LIMITED SITE INVESTIGATION

Trucker's #2 Brine Station
West Broadway Place
Hobbs NM

Terracon Project No. A4117046 June 22, 2011 HOBBS OCD

JUL 2 6 2011

RECEIVED

Prepared for:

Key Energy Services Inc. 6 Desta Drive, Ste 4300 Midland TX 79705

Prepared by:

TERRACON
Midland Texas



June 22, 2011

Key Energy Services Inc. 6 Desta Drive, Ste. 4300 Midland TX 79705

Attn:

Daniel Gibson

Fax:

Telephone: (432) 571-7536

(432) 571-7173

HOBBS OCD

JUL 2 6 2011

RECEIVED

Re:

Limited Site Investigation Trucker's #2 Brine Station

West Broadway Place, Hobbs NM Terracon Project No. A4117046

Dear Daniel Gibson:

Terracon is pleased to submit three copies of the Limited Site Investigation (LSI) report for the above referenced site. This investigation was performed in accordance with Terracon's Proposal Number PA4110073 dated May 5, 2011.

The investigation-derived waste materials are currently staged on-site. Upon your request, Terracon will provide a proposal for characterization and disposal of these materials.

We appreciate the opportunity to perform these services for Key Energy Services, Inc. Please contact either of the undersigned at (432) 684-9600 if you have questions regarding the information provided in the report.

Sincerely,

Terracon

Prepared by:

Wesley Ty Burrow Staff Geologist

Reviewed by:

Barrett W. Bole Senior Associate



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Terracon

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LIMITED SITE INVESTIGATION

Trucker's #2 Brine Station West Broadway Place Hobbs NM

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HOBBS OCD

Terracon Project No. A4117046 June 22, 2011

1.0 INTRODUCTION

1.1 Site Description

Site Name	Trucker's #2 Brine Station
Site Location/Address	West Broadway Place, Hobbs NM
General Site Description	Former brine station facility

A topographic map is included as Figure 1, and a site plan is included as Figure 2 of Appendix A.

1.2 Scope of Work

Terracon conducted a Limited Site Investigation (LSI) at the Trucker's #2 Brine Station, West Broadway Place, Hobbs NM. At your request, Terracon installed one- 2-inch monitoring well and advanced three soil borings (completed as temporary groundwater sampling points). Upon completion of drilling operations, soil and groundwater samples were submitted for analysis.

The objective of the LSI was to evaluate the presence of chlorides in the on-site soils and groundwater (above relevant laboratory reporting limits) as a result of potential release from on-site brine sales activities. Terracon's LSI was conducted in accordance with Terracon's proposal dated May 11, 2011 as authorized by Daniel Gibson P.G., Corporate Environmental Director, Key Energy Services, Inc. on May 20, 2011.

1.3 Standard of Care

Terracon's services were performed in a manner consistent with generally accepted practices of the profession undertaken in similar studies in the same geographical area during the same time period. Terracon makes no warranties, either express or implied, regarding the findings, conclusions or recommendations. Please note that Terracon does not warrant the work of laboratories, regulatory

agencies or other third parties supplying information used in the preparation of the report. These LSI services were performed in accordance with the scope of work agreed with you, our client, as reflected in our proposal and were not restricted by ASTM E1903-97.

1.4 Additional Scope Limitations

Findings, conclusions and recommendations resulting from these services are based upon information derived from the on-site activities and other services performed under this scope of work; such information is subject to change over time. Certain indicators of the presence of hazardous substances, petroleum products, or other constituents may have been latent, inaccessible, unobservable, nondetectable or not present during these services, and we cannot represent that the site contains no hazardous substances, toxic materials, petroleum products, or other latent conditions beyond those identified during this LSI. Subsurface conditions may vary from those encountered at specific borings or wells or during other surveys, tests, assessments, investigations or exploratory services; the data, interpretations, findings, and our recommendations are based solely upon data obtained at the time and within the scope of these services.

2.0 FIELD ACTIVITIES

2.1 Borings and Monitoring Wells

Terracon's field activities were conducted from June 8, 2011 to June 10, 2011 by Wesley Ty Burrow, a Terracon Staff Geologist. As part of the approved scope of work, one permanent groundwater monitoring well (MW-3) and three soil borings completed as temporary groundwater sampling points (TMW-1, TMW-2, TMW-3) were advanced on site. MW-3 was installed to the northeast of the former brine pit. TMW-1 was advanced to the west of the former brine pit, TMW-2 was installed in the center of the former brine pit. TMW-3 was installed to the southeast of the former brine pit.

Figure 1 presents the general boundaries and topography of the site on portions of the USGS topographic quadrangle map of Hobbs NM (Appendix A). Figure 2 is a site plan that indicates the approximate locations of the soil borings and monitoring wells in relation to the pertinent structures and general site boundaries (Appendix A).

Drilling services were performed by Straub Drilling using a truck-mounted air rotary drilling rig (Versa-Drill) under the supervision of a Terracon Staff Geologist. Soil samples were collected using core barrel sampler. Drilling equipment was decontaminated using a high pressure washer prior to beginning the project and between each soil boring. Sampling equipment was cleaned using an

Alconox® wash and potable water prior to the beginning of the project and before collecting each soil sample.

Soil samples were collected continuously in the upper 10 feet and at 10- foot increments thereafter, while observed to document soil lithology, color, moisture content and sensory evidence of impairment.

The general soil lithology encountered during sample collection consisted of the following:

- Calcareous fine-grained silty sand 0 to 50-60 feet bgs.
- Fine-grained silty sand 50-60 feet bgs to terminus of borings at depths of 65 to 80 feet bgs.

Detailed lithologic descriptions are presented on the soil boring logs included in Appendix B.

Groundwater was encountered during installation of temporary groundwater sampling points TMW-1, TMW-2, TMW-3, and monitoring well MW-3 at depths of approximately 68.0 feet bgs, 58.0 feet bgs, 67.0 feet bgs, and 68.0 feet bgs, respectively.

Subsequent to advancement, temporary groundwater sampling points TMW-1, TMW-2, TMW-3 were completed as temporary monitoring wells. MW-3 was completed as flush-mounted groundwater monitoring well. The monitoring well and the temporary monitoring wells were completed using the following methodology:

- Installation of 20 feet of 2-inch diameter, 0.010-inch machine slotted PVC well screen with a threaded bottom cap;
- Installation of 58 feet of 2-inch diameter, threaded, flush joint PVC riser pipe to the surface;
- Addition of a pre-sieved [20/40-grade annular silica sand pack] from the bottom of the boring to approximately 2 feet above the top of the well screen;
- Addition of hydrated bentonite seal above the sand pack filter zone;
- Addition of a Portland cement to the near surface;
- Installation of an 8-inch diameter, circular, bolt-down, steel, monitoring well cover with locking well cap inset in a flush-mount, concrete well pad (permanent monitoring well only).

Monitoring well construction details are presented on the soil boring logs for these monitoring wells and are included in Appendix B.

The monitoring wells were developed by surging and removing groundwater with a ProActiv submersible pump until the groundwater was relatively free of fine-grained sediment. The submersible pump was decontaminated with Alconox® wash and potable water before/after each well was purged. Approximately 5 gallons of groundwater were removed from each of the temporary groundwater sampling points TMW-1, TMW-2, and TMW-3. Approximately 8 gallons of groundwater was removed from monitoring well MW-3 during development activities. Following sampling, TMW-1, TMW-2, TMW-3 were removed and backfilled with hydrated bentonite pellets and Portland cement to near surface grade.

Soil generated during drilling was stored on site with existing stockpiles, as instructed by client. Groundwater and equipment cleaning water generated during the field activities were placed in Department of Transportation (DOT) approved, 55-gallon steel drums, closed and appropriately labeled with project-specific information and initial accumulation date. A total of two 55-gallon drums containing groundwater/ and decontamination water were generated during these field services and were left onsite for subsequent characterization and disposal.

2.2 Soil and Groundwater Sampling

Terracon's soil sampling program involved submitting up to 12 soil samples from each soil boring for laboratory analysis. Soil samples were collected continuously in upper 10 feet and at 10 foot intervals thereafter. Soil sample intervals for each boring are presented with the soil sample analytical results (Table 1) and are provided on the lithologic boring logs included in Appendix B.

One groundwater sample was collected and analyzed from each of two existing monitoring wells MW-1 and MW-2, newly installed monitoring well MW-3, and from temporary groundwater sampling points TMW-1, TMW-2, and TMW-3. Prior to sample collection, each monitoring well was purged of a minimum of three well casing volumes of groundwater. Subsequent to sufficient recharge, one groundwater sample was collected from each monitoring well utilizing a new ProActiv submersible pump. The submersible pump was decontaminated with Alconox® wash and potable water before/after each sample was collected.

