

Rock Queen Unit Step-Rate Tests Summary

Well No.	Rate (BWPD)	Surface Pressure (psig)	Bottom Hole Pressure (psig)	Tool Depth (ft)	Fracture Gradient (psi/ft @ tool)	Date of test (mm/dd/yy)
RQU #6	3,200	450	1,435	3,050	No Fracture	08/18/08
RQU #42	4,000	1,700	2,500	2,900	No Fracture	03/29/08
RQU #44	1,530	1,720	3,000	3,030	0.990	04/02/08
RQU #48	2,000	810	1,936	2,900	No Fracture	08/20/08
RQU #62	440	1,055	2,395	3,040	0.788	04/01/08
RQU #64	2,800	900	1,918	2,900	No Fracture	08/19/08
RQU #66	400	1,140	2,474	3,050	0.811	03/29/08
RQU #70	2,800	1,530	2,574	3,040	0.847	04/01/08
RQU #85	4,200	1,020	1,932	3,040	No Fracture	08/24/08
RQU #87	400	1,145	2,382	2,900	0.821	08/25/08

Propose a unit-wide wellhead injection pressure of 1050 psig--corrected for the density of injected fluid.

Correction for produced water injection based on a SG = 1.2, gradient = 0.52 psi/ft at 3000 feet:

Corrected WHP = 1050 psig - 3000 ft (0.52-0.433) psi/ft = 789 psi, ignoring any friction pressure.

Recommend a maximum wellhead injection pressure of 800 psi on produced water.

Calculated BHP = 3000 ft (0.52 psi/ft) + 800 psi = 2360 psi

Correction for carbon dioxide:

Working equation: BHP = WHP + Fluid Gradient X Depth

WHP and fluid gradient are unknowns; gradient changes with pressure (depth)

Solution is to assume a WHP, calculate an average CO2 density, then calculate a BHP

CO2 densities calculated at a temperature of 70 degrees F.

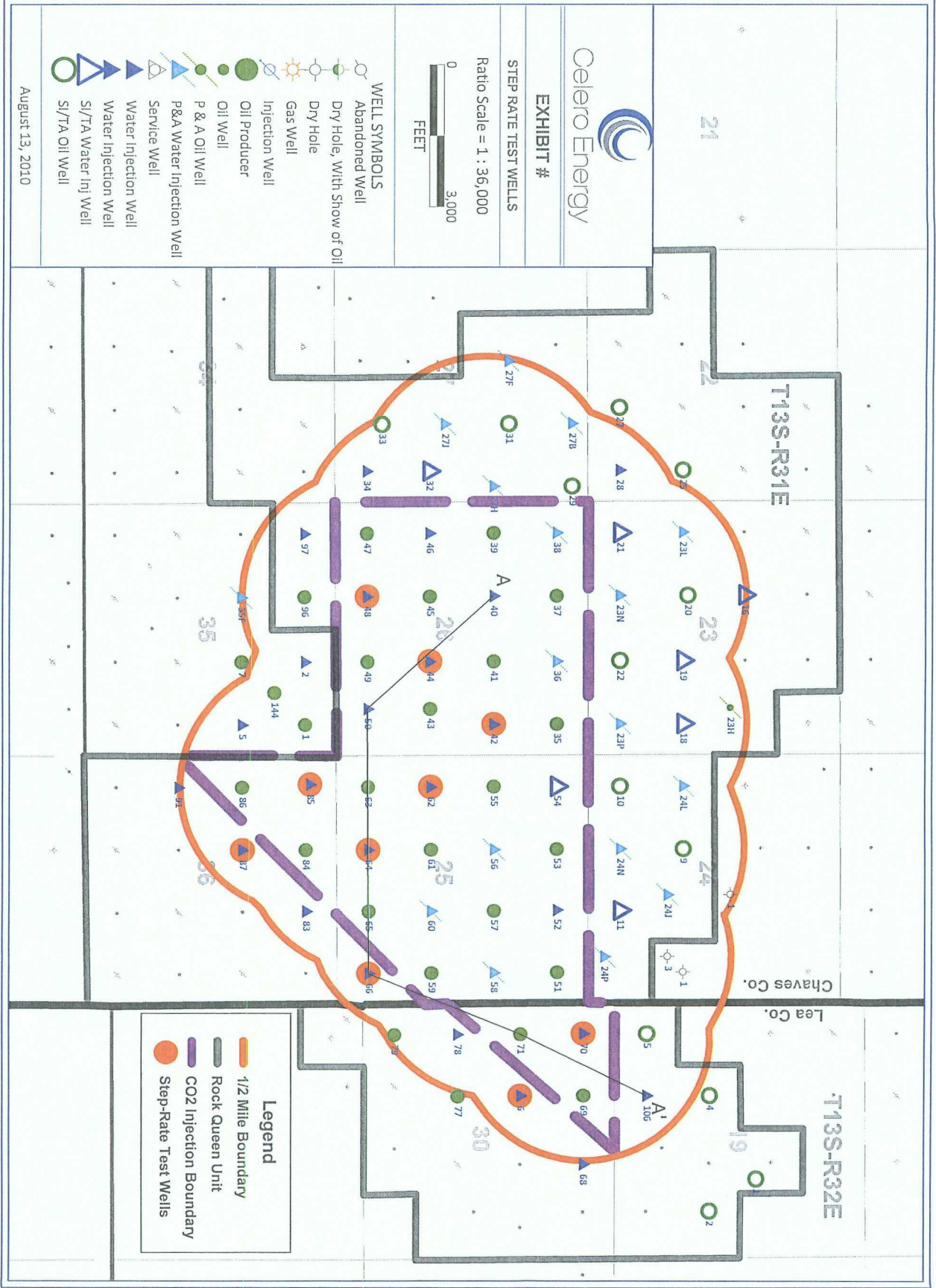
At a BHP of 2360 psia, density of CO2 is 56.66 lbm/ft3

WHP(psia)	CO2 Density (lbm/ft3)	Average CO2 Density(lbm/ft3)	Calculated Gradient(psi/ft)	Calculated BHP(psia)
900	48.29	52.48	0.364	1992
1000	49.55	53.11	0.368	2104
1100	50.53	53.60	0.372	2216
1200	51.34	54.00	0.375	2325
1300	52.04	54.35	0.377	2431

Limit WHP to 1200 psi on CO2 injection.

