



**ANNUAL REPORT OF PRESSURE MONITORING,
 FLUID INJECTION AND ENHANCED RECOVERY**

Complete all blanks - add pages if needed. Copy to be retained for five (5) years after filing date.

OPERATOR: License # _____
 Name: _____
 Address 1: _____
 Address 2: _____
 City: _____ State: _____ Zip: _____ + _____
 Contact Person: _____
 Phone: (_____) _____
 Lease Name: _____
 Well Number: _____

API No.: _____
 Permit No.: _____
 Reporting Year: _____
 (January 1 to December 31)
 _____ - _____ - _____ - _____ Sec. _____ Twp. _____ S. R. _____ E W
 (a/a/a/a)
 _____ feet from N / S Line of Section
 _____ feet from E / W Line of Section
 County: _____

I. Injection Fluid:

Type (Pick one): Fresh Water Treated Brine Untreated Brine Water/Brine
 Source: Produced Water Other (Attach list)
 Quality: Total Dissolved Solids: _____ mg/l Specific Gravity: _____ Additives: _____
 (Attach water analysis, if available)

II. Well Data:

Maximum Authorized Injection Pressure: _____ psi Injection Zone: _____
 Maximum Authorized Injection Rate: _____ barrels per day
 Total Number of Enhanced Recovery Injection Wells Covered by this Permit: _____ (Include TA's)

III.	Month:	Total Fluid Injected BBL	Maximum Fluid Pressure	Total Gas Injected MCF	Maximum Gas Pressure	# Days of Injection
	January	_____	_____	_____	_____	_____
	February	_____	_____	_____	_____	_____
	March	_____	_____	_____	_____	_____
	April	_____	_____	_____	_____	_____
	May	_____	_____	_____	_____	_____
	June	_____	_____	_____	_____	_____
	July	_____	_____	_____	_____	_____
	August	_____	_____	_____	_____	_____
	September	_____	_____	_____	_____	_____
	October	_____	_____	_____	_____	_____
	November	_____	_____	_____	_____	_____
	December	_____	_____	_____	_____	_____
	TOTAL	_____	_____	_____	_____	_____

Attention: **Jevon.Benisch@CHAMP-TECH.com**

Customer: **Culbreath Oil & Gas Inc**

Location Code: **280483**

Region: **Not Available**

Sample ID: **AF09772**

Location: **Scott County, KS**

Login Batch: **151117131249**

System: **Production System**

Collection Date: **11/10/2015**

Equipment: **Well A C Felt**

Receive Date: **11/17/2015**

Lab ID: **ABU-0055**

Report Date: **11/19/2015**

Sample Point: **Wellhead**

Analyses	Result	Unit
Dissolved CO2	238	mg/L
Dissolved H2S	431.8	mg/L
pH	8.5	
Pressure	10	psi
Temperature	69	° F

Analyses	Result	Unit
Bicarbonate	786	mg/L
Conductivity	82107	µS - cm3
Ionic Strength	0.95	
Resistivity	0.122	ohms - m
Specific Gravity	1.029	
Total Dissolved Solids	52548.91	mg/L

Cations	Result	Unit
Iron	0.256	mg/L
Manganese	0.017	mg/L
Barium	0.019	mg/L
Strontium	33.97	mg/L
Calcium	651.1	mg/L
Magnesium	409.3	mg/L
Sodium	18843.25	mg/L

Anions	Result	Unit
Chloride	28662	mg/L
Sulfate	3163	mg/L

Scale Type	Result
Anhydrite CaSO4 SI	-0.93
Barite BaSO4 SI	-0.49
Calcite CaCO3 PTB	288.0
Calcite CaCO3 SI	1.19
Celestite SrSO4 SI	0.00
Gypsum CaSO4 SI	-0.60
Hemihydrate CaSO4 SI	-0.56

Saturation Index Calculation (Tomson-Oddo Model)

Comments:

Attention: **Jevon.Benisch@CHAMP-TECH.com**

Customer: **Culbreath Oil & Gas Inc**

Location Code: **279917**

Region: **Not Available**

Sample ID: **AF03985**

Location: **Oakley, KS**

Login Batch: **151109090205**

System: **Production System**

Collection Date: **10/29/2015**

Equipment: **Well Boyd 1-3**

Receive Date: **11/09/2015**

Lab ID: **ABU-0055**

Report Date: **11/10/2015**

Sample Point: **Wellhead**

Analyses	Result	Unit
Dissolved CO2	194	mg/L
Dissolved H2S	3.4	mg/L
pH	7.0	
Pressure	10	psi
Temperature	69	° F

Analyses	Result	Unit
Bicarbonate	234	mg/L
Conductivity	160992	µS - cm3
Ionic Strength	1.81	
Resistivity	0.062	ohms - m
Specific Gravity	1.074	
Total Dissolved Solids	103045.2	mg/L

Cations	Result	Unit
Iron	10.17	mg/L
Manganese	0.142	mg/L
Barium	0.116	mg/L
Strontium	65.55	mg/L
Calcium	828	mg/L
Magnesium	279	mg/L
Sodium	38831.18	mg/L

Anions	Result	Unit
Chloride	60300	mg/L
Sulfate	2497	mg/L

Scale Type	Result
Anhydrite CaSO4 SI	-0.95
Barite BaSO4 SI	-0.03
Calcite CaCO3 SI	-0.94
Celestite SrSO4 PTB	4.4
Celestite SrSO4 SI	0.04
Gypsum CaSO4 SI	-0.72
Hemihydrate CaSO4 SI	-0.73
Saturation Index Calculation (Tomson-Oddo Model)	

Comments:

Attention: **Jevon.Benisch@CHAMP-TECH.com**

Customer: **Culbreath Oil & Gas Inc**

Location Code: **279909**

Region: **Not Available**

Sample ID: **AF03973**

Location: **Logan, KS**

Login Batch: **151109090205**

System: **Production System**

Collection Date: **11/04/2015**

Equipment: **Well Boyd 2-3**

Receive Date: **11/09/2015**

Lab ID: **ABU-0055**

Report Date: **11/10/2015**

Sample Point: **Wellhead**

Analyses	Result	Unit
Dissolved CO2	176	mg/L
Dissolved H2S	5	mg/L
pH	6.5	
Pressure	10	psi
Temperature	75	° F

Analyses	Result	Unit
Bicarbonate	273	mg/L
Conductivity	65914	µS - cm3
Ionic Strength	0.79	
Resistivity	0.152	ohms - m
Specific Gravity	1.028	
Total Dissolved Solids	42194.98	mg/L

Cations	Result	Unit
Iron	9.853	mg/L
Manganese	0.138	mg/L
Barium	0.084	mg/L
Strontium	35.26	mg/L
Calcium	1565	mg/L
Magnesium	309.8	mg/L
Sodium	14085.84	mg/L

Anions	Result	Unit
Chloride	23562	mg/L
Sulfate	2354	mg/L

Scale Type	Result
Anhydrite CaSO4 SI	-0.63
Barite BaSO4 PTB	0.0
Barite BaSO4 SI	0.07
Calcite CaCO3 SI	-0.75
Celestite SrSO4 SI	-0.07
Gypsum CaSO4 SI	-0.33
Hemihydrate CaSO4 SI	-0.27

Saturation Index Calculation (Tomson-Oddo Model)

Comments:

Attention: **Jevon.Benisch@CHAMP-TECH.com**

Customer: **Culbreath Oil & Gas Inc**

Location Code: **280479**

Region: **Not Available**

Sample ID: **AF09768**

Location: **Scott County, KS**

Login Batch: **151117131249**

System: **Production System**

Collection Date: **11/09/2015**

Equipment: **Well Brothers 1**

Receive Date: **11/17/2015**

Lab ID: **ABU-0055**

Report Date: **11/19/2015**

Sample Point: **Wellhead**

Analyses	Result	Unit
Dissolved CO2	229	mg/L
Dissolved H2S	161.5	mg/L
pH	9	
Pressure	10	psi
Temperature	67	° F

Analyses	Result	Unit
Bicarbonate	976	mg/L
Conductivity	82861	µS - cm3
Ionic Strength	0.95	
Resistivity	0.121	ohms - m
Specific Gravity	1.032	
Total Dissolved Solids	53031.42	mg/L

Cations	Result	Unit
Iron	0.517	mg/L
Manganese	0.007	mg/L
Barium	0.225	mg/L
Strontium	43.7	mg/L
Calcium	689	mg/L
Magnesium	302.7	mg/L
Sodium	19224.27	mg/L

Anions	Result	Unit
Chloride	29680	mg/L
Sulfate	2115	mg/L

Scale Type	Result
Anhydrite CaSO4 SI	-1.08
Barite BaSO4 PTB	0.1
Barite BaSO4 SI	0.44
Calcite CaCO3 PTB	428.3
Calcite CaCO3 SI	1.79
Celestite SrSO4 SI	-0.06
Gypsum CaSO4 SI	-0.74
Hemihydrate CaSO4 SI	-0.69
Saturation Index Calculation (Tomson-Oddo Model)	

Comments:

Attention: **Jevon.Benisch@CHAMP-TECH.com**

Customer: **Culbreath Oil & Gas Inc**

Location Code: **279932**

Region: **Not Available**

Sample ID: **AF04000**

Location: **Logan County, KS**

Login Batch: **151109090205**

System: **Production System**

Collection Date: **11/03/2015**

Equipment: **Well Byron 1-31**

Receive Date: **11/09/2015**

Lab ID: **ABU-0055**

Report Date: **11/10/2015**

Sample Point: **Wellhead**

Analyses	Result	Unit
Dissolved CO2	176	mg/L
Dissolved H2S	10.2	mg/L
pH	9.0	
Pressure	10	psi
Temperature	82	° F

Analyses	Result	Unit
Bicarbonate	527	mg/L
Conductivity	81853	µS - cm3
Ionic Strength	0.95	
Resistivity	0.122	ohms - m
Specific Gravity	1.034	
Total Dissolved Solids	52387.14	mg/L

Cations	Result	Unit
Iron	1.158	mg/L
Manganese	0.017	mg/L
Barium	0.033	mg/L
Strontium	16.44	mg/L
Calcium	436	mg/L
Magnesium	223.3	mg/L
Sodium	19076.19	mg/L

Anions	Result	Unit
Chloride	26226	mg/L
Sulfate	5881	mg/L

Scale Type	Result
Anhydrite CaSO4 SI	-0.77
Barite BaSO4 SI	-0.06
Calcite CaCO3 PTB	217.4
Calcite CaCO3 SI	1.47
Celestite SrSO4 SI	-0.05
Gypsum CaSO4 SI	-0.52
Hemihydrate CaSO4 SI	-0.49

Saturation Index Calculation (Tomson-Oddo Model)

Comments:

Attention: **Jevon.Benisch@CHAMP-TECH.com**

Customer: **Culbreath Oil & Gas Inc**

Location Code: **283573**

Region: **Not Available**

Sample ID: **AF13795**

Location: **Scott County, KS**

Login Batch: **151123094658-HAYS**

System: **Production System**

Collection Date: **11/16/2015**

Equipment: **Well Captain Kirk 1**

Receive Date: **11/23/2015**

Lab ID: **ABU-0055**

Report Date: **11/24/2015**

Sample Point: **Wellhead**

Analyses	Result	Unit
Dissolved CO2	3872	mg/L
Dissolved H2S	49	mg/L
pH	5.0	
Pressure	40	psi
Temperature	69	° F

Analyses	Result	Unit
Bicarbonate	1	mg/L
Conductivity	84362	µS - cm3
Ionic Strength	1.00	
Resistivity	0.119	ohms - m
Specific Gravity	1.041	
Total Dissolved Solids	54502.13	mg/L

Cations	Result	Unit
Iron	503.3	mg/L
Manganese	7.046	mg/L
Barium	0	mg/L
Strontium	30.1	mg/L
Calcium	1089	mg/L
Magnesium	369.7	mg/L
Sodium	18765.98	mg/L

Anions	Result	Unit
Chloride	29554	mg/L
Sulfate	4182	mg/L

Scale Type	Result
Anhydrite CaSO4 SI	-0.61
Calcite CaCO3 SI	-5.01
Celestite SrSO4 PTB	1.3
Celestite SrSO4 SI	0.03
Gypsum CaSO4 SI	-0.29
Hemihydrate CaSO4 SI	-0.25
Saturation Index Calculation (Tomson-Oddo Model)	

Comments:

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Attention: **Jevon.Benisch@CHAMP-TECH.com**

Customer: **Culbreath Oil & Gas Inc**

Location Code: **280480**

Region: **Not Available**

Sample ID: **AF09769**

Location: **Scott County, KS**

Login Batch: **151117131249**

System: **Production System**

Collection Date: **11/09/2015**

Equipment: **Well Dale 1**

Receive Date: **11/17/2015**

Lab ID: **ABU-0055**

Report Date: **11/19/2015**

Sample Point: **Wellhead**

Analyses	Result	Unit
Dissolved CO2	361	mg/L
Dissolved H2S	249.9	mg/L
pH	8	
Pressure	50	psi
Temperature	72	° F

Analyses	Result	Unit
Bicarbonate	615	mg/L
Conductivity	91270	µS - cm3
Ionic Strength	1.06	
Resistivity	0.110	ohms - m
Specific Gravity	1.030	
Total Dissolved Solids	58413.77	mg/L

Cations	Result	Unit
Iron	1.048	mg/L
Manganese	0.094	mg/L
Barium	0.015	mg/L
Strontium	33.49	mg/L
Calcium	797	mg/L
Magnesium	361.5	mg/L
Sodium	21020.62	mg/L

Anions	Result	Unit
Chloride	31734	mg/L
Sulfate	3851	mg/L

Scale Type	Result
Anhydrite CaSO4 SI	-0.76
Barite BaSO4 SI	-0.57
Calcite CaCO3 PTB	162.8
Calcite CaCO3 SI	0.65
Celestite SrSO4 PTB	2.2
Celestite SrSO4 SI	0.04
Gypsum CaSO4 SI	-0.46
Hemihydrate CaSO4 SI	-0.43
Saturation Index Calculation (Tomson-Oddo Model)	

Comments:

Attention: **Jevon.Benisch@CHAMP-TECH.com**

Customer: **Culbreath Oil & Gas Inc**

Location Code: **280481**

Region: **Not Available**

Sample ID: **AF09770**

Location: **Scott County, KS**

Login Batch: **151117131249**

System: **Production System**

Collection Date: **11/09/2015**

Equipment: **Well David 1-32**

Receive Date: **11/17/2015**

Lab ID: **ABU-0055**

Report Date: **11/19/2015**

Sample Point: **Wellhead**

Analyses	Result	Unit
Dissolved CO2	211	mg/L
Dissolved H2S	15.3	mg/L
pH	8	
Pressure	20	psi
Temperature	60	° F

Analyses	Result	Unit
Bicarbonate	1122	mg/L
Conductivity	114440	µS - cm3
Ionic Strength	1.31	
Resistivity	0.087	ohms - m
Specific Gravity	1.044	
Total Dissolved Solids	73255.83	mg/L

Cations	Result	Unit
Iron	14.29	mg/L
Manganese	0.2	mg/L
Barium	0.534	mg/L
Strontium	57.22	mg/L
Calcium	1651	mg/L
Magnesium	327.3	mg/L
Sodium	26205.29	mg/L

Anions	Result	Unit
Chloride	43357	mg/L
Sulfate	521	mg/L

Scale Type	Result
Anhydrite CaSO4 SI	-1.39
Barite BaSO4 PTB	0.1
Barite BaSO4 SI	0.11
Calcite CaCO3 PTB	412.8
Calcite CaCO3 SI	1.04
Celestite SrSO4 SI	-0.64
Gypsum CaSO4 SI	-1.04
Hemihydrate CaSO4 SI	-1.02
Saturation Index Calculation (Tomson-Oddo Model)	

Comments:

Attention: **Jevon.Benisch@CHAMP-TECH.com**

Customer: **Culbreath Oil & Gas Inc**

Location Code: **279910**

Region: **Not Available**

Sample ID: **AF03974**

Location: **Logan, KS**

Login Batch: **151109090205**

System: **Production System**

Collection Date: **11/04/2015**

Equipment: **Well Denny 2-11**

Receive Date: **11/09/2015**

Lab ID: **ABU-0055**

Report Date: **11/10/2015**

Sample Point: **Wellhead**

Analyses	Result	Unit
Dissolved CO2	141	mg/L
Dissolved H2S	Not Detected	mg/L
pH	7.0	
Pressure	10	psi
Temperature	79	° F

Analyses	Result	Unit
Bicarbonate	264	mg/L
Conductivity	75318	µS - cm3
Ionic Strength	0.88	
Resistivity	0.133	ohms - m
Specific Gravity	1.032	
Total Dissolved Solids	48203.9	mg/L

Cations	Result	Unit
Iron	0.118	mg/L
Manganese	0.083	mg/L
Barium	0.156	mg/L
Strontium	42.6	mg/L
Calcium	1119	mg/L
Magnesium	301.1	mg/L
Sodium	17025.84	mg/L

Anions	Result	Unit
Chloride	27806	mg/L
Sulfate	1645	mg/L

Scale Type	Result
Anhydrite CaSO4 SI	-0.90
Barite BaSO4 PTB	0.0
Barite BaSO4 SI	0.13
Calcite CaCO3 SI	-0.42
Celestite SrSO4 SI	-0.15
Gypsum CaSO4 SI	-0.63
Hemihydrate CaSO4 SI	-0.59

Saturation Index Calculation (Tomson-Oddo Model)

Comments:

Attention: **Jevon.Benisch@CHAMP-TECH.com**

Customer: **Culbreath Oil & Gas Inc**

Location Code: **280478**

Region: **Not Available**

Sample ID: **AF09767**

Location: **Scott County, KS**

Login Batch: **151117131249**

System: **Production System**

Collection Date: **11/09/2015**

Equipment: **Well Farr 1-11**

Receive Date: **11/17/2015**

Lab ID: **ABU-0055**

Report Date: **11/19/2015**

Sample Point: **Wellhead**

Analyses	Result	Unit
Dissolved CO2	158	mg/L
Dissolved H2S	34	mg/L
pH	8	
Pressure	30	psi
Temperature	65	° F

Analyses	Result	Unit
Bicarbonate	215	mg/L
Conductivity	109272	µS - cm3
Ionic Strength	1.28	
Resistivity	0.092	ohms - m
Specific Gravity	1.042	
Total Dissolved Solids	69934.51	mg/L

Cations	Result	Unit
Iron	0.366	mg/L
Manganese	0.066	mg/L
Barium	0.034	mg/L
Strontium	31.28	mg/L
Calcium	1241	mg/L
Magnesium	435.1	mg/L
Sodium	24970.66	mg/L

Anions	Result	Unit
Chloride	38703	mg/L
Sulfate	4338	mg/L

Scale Type	Result
Anhydrite CaSO4 SI	-0.57
Barite BaSO4 SI	-0.21
Calcite CaCO3 PTB	29.9
Calcite CaCO3 SI	0.25
Celestite SrSO4 SI	0.00
Gypsum CaSO4 SI	-0.26
Hemihydrate CaSO4 SI	-0.24

Saturation Index Calculation (Tomson-Oddo Model)

Comments:

Attention: **Jevon.Benisch@CHAMP-TECH.com**

Customer: **Culbreath Oil & Gas Inc**

Location Code: **279928**

Region: **Not Available**

Sample ID: **AF03994**

Location: **Oakley, KS**

Login Batch: **151109090205**

System: **Production System**

Collection Date: **11/02/2015**

Equipment: **Well Fromholtz 1-14**

Receive Date: **11/09/2015**

Lab ID: **ABU-0055**

Report Date: **11/10/2015**

Sample Point: **Wellhead**

Analyses	Result	Unit
Dissolved CO2	246	mg/L
Dissolved H2S	25.5	mg/L
pH	7.5	
Pressure	10	psi
Temperature	75	° F

Analyses	Result	Unit
Bicarbonate	303	mg/L
Conductivity	98684	µS - cm3
Ionic Strength	1.16	
Resistivity	0.101	ohms - m
Specific Gravity	1.043	
Total Dissolved Solids	63159.42	mg/L

Cations	Result	Unit
Iron	1.368	mg/L
Manganese	0.019	mg/L
Barium	0.091	mg/L
Strontium	50.67	mg/L
Calcium	1539	mg/L
Magnesium	396.4	mg/L
Sodium	22153.87	mg/L

Anions	Result	Unit
Chloride	35761	mg/L
Sulfate	2954	mg/L

Scale Type	Result
Anhydrite CaSO4 SI	-0.58
Barite BaSO4 PTB	0.0
Barite BaSO4 SI	0.04
Calcite CaCO3 PTB	23.1
Calcite CaCO3 SI	0.13
Celestite SrSO4 PTB	5.6
Celestite SrSO4 SI	0.08
Gypsum CaSO4 SI	-0.31
Hemihydrate CaSO4 SI	-0.29
Saturation Index Calculation (Tomson-Oddo Model)	

Comments:

Attention: **Jevon.Benisch@CHAMP-TECH.com**

Customer: **Culbreath Oil & Gas Inc**

Location Code: **279915**

Region: **Not Available**

Sample ID: **AF03983**

Location: **Oakley, KS**

Login Batch: **151109090205**

System: **Production System**

Collection Date: **10/29/2015**

Equipment: **Well Goldenbear 1-33**

Receive Date: **11/09/2015**

Lab ID: **ABU-0055**

Report Date: **11/10/2015**

Sample Point: **Wellhead**

Analyses	Result	Unit
Dissolved CO2	150	mg/L
Dissolved H2S	5.1	mg/L
pH	7.5	
Pressure	10	psi
Temperature	66	° F