Soil and groundwater samples were collected and placed in laboratory prepared glassware, sealed with custody tape and placed on ice in a cooler which was secured with a custody seal. The sample coolers and completed chain-of-custody forms were relinquished to Xenco analytical laboratory in Odessa, Texas for standard turnaround analysis.

3.0 LABORATORY ANALYTICAL METHODS

The soil and/ or groundwater samples collected from existing monitoring wells MW-1 and MW-2, temporary groundwater sampling points TMW-1, TMW-2, TMW-3, and newly installed monitoring well MW-3 were analyzed for chlorides using EPA method 300.1.

Laboratory results are summarized in the tables included in Appendix C. The executed chain-of-custody form and laboratory data sheets are provided in Appendix D.

4.0 DATA EVALUATION

4.1 Soil Samples

The soil samples collected from the soil borings converted to MW-3 and temporary groundwater sampling points TMW-1, TMW-2, and TMW-3 displayed elevated chloride readings in shallow soils with decreasing concentrations with depth. Chloride concentrations decreased below 300 milligrams per kilogram (mg/Kg) between 22 and 30 fbgs (TMW-1), between 10 and 20 fbgs (TMW-2, TMW-3), and between 32 and 40 fbgs (MW-3).

4.2 Groundwater Samples

The groundwater samples yielded chloride concentrations ranging from 194 milligrams per liter (mg/L) to 1,790 mg/L. The groundwater sample with the most elevated concentration of 1,790 mg/L was collected from TMW-3. The groundwater sample from MW-1 (within 30 feet SE of TMW-3) exhibited a chloride concentration of 194 mg/L. Based on results from MW-1, it is likely that shallow soils with elevated chloride concentrations may have fallen from the boring sidewall during installation of the temporary monitoring well. This impacted soil would cause the elevated concentration. With the exception of TMW-3, the most elevated chloride concentration in groundwater collected was 919 mg/L from MW-2, which is hydraulically up gradient of the former brine pit on the northwest corner of the site. Remaining concentrations were 422 mg/L (MW-3), 452 mg/L (TMW-1), and 733 mg/L (TMW-2).

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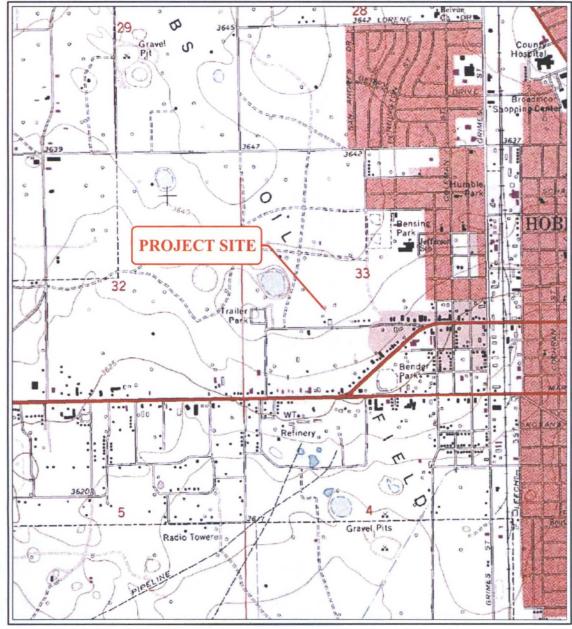
5.0 FINDINGS AND RECOMMENDATIONS

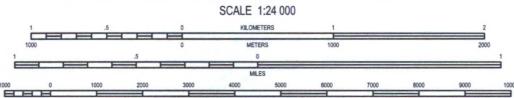
- Based on the analytical results, the on-site shallow soils in the vicinity of newly installed MW-3 and temporary groundwater sampling points TMW-1, TMW-2, and TMW-3 displayed elevated chloride readings. However, chloride concentrations in soil decreased with depth.
- Based on the analytical results, the on-site groundwater displayed elevated chloride readings, ranging from 194 mg/L to 919 mg/L (excluding data from TMW-3).
- The most elevated chloride concentration was identified in groundwater sampled from MW-2, up gradient of former site operations.

APPENDIX A

Figure 1 – Topographic Map
Figure 2 – Site Plan
Figure 3 – Groundwater Gradient Map for June 10, 2011

UNITED STATES - DEPARTMENT OF THE INTERIOR - GEOLOGICAL SURVEY





CONTOUR INTERVAL FEET FEET NATIONAL GEODETIC VERTICAL DATUM OF 1929

HOBBS WEST, N. MEX.
PHOTOREVISED 1979
7.5 MINUTE SERIES (TOPOGRAPHIC)

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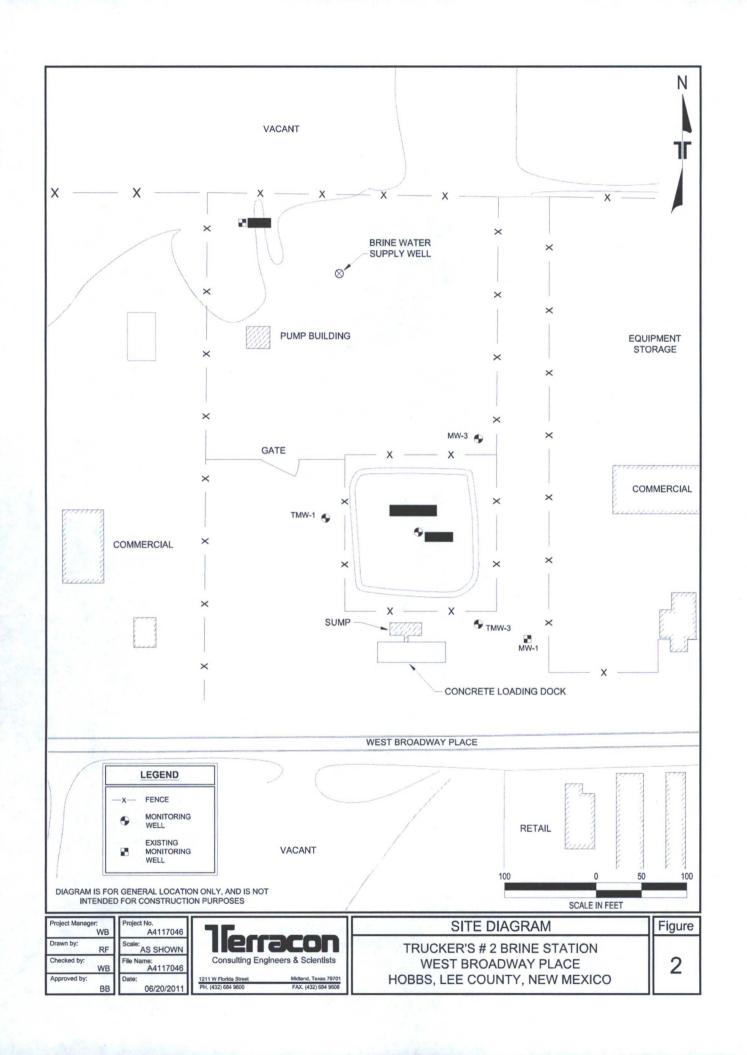
Consulting Engineers	and Scientists MIDLAND, TEXAS
PH. (432) 684-9600	FAX. (432) 684-9608

