



**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	_____	_____	_____	_____	_____



JACAM LABORATORIES

DownHole Rx

DEPOSITION POTENTIAL INDICATORS

CLAASSEN OIL & GAS INC
DARREN CLARK
SEWARD KS

BLACK 2-1 SWD
WATER TANK

Report Date: 02-24-2017 Sampled: 02-17-2017
Sample #: 1833 at 0000

Sample ID: 146818

SATURATION LEVEL

Calcite (CaCO ₃)	0.303
Aragonite (CaCO ₃)	0.266
Witherite (BaCO ₃)	< 0.001
Strontianite (SrCO ₃)	0.0166
Calcium oxalate (CaC ₂ O ₄)	0.00
Magnesite (MgCO ₃)	0.103
Anhydrite (CaSO ₄)	0.0608
Gypsum (CaSO ₄ *2H ₂ O)	0.0799
Barite (BaSO ₄)	0.0236
Celestite (SrSO ₄)	0.0709
Fluorite (CaF ₂)	0.00
Calcium phosphate	0.00
Hydroxyapatite	0.00
Silica (SiO ₂)	0.00
Brucite (Mg(OH) ₂)	< 0.001
Magnesium silicate	0.00
Iron hydroxide (Fe(OH) ₃)	< 0.001
Strengite (FePO ₄ *2H ₂ O)	0.00
Siderite (FeCO ₃)	0.142
Halite (NaCl)	0.210
Thenardite (Na ₂ SO ₄)	< 0.001
Iron sulfide (FeS)	0.108

MOMENTARY EXCESS (Lbs/1000 Barrels)

Calcite (CaCO ₃)	-0.00353
Aragonite (CaCO ₃)	-0.00422
Witherite (BaCO ₃)	-28.01
Strontianite (SrCO ₃)	-0.134
Calcium oxalate (CaC ₂ O ₄)	-0.00228
Magnesite (MgCO ₃)	-0.0113
Anhydrite (CaSO ₄)	-106.66
Gypsum (CaSO ₄ *2H ₂ O)	-90.32
Barite (BaSO ₄)	-3.76
Celestite (SrSO ₄)	-106.86
Fluorite (CaF ₂)	-1.51
Calcium phosphate	>-0.001
Hydroxyapatite	-241.45
Silica (SiO ₂)	-24.68
Brucite (Mg(OH) ₂)	< 0.001
Magnesium silicate	-80.23
Iron hydroxide (Fe(OH) ₃)	< 0.001
Strengite (FePO ₄ *2H ₂ O)	>-0.001
Siderite (FeCO ₃)	-0.0107
Halite (NaCl)	-74986
Thenardite (Na ₂ SO ₄)	-89034
Iron sulfide (FeS)	-0.395

SIMPLE INDICES

Langelier	0.367
Ryznar	5.47
Puckorius	4.66
Larson-Skold Index	3869
Stiff Davis Index	0.293
Oddo-Tomson	-0.728

BOUND IONS

Calcium	14310	14275
Barium	0.204	0.204
Carbonate	0.731	0.00264
Phosphate	0.00	0.00
Sulfate	100.00	14.09

TOTAL

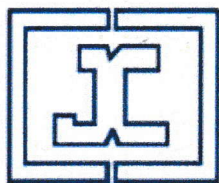
FREE

OPERATING CONDITIONS

Temperature (°F)	65.00
Time(secs)	0.00

JACAM LABORATORIES

205 S. Broadway · P.O. Box 96 · Sterling, KS 67579-0096



JACAM LABORATORIES

SYSTEM IDENTIFICATION

CLAASSEN OIL & GAS INC
 BLACK 2-1 SWD
 DARREN CLARK
 WATER TANK
 SEWARD KS

Sample ID#: 1833
 ID: 146818
 Report Date: 02-24-2017
 Sample Date: 02-17-2017
 at 0000

WATER CHEMISTRY

CATIONS

Calcium(as Ca)	14310
Magnesium(as Mg)	4233
Barium(as Ba)	0.204
Srtrontium(as Sr)	1056
Sodium(as Na)	61393
Potassium(as K)	632.90
Lithium(as Li)	8.67
Iron(as Fe)	18.97
Field Iron(as Fe)	0.00
Ammonia(as NH ₃)	0.00
Aluminum(as Al)	0.800
Manganese(as Mn)	0.180
Zinc(as Zn)	0.0820
Lead(as Pb)	0.00