CO2 density from NIST; Gradient = CO2 density/62.43 X 0.433 psi/ft

Oil Conservation Division
Case No. _____
Exhibit No. 33





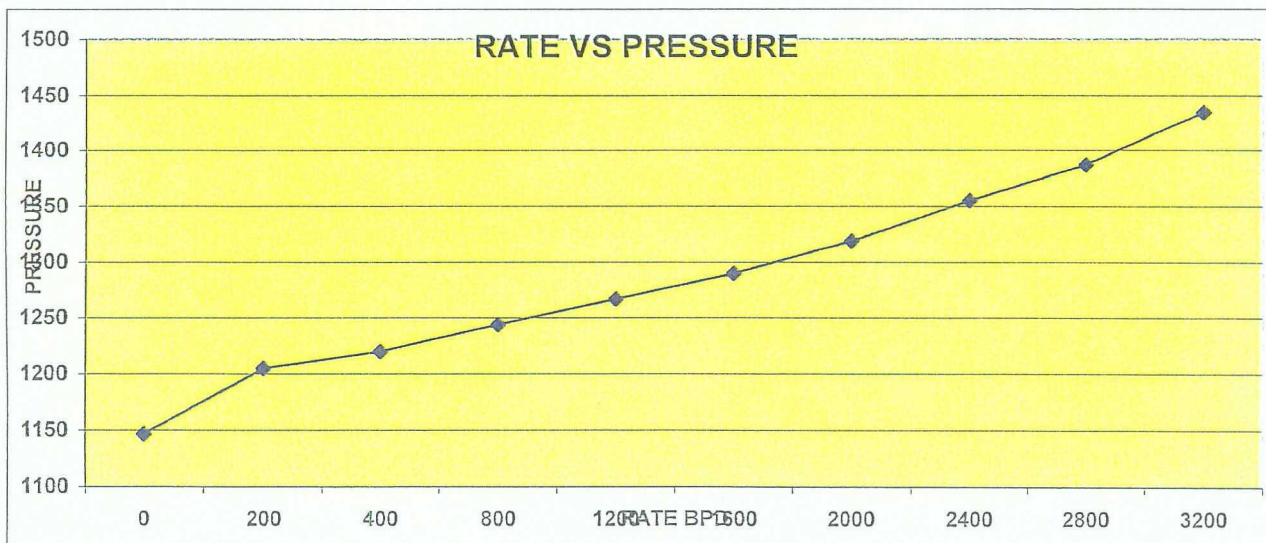
STEP RATE TESTS

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RATE BPD	Date	Time	BH Press	Surf Press	Comments
0	8/19/2008	10:40 AM	1147	VAC	
200	8/19/2008	11:15 AM	1205	VAC	
400	8/19/2008	11:45 AM	1220	VAC	
800	8/19/2008	12:15 PM	1244	VAC	
1200	8/19/2008	12:45 PM	1267	VAC	
1600	8/19/2008	1:15 PM	1290	VAC	
2000	8/19/2008	1:45 PM	1319	0	
2400	8/19/2008	2:15 PM	1355	200	
2800	8/19/2008	2:45 PM	1387	300	NO FRACTURE
3200	8/19/2008	3:15 PM	1435	450	POINT ACHIEVED
Company:	CELERO ENERGY			Recorded By:	M. HOLMES
Well:	ROCK QUEEN #6			Witnessed By:	DAN PARKHURST
Field:	CAPROCK			Truck Number:	42
County:	CHAVES			District:	ODESSA
State:	NEW MEXICO			Tool Number:	SPARTEK 1 3/8"
Injector	WATER			Test Type:	STEP RATE TEST
Shut In Time:	8/18/2008			NOTES:	
Tool Depth	3050'				
Tubing Size:	2 3/8				
Tail Pipe Depth:	2735'				
Perfs:	3052-67'				
Plug Back Depth	3094'				



GWSI

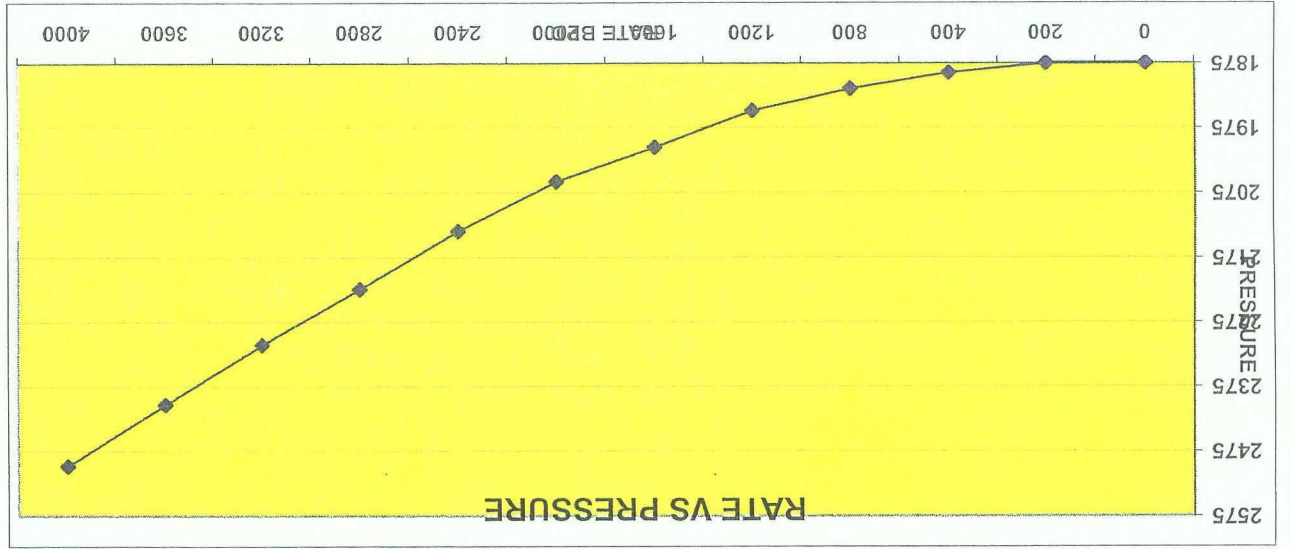


No Fracture Point Achieved



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RATE BPD	Date	Time	BH Press	Surf Press	Comments
0	3/31/2008	12:27 PM	1875	404	
200	3/31/2008	1:00 PM	1875	475	
400	3/31/2008	1:30 PM	1890	600	
800	3/31/2008	2:00 PM	1915	675	
1200	3/31/2008	2:30 PM	1949	725	
1600	3/31/2008	3:00 PM	2005	825	
2000	3/31/2008	4:25 PM	2058	925	
2400	3/31/2008	4:55 PM	2134	1025	
2800	3/31/2008	6:37 PM	2224	1215	NO FRACTURE
3200	3/31/2008	7:07 PM	2310	1400	POINT ACHIEVED
3600	3/31/2008	7:37 PM	2403	1525	
4000	3/31/2008	8:07 PM	2498	1700	
Company: CELERO ENERGY					
Well: ROCK QUEEN #42					
Field: CAPROCK					
County: CHAVES					
State: NEW MEXICO					
Injector: WATER					
Shut In Time: 3/29/2008					
Tool Depth: 2900' IN TBG.					
Tubing Size: 2 3/8					
Tail Pipe Depth: 2967'					
Perfs: 3057-61, OH: 3067-88'					
Plug Back Depth: 3088'					
Recorded By: M. HOLMES			NOTES:		
Witnessed By: DON HALE			SET DOWN		
Truck Number: 42			IN PACKER		
District: ODESSA			Test Type: STEP RATE TEST		
Tool Number: SPARTEK 1 3/8"					





