

CASE 6847: TENNECO OIL COMPANY FOR RUAL
COMPLETERS AND DOWNHOLE COMMINGLING, SAN
JUAN COUNTY, NEW MEXICO

CASE NO.

6847

APPLICATION,
TRANSCRIPTS,
SMALL EXHIBITS

ETC.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

May 20, 1981

Tenneco Oil Company
Exploration and Production Co.
P. O. Box 3249
Englewood, Colorado 80155

Attention: Mr. Carley Watkins

Re: W. C. Union A Well No. 1
Unit B, Section 28, Township
29 North, Range 11 East,
San Juan County, New Mexico

REPLY:

Reference is made to your application dated
January 16, 1981, for authority to complete the
Mogavero production in the well-bore of the subject well
and to then further complete to also produce Dakota through
a separate string of tubing.

Order No. R-6313 authorized this member of
completion for a well to be located in Unit A of the same
section.

To the well in Unit A is authorized to be a
completion for the one previously authorized for Unit A, and
to then further complete to also produce Dakota through
a separate string of tubing.

Very truly yours,
[Signature]
[Signature]

Page
STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
26 March 1980
EXAMINER HEARING

IN THE MATTER OF:
Application of Tenneco Oil Company
for dual completions and downhole
commingling, San Juan County, New
Mexico.

CASE
6847

BEFORE: Richard L. Stenets

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation
Division:

Robert L. Padilla, Pao.
Agent Counsel to the Division
Santa Fe, New Mexico 87501

For the Applicant:

W. Thomas Gellish, Pao.
Counsel & Engineer
383 San Carlos
Santa Fe, New Mexico 87501

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by Mr. Padilla

by Mr. Padilla

RALLY '84. 2015, O.O.R.
 Rt. 1 Box 1954B
 South St., New York 07201
 Phone (201) 453-7509

REFERENCES

- 4 Applicant Exhibit One, Document
5 Applicant Exhibit Two, Plat
6 Applicant Exhibit Three, Map
7 Applicant Exhibit Four, Log
8 Applicant Exhibit Five, Cross Section
9 Applicant Exhibit Six, Log
10 Applicant Exhibit Seven, Cross Section
11 Applicant Exhibit Eight, Graph
12 Applicant Exhibit Nine, Gas Analysis
13 Applicant Exhibit Ten, Gas Analysis
14 Applicant Exhibit Eleven, Document
15 Applicant Exhibit Twelve, Schematic
16 Applicant Exhibit Thirteen, Document
17 Applicant Exhibit Fourteen, Schematic
18 Applicant Exhibit Fifteen, Document
19 Applicant Exhibit Sixteen, Document
20 Applicant Exhibit Seventeen, Document
21 Applicant Exhibit Eighteen, Table
22 Applicant Exhibit Nineteen, Table

SALLY W. BOYD, O.S.R.
Rt. 1 Box 197-B
Sausalito, New Mexico 87801
Phone (505) 455-7409

1 MR. STAMETS: We'll call next Case 6847.
2 MR. PABLOA: Application of Tenneco Oil
3 Company for dual completions and dewatering, San
4 Juan County, New Mexico.
5 MR. STAMETS: Call for appearances in this
6 case.
7 MR. KELLAHIN: Tom Kellahin of Santa Fe,
8 New Mexico, appearing on behalf of the applicant, and I
9 have two witnesses.
10 MR. STAMETS: I'd like to have them stand
11 and be sworn, please.

13 (Witnesses sworn).

15 CAROLYN PUNNEY
16 being called as a witness and having been duly sworn upon
17 her oath, testified as follows, to-wit:

SALV. M. BOYD, C.S.B.
May 2 Day 1963
St. Paul, New England
Page 159 (159-160)

1 before the Oil Conservation Division?
2 A. No, I have not.
3 Q Will you describe for the Examiner when
4 and where you obtained your degree?
5 A. I graduated in 1914 from Stephen F.
6 Austin State University, it's in Maccondoches, Texas, with
7 a BS in geology.
8 Q Subsequent to graduation where have you
9 been employed as a geologist?
10 A. I spent four and a half years with Sun
11 Oil Company and the first year and a half was as a research
12 geophysicist; the next three years were as a production
13 geologist, and then I joined Tenneco Oil Company a year and
14 a half ago as a geological engineer, and as of December of
15 this year I was a senior geological engineer.
16 Q Pursuant to your employment as a geologist
17 with Tenneco, have you made a study of and are you familiar
18 with the geological facts surrounding this particular re-
19 sultation?
20 A. Yes, sir.
21 Q Now, Mr. MURKIN, we wonder Mr. Murphy is
22 an expert geologist.
23 A. Yes, sir. You witness in confidence
24 qualified.
25 Q Would you please tell me what your

SALLY W. BOND, O.S.R.
 R. 1 Box 153-B
 Santa Fe, New Mexico 87501
 Phone (505) 451-7489

marked as Exhibits One, and I think it might be helpful if we also looked at the same time at Exhibit Number Two.

And, Ms. Peavey, if you'll begin your testimony by looking at Exhibit Number Two and identifying for us, first of all, how the wells you propose to complete as Chacra-Mesaverde downhole commingled wells, how those wells are identified and where they are located.

A. Okay. The Mesaverde-Chacra commingled are the locations that are just a single dot. That would be the northwest quarter of Section 19, Township 23 North, 10 West; the northwest quarter of Section 30, Township 23 North, 10 West; southeast quarter of Section 21, 26 North, 11 West; the northwest quarter of Section 25, 29 North, 11 West; and the southeast quarter of Section 23, 29 North, 11 West.

Q. And each of those five wells for which you propose a program for the downhole completion, the Mesaverde and Chacra are identified as commingled wells, is that correct, are they not?

A. Yes, they are, the first three wells, the second three wells.

Q. All right, what is identified for those wells as the well log and the electric record show with the

SALEM, N.J. (UPI) — A.C.N.

mingled.

Q Now let's start off with the spacing in the Chacra for this area. What will be the spacing for the Chacra wells?

A The spacing on the Chacra is 160's.

Q Okay. What is the spacing for each well to be completed in the Dakota formation?

A Okay, they will be on 320's. The wells -- well, the -- it's 320 spacing now. Section 19 will be the west half, and the spacing in the well, the Dakota well in Section 20 will be in the north half. Going to Section 24, 28 North, 11 West, it will be the east half. Going to Section 25, it's split, east half/west half.

Q All right. Now, the five Dakota wells involved, are these original Dakota wells on a production unit or are these initial Dakota wells?

A These will be initial wells.

Q So an example of five production wells that already existed on original Dakota production.

A This is true.

Q And would you like to state whether or not they are at the same location where the Dakota wells are, that are involved in the production unit?

A They are at the same location where the Dakota wells are, that are involved in the production unit.

66-11174-1070, 1071, 1072, 1073, 1074
 66-11174-1075, 1076, 1077, 1078, 1079, 1080, 1081, 1082, 1083, 1084, 1085, 1086, 1087, 1088, 1089, 1090, 1091, 1092, 1093, 1094, 1095, 1096, 1097, 1098, 1099, 1100, 1101, 1102, 1103, 1104, 1105, 1106, 1107, 1108, 1109, 1110, 1111, 1112, 1113, 1114, 1115, 1116, 1117, 1118, 1119, 1120, 1121, 1122, 1123, 1124, 1125, 1126, 1127, 1128, 1129, 1130, 1131, 1132, 1133, 1134, 1135, 1136, 1137, 1138, 1139, 1140, 1141, 1142, 1143, 1144, 1145, 1146, 1147, 1148, 1149, 1150, 1151, 1152, 1153, 1154, 1155, 1156, 1157, 1158, 1159, 1160, 1161, 1162, 1163, 1164, 1165, 1166, 1167, 1168, 1169, 1170, 1171, 1172, 1173, 1174, 1175, 1176, 1177, 1178, 1179, 1180, 1181, 1182, 1183, 1184, 1185, 1186, 1187, 1188, 1189, 1190, 1191, 1192, 1193, 1194, 1195, 1196, 1197, 1198, 1199, 1200, 1201, 1202, 1203, 1204, 1205, 1206, 1207, 1208, 1209, 1210, 1211, 1212, 1213, 1214, 1215, 1216, 1217, 1218, 1219, 1220, 1221, 1222, 1223, 1224, 1225, 1226, 1227, 1228, 1229, 1230, 1231, 1232, 1233, 1234, 1235, 1236, 1237, 1238, 1239, 1240, 1241, 1242, 1243, 1244, 1245, 1246, 1247, 1248, 1249, 1250, 1251, 1252, 1253, 1254, 1255, 1256, 1257, 1258, 1259, 1260, 1261, 1262, 1263, 1264, 1265, 1266, 1267, 1268, 1269, 1270, 1271, 1272, 1273, 1274, 1275, 1276, 1277, 1278, 1279, 1280, 1281, 1282, 1283, 1284, 1285, 1286, 1287, 1288, 1289, 1290, 1291, 1292, 1293, 1294, 1295, 1296, 1297, 1298, 1299, 1300, 1301, 1302, 1303, 1304, 1305, 1306, 1307, 1308, 1309, 1310, 1311, 1312, 1313, 1314, 1315, 1316, 1317, 1318, 1319, 1320, 1321, 1322, 1323, 1324, 1325, 1326, 1327, 1328, 1329, 1330, 1331, 1332, 1333, 1334, 1335, 1336, 1337, 1338, 1339, 1340, 1341, 1342, 1343, 1344, 1345, 1346, 1347, 1348, 1349, 1350, 1351, 1352, 1353, 1354, 1355, 1356, 1357, 1358, 1359, 1360, 1361, 1362, 1363, 1364, 1365, 1366, 1367, 1368, 1369, 1370, 1371, 1372, 1373, 1374, 1375, 1376, 1377, 1378, 1379, 1380, 1381, 1382, 1383, 1384, 1385, 1386, 1387, 1388, 1389, 1390, 1391, 1392, 1393, 1394, 1395, 1396, 1397, 1398, 1399, 1400, 1401, 1402, 1403, 1404, 1405, 1406, 1407, 1408, 1409, 1410, 1411, 1412, 1413, 1414, 1415, 1416, 1417, 1418, 1419, 1420, 1421, 1422, 1423, 1424, 1425, 1426, 1427, 1428, 1429, 1430, 1431, 1432, 1433, 1434, 1435, 1436, 1437, 1438, 1439, 1440, 1441, 1442, 1443, 1444, 1445, 1446, 1447, 1448, 1449, 1450, 1451, 1452, 1453, 1454, 1455, 1456, 1457, 1458, 1459, 1460, 1461, 1462, 1463, 1464, 1465, 1466, 1467, 1468, 1469, 1470, 1471, 1472, 1473, 1474, 1475, 1476, 1477, 1478, 1479, 1480, 1481, 1482, 1483, 1484, 1485, 1486, 1487, 1488, 1489, 1490, 1491, 1492, 1493, 1494, 1495, 1496, 1497, 1498, 1499, 1500, 1501, 1502, 1503, 1504, 1505, 1506, 1507, 1508, 1509, 1510, 1511, 1512, 1513, 1514, 1515, 1516, 1517, 1518, 1519, 1520, 1521, 1522, 1523, 1524, 1525, 1526, 1527, 1528, 1529, 1530, 1531, 1532, 1533, 1534, 1535, 1536, 1537, 1538, 1539, 1540, 1541, 1542, 1543, 1544, 1545, 1546, 1547, 1548, 1549, 1550, 1551, 1552, 1553, 1554, 1555, 1556, 1557, 1558, 1559, 1560, 1561, 1562, 1563, 1564, 1565, 1566, 1567, 1568, 1569, 1570, 1571, 1572, 1573, 1574, 1575, 1576, 1577, 1578, 1579, 1580, 1581, 1582, 1583, 1584, 1585, 1586, 1587, 1588, 1589, 1590, 1591, 1592, 1593, 1594, 1595, 1596, 1597, 1598, 1599, 1600, 1601, 1602, 1603, 1604, 1605, 1606, 1607, 1608, 1609, 1610, 1611, 1612, 1613, 1614, 1615, 1616, 1617, 1618, 1619, 1620, 1621, 1622, 1623, 1624, 1625, 1626, 1627, 1628, 1629, 1630, 1631, 1632, 1633, 1634, 1635, 1636, 1637, 1638, 1639, 1640, 1641, 1642, 1643, 1644, 1645, 1646, 1647, 1648, 1649, 1650, 1651, 1652, 1653, 1654, 1655, 1656, 1657, 1658, 1659, 1660, 1661, 1662, 1663, 1664, 1665, 1666, 1667, 1668, 1669, 1670, 1671, 1672, 1673, 1674, 1675, 1676, 1677, 1678, 1679, 1680, 1681, 1682, 1683, 1684, 1685, 1686, 1687, 1688, 1689, 1690, 1691, 1692, 1693, 1694, 1695, 1696, 1697, 1698, 1699, 1700, 1701, 1702, 1703, 1704, 1705, 1706, 1707, 1708, 1709, 1710, 1711, 1712, 1713, 1714, 1715, 1716, 1717, 1718, 1719, 1720, 1721, 1722, 1723, 1724, 1725, 1726, 1727, 1728, 1729, 1730, 1731, 1732, 1733, 1734, 1735, 1736, 1737, 1738, 1739, 1740, 1741, 1742, 1743, 1744, 1745, 1746, 1747, 17

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Exhibit Number eleven and describe for us how the proposed Mesaverde-Chacra commingled wells are going to be drilled and completed?

Q Now, on these type wells we plan to drill a 2 1/2-inch hole with 12 1/4 inch bit and set surface casing cementing over this area. Then we plan to drill through the Chacra formation at about approximately to a depth of approximately 3100 feet with mud and set 7-inch casing through this zone. We also plan to drill out below the 7-inch casing through the Mesaverde formation to a depth of approximately 4500 feet, with gas, log the well, and set a 4 1/2 inch dual and cement it in place over the Chacra formation.

Q Transfer as our completion is concerned, we plan to drill the well out to the total depth, perforate, acidize, and trace the Mesaverde formation, and we plan to do this in only one step because we do not feel that it is necessary to do a separate step for the Chacra formation.

Q Now, the completion for the well, we plan to set a 4 1/2 inch dual and cement it in place over the Chacra formation. We plan to drill the well out to the total depth, perforate, acidize, and trace the Mesaverde formation, and we plan to do this in only one step because we do not feel that it is necessary to do a separate step for the Chacra formation.

Q Now, the completion for the well, we plan to set a 4 1/2 inch dual and cement it in place over the Chacra formation. We plan to drill the well out to the total depth, perforate, acidize, and trace the Mesaverde formation, and we plan to do this in only one step because we do not feel that it is necessary to do a separate step for the Chacra formation.

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by perforating, acidizing, and tracing this zone. Then plan to clean -- then we plan to retrieve our retrievable bridge plug, clean up both zones, and run an AOR test on the combined Mesaverde-Chacra well.

Q While we're talking about how you're going to complete these zones, describe for us how you would propose to come up with a method of allocating the production between the Chacra and the Mesaverde formations?

A We plan to do this in a similar method as we've done with Pavedon -- with Pavedon-Pictured Cliffs, where we will set the first well -- the first zone in the well, which is the Mesaverde formation, and then after that we will complete the well in the Chacra, and then for the well in both -- with both the Chacra and Mesaverde zones producing, giving us an idea of the production from each zone.

Q Now, the completion for the well, we plan to set a 4 1/2 inch dual and cement it in place over the Chacra formation. We plan to drill the well out to the total depth, perforate, acidize, and trace the Mesaverde formation, and we plan to do this in only one step because we do not feel that it is necessary to do a separate step for the Chacra formation.

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Pictured Cliffs formations, which is a similar circumstance, where the Pavedon in that case, as the Mesaverde in this case, was a relatively weak producer, and we felt that it would be necessary just for prudent operating to have the wells commingled to make sure that that would keep -- keep the Pavedon producing, and this is the method we used on these wells, and this is what we propose to do here.

Q Was the method of completion on the Pavedon-Pictured Cliffs commingled production one approved by the oil conservation committee?

A Yes, sir, it was.

Q Could you turn to Exhibit Number twelve and identify that schematic for us?

A This is a schematic of our proposed Mesaverde-Chacra commingled wells, showing a 2 1/2 inch hole with 12 1/4 inch bit and set surface casing cementing over this area. Then we plan to drill through the Chacra formation at about approximately to a depth of approximately 3100 feet with mud and set 7-inch casing through this zone. We also plan to drill out below the 7-inch casing through the Mesaverde formation to a depth of approximately 4500 feet, with gas, log the well, and set a 4 1/2 inch dual and cement it in place over the Chacra formation.

Q Now, the completion for the well, we plan to set a 4 1/2 inch dual and cement it in place over the Chacra formation. We plan to drill the well out to the total depth, perforate, acidize, and trace the Mesaverde formation, and we plan to do this in only one step because we do not feel that it is necessary to do a separate step for the Chacra formation.

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possibility, if the Mesaverde is a weaker producer, as was mentioned, that there may be some water production from the Mesaverde. We don't anticipate it being significant, but if it should become a problem in either zone, we feel the commingling of zones having a higher gas volume, because both zones will be coming up the same string of tubing, we feel that we'll get better removal of our liquids from the wellbore by commingling the wells.

Q All right, let's turn to Exhibit Number thirteen and have you talk about that exhibit, and in addition, at the same time, if you'll look at Exhibit Number fourteen, which is the schematic. Go through your completion procedure for those wells that will also include during the Dakota.

A Okay. These wells, again, we'll set 2 1/2 inch hole with 12 1/4 inch bit and set surface casing cementing over this area. Then we plan to drill through the Chacra formation at about approximately to a depth of approximately 3100 feet with mud and set 7-inch casing through this zone. We also plan to drill out below the 7-inch casing through the Mesaverde formation to a depth of approximately 4500 feet, with gas, log the well, and set a 4 1/2 inch dual and cement it in place over the Chacra formation.

