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ANNUAL REPORTS

2015

ANNUAL CLASS III WELL REPORT FOR 2015

Key Energy Services, Inc. (Key)

State S Brine Station

Permit BW-028

API No. 30-025-33547

April 15, 2016

Submitted by:

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Bullet Point 2- Summary of Operations:
(Permit Condition 2.J.2 Annual Report: "Summary of Class III well operations for the year including a description and reason for any remedial or major work on the well with a copy of C-103.")

During the 2015 year, there was no major remedial work required or performed at the brine well. General housekeeping was routinely performed and daily on-site visits were conducted to ensure permit conditions are maintained.

Key Energy has a Web based monitoring and automation system at this site. This system monitors all equipment, fluid levels, and driver access. The ICS system also sends out alarms to personnel via text or Email, as well as, allows users to monitor and control remotely via the WWW.

Yearly cavity size calculations were analyzed to determine cavern size and stability. The calculated cavern radius grew about 2 feet this year, from about 74 to 76 feet, for an estimated worst-case maximum diameter of 152 ft.

The "Area of Review" reflected no issues and is described in detail below. The cavern subsidence monitors were surveyed and no significant issues were noted.

Bullet Point 3- Production Volumes:

(Permit condition 2.J.3 "Monthly fluid injection and brine production volume, including the cumulative total carried over each year"

Key has an electronic card system that tracks sales of both fresh and brine water. In addition, Key has Halliburton flow meters on the well to monitor both water injected and brine produced.

Monthly, Yearly and Lifetime Injection and Production Volumes:

The monthly, yearly and lifetime fresh water injection and brine production volumes are attached herein for review in *Appendix A*. The total 2015 brine production volume was 272,527 bbls and the lifetime production volume is 5,093,027 bbls.

Bullet Point 4- "Injection Pressure Data."

(Permit condition 2.J.4 "Injection Pressure Data"

A new submersible centrifugal injection pump was installed in the fresh water storage tank in the 2014 year. The maximum injection pressure is now 450 psig, and has an automatic shut-down switch set at 300 psig, which is approximately105 pounds below the permit maximum of 405 psig.

For this reason, permit condition 3.B.2. **Pressure Limiting Device:** *"The operator shall have a working pressure limiting device or controls to prevent overpressure."* is conditionally met.

The average injection pressure is noted by Key's personal and is reported to range from 50 psig to 150 psig, and usually averages about 120 psig. This reading is taken from a pressure gauge mounted on the wellhead inlet.

Brine Well injection pressure gauge readings are observed and recorded on a daily basis.

Bullet Point 5- Chemical Analysis:

(Permit condition 2.J.5 "A copy of the quarterly chemical analysis shall be included with data summary and all QA/QC information.")

Please find attached in *Appendix B* the quarterly chemical analysis and chain-of-custody of the brine and fresh water injection water samples, collected for the annual report. The laboratory used common approved EPA methods to analyze and reporting.

The injection water was collected from the fresh water load line that is connected directly to the fresh water storage tanks and to the inlet side of the injection pump. This sample point is representative of the fresh water at the station. The fresh water is supplied by the City of Eunice and is of high quality and meets EPA's Safe Drinking Water Standards.

The brine water was collected from the brine water load line that is connected directly to the brine water storage tanks and to the outlet side of the injection well. This sample point is representative of the brine water at the station.

The analysis revealed that the brine water is predominately sodium chloride with a high density of 1.20 specific gravity. This analysis is very representative of Salado "Salt" formation waters found in the area.

Bullet Point 6- Mechanical Integrity:

(Permit condition 2.J.6 "Copy of any mechanical integrity test chart, including the type of test, i.e., duration, gauge pressure, etc;")

In 2015, no MIT was required and the next scheduled MIT will occur in 2016, as approved by OCD.

Bullet Point 7- Deviations from Normal Production Methods:

(Permit condition 2.J.7 "Brief explanation describing deviations from normal operations.")

In 2008 two OCD permitted brine wells collapsed. As a result of those incidents, the OCD issued a temporary moratorium on new brine well permits. During the moratorium OCD facilitated a work group to determine a proper path forward for current and new brine well operations.

As a result of those proceedings, OCD issued instructions to operators to change OCD's previous requirement of injecting fresh water down the annuals and producing brine up the tubing; to injecting fresh water down the tubing and producing brine up the annuals.

On June 1, 2009 Key followed OCD instructions and change the flow pattern. It should be noted that it took over a month in order to obtain 10# brine.

During the 2015 year, Key continued the normal flow production procedure and encountered no problems during this time.

Bullet Point 8- Leak and Spill Reports:

(Permit condition 2.J.8 "Results of any leaks and spill reports;")

The brine station is designed with an impermeable liner under the brine tanks and loading pads. The concrete loading pads are designed to catch de-minimis drips from hose connections and are piped to two 250 bbl fiberglass tanks. This liquid material is routinely re-cycled or disposed of at an OCD approved site.

Rainwater that collects inside of the lined bermed area is routinely pumped out and re-cycled or disposed of at an OCD approved site. Small quantities of rainwater, which cannot be pumped are left to evaporate.

The entire facility is bermed to prevent run-on or run-off. Any reportable or non-reportable spill is cleaned up pursuant to OCD rules and guidance.

In 2015 there were no reportable leaks or spills.

Bullet Point 9- Area of Review Update Summary:

(Permit condition 2.J.9 "An Area of Review (AOR) update summary;")

An extensive AOR review was conducted for the Key Eunice "Old GoldStar" brine well, OCD permit # BW-28, located in UL E (1340 FNL & 330 FWL) of Section 15-Ts21S-R37E. Key used OCD records and field verification to confirm wells in the AOR.

Using OCD on-line files, a well status list and aerial AOR plot plan has been constructed (*see Appendix C*) listing all wells within adjacent quarter sections of the BW-28 location. The list shows API#, Operator well name, UL, Section, Township and Range, footages, wells within 800 ft and ¼ mile, well checked for casing program status, casing/cementing status, and corrective action required status.

There are a total of 44 wells located within these adjacent units, with one proposed added in 2015, and three withdrawn. Within a ¼ mile radius of the brine well there are 18 wells, and 4 wells are actually within the 800- foot critical radius.

This comprehensive list was formulated to provide a baseline for future AOR studies. Since any future brine wells may be limited in size, a critical AOR was established, and all wells within that radius will be researched in greater detail.

The rational of this approach is the fact that brine wells are non-static in terms of size and configuration and the fact that Key has no direct control on wells drilled in close proximity. By just initially focusing on the current wells in the ¼ mile AOR and assuming the status of these wells will remain the same could be a mistake.

Therefore, Key is taking a more dynamic approach and will study wells as the brine well grows, especially wells in the critical zone. We used the current estimated diameter of the brine well i.e. 152 ft (r = 76.0 ft) up-dated for 2015, and added a 10:1 safety factor which equates to about 760 ft. As the brine well grows, the critical AOR will be expanded and new wells will be added.

All four wells located in the critical zone were reinvestigated by checking the OCD on-line well records. There was no well activity for any of these wells reported since the last review. They are identified as API# 30-025-09914, 30-025-09913 (P&A), 30-025-06586, and 30-025-39277. (Checked by Price LLC, March 2016)

Bullet Point 10- Subsidence/Cavern Volumes/Geometric Measurements

(Permit condition 2.J.10. "A summary with interpretations of MIT's, surface subsidence surveys, cavern volume and geometric measurements with conclusion(s) and recommendation(s);")

The last cavern survey did not provide adequate information pertaining to the size of the cavern. This has been an issue with many brine wells and until the validity of using sonar test is resolved, an alternate method will be employed.

This alternate method has been discussed with Jim Griswold-OCD and it was mutually decided that an estimated worst-case diameter was to be determined in order to provide maximum protection and ensure the permit conditions are being met.

The Solution Mining Research Institute (SMRI), other state agencies, OCD work-group, along with various studies conducted during the permitting of the WIPP site, has concluded that failures, such as "catastrophic collapses", have a higher probability when the roof diameter of the cavern exceeds a certain value compared to the actual depth of the cavern. This number is typically called D/H where "D" is the diameter of the cavity and "H" is the depth from surface to the casing shoe. Various reports seem to conclude that when a ratio of D/H reaches or exceeds 0.66 then the probably of collapse increases to a point that the well may be considered un-safe, thus closing procedures, such as proper plugging and abandonment, and possible long term subsidence monitoring should be considered.

The alternate method mentioned above involves calculating the maximum diameter of the cavern by using a worst-case scenario of an "***upright cone".***

The cavern volume is calculated using the lifetime brine production volume and multiplying it by a *"rule of thumb"* conversion factor to determine the volumetric size of the cavern. The rule of thumb conversion factor was taken from the 1982 Wilson Report, which equates that every barrel of brine produced, will create approximately one cubic foot of cavity.

Please find attached in *Appendix D*, a wellbore sketch depicting the volume calculations for the brine well, and the lifetime brine production tally of approximately 5.09 million barrels of brine produced as of December 2015. The maximum diameter was calculated to be approximately 152 feet with a corresponding D/H ratio of 0.111, updated for the 2015 year.

Comparing the current D/H ratio of 0.111 to the 0.66 value mentioned above, it can be concluded that the current brine well status meets and exceeds the recommended safety value by six times.

Permit Condition 2.B. SOLUTION CAVERN MONITORING PROGRAM:

1. Surface Subsidence Monitoring Plan: The Permittee shall submit a Surface *Subsidence Monitoring Plan to OCD within 180 days of the effective data of this permit. The Surface Subsidence Monitoring Plan shall specify that the Permittee will install at least three survey monuments and shall include a proposal to monitor the elevation of the monuments at least semiannually.*

The Permittee shall survey each benchmark at least semiannually to monitor for possible surface subsidence and shall tie each survey to the nearest USGS benchmark. The Permittee shall employ a licensed professional surveyor to conduct the subsidence monitoring program. The Permittee shall submit the results of all subsidence surveys to OCD within 15 days of the survey. If the monitored surface subsidence at any measuring point reaches 0.10 feet compared to its baseline elevation, then the Permittee shall suspend operation of the Class III well . If the Permittee cannot demonstrate the integrity of the cavern and well to the satisfaction of OCD, then it shall cease all brine production and submit a corrective action plan to mitigate the subsidence.

Key Response: Please find enclosed in "Appendix E" a copy of the 2015 subsidence monitoring report. There was one slight deviation of .01" (up) observed on one of the monitoring points. Key will continue to monitor and if any trend is noted, will notify OCD.

Special Note: Key ***requested a Minor Modification*** that allows the results be supplied in the annual report, unless there is an exceedance, as noted in the permit. OCD approved the modification and the approval is included in "Appendix E".

2. Solution Cavern Characterization Program: *The Permittee shall submit a Solution Cavern Characterization Plan to characterize the size and shape of the solution cavern using geophysical methods within 180 days of the effective date of this permit. The Permittee shall characterize the size and shape of the solution cavern using a geophysical methods approved by OCD at least once before November 8, 2018. The Permittee shall demonstrate that at least 90% of the calculated volume of salt removed based upon injection and production volumes has been accounted for by the approved geophysical method(s) for such testing to be considered truly representative.*

Solution Cavern Characterization Plan: Key proposed to use a combination of calculated results as determined above, and will experiment with various geophysical methods, including actually performing an "Induced Current Method" and report these results in the annual report.

The 'Induced Current" Method has not been successful, primarily to bad connections and low voltage used. Key will investigate other methods and consult with OCD on this issue. The old fashion cavern calculation continues to be the best economic method available.

Bullet Point #11- Ratio of Injected/Produced Fluids

(Permit condition 2.J.11 "A summary of the ratio of the volume of injected fluids to the volume of produced brine;")

Enclosed in *Appendix A* is the tables section of the report showing the injection and production data and the comparison chart of injected water to produced water with comments.

The 2015 results show a somewhat normal 14.07% variance, while the total variance during the life of the well is 5.53 %.

Special Note: **Key requests a minor modification of the permit requirement 3.K** *"The Permittee shall suspend injection if the monthly injection volume is less than 110% or greater than 120% of associated brine production. If such an event occurs, the Permittee shall notify OCD within 24 hours."*

Dear Jim Giswold-NMOCD Environmental Bureau Chief: As you know, this topic has been discussed and kicked around for a long time. The current permit requirement does not take into account many factors that can cause the variance to be under or over the requirement of 110%-120%. Every year we report this number in the annual report and while the average monthly injection for the year is normally within range, the actual monthly numbers can and are sometimes under and over. There are many reasons for this as we have discussed, and thus the requirement to suspend operations is not based on any real parameter or trend that may be an immediate threat to the well, groundwater or the environment. The current requirement put operators in a continuous violation and

interruption of operations. Notwithstanding, if you have a well that takes water without producing, or starts to pressure up, then you know you may have lost circulation or communicated to a pressure zone, then immediate action should be taken and notification to the agency. Currently the permit reads as follows:

The Permittee shall immediately suspend injection and notify the agency within 72 hours, if the Fresh Water Injection does not cause a normal immediate return of Brine Water to the surface, or if the well flows excessively for an unusual amount of time without fresh water injection after the cavern pressure has been stabilized to it's normal operating pressure, or if permittee has become aware of any out of zone injection or communication. The Permittee shall include in each annual report a summary showing the monthly variance, the average monthly variance for the year and the total accumulative variance over the life of the well. The operator shall certify and explain that any yearly variance that falls outside of the range of 20%, (Difference between the Fresh Water input and Brine Water output) will not cause harm to Fresh Water, Public Health or the Environment.

Bullet Point #12- Summary of Activities

(Permit condition 2.J.12 "A summary of all major Facility activities or events, which occurred during the year with any conclusions and recommendations;)

See Bullet Point #2 for summary.

5.B. BONDING OR FINANCIAL ASSURANCE: *The Permittee shall submit an estimate of the minimum cost to properly close, plug and abandon its Class III well, conduct ground water restoration if applicable, and any post-operational monitoring as may be needed (see 20.6.2.5210B(17) NMAC) within 90 days of permit issuance (See 20.6.2.5210B(17) NMAC). The Permittee's cost estimate shall be based on third person estimates. After review, OCD will require the Permittee to submit a single well plugging bond based on the third person cost estimate.*

Appendix "F" contains a third party closure estimate for the Eunice BW-18 brine well.

Bullet Point #13- Annual Certification

(Permit condition 2.J.13 "Annual Certification in accordance with Permit Condition 2.B.3. ***"2.B.3. Annual Certification:*** *The Permittee shall certify annually that continued salt solution mining will not cause cavern collapse, surface subsidence, property damage, or otherwise threaten public health and the environment, based on geologic and engineering data.")*

Operator Response: Based on all current information and actual on-site observance, the operator of record herby certifies that the current operations pose no threat to public health and the environment at the submission of this report. If any substantial event that, has or may cause, this current certification to change, then the operator will notify OCD and take the necessary actions to

protect the public and environment.

By signing the cover sheet of Bullet Point 1 of permit condition 2.J.1, the operator hereby certifies this condition of the permit.

Bullet Point 14- Groundwater Monitoring:
(Permit condition 2.J.14 "A summary of any new discoveries of ground water contamination with all leaks, spills and releases and corrective actions taken;")

The BW-28 facility does not have groundwater monitoring at this site. There are no planned or intentional discharges of water contaminants that may move directly or indirectly into groundwater. Any unintentional discharge, leak, spill, or drip is handled pursuant to the permit conditions.

Bullet Point 15- Annual Reporting

(Permit condition 2.J.15 "The Permittee shall file its Annual Report in an electronic format with a hard copy submitted to OCD's Environmental Bureau.")

The operator herby submits a PDF file on flash drive and one hard copy.