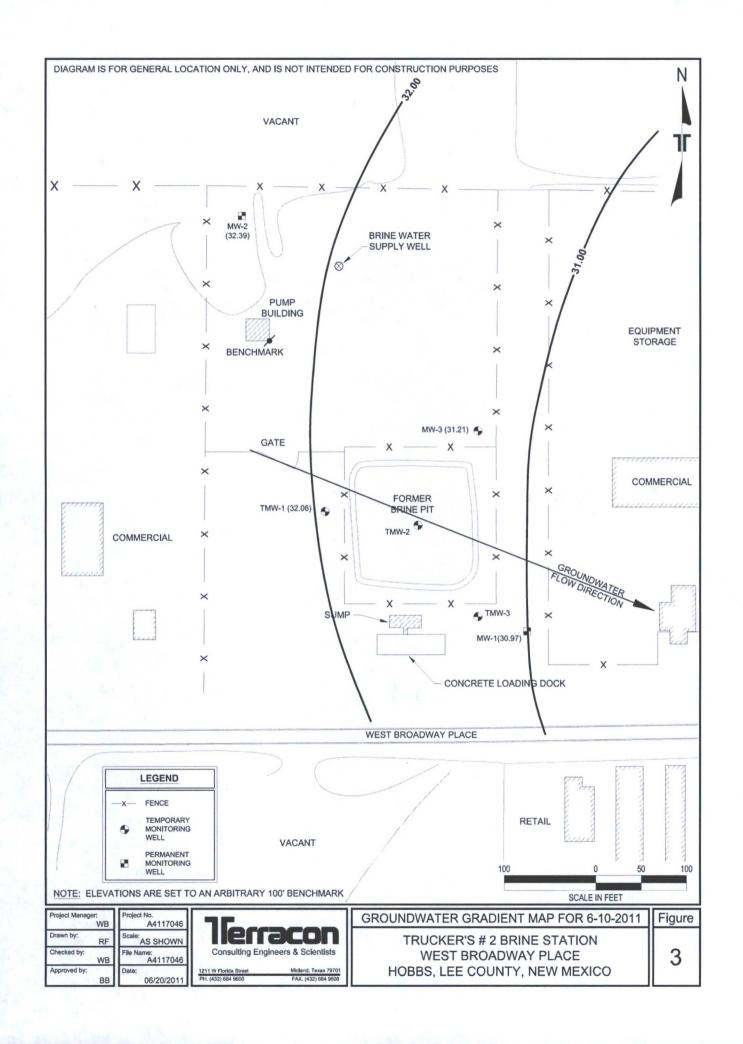
TOPOGRAPHIC QUADRANGLE MAP

TRUCKER'S # 2 BRINE STATION WEST BROADWAY PLACE HOBBS, LEE COUNTY, NEW MEXICO

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APPENDIX B

Boring Logs

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FIELD	PERS	SONNEL: W.	Burrow				DATE DRILLED: 6-9-11		
	Т	7					PAGE	2	of 2
H (FT)	SYMBOL	WELL		ES	LE VAL	DESCRIPTION INTERVAL			H (FT)
DEPTH (FT)	SOILS	WELL	PD	SAMPLES	SAMPLE	DESCI	DESCRIPTION OF STRATUM		БЕРТН (FT)
40									40
				32					_
, -			D		42.0			-	-
-								-	+
45			-						45
16 1		100	2-1-						
			1						4
-								-	-
50					50.0				50
				200					1
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55									55
11						56.0			
							SILTY SAND, tan-brown, fine, slightly moist, dense, moderately cemented		_
-								_	-
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65								-	65
Ā	!:]:]								-
	-:]:]							-	-
70					70.0				70
				163					1.0
					72.0				-
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75						75.0		\vdash	75
7.5	• •	1000				70.0	BOTTOM OF BORING at 75.0 FEET		1.5
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APPENDIX C

Tables

Table 1

CONCENTRATIONS OF CHLORIDES IN SOIL

Key Energy Services, Inc. Trucker's #2 Brine Station Lea County, NM **Terracon Project Number A4117046**

All concentrations are in mg/ kg

SAMPLE LOCATION	SAMPLE DATE	SAMPLE INTERVAL	EPA Method 300.1
	O/11111		Total Chlorides
TMW-1	06/08/11	0-5 fbgs	2,770
TMW-1	06/08/11	5-7 fbgs	2,110
TMW-1	06/08/11	8-10 fbgs	1,650
TMW-1	06/08/11	20-22 fbgs	541
TMW-1	06/08/11	30-32 fbgs	194
TMW-1	06/08/11	40-42 fbgs	83.5
TMW-1	06/08/11	50-52 fbgs	67.1
TMW-1	06/08/11	60-62 fbgs	18.0
11000	00/00/11	00 02 15g5	
TMW-2	06/08/11	0-2 fbgs	5,130
TMW-2	06/08/11	2-4 fbgs	6,180
TMW-2	06/08/11	4-6 fbgs	4,780
TMW-2	06/08/11	6-8 fbgs	5,580
TMW-2	06/08/11	8-10 fbgs	3,340
TMW-2	06/08/11	20-22 fbgs	27.7
TMW-2	06/08/11	30-32 fbgs	50.5
TMW-2	06/08/11	40-42 fbgs	72.1
TMW-2	06/08/11	50-52 fbgs	36.3
TMW-3	06/09/11	0-2 fbgs	3,170
TMW-3	06/09/11	2-4 fbgs	3,370
TMW-3	06/09/11	4-6 fbgs	2,710
TMW-3	06/09/11	6-8 fbgs	1,890
TMW-3	06/09/11	8-10 fbgs	1,250
TMW-3	06/09/11	20-22 fbgs	127
TMW-3	06/09/11	30-32 fbgs	146
TMW-3	06/09/11	40-42 fbgs	64.5
TMW-3	06/09/11	50-52 fbgs	45.9
TMW-3	06/09/11	60-62 fbgs	72.3
		N. E. S. C. C. C.	
MW-3	06/09/11	0-2 fbgs	555
MW-3	06/09/11	2-4 fbgs	1,530
MW-3	06/09/11	4-6 fbgs	1,610
MW-3	06/09/11	6-8 fbgs	1,200
MW-3	06/09/11	8-10 fbgs	847
MW-3	06/09/11	20-22 fbgs	811
MW-3	06/09/11	30-32 fbgs	645
MW-3	06/09/11	40-42 fbgs	145
MW-3	06/09/11	50-52 fbgs	130
MVV-3	06/09/11	60-62 fbgs	40.7

fbgs = feet below ground surface
TMW-2 was advanced beginning 10 fbgs, making the sample interval effectively 10 feet deeper than documented on laboratory identification information.

Table 2

CONCENTRATIONS OF CHLORIDES IN GROUNDWATER

Key Energy Services, Inc. Trucker's #2 Brine Station Lea County, NM **Terracon Project Number A4117046**

All concentrations are in mg/ L

SAMPLE LOCATION	SAMPLE DATE	Top of Casing Elevation *	GROUNDWATER DEPTH (in feet below top-of- casing)	Groundwater Elevation	EPA Method 300.1
			ouomy,	particular and the second	Total Chlorides
MW-1	06/10/11	97.71	66.74	30.97	194
MW-2	06/10/11	99.09	66.70	32.39	919
MW-3	06/10/11	97.86	66.65	31.21	422
TMW-1	06/10/11	99.52	67.46	32.06	452
TMW-2	06/10/11	not measured	57.35	not measured	733
TMW-3	06/10/11	not measured	66.92	not measured	1,790

fbgs = feet below ground surface
* locations surveyed in relation to an onsite benchmark with an assigne d elevation of 100.00 feet

APPENDIX D

Laboratory Data Sheets

Analytical Report 419675

for
Terracon Consultants, Inc.- Midland

Project Manager: Barrett Bole
Hobbs SWD- Key
A4117046
14-JUN-11

Collected By: Client



Celebrating 20 Years of commitment to excellence in Environmental Testing Services



12600 West I-20 East Odessa, Texas 79765

Xenco-Houston (EPA Lab code: TX00122):

Texas (T104704215-10-6-TX), Arizona (AZ0738), Arkansas (08-039-0), Connecticut (PH-0102), Florida (E871002) Illinois (002082), Indiana (C-TX-02), Iowa (392), Kansas (E-10380), Kentucky (45), Louisiana (03054) New Hampshire (297408), New Jersey (TX007), New York (11763), Oklahoma (9218), Pennsylvania (68-03610) Rhode Island (LAO00312), USDA (S-44102)

Xenco-Atlanta (EPA Lab Code: GA00046): Florida (E87429), North Carolina (483), South Carolina (98015), Utah (AALI1), West Virginia (362), Kentucky (85) Louisiana (04176), USDA (P330-07-00105)

Xenco-Miami (EPA Lab code: FL01152): Florida (E86678), Maryland (330)
Xenco-Tampa Mobile (EPA Lab code: FL01212): Florida (E84900)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX)
Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX)
Xenco-Corpus Christi (EPA Lab code: TX02613): Texas (T104704370)
Xenco-Boca Raton (EPA Lab Code: FL01273):
Florida(E86240),South Carolina(96031001), Louisiana(04154), Georgia(917)
North Carolina(444), Texas(T104704468-TX), Illinois(002295), Florida(E86349)

Xenco Phoenix (EPA Lab Code: AZ00901):
Arizona(AZ0757), Texas(104704435-10-2), Nevada(NAC-445A), DoD(65816)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)
Xenco Tucson (EPA Lab code: AZ000989): Arizona (AZ0758)





14-JUN-11

Project Manager: Barrett Bole
Terracon Consultants, Inc.- Midland

1211 W. Florida Avenue Midland, TX 79701

Reference: XENCO Report No: 419675

Hobbs SWD- Key Project Address:

Barrett Bole:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number 419675. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. Estimation of data uncertainty for this report is found in the quality control section of this report unless otherwise noted. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 419675 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Brent Barron, II

Odessa Laboratory Manager

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Sample Cross Reference 419675



Terracon Consultants, Inc.- Midland, Midland, TX

Hobbs SWD- Key

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW3	W	Jun-10-11 09:30		419675-001
MW2	W	Jun-10-11 10:00		419675-002
MW1	W	Jun-10-11 10:30		419675-003
TMW3	W	Jun-10-11 11:00		419675-004
TMW1	W	Jun-10-11 11:30		419675-005
TMW2	W	Jun-10-11 12:00		419675-006

