

DATE IN <u>10.12.10</u>	SUSPENSE	ENGINEER <u>TW</u>	LOGGED IN <u>10.12.10</u>	TYPE <u>EOR</u>	APP NO. <u>1028557591</u>
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ABOVE THIS LINE FOR DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION

- Engineering Bureau -

1220 South St. Francis Drive, Santa Fe, NM 87505



RECEIVED Beach Explor. 1903
12 P 1:20
6 will

ADMINISTRATIVE APPLICATION CHECKLIST EQU 7, 11, 12, 15, 17 & 22

THIS CHECKLIST IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE

Application Acronyms:

[NSL-Non-Standard Location] [NSP-Non-Standard Proration Unit] [SD-Simultaneous Dedication] " " - 03542V
 [DHC-Downhole Commingling] [CTB-Lease Commingling] [PLC-Pool/Lease Commingling] " " - 25856V
 [PC-Pool Commingling] [OLS - Off-Lease Storage] [OLM-Off-Lease Measurement] " " - 26190V
 [WFX-Waterflood Expansion] [PMX-Pressure Maintenance Expansion] " " - 10235V
 [SWD-Salt Water Disposal] [IPI-Injection Pressure Increase] " " - 25887V
 [EOR-Qualified Enhanced Oil Recovery Certification] [PPR-Positive Production Response] " " - 25888V

- [1] **TYPE OF APPLICATION** - Check Those Which Apply for [A]
- [A] Location - Spacing Unit - Simultaneous Dedication
☐ NSL ☐ NSP ☐ SD
- Check One Only for [B] or [C]
- [B] Commingling - Storage - Measurement
☐ DHC ☐ CTB ☐ PLC ☐ PC ☐ OLS ☐ OLM
- [C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery
☐ WFX ☐ PMX ☐ SWD ☒ IPI ☒ EOR ☐ PPR
- [D] Other: Specify _____
- [2] **NOTIFICATION REQUIRED TO:** - Check Those Which Apply, or Does Not Apply
- [A] ☐ Working, Royalty or Overriding Royalty Interest Owners
- [B] ☒ Offset Operators, Leaseholders or Surface Owner
- [C] ☐ Application is One Which Requires Published Legal Notice
- [D] ☐ Notification and/or Concurrent Approval by BLM or SLO
 U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office
- [E] ☒ For all of the above, Proof of Notification or Publication is Attached, and/or,
- [F] ☐ Waivers are Attached

R-12833
[1000psi]

Artesia

Pool ID

61020

Shattuck Formation

- [3] **SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED ABOVE.**

[4] **CERTIFICATION:** I hereby certify that the information submitted with this application for administrative approval is **accurate** and **complete** to the best of my knowledge. I also understand that **no action** will be taken on this application until the required information and notifications are submitted to the Division.

Note: Statement must be completed by an individual with managerial and/or supervisory capacity.

Jack M. Rose
Print or Type Name

Signature

Engineer
Title

10/6/2010
Date

jrose@beachexp.com
e-mail Address



October 6, 2010

Mark E. Fesmire, P.E.
Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

RE: Request for increased injection pressure on select wells
Eastland Queen Unit (Order R-12833)
Eddy County, New Mexico

Dear Mr. Fesmire:

Beach Exploration Inc. respectfully requests administrative approval to increase the surface injection pressure on six wells in the Eastland Queen Unit pursuant to Order Paragraph 17 in Order No. R-12833.

Beach estimates that to reach peak oil response in this project that a fill-up volume of 1,195,000 barrels of water will have to be injected. In our Unit hearing (Case #'s 13972 & 13973), we estimated that this volume could be reached in thirty months by injecting an estimated 1,300 barrels of water per day. After one and one half years, we have injected 242,000 barrels of water and are only injecting about 850 barrels of water per day. At this rate we will reach fill-up and corresponding peak oil response in four and one half years versus an original projection of two and one-half years. This will significantly impact our economics.

Beach is currently focused on increasing water injection. We developed a calcium sulfate scale problem which we have now resolved and need to make as much headway as we can to inject more water. We have run step-rate-tests on the remaining six unit injection wells that fracture above the current authorized pressure of 1,000 psi. The results of those tests are summarized below and the six individual step-rate-tests are enclosed for your review as Exhibit A.

Beach would like to inject up to, but not beyond, surface fracture pressure in these wells. The technical literature indicates that when fracture gradients approach overburden pressure (1 psi/ft) that fracture planes occur horizontally versus vertically. With our fracture gradient averaging 0.98 psi/ft (normal frac gradients are 0.7 psi/ft) for the flood, it is very probable that induced fractures in the Queen will be horizontal and will not pose a threat to other zones. Additionally, horizontal fractures in the water-flood interval would allow water to bypass a significant amount of oil and would be extremely detrimental to our flood results. Fracturing is a function of pressure and cumulative volume injected. We are able to detect fracturing through the use of Hall plots. These plots are prepared and monitored monthly on each of our injection wells and, if we see any evidence of fracturing, the injection pressure is reduced to prevent the fracture growth.