Q Now, the completion for the well, we plan to set a 4 1/2 inch dual and cement it in place over the Chacra formation. We plan to drill the well out to the total depth, perforate, acidize, and trace the Mesaverde formation, and we plan to do this in only one step because we do not feel that it is necessary to do a separate step for the Chacra formation.

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For our completion we will drill out to plug back total depth and then perforate and acidize and trace the Dakota formation in a manner similar to the method in which we complete all our Dakota wells in the San Juan Basin. We will flow this zone to clean up for a couple days. We will not run an AOR test at that time until the well has been completed and the tubing has been -- final tubing string has been landed in the Dakota.

Q But after we flow some of the water off the formation we'll set a Model P packer with an expendable plug above the Dakota formation, which will then isolate the Dakota formation.

A Well then perforate the Mesaverde formation, perforate, acidize, and trace the Mesaverde formation, clean it up, and flow the well until it is cleaned up. We will then shut it in for a couple days, perform an AOR test on this zone.

Q After that is completed we'll set a retrievable bridge plug between the Chacra and Mesaverde, and we'll complete the Chacra by perforating, acidizing, and tracing the Chacra.

A Well then remove the retrievable bridge plug, flow both zones to clean up, and run an AOR test on this zone.

Q Now, the completion for the well, we plan to set a 4 1/2 inch dual and cement it in place over the Chacra formation. We plan to drill the well out to the total depth, perforate, acidize, and trace the Mesaverde formation, and we plan to do this in only one step because we do not feel that it is necessary to do a separate step for the Chacra formation.

Q Now, the completion for the well, we plan to set a 4 1/2 inch dual and cement it in place over the Chacra formation. We plan to drill the well out to the total depth, perforate, acidize, and trace the Mesaverde formation, and we plan to do this in only one step because we do not feel that it is necessary to do a separate step for the Chacra formation.

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formation and we'll run in the hole and land our short string to produce the Mesaverde-Chacra up the short string. Then flow the well to clean up in both zones; we'll then shut the well in and run an AOR test in the Dakota formation and in the commingled Chacra-Mesaverde formations.

Q Then next --

A If I understood you correctly, then the method for determining the allocation between the Chacra and the Mesaverde in those wells that also contain a dual with the Dakota will be the same way as you're done with the other five wells that do not contain Dakota production?

A That is correct.

Q The next exhibit is just a schematic of the bottom hole assembly that we've just described with 9-5/8 inch casing set to 250 feet, 7-inch casing set to 4500 feet, and a 4 1/2 inch dual set from 4500 feet to 6400 feet. To the 7-inch casing a float will be placed at 2950 just below the Chacra formation in figure that we've shown both across the Mesaverde and the Chacra locations.

Q The well -- the Dakota formation will be produced through the Model P packer that will isolate the zone and Dakota formation and the 9-5/8 inch tubing. The Chacra and Mesaverde formations will be produced commingled through the 4 1/2 inch tubing, and a retrievable bridge plug will be set between the 4 1/2 inch tubing and the 9-5/8 inch tubing.

Q Now, the completion for the well, we plan to set a 4 1/2 inch dual and cement it in place over the Chacra formation. We plan to drill the well out to the total depth, perforate, acidize, and trace the Mesaverde formation, and we plan to do this in only one step because we do not feel that it is necessary to do a separate step for the Chacra formation.

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Case No. 6827
Order No. R-6313

Unit A, Section 25; Unit B, Section 25; and Unit C, Section 25, all in San Juan County, New Mexico.

(2) That the petitioners be further authorized to drill, complete in such a manner as to produce gas from the contemplated Chance and Newberry zones and gas from the Dakota zone five of said wells located as follows:

In Township 29 North, Range 10 West, Bath N, Section 18; Unit A, Section 25, in Township 29 North, Range 10 West, Unit B, Section 25; Unit C, Section 25; and Unit D, Section 25, each of said wells being equipped with mechanical devices or devices for a meter between the designated zones and the surface.

Provided however, that the applicant shall complete, operate, and produce said wells in accordance with the provisions of Rule 13 of the Rules and Regulations adopted by the Board of Oil and Gas Conservation of the State of New Mexico.

Provided further, that the applicant shall comply with the provisions of the rules and regulations of the Board of Oil and Gas Conservation of the State of New Mexico.

(3) That the applicant shall comply with the provisions of the rules and regulations of the Board of Oil and Gas Conservation of the State of New Mexico.

(4) That the applicant of the subject wells shall keep accurate records of the production and operations of each well and shall submit such records to the Board of Oil and Gas Conservation of the State of New Mexico.

(5) That the applicant of this order is required to file with the Board of Oil and Gas Conservation of the State of New Mexico a plan of the wells to be drilled.

(6) That the applicant of this order is required to file with the Board of Oil and Gas Conservation of the State of New Mexico a plan of the wells to be drilled.

(7) That the applicant of this order is required to file with the Board of Oil and Gas Conservation of the State of New Mexico a plan of the wells to be drilled.

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(9) That the applicant of this order is required to file with the Board of Oil and Gas Conservation of the State of New Mexico a plan of the wells to be drilled.

(10) That the applicant of this order is required to file with the Board of Oil and Gas Conservation of the State of New Mexico a plan of the wells to be drilled.

STATE OF NEW MEXICO
DEPARTMENT OF ENERGY AND MINERALS
OIL CONSERVATION DIVISION

MARCH 26, 1960

EXHIBITS

TENNOCO OIL COMPANY
1980 BLOOMFIELD AREA DRILLING PROGRAM
WELL SUMMARY

CHACRA-DESA VERDE-DAKOTA WELLS

WELL	LOCATION
1. Margolis G. Eaton AIB	NE-29-29-11
2. Elvin J. Payne AIB	SW-10-29-10
3. Sullivan Frank Gas AIB	NE-10-29-10
4. Sullivan Gas AIB	SE-25-29-11
5. Valdez Gas AIB	NE-24-29-11

CHACRA-DESA VERDE WELLS

WELL	LOCATION
1. Bruce Com 1	NE-29-29-10
2. Eaton Com B-1	SE-25-29-11
3. Bruce Sullivan Com B-1	NE-10-29-11
4. Sullivan Frank Com B-1	NE-10-29-10
5. Valdez Com B-1	SE-24-29-11

TYPE LOG
CHACRA FM.

GETTY OIL COMPANY
HANLEY B-1
SW/4 SEC. 18 T29N-R10W
SAN JUAN COUNTY, NEW MEXICO

HP: 751 HOPD
44764 GR
PERF: 2032 30
GWFP: 21000 GAUS.
20,000 LBS SAND
1P 20 30 200, 617 80

HANLEY
TOP
CHACRA
2032
(2634)

WELL NO. 1
WELL NAME
WELL DATE
WELL DATE

TYPE LOG	WELL NO.	WELL NAME	WELL DATE
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9
10	10	10	10

WELL NO. 1
WELL NAME
WELL DATE
WELL DATE

WELL NO. 1
WELL NAME
WELL DATE
WELL DATE

TYPE LOG	WELL NO.	WELL NAME	WELL DATE
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3	3	3	3
4	4	4	4
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8	8	8	8
9	9	9	9
10	10	10	10

WELL NO. 1
WELL NAME
WELL DATE
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TENNECO OIL COMPANY
1980 BLOOMFIELD AREA DRILLING PROGRAM
DRILLING AND COMPLETION PROCEDURE
COMINGLED MESA VERDE-CHACRA WELLS

DRILLING

1. Drill 12-1/4" hole to 250'.
2. Set 9-5/8" casing and cement to surface.
3. Drill 8-3/4" hole thru Chacra to = 3100'.
4. Set 7" csg and cement to surface.
5. Drill 6-1/4" hole thru Mesa Verde to = 4500'.
6. Run open hole logs over Mesa Verde and cased hole logs over Chacra.
7. Set 4-1/2" liner from 4500' to 2900'.
8. Cement liner in place.

COMPLETION

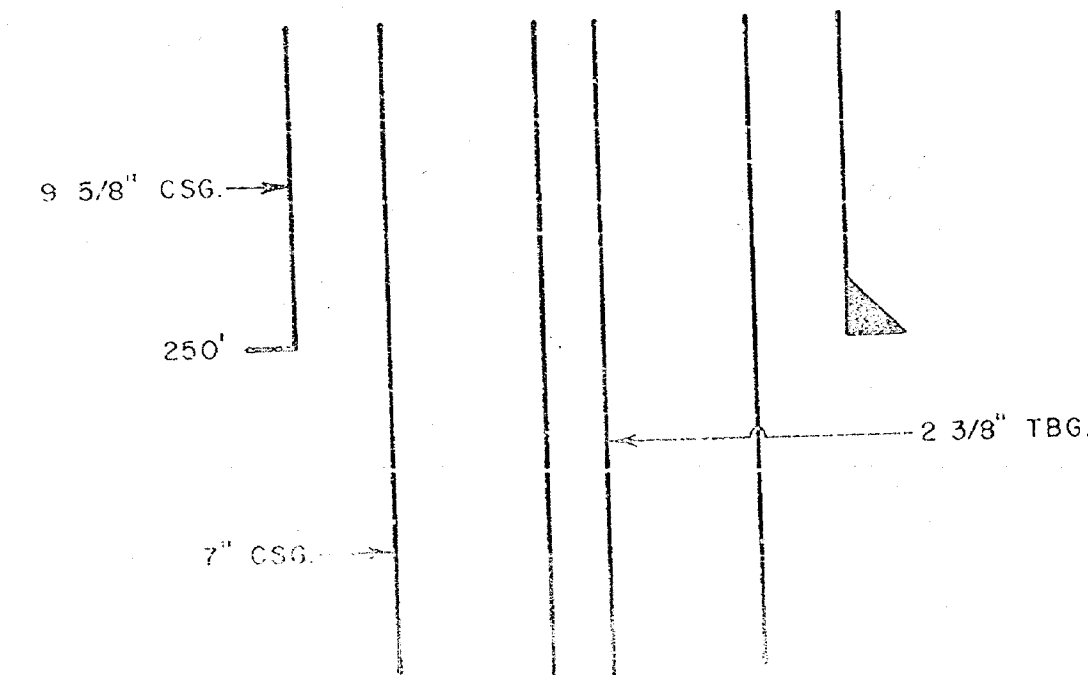
1. Drill out to plug back total depth.
2. Perforate Mesa Verde (= 50') with 2 shots per foot.
3. Acidize Mesa Verde with 1000 gals 15% HCL and ball sealers.
4. Frac Mesa Verde with 175,000# 20/40 sand in 1% KCl water.
5. Set retrievable bridge plug between Chacra and Mesa Verde.
6. Perforate Chacra (= 10') with 2 shots per foot.
7. Acidize Chacra with 500 gals 15% HCL and ball sealers.
8. Frac Chacra with 30,000# 10/20 sand in 70% quality foam.
9. Retrieve bridge plug.
10. Land tubing above Mesa Verde perforations.
11. Flow well to cleanup frac fluid.
12. Shut-in well for AOF test.

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PAD 3/21/80

TENNECO OIL COMPANY
BLOOMFIELD AREA
T 29 N - R 10 & 11 W
SAN JUAN COUNTY, NEW MEXICO

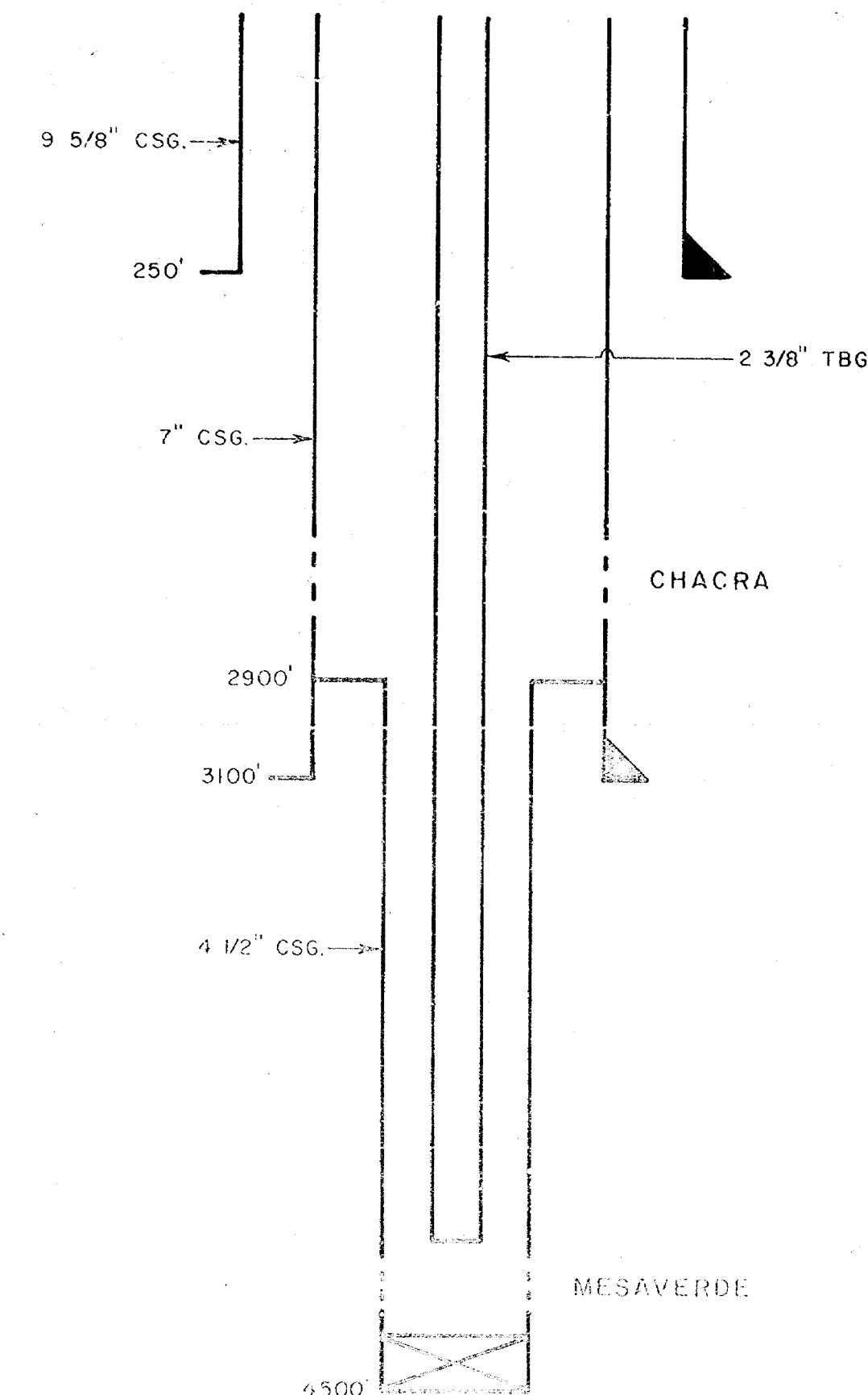
MESAVERDE - CHACRA COMINGLED
WELLBORE SCHEMATIC



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BLOOMFIELD AREA
T 29 N - R 10 & 11 W
SAN JUAN COUNTY, NEW MEXICO

MESAVERDE - CHACRA COMINGLED
WELLBORE SCHEMATIC



TENNECO OIL COMPANY
1980 BLOOMFIELD AREA DRILLING PROGRAM
DRILLING AND COMPLETION PROCEDURE
DAKOTA DUALED WITH COMINGLED CHACRA-MESA VERDE

DRILLING

1. Drill 12-1/4" hole to 250'.
2. Set 9-5/8" csg and cement to surface.
3. Drill 8-3/4" hole thru Mesa Verde to = 4300'.
4. Set 7" csg and cement to surface using 2 stage cement job with DV tool at 2950'.
5. Drill 6-1/4" hole thru Dakota to = 6400'.
6. Run open hole logs over Dakota and cased hole log in 4-1/2" casing.
7. Set 4-1/2" liner from 6400' to 4300'.
8. Cement liner in place.

COMPLETION

1. Drill out to plug back total depth.
2. Perforate Dakota (= 50') with 2 shots per foot.
3. Acidize Dakota with 1500 gals 15% HCL and ball sealers.
4. Frac Dakota with 105,000# sand in 30% cross-linked gelled water.
5. Set Model "F" packer with expendable plug above Dakota.
6. Perforate Mesa Verde (= 50') with 2 shots per foot.
7. Acidize Mesa Verde with 1000 gals 15% HCL and ball sealers.
8. Frac Mesa Verde with 175,000# 20/40 sand in 1% KCl water.
9. Set retrievable bridge plug between Chacra and Mesa Verde.
10. Perforate Chacra (= 10') with 2 shots per foot.
11. Acidize Chacra with 500 gal 15% HCL and ball sealers.
12. Frac Chacra with 30,000# 10/20 sand in 70% quality foam.
13. Retrieve bridge plug.
14. Run in hole and land Dakota tubing string in Model "F" packer.
15. Run in hole and land Mesa Verde-Chacra tubing string above Mesa Verde.
16. Flow well to cleanup frac fluid.
17. Shut-in well for AOF test.

