# 1R-444/

# Annual GW Mon. Report





AMARILLO 921 North Bivins Amarillo, Texas 79107 Phone 806.467.0607 Fax 806.467.0622

AUSTIN 911 W. Anderson Lane Suite 202 Austin, Texas 78757 Phone 512.989.3428 Fax 512.989.3487

MIDLAND 2901 State Highway 349 Midland, Texas 79706 Phone 432.522.2133 Fax 432.522.2180

SAN ANTONIO 11 Commercial Place Schertz, Texas 78154 Phone 210.265.8025 Fax 210.568.2191

OKLAHOMA CITY 7700 North Hudson Suite 10 Oklahoma City, Oklahoma 73116 Phone 405.486.7032

HOBBS 318 East Taylor Street Hobbs, New Mexico 88241 Phone 505.393.4261 Fax 505.393.4658

ARTESIA 408 W. Texas Ave. Artesia, New Mexico 88210 Phone 575.746.8768 Fax 505.746.8905

ENVIRONMENTAL CONSULTING ENGINEERING DRILLING CONSTRUCTION EMERGENCY RESPONSE

> Toli Free: 866.742.0742 www.talonlpe.com

Mr. Edward Hansen New Mexico Oil Conservation Division 1220 South St. Francis Drive Santa Fe, New Mexico 87505

> Legacy Reserves Operating, L.P., Monsanto '30' State #4 2010 and 2011 Summary of Groundwater Monitoring Results NMOCD Reference 1RP-0441 Section 30, T16S, R37E Latitude: 32° 53' 10.68" N and Longitude: 103° 17' 02.94" W Landowner: State of New Mexico Lea County, New Mexico

Dear Mr. Hansen:

April 3, 2012

Re:

Talon/LPE (Talon) was retained by Legacy Reserves Operating, L.P. (Legacy) to provide environmental consulting and groundwater remediation services regarding the Monsanto State #4 produced water release in Lea County, New Mexico.

The purpose of this report is to document groundwater monitoring activities that have occurred at the site from March of 2011 to December of 2011 and to outline a scope of work for proposed groundwater monitoring activities.

#### **Background Information**

The site is located in Lea County, New Mexico at Global Positioning System (GPS) coordinates N 32.88429° latitude and W 103.29166° longitude in Section 30, Township 16 South, Range 37 East. A Topographic Map is provided as Figure 1b. The following is a synopsis of the site history.

- In February of 2004 Safety and Environmental Solutions (SESI) conducted a site investigation regarding an unlined reserve pit at the subject site. The soil below the reserve pit was excavated to a depth of 15-feet below ground surface (bgs) to remove chloride impacted soil.
- In February of 2004, a borehole was advanced below the pit to a depth of 70-feet bgs and soil samples were collected at five (5) feet intervals. Analytical results exhibited chloride concentrations that ranged from 1,823 mg/Kg to 5,838 mg/Kg.
- In April of 2004, a 40 mil polyethylene liner was installed and the excavation was then backfilled with uncontaminated soil to prevent leaching from rainwater infiltration.
- From May of 2004 to April of 2006 seven (7), two (2) inch monitor wells were installed at various locations around the site to delineate the extent of the groundwater chloride plume.
- Groundwater monitoring commenced subsequent to the initial monitor well installations in May of 2004 and continued to September of 2010.

- A Stage 1 Abatement Plan was submitted in December of 2005 that was initially determined to be insufficient by the NMOCD but was approved in February of 2006 by the NMOCD.
- A revised Stage 1 Abatement Plan was submitted in April of 2006, which proposed additional groundwater monitoring was approved by the NMOCD.
- An Annual Groundwater Monitoring Report was submitted in March of 2011 documenting groundwater monitoring events that occurred in March, June, September of 2010 and March of 2011.
- Additional groundwater monitoring events have been performed in June, September and December of 2011 and March of 2012.
- In July of 2011, applications were submitted to the NMOSE and NMSLO for permits to install an additional monitor well. The applications are for Right-of-Entry (ROE), and for non-consumptive use of water. The purpose of the well is to acquire data from a pump test so that a remediation system can be designed. To date, the permits to install the well have not been issued.

#### **Physical Characteristics of the First Water-Bearing Zone**

The primary groundwater resource under the Southern High Plains, including the site, is referred to as the Ogallala Aquifer or High Plains Aquifer. The Southern portion of the Ogallala aquifer underlies an area of about 29,000 square miles (mi<sup>2</sup>) in western Texas and eastern New Mexico, encompassing all or part of 31 counties in Texas and 6 counties in New Mexico.

The Ogallala Aquifer has experienced acute depletion from extensive irrigation and urban demand, which have exceeded the average annual recharge rate. Recharge of the Ogallala Aquifer on the Southern High Plains occurs predominately from rainfall runoff that accumulates in ephemeral streams and playa lakes as well as direct recharge in areas that contain permeable soils such as sand hills. Recharge rates vary depending on mechanism, but averages from 0 to 1.6 inches per year.

The Ogallala Aquifer is generally unconfined and the poteniometric surface generally mirrors the land surface elevation with the regional flow direction from the northwest to the southeast. The mean regional gradient is 15 feet per mile and the typical groundwater velocity averages seven inches per day. The regional hydraulic conductivity averages 17 gallons per day per square-foot and specific yield averages 16%. The depth to groundwater at the site has historically ranged from 64 to 72 feet below ground surface (bgs) and the groundwater flow direction is to the southeast at an average of 20 feet per mile.

The composition of Ogallala groundwater is defined as mixed-cation-HCO<sub>3</sub>, therefore, Ogallala groundwater is considered hard. Problems with scale have occurred with residential and commercial water systems that use Ogallala groundwater and often treatment strategies are employed to reduce the effects of scale. The typical total dissolved solids of Ogallala groundwater in the Hobbs-Lovington area is generally less than 500 mg/L (ppm) in areas not impacted by oil-field brines with an average pH of 7.3.

#### **Groundwater Gradient and Flow Direction**

A total of four (4) groundwater monitoring events occurred during the year 2011 on March 11, June 10, and September 27 and December 21. Measurements to the depth of fluid were collected during each of the four (4) groundwater monitoring events. The results of the fluid level measurements are summarized in Table 1 in Appendix B.

The collected data was used to construct potentiometric surface maps in order to interpret the groundwater gradient and flow direction. The maps, designated Figures 2a through 2d, are presented in Appendix A.

The potentiometric surface maps indicate that the groundwater flow direction is to south southeast at an approximate gradient of 0.0044 feet/foot or 23.23 feet per mile, which is consistent for the area. Groundwater levels at the subject site have exhibited a steady decline of an average of 1.43 feet for the year 2011, which appears to be associated with a regional trend of declining groundwater levels for the Ogallala Aquifer.

#### **Groundwater Analytical Results**

During the first quarter, March 2011 sampling event, groundwater samples were collected from monitor wells MW-1 through MW-7. The groundwater samples that were collected exhibited the following analytical results:

- Total Cl concentrations ranged from 26.8 to 1,060 mg/L. The total Cl concentration exceeded the NMWQCC groundwater standard of 250 mg/L in the groundwater sample collected from monitor well MW-1.
- TDS concentrations ranged from 432 mg/L to 2,310 mg/L. The TDS concentration exceeded the NMWQCC groundwater standard of 1,000 mg/L in the groundwater sample collected from monitor wells MW-1.

During the second quarter, June 2011 sampling event, groundwater samples were collected from monitor wells MW-1 through MW-7. A groundwater sample was collected from MW-6 but the plastic sample container developed a leak during transit and was not analyzed. The groundwater samples that were collected exhibited the following analytical results:

- Total Cl concentrations ranged from 30.9 mg/L to 1,030 mg/L. The total Cl concentration exceeded the NMWQCC groundwater standard of 250 mg/L in the groundwater sample collected from monitor well MW-1.
- TDS concentrations ranged from 427 mg/L to 2,150 mg/L. The TDS concentration exceeded the NMWQCC groundwater standard of 1,000 mg/L in the groundwater sample collected from monitor well MW-1.

During the third quarter, September 2011 sampling event, groundwater samples were collected from monitor wells MW-1 through MW-7. The groundwater samples that were collected exhibited the following analytical results:

- Total Cl concentrations ranged from 24.8 mg/L to 970 mg/L. Total Cl concentrations exceeded the NMWQCC groundwater standard of 250 mg/L in the groundwater samples collected from monitor wells MW-1 and MW-7.
- TDS concentrations ranged from 314 mg/L to 2,280 mg/L. The TDS concentrations exceeded the NMWQCC groundwater standard of 1,000 mg/L in the groundwater sample collected from monitor well MW-1.

During the fourth quarter, December 2011 sampling event, groundwater samples were collected from monitor wells MW-1 through MW-7. The groundwater samples that were collected exhibited the following analytical results:

- Total Cl concentrations ranged from 21.6 mg/L to 959 mg/L. Total Cl concentrations exceeded the NMWQCC groundwater standard of 250 mg/L in the groundwater samples collected from monitor wells MW-1 and MW-7.
- TDS concentrations ranged from 374 mg/L to 2,312 mg/L. The TDS concentrations exceeded the NMWQCC groundwater standard of 1,000 mg/L in the groundwater sample collected from monitor well MW-1.

Monitor wells MW-1 and MW-7 have consistently exhibited total Cl and TDS concentrations exceeding the NMWQCC groundwater standards; however, down-gradient monitor wells MW-4, MW-5 and MW-6 have maintained relatively stable Cl and TDS concentrations. In addition, the chloride concentrations exhibited in monitor well MW-1 has been steadily declining over year 2011. This data indicates that the chloride plume is stable and does <u>not</u> appear to be migrating down-gradient. Currently, the groundwater chloride plume is delineated.

The results of the laboratory analyses are summarized in Table 2 – Summary of Groundwater Analytical Results in Appendix B. Laboratory analytical data reports and chain of custody documentation are provided in Appendix C. In addition, cumulative historical analytical data is located in the tables section on the CD that is an adjunct to this report.

#### **Summary of Findings**

- The groundwater flow direction is to southeast at an approximate gradient of 0.0044 feet/foot or 23.23 feet per mile.
- Groundwater levels at the subject site have exhibited a steady decline for the year 2011 that appears to be associated with a regional trend of declining groundwater levels for the Ogallala Aquifer.
- The chloride plume is currently delineated by the existing monitor well array.
- Based on declining chloride concentrations in monitor well MW-1, it appears that brine water influx at the source may be mitigated and that the chloride plume may be undergoing dilution as a result of dispersion.

#### **Recommendations**

Based upon the results of the four (4) groundwater monitoring events performed in 2011, Talon proposes the following actions:

- Continue to perform quarterly groundwater monitoring events in accordance with NMOCD directives.
- Install one (1) four (4) inch recovery well near the center of the chloride plume and perform a pump test to acquire data for a remediation system design.
- Survey the top of casing elevations for monitor well MW-5, MW-6, and MW-7.
- Prepare a remediation plan designed to pump and dispose of impacted groundwater and to inhibit migration of the chloride plume based on the results of the pump test.

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If you have any questions or require further information, please contact Mr. Kyle Waggoner or me at (432) 522-2133.

Sincerely,

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Steven R. Killingsworth, P.G. Senior Project Manager

Cc: Mr. Berry Johnson, Legacy Reserves Operating, L.P. Mr. Geoffrey R. Leking, NMOCD



# Appendices:

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Appendix A	Figures
Appendix B	Tables
Appendix C	Laboratory Analytical Data Reports and Chain of Custody Documentation

#### Appendix A

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#### Figures

Figure 1b – Site Vicinity Topographic Map

Figure 1 – Site Map

Figure 2a – Groundwater Gradient Map – 3/10/2011

Figure 2b - Groundwater Gradient Map - 6/10/2011

Figure 2c - Groundwater Gradient Map - 9/27/2011

Figure 2d - Groundwater Gradient Map - 12/21/2011

Figure 3a - Groundwater Chloride Concentration Map - 3/10/2011

Figure 3b - Groundwater Chloride Concentration Map - 6/10/2011

Figure 3c - Groundwater Chloride Concentration Map - 9/27/2011

Figure 3d - Groundwater Chloride Concentration Map - 12/21/2011







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Gradient 0.0041 ft/ft 21.62 ft/mi





	Legend
0	- Monitor Well
۵	- Soil Boring
Δ	- Surface Soil Samples
$\sim$	- Groundwater Gradient Contour Line
81.30	- Groundwater Gradient Contour Elevation
-	- Groundwater Flow Direction
$\sim$	- Groundwater Chloride Contour Line
29.6	- Chloride Concentration in ppm

Date: 03/28/2011 Scale: 1" = 60' Drawn By: TJS

Monsanto '30' State #4 Legacy Reserves Operating, L.P. Hobbs, Lea County, New Mexico Figure 2a - Groundwater Gradient Map, (03/10/2011)















# Appendix B

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### Tables

Table 1 - Summary of Fluid Level MeasurementsTable 2 - Groundwater Analytical Results

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# TABLE 1 SUMMARY OF FLUID LEVEL MEASUREMENTS LEGACY RESERVES OPERATING, L.P. MONSANTO '30' STATE #4 NMOCD REF. # 1R-0441 LEA COUNTY, NEW MEXICO TALON/LPE PROJECT NUMBER 701047.014.01

Monitor Well	Date Gauged	Relative Top of Casing Elevation (ft amsl)	Depth to Water Below Top of Casing (ft btoc)	Groundwater Elevation (ft amsl)
MW-1	03/31/10	3,838.24	92.34	3,745.90
MW-1	06/09/10		92.47	3,745.77
MW-1	09/16/10		93.30	3,744.94
MW-1	03/10/11		92.70	3,745.54
MW-1	06/10/11		93.58	3,744.66
MW-1	09/27/11	•	94.23	3,744.01
MW-1	12/21/11		94.12	3,744.12
MW-2	03/31/10	3,836.31	89.22	3,747.09
MW-2	06/09/10		89.34	3,746.97
MW-2	09/16/10		90.31	3,746.00
MW-2	03/10/11		89.76	3,746.55
MW-2	06/10/11		90.31	3,746.00
MW-2	09/27/11		91.11	3,745.20
MW-2	12/21/11		91.12	3,745.19
MW-3	03/31/10	3,842.49	96.56	3,745.93
MW-3	06/09/10	4	96.74	3,745.75
MW-3	09/16/10		97.63	3,744.86
MW-3	03/10/11		96.95	3,745.54
MW-3	06/10/11		97.81	3,744.68
MW-3	09/27/11		98.52	3,743.97
MW-3	12/21/11		98.41	3,744.08
MW-4	03/31/10	3,840.95	95.34	3,745.61
MW-4	06/09/10		95.59	3,745.36
MW-4	09/16/10	,	96.34	3,744.61
MW-4	03/10/11		95.71	3,745.24
MW-4	06/10/11		96.65	3,744.30
MW-4	09/27/11		97.37	3,743.58
MW-4	12/21/11		97.19	3,743.76



# TABLE 1 SUMMARY OF FLUID LEVEL MEASUREMENTS LEGACY RESERVES OPERATING, L.P. MONSANTO '30' STATE #4 NMOCD REF. # 1R-0441 LEA COUNTY, NEW MEXICO TALON/LPE PROJECT NUMBER 701047.014.01