Eastland Queen Unit Step-Rate-Tests

<u>Well #</u>	<u>Date</u>	Surface	<i>Top Part</i>		Bottom Hole	<u>Mid Perf</u>	<u>Frac-Gradient (PSI / FT)</u>	<i>old</i>	<i>new</i>
		<u>Frac Press (psi)</u>	<u>Frac Press (psi)</u>	<u>Frac Press (psi)</u>	<u>Frac Press (psi)</u>			<i>grad</i>	
EQU # 7	29-Sep-2010	1,250	2400		2,300	2,414	0.95	.42	.52
EQU # 11	30-Sep-2010	1,680	1360 2414		2,725	2,433	1.12	.41	.56
EQU # 12	23-Jul-2010	1,260	2272		2,260	2,292	0.99	.44	.56
EQU # 15	22-Jul-2010	1,230	2270		2,230	2,280	0.98	.44	.54
EQU # 17	29-Sep-2010	1,350	2360		2,375	2,374	1.00	.42	.57
EQU # 22	23-Jul-2010	1,520	1270 2326		2,530	2,331	1.09	.43	.50
	Avg	1,382				Avg	1.02		

Additional well information is included as Exhibit B. Beach has notified offset operators of this request, as shown on Exhibit C.

Thank you for your consideration. If you have any questions please call me at (432) 683-6226.

Yours truly,

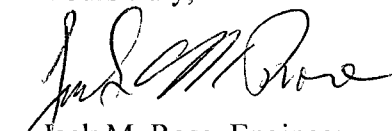

 Jack M. Rose, Engineer
 Beach Exploration, Inc.

EXHIBIT A

Beach Exploration, Inc.