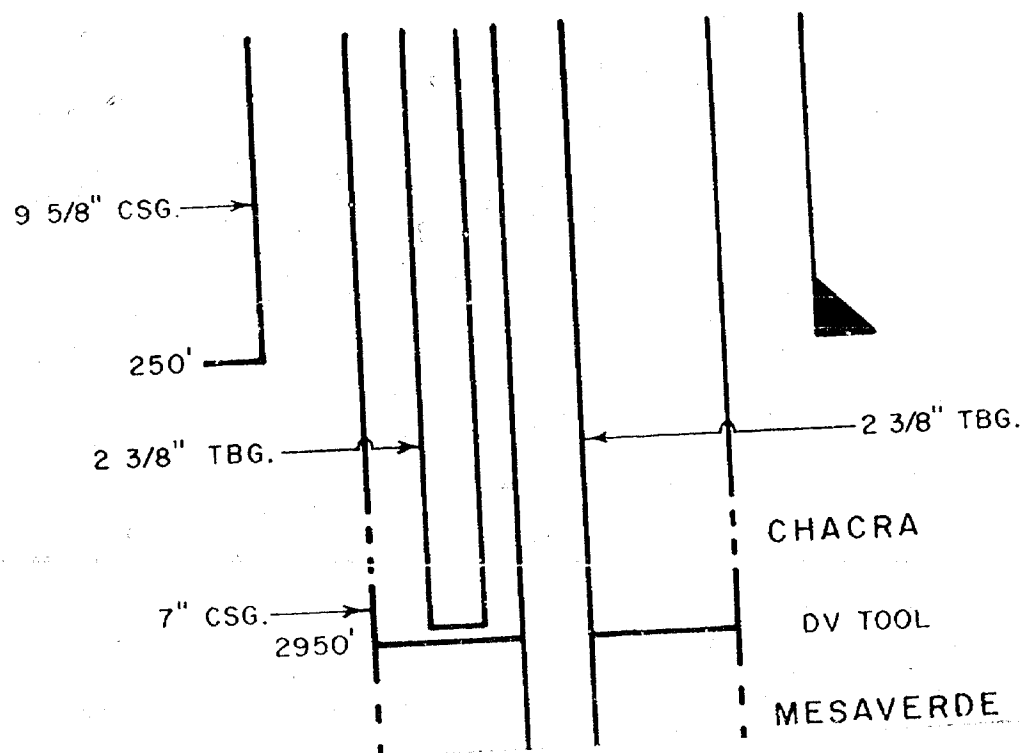
6847 13

PAD 3/21/80

TENNECO OIL COMPANY
BLOOMFIELD AREA

T 29 N - R 10 & 11 W
SAN JUAN COUNTY, NEW MEXICO

DAKOTA DUAL WITH
MESAVERDE - CHACRA COMINGLED
WELLBORE SCHEMATIC



EXAMINED BY
OIL CONSERVATION DIVISION

PERMIT NO. 14

DATE 6847

BY

W. J. B. B.

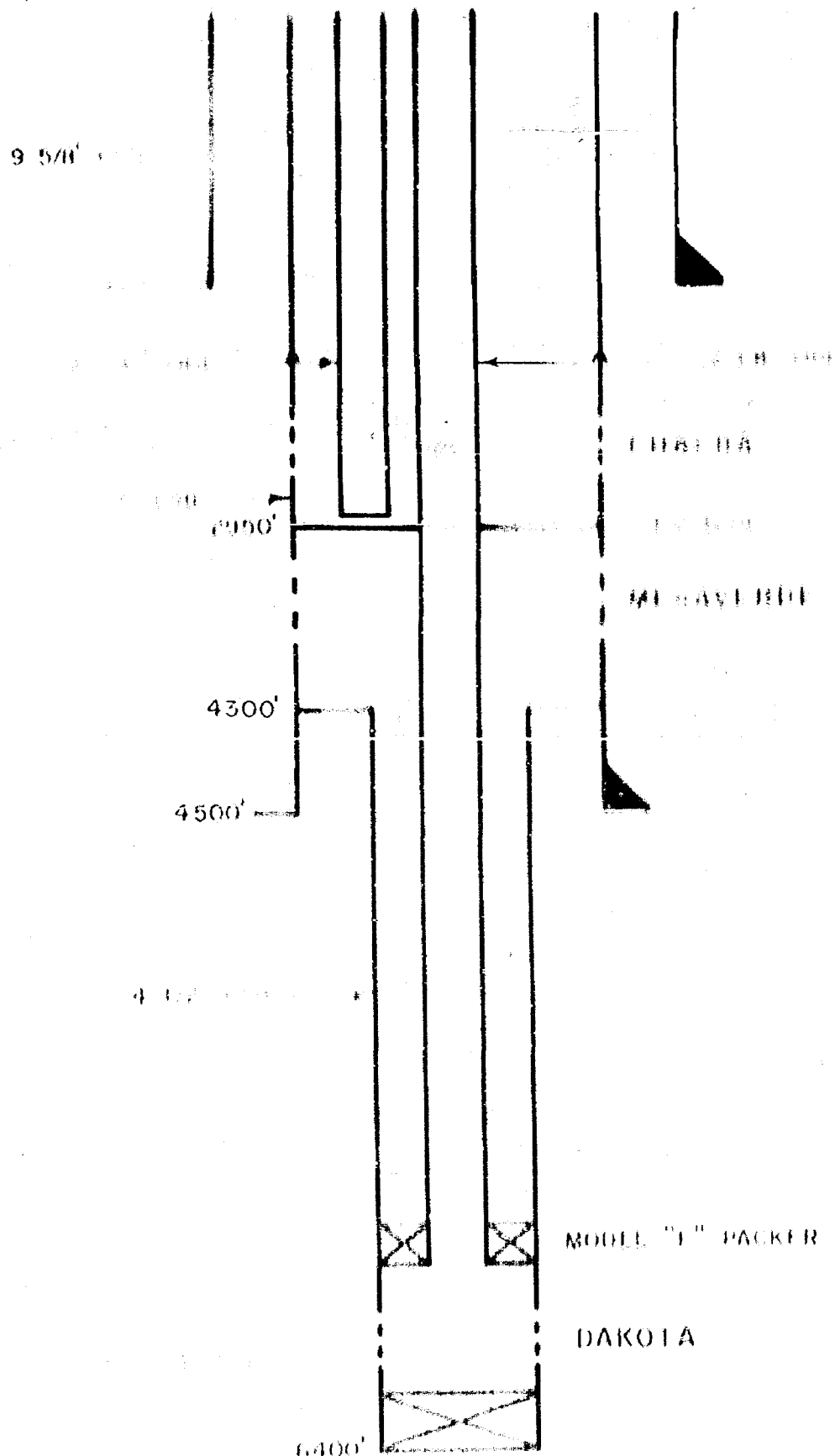
ELIOT COMPANY

HILL AREA

SECTION 11 W

NEW MEXICO

DUAL WITH
MESAVERDE CHACRA COMING
WELLBONE SCHEMATIC



TENNECO OIL COMPANY
1980 BLOOMFIELD AREA DRILLING PROGRAM
ESTIMATED GROSS RESERVES

<u>ZONE</u>	<u>RESEKVES (MMCF)</u>
Chacra	170
Mesa Verde	160
Dakota	1350

*looked at wells
in surrounding area to
verify these figures
decline rates, etc
computer simulation*

BEFORE EXAMINER STAGNETS
OIL CONSERVATION DIVISION

EXHIBIT NO. 15

CASE NO. 6847

Submitted by

Handing to

TENNECO OIL COMPANY
1980 BLOOMFIELD AREA DRILLING PROGRAM
ALTERNATIVE COST SUMMARY

<u>TYPE WELL</u>	<u>TOTAL COST</u> (<u>\$M</u>)
<u>Single Completion</u>	
Mesa Verde	263
Dakota	347
Chacra	140
<u>Duals Without Commingling</u>	
Dakota-Mesa Verde	449
Mesa Verde-Chacra	349
Dakota-Chacra	401
<u>Commingled Charca-Mesa Verde</u>	
Mesa Verde-Chacra	327
<u>Three Zones With Two Commingled</u>	
Dakota Dualled with Chacra & Mesa Verde Commingled	461

BEFORE EXAMINER STAMETS OIL CONSERVATION DIVISION	
EXHIBIT NO.	16
CASE NO.	6847
Submitted by	
Reviewed by	

TENNECO OIL COMPANY
1980 BLOOMFIELD AREA DRILLING PROGRAM
WELLS WITH MESA VERDE AND CHACRA POTENTIAL
COST COMPARISON

I. Proposed Completion-Commingle Zones

Cost: \$327,000

II. Alternative Without Commingling

<u>Alternative</u>	<u>Cost</u>	<u>Cost Over Commingled Alternative (\$M)</u>
1. Dually Complete Chacra & Mesa Verde	349	22

BEFORE EXAMINER STARTS
OIL CONSERVATION DIVISION

EXHIBIT NO. 17

CASE NO. 6847

SUBMITTED BY

DATE

PAD 3/21/80

TENNECO OIL COMPANY
1980 BLOOMFIELD AREA DRILLING PROGRAM
ECONOMIC SUMMARY
MESA VERDE-CHACRA WELL

<u>TYPE WELL</u>	<u>AFTER TAX RATE OF RETURN (%)</u>	<u>DISCOUNTED PROFIT @10% (M\$)</u>	<u>RESERVES (MMCF)</u>	<u>PAYOUT (YEARS)</u>
<u>COMINGLED</u>				
Mesa Verde-Chacra	22.6	80.9	360	3.2
<u>DUAL</u>				
Mesa Verde-Chacra	14.0	28.6	330	3.9

BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION

EXHIBIT NO. 18

CASE NO. 6847

Submitted by _____

Working Date _____

TENNECO OIL COMPANY
1980 BLOOMFIELD APEA DRILLING PROGRAM
WELLS WITH CHACRA, MESA VERDE, AND DAKOTA POTENTIAL
COST COMPARISON

I. Proposed Completion-Dakota Dual With Mesa Verde & Charca Commingled

Cost: \$461,000

II. Alternatives Without Commingling

<u>Alternative</u>	<u>Cost</u>	<u>Cost Over Commingled Alternative (\$M)</u>
1. Drill 3 Single Completions	750	289
2. Drill 1 Dual MV-Dakota	449	-
Drill 1 Single Chacra	140	-
Total 2 Wells	589	128
3. Drill 1 Dual MV-Chacra	349	-
Drill 1 Single Dakota	347	-
Total 2 Wells	696	235
4. Drill 1 Dual Dakota-Chacra	401	-
Drill 1 Single Mesa Verde	263	-
Total 2 Wells	664	203

BEFORE EXAMINER STAMPS
OIL CONSERVATION DIVISION

EXHIBIT NO. 19
CASE NO. 6847
SUBMIT. DATE
REVIEW DATE

PAD 3/21/80

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
26 March 1980

EXAMINER HEARING

IN THE MATTER OF:

Application of Tenneco Oil Company
for dual completions and downhole
commingling, San Juan County, New
Mexico.

CASE
6847

BEFORE: Richard L. Stamets

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation
Division:

Ernest L. Padilla, Esq.
Legal Counsel to the Division
State Land Office Bldg.
Santa Fe, New Mexico 87501

For the Applicant:

W. Thomas Kellahin, Esq.
KELLAHIN & KELLAHIN
500 Don Gaspar
Santa Fe, New Mexico 87501

SALLY W. BOYD, C.S.R.

Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 435-7409

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CAROLYN PEAVEY

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PAUL A. DOYLE

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RL 1 Box 195-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

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SALLY W. BOYD, C.S.R.

Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

SALLY W. BOYD, C.S.R.

Rt. 1 Box 195-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

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1 MR. STAMETS: We'll call next Case 6847.

2 MR. PADILLA: Application of Tenneco Oil
3 Company for dual completions and downhole commingling, San
4 Juan County, New Mexico.

5 MR. STAMETS: Call for appearances in this
6 case.

7 MR. KELLAHIN: Tom Kellahin of Santa Fe,
8 New Mexico, appearing on behalf of the applicant, and I
9 have two witnesses.

10 MR. STAMETS: I'd like to have them stand
11 and be sworn, please.

12
13 (Witnesses sworn.)
14

15 CAROLYN PEAVEY

16 being called as a witness and having been duly sworn upon
17 her oath, testified as follows, to-wit:
18

19 DIRECT EXAMINATION

20 BY MR. KELLAHIN:

21 Q Would you please tell us your name, by
22 whom you're employed, and in what capacity?

23 A It's Carolyn Diane Peavey. I'm employed
24 by Tenneco Oil Company and I'm a Senior Geological Engineer.

25 Q Ms. Peavey, have you previously testified

1 before the Oil Conservation Division?

2 A No, I have not.

3 Q Will you describe for the Examiner when
4 and where you obtained your degree?

5 A I graduated in 1974 from Stephen F.
6 Austin State University, it's in Nacogdoches, Texas, with
7 a BS in geology.

8 Q Subsequent to graduation where have you
9 been employed as a geologist?

10 A I spent four and a half years with Sun
11 Oil Company and the first year and a half was as a research
12 geophysicist; the next three years were as a production
13 geologist, and then I joined Tenneco Oil Company a year and
14 a half ago as a geological engineer, and as of December of
15 this year I was a senior geological engineer.

16 Q Pursuant to your employment as a geologist
17 with Tenneco, have you made a study of and are you familiar
18 with the geological facts surrounding this particular ap-
19 plication?

20 A Yes, I am.

21 MR. KELLAHIN: We tender Ms. Poavey as
22 an expert geologist.

23 MR. STAMETS: The witness is considered
24 qualified.

25 Q Would you please refer to what we've

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 435-7409

1 marked as Exhibits One, and I think it might be helpful if
2 we also looked at the same time at Exhibit Number Two.

3 And, Ms. Peavey, if you'll begin your
4 testimony by looking at Exhibit Number Two and identifying
5 for us, first of all, how the wells you propose to complete
6 as Chacra-Mesaverde downhole commingled wells, how those
7 wells are identified and where they are located.

8 A Okay. The Mesaverde-Chacra commingled
9 are the locations that are just a single dot. That would
10 be the northwest quarter of Section 19, Township 29 North,
11 10 West; the northwest quarter of Section 30, Township 29
12 North, 10 West; southeast quarter of Section 24, 29 North,
13 11 West; the northwest quarter of Section 25, 29 North,
14 11 West; and the southeast quarter of Section 25, 29 North,
15 11 West.

16 Q And each of those five wells for which
17 you propose a program for the downhole commingling of the
18 Mesaverde and Chacra are identified specifically on Exhibit
19 Number One, are they not?

20 A Yes, they are, the first five wells, the
21 second five wells.

22 Q All right. What is identified by those
23 wells with the well dot and the circle around the well dot?

24 A Those are wells that we intend to drill
25 to the Dakota and dual it with the Mesaverde-Chacra com-

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Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

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Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

Page 7

1 mingled.

2 Q Now let's start off with the spacing in
3 the Chacra for this area. What will be the spacing for the
4 Chacra wells?

5 A The spacing on the Chacra is 160's.

6 Q Okay. What is the spacing for each well
7 to be completed in the Dakota formation?

8 A Okay, they will be on 320's. The wells --
9 well, the -- it's 320 spacing now. Section 19 will be the
10 west half, and the spacing in the well, the Dakota well in
11 Section 30 will be in the north half. Going to Section 24,
12 29 North, 11 West, it will be the east half. Going to Sec-
13 tion 25, it's split, east half/west half.

14 Q All right. Now, the five Dakota wells
15 involved, are these original Dakota wells on a proration
16 unit or are these infill Dakota wells?

17 A These will be infill wells.

18 Q So on each of the five proration units
19 there already exists an original Dakota producer.

20 A This is true.

21 Q And where would the Dakota producer be
22 located?

23 A They are at the time located where the
24 single dots are, where we propose to have the Mesaverde-
25 Chacra commingled wells. They're in the same quarter section.

1 Q All right. What is the spacing for the
2 Mesaverde formation?

3 A Right now the Mesaverde is in the unde-
4 signated Mesaverde and it will be on 160's.

5 Q To orient the Examiner, where does this
6 area lie in reference to the Blanco Mesaverde Pool?

7 A It lies about two and a half miles south-
8 east of the existing Blanco Mesaverde Pool.

9 Q Are there any other wells in the immediate
10 area located on Exhibit Number Two, which are operated by
11 another operator and which produce either from the Chacra
12 or Mesaverde formations?

13 A No, all the wells that produce are on
14 this map.

15 Q All right, what about the Getty wells
16 located to the north? What kind of wells are those?

17 A Okay. Map 3, or your Exhibit Three,
18 shows the existing Mesaverde completions. There are four
19 of them at this time that I've included in the undesignated
20 Mesaverde.

21 Q Would you identify the four wells that
22 are completed in the undesignated Mesaverde?

23 A Okay. The one in the northeast quarter
24 of Section 13, 29 North, 11 West, is the Hawk B No. 1.

25 The one in the northwest quarter of Sec-

SALLY W. BOYD, C.S.R.

Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

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Rt. 1 Box 193-B
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tion 18, 29 North, 10 West, is the Hanley A No. 1.

The southwest quarter of Section 18, 29 North, 10 West, is the Hanley B No. 1.

And the Buntz A No. 1 is the one in the northeast quarter of Section 19, 29 North, 10 West.

Q Do any of those wells produce from any other formation other than the Mesaverde?

A They are at this time dualled with the Chacra.

Q Am I correct, I believe you've already said it, but am I correct in understanding that each of the Getty Wells are dedicated to 160-acre spacing and proration unit, dedicated to an undesignated Mesaverde formation?

A Yes, sir.

Q Would you now turn to what we've marked as EXhibit Number Four and have you identify that?

A Okay. Exhibit Number Four is the Hanley B No. 1. It is the well, Getty's well that is closest to our acreage in question. That is dualled in the Mesaverde and the Chacra. This is a type log of the Chacra. They encountered about 8 to 10 feet of pay with average porosity of 12 percent, and their IP was 791 Mcf a day. Their shut-in casing pressure was 1012.

Q Why have you chosen this particular log as a type log for the Chacra completion in each of the sub-

ject wells?

A This well is the closest to Tenneco's acreage and I think -- I believe typifies what we will be encountering if we drill the well. We have a cross section, the next exhibit is the cross section of the Chacra.

Q That's Exhibit Number Five?