Monitor Well	Date Gauged	Relative Top of Casing Elevation (ft amsl)	Depth to Water Below Top of Casing (ft btoc)	Groundwater Elevation (ft amsl)
MW-5	03/31/10	NM	92.33	
MW-5	06/09/10		92.54	
MW-5	09/16/10		93.52	
MW-5	03/10/11		92.80	
MW-5	06/10/11		93.61	
MW-5	09/27/11		94.36	
MW-5	12/21/11		94.18	
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MW-6	03/31/10	NM	96.74	
MW-6	06/09/10		93.96	
MW-6	09/j16/10		94.74	
MW-6	03/10/11		94.18	
MW-6	06/10/11		95.04	
MW-6	09/27/11	-	95.76	
MW-6	12/21/11		95.59	
MW-7	03/31/10	NM	93.95	
MW-7	06/09/10		94.10	
MW-7	09/16/10		94.97	
MW-7	03/10/11		94.33	
MW-7	06/10/11		95.21	
MW-7	09/27/11		95.94	
MW-7	12/21/11		95.80	

amsl = above mean sea level

btoc = below top of casing



# TABLE 2 GROUNDWATER ANALYTICAL RESULTS LEGACY RESERVES OPERATING, L.P. MONSANTO '30' STATE #4 NMOCD REF. # 1R-0441 LEA COUNTY, NEW MEXICO Talon/LPE Project Number 701047.014.01

All concentrations are in mg/L

Sample Location	Sample Date	Chloride	TDS
MW-1	03/31/10	1,160	2,330
MW-1	06/09/10	1,430	2,730
MW-1	09/16/10	1,200	2,500
MW-1	03/11/11	1,060	2,310
MW-1	06/10/11	1,030	2,150
MW-1	09/27/11	970	2,280
MW-1	12/21/11	959	2,312
MW-2	03/31/10	28.1	494
MW-2	06/09/10	30.7	461
MW-2	09/16/10	25.9	423
MW-2	03/11/11	27.1	526
MW-2	06/10/11	34.1	470
MW-2	09/27/11	24.8	428
MW-2	12/21/11	40.3	374
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MW-3	03/31/10	30.3	361
MW-3	06/09/10	30.8	388
MW-3	09/16/10	25.9	393
MW-3	03/11/11	27.4	432
MW-3	06/10/11	35.6	427
MW-3	09/27/11	26.1	314
MW-3	12/21/11	24.0	403
MW-4	03/31/10	107	587
MW-4	06/09/10	145	620
MW-4	09/16/10	74.1	546
MW-4	03/11/11	224.0	695
MW-4	06/10/11	230.0	752
MW-4	09/27/11	180.0	664
MW-4	12/21/11	234.0	766

Page 1 of 2

# TABLE 2 GROUNDWATER ANALYTICAL RESULTS LEGACY RESERVES OPERATING, L.P. MONSANTO '30' STATE #4 NMOCD REF. # 1R-0441 LEA COUNTY, NEW MEXICO Talon/LPE Project Number 701047.014.01

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Sample Location	Sample Date	Chloride	TDS
MW-5	03/31/10	28.5	447
MW-5	06/09/10	31.5	456
MW-5	09/16/10	26.8	396
MW-5	03/11/11	26.8	436
MW-5	06/10/11	30.9	447
MW-5	09/27/11	24.9	407
MW-5	12/21/11	22.5	505
MW-6	03/31/10	29.6	414
MW-6	06/09/10	32.0	483
MW-6	09/16/10	28.6	401
MW-6	03/11/11	27.4	442
MW-6	06/10/11	NS	NS
MW-6	09/27/11	25.0	405
MW-6	12/21/11	21.6	570
:			
MW-7	03/31/10	118	96
MW-7	06/09/10	314	788
MW-7	09/16/10	314	896
· MW-7	03/11/11	71.1	539
MW-7	06/10/11	191	594
MW-7	09/27/11	423	968
MW-7	12/21/11	340	994
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NMWOCC R	emedial Limits	250	1.000

All concentrations are in mg/L

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Bolded values are in excess of the NMWQCC Remediation Thresholds

Total chlorides analyzed by EPA Method E300.0

TDS analyzed by SM 2540C

NS - not sampled

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Laboratory Analytical Data Reports and Chain of Custody Documentation

Report Date: March 22, 2011

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Work Order: 11031133

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Page Number: 1 of 2

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# **Summary Report**

Steve Killingsworth Talon LPE-Midland 2901 State Highway 349 Midland, TX 79706

Report Date: March 22, 2011

Work Order: 11031133

Project Location: Hobbs, NM Project Name: Monsanto #4 Project Number: 701047.014.01

	X		Date	Time	Date
Sample	Description	Matrix	Taken	$\mathbf{Taken}$	Received
260360	MW-1	water	2011-03-11	10:45	2011-03-11
260361	MW-2	water	2011-03-11	11:15	2011-03-11
260362	MW-3	water	2011-03-11	11:10	2011-03-11
260363	MW-4	water	2011-03-11	10:52	2011-03-11
260364	MW-5	water	2011-03-11	11:03	2011-03-11
260365	MW-6	water	2011-03-11	10:40	2011-03-11
260366	MW-7	water	2011-03-11	10:58	2011-03-11

Sample: 260360 - MW-1

Param	Flag	Result	Units	$\mathbf{RL}$
Chloride		1060	mg/L	2.50
Total Dissolved Solids		2310	mg/L	10.0

#### Sample: 260361 - MW-2

Param	Flag	Result	Units	$\mathbf{RL}$
Chloride		27.1	mg/L	2.50
Total Dissolved Solids		526	mg/L	10.0

Sample: 260362 - MW-3

continued ...

TraceAnalysis, Inc. • 6701 Aberdeen Ave., Suite 9 • Lubbock, TX 79424-1515 • (806) 794-1296 This is only a summary. Please, refer to the complete report package for quality control data. Report Date: March 22, 2011 Work Order: 11031133 Page Number: 2 of 2 sample 260362 continued ... Flag  $\mathbf{RL}$ Param Units Result Flag RL Param Units Result Chloride 2.50 27.4 mg/L **Total Dissolved Solids** 10.0 432 mg/L Sample: 260363 - MW-4 Param  $\mathbf{RL}$ Flag Result Units Chloride 2.50 224 mg/L **Total Dissolved Solids** 695 mg/L 10.0 Sample: 260364 - MW-5 Flag Param Result Units RL Chloride 26.8 mg/L 2.50 **Total Dissolved Solids** 436 mg/L 10.0Sample: 260365 - MW-6 Param Flag Result Units  $\mathbf{RL}$ Chloride 27.4 2.50 mg/L **Total Dissolved Solids** 10.0 442 mg/L Sample: 260366 - MW-7 Param  $\mathbf{RL}$ Flag Result Units Chloride 2.50 71.7 mg/L Total Dissolved Solids 539 mg/L10.0

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TraceAnalysis, Inc. • 6701 Aberdeen Ave., Suite 9 • Lubbock, TX 79424-1515 • (806) 794-1296 This is only a summary. Please, refer to the complete report package for quality control data.

6701 Aberdeen Avenue; Suite 9 Lubbock, Texas 79424 800+378+1295 806+794+1296 FAX 806+794+1298 200 East Sunset Road, Suite E El Paso, Texas 79922 888+588+3443 915+585+3443 FAX 915+585+4944 5002 Basin Street, Suite A1 Midland, Texas 79703 432+689+6301 FAX 432+689+6313 6015 Harris Parkway. Suite 110 Ft. Worth, Texas 76132 817-201-5260 E-Mail: lab@traceanalysis.com Certifications WBENC: 237019 HUB: 1752439743100-86536 DBE: VN 20657 NCTRCA WFWB38444Y0909 **NELAP** Certifications

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Lubbock: T104704219-08-TX El 1 LELAP-02003

Kansas E-10317

El Paso: T104704221-08-TX LELAP-02002

Midland: T104704392-08-TX

# Analytical and Quality Control Report

Steve Killingsworth Talon LPE-Midland 2901 State Highway 349 Midland, TX, 79706

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Project Location:Hobbs, NMProject Name:Monsanto #4Project Number:701047.014.01

Report Date: March 22, 2011

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Work Order: 11031133 

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
260360	MW-1	water	2011-03-11	10:45	2011-03-11
260361	MW-2	water	2011-03-11	11:15	2011-03-11
26036 <b>2</b>	MW-3	water	2011-03-11	11:10	2011-03-11
26036 <b>3</b>	MW-4	water	2011-03-11	10:52	2011-03-11
260364	MW-5	water	2011-03-11	11:03	2011-03-11
260365	MW-6	water	2011-03-11	10:40	2011-03-11
260366	MW-7	water	2011-03-11	10:58	2011-03-11

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 9 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

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Dr. Blair Leftwich, Director Dr. Michael Abel, Project Manager

#### **Standard Flags**

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 ${\bf B}$  - The sample contains less than ten times the concentration found in the method blank.

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# **Case** Narrative

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Samples for project Monsanto #4 were received by TraceAnalysis, Inc. on 2011-03-11 and assigned to work order 11031133. Samples for work order 11031133 were received intact at a temperature of 3.6 C.

Samples were analyzed for the following tests using their respective methods.

		Prep	Prep	QC	Analysis
Test	Method	Batch	Date	Batch	Date
Chloride (IC)	E 300.0	67337	2011-03-15 at 13:36	79419	2011-03-16 at 11:05
TDS	SM 2540C	67335	2011-03-15 at 13:34	79592	2011-03-21 at 14:17

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 11031133 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

 Report Date: March 22, 2011
 Work Order: 11031133
 Page Number: 4 of 9

 701047.014.01
 Monsanto #4
 Hobbs, NM

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# **Analytical Report**

#### Sample: 260360 - MW-1

Laboratory:	Midland				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	79419	Date Analyzed:	2011-03-16	Analyzed By:	AR
Prep Batch:	67337	Sample Preparation:	2011-03-15	Prepared By:	AR
		RL			
Parameter	Flag	Result	Units	Dilution	$\mathbf{RL}$
Chloride		1060	mg/L	50	2.50

#### Sample: 260360 - MW-1

Total Dissolv	ed Solids		2310	mg/L	2	10.0
Parameter		Flag	Result	Units	Dilution	$\mathbf{RL}$
			RL			
Prep Batch:	67335		Sample Preparation:	2011-03-15	Prepared By:	AR
QC Batch:	79592		Date Analyzed:	2011-03-21	Analyzed By:	$\mathbf{AR}$
Analysis:	TDS		Analytical Method:	SM 2540C	Prep Method:	N/A
Laboratory:	Midland	. '				

#### Sample: 260361 - MW-2

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (IC) 79419 67337	Analytical Method: Date Analyzed: Sample Preparation:	E 300.0 2011-03-16 2011-03-15	Prep Method: Analyzed By: Prepared By:	N/A AR AR
		$\mathbf{RL}$			
Parameter	Flag	Result	Units	Dilution	$\mathbf{RL}$
Chloride		27.1	mg/L	5	2.50

#### Sample: 260361 - MW-2

Laboratory:	Midland				
Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	7959 <b>2</b>	Date Analyzed:	2011-03-21	Analyzed By:	AR
Prep Batch:	67335	Sample Preparation:	2011-03-15	Prepared By:	AR

continued ...

Report Date: March 22, 2011 Work Order: 11031133 Page Number: 5 of 9 701047.014.01 Monsanto #4 Hobbs, NM sample 260361 continued ... RL Parameter Flag Result Units Dilution RL RL Parameter Flag Result Units Dilution RL **Total Dissolved Solids** mg/L 526 1 10.0 Sample: 260362 - MW-3 Laboratory: Midland Chloride (IC) Analysis: Analytical Method: E 300.0 Prep Method: N/A QC Batch: 79419 Analyzed By: Date Analyzed: 2011-03-16  $\mathbf{AR}$ £ Prep Batch: 67337 Sample Preparation: Prepared By: 2011-03-15  $\mathbf{AR}$ RL 4 Parameter Flag Result Units Dilution RL Chloride 27.4 mg/L 5 2.50 Sample: 260362 - MW-3 Laboratory: Midland Analysis: TDS Analytical Method: Prep Method: N/A SM 2540C QC Batch: 79592 Date Analyzed: 2011-03-21 Analyzed By: AR Prep Batch: 67335 Sample Preparation: Prepared By: 2011-03-15 AR  $\mathbf{RL}$ Parameter Flag Result Units Dilution  $\mathbf{RL}$ **Total Dissolved Solids** 432 10.0 mg/L 1 Sample: 260363 - MW-4 Laboratory: Midland Analysis: Chloride (IC) Prep Method: N/A Analytical Method: E 300.0 QC Batch: 79419 Date Analyzed: 2011-03-16 Analyzed By: AR Prep Batch: 67337 Sample Preparation: Prepared By: 2011-03-15 AR  $\mathbf{RL}$ Parameter Flag Result Units Dilution  $\mathbf{RL}$ Chloride 224 2.50 mg/L 5

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Report Date: March 22, 2011 Work Order: 11031133 Page Number: 6 of 9 701047.014.01 Monsanto #4 Sample: 260363 - MW-4

Hobbs, NM

#### Midland Laboratory: TDS Analysis: Analytical Method: SM 2540C Prep Method: N/A QC Batch: 79592 Date Analyzed: Analyzed By: AR 2011-03-21 Prepared By: Prep Batch: 67335 Sample Preparation: $\mathbf{AR}$ 2011-03-15 $\mathbf{RL}$ Parameter Dilution Flag Result $\mathbf{RL}$ Units Total Dissolved Solids 695 mg/L 10.0 1

#### Sample: 260364 - MW-5

Laboratory:	Midland					
Analysis:	Chloride (IC)	3	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	79419		Date Analyzed:	2011-03-16	Analyzed By:	AR
Prep Batch:	67337		Sample Preparation:	2011-03-15	Prepared By:	AR
			RL			
Parameter	Flag	L	Result	Units	Dilution	RL
Chloride		1.1	26.8	mg/L	5	2.50

#### Sample: 260364 - MW-5

Laboratory:	Midland					
Analysis:	TDS		Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	79592		Date Analyzed:	2011-03-21	Analyzed By:	AR
Prep Batch:	67335		Sample Preparation:	2011-03-15	Prepared By:	AR
			RL			
Parameter		Flag	$\mathbf{Result}$	Units	Dilution	$\mathbf{RL}$
Total Dissolv	ed Solids		436	mg/L	1	10.0

mg/L

#### Sample: 260365 - MW-6

Laboratory:	Midland				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	79419	Date Analyzed:	2011-03-16	Analyzed By:	AR
Prep Batch:	67337	Sample Preparation:	2011-03-15	Prepared By:	AR
		RL			
Parameter	Flag	Result	Units	Dilution	$\mathbf{RL}$
Chloride		27.4	mg/L	5	2.50
Chloride		27.4	mg/L	5	2

701047.014.01 Hobbs, NM Monsanto #4 Sample: 260365 - MW-6 Laboratory: Midland Analysis: TDS **Analytical Method:** SM 2540C Prep Method: QC Batch: 79592 Date Analyzed: 2011-03-21 Analyzed By: Prep Batch: 67335 Sample Preparation: Prepared By: 2011-03-15 RL Parameter Dilution Flag Result Units **Total Dissolved Solids** 442 mg/L 1 Sample: 260366 - MW-7 Laboratory: Midland Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A QC Batch: 79419 Analyzed By: Date Analyzed: 2011-03-16 Prep Batch: 67337 Sample Preparation: Prepared By: 2011-03-15 RL a the second into the top inc Parameter Flag Result Units Dilution Chloride 71.7 mg/L 5

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Work Order: 11031133

Page Number: 7 of 9

N/A

AR

AR

RL

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AR

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2.50

#### Sample: 260366 - MW-7

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Report Date: March 22, 2011

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Total Dissolv	ed Solids		539	mg/L	1	10.0
Parameter		Flag	RL Result	Units	Dilution	RL
Prep Batch:	67335		Sample Preparation:	2011-03-15	Prepared By:	AR
QC Batch:	79592		Date Analyzed:	2011-03-21	Analyzed By:	AR.
Analysis:	TDS		Analytical Method:	SM 2540C	Prep Method:	N/A
Laboratory:	Midland					