CASE NARRATIVE



Client Name: Terracon Consultants, Inc.- Midland

Project Name: Hobbs SWD- Key



Project ID: A4117046 Work Order Number: 419675 Report Date: 14-JUN-11 Date Received: 06/13/2011

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None



Project Id: A4117046

Certificate of Analysis Summary 419675 Terracon Consultants, Inc.- Midland, Midland, TX

Project Name: Hobbs SWD- Key

Contact: Barrett Bole				Dai	te Received in Lab:	Date Received in Lab: Mon Jun-13-11 11:30 am	-
Project Location					Report Date: 14-JUN-11	14-JUN-11	
rioject Location.					Project Manager: Brent Barron, II	Brent Barron, II	
	Lab Id:	419675-001	419675-002	419675-003	419675-004	419675-005	
Landard Dames	Field Id:	MW3	MW2	MWI	TMW3	TMW1	
Anuiysis Kequesieu	Depth:						
	Matrix:	WATER	WATER	WATER	WATER	WATER	
	Sampled:	Jun-10-11 09:30	Jun-10-11 10:00	Jun-10-11 10:30	Jun-10-11 11:00	Jun-10-11 11:30	
Anions by E300	Extracted:						
	Analyzed:	Jun-13-11 14:06	Jun-13-11 14:28	Jun-13-11 14:50	Jun-13-11 15:12	Jun-13-11 15:34	Jun-13-11 15:56
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	
Chloride		422 12.5	919 25.0	194 10.0	1790 100	452 25.0	

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi

Odessa Laboratory Manager Brent Barron, II



Flagging Criteria

- X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- **B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F RPD exceeded lab control limits.
- J The target analyte was positively identified below the MQL and above the SQL.
- U Analyte was not detected.
- L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K Sample analyzed outside of recommended hold time.
- JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.
- BRL Below Reporting Limit.
- **RL** Reporting Limit
- MDL Method Detection Limit
- PQL Practical Quantitation Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- **DL** Method Detection Limit
- NC Non-Calculable
- + Outside XENCO's scope of NELAC Accreditation.

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9701 Harry Hines Blvd, Dallas, TX 75220	(214) 902 0300	(214) 351-9139
5332 Blackberry Drive, San Antonio TX 78238	(210) 509-3334	(210) 509-3335
2505 North Falkenburg Rd, Tampa, FL 33619	(813) 620-2000	(813) 620-2033
5757 NW 158th St, Miami Lakes, FL 33014	(305) 823-8500	(305) 823-8555
12600 West I-20 East, Odessa, TX 79765	(432) 563-1800	(432) 563-1713
842 Cantwell Lane, Corpus Christi, TX 78408	(361) 884-0371	(361) 884-9116
3725 F. Atlanta Ave. Phoenix A7 85040	(602) 437-0330	



BS / BSD Recoveries



Project Name: Hobbs SWD- Key

Date Prepared: 06/13/2011

Project ID: A4117046 **Date Analyzed:** 06/13/2011

Batch #: 1

Sample: 859870-1-BKS

Lab Batch ID: 859870

Work Order #: 419675 Analyst: LATCOR

Matrix: Water

Units: mg/L		BLAN	LANK/BLANK SPIKE / BLANK SPIKE DUPLICATE	PIKE / E	LANKS	PIKE DUPL	ICATE I	RECOVE	RECOVERY STUDY	Y	
Anions by E300	Blank Sample Result [A]	Spike	Blank Spike Result	Blank Spike %R	Spike	Blank Spike Duplicate	Blk. Spk Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes		[B]	[2]	[q]	E	Result [F]	<u>[5]</u>	r) as			
Chloride	<0.500	10.0	9.80	86	10.0	9.75	86	1 "	80-120	20	

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



Form 3 - MS Recoveries

Project Name: Hobbs SWD- Key



Work Order #: 419675

Lab Batch #: 859870 Date Analyzed: 06/13/2011

QC- Sample ID: 419517-001 S

Project ID: A4117046

Date Prepared: 06/13/2011

Analyst: LATCOR

Batch #: 1

Matrix: Water

Reporting Units: mg/L	MATI	RIX / MA	TRIX SPIKE	RECO	VERY STU	DY
Inorganic Anions by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Allalytes		The state of				
Chloride	<25.0	500	533	107	80-120	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B Relative Percent Difference [E] = 200*(C-A)/(C+B) All Results are based on MDL and Validated for QC Purposes

BRL - Below Reporting Limit



Sample Duplicate Recovery



Project Name: Hobbs SWD- Key

Work Order #: 419675

Lab Batch #: 859870

Project ID: A4117046

Date Analyzed: 06/13/2011 11:10

Date Prepared: 06/13/2011

Analyst: LATCOR

QC- Sample ID: 419517-001 D

Batch #: 1

Matrix: Water

Reporting Units: mg/L

SAMPLE / SAMPLE DUPLICATE RECOVERY

Reporting Cints. mg/L	SAM EE	SAMIL DE	DUILIC	AIL REC	OTLICE
Anions by E300	Parent Sample Result [A]	Sample Duplicate Result	RPD	Control Limits %RPD	Flag
Analyte	[A]	[B]			
Chloride	<25.0	<25.0	0	20	

CHAIN OF CUSTODY RECORD when received (C°): 5. L Midland Office 24 Smith Rd., # 261 Midland, Texas 79705 (432) 684-9600 Fax (432) 684-9608 2 Leb Sample 10 (Lab Use Only) Temp. of coolers wracon Lab use only Due Date: 8 Page analythe Austin Office 5307 Industrial Oaks Blvd. # 160 Austin, Texas 78735 (512) 442-1122 Fax (512) 442-1181 Brout Ble NOTES: PLACE CANGIL 0-0 St. - sludge ENVIRONMENTAL, GEOTECHNICAL AND CONSTRUCTION MATERIALS SERVICES . WE A 300. REQUESTED pride Time: - Plastic or other ANALYSIS Time: Time: Time: × Fort Worth Office 2601 Gravel Drive Fort Worth, Texas 76118 (817) 268-8600 Fax (817) 268-8602 × × × × Date: 250 PO Date: Date: Date: Plastic L - Liquid A - Air Bag 250 ml - Glass wide mouth # B Š Received by: (Signature) Received by: (Signature) Rebeived, by: (Signature) Received by: (Signature) 5 yand Depth 100% Rush End Depth Dallas Office 8901 Carpenter Freeway, Suite 100 Dallas, Texas 75247 (214) 630-1010 Fax (214) 630-7070 Start Sampler's Signatu W - Water S - Soil SD - Solid A/G - Amber / Or Glass 1 Liter Identifying Marks of Sample(s) _aboratory: 40665 Sup- Ken C 50% Rush PO/SO#: Address: Contact: Phone: Time: Time: Time: 20 TWW Z TAM W3 TMWI MWZ MW3 ME Q 25% Rush Sarret Folk Date: Megly Ty Burrow .& Scientists Date: bate: Date: Project Name ah il OOEO Normal 11555 Clay Road, Suite 100 Houston, Texas 77043 (713) 690-8989 Fax (713) 690-8787 Consulting Engineer WW - Wastewate VOA - 40 ml vial Refinquished by (Signature) Relinquished by (Signature) Relinquished by (Signature) Relinquished by (Signature) 2930 1030 1100 1130 1700 1000 Time Project Manager___ 04071140 Office Location_ 110-11 11-01-9 11-01-9 1101-9 furn aquund time 11-01-9 Sampler's Name 1201-Date Houston Office Container Proj. No. Matrix 200 200 200 700 500 8



XENCO Laboratories

Atlanta, Boca Raton, Corpus Christi, Dallas Houston, Miami, Odessa, Philadelphia Phoenix, San Antonio, Tampa Document Title: Sample Receipt Checklist

Document No.: SYS-SRC

Revision/Date: No. 01, 5/27/2010

Effective Date: 6/1/2010

Page 1 of 1

Prelogin / Nonconformance Report - Sample Log-In

Alient: 1 (1 (4 (0)) Date/Time: 6 13/11 11 30						
ab ID#: 419675						
nitials: -/ H						
muais.	Sample Receipt	Chack	iet			
	Sample Receipt	CHECKI	ISL			
1. Samples on ice?			Blue	Water	No	
2. Shipping container in good condition?			(Yes)	No	None	
3. Custody seals intact on shipping contain	ner (cooler) and bottles?	?	Yes	No	(N/A)	
4, Chain of Custody present?			Yes	No		
5. Sample instructions complete on chain	of custody?		Yes	No		
6. Any missing / extra samples?		17	Yes	No		
7. Chain of custody signed when relinquish	hed / received?		Yes	No		
8. Chain of custody agrees with sample lat	pel(s)?		(Yes)	No		
9. Container labels legible and intact?			(Yes)	No		
10. Sample matrix / properties agree with o	hain of custody?	-1	(Yes)	No .		
11. Samples in proper container / bottle?			Yes	No		
12. Samples properly preserved?			(Yes)	No	N/A	
13. Sample container intact?			Yes	No		
14. Sufficient sample amount for indicated	test(s)?		Yes	No		
15. All samples received within sufficient I			Yes	No		
16. Subcontract of sample(s)?			Yes	No	(NA)	
17. VOC sample have zero head space?			Yes	No	N/A	
18. Cooler 1 No. Cooler 2 No.	Cooler 3 No.		Cooler 4 No		Cooler 5 No.	
lbs 5 (c°C lbs	°C lbs	°C		°C		0
	Nonconformance I	Docume	ntation			
Contact:Contact	cted by:			Date/Time:		
Regarding:						
Corrective Action Taken:						
		1				

