STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

ANITA LOCKWOOD
CABINET SECRETARY

June 18, 1993

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

SWD-506
pDEV0020900506

Harvey E. Yates Company
Attention: Tim Gum
P.O. Box 1933
Roswell, NM 88202-1933

RE: Injection Pressure Increase Ekay "27" State Well No. 1, Unit M, Section 27, Township 18 South, Range 34 East, NMPM, Lea County, New Mexico

Dear Mr. Gum:

Reference is made to your request dated June 1, 1993 to increase the surface injection pressure on the above-referenced well. This request is based on a step rate tests conducted on this well on May 24, 1993. The results of the test have been reviewed by my staff and we feel an increase in injection pressure on this well is justified at this time.

You are therefore authorized to increase the surface injection pressure on the following well:

Well and Location	Maximum Injection Surface Pressure
Ekay "27" State Well No. 1 660' FSL - 660' FWL Unit M, Section 9, Township 18 South, Range 34 East	2340 PSIG
This well located in Lea County, New Mexico.	

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,

William J. LeMay
Director

WJL/BES/amg

cc: Oil Conservation Division - Hobbs
File: SWD-506

NO WAITING PERIOD

COMPANY: **Harvey E. Yates Company**

ADDRESS: **P.O. Box 1933**

CITY, STATE, ZIP: **Roswell, New Mexico 88202-1933**

ATTENTION: **Mr. Tim Gum**

Re: Injection Pressure Increase
Ekay "27" State Well No.1
Unit M, Section 27-T18S-R34E
Lea County, New Mexico

Dear Sir:

Reference is made to your request dated **June 1**, 1993, to increase the surface injection pressure on **the above captioned well.** This request is based on a step rate test conducted on the well on **May 24**, 1993. The results of the test have been reviewed by my staff and we feel an increase in injection pressure on the well is justified at this time.

You are therefore authorized to increase the surface injection pressure on the following well:

Well & Location	Maximum Injection Surface Pressure
Ekay "27" State Well No.1 **660' FSL & 660' FWL** **Unit M, Section 9, T18S, R34E** **Lea County, New Mexico**	**2340 psig**

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.

William J. LeMay
Director

WJL/BES

xc: OCD - **Hobbs** FILE- **SWD-506** ___

N/R

HEYCO

PETROLEUM PRODUCERS

HARVEY E. YATES COMPANY

P.O. BOX 1933 ONE SUNWEST CENTRE
ROSWELL, NEW MEXICO 88202-1933

505/623-6601
FAX 505/622-4221

OIL CONSERVATION DIVISION
RECEIVED
'93 JUN 1 AM 9 11

May 28, 1993

David Catanach
Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87501

Re: Request to Increase the Surface Injection Pressure
EKay 27 State #1

Dear Mr. Catanach,

Harvey E. Yates Company (HEYCO) was authorized to convert the EKay 27 State #1; located 660' FSL & 660' FWL, Unit M, Sec. 27, T18S, R34E, N.M.P.M., Lea County, New Mexico; by Administrative Order SWD-506, dated March 16, 1993. The limiting surface injection pressure was set at 1817 psi.

HEYCO respectfully request the limiting pressure be increased to 2760 psi surface. This is based on a step rate test dated May 24, 1993. At the limiting pressure of 1817 psi the disposal rate was 5 barrels per hour (120 BPD). This rate was after the well had been re-acidized with 9000 gallons of 20% NEFE, with no indication that the injectivity had improved.

The approved injection interval consist of two perforated intervals in a carbonate zone and one interval in a sand formation. The carbonate zone had been stimulated with a total of 27,000 gallons acid. The sand zone was fractured with 20,250 gallons and 35,960# proppant.

The attached step rate test shows two distinct break points. These points are believed to be a result of three different perforated intervals and two different lithologies showing different fracture pressures.

HEYCO utilizes the EKay 27 State #1 to dispose of produced water from the EKay 28 State #2. Currently less than one half the produced water is being disposed because of the limit on surface pressure. HEYCO is currently completing the EKay 28 State #3. Indications are this well will also be a high water producer. These wells are located in an isolated area, therefore water hauling expense is high.

HEYCO respectfully request that the pressure increase be granted so that water hauling expense can be reduced.