A Right.

Q Let's look at that.

A This is a southeast/northwest trending cross section. The type log is the well that is situated at A'. It extends southwest of Tenneco's acreage. As you can see, the Chacra is developed. We anticipate about 8 to 10 feet of pay in Tenneco's wells that we drill.

Q Will you start with A and continue through A' and describe briefly each of the wells you've placed on your cross section?

A Okay. Starting in the southwest quarter, we have the Delo No. 2 and it has two stringers that are developed in the Chacra. Estimated pay again is about 8 feet.

Moving towards the northeast we have the two stringers that are developed more as one sand with a slight shale indication. Probably pay would be about 10 to 12 feet.

Moving farther northeast to the Valdez

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Santa Fe, New Mexico 87501
Phone (505) 455-7409

1 A No. 1 we lose -- it appears we lose the resistivity in the
2 first stringer, so production is probably only from the
3 second stringer, and I anticipate a pay of about 6 to 8 feet.

4 Moving farther northeast, we do lose the
5 first stringer and the second stringer is the production
6 zone. Pay is about 6 feet.

7 And moving up to the Hanley B. No. 1 we
8 have the first stringer again -- or second stringer again
9 as production, and pay is about 8 feet.

10 Q Okay. Would you turn to what we've
11 marked as Exhibit Number Six and discuss the characteristics
12 of the Mesaverde formation encountered in this area?

13 A Okay, this is the Mesaverde formation.
14 In this particular well, this is the Hanley B No. 1. The
15 Point Lookout and the Menafée are the only two producing
16 members of the Mesaverde.

17 Point Lookout had 18 feet of net pay and
18 the Menafée had 32 feet of net pay, and the isolated
19 stringers.

20 This well was perforated; initial potential
21 was 2 barrels of condensate and 2.1 million cubic feet of
22 gas a day. Shut-in tubing pressure was 1290.

23 Q And why have you chosen this particular
24 well as a type log for the Mesaverde?

25 A Again, this is the well that is closest

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Rt. 1 Box 193-B
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Phone (505) 455-7499

1 to Tenneco's acreage and gives us a feel for what we may
2 anticipate as far as what is the most production.

3 Q Go to the cross section marked Exhibit
4 Number Seven and describe for us generally the -- how the
5 Mesaverde formation appears through the cross section?

6 A Starting from the northeast, we have the
7 Hanley B No. 1. As we progress southwest we encounter -- we
8 get up-dip of structure.

9 As you know, the Menafee is -- was a
10 platal (sic) depositional environment. Most of the sand
11 developments are not continuous throughout the area. There
12 are isolated sand stringers.

13 The Cliff House in the Hanley B No. 1
14 encountered about 18 feet of pay again, and most of the
15 production, I believe, is coming from the Menafee where you
16 have 32 feet of pay.

17 As you move -- well, what is colored in
18 this map in yellow is what I anticipate as being productive
19 stringers, and what is in blue is what I calculated to be
20 water productive.

21 As you move to the southwest, you're
22 going up structure. You're encountering more of the
23 stringers in the Menafee, becoming water productive, due to
24 hydrodynamics, and also probably due to the fact that the
25 stringers are not continuous from one well to another.

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Phone (505) 455-7409

1 Q As a generalization, Ms. Peavey, which
2 of the two zones is generally going to be the better pro-
3 ducing formation in each of the subject wells?

4 A Typically in the San Juan Basin the Point
5 Lookout is; however, taking the Hanley B No. 1, the Menafee,
6 I believe, is the main producing horizon from this, and I --
7 as you move farther southwest you do not see the Menafee
8 as productive across Tenneco's acreage.

9 The interval of the Menafee is from
10 about 3550 down to about 4100.

11 Q As a geologist would you recommend to
12 your management the drilling and testing of the Mesaverde
13 formation alone in this area?

14 A Not for the reserves that we see here,
15 no.

16 Q Would you turn to exhibit Number Eight
17 and identify that?

18 A Okay. This is a graph showing the ---
19 each of the four wells that are presently completed, Getty's
20 wells completed in the Mesaverde on Mcf per day basis.

21 As you can see, they start out at a fairly
22 decent rate per Mcf a day, but within nine months they've
23 dropped of 60 percent. Production in this area, I do not
24 believe, is very significant in the Mesaverde, as you can
25 see by the rapid decline.

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Santa Fe, New Mexico 87501
Phone (505) 455-7409

Q Based upon your study of the geology, Ms. Peavey, in your opinion would a prudent operator complete these wells as a downhole commingled well or as a dual completion?

A Based on the reserves in the Mesaverde and the Chacra, I believe the only way to do it would be to commingle the two zones.

Q Do you have any opinion with regards to the spacing of the Mesaverde formation? I realize that some of the -- or all of the Getty wells to the north are spaced on 160 acres for Mesaverde. Is that a reasonable and logical spacing for the Mesaverde in this area?

A I believe it is. First, the reserves that we're looking at are not significant with the rapid decline. 160 acres is sufficient to -- for drainage, and again, it lies about two and a half miles southeast of the existing Blanco Mesaverde where they found that the infills should be on 160's.

Q From the information contained on Exhibit Number Eight, do you have any opinion as to any potential risk of cross flows because of the pressure differential between the Mesaverde and the Chacra formations?

A I believe that the pressures are in agreement with each other. I don't think you will have cross flow. We do have about 200, 250 pounds pressure

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1 higher in the Mesaverde; however, we don't anticipate en-
2 counteracting the same quality of rock in the Mesaverde, and I
3 anticipate the pressures to be more like the Chacra is.

4 Q If this area is developed as Tenneco
5 proposes, with the Chacra and the Mesaverde on 160-acre
6 dedication, will the ownership be common between the Mesa-
7 verde and the Chacra formations?

8 A Yes, they will.

9 Q If the Mesaverde is developed on 320's,
10 would the ownership be in common?

11 A No, they would not.

12 Q Would you turn to Exhibit Number Nine
13 and Exhibit Number Ten and discuss those two exhibits?

14 A Okay. This is the gas analysis on the
15 Hanley B No. 1. For the first Exhibit Number Nine is for
16 the Chacra. Exhibit Number Ten is for the Mesaverde. And
17 as you can see, the BTU's are not that different. The
18 Chacra is 1173 and the Mesaverde is 1274.

19 Q Based upon your study of the gas analysis
20 of the Getty Well, do you have an opinion as to whether the
21 gas composition of the two formations are compatible with
22 each other?

23 A I believe they're compatible.

24 Q Were Exhibits One through Ten prepared
25 by you directly, except for the information from the Getty

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Phone (505) 435-7409

1 wells, compiled under your direction and supervision?

2 A Yes, they were.

3 Q And where did you obtain the gas analysis
4 on the Getty wells?

5 A From El Paso, who had approval to release
6 them from Getty.

7 Q In your opinion, Ms. Peavey, will approval
8 of this application be in the best interests of conservation,
9 the prevention of waste, and the protection of correlative
10 rights?

11 A I believe it will.

12 MR. KELLAHIN: That concludes our exam-
13 ination of this witness.

14
15 CROSS EXAMINATION

16 BY MR. STAMETS:

17 Q Ms. Peavey, let's just take, for example,
18 Section 19. You show two wells there on your Exhibit Number
19 Two, one is just simply a dot and the other is a dot with
20 a circle around it. I believe that you indicated that ones
21 with the circles are infill wells in the Dakota?

22 A Right.

23 Q And would that mean that the other well
24 that is just a single dot is the original Dakota well?

25 A No. The single dot is where we propose

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1 the Mesaverde-Chacra commingling; however, it is also the
2 same core section where we have an existing Dakota well.

3 Q I see, so the original Dakota well is
4 not shown on this particular map?

5 A Right, yes, sir.

6 Q And each one of these wells that we've
7 discussed here will be a new well drilled?

8 A Uh-huh.

9 Q Okay. So the single dots will only be
10 Mesaverde-Chacra downhole commingles.

11 A Right.

12 Q And then the other five wells will be
13 dualled and commingled.

14 A Uh-huh.

15 MR. STAMETS: Will your next witness talk
16 about an allocation?

17 MR. KELLAHIN: Yes.

18 MR. STAMETS: Okay.

19 Q You've indicated in a couple of cases
20 that we're talking about pressures, say, 1000 pounds, 1100
21 pounds, in the Chacra, and maybe 1200 pounds in the Mesa-
22 verde. Do you anticipate that that will be true over this
23 entire area?

24 A I believe for the most part our Mesaverde
25 that we will encounter will not be -- the development of

SALLY W. BOYD, C.S.R.

Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 435-7409

1 the Mesaverde is not as well developed as it is in Getty's
2 wells, so our pressures, I believe, will probably be some-
3 what lower and more in agreement with the Chacra.

4 Q Do you anticipate any liquid production
5 from either of the two zones, the Chacra or the Mesaverde?

6 A At the time the four Getty wells, they
7 are making some condensate. On the average it's 3 to 4
8 barrels of condensate a day.

9 Q Do you feel that would be any problem
10 in producing these wells?

11 MR. STAMETS: Will the next witness ad-
12 dress that?

13 MR. KELLAHIN: Our next witness will talk
14 of that.

15 MR. STAMETS: Any other questions of
16 this witness? She may be excused.

17
18 PAUL A. DOYLE
19 being called as a witness and having been duly sworn upon
20 his oath, testified as follows, to-wit:

21
22 DIRECT EXAMINATION

23 BY MR. KELLAHIN:

24 Q Would you please state your name, by whom
25 you're employed, and in what capacity?

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1 A My name is Paul Anthony Doyle. I'm em-
2 ployed by Tenneco Oil Company, and I'm a Senior Production
3 Engineer.

4 Q Mr. Doyle, have you previously testified
5 before the Oil Conservation Division?

6 A No, I have not.

7 Q Will you describe for the Examiner when
8 and where you obtained your degree?

9 A I graduated from Georgia Tech with a
10 Bachelor in Science in civil engineering in 1975.

11 Q Subsequent to graduation where have you
12 been employed in the oil and gas industry?

13 A I worked for Texaco for two years in
14 Craig, Colorado, as a production engineer. After that I
15 have worked for Tenneco for three years out of their Denver
16 office, as a production engineer.

17 Q Pursuant to your duties as a production
18 engineer, have you made a study of the facts surrounding
19 this particular application?

20 A Yes, I have.

21 MR. KELLAHIN: We tender Mr. Doyle as an
22 expert petroleum engineer.

23 MR. STAMETS: He is considered qualified.

24 MR. KELLAHIN: Production engineer.

25 Q Would you refer to what we've marked as
26

SALLY W. BOYD, C.S.R.

Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 435-7409

1 Exhibit Number Eleven and describe for us how the proposed
2 Mesaverde-Chacra commingled wells are going to be drilled
3 and completed?

4 A See, on these type wells we plan to drill
5 a 250-foot hole with 12-1/4 inch bit and set surface pipe
6 cementing over this area. Then we plan to drill through the
7 Chacra formation at about approximately to a depth of ap-
8 proximately 3100 feet with mud and set 7-inch casing through
9 this zone. We then plan to drill out below the 7-inch,
10 through the Mesaverde formation to a depth of approximately
11 4500 feet, with gas, log the well, and set a 4-1/2 inch
12 liner and cement it in place over the Chacra formation.

13 Inasfar as our completion is concerned,
14 we plan to drill the well out to the total depth, perforate,
15 acidize, and frac the Mesaverde formation, and we plan to
16 do this in only one stage because we do not feel that it
17 would be sufficient development to frac in two stages, which
18 we have done in the past, because of such thick net pays.

19 We then plan to run our tubing back in
20 the hole, clean the well out, let the -- return the frac
21 fluid, and shut the well in for eight days and run an AOF
22 test on the Mesaverde formation.

23 We then plan to pull -- clear the well,
24 pull the tubing, set our retrievable bridge plug between
25 the Chacra and the Mesaverde, complete the Chacra formation

SALLY W. BOYD, C.S.R.

Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

1 by perforating, acidizing, and fracing this zone. Then plan
2 to clean -- then we plan to retrieve our retrievable bridge
3 plug, clean up both zones, and run an AOF test on the com-
4 bined Mesaverde-Chacra well.

5 Q While we're talking about how you're going
6 to complete these zones, describe for us how you would pro-
7 pose to come up with a method of allocating the production
8 between the Chacra and the Mesaverde formations?

9 A We plan to do this in a similar method
10 as we've done with Farmington -- with Fruitland-Pictured
11 Cliffs, where we will AOF the first well -- the first zone
12 in the well, which is the Mesaverde formation, get that AOF,
13 then complete the well in the Chacra, and then AOF the well
14 in both -- with both the Chacra and Mesaverde zones pro-
15 ducing, giving us an AOF of the cumulative zones between
16 them.

17 With the information from both zones and
18 the information from one zone, by subtracting the first AOF
19 from the second, we'll get an implied AOF in the Chacra
20 formation, and we plan to use this AOF to allocate pro-
21 duction between zones.

22 Q Tenneco has used that method for deter-
23 mining allocation between commingled zones in other wells?

24 A Yes, sir. The example of this is our
25 recent method that we used between the Fruitland and the

SALLY W. BOYD, C.S.R.

Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (305) 452-7409

1 Pictured Cliffs formations, which is a similar circumstance,
2 where the Fruitland in that case, as the Mesaverde in this
3 case, was a relatively weak producer, and we felt that it
4 would be necessary just for prudent operating to have the
5 wells commingled to make sure that that would keep -- keep
6 the Fruitland producing, and this is the method we used on
7 these wells, and this is what we propose to do here.

8 Q Was the method of completion on the
9 Fruitland-Pictured Cliffs commingled production one approved
10 by the Oil Conservation Division?

11 A Yes, sir, it was.

12 Q Would you turn to Exhibit Number Twelve
13 and identify that schematic for us?

14 A This is a downhole schematic of our
15 proposed Mesaverde-Chacra commingled wells, showing a 9-5/8ths
16 casing set through 200 to 250 feet; 7-inch casing set
17 through 3100 feet, and a 4-1/2 inch liner set from 2900
18 feet to 4500 feet, and both zones will be produced up
19 2-3/8ths tubing, set approximately the top of the Mesaverde
20 formation.

21 Q Let me address a question to you that was
22 asked of the last witness. What, if any, liquids are pro-
23 duced from either of these zones?

24 A We do not anticipate significant liquid
25 production as far as condensate is concerned. There is a

SALLY W. BOYD, C.S.R.

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Santa Fe, New Mexico 87501
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1 possibility, if the Mesaverde is a weaker producer, as was
2 mentioned, that there may be some water production from the
3 Mesaverde. We don't anticipate it being significant, but
4 if it should become a problem in either zone, we feel the
5 commingling of zones having a higher gas volume, because
6 both zones will be coming up the same string of tubing, we
7 feel that we'll get better removal of our liquids from the
8 wellbore by commingling the wells.

9 Q All right, let's turn to Exhibit Number
10 Thirteen and have you talk about that exhibit, and in addi-
11 tion, at the same time, if you'll look at Exhibit Number
12 Fourteen, which is the schematic. Go through your comple-
13 tion procedure for those wells that will also include
14 dualing the Dakota.

15 A Okay. These wells, again, we'll set
16 250 feet of surface pipe. Then we'll drill out with an
17 8-3/4 inch hole, using mud, drill through the Mesaverde to
18 approximately 4500 feet. We'll then set 7-inch casing and
19 cement the 7-inch casing in place with a two-stage cement
20 job with a DV tool being placed just below the Chacra form-
21 ation in order to cover that interval with cement.

22 After this is done we'll drill out below
23 the 7-inch, through the Dakota formation to approximately
24 6400 feet, we'll run our logs, and we'll set 4-1/2 inch
25 liner across the Dakota formation and cement it in place.

SALLY W. BOYD, C.S.R.

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Phone (505) 455-7409

1 For our completion we will drill out to
2 plug back total depth and then perforate and acidize and
3 frac the Dakota formation in a manner similar to the method
4 in which we complete all our Dakota wells in the San Juan
5 Basin. We will flow this zone to clean up for a couple days.
6 We will not run an AOF test at that time until the well has
7 been completed and the tubing has been -- final tubing
8 string has been landed in the Dakota.

9 But after we flow some of the water off
10 the formation we'll set a Model F packer with an expendable
11 plug above the Dakota formation, which will then isolate
12 the Dakota formation.

13 We'll then perforate the Mesaverde form-
14 ation, perforate, acidize, and frac the Mesaverde formation,
15 clean it up, and flow the well until it is cleaned up. We
16 will then shut it in for eight days, perform an AOF test
17 on that zone.

18 After that is completed we'll set a
19 retrievable bridge plug between the Chacra and Mesaverde,
20 and we'll complete the Chacra by perforating, acidizing,
21 and fracing the Chacra.

22 We'll then remove the retrievable bridge
23 plug, flow both zones to clean up, and run an AOF test --
24 excuse me, at that time we'll run in the hole and land our
25 long string in the Model F packer to produce the Dakota

SALLY W. BOYD, C.S.R.

Rt. 1 Box 191-B
Santa Fe, New Mexico 87501
Phone (505) 451-7409

1 formation and we'll run in the hole and land our short.
2 string to produce the Mesaverde-Chacra up the short string.

3 Then flow the well to clean up in both
4 zones; we'll then shut the well in and run an AOF test in
5 the Dakota formation and in the commingled Chacra-Mesaverde
6 formations.

7 Then next --

8 Q If I understood you correctly, then the
9 method for determining the allocation between the Chacra
10 and the Mesaverde in those wells that also contain a dual
11 with the Dakota will be the same way as you've done with
12 the other five wells that do not contain Dakota production?