Eastland Queen Unit

Eddy County, New Mexico

October 4, 2010

Administrative Injection Pressure Increase

Six Individual Well Step Rate Tests

STEP RATE TEST

EQU #7

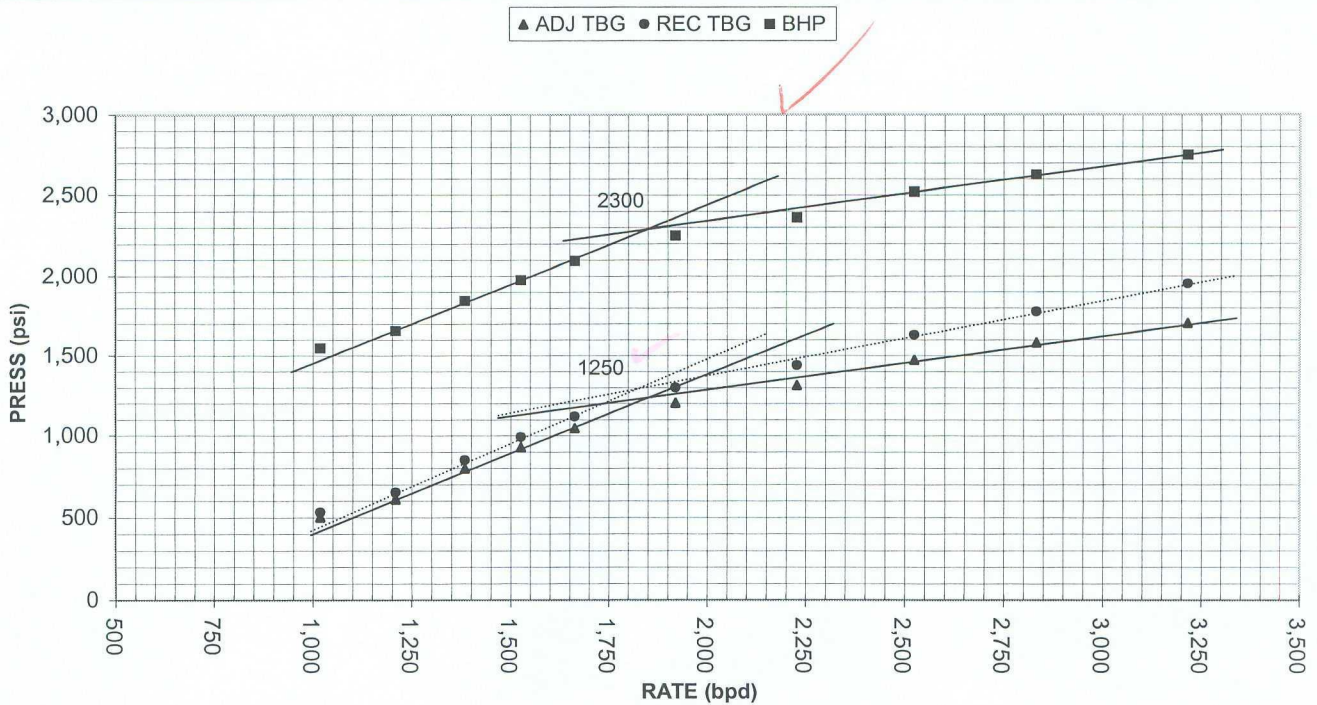
9/29/2010

Perforations Top Bot
2400 2428

2318 Packer Depth
2414 Mid Perf

SITP 50

MIN	REC TBG PRESS	REC RATE BPD	CUM BBL PUMP	15 MIN AVG BPD	REC TBG PRESS	RATE GPM	FRICT LOSS PSI	ADJ TBG PRESS	CALC BHP
5	450	1,025							
10	475	1,012							
15	530	1,018	10.61	1,019	530	29.7	29.2	501	1,546
20	600	1,206							
25	625	1,211							
30	650	1,208	23.20	1,209	650	35.3	40.1	610	1,655
35	775	1,388							
40	820	1,385							
45	850	1,384	37.62	1,384	850	40.4	51.5	798	1,844
50	925	1,555							
55	950	1,526							
60	990	1,526	53.52	1,526	990	44.5	61.7	928	1,974
65	1,060	1,621							
70	1,090	1,645							
75	1,120	1,663	70.85	1,664	1,120	48.5	72.4	1,048	2,093
80	1,225	1,915							
85	1,275	1,915							
90	1,300	1,920	90.85	1,920	1,300	56.0	94.4	1,206	2,251
95	1,380	2,218							
100	1,420	2,215							
105	1,440	2,228	114.06	2,228	1,440	65.0	124.3	1,316	2,361
110	1,570	2,503							
115	1,600	2,518							
120	1,630	2,524	140.35	2,524	1,630	73.6	156.5	1,473	2,519
125	1,680	2,808							
130	1,710	2,830							
135	1,775	2,832	169.85	2,832	1,775	82.6	193.7	1,581	2,627
140	1,900	2,780							
145	1,925	3,146							
150	1,950	3,216	203.35	3,216	1,950	93.8	245.1	1,705	2,750



