MITCHELL ANALYTICAL LABORATORY

2638 Faudree
Odessa, Texas 79765-8538
561-5579

Company: ***Impact Chemical***

Well Number:	25% Skelly State H2O Tank	Sample Temp:	70
Lease:	75% Spike Tale Battery Pump	Date Sampled:	3/11/2014
Location:	Alamo / Cimarex	Sampled by:	Sherry Hogue
Date Run:	3/11/2014	Employee #:	
Lab Ref #:	14-mar-w50197	Analyzed by:	GEORGE

Mata Yeso

Dissolved Gases

			Mg/L	Eq. Wt.	MEq/L
Hydrogen Sulfide	(H2S)		37.20	16.00	2.33
Carbon Dioxide	(CO2)		70.63	22.00	3.21
Dissolved Oxygen	(O2)	**NOT ANALYZED**			
		Cations			
Calcium	(Ca++)		3,674.28	20.10	182.80
Magnesium	(Mg++)		2,010.56	12.20	164.80
Sodium	(Na+)		85,935.36	23.00	3,736.32
Barium	(Ba++)		.00	68.70	.00
Manganese	(Mn+)		1.71	27.50	.06
Strontium	(Sr++)		74.70	47.80	1.56
		Anions			
Hydroxyl	(OH-)		.00	17.00	.00
Carbonate	(CO3=)		.00	30.00	.00
BiCarbonate	(HCO3-)		2,250.92	61.10	36.84
Sulfate	(SO4=)		3,275.00	48.80	67.11
Chloride	(Cl-)		141,255.21	35.50	3,979.02
Total Iron	(Fe)		11.83	18.60	.64
Total Dissolved Solids			238,597.41		
Total Hardness as CaCO3			17,429.00		
Conductivity MICROMHOS/CM			297,500		

pH 5.560 Specific Gravity 60/60 F. 1.166

CaSO4 Solubility @ 80 F. 60.27MEq/L, CaSo4 scale is likely

CaCO3 Scale Index

70.0	.970	100.0	1.570	130.0	3.090
80.0	1.100	110.0	2.020	140.0	3.090
90.0	1.570	120.0	2.020	150.0	3.090

Impact Chemical

BEFORE THE OIL CONVERSATION DIVISION
Santa Fe, New Mexico
Exhibit No. 13
Submitted by: **ALAMO PERMIAN RESOURCES**
Hearing Date: April 30, 2014

MITCHELL ANALYTICAL LABORATORY

2638 Faudree
Odessa, Texas 79765-8538
561-5579

Company: ***Impact Chemical***

Well Number:	50% Skelly State H2O Tank	Sample Temp:	70
Lease:	*50% Spike Tale Battery Pump*	*Date Sampled:*	*3/11/2014*
Location:	Alamo / Cimarex	Sampled by:	Sherry Hogue
Date Run:	3/11/2014	Employee #:	
Lab Ref #:	14-mar-w50198	Analyzed by:	GEORGE

Dissolved Gases

			Mg/L	Eq. Wt.	MEq/L
Hydrogen Sulfide	(H2S)		26.50	16.00	1.66
Carbon Dioxide	*(CO2)*		*113.75*	*22.00*	*5.17*
Dissolved Oxygen	(O2)	**NOT ANALYZED**			

Cations

Calcium	(Ca++)	3,232.08	20.10	160.80
Magnesium	(Mg++)	3,089.04	12.20	253.20
Sodium	(Na+)	92,824.21	23.00	4,035.84
Barium	(Ba++)	.00	68.70	.00
Manganese	(Mn+)	3.23	27.50	.12
Strontium	(Sr++)	65.53	47.80	1.37

Anions

Hydroxyl	(OH-)	.00	17.00	.00
Carbonate	(CO3=)	.00	30.00	.00
BiCarbonate	(HCO3-)	1,542.16	61.10	25.24
Sulfate	(SO4=)	3,450.00	48.80	70.70
Chloride	(Cl-)	154,469.73	35.50	4,351.26

Total Iron	(Fe)	19.41	18.60	1.04
Total Dissolved Solids		258,835.68		
Total Hardness as CaCO3		20,745.26		
Conductivity MICROMHOS/CM		*325,000*		

pH 5.720 Specific Gravity 60/60 F. 1.180

CaSO4 Solubility @ 80 F. 62.68MEq/L, CaSo4 scale is likely

CaCO3 Scale Index

70.0	1.280	100.0	2.030	130.0	3.030
80.0	1.430	110.0	2.650	140.0	3.030
90.0	2.030	120.0	2.650	150.0	3.030

MITCHELL ANALYTICAL LABORATORY

2638 Faudree
Odessa, Texas 79765-8538
561-5579

Company: ***Impact Chemical***

Well Number:	75% Skelly State H2O Tank	Sample Temp:	70
Lease:	25% Spike Tale Battery Pump	Date Sampled:	3/11/2014
Location:	Alamo / Cimarex	Sampled by:	Sherry Hogue
Date Run:	3/11/2014	Employee #:	
Lab Ref #:	14-mar-w50199	Analyzed by:	GEORGE

			Mg/L	Eq. Wt.	MEq/L
		Dissolved Gases			
Hydrogen Sulfide	(H2S)		15.80	16.00	.99
Carbon Dioxide	(CO2)		156.88	22.00	7.13
Dissolved Oxygen	(O2)	**NOT ANALYZED**			
		Cations			
Calcium	(Ca++)		2,781.84	20.10	138.40
Magnesium	(Mg++)		4,167.52	12.20	341.60
Sodium	(Na+)		99,786.20	23.00	4,338.53
Barium	(Ba++)		.00	68.70	.00
Manganese	(Mn+)		4.76	27.50	.17
Strontium	(Sr++)		56.37	47.80	1.18
		Anions			
Hydroxyl	(OH-)		.00	17.00	.00
Carbonate	(CO3=)		.00	30.00	.00
BiCarbonate	(HCO3-)		830.96	61.10	13.60
Sulfate	(SO4=)		3,625.00	48.80	74.28
Chloride	(Cl-)		167,784.36	35.50	4,726.32
Total Iron	(Fe)		26.99	18.60	1.45
Total Dissolved Solids			279,236.68		
Total Hardness as CaCO3			24,041.43		
Conductivity MICROMHOS/CM			352,500		

pH 5.890 Specific Gravity 60/60 F. 1.194

CaSO4 Solubility @ 80 F. 65.59MEq/L, CaSo4 scale is likely

CaCO3 Scale Index

70.0	1.617	100.0	2.707	130.0	2.867
80.0	1.807	110.0	2.867	140.0	2.867
90.0	2.707	120.0	2.867	150.0	2.867