#### Method Blank (1) QC Batch: 79419

QC Batch: Prep Batch:	79419 67337		Date Analyzed: QC Preparation:	2011-03-16 2011-03-15	·	Analyzed By: Prepared By:	AR AR
1							
			Μ	DL			
Parameter		Flag	Res	sult	Units		$\mathbf{RL}$
Chloride			0.0	699	mg/L		2.5

Report Date: March 22, 2011 Work Order: 11031133 Page Number: 8 of 9 701047.014.01 Monsanto #4 Hobbs, NM Method Blank (1) QC Batch: 79592 QC Batch: 79592 Date Analyzed: 2011-03-21 Analyzed By: AR Prep Batch: 67335 QC Preparation: 2011-03-15 Prepared By: AR MDL Parameter RL Flag Result Units **Total Dissolved Solids** 12.0 mg/L 10 **Duplicates** (1) Duplicated Sample: 260366 QC Batch: 79592 Analyzed By: AR **Date Analyzed:** 2011-03-21 Prep Batch: 67335 QC Preparation: 2011-03-15 Prepared By: AR RPD Duplicate Sample RPD Param Result Result Units Dilution Limit Total Dissolved Solids 525 :539  $mg/L_{o,v}$ <u>\_\_\_\_10</u> Laboratory Control Spike (LCS-1) QC Batch: 79419 Date Analyzed: Analyzed By: AR 2011-03-16 Prep Batch: 67337 QC Preparation: 2011-03-15 Prepared By: AR LCS Spike Matrix Rec. Param Result Units Dil. Amount Result Rec. Limit Chloride 22.7 mg/L 1 25.0 < 0.265 91 90 - 110 Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result. LCSD RPD Spike Matrix Rec. Param RPD Result Dil. Limit Units Amount Result Rec. Limit Chloride 23.7 mg/L 1 25.0< 0.26595 90 - 110 4 20 Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result. Laboratory Control Spike (LCS-1) QC Batch: 79592 2011-03-21 Date Analyzed: Analyzed By: AR Prep Batch: 67335 QC Preparation: 2011-03-15 Prepared By: AR

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	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	$\mathbf{Result}$	Rec.	$\operatorname{Limit}$
Total Dissolved Solids	1030	ing/L	1	1000	<9.75	103	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Report Date: March 22, 2011 Work Order: 11031133 Page Number: 9 of 9 701047.014.01 Monsanto #4 Hobbs, NM LCSD RPD Spike Rec. Matrix Param Result Dil Limit RPD Limit Units Amount Result Rec. **Total Dissolved Solids** 1070 mg/L 1 1000 <9.75 107 90 - 110 4 10 Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result. Matrix Spike (MS-1) Spiked Sample: 260366 QC Batch: 79419 Date Analyzed: Analyzed By: AR 2011-03-16 Prep Batch: 67337 QC Preparation: Prepared By: AR 2011-03-15 MS Spike Matrix Rec. Param Result Units Dil. Amount Result Rec. Limit Chloride 2360 50 1380 1060 94 90 - 110 mg/L Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result. MSD Spike Matrix Rec. RPD Param Result Units Dil. Amount Result Rec. Limit RPD Limit Chloride 2360 mg/L 50 1380 1060 94 90 - 110 0 20 Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result. Standard (ICV-1) QC Batch: 79419 Date Analyzed: 2011-03-16 Analyzed By: AR **ICVs** ICVs **ICVs** Percent True Found Percent Recovery Date Param Flag Units Conc. Conc. Recovery Limits Analyzed Chloride mg/L 25.0 24.3 97 90 - 110 2011-03-16 Standard (CCV-1) QC Batch: 79419 Date Analyzed: 2011-03-16 Analyzed By: AR **CCVs CCVs CCVs** Percent True Found Percent Recovery Date Flag Param Units Conc. Limits Conc. Recovery Analyzed Chloride mg/L 25.0 23.9 90 - 110 2011-03-16 96

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Report Date: June 21, 2011

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#### Work (Order: 11061022

#### Page Number: 1 of 2

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Report Date: June 21, 2011

Work Order: 11061022

# **Summary Report**

Steve Killingsworth Talon LPE-Midland 2901 State Highway 349 Midland, TX 79706

Project Location:Hobbs, NMProject Name:Monsanto #4Project Number:701047.014.01

	81	an an traite an	Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
268922	MW 1	water	2011-06-10	11:55	2011-06-10
268923	MW 2	water	2011-06-10	10:45	2011-06-10
268924	MW 3	water	2011-06-10	11:34	2011-06-10
268925	MW 4	water	2011-06-10	11:11	2011-06-10
268926	MW 5	water	2011-06-10	11:03	2011-06-10
268927	MW 7	water	2011-06-10	11:26	2011-06-10

Sample: 268922 - MW 1

Param	Flag	Result	Units	$\mathbf{RL}$
Chloride		1030	mg/L	2.5
Total Dissolved Solids		2150	mg/L	· 10

#### Sample: 268923 - MW 2

Param	Flag	$\operatorname{Result}$	Units	$\mathbf{RL}$
Chloride		34.1	mg/L	2.5
Total Dissolved Solids		470	mg/L	10

Sample: 268924 - MW 3

Param	Flag	Result	Units	$\mathbf{RL}$
Chloride		35.6	rng/L	2.5
				continued

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Report Date: June 21, 2011		Work Order: 11061022	Order: 11061022 Page No		
sample 268921 continued					
Param	Flor	Popult	Ilnite	RI.	
Total Dissolved Solids	I Iag	427	mg/L	10	
Sample: 268925 - MW 4					
Param	Flag	Result	Units	RL	
Chloride		230	mg/L	2.5	
Total Dissolved Solids		752	mg/L	10	
Sample: 268926 - MW 5	r		X		
Param	Flag	Result	Units	RL	
Chloride		30.9	mg/L	2.5	
Total Dissolved Solids		447	mg/L	10	
and a second	,				
Sample: 268927 - MW 7					
Param	Flag	Result	Units	RL	
Chloride		191	mg/L	2:5	
Total Dissolved Solids		594	mg/L	10	

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		Analytica	l and Qı	ality C	ontrol F	leport		
1	Steve Killingsworth				Re	port Date: Jun	e 21, 2011	
:	1alon LPE-Midland 2901 State Highway 349 Midland, TX, 79706	9			Wo	ork Order: 110	51022	
] ] ]	Project Location: Hob Project Name: Mor Project Number: 701	bbs, NM nsanto #4 047.014.01						

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
268922	MW 1	water	2011-06-10	11:55	2011-06-10
268923	MW 2	water	2011-06-10	10:45	2011-06-10
268924	MW 3	water	2011-06-10	11:34	2011-06-10
268925	MW 4	water	2011-06-10	11:11	2011-06-10
26892 <b>6</b>	MW 5	water	2011-06-10	11:03	2011-06-10
268927	MW 7	water	2011-06-10	11:26	2011-06-10

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 13 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

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Michael abre

Dr. Blair Leftwich, Director Dr. Michael Abel, Project Manager

Page 2 of 13

# **Report Contents**

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	4
Analytical Report	5
Sample 268922 (MW 1)	5
Sample 268923 (MW 2)	5
Sample 268924 (MW 3)	6
Sample 268925 (MW 4)	6
Sample 268926 (MW 5)	7
Sample 268927 (MW 7)	7
Method Blanks	9
OC Batch 82186 - Method Blank (1)	
OC Batch 82268 - Method Blank (1)	. 9
QC Batch 82268 - Duplicate (1)	9
Laboratory Control Spikes	10
Laboratory Control Spikes OC Batch 82186 - LCS (1)	10
Laboratory Control Spikes QC Batch 82186 - LCS (1)	10 10 10
Laboratory Control Spikes           QC Batch 82186 - LCS (1)           QC Batch 82268 - LCS (1)           OC Batch 82186 - MS (1)	10 10 10 10
Laboratory Control Spikes           QC Batch 82186 - LCS (1)           QC Batch 82268 - LCS (1)           QC Batch 82186 - MS (1)	10 10 10 10
Laboratory Control Spikes           QC Batch 82186 - LCS (1)           QC Batch 82268 - LCS (1)           QC Batch 82186 - MS (1)           Calibration Standards	10 10 10 10 10
Laboratory Control Spikes         QC Batch 82186 - LCS (1)         QC Batch 82268 - LCS (1)         QC Batch 82186 - MS (1)         Calibration Standards         QC Batch 82186 - ICV (1)	10 10 10 10 10 10
Laboratory Control Spikes         QC Batch 82186 - LCS (1)         QC Batch 82268 - LCS (1)         QC Batch 82186 - MS (1)         Calibration Standards         QC Batch 82186 - ICV (1)         QC Batch 82186 - CCV (1)	10 10 10 10 12 12 12
Laboratory Control Spikes         QC Batch 82186 - LCS (1)         QC Batch 82268 - LCS (1)         QC Batch 82186 - MS (1)         Calibration Standards         QC Batch 82186 - ICV (1)         QC Batch 82186 - CCV (1)         Appendix	10 10 10 10 10 10 12 12 12 12 13
Laboratory Control Spikes         QC Batch 82186 - LCS (1)         QC Batch 82268 - LCS (1)         QC Batch 82186 - MS (1)         Calibration Standards         QC Batch 82186 - ICV (1)         QC Batch 82186 - CCV (1)         Appendix         Laboratory Certifications	10 12 12 12 12 12 12 12 12 12 12 12 13 13
Laboratory Control Spikes         QC Batch 82186 - LCS (1)         QC Batch 82268 - LCS (1)         QC Batch 82186 - MS (1)         QC Batch 82186 - MS (1)         Calibration Standards         QC Batch 82186 - ICV (1)         QC Batch 82186 - CCV (1)         Appendix         Laboratory Certifications         Standard Flags	10 10 10 10 10 12 12 12 12 13 13 13
Laboratory Control Spikes         QC Batch 82186 - LCS (1)         QC Batch 82268 - LCS (1)         QC Batch 82186 - MS (1)         Calibration Standards         QC Batch 82186 - ICV (1)         QC Batch 82186 - CCV (1)         Appendix         Laboratory Certifications         Standard Flags         Attachments	10 10 10 10 12 12 12 12 12 13 13 13 13

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# **Case Narrative**

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Samples for project Monsanto #4 were received by TraceAnalysis, Inc. on 2011-06-10 and assigned to work order 11061022. Samples for work order 11061022 were received intact at a temperature of 2.5 C.

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Samples were analyzed for the following tests using their respective methods.

		Prep	Prep	$\mathbf{QC}$	Analysis
Test	Method	Batch	Date	Batch	Date
Chloride (IC)	E 300.0	69766	2011-06-13 at 10:33	82186	2011-06-14 at 10:32
TDS	SM 2540C	69765	2011-06-13 at 11:32	82268	2011-06-16 at 12:09

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 11061022 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

 Report Date: June 21, 2011
 Work Order: 11061022
 Page Number: 5 of 13

 701047.014.01
 Monsanto #4
 Hobbs, NM

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# **Analytical Report**

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### Sample: 268922 - MW 1

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Chloride			1	103	0	mg/L	50	2.50
Parameter		Flag	Cert	Resul	it	Units	Dilution	RL
				R	L			
Prep Batch:	69766		Sample Pre	eparation:	2011-06-13		Prepared By:	AR
QC Batch:	82186		Date Analy	zed:	2011-06-14		Analyzed By:	AR
Analysis:	Chloride (IC)		Analytical	Method:	E 300.0		Prep Method:	N/A
Laboratory:	Midland							

### Sample: 268922 - MW 1

Laboratory:	Midland							
Analysis:	TDS		Analy	tical Method:	SM 2540C		Prep Method:	N/A
QC Batch:	82268		Date Analyzed:		2011-06-16		Analyzed By:	AR
Prep Batch: 69765			Samp	le Preparation:	2011-06-13		Prepared By:	AR
					$\mathbf{RL}^{-1}$			
Parameter			Flag	Cert	Result	$\mathbf{Units}$	Dilution	$\mathbf{RL}$
Total Dissolv	ed Solids	••••••••		1	2150	· mg/L	2	10.0

#### Sample: 268923 - MW 2

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (IC) 82186 69766	×	Analytical M Date Analyz Sample Prep	lethod: ed: aration:	E 300.0 2011-06-14 2011-06-13		Prep Method: Analyzed By: Prepared By:	N/A AR AR
				R	L			
Parameter		Flag	$\mathbf{Cert}$	$\operatorname{Resu}$	!t	Units	Dilution	$\mathbf{RL}$
Chloride			1	34.	1	mg/L	5	2.50

Report Date: June 21, 2011 Work Order: 11061022 Page Number: 6 of 13 701047.014.01 Hobbs, NM Monsanto #4 Sample: 268923 - MW 2 Laboratory: Midland Analysis: TDS Analytical Method: SM 2540C Prep Method: N/A QC Batch: 82268 Date Analyzed: 2011-06-16 Analyzed By: Prep Batch: 69765 Sample Preparation: Prepared By: 2011-06-13 DI

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			n.			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Total Dissolved Solids		1	470	mg/L	1	10.0

### Sample: 268924 - MW 3

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (IC) 82186 69766	Analytical Date Anal Sample Pr	Method: yzed: eparation:	E 300.0 2011-06-14 2011-06-13	Prep Method Analyzed By: Prepared By:	: N/A AR AR
			R	L		
Parameter	Flag	Cert	Resu	lt Unit	s Dilution	$\mathbf{RL}$
Chloride		1	35.	6 mg/]	5	2.50

### Sample: 268924 - MW 3

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TDS 82268 69765	Analy Date Samp	Analytical Method: Date Analyzed: Sample Preparation:		:	Prep Method: Analyzed By: Prepared By:	N/A AR AR
Parameter		Flor	Cont	RL Bacult	Inite	Dilution	D <b>T</b>
Farameter		r lag	Cert	Result	Units	Dilution	nL
Total Dissolv	red Solids		1	427	mg/L	1	10.0

### Sample: 268925 - MW 4

Laboratory:	Midland				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Metho	d: N/A
QC Batch:	82186	Date Analyzed:	2011-06-14	Analyzed By	: AR
Prep Batch:	69766	Sample Preparation:	2011-06-13	Prepared By	r: AR
Prep Batch:	69766	Sample Preparation:	2011-06-13	Prepared By	r: AR

Report Date: June 21, 2011 Work Order: 11061022 Page Number: 7 of 13 701047.014.01 Monsanto #4 Hobbs, NM ŧ  $\mathbf{RL}$  $\mathbf{RL}$ Parameter Flag  $\mathbf{Cert}$ Result Units Dilution Chloride 230 mg/L 10 2.50 1 Sample: 268925 - MW 4

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Laboratory:	Midland						
Analysis:	TDS	Analy	tical Method:	SM 2540C		Prep Method:	N/A
QC Batch: 82268		Date	Analyzed:	2011-06-16		Analyzed By:	AR
Prep Batch: 69765		Samp	le Preparation:	2011-06-13		Prepared By:	AR
·	,			RL			
Parameter		Flag	Cert	Result	Units	Dilution	$\mathbf{RL}$
Total Dissolv	ed Solids		1	752	mg/L	2	10.0

### Sample: 268926 - MW 5

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (IC) 82186 69766		Analytical M Date Analyz Sample Prej	Aethod: zed: paration:	E 300.0 2011-06-14 2011-06-13	• •	Prep Method: Analyzed By: Prepared By:	N/A AR AR
				R	L			
Parameter		Flag	Cert	Resu	lt	Units	Dilution	$\mathbf{RL}$
Chloride		<u>.</u>	1	30.	9	mg/L	5	2.50

#### Sample: 268926 - MW 5

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TDS 82268 69765	Analy Date Samp	tical Method: Analyzed: le Preparation:	SM 2540C 2011-06-16 2011-06-13		Prep Method: Analyzed By: Prepared By:	N/A AR AR
Parameter		Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolv	ed Solids		1	447	mg/L	1	10.0

