



PSX

N/R

OXY USA INC.

Box 50250, Midland, TX 79710

July 24, 1995

**RECEIVED**

JUL 28 1995

State of New Mexico  
Energy and Minerals Department  
Oil Conservation Division  
2040 South Pacheco  
Santa Fe, NM 87505

Oil Conservation Division

Attention: Mr. William J. Lemay, Director

RE: Application of OXY USA Inc. for an Increase in the Authorized  
Injection Pressure for the East Eumont Unit, Eumont Yates-  
7 Rvrs-Queen (Oil), Lea County NM.

Dear Sir:

OXY USA Inc. respectfully requests an increase in the authorized  
injection pressure for twelve (12) wells in the referenced  
waterflood unit:

<u>Well</u>	<u>Requested Authorized Injection Pressure*</u>
EEU #2	1450 psi
EEU #4	2050 psi
EEU #7	1930 psi
EEU #9	1600 psi
EEU #14	2450 psi
EEU #16	1300 psi
EEU #18	2350 psi
EEU #20	1270 psi
EEU #22	1920 psi
EEU #25	1000 psi
EEU #30	970 psi
EEU #32	2150 psi

\*fracture pressure from step-rate tests less 50 psi.

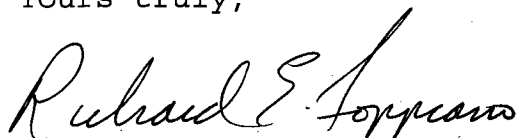
Injection in this Unit was originally granted in Order No. R-2901-A on 2/15/94 (copy attached). Paragraph (5) of this Order allows for the NMOCD to authorize a higher pressure based on evidence that such pressure will not result in migration of the injection fluid out of the respective formation. To satisfy this requirement, OXY commissioned John West Engineering Company to perform step-rate tests on selected wells within the Unit. Included with this request are copies of the results of these tests on wells #2, 4, 7, 9, 14, 16, 18, 20, 22, 25, 30, & 32.

As required by Statewide Rule 704(C)(1) and Division instructions, OXY gave notice of the date and time the step-rate tests were to be run to the NMOCD District Office in Hobbs and the BLM District office in Carlsbad. By copy of this letter, we are also giving

notice of application for an increase in the authorized injection pressure on these twelve wells.

If you require any additional information relating to this request, please contact David Stewart @ 915-685-5717 or Sharon Haggard @ 915-685-5675. Thank you for consideration of this request.

Yours truly,



Richard E. Foppiano  
Regulatory Affairs Advisor  
Western Region-Midland

REF/drs  
enclosures

CC: Scott Gengler, w/ enclosures  
Sharon Haggard, w/ enclosures  
David Stewart, w/ enclosures

New Mexico Oil Conservation Division  
District I Office  
P.O. Box 1980  
Hobbs, NM 88240

Bureau of Land Management  
Carlsbad Resource Area  
P.O. Box 1778  
Carlsbad, NM 88220



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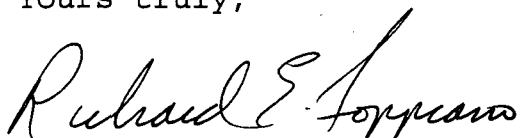
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STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT  
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING  
CALLED BY THE OIL CONSERVATION  
DIVISION FOR THE PURPOSE OF  
CONSIDERING:

APPLICATION OF OXY USA, INC. TO AMEND DIVISION  
ORDER NO. R-2901 AND TO EITHER INSTITUTE A NEW  
WATERFLOOD PROJECT OR RENEW AUTHORITY TO  
INJECT INTO A PORTION OF AN EXISTING WATERFLOOD  
PROJECT, LEA COUNTY, NEW MEXICO.

Case No. 10866

APPLICATION OF OXY USA, INC. TO QUALIFY A PORTION  
OF ITS EAST EUMONT UNIT WATERFLOOD PROJECT FOR  
THE RECOVERED OIL TAX RATE PURSUANT TO THE "NEW  
MEXICO ENHANCED OIL RECOVERY ACT," LEA COUNTY,  
NEW MEXICO.

Case No. 10867

Order No. R-2901-A

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on November 18, 1993, December 16, 1993, and on January 6, 1994 at Santa Fe, New Mexico, before Examiner Michael E. Stogner.

NOW, on this 15th day of February, 1994, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS THAT:

(1) Due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.

(2) By Order No. R-2894, issued in Case No. 3233 and dated April 21, 1965, the Division approved the application of Tidewater Oil Company for unitization of the following described 5,535.06 acres, more or less, of State, Federal and Fee lands in Lea County, New Mexico, also known as the East Eumont Unit Area:

**TOWNSHIP 18 SOUTH, RANGE 37 EAST, NMPM**

Section 33: S/2 NE/4, SE/4 NW/4, NE/4 SW/4, S/2 SW/4, and SE/4  
Section 34: SW/4 SW/4

**TOWNSHIP 19 SOUTH, RANGE 37 EAST, NMPM**

Section 3: Lot 4 (NW/4 NW/4 equivalent), S/2 NW/4 and SW/4  
Section 4: Lots 1 through 4 (N/2 N/2 equivalent), S/2 N/2 and E/2 SE/4  
Section 9: N/2 NE/4  
Section 10: NW/4 NE/4 and W/2  
Section 15: W/2  
Section 16: E/2 NE/4, NE/4 SE/4 and S/2 SE/4  
Section 21: E/2 E/2  
Section 22: W/2 and S/2 SE/4  
Section 26: SW/4 NW/4, W/2 SW/4, SE/4 SW/4 and SW/4 SE/4  
Section 27: N/2, E/2 SW/4 and SE/4  
Section 28: E/2 NE/4  
Section 34: N/2 NE/4, SE/4 NE/4 and NE/4 NW/4  
Section 35: N/2, E/2 SW/4 and SE/4  
Section 36: SW/4 NW/4, W/2 SW/4, SE/4 SW/4

**TOWNSHIP 20 SOUTH, RANGE 37 EAST, NMPM**

Section 1: Lots 2, 3, and 4, SW/4 NE/4, S/2 NW/4, SW/4 and W/2 SE/4  
Section 2: Lots 1, 2, and 3, S/2 NE/4, SE/4 NW/4, E/2 SW/4, and SE/4  
Section 11: NE/4 NE/4  
Section 12: W/2 NE/4, N/2 NW/4 and SE/4 NW/4

(3) By Order No. R-2901, issued in Case No. 3234 and dated May 4, 1965, the Division further authorized Tidewater Oil Company to institute a waterflood project (therein designated the East Eumont Unit Waterflood Project) by the injection of water into the Eumont-Yates-Seven Rivers-Queen (Oil) Pool, herein referred to as the Eumont (Oil) Pool, on the above-described Unit, Lea County, New Mexico. Said Order initially authorized sixty-nine injection wells within said project.

(4) The current operator of said Unit and Waterflood project is OXY USA, Inc. ("Oxy"), who is also the applicant in both Case Nos. 10866 and 10867.

(5) In Case No. 10866 Oxy seeks an amendment to said Order No. R-2901 for renewal of authority to inject water into the Eumont (Oil) Pool within that portion of the East Eumont Unit in Sections 33 and 34, Township 18 South, Range 37 East, NMPM and Sections 3, 4, 9, and 10 and the NW/4 of Section 15 and the E/2 NE/4 of Section 16, NMPM, Lea County, New Mexico, being everything in said Unit Area lying

north of the half-section lines that divide said Sections 15 and 16. The applicant proposes to utilize twenty-one existing wells for water injection and to drill one new injection well, all further described in Exhibit "A", attached hereto and made a part hereof.

(6) In Case No. 10867 Oxy seeks an order pursuant to the Rules and Procedures for Qualification of Enhanced Oil Recovery Projects and Certification for the Recovered Oil Tax Rate, as promulgated by Division Order No. R-9708, qualifying this "renewed area" in the northern portion of the East Eumont Unit Waterflood Project Area, Eumont (Oil) Pool, Lea County, New Mexico, for the recovered oil tax rate pursuant to the "Enhanced Oil Recovery Act" (Laws 1992, Chapter 38, Sections 1 through 5). The portion of the East Eumont Unit to be included is as follows:

**LEA COUNTY, NEW MEXICO**

**TOWNSHIP 18 SOUTH, RANGE 37 EAST, NMPM**

Section 33: S/2 NE/4, SE/4 NW/4, NE/4 SW/4, S/2 SW/4, and SE/4

Section 34: SW/4 SW/4

**TOWNSHIP 19 SOUTH, RANGE 37 EAST, NMPM**

Section 3: Lot 4 (NW/4 NW/4 equivalent), S/2 NW/4 and SW/4

Section 4: Lots 1 through 4 (N/2 N/2 equivalent), S/2 N/2 and E/2 SE/4

Section 9: N/2 NE/4

Section 10: NW/4 NE/4 and W/2

Section 15: NW/4

Section 16: E/2 NE/4.

(7) Both Case Nos. 10866 and 10867 were consolidated at the time of the hearing for the purpose of presenting testimony.

(8) Geologic testimony describes the Eumont Pool as a relatively large anticlinal feature and the East Eumont Unit was created on the northeastern "oil rim" of this anticline. Said Unit was designed to waterflood the oil lying between the water bearing down-dip portion of this structure to the east and the gas cap positioned up-dip of this oil rim to the west.

(9) Testimony presented by the applicant indicates that the entire Unit had ultimate primary production from the Eumont (Oil) Pool of approximately 3.27 million barrels of oil and ultimate secondary production in excess of 3.0 million barrels of oil, with total production from the Unit as of October 1, 1993 being 6.3 million barrels of

oil. Currently, production from the Unit is approximately two barrels of oil per day and one barrel of water from two wells, both of which are located in the "southern" or unaffected portion of the East Eumont Area. Further testimony indicates that under current conditions the remaining production of recoverable reserves is zero.

(10) In the subject "northern portion" of this Unit, all wells are currently inactive. Further evidence indicates that even though said Order No. R-2901 authorized all of the subject injection wells listed on Exhibit "A", the operator of the Unit never caused these wells to either be converted to injection wells or in the case of the proposed well in Unit K of Section 3, Township 19 South, Range 37 East, NMPM, Lea County, New Mexico (East Eumont Unit Well No. 133), to be drilled for injection purposes.

(11) Subsequent to the time said Order R-2901 was issued in 1965, the "Safe Drinking Water Act" (Public Law 93-523) was signed into federal law on December 16, 1974; said Act provides that any injection well must have a permit. The "Safe Drinking Water Act" required the Administrator of the Environmental Protection Agency ("EPA") to adopt minimum regulations for State programs to control the underground injection of fluids to protect underground sources of drinking water. The final EPA regulations were published in the spring of 1980.

(12) In order for the State of New Mexico through the Oil Conservation Division to apply for and obtain primary enforcement authority for control of oil and gas related injection wells in New Mexico under the Safe Drinking Water Act, it was necessary for the Division to amend its permitting procedures and to require all injection wells to be permitted for disposal under the EPA approved procedures.

(13) On March 7, 1982, The EPA granted primacy to the State of New Mexico.

(14) Since injection into the twenty-two wells listed in Exhibit "A" never occurred under the applicable rules for water injection for the purpose of secondary recovery at the time said Order R-2901 was released, the injection authority for said wells should be considered null and void, therefore making it necessary for the Unit operator to resubmit for approval to inject water into these wells under the EPA approved procedures.

(15) Oxy is proposing to initiate an 80-acre five-spot injection pattern in this "northern" portion of the East Eumont Unit utilizing the aforementioned twenty-two injection wells. In addition the applicant's plans include the drilling and equipping of two



producers, the reactivation of twenty-one producers, and the upgrading of existing battery and injection facilities. The capital expenditure is expected to be approximately \$3,765,000.00.

(16) At the hearing, the applicant testified that an estimated 775,000 barrels of oil from the Eumont (Oil) Pool could be obtained by initiating the proposed injection activity, resulting in the recovery of additional oil which would not otherwise be recovered.

(17) The Unit operator should take all steps necessary to ensure that the injected water enters and remains confined to only the proposed injection interval and is not permitted to escape into other formations or onto the surface from injection, production or plugged and abandoned wells.

(18) The injection of water into the proposed injection wells should be accomplished through 2-3/8 inch internally plastic-lined tubing installed in a packer set within 100 feet of the uppermost injection perforation; the casing-tubing annulus should be filled with an inert fluid and a gauge or approved leak-detection device should be attached to the annulus in order to determine leakage in the casing, tubing or packer.

(19) Prior to commencing injection operations into the proposed injection wells, the casing in each well should be pressure tested throughout the interval from the surface down to the proposed packer setting depth, to assure the integrity of such casing.

(20) The injection wells or pressurization system for each of the proposed injection wells should be so equipped at this time as to limit injection pressure at the wellhead to no more than 750 psi; however the operator should have the opportunity to request, at a later date, an increase in the injection pressure limitation placed upon any well upon a proper showing by the operator that such higher pressure will not result in the migration of the injected water from its respective interval or fracture the confining strata. Such authorization will however remain with the Division Director.

(21) The operator should give advance notification to the supervisor of the Hobbs District Office of the Division of the date and time of the installation of injection equipment and of the mechanical integrity pressure-tests in order that the same may be witnessed.

(22) No offset operator or interested party appeared at the hearing in opposition to this application.

(23) The proposed waterflood in the "northern portion" of the East Eumont Unit is in the best interest of conservation and will serve to protect correlative rights, therefore this application should be approved and the project should be governed by the provisions of Rule Nos. 701 through 708 of the Oil Conservation Division Rules and Regulations.

(24) Further, the evidence presented by the applicant indicates that the area herein authorized for waterflood meets all the criteria for approval as a qualified "Enhanced Oil Recovery Project" pursuant to the "Enhanced Oil Recovery Act" (Laws 1992, Chapter 38, Sections 1 through 5).

(25) The approved "EOR area", located within the confines of the East Eumont Unit Area Waterflood Project, should only comprise that area described in Finding Paragraph No. (6), above.

(26) To be eligible for the EOR credit, prior to commencing injection operations, the operator must request from the Division a Certificate of Qualification, which certificate will specify the proposed project area as described above.

(27) At such time as a positive production response occurs and within five years from the date of the Certificate of Qualification, the applicant must apply to the Division for certification of positive production response, which application shall identify the area actually benefitting from enhanced recovery operations, and identifying the specific wells which the operator believes are eligible for the credit. The Division may review the application administratively or set it for hearing. Based upon evidence presented, the Division will certify to The Department of Taxation and Revenue those lands and wells which are eligible for the credit.

(28) The injection authority granted herein for each of the proposed injection wells should terminate one year after the date of this order if the operator has not commenced injection operation into the particular well by that date, provided however, the Division, upon written request by the operator, may grant an extension thereof for good cause shown.

(29) The previous injection authority granted by the Division for each of the proposed 22 injection wells, listed on the attachment designated as Exhibit "A", by said Division Order No. R-2901 should be superseded by this order at this time. All other provisions of said Order No. R-2901 may remain in full force and effect.

**IT IS THEREFORE ORDERED THAT:**

(1) The applicant in both Case Nos. 10866 and 10867, OXY USA, Inc. ("Oxy"), is hereby authorized in commence water injection into the Eumont-Yates-Seven Rivers-Queen (Oil) Pool, herein referred to as the Eumont (Oil) Pool, for the purpose of re-instituting the East Eumont Unit Waterflood project, originally authorized by Division Order No. R-2901, issued in Case No. 3234 and dated May 4, 1965, within the following described "northern" portion of the East Eumont Unit:

**LEA COUNTY, NEW MEXICO**

**TOWNSHIP 18 SOUTH, RANGE 37 EAST, NMPM**

Section 33: S/2 NE/4, SE/4 NW/4, NE/4 SW/4, S/2 SW/4, and SE/4  
Section 34: SW/4 SW/4

**TOWNSHIP 19 SOUTH, RANGE 37 EAST, NMPM**

Section 3: Lot 4 (NW/4 NW/4 equivalent), S/2 NW/4 and SW/4  
Section 4: Lots 1 through 4 (N/2 N/2 equivalent), S/2 N/2 and E/2 SE/4  
Section 9: N/2 NE/4  
Section 10: NW/4 NE/4 and W/2  
Section 15: NW/4  
Section 16: E/2 NE/4

The applicant is authorized to utilize 21 existing wells and to drill an additional well for the purpose of injection, all of which are further described in Exhibit "A", attached hereto and made a part hereof.

(2) The applicant must take all steps necessary to ensure that the injected water only enters and remains confined to the proposed injection interval and is not permitted to escape to other formations or onto the surface from injection, production, or plugged and abandoned wells.

**IT IS FURTHER ORDERED THAT:**

(3) Injection shall be accomplished through 2-3/8 inch internally plastic-lined tubing installed in a packer set approximately within 100 feet of the uppermost injection perforation; the casing-tubing annulus in each well shall be filled with an inert fluid and equipped with an approved pressure gauge or attention-attracting leak detection device.

(4) The injection wells or pressurization system for each injection well shall be so equipped as to limit injection pressure at the wellhead to no more than 750 psi.

(5) The Division Director shall have the authority to administratively authorize an increase in the injection pressure limitation placed upon any well upon a proper showing by the operator that such higher pressure will not result in the migration of the injected water from its respective interval or fracture the confining strata.

(6) Prior to commencing injection operations, the casing in each injection well shall be pressure-tested throughout the interval from the surface down to the proposed packer setting depth, to assure the integrity of such casing.

(7) The applicant shall immediately notify the supervisor of the Hobbs District Office of the Division of the failure of the tubing, casing or packer in any of the injection wells, the leakage of water or oil from or around any producing well, or the leakage of water or oil from any plugged and abandoned well within the project area, and shall take such steps as may be timely and necessary to correct such failure or leakage.

(8) The subject waterflooding of the "northern portion" of the East Eumont Unit shall be conducted in accordance with Division Rule Nos. 701 through 708 and the operator shall submit monthly progress reports in accordance with Division Rule Nos. 706 and 1115.

**FURTHERMORE:**

(9) The subject waterflood activity in the "northern portion" of the East Eumont Unit, as described in Decretory Paragraph No. (1), above, is hereby approved as an "Enhanced Oil Recovery Project" pursuant to the "Enhanced Oil Recovery Act" (Laws 1992, Chapter 38, Sections 1 through 5).

(10) To be eligible for the EOR credit, prior to commencing injection operations, the operator must request from the Division a Certificate of Qualification, which certificate will specify the proposed EOR area as described above.

(11) At such time as a positive production response occurs and within five years from the date of the Certificate of Qualification, the applicant must apply to the Division for certification of positive production response, which application shall identify the area actually benefitting from enhanced recovery operations, and identifying the specific wells which the operator believes are eligible for the credit. The Division may review the application administratively or set it for hearing. Based upon evidence presented, the Division will certify to The Department of Taxation and Revenue those lands and wells which are eligible for the credit.

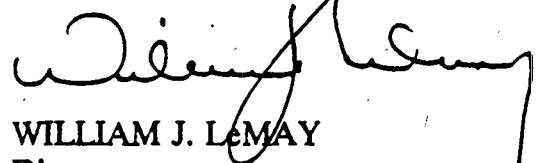
(12) The injection authority granted herein for the proposed injection wells shall terminate one year after the effective date of this order if the operator has not commenced injection operations into the subject wells, provided however, the Division, upon written request by the operator, may grant an extension thereof for good cause shown.

(13) The previous injection authority granted by the Division for each of the proposed 22 injection wells, listed on the attachment designated as Exhibit "A", by said Division Order No. R-2901 shall be superseded by this order at this time. All other provisions of said Order No. R-2901 shall remain in full force and effect until further notice.

(14) Jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO  
OIL CONSERVATION DIVISION



WILLIAM J. LEMAY  
Director

SEAL

**Exhibit "A"**  
**Case Nos. 10866 and 10867**  
**Order No. R-2901-A**

**East Eumont Unit "North Segment"**  
**Waterflood Project Area**

East Eumont Unit Well No.	Original Operator, Well Name and No.	Footage Location	Unit	S-T-R	API No.	Injection Perforations (feet)
2	Antweil Lowe State "B" No. 2	2310' FNL - 1980' FEL	G	33-18S-37E	30-025-05527	3808-3993
4	Continental State "C-33" No. 3	1980' FS & WL	K	33-18S-37E	30-025-05534	3751-3940
6	Continental State "C-33" No. 1	1980' FSL - 660' FEL	I	33-18S-37E	30-025-05531	3838-3999
7	Schermerhorn Linam "B" No. 1	880' FSL - 660' FWL	M	33-18S-37E	30-025-05536	3716-3910
9	Aztec State "E-33-A" No. 2	660' FSL - 1650' FEL	O	33-18S-37E	30-025-05530	3799-3962
11	Tidewater State "AH" No. 1	660' FS & WL	M	34-18S-37E	30-025-05538	3797-3970
12	Schermerhorn Linam "F" No. 1	273' FNL - 2400' FWL	C	4-19S-37E	30-025-05551	3765-3950
14	Texaco Saunders Federal No. 1	660' FN & EL	A	4-19S-37E	30-025-05557	3793-3958
16	Schermerhorn Linam No. 1	2144' FNL - 589' FWL	E	4-19S-37E	30-025-05549	3720-3956
18	Atlantic Federal "A" No. 2	1837' FNL - 1650' FEL	G	4-19S-37E	30-025-05547	3753-3916
20	Aztec State "E-3" No. 1	2064' FNL - 660' FWL	E	3-19S-37E	30-025-09878	3775-3954
22	Texaco Z.A. McMillan "B" No. 2	1983' FSL - 660' FEL	I	4-19S-37E	30-025-05553	3750-3919
25	Texaco Z.A. McMillan "A" No. 2	660' FS & WL	M	3-19S-37E	30-025-05544	3748-3936
28	Tidewater State "AD" No. 1	660' FN & EL	A	9-19S-37E	30-025-05583	3782-3954
30	Aztec State "E-10" No. 2	690' FNL - 1950' FWL	C	10-19S-37E	30-025-05586	3768-3960

East Eumont Unit Well No.	Original Operator, Well Name and No.	Footage Location	Unit	S-T-R	API No.	Injection Perforations (feet)
32	Gulf F.W. Kutter (NCT-E) No. 2	1980' FNL - 660' FWL	E	10-19S-37E	30-025-05588	3773-3940
35	Humble New Mexico State "E" No. 4	1980' FS & WL	K	10-19S-37E	30-025-05591	3835-4018
36	Humble New Mexico State "E" No. 2	660' FS & WL	M	10-19S-37E	30-025-05590	3781-3955
37	Continental State "KU-16" No. 3	660' FNL - 990' FEL	A	16-19S-37E	30-025-05607	3765-3934
39	Tidewater State "AI" No. 4	660' FNL - 1980' FWL	C	15-19S-37E	30-025-05602	3845-3998
41	Tidewater State "AI" No. 2	1980' FNL - 660' FWL	E	15-19S-37E	30-025-05600	3784-3951
133*	Proposed Injection Well (R-2091)	1980' FS & WL	K	3-19S-37E	Unassigned	3700-4000

• Proposed Well

**WEST-TEST, INC.**  
A SUBSIDIARY OF JOHN WEST ENGINEERING COMPANY  
Hobbs, New Mexico

**STEP RATE INJECTION TEST**

CLIENT: OXY U.S.A. INC.

DATE: JUNE 22, 1995

WELL NAME: EAST EUMONT UNIT NO. 2  
LEA COUNTY, NEW MEXICO

WO#: 95-14-0944

PERFS = 3808-3993

PACKER DEPTH = 3736

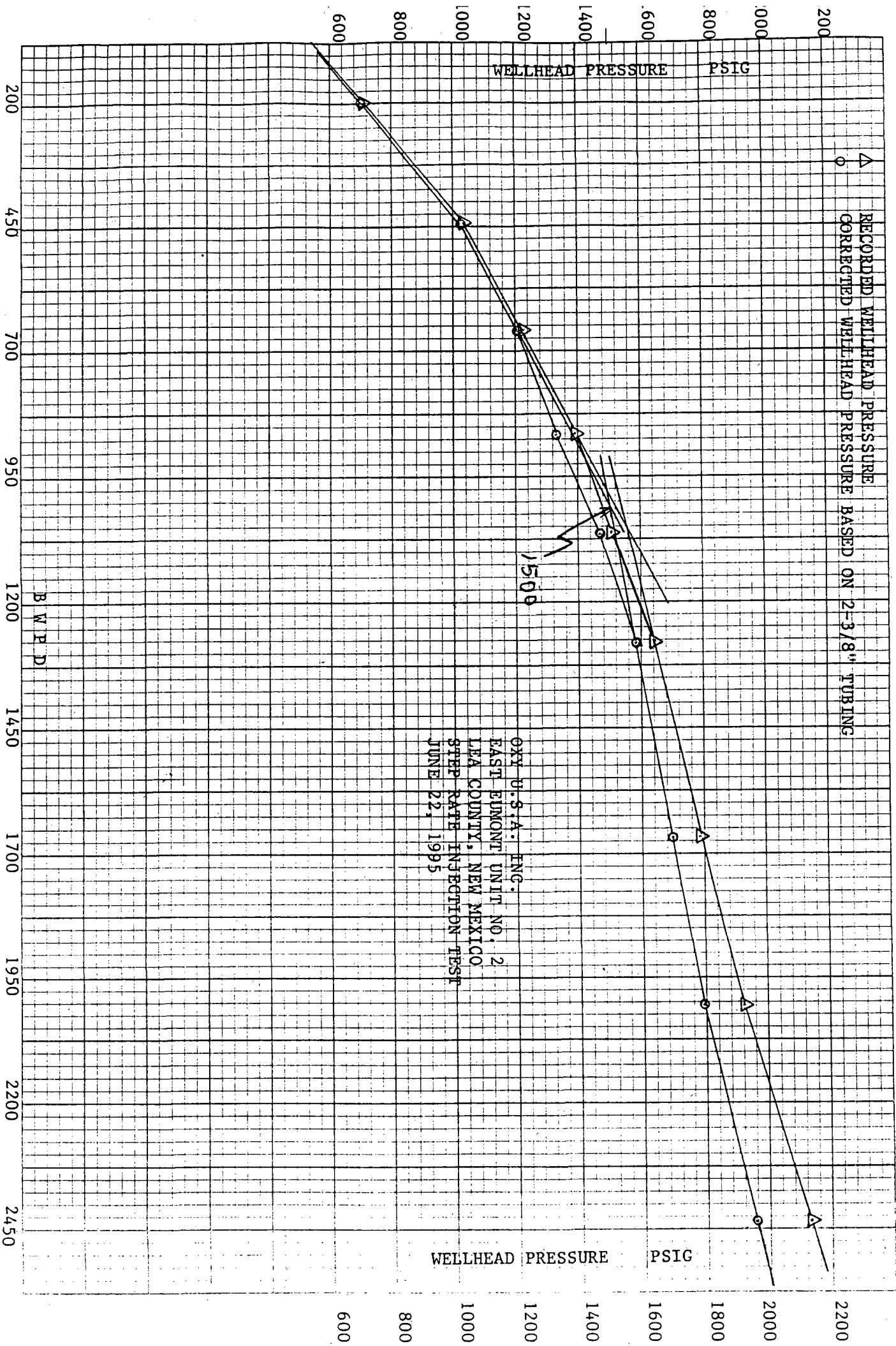
BHP GAUGE DEPTH = 3901

M.D.R. 823' RUN FROM SURFACE ONLY

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	9:30	103.1				103.1		
	9:35	602.4	0.8	230.4	2.226	600.2	6.72	
	9:40	712.0	1.4	172.8	1.308	710.7	5.04	
	9:45	715.8	2.1	201.6	1.739	714.1	5.88	
				201.6				
2	9:50	974.8	3.6	432.0	7.123	967.7	12.60	
	9:55	986.1	5.2	460.8	8.026	978.1	13.44	
	10:00	1038.5	6.7	432.0	7.123	1031.4	12.60	
				441.6				
3	10:05	1152.0	9.0	662.4	15.707	1136.3	19.32	
	10:10	1174.6	11.3	662.4	15.707	1158.9	19.32	
	10:15	1225.8	13.6	662.4	15.707	1210.1	19.32	
				662.4				
4	10:20	1339.5	16.6	864.0	25.679	1313.8	25.20	
	10:25	1365.7	19.7	892.8	27.285	1338.4	26.04	
	10:30	1389.4	22.6	835.2	24.118	1365.3	24.36	
				864.0				
5	10:35	1463.1	26.3	1065.6	37.850	1425.2	31.08	
	10:40	1495.6	30.0	1065.6	37.850	1457.7	31.08	
	10:45	1509.3	33.7	1065.6	37.850	1471.4	31.08	
				1065.6				
6	10:50	1615.4	38.0	1238.4	49.982	1565.4	36.12	
	10:55	1615.4	42.5	1296.0	54.368	1561.0	37.80	
	11:00	1641.6	47.0	1296.0	54.368	1587.2	37.80	
				1276.8				
7	11:05	1792.6	52.9	1699.2	89.737	1702.9	49.56	
	11:10	1818.0	58.6	1641.6	84.191	1733.8	47.88	
	11:15	1786.4	64.4	1670.4	86.944	1699.5	48.72	
				1670.4				



		(1)	(2)	(3)	(4)	(5)	(6)	(7)
STEP NO.		SURFACE	CUMMULATIVE	INJECTION	FRICTION	CORRECTED	INJECTION	MEASURED
8		TUBING PRESS.	VOL. INJECTED	RATE	HEAD LOSS	TUBING PRESS.	RATE (gpm)	BHP
REMARKS	TIME	(psig)	(bbls)	(bbls/day)	(psi)	(psi) (1) - (4)	(3)/34.2857	(psi)
8	11:20	1913.7	71.4	2016.0	123.120	1790.6	58.80	
	11:25	1922.4	78.3	1987.2	119.886	1802.5	57.96	
	11:30	1919.9	85.3	2016.0	123.120	1796.8	58.80	
				2006.4				
	11:35	2092.2	93.8	2448.0	176.328	1915.9	71.40	
9	11:40	2094.7	102.3	2448.0	176.328	1918.4	71.40	
	11:45	2129.7	110.7	2419.2	172.510	1957.2	70.56	
				2438.4				
FALLOFF	11:46	1620.3				1620.3		
	11:47	1561.7				1561.7		
	11:48	1524.2				1524.2		
	11:49	1499.3				1499.3		
	11:50	1476.8				1476.8		
	11:55	1392.0				1392.0		
	12:00	1320.8				1320.8		



**WEST-TEST, INC.**  
A SUBSIDIARY OF JOHN WEST ENGINEERING COMPANY  
Hobbs, New Mexico

**STEP RATE INJECTION TEST**

CLIENT: OXY U.S.A. INC.

DATE: JUNE 22, 1995

WELL NAME: EAST EUMONT UNIT NO. 4  
LEA COUNTY, NEW MEXICO

WO#: 95-14-0945

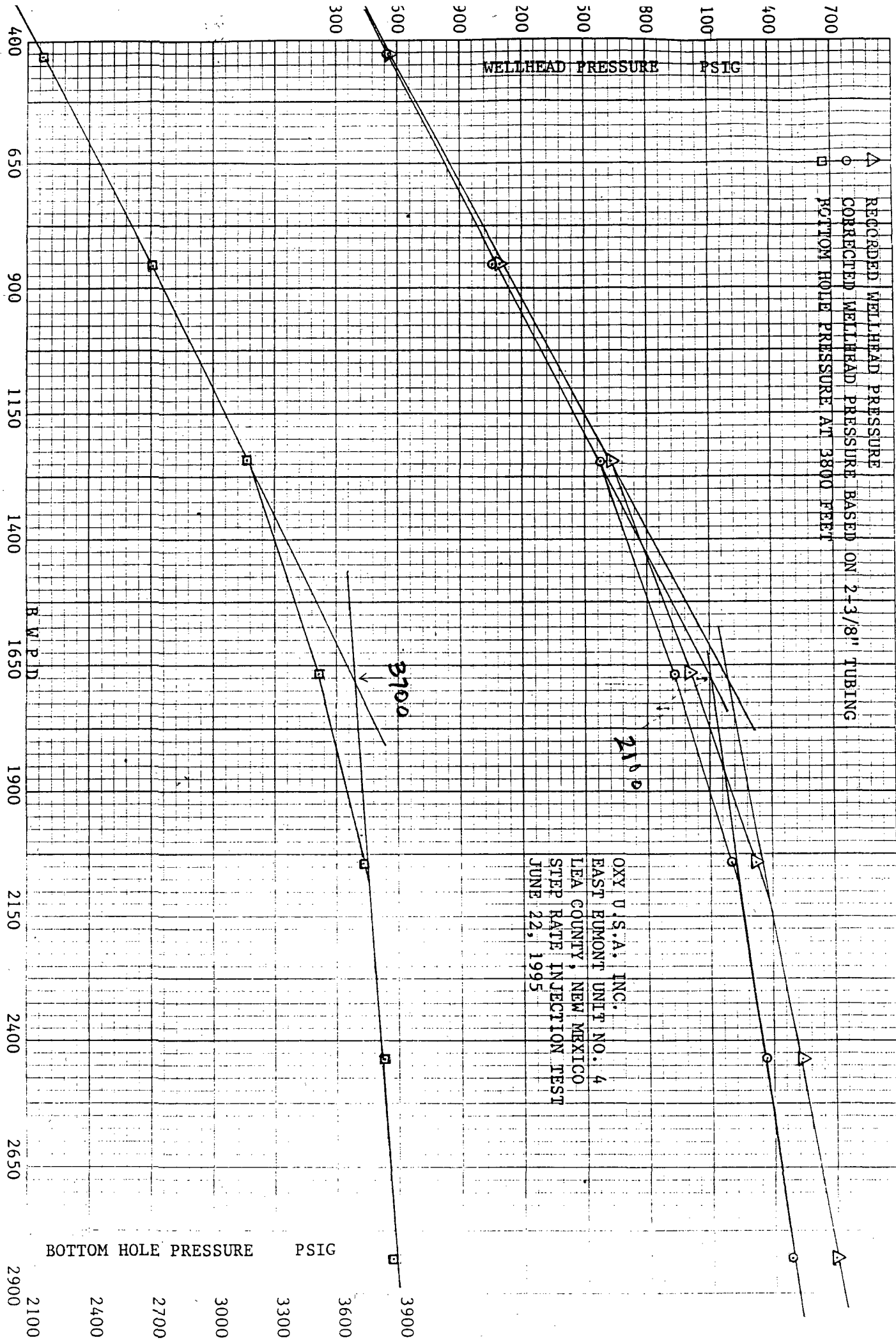
PERFS = 3751-3849

PACKER DEPTH = 3680

BHP GAUGE DEPTH = 3800

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	1:25	92.6				92.6		1721.4
	1:30	275.3	1.6	460.8	7.819	267.5	13.44	1916.4
	1:35	475.5	3.1	432.0	6.939	468.6	12.60	2055.4
	1:40	566.3	4.5	403.2	6.107	560.2	11.76	2168.8
				432.0				
2	1:45	822.5	7.5	864.0	25.014	797.5	25.20	2391.0
	1:50	1001.5	10.4	835.2	23.493	978.0	24.36	2563.4
	1:55	1090.0	13.4	864.0	25.014	1065.0	25.20	2707.3
3				854.4				
	2:00	1364.5	17.7	1238.4	48.688	1315.8	36.12	2903.7
	2:05	1523.0	22.1	1267.2	50.803	1472.2	36.96	3053.5
	2:10	1622.8	26.4	1238.4	48.688	1574.1	36.12	3171.6
4				1248.0				
	2:15	1857.3	32.2	1670.4	84.693	1772.6	48.72	3318.4
	2:20	1935.9	38.0	1670.4	84.693	1851.2	48.72	3430.4
	2:25	2010.8	43.8	1670.4	84.693	1926.1	48.72	3512.2
5				1670.4				
	2:30	2208.2	50.8	2016.0	119.932	2088.3	58.80	3604.5
	2:35	2269.5	58.0	2073.6	126.348	2143.2	60.48	3671.1
	2:40	2323.2	65.1	2044.8	123.121	2200.1	59.64	3722.6
6				2044.8				
	2:45	2459.5	73.6	2448.0	171.763	2287.7	71.40	3775.6
	2:50	2484.5	82.0	2419.2	168.043	2316.5	70.56	3810.4
	2:55	2537.0	90.5	2448.0	171.763	2365.2	71.40	3837.6
7				2438.4				
	3:00	2652.3	100.4	2851.2	227.735	2424.6	83.16	3860.3
	3:05	2681.1	110.2	2822.4	223.498	2457.6	82.32	3864.8
	3:10	2690.0	120.0	2822.4	223.498	2466.5	82.32	3869.4
				2832.0				

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OXY U.S.A., INC.  
EAST EUMONT UNIT NO. 4  
LEA COUNTY, NEW MEXICO  
STEP RATE INJECTION TEST  
JUNE 22, 1995

**WEST-TEST, INC.**  
A SUBSIDIARY OF JOHN WEST ENGINEERING COMPANY  
Hobbs, New Mexico

**STEP RATE INJECTION TEST**

CLIENT: OXY U.S.A. INC.

DATE: JUNE 23, 1995

WELL NAME: EAST EUMONT UNIT NO. 7  
LEA COUNTY, NEW MEXICO

WO#: 95-14-0946

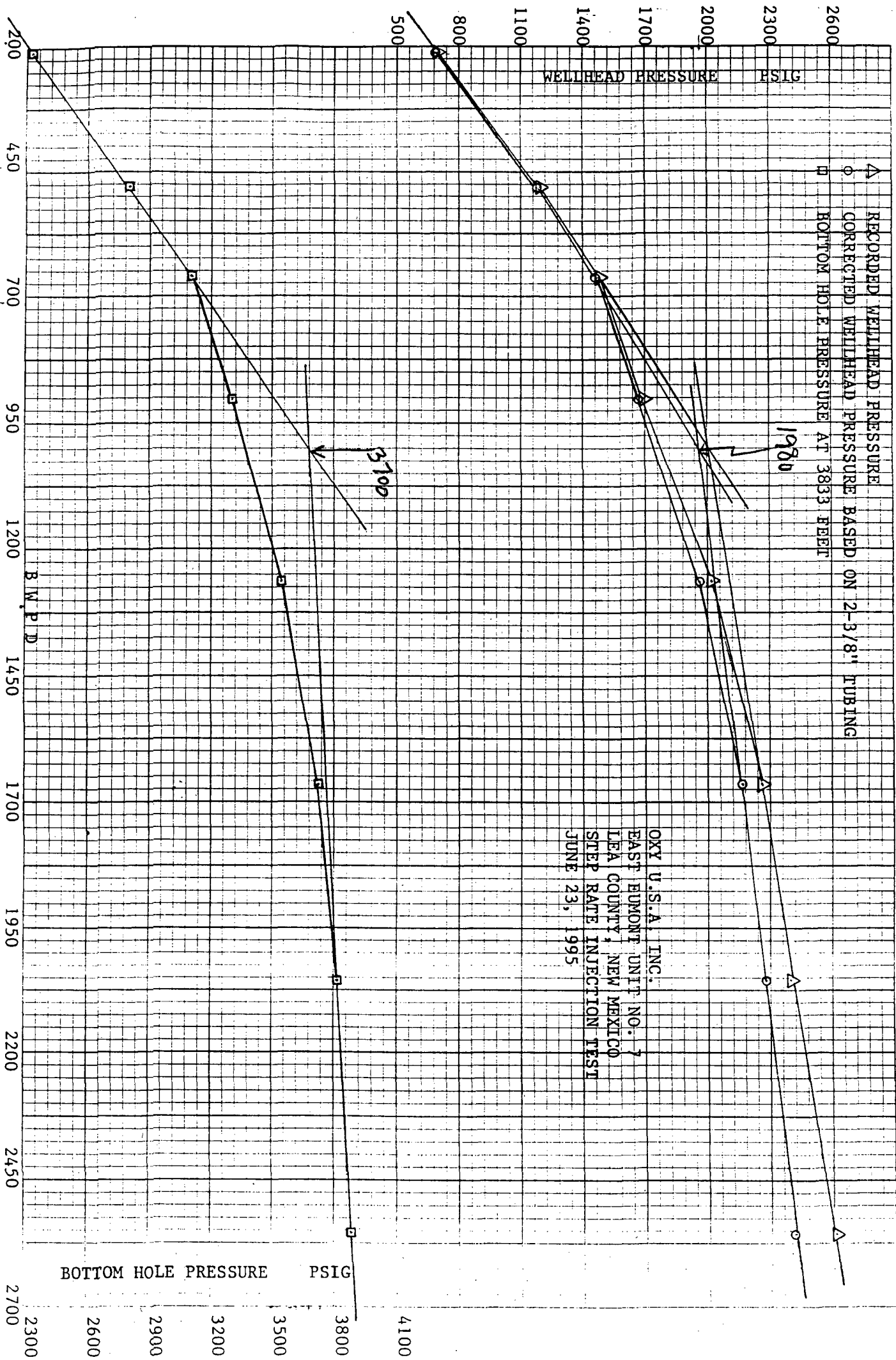
PERFS = 3751-3916

PACKER DEPTH = 3695

BHP GAUGE DEPTH = 3833

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)
	8:30	21.7				21.7		1661.0
	8:35	483.5	0.8	230.4	2.188	481.3	6.72	2128.0
	8:40	629.3	1.6	230.4	2.188	627.1	6.72	2274.6
1	8:45	683.0	2.2	172.8	1.285	681.7	5.04	2324.0
				211.2				
	8:50	948.4	3.9	489.6	8.822	939.6	14.28	2611.7
	8:55	1092.0	5.6	489.6	8.822	1083.2	14.28	2732.6
2	9:00	1188.2	7.2	460.8	7.886	1180.3	13.44	2799.2
				480.0				
	9:05	1348.1	9.6	691.2	16.697	1331.4	20.16	2982.1
	9:10	1486.8	11.9	662.4	15.433	1471.4	19.32	3054.8
3	9:15	1483.1	14.2	662.4	15.433	1467.7	19.32	3092.7
				662.4				
	9:20	1610.5	17.3	892.8	26.809	1583.7	26.04	3215.3
	9:25	1658.0	20.4	892.8	26.809	1631.2	26.04	3262.3
4	9:30	1696.7	23.6	921.6	28.431	1668.3	26.88	3304.7
				902.4				
	9:35	1919.0	28.0	1267.2	51.244	1867.8	36.96	3453.0
	9:40	1967.7	32.4	1267.2	51.244	1916.5	36.96	3510.6
5	9:45	2016.4	36.8	1267.2	51.244	1965.2	36.96	3553.0
				1267.2				
	9:50	2181.4	42.6	1670.4	85.428	2096.0	48.72	3645.3
	9:55	2235.1	48.4	1670.4	85.428	2149.7	48.72	3684.7
6	10:00	2257.6	54.2	1670.4	85.428	2172.2	48.72	3713.5
				1670.4				
	10:05	2373.9	61.3	2044.8	124.190	2249.7	59.64	3758.9
	10:10	2396.4	68.5	2059.2	125.813	2270.6	60.06	3784.7
7	10:15	2406.5	75.6	2059.2	125.813	2280.7	60.06	3804.4
				2054.4				

STEP NO. & REMARKS	TIME	(1) SURFACE TUBING PRESS. (psig)	(2) CUMULATIVE 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)
8  FALLOFF	10:20	2570.4	84.5	2563.2	188.639	2381.8	74.76	3840.7
	10:25	2585.4	93.3	2534.4	184.737	2400.7	73.92	3861.9
	10:30	2605.4	102.2	2563.2 2553.6	188.639	2416.8	74.76	3880.1
	10:31	2193.9				2193.9		3858.9
	10:32	2188.9				2188.9		3846.8
	10:33	2180.1				2180.1		3837.7
	10:34	2171.4				2171.4		3828.6
	10:35	2165.1				2165.1		3821.1
	10:40	2128.8				2128.8		3783.1
	10:45	2091.2				2091.2		3743.6



OXY U.S.A. INC.  
EAST EUMONT UNIT NO. 7  
LEA COUNTY, NEW MEXICO  
STEP RATE INJECTION TEST  
JUNE 23, 1995



# WEST-TEST, INC.

A SUBSIDIARY OF JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

## STEP RATE INJECTION TEST

CLIENT: OXY U.S.A. INC.

DATE: JUNE 23, 1995

WELL NAME: EAST EUMONT UNIT NO. 9  
LEA COUNTY, NEW MEXICO

WO#: 95-14-0947

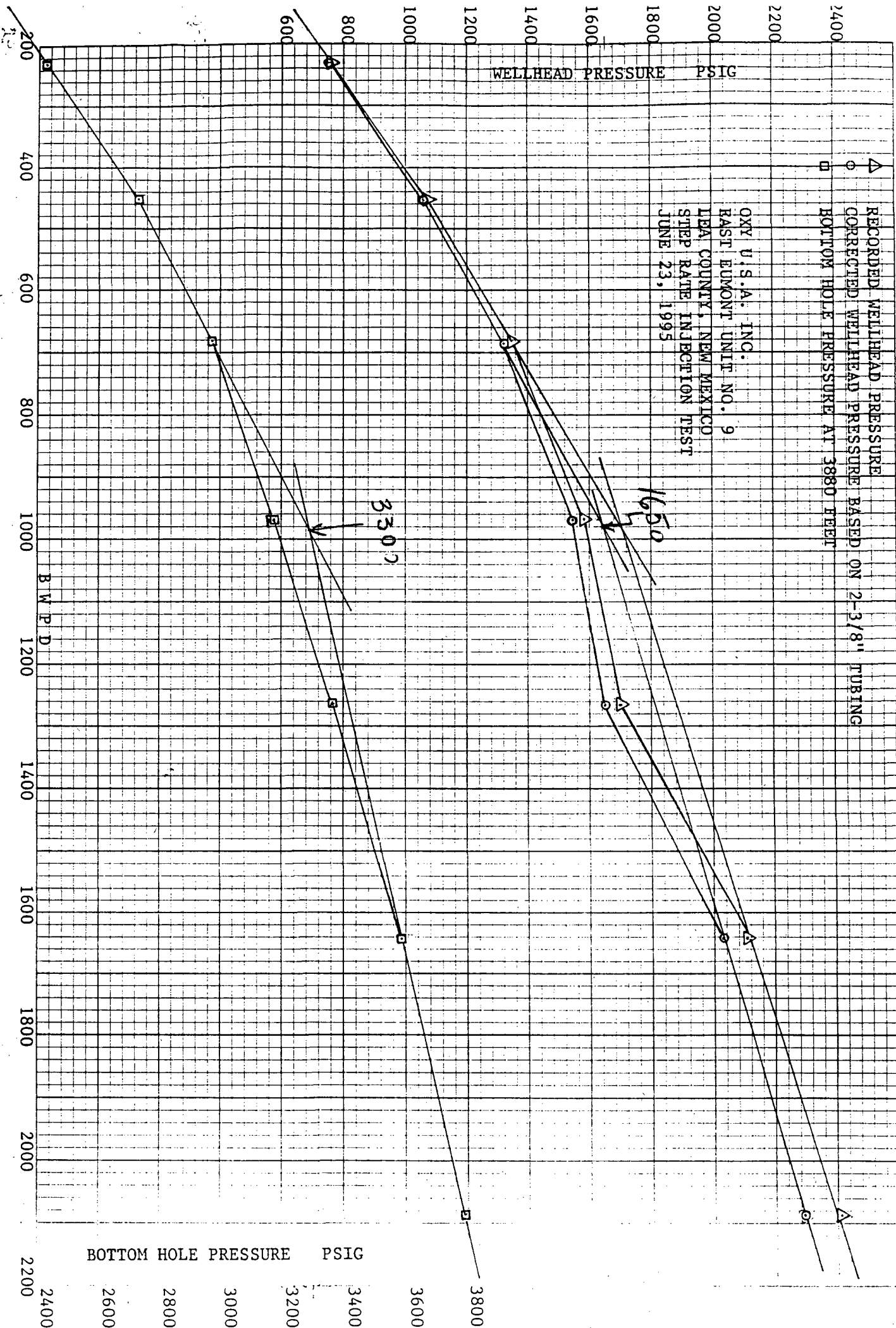
PERFS = 3799-3962

PACKER DEPTH =

BHP GAUGE DEPTH = 3880

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)
	12:15	365.3				365.3		2027.0
	12:20	700.1	0.9	259.2	2.754	697.3	7.56	2350.4
	12:25	727.5	1.6	201.6	1.730	725.8	5.88	2391.2
1	12:30	754.9	2.4	230.4	2.214	752.7	6.72	2426.0
				230.4				
	12:35	976.4	4.0	460.8	7.983	968.4	13.44	2622.5
	12:40	1035.0	5.6	460.8	7.983	1027.0	13.44	2689.0
2	12:45	1070.0	7.1	432.0	7.085	1062.9	12.60	2723.8
				451.2				
	12:50	1232.2	9.5	691.2	16.902	1215.3	20.16	2861.3
	12:55	1304.6	11.9	691.2	16.902	1287.7	20.16	2934.0
3	1:00	1335.8	14.2	662.4	15.622	1320.2	19.32	2968.8
				681.6				
	1:05	1521.7	17.5	950.4	30.465	1491.2	27.72	3114.1
	1:10	1531.7	20.9	979.2	32.195	1499.5	28.56	3130.8
4	1:15	1582.9	24.3	979.2	32.195	1550.7	28.56	3174.7
				969.6				
	1:20	1760.1	28.7	1267.2	51.873	1708.2	36.96	3297.3
	1:25	1797.5	33.2	1296.0	54.075	1743.4	37.80	3335.1
5	1:30	1696.4	37.5	1238.4	49.713	1646.7	36.12	3360.9
				1267.2				
	1:35	2035.9	43.3	1670.4	86.476	1949.4	48.72	3509.1
	1:40	2082.2	48.9	1612.8	81.040	2001.2	47.04	3550.0
6	1:45	2115.9	54.6	1641.6	83.738	2032.2	47.88	3584.8
				1641.6				
	1:50	2357.1	61.6	2016.0	122.457	2234.6	58.80	3724.8
	1:55	2375.9	68.8	2073.6	129.008	2246.9	60.48	3760.4
7	2:00	2410.9	75.9	2044.8	125.713	2285.2	59.64	3792.1
				2088.4				





# WEST-TEST, INC.

A SUBSIDIARY OF JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

## STEP RATE INJECTION TEST

CLIENT: OXY U.S.A. INC.

DATE: JUNE 26, 1995

WELL NAME: EAST EUMONT UNIT NO. 14  
LEA COUNTY, NEW MEXICO

WO#: 95-14-0948

PERFS = 3793-3958

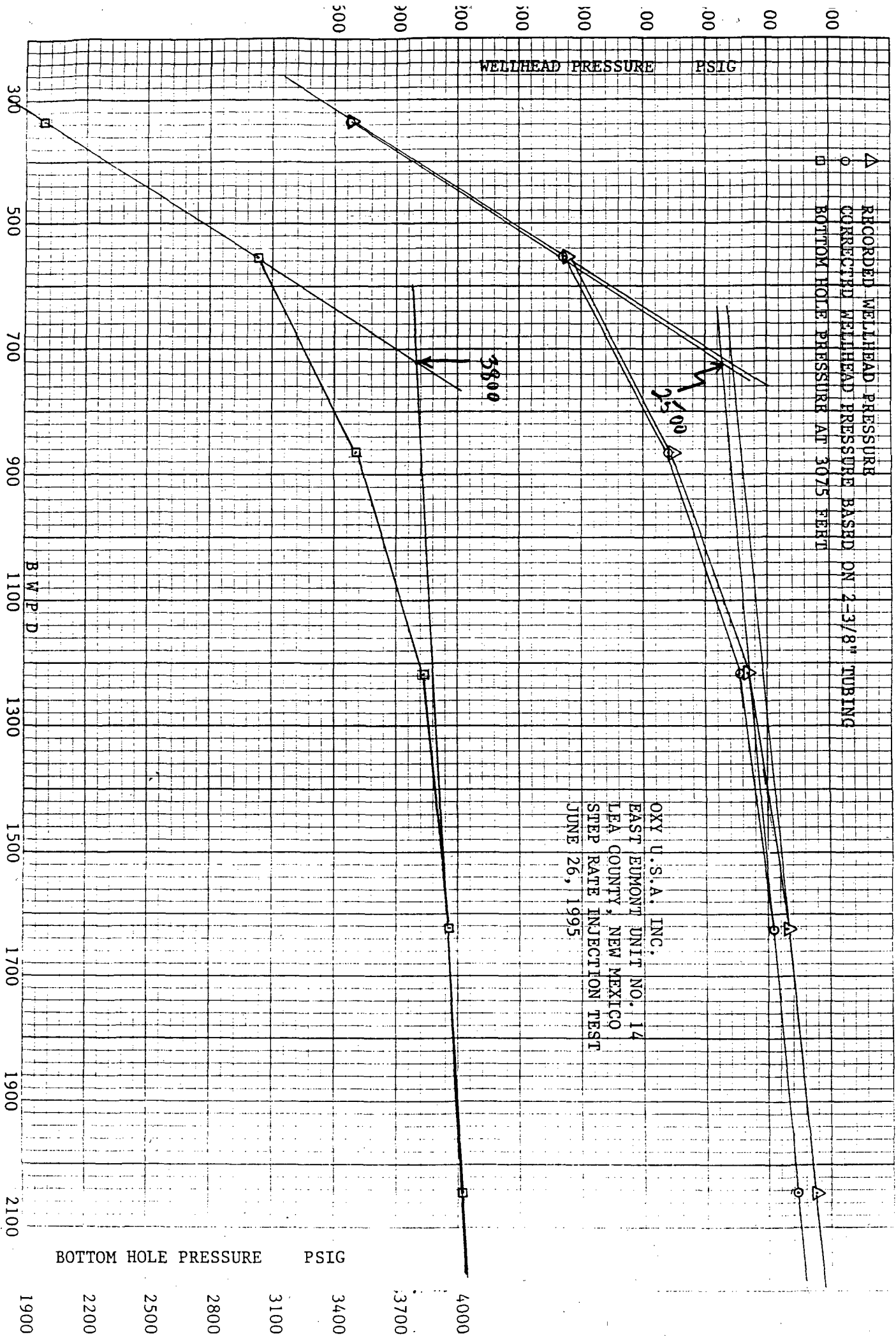
PACKER DEPTH = 3731

BHP GAUGE DEPTH = 3075

M.D.R. 3120

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)/34.2657	(7) MEASURED BHP (psi)
1	8:40	36.2				36.2		1349.1
	8:45	354.6	1.3	374.4	4.309	350.3	10.92	1665.7
	8:50	489.2	2.4	316.8	3.163	486.0	9.24	1809.3
	8:55	682.4	3.5	316.8	3.163	679.2	9.24	1993.8
				336.0				
2	9:00	1247.4	5.4	547.2	8.695	1238.7	15.96	2556.2
	9:05	1528.5	7.3	547.2	8.695	1519.8	15.96	2828.5
	9:10	1721.0	9.3	576.0	9.560	1711.4	16.80	3028.2
3				556.8				
	9:15	2152.1	12.3	864.0	20.241	2131.9	25.20	3433.8
	9:20	2187.2	15.4	892.8	21.507	2165.7	26.04	3468.7
	9:25	2238.6	18.3	835.2	19.011	2219.6	24.36	3515.6
4				864.0				
	9:30	2481.2	22.6	1238.4	39.399	2441.8	36.12	3744.1
	9:35	2574.0	26.8	1209.6	37.720	2536.3	35.28	3797.0
	9:40	2607.9	31.0	1209.6	37.720	2570.2	35.28	3833.2
				1219.2				
5	9:45	2788.5	36.6	1612.8	64.226	2724.3	47.04	3952.7
	9:50	2783.5	42.2	1612.8	64.226	2719.3	47.04	3957.2
	9:55	2792.3	47.9	1641.6	66.364	2725.9	47.88	3958.8
				1622.4				
6	10:00	2957.7	54.9	2016.0	97.050	2860.6	58.80	4037.5
	10:05	2945.2	62.1	2073.6	102.242	2843.0	60.48	4031.5
	10:10	2935.2	69.2	2044.8	99.631	2835.6	59.64	4022.4
				2044.8				

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# WEST-TEST, INC.

A SUBSIDIARY OF JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

## STEP RATE INJECTION TEST

CLIENT: OXY U.S.U. INC

DATE: JUNE 26, 1995

WELL NAME: EAST EUMONT UNIT NO. 16  
LEA COUNTY, NEW MEXICO

WO#: 95-14-0949

PERFS = 3720-3956

PACKER DEPTH = 3647

BHP GAUGE DEPTH = 3838

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)
	11:45	31.2				31.2		1671.6
	11:50	369.6	0.8	230.4	2.190	367.4	6.72	2010.2
	11:55	435.7	1.6	230.4	2.190	433.5	6.72	2079.7
1	12:00	495.6	2.4	230.4	2.190	493.4	6.72	2143.2
				230.4				
	12:05	799.4	4.3	547.2	10.852	788.5	15.96	2419.8
	12:10	877.9	6.2	547.2	10.852	867.0	15.96	2502.9
2	12:15	935.1	8.2	576.0	11.932	923.2	16.80	2569.5
				556.8				
	12:20	1148.4	11.3	892.8	26.844	1121.6	26.04	2749.4
	12:25	1212.1	14.3	864.0	25.264	1186.8	25.20	2813.0
3	12:30	1225.9	17.3	864.0	25.264	1200.6	25.20	2828.2
				873.6				
	12:35	1449.4	22.1	1382.4	60.273	1389.1	40.32	2975.0
	12:40	1478.1	26.8	1353.6	57.970	1420.1	39.48	3014.3
4	12:45	1515.5	31.5	1353.6	57.970	1457.5	39.48	3044.6
				1363.2				
	12:50	1776.5	37.9	1843.2	102.626	1673.9	53.76	3202.0
	12:55	1811.4	44.2	1814.4	99.680	1711.7	52.92	3238.3
5	1:00	1837.6	50.7	1872.0	105.613	1732.0	54.60	3267.1
				1843.2				
	1:05	2071.2	59.1	2419.2	169.724	1901.5	70.56	3391.2
	1:10	2102.4	66.8	2217.6	144.489	1957.9	64.68	3423.0
6	1:15	2131.2	74.8	2304.0	155.075	1976.1	67.20	3451.8
				2313.6				
	1:20	2386.2	84.7	2851.2	230.012	2156.2	83.16	3559.3
	1:25	2399.9	94.6	2851.2	230.012	2169.9	83.16	3585.0
7	1:30	2437.4	104.4	2822.4	225.733	2211.7	82.32	3615.3
				2841.6				

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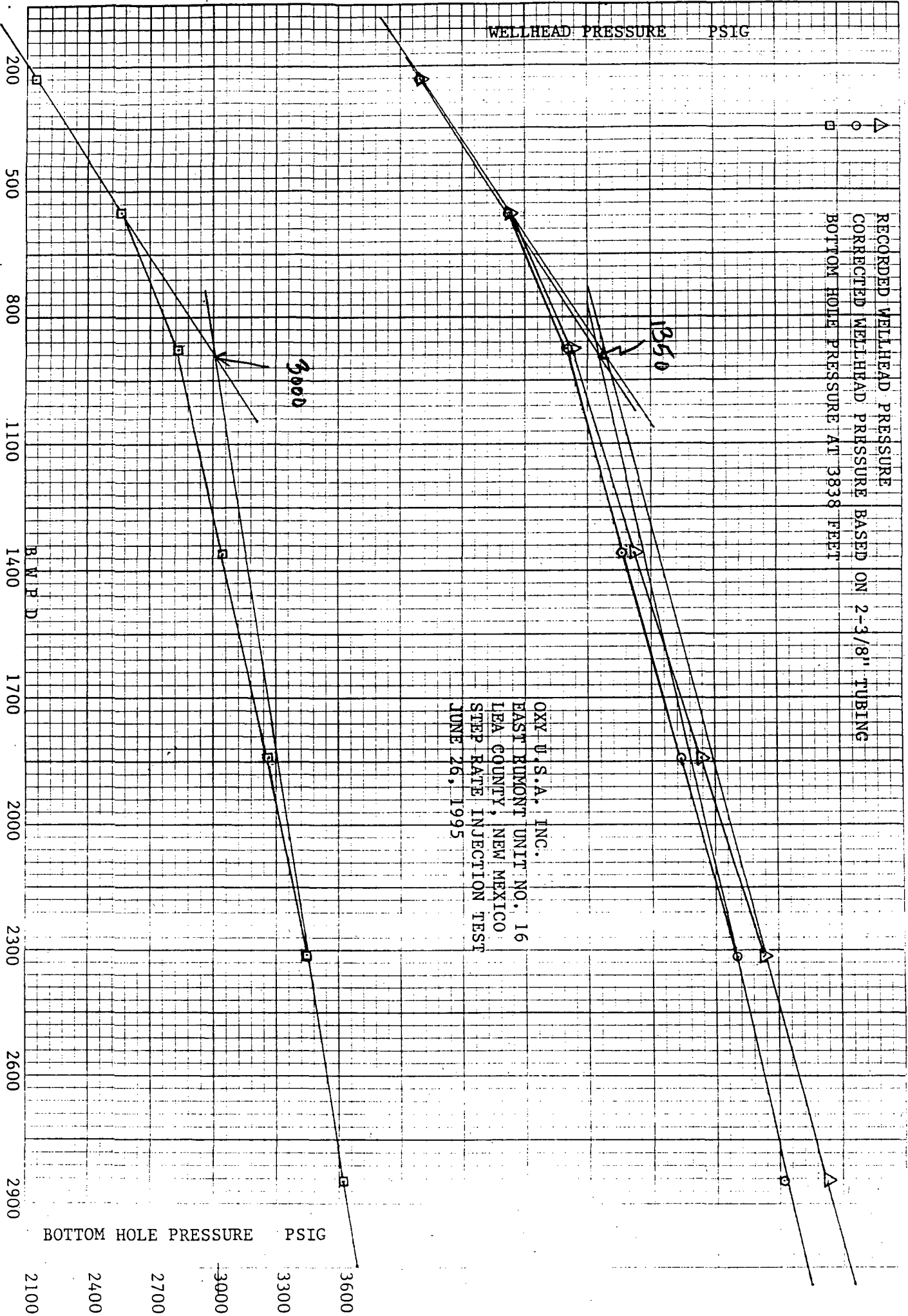


RECORDED WELLHEAD PRESSURE  
 CORRECTED WELLHEAD PRESSURE BASED ON 2-3/8" TUBING  
 BOTTOM HOLE PRESSURE AT 3838 FEET

WELLHEAD PRESSURE PSIG

OXY U.S.A. INC.  
 EAST RUMONT UNIT NO. 16  
 LEA COUNTY, NEW MEXICO  
 STEP RATE INJECTION TEST  
 JUNE 26, 1995

BOTTOM HOLE PRESSURE PSIG



# WEST-TEST, INC.

A SUBSIDIARY OF JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

## STEP RATE INJECTION TEST

CLIENT: OXY U.S.U. INC.

DATE: JUNE 27, 1995

WELL NAME: EAST EUMONT UNIT NO. 18  
LEA COUNTY, NEW MEXICO

WO#: 95-14-0950

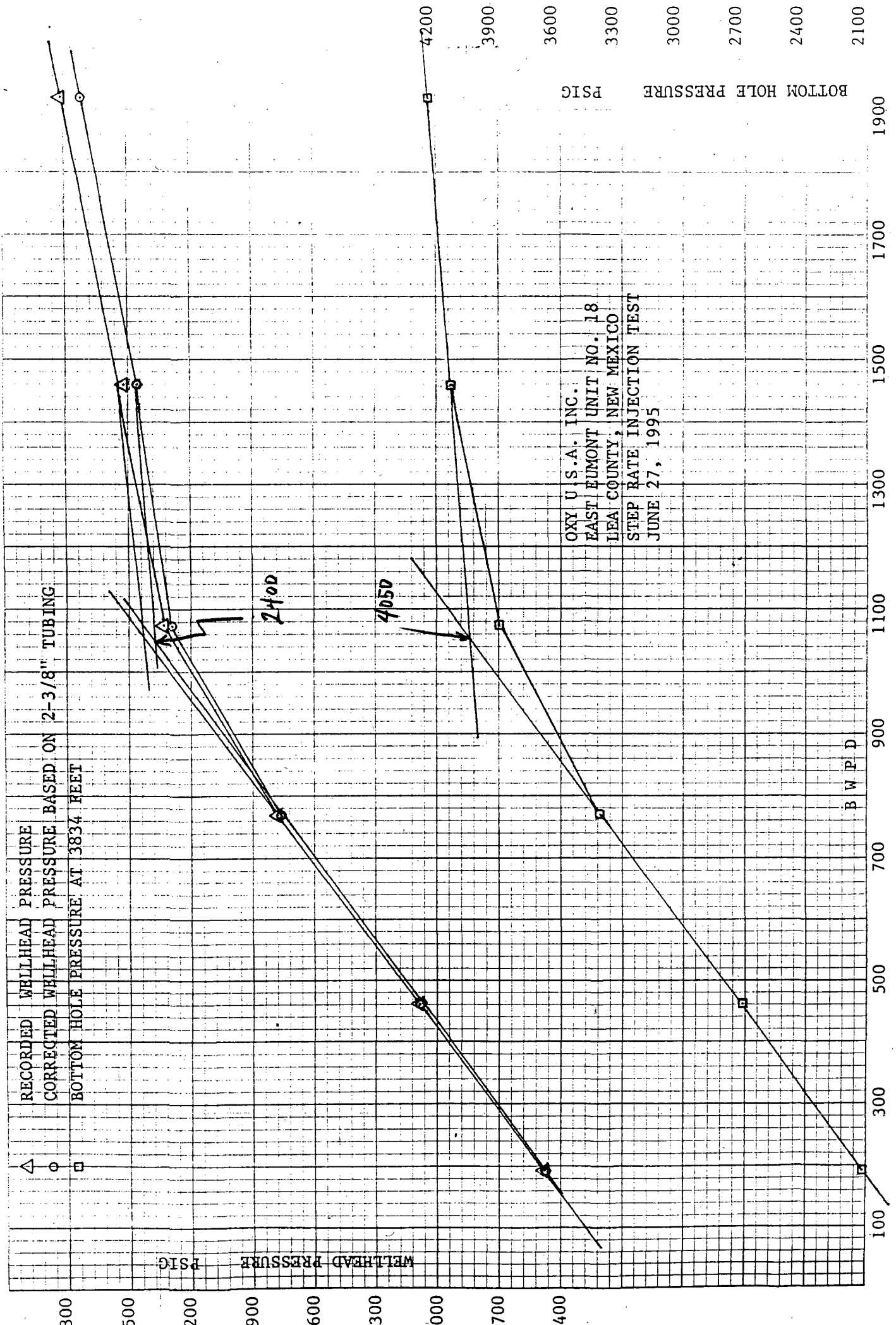
PERFS = 3753-3919

PACKER DEPTH = 3678

BHP GAUGE DEPTH = 3834

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	8:40	48.6				48.6		1686.8
	8:45	296.1	0.7	201.6	1.709	294.4	5.88	1936.1
	8:50	400.8	1.3	172.8	1.285	399.5	5.04	2043.4
	8:55	490.6	2.0	201.6	1.709	488.9	5.88	2123.5
2				192.0				
	9:00	853.3	3.6	460.8	7.889	845.4	13.44	2487.8
	9:05	978.0	5.3	489.6	8.825	969.2	14.28	2608.7
	9:10	1075.4	6.8	432.0	7.001	1068.4	12.60	2710.0
3				460.8				
	9:15	1491.6	9.5	777.6	20.768	1470.8	22.68	3106.1
	9:20	1670.3	12.2	777.6	20.768	1649.5	22.68	3278.7
	9:25	1780.3	14.8	748.8	19.368	1760.9	21.84	3405.9
4				768.0				
	9:30	2116.6	18.5	1065.6	37.200	2079.4	31.08	3704.0
	9:35	2230.5	22.2	1065.6	37.200	2193.3	31.08	3813.0
	9:40	2327.9	26.0	1094.4	39.082	2288.8	31.92	3899.3
5				1075.2				
	9:45	2525.4	31.1	1468.8	67.356	2458.0	42.84	4041.7
	9:50	2574.2	36.2	1468.8	67.356	2506.8	42.84	4099.5
	9:55	2521.6	41.2	1440.0	64.933	2456.7	42.00	4133.0
6				1459.2				
	10:00	2778.5	47.9	1929.6	111.586	2666.9	56.28	4204.4
	10:05	2791.0	54.6	1929.6	111.586	2679.4	56.28	4222.7
	10:10	2816.0	61.2	1900.8	108.525	2707.5	55.44	4230.3
				1920.0				

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)
FALLOFF	10:11	2485.3				2485.3		4143.7
	10:12	2449.0				2449.0		4110.3
	10:13	2422.7				2422.7		4082.9
	10:14	2399.0				2399.0		4060.1
	10:15	2379.0				2379.0		4038.8
	10:20	2301.5				2301.5		3958.5
	10:25	2211.5				2211.5		3867.6



# WEST-TEST, INC.

A SUBSIDIARY OF JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

## STEP RATE INJECTION TEST

CLIENT: OXY U.S.A. INC.

DATE: JUNE 27, 1995

WELL NAME: EAST EUMONT UNIT NO. 20  
LEA COUNTY, NEW MEXICO

WO#: 95-14-0951

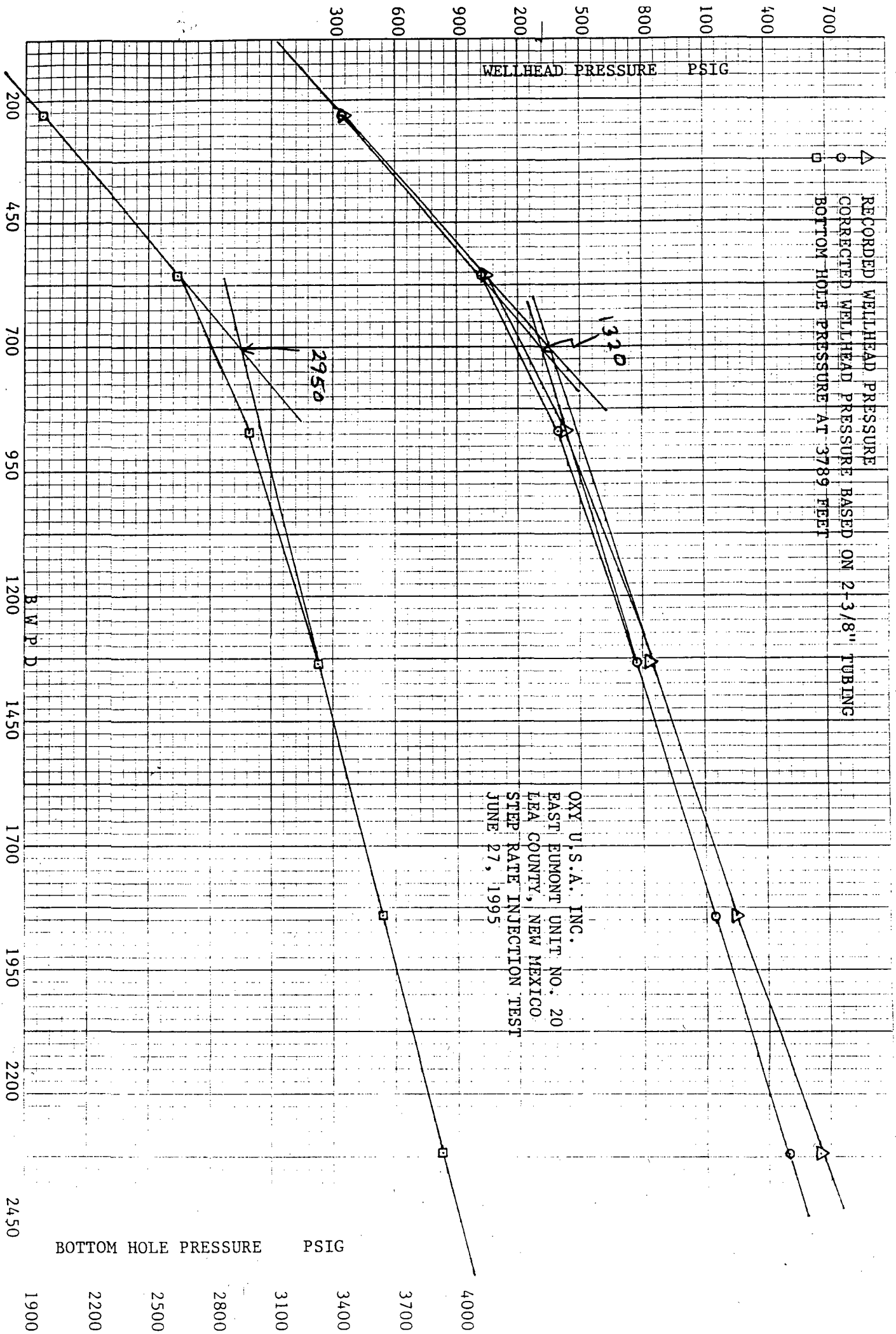
PERFS = 3882-3954

PACKER DEPTH = 3700

BHP GAUGE DEPTH = 3789

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)
	11:30	47.2				47.2		1659.6
	11:35	267.5	0.9	259.2	2.689	264.8	7.56	1881.7
	11:40	317.4	1.7	230.4	2.163	315.2	6.72	1937.7
1	11:45	353.6	2.4	201.6	1.689	351.9	5.88	1972.4
				230.4				
	11:50	788.1	4.4	576.0	11.780	776.3	16.80	2391.1
	11:55	912.7	6.3	547.2	10.714	902.0	15.96	2516.6
2	12:00	1024.8	8.2	547.2	10.714	1014.1	15.96	2633.1
				556.8				
	12:05	1342.0	11.2	864.0	24.941	1317.1	25.20	2912.8
	12:10	1413.1	14.2	864.0	24.941	1388.2	25.20	2987.0
3	12:15	1423.1	17.3	892.8	26.501	1396.6	26.04	2994.6
				873.6				
	12:20	1737.8	21.8	1296.0	52.807	1685.0	37.80	3224.6
	12:25	1785.2	26.5	1353.6	57.230	1728.0	39.48	3274.6
4	12:30	1830.1	31.2	1353.6	57.230	1772.9	39.48	3320.0
				1334.4				
	12:35	2134.9	37.7	1872.0	104.264	2030.6	54.60	3518.2
	12:40	2188.7	44.1	1843.2	101.316	2087.4	53.76	3583.2
5	12:45	2248.7	50.4	1814.4	98.407	2150.3	52.92	3637.7
				1843.2				
	12:50	2566.3	58.5	2332.8	156.654	2409.6	68.04	3822.3
	12:55	2618.9	66.6	2332.8	156.654	2462.2	68.04	3884.4
6	1:00	2654.0	74.6	2304.0	153.095	2500.9	67.20	3928.3
				2323.2				

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)
FALLOFF	1:01	1935.0				1935.0		3577.3
	1:02	1828.9				1828.9		3466.9
	1:03	1745.3				1745.3		3382.2
	1:04	1672.8				1672.8		3309.6
	1:05	1604.2				1604.2		3240.0
	1:10	1300.8				1300.8		2935.9
	1:15	1071.0				1071.0		2704.6



# WEST-TEST, INC.

A SUBSIDIARY OF JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

## STEP RATE INJECTION TEST

CLIENT: OXY U.S.A. INC.

DATE: JUNE 28, 1995

WELL NAME: EAST EUMONT UNIT NO. 22  
LEA COUNTY, NEW MEXICO

WO#: 95-14-0952

PERFS = 3750-3919

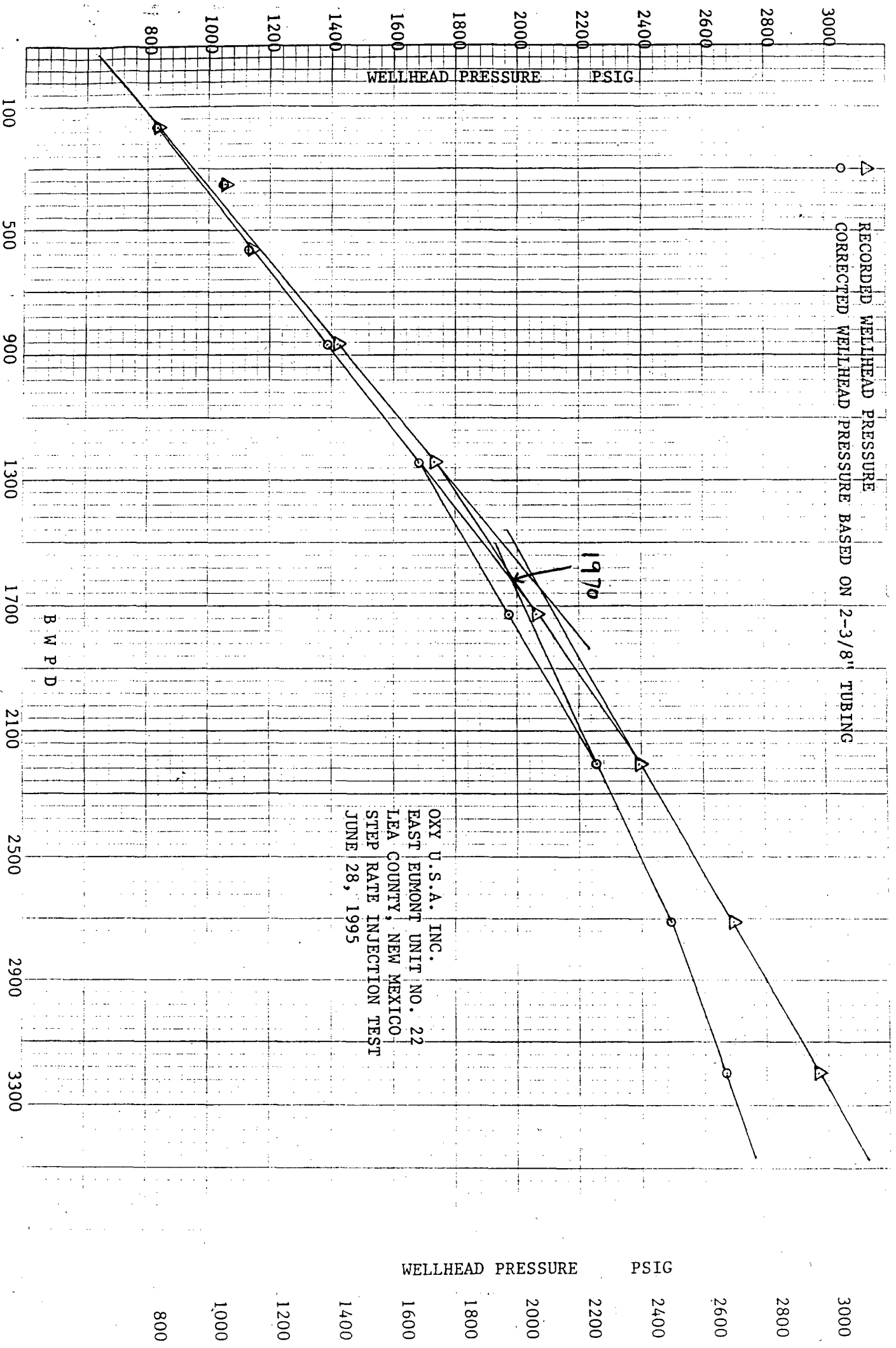
PACKER DEPTH = 3719

BHP GAUGE DEPTH = 3835

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	8:15	242.8				242.8		
	8:20	765.0	0.6	172.8	1.285	763.7	5.04	
	8:25	797.4	1.2	172.8	1.285	796.1	5.04	
	8:30	837.4	1.8	172.8	1.285	836.1	5.04	
				172.8				
2	8:35	975.7	2.9	316.8	3.945	971.8	9.24	
	8:40	1021.8	4.2	374.4	5.374	1016.4	10.92	
	8:45	1050.6	5.4	345.6	4.634	1046.0	10.08	
3				345.6				
	8:50	1114.3	7.3	547.2	10.844	1103.5	15.96	
	8:55	1113.1	9.3	576.0	11.923	1101.2	16.80	
	9:00	1131.9	11.2	547.2	10.844	1121.1	15.96	
				566.8				
4	9:05	1316.9	14.2	864.0	25.244	1291.7	25.20	
	9:10	1369.4	17.2	864.0	25.244	1344.2	25.20	
	9:15	1413.1	20.2	864.0	25.244	1387.9	25.20	
				864.0				
5	9:20	1640.6	24.6	1267.2	51.271	1589.3	36.96	
	9:25	1689.3	28.9	1238.4	49.136	1640.2	36.12	
	9:30	1729.3	33.2	1238.4	49.136	1680.2	36.12	
				1248.0				
6	9:35	1972.9	39.3	1756.8	93.831	1879.1	51.24	
	9:40	2022.9	45.3	1728.0	91.005	1931.9	50.40	
	9:45	2061.6	51.2	1699.2	88.219	1973.4	49.56	
				1728.0				
7	9:50	2304.1	58.9	2217.6	144.376	2159.7	64.68	
	9:55	2351.6	66.6	2217.6	144.376	2207.2	64.68	
	10:00	2397.8	74.2	2188.8	140.926	2256.9	63.84	
				2208.0				



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)
8	10:05	2650.0	83.5	2678.4	204.729	2445.3	78.12	
	10:10	2660.0	93.1	2764.8	217.114	2442.9	80.64	
	10:15	2690.7	102.4	2678.4	204.729	2486.0	78.12	
9				2707.2				
	10:20	2902.5	113.3	3139.2	274.616	2627.9	91.56	
	10:25	2921.2	124.5	3225.6	288.762	2632.4	94.08	
	10:30	2961.3	135.7	3225.6	288.762	2672.5	94.08	
FALLOFF				3196.8				
	10:31	2267.7				2267.7		
	10:32	2196.5				2196.5		
	10:33	2146.5				2146.5		
	10:34	2106.5				2106.5		
	10:35	2075.2				2075.2		
	10:40	1945.2				1945.2		
	10:45	1836.6				1836.6		



# WEST-TEST, INC.

A SUBSIDIARY OF JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

## STEP RATE INJECTION TEST

CLIENT: OXY U.S.A. INC.

DATE: JUNE 28, 1995

WELL NAME: EAST EUMONT UNIT NO. 25  
LEA COUNTY, NEW MEXICO

WO#: 95-14-0953

PERFS = 3876-3940

PACKER DEPTH = 3719

BHP GAUGE DEPTH = 3908

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	11:15	541.3				541.3		
	11:20	399.4	1.0	288.0	3.370	396.0	8.40	
	11:25	497.9	1.4	115.2	0.619	497.3	3.36	
	11:30	536.6	1.8	115.2	0.619	536.0	3.36	
2				172.8				
	11:35	642.6	2.7	259.2	2.773	639.8	7.56	
	11:40	692.5	3.7	288.0	3.370	689.1	8.40	
	11:45	710.0	4.5	230.4	2.230	707.8	6.72	
3				259.2				
	11:50	885.5	6.4	547.2	11.050	874.4	15.96	
	11:55	929.1	8.3	547.2	11.050	918.0	15.96	
	12:00	964.0	10.3	576.0	12.150	951.8	16.80	
4				556.8				
	12:05	1118.6	13.5	921.6	28.987	1089.6	26.88	
	12:10	1151.1	16.8	950.4	30.685	1120.4	27.72	
	12:15	1174.8	20.1	950.4	30.685	1144.1	27.72	
5				940.8				
	12:20	1304.6	24.8	1353.6	59.028	1245.6	39.48	
	12:25	1360.7	29.4	1324.8	56.725	1304.0	38.64	
	12:30	1396.9	34.1	1353.6	59.028	1337.9	39.48	
6				1344.0				
	12:35	1569.2	40.6	1872.0	107.539	1461.7	54.60	
	12:40	1606.6	46.9	1814.4	101.498	1505.1	52.92	
	12:45	1649.1	53.2	1814.4	101.498	1547.6	52.92	
7				1833.6				
	12:50	1836.3	61.1	2275.2	154.271	1682.0	66.36	
	12:55	1896.2	69.2	2332.8	161.574	1734.6	68.04	
	1:00	1938.6	77.3	2332.8	161.574	1777.0	68.04	

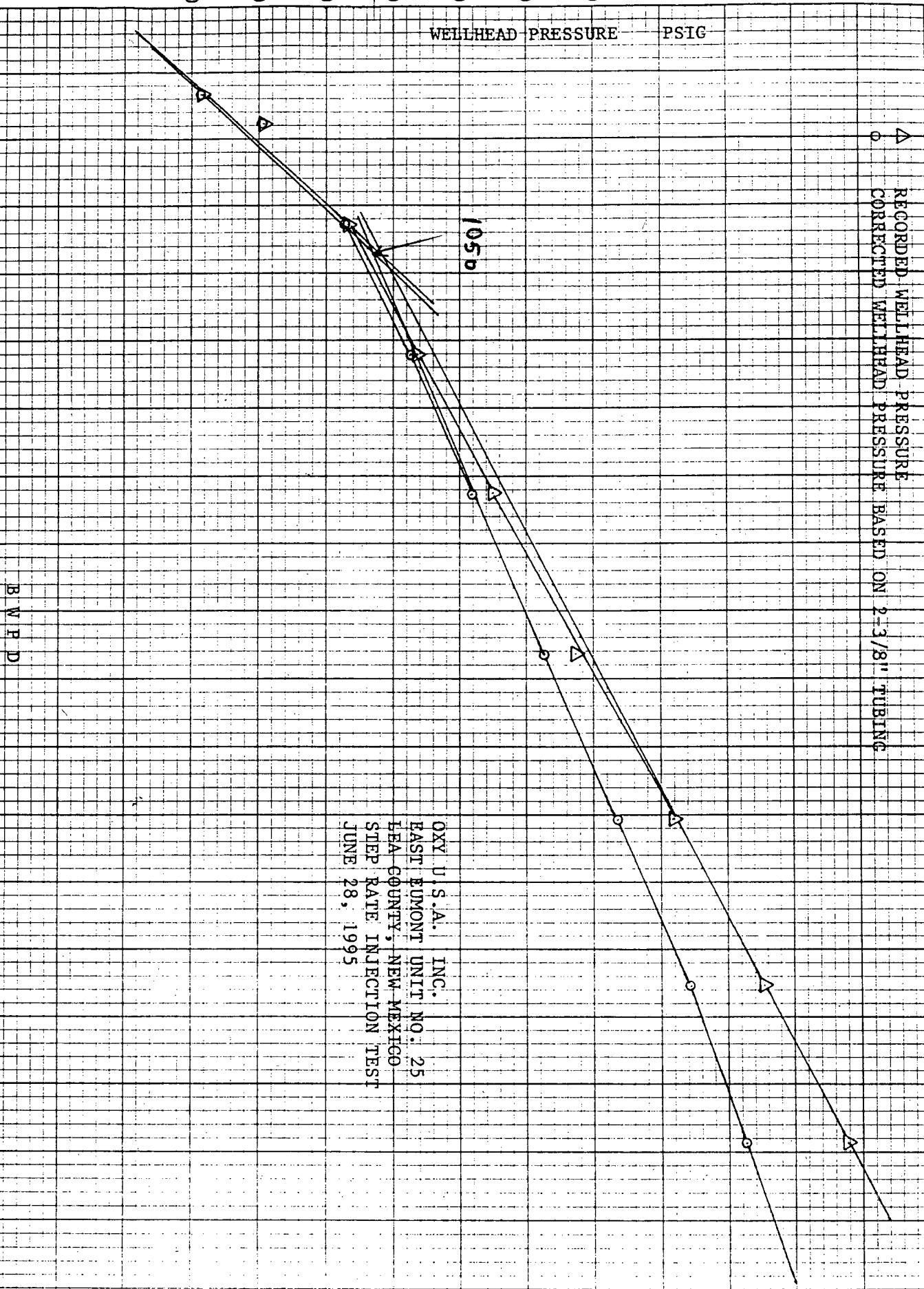
2313.6

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)
8	1:05	2132.2	87.1	2822.4	229.850	1902.4	82.32	
	1:10	2164.7	96.8	2793.6	225.529	1939.2	81.48	
	1:15	2210.9	106.6	2822.4	229.850	1981.1	82.32	
				2812.8				
9	1:20	2352.2	117.9	3254.4	299.137	2053.1	94.92	
	1:25	2413.5	129.2	3254.4	299.137	2114.4	94.92	
	1:30	2459.7	140.6	3283.2	304.053	2155.6	95.76	
				3264.0				
FALLOFF	1:31	1879.9				1879.9		
	1:32	1847.5				1847.5		
	1:33	1816.3				1816.3		
	1:34	1787.6				1787.6		
	1:35	1760.1				1760.1		
	1:40	1647.8				1647.8		
	1:45	1562.9				1562.9		

RECORDED WELLHEAD PRESSURE  
CORRECTED WELLHEAD PRESSURE BASED ON 2-3/8" TUBING

WELLHEAD PRESSURE PSIG

1050



OXY U.S.A. INC.  
EAST FUMONT UNIT NO. 25  
BEA COUNTY, NEW MEXICO  
STEP RATE INJECTION TEST  
JUNE 28, 1995

B W F D

WELLHEAD PRESSURE PSIG

# WEST-TEST, INC.

A SUBSIDIARY OF JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

## STEP RATE INJECTION TEST

CLIENT: OXY U.S.A. INC.

DATE: JUNE 29, 1995

WELL NAME: EAST EUMONT UNIT NO. 30  
LEA COUNTY, NEW MEXICO

WO#: 95-14-0954

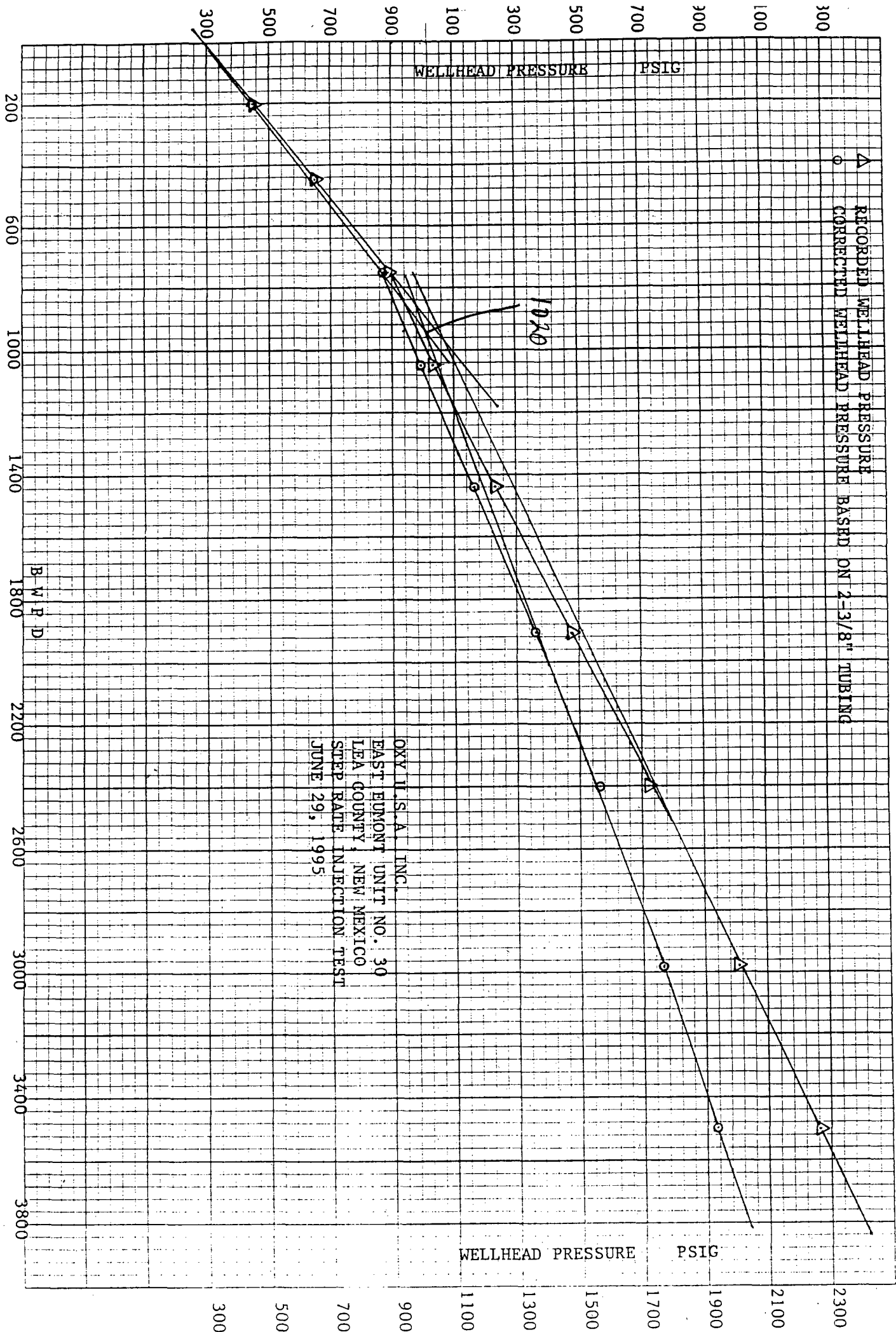
PERFS = 3768-3940

PACKER DEPTH = 3729

BHP GAUGE DEPTH = 3854

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)/34.2657	(7) MEASURED BHP (psi)
1	8:25	358.3				358.3		
	8:30	444.3	0.7	201.6	1.718	442.6	5.88	
	8:35	456.8	1.4	201.6	1.718	455.1	5.88	
	8:40	453.2	2.1	201.6	1.718	451.5	5.88	
				201.6				
2	8:45	574.2	3.6	432.0	7.037	567.2	12.60	
	8:50	625.4	5.2	460.8	7.930	617.5	13.44	
	8:55	651.6	6.8	460.8	7.930	643.7	13.44	
3				451.2				
	9:00	812.4	9.4	748.8	19.469	792.9	21.84	
	9:05	838.6	12.1	777.6	20.876	817.7	22.68	
	9:10	889.7	14.7	748.8	19.469	870.2	21.84	
				758.4				
4	9:15	942.1	18.3	1036.8	35.546	906.6	30.24	
	9:20	990.7	22.0	1065.6	37.394	953.3	31.08	
	9:25	1027.0	25.6	1036.8	35.546	991.5	30.24	
				1046.4				
5	9:30	1151.9	30.7	1468.8	67.708	1084.2	42.84	
	9:35	1191.9	35.6	1411.2	62.878	1129.0	41.16	
	9:40	1233.2	40.6	1440.0	65.272	1167.9	42.00	
				1440.0				
6	9:45	1376.9	47.3	1929.6	112.169	1264.7	56.28	
	9:50	1429.4	53.9	1900.8	109.091	1320.3	55.44	
	9:55	1471.8	60.5	1900.8	109.091	1362.7	55.44	
				1910.4				
7	10:00	1653.0	68.9	2419.2	170.431	1482.6	70.56	
	10:05	1695.5	77.3	2419.2	170.431	1525.1	70.56	
	10:10	1724.2	85.5	2361.6	163.000	1561.2	68.88	
				2400.0				

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
STEP NO. & REMARKS	TIME	SURFACE TUBING PRESS. (psig)	CUMMULATIVE VOL. INJECTED (bbls)	INJECTION RATE (bbls/day)	FRICTION HEAD LOSS (psi)	CORRECTED TUBING PRESS. (psi) (1)-(4)	INJECTION RATE (gpm) (3)/34.2857	MEASURED BHP (psi)
8	10:15	1905.3	95.8	2966.4	248.532	1656.8	86.52	
	10:20	1930.3	106.2	2995.2	253.014	1677.3	87.36	
	10:25	2016.4	116.5	2966.4	248.532	1767.9	86.52	
				2976.0				
	10:30	2181.4	128.7	3513.6	339.937	1841.5	102.48	
9	10:35	2235.1	141.1	3571.2	350.318	1884.8	104.16	
	10:40	2261.3	153.0	3427.2	324.634	1936.7	99.96	
				3504.0				
FALLOFF	10:41	1645.4				1645.4		
	10:42	1611.7				1611.7		
	10:43	1591.7				1591.7		
	10:44	1571.7				1571.7		
	10:45	1554.2				1554.2		
	10:50	1479.3				1479.3		
	10:55	1419.4				1419.4		





# WEST-TEST, INC.

A SUBSIDIARY OF JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

## STEP RATE INJECTION TEST

CLIENT: OXY U.S.A. INC.

DATE: JUNE 29, 1995

WELL NAME: EAST EUMONT UNIT NO. 32  
LEA COUNTY, NEW MEXICO

WO#: 95-14-0955

PERFS = 3773-3940

PACKER DEPTH = 3702

BHP GAUGE DEPTH = 3857

STEP NO. & REMARKS	TIME	(1)	(2)	(3)	(4)	(5)	(6)	(7)
		SURFACE TUBING PRESS. (psig)	CUMMULATIVE VOL INJECTED (bbls)	INJECTION RATE (bbls/day)	FRICTION HEAD LOSS (psi)	CORRECTED TUBING PRESS. (psi) (1)-(4)	INJECTION RATE (gpm) (3)/34.2857	MEASURED BHP (psi)
1	11:30	20.3				20.3		
	11:35	180.7	0.8	230.4	2.201	178.5	6.72	
	11:40	270.4	1.6	230.4	2.201	268.2	6.72	
	11:45	335.2	2.4	230.4	2.201	333.0	6.72	
				230.4				
2	11:50	602.9	4.3	547.2	10.906	592.0	15.96	
	11:55	708.7	6.2	547.2	10.906	697.8	15.96	
	12:00	820.7	8.1	547.2	10.906	809.8	15.96	
3				547.2				
	12:05	1043.6	11.1	864.0	25.389	1018.2	25.20	
	12:10	1163.4	14.1	864.0	25.389	1138.0	25.20	
	12:15	1263.3	17.1	864.0	25.389	1237.9	25.20	
4				864.0				
	12:20	1511.8	21.5	1267.2	51.565	1460.2	36.96	
	12:25	1607.9	25.7	1209.6	47.313	1560.6	35.28	
	12:30	1705.3	30.1	1267.2	51.565	1653.7	36.96	
5				1248.0				
	12:35	1912.5	35.7	1612.8	80.560	1831.9	47.04	
	12:40	2002.4	41.4	1641.6	83.241	1919.2	47.88	
	12:45	2084.9	47.0	1612.8	80.560	2004.3	47.04	
6				1622.4				
	12:50	2292.4	54.0	2016.0	121.731	2170.7	58.80	
	12:55	2348.6	61.1	2044.8	124.968	2223.6	59.64	
	1:00	2408.7	68.1	2016.0	121.731	2287.0	58.80	
7				2025.6				
	1:05	2622.7	76.8	2505.6	182.004	2440.7	73.08	
	1:10	2651.5	85.4	2476.8	178.153	2473.3	72.24	
	1:15	2681.6	94.1	2505.6	182.004	2499.6	73.08	
				2496.0				

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)
8  FALLOFF	1:20	2902.1	105.1	3168.0	280.897	2621.2	92.40	
	1:25	2929.7	115.4	2966.4	248.725	2681.0	86.52	
	1:30	2933.4	126.2	3110.4	271.522	2661.9	90.72	
				3081.6				
	1:31	2452.4				2452.4		
	1:32	2402.3				2402.3		
	1:33	2374.8				2374.8		
	1:34	2353.6				2353.6		
	1:35	2337.3				2337.3		
	1:40	2302.3				2302.3		
	1:45	2272.3				2272.3		

RECORDED WELLHEAD PRESSURE  
CORRECTED WELLHEAD PRESSURE BASED ON 2-3/8" TUBING