Analyses	Result	Unit
Bicarbonate	244	mg/L
Conductivity	88825	µS - cm3
Ionic Strength	1.04	
Resistivity	0.113	ohms - m
Specific Gravity	1.036	
Total Dissolved Solids	56848.48	mg/L

Cations	Result	Unit
Iron	0.155	mg/L
Manganese	0.091	mg/L
Barium	0.117	mg/L
Strontium	43.86	mg/L
Calcium	1362	mg/L
Magnesium	343.4	mg/L
Sodium	20047.86	mg/L

Anions	Result	Unit
Chloride	32684	mg/L
Sulfate	2123	mg/L

Scale Type	Result
Anhydrite CaSO4 SI	-0.81
Barite BaSO4 PTB	0.0
Barite BaSO4 SI	0.11
Calcite CaCO3 SI	-0.07
Celestite SrSO4 SI	-0.09
Gypsum CaSO4 SI	-0.48
Hemihydrate CaSO4 SI	-0.44
Saturation Index Calculation (Tomson-Oddo Model)	

Comments:

Attention: **Jevon.Benisch@CHAMP-TECH.com**

Customer: **Culbreath Oil & Gas Inc**

Location Code: **279908**

Region: **Not Available**

Sample ID: **AF03972**

Location: **Logan, KS**

Login Batch: **151109090205**

System: **Production System**

Collection Date: **11/04/2015**

Equipment: **Well H Dreiling 1-28**

Receive Date: **11/09/2015**

Lab ID: **ABU-0055**

Report Date: **11/10/2015**

Sample Point: **Wellhead**

Analyses	Result	Unit
Dissolved CO2	97	mg/L
Dissolved H2S	12	mg/L
pH	7.0	
Pressure	10	psi
Temperature	70	° F

Analyses	Result	Unit
Bicarbonate	342	mg/L
Conductivity	178679	µS - cm3
Ionic Strength	1.97	
Resistivity	0.056	ohms - m
Specific Gravity	1.078	
Total Dissolved Solids	114355.2	mg/L

Cations	Result	Unit
Iron	0.427	mg/L
Manganese	0.075	mg/L
Barium	0.875	mg/L
Strontium	53.64	mg/L
Calcium	227.9	mg/L
Magnesium	81.17	mg/L
Sodium	44412.16	mg/L

Anions	Result	Unit
Chloride	68463	mg/L
Sulfate	774	mg/L

Scale Type	Result
Anhydrite CaSO4 SI	-2.00
Barite BaSO4 PTB	0.3
Barite BaSO4 SI	0.33
Calcite CaCO3 SI	-1.34
Celestite SrSO4 SI	-0.55
Gypsum CaSO4 SI	-1.79
Hemihydrate CaSO4 SI	-1.81

Saturation Index Calculation (Tomson-Oddo Model)

Comments:

Attention: **Jevon.Benisch@CHAMP-TECH.com**

Customer: **Culbreath Oil & Gas Inc**

Location Code: **279914**

Region: **Not Available**

Sample ID: **AF03982**

Location: **Oakley, KS**

Login Batch: **151109090205**

System: **Production System**

Collection Date: **10/29/2015**

Equipment: **Well Hockersmith 1-34**

Receive Date: **11/09/2015**

Lab ID: **ABU-0055**

Report Date: **11/10/2015**

Sample Point: **Wellhead**

Analyses	Result	Unit
Dissolved CO2	194	mg/L
Dissolved H2S	34	mg/L
pH	8.0	
Pressure	20	psi
Temperature	74	° F

Analyses	Result	Unit
Bicarbonate	420	mg/L
Conductivity	135691	µS - cm3
Ionic Strength	1.52	
Resistivity	0.074	ohms - m
Specific Gravity	1.061	
Total Dissolved Solids	86842.13	mg/L

Cations	Result	Unit
Iron	0.092	mg/L
Manganese	0.019	mg/L
Barium	1.25	mg/L
Strontium	67.76	mg/L
Calcium	511.4	mg/L
Magnesium	201.1	mg/L
Sodium	33013.51	mg/L

Anions	Result	Unit
Chloride	51217	mg/L
Sulfate	1410	mg/L

Scale Type	Result
Anhydrite CaSO4 SI	-1.38
Barite BaSO4 PTB	0.6
Barite BaSO4 SI	0.79
Calcite CaCO3 PTB	37.7
Calcite CaCO3 SI	0.19
Celestite SrSO4 SI	-0.15
Gypsum CaSO4 SI	-1.14
Hemihydrate CaSO4 SI	-1.14
Saturation Index Calculation (Tomson-Oddo Model)	

Comments:

Attention: **Jevon.Benisch@CHAMP-TECH.com**

Customer: **Culbreath Oil & Gas Inc**

Location Code: **279916**

Region: **Not Available**

Sample ID: **AF03984**

Location: **Oakley, KS**

Login Batch: **151109090205**

System: **Production System**

Collection Date: **10/29/2015**

Equipment: **Well James 1-4**

Receive Date: **11/09/2015**

Lab ID: **ABU-0055**

Report Date: **11/10/2015**

Sample Point: **Wellhead**

Analyses	Result	Unit
Dissolved CO2	238	mg/L
Dissolved H2S	6.8	mg/L
pH	7.0	
Pressure	10	psi
Temperature	71	° F

Analyses	Result	Unit
Bicarbonate	205	mg/L
Conductivity	141550	µS - cm3
Ionic Strength	1.62	
Resistivity	0.071	ohms - m
Specific Gravity	1.067	
Total Dissolved Solids	90601.79	mg/L

Cations	Result	Unit
Iron	9.417	mg/L
Manganese	0.132	mg/L
Barium	0.061	mg/L
Strontium	40.1	mg/L
Calcium	1055	mg/L
Magnesium	306	mg/L
Sodium	33559.08	mg/L

Anions	Result	Unit
Chloride	51814	mg/L
Sulfate	3613	mg/L

Scale Type	Result
Anhydrite CaSO4 SI	-0.69
Barite BaSO4 SI	-0.13
Calcite CaCO3 SI	-0.85
Celestite SrSO4 SI	0.00
Gypsum CaSO4 SI	-0.44
Hemihydrate CaSO4 SI	-0.45
Saturation Index Calculation (Tomson-Oddo Model)	

Comments:

Attention: **Jevon.Benisch@CHAMP-TECH.com**

Customer: **Culbreath Oil & Gas Inc**

Location Code: **279929**

Region: **Not Available**

Sample ID: **AF03997**

Location: **Logan County, KS**

Login Batch: **151109090205**

System: **Production System**

Collection Date: **11/03/2015**

Equipment: **Well KGB 1-21**

Receive Date: **11/09/2015**

Lab ID: **ABU-0055**

Report Date: **11/10/2015**

Sample Point: **Wellhead**

Analyses	Result	Unit
Dissolved CO2	1760	mg/L
Dissolved H2S	8.5	mg/L
pH	4.5	
Pressure	10	psi
Temperature	75.5	° F

Analyses	Result	Unit
Bicarbonate	100	mg/L
Conductivity	93039	µS - cm3
Ionic Strength	1.09	
Resistivity	0.107	ohms - m
Specific Gravity	1.043	
Total Dissolved Solids	59556.72	mg/L