Appendix A-

- Production Table
- Injection Comparison Chart

TABLE 1

TABLE 1 2015 BW-28 Annual Report Brine Well Production Volumes and Lifetime History Volumes

Year	Month	Reported Monthly Brine Production	Quarterly Brine Production (bbls)	Annual Brine Production (bbls)	Reported Monthly Freshwater Injection	Quarterly Freshwater Injection (bbls)	Annual Freshwater Injection (bbls)	Comments	Operator
1996	October	10,588			10,588				Goldstar SWD
	November	17,770			17,743				
	December	32,223	60,581	60,581	33,004	61,335	61,335		
1997	January	20,194			20,445			estimate (1)	
	February	20,194			20,445			estimate (1)	
	March	20,194	60,582		20,445	61,335		estimate (1)	
	April	48,226			47,714				
	May	38,000			36,571				
	June	47,970	134,196		42,264	126,549			
	July	24,711			24,271				
	August	31,817			31,559				
	September	38,120	94,648		38,697	94,527			
	October	27,462			25,512				
	November	26,618			26,261				
	December	16,137	70,217	359,643	15,850	67,623	350,034		
1998	January	13,301			13,614				
	February	47,212			49,552				
	March	42,337	102,850		44,964	108,130			
	April	27,072			27,519				
	May	18,084			18,161				
	June	26,699	71,855		26,976	72,656			
	July	16,535			15,929				
	August	8,287			7,488				
	September	9,994	34,816		9,021	32,438			
	October	13,312			17,302				
	November	9,822			9,873				
	December	8,287	31,421	240,942	9,497	36,672	249,896		
1999	January	4,026			4,607				
	February	6,867			8,138				
	March	5,641	16,534		6,030	18,775			
	April	7,873			7,338				
	May	34,100			32,461				
	June	20,708	62,681		20,171	59,970			
	July	35,278			34,566				
	August	35,876			35,995				
	September	43,196	114,350		42,724	113,285			
	October	9,700			10,097				
	November	8,383			9,080				
	December	28,662	46,745	240,310	29,721	48,898	240,928		
2000	January	65,492			65,028				
	February	37,709			36,909				
	March	40,409	143,610		40,414	142,351			
	April	20,181			20,404				
	May	52,092			50,373				
	June	41,371	113,644		37,776	108,553			
	July	33,860			31,757				
	August	37,535			35,492				
	September	58,042	129,437		53,288	120,537			
	October	28,777			27,216				
	November	22,677			24,130				
	December	17,670	69,124	455,815	17,369	68,715	440,156		
2001	January	32,427			37,083				
	February	17,493			23,076				
	March	34,050	83,970		33,216	93,375			
	April	32,900			36,064				Change to Yale E. Key
	May	66,724			52,555				
	June	37,607	137,231		42,347	130,966			
	July	16,399			15,588				
	August	10,173			33,664				
	September	16,185	42,757		16,200	65,452			
	October	25,184			24,147				
	November	10,447			8,666				
	December	21,061	56,692	320,650	18,733	51,546	341,339		
2002	January	11,809			10,135				
	February	22,700			23,733				
	March	4,693	39,202		4,369	38,237			
	April	15,160			16,776				
	May	16,321			17,283				
	June	13,938	45,419		15,276	49,335			
	July	8,301			10,688				
	August	7,079			6,842				
	September	18,560	33,940		17,240	34,770			
	October	7,040			7,823				
	November	9,788			10,950				
	December	11,666	28,494	147,055	19,667	38,440	160,782		
2003	January	20,278			23,526				
	February	8,603			5,310				
	March	37,680	66,561		35,548	64,384			
	April	31,782			31,619				
	May	17,767			13,305				
	June	10,733	60,282		9,260	54,184			
	July	27,104			13,927				
	August	9,555			7,197				
	September	7,945	44,604		5,056	26,180			
	October	12,014			10,394				
	November	26,100			12,438				
	December	38,748	76,862	248,309	18,218	41,050	185,798		
2004	January	7,980			8,539				
	February	8,130			8,797				
	March	8,220	24,330		8,894	26,230			
	April	29,898			31,931				
	May	14,233			15,428				

TABLE 1

TABLE 1 2015 BW-28 Annual Report Brine Well Production Volumes and Lifetime History Volumes

Year	Month	Reported Monthly Brine Production	Quarterly Brine Production (bbls)	Annual Brine Production (bbls)	Reported Monthly Freshwater Injection	Quarterly Freshwater Injection (bbls)	Annual Freshwater Injection (bbls)	Comments	Operator
	June	28,716	72,847		30,410	77,769			
	July	1,840			2,060				
	August	29,898			30,201				
	September	20,277	52,015		20,266	52,527			
	October	24,436			23,784				
	November	21,925			22,430				
	December	32,225	78,586	227,778	33,630	79,844	236,370		
2005	January	17,873			19,160				
	February	23,929			24,958				
	March	37,896	79,698		40,435	84,553			
	April	29,882			31,794				
	May	39,575			42,385				
	June	22,766	92,223		23,995	98,174			
	July	7,593			7,640				
	August	31,573			29,316				
	September	47,305	86,471		48,230	85,186			
	October	38,571			51,232				
	November	31,533			27,670				
	December	36,430	106,534	364,926	36,412	115,314	383,227		
2006	January	18,480			19,977				
	February	33,250			35,511				
	March	39,492	91,222		38,630	94,118			
	April	40,194			43,605				
	May	51,009			54,630				
	June	22,374	113,577		24,832	123,067			
	July	38,208			37,613				
	August	35,627			36,201				
	September	48,784	122,619		47,312	121,126			
	October	50,375			51,232				
	November	26,084			27,670				
	December	8,224	84,683	412,101	10,202	89,104	427,415		
2007	January	31,540			33,320				
	February	24,313			25,260				Change to Key Energy Services
	March	40,514	96,367		38,412	96,992			
	April	34,095			35,120				
	May	19,308			23,130				
	June	9,170	62,573		11,009	69,259			
	July	30,857			28,468				
	August	12,394			18,884				
	September	25,970	69,221		23,360	70,712			
	October	7,882			7,643				
	November	2,476			2,630				
	December	3,933	14,291	242,452	4,528	14,801	251,764		
2008	January	1,706			1,982				
	February	5,845			6,203				
	March	21,386	28,937		21,673	29,858			
	April	25,787			22,704				
	May	17,100			19,842				
	June	16,598	59,485		17,479	60,025			
	July	32,458			36,448				
	August	37,458			38,377				
	September	39,945	109,861		37,203	112,028			
	October	25,572			26,551				
	November	27,325			25,792				
	December	26,825	79,722	278,005	28,694	81,037	282,948		
2009	January	20,990			21,310				
	February	650			1,306				
	March	3,249	24,889		3,420	26,036			
	April	5,428			5,360				
	May	1,343			1,762				
	June	630	7,401		1,232	8,354			
	July	1,546			1,673				
	August	881			1,031				
	September	2,672	5,099		2,930	5,634			
	October	9,898			8,861				
	November	3,716			3,618				
	December	1,474	15,088	52,477	2,035	14,514	54,538		
2010	January	0			0				
	February	1,650			1,810				
	March	4,092	5,742		4,789	6,599			
	April	5,092			6,150				
	May	12,256			14,953				
	June	2,099	19,447		2,033	23,136			
	July	5,068			6,322				
	August	10,270			15,126				
	September	11,281	26,619		10,334	31,782			
	October	7,575			8,802				
	November	20,304			24,494				
	December	36,765	64,644	116,452	44,153	77,449	138,966		
2011	January	44,126			52,975				
	February	24,388			29,666				
	March	19,421	87,935		23,284	105,925			
	April	18,356			22,365				
	May	9,828			11,754				
	June	15,661	43,845		18,902	53,021			
	July	17,503			20,961				
	August	14,401			17,273				
	September	5,430	37,334		16,000	54,234			
	October	11,359			8,284				
	November	18,585			19,662				
	December	23,228	53,172	222,286	27,806	55,752	268,932		
2012	January	21,570			25,897				

TABLE 1

TABLE 1 2015 BW-28 Annual Report Brine Well Production Volumes and Lifetime History Volumes

Year	Month	Reported Monthly Brine Production	Quarterly Brine Production (bbls)	Annual Brine Production (bbls)	Reported Monthly Freshwater Injection	Quarterly Freshwater Injection (bbls)	Annual Freshwater Injection (bbls)	Comments	Operator
	February	12,230			14,854				
	March	10,124	43,924		12,190	52,941			
	April	18,185			22,110				
	May	23,761			28,667				
	June	31,207	73,153		37,707	88,484			
	July	20,931			25,225				
	August	31,025			35,837				
	September	29,414	81,370		34,226	95,288			
	October	17,507			21,138				
	November	28,038			33,360				
	December	23,015	68,560	267,007	25,205	79,703	316,416		
2013	January	16,097			21,395				
	February	17,379			20,812				
	March	14,816	48,292		21,978	64,185			
	April	19,374			23,799				
	May	23,932			25,979				
	June	34,926	78,232		38,500	88,278			
	July	18,446			22,414				
	August	29,958			35,877				
	September	16,923	65,327		20,230	78,521			
	October	22,409			25,868				
	November	14,139			16,972				
	December	24,920	61,468	253,319	29,762	72,602	303,586		
2014	January	31,460			35,865				
	February	38,614			45,444				
	March	43,210	113,284		50,710	132,019			
	April	36,217			44,597				
	May	45,170			54,007				
	June	24,524	105,911		23,748	122,352			
	July	19,428			20,442				
	August	15,545			24,683				
	September	23,652	58,625		26,341	71,466			
	October	5,692			7,057				
	November	10,914			13,136				
	December	15,966	32,572	310,392	17,466	37,659	363,496		
2015	January	28,665			30,266				
	February	26,229			29,541				
	March	24,106	79,000		29,666	89,473			
	April	19,087			24,034				
	May	19,573			22,921				
	June	27,070	65,730		32,555	79,510			
	July	34,975			39,132				
	August	19,234			23,879				
	September	16,952	71,161		20,455	83,466			
	October	23,972			25,739				
	November	18,722			21,557				
	December	13,942	56,636	272,527	17,412	64,708	317,157		
TOTAL VOLUMES				5,093,027			5,375,083		

1 - Estimated quarterly production and injection volumes calculated by averaging the previous quarter of data.
bbls - barrels

4,820,500

5,057,926

INJECTION AND PRODUCTION COMPARISON CHART

KEY ENERGY EUNICE BRINE WELL BW-28 STATE #1 API# 30-025-33547

WATER IN-WATER OUT BBLS

YEAR 2014

MONTH	WATER IN	WATER OUT	PSI	RATIO OF WATER IN-OUT	
Jan-11	30,266	28,665	120	5.29%	***
Feb-11	29,541	26,229	120	11.21%	***
Mar-11	29,666	24,106	120	18.74%	***
Apr-11	24,034	19,087	120	20.58%	***
May-11	22,921	19,573	120	14.61%	***
Jun-11	32,555	27,070	120	16.85%	***
Jul-11	39,132	34,975	120	10.62%	***
Aug-11	23,879	19,234	120	19.45%	***
Sep-11	20,455	16,952	120	17.13%	***
Oct-11	25,739	23,972	120	6.87%	***
Nov-11	21,557	18,722	120	13.15%	***
Dec-11	17,412	13,942	120	19.93%	***
TOTAL	**317,157**	**272,527**			

		YEARLY RATIO %	MONTHLY AVERAGE %
BRINE PRODUCTION BBLS	272,527	**14.07%**	**15.38%**
FRESH WATER INJECTION BBLS	317,157		

NOTES:

*** Positive % numbers means more Fresh Water injected than brine water produced.

*** Negative % numbers means more Brine Water produced than fresh water injected.

Normal ratios can range from +5% to +15 %; Short term negative ratios are acceptable. Long term negative numbers should be checked out and are not considered normal.

Appendix B - Chemical Analysis

Summary Report

Lester Waynce Price Jr.
Price LLC
312 Encantado Ridge Ct. NE
Rio Rancho, NM 87124

Report Date: February 18, 2015

Work Order: 15012704

Project Location: Eunice, NM
Project Name: Key Eunice Brine

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
385264	Fresh	water	2015-01-20	16:13	2015-01-27
385265	Brine	water	2015-01-20	16:17	2015-01-27

Sample: 385264 - Fresh

Param	Flag	Result	Units	RL
Chloride		**44.1**	mg/L	2.5
Dissolved Sodium	Qs	**310**	mg/L	1
pH		**7.64**	s.u.	2
Specific Gravity		**0.9906**	g/ml	
Total Dissolved Solids		**364**	mg/L	2.5

Sample: 385265 - Brine

Param	Flag	Result	Units	RL
Chloride		**169000**	mg/L	2.5
Dissolved Sodium	Qs	**116000**	mg/L	1
pH		**7.11**	s.u.	2
Specific Gravity		**1.159**	g/ml	
Total Dissolved Solids		**238000**	mg/L	2.5

TRACEANALYSIS, INC.

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(BioAquatic) 2501 Mayes Rd., Suite 100 Carrollton, Texas 75006 972•242•7750
E-Mail: lab@traceanalysis.com WEB: www.traceanalysis.com

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

Lester Waynce Price Jr.
Price LLC
312 Encantado Ridge Ct. NE
Rio Rancho, NM, 87124

Report Date: February 18, 2015

Work Order: 15012704

Project Location: Eunice, NM
Project Name: Key Eunice Brine
Project Number: Key Eunice Brine

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

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
385264	Fresh	water	2015-01-20	16:13	2015-01-27
385265	Brine	water	2015-01-20	16:17	2015-01-27

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.

Dr. Blair Leftwich, Director
James Taylor, Assistant Director
Brian Pellam, Operations Manager

Report Contents

Case Narrative

Samples for project Key Eunice Brine were received by TraceAnalysis, Inc. on 2015-01-27 and assigned to work order 15012704. Samples for work order 15012704 were received intact at a temperature of 0.2 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
Chloride (IC)	E 300.0	101000	2015-02-17 at 15:00	119429	2015-02-17 at 16:06
Na, Dissolved	S 6010C	100546	2015-01-27 at 17:40	119127	2015-02-06 at 09:23
pH	SM 4500-H+	100544	2015-01-27 at 04:00	118893	2015-01-27 at 16:44
Specific Gravity	ASTM D1429-95	100533	2015-01-27 at 13:00	118885	2015-01-27 at 13:10
TDS	SM 2540C	100618	2015-01-28 at 12:10	118979	2015-01-28 at 12:10
TDS	SM 2540C	100787	2015-02-02 at 09:00	119181	2015-02-02 at 17:00

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 15012704 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.

Analytical Report

Sample: 385264 - Fresh

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	119429	Date Analyzed:	2015-02-17	Analyzed By:	RL
Prep Batch:	101000	Sample Preparation:		Prepared By:	RL

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
Chloride		1,2,3,4,5	**44.1**		mg/L	5	2.50

Sample: 385264 - Fresh

Laboratory:	Lubbock				
Analysis:	Na, Dissolved	Analytical Method:	S 6010C	Prep Method:	S 3005A
QC Batch:	119127	Date Analyzed:	2015-02-06	Analyzed By:	RR
Prep Batch:	100546	Sample Preparation:	2015-01-27	Prepared By:	RR

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
Dissolved Sodium	Qs	2,3,4,5	**310**		mg/L	10	1.00

Sample: 385264 - Fresh

Laboratory:	Lubbock				
Analysis:	pH	Analytical Method:	SM 4500-H+	Prep Method:	N/A
QC Batch:	118893	Date Analyzed:	2015-01-27	Analyzed By:	AT
Prep Batch:	100544	Sample Preparation:	2015-01-27	Prepared By:	AT

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
pH		1,2,4,5	**7.64**		s.u.	1	2.00

Sample: 385264 - Fresh

Laboratory:	Lubbock				
Analysis:	Specific Gravity	Analytical Method:	ASTM D1429-95	Prep Method:	N/A
QC Batch:	118885	Date Analyzed:	2015-01-27	Analyzed By:	CF
Prep Batch:	100533	Sample Preparation:	2015-01-27	Prepared By:	CF

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Specific Gravity			**0.9906**	g/ml	1	0.000

Sample: 385264 - Fresh

Laboratory:	Lubbock				
Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	119181	Date Analyzed:	2015-02-02	Analyzed By:	RL
Prep Batch:	100787	Sample Preparation:		Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		1,2,3,4,5	**364**	mg/L	10	2.50

Sample: 385265 - Brine

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	119429	Date Analyzed:	2015-02-17	Analyzed By:	RL
Prep Batch:	101000	Sample Preparation:		Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1,2,3,4,5	**169000**	mg/L	5000	2.50

Sample: 385265 - Brine

Laboratory:	Lubbock				
Analysis:	Na, Dissolved	Analytical Method:	S 6010C	Prep Method:	S 3005A
QC Batch:	119127	Date Analyzed:	2015-02-06	Analyzed By:	RR
Prep Batch:	100546	Sample Preparation:	2015-01-27	Prepared By:	RR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Sodium	Qs	2,3,4,5	**116000**	mg/L	1000	1.00

Sample: 385265 - Brine

Laboratory:	Lubbock				
Analysis:	pH	Analytical Method:	SM 4500-H+	Prep Method:	N/A
QC Batch:	118893	Date Analyzed:	2015-01-27	Analyzed By:	AT
Prep Batch:	100544	Sample Preparation:	2015-01-27	Prepared By:	AT

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
pH		1,2,4,5	**7.11**	s.u.	1	2.00

Sample: 385265 - Brine

Laboratory:	Lubbock				
Analysis:	Specific Gravity	Analytical Method:	ASTM D1429-95	Prep Method:	N/A
QC Batch:	118885	Date Analyzed:	2015-01-27	Analyzed By:	CF
Prep Batch:	100533	Sample Preparation:	2015-01-27	Prepared By:	CF

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Specific Gravity			**1.159**	g/ml	1	0.000

Sample: 385265 - Brine

Laboratory:	Lubbock				
Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	118979	Date Analyzed:	2015-01-28	Analyzed By:	RL
Prep Batch:	100618	Sample Preparation:		Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		1,2,3,4,5	**238000**	mg/L	2000	2.50

Method Blanks

Method Blank (1) QC Batch: 118885

QC Batch:	118885	Date Analyzed:	2015-01-27	Analyzed By:	CF
Prep Batch:	100533	QC Preparation:	2015-01-27	Prepared By:	CF

Parameter	Flag	Cert	MDL Result	Units	RL
Specific Gravity			0.9916	g/ml	

Method Blank (1) QC Batch: 118979

QC Batch:	118979	Date Analyzed:	2015-01-28	Analyzed By:	RL
Prep Batch:	100618	QC Preparation:	2015-01-28	Prepared By:	RL

Parameter	Flag	Cert	MDL Result	Units	RL
Total Dissolved Solids		1,2,3,4,5	<25.0	mg/L	2.5

Method Blank (1) QC Batch: 119127

QC Batch:	119127	Date Analyzed:	2015-02-06	Analyzed By:	RR
Prep Batch:	100546	QC Preparation:	2015-01-27	Prepared By:	PM

Parameter	Flag	Cert	MDL Result	Units	RL
Dissolved Sodium		2,3,4,5	<0.0184	mg/L	1

Method Blank (1) QC Batch: 119181

QC Batch:	119181	Date Analyzed:	2015-02-02	Analyzed By:	RL
Prep Batch:	100787	QC Preparation:	2015-02-02	Prepared By:	RL

Parameter	Flag	Cert	MDL Result	Units	RL
Total Dissolved Solids		1,2,3,4,5	<25.0	mg/L	2.5

Method Blank (1) QC Batch: 119429

QC Batch:	119429	Date Analyzed:	2015-02-17	Analyzed By:	RL
Prep Batch:	101000	QC Preparation:	2015-02-17	Prepared By:	RL

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride		1,2,3,4,5	0.797	mg/L	2.5

Duplicates

Duplicates (1) Duplicated Sample: 385269

QC Batch: 118885 | Date Analyzed: 2015-01-27 | Analyzed By: CF
Prep Batch: 100533 | QC Preparation: 2015-01-27 | Prepared By: CF

Param		Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Specific Gravity		1.074	1.072	g/ml	1	0	200

Duplicates (1) Duplicated Sample: 385269

QC Batch: 118893 | Date Analyzed: 2015-01-27 | Analyzed By: AT
Prep Batch: 100544 | QC Preparation: 2015-01-27 | Prepared By: AT

Param		Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH	1,2,4,5	6.79	6.78	s.u.	1	0	20

Duplicates (1) Duplicated Sample: 385486

QC Batch: 118979 | Date Analyzed: 2015-01-28 | Analyzed By: RL
Prep Batch: 100618 | QC Preparation: 2015-01-28 | Prepared By: RL

Param		Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids	1,2,3,4,5	923	904	mg/L	10	2	10

