DATE IN 10/15/07	SUSPENSE	ENGINEER W. Jones	LOGGED IN 10/17/07	TYPE IPI	APP NO. pTDS072905 1569

ABOVE THIS LINE FOR DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION
- Engineering Bureau -
1220 South St. Francis Drive, Santa Fe, NM 87505

ADMINISTRATIVE APPLICATION CHECKLIST

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]
[DHC-Downhole Commingling] [CTB-Lease Commingling] [PLC-Pool/Lease Commingling]
[PC-Pool Commingling] [OLS - Off-Lease Storage] [OLM-Off-Lease Measurement]
[WFX-Waterflood Expansion] [PMX-Pressure Maintenance Expansion]
[SWD-Salt Water Disposal] [IPI-Injection Pressure Increase]
[EOR-Qualified Enhanced Oil Recovery Certification] [PPR-Positive Production Response]

[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 _____

RECEIVED
2007 OCT 15 PM 12:48

[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

[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.

David Stewart		Sr. Regulatory Analyst	10/10/07
Print or Type Name	Signature	Title	Date

david_stewart@oxy.com
e-mail Address

OXY USA WTP LP

PO Box 50250
Midland, TX 79710-0250

October 10, 2007

State of New Mexico
Energy and Minerals Department
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Attention: Mr. Mark Fesmire, Director

RE: Application of OXY USA WTP LP for an Increase in the Authorized Injection Pressure for the East Eumont Unit, Eumont-Yates-Seven Rivers-Queen (Oil) Pool, Lea County, NM.

Dear Sir:

OXY USA WTP LP respectfully requests an increase in the authorized injection pressure for eleven (11) wells in the referenced waterflood unit:

Well	API No.	Requested Authorized Injection Pressure*
EEU #4	30-025-05534	2193 psi
EEU #6	30-025-05531	1517 psi
EEU #11	30-025-05538	2246 psi
EEU #18	30-025-05547	2588 psi
EEU #25	30-025-05544	2345 psi
EEU #28	30-025-05583	2456 psi
EEU #30	30-025-05586	2159 psi
EEU #32	30-025-05588	2213 psi
EEU #37	30-025-05607	1986 psi
EEU #39	30-025-05602	~~2295 psi~~ 2250
EEU #41	30-025-05600	2064 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 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 ARC Pressure Data Inc. 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 #4, 6, 11, 18, 25, 28, 30, 32, 37, 39, 41.

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. By copy of this letter, we are also giving notice of application to the BLM Field Office for an increase in the authorized injection pressure on these eleven wells.

If you require any additional information relating to this request, please contact me @ 432-685-5717 or Frey Rad @ 432-685-5675. Thank you for your consideration of this request.

Yours truly,

David Stewart
Sr. Regulatory Analyst
OXY USA WTP LP

DRS/drs
Enclosures

CC: Frey Rad w/ enclosures
Herbie Bruton w/ enclosures

New Mexico Oil Conservation Division
District I Office
1625 N. French Drive
Hobbs, NM 88240

Bureau of Land Management
Carlsbad Field Office
620 E. Greene St.
Carlsbad, NM 88220

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

S E A L

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

* **Pro**posed Well

OPERATIONS LOG

COMPANY:	OXY USA, INC.
LEASE:	EAST EUMONT UNIT # 4
FIELD (FORMATION):	()
COUNTY:	LEA
STATE:	NM
TEST TYPE:	STEP-RATE
ENGINEER:	
FIELD REP:	
JOB RUN BY:	TERRY LEGENDRE
DATA PREPARED BY:	CAMERON NEWTON
INSTRUMENT:	WIRELINE

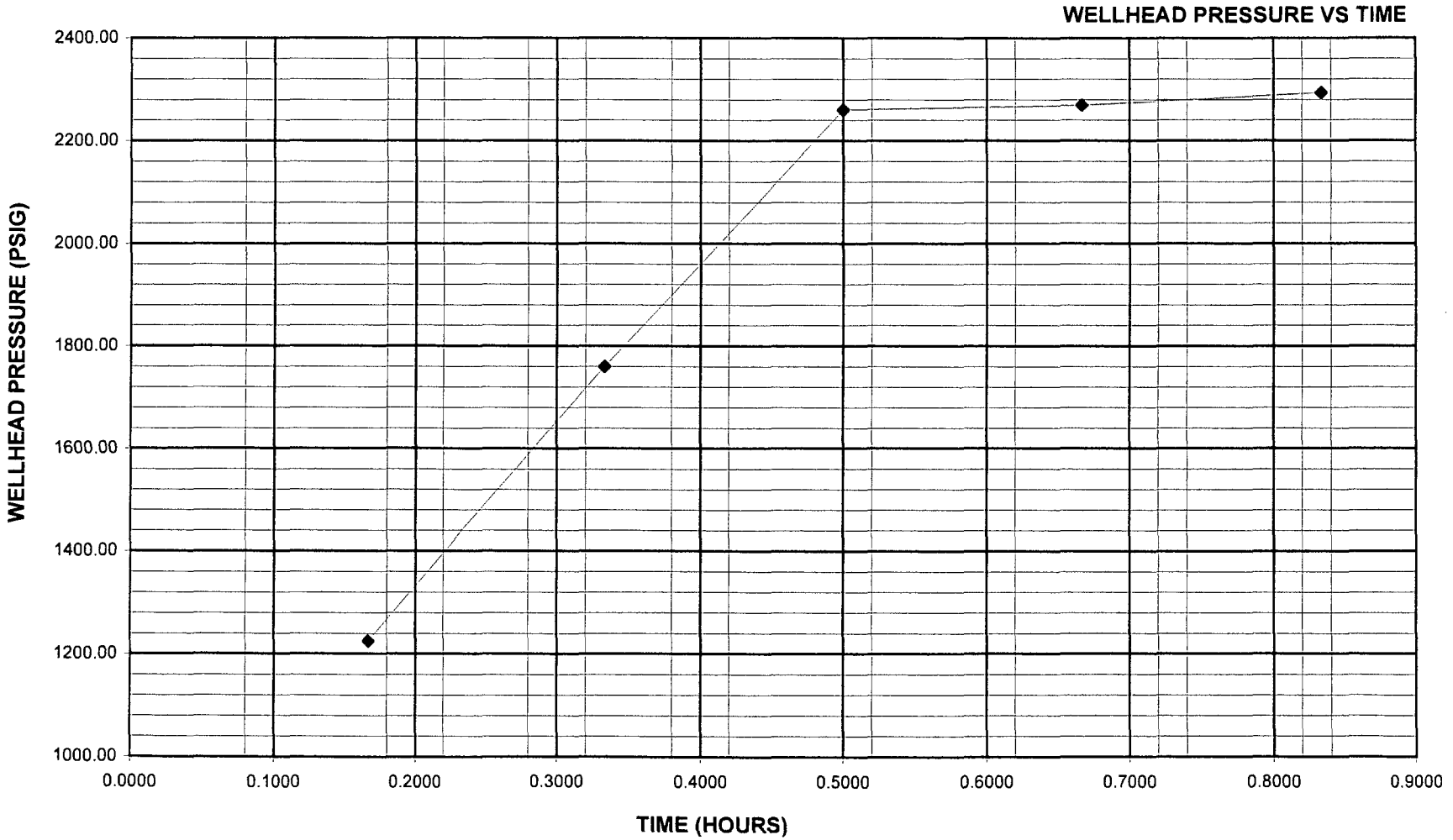
DATE TIME	DWG	OPERATIONS LOG - JOB NUMBER: 73677A
8/30/07 08:45:00 AM		ARRIVE ON LOCATION
8/30/07 09:00:00 AM		BEGAN STEP-RATE TEST
8/30/07 09:10:00 AM	1224	END OF FIRST RATE @ 1 BPD / BEGAN 2ND RATE @ 2 BPD
8/30/07 09:20:00 AM	1759	END OF 2ND RATE @ 2 BPD / BEGAN 3RD RATE @ 3 BPD
8/30/07 09:30:00 AM	2259	END OF 3RD RATE @ 3 BPD / BEGAN 4TH RATE @ 4 BPD
8/30/07 09:40:00 AM	2268	END OF 4TH RATE @ 4 BPD / BEGAN 5TH RATE @ 5 BPD
8/30/07 09:50:00 AM	2292	END OF 5TH RATE @ 5 BPD / END OF TEST

COMPANY: OXY USA, INC.
LEASE: EAST EUMONT UNIT # 4
FIELD (FORMATION): ()
COUNTY: LEA
STATE: NM

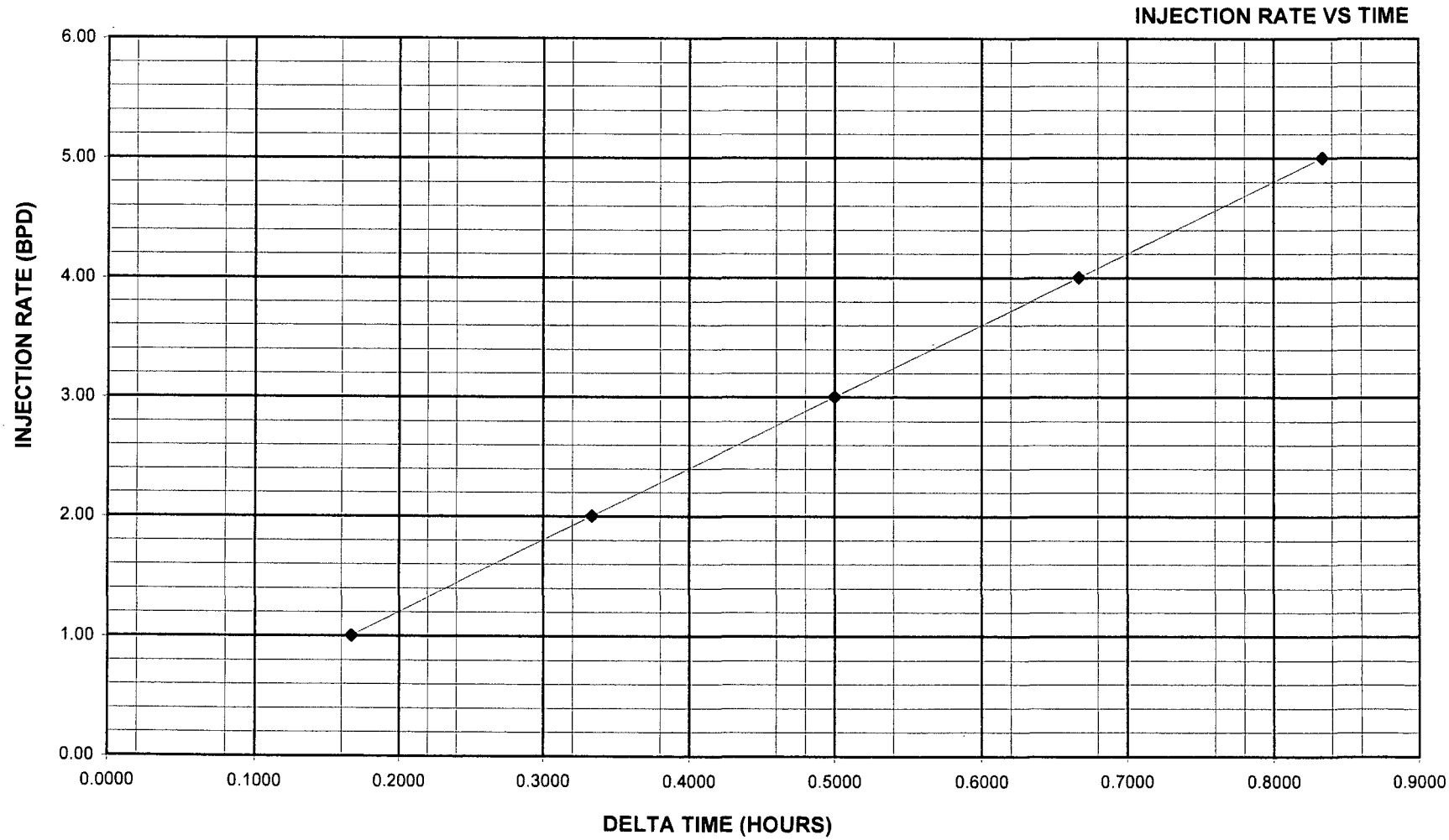
TEST DATES: 8/30/2007 - 8/30/2007
RUN DEPTH: SURFACE
INSTRUMENT: WIRELINE

REAL TIME	DELTA TIME, HOURS	SURFACE PRESSURE, PSIA	WELLHEAD PRESSURE, PSIG	INJECTION RATE, BPD	JOB NUMBER: 73677A
08/30/07 09:10:00 AM	0.1667		1224.00	1.00	
08/30/07 09:20:00 AM	0.3333		1759.00	2.00	
08/30/07 09:30:00 AM	0.5000		2259.00	3.00	
08/30/07 09:40:00 AM	0.6667		2268.00	4.00	
08/30/07 09:50:00 AM	0.8333		2292.00	5.00	

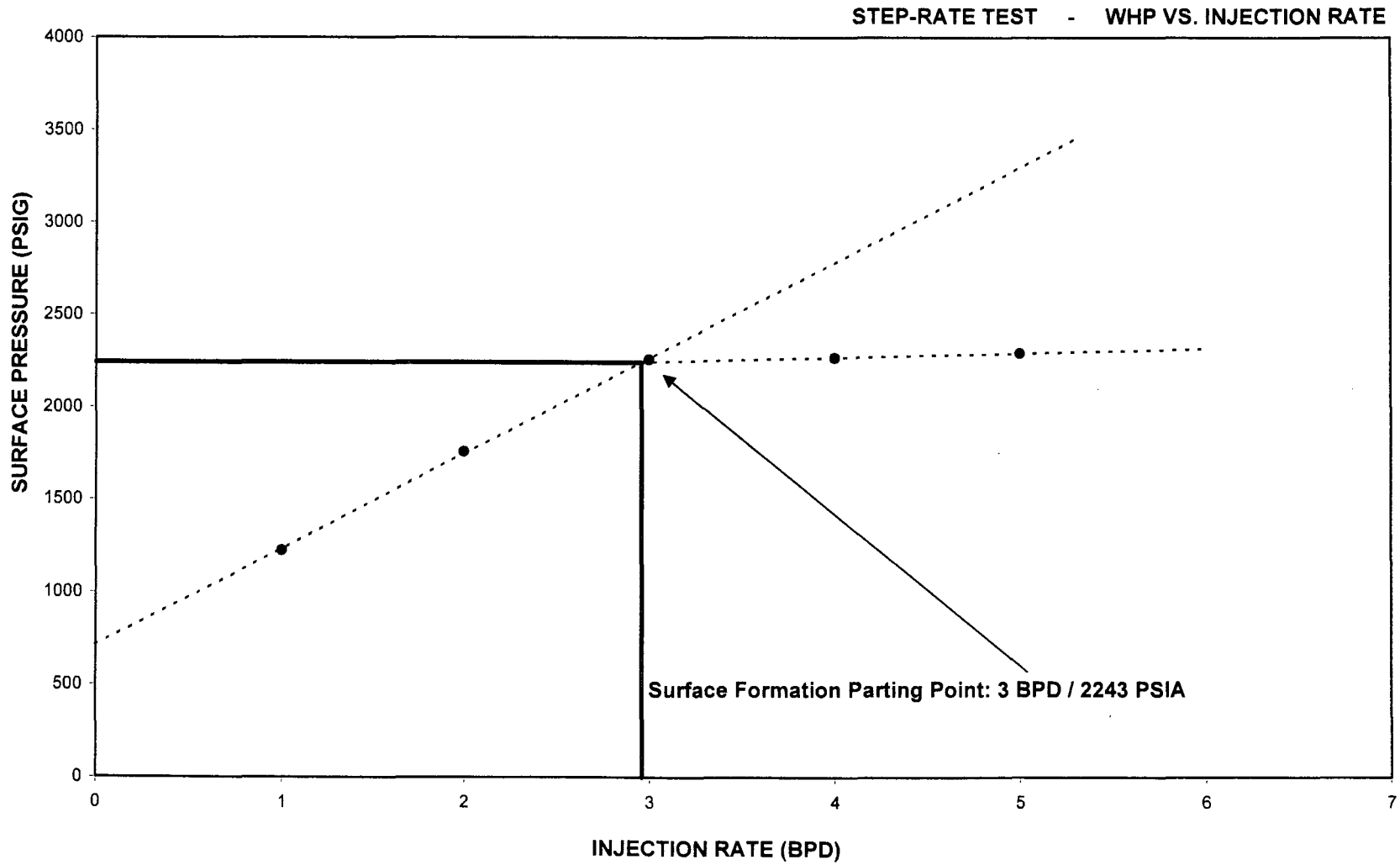
COMPANY:	OXY USA, INC.	FIELD:		JOB #	73677A
LEASE:	EAST EUMONT UNIT	COUNTY:	LEA	TEST DATE:	8/30/2007 - 8/30/2007
WELL NUMBER:	4	STATE:	NM		



COMPANY:	OXY USA, INC.	FIELD:		JOB #	73677A
LEASE:	EAST EUMONT UNIT	COUNTY:	LEA	TEST DATE:	8/30/2007 - 8/30/2007
WELL NUMBER:	4	STATE:	NM		



COMPANY:	OXY USA, INC.	FIELD:		JOB #	73677A		
LEASE:	EAST EUMONT UNIT	COUNTY:	LEA	TEST DATE:	8/30/2007	-	8/30/2007
WELL NUMBER:	4	STATE:	NM				



OPERATIONS LOG

COMPANY:	OXY USA, INC.
LEASE:	EAST EUMONT UNIT # 6
FIELD (FORMATION):	()
COUNTY:	LEA
STATE:	NM
TEST TYPE:	STEP-RATE
ENGINEER:	
FIELD REP:	
JOB RUN BY:	TERRY LEGENDRE
DATA PREPARED BY:	CAMERON NEWTON
INSTRUMENT:	WIRELINE

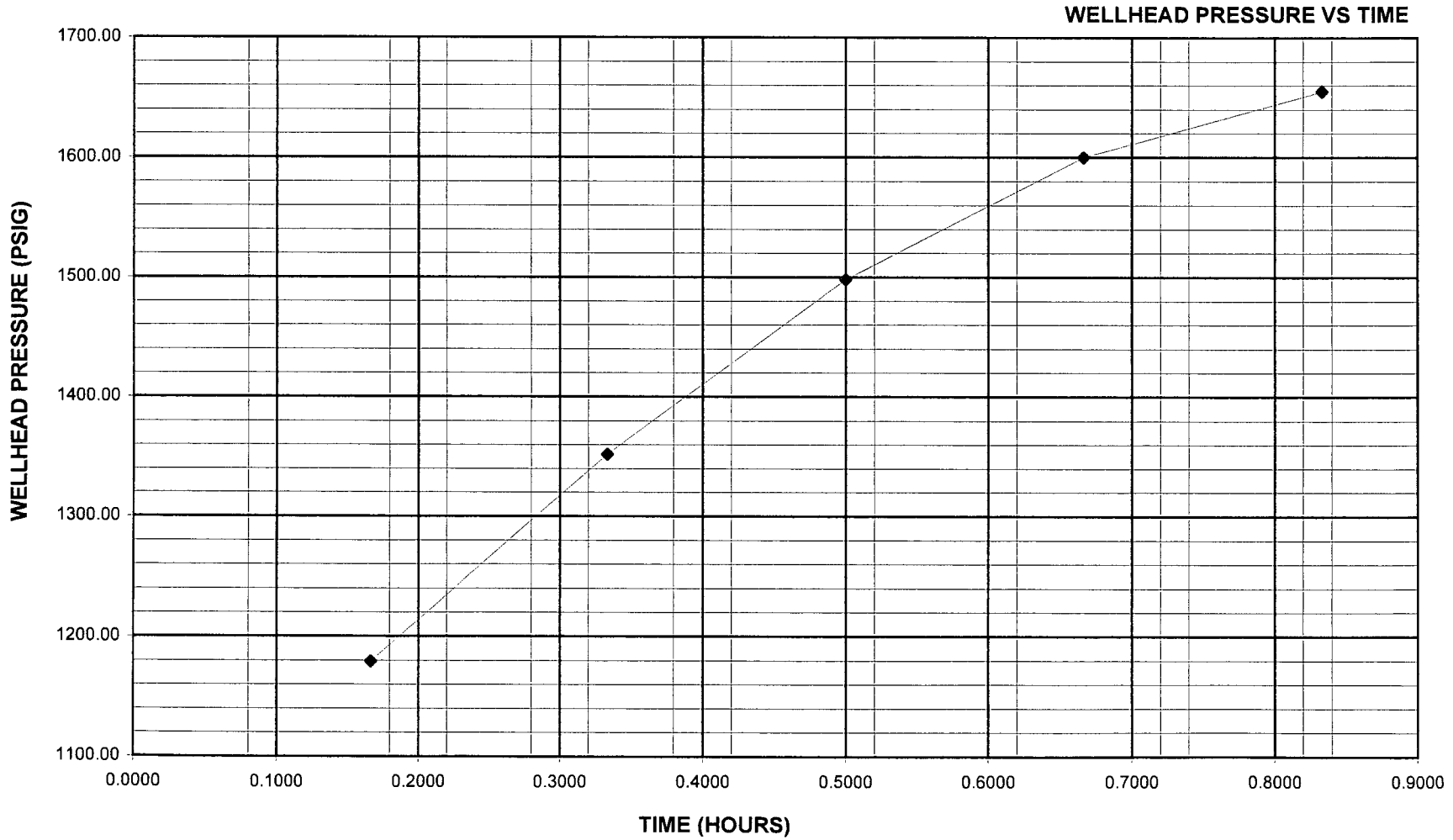
DATE TIME	DWG	OPERATIONS LOG - JOB NUMBER: 73633B
8/22/07 10:15:00 AM		ARRIVE ON LOCATION
8/22/07 10:30:00 AM		BEGAN STEP-RATE TEST
8/22/07 10:40:00 AM		END OF FIRST RATE @ 1 BPD / BEGAN 2ND RATE @ 2 BPD
8/22/07 10:50:00 AM		END OF 2ND RATE @ 2 BPD / BEGAN 3RD RATE @ 3 BPD
8/22/07 11:00:00 AM		END OF 3RD RATE @ 3 BPD / BEGAN 4TH RATE @ 4 BDP
8/22/07 11:10:00 AM		END OF 4TH RATE @ 4 BPD / BEGAN 5TH RATE @ 5 BPD
8/22/07 11:20:00 AM		END OF 5TH RATE @ 5 BPD / END OF TEST

