample Date:** 11/14/2007

**Submit Date:** 11/16/2007

**Sample Time:** 1:35 PM

**Submit Time:** 11:14 AM

**Sample Type:** WATER

**Methodology:** Standard Methods for the Examination of Water and Wastewater, APHA, 20th Edition  
Methods for Chemical Analysis of Water and Waste, EPA-600/4-79-020, March 1983  
Test Methods for Evaluating Solid Waste, Physical, Chemical Methods, EPA SW-846, Third Edition, July 1992

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Analyte	Result	Units	MDL	Method	Analyst	Start Date	End Date
Fluoride	0.66	mg/L	0.05	340.2	CB	11/20/2007 11:00	11/20/2007



### Analysis Results

**Description:** 20569174 / MW9 111407

**Sampled By:** PACE

**CAL Number:** CE32754

**Sample Date:** 11/14/2007

**Submit Date:** 11/16/2007

**Sample Time:** 12:00 PM

**Submit Time:** 11:14 AM

**Sample Type:** WATER

**Methodology:** Standard Methods for the Examination of Water and Wastewater, APHA, 20th Edition  
Methods for Chemical Analysis of Water and Waste, EPA-600/4-79-020, March 1983  
Test Methods for Evaluating Solid Waste, Physical, Chemical Methods, EPA SW-846, Third Edition, July 1992

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Analyte	Result	Units	MDL	Method	Analyst	Start Date	End Date
Fluoride	1.49	mg/L	0.05	340.2	CB	11/20/2007 11:00	11/20/2007



### Analysis Results

**Description:** 20569175 / MW9A 111407  
**CAL Number:** CE32755  
**Submit Date:** 11/16/2007  
**Submit Time:** 11:14 AM  
**Methodology:** Standard Methods for the Examination of Water and Wastewater, APHA, 20th Edition  
Methods for Chemical Analysis of Water and Waste, EPA-600/4-79-020, March 1983  
Test Methods for Evaluating Solid Waste, Physical, Chemical Methods, EPA SW-846, Third Edition, July 1992

**Sampled By:** PACE  
**Sample Date:** 11/14/2007  
**Sample Time:** 12:00 PM  
**Sample Type:** WATER

---

Analyte	Result	Units	MDL	Method	Analyst	Start Date	End Date
Fluoride	0.62	mg/L	0.05	340.2	CB	11/20/2007 11:00	11/20/2007



### Analysis Results

**Description:** 20569176 / MW11 111407  
**CAL Number:** CE32756  
**Submit Date:** 11/16/2007  
**Submit Time:** 11:14 AM  
**Methodology:** Standard Methods for the Examination of Water and Wastewater, APHA, 20th Edition  
Methods for Chemical Analysis of Water and Waste, EPA-600/4-79-020, March 1983  
Test Methods for Evaluating Solid Waste, Physical, Chemical Methods, EPA SW-846, Third Edition, July 1992

**Sampled By:** PACE  
**Sample Date:** 11/14/2007  
**Sample Time:** 11:30 AM  
**Sample Type:** WATER

---

Analyte	Result	Units	MDL	Method	Analyst	Start Date	End Date
Fluoride	1.98	mg/L	0.05	340.2	CB	11/20/2007 11:00	11/20/2007



Central Analytical Laboratories

QC Batch Results

Fluoride

Batch Name: FLRIDL-18451 Batch Number: 18451 QA Sample ID: CE32648

AnalysisStartDate 11/20/2007 AnalysisEndDate 11/20/2007
AnalysisStartTime 11:00 AM Analyst: CB

Table with 3 columns: Test Name, Value, Unit. Rows include Fluoride (3.0 mg/L), Fluoride - LFM Result (12.55 mg/L), Fluoride - LFM Dupl Result (12.40 mg/L), Fluoride - Blank (Not detected mg/L), Fluoride-LFM Amount (10.00 mg/L), Fluoride - LFM % Recovery (94.8 %), Fluoride-Relative % Dev (1.2 %), Fluoride - LCS Result (4.85 mg/L), Fluoride - LCS Amount (5.00 mg/L), Fluoride - LCS % Recovery (97.0 %).

Fluoride

Batch Name: FLRIDL-18452 Batch Number: 18452 QA Sample ID: CE32754

AnalysisStartDate 11/20/2007 AnalysisEndDate 11/20/2007
AnalysisStartTime 11:00 AM Analyst: CB

Table with 3 columns: Test Name, Value, Unit. Rows include Fluoride (1.49 mg/L), Fluoride - LFM Result (11.10 mg/L), Fluoride - LFM Dupl Result (10.89 mg/L), Fluoride - Blank (Not detected mg/L), Fluoride-LFM Amount (10.00 mg/L), Fluoride - LFM % Recovery (95.0 %), Fluoride-Relative % Dev (1.9 %), Fluoride - LCS Result (4.99 mg/L), Fluoride - LCS Amount (5.00 mg/L), Fluoride - LCS % Recovery (99.8 %).