□ Initial and Backup Temperature confirm out of temperature conditions

☐ Client understands and would like to proceed with analysis

Analytical Report 419668

for
Terracon Consultants, Inc.- Midland

Project Manager: Barrett Bole
Hobbs SWD- Key
A4117046
15-JUN-11

Collected By: Client



Celebrating 20 Years of commitment to excellence in Environmental Testing Services



12600 West I-20 East Odessa, Texas 79765

Xenco-Houston (EPA Lab code: TX00122):

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Xenco-Atlanta (EPA Lab Code: GA00046): Florida (E87429), North Carolina (483), South Carolina (98015), Utah (AALI1), West Virginia (362), Kentucky (85) Louisiana (04176), USDA (P330-07-00105)

Xenco-Miami (EPA Lab code: FL01152): Florida (E86678), Maryland (330)
Xenco-Tampa Mobile (EPA Lab code: FL01212): Florida (E84900)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX)
Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX)
Xenco-Corpus Christi (EPA Lab code: TX02613): Texas (T104704370)
Xenco-Boca Raton (EPA Lab Code: FL01273):
Florida(E86240),South Carolina(96031001), Louisiana(04154), Georgia(917)
North Carolina(444), Texas(T104704468-TX), Illinois(002295), Florida(E86349)

Xenco Phoenix (EPA Lab Code: AZ00901):
Arizona(AZ0757), Texas(104704435-10-2), Nevada(NAC-445A), DoD(65816)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)
Xenco Tucson (EPA Lab code: AZ000989): Arizona (AZ0758)





15-JUN-11

Project Manager: Barrett Bole

Terracon Consultants, Inc.- Midland

1211 W. Florida Avenue Midland, TX 79701

Reference: XENCO Report No: 419668

Hobbs SWD- Key Project Address:

Barrett Bole:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number 419668. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. Estimation of data uncertainty for this report is found in the quality control section of this report unless otherwise noted. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

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

Respectfully,

Brent Barron, II

Odessa Laboratory Manager

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Sample Cross Reference 419668



Terracon Consultants, Inc.- Midland, Midland, TX

Hobbs SWD- Key

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
TMW1 0-5	S	Jun-08-11 12:00	0 - 5	419668-001
TMW1 5-7	S	Jun-08-11 12:00	5 - 7	419668-002
TMW1 8-10	S	Jun-08-11 12:00	8 - 10	419668-003
TMW1 20-22	S	Jun-08-11 12:00	20 - 22	419668-004
TMW1 30-32	S	Jun-08-11 12:00	30 - 32	419668-005
TMW1 40-42	S	Jun-08-11 12:00	40 - 42	419668-006
TMW1 50-52	S	Jun-08-11 12:00	50 - 52	419668-007
TMW1 60-62	S	Jun-08-11 12:00	60 - 62	419668-008
TMW2 0-2	S	Jun-08-11 16:00	0 - 2	419668-009
TMW2 2-4	S	Jun-08-11 16:00	2 - 4	419668-010
TMW2 4-6	S	Jun-08-11 16:00	4 - 6	419668-011
TMW2 6-8	S	Jun-08-11 16:00	6 - 8	419668-012
TMW2 8-10	S	Jun-08-11 16:00	8 - 10	419668-013
TMW2 20-22	S	Jun-08-11 16:00	20 - 22	419668-014
TMW2 30-32	S	Jun-08-11 16:00	30 - 32	419668-015
TMW2 40-42	S	Jun-08-11 16:00	40 - 42	419668-016
TMW2 50-52	S	Jun-08-11 16:00	50 - 52	419668-017
TMW3 0-2	S	Jun-09-11 11:30	0 - 2	419668-018
TMW3 2-4	S	Jun-09-11 11:30	2 - 4	419668-019
TMW3 4-6	S	Jun-09-11 11:30	4 - 6	419668-020
TMW3 6-8	S	Jun-09-11 11:30	6 - 8	419668-021
TMW3 8-10	S	Jun-09-11 11:30	8 - 10	419668-022
TMW3 20-22	S	Jun-09-11 11:30	20 - 22	419668-023
TMW3 30-32	S	Jun-09-11 11:30	30 - 32	419668-024
TMW3 40-42	S	Jun-09-11 11:30	40 - 42	419668-025
TMW3 50-52	S	Jun-09-11 11:30	50 - 52	419668-026
TMW3 60-62	S	Jun-09-11 11:30	60 - 62	419668-027
MW3 0-2	S	Jun-09-11 16:00	0 - 2	419668-028
MW3 2-4	S	Jun-09-11 16:00	2 - 4	419668-029
MW3 4-6	S	Jun-09-11 16:00	4 - 6	419668-030
MW3 6-8	S	Jun-09-11 16:00	6 - 8	419668-031
MW3 8-10	S	Jun-09-11 16:00	8 - 10	419668-032
MW3 20-22	S	Jun-09-11 16:00	20 - 22	419668-033
MW3 30-32	S	Jun-09-11 16:00	30 - 32	419668-034
MW3 40-42	S	Jun-09-11 16:00	40 - 42	419668-035
MW3 50-52	S	Jun-09-11 16:00	50 - 52	419668-036
MW3 60-62	S	Jun-09-11 16:00	60 - 62	419668-037

CASE NARRATIVE



Client Name: Terracon Consultants, Inc.- Midland

Project Name: Hobbs SWD- Key



Project ID: A4117046 Work Order Number: 419668 Report Date: 15-JUN-11 Date Received: 06/13/2011

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None



Project Location:

Certificate of Analysis Summary 419668

Terracon Consultants, Inc.- Midland, Midland, TX

Project Name: Hobbs SWD- Key



Date Received in Lab: Mon Jun-13-11 11:30 am

Report Date: 15-JUN-11

					Project Manager: Brent Barron, II	Srent Barron, II	
	Lab Id:	419668-001	419668-002	419668-003	419668-004	419668-005	419668-006
between Daniel	Field Id:	TMW1 0-5	TMW1 5-7	TMW1 8-10	TMW1 20-22	TMWI 30-32	TMW1 40-42
Analysis Requesieu	Depth:	0-5	5-7	8-10	20-22	30-32	40-42
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Jun-08-11 12:00	Jun-08-11 12:00	Jun-08-11 12:00	Jun-08-11 12:00	Jun-08-11 12:00	Jun-08-11 12:00
Anions by E300	Extracted:						
	Analyzed:	Jun-13-11 18:53	Jun-13-11 18:53	Jun-13-11 18:53	Jun-13-11 18:53	Jun-13-11 18:53	Jun-13-11 18:53
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		2770 46.8	2110 50.3	1650 49.0	541 9.27	194 9.09	83.5 4.48
Percent Moisture	Extracted:						
	Analyzed:	Jun-13-11 17:00	Jun-13-11 17:00	Jun-13-11 17:00	Jun-13-11 17:00	Jun-13-11 17:00	Jun-13-11 17:00
	Units/RL:	% RL	% RL	% RL	% RL	% RL	% RL
Percent Moisture		10.3 1.00	16.5 1.00	14.2 1.00	9.41 1.00	7.57 1.00	6.19 1.00

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Brent Barron, II Odessa Laboratory Manager



Project Location:

Certificate of Analysis Summary 419668

Terracon Consultants, Inc.- Midland, Midland, TX

Project Name: Hobbs SWD- Key

Date Received in Lab: Mon Jun-13-11 11:30 am

Report Date: 15-JUN-11

	Lab Id:	419668-007	419668-008	419668-009	419668-010	419668-011	419668-012
n	Field Id:	TMW1 50-52	TMW1 60-62	TMW2 0-2	TMW2 2-4	TMW2 4-6	TMW2 6-8
Analysis Kequesiea	Depth:	50-52	60-62	0-2	2-4	4-6	8-9
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Jun-08-11 12:00	Jun-08-11 12:00	Jun-08-11 16:00	Jun-08-11 16:00	Jun-08-11 16:00	Jun-08-11 16:00
Anions by E300	Extracted:						
	Analyzed:	Jun-13-11 18:53					
	Units/RL:	mg/kg RL					
Chloride		67.1 4.43	18.0 4.35	5130 184	6180 185	4780 181	5580 183
Percent Moisture	Extracted:						
	Analyzed:	Jun-13-11 17:00					
6	Units/RL:	% RL					
Percent Moisture		5.25 1.00	3.48 1.00	8.93 1.00	9.04 1.00	7.25 1.00	7.95 1.00

