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THE LION GROUP LLC
Environmental Health & Safety Services
Sampling • Assessments • Compliance • Training

August 2, 2013

Ms. T. Brown, Sr. Permitting Representative
Field & Permitting
Chesapeake Energy Corporation
100 Energy Way
Fort Worth TX 76102

Reference: Groundwater Sampling July 10-11, 2013, Summary Report, Town of Lakeside, Texas

Dear Ms. Brown,

Background:

THE LION GROUP LLC (TLG) was engaged by Chesapeake Energy Corporation to conduct a groundwater sampling event at six (6) Town of Lakeside TX wells (identified as Well #1, 2, 4, 12, 14 and 16) and one (1) private well (identified as Weaver Well) that were baseline sampled on July 7 and 8, 2011 by another firm, with detailed instructions that wells were to be purged for approximately 30 minutes each with an average purge volume, based on specific well production, of 2000 gallons per well and field measurements of pH, specific conductivity, temperature, clarity, odor and color identified, and samples should be analyzed for the same 2011 analytes, and upon final laboratory data results, generate report.

The Lakeside project contact for this sampling event was Mr. Randy Whiteman, Town Administrator. Mr. Whiteman then coordinated a visit between the Water & Wastewater Department representative, Mr. James McDonald, and TLG. All of the Town of Lakeside personnel were very helpful and courteous. Mr. Derrick Weaver is the owner of the private well (Weaver Well) and TLG acquired his approval for access. Mr. Weaver was very helpful and courteous in arranging well site access for TLG.

On 07/02/13, TLG conducted a preassessment of each water well site with the accompaniment of Lakeside Water & Wastewater Department representative. The sampling began on 07/10/13 and was completed on 07/11/13.

Sampling Event Narrative:

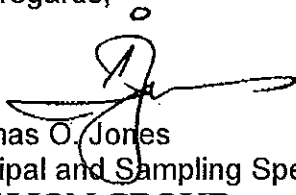
The samples and analytical selection was based on an initial baseline sampling and analytical project which was completed in the field on 07/08/2011. TLG notified selected analytical laboratory, TestAmerica, Nashville TN (TA), and ordered sampling kits for shipment to office of TLG, Fort Worth TX. Upon receipt of kits, TLG checked each kit for the condition of containers, assured the proper number, type of containers, appropriate preservatives, appropriate laboratory paperwork, completed the enclosed laboratory paperwork (chain-of-custodies and

container labels) with the appropriate information for each well, and applied labels to each container. Each kit was reassembled and tagged according to the name of the well. Samples were collected on 07/10/13 at Well #s 1, 4, 12, 16 and Well #s 2, 11 and Weaver Well on 07/11/13. TLG purged each well beyond the 2000 gallon level to ensure that the sample was representative at the time of sampling, samples collected, completed the appropriate paperwork: laboratory chain-of-custody, and TLG in-the-field analysis data sheet which included Well Name, Sample Date, Sample Time, pH, Temperature, Specific Conductance, Clarity (Visual)/Color (Visual)/Odor (Olfactory), Latitude/Longitude, documented gallons per minute flow measured, documented weather conditions, onsite observations as to operation of water wells and other items of interest, and took photographs which would be helpful in further events as they are conducted, container packed with ice in appropriate transport cooler for preservation. At the end of each sampling day event, TLG returned coolers to TLG Operations Center, Fort Worth, TX where coolers were "re-iced", the second barriers within the coolers were sealed, chain-of-custody and in-the-field data sheets paperwork placed inside waterproof envelope and placed inside each cooler, Custody Seal completed and applied to lid of cooler, coolers prepared/secured with shipping/packing tape for FedEx relinquishment, TA provided FedEx Overnight Air Labels and "Fragile Glass Handle With Care, This Package Contains Wet Ice Refrigerate" stickers applied to each cooler. TLG personally delivered coolers to nearest FedEx location for overnight shipment to TA, and communicated with TA project manager the daily deliveries by emailing digitally scanned copies of chain-of-custodies/data sheets /FedEx Overnight Freight Air Labels with assigned TA Project #s and shipping tracking #s.

Summary Report:

Upon receipt of TestAmerica Laboratory Analytical Reports, TLG generated reports and have provided for review (refer to letter attachments). The 2013 results show little differentiation from the 2011 baseline results.