EQU #7 Step Rate Test

STEP RATE TEST

EQU #11

9/30/2010

Perforations

Top
2414

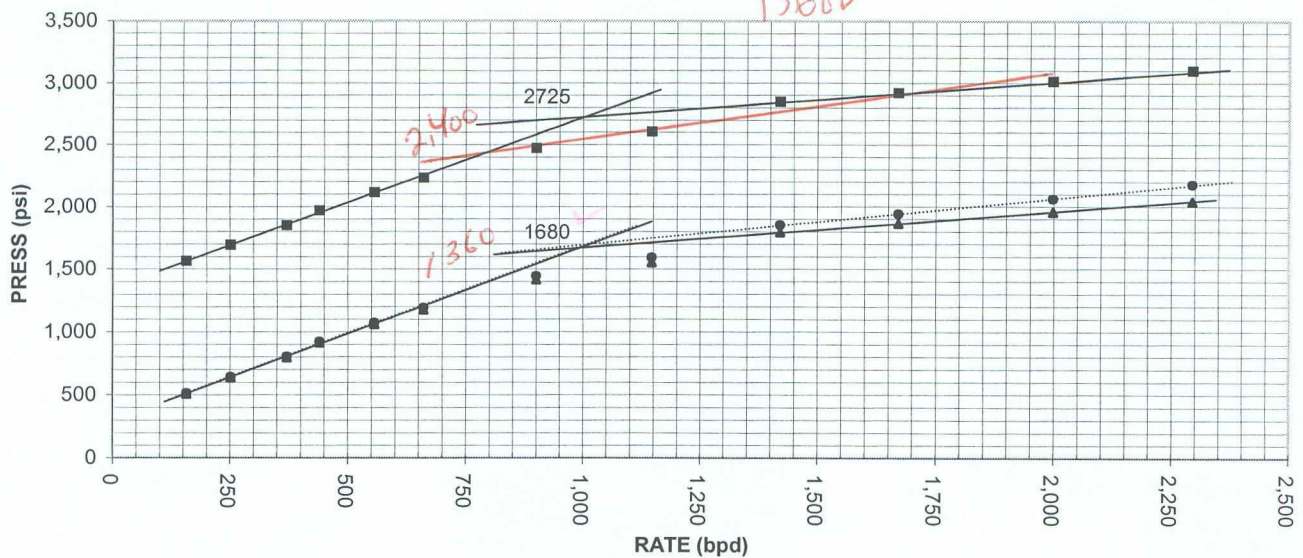
Bot
2452

2375 Packer Depth
2433 Mid Perf

SITP 300

MIN	REC TBG PRESS	REC RATE BPD	CUM BBL PUMP	15 MIN AVG BPD	REC TBG PRESS	RATE GPM	FRICT LOSS PSI	ADJ TBG PRESS	CALC BHP
5	450	158							
10	490	155							
15	510	157	1.64	157	510	4.6	0.9	509	1,563
20	580	248							
25	620	253							
30	640	252	4.26	252	640	7.3	2.3	638	1,691
35	740	360							
40	775	367							
45	800	371	8.13	371	800	10.8	4.6	795	1,849
50	870	439							
55	890	441							
60	920	440	12.71	440	920	12.8	6.3	914	1,967
65	1,020	432							
70	1,050	551							
75	1,070	556	18.51	557	1,070	16.2	9.8	1,060	2,114
80	1,130	624							
85	1,170	648							
90	1,190	660	25.39	660	1,190	19.3	13.4	1,177	2,230
95	1,380	895							
100	1,420	897							
105	1,440	900	34.78	901	1,440	26.3	23.9	1,416	2,470
110	1,550	1,137							
115	1,575	1,144							
120	1,590	1,147	46.73	1,147	1,590	33.5	37.3	1,553	2,606
125	1,825	1,368							
130	1,840	1,400							
135	1,850	1,420	61.53	1,421	1,850	41.4	55.4	1,795	2,848
140	1,920	1,670							
145	1,925	1,674							
150	1,940	1,670	78.93	1,671	1,940	48.7	74.8	1,865	2,919
155	2,050	1,935							
160	2,055	1,990							
165	2,060	1,998	99.75	1,999	2,060	58.3	104.2	1,956	3,009
170	2,160	2,275							
175	2,170	2,290							
180	2,175	2,294	123.65	2,294	2,175	66.9	134.5	2,041	3,094