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Brent Barron, II Odessa Laboratory Manager

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Contact: Barrett Bole Project Id: A4117046

Project Location:

Certificate of Analysis Summary 419668

Terracon Consultants, Inc.- Midland, Midland, TX

Project Name: Hobbs SWD- Key



Date Received in Lab: Mon Jun-13-11 11:30 am Report Date: 15-JUN-11

Brent Rarron Project Mana

	Lab Id:	419668-013	419668-014	419668-015	419668-016	419668-017	419668-018
A	Field Id:	TMW2 8-10	TMW2 20-22	TMW2 30-32	TMW2 40-42	TMW2 50-52	TMW3 0-2
Anaiysis Kequesieu	Depth:	8-10	20-22	30-32	40-42	50-52	0-2
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Jun-08-11 16:00	Jun-09-11 11:30				
Anions by E300	Extracted:	2,00					
	Analyzed:	Jun-13-11 18:53	Jun-13-11 18:53	Jun-13-11 18:53	Jun-13-11 18:53	Jun-14-11 06:52	Jun-14-11 06:52
	Units/RL:	mg/kg RL					
Chloride		3340 89.5	27.7 8.71	50.5 4.40	72.1 4.44	36.3 4.38	3170 90.6
Percent Moisture	Extracted:						
	Analyzed:	Jun-13-11 17:00					
	Units/RL:	% RL					
Percent Moisture		6.11 1.00	3.53 1.00	4.50 1.00	5.37 1.00	4.09 1.00	7.28 1.00

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Odessa Laboratory Manager Brent Barron, II



Contact: Barrett Bole Project Id: A4117046

Project Location:

Certificate of Analysis Summary 419668

Terracon Consultants, Inc.- Midland, Midland, TX

Project Name: Hobbs SWD- Key



Date Received in Lab: Mon Jun-13-11 11:30 am

Report Date: 15-JUN-11

					Project Manager: Brent Barron, II	Brent Barron, II	
	Lab Id:	419668-019	419668-020	419668-021	419668-022	419668-023	419668-024
A D	Field Id:	TMW3 2-4	TMW3 4-6	TMW3 6-8	TMW3 8-10	TMW3 20-22	TMW3 30-32
Anaiysis Kequesieu	Depth:	2-4	4-6	8-9	8-10	20-22	30-32
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Jun-09-11 11:30	Jun-09-11 11:30	Jun-09-11 11:30	Jun-09-11 11:30	Jun-09-11 11:30	Jun-09-11 11:30
Anions by E300	Extracted:						
	Analyzed:	Jun-14-11 06:52	Jun-14-11 06:52	Jun-14-11 06:52	Jun-14-11 06:52	Jun-14-11 06:52	Jun-14-11 06:52
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		3370 90.4	2710 48.1	1890 48.2	1250 49.2	127 8.93	146 9.09
Percent Moisture	Extracted:						
	Analyzed:	Jun-13-11 17:00	Jun-13-11 17:00	Jun-13-11 17:00	Jun-13-11 17:00	Jun-13-11 17:00	Jun-13-11 17:00
	Units/RL:	% RL	% RL	% RL	% RL	% RL	% RL
Percent Moisture		7.05 1.00	12.7 1.00	12.9 1.00	14.6 1.00	5.90 1.00	7.61 1.00

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Odessa Laboratory Manager Brent Barron, II



Project Location:

Certificate of Analysis Summary 419668

Terracon Consultants, Inc.- Midland, Midland, TX

Project Name: Hobbs SWD- Key

Date Received in Lab: Mon Jun-13-11 11:30 am

Report Date: 15-JUN-11

Toject Location.					Project Manager: Brent Barron, II	Brent Barron, II	
	Lab Id:	419668-025	419668-026	419668-027	419668-028	419668-029	419668-030
, n	Field Id:	TMW3 40-42	TMW3 50-52	TMW3 60-62	MW3 0-2	MW3 2-4	MW3 4-6
Anaiysis Kequesieu	Depth:	40-42	50-52	60-62	0-2	2-4	4-6
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Jun-09-11 11:30	Jun-09-11 11:30	Jun-09-11 11:30	Jun-09-11 16:00	Jun-09-11 16:00	Jun-09-11 16:00
Anions by E300	Extracted:						
	Analyzed:	Jun-14-11 06:52	Jun-14-11 06:52	Jun-14-11 06:52	Jun-14-11 06:52	Jun-14-11 06:52	Jun-14-11 06:52
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		64.5 4.34	45.9 4.40	72.3 4.39	555 17.7	1530 47.2	1610 47.5
Percent Moisture	Extracted:						
	Analyzed:	Jun-13-11 17:00	Jun-13-11 17:00	Jun-13-11 17:00	Jun-13-11 17:00	Jun-13-11 17:00	Jun-13-11 17:00
	Units/RL:	% RL	% RL	% RL	% RL	% RL	% RL
Percent Moisture		3.23 1.00	4.64 1.00	4.23 1.00	5.04 1.00	11.1 1.00	11.5 1.00

Brent Barron, II Odessa Laboratory Manager

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Project Location:

Certificate of Analysis Summary 419668

Terracon Consultants, Inc.- Midland, Midland, TX

Project Name: Hobbs SWD- Key



Date Received in Lab: Mon Jun-13-11 11:30 am

Report Date: 15-JUN-11

roject Location.					Project Manager: Brent Barron, II	Brent Barron, II	
	Lab Id:	419668-031	419668-032	419668-033	419668-034	419668-035	419668-036
Auchain Dannada	Field Id:	MW3 6-8	MW3 8-10	MW3 20-22	MW3 30-32	MW3 40-42	MW3 50-52
Anaiysis Requesieu	Depth:	8-9	8-10	20-22	30-32	40-42	50-52
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Jun-09-11 16:00	Jun-09-11 16:00	Jun-09-11 16:00	Jun-09-11 16:00	Jun-09-11 16:00	Jun-09-11 16:00
Anions by E300	Extracted:						
	Analyzed:	Jun-14-11 06:52	Jun-14-11 06:52	Jun-14-11 06:52	Jun-14-11 06:52	Jun-14-11 06:52	Jun-14-11 06:52
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		1200 50.1	847 23.4	811 22.1	645 18.1	145 9.00	130 8.78
Percent Moisture	Extracted:						
	Analyzed:	Jun-13-11 17:00	Jun-13-11 17:00	Jun-13-11 17:00	Jun-13-11 17:00	Jun-13-11 17:00	Jun-13-11 17:00
	Units/RL:	% RL	% RL	% RL	% RL	% RL	% RL
Percent Moisture		16.1 1.00	10.2 1.00	5.08 1.00	7.00 1.00	6.71 1.00	4.38 1.00

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Odessa Laboratory Manager

Brent Barron, II

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Contact: Barrett Bole Project Id: A4117046

Project Location:

Certificate of Analysis Summary 419668

Terracon Consultants, Inc.- Midland, Midland, TX

Project Name: Hobbs SWD- Key

Date Received in Lab: Mon Jun-13-11 11:30 am

Report Date: 15-JUN-11

			Project Manager: Brent Barron, II	Brent Barron, 11
	Lab Id:	419668-037		
Accelerate December	Field Id:	MW3 60-62		
Analysis Nequesiea	Depth:	60-62		
	Matrix:	SOIL		
	Sampled:	Jun-09-11 16:00		
Anions by E300	Extracted:			
	Analyzed:	Jun-15-11 14:27		
	Units/RL:	mg/kg RL		
Chloride		40.7 4.33		
Percent Moisture	Extracted:			
	Analyzed:	Jun-13-11 17:00		
	Units/RL:	% RL		
Percent Moisture		3.02 1.00		

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Odessa Laboratory Manager Brent Barron, II



Flagging Criteria

- X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- **B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- **D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F RPD exceeded lab control limits.
- J The target analyte was positively identified below the MQL and above the SQL.
- U Analyte was not detected.
- L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K Sample analyzed outside of recommended hold time.
- JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit

PQL Practical Quantitation Limit

LOD Limit of Detection

LOQ Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

+ Outside XENCO's scope of NELAC Accreditation.