Page Number: 8 of 13 Work Order: 11061022 Report Date: June 21, 2011 Hobbs, NM 701047.014.01 Monsanto #4 Sample: 268927 - MW 7 Laboratory: Midland Chloride (IC) Prep Method: N/A Analysis: Analytical Method: E 300.0 Analyzed By: QC Batch: AR Date Analyzed: 2011-06-14 82186 Prepared By: AR Prep Batch: 69766 Sample Preparation: 2011-06-13 RL Dilution  $\mathbf{RL}$ Parameter Flag Cert Result Units 2.50 5 Chloride 191 mg/L 1 Sample: 268927 - MW 7 Laboratory: Midland Prep Method: N/A Analysis: TDS Analytical Method: SM 2540C Analyzed By: AR QC Batch: 82268 Date Analyzed: 2011-06-16 Prepared By: AR Prep Batch: 69765 Sample Preparation: 2011-06-13 RL es en dista de la com Units Dilution RLParameter Flag Cert Result Total Dissolved Solids 594 mg/L 2 10.0 1

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Report Date: June 21, 2011 Work Order: 11061022 Page Number: 9 of 13 701047.014.01 Monsanto #4 Hobbs, NM **Method Blanks** Method Blank (1) QC Batch: 82186 QC Batch: 82186 Date Analyzed: Analyzed By: AR 2011-06-14 Prep Batch: 69766 QC Preparation: Prepared By: AR 2011-06-13 MDL Parameter Flag Cert Result Units  $\mathbf{RL}$ Chloride 0.827 mg/L 2.5 1 Method Blank (1) QC Batch: 82268 QC Batch: 82268 Date Analyzed: Analyzed By: AR 2011-06-16 Prep Batch: 69765 QC Preparation: 2011-06-13 Prepared By: AR MDL Parameter  $\mathbf{RL}$ Flag Cert Result Units Total Dissolved Solids <9.75 mg/L 10 ĩ Duplicates (1) Duplicated Sample: 268927 QC Batch: 82268 Analyzed By: AR Date Analyzed: 2011-06-16 Prep Batch: 69765 QC Preparation: 2011-06-13 Prepared By: AR

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		Duplicate	Sample				RPD
Param		$\mathbf{Result}$	$\mathbf{Result}$	Units	Dilution	RPD	Limit
Total Dissolved Solids	1	654	594	mg/L	2	10	10

Report Date: June 21, 2011 701047.014.01

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Work Order: 11061022 Monsanto #4

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Page Number: 10 of 13 Hobbs, NM

# Laboratory Control Spikes

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#### Laboratory Control Spike (LCS-1)

QC Batch:	82186	Date Analyzed: 2011-06-14	Analyzed By:	AR
Prep Batch:	69766	QC Preparation: 2011-06-13	Prepared By:	AR

			$\mathbf{LCS}$			Spike	Matrix		Rec.
Param	F	С	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride		1	24.7	mg/L	1	25.0	<0.265	99	90 - 110
D		14 D.D.	m /- 1 1						

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

-		 							2 .			
Chloride			1	25.3	mg/L	1	25.0	< 0.265	101	90 - 110	2	20
Param		F	С	Result	Units	Dil.	$\mathbf{Amount}$	Result	Rec.	Limit	RPD	Limit
				LCSD			Spike	Matrix		Rec.		RPD

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

### Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch:	82268 69765	Date Analyzed: QC Preparation:	2011-06-16 2011-06-13	<b>.</b>	 Analyzed By: Prepared By:	AR AR
-		• •				

			LCS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	С	Result	$\mathbf{Units}$	Dil.	Amount	Result	Rec.	Limit
Total Dissolved Solids		1	953	mg/L	1	1000	<9.75	95	90 - 110
		•							

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

			$\mathbf{LCSD}$			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	С	$\mathbf{Result}$	Units	Dil.	Amount	Result	Rec.	$\mathbf{Limit}$	RPD	Limit
Total Dissolved Solids		1	978	mg/L	1	1000	< 9.75	98	90 - 110	3	10

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spil	ke (MS-1)	Spiked Sample: 268927			
QC Batch:	82186	Date Analyzed:	2011-06-14	Analyzed By:	AR
Prep Batch:	69766	QC Preparation:	2011-06-13	Prepared By:	AR

Report Date: June 21, 2011 701047.014.01			Work O Mo	rder: 11 nsanto :		Page Number: 11 of 13 Hobbs, NM					
Param	ατι suting por	F	<b>C</b> 1	MS Result	Units	Dil.	Spike Amount	M	atrix esult	Rec.	Rec. Limit
Chloride			1	506	mg/L	10	275		187	116	90 - 110
Percent recovery is based on	the spike	resu	lt. RPD	is based	on the s	spike and s	pike duplic	cate res	sult.		
			MSD			Spike	Matrix		Rec.		RPD
Param	F	С	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride		1	488	mg/L	10	275	187	109	90 - 11	04	20

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Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Report Date: June 21, 2011 701047.014.01

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Work Order: 11061022 Monsanto #4

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Page Number: 12 of 13 Hobbs, NM

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# **Calibration Standards**

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Standard (ICV-1)

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QC Batch:	82186			Date 4	Analyzed By: AR				
					ICVs	ICVs Found	ICVs Borcont	Percent	Data
_			-		True	round	rercent	necovery	Date
Param		Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride	· _ · · ·		1	mg/L	25.0	25.2	101	90 - 110	2011-06-14

### Standard (CCV-1)

Analyzed By: AR QC Batch: 82186 Date Analyzed: 2011-06-14 4.144.14  $\mathbf{CCVs}$ CCVs **CCVs** , Percent Date True Found Percent Recovery Flag Param Cert Units Conc. Conc. Recovery Limits Analyzed Chloride mg/L 25.0 26.1 104 90 - 110 2011-06-14 1

Report Date: June 21, 2011 701047.014.01 Work Order: 11061022 Monsanto #4

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> Page Number: 13 of 13 Hobbs, NM

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## Appendix

### Laboratory Certifications

	Certifying	Certification	Laboratory
С	Authority	Number	Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUŖ	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704392-10-TX	Midland

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### Standard Flags

- F Description
- B. Analyte detected in the corresponding method blank above the method detection limit
- H Analyzed out of hold time
- J Estimated concentration
- Jb The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
- Je Estimated concentration exceeding calibration range.
- Qc Calibration check outside of laboratory limits.
- Qr RPD outside of laboratory limits
- Qs Spike recovery outside of laboratory limits.
- Qsr Surrogate recovery outside of laboratory limits.
- U The analyte is not detected above the SDL

### Attachments

The scanned attachments will follow this page.

Please note, each attachment may consist of more than one page.

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Report Date: October 6, 2011 Work Order: 11092905

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### a see from a Page Number: 1 of 2

### **Summary Report**

Steve Killingsworth Talon LPE-Midland 2901 State Highway 349 Midland, TX 79706

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Project Location: Hobbs, NM Project Name: Monsanto #4 Project Number: 701047.014.01 Report Date: October 6, 2011

Work Order: 11092905 

278570	MW-1	water	2011-09-27	14:55	2011-09-28
278571	MW-2	water	2011-09-27	15:05	2011-09-28
278572	MW-3	water	2011-09-27	15:00	2011-09-28
278573	MW-4	water	2011-09-27	15:10	2011-09-28
278574	MW-5	water	2011-09-27	15:30	2011-09-28
278575	MW-6	water	2011-09-27	15:22	2011-09-28
278576	MW-7	water	2011-09-27	15:15	2011-09-28

Param	Flag

Param	Flag	Result	Units	RL
Chloride	Qs	970	mg/L	. 2.5
Total Dissolved Solids		2280	mg/L	10

### Sample: 278571 - MW-2

Param	Flag <sup>.</sup>	$\mathbf{Result}$	Units	$\mathbf{RL}$
Chloride	Qı	24.8	mg/L	2.5
Total Dissolved Solids		428.0	mg/L	10

Sample: 278572 - MW-3

continued ...

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Report Date: October 6, 201	1 W	ork Order: 11092905	Page Nu	mber: 2 of 2
sample 278572 continued				
Param	Flag	Result	Units	RL
Param	Flag	Result	Units	RL
Chloride Total Dissolved Solids	Qa .	26.1 314.0	mg/L mg/L	2.5 10
Sample: 278573 - MW-4				
Param	Flag	Result	Units	RL
Chloride Total Dissolved Solids	Qs	180 664.0	mg/L mg/L	2.5 10
	1.			•
Sample: 278574 - MW-5				
Sample: 278574 - MW-5 Param	Flag	Result	Units	RL
Sample: 278574 - MW-5 Param Chloride Total Dissolved Solids	Plag Qa	Result 24.9 407.0	Units mg/L mg/L	RL 2.5 10
Sample: 278574 - MW-5 Param Chloride Total Dissolved Solids Sample: 278575 - MW-6	Plag Source of the Second Seco	24.9 407.0	Units mg/L mg/L	RL 2.5 10
Sample: 278574 - MW-5 Param Chloride Total Dissolved Solids Sample: 278575 - MW-6 Param	Flag Flag	24.9 407.0 Result	Units mg/L mg/L Units	RL 2.5 10 RL
Sample: 278574 - MW-5 Param Chloride Total Dissolved Solids Sample: 278575 - MW-6 Param Chloride Total Dissolved Solids	Flag Pa Flag Qa	Result 24.9 407.0 Result 25.0 405.0	Units mg/L mg/L Units mg/L mg/L	RL 2.5 10 8 8 8 8 8 8 8 8 8 8 9 8 9 8 9 8 9 8 9
Sample: 278574 - MW-5 Param Chloride Total Dissolved Solids Sample: 278575 - MW-6 Param Chloride Total Dissolved Solids	Plag Pa	Result 24.9 407.0 Result 25.0 405.0	Units mg/L mg/L Units mg/L mg/L	RL 2.5 10 RL 2.5 10
Sample: 278574 - MW-5 Param Chloride Total Dissolved Solids Sample: 278575 - MW-6 Param Chloride Total Dissolved Solids Sample: 278576 - MW-7	Plag Qa Flag Qa	Result 24.9 407.0 Result 25.0 405.0	Units mg/L mg/L Units mg/L mg/L	RL 2.5 10 RL 2.5 10
Sample: 278574 - MW-5 Param Chloride Total Dissolved Solids Sample: 278575 - MW-6 Param Chloride Total Dissolved Solids Sample: 278576 - MW-7 Param	Flag Qa Flag Qa Flag	Result 24.9 407.0 Result 25.0 405.0 Result	Units mg/L mg/L Units mg/L mg/L	RL 2.5 10 RL 2.5 10 RL

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6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800+378+1296 806+794+1296 FAX 806+794+1298 200 East Sunset Road, Suite E El Paso, Texas 79922 888+588+3443 FAX 915+585+4944 915+585+3443 5002 Basin Street, Suite A1 Midland, Texas 79703 432+689+6301 FAX 432+689+6313 6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132 817-201-5260 E-Mail: lab@traceanalysis.com Certifications NELAP DoD LELAP WBE HUB NCTRCA DBE Kansas Oklahoma ISO 17025 Analytical and Quality Control Report Steve Killingsworth Report Date: October 6, 2011

Talon LPE-Midland 2901 State Highway 349 Midland, TX, 79706

Work Order: 11092905

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Project Location:Hobbs, NMProject Name:Monsanto #4Project Number:701047.014.01

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
278570	MW-1	water	2011-09-27	14:55	2011-09-28
278571	MW-2	water	2011-09-27	15:05	2011-09-28
278572	MW-3	water	2011-09-27	15:00	2011-09-28
27857 <b>3</b>	MW-4	water	2011-09-27	15:10	2011-09-28
278574	MW-5	water	2011-09-27	15:30	2011-09-28
278575	MW-6	water	2011-09-27	15:22	2011-09-28
278576	MW-7	water	2011-09-27	15:15	2011-09-28

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 17 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

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Dr. Blair Leftwich, Director Dr. Michael Abel, Project Manager

Page 2 of 17

# **Report Contents**

Case Narrative	4
Analytical Report	5
Sample 278570 (MW-1)	. 5
Sample 278571 (MW-2)	. 5
Sample 278572 (MW-3)	. 6
Sample 278573 (MW-4)	. 6
Sample 278574 (MW-5)	. 7
Sample 278575 (MW-6)	. 7
Sample 278576 (MW-7)	. 8
Method Blanks	10
QC Batch 85206 - Method Blank (1)	. 10
QC Batch $85209$ - Method Blank (1)	. 10
QC Batch 85286 - Method Blank (1)	. 10
QC Batch 85310 - Method Blank (1)	. 10
QC Batch 85206 - Duplicate (1)	. 11
QC Batch 85310 - Duplicate (1)	. 11
Laboratory Control Spikes	12
OC Batch 85206 - LCS (1)	12
OC Batch 85200 - LCS (1)	12
OC Batch 85286 - LCS (1)	12
QC Batch $85310 - LCS$ (1)	. 13
QC Batch 85209 - MS (1)	. 13
QC Batch 85209 - MS (2)	. 13
QC Batch $85286 - MS(1)$	. 14
QC Batch 85286 - MS (2)	. 14
Calibration Standards	16
QC Batch 85209 - $CCV(1)$	. 16
QC Batch 85209 - $CCV(2)$	. 16
$QC Batch 85286 - CCV (1) \dots \dots$	. 16
QC Batch $85286 - CCV(2)$	. 16
Appendix	17
Laboratory Certifications	. 17
Standard Flags	. 17
Attachments	. 17

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### **Case Narrative**

Samples for project Monsanto #4 were received by TraceAnalysis, Inc. on 2011-09-28 and assigned to work order 11092905. Samples for work order 11092905 were received intact at a temperature of 5.0 C.

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Samples were analyzed for the following tests using their respective methods.

