NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

GARY E. JOHNSON
Governor
Betty Rivera
Cabinet Secretary

May 6, 2002

Lori Wrotenbery
Director
Oil Conservation Division

Dugan Production Corporation
709 E. Murray Dr
PO Box 420
Farmington, New Mexico 87499-0420

Attn: Mr. John Alexander

Re: Injection Pressure Increase
Stella Needs A Com Well No. 1E SWD
San Juan County, New Mexico

Dear Mr. Alexander:

Reference is made to your request dated April 16, 2002 (received in this office April 18, 2002), to increase the surface injection pressure on the above referenced SWD well. This request is based on a step rate test conducted on the well on April 2, 2002. After reviewing test results, we feel an increase in injection pressure is justified at this time.

This well is equipped with 2 7/8" coated tubing and injection packer. With size and type of tubing remaining the same, you are authorized to increase the surface injection pressure to the following:

Well and Location	**Maximum Surface Injection Pressure**
Stella Needs A Com Well No. 1E SWD (API: 30-045-24265) 1790 FNL, 790 FWL, Sec 36, T30N, R14W, NMPM, San Juan County	1562 PSIG Water

The Division Director may rescind this injection pressure increase if it becomes apparent that the injected water is not being confined to the injection zone or is endangering any fresh water aquifers.

Sincerely,

Lori Wrotenbery
Director

cc: Oil Conservation Division – Aztec
Files: SWD-595; IPI 2002

Jones, William V

From: Dugan [Dugan@cptnet.com]
Sent: Monday, May 06, 2002 2:22 PM
To: Jones, William V
Subject: Re: Stella Needs A Com No. 1E SWD

Will:
Your friction calculation looks correct. I will check with American Energy and see it you have anything with the surface pressure related to the bhp. If I can find it, I'll send it or let you know where it is in the data you already have.

Thanks
John Alexander
----- Original Message -----
From: "Jones, William V" <WVJones@state.nm.us>
To: <dugan@cptnet.com>
Sent: Monday, May 06, 2002 2:09 PM
Subject: FW: Stella Needs A Com No. 1E SWD

> >
> >
> > -----Original Message-----
> > From: Jones, William V
> > Sent: Friday, May 03, 2002 2:56 PM
> > To: 'dugan@cptnet.com'
> > Cc: Catanach, David
> > Subject: Stella Needs A Com No. 1E SWD
> >
> > Hello John Alexander:
> > I am working on your "injection pressure increase" application and have
> > some questions:
> >
> > Did you record surface pressures while running the step rate test? If
so,
> > please send them or let me know where they are. They may be in front of
> > me and I can't find them.
> >
> > If not, would you please calculate the friction loss in the 2 7/8
> > injection tubing at a rate of 7.25 barrels per minute and send me that
> > number? I calculate around 550 psi for 2 7/8 inch plastic coated
tubing.
> >
> > Thanks for sending the BHP data, SG of the injection water, depths of
> > measurement and perfs. The measured 1100 psi surface shutin at test's
end
> > corresponds roughly with the bottom hole pressure at the end of the test
> > (approx 2680) minus the hydrostatic (1606 psi). Now I just need to add
> > the friction and subtract the 50 psi safety factor.
> >
> > Many Regards,
> >
> > William V Jones PE
> > 505-476-3448
> > wvjones@state.nm.us
> > NMOCD
> > 1220 South St Francis Dr.
> > Santa Fe, NM 87505
> >
> >
> >
>

BH FRAC Pressure @ Gauge = 2662
@ Top Perf = 2670
(– Gradient = 1606 ← .4417 × 3635)
+ Friction = 550
Surface = 1614
(– 50 psi Safety) = 1,564 psig

pRRV0411551251 1P1 NA

dugan production corp.

APR 18 2002

April 16, 2002

NMOCD
1220 South St. Frances Drive (Pinon Building)
P.O. Box 6429
Santa Fe, NM 87505

Re: Step Rate Test – Stella Needs A Com No. 1E SWD

Gentlemen:

I request that you approve an increase in the injection pressure allowed at the subject well to the maximum pressure reached during the subject step-rate-test. Attached is the data collected from that test. The data is in graphical, tabular, and disk (in an Excel spreadsheet) formats. My interpretation of the data indicates parting pressure was not reached. I was forced to terminate the test because of surface pressure exceeding the safe limits of the wellhead connections. Please call if you have questions.

Technical Issues:

1. The 1.44 MB disk includes three (3) folders:
   Original Data BHP Company are the files received from the company that ran the bottom hole pressure during the test (Tefteller, Inc.).

   Data American Energy Company are the calculations made by American Energy, which performed the pumping operations.