13 A That is correct.

14 The next exhibit is just a schematic of
15 the bottom hole assembly that we've just described with
16 9-5/8ths casing set to 250 feet, 7-inch casing set to 4500
17 feet, and a 4-1/2 inch liner set from 4300 feet to 6400
18 feet. In the 7-inch casing a DV tool will be placed at
19 2950 just below the Chacra formation to insure that we get
20 cement both across the Mesaverde and the Chacra formations.

21 The well -- the Dakota formation will be
22 produced through the Model F packer that will be set just
23 above the Dakota formation and up the 2-3/8ths tubing. The
24 Chacra and Mesaverde formation will be produced commingled
25 through the 2-3/8ths tubing, that second string of 2-3/8ths

SALLY W. BOYD, C.S.R.

Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (305) 455-7409

SALLY W. BOYD, C.S.R.

Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

1 tubing that we will set just above the Mesaverde formation.

2 MR. STAMETS: While we're on the subject
3 of that string of tubing, your exhibit shows the Mesaverde
4 tubing to be set above the DV tool at 2950 feet.

5 A Yes, sir, that is incorrect.

6 MR. STAMETS: Okay.

7 A Diagrammatically incorrect.

8 MR. STAMETS: Well, I'll fix my copy.

9 A Thank you.

10 Q Mr. Doyle, do you have an opinion as to
11 whether or not the optimum spacing for the development of
12 these ten wells in the Mesaverde is 160 acres?

13 A Just from the fact that the ownership
14 would be different between the wells, it would cause a prob-
15 lem if we were not spaced on 160, but as far as --

16 Q Have you made any reserve calculations
17 for each of the three zones which would demonstrate the
18 profitability of any of those zones?

19 A Yes, I have.

20 Q All right. Let's look at Exhibit Number
21 Fifteen, then, and have you explain how you reached those
22 numbers.

23 A Okay, the Exhibit Fifteen gives what we
24 estimate to be the reserves to be produced from the three
25 formations in this particular area.

1 For the Chacra formation we anticipate
2 170-million cubic feet. IN the Mesaverde formation we anti-
3 cipate 160-million cubic feet, and for the Dakota formation
4 we anticipate 1,350-million cubic feet.

5 Q Would you summarize for us briefly what
6 kind of data you used in order to get to those numbers?

7 A Well, the way we achieved these numbers
8 is we looked at the wells in the surrounding area, both the
9 Chacra and the Mesaverde wells. We looked at the initial
10 rates from these wells, how -- what the initial turn-on
11 rates were for the wells, how much they produced. We looked
12 at the decline curves for these wells to see just what kind
13 of a decline percentage -- percentage decline they exper-
14 ienced every year, and what maybe their stabilized decline
15 rate was at some point in time.

16 By then, having these initial productions
17 and the decline rates for the Chacra and Mesaverde wells,
18 we ran it through a computer simulator that gives you an
19 estimated lifetime production history of the well, and
20 cums up your ultimate recovery from the wells.

21 As far as the Dakota formation is con-
22 cerned, the way we achieved these reserve numbers is there
23 are other Dakota wells in the area that have extensive
24 production histories, cumulative data, and anticipated ulti-
25 mate cumulative data. The figure that we're using to achieve

SALLY W. BOYD, C.S.R.

Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 435-7409

1 reserves, to estimate reserves in our Dakota infills right
2 now, is by taking the performance of these original wells
3 and multiplying their production, and therefore, obviously,
4 their cumulative production, by a factor of 60 percent, as-
5 suming that our infill wells will produce 60 percent of what
6 the original wells have produced.

7 Q Would you turn to Exhibit Number Sixteen
8 and explain that exhibit for us?

9 A Okay. In order to analyze the different
10 options we had for recovering reserves from all three of
11 what we felt were the potentially productive zones in this
12 area, the Chacra, Mesaverde, and Dakota, we put together
13 cost estimates for individual wells and even several differ-
14 ent types of wells to see just how much these different
15 types of wells would cost.

16 The first option that we have is a single
17 completion in any one of the three zones and the costs on
18 here are all given in thousands of dollars.

19 The Mesaverde, single Mesaverde comple-
20 tion in the area we estimated would cost \$253,000.

21 A single Dakota completion would be
22 \$347,000.

23 And a single Chacra completion would be
24 \$140,000.

25 Q Am I correct in assuming from the exhibit

SALLY W. BOYD, C.S.R.

Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

1 that it is uneconomic to drill a single completion to test
2 either the Mesaverde or the Chacra formation, based upon the
3 reserve information you compiled?

4 A. Based upon the reserves, the costs of the
5 wells, and the operating costs of the wells, these wells are
6 uneconomic by Tenneco's standards, yes.

7 Q. Now, let's compare the costs of a dually
8 completed Mesaverde and Chacra to a situation, as you pro-
9 pose, where those two zones are commingled.

10 A. Okay, well, going further on Exhibit
11 Sixteen here, we estimated the costs of dualing the wells --
12 in making a dual completion without commingling; otherwise,
13 with two strings of tubing and with a packer isolating the
14 zones.

15 The dual Mesaverde-Dakota well we esti-
16 mated would run \$449,000.

17 The Mesaverde-Chacra dual well would run
18 \$349,000, and the Dakota-Chacra dual well would run \$401,000.

19 Now, then we also analyzed the estimated
20 cost of a well that was commingled, a commingled Chacra-
21 Mesaverde well, and the costs we estimated for this was
22 \$327,000.

23 And then we also have the cost on here
24 for the proposed -- the wells that we are proposing of the
25 type where the Dakota is produced up one string of tubing

SALLY W. BOYD, C.S.R.

Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

SALLY W. BOYD, C.S.R.

Rt. 1 Box 191-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

1 and then the Chacra and Mesaverde are commingled and the
2 estimated cost for this type of well is \$461,000.

3 Q Let's focus for a moment on those five
4 wells in which you do intend to test the Dakota.

5 Is there an acceptable way of completing
6 a Dakota producer in such a fashion that you could -- I guess
7 what I'm asking is, is it feasible to triple complete the
8 well?

9 A Well, I --

10 Q To have a triple completion with the
11 Dakota, Chacra, and Mesaverde?

12 A In our opinion it's unfeasible to have
13 a triple completion because of the requirement of having
14 three strings of tubing in the hole and the size of the hole
15 that you would have to drill for this makes the costs ex-
16 cessive to where we would not want -- we would not feasibly
17 do anything like that.

18 We have approximately 500 wells in the
19 San Juan Basin, Tenneco does, and close to ten percent of
20 those wells are dually completed wells, and of those 500
21 wells we do not have any triple completions. We just consi-
22 der it an unfeasible, unacceptable method of completing the
23 wells, because it just creates operating problems and bottom
24 hole difficulties become such plumbers headaches that they
25 are just -- we consider them unfeasible.

SALLY W. BOYD, C.S.R.

Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

Q All right. If the Division should deny your application to commingle the Mesaverde and Chacra formations, what would your alternative be?

A Okay, if you'll look at the Exhibit Number Seventeen, the proposed completion costs for a well that is commingled in the Mesaverde and Chacra, is \$327,000. The only -- the alternative to this method of completion is to dually complete the Chacra and Mesaverde. As we said, this has a cost of \$349,000, or an additional cost of \$22,000, and these additional costs stem from the necessity of installing a bottom hole packer to isolate the zones, an additional string of tubing, a dual wellhead, which is more expensive than a single wellhead, and having two separators on the surface, which is obviously more expensive than one separator.

And we've also -- we've run some economics on these two alternative cases, and that is shown in Exhibit Eighteen.

Q All right, let's look at that.

A Okay, the two types of wells are shown here, the commingled Mesaverde-Chacra and the dual Mesaverde-Chacra.

The after tax rate of return, the discounted profit, reserves that we expect, and the payout in years for each of these wells is presented.

1 The -- I'd like to point out on here
2 this discounted profit number is for the 100 percent working
3 interest, so for instance, if the well was only 50 percent
4 ownership by Tenneco or another company, that you'd have to
5 divide these numbers in half, but these economics are run
6 with a working interest owner of 100 percent.

7 Okay, using your different intial ex-
8 penses to complete the wells, as I said, it's \$22,000 more
9 expensive to complete the dual, and then using also, you
10 have a more expensive operating cost, because, if you have
11 a dual well, because of the fact that you have two separators
12 on surface.

13 We again ran through a simulated history
14 of these wells, looking at production expenses, and calcu-
15 lated what our rates of return would be on these wells.

16 The commingled Mesaverde-Chacra well had
17 a rate of return, after tax rate of return of 22.6 percent,
18 which is a number that Tenneco feels is acceptable for an
19 investment at this time.

20 The dual completion had an after tax rate
21 of return of 14 percent, which is a number that Tenneco
22 feels is an unacceptable rate of return on any project with
23 borrowing money for a capital investment at interest rates
24 of -- in excess of 18 percent. We do not feel that 14
25 percent rate of return is an acceptable return on our money,

SALLY W. BYRD, C.S.R.

Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

1 and we would not drill a well of this type.

2 Another thing that I think is significant
3 on this exhibit is the fact that we feel the commingled well
4 will produce an additional 30-million cubic feet of reserves
5 because of the fact that when one zone gets weak and pos-
6 sibly starts producing liquids, it will -- between both
7 zones coming up the tubing, the life of the well will just
8 be longer. With the more efficient flow regime, we'll just
9 be able to keep it on longer.

10 Q All right, would you describe for us Ex-
11 hibit Number Nineteen?

12 A Okay. Exhibit Number Nineteen is our
13 options, this time looking at the comparison of drilling --
14 well, our objective is to recover gas from all three zones.

15 One way in which we can do this is the
16 way we have proposed, the first proposal here, which is
17 dualing the Dakota with commingled Mesaverde-Chacra, for
18 a cost of \$461,000.

19 Should we want to recover the reserves
20 from all the wells without -- without commingling those two
21 zones, we would have several other alternatives that we
22 could follow, and these are listed in Group Two there.

23 The first alternative, of course, would
24 be to drill three single completions. Now this would cost
25 \$750,000. Both the Mesaverde and the Chacra under our econ-

SALLY W. BOYD, C.S.R.

Rt. 1 Box 194-B
Santa Fe, New Mexico 87501
Phone (505) 435-7409

SALLY W. BOYD, C.S.R.

Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

omic standards are uneconomic, so this is not what we -- this is not really a consideration for us.

A more feasible consideration, as far as costs are concerned, would be the next three options, and this is essentially, drill one dual well and one single completion, and I should also mention that these options would be considered far superior and of less cost than drilling a triple completion.

Q But am I correct in understanding, under all the other alternatives, the total ultimate recovery from both the formations is going to be less than if they were commingled?

A We believe that to be the case, yes. The second alternative on here is to drill a dual Mesaverde-Dakota well, for a cost of \$449,000, and drill a single Chacra well for \$140,000, for a total cost of \$589,000. This would be \$128,000 more expensive than our initial alternative, but because of the fact that the Chacra well is economically unfeasible, we would not drill that well, and therefor, we would not recover the reserves in that zone.

The third alternative is to drill a dual Mesaverde-Chacra well and a single Dakota well, with the dual Mesaverde-Chacra well costing \$349,000 and the single Dakota, \$347,000, total cost would be \$696,000, which again

1 is -- which is \$235,000 more expensive than our initial
2 alternative.

3 But again in case three, we have a dual
4 Mesaverde-Chacra well, which I have just showed on the pre-
5 vious page, only has a rate of return of 14 percent, which
6 we consider unacceptable, so we would not drill a well of
7 that type.

8 The fourth alternative is to drill one --
9 to drill a dual Dakota-Chacra well for \$401,000, and then
10 a single Mesaverde well for \$263,000. That would give you
11 a total cost of \$664,000, which is \$203,000 more than our
12 initial -- than our proposed alternative, but again here we
13 would have a single Mesaverde well, which is far from being
14 anywhere near economically acceptable with what we believe
15 the reserves to be, and we would not drill a well of that
16 type, and therefore, we would not recover any reserve from
17 the Mesaverde in that alternative.

18 Q Were Exhibits One -- I'm sorry, Exhibits
19 Eleven through Nineteen prepared by you or compiled under
20 your direction?

21 A Yes.

22 Q And in your opinion, Mr. Doyle, will
23 approval of this application be in the best interests of
24 conservation, the prevention of waste, and the protection
25 of correlative rights?

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Santa Fe, New Mexico 87501
Phone (505) 455-7409

1 A Yes.

2 MR. KELLAHIN: We move the introduction
3 of Exhibits One through Nineteen.

4 MR. STAMETS: These exhibits will be
5 admitted.

6 Any questions of this witness?

7 MR. PADILLA: I have.

8
9 CROSS EXAMINATION

10 BY MR. PADILLA:

11 Q Mr. Doyle, on Exhibit Eighteen you were
12 comparing the after tax rate of return. I believe you
13 testified that the 14 percent rate of return would be un-
14 acceptable because of your interest costs.

15 If that is an after tax rate of return
16 would you have already taken into account your interest
17 costs?

18 A I don't really understand the question.
19 Now, if the -- the after tax -- I believe the answer to the
20 question is no. We do not consider, you know, in our econ-
21 omic evaluations we do not consider the, you know, the 18
22 percent cost of that money. We do discount the money that
23 we have to -- that we spend. All our economics are dis-
24 counted to present value of 10 percent, but as far as the
25 cost of borrowing the money, we -- we have a present value,

SALLY W. BOYD, C.S.R.

Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

SALLY W. BOYD, C.S.R.

Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

1 I would say, of the money, but there is no value pre-tax,
2 you know, there is no cost figured in for the -- for the cost
3 of capital, no, that is not in the economic analysis as we
4 run them.

5 I don't know if that really answered your
6 question.

7 Q Well, I don't know, it just seems to me
8 that in computing your tax you would be deducting the interest
9 cost.

10 A No, we are not.

11 Q In arriving at a net --

12 A No, in this particular computer simula-
13 tion we do not.

14 Q Then this really isn't an after tax rate
15 of return, is it?

16 A Okay, well, we -- when we go through this
17 computer program, it takes a net lease operating income, or
18 profit, from each year, and then it takes Federal income
19 tax from that, and that is subtracted from our cash flow.
20 That is how that after tax comes out. It's a reduction in
21 our profitability because of Federal taxes. That's where
22 our tax consideration comes in.

23 MR. PADILLA: Okay. Mr. Kellahin, did
24 anyone testify as to whether the nature of the ownership
25 in each of the commingled -- or proposed commingled zones?

1 MR. KELLAHIN: Yes, Ms. Peavey did. She
2 indicated that if the Mesaverde is continued to be developed
3 on 160 acres, and a Chacra 160-acre unit is dedicated, that
4 the interest between the two zones is common.

5 The only time the interest is different
6 is if the Mesaverde is developed on 320, and then we have
7 a problem. We couldn't downhole commingle because of the
8 difference in ownership.

9 MR. PADILLA: No further questions.

10 MR. STAMETS: The witness may be excused.
11 Anything further in this case?

12 The case will be taken under advisement.

13
14 (Hearing concluded.)
15
16
17
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21
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24
25

SALLY W. BOYD, C.S.R.

Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

REPORTER'S CERTIFICATE

I, SALLY W. BOYD, C. S. R., DO HEREBY CERTIFY that the foregoing Transcript of Hearing before the Oil Conservation Division was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

SALLY W. BOYD, C.S.R.

Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 19 heard by me on 19

Oil Conservation Division, Examiner

STATE OF NEW MEXICO
DEPARTMENT OF ENERGY AND MINERALS
OIL CONSERVATION DIVISION

MARCH 26, 1980

EXHIBITS

TENNECO OIL COMPANY
1980 BLOOMFIELD AREA DRILLING PROGRAM
WELL SUMMARY

CHACRA-MESA VERDE-DAKOTA WELLS

<u>WELL</u>	<u>LOCATION</u>
1. Marquis G. Eaton A1E	NE-25-29-11
2. Elvin J. Payne A1E	SW-19-29-10
3. Sullivan Frame Gas A1E	NE-30-29-10
4. Sullivan Gas A1E	SW-25-29-11
5. Valdez Gas A1E	NE-24-29-11

CHACRA-MESA VERDE WELLS

<u>WELL</u>	<u>LOCATION</u>
1. Bunce Com 1	NW-29-29-10
2. Eaton Com B-1	SW-25-29-11
3. Bruce Sullivan Com B-1	NW-25-29-11
4. Sullivan Frame Com B-1	NW-30-29-10
5. Valdez Com B-1	SE-24-29-11

BEFORE EXAMINER STAMETS OIL CONSERVATION DIVISION
EXHIBIT NO. <u>1</u>
CASE NO. <u>6847</u>
DATE <u>3/21/80</u>
FILED <u>DATE</u>

TYPE LOG
CHACRA FM.

GETTY OIL COMPANY
HANLEY B#1
SW/4 SEC. 18, T29N-R10W
SAN JUAN COUNTY, NEW MEXICO

IPF: 791 MCFD
48/64 CK
PERF: 2932-38
SWFR 21,000 GALS.
30,000 LBS. SAND
TP 46, CP 290, GTY 60

*51EP
1012*

DATUM

TOP

BEFORE EXAMINER STA
OIL CONSERVATION DIV

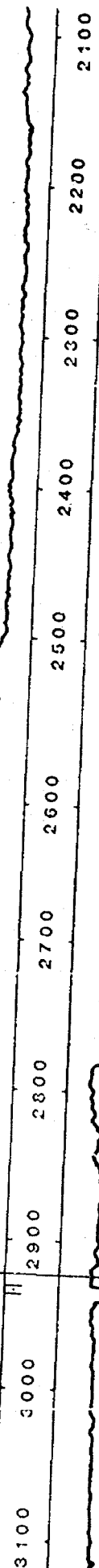
EXHIBIT NO. 4

CASE NO. 6847

REMARKS

CHACRA

2924
(2634)



TYPE LOG
MESAVERDE FM.