STEP RATE TESTS

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RATE BPD	Date	Time	BH Press	Surf Press	Comments
0	4/3/2008	7:29 AM	1337	0	
200	4/3/2008	8:00 AM	2040	600	START FRACTURE
400	4/3/2008	8:30 AM	2350	1025	APPROX 2400 PSI
800	4/3/2008	9:00 AM	2593	1275	
1200	4/3/2008	9:30 AM	2815	1500	
1600	4/3/2008	10:00 AM	2973	1675	SUSTAINED FRAC
2000	4/3/2008	10:30 AM	3048	1800	APPROX. 2950 PSI
2400	4/3/2008	11:00 AM	3103	1900	
2800	4/3/2008	11:30 AM	3115	2000	

Company: CELERO ENERGY

Recorded By: M. HOLMES

Well: ROCK QUEEN #44

Witnessed By: DON HALE

Field: CAPROCK

Truck Number: 42

County: CHAVES

District: ODESSA

State: NEW MEXICO

Tool Number: SPARTEK 1 3/8"

Injector: WATER

Test Type: STEP RATE TEST

Shut In Time: 4/2/2008

Tool Depth: 3030'

NOTES:

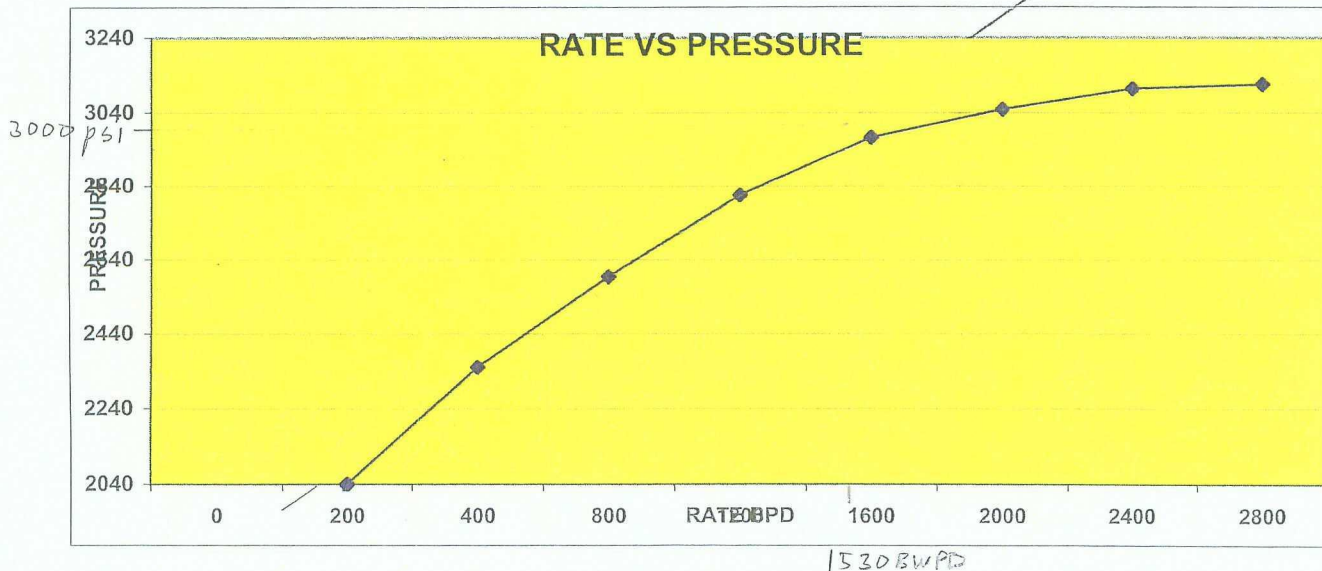
Tubing Size: 2 3/8

Tail Pipe Depth: 2890'

Perfs: 3032-50'

Plug Back Depth: 3065'