   Data Dugan Production are my calculations using the data provided by the American and Tefteller.

2. The Point Lookout member of the Mesaverde is a massive sandstone, which I would not expect to part easily until much higher rates are established.

3. The bottom hole pressure recorder was set at 3,622'.

4. The water injected into this well has a specific gravity of 1.02. This calculates to be a hydrostatic column of 0.4417 psi/ft. Water used during the test was the same as that injected during normal injection operations.

5. The surface shut-in pressure after conducting the step-rate-test was 1,100 psi.

6. The last point of the test may indicate a break, but I was experiencing surface problems which cause me to doubt the accuracy of this point.

Sincerely,

DUGANJ@CPTNET.COM

John Alexander
Vice-President

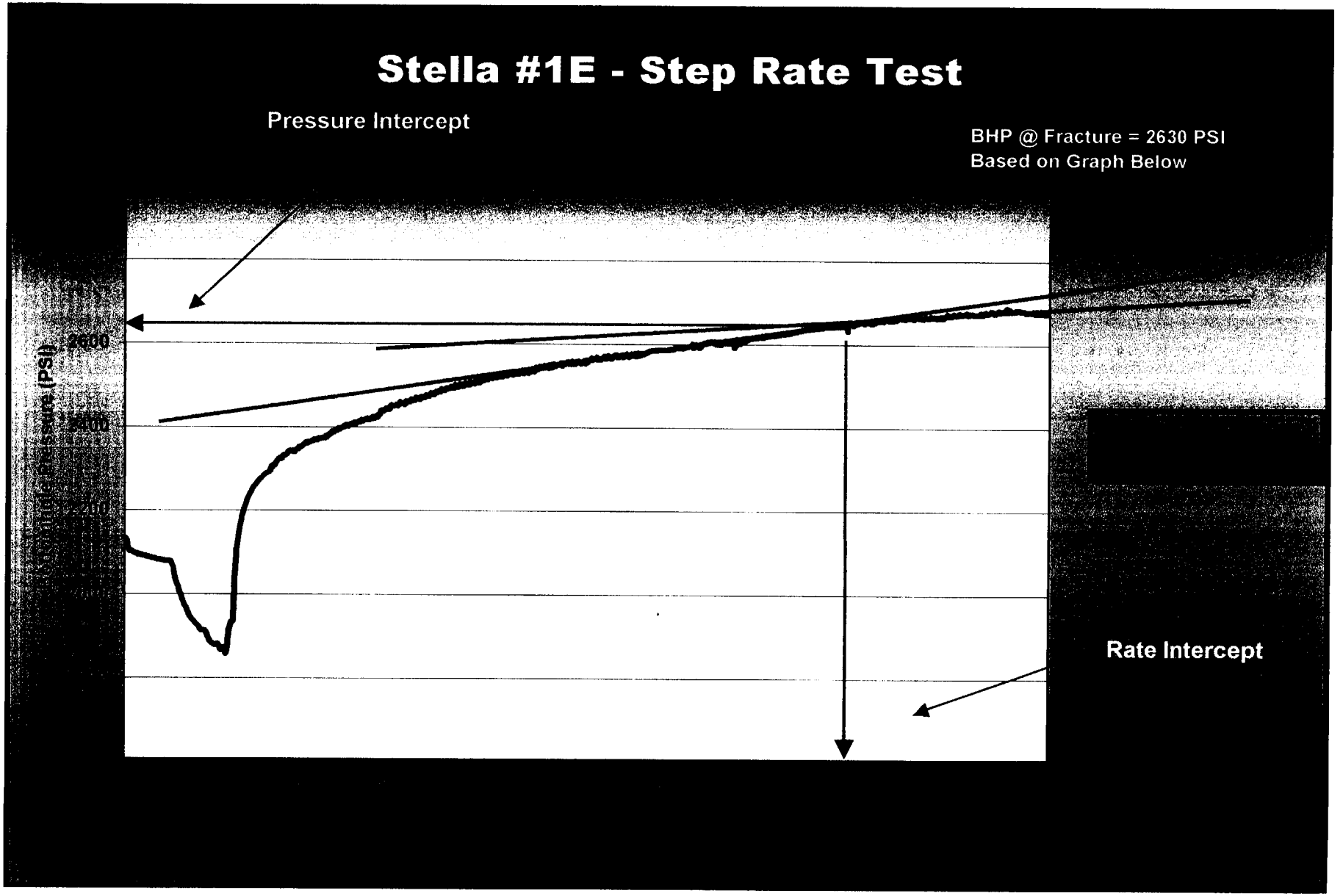
JA:sh

Enclosures

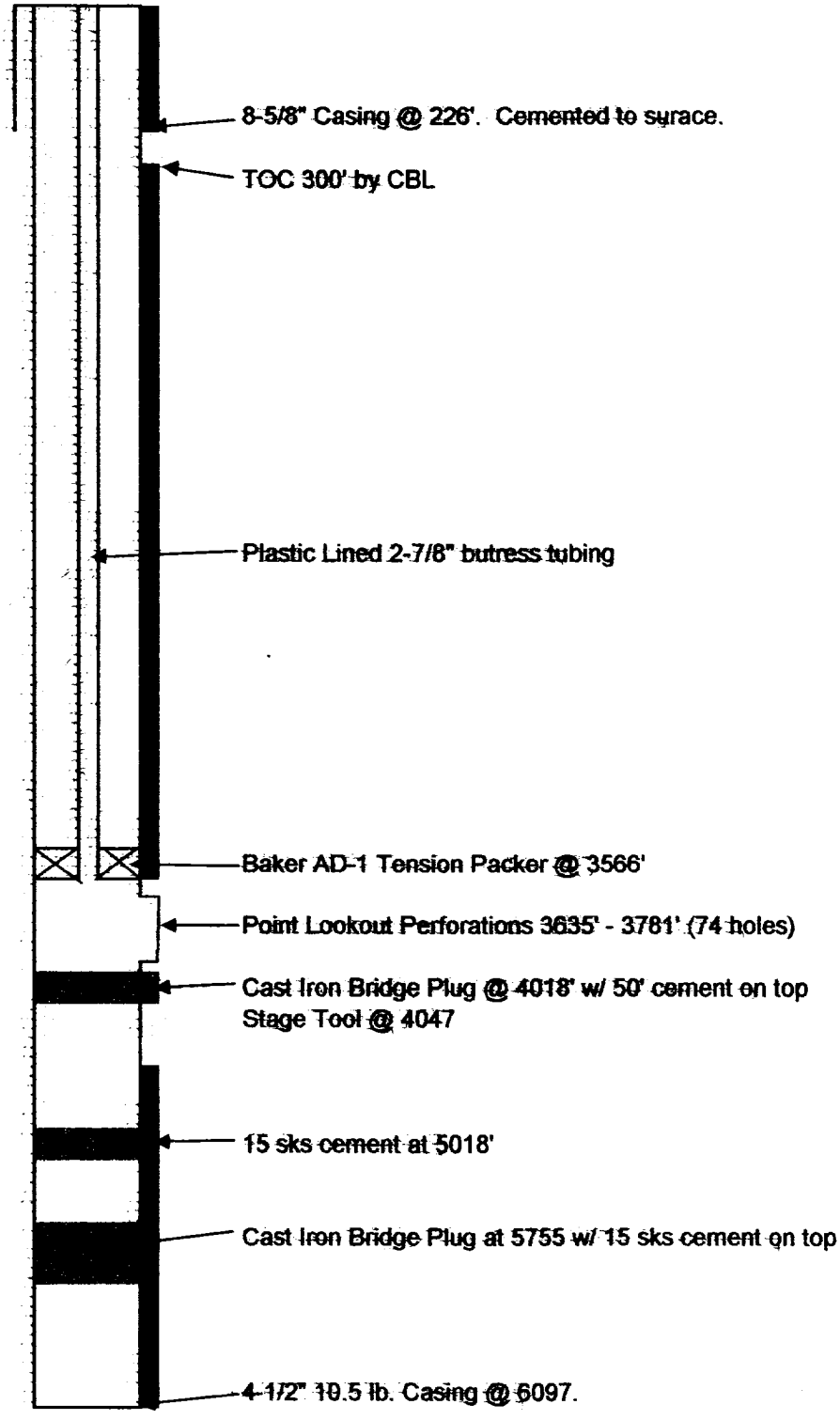
SWD-595
727psi

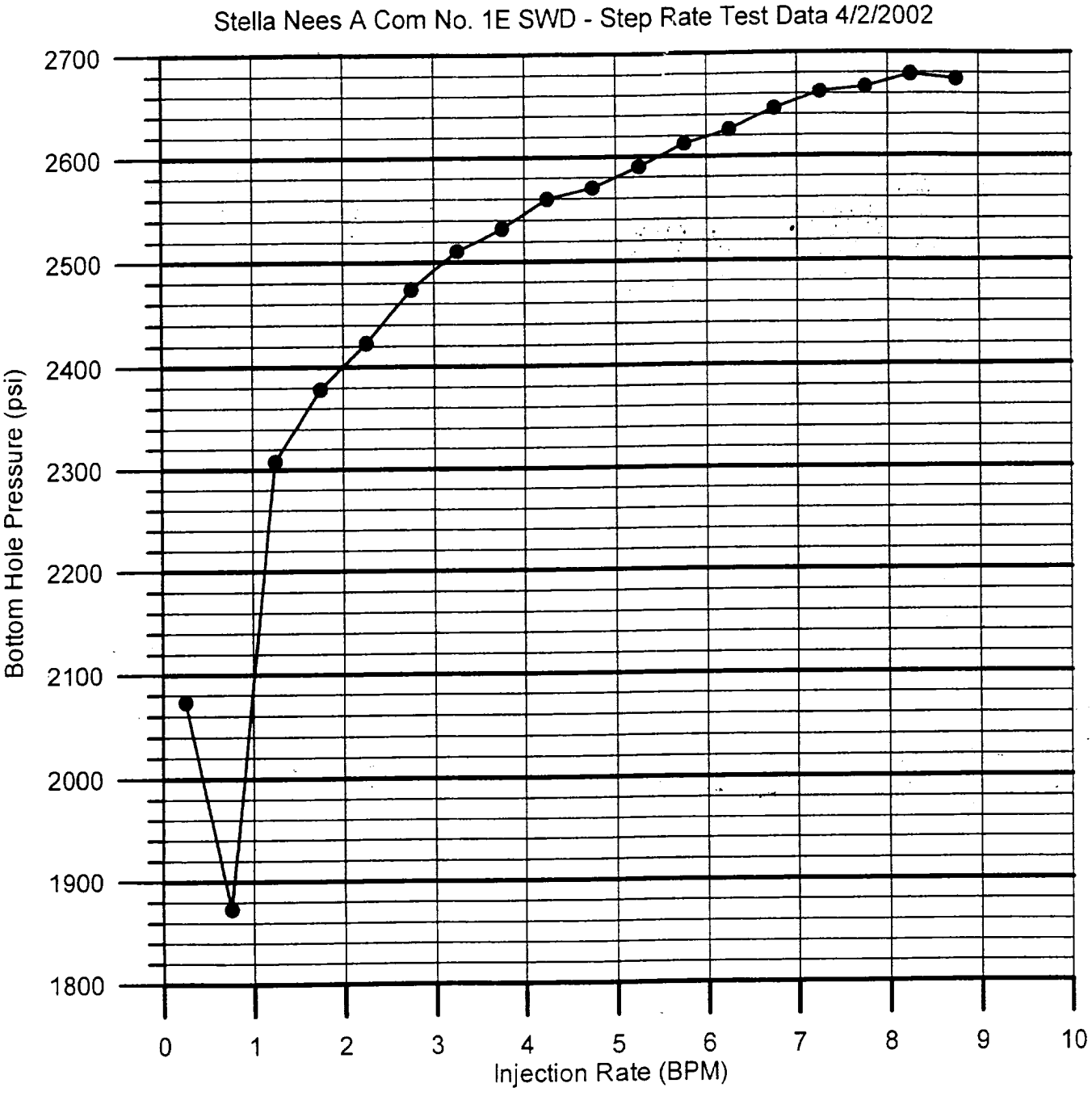
709 E. MURRAY DR. • P. O. BOX 420 • FARMINGTON, N.M. 87499-0420 • PHONE: (505) 325-1821 • FAX# (505) 327-4613

AmericaN ENergy chart All Datos + All pressures
(SEE Folder AmericaN ENergy Data - Stella 1E.xls)



DUGAN PRODUCTION CORP.
Stella Needs A Com No. 1E, 1790' fnl & 790' fwl 36-T.30N-R.14W (30-045-24265)
Wellbore Schematic




Stella Nees A Com No. 1E SWD - Step Rate Test Data 4/2/2002
Bottom Hole Pressure (psi)
2700
2600
2500
2400
2300
2200
2100
2000
1900
1800
0
1
2
3
4
5
6
7
8
9
10
Injection Rate (BPM)

Ste Ilq Needs A Com"LE SWD
Data Associated w/ Attached plot.
4/8/2007 J. ALEXANDER
DuQRN Production

BHP	Rate for entire step
2073.265	**0.25**
1873.215	**0.75**
2308.073	**1.25**
2378.42	**1.75**
2422.948	**2.25**
2473.791	**2.75**
2510.838	**3.25**
2532.202	**3.75**
2560.032	**4.25**
2570.289	**4.75**
2590.376	**5.25**
2612.499	**5.75**
2625.909	**6.25**
2645.967	**6.75**
2661.858	**7.25**
2666.771	**7.75**
2678.921	**8.25**
2674.022	**8.75**

Top Perf

2612+6 = 2618

— 50 psi — HYDRO + FRICT

1606

1466

550

2418

1562 Surf