

Jones, William V., EMNRD

From: Williams, Donna J [Donna.J.Williams@conocophillips.com]
Sent: Thursday, August 25, 2011 8:52 AM
To: Jones, William V., EMNRD
Cc: Williams, Donna J
Subject: FW: Elvis # 1
Attachments: 2011082509454288.pdf

As per your email of last week regarding adding the Yeso formation as an approved source to include in the Elvis # 1 (30-025-33584/Administrative Order SWD-1212), please find attached the appropriate analysis of the Yeso water and this email will suffice as the request for ConocoPhillips Company to add the Yeso formation as an approved source. If you have any questions, or need additional information, please let me know. Thanks.

ns, Donna J
ay, August 25, 2011 9:46 AM
, Donna J

Saturation Index Calculations

Champion Technologies, Inc.
(Based on the Tomson-Oddo Model)

Brine 1: Conoco Tourmaline St 1

Brine 2: MCA St 2

Component (mg/L)	Brines		Ratio			
	Brine 1	Brine 2	10% 90%	25% 75%	50% 50%	75% 25%
Calcium	8,421	3048	3585	4391	5735	7078
Magnesium	2,576	1895	1963	2065	2236	2406
Barium			0	0	0	0
Strontium			0	0	0	0
Bicarbonate	659	1684	1582	1428	1172	915
Sulfate	2798	3901	3791	3625	3350	3074
Chloride	115,000	69000	73600	80500	92000	103500
CO ₂ in Brine	680	500	518	545	590	635
Ionic Strength	3.66	2.25	2.39	2.60	2.95	3.31
Temperature (°F)	90	90	90	90	90	90
Pressure (psia)	50	50	50	50	50	50

Saturation Index

Calcite	0.16	0.14	0.18	0.22	0.25	0.24
Gypsum	0.23	-0.05	0.00	0.06	0.14	0.19
Hemihydrate	0.20	-0.08	-0.03	0.03	0.10	0.15
Anhydrite	0.32	-0.11	-0.04	0.04	0.15	0.24
Barite	N/A	N/A	N/A	N/A	N/A	N/A
Celestite	N/A	N/A	N/A	N/A	N/A	N/A

PTB

Calcite	62.1	120.9	149.0	166.6	157.7	123.2
Gypsum	597.2	N/A	N/A	193.1	443.6	539.5
Hemihydrate	452.2	N/A	N/A	81.4	274.3	386.7
Anhydrite	607.3	N/A	N/A	101.8	374.2	533.4
Barite	N/A	N/A	N/A	N/A	N/A	N/A
Celestite	N/A	N/A	N/A	N/A	N/A	N/A

Analytical Results For:

Laboratory Services, Inc.
Dusty Armstrong
2609 W. Marland
Hobbs NM, 88240
Fax To: (505) 397-3713

Received: 12/14/2010
Reported: 12/22/2010
Project Name: TOURMALINE ST. #1
Project Number: NONE GIVEN
Project Location: NOT GIVEN

Sampling Date: 12/14/2010
Sampling Type: Water
Sampling Condition: ** (See Notes)
Sample Received By: Jodi Henson

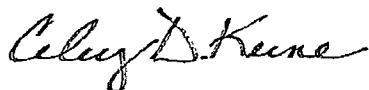
Sample ID: TOURMALINE ST. #1 (H021515-01)

Bicarbonate 310.1M		mg/L	Analyzed By: HM							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Alkalinity, Bicarbonate	390	5.00	12/16/2010	ND	964	96.4	1000	2.53		
Calcium SM3500Ca-D		mg/L	Analyzed By: HM							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Calcium	12200	1.60	12/16/2010	ND	52.1	104	50.0	4.83		
Carbonate 310.1M		mg/L	Analyzed By: HM							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Alkalinity, Carbonate	<0.00	0.00	12/16/2010	ND				0.00		
Chloride, SM4500Cl-B		mg/L	Analyzed By: HM							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	116000	4.00	12/15/2010	ND	108	108	100	3.77		
Conductivity 120.1		uS/cm	Analyzed By: HM							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Conductivity	347000	1.00	12/16/2010		1410	100	1410	0.329		
Magnesium SM3500MgE		mg/L	Analyzed By: HM							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Magnesium	2820	1.00	12/16/2010	ND	55.9	112	50.0	0.00		
pH		pH Units	Analyzed By: HM							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
pH	6.39	0.100	12/16/2010		7.03	100	7.00	0.935		
Potassium 8049		mg/L	Analyzed By: HM							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	