GWSI



Fracture Point: 1530 BWPD, 3000psi BH, 1720 psi Surface



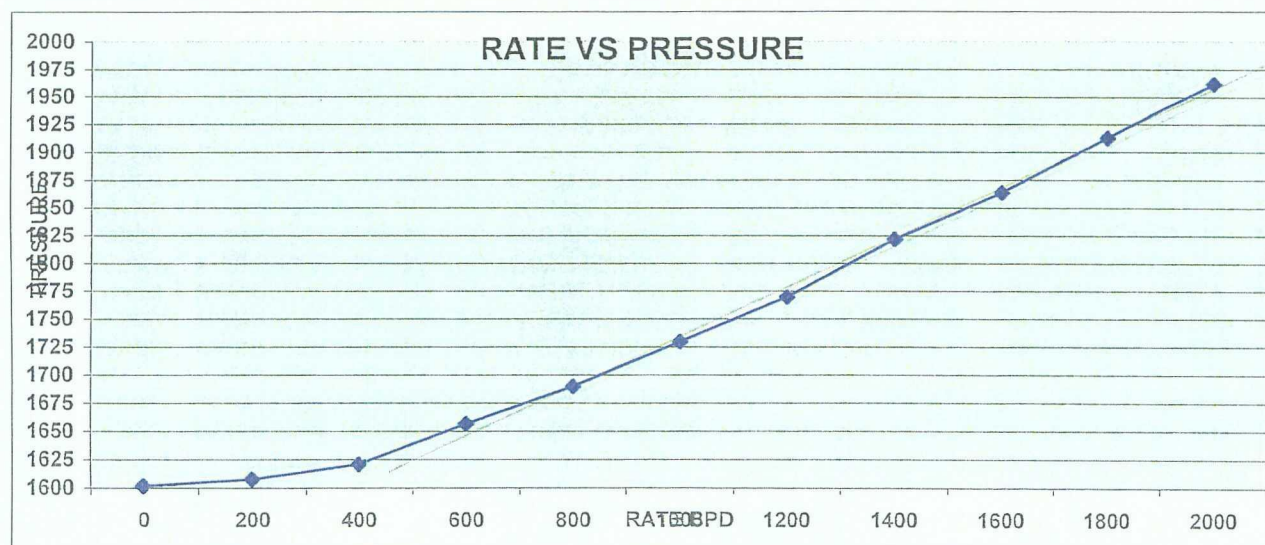
STEP RATE TESTS

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RATE BPD	Date	Time	BH Press	Surf Press	Comments
0	8/21/2008	8:43 AM	1602	118	
200	8/21/2008	9:15 AM	1608	200	
400	8/21/2008	9:45 AM	1621	375	
600	8/21/2008	10:15 AM	1657	425	
800	8/21/2008	10:45 AM	1690	465	
1000	8/21/2008	11:15 AM	1730	510	
1200	8/21/2008	11:45 AM	1770	570	
1400	8/21/2008	12:15 PM	1822	620	FRACTURE POINT
1600	8/21/2008	12:45 PM	1864	685	
1800	8/21/2008	1:15 PM	1913	745	
2000	8/21/2008	1:45 PM	1962	810	
Company: CELERO ENERGY				Recorded By:	M. HOLMES
Well: ROCK QUEEN #48				Witnessed By:	EDDIE TAYLOR
Field: CAPROCK				Truck Number:	42
County: CHAVES				District:	ODESSA
State: NEW MEXICO				Tool Number:	SPARTEK 1 3/8"
Injector: WATER				Test Type:	STEP RATE TEST
Shut In Time: 8/20/2008 PM				NOTES: UNABLE TO GET THRU PACKER	
Tool Depth 2900', IN TBG					
Tubing Size: 2 3/8", 1.25" ID SN ?					
Tail Pipe Depth: 2962'					
Perfs: OPEN HOLE: 3028-74'					
Plug Back Depth 3074'					



GWSi



No Fracture Point Achieved.



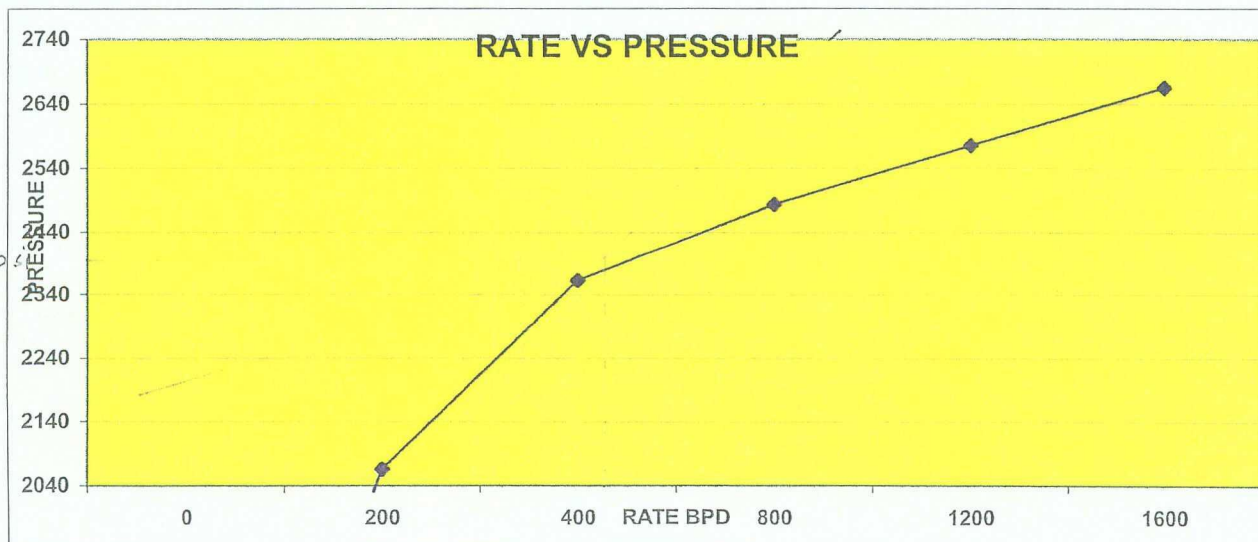
STEP RATE TESTS

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RATE BPD	Date	Time	BH Press	Surf Press	Comments
0	4/2/2008	2:44 AM	1251	0	
200	4/2/2008	3:15 PM	2065	625	
400	4/2/2008	3:45 PM	2362	1010	FRACTURE POINT
800	4/2/2008	4:15 PM	2484	1175	APPROX. 2400 PSI
1200	4/2/2008	4:45 PM	2575	1280	
1600	4/2/2008	5:15 PM	2665	1375	
Company: CELERO ENERGY				Recorded By:	M. HOLMES
Well: ROCK QUEEN #62				Witnessed By:	JOHN ANDERSON
Field: CAPROCK				Truck Number:	42
County: CHAVES				District:	ODESSA
State: NEW MEXICO				Tool Number:	SPARTEK 1 3/8"
Injector: WATER				Test Type:	STEP RATE TEST
Shut In Time: 4/1/2008				NOTES:	
Tool Depth 3040'					
Tubing Size: 2 3/8					
Tail Pipe Depth: 2975'					
Perfs: 3053-70', OH: 3072-3100'					
Plug Back Depth 3100'					



GWSi



Fracture Point: 440 BWPD, 2395 BH psi, 1055 Surf. psi



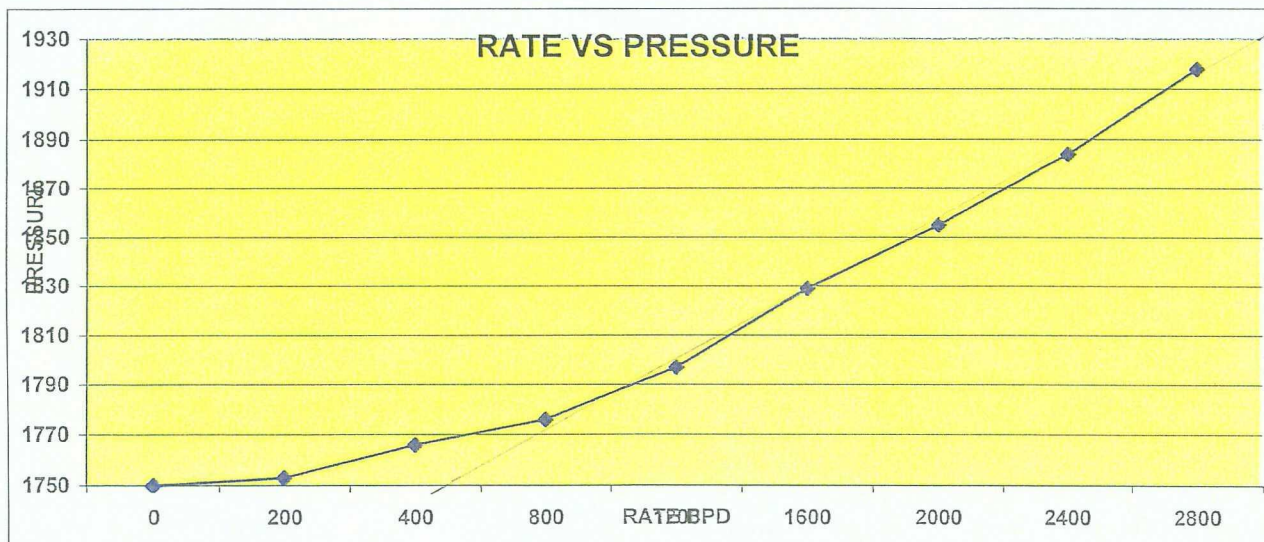
STEP RATE TESTS

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RATE BPD	Date	Time	BH Press	Surf Press	Comments
0	8/20/2008	9:26 AM	1750	275	
200	8/20/2008	10:00 AM	1753	300	
400	8/20/2008	10:30 AM	1766	520	
800	8/20/2008	11:00 AM	1776	550	
1200	8/20/2008	11:30 AM	1797	580	
1600	8/20/2008	12:00 PM	1829	640	FRACTURE POINT
2000	8/20/2008	12:30 PM	1855	720	
2400	8/20/2008	1:00 PM	1884	805	
2800	8/20/2008	1:30 PM	1918	900	