		Prep	Prep	QC	Analysis
Test	Method	$\operatorname{Batch}$	Date	Batch	Date
Chloride (IC)	E 300.0	72344	2011-10-03 at 11:42	85209	2011-10-03 at 11:48
Chloride (IC)	E 300.0	72403	2011-10-05 at 10:29	85286	2011-10-05 at 10:42
TDS	SM 2540C	72341	2011-10-03 at 11:11	85206	2011-10-03 at 11:13
TDS	SM 2540C	72424	2011-10-05 at 15:43	85310	2011-10-05 at 15:45

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 11092905 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Report Date: October 6, 2011 Work Order: 11092905 Page Number: 5 of 17 701047.014.01 Hobbs, NM Monsanto #4

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# **Analytical Report**

### Sample: 278570 - MW-1 \_

Chloride		Qs	1	97	0	mg/L	100	2.50
Parameter		Flag	Cert	Resu	lt	Units	Dilution	RL
				R	L			
Prep Batch:	72344		Sample Pre	Sample Preparation: 2011-09-30			Prepared By:	$\mathbf{CR}$
QC Batch: 85209			Date Analy	Date Analyzed: 2011-10-03			Analyzed By:	CR
Analysis: Chloride (IC)		Analytical l	Analytical Method: E 300.0				N/A	
Laboratory:	Lubbock							

### Sample: 278570 - MW-1

Laboratory: Analysis: QC Batch: Prep Batch:	Lubbock TDS 85206 72341	Anal Date Samj	ytical Method: Analyzed: ple Preparation:	SM 2540C 2011-10-03 2011-09-30		Prep Method: Analyzed By: Prepared By:	N/A RL RL
Parameter		Flog	Cont	RL Bogult	~ TInita	Dilution	DT
Total Dissolv	ed Solids	Tiag		2280	mg/L	5	10.00
			(	2200	mg/ L		

### Sample: 278571 - MW-2

Laboratory: Analysis: QC Batch: Prep Batch:	Lubbock Chloride (IC) 85209 72344		Analytical Date Analy Sample Pre	Method: vzed: eparation:	E 300.0 2011-10-03 2011-09-30	Prep Metho Analyzed B Prepared B	d: N/A y: CR y: CR
				R	Ĺ		
Parameter		Flag	$\mathbf{Cert}$	Resul	t Units	s Dilution	$\mathbf{RL}$
Chloride		Qs	1	24.	3 mg/I	6	2.50

Report Date: October 6, 2011 Work Order: 11092905 Page Number: 6 of 17 701047.014.01 Monsanto #4 Hobbs, NM Sample: 278571 - MW-2 Laboratory: Lubbock Analysis: TDS **Analytical Method:** Prep Method: N/A SM 2540C QC Batch: 85206 2011-10-03 Analyzed By: RL Date Analyzed: Prep Batch: 72341 Prepared By: RL Sample Preparation: 2011-09-30 RL Parameter Flag Result Units Dilution  $\mathbf{RL}$ Cert **Total Dissolved Solids** 428.0 10.00 mg/L 1 1 Sample: 278572 - MW-3 Laboratory: Lubbock Chloride (IC) Analysis: Analytical Method: E 300.0 Prep Method: N/A QC Batch: 85209 Analyzed By: CR Date Analyzed: 2011-10-03 Prep Batch: 72344 Prepared By:  $\mathbf{CR}$ Sample Preparation: 2011-09-30  $\mathbf{RL}$ Parameter Flag Cert Result Units Dilution  $\mathbf{RL}$ Chloride 26.1 mg/L 6 2.50Qs 1

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### Sample: 278572 - MW-3

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Laboratory: Lubbock

Laboratory.	DUDDOOK							
Analysis:	TDS		Ana	lytical Method:	SM 2540C		Prep Method:	N/A
QC Batch:	85310		Dat	e Analyzed:	2011-10-05		Analyzed By:	ĊŔ
Prep Batch:	72424		San	ple Preparation:	2011-10-05		Prepared By:	$\mathbf{CR}$
		X						
					$\mathbf{RL}$			
Parameter			Flag	Cert	$\mathbf{Result}$	Units	Dilution	$\mathbf{RL}$
Total Dissolv	ed Solids		_	1	314.0	mg/L	1	10.00

### Sample: 278573 - MW-4

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	85209	Date Analyzed:	2011-10-03	Analyzed By:	CR
Prep Batch:	72344	Sample Preparation:	2011-09-30	Prepared By:	$\mathbf{CR}$

Report Date 701047.014.0	e: October 6, 20 )1		Worl	Corder: 11092908 Monsanto #4	5	Page Number: Hobb	7 of 17 os, NM
Parameter	:	Flag	Cert	RL Besult	Units	Dilution	BL
Chloride		Q1	1	180	mg/L	6	2.50
Sample: 27	'8573 - MW-4						
Laboratory: Analysis: QC Batch: Prep Batch:	Lubbock TDS 85310 72424		Analytical Me Date Analyze Sample Prepa	ethod: SM 2540 d: 2011-10- ration: 2011-10-	DC -05 -05	Prep Method: Analyzed By: Prepared By:	N/A CR CR
				RI.			

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Parameter	Flag	Cert	Result	Units	Dilution	RL
Total Dissolved Solids		1	664.0	mg/L	1	10.00

Sample: 278574 - MW-5

Laboratory: Analysis: QC Batch: Prep Batch:	Lubbock Chloride (l 85209 72344	I <b>C)</b>	Analytical Date Analy Sample Pre	Method: zed: paration:	E 300.0 2011-10-03 2011-09-30	Prep Method: Analyzed By: Prepared By:	N/A CR CR
Demonster		<b>T</b> 21	0.1	R		Dilution	ът
Parameter	• •	Flag	Cert	Resu	lt Units	Dilution	RL
Chloride		Qs	1	24.	9 mg/L	6	2.50

### Sample: 278574 - MW-5

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Laboratory: Analysis: QC Batch: Prep Batch:	Lubbock TDS 85310 72424	Anal Date Samp	ytical Method: Analyzed: de Preparation:	SM 2540C 2011-10-05 2011-10-05		Prep Method: Analyzed By: Prepared By:	N/A CR CR
Parameter		Flag	Cert	$\operatorname{RL}$ Result	Units	Dilution	RL
Total Dissolv	red Solids		1	407.0	mg/L	1	`10.00

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Report Date 701047.014.0	e: October 6, 2011 01		Work Ord Mons	ler: 11092905 anto #4	; 	Page Number: Hobi	8 of 17 os, NM
Sample: 27	'8575 - MW-6						
Laboratory: Analysis: QC Batch: Prep Batch:	Lubbock Chloride (IC) 85209 72344		Analytical Meth Date Analyzed: Sample Prepara	od: E 300. 2011-1 tion: 2011-0	.0 .0-03 99-30	Prep Method: Analyzed By: Prepared By:	N/A CR CR
-			_	RL			
Parameter Chloride	<u> </u>	Flag Qs	Cert	Result 25.0	Units mg/L	Dilution 6	RL 2.50
Sample: 27	'8575 - MW-6						
Laboratory:	Lubbock						
Analysis:	TDS		Analytical Method	: SM 2540	С	Prep Method:	N/A
QC Batch:	85310		Date Analyzed:	2011-10-0	05	Analyzed By:	CR
Prep Batch:	72424		Sample Preparatio	n: 2011-10-0	05	Prepared By:	CR
Parameter	• ••• M. • • •	n a san an a	Flag Cert	RL Result		Dilution	RL
Total Dissolv	ved Solids		1	405.0	mg/L	1	10.00
						· · · ·	
Sample: 27	8576 - MW-7						
Laboratory:	Lubbock		<sup>2</sup>				-
Analysis:	Chloride (IC)	•	Analytical Meth	od: E 300.	0	Prep Method:	N/A
QC Batch:	85286		Date Analyzed:	2011-1	0-05	Analyzed By:	ĊŔ
Prep Batch:	72403		Sample Preparat	tion: 2011-1	0-04	Prepared By:	$\mathbf{CR}$
<b>.</b> .			~	RL			
Parameter		Flag	Cert	Result	Units	Dilution	RL
Unioride		Qs	ì	423	mg/L	10	2.50
Sample: 27	8576 - MW-7						
Laboratory:	Lubbock						
Analysis:	TDS		Analytical Method	: SM 2540	С	Prep Method:	N/A
QC Batch:	85310		Date Analyzed:	2011-10-0	05	Analyzed By:	ĊŔ
Prep Batch:	72424		Sample Preparation	n: 2011-10-0	05	Prepared By:	$\mathbf{CR}$
						continued	

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Page Number: 9 of 17 Work Order: 11092905 Report Date: October 6, 2011 Hobbs, NM 701047.014.01 Monsanto #4 sample 278576 continued ....  $\mathbf{RL}$ RL Flag Units Dilution Parameter  $\mathbf{Cert}$ Result  $\mathbf{RL}$  $\mathbf{RL}$ Flag Units Dilution Parameter Cert Result 10.00 Total Dissolved Solids mg/L 2 968.0 1 ι.

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Report Date: October 6, 2011 Work Order: 11092905 Page Number: 10 of 17 701047.014.01 Hobbs, NM Monsanto #4 **Method Blanks** Method Blank (1) QC Batch: 85206 QC Batch: 85206 Date Analyzed: Analyzed By: RL 2011-10-03 Prep Batch: 72341 Prepared By: RL QC Preparation: 2011-10-03 MDL Flag RL Parameter Result Units Cert **Total Dissolved Solids** <5.000 mg/L 10 1 Method Blank (1) QC Batch: 85209 QC Batch: 85209 Date Analyzed: 2011-10-03 Analyzed By: CR Prep Batch: 72344 Prepared By: CR QC Preparation: 2011-10-03 MDL Flag  $\mathbf{RL}$ Parameter Cert Result Units Chloride < 0.0319 mg/L 2.5 1 Method Blank (1) QC Batch: 85286 QC Batch: 85286 Analyzed By: CR Date Analyzed: 2011-10-05 Prep Batch: 72403 Prepared By: QC Preparation: 2011-10-05 CRMDL  $\mathbf{RL}$ Parameter Units Flag Cert Result Chloride 0.108 mg/L 2.51 Method Blank (1) QC Batch: 85310 Analyzed By: CR QC Batch: 85310 Date Analyzed: 2011-10-05 Prepared By: CR Prep Batch: 72424 QC Preparation: 2011-10-05

.

Report Date: October 6, 2011 Work Order: 11092905 Page Number: 11 of 17 701047.014.01 Hobbs, NM Monsanto #4 MDL Parameter Flag Cert Result Units  $\mathbf{RL}$ Total Dissolved Solids < 5.000 10 mg/L 1

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### Duplicates (1) Duplicated Sample: 278558

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QC Batch:	85206		Date Analyzed:	2011-10-03			Analyzed By:	$\mathbf{RL}$
Prep Batch:	72341		QC Preparation:	2011-10-03			Prepared By:	$\mathbf{RL}$
			Duplicate	Sample				RPD
Param	· .		Result	Result	Units	Dilution	RPD	Limit
Total Dissolv	ed Solids	1	1312	1356	mg/L	2	3	10

### and the second second

Duplicates (1) Duplicated Sample: 278999

QC Batch: Prep Batch:	85310 72424	بر میشین میشود. در میشوند میشود.	Date Analyzed: QC Preparation:	2011-10-05 2011-10-05	net dat i strike i strike I	ay in angla	Analyzed By Prepared By	7: CR 7: CR
					ي <b>ر</b> . د			
			Duplicate	Sample -		<b>5</b> ,		RPD
Param			Result	Result	Units	Dilution	RPD	Limit
Total Dissolv	ed Solids	1	682.0	680.0	mg/L	2	0	10

Report Date: October 6, 2011 Page Number: 12 of 17 Work Order: 11092905 701047.014.01 Hobbs, NM Monsanto #4Laboratory Control Spikes Laboratory Control Spike (LCS-1) QC Batch: 85206 Analyzed By: RL Date Analyzed: 2011-10-03 Prep Batch: 72341 Prepared By: RL QC Preparation: 2011-10-03 LCS Spike Matrix Rec. Param F С Result Units Dil. Amount Result Rec. Limit **Total Dissolved Solids** 90 - 110 1010 1000 <5.00 101 mg/L 1 1 Percent'recovery is based on the spike result. RPD is based on the spike and spike duplicate result. RPD LCSD Spike Matrix Rec. Units Amount Param F С Result Dil. Result Rec. Limit RPD Limit Total Dissolved Solids 102 1020 mg/L 1000 <5.00 90 - 110 1 . 10 1 1 Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result د. دوله ارد در دار در Laboratory Control Spike (LCS-1) QC Batch: 85209 Date Analyzed: 2011-10-03 Analyzed By: CR Prep Batch: 72344 QC Preparation: 2011-10-03 Prepared By: CR LCS Spike Matrix Rec. Param F С Result Units Dil. Amount Result Rec. Limit Chloride 24.1 mg/L 25.0 < 0.0319 96 90 - 110 1 1 Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result. RPD LCSD Spike Rec. Matrix Param F Limit RPD Limit С Result Units Dil. Result Amount Rec. Chloride < 0.0319 95 90 - 110 20 23.8 25.0 mg/L 1 1 Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result. Laboratory Control Spike (LCS-1) QC Batch: 85286 Analyzed By: CR Date Analyzed: 2011-10-05

QC Preparation: 2011-10-05

Prepared By:

CR

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Prep Batch:

72403

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701047.014.01				Work C	Order: 1 Onsanto	1092905 #4			Page N	Number: Ho	13 of 17 bbs, NM
Daram		F	0	LCS	TT 14	D:1	Spike	M	atrix	200	Rec.
Chloride		<b>r</b>	<u> </u>	22.0	ma/I	1	25 0	 0	108	<u>05</u>	$\frac{1100}{90-110}$
			<u>, 1</u>	40.5	11g/12		20.0		14		00 110
rercent recovery is based on the	вріке	resu	It. RPD I	s dased (	on the s	pike and sj	pike auplica	ate res	шь.		
			LCSD			Spike	Matrix		Rec.		RPD
Param	F	C	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride		1	23.4	mg/L	1	25.0	0.108	93	90 - 110	2	20
Percent recovery is based on the	spike	resu	lt. RPD i	s based o	on the sp	pike and s	oike duplica	ate res	ult.		
									. ,		
Laboratory Control Spike (I	JCS-1	)									
QC Batch: 85310			Date	Analyzed	: 201	1-10-05			Ana	lvzed B	v: CR
Prep Batch: 72424			QC P	reparatio	n: 201	1-10-05			Pre	pared B	y: CR
•			•	•					·		
	8 - 17 - 14 1	• •	ling attacks			$(e^{i \lambda}) (e^{i \lambda}) = (e^{i \lambda}) (e^{i \lambda}) (e^{i \lambda})$	<b>a</b> "				D
Distriction of the second second second	5. A.S.	· 🖬 ·	(A. 5-1	LCS	<b>TT</b> •/		Spike	M	atrix	)	Rec.
Param Total Dissolved Solida		F.	<u>·U · I</u>	lesult	Units'	<u> </u>	Amount	<u> </u>	ESUIT I	$\frac{100}{07}$	$\frac{\text{Limit}}{00 - 110}$
Total Dissolved Solids			1	913	mg/L		1000		0.00	91	90 - 110
Devicent necessary is beend on the	cniko	resul	lt. RPD i	s based o	on the s	pike and sp	oike duplica	ate res	ult.		
Fercent recovery is based on the	apine						-				
Fercent recovery is based on the	. spike	1054	LCSD			Spike	Matrix		Rec.		RPD
Percent recovery is based on the	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Param Total Dissolved Solids	F	C 1	LCSD Result 1000	Units mg/L	Dil.	Spike Amount 1000	Matrix Result <5.00	Rec.	Rec. Limit 90 - 110	RPD 3	RPD Limit 10
Param Total Dissolved Solids Percent recovery is based on the	F	C 1 resul	LCSD Result 1000	Units mg/L	Dil. 1	Spike Amount 1000	Matrix Result <5.00	Rec. 100	Rec. Limit 90 - 110	RPD 3	RPD Limit 10
Param Total Dissolved Solids Percent recovery is based on the	F	C 1 resul	LCSD Result 1000 It. RPD i	Units mg/L s based o	Dil. 1 on the sp	Spike Amount 1000 pike and sp	Matrix Result <5.00 bike duplica	Rec. 100 ate res	Rec. Limit 90 - 110 ult.	RPD 3	RPD Limit 10
Param Total Dissolved Solids Percent recovery is based on the	F	C 1 resul	LCSD Result 1000 It. RPD i	Units mg/L s based o	Dil. 1 on the sp	Spike Amount 1000 pike and sp	Matrix Result <5.00 Dike duplica	Rec. 100 ate res	Rec. Limit 90 - 110 ult.	RPD 3	RPD Limit 10
Param Total Dissolved Solids Percent recovery is based on the	F	C 1 resul	LCSD Result 1000 It. RPD i	Units mg/L s based o	Dil. 1 on the sp	Spike Amount 1000 pike and sp	Matrix Result <5.00 pike duplica	Rec. 100 ate res	Rec. Limit 90 - 110 ult.	RPD 3	RPD Limit 10
Percent recovery is based on the Param Total Dissolved Solids Percent recovery is based on the Matrix Spike (MS-1) Spik	F spike ed Sai	C 1 resul	LCSD Result 1000 t. RPD i 278554	Units mg/L s based o	Dil. 1 m the sj	Spike Amount 1000 pike and sp	Matrix Result <5.00 Dike duplica	Rec. 100 ate res	Rec. Limit 90 - 110 ult.	RPD 3	RPD Limit 10
Percent recovery is based on the Param Total Dissolved Solids Percent recovery is based on the Matrix Spike (MS-1) Spik	F spike ed Sai	C 1 resul	LCSD Result 1000 It. RPD i 278554	Units mg/L s based o	Dil. 1 m the s	Spike Amount 1000 pike and sp	Matrix Result <5.00 bike duplica	Rec. 100 ate res	Rec. Limit 90 - 110 ult.	RPD 3	RPD Limit 10
Percent recovery is based on the Param Total Dissolved Solids Percent recovery is based on the Matrix Spike (MS-1) Spik QC Batch: 85209	F spike ed Sai	C 1 resul	LCSD Result 1000 It. RPD i 278554	Units mg/L s based o Analyzed	Dil. 1 m the sp : 201	Spike Amount 1000 pike and sp 1-10-03	Matrix Result <5.00 Dike duplica	Rec. 100 ate res	Rec. Limit 90 - 110 ult. Ana	RPD 3	RPD Limit 10 y: CR
Percent recovery is based on the Param Total Dissolved Solids Percent recovery is based on the Matrix Spike (MS-1) Spik QC Batch: 85209 Prep Batch: 72344	F spike ed Sai	C 1 resul	LCSD Result 1000 It. RPD i 278554 Date QC P	Units mg/L s based o Analyzed reparatio	Dil. 1 on the sp : 201 n: 201	Spike Amount 1000 Dike and sp 1-10-03 1-10-03	Matrix Result <5.00 Dike duplica	Rec. 100 ate res	Rec. Limit 90 - 110 ult. Ana Pre	RPD 3	RPD Limit 10 y: CR y: CR
Percent recovery is based on the Param Total Dissolved Solids Percent recovery is based on the Matrix Spike (MS-1) Spik QC Batch: 85209 Prep Batch: 72344	F spike ed Sai	C 1 resul	LCSD Result 1000 It. RPD i 278554 Date QC P	Units mg/L s based o Analyzed reparatio	Dil. 1 m the sp : 201 n: 201	Spike Amount 1000 pike and sp 1-10-03 1-10-03	Matrix Result <5.00 bike duplica	Rec. 100 ate res	Rec. Limit 90 - 110 ult. Ana Pre	RPD 3	RPD Limit 10 y: CR y: CR
Percent recovery is based on the Total Dissolved Solids Percent recovery is based on the Matrix Spike (MS-1) Spik QC Batch: 85209 Prep Batch: 72344	F spike	C 1 resul	LCSD Result 1000 It. RPD i 278554 Date QC P	Units mg/L s based o Analyzed reparatio MS	Dil. 1 m the sp : 201 n: 201	Spike Amount 1000 pike and sp 1-10-03 1-10-03	Matrix Result <5.00 Dike duplica	Rec. 100 ate res	Rec. Limit 90 - 110 ult. Ana Pre	RPD 3	RPD Limit 10 y: CR y: CR y: CR Rec.
Percent recovery is based on the Total Dissolved Solids Percent recovery is based on the Matrix Spike (MS-1) Spik QC Batch: 85209 Prep Batch: 72344 Param	F spike ed Sai	C 1 resul	LCSD Result 1000 t. RPD i 278554 Date QC P	Units mg/L s based o Analyzed reparatio MS Result	Dil. 1 m the sp : 201 n: 201 Units	Spike <u>Amount</u> 1000 pike and sp 1-10-03 1-10-03 Dil.	Matrix Result <5.00 Dike duplica Spike Amount	Rec. 100 ate res M R	Rec. Limit 90 - 110 ult. Ana Pre atrix esult	RPD 3	RPD Limit 10 y: CR y: CR y: CR Rec. Limit
Param Total Dissolved Solids Percent recovery is based on the Matrix Spike (MS-1) Spik QC Batch: 85209 Prep Batch: 72344 Param Chloride	F spike ed Sa	C 1 resul mple:	LCSD Result 1000 It. RPD i 278554 Date QC P C F	Units mg/L s based of Analyzed reparatio MS Result 198	Dil. 1 m the sp : 201 n: 201 Units mg/L	Spike Amount 1000 pike and sp 1-10-03 1-10-03 Dil. 6	Matrix Result <5.00 Dike duplica Dike duplica Dike Auplica	Rec. 100 ate res M Ra	Rec. Limit 90 - 110 ult. Ana Pre atrix esult 1 0.6	RPD 3 alyzed B pared B Rec. 85	RPD Limit 10 y: CR y: CR y: CR Rec. Limit 90 - 110
Percent recovery is based on the Param Total Dissolved Solids Percent recovery is based on the Matrix Spike (MS-1) Spik QC Batch: 85209 Prep Batch: 72344 Param Chloride Percent recovery is based on the	F spike ed Sau	C 1 resul mple: F Q0	LCSD Result 1000 t. RPD i 278554 Date QC P C E	Units mg/L s based of Analyzed reparatio MS Result 198 s based of	Dil. 1 on the sp : 201 n: 201 Units mg/L on the sp	Spike Amount 1000 pike and sp 1-10-03 1-10-03 Dil. 6 pike and sp	Matrix Result <5.00 Dike duplica Dike duplica Amount 150 Dike duplica	Rec. 100 ate res M R ate res	Rec. Limit 90 - 110 ult. Ana Pre atrix esult I 0.6 ult.	RPD 3	RPD Limit 10 y: CR y: CR Rec. Limit 90 - 110
Percent recovery is based on the Param Total Dissolved Solids Percent recovery is based on the Matrix Spike (MS-1) Spik QC Batch: 85209 Prep Batch: 72344 Param Chloride Percent recovery is based on the	F spike ed Saa spike	C 1 result mple: F Q* result	LCSD Result 1000 It. RPD i 278554 Date QC P C F 1 It. RPD i	Units mg/L s based of Analyzed reparatio MS Result 198 s based of	Dil. 1 on the sp : 201 n: 201 Units mg/L on the sp	Spike Amount 1000 pike and sp 1-10-03 1-10-03 Dil. 6 pike and sp	Matrix Result <5.00 Dike duplica Spike Amount 150 Dike duplica	Rec. 100 ate res M R 7 ate res	Rec. Limit 90 - 110 ult. Ana Pre atrix esult I 0.6 ult.	RPD 3 alyzed B pared B Rec. 85	RPD Limit 10 y: CR y: CR y: CR Rec. Limit 90 - 110
Percent recovery is based on the Param Total Dissolved Solids Percent recovery is based on the Matrix Spike (MS-1) Spik QC Batch: 85209 Prep Batch: 72344 Param Chloride Percent recovery is based on the	F spike ed Sau spike	C 1 result mple: F Q0 result	LCSD Result 1000 It. RPD i 278554 Date QC P C F 1 t. RPD i MSD	Units mg/L s based of Analyzed reparatio MS Cesult 198 s based of	Dil. 1 m the sp : 201 n: 201 Units mg/L m the sp	Spike Amount 1000 pike and sp 1-10-03 1-10-03 Dil. 6 pike and sp Spike	Matrix Result <5.00 Dike duplica Dike duplica Matrix	Rec. 100 ate res M Ra Tate res	Rec. Limit 90 - 110 ult. Ana Pre atrix esult 1 0.6 ult. Rec.	RPD 3	RPD Limit 10 y: CR y: CR Rec. Limit 90 - 110 RPD
Percent recovery is based on the Param Total Dissolved Solids Percent recovery is based on the Matrix Spike (MS-1) Spik QC Batch: 85209 Prep Batch: 72344 Param Chloride Percent recovery is based on the Param	F spike ed Sau spike F	C 1 result mple: F Q8 result C	LCSD Result 1000 t. RPD i 278554 Date QC P C F 1 t. RPD i MSD Result	Units mg/L s based of Analyzed reparation MS Result 198 s based of Units	Dil. 1 m the sp : 201 1 : 201 Units mg/L m the sp Dil.	Spike Amount 1000 pike and sp 1-10-03 1-10-03 Dil. 6 pike and sp Spike Amount	Matrix Result <5.00 Dike duplica Dike duplica Amount 150 Dike duplica Matrix Result	Rec. 100 ate res M Ru 7 ate res Rec.	Rec. Limit 90 - 110 ult. Ana Pre atrix esult I 0.6 ult. Rec. Limit	RPD 3 alyzed B pared B Rec. 85 RPD	RPD Limit 10 y: CR y: CR Rec. Limit 90 - 110 RPD Limit

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Report Date: Oct 701047.014.01	ober 6, 2011			Work ( M	Order: 1 onsanto		Page Number: 14 of 17 Hobbs, NM				
Matrix Spike (N	(IS-2) Spiked	l Sample	: 27857	75							
QC Batch: 8520 Prep Batch: 7234	)9 14	* <b>A</b> *	Da QC	te Analyzed C Preparatio	l: 201 5n: 201	1-10-03 1-10-03			Ana Prej	lyzed By pared By	CR CR
Param		F	С	MS Result	Units	Dil.	Spike Amount	Ma Re	trix sult R	lec.	Rec. Limit
Chloride		Qs	1	148	mg/L	6	150	2	5	82 9	0 - 110
Percent recovery is	s based on the s	pike resu	lt. RP	D is based o	on the s	pike and sj	oike duplic	ate resu	lt.		
Param		F C	MS Rest	D ılt Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	·-··	Qs 1	147	7 mg/L	6	150	25	81	90 - 110	1	20
Prep Batch: 7240	)3	<b>,</b>	Da QC	te Analyzed Preparatio	i: 201 on: 201	1-10-05 1-10-05			Ana Prej	jyzed By pared By	CR CR
Damana		Б	C	MS	<b>TT</b> •/	<b>D</b> .1	Spike	Ma	trix		Rec.
Chloride		<b>F</b>	<u> </u>	561	Units mg/L	11. 12	Amount		Suit R	$\frac{1}{95}$	$\frac{1100}{10}$ - 110
Percent recovery is	based on the s	nika resu	1+ RP	D is based of	$\frac{116}{11}$	vike and cr	ike duplice	oto rosu	1+		
Param	based on the sp	F C	, MSI	D IS Dased (		Spike	Matrix			ПО	RPD
Chloride		<u>r</u> <u>0</u> 1	549	mg/L	12	300	275	91	90 - 110	2	20
Percent recovery is	s based on the sj	pike resu	lt. R.P.	D is based o	on the s	pike and sp	oike duplica	ate resu	lt.		
Percent recovery is Matrix Spike (M	s based on the sp 1S-2) Spiked	pike resu . Sample:	It. R.P.	D is based o	on the s	pike and sp	oike duplica	ate resu	lt.		 >
Percent recovery is Matrix Spike (M QC Batch: 8528 Prep Batch: 7240	s based on the sp 1S-2) Spiked 16 13	pike resu . Sample:	27888 27888 Da QC	D is based o 7 te Analyzed Preparatio	on the sj l: 201 on: 201	pike and sp 1-10-05 1-10-05	pike duplic:	ate resu	lt. Ana Prej	lyzed By pared By	: CR : CR
Percent recovery is Matrix Spike (M QC Batch: 8528 Prep Batch: 7240	s based on the sp 1S-2) Spiked 6 3	pike resu Sample:	1t. RP. 27888 Da QC	D is based of 7 te Analyzed Preparatio MS	on the sj l: 201 on: 201	pike and sp 1-10-05 1-10-05	spike duplic	Ma	lt. Ana Prep trix	lyzed By pared By	CR CR Rec.
Percent recovery is Matrix Spike (M QC Batch: 8528 Prep Batch: 7240 Param	s based on the spiked (S-2) Spiked (S-3)	pike resu Sample: F	27888 Da QC	D is based of 7 te Analyzed Preparatio MS Result	on the space of th	Dil.	Spike Amount	Ma4	lt. Ana Prep trix sult F	lyzed By pared By tec.	: CR : CR Rec. Limit

Report Date: October 6, 2011 Page Number: 15 of 17 Work Order: 11092905 701047.014.01 Hobbs, NM Monsanto #4 RPD MSD Spike Matrix Rec. RPD Param Result Result Limit Limit  $\mathbf{F}$ С Units Dil. Amount Rec. Chloride .2 .20 163 mg/L <u>6</u> 150 .1 Qs

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Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

م المراجع المر وما يع المحصول المراجع Report Date: October 6, 2011 701047.014.01 Work Order: 11092905 Monsanto #4

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Page Number: 16 of 17 Hobbs, NM

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# **Calibration Standards**

### Standard (CCV-1)

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QC Batch:	85209		-	Date .	Analyzed:	2011-10-03		Analy	zed By: CR
					CCVs	CCVs	CCVs	Percent	
					True	Found	Percent	Recovery	Date
Param		Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride			1	mg/L	25.0	23.3	93	90 - 110	2011-10-03

### Standard (CCV-2)

Percent	···· ¥4 <sup>1</sup> ·	es esta
Recovery	Date	
Limits	Analyzed	
90 - 110	2011-10-03	
-	Limits 90 - 110	Limits         Analyzed           90 - 110         2011-10-03

### Standard (CCV-1)

anger Ar na sta

QC Batch: 85286				Date .	Analyzed:	2011-10-05	an agus ann an se	Analy	Analyzed By: CR		
			· ,		CCVs	CCVs	CCVs	Percent			
					True	Found	Percent	Recovery	Date		
Param		Flag	$\mathbf{Cert}$	Units	Conc.	Conc.	Recovery	Limits	Analyzed		
Chloride			1	mg/L	25.0	24.9	100	90 - 110	2011-10-05		

### Standard (CCV-2)

QC Batch:	85286			Date	Analyzed:	2011-10-05		Analy	zed By: CR
D			-		CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param		Flag	Cert	$\mathbf{Units}$	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride			1	mg/L	25.0	23.4	94	90 - 110	2011-10-05

 Report Date: October 6, 2011
 Work Order: 11092905
 Page Number: 17 of 17

 701047.014.01
 Monsanto #4
 Hobbs, NM

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## Appendix

NOW THE CONT

### Laboratory Certifications

С	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704219-11-4	Lubbock

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### **Standard Flags**

 F
 Description

 B
 Analyte detected in the corresponding method blank above the method detection

limit

H Analyzed out of hold time

J Estimated concentration the second second

Jb The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.

Je Estimated concentration exceeding calibration range.

Qc Calibration check outside of laboratory limits.

Qr RPD outside of laboratory limits

Qs Spike recovery outside of laboratory limits.

Qsr Surrogate recovery outside of laboratory limits.

U The analyte is not detected above the SDL

### Attachments

The scanned attachments will follow this page. Please note, each attachment may consist of more than one page.

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Report Date: December 30, 2011

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Work Order: 11122204

Page Number: 1 of 2

Report Date: December 30, 2011

Work Order: 11122204

### **Summary Report**

Steve Killingsworth Talon LPE-Midland 2901 State Highway 349 Midland, TX 79706

Project Location:Hobbs, NMProject Name:Monsanto #4Project Number:701047.014.01

weeting at the second			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
285028	MW-1	water	2011-12-21	11:40	2011-12-21
285029	MW-2	water	2011-12-21	11:50	2011-12-21
285030	MW-3	water	2011-12-21	12:00	2011-12-21
285031	MW-4	water	2011-12-21	12:10	2011-12-21 10 19 and 10 and
285032	MW-5	water	2011-12-21	12:15	2011-12-21
285033	MW-6	water	2011-12-21	12:25	2011-12-21
285034	MW-7	water	2011-12-21	12:30	2011-12-21
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### Sample: 285028 - MW-1

Param	$\mathbf{Flag}$	$\mathbf{Result}$	Units	$\mathbf{RL}$
Chloride	Qa	959	mg/L	2.5
Total Dissolved Solids		2312	mg/L	10

### Sample: 285029 - MW-2

Param	Flag	$\operatorname{Result}$	Units	$\mathbf{RL}$
Chloride	Qs	40.3	mg/L	2.5
Total Dissolved Solids		374.0	mg/L	10

Sample: 285030 - MW-3

continued ...