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5332 Blackberry Drive, San Antonio TX 78238	(210) 509-3334	(210) 509-3335
2505 North Falkenburg Rd, Tampa, FL 33619	(813) 620-2000	(813) 620-2033
5757 NW 158th St, Miami Lakes, FL 33014	(305) 823-8500	(305) 823-8555
12600 West I-20 East, Odessa, TX 79765	(432) 563-1800	(432) 563-1713
842 Cantwell Lane, Corpus Christi, TX 78408	(361) 884-0371	(361) 884-9116
3725 E. Atlanta Ave, Phoenix, AZ 85040	(602) 437-0330	



BS / BSD Recoveries



Project Name: Hobbs SWD- Key

Work Order #: 419668

Analyst: LATCOR

Date Prepared: 06/13/2011

Project ID: A4117046

Date Analyzed: 06/13/2011

Flag %RPD Limits Control 20 BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY Control Limits 75-125 Matrix: Solid RPD % Blk. Spk Dup. %R [G] 901 Duplicate Result [F] Blank Spike 9.01 Spike Added 10.0 Ξ Blank Spike %R [D] 16 Blank Spike Result 0 99.6 Batch #: 1 Spike Added 10.0 [B] Sample Result <0.420 Blank [A] Sample: 859872-1-BKS Anions by E300 Lab Batch ID: 859872 Units: mg/kg Analytes Chloride

Sample: 859946-1-BKS Lab Batch ID: 859946

Analyst: LATCOR

Date Prepared: 06/14/2011

Batch #: 1

Matrix: Solid

Date Analyzed: 06/14/2011

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Flag Limits Control %RPD 20 Control Limits Date Analyzed: 06/15/2011 75-125 RPD % Blk. Spk Dup. %R [G] 93 Duplicate Result [F] Blank Spike 9.33 Spike Added 10.0 Ξ Blank Spike %R [D] 95 Blank Spike Result 9.45 <u>[</u> Spike Added 10.0 [B] Sample Result <0.420 Blank [A] Anions by E300 Units: mg/kg Analytes Chloride

Date Prepared: 06/15/2011

Analyst: LATCOR

Lab Batch ID: 860049

Sample: 860049-1-BKS

Batch #: 1

Matrix: Solid

Flag %RPD Control Limits 20 BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY Limits %R 75-125 Control RPD % Blk. Spk Dup. %R [G] Duplicate Result [F] Blank Spike 8.19 Spike Added 10.0 크 Blank Spike %R [D] Blank Spike Result 0 Spike Added 10.0 [B] Sample Result Blank Anions by E300 Units: mg/kg Analytes

82

81

8.11

<0.420

Chloride

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



Form 3 - MS Recoveries

Project Name: Hobbs SWD- Key



Work Order #: 419668

Lab Batch #: 859872

Date Prepared: 06/13/2011

Project ID: A4117046

Date Analyzed: 06/13/2011

Analyst: LATCOR

QC- Sample ID: 419517-008 S

Batch #: 1

Matrix: Soil

Reporting Units: mg/kg	MATI	RIX / MA	TRIX SPIKE	RECO	VERY STU	DY
Inorganic Anions by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	318	257	533	84	75-125	

Lab Batch #: 859946

Date Analyzed: 06/14/2011

Date Prepared: 06/14/2011

Analyst: LATCOR

QC- Sample ID: 419668-017 S

Batch #: 1

Matrix: Soil

Reporting Units: mg/kg	MATI	RIX / MA	TRIX SPIKE	RECO	VERY STU	DY
Inorganic Anions by EPA 300	Parent Sample Result	Spike Added	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Analytes	[A]	[B]	15			
Chloride	36.3	104	128	88	75-125	

Lab Batch #: 860049

Date Analyzed: 06/15/2011

Date Prepared: 06/15/2011

Analyst: LATCOR

QC- Sample ID: 419668-037 S

Batch #: 1

Matrix: Soil

Reporting Units: mg/kg	MATI	RIX / MA	TRIX SPIKE	RECO	VERY STU	DY
Inorganic Anions by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	40.7	103	131	88	75-125	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B Relative Percent Difference [E] = 200*(C-A)/(C+B) All Results are based on MDL and Validated for QC Purposes

BRL - Below Reporting Limit



Sample Duplicate Recovery



Project Name: Hobbs SWD- Key

Work Order #: 419668

Lab Batch #: 859872

Project ID: A4117046

Date Analyzed: 06/13/2011 18:53

Date Prepared: 06/13/2011

Analyst: LATCOR

QC- Sample ID: 419517-008 D

Batch #: 1

Matrix: Soil

Reporting Units: mg/kg

SAMPLE / SAMPLE DUPLICATE RECOVERY

Anions by E300	Parent Sample Result [A]	Sample Duplicate Result	RPD	Control Limits %RPD	Flag
Analyte	1-1	[B]			
Chloride	318	298	6	20	100

Lab Batch #: 859946

Date Analyzed: 06/14/2011 06:52

Date Prepared: 06/14/2011

Analyst: LATCOR

QC- Sample ID: 419668-017 D

Batch #: 1

Matrix: Soil

Reporting Units: mg/kg	SAMPLE /	SAMPLE	DUPLIC	ATE REC	OVERY
Anions by E300	Parent Sample Result [A]	Sample Duplicate Result	RPD	Control Limits %RPD	Flag
Analyte		[B]			

Lab Batch #: 860049

Chloride

Date Analyzed: 06/15/2011 14:40

Date Prepared: 06/15/2011

36.3

Analyst: LATCOR

QC- Sample ID: 419668-037 D

Batch #: 1

Matrix: Soil

29.6

Reporting Units: mg/kg	SAMPLE /	SAMPLE	DUPLIC	ATE REC	OVERY
Anions by E300	Parent Sample Result [A]	Sample Duplicate Result	RPD	Control Limits %RPD	Flag
Analyte		[B]			
Chloride	40.7	36.3	11	20	7 7

Lab Batch #: 859845

Date Analyzed: 06/13/2011 17:00

Date Prepared: 06/13/2011

Analyst: BEV

QC- Sample ID: 419668-001 D

Batch #: 1

Matrix: Soil

Reporting Units: %

SAMPLE / SAMPLE DUPLICATE RECOVERY

Percent Moisture Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Percent Moisture	10.3	10.6	3	20	



Sample Duplicate Recovery



Project Name: Hobbs SWD- Key

Work Order #: 419668

Lab Batch #: 859846

Project ID: A4117046

Date Analyzed: 06/13/2011 17:00

Date Prepared: 06/13/2011

Analyst: BEV

QC- Sample ID: 419668-021 D

Batch #: 1

Matrix: Soil

Reporting Units: %

SAMPLE / SAMPLE DUPLICATE RECOVERY

Reporting Units: 70	SAMI LE	SAMILLE	DUILIC	AIL REC	OVERT
Percent Moisture	Parent Sample Result [A]	Sample Duplicate Result	RPD	Control Limits %RPD	Flag
Analyte		[B]			
Percent Moisture	12.9	13.3	3	20	

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

		Labo	Laboratory:	énco		A B	ANALYSIS REQUESTED		Lab use only Due Date:
Consulting Enginee	Engineens & Scientists	Address:	ess:			11		1000	Temp. of coalers when received (C*):
Office Location	Migland	1X Contact:	act:			1	VOL.	1	2 3
Project Manager	Rivert For	Phone:	Phone:			1		111117	Page 1 of 7
		-	Sampler's Signature	1	H	1	577		
Proj. No.	Preject N	106.65 5 WB-	P 75	3 - E	to Containers	1 3 4 A	10/4		/ 402 0.g.
	Time C G	Identifying Marks of Sample(s)	Date	Depth Depth	A/G 250	100	7		4/9/6/28 Lab Sample ID (Lab Use Only)
5 168.11 12		TMW1 0-5	10			-	X		
5 6-8-11 12	X	Thw 1 5-7	7				′×		
71 11-8-9 5 500	TX VOOL	174 W 18-10	0/			-	X		
11 11-8-9 5 HOD	7 X COL)	TMW1 Z	27.02			-	×		
41 11-8-9 6 500	1200 X 7	THIN! 3	30-37			_	×		
7 11-8-11 5 200	Thou X 7	TAW! 40	7h-0h			_	×		
71 11-8-11 12	. <		50-52			-	×		
21 11-8-9 5 800	X	Town be	29-09			_	×		
	1 X 3	Thus	7.0	- 7		_	X		
-	~	7				_	X		
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Refinquished by (Signature)		-	Received	Received by: (Signature)		Date:	Time:	to Farret Bole	e w Terracon.
Relinquished by (Signature)	ature) Date:	Time:	Received t	Received by: (Signature)		Date:	Time:		
Relinquished by (Signature)	ature) Date:	Time:	Received	Received by)(Signature)	" de	Date:	Time: 11: 30		
Matrix WW - Wastewater Container VOA - 40 ml vial		W - Water S - Soil SD - Solid	SD - Solid	L - Liquid A - Air Beg 250 ml - Glass wide mouth	- Air Beg wide mouth	C - Char P/O - Pk	ube or other	SL - sludge O - Oil	
Houston Office 11555 Clay Road, Suite 100 Houston, Texas 77043		Dallas Office 8901 Carpenter Freeway, Suite 100 Dallas, Texas 75247	cway, Suite 100		Fort Worth Office 2601 Gravel Drive Fort Worth, Texas 76118	76118		Austin Office 5307 Industrial Oaks Blvd. # 160 Austin, Texas 78735	Midland Office 24 Smith Rd., # 261 Midland, Texas 79705