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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

Laboratory Services, Inc.
Dusty Armstrong
2609 W. Marland
Hobbs NM, 88240
Fax To: (505) 397-3713

Received: 12/14/2010
Reported: 12/22/2010
Project Name: TOURMALINE ST. #1
Project Number: NONE GIVEN
Project Location: NOT GIVEN

Sampling Date: 12/14/2010
Sampling Type: Water
Sampling Condition: ** (See Notes)
Sample Received By: Jodi Henson

Sample ID: TOURMALINE ST. #1 (H021515-01)

Potassium 8049		mg/L		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Potassium	1200	1.00	12/16/2010	ND	7.61	95.1	8.00	9.11	
Sodium Calculated		mg/L		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sodium	57000	1.00	12/17/2010	ND					
Sulfate 375.4		mg/L		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate	3790	10.0	12/16/2010	ND	38.3	95.8	40.0	0.536	
TDS 160.1		mg/L		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS	168000	5.00	12/15/2010	ND				7.87	
Total Alkalinity 310.1M		mg/L		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Alkalinity, Total	320	4.00	12/16/2010	ND	790	96.3	820	2.47	

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Celey D. Keene, Lab Director/Quality Manager



Water Analysis Report

12/22/2010

Address:

Customer: Conoco Phillips

Attention: Dennis Ross

CC: M. Baker, Corey Hodnett

Lease: Tourmaline State

Formation:

Salesman: Mike Baker

Target Name: Tourmaline State 1

Sample Point: Tourmaline State 1

Sample Date: 12/14/2010

Test Date: 12/21/2010

Water Analysis(mg/L)

Calcium	8421
Magnesium	2576
Barium	
Strontium	
Sodium(calc.)	61633
Bicarbonate Alkalinity	659
Sulfate	2798
Chloride	115000
Resistivity	0.0335

Appended Data(mg/L)

CO2	680
H2S	34
Iron	15
Oxygen	
Manganese	

Physical Properties

Ionic Strength(calc.)	3.66
pH(calc.)	6.34
Temperature(°F)	90
Pressure(psla)	50
Density	9.44

Additional Data

Specific Gravity	1.13
Total Dissolved Solids(Mg/L)	191102
Total Hardness(CaCO3 Eq Mg/)	31610

Dew Point	
Lead	
Zinc	

Calcite Calculation Information

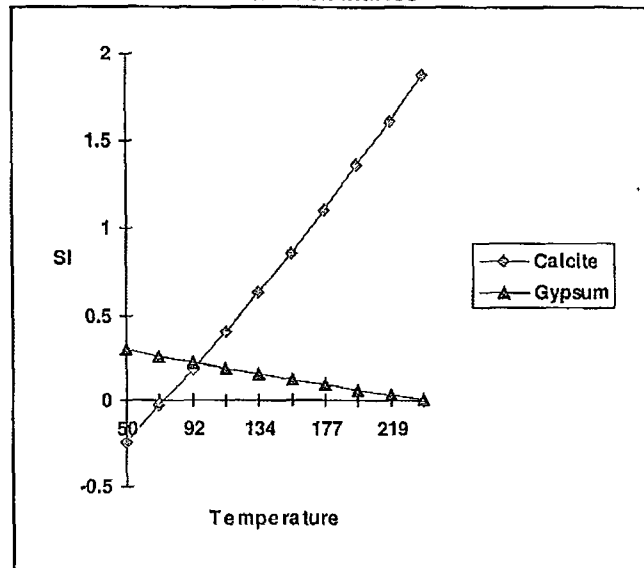
Calculation Method	Value
CO2 in Brine(mg/L)	680

Remarks:

SI & PTB Results

Scale Type	SI	PTB
Calcite (Calcium Carbonate)	0.16	62.10
Gypsum (Calcium Sulfate)	0.23	597.20
Hemihydrate (Calcium Sulfate)	0.20	452.20
Anhydrite (Calcium Sulfate)	0.32	607.30
Barite (Barium Sulfate)		
Celestite (Strontium Sulfate)		

Saturation Indices



Saturation Index Data Points

	50	71	92	113	134	156	177	198	219	240
Calcite	-0.24	-0.03	0.18	0.40	0.63	0.86	1.11	1.36	1.61	1.88
Gypsum	0.30	0.26	0.22	0.19	0.15	0.12	0.09	0.06	0.03	0.01

Lab Tech.: *Shanna Lee*