Company:	CELERO ENERGY	Recorded By:	M. HOLMES
Well:	ROCK QUEEN #64	Witnessed By:	EDDIE TAYLOR
Field:	CAPROCK	Truck Number:	42
County:	CHAVES	District:	ODESSA
State:	NEW MEXICO	Tool Number:	SPARTEK 1 3/8"
Injector:	WATER	Test Type:	STEP RATE TEST
Shut In Time:	8/19/2008	NOTES:	
Tool Depth:	2900' in Tubing		
Tubing Size:	2 3/8", 1.25" ID SN		
Tail Pipe Depth:	2960'		
Perfs:	3041-65'		
Plug Back Depth:	3097'		

GWSi



No Fracture Point Achieved.



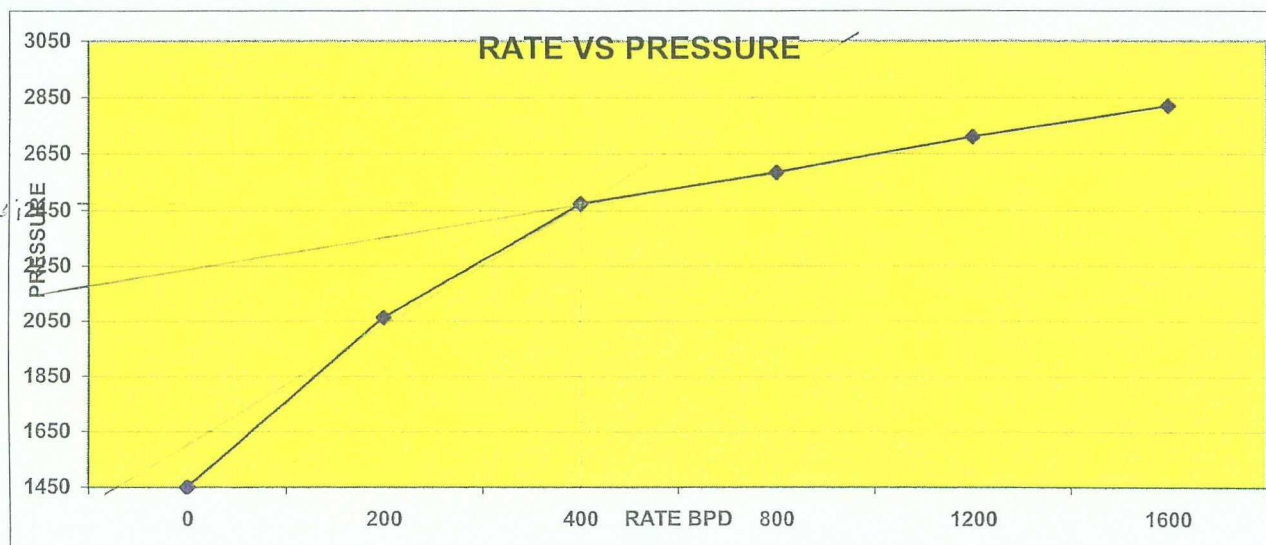
STEP RATE TESTS

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RATE BPD	Date	Time	BH Press	Surf Press	Comments
0	4/1/2008	8:35 AM	1450	0	
200	4/1/2008	9:10 AM	2063	570	
400	4/1/2008	9:40 AM	2474	1140	FRACTURE POINT
800	4/1/2008	10:10 AM	2584	1250	APPROX. 2474 PSI
1200	4/1/2008	10:40 AM	2710	1400	
1600	4/1/2008	3:00 PM	2819	1550	
Company:	CELERO ENERGY			Recorded By:	M. HOLMES
Well:	ROCK QUEEN #66			Witnessed By:	JOHN ANDERSON
Field:	CAPROCK			Truck Number:	42
County:	CHAVES			District:	ODESSA
State:	NEW MEXICO			Tool Number:	SPARTEK 1 3/8"
Injector	WATER			Test Type:	STEP RATE TEST
Shut In Time:	3/29/2008			NOTES:	
Tool Depth	3050'				
Tubing Size:	2 3/8				
Tail Pipe Depth:	2988'				
Perfs:	3052-69'				
Plug Back Depth	3077'				



GWSI



400 BWPD

Fracture Point: 400 BWPD, 2474 psi BH, 1140 psi Surf.