GETTY OIL COMPANY
HANLEY B#1
SW/4 SEC. 18, T29N-R10W
SAN JUAN CO., NEW MEXICO

BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION

EXHIBIT NO. 6

CASE NO. 6847

Submitted by _____

Hearing Date _____

IPF: 2 BCPD 2117 MCFD

PERF: 3764-69, 3787-97,

3804-10, 3818-22,

3842-52, 3861-76,

3924-28, 4017-29,

4126-32, 4202-17,

4243-44, 4344-49

SWFR 3764 3876

73,000 GALS.

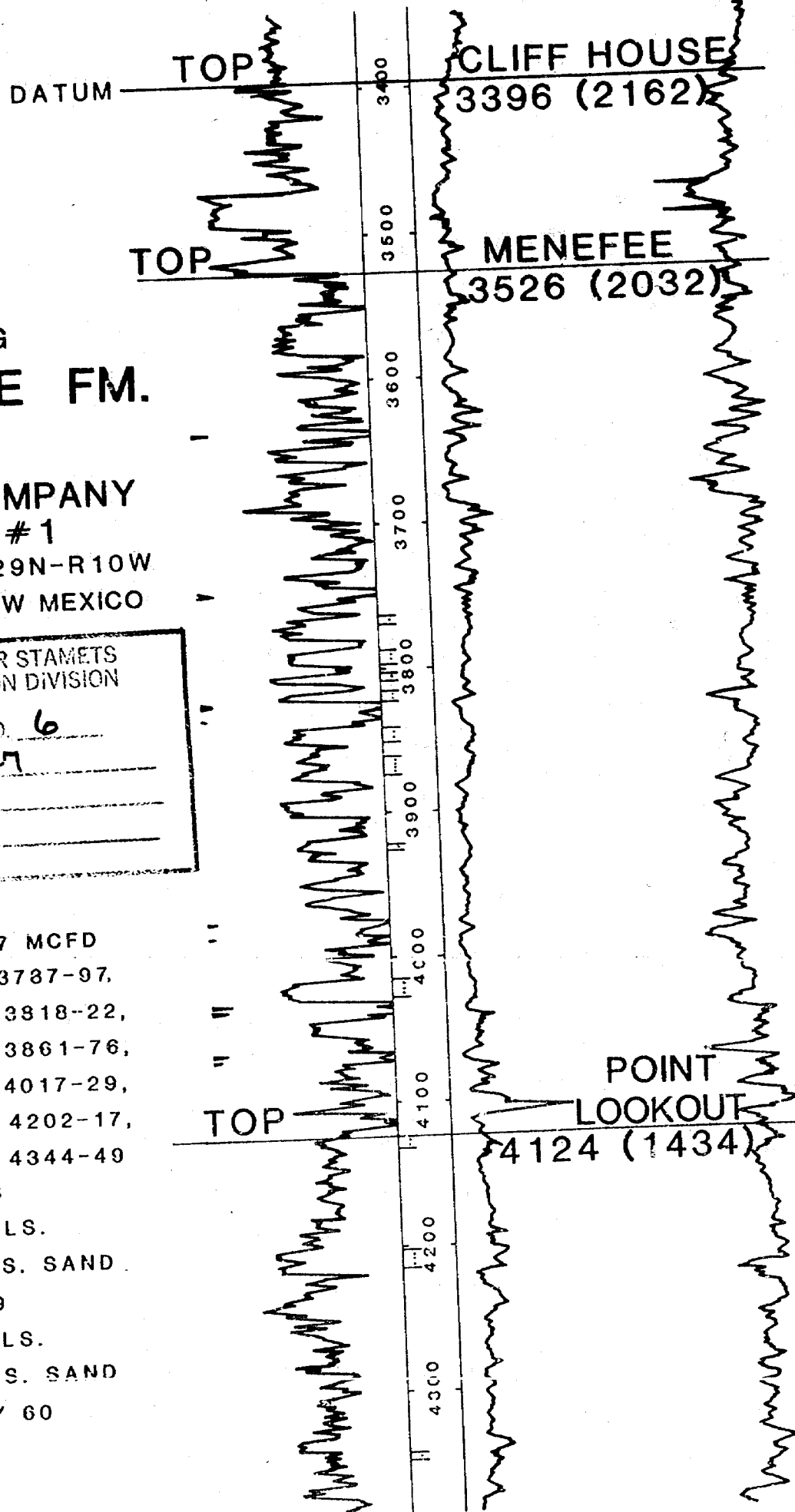
75,000 LBS. SAND

SWFR 3924-4349

48,310 GALS.

55,000 LBS. SAND

TP 148 CPO, GTY 60



TENNECO OIL COMPANY
BLOOMFIELD AREA
MESAVERDE PRODUCTION HISTORY

--- Houck B #1 NE/4 Sec. 13, T29N-R11W
 --- Hanley A #1 NW/4 Sec. 18, T29N-R10W
 --- Hanley B #1 SW/4 Sec. 18, T29N-R10W
 --- Bunce A #1 NE/4 Sec. 19, T29N-R10W

1,000
900
800
700
600
500
400
300
200
100
80
70
60
50
40
30
20
10

MCFPD

JANUARY FEBRUARY MARCH APRIL MAY JUNE JULY AUGUST SEPTEMBER OCTOBER NOVEMBER DECEMBER

BEFORE EXAMINER STAMPS
OIL CONSERVATION DIVISION

EXHIBIT NO. 8

CASE NO. 6847

Sub. by

Hearing Date

19 79

RPT-ASL

396

EL PASO NATURAL GAS COMPANY
CHROMATOGRAPHIC GAS ANALYSIS REPORTRPT DATE 09 15 79
ANAL DATE 09 17 79*Setty Ch.*
METER STATION 444
HAWLEY & AL CHMETER DIA 40079
OPEN 4500

TYPE CODE	SAMPLE DATE	OFF. DATE	USE VOL.	SCALE	MES GRAINS	LOCATION
00	09 13 79	09 19 79	18	1	00000	W P 03

	NORMAL MOL%	GRAV
C-1-2	00.71	0.000
H-2-5	00.00	0.000
N2	00.27	0.000
METHANE	86.37	0.000
ETHANE	07.13	1.905
PROPANE	03.41	0.938
ISO-BUTANE	00.47	0.194
NORM-BUTANE	00.02	0.250
ISO-PENTANE	00.23	0.084
NORM-PENTANE	00.10	0.065
HEXANE PLUS	00.41	0.179
TOTALS	100.00	1.584

SPECIFIC GRAVITY 1.064

MIXTURE HEATING VALUE
(BTU/CF @ 14.73 PSIA, 60 DEGREES, DRY) 1173RATIO OF SPECIFIC HEATS 1.290
* NO TEST SECURED FOR DETERMINATION H2S CONTENT.BEFORE EXAMINER SIGNATURES
OIL CONSERVATION DIVISION

EXHIBIT NO. 9

CASE NO. 6847

Submitted by

Hearing D. to

RPT. HASL

395

EL PASO NATURAL GAS COMPANY
CHROMATOGRAPHIC GAS ANALYSIS REPORT

RPT. DATE 09 19 79

ANAL. DATE 09 17 79

Setty M.V.

CITY STATE

SAMPLE NO. 2194

ANALYST 14 12375

SPEC. NO. 4100

TYPE CODE	SAMPLE DATE	EFF. DATE	MO. NO.	SCALE	WGT. GRAVITY	LOCATION
00	09 10 79	09 19 79	00	1	00000	4100

	W. BAL	
	W. BAL	0.00
C O 2	00.00	0.000
N 2	00.00	0.000
N 2	00.00	0.000
METHANE	79.10	0.000
ETHANE	10.70	0.000
PROPANE	05.86	1.010
ISO-BUTANE	11.11	0.265
NORM-BUTANE	01.23	0.388
ISO-PENTANE	00.40	0.140
NORM-PENTANE	00.28	0.101
HEXANE PLUS	00.52	0.227
TOTALS	100.00	5.708

SPECIFIC GRAVITY

0.731

MIXTURE HEATING VALUE

(BTU/CF @ 14.73 PSIA, 60 DEGREES, DRY) 1774

RATIO OF SPECIFIC HEATS

* NO TEST SECURED FOR DETERMINATION

 10276 EXAMINER STAFFS
 12500 OBSERVATION DIVISION

EXHIBIT NO. 10

CASE NO. 6847

Submitted by

H. H. H. H.

TENNECO OIL COMPANY
1980 BLOOMFIELD AREA DRILLING PROGRAM
DRILLING AND COMPLETION PROCEDURE
COMMINGLED MESA VERDE-CHACRA WELLS

DRILLING

1. Drill 12-1/4" hole to 250'.
2. Set 9-5/8" casing and cement to surface.
3. Drill 8-3/4" hole thru Chacra to $\approx$ 3100'.
4. Set 7" csg and cement to surface.
5. Drill 6-1/4" hole thru Mesa Verde to $\approx$ 4500'.
6. Run open hole logs over Mesa Verde and cased hole logs over Chacra.
7. Set 4-1/2" liner from 4500' to 2900'.
8. Cement liner in place.

COMPLETION

1. Drill out to plug back total depth.
2. Perforate Mesa Verde ($\approx$ 50') with 2 shots per foot.
3. Acidize Mesa Verde with 1000 gals 15% HCL and ball sealers.
4. Frac Mesa Verde with 175,000# 20/40 sand in 1% KCl water.
5. Set retrievable bridge plug between Chacra and Mesa Verde.
6. Perforate Chacra ($\approx$ 10') with 2 shots per foot.
7. Acidize Chacra with 500 gals 15% HCL and ball sealers.
8. Frac Chacra with 30,000# 10/20 sand in 70% quality foam.
9. Retrieve bridge plug.
10. Land tubing above Mesa Verde perforations.
11. Flow well to cleanup frac fluid.
12. Shut-in well for AOF test.

BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION

EXHIBIT NO. 11

CASE NO. 6847

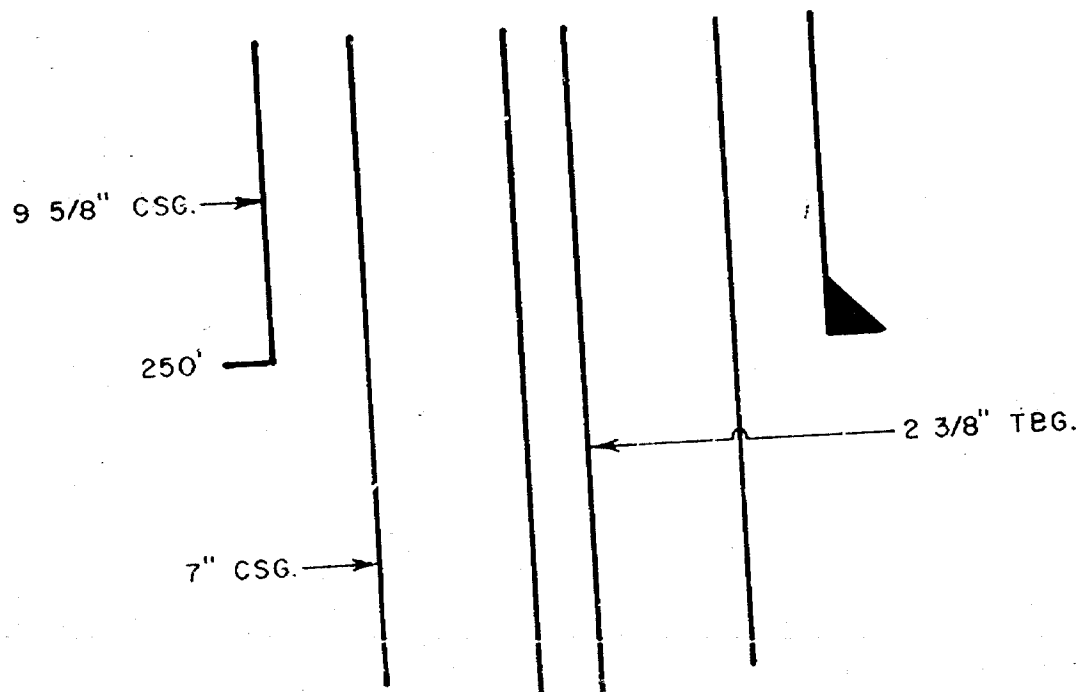
Submitted by _____

Witness Date _____

PAD 3/21/80

TENNECO OIL COMPANY
BLOOMFIELD AREA
T 29 N - R 10 & 11 W
SAN JUAN COUNTY, NEW MEXICO

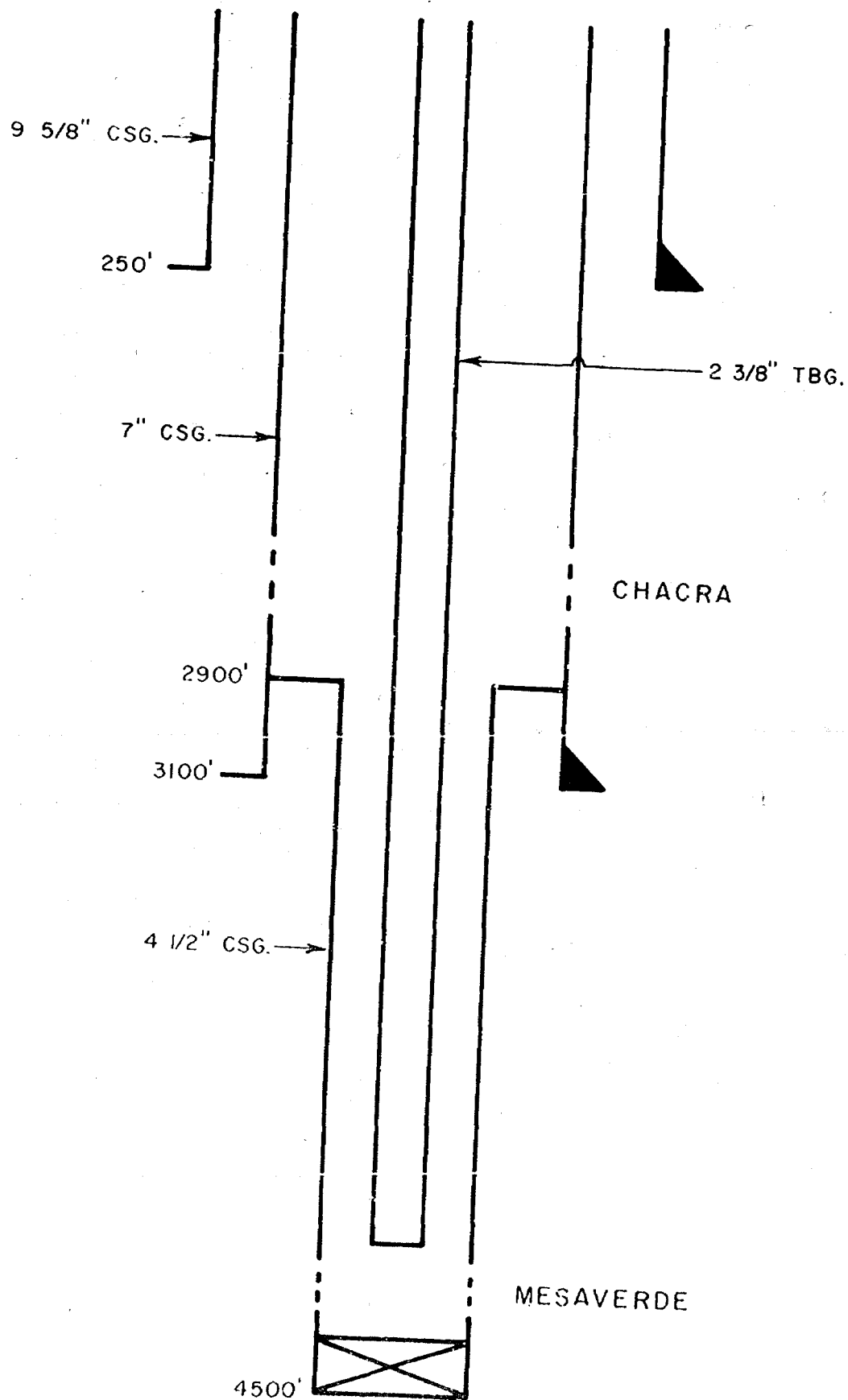
MESAVERDE - CHACRA COMINGLED
WELLBORE SCHEMATIC



BEFORE EXAMINER SIGNATURES	
OIL CONSERVATION DIVISION	
EXHIBIT NO.	12
CASE NO.	6847
SUB. NAME	
DATE OF DEED	

TENNECO OIL COMPANY
BLOOMFIELD AREA
T 29 N - R 10 & 11 W
SAN JUAN COUNTY, NEW MEXICO

MESAVERDE - CHACRA COMINGLED WELLBORE SCHEMATIC



TENNECO OIL COMPANY
1980 BLOOMFIELD AREA DRILLING PROGRAM
DRILLING AND COMPLETION PROCEDURE
DAKOTA DUALED WITH COMMINGLED CHACRA-MESA VERDE

DRILLING

1. Drill 12-1/4" hole to 250'.
2. Set 9-5/8" csg and cement to surface.
3. Drill 8-3/4" hole thru Mesa Verde to $\approx$ 4500'.
4. Set 7" csg and cement to surface using 2 stage cement job with DV tool at 2950'.
5. Drill 6-1/4" hole thru Dakota to $\approx$ 6400'.
6. Run open hole logs over Dakota and cased hole log in 4-1/2" casing.
7. Set 4-1/2" liner from 6400' to 4300'.
8. Cement liner in place.