Best regards,



Thomas O. Jones
Principal and Sampling Specialist
THE LION GROUP LLC

- Attachments:
- Table-Summary of Groundwater Results, Town of Lakeside, Texas, Samples Collected July 10-11, 2013
 - Groundwater Sampling In-The-Field Analysis Conducted by THE LION GROUP Sampling Specialist (*contains Well Name, Sample Date, Sample Time, pH, Temp., Specific Conductance, Clarity, Color, Odor, Lat., Lon., Flow Rate GPM, Weather, Onsite Observations, and Photograph*)
 - Google map of Water Well locations
 - TestAmerica Laboratory Analytical Reports: Well No. 1/490-30630-1; Well No. 2/490-30752-1; Well No. 4/490-30631-1; Well No. 12/490-30627-1; Well No. 14/490-30756-1; Well No. 16/490-30643-1; Weaver Well/490-30754-1

TABLE - Summary of Groundwater Results
Town of Lakeside, Texas
Samples Collected July 10-11, 2013 (THE LION GROUP LLC)

ANALYTE	UNITS	MW-1	MW-2	Weaver	MW-14	MW-16	MW-12	MW-4
		2013	2013	2013	2013	2013	2013	2013
Oil & Grease HEM	mg/L	ND	ND	ND	ND	ND	ND	ND
Temperature of pH determination	Deg C	20.7	24.1	24.2	23.4	27.6	25.3	24.2
Turbidity	NTU	0.950	ND	0.520	0.270	0.270	0.730	0.390
Chloride	mg/L	60.7	15.3	6.90	98.3	81.0	50.4	36.3
Sulfate	mg/L	54.6	79.1	39.7	81.2	143	130	38.6
Methane	mg/L	ND	ND	ND	ND	ND	ND	ND
Ethane	mg/L	ND	ND	ND	ND	ND	ND	ND
Propane	mg/L	ND	ND	ND	ND	ND	ND	ND
Bicarbonate Alkalinity as CaCO3	mg/L	271	262	268	311	445	442	234
Carbonate Alkalinity as CaCO3	mg/L	ND	17.6	ND	ND	34.7	40.4	ND
pH	pH SU	7.05	8.57	8.12	7.57	8.56	8.80	7.28
Specific conductance	umho/cm	802	733	707	716	1399	1360	567
Total Dissolved Solids	mg/L	494	460	377	648	921	841	378
Total Suspended Solids	mg/L	1.00	ND	2.10	ND	ND	1.30	1.10
MBAS (mol.wt 320) Methylene Blue Active Substances	mg/L	ND	0.0160	0.0350	0.0490	0.0130	0.0250	0.0380
Arsenic	mg/L	ND	ND	ND	ND	ND	ND	ND
Barium	mg/L	0.140	0.0217	0.0478	0.178	0.0284	0.0310	0.0727
Cadmium	mg/L	ND	ND	0.000300	ND	0.000900	ND	ND
Calcium	mg/L	133	5.24	24.6	162	2.79	2.45	96.6
Chromium	mg/L	ND	ND	ND	ND	0.00130	ND	ND
Iron	mg/L	0.0159	0.0552	0.0540	0.0323	0.0708	0.0528	0.257
Lead	mg/L	0.00330	ND	ND	ND	0.0548	0.00200	0.00240
Magnesium	mg/L	4.47	3.21	6.61	4.53	1.11	0.897	4.23