Please find attached field date and plots of the step rate test. If you have any questions please call Tim W. Gum at 505/623-6601.

Sincerely,

Tim W. Gum

Tim Gum
Engineer

TG/vt
cc: Jerry Sexton
District Director
OCD/Hobbs

catanach.tg

MAY 26 1993

JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: HARVEY E. YATES COMPANY

DATE: MAY 24, 1993

WELL NAME: EKAY 27 STATE NO. 1

Lea County, New Mexico

WO#: 93-14-0923

MID-PERFS. = 9166

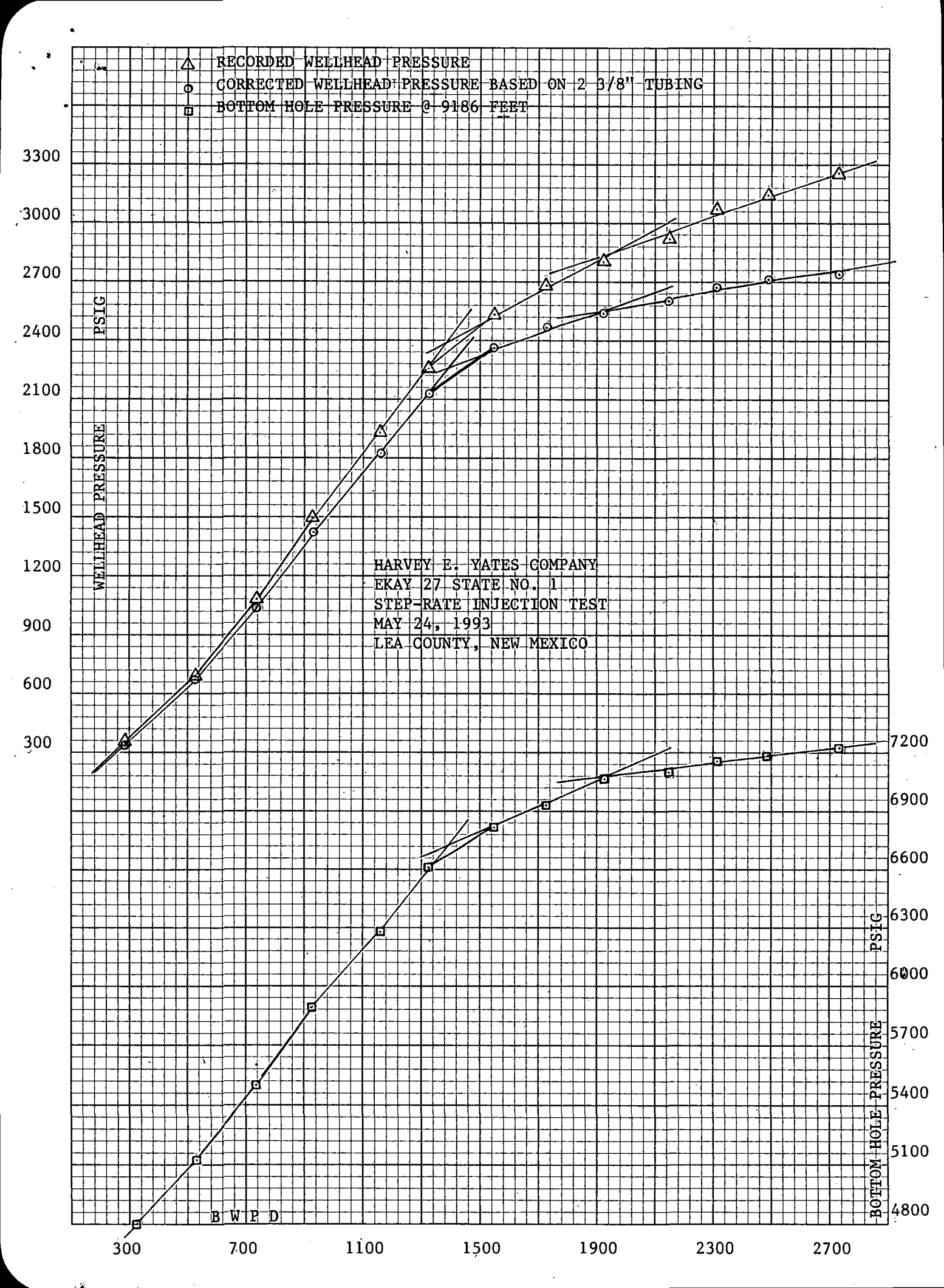
PACKER DEPTH = 8949

BHP GAUGE DEPTH = 9186

STEP NO. & REMARKS	TIME	(1) SURFACE TUBING PRESS. (psig)	(2) CUMMULATIVE VOL. INJECTED (bbls)	(3) INJECTION RATE (bbls/day)	(4) FRICTION HEAD LOSS (psi)	(5) CORRECTED TUBING PRESS. (psi) (1)-(4)	(6) INJECTION RATE (gpm) (3)/34.2857	(7) MEASURED BHP (psi)
	1:25							4556
	1:30	255.9	1.4	403.2	14.763	241.1	11.76	4693
	1:35	317.8	2.5	316.8	9.450	308.4	9.24	4759
1	1:40	355.6	3.4	259.2	6.519	349.1	7.56	4800
				326.4				
	1:45	533.4	5.3	547.2	25.974	507.4	15.96	4957
	1:50	620.6	7.2	547.2	25.974	594.6	15.96	5049
2	1:55	687.5	9.0	518.4	23.502	664.0	15.12	5128
				537.6				
	2:00	883.1	11.6	748.8	46.403	836.7	21.84	5289
	2:05	985.3	14.1	720.0	43.156	942.1	21.00	5398
3	2:10	1080.0	16.7	748.8	46.403	1033.6	21.84	5498
				739.2				
	2:15	1286.2	20.0	950.4	72.127	1214.1	27.72	5675
	2:20	1391.1	23.2	921.6	68.136	1323.0	26.88	5791
4	2:25	1496.1	26.4	921.6	68.136	1428.0	26.88	5887
				931.2				
	2:30	1726.4	30.5	1180.8	107.770	1618.6	34.44	6078
	2:35	1838.9	34.5	1152.0	102.958	1735.9	33.60	6196
5	2:40	1923.5	38.5	1152.0	102.958	1820.5	33.60	6288
				1161.6				
	2:45	2103.2	43.1	1324.8	133.337	1969.9	38.64	6438
	2:50	2188.0	47.7	1324.8	133.337	2054.7	38.64	6529
6	2:55	2263.9	52.3	1324.8	133.337	2130.6	38.64	6602
				1324.8				
	3:00	2412.1	57.7	1555.2	179.381	2232.7	45.36	6713
	3:05	2491.8	63.1	1555.2	179.381	2312.4	45.36	6779
7	3:10	2529.1	68.4	1526.4	173.284	2355.8	44.52	6824
				1545.6				

STEP NO. & REMARKS	TIME	(1) SURFACE TUBING PRESS (psig)	(2) CUMMULATIVE VOL. INJECTED (bbls)	(3) INJECTION RATE (bbls/day)	(4) FRICTION HEAD LOSS (psi)	(5) CORRECTED TUBING PRESS (psi) (1)--(4)	(6) INJECTION RATE (gpm) (3)/34.2857	(7) MEASURED BHP (psi)
	3:15	2636.7	74.3	1699.2	211.312	2425.4	49.56	6888
	3:20	2671.0	80.3	1728.0	217.985	2453.0	50.40	6920
8	3:25	2686.3	86.4	1756.8	224.754	2461.5	51.24	6939
				1728.0				
	3:30	2760.1	93.1	1929.6	267.353	2492.7	56.28	6976
	3:35	2786.9	99.8	1929.6	267.353	2519.5	56.28	6995
9	3:40	2802.2	106.5	1929.6	267.353	2534.8	56.28	7015
				1929.6				
	3:45	2895.2	113.9	2131.2	321.311	2573.9	62.16	7050
	3:50	2910.6	121.4	2160.0	329.390	2581.2	63.00	7070
10	3:55	2929.7	128.9	2160.0	329.390	2600.3	63.00	7090
				2150.4				
	4:00	3000.9	136.9	2304.0	371.162	2629.7	67.20	7117
	4:05	3014.8	144.8	2275.2	362.625	2652.2	66.36	7132
11	4:10	3063.1	153.0	2361.6	388.511	2674.6	68.88	7147
				2313.6				
	4:15	3141.9	161.5	2448.0	415.214	2726.7	71.40	7170
	4:20	3131.7	170.2	2505.6	433.469	2698.2	73.08	7179
12	4:25	3145.6	178.9	2505.6	433.469	2712.1	73.08	7190
				2486.4				
	4:30	3247.4	188.5	2764.8	520.055	2727.3	80.64	7214
	4:35	3244.8	197.9	2707.2	500.189	2744.6	78.96	7221
13	4:40	3252.3	207.4	2736.0	510.077	2742.2	79.80	7225
				2736.0				
	4:45	3351.6	217.5	2908.8	571.271	2780.3	84.84	7240
	4:50	3097.0				3097.0		7239
14	4:55							
FALLOFF	4:52	2658.3				2658.3		7212
	4:53	2613.8				2613.8		7166
	4:54	2648.1				2648.1		7140
	4:55	2627.7				2627.7		7132
	4:56	2620.1				2620.1		7122
	4:57	2612.5				2612.5		7114
	4:58	2604.8				2604.8		7105
	4:59	2595.9				2595.9		7098
	5:00	2593.4				2593.4		7091
	5:01	2587.0				2587.0		7084
	5:02	2578.1				2578.1		7078

STEP NO. & REMARKS	TIME	(1) SURFACE TUBING PRESS (psig)	(2) CUMMULATIVE VOL INJECTED (bbls)	(3) INJECTION RATE (bbls/day)	(4) FRICTION HEAD LOSS (psi)	(5) CORRECTED TUBING PRESS (psi) (1)-(4)	(6) INJECTION RATE (gpm) (3)/34.2857	(7) MEASURED BHP (psi)
	5:03	2573.0				2573.0		7071
	5:04	2569.2				2569.2		7065
	5:05	2560.3				2560.3		7059
	5:06	2556.5				2556.5		7052
	5:07	2550.1				2550.1		7046
	5:08	2543.8				2543.8		7040
	5:09	2538.7				2538.7		7034
	5:10	2533.6				2533.6		7027
	5:11	2527.2				2527.2		7023
	5:12	2522.1				2522.1		7016
	5:13	2517.0				2517.0		7010
	5:14	2509.4				2509.4		7004
	5:15	2505.6				2505.6		6997
	5:16	2498.0				2498.0		6992
	5:17	2492.9				2492.9		6986
	5:18	2487.9				2487.9		6981
	5:19	2487.8				2487.8		6975
	5:20	2486.4				2486.4		6968
	5:21	2470.1				2470.1		6962
	5:22	2465.0				2465.0		6955


RECORDED WELLHEAD PRESSURE
CORRECTED WELLHEAD PRESSURE BASED ON 2 3/8" TUBING
BOTTOM HOLE PRESSURE @ 9186 FEET
WELLHEAD PRESSURE PSIG
3300
3000
2700
2400
2100
1800
1500
1200
900
600
300
HARVEY E. YATES COMPANY
EKAY 27 STATE NO. 1
STEP-RATE INJECTION TEST
MAY 24, 1993
LEA COUNTY, NEW MEXICO
7200
6900
6600
6300
6000
5700
5400
5100
4800
BOTTOM HOLE PRESSURE PSIG
B W P D
300
700
1100
1500
1900
2300
2700

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS DISTRICT OFFICE

June 2, 1993

BRUCE KING
GOVERNOR

POST OFFICE BOX 1980
HOBBS, NEW MEXICO 88240
(505) 393-6161

OIL CONSERVATION DIVISON
P.O. BOX 2088
SANTA FE, NEW MEXICO 87504-2088

RE: APPLICATION FOR PRESSURE LIMIT INCREASE FOR DISPOSAL & INJECTION WELLS

Gentlemen:

I have examined the step rate test for the:

Harvey E. Yates Co.	EKay 27 State #1-M		27-18-34
Operator	Lease & Well No.	Unit	S-T-R

and my recommendations are as follows:

OK

Very truly yours

Jerry Sexton
Supervisor, District I

/bp