▲ ADJ TBG ● REC TBG ■ BHP



EQU #11 Step Rate Test

STEP RATE TEST

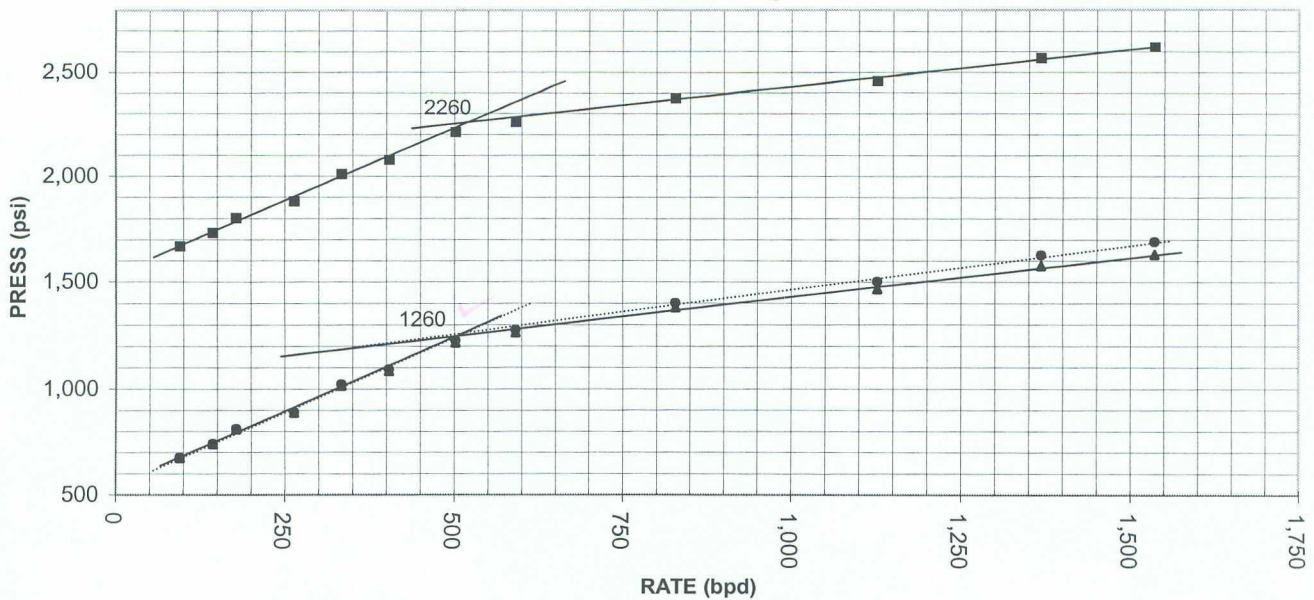
EQU #12

7/23/2010

Perforations Top Bot 2254 Packer Depth
2272 2311 2292 Mid Perf SITP 500

MIN	REC TBG PRESS	REC RATE BPD	CUM BBL PUMP	15 MIN AVG BPD	REC TBG PRESS	RATE GPM	FRICT LOSS PSI	ADJ TBG PRESS	CALC BHP
5	620	86							
10	625	90							
15	675	95	0.99	95	675	2.8	0.4	675	1,667
20	700	135							
25	720	140							
30	740	144	2.49	144	740	4.2	0.8	739	1,732
35	775	188							
40	800	181							
45	810	179	4.35	179	810	5.2	1.1	809	1,801
50	825	240							
55	875	265							
60	890	264	7.10	264	890	7.7	2.3	888	1,880
65	975	332							
70	990	332							
75	1,020	334	10.58	334	1,020	9.7	3.6	1,016	2,009
80	1,075	408							
85	1,080	403							
90	1,090	404	14.79	404	1,090	11.8	5.1	1,085	2,077
95	1,200	508							
100	1,210	501							
105	1,225	502	20.02	502	1,225	14.6	7.7	1,217	2,210
110	1,225	617							
115	1,250	587							
120	1,275	591	26.18	591	1,275	17.2	10.4	1,265	2,257
125	1,350	785							
130	1,400	823							
135	1,400	828	34.81	828	1,400	24.2	19.4	1,381	2,373
140	1,450	1,114							
145	1,475	1,123							
150	1,500	1,127	46.55	1,127	1,500	32.9	34.3	1,466	2,458
155	1,575	1,339							
160	1,625	1,360							
165	1,625	1,368	60.80	1,368	1,625	39.9	49.0	1,576	2,568
170	1,675	1,569							
175	1,675	1,550							
180	1,690	1,536	76.80	1,536	1,690	44.8	60.7	1,629	2,622