ANALYTE	UNITS	MW-1	MW-2	Weaver	MW-14	MW-16	MW-12	MW-4
		2013	2013	2013	2013	2013	2013	2013
Manganese	mg/L	0.000700	0.00470	0.00500	0.00160	0.00420	0.00280	0.167
Potassium	mg/L	1.45	1.85	2.04	1.75	1.51	1.55	1.08
Selenium	mg/L	ND	ND	ND	ND	ND	ND	ND
Silver	mg/L	ND	ND	ND	ND	ND	ND	ND
Sodium	mg/L	40.6	175	119	59.3	359	321	34.4
Sulfur	mg/L	18.6	27.8	13.5	25.4	52.9	47.1	12.6
Mercury	mg/L	ND	ND	ND	ND	ND	ND	ND
2-Butoxyethanol	mg/L	ND	ND	ND	ND	ND	ND	ND
1-Butanol	mg/L	ND	ND	ND	ND	ND	ND	ND
1,2-Propylene Glycol	mg/L	0.518	ND	0.761	ND	ND	0.599	ND
Tertiary Butyl Alcohol	mg/L	ND	ND	ND	ND	ND	ND	ND
n-Propanol	mg/L	ND	ND	ND	ND	ND	ND	ND
Ethanol	mg/L	ND	ND	ND	ND	ND	ND	ND
Isopropanol	mg/L	ND	ND	ND	ND	ND	ND	ND
Methanol	mg/L	ND	ND	ND	ND	ND	ND	ND
Isobutanol	mg/L	ND	ND	ND	ND	ND	ND	ND
Ethylene Glycol	mg/L	3.11	ND	0.795	1.20	ND	1.09	ND
Benzene	mg/L	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	mg/L	ND	ND	ND	ND	ND	ND	ND
Toluene	mg/L	ND	ND	ND	ND	ND	ND	ND
Xylenes, Total	mg/L	ND	ND	ND	ND	ND	ND	ND
C6-C12, TPH	mg/L	.914	ND	ND	ND	ND	.974	.902
>C12-C28, TPH	mg/L	ND	ND	ND	ND	ND	ND	ND
>C28-C35, TPH	mg/L	ND	ND	ND	ND	ND	ND	ND

Note: Yellowed Analytes were conducted in-the-field by TLG sampling specialist

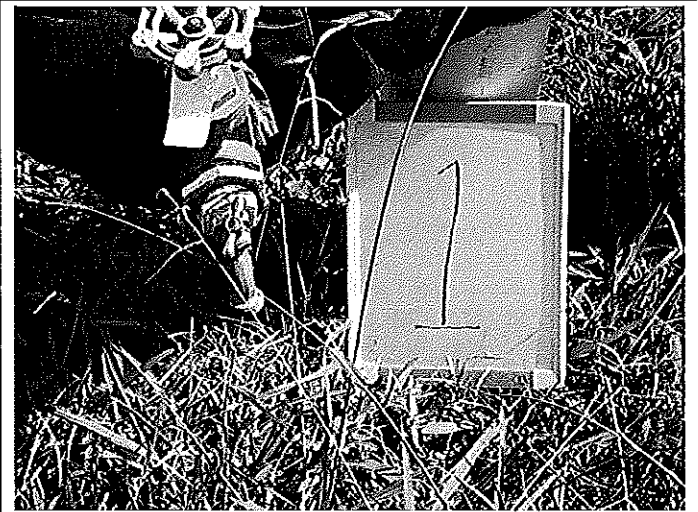


**Groundwater Sampling In-The-Field Analysis Conducted by
 THE LION GROUP Sampling Specialist**

Project: Town of Lakeside Wells
 TLG Sampling Specialist: Thomas O. Jones

Client: Chesapeake Energy Corporation, 100 Energy Way, Fort Worth TX 76102
 Client Contact: Ms. T. Brown, Field & Permitting Representative

Well Name	Sample Date	Sample Time	pH <i>SU</i>	Temp. °C	Specific Conductance <i>umho/cm</i>
Well #1	07/10/2013	03:20 p.m.	7.05	20.7	802
Clarity	Color	Odor	Lat.	Lon.	Flow Rate GPM
Clear	Clear	None	N 32°49.100'	W 097°28.733'	95
Weather:			Onsite Observations:		
Hot / Sunny / Mild Winds			Adjacent to Well #2.		
Well Name	Sample Date	Sample Time	pH <i>SU</i>	Temp. °C	Specific Conductance <i>umho/cm</i>
Well #2	07/11/2013	11:45 a.m.	8.57	24.1	733
Clarity	Color	Odor	Lat.	Lon.	Flow Rate GPM
Clear	Clear	None	N 32°49.098'	W 097°28.736'	95
Weather:			Onsite Observations:		
Hot / Sunny / Humid / Mild Winds			Close proximity to Well #1.		