Cations	Result	Unit
Iron	11.58	mg/L
Manganese	0.162	mg/L
Barium	0.125	mg/L
Strontium	28.25	mg/L
Calcium	1010	mg/L
Magnesium	341.5	mg/L
Sodium	21258.10	mg/L

Anions	Result	Unit
Chloride	32086	mg/L
Sulfate	4721	mg/L

Scale Type	Result
Anhydrite CaSO4 SI	-0.55
Barite BaSO4 PTB	0.0
Barite BaSO4 SI	0.40
Calcite CaCO3 SI	-3.51
Celestite SrSO4 PTB	1.8
Celestite SrSO4 SI	0.04
Gypsum CaSO4 SI	-0.28
Hemihydrate CaSO4 SI	-0.25
Saturation Index Calculation (Tomson-Oddo Model)	

Comments:

Attention: **Jevon.Benisch@CHAMP-TECH.com**

Customer: **Culbreath Oil & Gas Inc**

Location Code: **279933**

Region: **Not Available**

Sample ID: **AF04001**

Location: **Logan County, KS**

Login Batch: **151109090205**

System: **Production System**

Collection Date: **11/03/2015**

Equipment: **Well Marge 1-31**

Receive Date: **11/09/2015**

Lab ID: **ABU-0055**

Report Date: **11/10/2015**

Sample Point: **Wellhead**

Analyses	Result	Unit
Dissolved CO2	493	mg/L
Dissolved H2S	95.2	mg/L
pH	8.5	
Pressure	20	psi
Temperature	74	° F

Analyses	Result	Unit
Bicarbonate	898	mg/L
Conductivity	95080	µS - cm3
Ionic Strength	1.21	
Resistivity	0.105	ohms - m
Specific Gravity	1.045	
Total Dissolved Solids	60852.38	mg/L

Cations	Result	Unit
Iron	1.197	mg/L
Manganese	0.017	mg/L
Barium	2.027	mg/L
Strontium	132.9	mg/L
Calcium	3890	mg/L
Magnesium	996.1	mg/L
Sodium	17761.14	mg/L

Anions	Result	Unit
Chloride	35765	mg/L
Sulfate	1406	mg/L

Scale Type	Result
Anhydrite CaSO4 SI	-0.54
Barite BaSO4 PTB	1.1
Barite BaSO4 SI	1.02
Calcite CaCO3 PTB	458.9
Calcite CaCO3 SI	1.98
Celestite SrSO4 PTB	22.5
Celestite SrSO4 SI	0.13
Gypsum CaSO4 SI	-0.28
Hemihydrate CaSO4 SI	-0.26
Saturation Index Calculation (Tomson-Oddo Model)	

Comments:

Attention: **Jevon.Benisch@CHAMP-TECH.com**

Customer: **Culbreath Oil & Gas Inc**

Location Code: **279930**

Region: **Not Available**

Sample ID: **AF03998**

Location: **Logan County, KS**

Login Batch: **151109090205**

System: **Production System**

Collection Date: **11/03/2015**

Equipment: **Well Marius 1-15**

Receive Date: **11/09/2015**

Lab ID: **ABU-0055**

Report Date: **11/10/2015**

Sample Point: **Wellhead**

Analyses	Result	Unit
Dissolved CO2	202	mg/L
Dissolved H2S	91.8	mg/L
pH	8.5	
Pressure	150	psi
Temperature	73	° F

Analyses	Result	Unit
Bicarbonate	625	mg/L
Conductivity	78424	µS - cm3
Ionic Strength	0.92	
Resistivity	0.128	ohms - m
Specific Gravity	1.035	
Total Dissolved Solids	50192.58	mg/L

Cations	Result	Unit
Iron	0.523	mg/L
Manganese	0.533	mg/L
Barium	0.017	mg/L
Strontium	17.04	mg/L
Calcium	678.5	mg/L
Magnesium	180.5	mg/L
Sodium	18002.47	mg/L

Anions	Result	Unit
Chloride	24849	mg/L
Sulfate	5839	mg/L

Scale Type	Result
Anhydrite CaSO4 SI	-0.64
Barite BaSO4 SI	-0.30
Calcite CaCO3 PTB	237.0
Calcite CaCO3 SI	1.16
Celestite SrSO4 SI	-0.05
Gypsum CaSO4 SI	-0.34
Hemihydrate CaSO4 SI	-0.30

Saturation Index Calculation (Tomson-Oddo Model)

Comments:

Water Analysis Report

Attention: **Jevon.Benisch@CHAMP-TECH.com**

Customer: **Culbreath Oil & Gas Inc**

Location Code: **283572**

Region: **Not Available**

Sample ID: **AF13794**

Location: **Scott County, KS**

Login Batch: **151123094658-HAYS**

System: **Production System**

Collection Date: **11/16/2015**

Equipment: **Well Muench 1-16**

Receive Date: **11/23/2015**

Lab ID: **ABU-0055**

Report Date: **11/24/2015**

Sample Point: **Wellhead**

Analyses	Result	Unit
Dissolved CO2	149	mg/L
Dissolved H2S	44	mg/L
pH	7.5	
Pressure	25	psi
Temperature	68	° F

Analyses	Result	Unit
Bicarbonate	244	mg/L
Conductivity	81357	µS - cm3
Ionic Strength	0.97	
Resistivity	0.123	ohms - m
Specific Gravity	1.035	
Total Dissolved Solids	52069.04	mg/L

Cations	Result	Unit
Iron	0.458	mg/L
Manganese	0.251	mg/L
Barium	0	mg/L
Strontium	35.04	mg/L
Calcium	1150	mg/L
Magnesium	361.3	mg/L
Sodium	18125.99	mg/L

Anions	Result	Unit
Chloride	27563	mg/L
Sulfate	4589	mg/L

Scale Type	Result
Anhydrite CaSO4 SI	-0.55
Calcite CaCO3 SI	-0.09
Celestite SrSO4 PTB	7.0
Celestite SrSO4 SI	0.15
Gypsum CaSO4 SI	-0.22
Hemihydrate CaSO4 SI	-0.17
Saturation Index Calculation (Tomson-Oddo Model)	

Comments:

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Attention: **Jevon.Benisch@CHAMP-TECH.com**

Customer: **Culbreath Oil & Gas Inc**

Location Code: **280482**

Region: **Not Available**

Sample ID: **AF09771**

Location: **Scott County, KS**

Login Batch: **151117131249**

System: **Production System**

Collection Date: **11/10/2015**

Equipment: **Well Pammenter 1-26**

Receive Date: **11/17/2015**

Lab ID: **ABU-0055**

Report Date: **11/19/2015**

Sample Point: **Wellhead**

Analyses	Result	Unit
Dissolved CO2	299	mg/L
Dissolved H2S	243.1	mg/L
pH	8	
Pressure	20	psi
Temperature	54	° F

Analyses	Result	Unit
Bicarbonate	625	mg/L
Conductivity	82429	µS - cm3
Ionic Strength	0.97	
Resistivity	0.121	ohms - m
Specific Gravity	1.031	
Total Dissolved Solids	52754.91	mg/L