Duplicates (1) Duplicated Sample: 385552

QC Batch: 119181 | Date Analyzed: 2015-02-02 | Analyzed By: RL
Prep Batch: 100787 | QC Preparation: 2015-02-02 | Prepared By: RL

Param		Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids	[1,2,3,4,5]	219000	219000	mg/L	2000	0	10

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 118979 | Date Analyzed: 2015-01-28 | Analyzed By: RL
Prep Batch: 100618 | QC Preparation: 2015-01-28 | Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Dissolved Solids		1,2,3,4,5	996	mg/L	10	1000	<25.0	100	90 - 110

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Dissolved Solids		1,2,3,4,5	984	mg/L	10	1000	<25.0	98	90 - 110	1	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: 119127 | Date Analyzed: 2015-02-06 | Analyzed By: RR
Prep Batch: 100546 | QC Preparation: 2015-01-27 | Prepared By: PM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Dissolved Sodium		2,3,4,5	56.0	mg/L	1	52.5	<0.0184	107	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Dissolved Sodium		2,3,4,5	57.2	mg/L	1	52.5	<0.0184	109	85 - 115	2	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: 119181 | Date Analyzed: 2015-02-02 | Analyzed By: RL
Prep Batch: 100787 | QC Preparation: 2015-02-02 | Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Dissolved Solids		1,2,3,4,5	998	mg/L	10	1000	<25.0	100	90 - 110

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Dissolved Solids		1,2,3,4,5	992	mg/L	10	1000	<25.0	99	90 - 110	1	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: 119429 | Date Analyzed: 2015-02-17 | Analyzed By: RL
Prep Batch: 101000 | QC Preparation: 2015-02-17 | Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1,2,3,4,5	24.2	mg/L	1	25.0	0.797	94	90 - 110

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		1,2,3,4,5	24.4	mg/L	1	25.0	0.797	94	90 - 110	1	20

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

Matrix Spikes

Matrix Spike (xMS-1) Spiked Sample: 385041

QC Batch: 119127 | Date Analyzed: 2015-02-06 | Analyzed By: RR
Prep Batch: 100546 | QC Preparation: 2015-01-27 | Prepared By: PM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Dissolved Sodium		2,3,4,5	1660	mg/L	1	525	1210	86	75 - 125

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Dissolved Sodium	Qs Qs	2,3,4,5	1580	mg/L	1	525	1210	70	75 - 125	5	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: 385174

QC Batch: 119429 | Date Analyzed: 2015-02-17 | Analyzed By: RL
Prep Batch: 101000 | QC Preparation: 2015-02-17 | Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1,2,3,4,5	2750	mg/L	100	2500	362	96	80 - 120

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		1,2,3,4,5	2740	mg/L	100	2500	362	95	80 - 120	0	20

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

Calibration Standards

Standard (ICV-1)

QC Batch: 118893 Date Analyzed: 2015-01-27 Analyzed By: AT

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		1,2,4,5	s.u.	7.00	7.01	100	98.6 - 101.4	2015-01-27

Standard (CCV-1)

QC Batch: 118893 Date Analyzed: 2015-01-27 Analyzed By: AT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		1,2,4,5	s.u.	7.00	7.01	100	98.6 - 101.4	2015-01-27

Standard (ICV-1)

QC Batch: 119127 Date Analyzed: 2015-02-06 Analyzed By: RR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Sodium		2,3,4,5	mg/L	51.0	51.7	101	90 - 110	2015-02-06

Standard (CCV-1)

QC Batch: 119127 Date Analyzed: 2015-02-06 Analyzed By: RR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Sodium		2,3,4,5	mg/L	51.0	55.9	110	90 - 110	2015-02-06

Standard (CCV-1)

QC Batch: 119429 Date Analyzed: 2015-02-17 Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1,2,3,4,5	mg/L	25.0	24.3	97	90 - 110	2015-02-17

Standard (CCV-2)

QC Batch: 119429 Date Analyzed: 2015-02-17 Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1,2,3,4,5	mg/L	25.0	24.3	97	90 - 110	2015-02-17

Appendix

Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	PJLA	L14-93	Lubbock
2	Kansas	Kansas E-10317	Lubbock
3	LELAP	LELAP-02003	Lubbock
4	NELAP	T104704219-14-10	Lubbock
5		2014-018	Lubbock

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.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
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.

F	Description
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.

LAB Order ID # 15012704

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2501 Mayes Rd., Ste 100
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Company Name: PRICE LLC
Phone #: 505-892-6643
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Fax #: 505-892-6643
Contact Person: LESTER WAYNE PRICE JR
E-mail: WAPRICE23@HOTMAIL.COM
Invoice to: (If different from above) KEY ENERGY
Project #: NA
Project Name: EUNICE BRINE WELL
Project Location (including state): EUNICE NM
Sampler Signature: LWPJR

ANALYSIS REQUEST
(Circle or Specify Method No.)

Analysis columns: MTBE 8021 / 602 / 8260 / 624; BTEX 8021 / 602 / 8260 / 624; TPH 418.1 / TX1005 / TX1005 Ext(C35); TPH 8015 GRO / DRO / TVHC; PAH 8270 / 625; Total Metals Ag As Ba Cd Cr Pb Se Hg 6010/200.7; TCLP Metals Ag As Ba Cd Cr Pb Se Hg; TCLP Volatiles; TCLP Semi Volatiles; TCLP Pesticides; RCI; GC/MS Vol. 8260 / 624; GC/MS Semi. Vol. 8270 / 625; PCB's 8082 / 608; Pesticides 8081 / 608; BOD, TSS, pH; Moisture Content; Cl, F, SO_4, NO_3-N, NO_2-N, PO_4-P, Alkalinity; Na, Ca, Mg, K, TDS, EC; CHLORIDES, PH, SG, TDS; DISSOLVED SODIUM; Turn Around Time if different from standard; Hold

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume / Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME	CHLORIDES, PH, SG, TDS	DISSOLVED SODIUM
385264	FRESH	1	1 Liter Plastic	X								X		1/20/15	4:13PM	X	
265	BRINE	1	1 Liter Plastic	X								X		1/20/15	4:17PM	X	X

Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	
LESTER WAYNE PRICE JR	PRICE LLC	1/23/15	4:30PM	Dylan Burr	Brandon Clark		1:53	INST ___ OBS 2 °C COR ___ °C
								INST ___ OBS ___ °C COR ___ °C
				BC	TA	1-27-15	915	INST 1RS3 OBS 0.2 COR 0.2

LAB USE ONLY
Intact (Y) N
Headspace Y / N / (NA)
Log-in-Review [initials]

REMARKS:
NA
"Fresh" sample is Frozen.

☐ Dry Weight Basis Required
☐ TRRP Report Required
☐ Check If Special Reporting Limits Are Needed

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C. O. C.

Carrier # LS 2S041348

LAB COPY

e-Hardcopy 2.0
Automated Report

Technical Report for

Key Energy

Eunice Brine Station

Charge Code:432

SGS Accutest Job Number: TC68757

Sampling Date: 06/12/15

Report to:

Key Energy

aramirez01@keyenergy.com

ATTN: Ana Ramirez

Total number of pages in report: **11**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Richard Rodriguez
Laboratory Director

Client Service contact: Electa Brown 713-271-4700

Certifications: TX (T104704220-15-23) AR (14-016-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) NJ (TX010) OK (2014-172) VA (7654)

Sections: 1 2 3 4

Table of Contents

Sample Summary

Key Energy

Job No: TC68757

Eunice Brine Station
Project No: Charge Code:432

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
TC68757-1	06/12/15	09:45		06/13/15	AQ	Water	FRESH WATER

Summary of Hits

Job Number: TC68757
Account: Key Energy
Project: Eunice Brine Station
Collected: 06/12/15

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
TC68757-1	**FRESH WATER**					
Sodium		40500	5000		ug/l	SW846 6010B
Chloride		46.3	2.5		mg/l	EPA 300
Density [a]		0.98			g/ml	ASTM DEF
Solids, Total Dissolved		367	10		mg/l	SM 2540C-2000
pH [b]		7.67			su	SM 4500H+ B-2000

(a) Analysis performed at Accutest Laboratories, Dayton, NJ.
(b) Field analysis required. Received out of hold time and analyzed by request.temp 20.0 c

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	FRESH WATER		
Lab Sample ID:	TC68757-1	**Date Sampled:**	06/12/15
Matrix:	AQ - Water	**Date Received:**	06/13/15
		Percent Solids:	n/a
Project:	Eunice Brine Station		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	40500	5000	ug/l	1	06/17/15	06/17/15	NS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA11107
(2) Prep QC Batch: MP26107

RL = Reporting Limit

Report of Analysis

Client Sample ID:	FRESH WATER		
Lab Sample ID:	TC68757-1	**Date Sampled:**	06/12/15
Matrix:	AQ - Water	**Date Received:**	06/13/15
		Percent Solids:	n/a
Project:	Eunice Brine Station		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	46.3	2.5	mg/l	5	06/19/15 15:31	ES	EPA 300
Density [a]	0.98		g/ml	1	06/20/15	ANJ	ASTM DEF
Solids, Total Dissolved	367	10	mg/l	1	06/17/15	BG	SM 2540C-2000
pH [b]	7.67		su	1	06/13/15	KJ	SM 4500H+ B-2000

(a) Analysis performed at Accutest Laboratories, Dayton, NJ.
(b) Field analysis required. Received out of hold time and analyzed by request.temp 20.0 c

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- Chain of Custody (Accutest New Jersey)

ACCUTEST LABORATORIES

CHAIN OF CUSTODY

PAGE ___ OF ___

10165 Harwin Dr, Ste 150 Houston, TX 77036
TEL. 713-271-4700 FAX: 713-271-4770
www.accutest.com

FED-EX Tracking #: | Bottle Order Control #:
Accutest Quote #: | Accutest Job #: TC68757

Client / Reporting Information

Company Name: KeyEnergy
Street Address: 6 Desta Dr
City: Midland State: TX Zip: 79705
Project Contact: dcrenshaw@keyenergy.com E-mail:
Phone #: 432 258 1044 Fax #:
Sampler(s) Name(s): Desiree Crenshaw Phone #:

Project Information

Project Name: Eunice Bunk Station
Street:
City: Eunice State: NM
Project #:
Client Purchase Order #:
Project Manager:

Billing Information (if different from Report to)

Company Name:
Street Address:
City State Zip:
Attention:

Requested Analyses

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; SED-Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB-Field Blank; EB-Equipment Blank; RB- Rinse Blank; TB-Trip Blank

Accutest Sample #	Field ID / Point of Collection	Collection Date	Time	Sampled By	Matrix	# of bottles	HCl	NaOH	ZnAcNaOH	HNO3	H2SO4	NONE	DI Water	MEOH	TSP	NaHSO4	ENCORE	OTHER	pH	Benzene	TDS	Cl-	Nat	LAB USE ONLY
1	Freshwater	6-12-15	~~1235~~ 945	DC	GW	1												X	X	X	X	X	X	

Turnaround Time (Business days)

- [ ] Standard
- [ ] 5 Day *RUSH*
- [ ] 4 Day *RUSH*
- [ ] 3 Day *RUSH*
- [ ] 2 Day *RUSH*
- [ ] 1 Day *EMERGENCY*

Emergency & Rush T/A data available VIA Lablink

Approved By (Accutest PM): / Date:

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULT1 (Level 3+4)
- [ ] REDT1 (Level 3+4)
- [ ] Commercial "C"
- [ ] TRRP
- [ ] EDD Format
- [ ] Other _____

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
Commercial "C" = Results + QC & Surrogate Summary

Comments / Special Instructions

Station [redacted]

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1		6-12-15 1425	1 Jason Foster	2 Jason Foster 5-12-15	16:00	2 FedEx
3	Relinquished by Sampler: FedEx	6/13/15 1000	3 Blanca Henly	4	Date Time:	4
5	Relinquished by:	Date Time:	5	Custody Seal #	Intact / Not intact	Preserved where applicable	On Ice	Cooler Temp.

TC68757: Chain of Custody
Page 1 of 1

ACCUTEST

CHAIN OF CUSTODY

Page 1 of 1

10165 Harwin Drive, Houston, TX 77036

FedEx Tracking #: 5641 4618 3540

Accutest Job #: TC68757

Client / Reporting Information

Company Name: Accutest Laboratories

Street Address: 10165 Harwin Drive

City: Houston State: TX Zip: 77036

Project Contact: electab E-mail: electab@accutest.com

Phone #: 713-271-4700

Sampler's Names:

Project Information

Project Name: Eunice Brine Station

Client Project Manager: Elecia Brown

Billing Information (if different from Report to)

Requested Analysis (see TEST CODE sheet)

Sample #	Field ID / Point of Collection	Date	Time	Matrix	# of bottles	...	OFNS
1	FRESH WATER	6/12/15	9:45:00 AM	W	1	X	X

LAB USE ONLY

TX

Turnaround Time (Business days)

- [ ] Std. 10 Business Days
- [ ] 5 Day RUSH
- [ ] 3 Day EMERGENCY
- [ ] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY
- [x] other Due 6/22/2015

Emergency & Rush T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULLT1 (Level 3+4)
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NYASP Category A
- [ ] NYASP Category B
- [x] State Forms
- [ ] EDD Format
- [ ] Other

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

Comments / Special Instructions

Soil of 100mls for NJ.

INITIAL ASSESSMENT 3A

LABEL VERIFICATION [initials]

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by	Date Time	Received By	Relinquished By	Date Time	Received By
1 [signature]	6/12/15 1625	1 Fed EX	2 Fed EX	6/16/15 9:30	2 [signature]
3		3	4		4
5		5	Custody Seal #: Client		Cooler Temp. 3.3° C IR

TC68757: Chain of Custody
Page 1 of 2
Accutest New Jersey

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: TC68757 **Client:** **Project:**

Date / Time Received: 6/19/2015 9:30:00 AM **Delivery Method:** **Airbill #'s:**

Cooler Temps (Raw Measured) °C: Cooler 1: (3.3);

Cooler Temps (Corrected) °C: Cooler 1: (3.0);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:	IR Gun		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	1		

Quality Control Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☑	☐
2. Trip Blank listed on COC:	☐		☑	☐
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☐		☐	☑

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments

Accutest Laboratories
V:732.329.0200

2235 US Highway 130
F: 732.329.3499

Dayton, New Jersey
www/accutest.com

Gulf Coast ACCUTEST LABORATORIES

10/12/15

Technical Report for

Key Energy

Eunice Brine Station

Accutest Job Number: TC74265

Sampling Date: 09/29/15

Report to:

Key Energy
6 Desota Drvie Suite 4300
Midland, TX 79705
aramirez01@keyenergy.com

ATTN: Ana Ramirez

Total number of pages in report: **28**

NELAP ACCREDITED TNI LABORATORY

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Richard Rodriguez
Laboratory Director

Client Service contact: Electa Brown 713-271-4700

Certifications: TX (T104704220-15-21) AR (14-016-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) NJ (TX010) OK (2014-172) VA (7654)

Sections: 1 2 3 4 5 6 7 8

Table of Contents

Sample Summary

Key Energy

Eunice Brine Station

Job No: TC74265

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
TC74265-1	09/29/15	15:45		10/01/15	AQ	Water	FRESH WATER WELL
TC74265-2	09/29/15	15:50		10/01/15	AQ	Water	BRINE WATER WELL

Summary of Hits

Job Number: TC74265
Account: Key Energy
Project: Eunice Brine Station
Collected: 09/29/15

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
TC74265-1	**FRESH WATER WELL**					
Sodium		50500	5000		ug/l	SW846 6010B
Chloride		57.3	2.5		mg/l	EPA 300
Density [a]		0.96			g/ml	ASTM DEF
Solids, Total Dissolved		404	10		mg/l	SM 2540C-2000
pH [b]		7.73			su	SM 4500H+ B-2000
TC74265-2	**BRINE WATER WELL**					
Sodium		78900000	500000		ug/l	SW846 6010B
Chloride		164000	5000		mg/l	EPA 300
Density [a]		1.2			g/ml	ASTM DEF
Solids, Total Dissolved		317000	2000		mg/l	SM 2540C-2000
pH [c]		6.98			su	SM 4500H+ B-2000

(a) Analysis performed at Accutest Laboratories, Dayton, NJ.
(b) Field analysis required. Received out of hold time and analyzed by request.temp 19.8 c
(c) Field analysis required. Received out of hold time and analyzed by request.temp 20.4 c

Gulf Coast ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	FRESH WATER WELL		
Lab Sample ID:	TC74265-1	**Date Sampled:**	09/29/15
Matrix:	AQ - Water	**Date Received:**	10/01/15
		Percent Solids:	n/a
Project:	Eunice Brine Station		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	50500	5000	ug/l	1	10/06/15	10/07/15	NS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA11469
(2) Prep QC Batch: MP26743

RL = Reporting Limit

Report of Analysis

Client Sample ID:	FRESH WATER WELL		
Lab Sample ID:	TC74265-1	**Date Sampled:**	09/29/15
Matrix:	AQ - Water	**Date Received:**	10/01/15
		Percent Solids:	n/a
Project:	Eunice Brine Station		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	57.3	2.5	mg/l	5	10/01/15 21:15	ES	EPA 300
Density [a]	0.96		g/ml	1	10/08/15	ANJ	ASTM DEF
Solids, Total Dissolved	404	10	mg/l	1	10/05/15	BG	SM 2540C-2000
pH [b]	7.73		su	1	10/01/15	OZ	SM 4500H+ B-2000

(a) Analysis performed at Accutest Laboratories, Dayton, NJ.
(b) Field analysis required. Received out of hold time and analyzed by request.temp 19.8 c

RL = Reporting Limit

Report of Analysis

Client Sample ID:	BRINE WATER WELL		
Lab Sample ID:	TC74265-2	**Date Sampled:**	09/29/15
Matrix:	AQ - Water	**Date Received:**	10/01/15
		Percent Solids:	n/a
Project:	Eunice Brine Station		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	78900000	500000	ug/l	100	10/06/15	10/07/15	NS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA11469
(2) Prep QC Batch: MP26743