COMPLETION

1. Drill out to plug back total depth.
2. Perforate Dakota ($\approx$ 50') with 2 shots per foot.
3. Acidize Dakota with 1500 gals 15% HCL and ball sealers.
4. Frac Dakota with 105,000# sand in 30# cross-linked gelled water.
5. Set Model "F" packer with expendable plug above Dakota.
6. Perforate Mesa Verde ($\approx$ 50') with 2 shots per foot.
7. Acidize Mesa Verde with 1000 gals 15% HCL and ball sealers.
8. Frac Mesa Verde with 175,000# 20/40 sand in 1% KCl water.
9. Set retrievable bridge plug between Chacra and Mesa Verde.
10. Perforate Chacra ($\approx$ 10') with 2 shots per foot.
11. Acidize Chacra with 500 gal 15% HCL and ball sealers.
12. Frac Chacra with 30,000# 10/20 sand in 70% quality foam.
13. Retrieve bridge plug.
14. Run in hole and land Dakota tubing string in Model "F" packer.
15. Run in hole and land Mesa Verde-Chacra tubing string above Mesa Verde.
16. Flow well to cleanup frac fluid.
17. Shut-in well for AOF test.

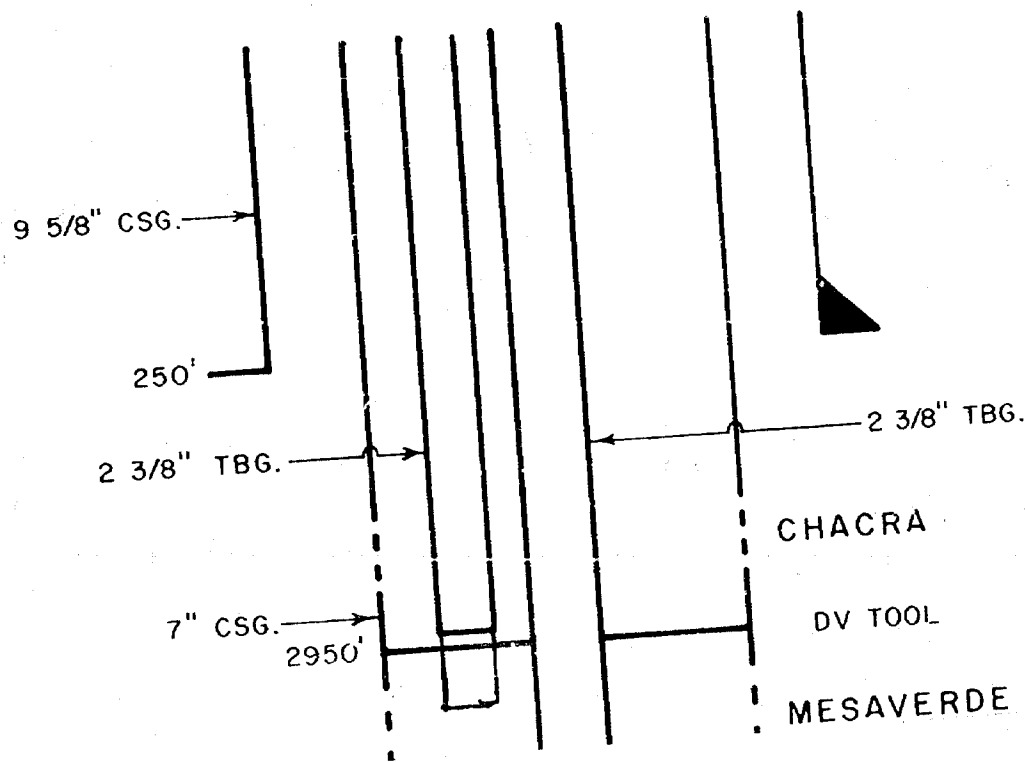
BEFORE EXAMINER STAMPS OIL CONSERVATION DIVISION	
EXHIBIT NO.	13
CASE NO.	6847
Sub. No.	
Working Date	

PAD 3/21/80

TENNECO OIL COMPANY
BLOOMFIELD AREA

T 29 N - R 10 & 11 W
SAN JUAN COUNTY, NEW MEXICO

DAKOTA DUAL WITH
MESAVERDE - CHACRA COMINGLED
WELLBORE SCHEMATIC



BEFORE EXAMINED STANDARDS
OIL CONSERVATION DIVISION

EXHIBIT NO. 14

CASE NO. 6847

FILE NO.

DATE

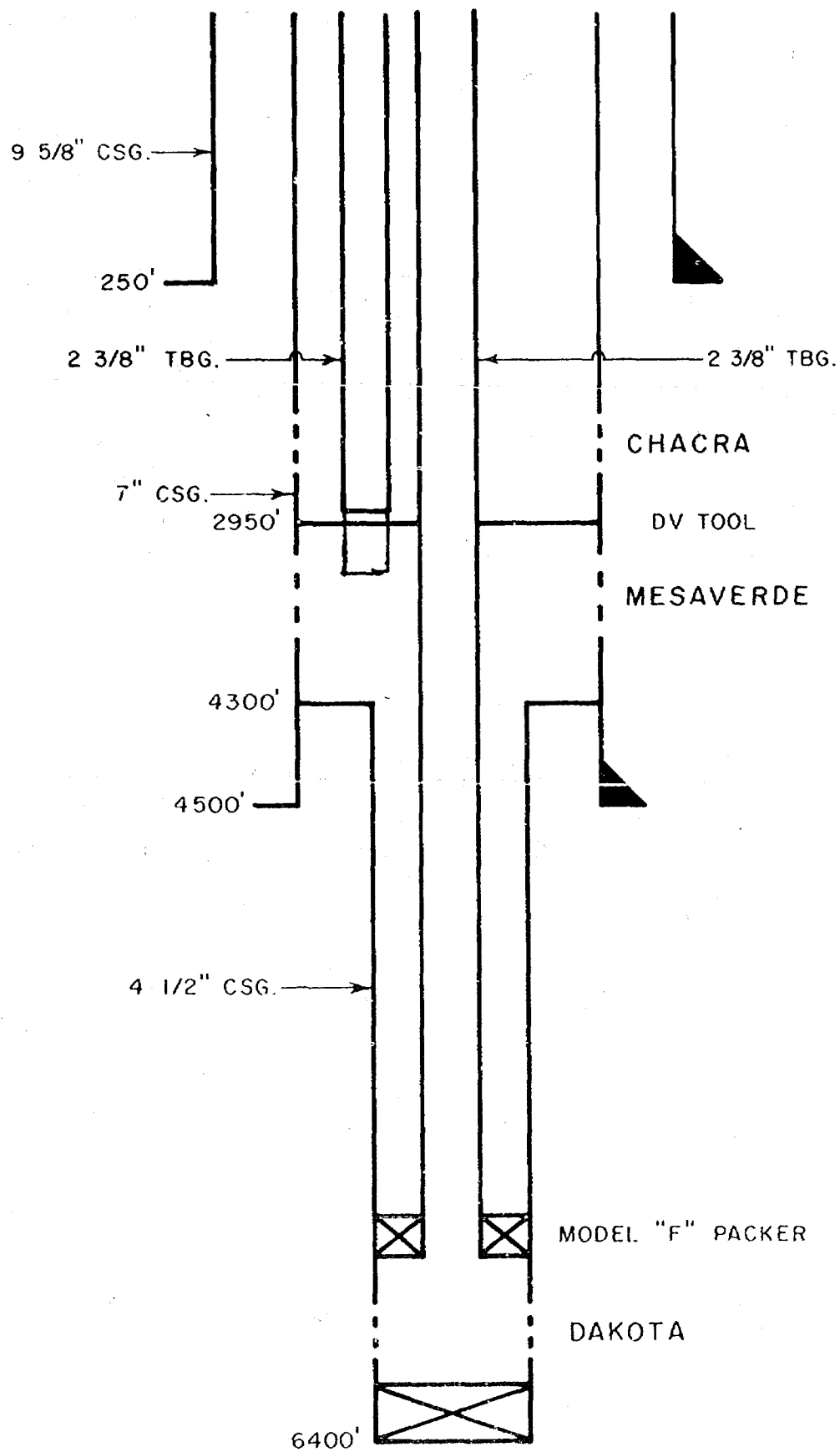
TENNECO OIL COMPANY

BLOOMFIELD AREA

T 29 N - R 10 & 11 W

SAN JUAN COUNTY, NEW MEXICO

DAKOTA DUAL WITH
MESAVERDE - CHACRA COMINGLED
WELLBORE SCHEMATIC



TENNECO OIL COMPANY
1980 BLOOMFIELD AREA DRILLING PROGRAM
ESTIMATED GROSS RESERVES

<u>ZONE</u>	<u>RESERVES (MMCF)</u>
Chacra	170
Mesa Verde	160
Dakota	1350

BEFORE EXAMINER SIGNATURES
OIL CONSERVATION DIVISION

EXHIBIT NO. 15

CASE NO. 6847

Submitted by _____

Hearing Date _____

TENNECO OIL COMPANY
1980 BLOOMFIELD AREA DRILLING PROGRAM
ALTERNATIVE COST SUMMARY

<u>TYPE WELL</u>	<u>TOTAL COST</u> (\$M)
<u>Single Completion</u>	
Mesa Verde	263
Dakota	347
Chacra	140
	<u>750</u>
<u>Duals Without Commingling</u>	
Dakota-Mesa Verde	449
Mesa Verde-Chacra	349
Dakota-Chacra	401
<u>Commingled Charca-Mesa Verde</u>	
Mesa Verde-Chacra	327
<u>Three Zones With Two Commingled</u>	
Dakota Dualled with Chacra & Mesa Verde Commingled	461

RECEIVED EXAMINER STAMP
OIL CONSERVATION DIVISION

EXHIBIT NO. 16

CASE NO. 6847

DATE FILED BY _____

FILED IN _____

TENNECO OIL COMPANY
1980 FLOOMFIELD AREA DRILLING PROGRAM
WELLS WITH MESA VERDE AND CHACRA POTENTIAL
COST COMPARISON

I. Proposed Completion-Commingling Zones

Cost: \$327,000

II. Alternative Without Commingling

<u>Alternative</u>	<u>Cost</u>	<u>Cost Over Commingled Alternative (\$M)</u>
1. Dually Complete Chacra & Mesa Verde	349	22

RECEIVED EXAMINER'S OFFICE OIL CONSERVATION DIVISION	
EXHIBIT NO. 17	
CASE NO.	6847
SUBMITTED BY	
RECEIVED DATE	

PAD 3/21/80

BEFORE EXAMINER'S OFFICE
 OIL CONSERVATION DIVISION
 EXHIBIT NO. 18
 CASE NO. 6847
 Submitted by _____
 Hearing Date _____

TENNECO OIL COMPANY
 1980 BLOOMFIELD AREA DRILLING PROGRAM
 ECONOMIC SUMMARY
 MESA VERDE-CHACRA WELL

TYPE WELL

AFTER TAX
 RATE OF RETURN
 (%)

DISCOUNTED
 PROFIT @10%
 (M\$)

RESERVES
 (MMCF)

PAYOUT
 (YEARS)

COMMINGLED

Mesa Verde-Chacra

22.6

80.9

360

3.2

DUAL

Mesa Verde-Chacra

14.0

28.6

330

3.9

BEFORE EXAMINER STATES
OIL CONSERVATION DIVISION

EXHIBIT NO. 18

CASE NO. 6847

Submitted by

Hearing Date

TENNECO OIL COMPANY
1980 BLOOMFIELD AREA DRILLING PROGRAM
ECONOMIC SUMMARY
MESA VERDE-CHACRA WELL

TYPE WELL

AFTER TAX
RATE OF RETURN
(%)

DISCOUNTED
PROFIT @10%
(M\$)

RESERVES
(MMCF)

PAYOUT
(YEARS)

COMMINGLED

Mesa Verde-Chacra

22.6

80.9

360

3.2

DUAL

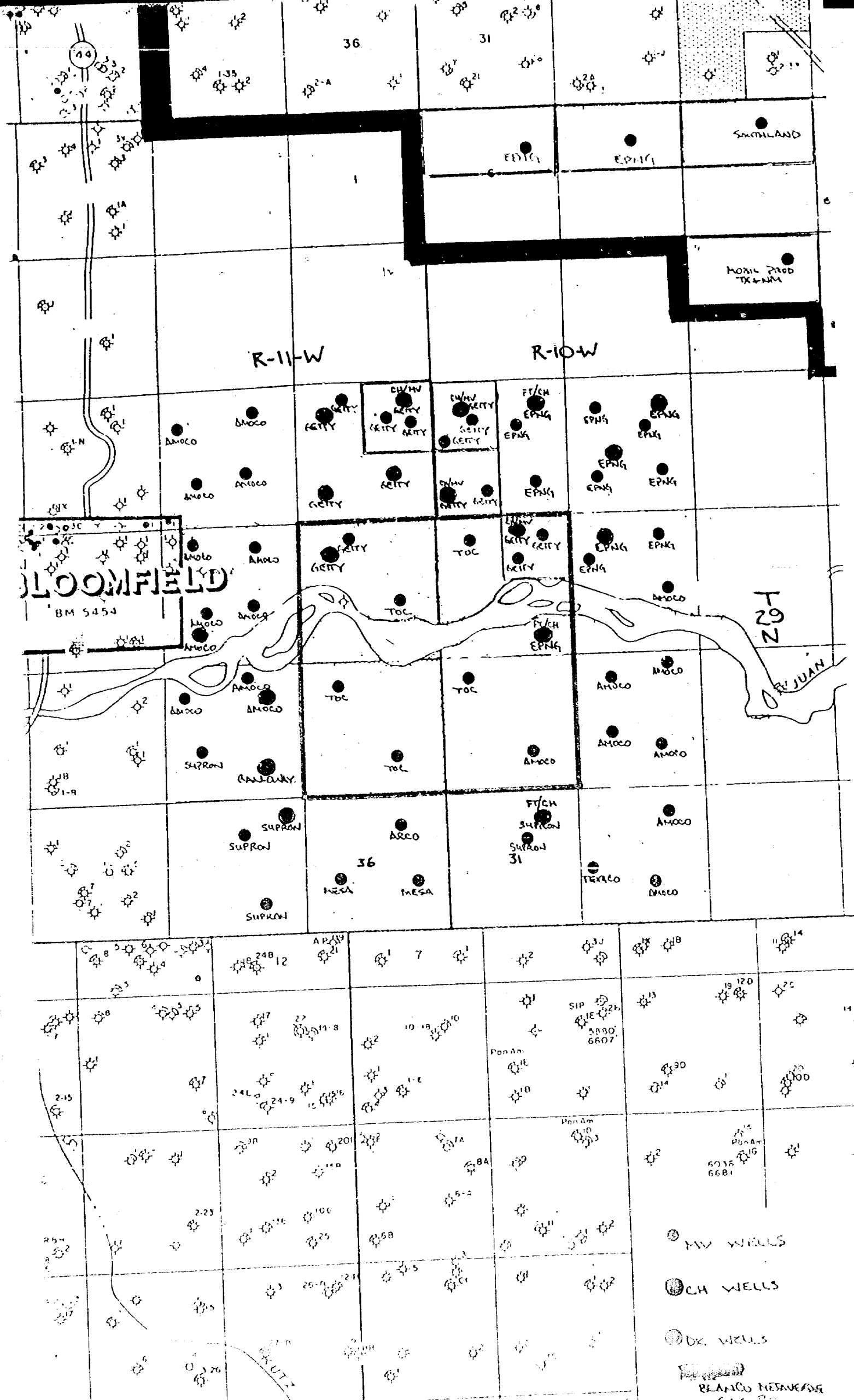
Mesa Verde-Chacra

14.0

28.6

330

3.9



STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

P. O. BOX 2048
SANTA FE, NEW MEXICO 87501

Form C-107
Revised 10-1-78

All distances must be from the outer boundaries of the Section.

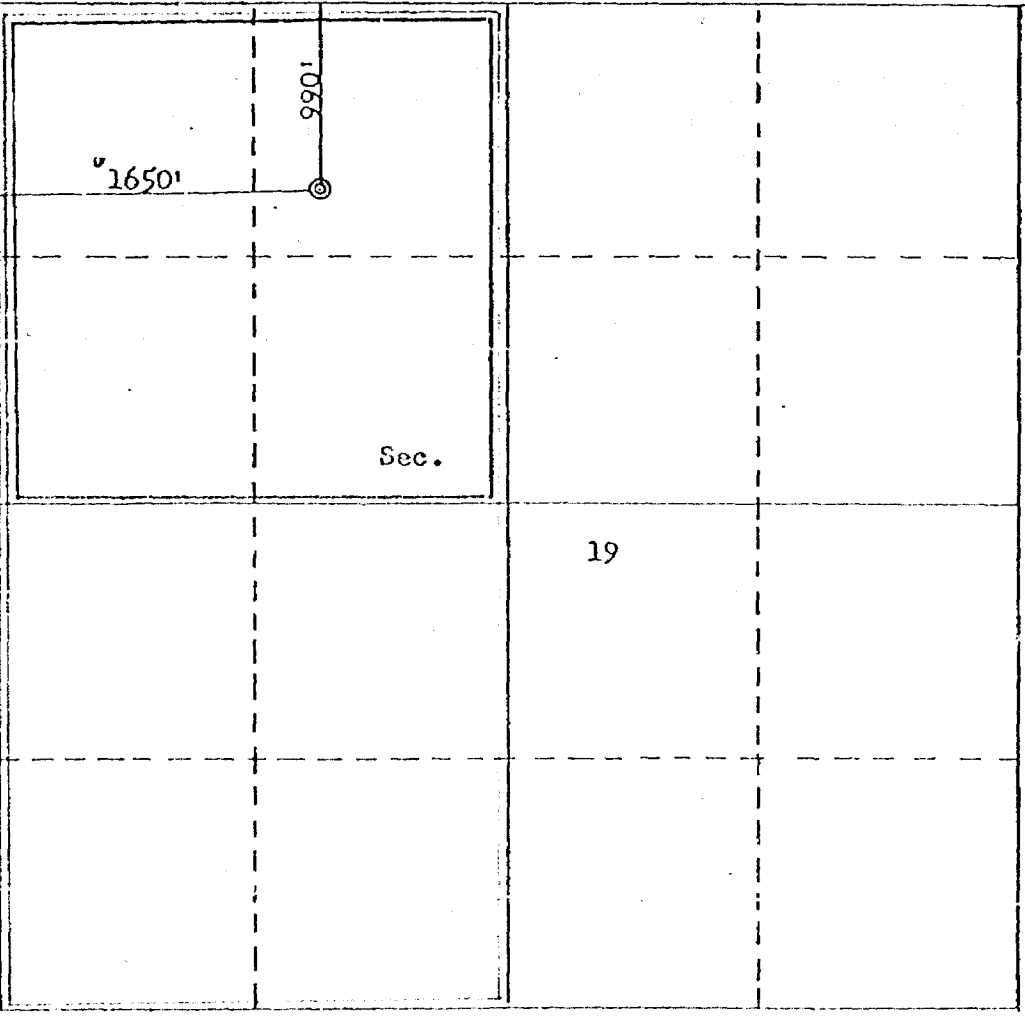
Operator TENNECO OIL COMPANY			Lease BUNCE COM		Well No. 1
Well Letter C	Section 19	Township 29N	Range 10W	County San Juan	
Well Location of Well:					
990 feet from the		North	line and	1650 feet from the	West
Ground Level Elev. 5521	Producing Formation		Pool	Dedicated Acreage: Acres	

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.