▲ ADJ TBG ● REC TBG ■ BHP



EQU #12 Step Rate Test

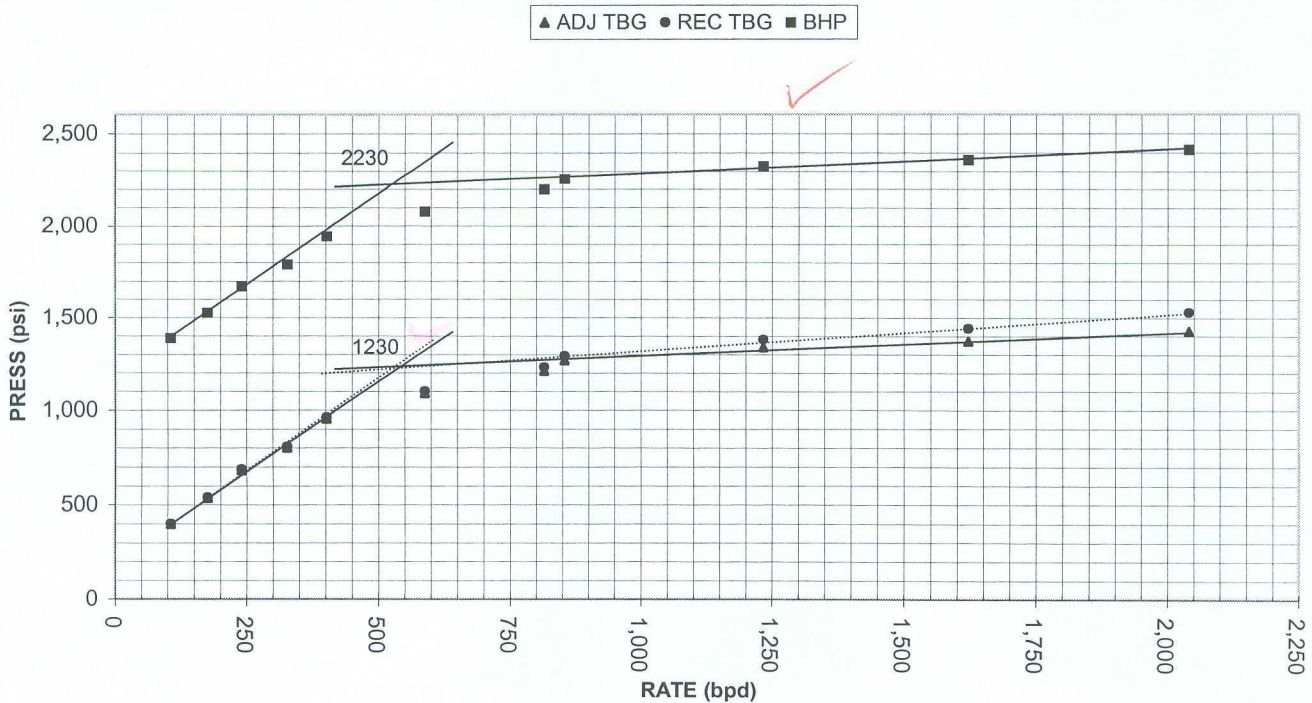
STEP RATE TEST

EQU #15

7/22/2010

Perforations Top 2270 Bot 2290 2243 Packer Depth 2280 Mid Perf SITP 50

MIN	REC TBG PRESS	REC RATE BPD	CUM BBL PUMP	15 MIN AVG BPD	REC TBG PRESS	RATE GPM	FRICT LOSS PSI	ADJ TBG PRESS	CALC BHP
5	320	140							
10	380	130							
15	400	125	1.10	106	400	3.1	0.4	400	1,387
20	475	173							
25	500	176							
30	538	176	2.93	176	538	5.1	1.1	537	1,524
35	600	250							
40	650	245							
45	685	241	5.44	241	685	7.0	2.0	683	1,670
50	725	360							
55	770	335							
60	805	336	8.85	327	805	9.5	3.5	802	1,789
65	880	432							
70	920	415							
75	960	402	13.04	402	960	11.7	5.1	955	1,942
80	1,010	576							
85	1,050	580							
90	1,100	588	19.17	588	1,100	17.2	10.2	1,090	2,077
95	1,160	890							
100	1,190	850							
105	1,230	815	27.66	815	1,230	23.8	18.7	1,211	2,199
110	1,250	870							
115	1,275	863							
120	1,290	854	36.56	854	1,290	24.9	20.4	1,270	2,257
125	1,360	1,280							
130	1,375	1,213							
135	1,380	1,233	49.41	1,234	1,380	36.0	40.3	1,340	2,327
140	1,425	1,640							
145	1,430	1,612							
150	1,440	1,621	66.30	1,621	1,440	47.3	66.8	1,373	2,360
155	1,525	2,004							
160	1,525	2,031							
165	1,530	2,041	87.56	2,041	1,530	59.5	102.3	1,428	2,415