Cations	Result	Unit
Iron	0.312	mg/L
Manganese	0.062	mg/L
Barium	0.018	mg/L
Strontium	35.46	mg/L
Calcium	866.9	mg/L
Magnesium	318.2	mg/L
Sodium	18712.96	mg/L

Anions	Result	Unit
Chloride	27654	mg/L
Sulfate	4542	mg/L

Scale Type	Result
Anhydrite CaSO4 SI	-0.76
Barite BaSO4 SI	-0.29
Calcite CaCO3 PTB	145.8
Calcite CaCO3 SI	0.55
Celestite SrSO4 PTB	7.2
Celestite SrSO4 SI	0.15
Gypsum CaSO4 SI	-0.34
Hemihydrate CaSO4 SI	-0.27
Saturation Index Calculation (Tomson-Oddo Model)	

Comments:

Attention: **Jevon.Benisch@CHAMP-TECH.com**

Customer: **Culbreath Oil & Gas Inc**

Location Code: **279931**

Region: **Not Available**

Sample ID: **AF03999**

Location: **Logan County, KS**

Login Batch: **151109090205**

System: **Production System**

Collection Date: **11/03/2015**

Equipment: **Well Prairie Dog 1-05**

Receive Date: **11/09/2015**

Lab ID: **ABU-0055**

Report Date: **11/10/2015**

Sample Point: **Wellhead**

Analyses	Result	Unit
Dissolved CO2	202	mg/L
Dissolved H2S	42.5	mg/L
pH	8.5	
Pressure	60	psi
Temperature	77	° F

Analyses	Result	Unit
Bicarbonate	283	mg/L
Conductivity	104106	µS - cm3
Ionic Strength	1.22	
Resistivity	0.096	ohms - m
Specific Gravity	1.044	
Total Dissolved Solids	66629.07	mg/L

Cations	Result	Unit
Iron	1.211	mg/L
Manganese	0.017	mg/L
Barium	0.163	mg/L
Strontium	51.62	mg/L
Calcium	1480	mg/L
Magnesium	420.8	mg/L
Sodium	23525.26	mg/L

Anions	Result	Unit
Chloride	37695	mg/L
Sulfate	3172	mg/L

Scale Type	Result
Anhydrite CaSO4 SI	-0.56
Barite BaSO4 PTB	0.0
Barite BaSO4 SI	0.29
Calcite CaCO3 PTB	113.7
Calcite CaCO3 SI	1.08
Celestite SrSO4 PTB	7.4
Celestite SrSO4 SI	0.10
Gypsum CaSO4 SI	-0.31
Hemihydrate CaSO4 SI	-0.30
Saturation Index Calculation (Tomson-Oddo Model)	

Comments:

Attention: **Jevon.Benisch@CHAMP-TECH.com**

Customer: **Culbreath Oil & Gas Inc**

Location Code: **279919**

Region: **Not Available**

Sample ID: **AF03987**

Location: **Oakley, KS**

Login Batch: **151109090205**

System: **Production System**

Collection Date: **10/29/2015**

Equipment: **Well Racette 1**

Receive Date: **11/09/2015**

Lab ID: **ABU-0055**

Report Date: **11/10/2015**

Sample Point: **Wellhead**

Analyses	Result	Unit
Dissolved CO2	246	mg/L
Dissolved H2S	57.8	mg/L
pH	8.0	
Pressure	30	psi
Temperature	64	° F

Analyses	Result	Unit
Bicarbonate	429	mg/L
Conductivity	69479	µS - cm3
Ionic Strength	0.83	
Resistivity	0.144	ohms - m
Specific Gravity	1.029	
Total Dissolved Solids	44466.87	mg/L

Cations	Result	Unit
Iron	0.29	mg/L
Manganese	0.072	mg/L
Barium	0.427	mg/L
Strontium	52.35	mg/L
Calcium	1337	mg/L
Magnesium	403.6	mg/L
Sodium	15136.13	mg/L

Anions	Result	Unit
Chloride	25554	mg/L
Sulfate	1554	mg/L

Scale Type	Result
Anhydrite CaSO4 SI	-0.95
Barite BaSO4 PTB	0.2
Barite BaSO4 SI	0.64
Calcite CaCO3 PTB	134.7
Calcite CaCO3 SI	0.74
Celestite SrSO4 SI	-0.09
Gypsum CaSO4 SI	-0.58
Hemihydrate CaSO4 SI	-0.51
Saturation Index Calculation (Tomson-Oddo Model)	

Comments:

Water Analysis Report

Attention: **Jevon.Benisch@CHAMP-TECH.com**

Customer: **Culbreath Oil & Gas Inc**

Location Code: **279918**

Region: **Not Available**

Sample ID: **AF03986**

Location: **Oakley, KS**

Login Batch: **151109090205**

System: **Production System**

Collection Date: **10/29/2015**

Equipment: **Well Racette 2**

Receive Date: **11/09/2015**

Lab ID: **ABU-0055**

Report Date: **11/10/2015**

Sample Point: **Wellhead**

Analyses	Result	Unit
Dissolved CO2	185	mg/L
Dissolved H2S	3.4	mg/L
pH	7.5	
Pressure	30	psi
Temperature	70	° F

Analyses	Result	Unit
Bicarbonate	224	mg/L
Conductivity	128918	µS - cm3
Ionic Strength	1.44	
Resistivity	0.078	ohms - m
Specific Gravity	1.059	
Total Dissolved Solids	82508.97	mg/L

Cations	Result	Unit
Iron	1.492	mg/L
Manganese	0.034	mg/L
Barium	8.067	mg/L
Strontium	105.5	mg/L
Calcium	465.4	mg/L
Magnesium	195.8	mg/L
Sodium	31451.68	mg/L

Anions	Result	Unit
Chloride	49462	mg/L
Sulfate	595	mg/L

Scale Type	Result
Anhydrite CaSO4 SI	-1.81
Barite BaSO4 PTB	4.5
Barite BaSO4 SI	1.27
Calcite CaCO3 SI	-0.65
Celestite SrSO4 SI	-0.32
Gypsum CaSO4 SI	-1.54
Hemihydrate CaSO4 SI	-1.53

Saturation Index Calculation (Tomson-Oddo Model)

Comments:

Attention: **Jevon.Benisch@CHAMP-TECH.com**

Customer: **Culbreath Oil & Gas Inc**

Location Code: **279921**

Region: **Not Available**

Sample ID: **AF03989**

Location: **Oakley, KS**

Login Batch: **151109090205**

System: **Production System**

Collection Date: **11/02/2015**

Equipment: **Well Scheetz 1**

Receive Date: **11/09/2015**

Lab ID: **ABU-0055**

Report Date: **11/10/2015**

Sample Point: **Wellhead**

Analyses	Result	Unit
Dissolved CO2	70	mg/L
Dissolved H2S	3.4	mg/L
pH	9.0	
Pressure	30	psi
Temperature	63	° F

Analyses	Result	Unit
Bicarbonate	327	mg/L
Conductivity	111092	µS - cm3
Ionic Strength	1.28	
Resistivity	0.090	ohms - m
Specific Gravity	1.050	
Total Dissolved Solids	71099.09	mg/L

Cations	Result	Unit
Iron	0.253	mg/L
Manganese	0.035	mg/L
Barium	0.354	mg/L
Strontium	61.89	mg/L
Calcium	1162	mg/L
Magnesium	439	mg/L
Sodium	25815.56	mg/L