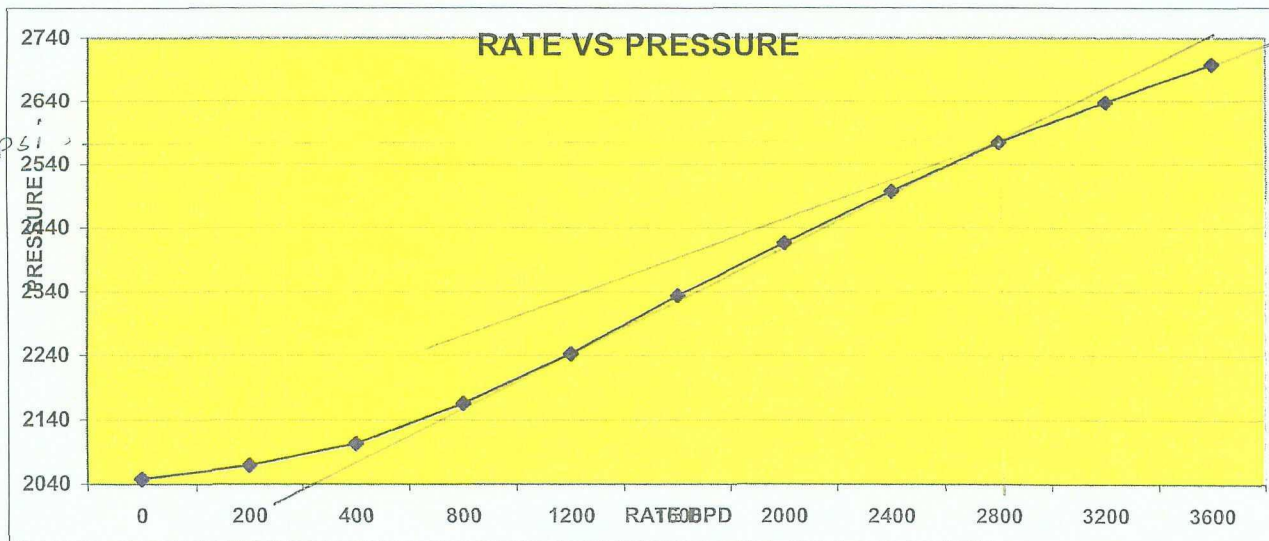
STEP RATE TESTS

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RATE BPD	Date	Time	BH Press	Surf Press	Comments
0	4/2/2008	7:40 AM	2048	524	
200	4/2/2008	8:15 AM	2069	625	
400	4/2/2008	8:45 AM	2103	675	
800	4/2/2008	9:15 AM	2165	850	
1200	4/2/2008	9:45 AM	2242	950	
1600	4/2/2008	10:15 AM	2333	1100	
2000	4/2/2008	10:45 AM	2416	1225	
2400	4/2/2008	11:15 AM	2497	1375	
2800	4/2/2008	11:45 AM	2574	1530	FRACTURE POINT
3200	4/2/2008	12:15 PM	2637	1630	APPROX. 2540 PSI
3600	4/2/2008	12:45 PM	2698	1730	

Company:	CELERO ENERGY	Recorded By:	M. HOLMES
Well:	ROCK QUEEN #70	Witnessed By:	JOHN ANDERSON
Field:	CAPROCK	Truck Number:	42
County:	CHAVES	District:	ODESSA
State:	NEW MEXICO	Tool Number:	SPARTEK 1 3/8"
Injector:	WATER	Test Type:	STEP RATE TEST
Shut In Time:	4/1/2008	NOTES:	
Tool Depth:	3040'		
Tubing Size:	2 3/8		
Tail Pipe Depth:	2949'		
Perfs:	OH: 3047-90'		
Plug Back Depth:	3090'		

GWSi



Fracture Point: 2800 BWPD, 2574 psi BH, 1530 psi Surf.



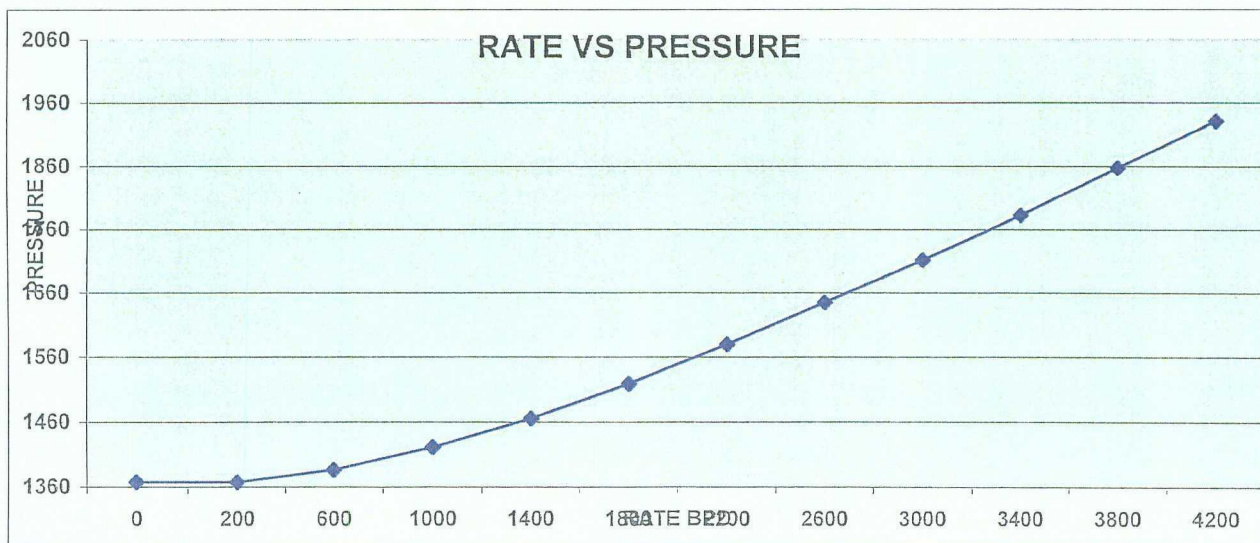
STEP RATE TESTS

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RATE BPD	Date	Time	BH Press	Surf Press	Comments
0	8/25/2008	10:23 AM	1368	VAC	
200	8/25/2008	11:00 AM	1368	0	
600	8/25/2008	11:30 AM	1387	100	
1000	8/25/2008	12:00 PM	1422	140	
1400	8/25/2008	12:30 PM	1466	200	
1800	8/25/2008	1:00 PM	1519	285	
2200	8/25/2008	1:30 PM	1580	395	
2600	8/25/2008	2:00 PM	1645	495	
3000	8/25/2008	2:30 PM	1712	610	
3400	8/25/2008	3:00 PM	1783	740	
3800	8/25/2008	3:30 PM	1858	890	
4200	8/25/2008	4:00 PM	1932	1020	OUT OF WATER
Company:	CELERO ENERGY			Recorded By:	M. HOLMES
Well:	ROCK QUEEN #85			Witnessed By:	DAN PARKHURST
Field:	CAPROCK			Truck Number:	42
County:	CHAVES			District:	ODESSA
State:	NEW MEXICO			Tool Number:	SPARTEK 1 3/8"
Injector	WATER			Test Type:	STEP RATE TEST
Shut In Time:	8/24/2008			NOTES: NO FRACTURE ACHIEVED	
Tool Depth	3040'				
Tubing Size:	2 3/8"				
Tail Pipe Depth:	2976'				
Perfs:	OPEN HOLE: 3041-80'				
Plug Back Depth	3080				



GWSi



No fracture point achieved.