RL = Reporting Limit

Report of Analysis

Client Sample ID:	BRINE WATER WELL		
Lab Sample ID:	TC74265-2	**Date Sampled:**	09/29/15
Matrix:	AQ - Water	**Date Received:**	10/01/15
		Percent Solids:	n/a
Project:	Eunice Brine Station		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	164000	5000	mg/l	10000	10/05/15 17:35	ES	EPA 300
Density [a]	1.2		g/ml	1	10/08/15	ANJ	ASTM DEF
Solids, Total Dissolved	317000	2000	mg/l	1	10/05/15	BG	SM 2540C-2000
pH [b]	6.98		su	1	10/01/15	OZ	SM 4500H+ B-2000

(a) Analysis performed at Accutest Laboratories, Dayton, NJ.
(b) Field analysis required. Received out of hold time and analyzed by request.temp 20.4 c

RL = Reporting Limit

Gulf Coast ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

ACCUTEST LABORATORIES

CHAIN OF CUSTODY

PAGE ___ OF ___

10165 Harwin Dr, Ste 150 Houston, TX 77036
TEL. 713-271-4700 FAX: 713-271-4770
www.accutest.com

FED-EX Tracking #
Bottle Order Control #
Accutest Quote #
Accutest Job # TC74265

Client / Reporting Information

Company Name: Key Energy Services
Street Address: 6 Desta Dr
City: Midland State: TX Zip: 79705
Project Contact / E-mail: dcrenshaw@keyenergy.com
Phone #: 432 258 1044
Fax #
Sampler(s) Name(s): Desiree Crenshaw
Phone #

Project Information

Project Name: Eunice Brine Station
Street
City: Eunice State: NM
Project #
Client Purchase Order #
Project Manager

Billing Information (if different from Report to)
Company Name
Street Address
City State Zip
Attention:

Requested Analyses: Na+, Cl-, density, TDS and PH

Accutest Sample #	Field ID / Point of Collection	Date	Time	Sampled By	Matrix	# of bottles	HCl	NaOH	ZA/NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	TSP	NaHSO4	ENCORE	OTHER	Na+, Cl-, density	TDS and PH
1	fresh water well	9-29-15	1545	Dc	W	2												X	X	X
2	Brine water	9-29-15	1550	dc	W	2												X	X	X

Matrix Codes: DW - Drinking Water, GW - Ground Water, WW - Water, SW - Surface Water, SO - Soil, SL- Sludge, SED-Sediment, OI - Oil, LIQ - Other Liquid, AIR - Air, SOL - Other Solid, WP - Wipe, FB-Field Blank, EB-Equipment Blank, RB- Rinse Blank, TB-Trip Blank

LAB USE ONLY

TAGGED BY: [signature]

VERIFIED BY: [signature]

Turnaround Time (Business days)

- [ ] Standard
- [ ] 5 Day RUSH
- [ ] 4 Day RUSH
- [ ] 3 Day RUSH
- [ ] 2 Day RUSH
- [ ] 1 Day EMERGENCY

Emergency & Rush T/A data available VIA Lablink

Approved By (Accutest PM): / Date:

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULT1 (Level 3+4)
- [ ] REDT1 (Level 3+4)
- [ ] Commercial "C"
- [ ] TRRP
- [ ] EDD Format
- [ ] Other ______

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
Commercial "C" = Results + QC & Surrogate Summary

Comments / Special Instructions

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 [signature]	9 30 15 800	1 Jason Fisher	2 Jason Fisher	9/30/15 14:00	2 Fed Ex
Relinquished by Sampler: 3	Date Time:	Received By: 3 [signature] 10-1-15 905	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #	☐ Intact ☐ Not intact	Preserved where applicable ☐ On Ice ☐ Cooler Temp. 2.3

TC74265: Chain of Custody
Page 1 of 3

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: TC74265 **Client:** KEY ENERGY **Project:** ENNICE BRINE STATION

Date / Time Received: 10/1/2015 **Delivery Method:** **Airbill #'s:** 643273725530

No. Coolers: 1 **Therm ID:** IR9; **Temp Adjustment Factor:** 0;

Cooler Temps (Initial/Adjusted): #1: (2.3/2.3);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:			
3. Cooler media:	Ice (Bag)		

Quality Control Preservation	Y	or	N	N/A	WTB	STB
1. Trip Blank present / cooler:	☐		☐	☑	☐	☐
2. Trip Blank listed on COC:	☐		☐	☑		
3. Samples preserved properly:	☑		☐			
4. VOCs headspace free:	☐		☐	☑		

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments

Accutest Laboratories
V:713.271.4700
10165 Harwin Drive
F: 713.271.4770
Houston, TX 77036
www/accutest.com

TC74265: Chain of Custody
Page 2 of 3

Sample Receipt Log

Job #: TC74265 **Date / Time Received:** 10/1/2015 9:05:00 AM **Initials:** BG

Client: KEY ENERGY

Cooler #	Sample ID:	Vol	Bot #	Location	Pres	pH	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC74265-1	500ml	1	3B	N/P	Note #2 - Preservative check not applicable.	IR9	2.3	0	2.3
1	TC74265-2	500ml	1	3B	N/P	Note #2 - Preservative check not applicable.	IR9	2.3	0	2.3

TC74265: Chain of Custody
Page 3 of 3

Gulf Coast ACCUTEST LABORATORIES

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: TC74265
Account: KEYETXM - Key Energy
Project: Eunice Brine Station

QC Batch ID: MP26743
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date:				10/06/15		10/06/15	
Metal	RL	IDL	MDL	MB raw	MB final	MB raw	MB final
Aluminum	200	2.5	20				
Antimony	5.0	.34	2.3				
Arsenic	5.0	1.1	3.4				
Beryllium	4.0	.015	.36				
Boron	100	.66	11				
Cadmium	4.0	.06	.56				
Calcium	5000	1.4	590				
Chromium	10	.12	1.4				
Cobalt	50	.067	5.3				
Copper	20	.094	2				
Iron	100	.6	9.8				
Lead	3.0	.24	1				
Lithium	300	.4	29				
Magnesium	5000	4.4	480				
Manganese	15	.018	1.6				
Molybdenum	10	.086	1.3				
Nickel	40	.059	3.5				
Potassium	5000	8.4	500				
Selenium	5.0	.51	1.9				
Silver	10	.075	.82				
Sodium	5000	2.3	490	24.2	<5000	31.3	<5000
Strontium	10	.018	.26				
Thallium	10	.46	2.2				
Tin	50	.3	3.4				
Titanium	20	.095	2				
Vanadium	50	.087	4.9				
Zinc	20	.094	4.2				
Sulfur	50	.9	5				

Associated samples MP26743: TC74265-1, TC74265-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: TC74265
Account: KEYETXM - Key Energy
Project: Eunice Brine Station

QC Batch ID: MP26743
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 10/06/15

Metal	TC74337-1 Original MS		Spikelot MPTW11	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Beryllium					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron	anr				
Lead					
Lithium					
Magnesium					
Manganese	anr				
Molybdenum					
Nickel	anr				
Potassium					
Selenium					
Silver					
Sodium	244000	283000	50000	78.0	75-125
Strontium					
Thallium					
Tin					
Titanium					
Vanadium					
Zinc					
Sulfur					

Associated samples MP26743: TC74265-1, TC74265-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: TC74265
Account: KEYETXM - Key Energy
Project: Eunice Brine Station

QC Batch ID: MP26743 Methods: SW846 6010B
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 10/06/15

Metal	TC74337-1 Original	MSD	Spikelot MPTW11	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Beryllium						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron	anr					
Lead						
Lithium						
Magnesium						
Manganese	anr					
Molybdenum						
Nickel	anr					
Potassium						
Selenium						
Silver						
Sodium	244000	274000	50000	60.0 (a)	3.2	20
Strontium						
Thallium						
Tin						
Titanium						
Vanadium						
Zinc						
Sulfur						

Associated samples MP26743: TC74265-1, TC74265-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: TC74265
Account: KEYETXM - Key Energy
Project: Eunice Brine Station

QC Batch ID: MP26743
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 10/06/15

Metal	BSP Result	Spikelot MPTW11	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron	anr			
Lead				
Lithium				
Magnesium				
Manganese	anr			
Molybdenum				
Nickel	anr			
Potassium				
Selenium				
Silver				
Sodium	48100	50000	96.2	80-120
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				
Sulfur				

Associated samples MP26743: TC74265-1, TC74265-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: TC74265
Account: KEYETXM - Key Energy
Project: Eunice Brine Station

QC Batch ID: MP26743
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 10/06/15

Metal	TC74337-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron	anr			
Lead				
Lithium				
Magnesium				
Manganese	anr			
Molybdenum				
Nickel	anr			
Potassium				
Selenium				
Silver				
Sodium	244000	241000	1.0	0-10
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				
Sulfur				

Associated samples MP26743: TC74265-1, TC74265-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

Gulf Coast ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: TC74265
Account: KEYETXM - Key Energy
Project: Eunice Brine Station

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chloride	GP33713/GN68570	0.50	0.0	mg/l	10	9.78	97.8	90-110%
Chloride	GP33754/GN68628	0.50	0.0	mg/l	10	9.38	93.8	90-110%
Solids, Total Dissolved	GN68603	10	0.0	mg/l	500	479	95.8	88-110%
Sulfate	GP33713/GN68570	0.50	0.0	mg/l	10	9.45	94.5	90-110%
Sulfate	GP33754/GN68628	0.50	0.0	mg/l	10	9.51	95.1	90-110%

Associated Samples:
Batch GN68603: TC74265-1, TC74265-2
Batch GP33713: TC74265-1
Batch GP33754: TC74265-2
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: TC74265
Account: KEYETXM - Key Energy
Project: Eunice Brine Station

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chloride	GP33713/GN68570	TC74174-1	mg/l	821	809	1.5	0-20%
Chloride	GP33754/GN68628	TC74196-1	mg/l	774	797	2.9	0-20%
Solids, Total Dissolved	GN68603	TC74148-1	mg/l	7000	7100	1.4	0-5%
Sulfate	GP33713/GN68570	TC74174-1	mg/l	969	964	0.5	0-20%
Sulfate	GP33754/GN68628	TC74196-1	mg/l	5980	6320	5.5	0-20%
pH	GN68564	TC74265-1	su	7.73	7.73	0.0	0-10%

Associated Samples:
Batch GN68564: TC74265-1, TC74265-2
Batch GN68603: TC74265-1, TC74265-2
Batch GP33713: TC74265-1
Batch GP33754: TC74265-2
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: TC74265
Account: KEYETXM - Key Energy
Project: Eunice Brine Station

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chloride	GP33713/GN68570	TC74174-1	mg/l	821	1000	1800	97.9	80-120%
Chloride	GP33754/GN68628	TC74196-1	mg/l	774	1000	1540	76.6N	80-120%
Sulfate	GP33713/GN68570	TC74174-1	mg/l	969	1000	1930	96.1	80-120%
Sulfate	GP33754/GN68628	TC74196-1	mg/l	5980	5000	10800	96.4	80-120%

Associated Samples:
Batch GP33713: TC74265-1
Batch GP33754: TC74265-2
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

Gulf Coast ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

(Accutest New Jersey)

Includes the following where applicable:

- Chain of Custody

ACCUTEST

CHAIN OF CUSTODY

Page 1 of 1

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TC74265

Client / Reporting Information		Project Information	
Company Name: Accutest Laboratories		Project Name: Eunice Brine Station	
Street Address: 10165 Harwin Drive		Street	
City: Houston	State: TX Zip: 77036	Billing Information (if different from Report to)	
Project Contact: electab	E-mail: electab@accutest.com		
Phone #: 713-271-4700			
Sampler's Name		Phone: Project Manager: Electa Brown	

Requested Analysis (see TEST CODE sheet)

#	Field ID / Point of Collection	Date	Time	Number of bottles		LAB USE ONLY
1	FRESH WATER WELL	9-29-15	3:45:00 PM	1	X	7X
2	BRINE WATER WELL	9-29-15	3:50:00 PM	1	X	

Turnaround Time (Business days)

- 10 Business Days
- 5 Day RUSH
- 3 Day EMERGENCY
- 2 Day EMERGENCY
- 1 Day EMERGENCY
- [X] other: Due 10-8/2015

Data Deliverable Information

- Commercial "A" (Level 1)
- Commercial "B" (Level 2)
- FULLT1 (Level 3+4)
- NJ Reduced
- Commercial "C"
- NYASP Category A
- NYASP Category B
- [X] State Forms
- EDD Format
- Other

Comments / Special Instructions: Send all the remaining sample

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by	Date Time	Received By	Relinquished By	Date Time	Received By
1		1	2	10/9/15	2
3		3	4		4
5		5	Custody Seal #		

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: TC74265 **Client:** **Project:**

Date / Time Received: 10/9/2015 9:30:00 AM **Delivery Method:** **Airbill #'s:**

Cooler Temps (Raw Measured) °C: Cooler 1: (2.0);

Cooler Temps (Corrected) °C: Cooler 1: (2.2);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:	IR Gun		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	1		

Quality Control Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☐	☑
2. Trip Blank listed on COC:	☐		☐	☑
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☐		☐	☑

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments

Accutest Laboratories
V:732.329.0200

2235 US Highway 130
F: 732.329.3499

Dayton, New Jersey
www/accutest.com

7.1

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TC74265: Chain of Custody
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Gulf Coast ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

(Accutest New Jersey)

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: TC74265
Account: ALGC - Accutest Laboratories Gulf Coast, Inc.
Project: KEYETXM: Eunice Brine Station

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Density	GN34037	TC74265-1	g/ml	0.96	0.96	0.0	0-20%

Associated Samples:
Batch GN34037: TC74265-1, TC74265-2
(*) Outside of QC limits

Gulf Coast ACCUTEST LABORATORIES

10/12/15

Technical Report for

Key Energy

Eunice Brine Station

Accutest Job Number: TC74265

Sampling Date: 09/29/15

Report to:

Key Energy
6 Desota Drvie Suite 4300
Midland, TX 79705
aramirez01@keyenergy.com

ATTN: Ana Ramirez

Total number of pages in report: **28**

NELAP ACCREDITED TNI LABORATORY

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Richard Rodriguez
Laboratory Director

Client Service contact: Electa Brown 713-271-4700

Certifications: TX (T104704220-15-21) AR (14-016-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) NJ (TX010) OK (2014-172) VA (7654)

Sections: 1 2 3 4 5 6 7 8

Table of Contents

Sample Summary

Key Energy

Eunice Brine Station

Job No: TC74265

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
TC74265-1	09/29/15	15:45		10/01/15	AQ	Water	FRESH WATER WELL
TC74265-2	09/29/15	15:50		10/01/15	AQ	Water	BRINE WATER WELL

Summary of Hits

Job Number: TC74265
Account: Key Energy
Project: Eunice Brine Station
Collected: 09/29/15

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
TC74265-1	**FRESH WATER WELL**					
Sodium		50500	5000		ug/l	SW846 6010B
Chloride		57.3	2.5		mg/l	EPA 300
Density [a]		0.96			g/ml	ASTM DEF
Solids, Total Dissolved		404	10		mg/l	SM 2540C-2000
pH [b]		7.73			su	SM 4500H+ B-2000
TC74265-2	**BRINE WATER WELL**					
Sodium		78900000	500000		ug/l	SW846 6010B
Chloride		164000	5000		mg/l	EPA 300
Density [a]		1.2			g/ml	ASTM DEF
Solids, Total Dissolved		317000	2000		mg/l	SM 2540C-2000
pH [c]		6.98			su	SM 4500H+ B-2000

(a) Analysis performed at Accutest Laboratories, Dayton, NJ.
(b) Field analysis required. Received out of hold time and analyzed by request.temp 19.8 c
(c) Field analysis required. Received out of hold time and analyzed by request.temp 20.4 c

Gulf Coast ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	FRESH WATER WELL		
Lab Sample ID:	TC74265-1	**Date Sampled:**	09/29/15
Matrix:	AQ - Water	**Date Received:**	10/01/15
		Percent Solids:	n/a
Project:	Eunice Brine Station		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	50500	5000	ug/l	1	10/06/15	10/07/15	NS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA11469
(2) Prep QC Batch: MP26743

RL = Reporting Limit

Report of Analysis

Client Sample ID:	FRESH WATER WELL		
Lab Sample ID:	TC74265-1	**Date Sampled:**	09/29/15
Matrix:	AQ - Water	**Date Received:**	10/01/15
		Percent Solids:	n/a
Project:	Eunice Brine Station		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	57.3	2.5	mg/l	5	10/01/15 21:15	ES	EPA 300
Density [a]	0.96		g/ml	1	10/08/15	ANJ	ASTM DEF
Solids, Total Dissolved	404	10	mg/l	1	10/05/15	BG	SM 2540C-2000
pH [b]	7.73		su	1	10/01/15	OZ	SM 4500H+ B-2000

(a) Analysis performed at Accutest Laboratories, Dayton, NJ.
(b) Field analysis required. Received out of hold time and analyzed by request.temp 19.8 c

RL = Reporting Limit

Report of Analysis

Client Sample ID:	BRINE WATER WELL		
Lab Sample ID:	TC74265-2	**Date Sampled:**	09/29/15
Matrix:	AQ - Water	**Date Received:**	10/01/15
		Percent Solids:	n/a
Project:	Eunice Brine Station		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	78900000	500000	ug/l	100	10/06/15	10/07/15	NS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA11469
(2) Prep QC Batch: MP26743

RL = Reporting Limit

Report of Analysis

Client Sample ID:	BRINE WATER WELL		
Lab Sample ID:	TC74265-2	**Date Sampled:**	09/29/15
Matrix:	AQ - Water	**Date Received:**	10/01/15
		Percent Solids:	n/a
Project:	Eunice Brine Station		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	164000	5000	mg/l	10000	10/05/15 17:35	ES	EPA 300
Density [a]	1.2		g/ml	1	10/08/15	ANJ	ASTM DEF
Solids, Total Dissolved	317000	2000	mg/l	1	10/05/15	BG	SM 2540C-2000
pH [b]	6.98		su	1	10/01/15	OZ	SM 4500H+ B-2000

(a) Analysis performed at Accutest Laboratories, Dayton, NJ.
(b) Field analysis required. Received out of hold time and analyzed by request.temp 20.4 c