Anions	Result	Unit
Chloride	42345	mg/L
Sulfate	948	mg/L

Scale Type	Result
Anhydrite CaSO4 SI	-1.26
Barite BaSO4 PTB	0.1
Barite BaSO4 SI	0.18
Calcite CaCO3 PTB	146.4
Calcite CaCO3 SI	1.38
Celestite SrSO4 SI	-0.34
Gypsum CaSO4 SI	-0.93
Hemihydrate CaSO4 SI	-0.91
Saturation Index Calculation (Tomson-Oddo Model)	

Comments:

Attention: **Jevon.Benisch@CHAMP-TECH.com**

Customer: **Culbreath Oil & Gas Inc**

Location Code: **279920**

Region: **Not Available**

Sample ID: **AF03988**

Location: **Oakley, KS**

Login Batch: **151109090205**

System: **Production System**

Collection Date: **10/29/2015**

Equipment: **Well Scheetz 2**

Receive Date: **11/09/2015**

Lab ID: **ABU-0055**

Report Date: **11/10/2015**

Sample Point: **Wellhead**

Analyses	Result	Unit
Dissolved CO2	246	mg/L
Dissolved H2S	86.7	mg/L
pH	8.0	
Pressure	60	psi
Temperature	62	° F

Analyses	Result	Unit
Bicarbonate	386	mg/L
Conductivity	106252	µS - cm3
Ionic Strength	1.23	
Resistivity	0.094	ohms - m
Specific Gravity	1.051	
Total Dissolved Solids	68002.06	mg/L

Cations	Result	Unit
Iron	0.762	mg/L
Manganese	0.13	mg/L
Barium	0.16	mg/L
Strontium	56.82	mg/L
Calcium	1350	mg/L
Magnesium	430.4	mg/L
Sodium	24346.79	mg/L

Anions	Result	Unit
Chloride	39968	mg/L
Sulfate	1463	mg/L

Scale Type	Result
Anhydrite CaSO4 SI	-1.01
Barite BaSO4 PTB	0.0
Barite BaSO4 SI	0.04
Calcite CaCO3 PTB	95.3
Calcite CaCO3 SI	0.52
Celestite SrSO4 SI	-0.19
Gypsum CaSO4 SI	-0.67
Hemihydrate CaSO4 SI	-0.65
Saturation Index Calculation (Tomson-Oddo Model)	

Comments:

Attention: **Jevon.Benisch@CHAMP-TECH.com**

Customer: **Culbreath Oil & Gas Inc**

Location Code: **280484**

Region: **Not Available**

Sample ID: **AF09773**

Location: **Scott County, KS**

Login Batch: **151117131249**

System: **Production System**

Collection Date: **11/10/2015**

Equipment: **Well Simpson 1-26**

Receive Date: **11/17/2015**

Lab ID: **ABU-0055**

Report Date: **11/19/2015**

Sample Point: **Wellhead**

Analyses	Result	Unit
Dissolved CO2	246	mg/L
Dissolved H2S	170	mg/L
pH	9	
Pressure	10	psi
Temperature	64	° F

Analyses	Result	Unit
Bicarbonate	1113	mg/L
Conductivity	79391	µS - cm3
Ionic Strength	0.91	
Resistivity	0.126	ohms - m
Specific Gravity	1.028	
Total Dissolved Solids	50810.59	mg/L

Cations	Result	Unit
Iron	0.152	mg/L
Manganese	0.002	mg/L
Barium	0.239	mg/L
Strontium	35.86	mg/L
Calcium	542.8	mg/L
Magnesium	293.5	mg/L
Sodium	18490.04	mg/L

Anions	Result	Unit
Chloride	28043	mg/L
Sulfate	2292	mg/L

Scale Type	Result
Anhydrite CaSO4 SI	-1.16
Barite BaSO4 PTB	0.1
Barite BaSO4 SI	0.53
Calcite CaCO3 PTB	407.9
Calcite CaCO3 SI	1.73
Celestite SrSO4 SI	-0.10
Gypsum CaSO4 SI	-0.80
Hemihydrate CaSO4 SI	-0.74
Saturation Index Calculation (Tomson-Oddo Model)	

Comments:

Attention: **Jevon.Benisch@CHAMP-TECH.com**

Customer: **Culbreath Oil & Gas Inc**

Location Code: **279925**

Region: **Not Available**

Sample ID: **AF03993**

Location: **Oakley, KS**

Login Batch: **151109090205**

System: **Production System**

Collection Date: **11/02/2015**

Equipment: **Well St Joseph 1-10**

Receive Date: **11/09/2015**

Lab ID: **ABU-0055**

Report Date: **11/10/2015**

Sample Point: **Wellhead**

Analyses	Result	Unit
Dissolved CO2	167	mg/L
Dissolved H2S	18.7	mg/L
pH	7.5	
Pressure	45	psi
Temperature	92	° F

Analyses	Result	Unit
Bicarbonate	200	mg/L
Conductivity	139489	µS - cm3
Ionic Strength	1.60	
Resistivity	0.072	ohms - m
Specific Gravity	1.063	
Total Dissolved Solids	89273.21	mg/L

Cations	Result	Unit
Iron	0.2	mg/L
Manganese	0.041	mg/L
Barium	0.065	mg/L
Strontium	31.77	mg/L
Calcium	1020	mg/L
Magnesium	340.1	mg/L
Sodium	32886.03	mg/L

Anions	Result	Unit
Chloride	49702	mg/L
Sulfate	5093	mg/L

Scale Type	Result
Anhydrite CaSO4 SI	-0.44
Barite BaSO4 SI	-0.08
Calcite CaCO3 SI	-0.16
Celestite SrSO4 PTB	2.4
Celestite SrSO4 SI	0.05
Gypsum CaSO4 SI	-0.33
Hemihydrate CaSO4 SI	-0.34
Saturation Index Calculation (Tomson-Oddo Model)	

Comments:

Attention: **Jevon.Benisch@CHAMP-TECH.com**

Customer: **Culbreath Oil & Gas Inc**

Location Code: **279926**

Region: **Not Available**

Sample ID: **AF03995**

Location: **Oakley, KS**

Login Batch: **151109090205**

System: **Production System**

Collection Date: **11/02/2015**

Equipment: **Well St Joseph 2**

Receive Date: **11/09/2015**

Lab ID: **ABU-0055**

Report Date: **11/10/2015**

Sample Point: **Wellhead**

Analyses	Result	Unit
Dissolved CO2	132	mg/L
Dissolved H2S	17	mg/L
pH	7.0	
Pressure	10	psi
Temperature	79	° F

Analyses	Result	Unit
Bicarbonate	244	mg/L
Conductivity	113414	µS - cm3
Ionic Strength	1.30	
Resistivity	0.088	ohms - m
Specific Gravity	1.049	
Total Dissolved Solids	72585.46	mg/L

Cations	Result	Unit
Iron	0.47	mg/L
Manganese	0.08	mg/L
Barium	0.29	mg/L
Strontium	70.92	mg/L
Calcium	1003	mg/L
Magnesium	319.4	mg/L
Sodium	26683.30	mg/L