EQU #15 Step Rate Test

STEP RATE TEST

EQU #17

9/29/2010

Perforations

Top
2360

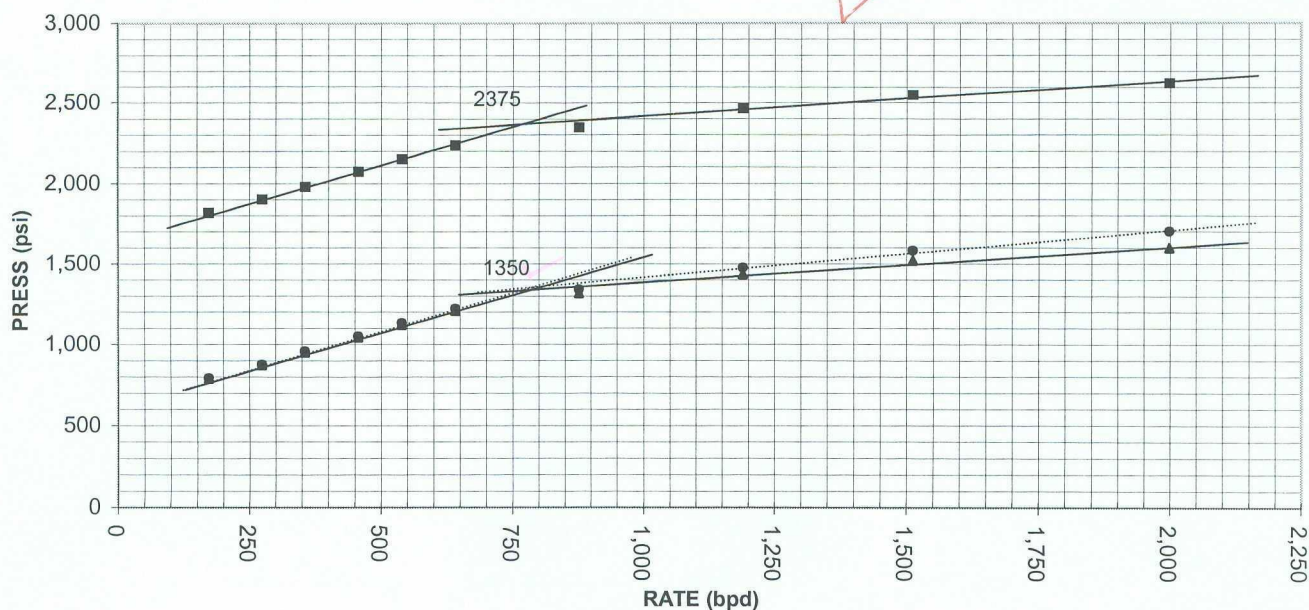
Bot
2388

2347 Packer Depth
2374 Mid Perf

SITP 600

MIN	REC TBG PRESS	REC RATE BPD	CUM BBL PUMP	15 MIN AVG BPD	REC TBG PRESS	RATE GPM	FRICT LOSS PSI	ADJ TBG PRESS	CALC BHP
5	680	173							
10	720	173							
15	790	173	1.80	173	790	5.0	1.1	789	1,817
20	830	259							
25	860	263							
30	875	275	4.66	275	875	8.0	2.6	872	1,900
35	925	334							
40	940	344							
45	955	356	8.37	356	955	10.4	4.2	951	1,979
50	1,020	426							
55	1,040	447							
60	1,050	456	13.13	457	1,050	13.3	6.7	1,043	2,071
65	1,100	539							
70	1,125	540							
75	1,130	540	18.75	540	1,130	15.7	9.1	1,121	2,149
80	1,170	620							
85	1,180	636							
90	1,220	640	25.43	641	1,220	18.7	12.6	1,207	2,235
95	1,280	847							
100	1,325	870							
105	1,340	877	34.56	876	1,340	25.6	22.4	1,318	2,346
110	1,430	1,178							
115	1,450	1,186							
120	1,475	1,189	46.95	1,189	1,475	34.7	39.4	1,436	2,464
125	1,560	1,500							
130	1,575	1,513							
135	1,580	1,512	62.70	1,512	1,580	44.1	61.4	1,519	2,547
140	1,650	1,987							
145	1,700	1,987							
150	1,700	1,998	83.52	1,999	1,700	58.3	102.9	1,597	2,625
155	1,775	2,413							
160	1,780	2,430							
165	1,785	2,436	108.90	2,436	1,785	71.1	148.5	1,636	2,664

▲ ADJ TBG ● REC TBG ■ BHP



EQU #17 Step Rate Test

STEP RATE TEST

EQU #22

7/23/2010

Perforations Top 2326 Bot 2336

2287 Packer Depth
2331 Mid Perf

SITP 500

MIN	REC TBG PRESS	REC RATE BPD	CUM BBL PUMP	15 MIN AVG BPD	REC TBG PRESS	RATE GPM	FRICT LOSS PSI	ADJ TBG PRESS	CALC BHP
5	740	140							
10	770	130							
15	790	125	1.33	128	790	3.7	0.6	789	1,799
20	825	173							
25	850	176							
30	880	176	2.84	145	880	4.2	0.8	879	1,889
35	950	250							
40	980	245							
45	1,000	241	4.90	198	1,000	5.8	1.4	999	2,008
50	1,070	360							
55	1,070	335							
60	1,100	336	7.23	224	1,100	6.5	1.7	1,098	2,108
65	1,150	432							
70	1,160	415							
75	1,160	402	9.77	244	1,160	7.1	2.0	1,158	2,167
80	1,220	576							
85	1,240	580							
90	1,250	588	12.81	292	1,250	8.5	2.9	1,247	2,256
95	1,300	890							
100	1,300	850							
105	1,300	815	16.07	313	1,300	9.1	3.2	1,297	2,306
110	1,390	870							
115	1,410	863							
120	1,440	854	20.92	466	1,440	13.6	6.8	1,433	2,443
125	1,580	1,280							
130	1,620	1,213							
135	1,630	1,233	28.98	774	1,630	22.6	17.3	1,613	2,622
140	1,670	1,640							
145	1,670	1,612							
150	1,675	1,621	38.55	919	1,675	26.8	23.8	1,651	2,661
155	1,750	2,004							
160	1,770	2,031							
165	1,775	2,041	52.20	1,310	1,775	38.2	45.9	1,729	2,738