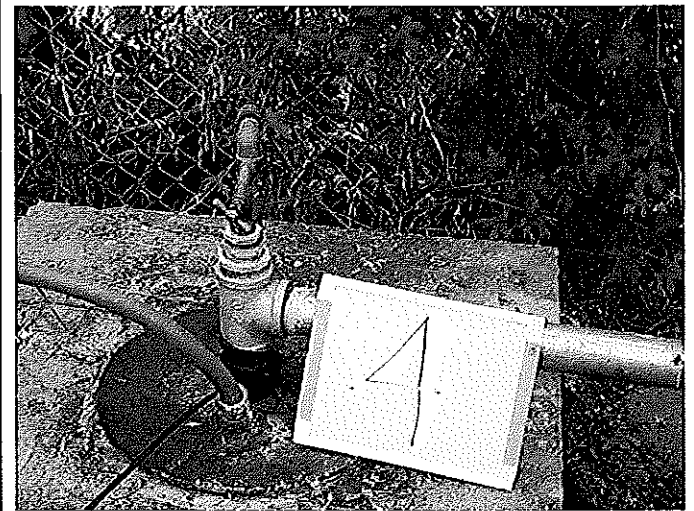


Groundwater Sampling In-The-Field Analysis Conducted by THE LION GROUP Sampling Specialist--continued

Project: Town of Lakeside Wells
 TLG Sampling Specialist: Thomas O. Jones

Client: Chesapeake Energy Corporation, 100 Energy Way, Fort Worth TX 76102
 Client Contact: Ms. T. Brown, Field & Permitting Representative

Well Name	Sample Date	Sample Time	pH <i>SU</i>	Temp. °C	Specific Conductance <i>umho/cm</i>
Well #4	07/10/2013	02:15 p.m.	7.28	24.2	567
Clarity	Color	Odor	Lat.	Lon.	Flow Rate GPM
Clear	Clear	None	N 32°49.017'	W 097°28.780'	101
Weather:			Onsite Observations:		
Hot / Partly Cloudy / Humid / Hot			Pump is at steady state.		
Well Name	Sample Date	Sample Time	pH <i>SU</i>	Temp. °C	Specific Conductance <i>umho/cm</i>
Well #12	07/10/2013	01:09 p.m.	8.80	25.3	1360
Clarity	Color	Odor	Lat.	Lon.	Flow Rate GPM
Clear	Clear	None	N 32°49.441'	W 097°29.781'	101
Weather:			Onsite Observations:		
Hot / Sunny / Humid / Low Winds			Pump is in steady state run @ 101 GPM.		

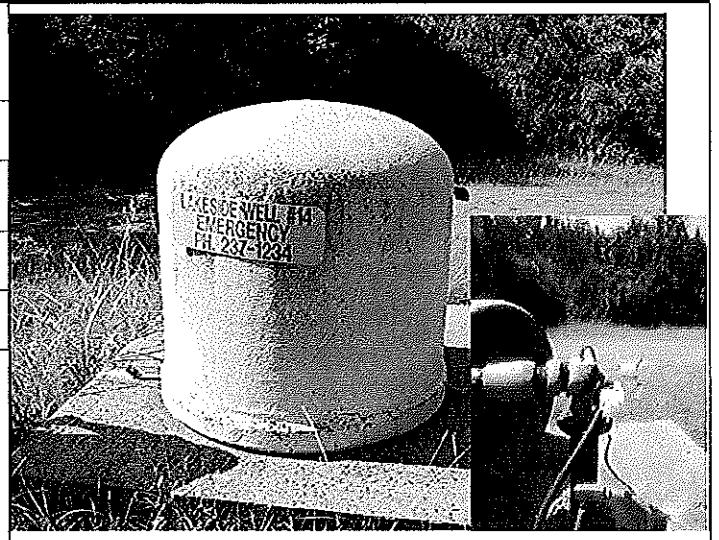


Groundwater Sampling In-The-Field Analysis Conducted by THE LION GROUP Sampling Specialist--continued

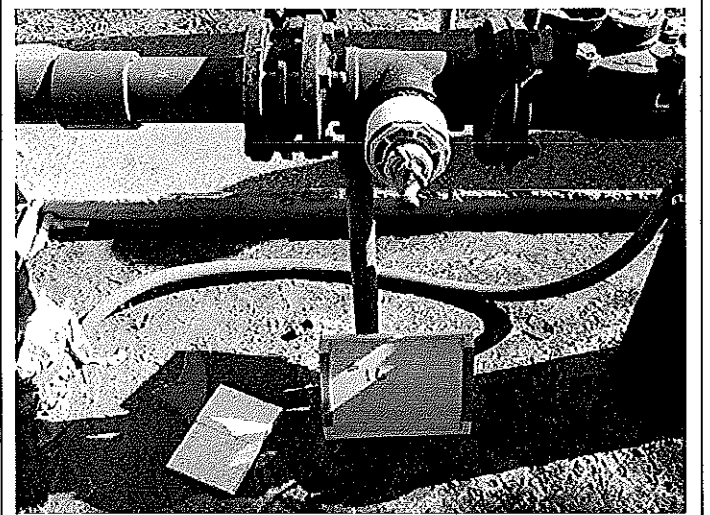
Project: Town of Lakeside Wells
 TLG Sampling Specialist: Thomas O. Jones

