



Catalyst Oilfield Services
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Water Analysis Report

Customer: Mack Energy Corporation Sample #: 1649
Area: Artesia Analysis ID #: 3851
Lease: Shad-Rap
Location: #1 0
Sample Point: F/W Water Tank

		Anions		mg/l	meq/l	Cations		mg/l	meq/l
Sampling Date:	4/27/2010	Chloride:		365.6	10.31	Sodium:		0.0	0.
Analysis Date:	4/30/2010	Bicarbonate:		41.5	0.68	Magnesium:		151.7	12.48
Analyst:	Catalyst	Carbonate:				Calcium:		679.5	33.91
TDS (mg/l or g/m3):	2938.3	Sulfate:		1700.0	35.39	Potassium:		0.0	0.
Density (g/cm3):	1.004					Strontium:		0.0	0.
						Barium:		0.0	0.
Hydrogen Sulfide:	0					Iron:		0.0	0.
Carbon Dioxide:	0					Manganese:		0.000	0.
Comments:		pH at time of sampling:			7				
		pH at time of analysis:							
		pH used in Calculation:			7				
		Temperature @ lab conditions (F):			75	Conductivity (micro-ohms/cm):			3110
						Resistivity (ohm meter):			3.2154

Values Calculated at the Given Conditions - Amounts of Scale in lb/1000 bbl

Temp		Calcite CaCO ₃		Gypsum CaSO ₄ ·2H ₂ O		Anhydrite CaSO ₄		Celestite SrSO ₄		Barite BaSO ₄		
°F	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount		
80	-0.44	0.00	-0.01	0.00	-0.08	0.00	0.00	0.00	0.00	0.00		
100	-0.31	0.00	-0.02	0.00	-0.02	0.00	0.00	0.00	0.00	0.00		
120	-0.18	0.00	-0.01	0.00	0.06	84.57	0.00	0.00	0.00	0.00		
140	-0.05	0.00	0.01	12.23	0.17	208.64	0.00	0.00	0.00	0.00		
160	0.10	0.70	0.03	57.31	0.30	325.72	0.00	0.00	0.00	0.00		
180	0.24	1.75	0.07	110.09	0.45	428.46	0.00	0.00	0.00	0.00		
200	0.39	2.80	0.10	167.05	0.61	514.44	0.00	0.00	0.00	0.00		
220	0.54	3.84	0.14	224.72	0.77	583.98	0.00	0.00	0.00	0.00		