COMPANY: OXY USA, INC.
LEASE: EAST EUMONT UNIT # 6
FIELD (FORMATION): ()
COUNTY: LEA
STATE: NM

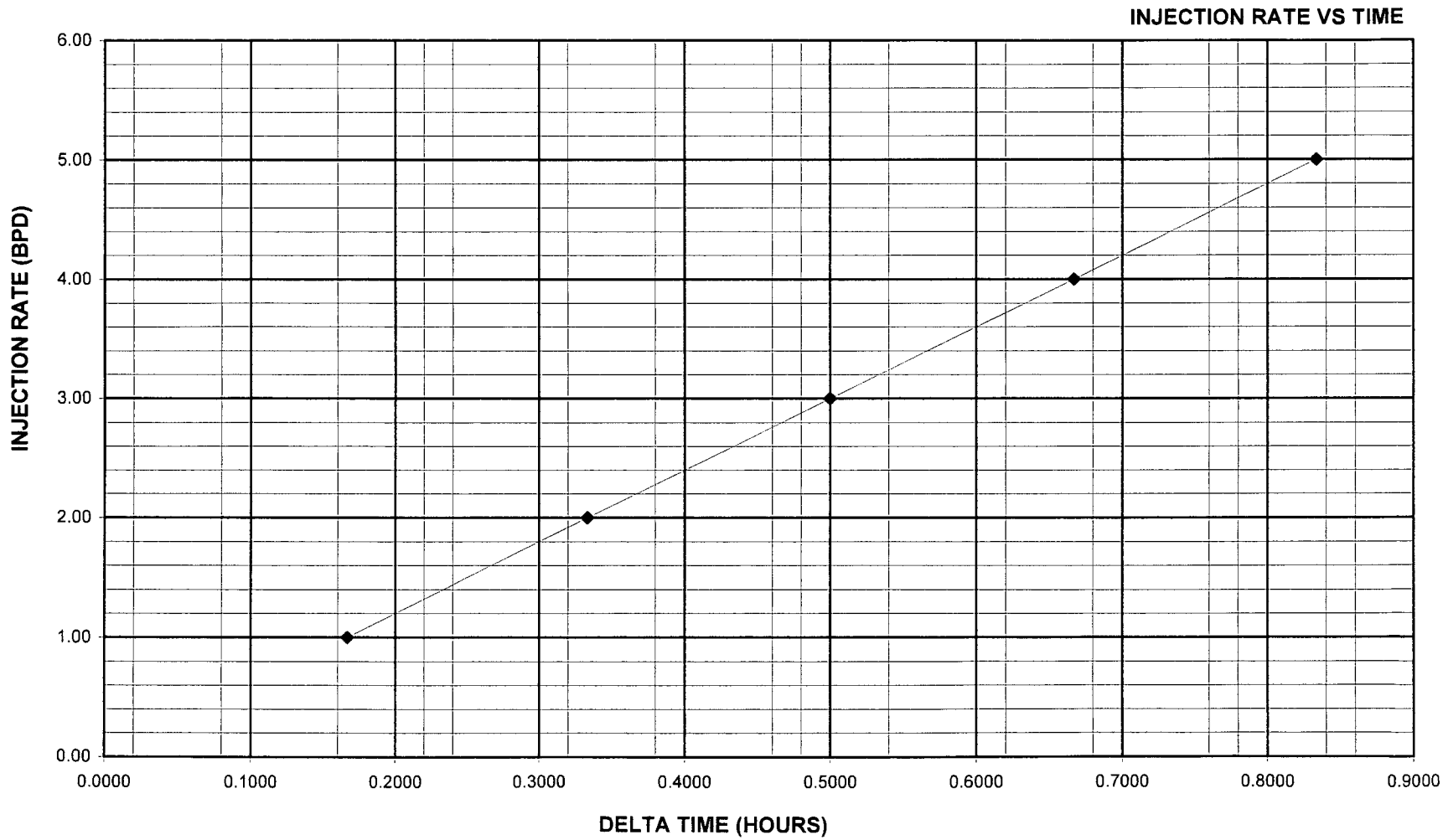
TEST DATES: 8/22/2007 - 8/22/2007
RUN DEPTH: SURFACE
INSTRUMENT: WIRELINE

REAL TIME	DELTA TIME, HOURS	SURFACE PRESSURE, PSIA	WELLHEAD PRESSURE, PSIG	INJECTION RATE, BPD	JOB NUMBER: 73633B
08/22/07 10:40:00 AM	0.1667		1179.00	1.00	
08/22/07 10:50:00 AM	0.3333		1352.00	2.00	
08/22/07 11:00:00 AM	0.5000		1498.00	3.00	
08/22/07 11:10:00 AM	0.6667		1600.00	4.00	
08/22/07 11:20:00 AM	0.8333		1655.00	5.00	

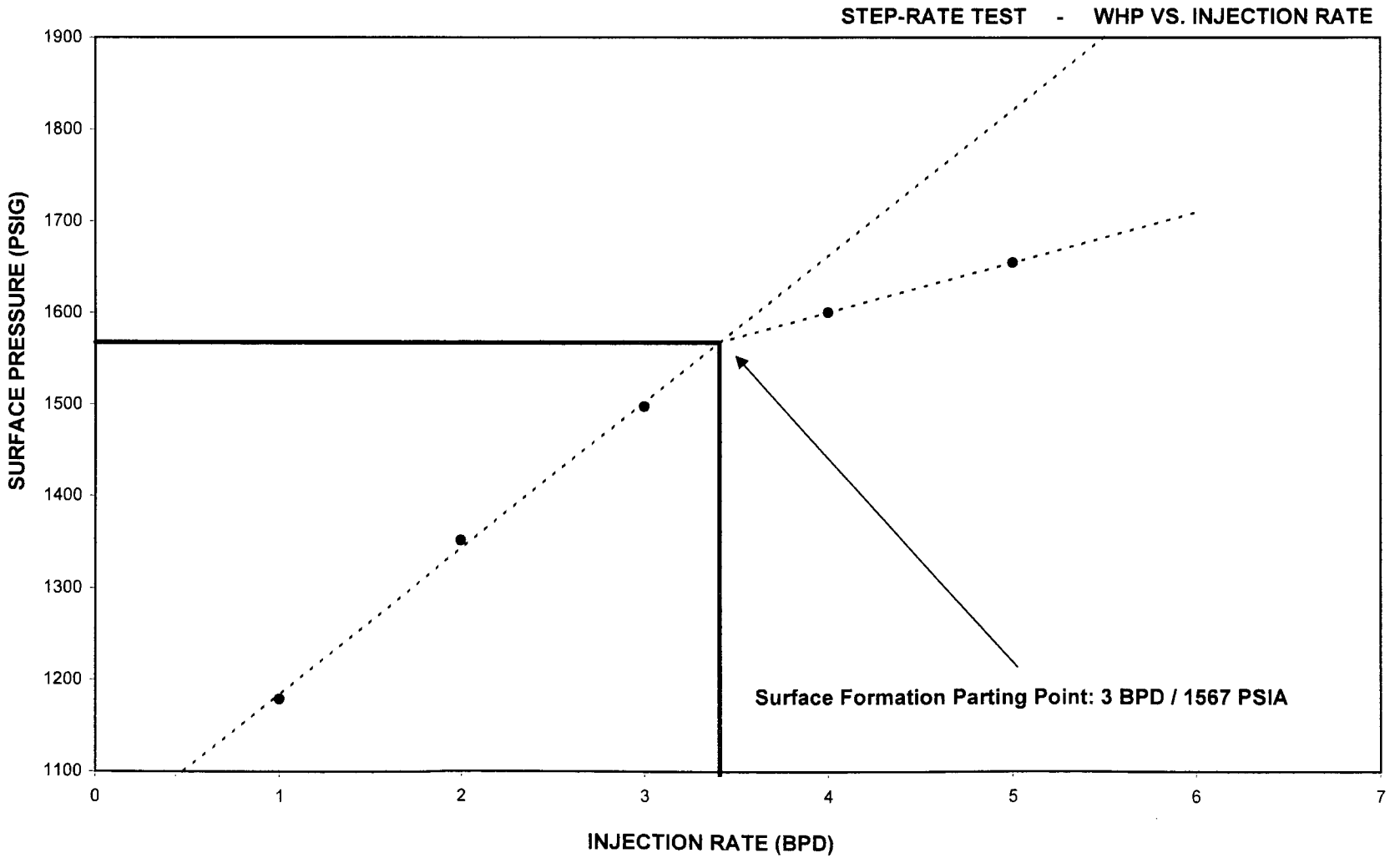
COMPANY:	OXY USA, INC.	FIELD:		JOB #	73633B
LEASE:	EAST EUMONT UNIT	COUNTY:	LEA	TEST DATE:	8/22/2007 - 8/22/2007
WELL NUMBER:	6	STATE:	NM		



COMPANY:	OXY USA, INC.	FIELD:		JOB #	73633B
LEASE:	EAST EUMONT UNIT	COUNTY:	LEA	TEST DATE:	8/22/2007 - 8/22/2007
WELL NUMBER:	6	STATE:	NM		



COMPANY:	OXY USA, INC.	FIELD:		JOB #	73633B		
LEASE:	EAST EUMONT UNIT	COUNTY:	LEA	TEST DATE:	8/22/2007	-	8/22/2007
WELL NUMBER:	6	STATE:	NM				



OPERATIONS LOG

COMPANY: OXY USA, INC.
LEASE: EAST EUMONT UNIT # 11
FIELD (FORMATION): ()
COUNTY: LEA
STATE: NM

TEST TYPE: STEP-RATE

ENGINEER:
FIELD REP:
JOB RUN BY: TERRY LEGENDRE
DATA PREPARED BY: JOSE ALMENGOR
INSTRUMENT: WIRELINE

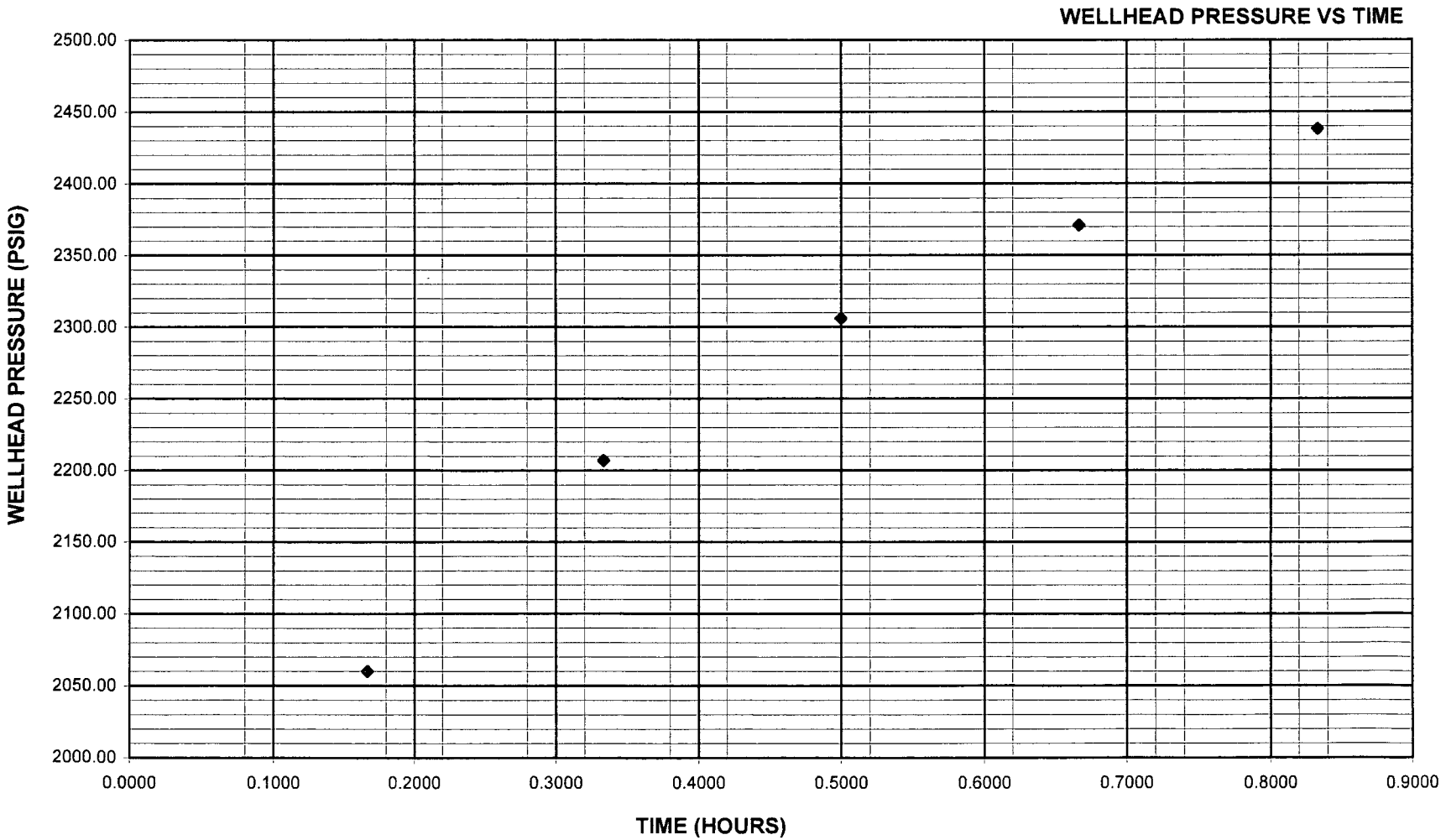
DATE TIME	DWG	OPERATIONS LOG - JOB NUMBER: 73609B
8/16/07 09:00:00 AM		ARRIVED ON LOCATION
8/16/07 10:20:00 AM		BEGAN STEP RATE TEST
8/16/07 10:30:00 AM	2060	END OF 1ST RATE @ 1 BPD / BEGIN 2ND RATE
8/16/07 10:40:00 AM	2207	END OF 2ND RATE @ 2 BPD / BEGIN 3RD RATE
8/16/07 10:50:00 AM	2306	END OF 3RD RATE @ 3 BPD / BEGIN 4TH RATE
8/16/07 11:00:00 AM	2371	END OF 4TH RATE @ 4 BPD / BEGIN 5TH RATE
8/16/07 11:10:00 AM	2438	END OF 5TH RATE @ 5 BPD / END OF TEST

COMPANY: OXY USA, INC.
LEASE: EAST EUMONT UNIT # 11
FIELD (FORMATION): ()
COUNTY: LEA
STATE: NM

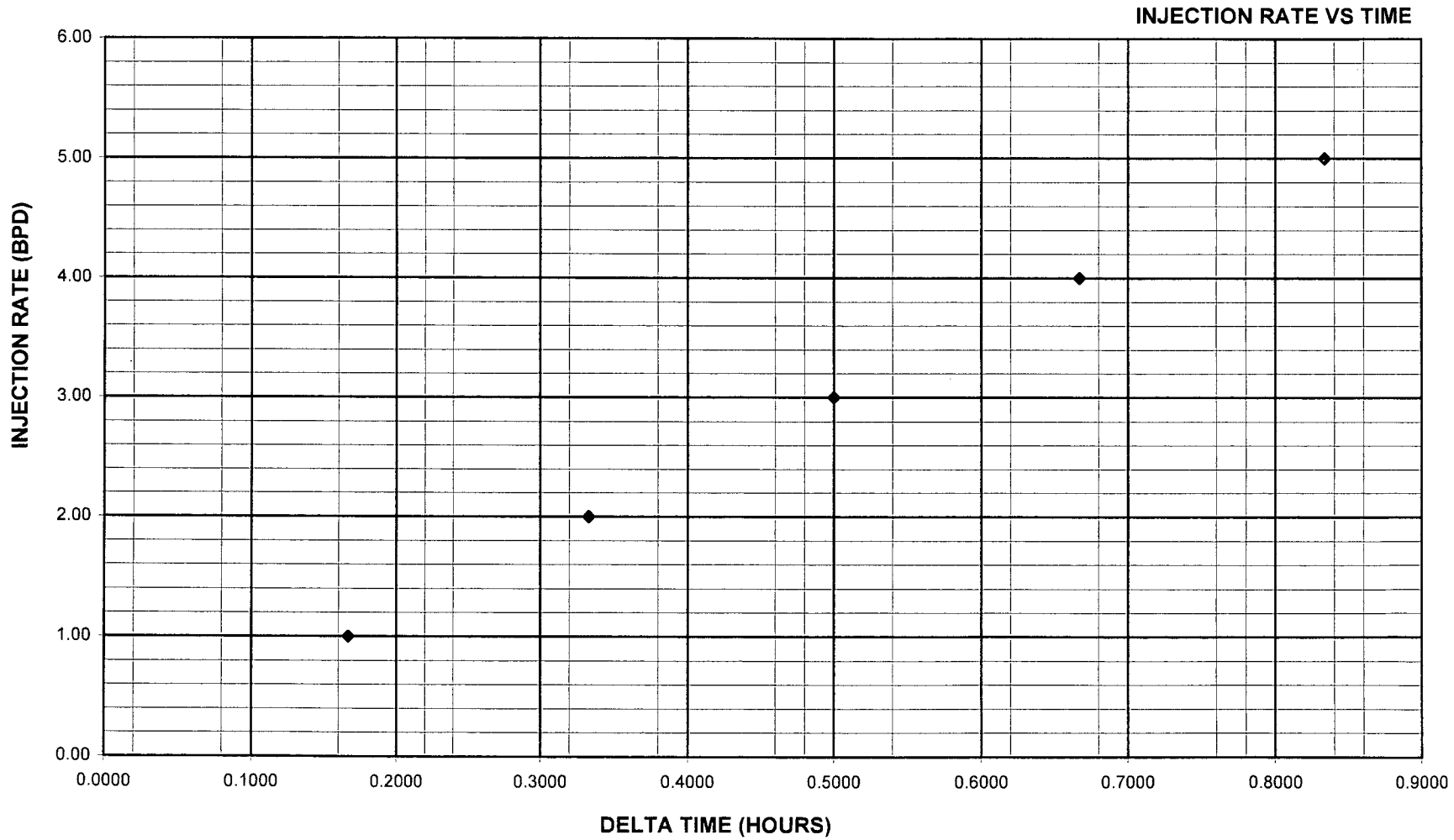
TEST DATES: 8/16/2007 - 8/16/2007
RUN DEPTH: SURFACE
INSTRUMENT: WIRELINE

REAL TIME	DELTA TIME, HOURS	BOTTOMHOLE PRESSURE, PSIA	WELLHEAD PRESSURE, PSIG	INJECTION RATE, BPD	JOB NUMBER: 73609B
08/16/07 10:30:00 AM	0.1667		2060.00	1.00	
08/16/07 10:40:00 AM	0.3333		2207.00	2.00	
08/16/07 10:50:00 AM	0.5000		2306.00	3.00	
08/16/07 11:00:00 AM	0.6667		2371.00	4.00	
08/16/07 11:10:00 AM	0.8333		2438.00	5.00	

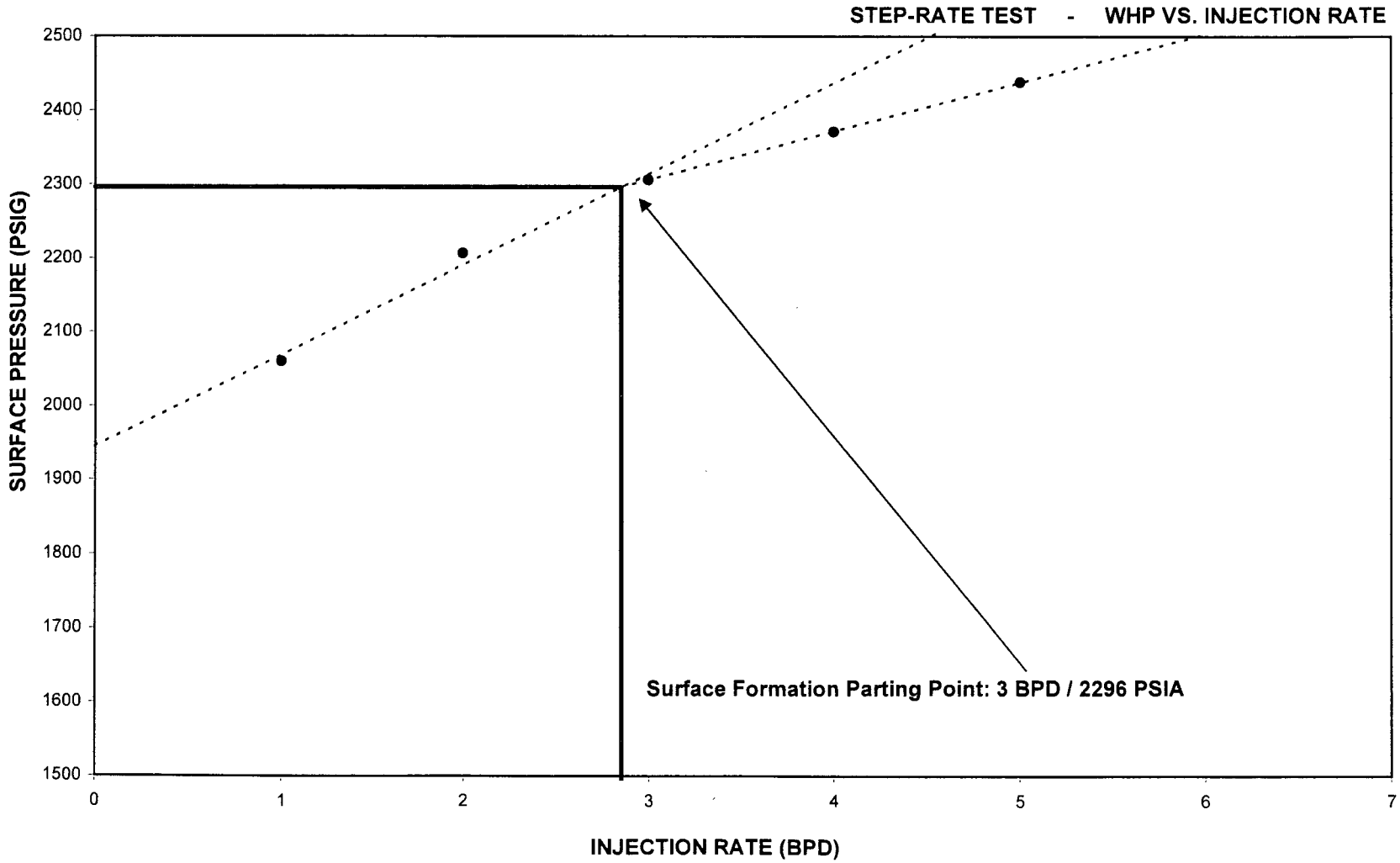
COMPANY:	OXY USA, INC.	FIELD:		JOB #	73609B
LEASE:	EAST EUMONT UNIT	COUNTY:	LEA	TEST DATE:	8/16/2007 - 8/16/2007
WELL NUMBER:	11	STATE:	NM		



COMPANY:	OXY USA, INC.	FIELD:		JOB #	73609B
LEASE:	EAST EUMONT UNIT	COUNTY:	LEA	TEST DATE:	8/16/2007 - 8/16/2007
WELL NUMBER:	11	STATE:	NM		



COMPANY:	OXY USA, INC.	FIELD:		JOB #	73609B		
LEASE:	EAST EUMONT UNIT	COUNTY:	LEA	TEST DATE:	8/16/2007	-	8/16/2007
WELL NUMBER:	11	STATE:	NM				



OPERATIONS LOG

COMPANY:	OXY USA, INC.
LEASE:	EAST EUMONT UNIT # 18
FIELD (FORMATION):	()
COUNTY:	LEA
STATE:	NM
TEST TYPE:	STEP-RATE
ENGINEER:	
FIELD REP:	
JOB RUN BY:	TERRY LEGENDRE
DATA PREPARED BY:	JOSE ALMENGOR
INSTRUMENT:	WIRELINE

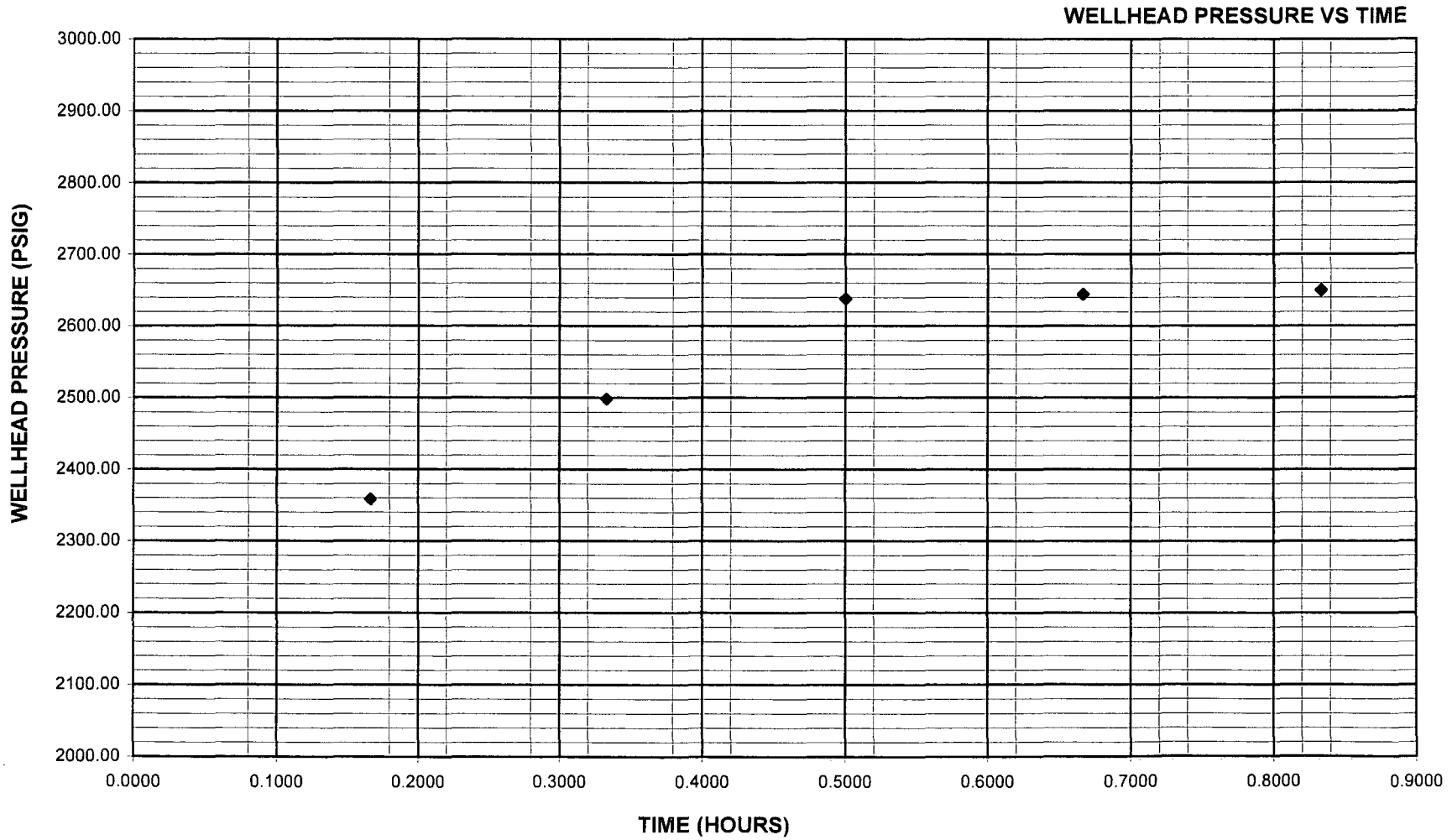
DATE TIME	DWG	OPERATIONS LOG - JOB NUMBER: 73609C
8/16/07 02:45:00 PM		ARRIVED ON LOCATION
8/16/07 03:05:00 PM		BEGAN STEP RATE TEST
8/16/07 03:15:00 PM	2358	END OF 1ST RATE @ 15 BPD / BEGIN 2ND RATE
8/16/07 03:25:00 PM	2498	END OF 2ND RATE @ 16 BPD / BEGIN 3RD RATE
8/16/07 03:35:00 PM	2638	END OF 3RD RATE @ 17 BPD / BEGIN 4TH RATE
8/16/07 03:45:00 PM	2644	END OF 4TH RATE @ 18 BPD / BEGIN 5TH RATE
8/16/07 03:55:00 PM	2650	END OF 5TH RATE @ 19 BPD / END OF TEST

COMPANY: OXY USA, INC.
LEASE: EAST EUMONT UNIT # 18
FIELD (FORMATION): ()
COUNTY: LEA
STATE: NM

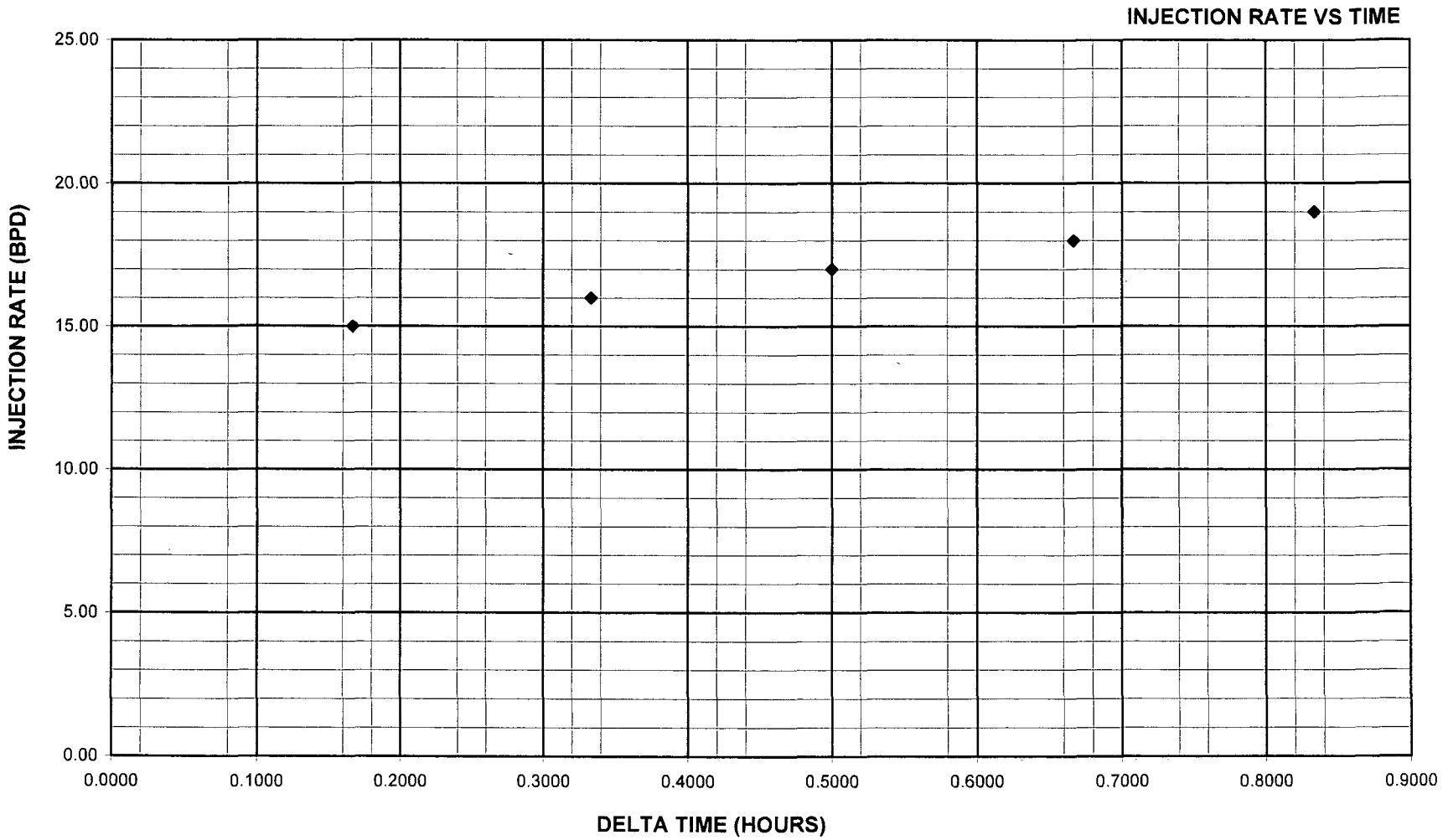
TEST DATES: 8/16/2007 - 8/16/2007
RUN DEPTH: SURFACE
INSTRUMENT: WIRELINE

REAL TIME	DELTA TIME, HOURS	BOTTOMHOLE PRESSURE, PSIA	WELLHEAD PRESSURE, PSIG	INJECTION RATE, BPD	JOB NUMBER: 73609C
01/0/00 12:10:00 AM	0.1667		2358.00	15.00	
01/0/00 12:20:00 AM	0.3333		2498.00	16.00	
01/0/00 12:30:00 AM	0.5000		2638.00	17.00	
01/0/00 12:40:00 AM	0.6667		2644.00	18.00	
01/0/00 12:50:00 AM	0.8333		2650.00	19.00	

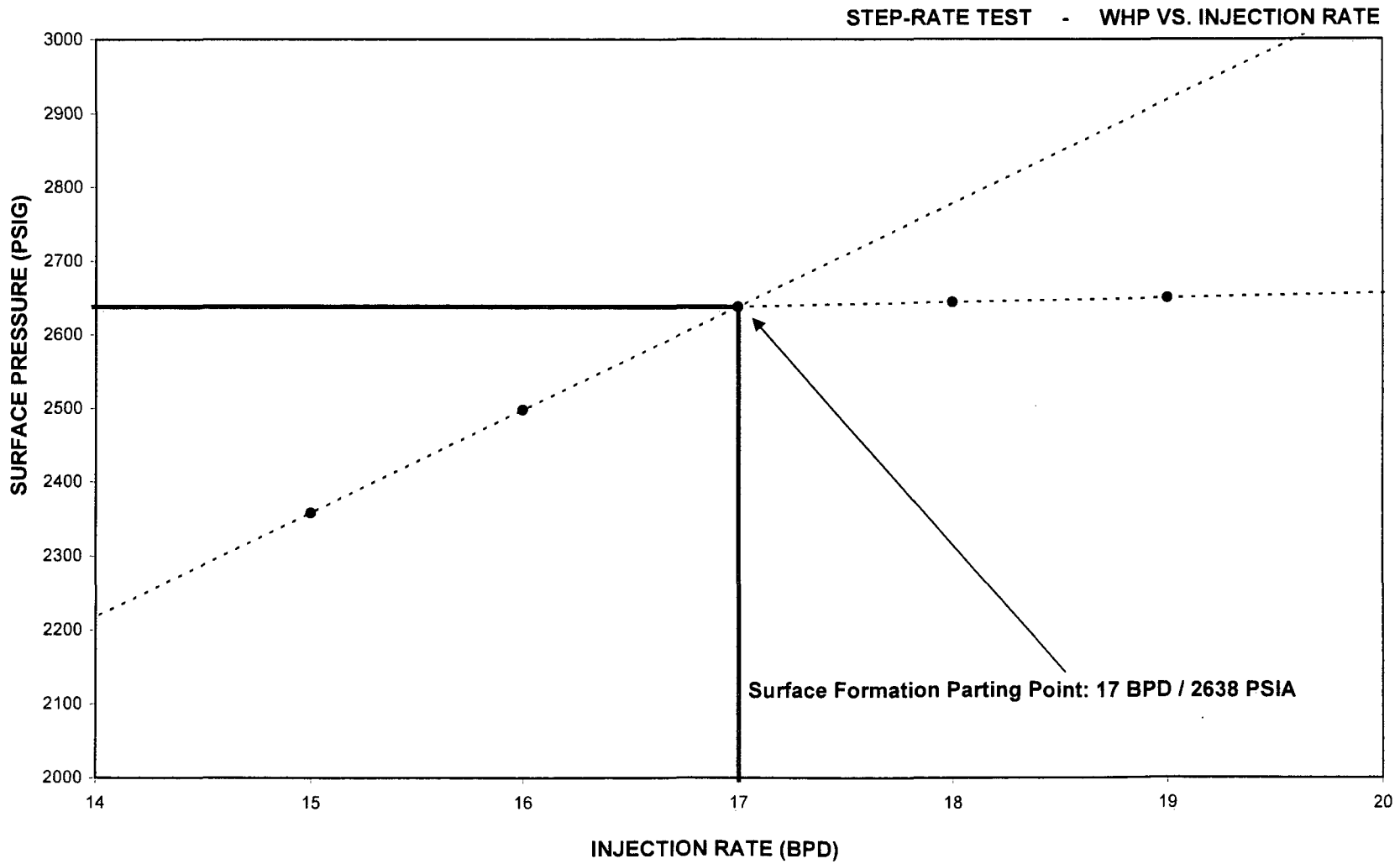
COMPANY:	OXY USA, INC.	FIELD:		JOB #	73609C
LEASE:	EAST EUMONT UNIT	COUNTY:	LEA	TEST DATE:	8/16/2007 - 8/16/2007
WELL NUMBER:	18	STATE:	NM		



COMPANY:	OXY USA, INC.	FIELD:		JOB #	73609C
LEASE:	EAST EUMONT UNIT	COUNTY:	LEA	TEST DATE:	8/16/2007 - 8/16/2007
WELL NUMBER:	18	STATE:	NM		



COMPANY:	OXY USA, INC.	FIELD:		JOB #	73609C		
LEASE:	EAST EUMONT UNIT	COUNTY:	LEA	TEST DATE:	8/16/2007	-	8/16/2007
WELL NUMBER:	18	STATE:	NM				



OPERATIONS LOG

COMPANY:	OXY USA, INC.
LEASE:	EAST EUMONT UNIT # 25
FIELD (FORMATION):	()
COUNTY:	LEA
STATE:	NM
TEST TYPE:	STEP-RATE
ENGINEER:	
FIELD REP:	
JOB RUN BY:	TERRY LEGENDRE
DATA PREPARED BY:	CAMERON NEWTON
INSTRUMENT:	WIRELINE

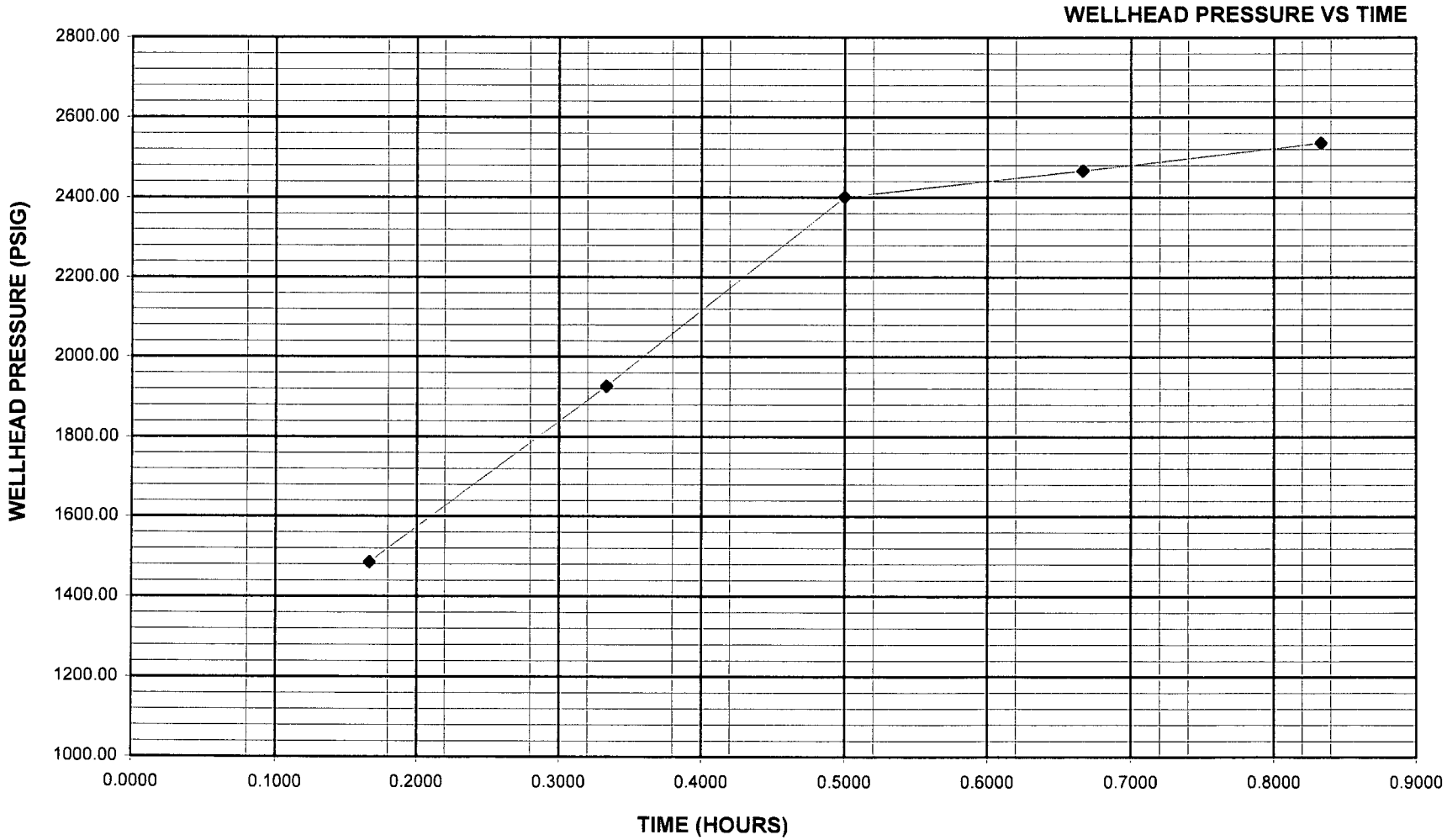
DATE TIME	DWG	OPERATIONS LOG - JOB NUMBER: 73677B
8/30/07 10:45:00 AM		ARRIVE ON LOCATION
8/30/07 11:00:00 AM		BEGAN STEP-RATE TEST
8/30/07 11:10:00 AM	1484	END OF FIRST RATE @ 1 BPD / BEGAN 2ND RATE @ 2 BPD
8/30/07 11:20:00 AM	1925	END OF 2ND RATE @ 2 BPD / BEGAN 3RD RATE @ 3 BPD
8/30/07 11:30:00 AM	2399	END OF 3RD RATE @ 3 BPD / BEGAN 4TH RATE @ 4 BPD
8/30/07 11:40:00 AM	2465	END OF 4TH RATE @ 4 BPD / BEGAN 5TH RATE @ 5 BPD
8/30/07 11:50:00 AM	2535	END OF 5TH RATE @ 5 BPD / END OF TEST

COMPANY: OXY USA, INC.
LEASE: EAST EUMONT UNIT # 25
FIELD (FORMATION): ()
COUNTY: LEA
STATE: NM

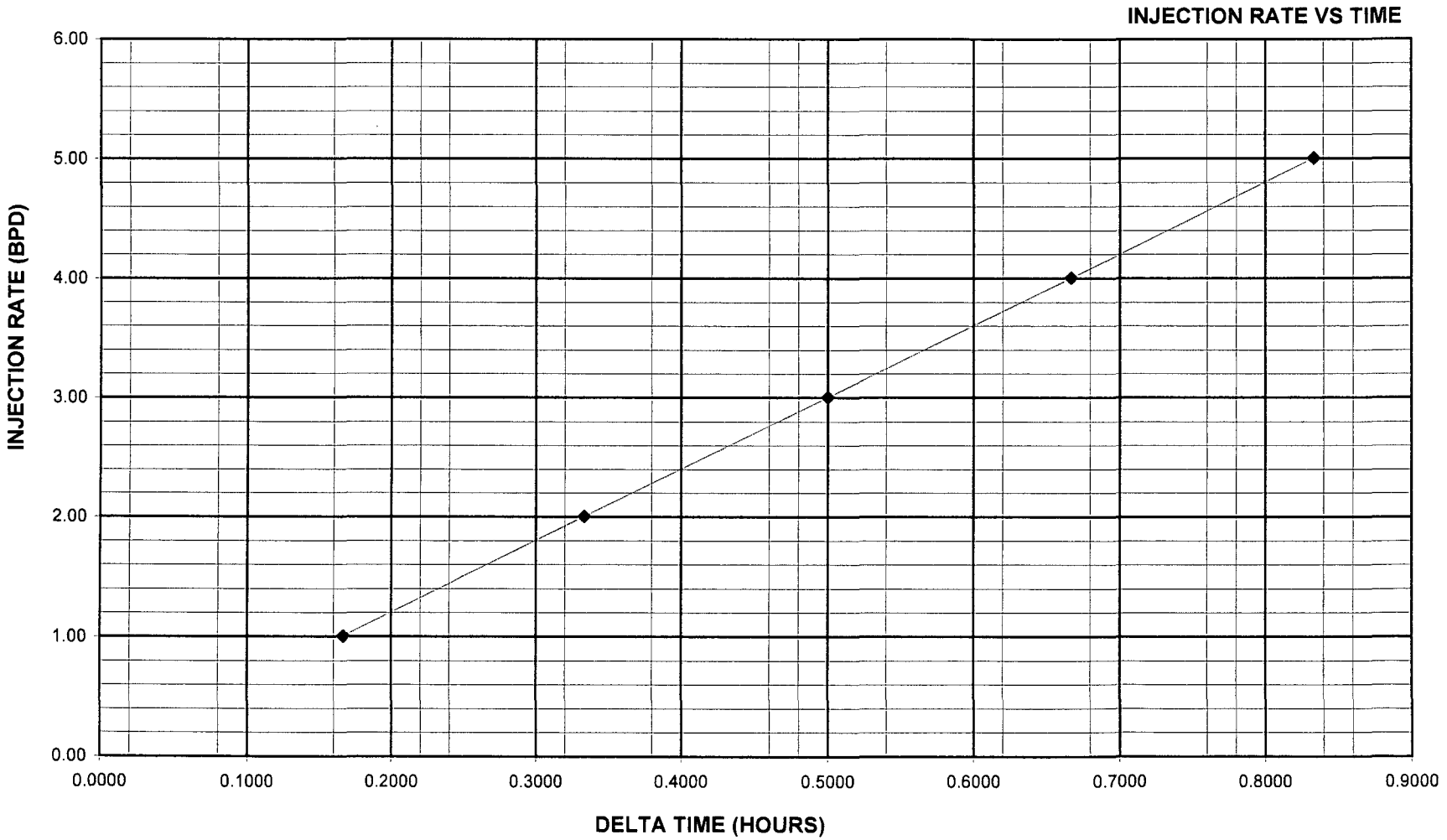
TEST DATES: 8/30/2007 - 8/30/2007
RUN DEPTH: SURFACE
INSTRUMENT: WIRELINE

REAL TIME	DELTA TIME, HOURS	BOTTOMHOLE PRESSURE, PSIA	WELLHEAD PRESSURE, PSIG	INJECTION RATE, BPD	JOB NUMBER: 73677B
08/30/07 11:10:00 AM	0.1667		1484.00	1.00	
08/30/07 11:20:00 AM	0.3333		1925.00	2.00	
08/30/07 11:30:00 AM	0.5000		2399.00	3.00	
08/30/07 11:40:00 AM	0.6667		2465.00	4.00	
08/30/07 11:50:00 AM	0.8333		2535.00	5.00	

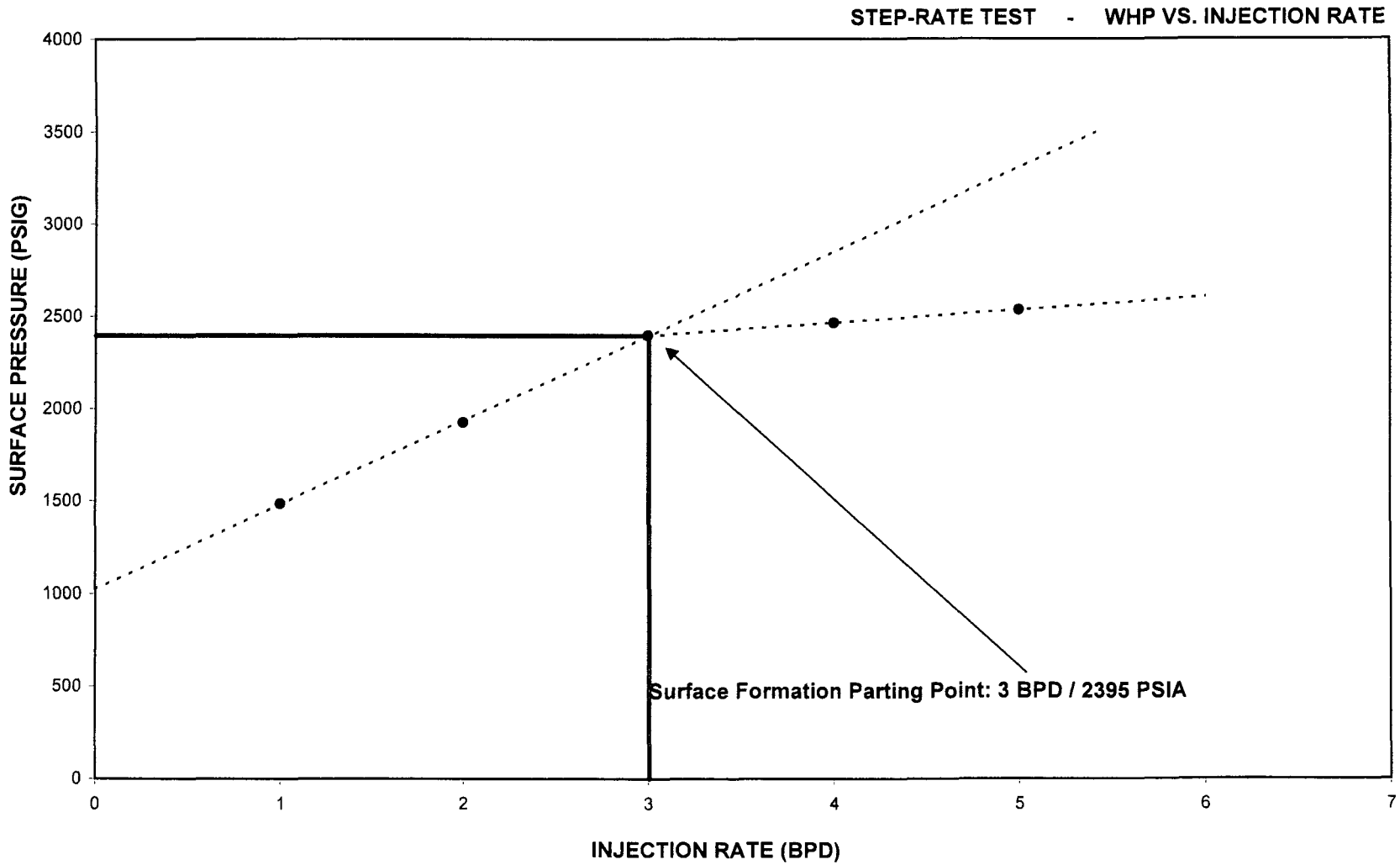
COMPANY:	OXY USA, INC.	FIELD:		JOB #	73677B
LEASE:	EAST EUMONT UNIT	COUNTY:	LEA	TEST DATE:	8/30/2007 - 8/30/2007
WELL NUMBER:	25	STATE:	NM		



COMPANY:	OXY USA, INC.	FIELD:		JOB #	73677B
LEASE:	EAST EUMONT UNIT	COUNTY:	LEA	TEST DATE:	8/30/2007 - 8/30/2007
WELL NUMBER:	25	STATE:	NM		



COMPANY:	OXY USA, INC.	FIELD:		JOB #	73677B		
LEASE:	EAST EUMONT UNIT	COUNTY:	LEA	TEST DATE:	8/30/2007	-	8/30/2007
WELL NUMBER:	25	STATE:	NM				



OPERATIONS LOG

COMPANY:	OXY USA, INC.
LEASE:	EAST EUMONT UNIT # 28
FIELD (FORMATION):	()
COUNTY:	LEA
STATE:	NM
TEST TYPE:	STEP-RATE
ENGINEER:	
FIELD REP:	
JOB RUN BY:	TERRY LEGENDRE
DATA PREPARED BY:	CAMERON NEWTON
INSTRUMENT:	WIRELINE

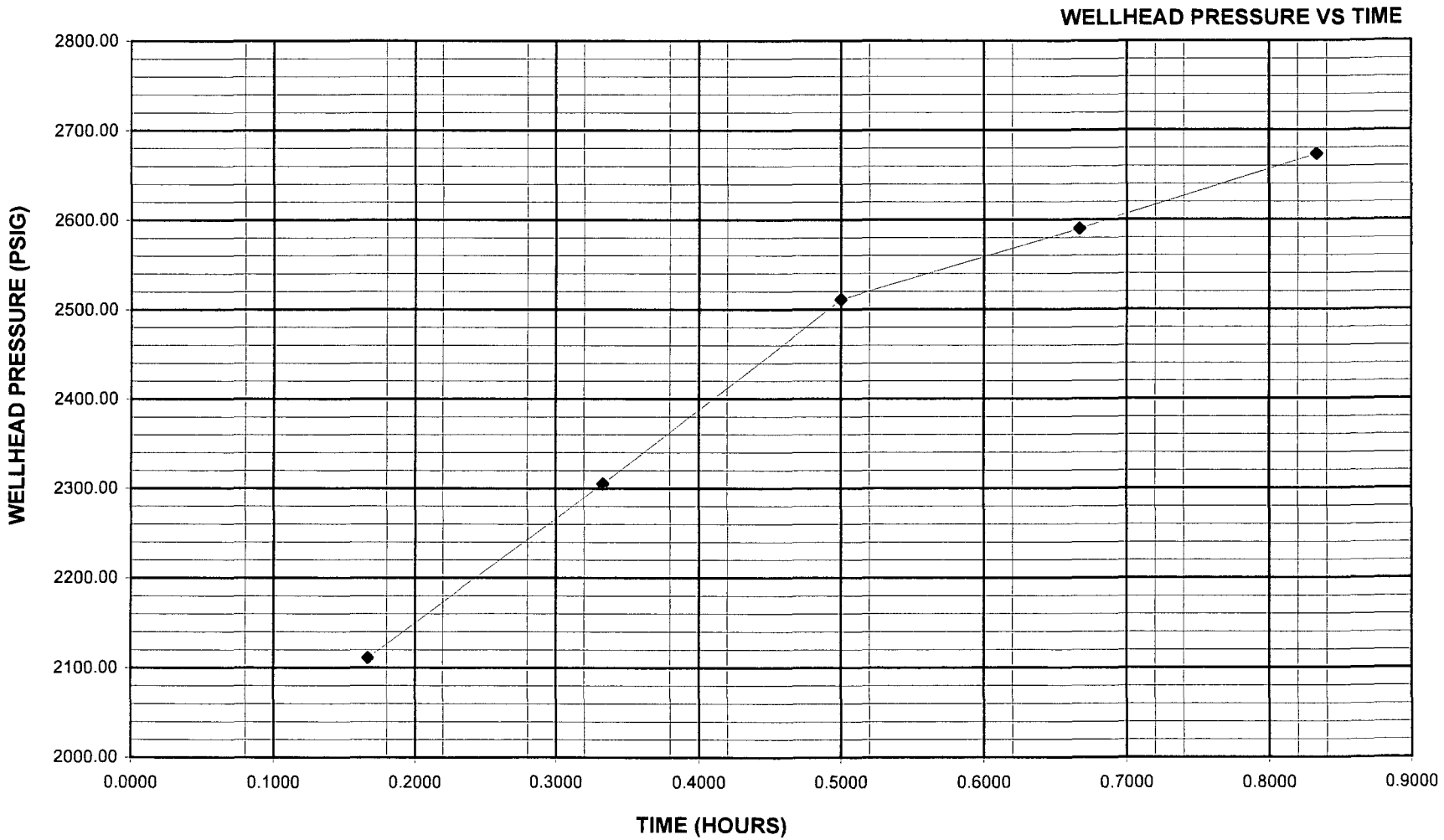
DATE TIME	DWG	OPERATIONS LOG - JOB NUMBER: 73610A
8/17/07 09:45:00 AM		ARRIVED ON LOCATION
8/17/07 10:05:00 AM		STARTED STEP-RATE TEST
8/17/07 10:15:00 AM		END OF 1ST RATE @ 4 BPD / BEGAN 2ND RATE @ 5 BPD
8/17/07 10:25:00 AM		END OF 2ND RATE @ 5 BPD / BEGAN 3RD RATE @ 6 BPD
8/17/07 10:35:00 AM		END OF 3RD RATE @ 6 BPD / BEGAN 4TH RATE @ 7 BPD
8/17/07 10:45:00 AM		END OF 4TH RATE @ 7 BPD / BEGAN 5TH RATE @ 8 BPD
8/17/07 10:55:00 AM		END OF 5TH RATE @ 8 BPD / END OF TEST

COMPANY: OXY USA, INC.
LEASE: EAST EUMONT UNIT # 28
FIELD (FORMATION): ()
COUNTY: LEA
STATE: NM

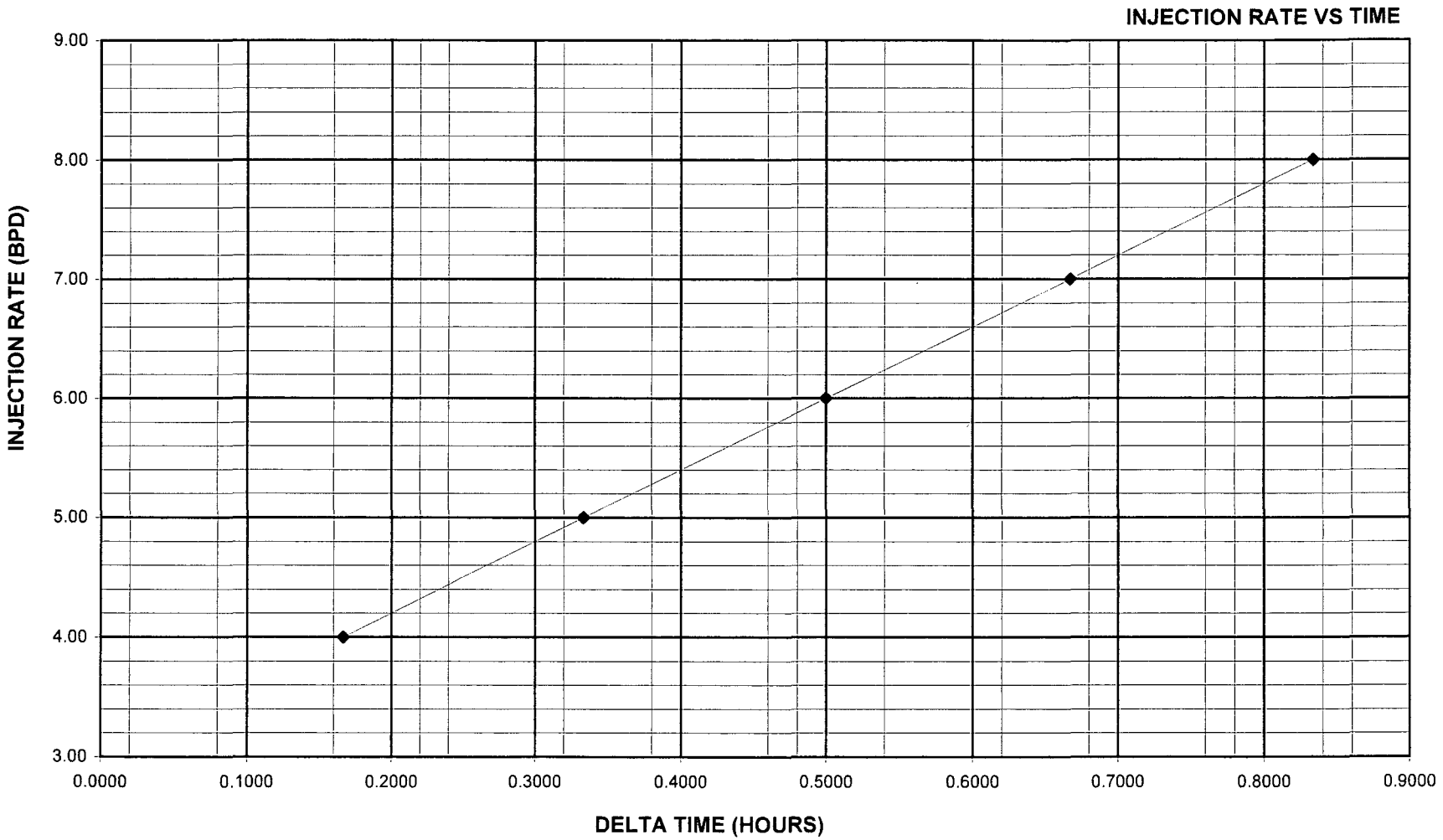
TEST DATES: 8/17/2007 - 8/17/2007
RUN DEPTH: SURFACE
INSTRUMENT: WIRELINE

REAL TIME	DELTA TIME, HOURS	SURFACE PRESSURE, PSIA	WELLHEAD PRESSURE, PSIG	INJECTION RATE, BPD	JOB NUMBER: 73610A
08/17/07 10:15:00 AM	0.1667		2111.00	4.00	
08/17/07 10:25:00 AM	0.3333		2305.00	5.00	
08/17/07 10:35:00 AM	0.5000		2511.00	6.00	
08/17/07 10:45:00 AM	0.6667		2590.00	7.00	
08/17/07 10:55:00 AM	0.8333		2673.00	8.00	

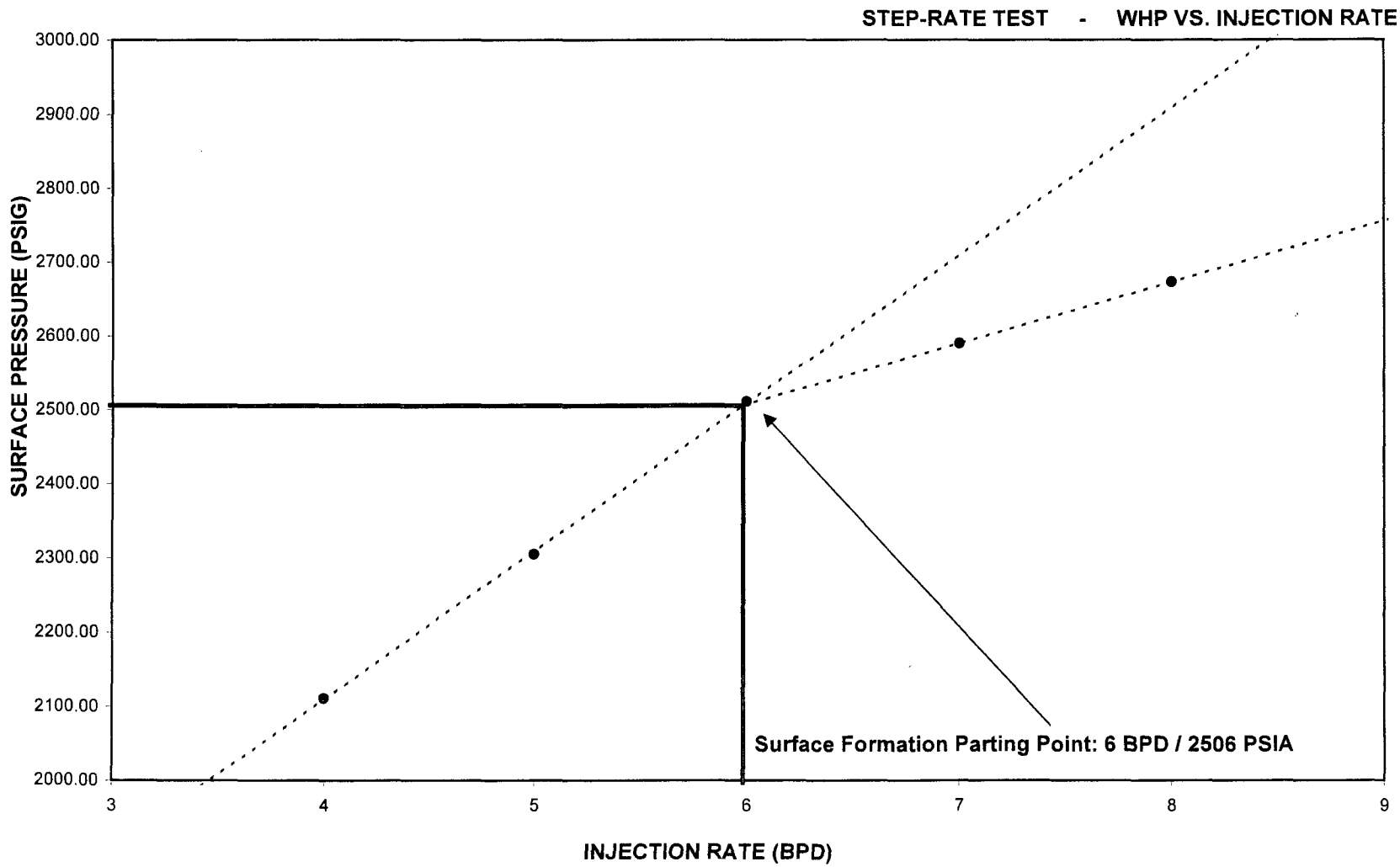
COMPANY:	OXY USA, INC.	FIELD:		JOB #	73610A
LEASE:	EAST EUMONT UNIT	COUNTY:	LEA	TEST DATE:	8/17/2007 - 8/17/2007
WELL NUMBER:	28	STATE:	NM		



COMPANY:	OXY USA, INC.	FIELD:		JOB #	73610A
LEASE:	EAST EUMONT UNIT	COUNTY:	LEA	TEST DATE:	8/17/2007 - 8/17/2007
WELL NUMBER:	28	STATE:	NM		



COMPANY:	OXY USA, INC.	FIELD:		JOB #	73610A		
LEASE:	EAST EUMONT UNIT	COUNTY:	LEA	TEST DATE:	8/17/2007	-	8/17/2007
WELL NUMBER:	28	STATE:	NM				



OPERATIONS LOG

COMPANY:	OXY USA, INC.
LEASE:	EAST EUMONT UNIT # 30
FIELD (FORMATION):	()
COUNTY:	LEA
STATE:	NM
TEST TYPE:	STEP-RATE
ENGINEER:	
FIELD REP:	
JOB RUN BY:	TERRY LEGENDRE
DATA PREPARED BY:	CAMERON NEWTON
INSTRUMENT:	WIRELINE

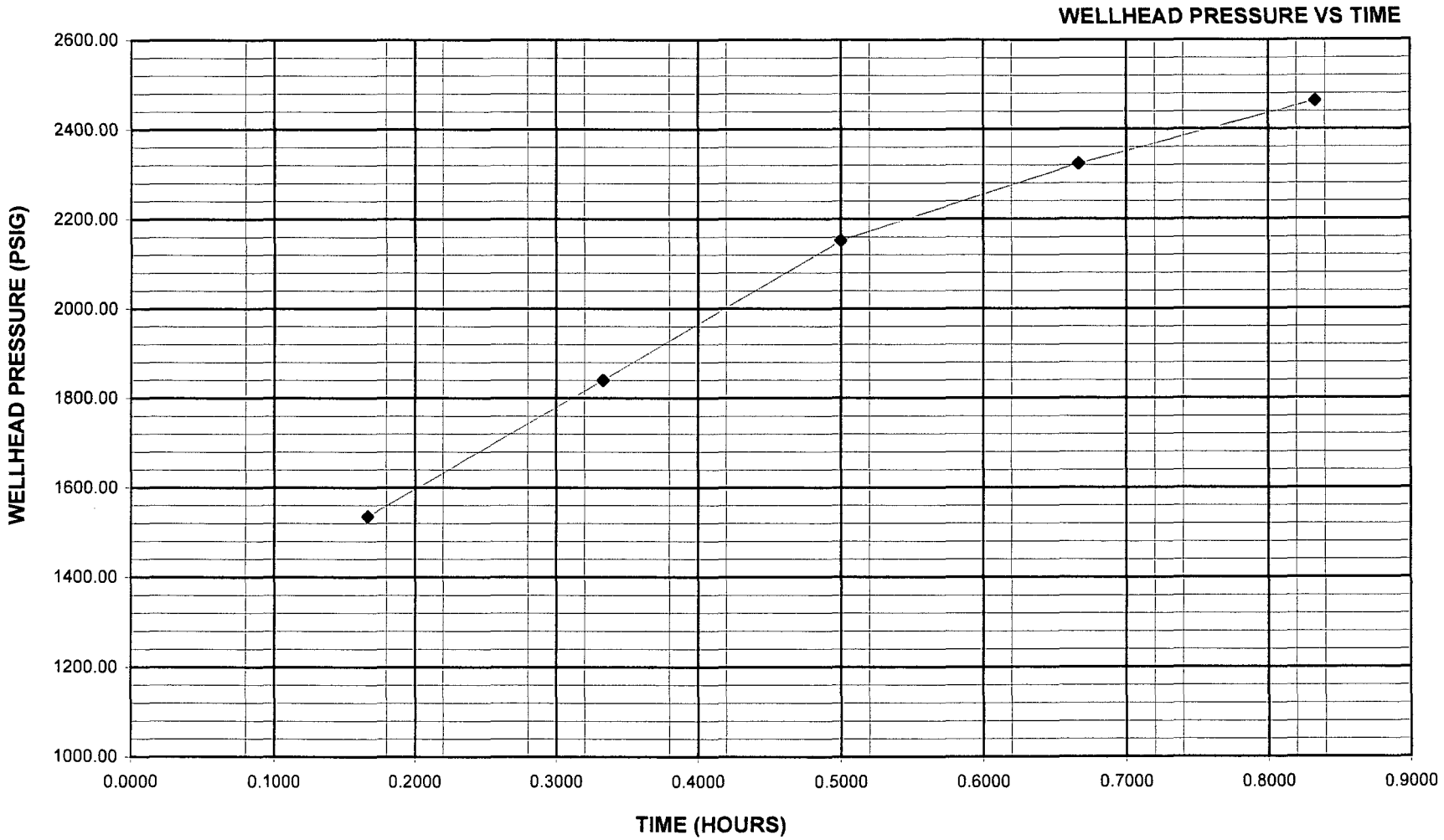
DATE TIME	DWG	OPERATIONS LOG - JOB NUMBER: 73677C
8/30/07 12:30:00 PM		ARRIVE ON LOCATION
8/30/07 12:40:00 PM		BEGAN STEP-RATE TEST
8/30/07 12:50:00 PM	1534	END OF FIRST RATE @ 1 BPD / BEGAN 2ND RATE @ 2 BPD
8/30/07 01:00:00 PM	1839	END OF 2ND RATE @ 2 BPD / BEGAN 3RD RATE @ 3 BPD
8/30/07 01:10:00 PM	2151	END OF 3RD RATE @ 3 BPD / BEGAN 4TH RATE @ 4 BPD
8/30/07 01:20:00 PM	2322	END OF 4TH RATE @ 4 BPD / BEGAN 5TH RATE @ 5 BPD
8/30/07 01:30:00 PM	2462	END OF 5TH RATE @ 5 BPD / END OF TEST

COMPANY: OXY USA, INC.
LEASE: EAST EUMONT UNIT # 30
FIELD (FORMATION): ()
COUNTY: LEA
STATE: NM

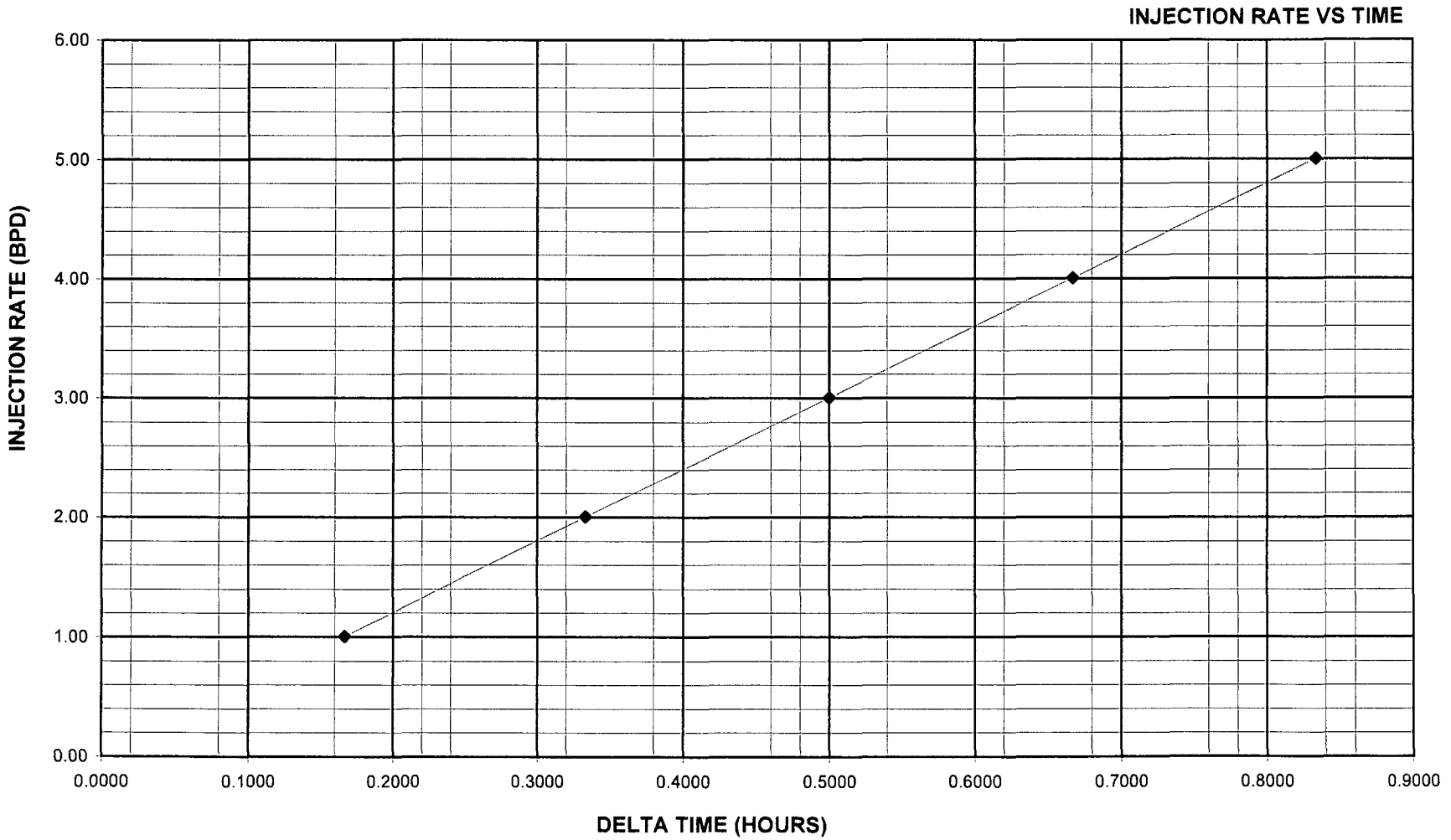
TEST DATES: 8/30/2007 - 8/30/2007
RUN DEPTH: SURFACE
INSTRUMENT: WIRELINE

REAL TIME	DELTA TIME, HOURS	BOTTOMHOLE PRESSURE, PSIA	WELLHEAD PRESSURE, PSIG	INJECTION RATE, BPD	JOB NUMBER: 73677C
08/30/07 12:50:00 PM	0.1667		1534.00	1.00	
08/30/07 01:00:00 PM	0.3333		1839.00	2.00	
08/30/07 01:10:00 PM	0.5000		2151.00	3.00	
08/30/07 01:20:00 PM	0.6667		2322.00	4.00	
08/30/07 01:30:00 PM	0.8333		2462.00	5.00	

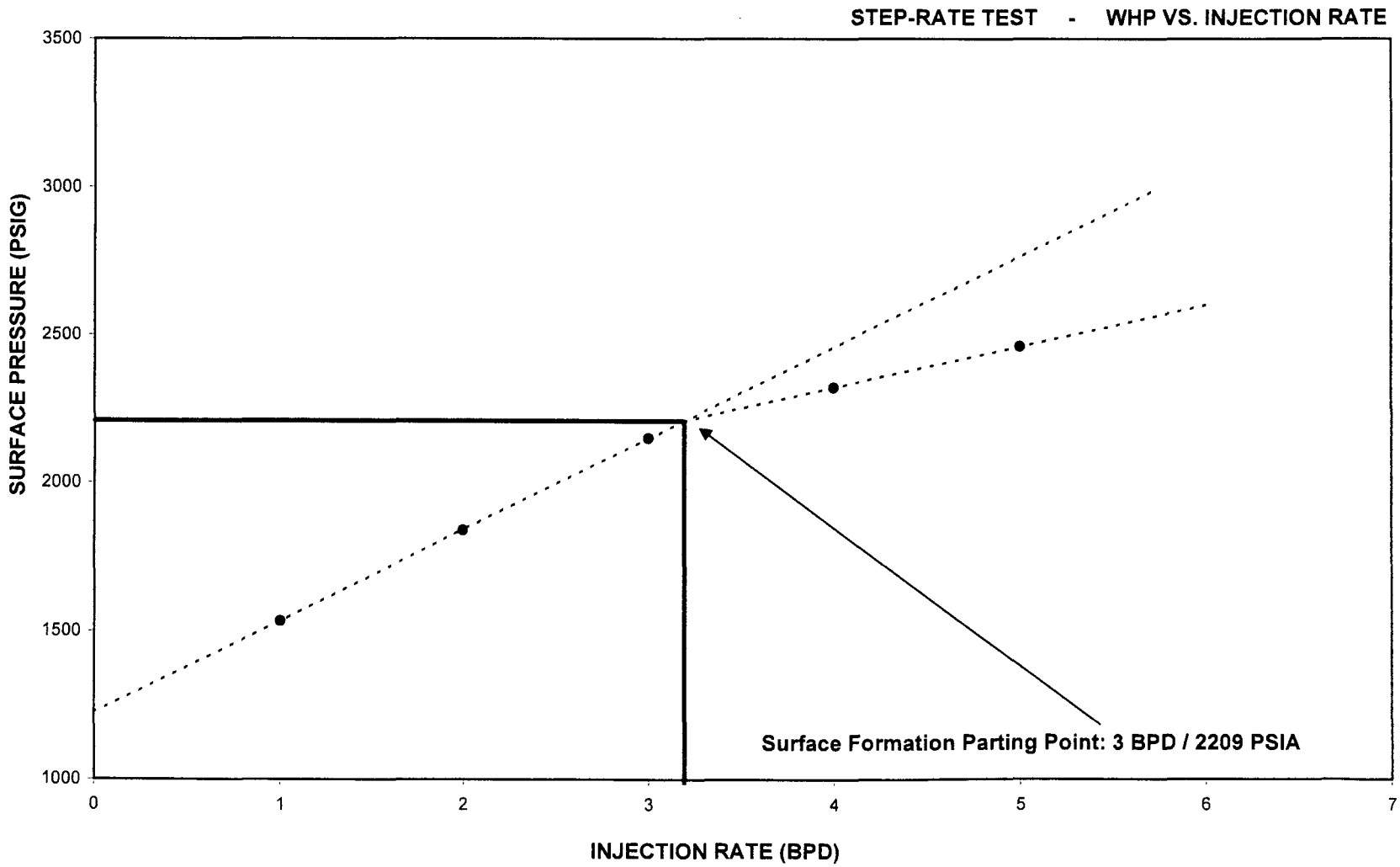
COMPANY:	OXY USA, INC.	FIELD:		JOB #	73677C
LEASE:	EAST EUMONT UNIT	COUNTY:	LEA	TEST DATE:	8/30/2007 - 8/30/2007
WELL NUMBER:	30	STATE:	NM		



COMPANY:	OXY USA, INC.	FIELD:		JOB #	73677C
LEASE:	EAST EUMONT UNIT	COUNTY:	LEA	TEST DATE:	8/30/2007 - 8/30/2007
WELL NUMBER:	30	STATE:	NM		



COMPANY:	OXY USA, INC.	FIELD:		JOB #	73677C		
LEASE:	EAST EUMONT UNIT	COUNTY:	LEA	TEST DATE:	8/30/2007	-	8/30/2007
WELL NUMBER:	30	STATE:	NM				



OPERATIONS LOG

COMPANY:	OXY USA, INC.
LEASE:	EAST EUMONT UNIT # 32
FIELD (FORMATION):	()
COUNTY:	LEA
STATE:	NM
TEST TYPE:	STEP-RATE
ENGINEER:	
FIELD REP:	
JOB RUN BY:	TERRY LEGENDRE
DATA PREPARED BY:	CAMERON NEWTON
INSTRUMENT:	WIRELINE

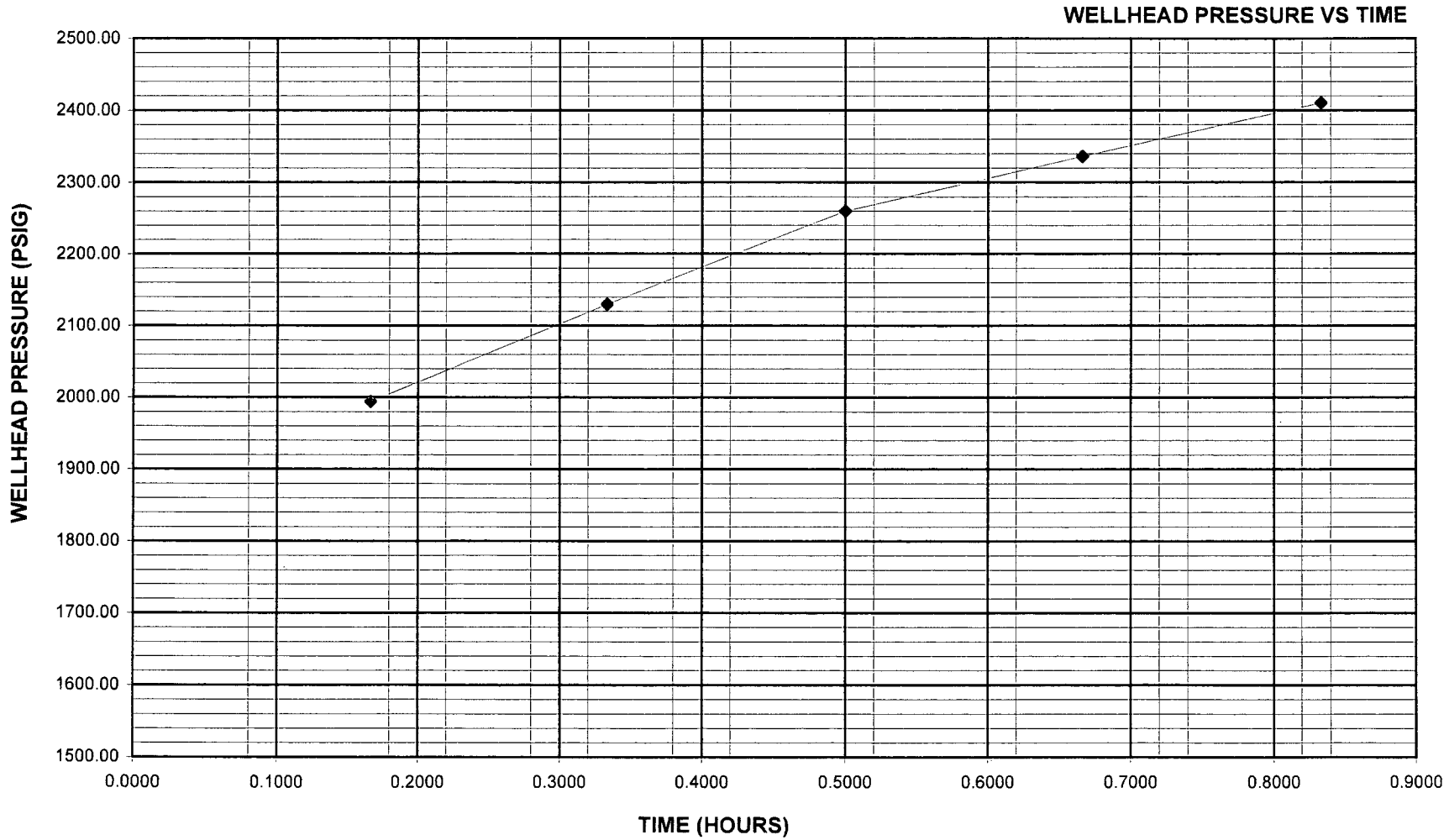
DATE TIME	DWG	OPERATIONS LOG - JOB NUMBER: 73610B
8/17/07 11:00:00 AM		ARRIVED ON LOCATION
8/17/07 11:10:00 AM		STARTED STEP-RATE TEST
8/17/07 11:20:00 AM		END OF 1ST RATE @ 2 BPD / BEGAN 2ND RATE @ 4 BPD
8/17/07 11:30:00 AM		END OF 2ND RATE @ 4 BPD / BEGAN 3RD RATE @ 6 BPD
8/17/07 11:40:00 AM		END OF 3RD RATE @ 6 BPD / BEGAN 4TH RATE @ 8 BPD
8/17/07 11:50:00 AM		END OF 4TH RATE @ 8 BPD / BEGAN 5TH RATE @ 10 BPD
8/17/07 12:00:00 PM		END OF 5TH RATE @ 10 BPD / END OF TEST

COMPANY: OXY USA, INC.
LEASE: EAST EUMONT UNIT # 32
FIELD (FORMATION): ()
COUNTY: LEA
STATE: NM

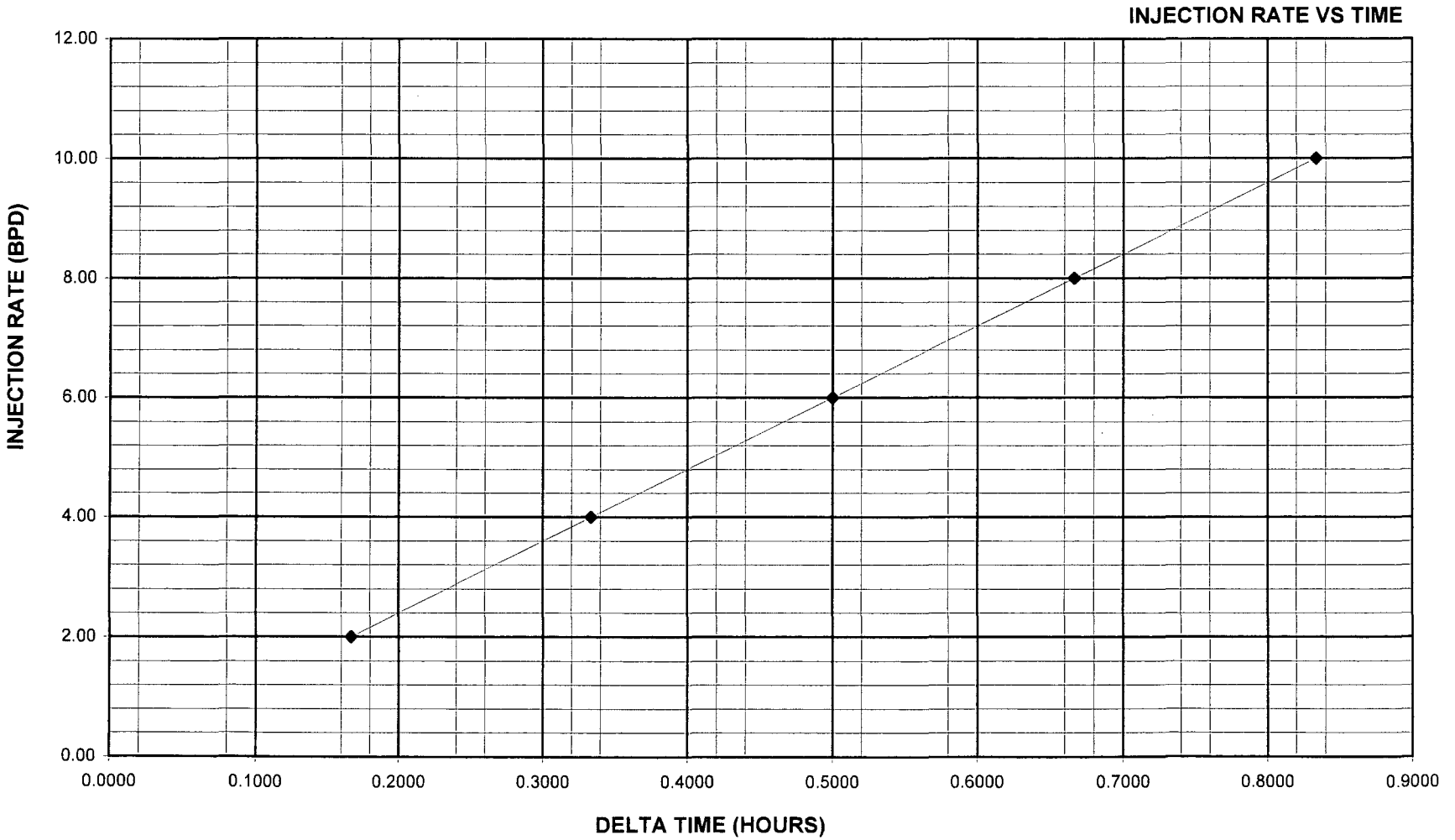
TEST DATES: 8/17/2007 - 8/17/2007
RUN DEPTH: SURFACE
INSTRUMENT: WIRELINE

REAL TIME	DELTA TIME, HOURS	SURFACE PRESSURE, PSIA	WELLHEAD PRESSURE, PSIG	INJECTION RATE, BPD	JOB NUMBER: 73610B
08/17/07 11:20:00 AM	0.1667		1994.00	2.00	
08/17/07 11:30:00 AM	0.3333		2130.00	4.00	
08/17/07 11:40:00 AM	0.5000		2260.00	6.00	
08/17/07 11:50:00 AM	0.6667		2336.00	8.00	
08/17/07 12:00:00 PM	0.8333		2410.00	10.00	

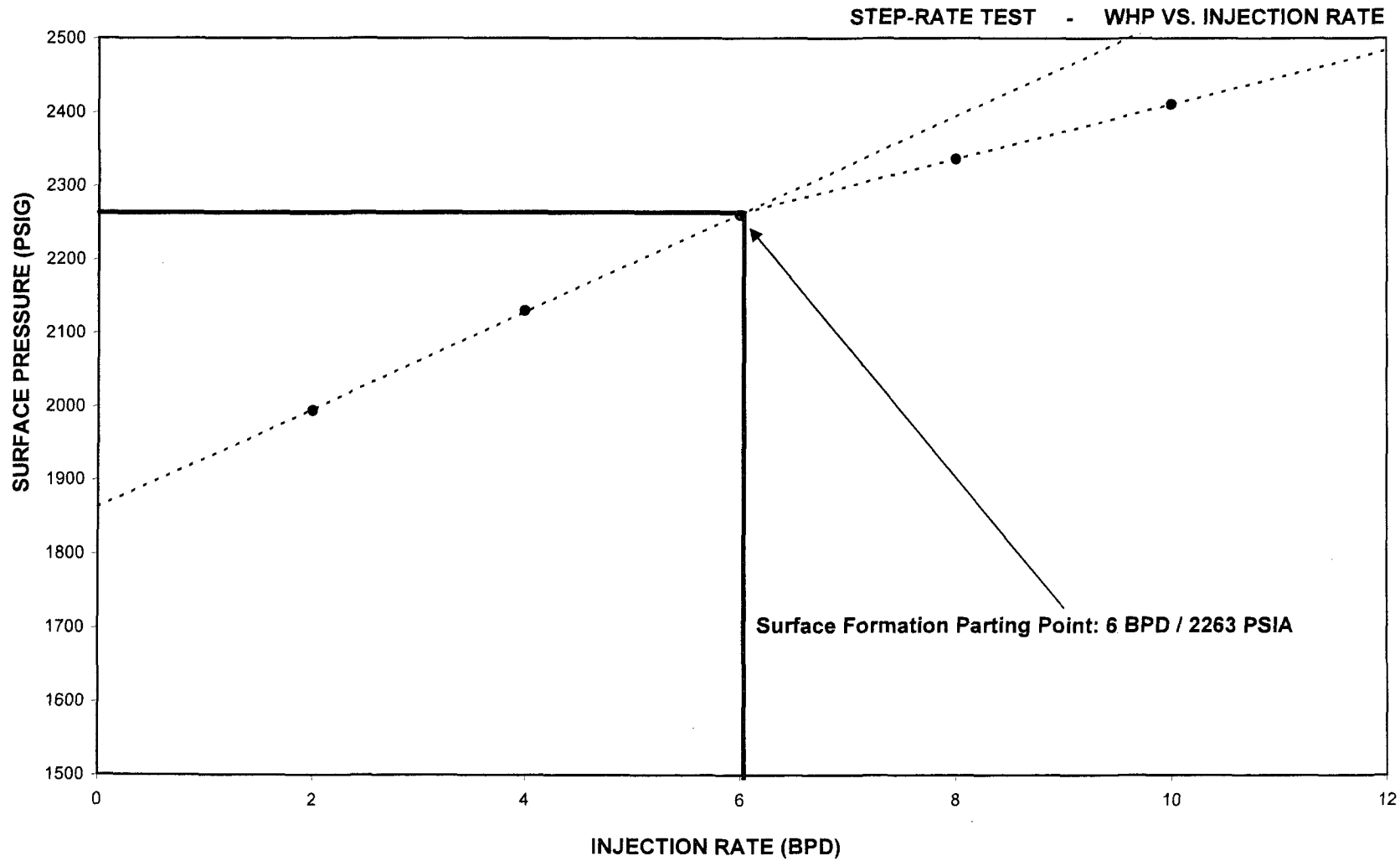
COMPANY:	OXY USA, INC.	FIELD:		JOB #	73610B
LEASE:	EAST EUMONT UNIT	COUNTY:	LEA	TEST DATE:	8/17/2007 - 8/17/2007
WELL NUMBER:	32	STATE:	NM		



COMPANY:	OXY USA, INC.	FIELD:		JOB #	73610B
LEASE:	EAST EUMONT UNIT	COUNTY:	LEA	TEST DATE:	8/17/2007 - 8/17/2007
WELL NUMBER:	32	STATE:	NM		



COMPANY:	OXY USA, INC.	FIELD:		JOB #	73610B		
LEASE:	EAST EUMONT UNIT	COUNTY:	LEA	TEST DATE:	8/17/2007	-	8/17/2007
WELL NUMBER:	32	STATE:	NM				



OPERATIONS LOG

COMPANY:	OXY USA, INC.
LEASE:	EAST EUMONT UNIT # 37
FIELD (FORMATION):	()
COUNTY:	LEA
STATE:	NM
TEST TYPE:	STEP-RATE
ENGINEER:	
FIELD REP:	
JOB RUN BY:	TERRY LEGENDRE
DATA PREPARED BY:	CAMERON NEWTON
INSTRUMENT:	WIRELINE

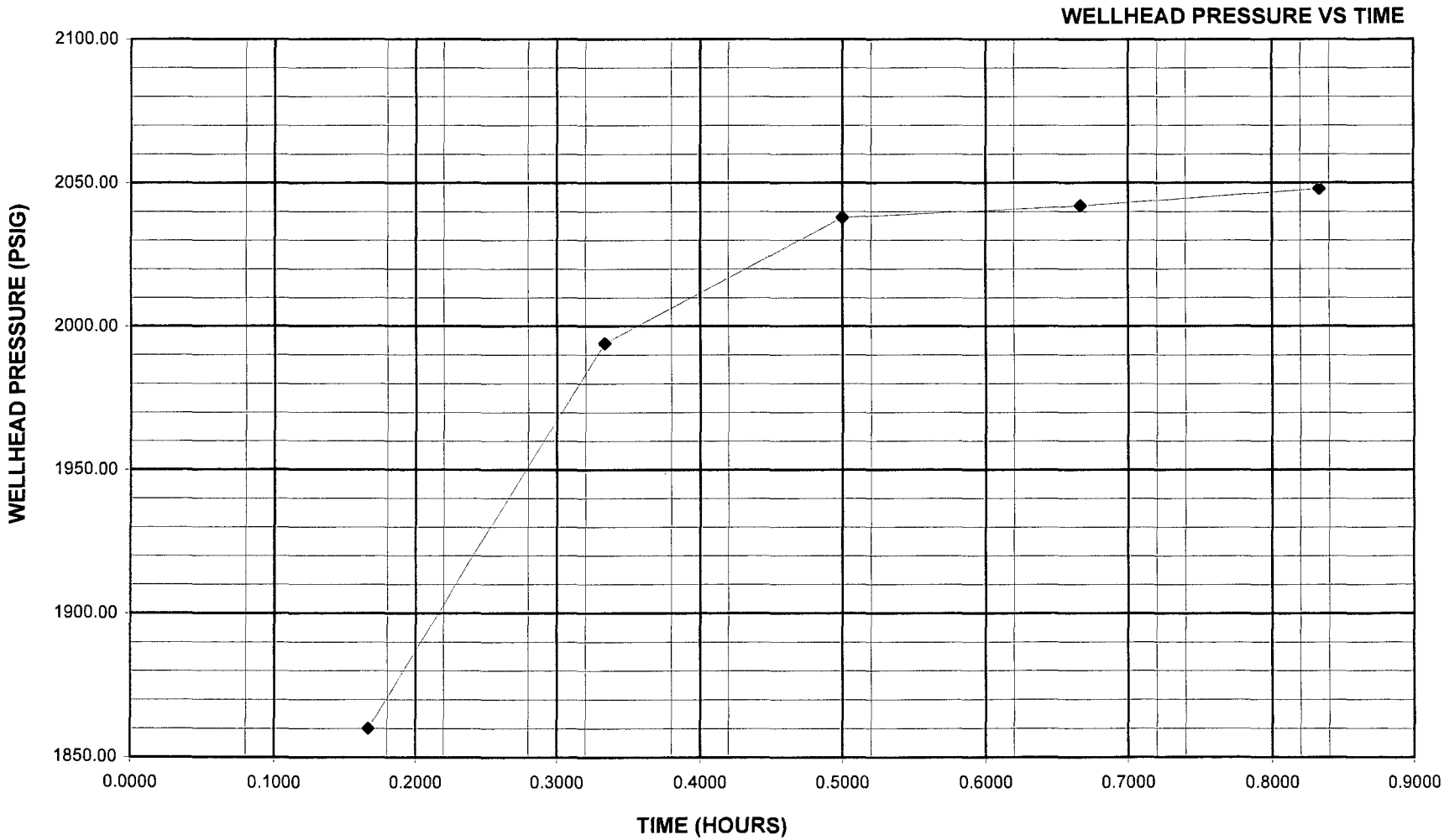
DATE TIME	DWG	OPERATIONS LOG - JOB NUMBER: 73647C
8/23/07 11:30:00 AM		ARRIVE ON LOCATION
8/23/07 11:50:00 AM		BEGAN STEP-RATE TEST
8/23/07 12:00:00 PM	1186	END OF 1ST RATE @ 7 BPD / BEGAN 2ND RATE @ 9 BPD
8/23/07 12:10:00 PM	1944	END OF 2ND RATE @ 9 BPD / BEGAN 3RD RATE @ 11 BPD
8/23/07 12:20:00 PM	2038	END OF 3RD RATE @ 11 BPD / BEGAN 4TH RATE @ 12 BPD
8/23/07 12:30:00 PM	2042	END OF 4TH RATE @ 12 BPD / BEGAN 5TH RATE @ 13 BPD
8/23/07 12:40:00 PM	2048	END OF 5TH RATE @ 13 BPD / END OF TEST

COMPANY: OXY USA, INC.
LEASE: EAST EUMONT UNIT # 37
FIELD (FORMATION): ()
COUNTY: LEA
STATE: NM

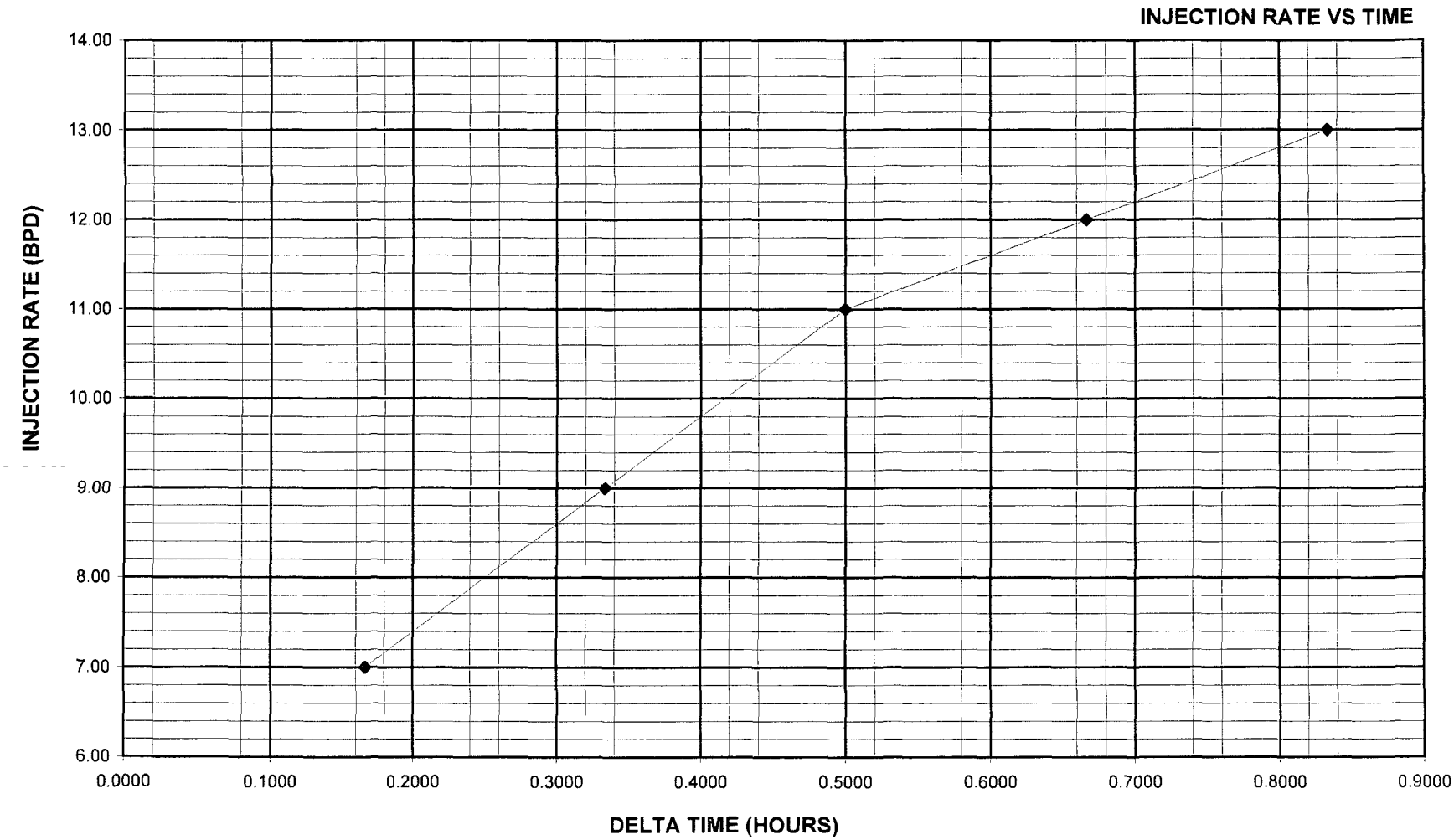
TEST DATES: 8/23/2007 - 8/23/2007
RUN DEPTH: SURFACE
INSTRUMENT: WIRELINE

REAL TIME	DELTA TIME, HOURS	BOTTOMHOLE PRESSURE, PSIA	WELLHEAD PRESSURE, PSIG	INJECTION RATE, BPD	JOB NUMBER: 73647C
08/23/07 12:00:00 PM	0.1667		1860.00	7.00	
08/23/07 12:10:00 PM	0.3333		1994.00	9.00	
08/23/07 12:20:00 PM	0.5000		2038.00	11.00	
08/23/07 12:30:00 PM	0.6667		2042.00	12.00	
08/23/07 12:40:00 PM	0.8333		2048.00	13.00	

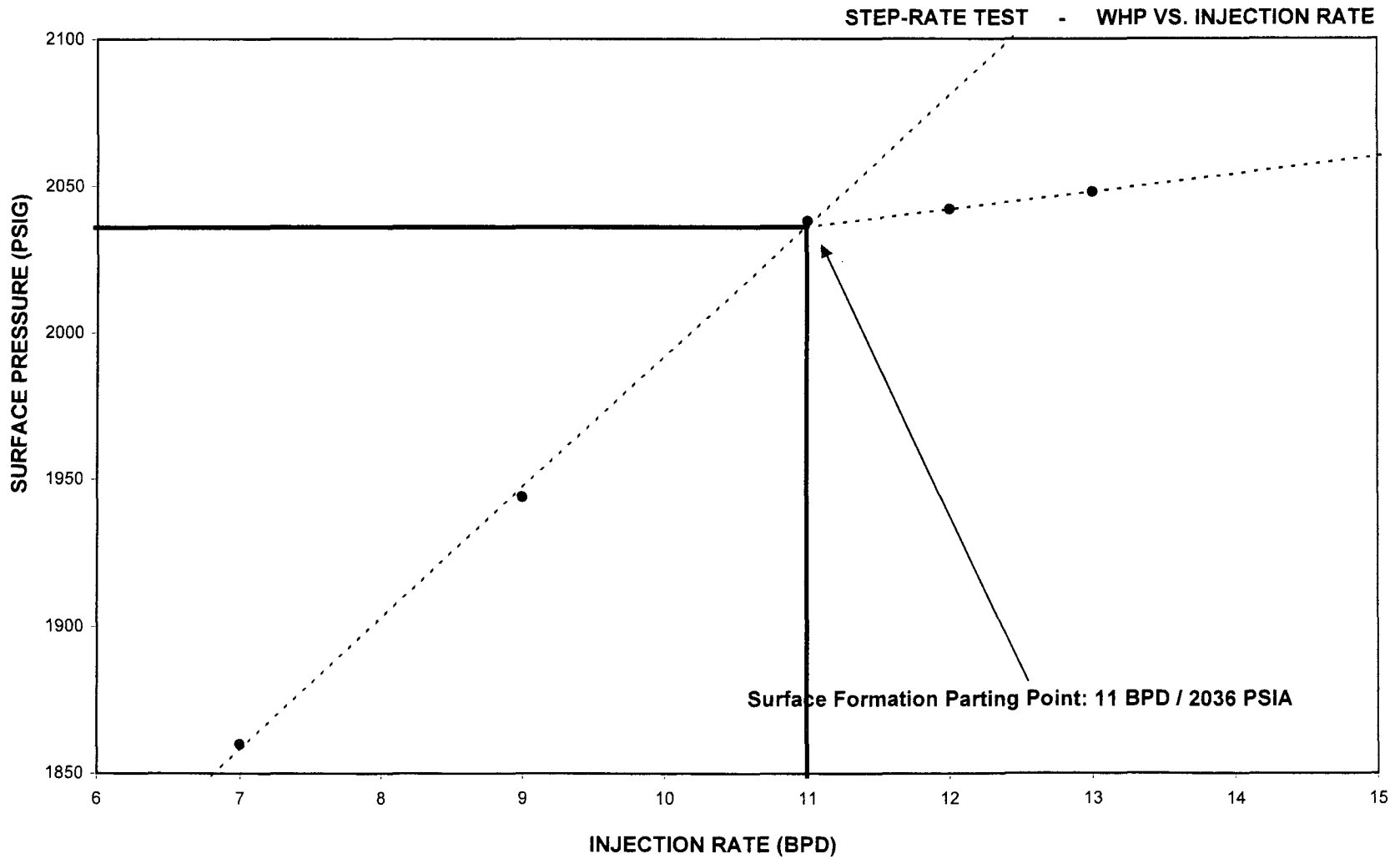
COMPANY:	OXY USA, INC.	FIELD:		JOB #	73647C
LEASE:	EAST EUMONT UNIT	COUNTY:	LEA	TEST DATE:	8/23/2007 - 8/23/2007
WELL NUMBER:	37	STATE:	NM		



COMPANY:	OXY USA, INC.	FIELD:		JOB #	73647C
LEASE:	EAST EUMONT UNIT	COUNTY:	LEA	TEST DATE:	8/23/2007 - 8/23/2007
WELL NUMBER:	37	STATE:	NM		



COMPANY:	OXY USA, INC.	FIELD:		JOB #	73647C		
LEASE:	EAST EUMONT UNIT	COUNTY:	LEA	TEST DATE:	8/23/2007	-	8/23/2007
WELL NUMBER:	37	STATE:	NM				



OPERATIONS LOG

COMPANY:	OXY USA, INC.
LEASE:	EAST EUMONT UNIT # 39
FIELD (FORMATION):	()
COUNTY:	LEA
STATE:	NM
TEST TYPE:	STEP-RATE
ENGINEER:	
FIELD REP:	
JOB RUN BY:	TERRY LEGENDRE
DATA PREPARED BY:	CAMERON NEWTON
INSTRUMENT:	WIRELINE

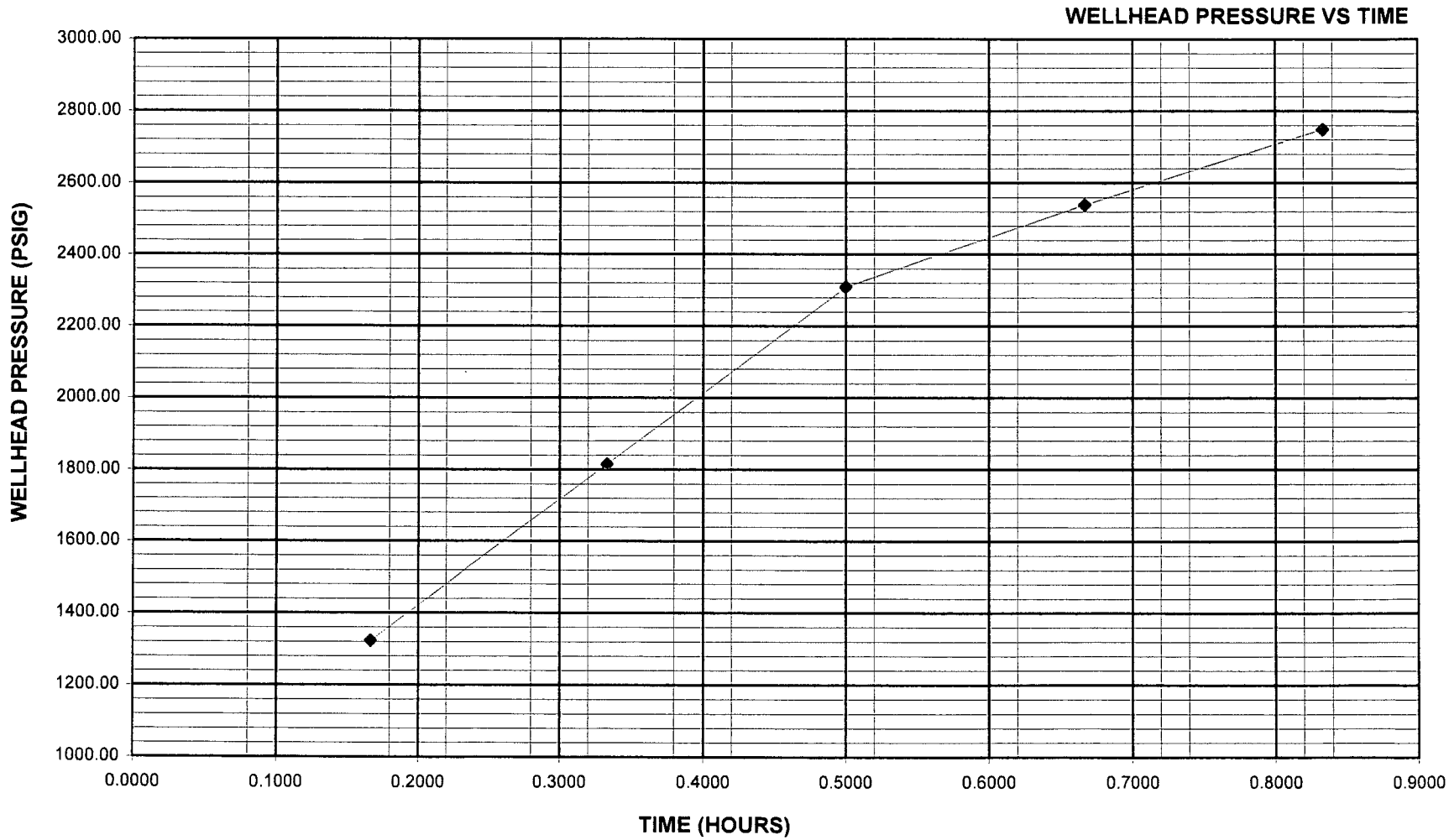
DATE TIME	DWG	OPERATIONS LOG - JOB NUMBER: 73677D
8/30/07 03:30:00 PM		ARRIVE ON LOCATION
8/30/07 03:40:00 PM		BEGAN STEP-RATE TEST
8/30/07 03:50:00 PM	1322	END OF FIRST RATE @ 1 BPD / BEGAN 2ND RATE @ 2 BPD
8/30/07 04:00:00 PM	1814	END OF 2ND RATE @ 2 BPD / BEGAN 3RD RATE @ 3 BPD
8/30/07 04:10:00 PM	2308	END OF 3RD RATE @ 3 BPD / BEGAN 4TH RATE @ 4 BPD
8/30/07 04:20:00 PM	2538	END OF 4TH RATE @ 4 BPD / BEGAN 5TH RATE @ 5 BPD
8/30/07 04:30:00 PM	2747	END OF 5TH RATE @ 5 BPD / END OF TEST

COMPANY: OXY USA, INC.
LEASE: EAST EUMONT UNIT # 39
FIELD (FORMATION): ()
COUNTY: LEA
STATE: NM

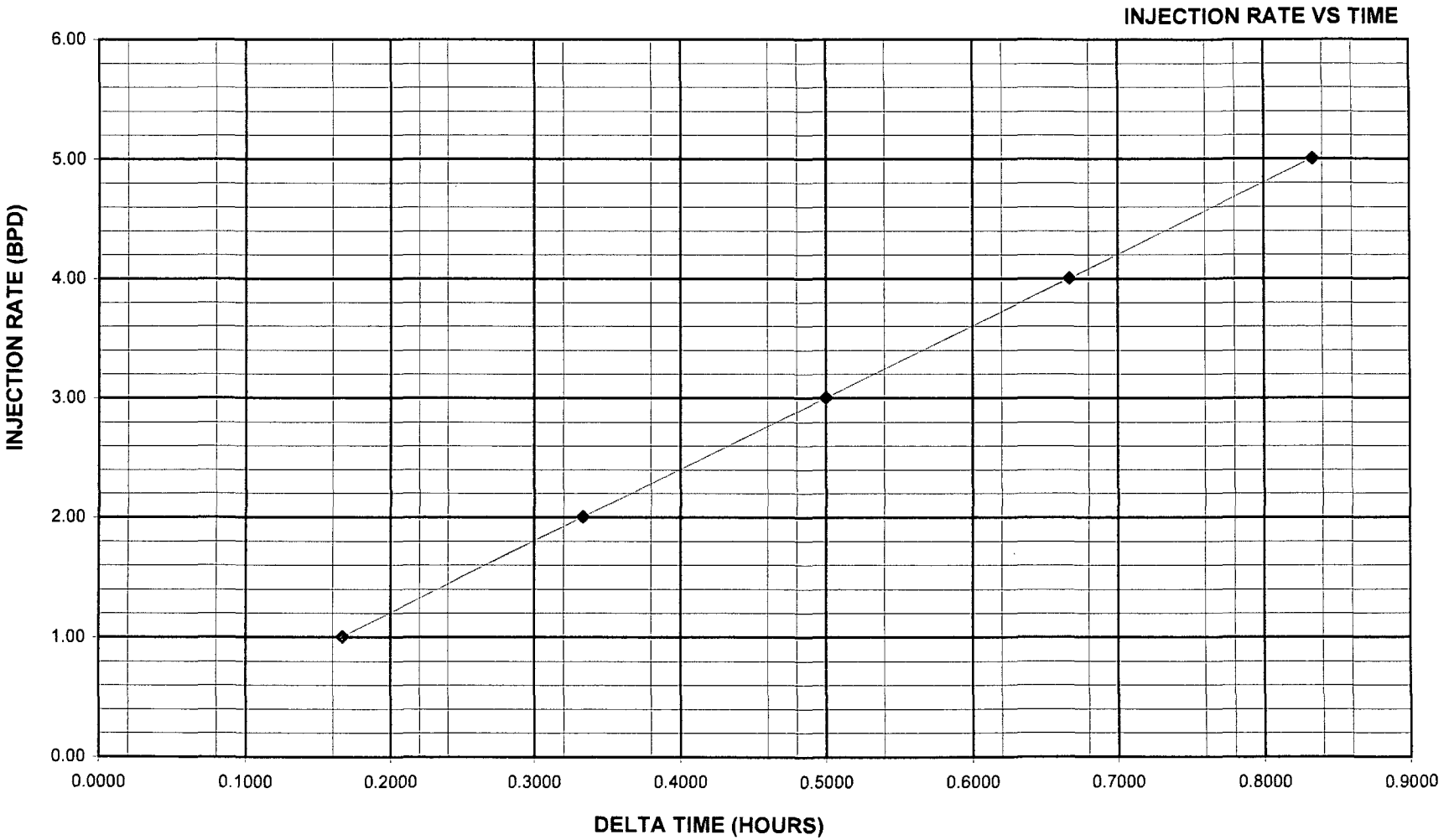
TEST DATES: 8/30/2007 - 8/30/2007
RUN DEPTH: SURFACE
INSTRUMENT: WIRELINE

REAL TIME	DELTA TIME, HOURS	SURFACE PRESSURE, PSIA	WELLHEAD PRESSURE, PSIG	INJECTION RATE, BPD	JOB NUMBER: 73677D
08/30/07 03:50:00 PM	0.1667		1322.00	1.00	
08/30/07 04:00:00 PM	0.3333		1814.00	2.00	
08/30/07 04:10:00 PM	0.5000		2308.00	3.00	
08/30/07 04:20:00 PM	0.6667		2538.00	4.00	
08/30/07 04:30:00 PM	0.8333		2747.00	5.00	

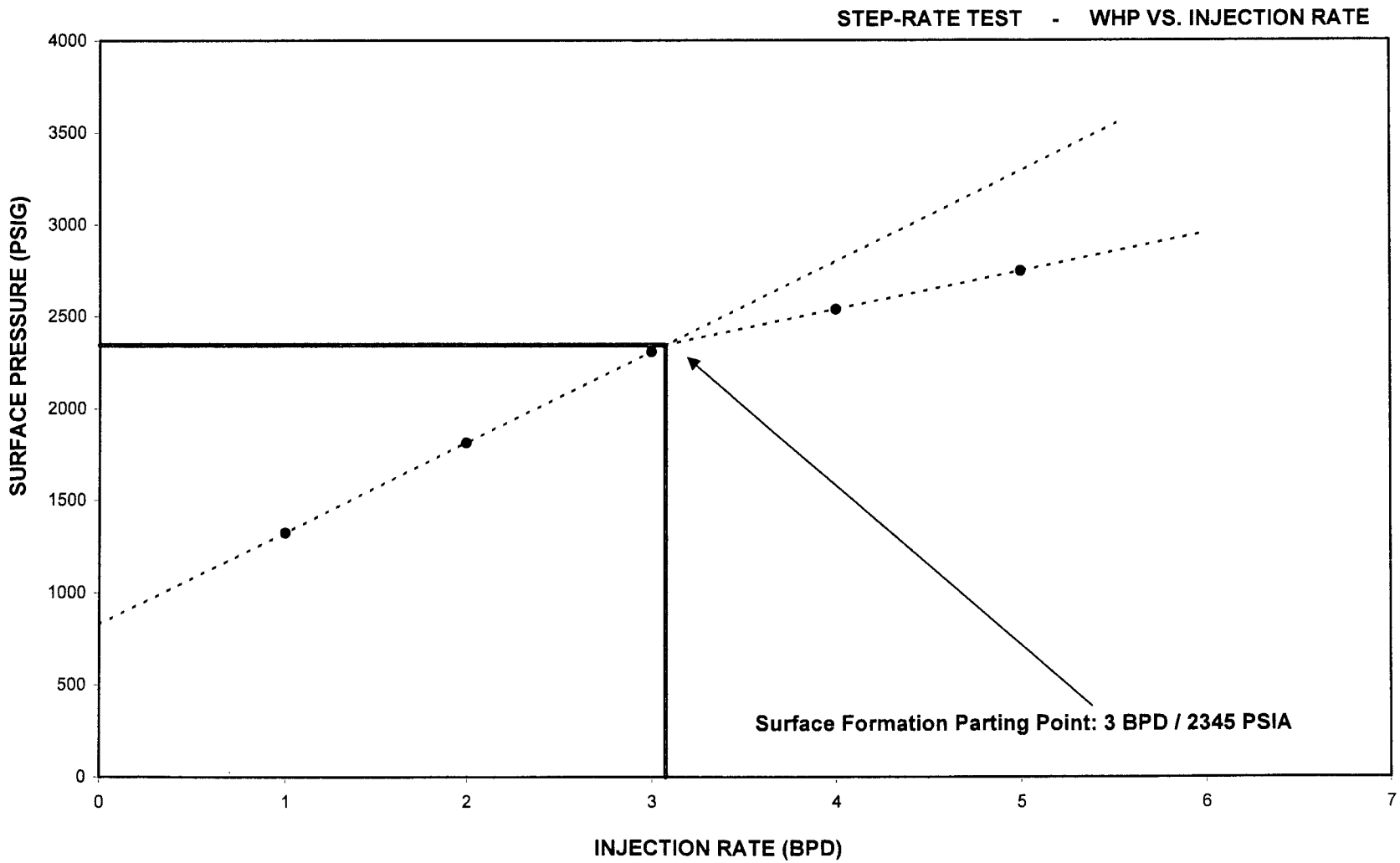
COMPANY:	OXY USA, INC.	FIELD:		JOB #	73677D
LEASE:	EAST EUMONT UNIT	COUNTY:	LEA	TEST DATE:	8/30/2007 - 8/30/2007
WELL NUMBER:	39	STATE:	NM		



COMPANY:	OXY USA, INC.	FIELD:		JOB #	73677D
LEASE:	EAST EUMONT UNIT	COUNTY:	LEA	TEST DATE:	8/30/2007 - 8/30/2007
WELL NUMBER:	39	STATE:	NM		



COMPANY:	OXY USA, INC.	FIELD:		JOB #	73677D		
LEASE:	EAST EUMONT UNIT	COUNTY:	LEA	TEST DATE:	8/30/2007	-	8/30/2007
WELL NUMBER:	39	STATE:	NM				



OPERATIONS LOG

COMPANY:	OXY USA, INC.
LEASE:	EAST EUMONT UNIT # 41
FIELD (FORMATION):	()
COUNTY:	LEA
STATE:	NM
TEST TYPE:	STEP-RATE
ENGINEER:	
FIELD REP:	
JOB RUN BY:	TERRY LEGENDRE
DATA PREPARED BY:	CAMERON NEWTON
INSTRUMENT:	WIRELINE

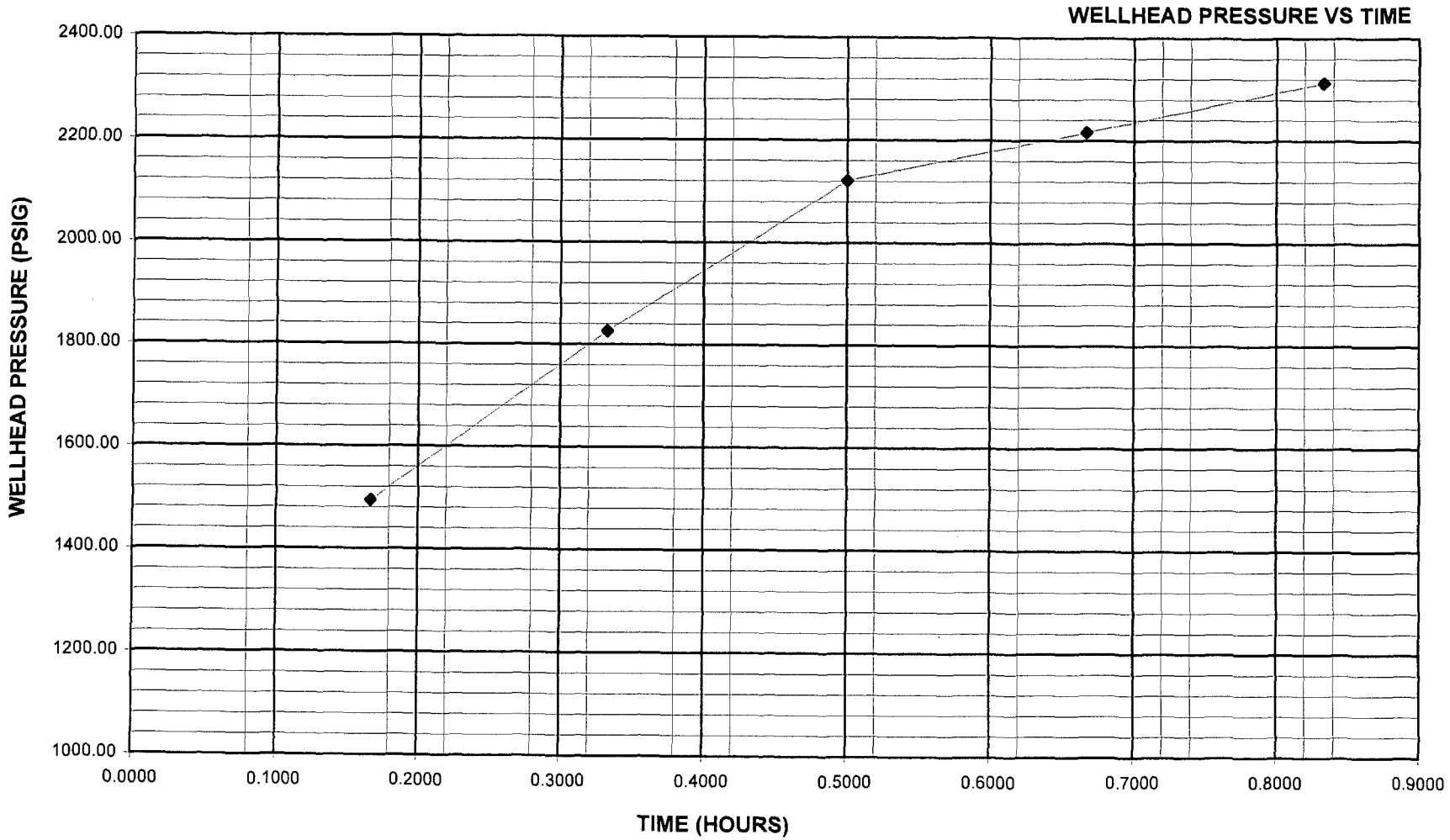
DATE TIME	DWG	OPERATIONS LOG - JOB NUMBER: 73677E
8/30/07 05:45:00 PM		ARRIVE ON LOCATION
8/30/07 06:00:00 PM		BEGAN STEP-RATE TEST
8/30/07 06:10:00 PM	1493	END OF FIRST RATE @ 1 BPD / BEGAN 2ND RATE @ 2 BPD
8/30/07 06:20:00 PM	1825	END OF 2ND RATE @ 2 BPD / BEGAN 3RD RATE @ 3 BPD
8/30/07 06:30:00 PM	2120	END OF 3RD RATE @ 3 BPD / BEGAN 4TH RATE @ 4 BPD
8/30/07 06:40:00 PM	2215	END OF 4TH RATE @ 4 BPD / BEGAN 5TH RATE @ 5 BPD
8/30/07 06:50:00 PM	2312	END OF 5TH RATE @ 5 BPD / END OF TEST

COMPANY: OXY USA, INC.
LEASE: EAST EUMONT UNIT # 41
FIELD (FORMATION): ()
COUNTY: LEA
STATE: NM

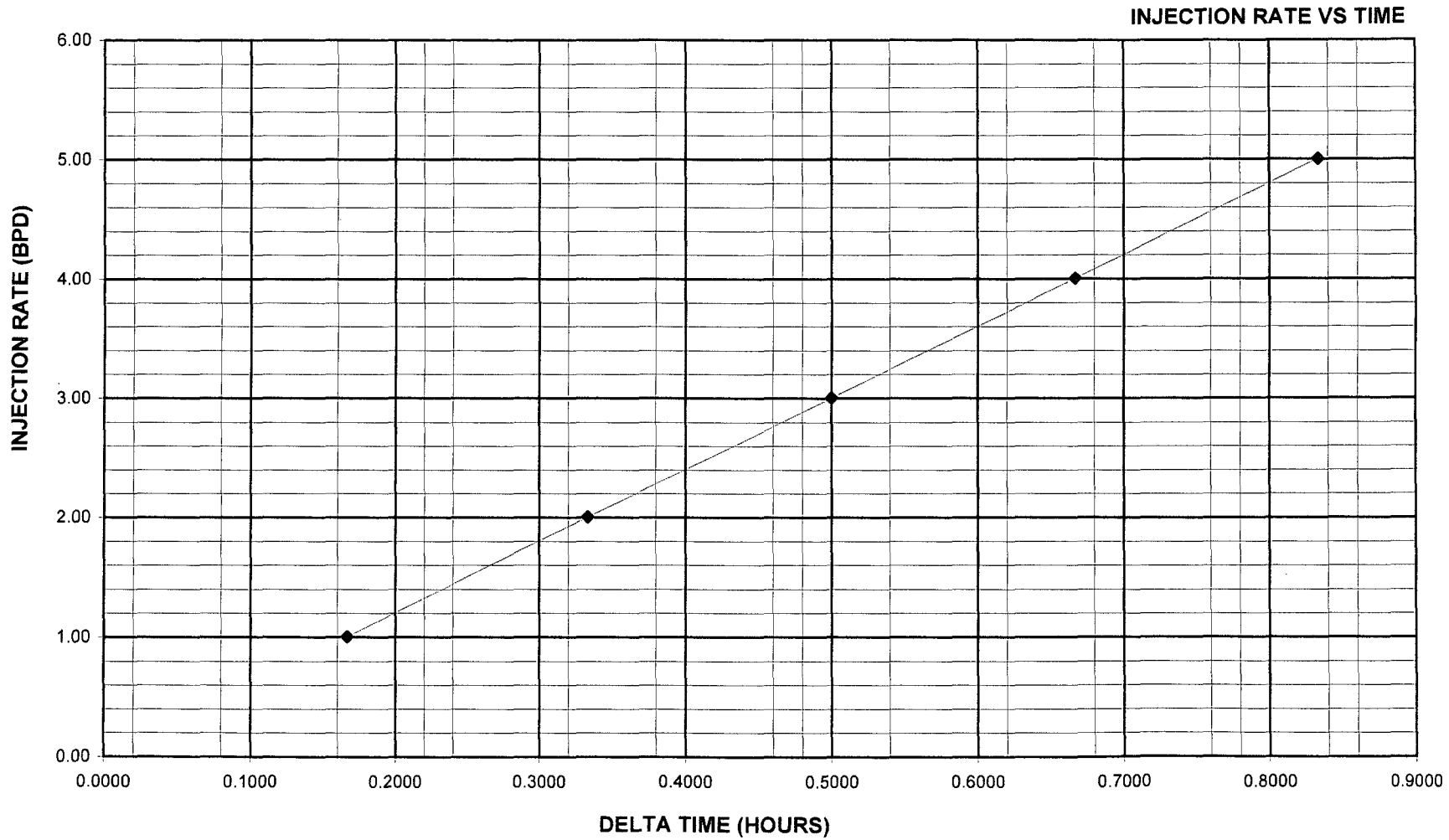
TEST DATES: 8/30/2007 - 8/30/2007
RUN DEPTH: SURFACE
INSTRUMENT: WIRELINE

REAL TIME	DELTA TIME, HOURS	SURFACE PRESSURE, PSIA	WELLHEAD PRESSURE, PSIG	INJECTION RATE, BPD	JOB NUMBER: 73677E
08/30/07 06:10:00 PM	0.1667		1493.00	1.00	
08/30/07 06:20:00 PM	0.3333		1825.00	2.00	
08/30/07 06:30:00 PM	0.5000		2120.00	3.00	
08/30/07 06:40:00 PM	0.6667		2215.00	4.00	
08/30/07 06:50:00 PM	0.8333		2312.00	5.00	

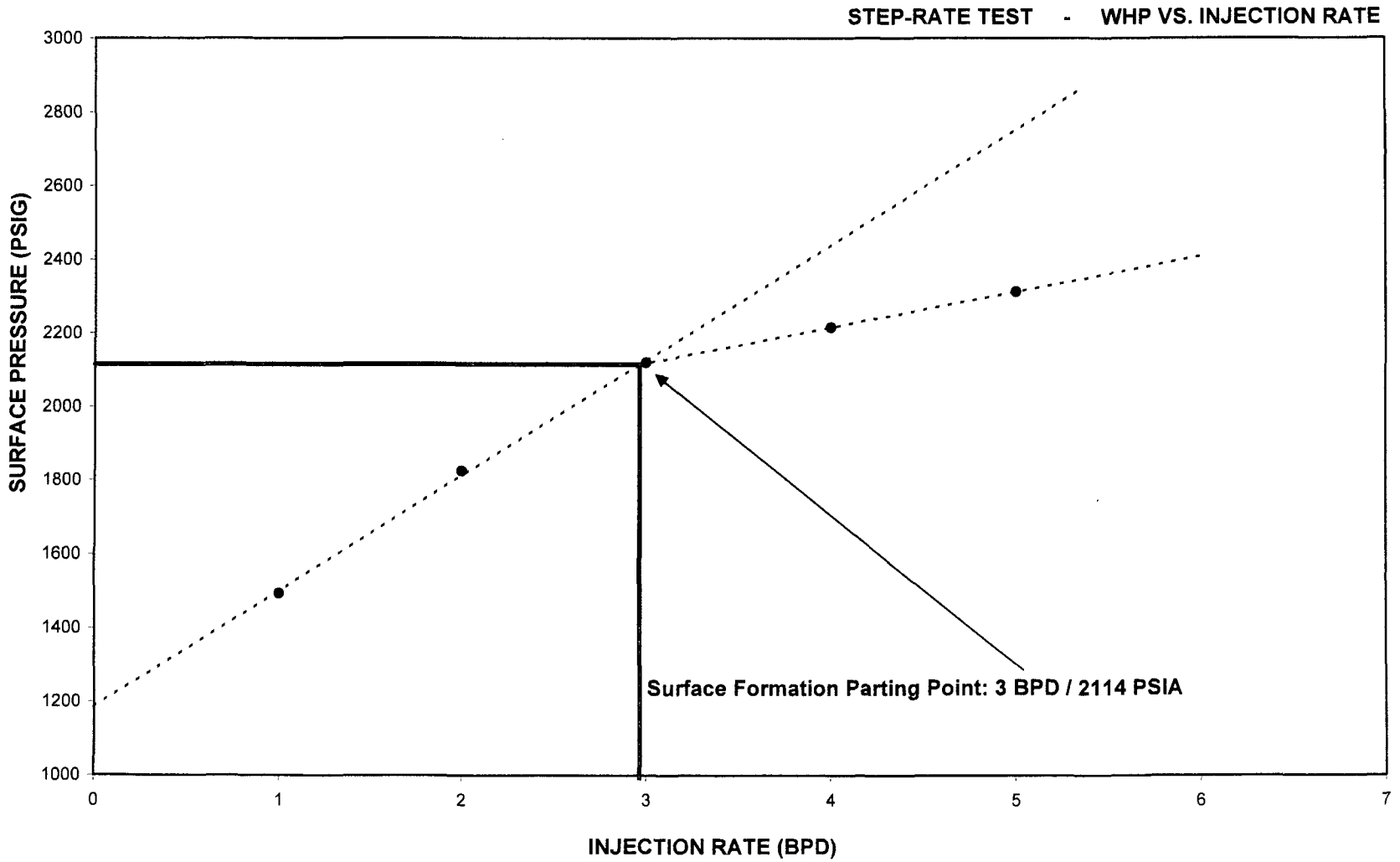
COMPANY:	OXY USA, INC.	FIELD:		JOB #	73677E
LEASE:	EAST EUMONT UNIT	COUNTY:	LEA	TEST DATE:	8/30/2007 - 8/30/2007
WELL NUMBER:	41	STATE:	NM		



COMPANY:	OXY USA, INC.	FIELD:		JOB #	73677E
LEASE:	EAST EUMONT UNIT	COUNTY:	LEA	TEST DATE:	8/30/2007 - 8/30/2007
WELL NUMBER:	41	STATE:	NM		



COMPANY:	OXY USA, INC.	FIELD:		JOB #	73677E		
LEASE:	EAST EUMONT UNIT	COUNTY:	LEA	TEST DATE:	8/30/2007	-	8/30/2007
WELL NUMBER:	41	STATE:	NM				



SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

UNITED STATES OF INTERIOR
BUREAU OF LAND MANGEMENT
620 E. GREENE STREET
CARLSBAD, NM 88220-6292

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X ☐ Agent ☐ Addressee

B. Received by (Printed Name) | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service label) 7005 0390 0002 9905 0346

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

STATE OF NEW MEXICO
ENERGY & MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
1220 SOUTH ST. FRANCIS DR.
SANTA FE, NM 87505

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X ☐ Agent ☐ Addressee

B. Received by (Printed Name) | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service label) 7005 0390 0002 9905 0353

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

STATE OF NEW MEXICO
ENERGY & MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
1625 N. FRENCH DRIVE
HOBBS, NM 88240

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X ☐ Agent ☐ Addressee

B. Received by (Printed Name) | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☑ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service label) 7005 0390 0002 9905 0339

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

From: David Stewart

Date: 11-30-2007

To: Jones, William V., EMNRD [mailto:William.V.Jones@state.nm.us]

Subject: Injection Pressure Increase request: OXY's East Eumont Unit

Dear Mr. Jones;

Reference your letter of inquiry dated 10-25-07 regarding the captioned subject. Our current engineer assigned to the East Eumont unit, Frey Rad, has reviewed and prepared responses to your questions as follows.

Frey is a consulting petroleum engineer who has been working for OXY for nearly 6 years and has been involved with our New Mexico properties for the past year or so. Frey lived in Hobbs while working for EXXON and has been a registered PE in New Mexico and Texas. I wanted to give you this introduction, since he is acting as a consultant, (as opposed to an employee), on behalf of OXY. Should you require additional data or would like to discuss further some of your concerns please call me at 432-685-5717 or you may reach Frey at 432-685-5675.

Hello David:
We received your request to boost the max pressure limit on 11 injection wells in this waterflooded unit and have the following requests.

1) Would you please send a map of this unit with all producing and injection wells spotted on the map and circle the injection wells included in this request.

Following are two maps. The first plat shows the entire unit. The second map shows wells in the active area of the unit currently under secondary recovery operations with the requested injection wells circled.


East Eumont Unit
Active area of the unit.
Inactive area of the unit. In this area the wells are TA'd and/or plugged.

2) Have your reservoir engineer send a quick synopsis of:
   a) why you now want these pressure increases - and why these particular wells?

Because current injection pressures have exceeded the prior limits approved by the OCD in 1995, due to higher reservoir pressure caused by 12 years of continuous injection.

Recent step-rate test surveys indicated that "surface parting injection pressure" on certain wells, for which applications have been made, are higher than the current approved limits granted by OCD.

   b) do you feel comfortable going up to a surface injection pressure gradient of 0.64 (see well #28)?

This well was drilled by Tide Water Oil Co. in 1956 as State "AD" No. 1. The well was completed through perforations in the 5-1/2" casing from 3868-79 and 3891-3954' after 500 gal of MCA acid was pumped in at 3800 psi to break the formation and 3500 psi to put away the acid. After an oil-sand frac, the well flowed 90 bo in 21 hours with no water through ¼" choke at 125-225 psi tubing pressure.

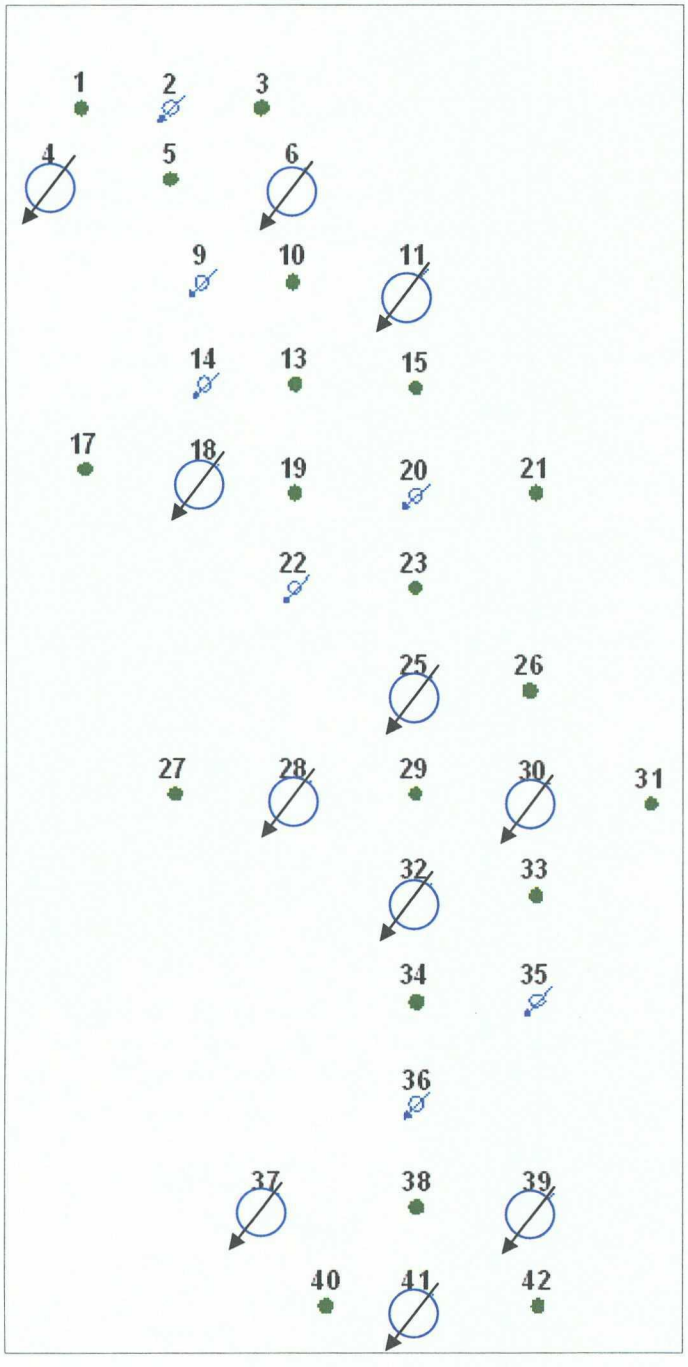
The 3800 psi maximum pressure to break the formation during the acid job represented a pressure gradient of 0.98 or nearly 1.5-fold higher than the 0.64 indicated by the step-rate test. In 1993 when this well was converted to injection additional pay intervals were perforated from 3782 to 3888 feet and after an acid-frac treatment of 5000 gallons with diverters, an ISIP of 2650 psi was recorded, representing a gradient of 0.7 psi/ft. During that job the maximum pressure to break the formation was recorded at 3980 psi.

As a rule, the leak off through the face of the original sand-packed fractures in the pay is much higher with water, thereby chances of extending those induced fractures are less unless exceeding the frac pressure. Therefore, as long as the injection pressure is maintained below the indicated parting pressure of 2638 psi for well #28, the 0.64 gradient should not pose an alarming concern.

   c) have you seen any other indicator of fracturing pressure in this interval such as ISIP's or closure testing or analogy with other waterfloods?

Nearly all current active injectors were frac treated on initial completion in mid 1950's as well as in 1993 when they were converted to injection. The table below shows the ISIP's recorded after the frac jobs at the time of conversion as well as the calculated gradient prior to injection-start.

Well #	Date	Perforated Interval	Treatment	ISIP	Frac gradient
4	Jan-95	3751-3849	X-linked gelled	2950	0.79
6	Dec-93	3838-3999	Acid-frac	1610	0.42
11	Nov-93	3797-3970	Acid-frac	2600	0.68
18	Nov-93	3753-3897	Acid-frac	2650	0.71
18	Jan-95	3753-3898	X-linked gelled	3000	0.8
25	Dec-93	3748-3866	Acid-frac	1740	0.46
28	Mar-94	3782-3888	Acid-frac	2650	0.7
30	Oct-93	3768-3940	Acid-frac	not recorded	
32	Oct-93	3773-3875	Acid-frac	2590	0.69
32	Sep-94	3773-3876	gelled-wtr	3100	0.82
37	Oct-93	3765-3916	Acid-frac	2540	0.67
39	Oct-93	3845-3970	Acid-frac	2530	0.66
41	Oct-93	3779-3951	Acid-frac	2200	0.58



Injection well requested for increased limit.

g) what is the injection/withdrawal ratio for this waterflood. If it is over 1.0, where do you think the water is going?

The injection/withdrawal ratio has varied between 1 and 3 depending on changes in injection volumes and oil production. Some of the excess water replaces the gas voidage in the pay and some may enter adjacent stringers away from the wellbore and ór the upper Queen zone which is included in the unitized interval. As mentioned earlier, these wells were frac treated on initial completions and at flood-start. Depending on variations in lithology, well spacing, pay thickness, porosity and permeability, fluid saturations, and type of frac treatment volumes and pressures, the water will tend to flow through the areas of least resistance within those intervals.

3) Please send a table with a row for each well showing:
   a) the existing pressure limit and order allowing it. **[Order is attached.]**

EEUInjPrmt.TIF (3 MB)

   b) the asked-for pressure limit
   c) the top and bottom perforation (injection) interval
   d) the (surface pressure) gradient - if these increases are allowed. For example: 2000 psi into perfs at 3800 - 3940 feet = 0.53 gradient
   e) how much water was being injected into each of these wells at the existing pressure limit.
   f) has there been any recent check for "fill" in this well?

Well #	Permitted Inj. Press.	Asked for Press Limit	Injection Interval	Gradient	July, 07 BWIPD	Recent fill, ft	Tagged depth
4	2050 ✓	2193	3751-3849	0.58	133	0	3901
6	1030 ✓	1517	3838-3999	0.4	30	11	3991
11	2130 ✓	2246	3797-3970	0.59	3	0	4025
18	2350 ✓	2588	3753-3919	0.69	20		
25	1000 ✓	2345	3876-3940	0.61	230	25	3922
28	2290 ✓	2456	3782-3954	0.65	11		
30	970 ✓	2159	3768-3940	0.57	152		
32	2150 ✓	2213	3773-3940	0.59	22	12	3998
37	1970 ✓	1986	3765-3916	0.53	33	44	3898
39	1750 ✓	2295	3845-3998	0.6	1		
41	1730 ✓	2064	3779-3951	0.55	241		

d) have these wells all been hydraulically fractured?

Yes.

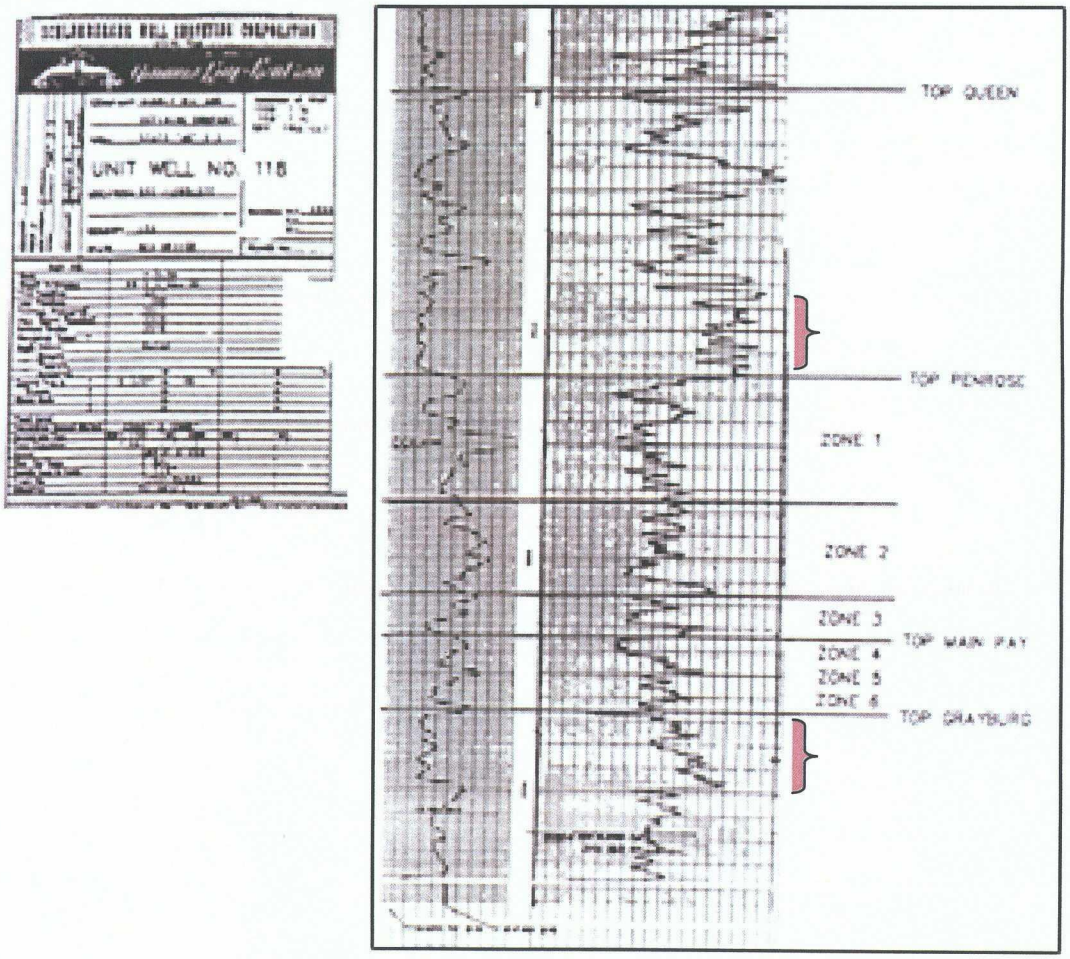
e) what formations are being flooded - and which are taking most of the water?

The vertical limit of the unitized interval in the East Eumont Unit includes Yates, Seven Rivers, and Queen formations. The lower Queen known as the Penrose zone is being flooded.

f) what sort of boundaries exist above and below this injection interval to prevent any vertical migration?

The Queen formation consists of sandstones, dolomites, and shale with some stringers of gypsum and anhydrites. The pay within the Penrose interval are separated by low porosity and permeability stringers most of which, including the pay zones, are discontinuous between the wells drilled on 40-acre spacing. Also, the Penrose interval is flanked on top and bottom with more than 30 feet of non-productive intervals which should prevent against vertical migration.

EEU #118



4) Please check if there are any other operators of producing wells in this interval located within 1/2 mile of any of these 11 injection wells. If so, please send them a letter of notice - does not have to be certified. Let me know when you mailed the notice.

No other operators in this interval within ½ mile of these injection wells, see attached for list and plat of wells.

EEUAOR.TIF (2 MB)

We hope the above responses to your questions are satisfactory and please call if you should need additional data.

Regards,

David Stewart
Frey Rad, PE
OXY Permian
P.O. Box 50250
Midland, TX 79710
#6 Desta Drive Ste. 6000
Midland, TX 79705

Jones, William V., EMNRD

From: David_Stewart@oxy.com
Sent: Friday, November 30, 2007 10:49 AM
To: Jones, William V., EMNRD
Cc: Ezeanyim, Richard, EMNRD; Frey_Rad@oxy.com; James_Bruton@oxy.com
Subject: RE: Injection Pressure Increase request: OXY's East Eumont Unit
Attachments: EEU OCD response.doc

Please see attached for the responses to your questions. If you need any additional information, let us know. We appreciate your help on this manner.

Thanks,
David Stewart
Sr. Regulatory Analyst
OXY Permian
432-685-5717
Fax-432-685-5742

From: Jones, William V., EMNRD [mailto:William.V.Jones@state.nm.us]
Sent: Thursday, October 25, 2007 3:17 PM
To: Stewart, David
Cc: Ezeanyim, Richard, EMNRD
Subject: Injection Pressure Increase request: OXY's East Eumont Unit

Hello David:
We received your request to boost the max pressure limit on 11 injection wells in this waterflooded unit and have the following requests.

1) Would you please send a map of this unit with all producing and injection wells spotted on the map and circle the injection wells included in this request.

2) Have your reservoir engineer send a quick synopsis of:
   a) why you now want these pressure increases - and why these particular wells?
   b) do you feel comfortable going up to a surface injection pressure gradient of 0.64 (see well #28)?
   c) have you seen any other indicator of fracturing pressure in this interval such as ISIP's or closure testing or analogy with other waterfloods?
   d) have these wells all been hydraulically fractured?
   e) what formations are being flooded - and which are taking most of the water?
   f) what sort of boundaries exist above and below this injection interval to prevent any vertical migration?
   g) what is the injection/withdrawal ratio for this waterflood. If it is over 1.0, where do you think the water is going?

3) Please send a table with a row for each well showing:
   a) the existing pressure limit and order allowing it.
   b) the asked-for pressure limit
   c) the top and bottom perforation (injection) interval
   d) the (surface pressure) gradient - if these increases are allowed. For example: 2000 psi into perfs at 3800 - 3940 feet = 0.53 gradient
   e) how much water was being injected into each of these wells at the existing pressure limit.
   f) has there been any recent check for "fill" in this well?

4) Please check if there are any other operators of producing wells in this interval located within 1/2 mile of any of these 11 injection wells. If so, please send them a letter of notice - does not have to be certified. Let me know when you mailed the notice.

I don't intend to cause more work for you and hopefully this all can be done quickly. Don't agonize over any of this or spend too much time on it. Just do the best you can and thank you very much.

Regards,

William V. Jones PE
New Mexico Oil Conservation Division
1220 South St. Francis
Santa Fe, NM 87505
505-476-3448