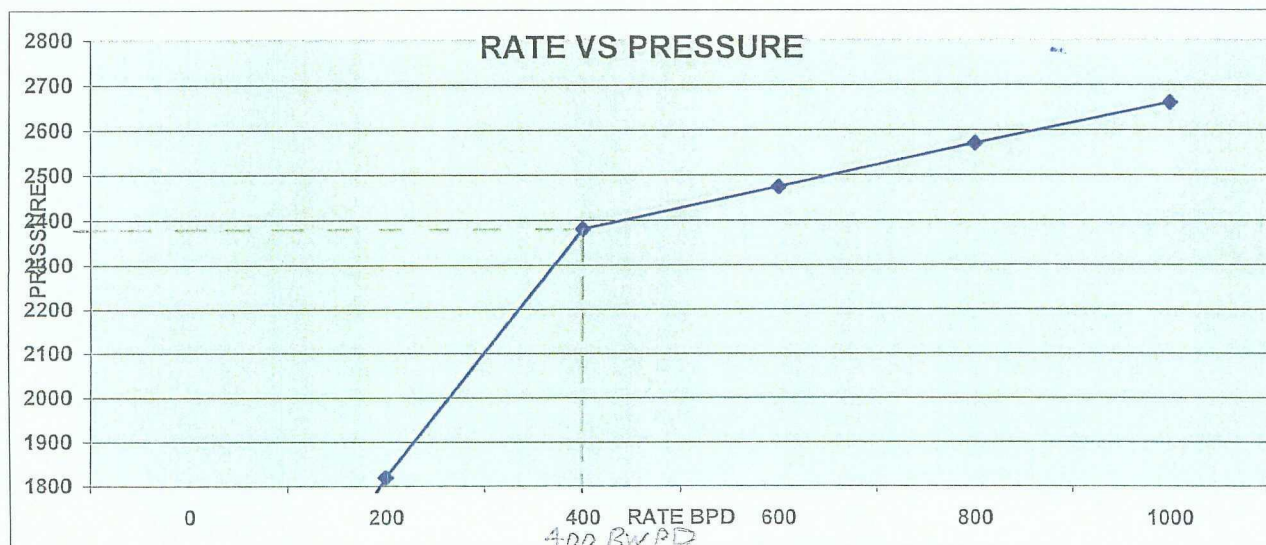


STEP RATE TESTS

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RATE BPD	Date	Time	BH Press	Surf Press	Comments
0	8/26/2008	9:07 AM	1091	VAC	
200	8/26/2008	9:45 AM	1820	500	
400	8/26/2008	10:15 AM	2382	1145	FRACTURE POINT
600	8/26/2008	10:45 AM	2475	1230	
800	8/26/2008	11:15 AM	2572	1340	
1000	8/26/2008	11:45 AM	2662	1440	
Company:	CELERO ENERGY			Recorded By:	M. HOLMES
Well:	ROCK QUEEN #87			Witnessed By:	DAN PARKHURST
Field:	CAPROCK			Truck Number:	42
County:	CHAVES			District:	ODESSA
State:	NEW MEXICO			Tool Number:	SPARTEK 1 3/8"
Injector:	WATER			Test Type:	STEP RATE TEST
Shut In Time:	8/25/2008			NOTES: UNABLE TO GET THRU PACKER	
Tool Depth	2900' IN TBG				
Tubing Size:	2 3/8"				
Tail Pipe Depth:	2968'				
Perfs:	3057-71', OPE HOLE: 3063-3100'				
Plug Back Depth	3100'				





Fracture Point: 400 BWP, 2382 psi BH, 1145 psi Surface

Isothermal Properties for Carbon dioxide

- Fluid Data
- Auxiliary Data
- References
- Additional Information
- Important Information About This Data
- Notes
- **Other Data Available:**
 - View data with display applet. (requires Java capable browser).
 - Download data as a tab-delimited text file.
 - Main NIST Chemistry WebBook page for this species.
 - Recommended citation for data from this page.
 - Fluid data for other species

Fluid Data

Isothermal Data for T = 70.000 F

Temperature (F)	Pressure (psia)	Density (lbm/ft ³)	Volume (ft ³ /lbm)	Internal Energy (kJ/mol)	Enthalpy (kJ/mol)	Entropy (J/mol*K)	Cv (J/mol*K)	Cp (J/mol*K)	Sound Spd. (ft/s)	Joule- Thomson (F/psia)	Viscosity (cP)	Therm. Cond. (W/m*K)	Phase
70.000	900.00	48.289	0.020709	10.983	11.336	52.435	44.044	179.83	1130.9	0.018005	0.066192	0.085532	liquid
70.000	1000.0	49.550	0.020181	10.802	11.185	51.790	42.972	155.20	1238.0	0.014910	0.069556	0.087895	liquid
70.000	1100.0	50.529	0.019791	10.659	11.071	51.276	42.317	141.16	1322.6	0.012827	0.072319	0.090036	liquid
70.000	1200.0	51.342	0.019477	10.538	10.980	50.841	41.871	131.77	1393.9	0.011275	0.074721	0.091974	liquid
70.000	1300.0	52.043	0.019215	10.431	10.905	50.458	41.551	124.92	1456.2	0.010052	0.076878	0.093751	liquid
70.000	1400.0	52.663	0.018989	10.336	10.840	50.115	41.311	119.65	1511.9	0.0090516	0.078856	0.095395	liquid
70.000	1500.0	53.222	0.018789	10.250	10.783	49.803	41.128	115.42	1562.5	0.0082107	0.080696	0.096932	liquid
70.000	1600.0	53.732	0.018611	10.170	10.734	49.514	40.984	111.94	1609.0	0.0074900	0.082426	0.098379	liquid
70.000	1700.0	54.202	0.018449	10.096	10.690	49.245	40.870	109.02	1652.1	0.0068625	0.084066	0.099749	liquid
70.000	1800.0	54.640	0.018302	10.027	10.651	48.993	40.778	106.51	1692.5	0.0063092	0.085629	0.10105	liquid
70.000	1900.0	55.049	0.018166	9.9613	10.615	48.755	40.704	104.33	1730.6	0.0058162	0.087128	0.10230	liquid
70.000	2000.0	55.434	0.018040	9.8996	10.583	48.530	40.643	102.41	1766.6	0.0053731	0.088572	0.10350	liquid
70.000	2100.0	55.798	0.017922	9.8409	10.554	48.315	40.594	100.71	1800.8	0.0049718	0.089967	0.10465	liquid
70.000	2200.0	56.143	0.017812	9.7850	10.527	48.109	40.553	99.187	1833.5	0.0046060	0.091319	0.10576	liquid
70.000	2300.0	56.473	0.017708	9.7315	10.503	47.913	40.520	97.810	1864.8	0.0042706	0.092632	0.10683	liquid
70.000	2400.0	56.787	0.017610	9.6802	10.481	47.723	40.492	96.560	1894.8	0.0039617	0.093912	0.10787	liquid
70.000	2500.0	57.089	0.017517	9.6309	10.460	47.541	40.470	95.418	1923.8	0.0036758	0.095160	0.10888	liquid
70.000	2600.0	57.378	0.017428	9.5834	10.442	47.365	40.452	94.368	1951.7	0.0034103	0.096380	0.10986	liquid
70.000	2700.0	57.656	0.017344	9.5375	10.425	47.195	40.438	93.400	1978.8	0.0031627	0.097574	0.11082	liquid
70.000	2800.0	57.925	0.017264	9.4932	10.409	47.030	40.427	92.504	2005.0	0.0029311	0.098745	0.11175	liquid
70.000	2900.0	58.184	0.017187	9.4503	10.394	46.870	40.418	91.670	2030.4	0.0027140	0.099894	0.11267	liquid
70.000	3000.0	58.435	0.017113	9.4087	10.381	46.715	40.412	90.892	2055.1	0.0025097	0.10102	0.11356	liquid

Auxiliary Data

Reference States

Internal energy	U = 0 at 273.16 K for saturated liquid.
Entropy	S = 0 at 273.16 K for saturated liquid.