RL = Reporting Limit

Gulf Coast ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

ACCUTEST LABORATORIES

CHAIN OF CUSTODY

10165 Harwin Dr, Ste 150 Houston, TX 77036
TEL. 713-271-4700 FAX: 713-271-4770
www.accutest.com

PAGE ___ OF ___

FED-EX Tracking # | Bottle Order Control #
Accutest Quote # | Accutest Job # TC74265

Client / Reporting Information

Company Name: Key Energy Services
Street Address: 6 Desta Dr
City: Midland State: TX Zip: 79705
Project Contact / E-mail: dcrenshaw@keyenergy.com
Phone #: 432 258 1044 Fax #
Sampler(s) Name(s): Desiree Crenshaw Phone #

Project Information

Project Name: Eunice Brine Station
Street
City: Eunice State: NM
Project #
Client Purchase Order #
Project Manager

Billing Information (if different from Report to)
Company Name
Street Address
City State Zip
Attention:

Requested Analyses: Na+, Cl-, density, TDS and PH

Accutest Sample #	Field ID / Point of Collection	Date	Time	Sampled By	Matrix	# of bottles	HCl	NaOH	ZA/NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	TSP	NaHSO4	ENCORE	OTHER	Na+, Cl-, density	TDS and PH	LAB USE ONLY
1	fresh water well	9-29-15	1545	DC	W	1												X	X	X	
2	Brine water	9-29-15	1550	DC	W	1												X	X	X	

TAGGED BY: [signature]

VERIFIED BY: [signature]

Matrix Codes
DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB-Field Blank
EB-Equipment Blank
RB- Rinse Blank
TB-Trip Blank

Turnaround Time (Business days)
- ☐ Standard
- ☐ 5 Day *RUSH*
- ☐ 4 Day *RUSH*
- ☐ 3 Day *RUSH*
- ☐ 2 Day *RUSH*
- ☐ 1 Day *EMERGENCY*

Emergency & Rush T/A data available VIA Lablink

Approved By (Accutest PM): / Date:

Data Deliverable Information
- ☐ Commercial "A" (Level 1)
- ☐ Commercial "B" (Level 2)
- ☐ FULT1 (Level 3+4)
- ☐ REDT1 (Level 3+4)
- ☐ Commercial "C"
- ☐ TRRP
- ☐ EDD Format
- ☐ Other ________

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
Commercial "C" = Results + QC & Surrogate Summary

Comments / Special Instructions

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 [signature]	9 30 15 800	1 Jason Fisher	2 Jason Fisher	9/30/15 14:00	2 Fed Ex
Relinquished by Sampler: 3 [signature]	Date Time:	Received By: 3 [signature] 10-1-15 905	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #	☐ Intact ☐ Not intact	Preserved where applicable ☐ On Ice ☐ Cooler Temp. 2.3

TC74265: Chain of Custody
Page 1 of 3

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: TC74265 **Client:** KEY ENERGY **Project:** ENNICE BRINE STATION

Date / Time Received: 10/1/2015 **Delivery Method:** **Airbill #'s:** 643273725530

No. Coolers: 1 **Therm ID:** IR9; **Temp Adjustment Factor:** 0;

Cooler Temps (Initial/Adjusted): #1: (2.3/2.3);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:			
3. Cooler media:	Ice (Bag)		

Quality Control Preservation	Y	or	N	N/A	WTB	STB
1. Trip Blank present / cooler:	☐		☐	☑	☐	☐
2. Trip Blank listed on COC:	☐		☐	☑		
3. Samples preserved properly:	☑		☐			
4. VOCs headspace free:	☐		☐	☑		

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments

Accutest Laboratories
V:713.271.4700
10165 Harwin Drive
F: 713.271.4770
Houston, TX 77036
www/accutest.com

TC74265: Chain of Custody
Page 2 of 3

Sample Receipt Log

Job #: TC74265 **Date / Time Received:** 10/1/2015 9:05:00 AM **Initials:** BG

Client: KEY ENERGY

Cooler #	Sample ID:	Vol	Bot #	Location	Pres	pH	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC74265-1	500ml	1	3B	N/P	Note #2 - Preservative check not applicable.	IR9	2.3	0	2.3
1	TC74265-2	500ml	1	3B	N/P	Note #2 - Preservative check not applicable.	IR9	2.3	0	2.3

TC74265: Chain of Custody
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Gulf Coast ACCUTEST LABORATORIES

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: TC74265
Account: KEYETXM - Key Energy
Project: Eunice Brine Station

QC Batch ID: MP26743
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date:				10/06/15		10/06/15	
Metal	RL	IDL	MDL	MB raw	MB final	MB raw	MB final
Aluminum	200	2.5	20				
Antimony	5.0	.34	2.3				
Arsenic	5.0	1.1	3.4				
Beryllium	4.0	.015	.36				
Boron	100	.66	11				
Cadmium	4.0	.06	.56				
Calcium	5000	1.4	590				
Chromium	10	.12	1.4				
Cobalt	50	.067	5.3				
Copper	20	.094	2				
Iron	100	.6	9.8				
Lead	3.0	.24	1				
Lithium	300	.4	29				
Magnesium	5000	4.4	480				
Manganese	15	.018	1.6				
Molybdenum	10	.086	1.3				
Nickel	40	.059	3.5				
Potassium	5000	8.4	500				
Selenium	5.0	.51	1.9				
Silver	10	.075	.82				
Sodium	5000	2.3	490	24.2	<5000	31.3	<5000
Strontium	10	.018	.26				
Thallium	10	.46	2.2				
Tin	50	.3	3.4				
Titanium	20	.095	2				
Vanadium	50	.087	4.9				
Zinc	20	.094	4.2				
Sulfur	50	.9	5				

Associated samples MP26743: TC74265-1, TC74265-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: TC74265
Account: KEYETXM - Key Energy
Project: Eunice Brine Station

QC Batch ID: MP26743
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 10/06/15

Metal	TC74337-1 Original MS		Spikelot MPTW11	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Beryllium					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron	anr				
Lead					
Lithium					
Magnesium					
Manganese	anr				
Molybdenum					
Nickel	anr				
Potassium					
Selenium					
Silver					
Sodium	244000	283000	50000	78.0	75-125
Strontium					
Thallium					
Tin					
Titanium					
Vanadium					
Zinc					
Sulfur					

Associated samples MP26743: TC74265-1, TC74265-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: TC74265
Account: KEYETXM - Key Energy
Project: Eunice Brine Station

QC Batch ID: MP26743 Methods: SW846 6010B
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 10/06/15

Metal	TC74337-1 Original	MSD	Spikelot MPTW11	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Beryllium						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron	anr					
Lead						
Lithium						
Magnesium						
Manganese	anr					
Molybdenum						
Nickel	anr					
Potassium						
Selenium						
Silver						
Sodium	244000	274000	50000	60.0 (a)	3.2	20
Strontium						
Thallium						
Tin						
Titanium						
Vanadium						
Zinc						
Sulfur						

Associated samples MP26743: TC74265-1, TC74265-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: TC74265
Account: KEYETXM - Key Energy
Project: Eunice Brine Station

QC Batch ID: MP26743
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 10/06/15

Metal	BSP Result	Spikelot MPTW11	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron	anr			
Lead				
Lithium				
Magnesium				
Manganese	anr			
Molybdenum				
Nickel	anr			
Potassium				
Selenium				
Silver				
Sodium	48100	50000	96.2	80-120
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				
Sulfur				

Associated samples MP26743: TC74265-1, TC74265-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: TC74265
Account: KEYETXM - Key Energy
Project: Eunice Brine Station

QC Batch ID: MP26743
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 10/06/15

Metal	TC74337-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron	anr			
Lead				
Lithium				
Magnesium				
Manganese	anr			
Molybdenum				
Nickel	anr			
Potassium				
Selenium				
Silver				
Sodium	244000	241000	1.0	0-10
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				
Sulfur				

Associated samples MP26743: TC74265-1, TC74265-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

Gulf Coast ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: TC74265
Account: KEYETXM - Key Energy
Project: Eunice Brine Station

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chloride	GP33713/GN68570	0.50	0.0	mg/l	10	9.78	97.8	90-110%
Chloride	GP33754/GN68628	0.50	0.0	mg/l	10	9.38	93.8	90-110%
Solids, Total Dissolved	GN68603	10	0.0	mg/l	500	479	95.8	88-110%
Sulfate	GP33713/GN68570	0.50	0.0	mg/l	10	9.45	94.5	90-110%
Sulfate	GP33754/GN68628	0.50	0.0	mg/l	10	9.51	95.1	90-110%

Associated Samples:
Batch GN68603: TC74265-1, TC74265-2
Batch GP33713: TC74265-1
Batch GP33754: TC74265-2
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: TC74265
Account: KEYETXM - Key Energy
Project: Eunice Brine Station

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chloride	GP33713/GN68570	TC74174-1	mg/l	821	809	1.5	0-20%
Chloride	GP33754/GN68628	TC74196-1	mg/l	774	797	2.9	0-20%
Solids, Total Dissolved	GN68603	TC74148-1	mg/l	7000	7100	1.4	0-5%
Sulfate	GP33713/GN68570	TC74174-1	mg/l	969	964	0.5	0-20%
Sulfate	GP33754/GN68628	TC74196-1	mg/l	5980	6320	5.5	0-20%
pH	GN68564	TC74265-1	su	7.73	7.73	0.0	0-10%

Associated Samples:
Batch GN68564: TC74265-1, TC74265-2
Batch GN68603: TC74265-1, TC74265-2
Batch GP33713: TC74265-1
Batch GP33754: TC74265-2
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: TC74265
Account: KEYETXM - Key Energy
Project: Eunice Brine Station

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chloride	GP33713/GN68570	TC74174-1	mg/l	821	1000	1800	97.9	80-120%
Chloride	GP33754/GN68628	TC74196-1	mg/l	774	1000	1540	76.6N	80-120%
Sulfate	GP33713/GN68570	TC74174-1	mg/l	969	1000	1930	96.1	80-120%
Sulfate	GP33754/GN68628	TC74196-1	mg/l	5980	5000	10800	96.4	80-120%

Associated Samples:
Batch GP33713: TC74265-1
Batch GP33754: TC74265-2
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

Gulf Coast ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

(Accutest New Jersey)

Includes the following where applicable:

- Chain of Custody

ACCUTEST

CHAIN OF CUSTODY

FED-EX Tracking # 5692 4646 0327

Accutest Job # TC74265

Client / Reporting Information

Company Name: Accutest Laboratories

Street Address: 10165 Harwin Drive

City: Houston State: TX Zip: 77036

Project Contact: electab E-mail: electab@accutest.com

Phone #: 713-271-4700

Project Information

Project Name: Eunice Brine Station

Project Manager: Electa Brown

Requested Analysis (see TEST CODE sheet)

Sample #	Field ID / Point of Collection	Date	Time	# of bottles	Analysis	LAB USE ONLY
1	FRESH WATER WELL	9-29-15	3:45:00 PM	1	X	TX
2	BRINE WATER WELL	9-29-15	3:50:00 PM	1	X	

Turnaround Time (Business days): Other Due: 10-8/2015

Data Deliverable Information: State Forms (X)

Comments / Special Instructions: Send all the remaining sample

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by: 1 — Received By: 1 FedEx — Relinquished By: 2 FedEx — Date Time: 10/9/15 0930 — Received By: 2

Cooler Temp. 2.0°C IR

TC74265: Chain of Custody
Page 1 of 2
Accutest New Jersey

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Accutest Laboratories Sample Receipt Summary

Accutest Job Number: TC74265 **Client:** **Project:**

Date / Time Received: 10/9/2015 9:30:00 AM **Delivery Method:** **Airbill #'s:**

Cooler Temps (Raw Measured) °C: Cooler 1: (2.0);

Cooler Temps (Corrected) °C: Cooler 1: (2.2);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:	IR Gun		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	1		

Quality Control Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☐	☑
2. Trip Blank listed on COC:	☐		☐	☑
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☐		☐	☑

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments

Accutest Laboratories
V:732.329.0200

2235 US Highway 130
F: 732.329.3499

Dayton, New Jersey
www/accutest.com

7.1

7

TC74265: Chain of Custody
Page 2 of 2

Gulf Coast ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

(Accutest New Jersey)

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: TC74265
Account: ALGC - Accutest Laboratories Gulf Coast, Inc.
Project: KEYETXM: Eunice Brine Station

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Density	GN34037	TC74265-1	g/ml	0.96	0.96	0.0	0-20%

Associated Samples:
Batch GN34037: TC74265-1, TC74265-2
(*) Outside of QC limits

Gulf Coast ACCUTEST LABORATORIES

01/29/16

Effective January 1, 2016, SGS has acquired all of the assets of Accutest Laboratories and will continue to operate as SGS-Accutest. SGS-Accutest is part of SGS, the world's leading inspection, verification, testing and certification company.

Technical Report for

Key Energy

State# 1 Brine Station

Accutest Job Number: TC79397

Sampling Date: 01/14/16

Report to:

Key Energy
6 Desota Drvie Suite 4300
Midland, TX 79705
aramirez01@keyenergy.com

ATTN: Ana Ramirez

Total number of pages in report: **28**

NELAP ACCREDITED TNI LABORATORY

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Richard Rodriguez
Laboratory Director

Client Service contact: Electa Brown 713-271-4700

Certifications: TX (T104704220-15-23) AR (14-016-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) NJ (TX010) OK (2014-172) VA (7654)

Sections: 1 2 3 4 5 6 7 8

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Accutest Laboratories

Sample Summary

Key Energy

State# 1 Brine Station

Job No: TC79397

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
TC79397-1	01/14/16	09:15		01/15/16	AQ	Water	FRESH WATER WELL
TC79397-2	01/14/16	09:18		01/15/16	AQ	Water	BRINE WELL

Summary of Hits

Job Number: TC79397
Account: Key Energy
Project: State# 1 Brine Station
Collected: 01/14/16

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
TC79397-1	**FRESH WATER WELL**					
Sodium		46700	5000		ug/l	SW846 6010B
Chloride		65.6	2.5		mg/l	EPA 300
Density [a]		1.0			g/ml	ASTM DEF
Solids, Total Dissolved		414	10		mg/l	SM 2540C-2000
pH [b]		7.85			su	SM 4500H+ B-2000
TC79397-2	**BRINE WELL**					
Sodium		72200000	500000		ug/l	SW846 6010B
Chloride		178000	10000		mg/l	EPA 300
Density [a]		1.2			g/ml	ASTM DEF
Solids, Total Dissolved		300000	2000		mg/l	SM 2540C-2000
pH [c]		6.96			su	SM 4500H+ B-2000

(a) Analysis performed at Accutest Laboratories, Dayton, NJ.
(b) Field analysis required. Received out of hold time and analyzed by request.temp 19.7 c
(c) Field analysis required. Received out of hold time and analyzed by request.temp 19.0 c

Gulf Coast ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	FRESH WATER WELL		
Lab Sample ID:	TC79397-1	**Date Sampled:**	01/14/16
Matrix:	AQ - Water	**Date Received:**	01/15/16
		Percent Solids:	n/a
Project:	State# 1 Brine Station		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	46700	5000	ug/l	1	01/18/16	01/18/16	NS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA11755
(2) Prep QC Batch: MP27430

RL = Reporting Limit

Report of Analysis

Client Sample ID:	FRESH WATER WELL		
Lab Sample ID:	TC79397-1	**Date Sampled:**	01/14/16
Matrix:	AQ - Water	**Date Received:**	01/15/16
		Percent Solids:	n/a
Project:	State# 1 Brine Station		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	65.6	2.5	mg/l	5	01/19/16 11:07	ES	EPA 300
Density [a]	1.0		g/ml	1	01/28/16	ANJ	ASTM DEF
Solids, Total Dissolved	414	10	mg/l	1	01/20/16	BG	SM 2540C-2000
pH [b]	7.85		su	1	01/18/16 15:30	OZ	SM 4500H+ B-2000

(a) Analysis performed at Accutest Laboratories, Dayton, NJ.
(b) Field analysis required. Received out of hold time and analyzed by request.temp 19.7 c

RL = Reporting Limit

Report of Analysis

Client Sample ID:	BRINE WELL		
Lab Sample ID:	TC79397-2	**Date Sampled:**	01/14/16
Matrix:	AQ - Water	**Date Received:**	01/15/16
		Percent Solids:	n/a
Project:	State# 1 Brine Station		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	72200000	500000	ug/l	100	01/18/16	01/20/16	NS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA11761
(2) Prep QC Batch: MP27430

RL = Reporting Limit

Report of Analysis

Client Sample ID:	BRINE WELL		
Lab Sample ID:	TC79397-2	**Date Sampled:**	01/14/16
Matrix:	AQ - Water	**Date Received:**	01/15/16
		Percent Solids:	n/a
Project:	State# 1 Brine Station		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	178000	10000	mg/l	20000	01/19/16 12:09	ES	EPA 300
Density [a]	1.2		g/ml	1	01/28/16	ANJ	ASTM DEF
Solids, Total Dissolved	300000	2000	mg/l	1	01/21/16	BG	SM 2540C-2000
pH [b]	6.96		su	1	01/18/16 15:30	OZ	SM 4500H+ B-2000

(a) Analysis performed at Accutest Laboratories, Dayton, NJ.
(b) Field analysis required. Received out of hold time and analyzed by request.temp 19.0 c

RL = Reporting Limit

Gulf Coast ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

CHAIN OF CUSTODY

PAGE ___ OF ___

ACCUTEST LABORATORIES

10165 Harwin Dr, Ste 150 Houston, TX 77036
TEL. 713-271-4700 FAX: 713-271-4770
www.accutest.com

FED-EX Tracking #:
Bottle Order Control #:
Accutest Quote #:
Accutest Job #: TC9397

Client / Reporting Information

Company Name: Key Energy Services
Street Address: 6 Desta Dr
City: Midland State: TX Zip: 79705
Project Contact: aramirez@keyenergy.com E-mail:
Phone #: 432-571-7203 Fax #:
Sampler(s) Name(s): Ana Ramirez Phone #:

Project Information

Project Name: State #1 Brine Station
Street: Eunice
City: Eunice State: NM
Project #:
Client Purchase Order #:
Project Manager:

Billing Information (if different from Report to)

Company Name:
Street Address:
City: State: Zip:
Attention:

Requested Analyses

Matrix Codes:
DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB-Field Blank
EB-Equipment Blank
RB- Rinse Blank
TB-Trip Blank

Accutest Sample #	Field ID / Point of Collection	Collection: Date	Time	Sampled By	Matrix	# of bottles	Number of preserved Bottles: HCl	NaOH	ZnAcOH	HNO3	H2SO4	NONE	DI Water	MEOH	TSP	NaHSO4	ENCORE	OTHER	pH, density	Na, Cl	TDS	LAB USE ONLY
1	Fresh Water Well	01/14/16	9:15 AM	AR	W	1												X	X	X	X	
2	Brine Well.	01/14/16	9:18 AM	AR	W	1												X	X	X	Y	

TAGGED BY:

VERIFIED BY:

Turnaround Time (Business days)

- [ ] Standard
- [ ] 5 Day *RUSH*
- [ ] 4 Day *RUSH*
- [ ] 3 Day *RUSH*
- [ ] 2 Day *RUSH*
- [ ] 1 Day *EMERGENCY*

Approved By (Accutest PM): / Date:

Emergency & Rush T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULT1 (Level 3+4)
- [ ] REDT1 (Level 3+4)
- [ ] Commercial "C"
- [ ] TRRP
- [ ] EDD Format
- [ ] Other _____

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
Commercial "C" = Results + QC & Surrogate Summary

Comments / Special Instructions

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	Ana Ramirez	01/14/16 16:00	1 Jason Fisher	2 Jason Fisher 12:00	1/14/16	2 Fed Ex
3	Fed Ex	1/15/16 1000	3 [illegible] 1/15/16 1020	4		4
5	Relinquished by:	Date Time:	Received By:	Custody Seal #	Intact / Not intact	Preserved where applicable	On Ice	Cooler Temp.