TraceAnalysis, Inc. • 6701 Aberdeen Ave., Suite 9 • Lubbock, TX 79424-1515 • (806) 794-1296 This is only a summary. Please, refer to the complete report package for quality control data.
Report Date: December 30, 20		Work Order: 11122204	Page Number:	
sample 285030 continued				
Param	Flag	Result	Units	RI
Param	Flag	Result	Units	RI
Chloride Total Dissolved Solids	Q.	24.0 403.0	mg/L mg/L	2.3 1(
	· •• • •			
Sample: 285031 - MW-4				
Param	Flag	Result	Units	RI
Chloride Total Dissolved Solida	Qs	234	mg/L	2.
		100.0	IIIg/L	·
Sample: 285032 - MW-5 Param	Flag	Result	Units	R
Chloride	1 lag		mg/L	2.
Total Dissolved Solids		505.0	mg/L	10
Sample: 285033 - MW-6	x	••		
Sample: 285033 - MW-6 Param	Flag	Result	Units	RI
Sample: 285033 - MW-6 Param Chloride Total Dissolved Solids	Flag Qe	Result 21.6 570.0	Units mg/L mg/L	RI 2.5 10
Sample: 285033 - MW-6 Param Chloride Total Dissolved Solids	Flag Qe	Result 21.6 570.0	Units mg/L mg/L	RI 2.1
Sample: 285033 - MW-6 Param Chloride Total Dissolved Solids Sample: 285034 - MW-7	Flag Qe	Result 21.6 570.0	Units mg/L mg/L	RI 2.5 10
Sample: 285033 - MW-6 Param Chloride Total Dissolved Solids Sample: 285034 - MW-7 Param	Flag Qs Flag	Result 21.6 570.0 Result	Units mg/L mg/L Units	RI 2.1 10 RI
Sample: 285033 - MW-6 Param Chloride Total Dissolved Solids Sample: 285034 - MW-7 Param Chloride	Flag Q# Flag Q#	Result 21.6 570.0 Result 340	Units mg/L mg/L Units mg/L	RI 2. 1 1 RI 2.

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TraceAnalysis, Inc. • 6701 Aberdeen Ave., Suite 9 • Lubbock, TX 79424-1515 • (806) 794-1296 This is only a summary. Please, refer to the complete report package for quality control data.

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670 200 500: 601:	1 Aberdeen Avenue, Su East Sunset Road, Suit 2 Basin Street, Suite A 5 Harris Parkway, Suite	ite 9 Lubb e E El Pa I Midl 110 Pt. Wo	ock, Texas 79424 Iso, Texas 79922 and Texas 79703 rth, Texas 76132 E-Mail: labØtr	800+378+12 888+588+34 aceanalysis.cc	96 806•794•12 43 915•585•34 432•689•63 817•201•52	96 FAX 806+75 43 FAX 915+55 01 FAX 432+66 60	94+1298 35+4944 99+6313	. ,
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	Analy	tical	and Q	uality	y Cont	rol Re	port	
Steve Killingsworth						Report	Date: Decem	ber 30, 2011
Talon LPE-Midland 2901 State Highway	 · 349							,

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Work Order: 11122204 

Project Location: Hobbs, NM Project Name: Monsanto #4 701047.014.01 **Project Number:** 

Midland, TX, 79706

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Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
285028		water	2011-12-21	11:40	2011-12-21
285029	MW-2	water	2011-12-21	11:50	2011-12-21
285030	MW-3	water	2011-12-21	12:00	2011-12-21
285031	MW-4	water	2011-12-21	12:10	2011-12-21
2850 <b>32</b>	MW-5	water	2011-12-21	12:15	2011-12-21
285033	MW-6	water	2011-12-21	12:25	2011-12-21
2850 <b>34</b>	MW-7	water	2011-12-21	12:30	2011-12-21

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 15 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

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Dr. Blair Leftwich, Director Dr. Michael Abel, Project Manager

Page 2 of 15

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# **Report Contents**

Case Narrative	4
Analytical Report	5
Sample 285028 (MW-1)	5
Sample 285029 (MW-2)	5
Sample 285030 (MW-3)	6
Sample 285031 (MW-4)	6
Sample 285032 (MW-5)	7
Sample 285033 (MW-6)	7
Sample 285034 (MW-7)	8
Method Blanks	10
QC Batch 87430 - Method Blank (1)	10
QC Batch 87483 - Method Blank (1)	10
QC Batch 87495 - Method Blank (1)	10
QC Batch 87483 - Duplicate (1)	10
Inhonstony Control Spiller	10
OC Patch 97490 I CS (1)	12
$QC \text{ Datch } 07400 - LOS (1) \dots \dots$	12
$QC Batch 07403 - LOS (1) \dots \dots$	12
QC Datch $07490 - MC (1)$	12
OC Batch 87405 MS (1)	10
QC batch 8/495 - MS (1)	13
Calibration Standards	14
QC Batch 87430 - CCV (1)	14
QC Batch 87430 - CCV (2)	14
QC Batch 87495 - CCV (1)	14
QC Batch 87495 - CCV (2)	14
Appendix	15
Report Definitions	15
Laboratory Certifications	15
Standard Flags	15
Attachments	15

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# **Case Narrative**

Samples for project Monsanto #4 were received by TraceAnalysis, Inc. on 2011-12-21 and assigned to work order 11122204. Samples for work order 11122204 were received intact without headspace and at a temperature of 3.4 C.

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Samples were analyzed for the following tests using their respective methods.

		Prep	Prep	$\mathbf{QC}$	Analysis
Test	Method	Batch	Date	Batch	Date
Chloride (IC)	E 300.0	74245	2011-12-27 at 11:24	87430	2011-12-27 at 11:25
Chloride (IC)	E 300.0	74296	2011-12-29 at 17:13	87495	2011-12-29 at 17:15
TDS	SM 2540C	74287	2011-12-28 at 16:00	87483	2011-12-29 at 12:34

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 11122204 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Report Date: December 30, 2011 Work Order: 11122204 Page Number: 5 of 15 701047.014.01 Hobbs, NM Monsanto #4

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# **Analytical Report**

#### Sample: 285028 - MW-1

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Laboratory: Analysis: QC Batch: Prep Batch:	Lubbock Chloride (IC) 87430 74245		Ai Di Sa	nalytical Metho ate Analyzed: ample Preparatio	d: E 300.0 2011-12-2 on: 2011-12-2	27 23	Prep Method: Analyzed By: Prepared By:	N/A RL RL
					RL			
Parameter		Flag	C	Cert F	lesult	Units	Dilution	$\mathbf{RL}$
Chloride		Qs ·		1 .	959	mg/L	50	2.50
Sample: 28	5028 - MW-1							
Laboratory:	Lubbock			· •				
Analysis:	TDS		Anal	ytical Method:	SM 2540C		Prep Method:	N/A
QC Batch:	87483		Date	e Analyzed:	2011-12-29		Analyzed By:	$\mathbf{ER}$
Prep Batch:	74287	١	Sam	ple Preparation:	2011-12-28		Prepared By:	$\mathbf{ER}$
					$\mathbf{RL}$			
Parameter			Flag	Cert	Result	Units	Dilution	$\mathbf{RL}$

2312

mg/L

#### Sample: 285029 - MW-2

Total Dissolved Solids

\_

Laboratory: Analysis: QC Batch: Prep Batch:	Lubbock Chloride (IC) 87430 74245		Analytical 1 Date Analy Sample Pre	Method: zed: paration:	E 300.0 2011-12-2 2011-12-2	7	Prep Method: Analyzed By: Prepared By:	N/A RL RL
				R	L			
Parameter		Flag	$\mathbf{Cert}$	Resul	lt	Units	Dilution	$\mathbf{RL}$
Chloride		Qs	1	40.	3	mg/L	5	2.50

Report Date 701047.014.0	e: December 30, 201 )1	1		Work Orde Monse	r: 11122204 nto #4	Page Number: 6 Hobbs		
Sample: 28	5029 - MW-2							
Laboratory:	Lubbock							
Analysis:	TDS		Ana	lytical Method:	SM 2540C		Prep Method:	N/A
QC Batch:	87483		Date	e Analyzed:	2011-12-29		Analyzed By:	$\mathbf{ER}$
Prep Batch:	74287		Sam	ple Preparation:	2011-12-28		Prepared By:	ER
					RL			
Parameter			Flag	Cert	Result	Units	Dilution	RL
Total Dissolv	red Solids			1	374.0	mg/L	1 .	10.00
Sample: 28	5030 - MW-3							
Laboratory:	Lubbock							
Analysis:	Chloride (IC)		A	nalytical Method	: E 300.0		Prep Method:	N/A
QC Batch:	87430		· <b>D</b>	ate Analyzed:	2011-12-2	7	Analyzed By:	$\mathbf{RL}$
Prep Batch:	74245		Sa	mple Preparatio	n: 2011-12-2	3	Prepared By:	$\mathbf{RL}$
					RL			
Parameter		Flag	0	Cert R	sult	Units	Dilution	RL
Chloride		Qs		1	24.0	mg/L	5	2.50
Sample: 28	5030 - MW-3							
Laboratory:	Lubbock							
Analysis:	TDS		Anal	ytical Method:	SM 2540C		Prep Method:	N/A
QC Batch:	87483		Date	e Analyzed:	2011-12-29		Analyzed By:	$\mathbf{ER}$
Prep Batch:	74287		Sam	ple Preparation:	2011-12-28		Prepared By:	ER
_					$\mathbf{RL}$			_
Parameter	1.0.111		Flag	Cert	Result	Units	Dilution	RL
Total Dissolv	ed Solids			1	403.0	mg/L	· 1	10.00

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### Sample: 285031 - MW-4

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Laboratory: Analysis:	Lubbock Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	87430	Date Analyzed:	2011-12-27	Analyzed By:	RĹ
Prep Batch:	74245	Sample Preparation:	2011-12-23	Prepared By:	RL

Report Date: December 30, 2011 701047.014.01		Wo	rk Order: 111222 Monsanto #4	Page Number: 7 of 15 Hobbs, NM			
Parameter		Flag	Cert	RL Result	Units	Dilution	RL
Chloride	· · · · · · ·	Qs	1	234	mg/L	5	2.50
Sample: 28	5031 - MW-4						
Laboratory:	Lubbock						/
Analysis:	TDS		Analytical Me	ethod: SM 2540	)C	Prep Method:	N/A
QC Batch:	87483		Date Analyze	d: 2011-12-	-29	Analyzed By:	$\mathbf{ER}$
Prep Batch:	74287		Sample Prepa	ration: 2011-12-	28	Prepared By:	ER
				RL			

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Parameter	Flag	$\mathbf{Cert}$	Result	Units	Dilution	$\mathbf{RL}$
Total Dissolved Solids		1	766.0	mg/L	1 .	10.00

#### Sample: 285032 - MW-5

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·李静于如今1994年,又以后,如今1995年,至于含于清晰,不可能是不能在这个人,你们能够了这些更是Charler的。

الاراب بالمسارية الذي المدين المسترك المتشرين فالجمع فرابية السومج ومرجعو برابا الحاكم وجرئا ورفسه فعمادت الممرجب

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Laboratory: Analysis: QC Batch: Prep Batch:	Lubbock Chloride (IC) 87430 74245	•	Analytical Date Analy Sample Pre	Method: zed: paration:	E 300.0 2011-12-27 2011-12-23	Prep Method: Analyzed By: Prepared By:	N/A RL RL
				$\mathbf{RL}$			
Parameter		Flag	Cert	Result	Units	Dilution	$\mathbf{RL}$
Chloride		Qs	1	22.5	mg/L	5	2.50

#### Sample: 285032 - MW-5

Laboratory: Analysis: QC Batch: Prep Batch:	Lubbock TDS 8748 <b>3</b> 74287	Analy Date Samp	vtical Method: Analyzed: le Preparation:	SM 2540C 2011-12-29 2011-12-28		Prep Method: Analyzed By: Prepared By:	N/A ER ER
				$\mathbf{RL}$			
Parameter		Flag	$\mathbf{Cert}$	$\mathbf{Result}$	Units	Dilution	$\mathbf{RL}$
Total Dissolv	ed Solids		1	505.0	$\mathrm{mg/L}$	1	10.00

Report Date: December 30, 2011 Page Number: 8 of 15 Work Order: 11122204 701047.014.01 Monsanto #4 Hobbs, NM Sample: 285033 - MW-6 Laboratory: Lubbock Analysis: Chloride (IC) Analytical Method: Prep Method: N/A E 300.0 QC Batch: 87430 Date Analyzed: 2011-12-27 Analyzed By:  $\mathbf{RL}$ Prep Batch: 74245 Sample Preparation: 2011-12-23 Prepared By:  $\mathbf{RL}$ RL Parameter Flag Cert Result Units Dilution RL Chloride 21.6 mg/L 5 2.50 Qs 1 Sample: 285033 - MW-6 Laboratory: Lubbock Analysis: TDS Prep Method: N/A **Analytical Method:** SM 2540C QC Batch: 87483 Analyzed By: ER Date Analyzed: 2011-12-29 Prep Batch: 74287 Sample Preparation: 2011-12-28 Prepared By: ER RL Parameter Flag Cert Result Units Dilution  $\mathbf{RL}$ Total Dissolved Solids 570.0 10.00 mg/L 5 1 Sample: 285034 - MW-7 Laboratory: Lubbock Analysis: Chloride (IC) Analytical Method: Prep Method: E 300.0 N/A QC Batch: 87495 Date Analyzed: 2011-12-29 Analyzed By:  $\mathbf{RL}$ Prep Batch: 74296 Prepared By:  $\mathbf{RL}$ Sample Preparation: 2011-12-28 RL Parameter Cert Units Dilution  $\mathbf{RL}$ Flag Result Chloride 2.50 340 mg/L 10 Qs 1 Sample: 285034 - MW-7 Laboratory: Lubbock Analysis: TDS Analytical Method: SM 2540C Prep Method: N/A QC Batch: 87483 Date Analyzed: 2011-12-29 Analyzed By: ER Prep Batch: 74287 Sample Preparation: 2011-12-28 Prepared By: ER continued ...

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Report Date: December 30, 2011 Work Order: 11122204 Page Number: 9 of 15 701047.014.01 Hobbs, NM Monsanto #4 sample 285034 continued ... RL Parameter Flag  $\mathbf{Cert}$ Result Units Dilution  $\mathbf{RL}$ RL Parameter Flag  $\mathbf{Cert}$  $\mathbf{RL}$ Résult Units Dilution Total Dissolved Solids 10.00 994.0 mg/L 1 1 . A associ 1987 - 1989 -1.10 and states and a transfer of a company second Ohne of antheody Walter - And Prog a the strends constrained with the set of the set of the strends were set of the set of المحاصية والمهمجون والأحاص المالية

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Page Number: 10 of 15 Report Date: December 30, 2011 Work Order: 11122204 701047.014.01 Monsanto #4 Hobbs, NM **Method Blanks** Method Blank (1) QC Batch: 87430 87430 Analyzed By: RL QC Batch: Date Analyzed: 2011-12-27 QC Preparation: Prepared By: RL Prep Batch: 74245 2011-12-27 MDL Units  $\mathbf{RL}$ Parameter Flag Cert Result Chloride 0.613 mg/L 2.51 Method Blank (1) QC Batch: 87483 QC Batch: 87483 Date Analyzed: 2011-12-29 Analyzed By: ER . Prepared By: ER Prep Batch: 74287 QC Preparation: 2011-12-28 MDL ÷. . . . . RL Parameter Flag Cert Result Units **Total Dissolved Solids** < 5.000 mg/L 10 1 1 - Sector . . . . . . . . user user usgenferer ut forenet berenter hønskablemandet forskapperent forskabelingen om øder usbrugsförer ere Method Blank (1) QC Batch: 87495 QC Batch: Analyzed By: RL 87495 Date Analyzed: 2011-12-29 Prepared By: RL Prep Batch: 74296 QC Preparation: 2011-12-29 MDL RLParameter Flag Cert Result Units < 0.0319 mg/L 2.5 Chloride 1

بالسوق تؤمو بأنتم الله والم

Duplicates (1) Duplicated Sample: 285033

QC Batch:	87483	Date Analyzed:	2011-12-29	Analyzed By:	$\mathbf{ER}$
Prep Batch:	74287	QC Preparation:	2011-12-28	Prepared By:	$\mathbf{ER}$

Page Number: 11 of 15 Report Date: December 30, 2011 Work Order: 11122204 701047.014.01 Hobbs, NM Monsanto #4 Duplicate Result Sample Result 570.0 RPD RPD Limit Param Total Dissolved Solids Units Dilution 0 10 570.0 mg/L 5 1

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Report Date: December 30, 2011 701047.014.01

Work Order: 11122204 Monsanto #4

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Page Number: 12 of 15 Hobbs, NM

# Laboratory Control Spikes

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## Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch:	87430 74245	·	×	Date QC I	Analyze Preparati	d: 20 ion: 20	11-12-27 11-12 <sub>-</sub> 27			An Pro	alyzed E epared B	by: RL y: RL
Param			F	С	LCS Result	Units	Dil.	Spike Amount	Ma Re	ıtrix sult	Rec.	Rec. Limit
Chloride				1	24.7	mg/L	1	25.0	<0.	0319	<del>9</del> 9	90 - 110
Percent recov	very is based on	the spike	e resu	lt. RPD	is based	on the s	spike and s	spike duplic	ate res	ult.		
				LCSD			Spike	Matrix	•	Rec.		RPD
Param		$\mathbf{F}$	С	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	· · ·	•	' <b>1</b>	23.5	mg/L	1	25.0	< 0.0319	94	90 - 110	) , 5	20
Percent recov	very is based on	the spike	resu	lt. RPD	is based	on the	spike and s	spike duplic	ate res	ult.		