Additional fluid properties

Critical temperature (T_c)	87.7608 F
Critical pressure (P_c)	1070.0 psia
Critical density (D_c)	29.1913 lbm/ft ³
Acentric factor	0.22394
Normal boiling point	-109.1 F
Dipole moment	0.0 Debye

References**Equation of state, auxiliary model, melting curve, and sublimation curve**

Span, R.; Wagner, W., *A New Equation of State for Carbon Dioxide Covering the Fluid Region from the Triple-Point Temperature to 1100 K at Pressures up to 800 MPa*, **J. Phys. Chem. Ref. Data**, 1996, 25, 6, 1509-1596. [all data]

Auxiliary model

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Additional Information**Equation of state**

At pressures up to 30 MPa and temperatures up to 523 K, the estimated uncertainty ranges from 0.03% to 0.05% in density, 0.03% (in the vapor) to 1% in the speed of sound (0.5% in the liquid) and 0.15% (in the vapor) to 1.5% (in the liquid) in heat capacity. Special interest has been focused on the description of the critical region and the extrapolation behavior of the formulation (to the limits of chemical stability).

Auxiliary model

Use of this Cp0 equation in conjunction with Ely's BWR will produce numbers identical to those calculated in NIST12, Version 3.0.

Thermal conductivity

Note: Vesovic et al. use a crossover equation of state to compute derivatives in the critical region; the default EOS is used here. Also, their "simplified" critical enhancement for thermal conductivity is used.

The uncertainty in thermal conductivity is less than 5%.

Viscosity

The uncertainty in viscosity ranges from 0.3% in the dilute gas near room temperature to 5% at the highest pressures.

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Isothermal Properties for Carbon dioxide

- Fluid Data
- Auxiliary Data
- References
- Additional Information
- Important Information About This Data
- Notes
- **Other Data Available:**
 - View data with display applet. (requires Java capable browser).
 - Download data as a tab-delimited text file.
 - Main NIST Chemistry WebBook page for this species.
 - Recommended citation for data from this page.
 - Fluid data for other species

Fluid Data

Isothermal Data for T = 80.000 F

Temperature (F)	Pressure (psia)	Density (lbm/ft ³)	Volume (ft ³ /lbm)	Internal Energy (kJ/mol)	Enthalpy (kJ/mol)	Entropy (J/mol*K)	Cv (J/mol*K)	Cp (J/mol*K)	Sound Spd. (ft/s)	Joule- Thomson (F/psia)	Viscosity (cP)	Therm. Cond. (W/m*K)	Phase
80.000	900.00	12.452	0.080310	16.879	18.249	75.739	44.369	161.63	666.14	0.12540	0.018682	0.032642	vapor
80.000	969.57	16.587	0.060289	15.964	17.072	71.501	54.568	501.95	609.46	0.11264	0.021173	0.052681	vapor
80.000	969.57	42.618	0.023464	12.000	12.431	56.022	49.011	369.17	815.91	0.033155	0.053524	0.080519	liquid
80.000	1000.0	43.873	0.022793	11.836	12.268	55.435	46.709	277.01	904.55	0.028235	0.056082	0.079708	liquid
80.000	1100.0	46.227	0.021632	11.517	11.967	54.291	44.212	191.22	1067.4	0.020818	0.061279	0.081568	liquid
80.000	1200.0	47.703	0.020963	11.308	11.784	53.547	43.097	161.84	1175.4	0.017070	0.064837	0.083970	liquid
80.000	1300.0	48.822	0.020483	11.146	11.650	52.968	42.415	145.72	1260.6	0.014603	0.067706	0.086186	liquid
80.000	1400.0	49.738	0.020105	11.010	11.544	52.485	41.951	135.15	1332.5	0.012790	0.070176	0.088199	liquid
80.000	1500.0	50.520	0.019794	10.893	11.456	52.066	41.617	127.54	1395.4	0.011373	0.072378	0.090042	liquid
80.000	1600.0	51.206	0.019529	10.789	11.381	51.693	41.365	121.72	1451.7	0.010221	0.074384	0.091746	liquid
80.000	1700.0	51.820	0.019298	10.695	11.317	51.355	41.170	117.09	1502.9	0.0092594	0.076242	0.093335	liquid
80.000	1800.0	52.377	0.019092	10.609	11.260	51.045	41.015	113.31	1550.1	0.0084388	0.077982	0.094827	liquid
80.000	1900.0	52.888	0.018908	10.530	11.210	50.758	40.891	110.14	1594.0	0.0077277	0.079625	0.096237	liquid
80.000	2000.0	53.361	0.018740	10.455	11.165	50.490	40.789	107.44	1635.0	0.0071033	0.081187	0.097578	liquid
80.000	2100.0	53.803	0.018586	10.386	11.125	50.238	40.706	105.10	1673.8	0.0065492	0.082682	0.098856	liquid
80.000	2200.0	54.217	0.018444	10.320	11.089	49.999	40.636	103.05	1710.4	0.0060530	0.084118	0.10008	liquid
80.000	2300.0	54.607	0.018313	10.258	11.056	49.773	40.579	101.24	1745.3	0.0056052	0.085503	0.10126	liquid
80.000	2400.0	54.977	0.018190	10.198	11.025	49.557	40.531	99.622	1778.5	0.0051983	0.086843	0.10239	liquid
80.000	2500.0	55.328	0.018074	10.142	10.998	49.351	40.490	98.167	1810.4	0.0048265	0.088142	0.10349	liquid
80.000	2600.0	55.663	0.017965	10.088	10.973	49.153	40.456	96.850	1841.0	0.0044849	0.089407	0.10455	liquid
80.000	2700.0	55.983	0.017863	10.036	10.950	48.962	40.428	95.649	1870.4	0.0041697	0.090639	0.10558	liquid
80.000	2800.0	56.290	0.017765	9.9861	10.928	48.779	40.405	94.550	1898.9	0.0038775	0.091842	0.10658	liquid
80.000	2900.0	56.585	0.017673	9.9379	10.909	48.602	40.385	93.538	1926.3	0.0036058	0.093018	0.10755	liquid
80.000	3000.0	56.868	0.017584	9.8915	10.891	48.430	40.370	92.602	1953.0	0.0033522	0.094170	0.10850	liquid

Auxiliary Data

Reference States

Internal energy	U = 0 at 273.16 K for saturated liquid.
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Entropy	$S = 0$ at 273.16 K for saturated liquid.
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Additional fluid properties

Critical temperature (T_c)	87.7608 F
Critical pressure (P_c)	1070.0 psia
Critical density (D_c)	29.1913 lbm/ft ³
Acentric factor	0.22394
Normal boiling point	-109.1 F
Dipole moment	0.0 Debye

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