TC79397: Chain of Custody
Page 1 of 3

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: TC79397 **Client:** KEY ENERGY **Project:** STATE #2 BRINE STATION

Date / Time Received: 1/15/2016 **Delivery Method:** **Airbill #'s:**

No. Coolers: 1 **Therm ID:** IR9; **Temp Adjustment Factor:** 0;

Cooler Temps (Initial/Adjusted): #1: (2.9/2.9);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:			
3. Cooler media:	Ice (Bag)		

Quality Control Preservation	Y	or	N	N/A	WTB	STB
1. Trip Blank present / cooler:	☐		☐	☑	☐	☐
2. Trip Blank listed on COC:	☐		☐	☑		
3. Samples preserved properly:	☑		☐			
4. VOCs headspace free:	☐		☐	☑		

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments

Accutest Laboratories
V:713.271.4700
10165 Harwin Drive
F: 713.271.4770
Houston, TX 77036
www/accutest.com

TC79397: Chain of Custody
Page 2 of 3

Sample Receipt Log

Job #: TC79397 **Date / Time Received:** 1/15/2016 10:00:00 AM **Initials:** RE

Client: KEY ENERGY

Cooler #	Sample ID:	Vol	Bot #	Location	Pres	pH	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC79397-1	500ml	1	3K	N/P	Note #2 - Preservative check not applicable.	IR9	2.9	0	2.9
1	TC79397-2	500ml	1	3K	N/P	Note #2 - Preservative check not applicable.	IR9	2.9	0	2.9

TC79397: Chain of Custody
Page 3 of 3

Gulf Coast ACCUTEST LABORATORIES

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: TC79397
Account: KEYETXM - Key Energy
Project: State# 1 Brine Station

QC Batch ID: MP27430
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 01/18/16

Metal	RL	IDL	MDL	MB raw	final
Aluminum	200	2.5	20		
Antimony	5.0	.34	2.3		
Arsenic	5.0	1.1	3.4		
Barium	200	.05	21		
Beryllium	4.0	.015	.36		
Boron	100	.66	11		
Cadmium	4.0	.06	.56		
Calcium	5000	1.4	590		
Chromium	10	.12	1.4		
Cobalt	50	.067	5.3		
Copper	20	.094	2		
Iron	100	.6	9.8		
Lead	3.0	.24	1		
Lithium	300	.4	29		
Magnesium	5000	4.4	480		
Manganese	15	.018	1.6		
Molybdenum	10	.086	1.3		
Nickel	40	.059	3.5		
Potassium	5000	8.4	500		
Selenium	5.0	.51	1.9		
Silver	10	.075	.82		
Sodium	5000	2.3	490	-22	<5000
Strontium	10	.018	.26		
Thallium	10	.46	2.2		
Tin	50	.3	3.4		
Titanium	20	.095	2		
Vanadium	50	.087	4.9		
Zinc	20	.094	4.2		
Sulfur	50	.9	5		

Associated samples MP27430: TC79397-1, TC79397-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: TC79397
Account: KEYETXM - Key Energy
Project: State# 1 Brine Station

QC Batch ID: MP27430
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 01/18/16

Metal	TC79376-2 Original MS		Spikelot MPTW11	% Rec	QC Limits
Aluminum	anr				
Antimony	anr				
Arsenic	anr				
Barium	anr				
Beryllium	anr				
Boron					
Cadmium	anr				
Calcium					
Chromium	anr				
Cobalt					
Copper	anr				
Iron					
Lead	anr				
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel	anr				
Potassium					
Selenium	anr				
Silver	anr				
Sodium	260000	308000	50000	96.0	75-125
Strontium					
Thallium					
Tin					
Titanium					
Vanadium	anr				
Zinc	anr				
Sulfur					

Associated samples MP27430: TC79397-1, TC79397-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: TC79397
Account: KEYETXM - Key Energy
Project: State# 1 Brine Station

QC Batch ID: MP27430 Methods: SW846 6010B
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 01/18/16

Metal	TC79376-2 Original	MSD	Spikelot MPTW11	% Rec	MSD RPD	QC Limit
Aluminum	anr					
Antimony	anr					
Arsenic	anr					
Barium	anr					
Beryllium	anr					
Boron						
Cadmium	anr					
Calcium						
Chromium	anr					
Cobalt						
Copper	anr					
Iron						
Lead	anr					
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel	anr					
Potassium						
Selenium	anr					
Silver	anr					
Sodium	260000	298000	50000	76.0	3.3	20
Strontium						
Thallium						
Tin						
Titanium						
Vanadium	anr					
Zinc	anr					
Sulfur						

Associated samples MP27430: TC79397-1, TC79397-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: TC79397
Account: KEYETXM - Key Energy
Project: State# 1 Brine Station

QC Batch ID: MP27430
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 01/18/16

Metal	BSP Result	Spikelot MPTW11	% Rec	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	anr			
Beryllium	anr			
Boron				
Cadmium	anr			
Calcium				
Chromium	anr			
Cobalt				
Copper	anr			
Iron				
Lead	anr			
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	anr			
Potassium				
Selenium	anr			
Silver	anr			
Sodium	51500	50000	103.0	80-120
Strontium				
Thallium				
Tin				
Titanium				
Vanadium	anr			
Zinc	anr			
Sulfur				

Associated samples MP27430: TC79397-1, TC79397-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: TC79397
Account: KEYETXM - Key Energy
Project: State# 1 Brine Station

QC Batch ID: MP27430
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 01/18/16

Metal	TC79376-2 Original	SDL 1:5	%DIF	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	anr			
Beryllium	anr			
Boron				
Cadmium	anr			
Calcium				
Chromium	anr			
Cobalt				
Copper	anr			
Iron				
Lead	anr			
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	anr			
Potassium				
Selenium	anr			
Silver	anr			
Sodium	260000	264000	1.6	0-10
Strontium				
Thallium				
Tin				
Titanium				
Vanadium	anr			
Zinc	anr			
Sulfur				

Associated samples MP27430: TC79397-1, TC79397-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

Gulf Coast ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: TC79397
Account: KEYETXM - Key Energy
Project: State# 1 Brine Station

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chloride	GP34930/GN70656	0.50	0.0	mg/l	10	9.55	95.5	90-110%
Solids, Total Dissolved	GN70681	10	0.0	mg/l	500	486	97.2	88-110%
Solids, Total Dissolved	GN70700	10	0.0	mg/l	500	486	97.2	88-110%

Associated Samples:
Batch GN70681: TC79397-1
Batch GN70700: TC79397-2
Batch GP34930: TC79397-1, TC79397-2
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: TC79397
Account: KEYETXM - Key Energy
Project: State# 1 Brine Station

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chloride	GP34930/GN70656	TC79397-1	mg/l	65.6	65.7	0.2	0-20%
Solids, Total Dissolved	GN70681	TC79397-1	mg/l	414	411	0.7	0-5%
Solids, Total Dissolved	GN70700	TC79426-45	mg/l	1270	1260	0.8	0-5%
Sulfate	GP34930/GN70656	TC79397-1	mg/l	58.8	58.7	0.2	0-20%
pH	GN70634	TC79397-1	su	7.85	7.85(a)	0.0	0-10%

Associated Samples:
Batch GN70634: TC79397-1, TC79397-2
Batch GN70681: TC79397-1
Batch GN70700: TC79397-2
Batch GP34930: TC79397-1, TC79397-2
(*) Outside of QC limits
(a) temp 19.7 c

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: TC79397
Account: KEYETXM - Key Energy
Project: State# 1 Brine Station

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chloride	GP34930/GN70656	TC79397-1	mg/l	65.6	50	125	118.8	80-120%
Sulfate	GP34930/GN70656	TC79397-1	mg/l	58.8	50	114	110.4	80-120%

Associated Samples:
Batch GP34930: TC79397-1, TC79397-2
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

Gulf Coast ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

(Accutest New Jersey)

Includes the following where applicable:

- Chain of Custody

ACCUTEST

CHAIN OF CUSTODY

Page 1 of 1

FED-EX Tracking # 5642 4619 3716

Accutest Job # TC79397

Client / Reporting Information

Company Name: Accutest Laboratories

Street Address: 10165 Harwin Drive

City: Houston State: TX Zip: 77036

Project Contact: electab E-mail: electab@accutest.com

Phone #: 713-271-4700

Project Information

Project Name: State / Brine Status

Project Manager: Electa Brown

Requested Analysis (see TEST CODE sheet)

Accutest Sample #	Field ID / Point of Collection	Date	Time	Matrix	# of bottles	Analysis	LAB USE ONLY
1	FRESH WATER WELL	1-14-16	9:15:00 AM	W	1	X	TX
2	BRINE WELL	1-14-16	9:19:00 AM	W	1	X	

Matrix Codes: DW - Drinking Water, GW - Ground Water, WW - Water, SW - Surface Water, SO - Soil, SL - Sludge, SED - Sediment, OI - Oil, LIQ - Other Liquid, AIR - Air, SOL - Other Solid, WP - Wipe, FB - Field Blank, EB - Equipment Blank, RB - Rinse Blank, TB - Trip Blank

Turnaround Time (Business days)

- [ ] Std. 10 Business Days
- [ ] 5 Day RUSH
- [ ] 3 Day EMERGENCY
- [ ] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY
- [x] other Due 1/28/2016

Emergency & Rush T/A data available VIA Lablink

INITIAL ASSESSMENT NCIA

LABEL VERIFICATION CB

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULLT1 (Level 3+4)
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NYASP Category A
- [ ] NYASP Category B
- [x] State Forms
- [ ] EDD Format
- [ ] Other

Commercial "A" = Results Only; Commercial "B" = Results + QC Summary; NJ Reduced = Results + QC Summary + Partial Raw data

Comments / Special Instructions

~~send 250ml plastic unpreserved container~~ (EB)

-SENT ALL CONTAINER. ANALYSIS COMPLETED IN HOUSTON

-LIMITED SAMPLE FOR -1

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	1/26/16 1700	1 Fed Ex	2 Fed Ex	1/27/16 12:30	2
3		3	4		4
5		5	Custody Seal #	Intact / Not intact	Preserved where applicable / On Ice / Cooler Temp. 1.5°C IR

7.1

7

TC79397: Chain of Custody
Page 1 of 2
Accutest New Jersey

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: TC79397 **Client:** **Project:**

Date / Time Received: 1/27/2016 12:30:00 PM **Delivery Method:** **Airbill #'s:**

Cooler Temps (Raw Measured) °C: Cooler 1: (1.5);

Cooler Temps (Corrected) °C: Cooler 1: (1.9);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:	IR Gun		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	1		

Quality Control Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☐	☑
2. Trip Blank listed on COC:	☐		☐	☑
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☐		☐	☑

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments

Accutest Laboratories
V:732.329.0200

2235 US Highway 130
F: 732.329.3499

Dayton, New Jersey
www/accutest.com

7.1

7

TC79397: Chain of Custody
Page 2 of 2

Gulf Coast ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

(Accutest New Jersey)

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: TC79397
Account: ALGC - Accutest Laboratories Gulf Coast, Inc.
Project: KEYETXM: State# 1 Brine Station

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Density	GN39874	TC79397-1	g/ml	1.0	1.0	0.1	0-20%

Associated Samples:
Batch GN39874: TC79397-1, TC79397-2
(*) Outside of QC limits

Appendix C- Area of Review

- AOR Well Status List
- AOR Aerial Map

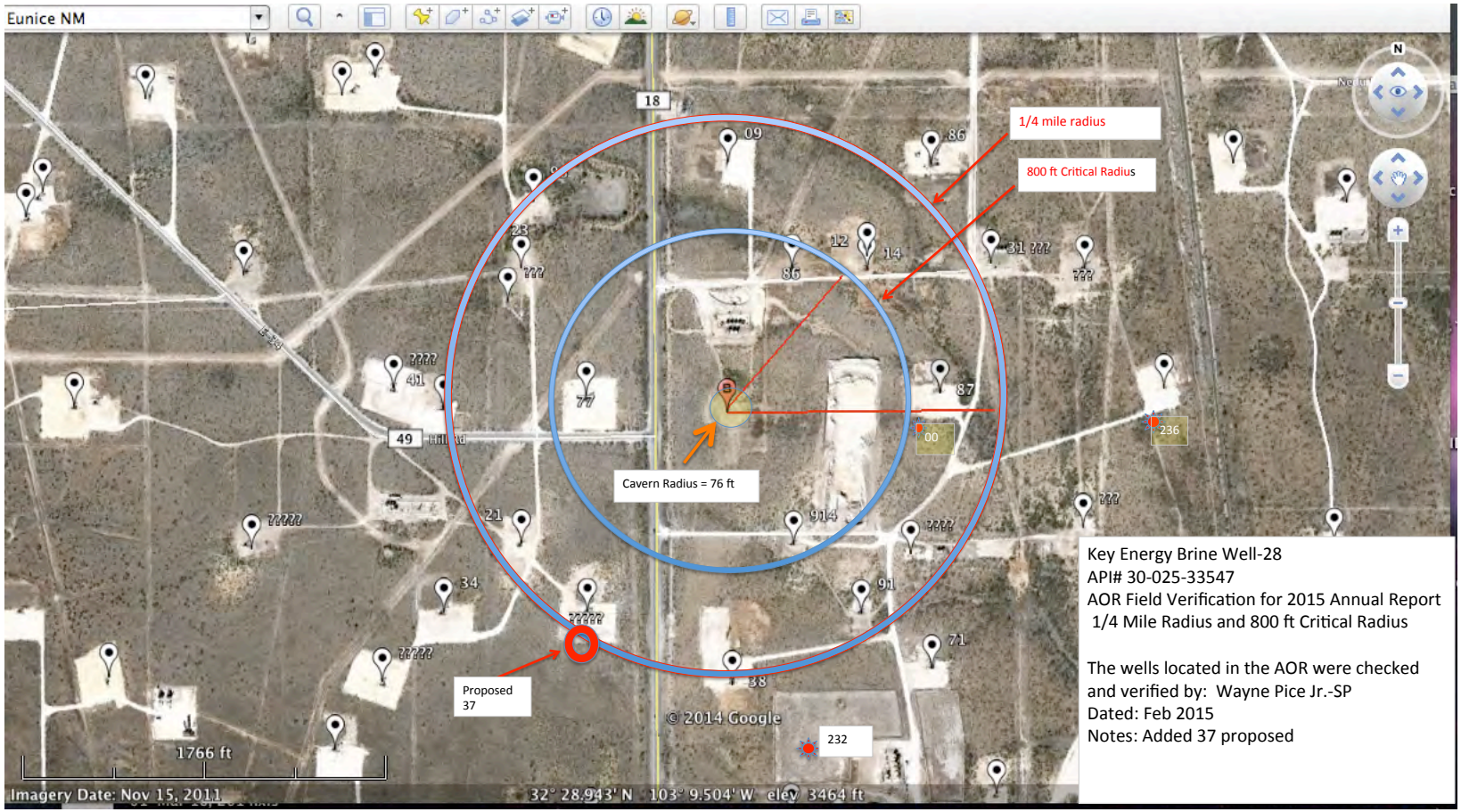
2015 BW-28 AOR Review-- Well Status List