Laboratory	Control Spike (I	LCS-1)			م بر م م م م	• •
QC Batch: Prep Batch:	87483 74287	···	Date Analyzed: QC Preparation:	2011-12-29 2011-12-28	Analyzed By: Prepared By:	ER ER

			LCS			Spike	Matrix	t	Rec.
Param	ŕ	С	Result	Units	Dil.	Amount	Result	Rec.	Limit
Total Dissolved Solids		1	993	mg/L	1	1000	<5.00	99	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

			LCSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	С	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Dissolved Solids		1	973	mg/L	1	1000	<5.00	97	90 - 110	2	10

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

#### Laboratory Control Spike (LCS-1)

QC Batch:	87495	Date Analyzed:	2011-12-29	Analyzed By:	$\mathbf{RL}$
Prep Batch:	74296	QC Preparation:	2011-12-29	Prepared By:	$\mathbf{RL}$

ParamFCResultUnitsDil.AmountResultRec.LimitChloride124.0mg/L125.0<0.03199690 - 110Percent recovery is based on the spike result.LCSDSpikeMatrixRec.RPDLimitParamFCResultUnitsDil.AmountResultRec.LimitChloride124.0mg/L125.0<0.03199690 - 110020ParamFCResultUnitsDil.AmountResultRec.LimitDil.Chloride124.0mg/L125.0<0.03199690 - 110020ParamFCResultRPDIsbased on the spike result.RPDIsbasedNatrixRec.RPDChlorideSpikeSpikeAntrixRec.NatrixRec.ResultQC Batch:87430Date Analyzed:2011-12-27Analyzed By:RLPrep Batch:74245QC Preparation:2011-42-27Analyzed By:RLChloride $q_{2}$ $q_{2}$ 1379mg/L512517.828990 - 110ParamFCResultUnitsDilAmountResultRec.LimitChloride $q_{2}$ $q_{2}$ 12517.828390 - 110220ParamFCResultUni	701047.014.01	er 50, 2011				work l	Monsan	to #4			rage	Ho	bbs, NM
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Param	· ·	1	F	C	LCS Result	Units	Dil.	Spike Amount	Ma Re	trix sult	Rec.	Rec. Limit
Percent recovery is based on the spike result.       Spike Matrix Rec. Limit RPD Limit         Param       F       C       Result       Units       Dil       Amount       Result       Rec. Limit       RPD Limit         Cloride       1       24.0       mg/L       1       25.0       <0.0319	Chloride				1	24.0	mg/L	1	25.0	<0.	0319	96	90 - 110
ParamFCResultUnitsDil.Spike AmountMatrix ResultRec.Limit ResultRPD ResultLimit RPDParamFCResultUnitsDil.21.020.09690 - 110020Percent recovery is based on the spike result.RPD is based on the spike duplicate result.RPD125.0<0.03199690 - 110020Percent recovery is based on the spike result.RPD is based on the spike and spike duplicate result.RPD12020Percent recovery is based on the spike result.Result2011-12-27Analyzed By: AmountRLPercent recovery is based on the spike result.ResultUnitsDil.AmountResultRec.EmployeeParamFCResultUnitsDil.AmountResultRec.RPDParamFCResultUnitsDil.AmountResultRPDLimitParamFCResultUnitsDil.AmountResultRPDLimitParamFCResultDil.AmountResultRec.RPDLimitParamFCResultUnitsDil.AmountResultRec.Rec.Prop Batch:74296Date Analyzed:2011-12-29Analyzed By:RLPrep Batch:74296Date Analyzed:2011-12-29Analyzed By:RLParamF	Percent recovery is base	ed on the sp	ike 1	result	. RPD	is based	on the s	pike and s	pike duplic	ate res	ult.		
SpikeMatrix MatrixRec.Indr LimitChloride124.0 $mg/L$ 125.0<0.0319	-	-			LOOD			-			P	,	DDD
aramFCNestutOmisDil.AmountResLinkRPDLinkPercent recovery is based on the spike result.RPD is based on the spike and spike duplicate result.Matrix Spike (MS-1)Spiked Sample: 285037QC Batch:87430Date Analyzed:2011-12-27Analyzed By:RLPrep Batch:74245QC Preparation:2011-12-27Prepared By:RLParamFCResultUnitsDil.AmountResultRec.LinitLinitSpikeMatrixRec.LinitParamFCResultUnitsDil.AmountResultRec.ParamFCResultUnitsDil.AmountResultRec.RPDParamFCResultUnitsDil.AmountResultRec.RPDParamFCResultUnitsDil.AmountResultRec.RPDParamFCResultUnitsDil.AmountResultRec.RPDParamFCResultUnitsDil.AmountResultRec.RPDParamFCResultUnitsDil.AmountResultRec.LinitParamFCResultUnitsDil.AmountResultRec.LinitPrep Batch:74296Date Analyzed:2011-12-29Analyzed By:RLParam	Danam		г	C	LCSD	TT-it-	Dil	Spike	Matrix	Dee	Rec.	חסס	RPD Limit
Andrice124.0Ing/L125.0 $\langle 0.0519 \ sol = 30 \ sol = 110 \ 0 \ 20$ Percent recovery is based on the spike result.RPD is based on the spike and spike duplicate result.Matrix Spike (MS-1)Spiked Sample: 285037QC Batch:87430Date Analyzed: 2011-12-27Prep Batch:74245QC Preparation: 2011-12-27Prepared By:RLMSSpikeMatrixResultPrepared By:RLMarminicPrepared By:ParamFCResultViritisDil.AnnountResultResultUnitsDilicAnnountResultResLibride $q_{2}$ $q_{2}$ $q_{3}$ $q_{4}$ $q_{1}$ $\gamma_{2}$ $q_{2}$ $\gamma_{2}$ $\gamma_{2}$ $\gamma_{3}$ $\gamma_{2}$ $\gamma_{4}$ $\gamma_{4$	Chlorido		Г	U			<u>1</u>	Amount	rtesuit	nec.			20
Percent recovery is based on the spike result.Matrix Spike (MS-1)Spike Sample: 285037QC Batch:87430Date Analyzed:2011-12-27Analyzed By:RLPrep Batch:74245QC Preparation:2011-12-27Prepared By:RLParamF.aCResultUnitsDil.AmountResultRec.ParamF.aCResultUnitsDil.AmountResultRec.LimitParamFCResultUnitsDil.AmountResultRec.RPDParamFCResultUnitsDil.AmountResultRec.RPDParamFCResultUnitsDil.AmountResultRec.RPDParamFCResultUnitsDil.AmountResultRec.RPDParamFCResultUnitsDil.AmountResultRec.RPDParamFCResultUnitsDil.AmountResultRec.LimitNatrix Spike (MS-1)Spiked Sample:285415QC Preparation:2011-12-29Analyzed By:RLPrep Batch:87495DateAnalyzed:2011-12-29Analyzed By:RLPrep Batch:74296QC Preparation:2011-12-29Analyzed By:RLPrep Batch:74296QC Preparation:2011-12-29Analyzed By:RLPre	Demonst recommendation have			1	24.0	ing/L	<u> </u>	20.0	<0.0319	90	90 - 110	<u> </u>	
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Matrix Spike (MS-1)Spike Sample: 285037QC Batch:87430 QC Preparation:Date Analyzed:2011-12-27Analyzed By:RLPrep Batch:74245MSSpike QC Preparation:Matrix 2011-12-27Rec.SaramP.CResult UnitsUnitsDil: Dil:Amount AmountResult ResultRec.Shorideq.q.i379mg/L512517.828990 - 110Percent recovery is based on the spike result.RPD is based on the spike duplicate result.MSDSpike MatrixMatrix Rec.Rec.RPDParamFCResultUnitsDil.Amount ResultRec.Limit RPDLimit DilitionChorideq.q.i372mg/L512517.828390 - 110220ParamFCResultUnitsDil.Amount ResultRec.ImitRPDLimitChorideq.q.i372mg/L512517.828390 - 110220ParamFCResultRPDImitSpikeMatrixRec.Rec.Rec.ParamFCResultUnitsDil.AmountResultRec.LimitParamFCResultUnitsDil.AmountResultRec.LimitParamFCResultU												1	
QC Batch:87430 Prep Batch:Date Analyzed: QC Preparation:2011-12-27 2011-12-27Analyzed By: RL Prepared By:RL Prepared By:RL Prepared By:RL Rec.2aramFCResultUnitsDil.AmountResultRec.Limit2hloride $q_e$ $q_e$ $1$ $379$ $ng/L$ $5$ $125$ $17.8$ $289$ $90 - 110$ 2ercent recovery is based on the spike result.RPD is based on the spike and spike duplicate result.Rec.RPDLimit2hloride $q_e$ $q_e$ $1$ $372$ $mg/L$ $5$ $125$ $17.8$ $283$ $90 - 110$ $2$ $20$ 2aramFCResultUnitsDil.AmountResultRec.RPDLimit2hloride $q_e$ $q_e$ $1$ $372$ $mg/L$ $5$ $125$ $17.8$ $283$ $90 - 110$ $2$ $20$ 2aramFCResultUnitsDil.AmountResultRec.Ref2C Batch: $87495$ Date Analyzed: $2011-12-29$ Analyzed By:RL2aramFCResultUnitsDil.AmountResultRec.Limit2hloride $q_e$ $q_e$ $1$ $367$ $mg/L$ $5$ $104$ $278$ $86$ $90 - 110$ 2aramFCResultUnitsDil.AmountResultRec.Limit2hloride $q_e$ $q_e$	Matrix Spike (MS-1)	) Spiked	Sam	ple:	285037								
C Date Analyzed:2011-12-27Analyzed By:RLPrep Batch:74245QC Preparation:2011-12-27Prepared By:RLQC Preparation:2011-12-27Prepared By:RLParamFCResultUnitsDil.AmountResultRec.ParamFCResultUnitsDil.AmountResultRec.RPDParamFCResultUnitsDil.AmountResultRec.RPDParamFCResultUnitsDil.AmountResultRec.RPDParamFCResultUnitsDil.AmountResultRec.RPDParamFCResultUnitsDil.AmountResultRec.RPDParamFCResultUnitsDil.AmountResultRec.RPDParamFCResultUnitsDil.AmountResultRec.Rec.ParamFCResultUnitsDil.AmountResultRec.LimitVatrix Spike (MS-1)Spiked Sample:285415QC Preparation:2011-12-29Analyzed By:RLPrep Batch:74296Date Analyzed:2011-12-29Prepared By:RLParamFCResultUnitsDil.AmountResultRec.LimitPrep Batch:74296QC Preparation:2011-12-29Prepa	00 Databa 07400				<b></b>		1	11 10 05					
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Param F C Result Units Dil. Amount Result Rec. Limit RPD Limit	Percent recovery is base Param Chloride Percent recovery is base Matrix Spike (MS-1) QC Batch: 87495 Prep Batch: 74296 Param Chloride Percent recovery is base	ed on the spi ed on the spi ed on the spi ) Spiked i	F Qs ike 1 Sam	C 1 result	MSD Resul 372 t. RPD 285415 Date QC 1 	t Units mg/L is based Analyzee Preparatio MS Result 367 is based of	Dil. Dil. 5 on the s d: 20 on: 20 Unit: mg/I on the s	Spike           Amount           125           pike and s           11-12-29           11-12-29           11-12-29           s         Dil.           5           pike and s	Matrix Result 17.8 pike duplic Spike Amount 104 pike duplic	M Rec. 283 ate res	Ar Ar Ar Pr atrix 278 ult.	RPD 0 2 nalyzed B epared B Rec. 86	RPD Limit 20 20 Ey: RL y: RL y: RL y: RL Mec. Limit 90 - 110
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Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Report Date: December 30, 2011 Work Order: 11122204 701047.014.01 Monsanto #4

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# **Calibration Standards**

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Standard (CCV-1)

QC Batch: 87430	)		Date .	Analyzed:	2011-12-27		Analy	yzed By: RL
Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1	mg/L	25.0	25.5	102	90 - 110	2011-12-27
	1							÷
Standard (CCV	-2)						•	
QC Batch: 87430	)		Date .	Analyzed:	2011-12-27		Analy	yzed By: RL
· · ·			· ·	CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		1	mg/L	25.0	22.5	÷ 90	90 - 110	2011-12-2
1. <u>1</u>	• .		, time to	a tanat	i in the second s	ngen <sup>te</sup> ltette generale to the data .	e da garagente da	k≠ • 3•
Standard (CCV	-1)		• •		~ • • •	· · · · · · · · · · · · · · · · · · ·	• •	
QC Batch: 87495	5		Date	Analyzed:	2011-12-29	ang sa	Anal	yzed By: RL
				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chlorida		1	mg/L	25.0	24.0	96	90 - 110	2011-12-2

### Standard (CCV-2)

QC Batch:	87495			Date	Analyzed:	2011-12-29		Analy	zed By: RL
					CCVs	CCVs	CCVs	Percent	
					True	Found	Percent	Recovery	Date
Parain		Flag	$\operatorname{Cert}$	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride			1	mg/L	25.0	26.2	105	90 - 110	2011-12-29

Report Date: December 30, 2011 701047.014.01 1.7

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#### Work Order: 11122204 Monsanto #4

Page Number: 15 of 15 Hobbs, NM

# Appendix

### **Report Definitions**

NameDefinitionMDLMethod Detection LimitMQLMinimum Quantitation LimitSDLSample Detection Limit

### Laboratory Certifications

	Certifying	Certification	Laboratory							
С	Authority	Number	Location							
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# Standard Flags

- F Description
- B Analyte detected in the corresponding method blank above the method detection
- limit Hy Analyzed out of hold time
  - J Estimated concentration
  - Jb The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
  - Je Estimated concentration exceeding calibration range.
  - Qc Calibration check outside of laboratory limits.
  - Qr RPD outside of laboratory limits
  - Qs Spike recovery outside of laboratory limits.
  - Qsr Surrogate recovery outside of laboratory limits.
  - U The analyte is not detected above the SDL

### Attachments

The scanned attachments will follow this page.

Please note, each attachment may consist of more than one page.

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