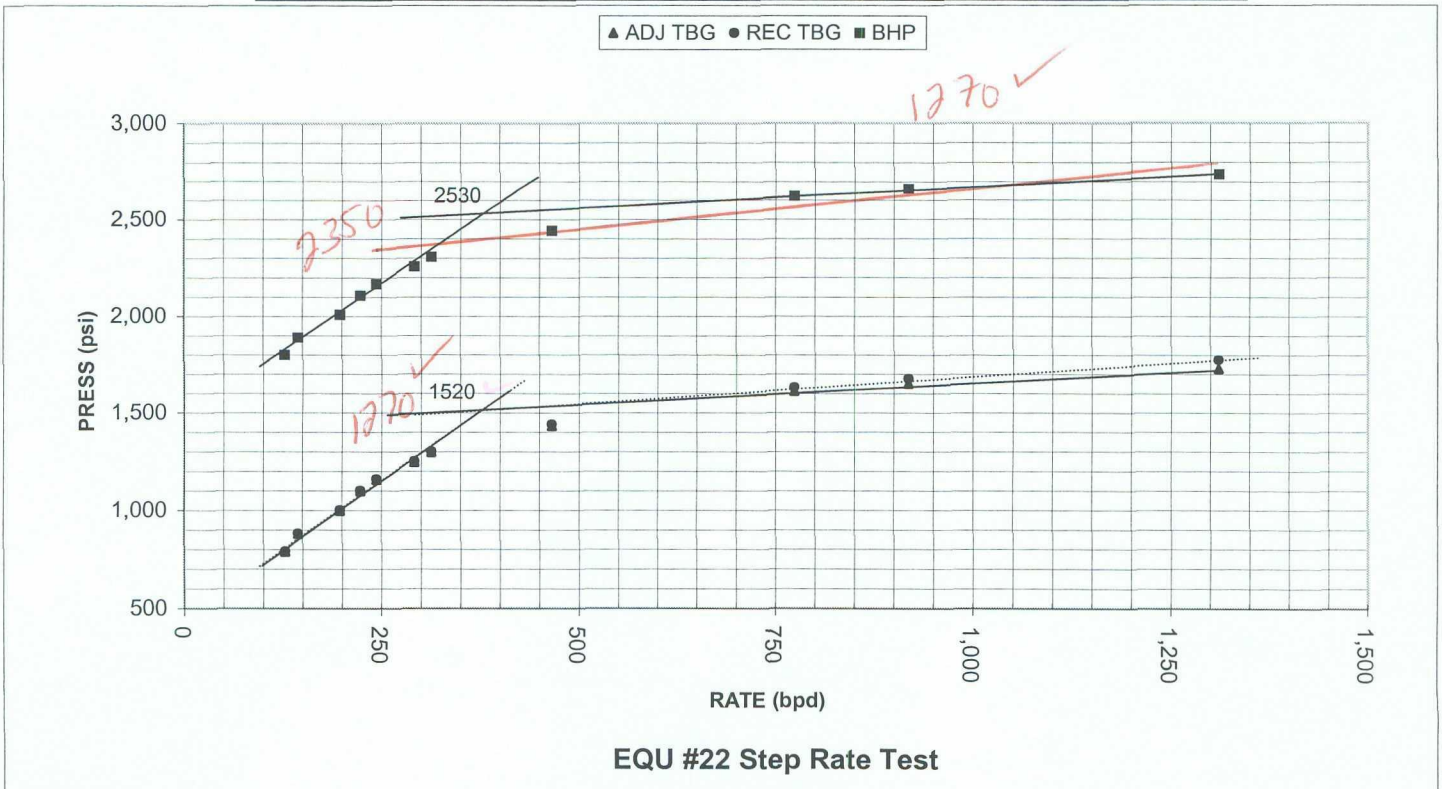


EXHIBIT B

Beach Exploration, Inc.

Eastland Queen Unit

Eddy County, New Mexico

October 4, 2010

Administrative Injection Pressure Increase

Well information - Step Rate Wells

<u>UNIT DESIGNATION</u>	<u>PERFORATIONS</u>	<u>FOOTAGE</u>	<u>SEC-UNIT</u>	<u>TWP</u>	<u>RNG</u>	<u>API</u>
EQU # 7	2,400' - 2,428'	1,650' FNL 990' FEL	1-H	19S	29E	30-015-25888 ✓
EQU # 11	2,414' - 2,452'	2,310' FNL 330' FEL	1-H	19S	29E	30-015-03542 ✓
EQU # 12	2,272' - 2,311'	2,310' FSL 990' FWL	1-L	19S	29E	30-015-25856 ✓
EQU # 15	2,270' - 2,290'	1,650' FSL 1,650' FEL	2-J	19S	29E	30-015-26190 ✓
EQU # 17	2,360' - 2,388'	1,470' FSL 2,420' FWL	1-K	19S	29E	30-015-10235-0001 ✓
EQU # 22	2,326' - 2,336'	990' FSL 990' FWL	1-M	19S	29E	30-015-25887 ✓

New
Property Code
36974



October 6, 2010

CERTIFIED MAIL – RETURN RECEIPT REQUESTED

To: Persons on Exhibit A

Ladies and gentlemen:

Enclosed is a copy of an application to increase injection pressures in the Eastland Queen Unit, filed with the New Mexico Oil Conservation Division by Beach Exploration, Inc. The Eastland Queen Unit covers parts of Sections 1, 2 and 11, Township 19 South, Range 29 East, N.M.P.M., Eddy County, New Mexico. If you object to the granting of the request, you must notify the Division (1220 South St. Francis Drive, Santa Fe, New Mexico 87505) within 15 days of the date of receipt of this letter. Failure to submit your objection will preclude you from contesting this matter at a later date.

Yours truly,

Jack M. Rose, Engineer
Beach Exploration, Inc.

EXHIBIT C

EXHIBIT A

Offset operators:

MYCO Industries, Inc.

P. O. Box 840

Artesia, New Mexico 88211

Mewbourne Oil Company

500 West Texas, Suite 1020

Midland, Texas 79701

JKM Energy, LLC

26 East Compress Road

Artesia, New Mexico 88210

Chisos, Ltd.

670 S.W. Dona Ana Road

Deming, New Mexico 88080

H. Dwayne & Rhonda K. Parish

1306 South Ninth Street

Artesia, New Mexico 88210

Robinson Oil, Inc.

P. O. Box 1829

Eunice, New Mexico 88231

Edge Petroleum Operating Company, Inc.

1301 Travis, Suite 2000

Houston, Texas 77002

Chi Operating, Inc.

P. O. Box 1799

Midland, Texas 79702

Bold Energy, LP

415 W. Wall, Suite 500

Midland, Texas 79701

Morexco, Inc.

P. O. Box 1591

Roswell, NM 88202-1591

Zimmerman Oil & Gas Exploration, Inc.

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