up-dated Mar 31, 2016

	API #	Well Name	UL	Section	Ts	Rg	Footage	Within 1/4 mi AOR * within 800 ft			Casing Program Checked	Cased/Cemented across salt section	Corrective Action Required
1	30-025-33547	Key-State no.001	E	15	21s	37e	1340 FNL & 330 FWL	NA			NA		
1	30-025-06591	Apache NEDU 604	E	15	21s	37e	2310 FNL & 990 FWL	yes		1	no	Will check if critical radius approaches	Will check if critical radius approaches
1	30-025-09913 (P&A)	Shell NEDU 603	E	15	21s	37e	3390 FSL & 4520 FEL	Yes*	1	1	yes	yes	no
1	30-025-09914	Apache NEDU 602	E	15	21s	37e	1980 FNL & 660 FWL	Yes*	1	1	yes	yes	no
1	30-025-35271	Apache NEDU 602625	E	15	21s	37e	2580 FNL & 1300 FWL	no			na	na	na
0	30-025-37223 Never Drilled **	Apache NEDU 628	E	15	21s	37e	1410 FNL & 380 FWL	Never Drilled	0	0	na	na	na
1	30-025-41600 (in Production 2014)	Apache NEDU 544	E	15	21s	37e	1355 FNL &1190 FWL	yes	0	1	Yes	yes	no
0	30-025-42237 (Withdrawn)	Apache NEDU 648	E	15	21s	37e	1640 FNL & 1300 FWL	yes	0	1	na	na	na
1	30-025-06609	Chevron St. 002	C	15	21s	37e	660 FNL & 1980 FWL	no			na	na	na
1	30-025-06611	Chevron St. 004	C	15	21s	37e	660 FNL & 2080 FWL	no			na	na	na
1	30-025-06613	Apache NEDU 605	C	15	21s	37e	760 FNL & 1980 FWL	no			na	na	na
1	30-025-34649	Apache NEDU 622	C	15	21s	37e	1229 FNL & 2498 FWL	no			na	na	na
1	30-025-34886	Apache NEDU 524	C	15	21s	37e	160 FNL & 1350 FWL	no			na	na	na
1	30-025-39831(added 2010)	Chevron State S no. 2	C	15	21s	37e	990 FNL & 1330 FWL	yes		1	no	Will check if critical radius approaches	Will check if critical radius approaches
1	30-025-34887	Apache NEDU 624	C	15	21s	37e	1250 FNL & 1368 FWL	yes		1	no	Will check if critical radius approaches	Will check if critical radius approaches
1	30-025-41485	Brammer Engr. St No 12	C	15	21s	37e	990 FNL & 1330 FWL	yes		1	yes+++	yes	no
1	30-025-41583	Apache NEDU 661	C	15	21s	37e	1240 FNL & 1930 FWL	no			na	na	na
1	30-025-41598	Apache NEDU 558	C	15	21s	37e	150 FNL & 2295 FWL	no			na	na	na
1	30-025-06586	Chevron St. 001	D	15	21s	37e	660 FNL & 660 FWL	yes*	1	1	yes	yes	no
1	30-025-06612	Chevron St. 005	D	15	21s	37e	660 FNL & 990 FWL	yes		1	yes	yes	no
1	30-025-06614	Apache NEDU 601	D	15	21s	37e	600 FNL & 990 FWL	yes		1	yes	yes	no
1	30-025-36809	Apache NEDU 526	D	15	21s	37e	130 FNL & 330 FWL	yes		1	no	Will check if critical radius approaches	Will check if critical radius approaches
1	30-025-06585	Apache St. 002	F	15	21s	37e	1980 FNL & 1980 FWL	no			na	na	na
1	30-025-06587	Apache NEDU 606	F	15	21s	37e	3375 FSL & 3225 FEL	no			na	na	na
1	30-025-06590	Apache NEDU 608	F	15	21s	37e	1980 FNL & 1880 FWL	no			na	na	na
1	30-025-41275	Apache NEDU 650	F	15	21s	37e	2550 FNL & 1925 FWL	no			na	na	na
0	30-025-42236 (Withdrawn)	Apache NEDU 647	F	15	21s	37e	1710 FNL & 2360 FWL	no			na	na	na
1	30-025-06603	Apache Argo 006	K	15	21s	37e	1650 FSL & 2310 FWL	no			na	na	na
1	30-025-06607(added 2010)	Apache Argo 011	K	15	21s	37e	2080 FSL & 1650 FWL	no			na	na	na
1	30-025-09918	Apache NEDU 703	K	15	21s	37e	1980 FSL & 1980 FWL	no			na	na	na
1	30-025-39828	Apache Argo 14	K	15	21s	37e	2190 FSL & 2130 FWL	no			na	na	na
1	30-025-34657	Apache NEDU 623	K	15	21s	37e	2540 FSL & 2482 FWL	no			na	na	na
1	30-025-06606	Apache Argo 010	L	15	21s	37e	1880 FSL & 760 FWL	no			na	na	na
1	30-025-09915	Apache Argo 007	L	15	21s	37e	2310 FSL & 990 FWL	no			na	na	na
1	30-025-09916	Apache NEDU 701	L	15	21s	37e	1980 FSL & 660 FWL	no			na	na	na
1	30-025-34888	Apache NEDU 713	L	15	21s	37e	1330 FSL & 1142 FWL	no			na	na	na
1	30-025-37238	Apache NEDU 629	L	15	21s	37e	2630 FSL & 330 FWL	yes		1	no	Will check if critical radius approaches	Will check if critical radius approaches
0	30-025-42232 (Withdrawn)	Apache NEDU 639	L	15	21s	37e	1960 FSL & 740 FWL	no			na	na	na
1	30-025-06623	Apache WBDU 057	A	16	21s	37e	660 FNL & 660 FEL	yes		1	no	Will check if critical radius approaches	Will check if critical radius approaches
1	30-025-25198	Chevron HLNCT 006	A	16	21s	37e	330 FNL & 600 FEL	no			no	na	na
1	30-025-39277	Apache WBDU 113	A	16	21s	37e	1290 FNL & 330 FEL	yes*	1	1	yes	yes	no
1	30-025-06621	Apache WBDU 056	H	16	21s	37e	1980 FNL & 660 FEL	yes		1	no	Will check if critical radius approaches	Will check if critical radius approaches
1	30-025-06624	Chevron HLNCT 005	H	16	21s	37e	2310 FNL & 330 FEL	yes		1	no	Will check if critical radius approaches	Will check if critical radius approaches
1	30-025-36741	Chevron HLNCT 007	H	16	21s	37e	1330 FNL & 1070 FEL	no			na	na	na
1	30-025-37834	Chevron HLNCT 008	H	16	21s	37e	2310 FNL & 030 FEL	yes		1	no	Will check if critical radius approaches	Will check if critical radius approaches
0	30-025-42537 (Proposed)	Apache WBDU 164	H	17	21s	37e	2610 FNL & 300 FEL						
1	30-025-06617	Apache St. DA 005	I	16	21s	37e	1980 FSL & 330 FEL	no			na	na	na
1	30-025-06619	Apache WBDU078	I	16	21s	37e	1980 FSL & 660 FEL	no			na	na	na
1	30-025-37916	Apache St. DA 013	I	16	21s	37e	1650 FSL & 780 FEL	no			na	na	na
									4	18			

44 Total # of wells in adjacent quarter-sections
18 Total # of wells in 1/4 mile AOR
4 Total # of wells that are or have become within 800 ft of the outside radius of the brine well.

Notes:
* Means the well is within the calculated Critical outside radius of the brine well and casing program will be checked annually.
The Critical Radius of Review is 10x the calucated brine well radius.
** API # 30-025-37223 not drilled too close to Brine Well
"+++checked casing 1000 sks for 714 ft3 ok between 7-5/8 and 5.5 covers salt section

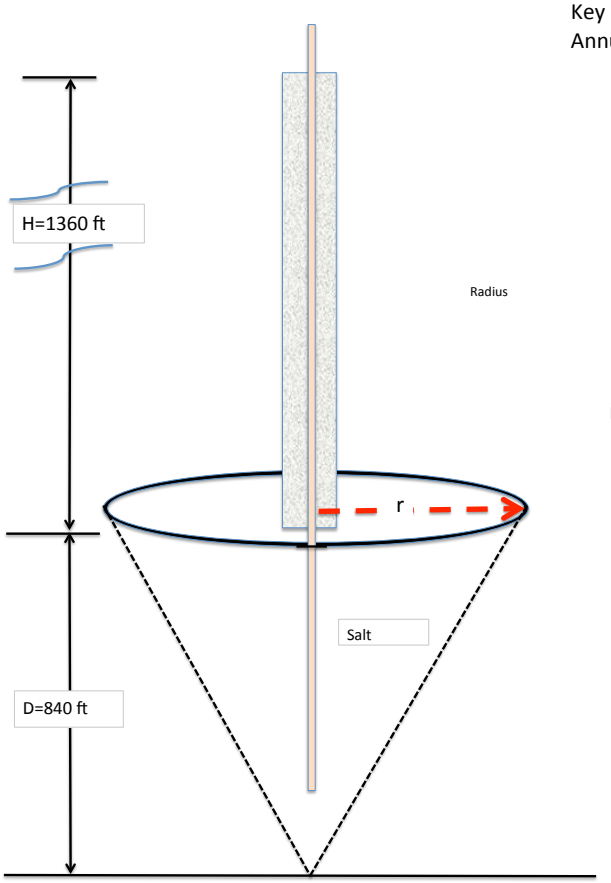


Field Notes: Last two or three well digits are the last number for the Well API#.

Appendix D-

- Cavity Calculations

Key Energy Eunice BW-28
Annual Cavity Calculation



Radius

2015 Calculations

r=SqRtV(V*3/π*D)

V	Volume	=	5,093,027 bbls
D	Depth	=	840 ft
H	Height	=	1360 ft
Kf	ft3 salt/bbl		1 est
	r	=	76 ft
	Diameter		152 ft

Formula in green do not input

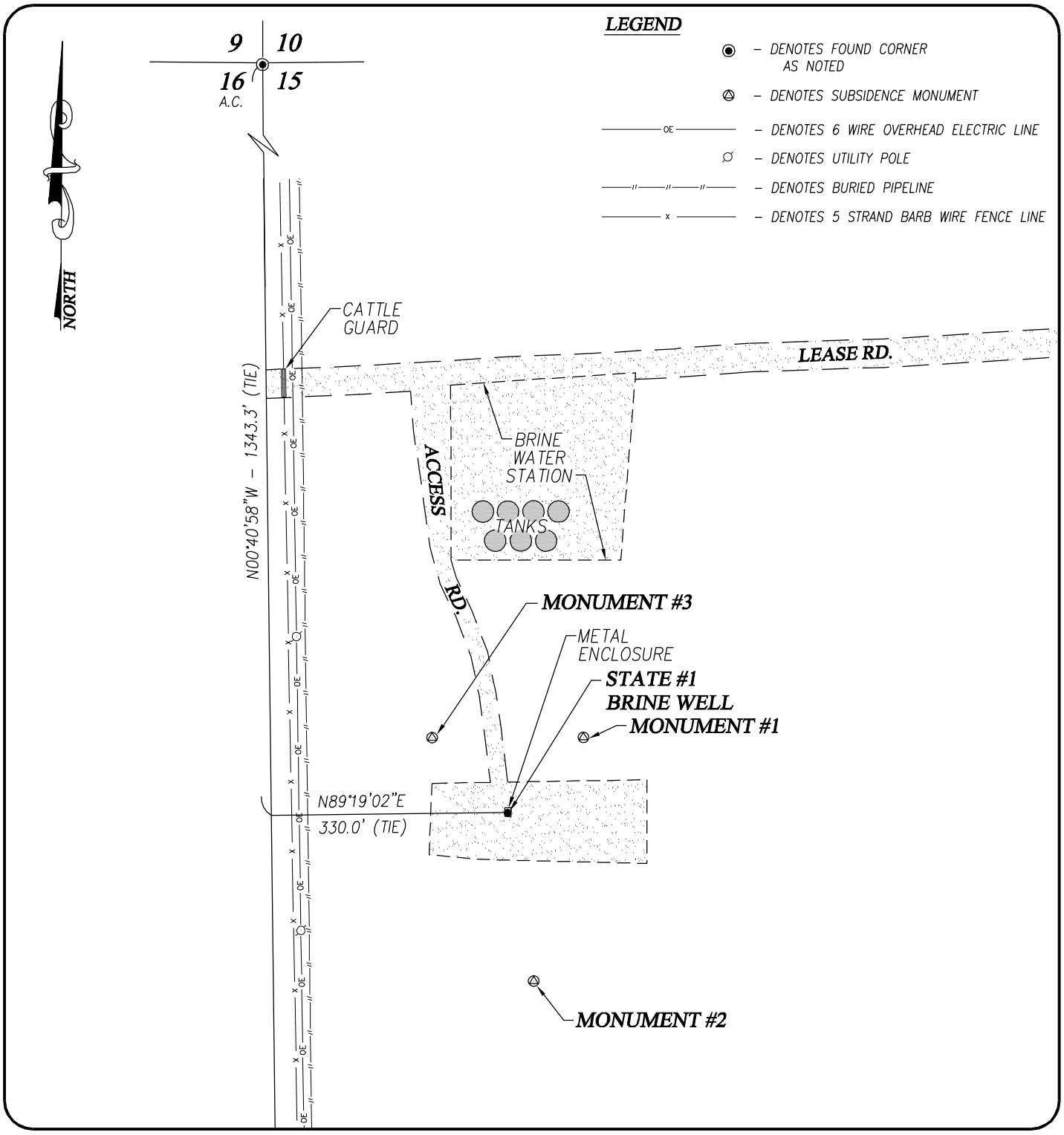
Appendix E- Subsidence Reports

TOPOGRAPHIC MAP

Figure 4

200 100 0 200 400 FEET

Scale:1"=200'



NOTE

BEARINGS SHOWN HEREON ARE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM 1983. DISTANCES ARE SURFACE VALUES.

PROVIDING SURVEYING SERVICES SINCE 1946

JOHN WEST SURVEYING COMPANY

412 N. DAL PASO

HOBBS, N.M. 88240

(575) 393-3117

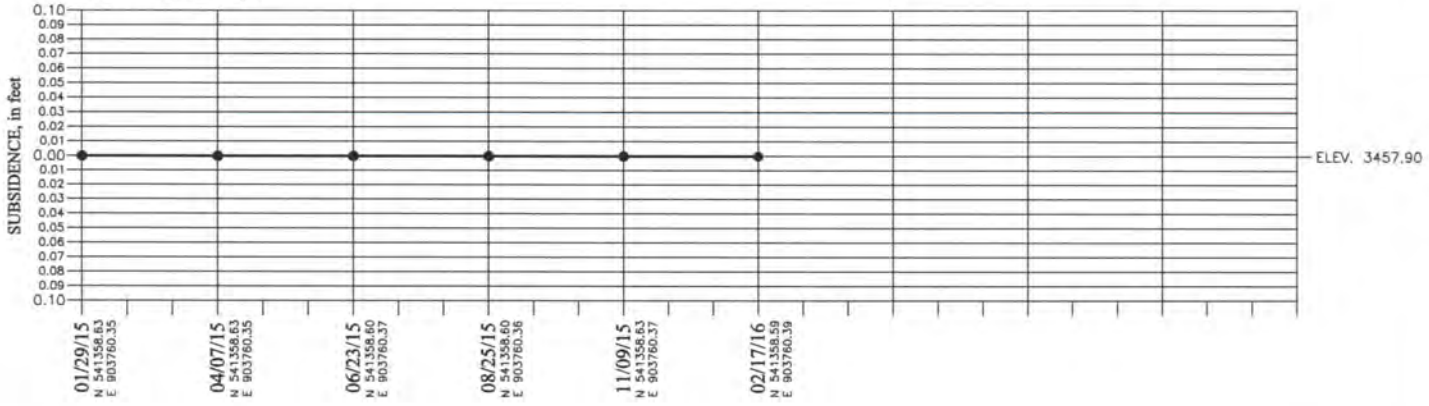
KEY ENERGY SERVICES, LLC

SUBSIDENCE MONITORING FOR THE KEY ENERGY STATE #1 BRINE WELL IN SECTION 15, TOWNSHIP 21 SOUTH, RANGE 37 EAST, N.M.P.M., LEA COUNTY, NEW MEXICO

VERTICAL SUBSIDENCE TABLE
KEY ENERGY SERVICES, LLC. – STATE #1

NEW MEXICO EAST NAD 83

MONUMENT #1



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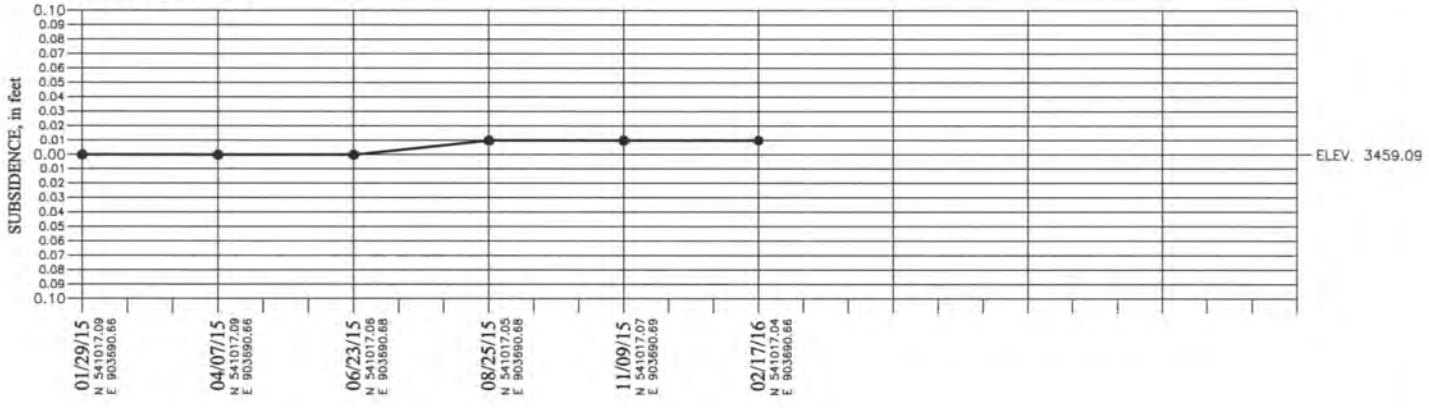

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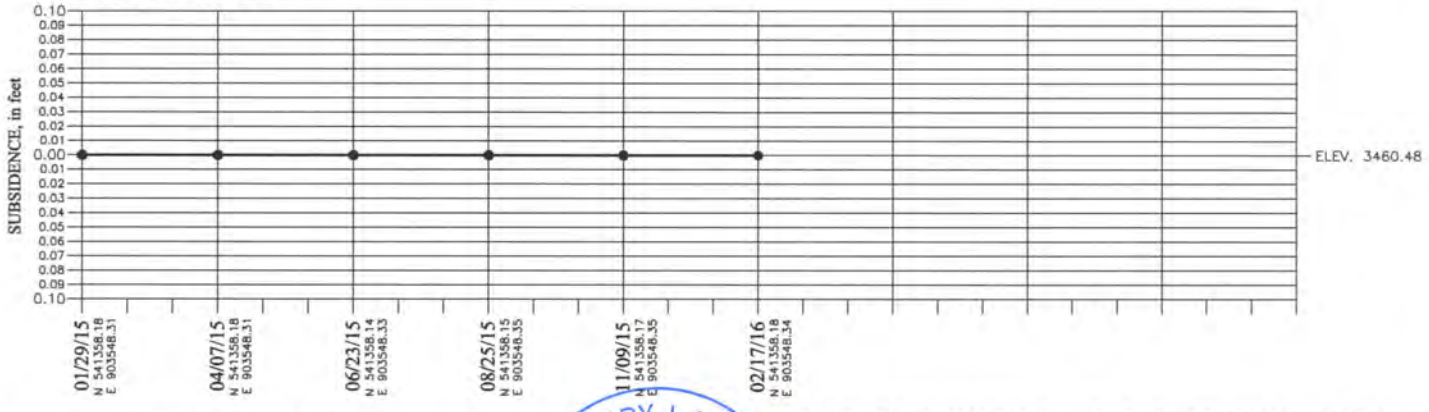


SURVEYORS CERTIFICATE

I, TERRY J. ASEL, NEW MEXICO PROFESSIONAL SURVEYOR NO. 15079, DO HEREBY CERTIFY THAT I CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND MEETS THE "MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO" AS ADOPTED BY THE NEW MEXICO STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS AND SURVEYORS.