ANIONS

Chloride(as Cl)	148800
Sulfate(as SO ₄)	100.00
Bromine(as Br)	0.00
Dissolved CO ₂ (as CO ₂)	230.00
Bicarbonate(as HCO ₃)	79.30
Carbonate(as CO ₃)	0.00
Silica(as SiO ₂)	0.00
Phosphate(as PO ₄)	0.00
H ₂ S (as H ₂ S)	1.00
Fluoride(as F)	0.00
Nitrate(as NO ₃)	0.00
Boron(as B)	22.33

PARAMETERS

Temperature(°F)	65.00
T.D.S.	220339
Resistivity:	2.52
Sample pH	6.20
Conductivity:	396277

SCALE AND CORROSION POTENTIAL

Temp. (°F)	Press. (atm)	Calcite CaCO ₃	Anhydrite CaSO ₄	Gypsum CaSO ₄ *2H ₂ O	Barite BaSO ₄	Celestite SrSO ₄	Siderite FeCO ₃	Mackawenite FeS	CO ₂ (mpy)	pCO ₂ (atm)							
50.00	0.00	0.228	-0.00441	0.0684	-102.38	0.0927	-83.46	0.0391	-2.47	0.0825	-99.46	0.0954	-0.0143	0.473	-0.221	0.0932	0.0182
65.45	0.00	0.306	-0.00350	0.0607	-106.70	0.0795	-90.50	0.0233	-3.81	0.0707	-106.99	0.143	-0.0106	0.442	-0.242	0.239	0.0182
80.91	0.00	0.393	-0.00274	0.0570	-104.92	0.0697	-96.00	0.0148	-5.37	0.0644	-108.65	0.206	-0.00793	0.407	-0.267	0.138	0.0182
96.36	0.00	0.487	-0.00210	0.0564	-98.09	0.0623	-99.95	0.00990	-7.06	0.0607	-107.14	0.282	-0.00587	0.369	-0.295	0.180	0.0182
111.82	0.00	0.583	-0.00157	0.0585	-87.70	0.0610	-94.94	0.00695	-8.83	0.0582	-104.42	0.372	-0.00427	0.332	-0.326	0.190	0.0182
127.27	0.00	0.680	-0.00111	0.0632	-75.37	0.0633	-85.21	0.00496	-10.79	0.0557	-102.40	0.476	-0.00302	0.299	-0.358	0.163	0.0182
142.73	0.00	0.775	>-0.001	0.0710	-62.50	0.0652	-77.48	0.00358	-12.97	0.0531	-101.19	0.592	-0.00202	0.270	-0.391	0.134	0.0182
158.18	0.00	0.860	>-0.001	0.0824	-50.17	0.0667	-71.32	0.00261	-15.38	0.0505	-100.72	0.714	-0.00124	0.244	-0.425	0.128	0.0182
173.64	0.00	0.925	>-0.001	0.0988	-39.06	0.0679	-66.45	0.00193	-18.04	0.0480	-100.98	0.831	>-0.001	0.219	-0.461	0.122	0.0182
189.09	0.00	0.959	>-0.001	0.122	-29.53	0.0688	-62.63	0.00144	-20.98	0.0455	-101.95	0.928	>-0.001	0.197	-0.500	0.0573	0.0182
204.55	0.00	0.958	>-0.001	0.154	-21.67	0.0694	-59.71	0.00108	-24.23	0.0430	-103.66	0.995	>-0.001	0.176	-0.542	0.0454	0.0182
220.00	0.171	0.901	>-0.001	0.198	-15.94	0.0693	-59.62	< 0.001	-28.31	0.0405	-109.50	1.00	< 0.001	0.175	-0.583	0.0609	0.0213

Saturation Levels (xSAT) are the ratio of ion activity to solubility, e.g. {Ca}{CO₃}/K_{sp}. pCO₂ (atm) is the partial pressure of CO₂ in the gas phase.
 Lbs/1000 Barrels scale is the quantity of precipitation (or dissolution) required to instantaneously bring the water to equilibrium.