Client: Chesapeake Energy Corporation, 100 Energy Way, Fort Worth TX 76102
 Client Contact: Ms. T. Brown, Field & Permitting Representative

Well Name	Sample Date	Sample Time	pH <i>SU</i>	Temp. <i>°C</i>	Specific Conductance <i>umho/cm</i>
Well #14	07/11/2013	12:45 p.m.	7.57	23.4	716
Clarity	Color	Odor	Lat.	Lon.	Flow Rate GPM
Clear	Clear	None	N 32°49.133'	W 097°28.643'	95
Weather:			Onsite Observations:		
Hot / Sunny / Humid			Pump is in steady state.		



Well Name	Sample Date	Sample Time	pH <i>SU</i>	Temp. <i>°C</i>	Specific Conductance <i>umho/cm</i>
Well #16	07/10/2013	12:05 p.m.	8.56	27.6	1399
Clarity	Color	Odor	Lat.	Lon.	Flow Rate GPM
Clear	Clear	None	N 32°49.409'	W 097°29.726'	30
Weather:			Onsite Observations:		
Hot / Sunny / Humid / Lite Winds			Pump cavitates slightly on occasion.		



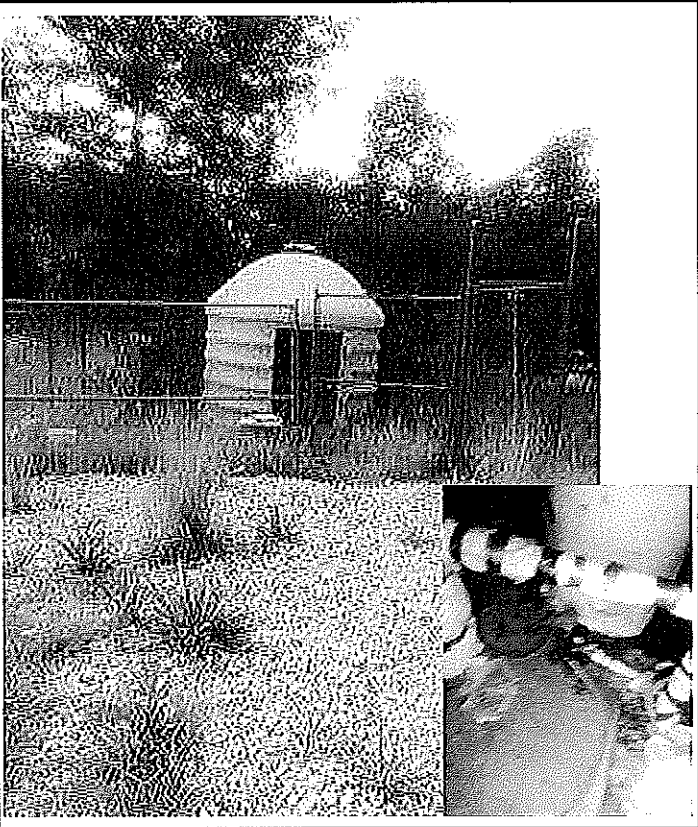
Groundwater Sampling In-The-Field Analysis Conducted by THE LION GROUP Sampling Specialist--continued

Project: Town of Lakeside Wells

Client: Chesapeake Energy Corporation, 100 Energy Way, Fort Worth TX 76102

TLG Sampling Specialist: Thomas O. Jones

Client Contact: Ms. T. Brown, Field & Permitting Representative

Well Name	Sample Date	Sample Time	pH <i>SU</i>	Temp. °C	Specific Conductance <i>umho/cm</i>	
Weaver Well	07/11/2013	10:00 a.m.	8.12	24.2	707	
Clarity	Color	Odor	Lat.	Lon.	Flow Rate GPM	
Clear	Clear	None	N 32°48.996'	W 097°28.881'	17 to 20	
Weather:			Onsite Observations:			
Hot / Sunny / Humid / Mild Winds			Private well – long purge = 2,000 gal.			