TERRY J ASEL NEW MEXICO 15079 PROFESSIONAL LAND SURVEYOR

2/20/2016

Terry J. Asel N.M. R.P.L.S. No. 15079

Asel Surveying

P.O. BOX 393 – 310 W. TAYLOR
HOBBS, NEW MEXICO – 575-393-9146

BASIS OF ELEVATIONS: US C & GS BENCH MARK "L-98 1935" – CVO320 ELEV. = 3434.37

KEY ENERGY SERVICES, LLC.

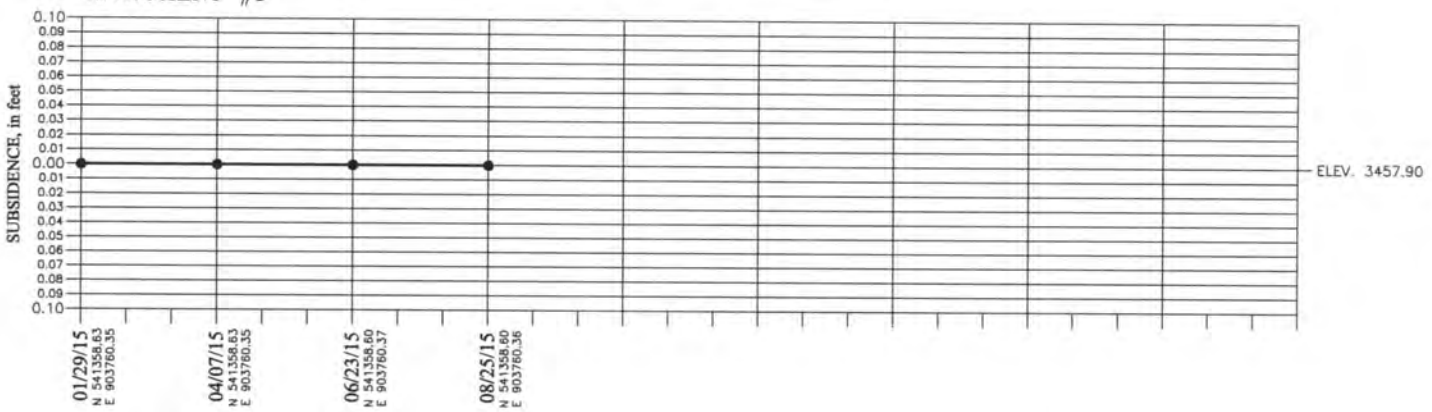
SUBSIDENCE MONITORING FOR THE KEY ENERGY SERVICES, LLC. – EUNICE STATE #1 WELL IN SECTION 15, TOWNSHIP 21 SOUTH, RANGE 37 EAST, N.M.P.M., LEA COUNTY, NEW MEXICO

Survey Date: 02/17/16	Sheet 1 of 1 Sheets	
W.O. Number: 160217MS	Drawn By: KA	Rev:
Date: 02/20/16	160217MS	Scale: 1"=1000'

VERTICAL SUBSIDENCE TABLE
KEY ENERGY SERVICES, LLC. – STATE #1

NEW MEXICO EAST NAD 83

MONUMENT #1



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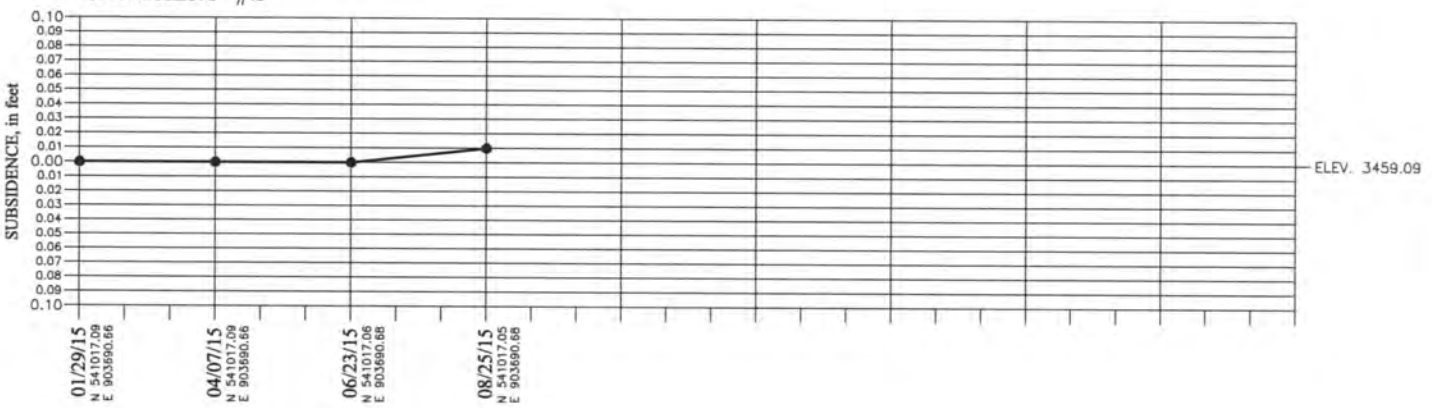

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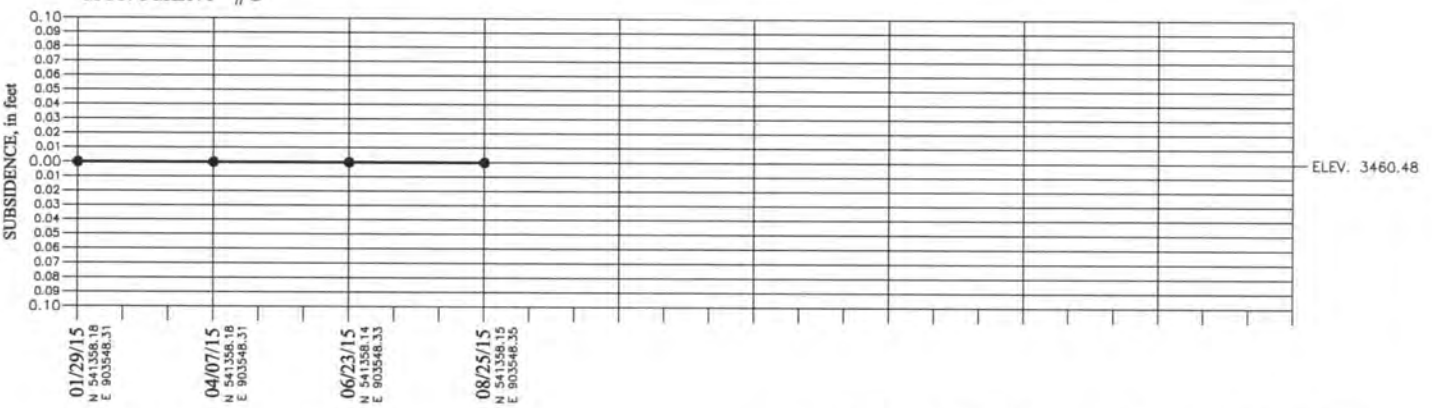

BASIS OF ELEVATIONS: US C & GS BENCH MARK
"L-98 1935" – CVO320
ELEV. = 3434.37

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TERRY J ASEL NEW MEXICO 15079 REGISTERED PROFESSIONAL LAND SURVEYOR

Terry J. Asel 8/26/2015

Terry J. Asel N.M. R.P.L.S. No. 15079

Asel Surveying

P.O. BOX 393 – 310 W. TAYLOR
HOBBS, NEW MEXICO – 575-393-9146

KEY ENERGY SERVICES, LLC.

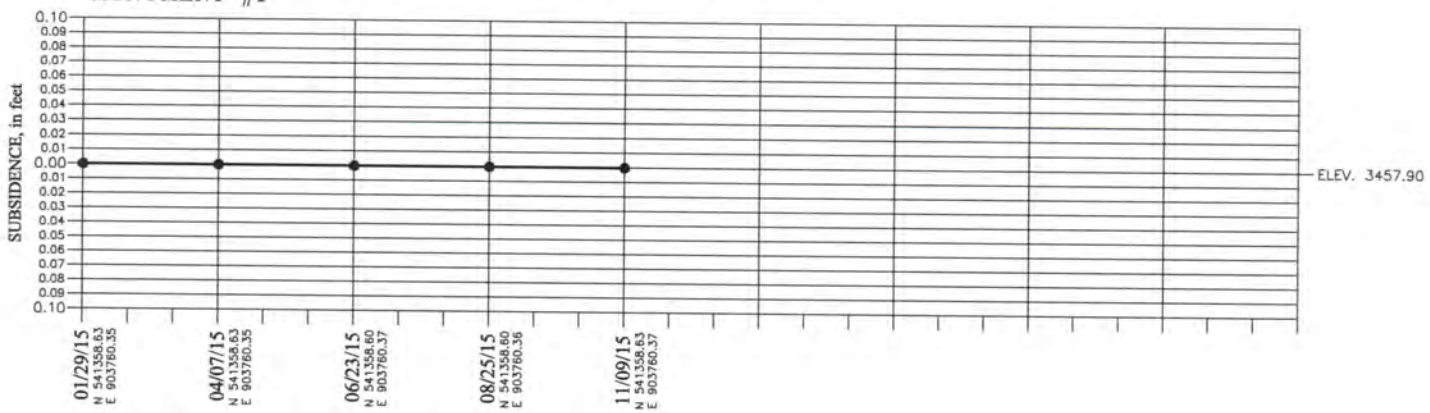
SUBSIDENCE MONITORING FOR THE KEY ENERGY SERVICES, LLC. – EUNICE STATE #1 WELL IN SECTION 15, TOWNSHIP 21 SOUTH, RANGE 37 EAST, N.M.P.M., LEA COUNTY, NEW MEXICO

Survey Date: 08/25/15	Sheet 1 of 1 Sheets	
W.O. Number: 150825MS	Drawn By: KA	Rev:
Date: 08/26/15	150825MS	Scale: 1"=1000'

VERTICAL SUBSIDENCE TABLE
KEY ENERGY SERVICES, LLC. – STATE #1

NEW MEXICO EAST NAD 83

MONUMENT #1



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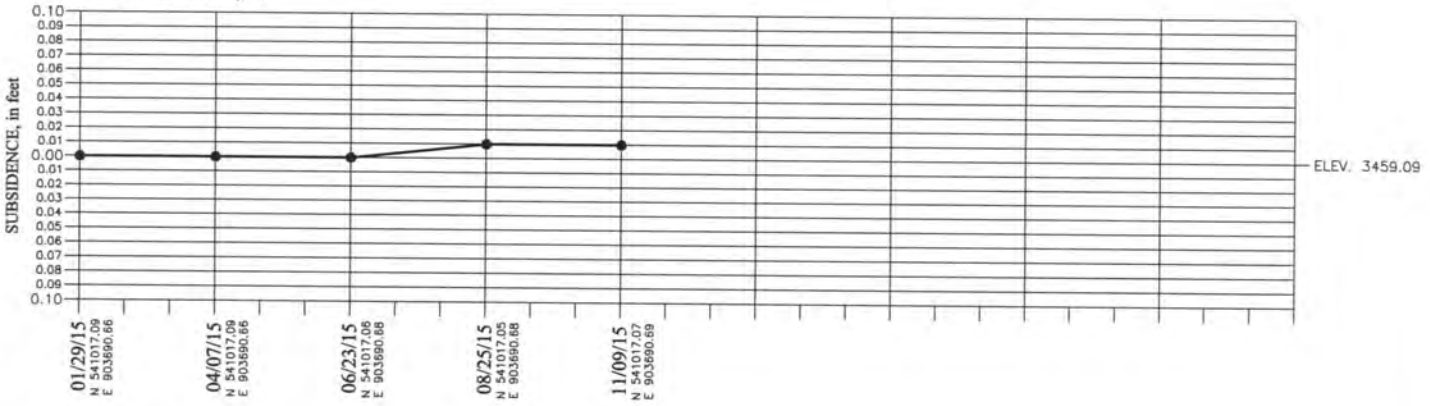

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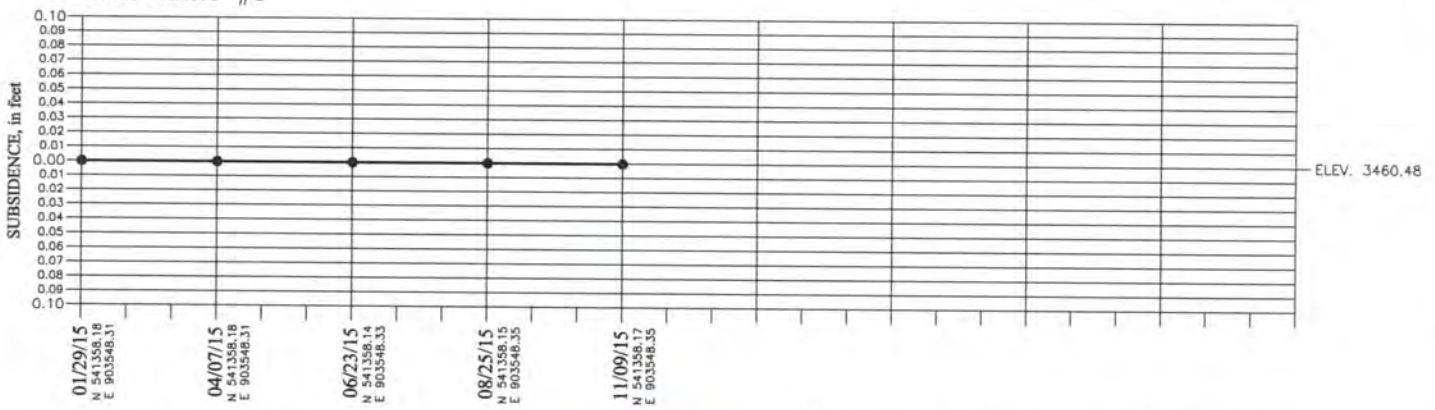

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TERRY J ASEL NEW MEXICO 15079 REGISTERED PROFESSIONAL LAND SURVEYOR

11/10/2015

Terry J. Asel N.M. R.P.L.S. No. 15079

Asel Surveying

P.O. BOX 393 – 310 W. TAYLOR
HOBBS, NEW MEXICO – 575-393-9146

BASIS OF ELEVATIONS: US C & GS BENCH MARK
"L-98 1935" – CV0320
ELEV. = 3434.37

KEY ENERGY SERVICES, LLC.

SUBSIDENCE MONITORING FOR THE KEY ENERGY SERVICES, LLC. – EUNICE STATE #1 WELL IN SECTION 15, TOWNSHIP 21 SOUTH, RANGE 37 EAST, N.M.P.M., LEA COUNTY, NEW MEXICO

Survey Date: 11/09/15	Sheet 1 of 1 Sheets	
W.O. Number: 151109MS	Drawn By: KA	Rev:
Date: 11/09/15	151109MS	Scale: 1"=1000'

From: "Griswold, Jim, EMNRD" <Jim.Griswold@state.nm.us>
Subject: **RE: Minor Modification Request- Key Energy NM Brine Wells Subsidence Monitoring BW-19 & BW-28**
Date: February 2, 2015 1:27:52 PM MST
To: wayne price <wayneprice77@earthlink.net>
Cc: John Sanders <jsanders01@keyenergy.com>, Brad Stauffer <bstauffer@keyenergy.com>, Bobby Sisson <bsisson@keyenergy.com>, Dan Gibson <dgibson@keyenergy.com>

Approved. Please retain this email as no hardcopy will be sent. Thanks.

Jim Griswold
Environmental Bureau Chief
EMNRD/Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
505.476.3465
email: jim.griswold@state.nm.us

-----Original Message-----
From: wayne price [mailto:wayneprice77@earthlink.net]
Sent: Monday, February 02, 2015 1:11 PM
To: Griswold, Jim, EMNRD
Cc: John Sanders; Brad Stauffer; Bobby Sisson; Dan Gibson
Subject: Minor Modification Request- Key Energy NM Brine Wells Subsidence Monitoring BW-19 & BW-28

Dear Jim,

This is to confirm our permit requirements for performing the required monitoring for Key's Brine well operations. The Carlsbad and Eunice Brine Well Subsidence Surveys have been completed. In order to satisfy and catch-up from the missed surveys, we are working with the previous surveyor to establish the original baselines.

Per our most recent communication, I fully understand your concern, thus we will agreed to perform 4 consecutive quarters in order to reestablished a baseline. Of course we have performed site visual surveys which will be noted in the annual report.

I had submitted a minor modification when we submitted the last annual report. It basically requested we be allowed to send the required surveys and a summary in the annual report. We also committed to an immediate notification if we saw a significant change, or a progressing trend.

We respectfully request approval.

Wayne Price-Price LLC

Appendix F – Closure Cost Estimate

Appendix "F"

2015 Annual Report
BW-28 Key Energy Closure Cost

	2014	EST CPI	2015
Key Energy Rig	$25,000	1.03	$25,750
Halliburton Cement Job	$7,500.00	1.03 1.03	$7,725
Post Subsidance Monitoring 5 y	$15,000.00	1.03 1.03	$15,450
Tank Removal, Pad Clean-Up	$25,000.00	1.03 1.03	$25,750
Consulting fees	$15,000.00	1.03 1.03	$15,450
Total Estimate	$87,500	1.03	$90,125