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ŀ		l aboratory.	7	07		AN	ANALYSIS REQUESTED		Lab use only Due Date:
Consulting Engineers	& Scientists	Address:				1 1			Temp. of coolers when received (C°):
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	-	Phone:					2		Page 2 of 4
Project Manager DUNCH	cot bolk	PO/SO#:				- 1	103		
+		Sampler's Signature	nature	H		1	I		
10094 19 DA	Duran		3	7			(I)		
Proj. No. 1 Pro	Project Name Project Name Project Name	10 - Ken	- "	ON IN	NorType of Containers	27	prof		
Matrix Date Time o	G Identifying	of Samp	Start Depth End	Depth	A/G 250	20%	10		419/668 Lab Sample ID (Lab Use Only)
5 6-8-11 1600	X mws	2 4-6				_	×		
5 6-8-11 1600	X Thw2	2. 6.8				_	×		
5 6-8-11/600	X TANUZ	01-8 7				1	×		
5 6-8-11 1600	X Thwz	2 20-22				1	×		
5 6-11 1600	Y mwz	7 30-32		2 1		-	X		
010 5 6-8-11 1600	x Trunz	24-42					×		
9 6-8-11 1600	X TAWR	25.52					X		
013 5 6-9-11 1130	X TMW 3	7 - 0 - 2					×		
019 5 69-11 1130	X TMW3	3 2-4		5			X		
-							_		
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Relinquished by (Signature)	Date:	Time: Rece	Received by: (Signature)	nature)	0	Date:	Time:		
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Matrix WW - Wastewater Container VOA - 40 ml vial	W - Water S - Soil A/G - Amber / Or-Glass	150	D	L - Liquid A Air Bag 250 ml - Glass wide mouth		C - Charo P/O - Plas	C - Charcoal tube P/O - Plastic or other	SL - sludge O - Oil	
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Laboratory: Address:	1	ANALYSIS		/ / Lab use only
	y: JUAN CO	- negoesieu	1	Due Date:
& Scientists			1 / 80%	Temp. of coolers when received (C°):
Office Location Mid and X Contact:			4	1 2 3 4
		23		Page 3 of
Project Manager TUVICH De @ PO/SO#:		义:		
7	Signature) of	57		
worth in man on 11/4	m with	14		
Proj. No. At 117646 Project Name 5 500 F	Out NorType of Containers	74		
Matrix Date Time C G Identifying Marks of Sample(s)	Start Depth Cop VOA NG 250	2		Lab Sample ID (Lab Use Only)
5 6911 1130 X TMW3 6-8		>		
5 6.9-11 1130 X TMW3 8-10	3	×		
5 1,9-11 1130 X TANUZ 25-22	77	×		
5 b-7-11 1130 X TMW3 x-32	7	×		
70	-47	X		
X 7	7	X		
5 [24-11 1130 X The W. 3 60-62	7	×		
5 6-711 1600 X MW3 0-2		×		
5 15-9-11 1600 X MW3 2-4		X		
X AW3		×		
rmal	100% Rush			
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Time:	Received by: (Signature) Di	Date: Time:	Barret Pale	w Terracon
Relinquished by (Signature) Date: Time: R	Received by: (Signature) Da	Date: Time:		
Relinquished by (Signature) Date: Time: R	Received by: (Signature)	Date: Time:		
Matrix WWW - Wastewater W - Water S - Soil SD - Container VOA - 40 ml vial A/G - Amber / Or Glass 1 Liter	Solid	C - Charcoal tube P/O - Plastic or other	SL - sludge O - Oil	3
Houston Office Dallas Office 8901 Carpenter Freeway, Suite 100 8901 Carpenter Freeway, Suite 100 8901 Carpenter Freeway, Suite 100 Houston, Texas 77043 Dallas, Freeway, Suite 100 Parts 12470 Parts 1	Suite 100 Z601 Gravel Drive Fort Worth, Texas 7618	81	Austin Office 5307 Industrial Oaks Blvd. # 160 Austin, Texas 78735 Austin, Texas 78735	Midland Office 24 Smith Rd., # 261 Midland, Texas 17916 (1737) 684-9600

The Engine of a Scientists Contact: Phone:								,			Δ .	ANAIVOIC	-	-		/ / Lab use only
Consulting Engineers & Scientists Office Location Authority Broken Agriculture Surptive Name Surptive Name Project Manager Turn No. 1	F	,0			5	Labo	ratory:	M	9			EQUESTE	7			Due Date:
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Finales Fina	Project	Manager	1	#	20 Co	Phon PO/S	 0					Val	H-			Pageof.
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4-11 16.00 X M. w. 3 3 32 1 X X X X X Y	5		00	×	ME	34.	3-10					×				
4-11 16.00 X M.W.3 5 - 32 4-11 16.00 X M.W.3 6 - 42 4-11 16.00 X M.W.4 16.00 X M.M.4	56		200	X	MN		0.22				_	×				
1 1 1 1 1 1 1 1 1 1	5 6		00	×	MW	")	3	- 41			-	X				
	5		00	×	WW		24-6				/	X				
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hed by (Signature) Date: Time: Regelved by: (Signature) W. Water S. Soil SD- Solid L. Liquid A. Alfur Bag C. Charcoal tube SL. studge VOA - 40 mi viat AG - Amber / Or Glass 1 Liter	Relinquis	hed by (Sign	ature)		Date:	Time:	Receive	d by: (S	ignature)		Date:	Time:				
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	Matrix Container	WW-W VOA-4	astewater) ml vial		N - Water VG - Amber	S - Soil			Liquid ml - Glas	A - Air Bag s wide mout		arcoal tube Nastic or other	SL - sludge			
Houston Office Dallas Office S01 Carpenter Freeway, Suite 100 S01 Carpenter Freeway, S01 S01 Carpenter Fr	Houston C 11555 Clay Houston, T	Road, Suite 10 xas 77043	0		Dallas 8901 C Dallas,	Office arpenter Free 75247	eway, Suite 10	00	25.8	ort Worth Of	fice ive as 76118		Austin Of 5307 Indu: Austin, Te	fice strial Oaks Blv cas 78735	.d. # 160	Midland Office 24 Smith Rd. # 261 Midland, Texas 79705 Midland, Texas 79705



XENCO Laboratories

Atlanta, Boca Raton, Corpus Christi, Dallas Houston, Miami, Odessa, Philadelphia Phoenix, San Antonio, Tampa Document Title: Sample Receipt Checklist

Document No.: SYS-SRC

Revision/Date: No. 01, 5/27/2010

Effective Date: 6/1/2010 Page 1 of 1

Prelogin / Nonconformance Report - Sample Log-In

Client II I a Coll					
Date/Time: 6/13/11 /1:30					
Lab ID#: 419668					
Initials:					
	Sample Receipt Ch	ecklist			
1. Samples on ice?		Blue	Water	No	
2. Shipping container in good condition?		(Yes)	No	None	
3. Custody seals intact on shipping contain	ner (cooler) and bottles?	Yes	No	(NA)	
4. Chain of Custody present?		(Yes_)	No		
5. Sample instructions complete on chain of	of custody?	Yes	No		
6. Any missing / extra samples?		Yes	(No		
7. Chain of custody signed when relinquisl	hed / received?	Yes	No		
8. Chain of custody agrees with sample lab	pel(s)?	Yes	No		
9. Container labels legible and intact?		Yes	No	2	
10. Sample matrix / properties agree with o	hain of custody?	Yes	No .		
11. Samples in proper container / bottle?		(Yes)	No		
12. Samples property preserved?		Yes	No	N/A	
13. Sample container intact?		(Yes)	No		
14. Sufficient sample amount for indicated	test(s)?	(Yes)	No		
15. All samples received within sufficient l		(es)	No		
16. Subcontract of sample(s)?		Yes	No	WA)	
17. VOC sample have zero head space?		Yes	No	(N/A)	
18. Cooler 1 No. Cooler 2 No.	Cooler 3 No.	Cooler 4 No.		Cooler 5 No.	
lbs 0.1 °C lbs	°C lbs	°C lbs	°C		0
Contact:Contact	Nonconformance Doc		Date/Time:		
Corrective Action Taken:					
Check all that apply: ☐ Cooling process	has begun shortly after san	npling event and or	ut of tempe	rature	

☐ Initial and Backup Temperature confirm out of temperature conditions

☐ Client understands and would like to proceed with analysis