Anions	Result	Unit
Chloride	42525	mg/L
Sulfate	1739	mg/L

Scale Type	Result
Anhydrite CaSO4 SI	-0.96
Barite BaSO4 PTB	0.1
Barite BaSO4 SI	0.26
Calcite CaCO3 SI	-0.65
Celestite SrSO4 SI	-0.01
Gypsum CaSO4 SI	-0.74
Hemihydrate CaSO4 SI	-0.73

Saturation Index Calculation (Tomson-Oddo Model)

Comments:

Attention: **Jevon.Benisch@CHAMP-TECH.com**

Customer: **Culbreath Oil & Gas Inc**

Location Code: **279927**

Region: **Not Available**

Sample ID: **AF03996**

Location: **Oakley, KS**

Login Batch: **151109090205**

System: **Production System**

Collection Date: **11/02/2015**

Equipment: **Well St Joseph 3-10**

Receive Date: **11/09/2015**

Lab ID: **ABU-0055**

Report Date: **11/10/2015**

Sample Point: **Wellhead**

Analyses	Result	Unit
Dissolved CO2	132	mg/L
Dissolved H2S	43	mg/L
pH	7.5	
Pressure	10	psi
Temperature	76	° F

Analyses	Result	Unit
Bicarbonate	351	mg/L
Conductivity	127840	µS - cm3
Ionic Strength	1.43	
Resistivity	0.078	ohms - m
Specific Gravity	1.058	
Total Dissolved Solids	81817.82	mg/L

Cations	Result	Unit
Iron	0.128	mg/L
Manganese	0.052	mg/L
Barium	0.771	mg/L
Strontium	66.51	mg/L
Calcium	461.9	mg/L
Magnesium	239.9	mg/L
Sodium	31096.56	mg/L

Anions	Result	Unit
Chloride	48695	mg/L
Sulfate	906	mg/L

Scale Type	Result
Anhydrite CaSO4 SI	-1.59
Barite BaSO4 PTB	0.3
Barite BaSO4 SI	0.40
Calcite CaCO3 SI	-0.39
Celestite SrSO4 SI	-0.34
Gypsum CaSO4 SI	-1.36
Hemihydrate CaSO4 SI	-1.36

Saturation Index Calculation (Tomson-Oddo Model)

Comments:

Attention: **Jevon.Benisch@CHAMP-TECH.com**

Customer: **Culbreath Oil & Gas Inc**

Location Code: **279924**

Region: **Not Available**

Sample ID: **AF03992**

Location: **Oakley, KS**

Login Batch: **151109090205**

System: **Production System**

Collection Date: **11/02/2015**

Equipment: **Well Zerr 1**

Receive Date: **11/09/2015**

Lab ID: **ABU-0055**

Report Date: **11/10/2015**

Sample Point: **Wellhead**

Analyses	Result	Unit
Dissolved CO2	150	mg/L
Dissolved H2S	18.7	mg/L
pH	7.5	
Pressure	10	psi
Temperature	71	° F

Analyses	Result	Unit
Bicarbonate	234	mg/L
Conductivity	105674	µS - cm3
Ionic Strength	1.23	
Resistivity	0.095	ohms - m
Specific Gravity	1.051	
Total Dissolved Solids	67631.47	mg/L

Cations	Result	Unit
Iron	0.211	mg/L
Manganese	0.073	mg/L
Barium	0.232	mg/L
Strontium	77.16	mg/L
Calcium	1599	mg/L
Magnesium	462.5	mg/L
Sodium	23904.29	mg/L

Anions	Result	Unit
Chloride	40020	mg/L
Sulfate	1334	mg/L

Scale Type	Result
Anhydrite CaSO4 SI	-0.93
Barite BaSO4 PTB	0.0
Barite BaSO4 SI	0.11
Calcite CaCO3 SI	-0.03
Celestite SrSO4 SI	-0.09
Gypsum CaSO4 SI	-0.64
Hemihydrate CaSO4 SI	-0.62

Saturation Index Calculation (Tomson-Oddo Model)

Comments:

Attention: **Jevon.Benisch@CHAMP-TECH.com**

Customer: **Culbreath Oil & Gas Inc**

Location Code: **279923**

Region: **Not Available**

Sample ID: **AF03991**

Location: **Oakley, KS**

Login Batch: **151109090205**

System: **Production System**

Collection Date: **11/02/2015**

Equipment: **Well Zerr 2**

Receive Date: **11/09/2015**

Lab ID: **ABU-0055**

Report Date: **11/10/2015**

Sample Point: **Wellhead**

Analyses	Result	Unit
Dissolved CO2	194	mg/L
Dissolved H2S	13.6	mg/L
pH	8.0	
Pressure	70	psi
Temperature	73	° F

Analyses	Result	Unit
Bicarbonate	312	mg/L
Conductivity	133099	µS - cm3
Ionic Strength	1.48	
Resistivity	0.075	ohms - m
Specific Gravity	1.062	
Total Dissolved Solids	85184.01	mg/L

Cations	Result	Unit
Iron	0.69	mg/L
Manganese	0.068	mg/L
Barium	1.257	mg/L
Strontium	42.92	mg/L
Calcium	479.4	mg/L
Magnesium	178.9	mg/L
Sodium	32524.77	mg/L

Anions	Result	Unit
Chloride	50813	mg/L
Sulfate	831	mg/L

Scale Type	Result
Anhydrite CaSO4 SI	-1.64
Barite BaSO4 PTB	0.5
Barite BaSO4 SI	0.57
Calcite CaCO3 PTB	5.6
Calcite CaCO3 SI	0.03
Celestite SrSO4 SI	-0.58
Gypsum CaSO4 SI	-1.39
Hemihydrate CaSO4 SI	-1.39
Saturation Index Calculation (Tomson-Oddo Model)	

Comments:

Attention: **Jevon.Benisch@CHAMP-TECH.com**

Customer: **Culbreath Oil & Gas Inc**

Location Code: **279922**

Region: **Not Available**

Sample ID: **AF03990**

Location: **Oakley, KS**

Login Batch: **151109090205**

System: **Production System**

Collection Date: **11/02/2015**

Equipment: **Well Zerr 4**

Receive Date: **11/09/2015**

Lab ID: **ABU-0055**

Report Date: **11/10/2015**

Sample Point: **Wellhead**

Analyses	Result	Unit
Dissolved CO2	220	mg/L
Dissolved H2S	37.4	mg/L
pH	7.5	
Pressure	75	psi
Temperature	78	° F

Analyses	Result	Unit
Bicarbonate	224	mg/L
Conductivity	122048	µS - cm3
Ionic Strength	1.43	
Resistivity	0.082	ohms - m
Specific Gravity	1.057	
Total Dissolved Solids	78111.41	mg/L

Cations	Result	Unit
Iron	0.527	mg/L
Manganese	0.105	mg/L
Barium	0.187	mg/L
Strontium	72.5	mg/L
Calcium	1988	mg/L
Magnesium	517.9	mg/L
Sodium	27497.19	mg/L

Anions	Result	Unit
Chloride	46257	mg/L
Sulfate	1554	mg/L

Scale Type	Result
Anhydrite CaSO4 SI	-0.74
Barite BaSO4 SI	-0.03
Calcite CaCO3 PTB	10.1
Calcite CaCO3 SI	0.07
Celestite SrSO4 SI	-0.09
Gypsum CaSO4 SI	-0.53
Hemihydrate CaSO4 SI	-0.52
Saturation Index Calculation (Tomson-Oddo Model)	

Comments: