

Date: 10-24-89

OIL CONSERVATION DIVISION
RECEIVED

To : State of New Mexico
Energy & Minerals Dept.
Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87501
Attn: David Catanach

OCT 27 AM 9 25

New Mexico Oil Conservation Division
P.O. Box 1980
Hobbs, New Mexico 88240
Attn: Jerry Sexton

From: Sirgo Operating Inc.
P.O. Box 3531
Midland, Texas 79702

Re : West Dollarhide Queen Sand Unit
Amendment to C-108 to increase injection pressure

Gentlemen,

As requested in Jerry's letter of September 22, 1989, we have performed step rate test on the active water injection wells in the subject field. All of the test were run with produced water. Below is a table of the results.

Well No.	Surface Fracture Pressure	Comments
8	1495 psi	
9	1450 psi	
13	1472 psi	
14	1678 psi	
20	1481 psi	
24	1305 psi	
25	1445 psi	
32	shut in	tubing leak waiting on pulling unit
35	shut in	tubing leak workover in progress
36	1595 psi	
46	shut in	tubing leak waiting on pulling unit
47	1695 psi	
111	shut in	casing leak workover in progress

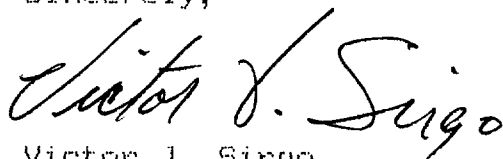
Please find attached the actual tests run by the "John West Engineering Company".

The average of these test is 1512 psi. We are very interested in staying below the fracture pressure, because we understand the consequences of injecting into the reservoir above fracture pressure.

Sirgo Operating Inc. hereby request that the C-108 for the subject field be ammended to reflect an authorized wellhead injection pressure equal to that of the wellhead fracture pressure of each well, minus 100 psi.

Please let me know if you need any further information. We would greatly appreciate a timely response to this situation.

Sincerely,

A handwritten signature in cursive script, reading "Victor J. Sirgo". The signature is written in dark ink and is positioned above the printed name.

Victor J. Sirgo

△ Recorded Wellhead Pressure

SERGO OPERATING, INC.

West Dollarhide Queen Sand Unit No. 8

Step-rate Injection Test

PSIG

Wellhead Pressure

B W P D

1600

1500

1400

1300

1200

1100

100

300

500

700

900

1100

1300

1500

1700

1900

JOHN WEST ENGINEERING CO.
Step Rate Injection Test

Well Name West Dollarhide Queen Sand Unit #8

Date 10-4-89

CO. Name Sergo Operating, Inc.

Page 1

Remarks	Time	Tbg. Press.	Rate B P D	Total	B H P	Tbg. Press.	Rate G P M	HEAD LOSS
	12:24	1125.2		0				
	12:26	1134.2	151.2	.21				
	12:28	1144.5	144.00	.41				
	12:30	1166.2	201.60	.69				
	12:32	1147.10	194.40	.96				
Rate 1	12:34	1158.60	180.00	1.21				
	12:36	1199.50	338.40	1.68				
	12:38	1202.00	367.20	2.19				
	12:40	1209.60	360.00	2.69				
	12:42	1204.50	374.40	3.21				
Rate 2	12:44	1212.10	374.40	3.73				
	12:46	1253.00	489.60	4.41				
	12:48	1243.90	511.20	5.12				
	12:50	1238.70	496.80	5.81				
	12:52	1252.80	489.60	6.49				
Rate 3	12:54	1251.50	511.20	7.20				
	12:56	1314.30	698.40	8.17				
	12:58	1322.10	684.00	9.12				
	1:00	1328.50	705.60	10.10				
	1:02	1322.20	698.40	11.07				
Rate 4	1:04	1333.70	684.00	12.02				
	1:06	1431.10	943.20	13.33				
	1:08	1390.10	943.20	14.64				
	1:10	1383.70	907.20	15.90				
	1:12	1383.80	921.60	17.18				
Rate 5	1:14	1387.70	936.00	18.48				
	1:16	1499.10	1116.00	20.03				
	1:18	1474.80	1144.80	21.62				
	1:20	1474.80	1101.60	23.15				
	1:22	1465.80	1137.60	24.73				
Rate 6	1:24	1467.10	1137.60	26.31				

JOHN WEST ENGINEERING CO.
Step Rate Injection Test

Well Name West Dollarhide Queen Sand Unit #8

Date 10-4-89

CO. Name Sergo Operating, Inc.

Page 2

Remarks	Time	Tbg. Press.	Rate B P D	Total	B H P	Tbg. Press.	Rate G P M	HEAD LOSS
	1:26	1547.80	1303.20	28.12				
	1:28	1544.00	1339.20	29.98				
	1:30	1532.40	1339.20	31.84				
	1:32	1524.70	1303.20	33.65				
Rate 7	1:34	1518.20	1360.80	35.54				
	1:36	1578.40	1497.60	37.62				
	1:38	1569.40	1454.40	39.64				
	1:40	1559.00	1512.00	41.74				
	1:42	1553.80	1504.80	43.83				
Rate 8	1:44	1547.30	1476.00	45.88				
	1:46	1608.70	1720.80	48.27				
	1:48	1599.80	1706.40	50.64				
	1:50	1586.90	1663.20	52.95				
	1:52	1574.00	1720.80	55.34				
Rate 9	1:54	1561.20	1706.4	57.71				
	1:56	1626.50	1915.20	60.28				
	1:58	1621.50	1915.20	62.94				
	2:00	1612.50	1951.20	65.65				
	2:02	1599.60	1843.20	68.21				
Rate 10	2:04	1585.60	1965.60	70.94				
Fail-Off	2:04:27	1231.00		2:18	1201.60			
	2:05	1216.90		2:19	1200.30			
	2:06	1213.10		2:20	1200.30			
	2:07	1211.90						
	2:08	1210.70						
	2:09	1209.40						
	2:10	1208.10						
	2:11	1206.90						
	2:12	1205.60						
	2:13	1205.50						
	2:14	1204.20						
	2:15	1203.00						
	2:16	1202.90						
	2:17	1201.60						

SERGO OPERATING, INC.
 West Dollarhide Queen Sand Unit No. 9
 Step-rate Injection Test

▲ Recorded Wellhead Pressure

PSIG

Wellhead Pressure

B W P D

100 300 500 700 900 1100 1300 1500 1700

1700

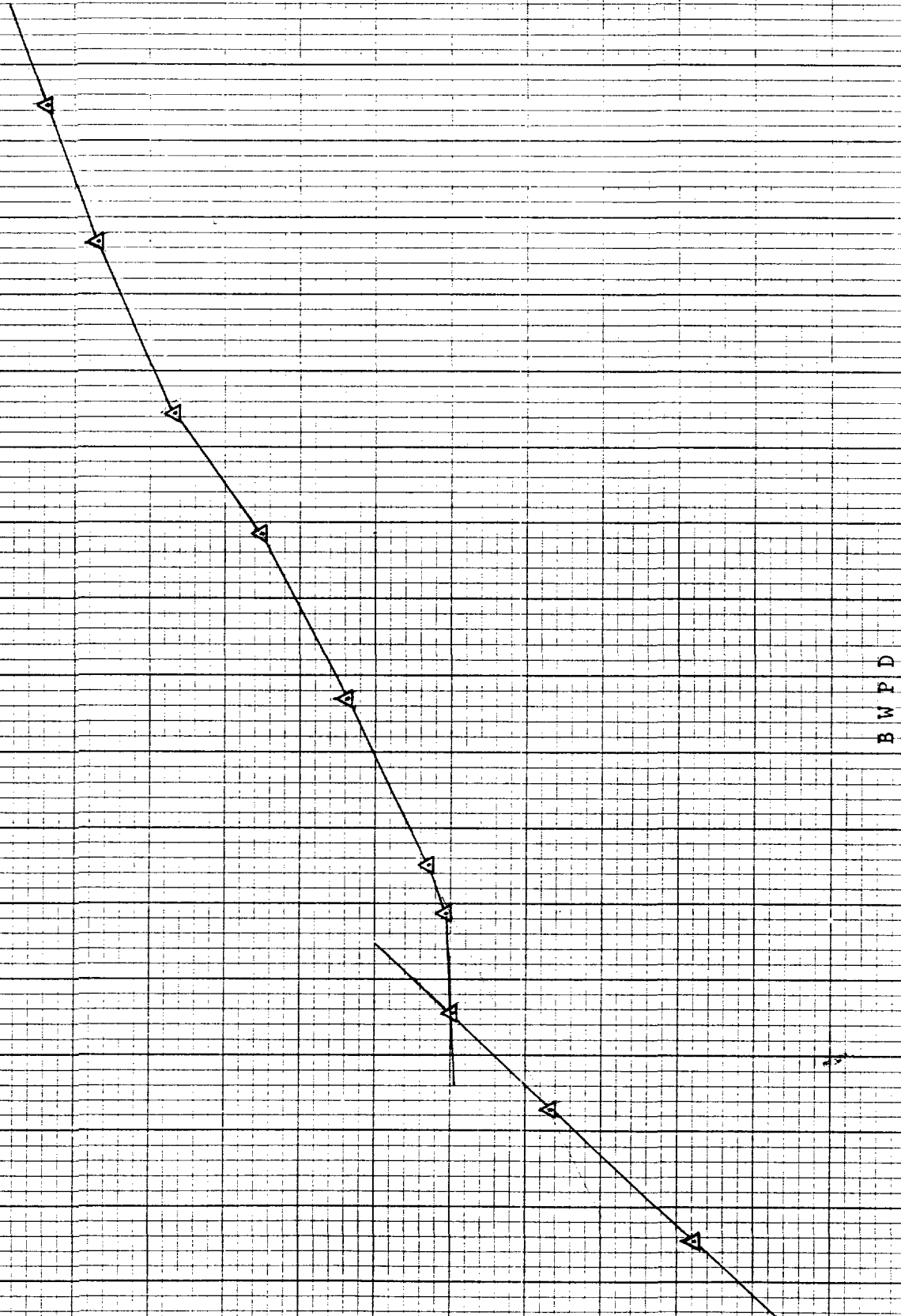
1600

1500

1400

1300

1200



JOHN WEST ENGINEERING CO.
Step Rate Injection Test

Well Name West Dollarhide Queen Sand Unit #9

Date 10-4-89

CO. Name Sergo Operating, Inc.

Page 1

Remarks	Time	Tbg. Press.	Rate B P D	Total	B H P	Tbg. Press.	Rate G P M	HEAD LOSS
	9:16	726.50		0				
	9:18	1250.80	172.80	.24				
	9:20	1250.60	165.00	.47				
	9:22	1235.10	144.00	.67				
	9:24	1279.80	151.20	.88				
Rate 1	9:26	1288.60	151.20	1.09				
	9:28	1399.90	316.80	1.53				
	9:30	1389.60	316.80	1.97				
	9:32	1399.70	345.60	2.45				
	9:34	1385.50	338.40	2.92				
Rate 2	9:36	1381.60	316.80	3.36				
	9:38	1460.90	453.60	3.99				
	9:40	1450.60	453.60	4.62				
	9:42	1439.00	446.40	5.24				
	9:44	1449.20	453.60	5.87				
Rate 3	9:46	1447.80	460.80	6.51				
	9:48	1491.30	547.20	7.27				
	9:50	1474.60	561.60	8.05				
	9:52	1469.40	568.80	8.84				
	9:54	1466.80	547.20	9.60				
Rate 4	9:56	1452.60	568.80	10.39				
	9:58	1476.90	662.40	11.31				
	10:00	1466.60	633.60	12.19				
	10:02	1462.70	655.20	13.10				
	10:04	1466.50	662.40	14.02				
Rate 5	10:06	1466.40	648.00	14.92				
	10:08	1516.30	864.00	16.12				
	10:10	1522.60	878.40	17.34				
	10:12	1516.10	849.60	18.52				
	10:14	1512.20	878.40	19.74				
Rate 6	10:16	1518.50	885.60	20.97				

JOHN WEST ENGINEERING CO.
Step Rate Injection Test

Well Name West Dollarhide Queen Sand Unit #9

Date 10-4-89

CO. Name Sergo Operating, Inc.

Page 2

Remarks	Time	Tbg. Press.	Rate B P D	Total	B H P	Tbg. Press.	Rate G P M	HEAD LOSS
	10:18	1595.20	1094.40	22.49				
	10:20	1608.00	1058.40	23.96				
	10:22	1582.30	1108.80	25.50				
	10:24	1582.20	1051.20	26.96				
Rate 7	10:26	1577.0	1116.00	28.51				
	10:28	1629.40	1252.80	30.25				
	10:30	1626.80	1216.80	31.94				
	10:32	1628.10	1274.40	33.71				
	10:34	1629.30	1267.20	35.47				
Rate 8	10:36	1633.10	1224.00	37.17				
	10:38	1699.60	1468.80	39.21				
	10:40	1690.60	1476.00	41.26				
	10:42	1689.90	1432.80	43.25				
	10:44	1687.80	1476.00	45.30				
Rate 9	10:46	1685.20	1490.40	47.37				
	10:48	1731.20	1641.60	49.65				
	10:50	1727.30	1634.40	51.92				
	10:52	1718.20	1648.80	54.21				
	10:54	1719.40	1627.20	56.47				
Rate 10	10:56	1718.00	1684.80	58.81				
Fall-Off	10:56:28	1349.3						
	10:57	1333.90						
	10:58	1317.20						
	10:59	1304.40						
	11:00	1294.10						
	11:01	1285.10						
	11:02	1276.10						
	11:03	1269.70						
	11:04	1262.00						
	11:05	1256.80						
	11:06	1250.40						
	11:07	1245.20						
	11:08	1240.0						
	11:09	1234.90						
	11:10	1231.00						

△ Recorded Wellhead Pressure

SERGO OPERATING, INC.
West Dollarhide Queen Sand Unit No. 13
Step-rate Injection Test

PSIG

Wellhead Pressure

B W P D

100 300 500 700 900 1100 1300 1500 1700

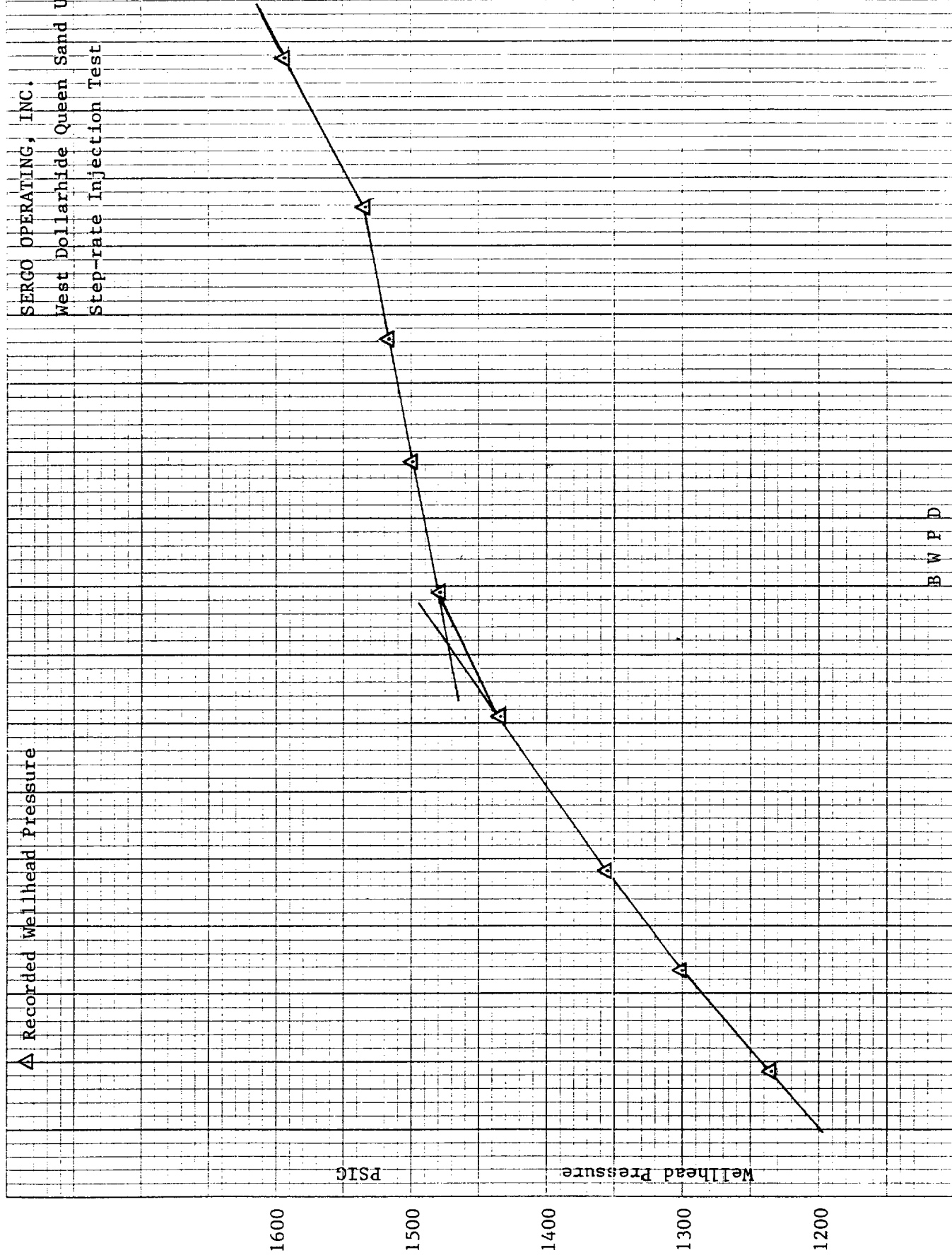
1600

1500

1400

1300

1200



JOHN WEST ENGINEERING CO.
Step Rate Injection Test

Well Name West Dollarhide Queen Sand Unit #13

Date 10-6-89

CO. Name Sergo Operating, Inc.

Page 1

Remarks	Time	Tbg. Press.	Rate B P D	Total	B H P	Tbg. Press.	Rate G P M	HEAD LOSS
	9:32	1163.2		0				
	9:34	1192.6	158.40	.22				
	9:36	1220.70	165.60	.45				
	9:38	1219.40	201.60	.73				
	9:40	1233.40	201.60	1.01				
Rate 1	9:42	1234.60	194.40	1.28				
	9:44	1279.30	331.20	1.74				
	9:46	1290.70	345.60	2.22				
	9:48	1294.50	345.60	2.70				
	9:50	1293.10	316.80	3.14				
Rate 2	9:52	1299.5	331.20	3.60				
	9:54	1349.30	482.40	4.27				
	9:56	1351.80	475.20	4.93				
	9:58	1358.00	489.60	5.61				
	10:00	1360.50	482.40	6.28				
Rate 3	10:02	1355.30	482.40	6.95				
	10:04	1430.80	727.20	7.96				
	10:06	1429.40	727.20	8.97				
	10:08	1433.10	691.20	9.93				
	10:10	1429.20	705.60	10.91				
Rate 4	10:12	1433.00	698.40	11.88				
	10:14	1484.20	885.60	13.11				
	10:16	1481.60	900.00	14.36				
	10:18	1486.60	892.80	15.60				
	10:20	1484.00	871.20	16.81				
Rate 5	10:22	1478.80	928.80	18.10				
	10:24	1544.0	1087.20	19.61				
	10:26	1519.60	1094.40	21.13				
	10:28	1511.90	1072.80	22.62				
	10:30	1509.30	1101.60	24.15				
Rate 6	10:32	1499.10	1058.40	25.62				

JOHN WEST ENGINEERING CO.

Step Rate Injection Test

Well Name West Dollarhide Queen Sand Unit #13

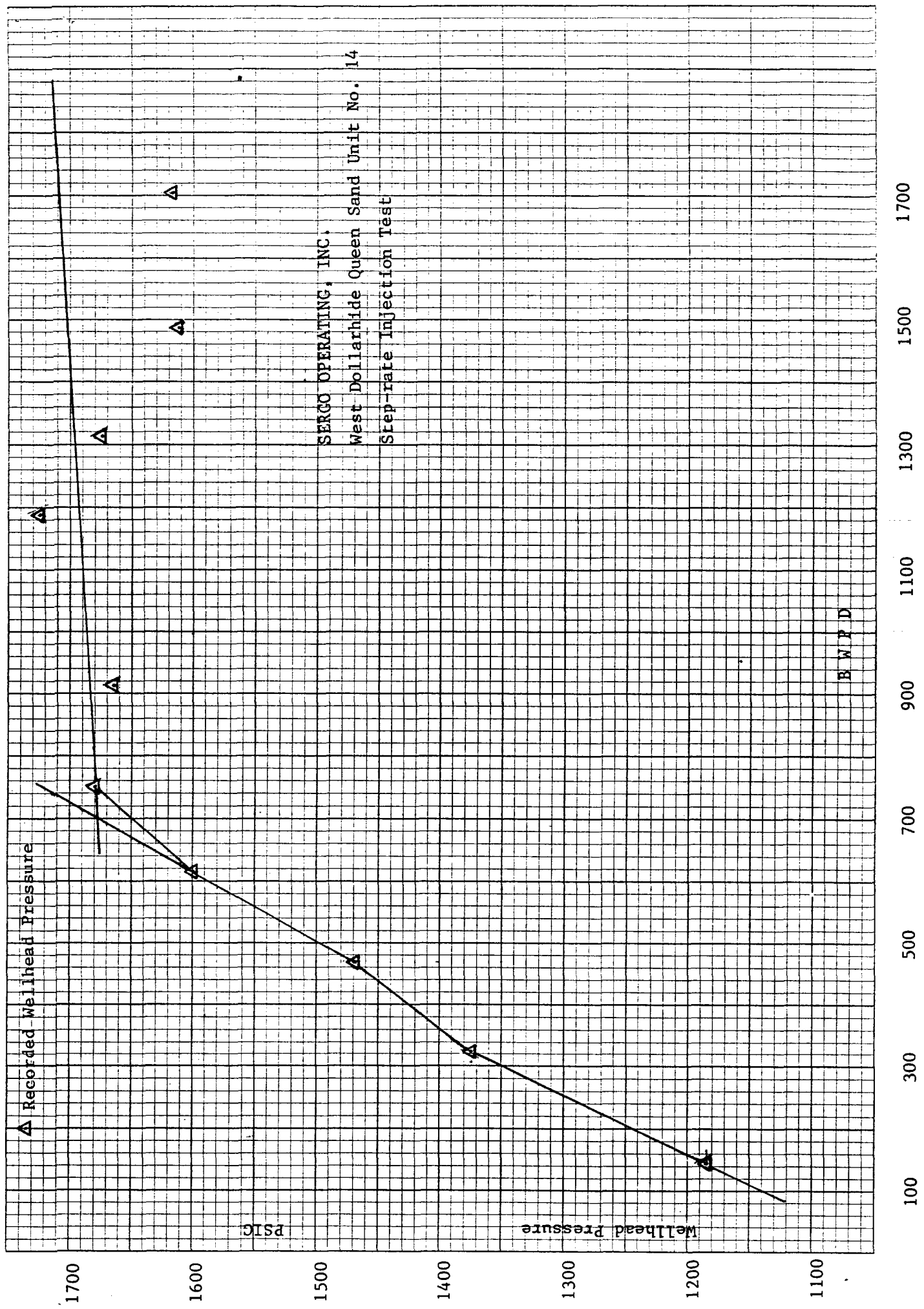
Date 10-6-89

CO. Name Sergo Operating, Inc.

Pate 2

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SERCO OPERATING, INC.
 West Dollarhide Queen Sand Unit No. 14
 Step-rate Injection Test



JOHN WEST ENGINEERING CO.
Step Rate Injection Test

Well Name West Dollarhide Queen Sand Unit #14

Date 10-6-89

CO. Name Sergo Operating, Inc.

Page 1

Remarks	Time	Tbg. Press.	Rate B P D	Total	B H P	Tbg. Press.	Rate G P M	HEAD LOSS
	12:12	924.10		0				
	12:14	1109.60	165.60	.23				
	12:16	1142.80	144.00	.43				
	12:18	1209.30	151.20	.64				
	12:20	1192.50	151.20	.85				
Rate 1	12:22	1187.40	122.40	1.02				
	12:24	1310.30	309.60	1.45				
	12:26	1337.10	338.40	1.92				
	12:28	1347.30	316.80	2.36				
	12:30	1361.30	331.20	2.82				
Rate 2	12:32	1374.10	331.20	3.28				
	12:34	1449.60	453.60	3.91				
	12:36	1470.10	475.20	4.57				
	12:38	1467.7	482.40	5.24				
	12:40	1471.60	453.60	5.87				
Rate 3	12:42	1469.00	482.40	6.54				
	12:44	1558.60	633.60	7.42				
	12:46	1558.60	619.20	8.28				
	12:48	1572.60	626.40	9.15				
	12:50	1587.90	626.40	10.02				
Rate 4	12:52	1599.30	583.20	10.83				
	12:54	1687.50	748.80	11.87				
	12:56	1702.80	748.80	12.91				
	12:58	1683.50	734.40	13.93				
	1:00	1669.30	748.80	14.97				
Rate 5	1:02	1679.50	763.20	16.03				
	1:04	1721.70	907.20	17.29				
	1:06	1704.90	908.00	18.54				
	1:08	1684.40	950.40	19.86				
	1:10	1660.00	900.00	21.11				
Rate 6	1:12	1663.80	928.80	22.40				

JOHN WEST ENGINEERING CO.
Step Rate Injection Test

Well Name West Dollarhide Queen Sand Unit #14

Date 10-6-89

CO. Name Sergo Operating, Inc.

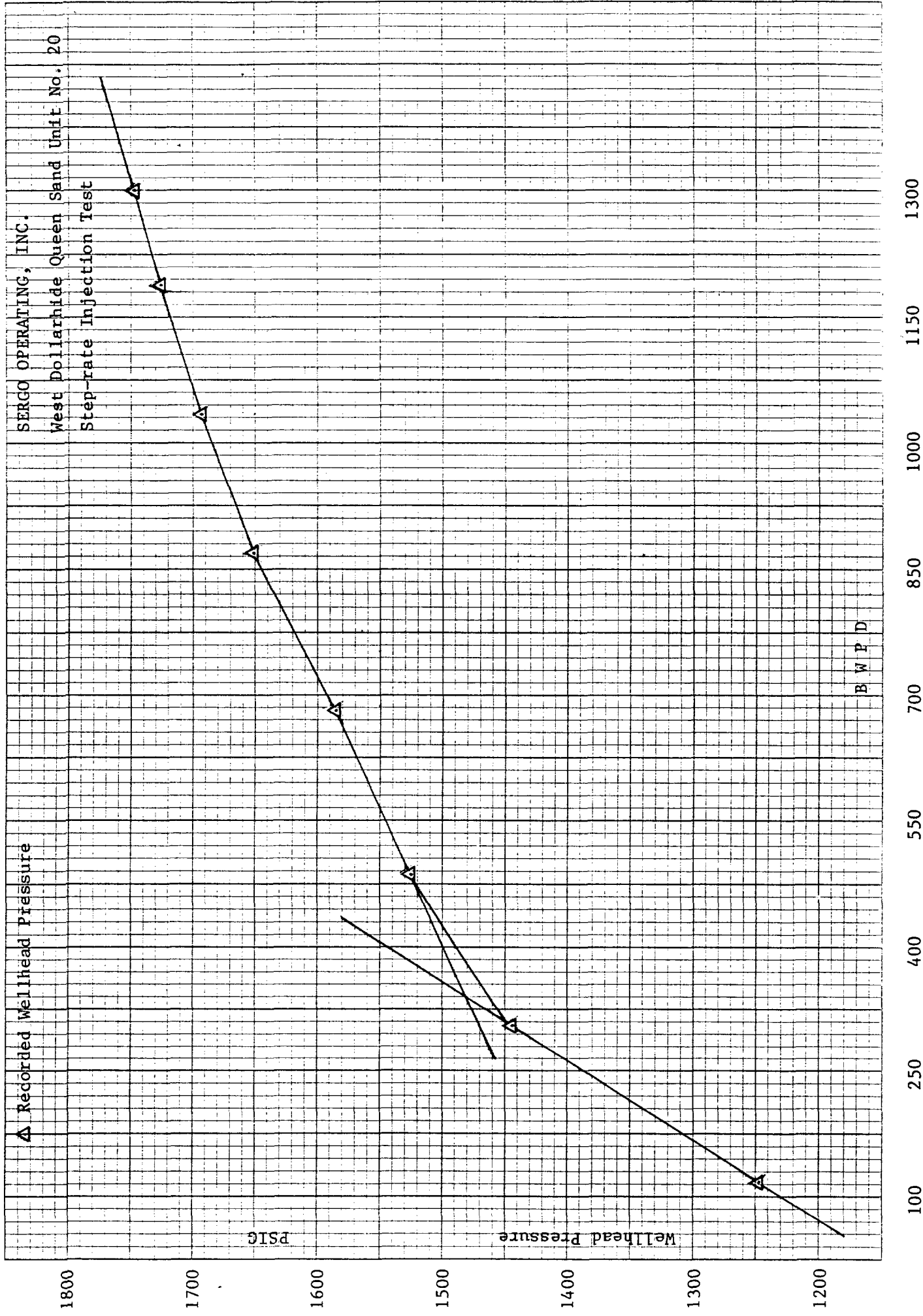
Page 2

Remarks	Time	Tbg. Press.	Rate B PD	Total	B H P	Tbg. Press.	Rate G PM	HEAD LOSS
	1:14	1738.00	1087.20	23.91				
	1:16	1727.70	1080.00	25.41				
	1:18	1712.40	1101.60	26.94				
	1:20	1714.90	1101.60	28.47				
Rate 7	1:22	1726.50	1087.20	29.98				
	1:24	1802.0	1324.80	31.82				
	1:26	1749.60	1317.60	33.65				
	1:28	1716.30	1288.80	35.44				
	1:30	1692.00	1332.00	37.29				
Rate 8	1:32	1675.3	1317.60	39.12				
	1:34	1668.80	1468.80	41.16				
	1:36	1648.20	1504.80	43.25				
	1:38	1637.80	1497.60	45.33				
	1:40	1623.70	1468.80	47.37				
Rate 9	1:42	1610.80	1490.40	49.44				
	1:44	1647.90	1692.00	51.79				
	1:46	1643.90	1720.80	54.18				
	1:48	1631.00	1735.20	56.59				
	1:50	1623.30	1670.40	58.91				
Rate 10	1:52	1618.30	1713.60	61.29				
Fall-Off	1:52:16	1398.10						
	1:53	1377.60						
	1:54	1357.10						
	1:55	1345.60						
	1:56	1334.10						
	1:57	1326.30						
	1:58	1317.30						
	1:59	1312.10						
	2:00	1306.90						
	2:01	1299.20						
	2:02	1292.70						
	2:03	1287.60						
	2:04	1281.20						
	2:05	1277.30						

SERGO OPERATING, INC.

West Dollarhide Queen Sand Unit No. 20

Step-rate Injection Test



JOHN WEST ENGINEERING CO.
Step Rate Injection Test

Well Name West Dollarhide Queen Sand Unit #20

Date 10-9-89

CO. Name Sergo Operating, Inc.

Page 1

Remarks	Time	Tbg. Press.	Rate BPD	Total	BHP	Tbg. Press.	Rate GPM	HEAD LOSS
	8:56	940.0		0				
	8:58	1138.20	129.60	.18				
	9:00	1159.80	115.20	.34				
	9:02	1195.50	108.00	.49				
	9:04	1197.90	115.20	.65				
Rate 1	9:06	1247.70	115.20	.81				
	9:08	1383.40	288.00	1.21				
	9:10	1419.20	309.60	1.64				
	9:12	1428.00	309.60	2.07				
	9:14	1427.90	302.40	2.49				
Rate 2	9:16	1443.20	324.00	2.94				
	9:18	1527.60	475.20	3.60				
	9:20	1517.30	475.20	4.26				
	9:22	1530.10	496.80	4.95				
	9:24	1527.30	496.80	5.64				
Rate 3	9:26	1526.10	482.40	6.31				
	9:28	1583.70	676.80	7.25				
	9:30	1588.70	676.80	8.19				
	9:32	1590.00	655.20	9.10				
	9:34	1588.60	691.20	10.06				
Rate 4	9:36	1587.30	698.40	11.03				
	9:38	1660.20	864.00	12.23				
	9:40	1651.20	856.80	13.42				
	9:42	1657.50	878.40	14.64				
	9:44	1651.10	885.60	15.87				
Rate 5	9:46	1651.10	856.80	17.06				
	9:48	1702.30	1058.40	18.53				
	9:50	1694.50	1036.80	19.97				
	9:52	1676.50	1000.80	21.36				
	9:54	1680.30	1036.80	22.80				
Rate 6	9:56	1693.10	1036.80	24.24				

JOHN WEST ENGINEERING CO.

Step Rate Injection Test

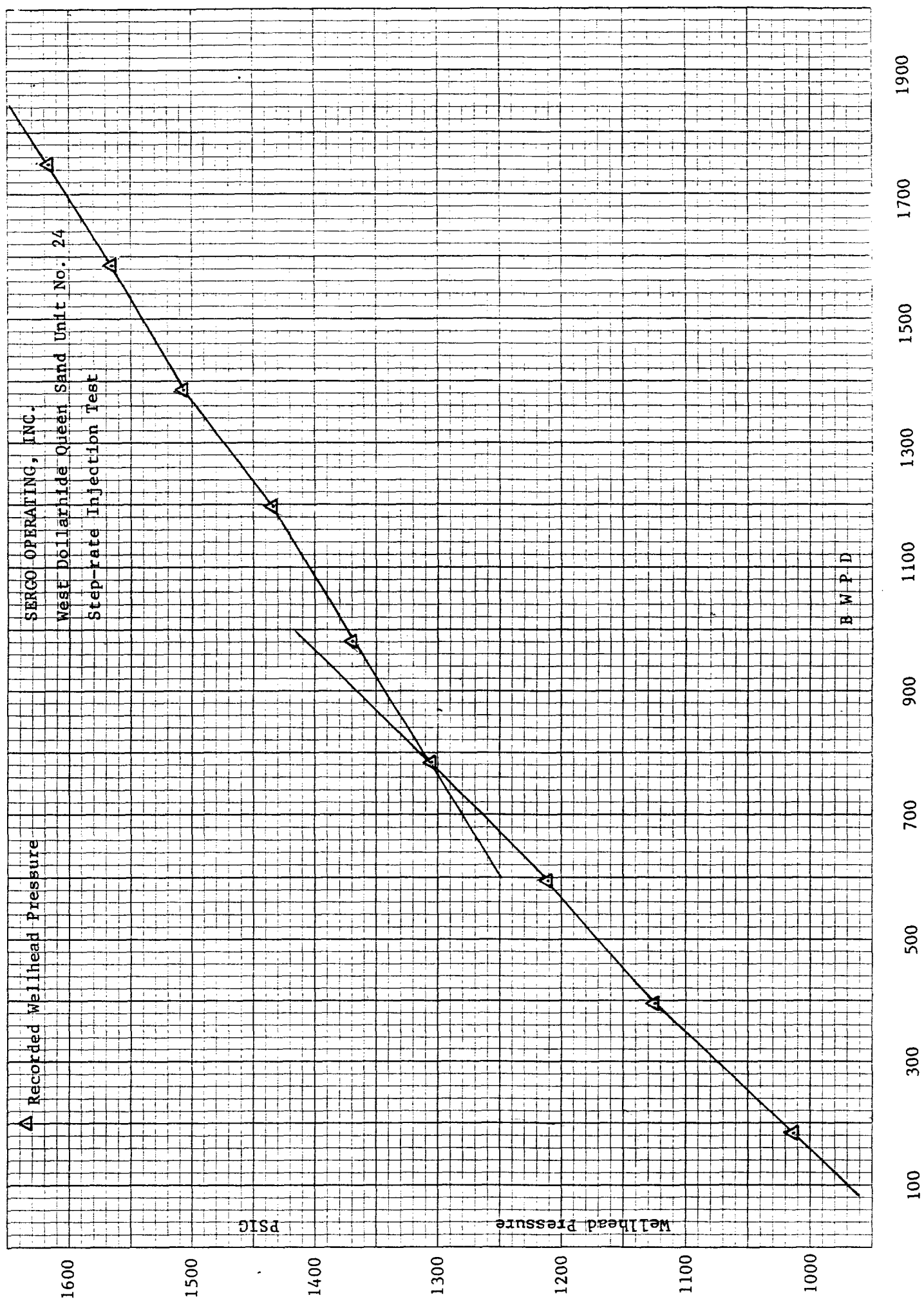
Well Name West Dollarhide Queen Sand Unit #20

Date 10-9-89

CO. Name Sergo Operating, Inc.

Page 2

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JOHN WEST ENGINEERING CO.
Step Rate Injection Test

Well Name West Dollarhide Queen Sand Unit #24

Date 10-9-89

CO. Name Sergo Operating, Inc.

Page 1

Remarks	Time	Tbg. Press.	Rate B P D	Total	B H P	Tbg. Press.	Rate G P M	HEAD LOSS
	11:22	949.90		0				
	11:24	1008.60	172.80	.24				
	11:26	1013.50	201.60	.52				
	11:28	996.70	187.20	.78				
	11:30	1015.70	180.00	1.03				
Rate 1	11:32	1013.00	172.80	1.27				
	11:34	1091.10	381.60	1.80				
	11:36	1100.10	388.80	2.34				
	11:38	1114.10	410.40	2.91				
	11:40	1117.80	403.20	3.47				
Rate 2	11:42	1125.40	403.20	4.03				
	11:44	1194.30	590.40	4.85				
	11:46	1200.60	612.00	5.70				
	11:48	1208.20	568.80	6.49				
	11:50	1209.50	597.60	7.32				
Rate 3	11:52	1210.80	612.00	8.17				
	11:54	1282.50	763.20	9.23				
	11:56	1291.50	799.20	10.34				
	11:58	1295.30	792.00	11.44				
	12:00	1295.30	777.60	12.52				
Rate 4	12:02	1304.30	792.00	13.62				
	12:04	1374.80	964.80	14.96				
	12:06	1369.80	979.20	16.32				
	12:08	1371.10	1000.80	17.71				
	12:10	1363.40	993.60	19.09				
Rate 5	12:12	1369.80	964.80	20.43				
	12:14	1438.80	1195.20	22.09				
	12:16	1436.10	1209.60	23.77				
	12:18	1434.70	1159.20	25.38				
	12:20	1434.60	1202.40	27.05				
Rate 6	12:22	1433.30	1224.00	28.75				

JOHN WEST ENGINEERING CO.
Step Rate Injection Test

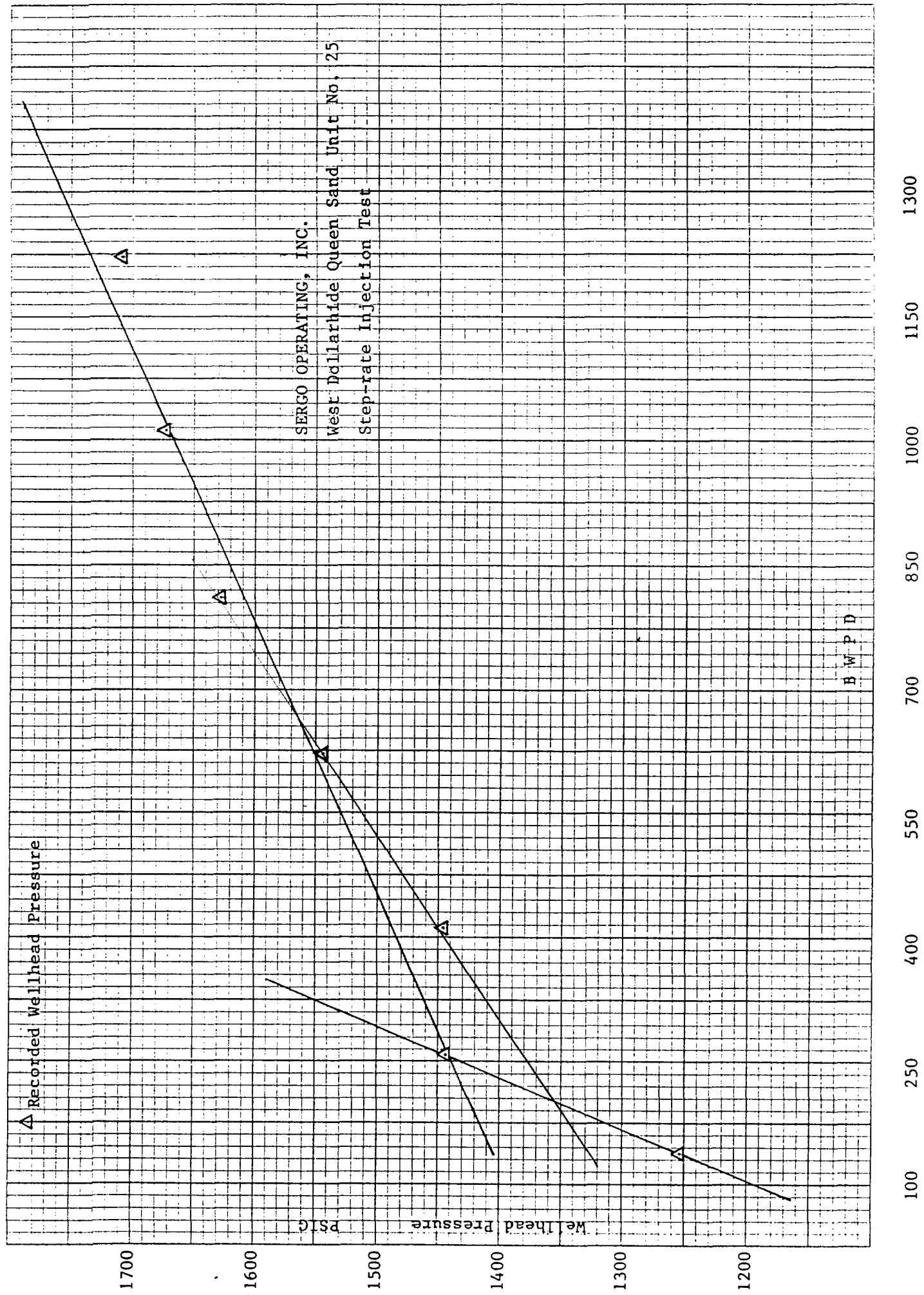
Well Name West Dollarhide Queen Sand Unit #24

Date 10-9-89

CO. Name Sergo Operating, Inc.

Page 2

Remarks	Time	Tbg. Press.	Rate BPD	Total	BHP	Tbg. Press.	Rate GPM	HEAD LOSS
	12:24	1505.00	1346.40	30.62				
	12:26	1506.40	1411.20	32.58				
	12:28	1506.40	1404.00	34.53				
	12:30	1501.20	1368.00	36.43				
Rate 7	12:32	1507.50	1404.00	38.38				
	12:34	1583.00	1612.80	40.62				
	12:36	1585.50	1555.20	42.78				
	12:38	1579.00	1634.40	45.05				
	12:40	1576.50	1562.40	47.22				
Rate 8	12:42	1565.00	1562.40	49.39				
	12:44	1630.40	1548.00	51.54				
	12:46	1627.90	1972.80	54.28				
	12:48	1622.70	1699.20	56.64				
	12:50	1616.30	1756.80	59.08				
Rate 9	12:52	1617.50	1771.20	61.54				
	12:54	1678.90	1857.60	64.12				
	12:56	1671.10	1908.00	66.77				
	12:58			69.57 Out of Water				
Fall-off	12:58:39	1208.80		1:13	1156.50			
	12:59	1201.10		1:14	1155.20			
	1:00	1185.80		1:15	1155.10			
	1:01	1180.60						
	1:02	1176.80						
	1:03	1174.20						
	1:04	1173.00						
	1:05	1170.40						
	1:06	1169.20						
	1:07	1166.70						
	1:08	1164.10						
	1:09	1162.90						
	1:10	1161.60						
	1:11	1159.00						
	1:12	1157.70						



JOHN WEST ENGINEERING CO.
Step Rate Injection Test

Well Name West Dollarhide Queen Sand Unit #25

Date 10-10-89

CO. Name Sergo Operating, Inc.

Page 1

Remarks	Time	Tbg. Press.	Rate B P D	Total	B H P	Tbg. Press.	Rate G P M	HEAD LOSS
	8:42	895.4		0				
	8:44	1154.9	115.20	.16				
	8:46	1259.60	129.60	.34				
	8:48	1272.20	165.60	.57				
	8:50	1240.00	144.00	.77				
Rate 1	8:52	1252.70	136.80	.96				
	8:54	1374.20	252.00	1.31				
	8:56	1386.90	244.80	1.65				
	8:58	1416.20	259.20	2.01				
	9:00	1418.60	259.20	2.37				
Rate 2	9:02	1444.00	273.60	2.75				
	9:04	1507.90	432.00	3.35				
	9:06	1501.30	424.80	3.94				
	9:08	1533.20	374.40	4.46				
	9:10	1476.70	432.00	5.06				
Rate 3	9:12	1445.80	396.00	5.61				
	9:14	1549.40	619.20	6.47				
	9:16	1556.90	619.20	7.33				
	9:18	1558.10	640.80	8.22				
	9:20	1547.70	633.60	9.10				
Rate 4	9:22	1543.80	597.60	9.93				
	9:24	1606.40	820.80	11.07				
	9:26	1624.20	813.60	12.20				
	9:28	1639.50	792.00	13.30				
	9:30	1644.50	813.50	14.43				
Rate 5	9:32	1627.70	820.80	15.57				
	9:34	1677.50	979.20	16.93				
	9:36	1686.40	1008.00	18.33				
	9:38	1702.90	1008.00	19.73				
	9:40	1674.70	1000.80	21.12				
Rate 6	9:42	1672.20	1058.40	22.59				

JOHN WEST ENGINEERING CO.
Step Rate Injection Test

Well Name West Dollarhide Queen Sand Unit #25

Date 10-10-89

CO. Name Sergo Operating, Inc.

Page 2

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Δ Recorded Wellhead Pressure

SERGO OPERATING, INC.
West Dollarhide Queen Sand Unit No. 36
Step-rate Injection Test

PSIG

Wellhead Pressure

B W P D

100 300 500 700 900 1100 1300 1500 1700

1800

1700

1600

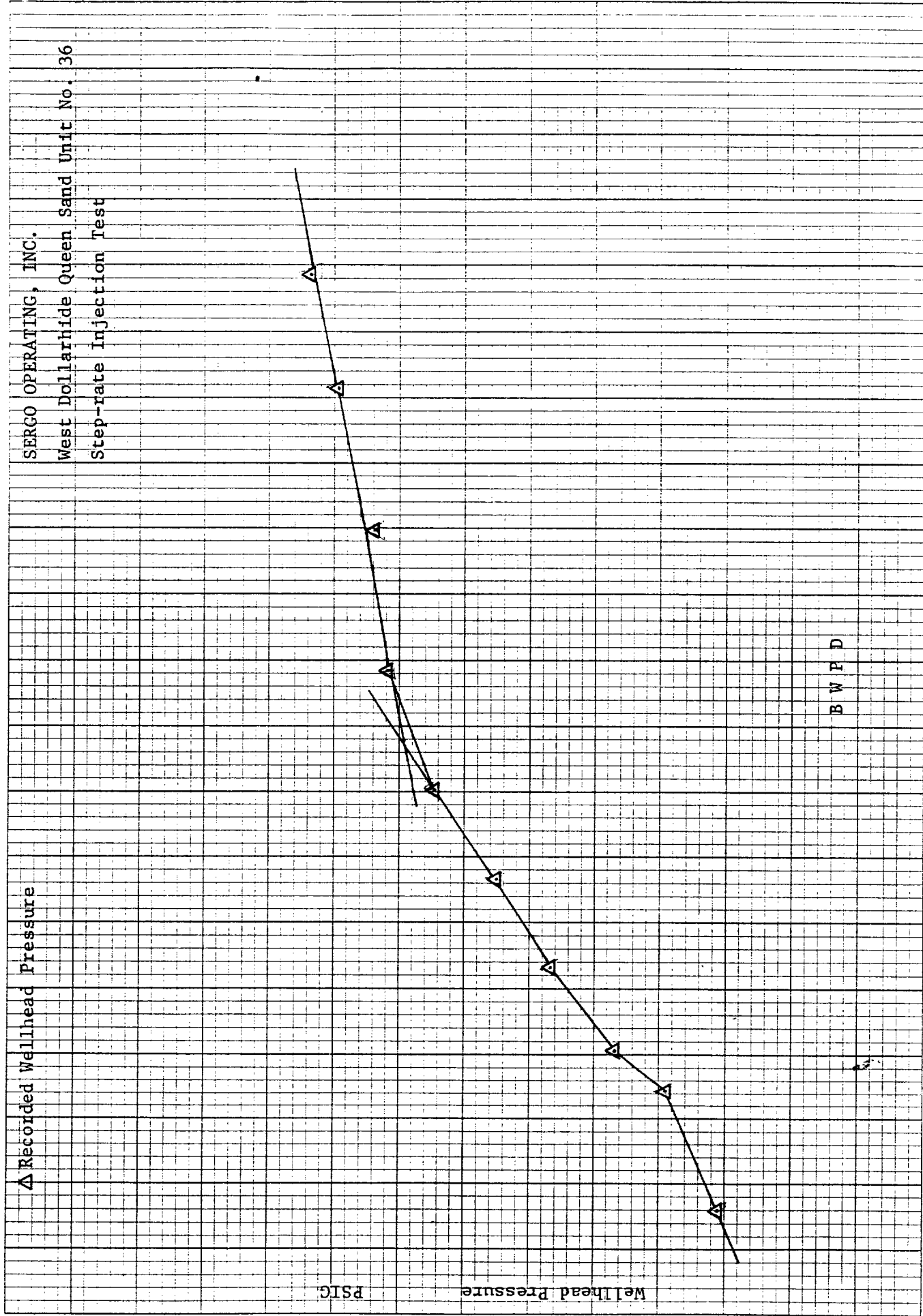
1500

1400

1300

1200

1100



JOHN WEST ENGINEERING CO.
Step Rate Injection Test

Well Name West Dollarhide Queen Sand Unit #36

Date 10-3-89

CO. Name Sergo Operating, Inc.

Page 1

Remarks	Time	Tbg. Press.	Rate B P D	Total	B H P	Tbg. Press.	Rate G P M	HEAD LOSS
			Shut In	24 Hrs.				
	12:32	1031.8		0				
	12:34	1075.10	165.60	.23				
	12:36	1063.30	115.20	.39				
	12:38	1072.00	93.60	.52				
	12:40	1103.80	208.80	.81				
Rate 1	12:42	1111.30	216.00	1.11				
	12:44	1202.10	345.60	1.59				
	12:46	1189.20	367.20	2.10				
	12:48	1195.50	324.00	2.55				
	12:50	1196.70	338.40	3.02				
Rate 2	12:52	1192.80	345.60	3.50				
	12:54	1255.50	410.40	4.07				
	12:56	1258.00	424.80	4.66				
	12:58	1251.60	410.40	5.23				
	1:00	1257.90	396.00	5.78				
Rate 3	1:02	1268.10	381.60	6.31				
	1:04	1348.70	561.60	7.09				
	1:06	1355.10	511.20	7.80				
	1:08	1362.70	532.80	8.54				
	1:10	1365.30	511.20	9.25				
Rate 4	1:12	1370.40	547.20	10.01				
	1:14	1458.70	669.60	10.94				
	1:16	1448.40	669.60	11.87				
	1:18	1433.00	648.00	12.77				
	1:20	1436.70	669.60	13.70				
Rate 5	1:22	1449.40	662.40	14.62				
	1:24	1572.30	792.00	15.72				
	1:26	1550.50	813.60	16.85				
	1:28	1509.50	799.20	17.96				
	1:30	1553.00	777.60	19.04				
Rate 6	1:32	1544.10	828.00	20.19				

JOHN WEST ENGINEERING CO.
Step Rate Injection Test

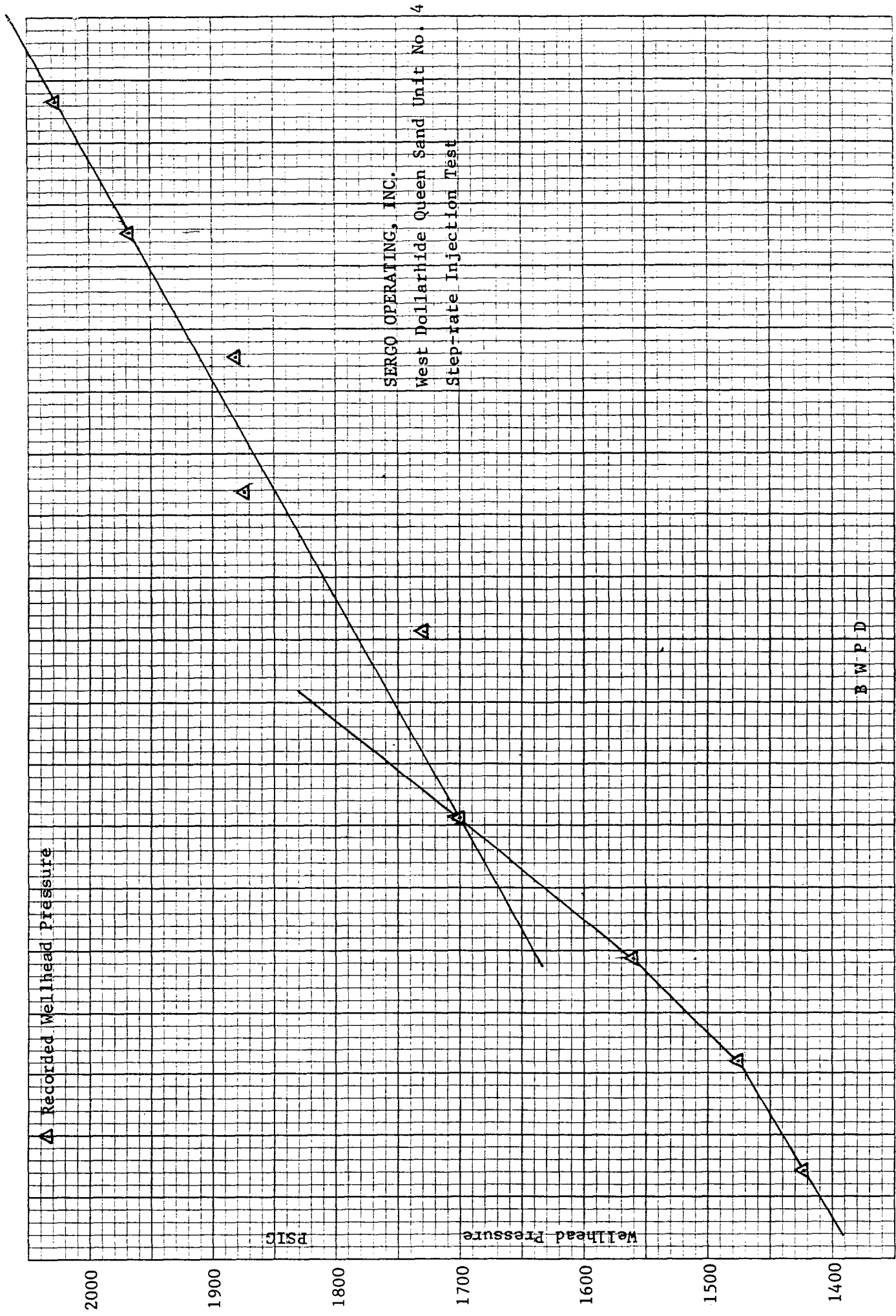
Well Name West Dollarhide Queen Sand Unit #36

Date 10-3-89

CO. Name Sergo Operating, Inc.

Page 2

Remarks	Time	Tbg. Press.	Rate B P D	Total	B H P	Tbg. Press.	Rate G P M	HEAD LOSS
	1:34	1667.00	993.60	21.57				
	1:36	1665.60	957.60	22.90				
	1:38	1666.80	979.20	24.26				
	1:40	1668.00	993.60	25.64				
Rate 7	1:42	1616.80	1000.80	27.03				
	1:44	1687.20	1188.00	28.68				
	1:46	1674.40	1202.40	30.35				
	1:48	1665.40	1188.00	32.00				
	1:50	1652.60	1202.40	33.67				
Rate 8	1:52	1637.30	1209.60	35.35				
	1:54	1711.50	1382.40	37.27				
	1:56	1705.10	1440.00	39.27				
	1:58	1701.20	1425.60	41.25				
	2:00	1701.10	1389.60	43.18				
Rate 9	2:02	1696.00	1432.80	45.17				
	2:04	1757.50	1598.40	47.39				
	2:06	1731.90	1576.80	49.58				
	2:08	1733.20	1548.00	51.73				
	2:10	1728.20	1591.20	53.94				
Rate 10	2:12	1738.50	1605.60	56.17				
Fall-Off	2:12:18	1315.9		2:25	1275.20			
	2:13	1317.20		2:26	1271.10			
	2:14	1310.80		2:27	1271.30			
	2:15	1304.3		2:28	1270.00			
	2:16	1299.20		2:29	1267.40			
	2:17	1295.40		2:30	1266.10			
	2:18	1291.50						
	2:19	1289.00						
	2:20	1286.50						
	2:21	1282.70						
	2:22	1280.20						
	2:23	1279.00						
	2:24	1276.50						



JOHN WEST ENGINEERING CO.
Step Rate Injection Test

Well Name West Dollarhide Queen Sand Unit #47

Date 10-10-89

CO. Name Sergo Operating, Inc.

Page 1

Remarks	Time	Tbg. Press.	Rate B P D	Total	B H P	Tbg. Press.	Rate G P M	HEAD LOSS
	10:46	1169.60		0				
	10:48	1357.60	115.20	.16				
	10:50	1380.50	129.60	.34				
	10:52	1370.10	115.20	.50				
	10:54	1396.90	122.40	.67				
Rate 1	10:56	1422.40	172.80	.91				
	10:58	1464.60	259.20	1.27				
	11:00	1432.40	273.60	1.65				
	11:02	1469.50	252.00	2.00				
	11:04	1478.30	266.40	2.37				
Rate 2	11:06	1475.70	273.60	2.75				
	11:08	1576.80	374.40	3.27				
	11:10	1565.20	403.20	3.83				
	11:12	1565.10	396.00	4.38				
	11:14	1558.70	381.60	4.91				
Rate 3	11:16	1559.90	396.00	5.46				
	11:18	1704.50	576.00	6.26				
	11:20	1695.40	540.00	7.01				
	11:22	1701.80	561.60	7.79				
	11:24	1704.30	568.80	8.58				
Rate 4	11:26	1700.30	554.40	9.35				
	11:28	1818.00	806.40	10.47				
	11:30	1849.90	770.40	11.54				
	11:32	1843.40	756.00	12.59				
	11:34	1762.60	777.60	13.67				
Rate 5	11:36	1729.20	799.20	14.78				
	11:38	1861.00	943.20	16.09				
	11:40	1906.90	957.60	17.42				
	11:42	1933.70	950.40	18.74				
	11:44	1871.00	928.80	20.03				
Rate 6	11:46	1874.00	986.40	21.40				

Date 10-10-89

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