	CERTIFICATION
	I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief. Name _____ Position _____ Company _____ Date _____ I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief. Date Surveyed November 26, 1979 Registered Professional Engineer and/or Land Surveyor Fred B. Kerr, Jr. Certified 3950

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
P. O. BOX 7088
SANTA FE, NEW MEXICO 87501

Form C-102
Revised 10-1-78

All distances must be from the corner boundaries of the Section.

Operator TENNECO OIL COMPANY			Lease ELVIN J. PAYNE GAS UNIT "A"		Well No. 1-E
Unit Letter N	Section 19	Township 29N	Range 10W	County San Juan	
Actual Footage Location of Well: 530 feet from the South line and 2080 feet from the West line					
Ground Level Elev. 5476	Producing Formation		Pool	Dedicated Acreage: Acres	

1. Outline the acreage dedicated to the subject well by colored pencil or hatchure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.

Sec.	
19	
SAN JUAN RIVER	
SAN JUAN RIVER	
2080'	530'

CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Name

Position

Company

Date

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed

September 17, 1979

Registered Professional Engineer
and/or Land Surveyor

Fred B. Kerr

Certified by

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form C-102
Revised 10-1-78

All distances must be from the outer boundaries of the Section.

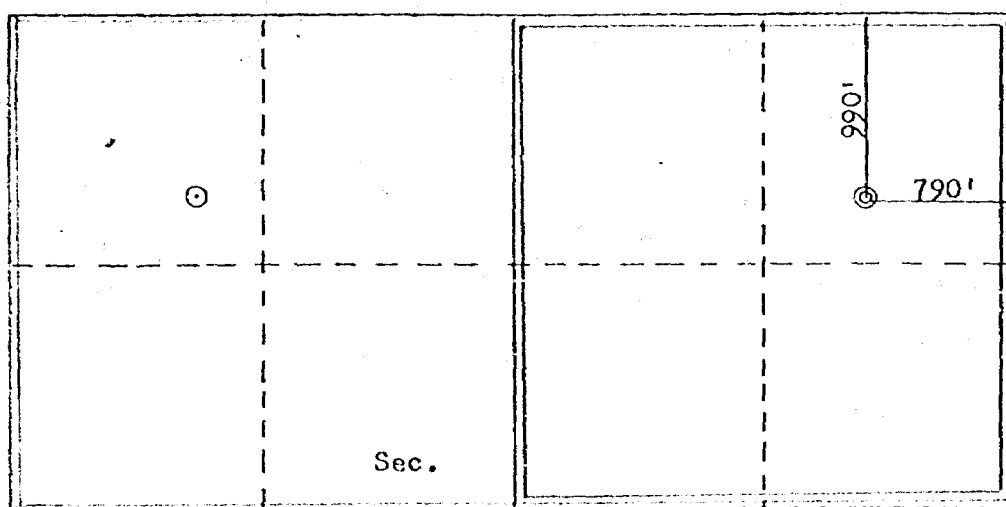
Operator TENNECO OIL COMPANY			Lease SULLIVAN FRAME GAS UNIT "A"		Well No. 1-E
Unit Letter A	Section 30	Township 29N	Range 10W	County San Juan	
Actual Footage Location of Well: 990 feet from the North line and 790 feet from the East line					
Ground Level Elev. 5502	Producing Formation Dakota		Pool Basin Dakota		Dedicated Acreage: Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hatchure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.

		990'	
		790'	
Sec. 30			

CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Name _____

Position _____

Company _____

Date _____

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed _____

September 3, 1979
Registered Professional Engineer
and/or Land Surveyor


Fred A. Kerr, Jr.
Certified _____

3950

330 880 90 1320 1880 1920 2310 2640 2000 1500 1000 500 0

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

P. O. BOX 2088

SANTA FE, NEW MEXICO 87501

Form C-102
Revised 10-1-78

All distances must be from the outer boundaries of the Section.

Operator TENNECO OIL COMPANY		Lease SULLIVAN FRAME COM "B"		Well No. 1
Init Letter D	Section 30	Township 29N	Range 10W	County San Juan
Actual Footage Location of Well: 1100 feet from the North line and 800 feet from the West line				
Ground Level Elev. 5466	Producing Formation		Pool	Dedicated Acreage: Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

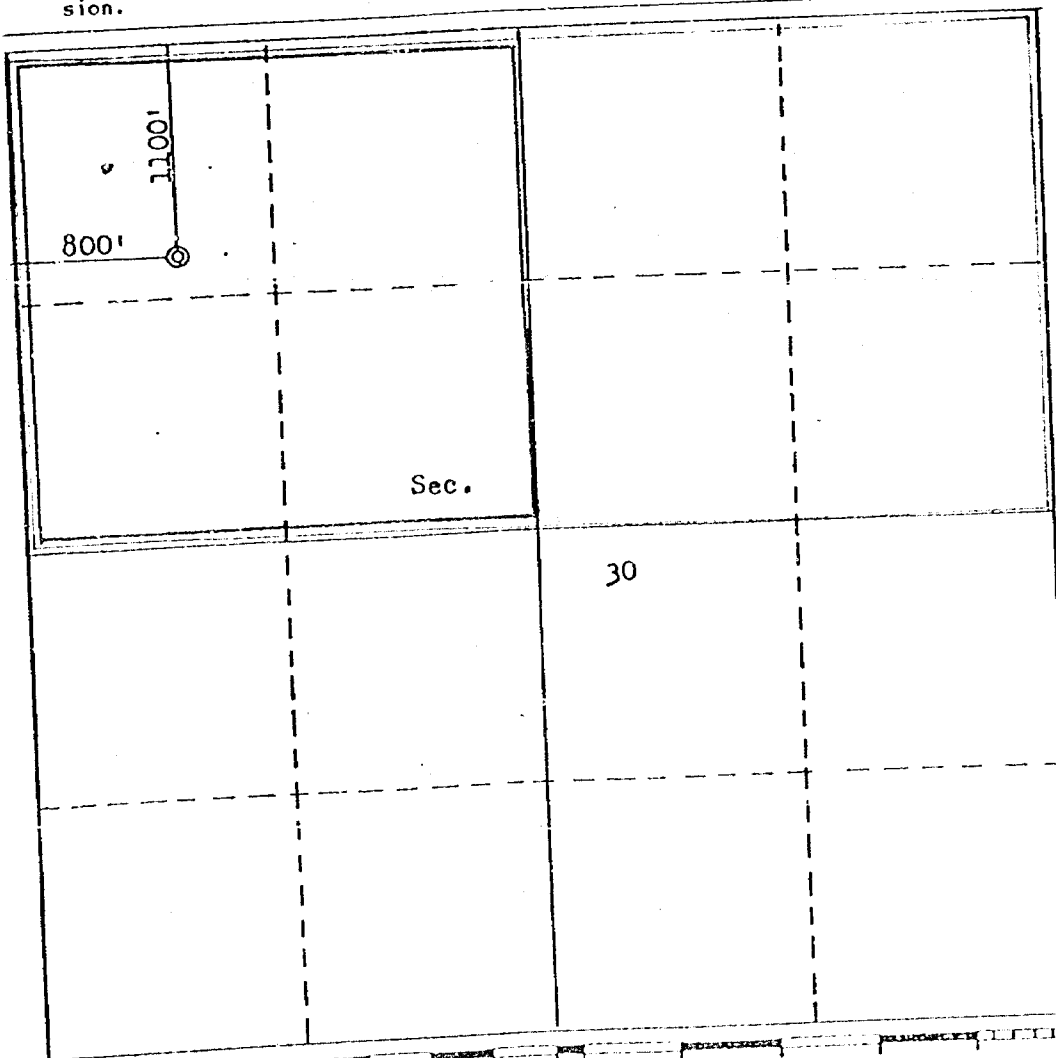
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.



CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Name

Position

Company

Date

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed

November 27, 1978
Registered Professional Engineer
and/or Land Surveyor

Fred B. Kerr
Certificate No.

3950

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form C-107
Revised 10-1-78

All distances must be from the outer boundaries of the Section

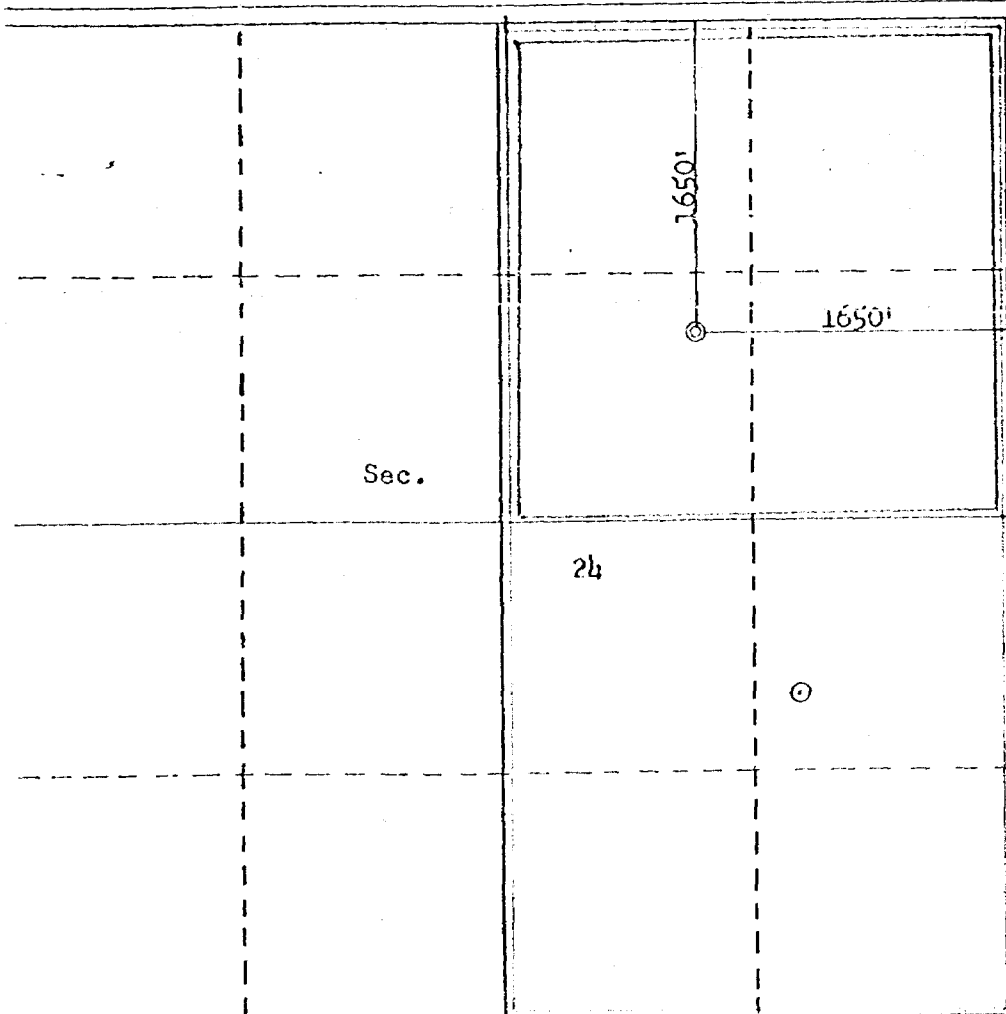
Operator TENNECO OIL COMPANY			Lease VALDEZ GAS UNIT "A"		Well No. 1-E
Well Letter G	Section 24	Township 29N	Range 11W	County San Juan	
Well Footage Location of Well: 1650 feet from the North line and 1650 feet from the East line					
Ground Level Elev. 5486	Producing Formation Dakota		Pool Basin Dakota	Dedicated Acreage: Acres	

1. Outline the acreage dedicated to the subject well by colored pencil or hatchure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.



CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Name _____

Position _____

Company _____

Date _____

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed _____

February 1980

Registered Professional Engineer
and/or Land Surveyor

Fred B. Kerr Jr.

Certificate No. B. KERR, JR.

3950

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form C-102
Revised 10-1-78

All distances must be from the outer boundaries of the Section.

Operator TENNECO OIL COMPANY		Lease MARQUIS G. EATON GAS UNIT "A"		Well No. 1-E
Unit Letter A	Section 25	Township 29N	Range 11W	County San Juan
Actual Footage Location of Well: 990 feet from the North line and 990 feet from the East line				
Ground Level Elev. 5457	Producing Formation Dakota	Pool Basin Dakota		

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

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CERTIFICATION

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Name _____

Position _____

Company _____

Date _____

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Date Surveyed _____

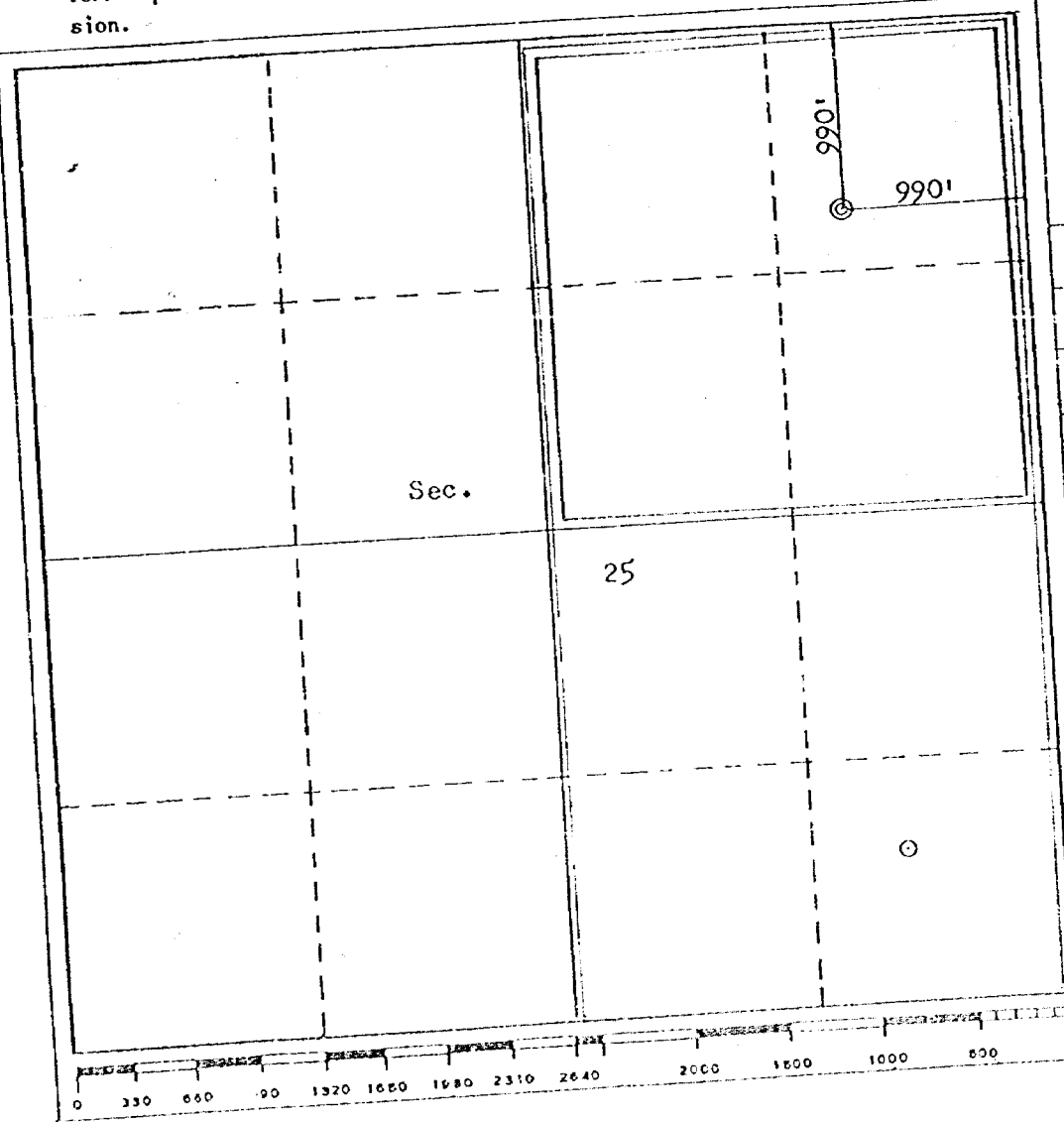
September 14, 1979

Registered Professional Engineer
and/or Land Surveyor

Fred B. Kerr Jr.

Certificate No.

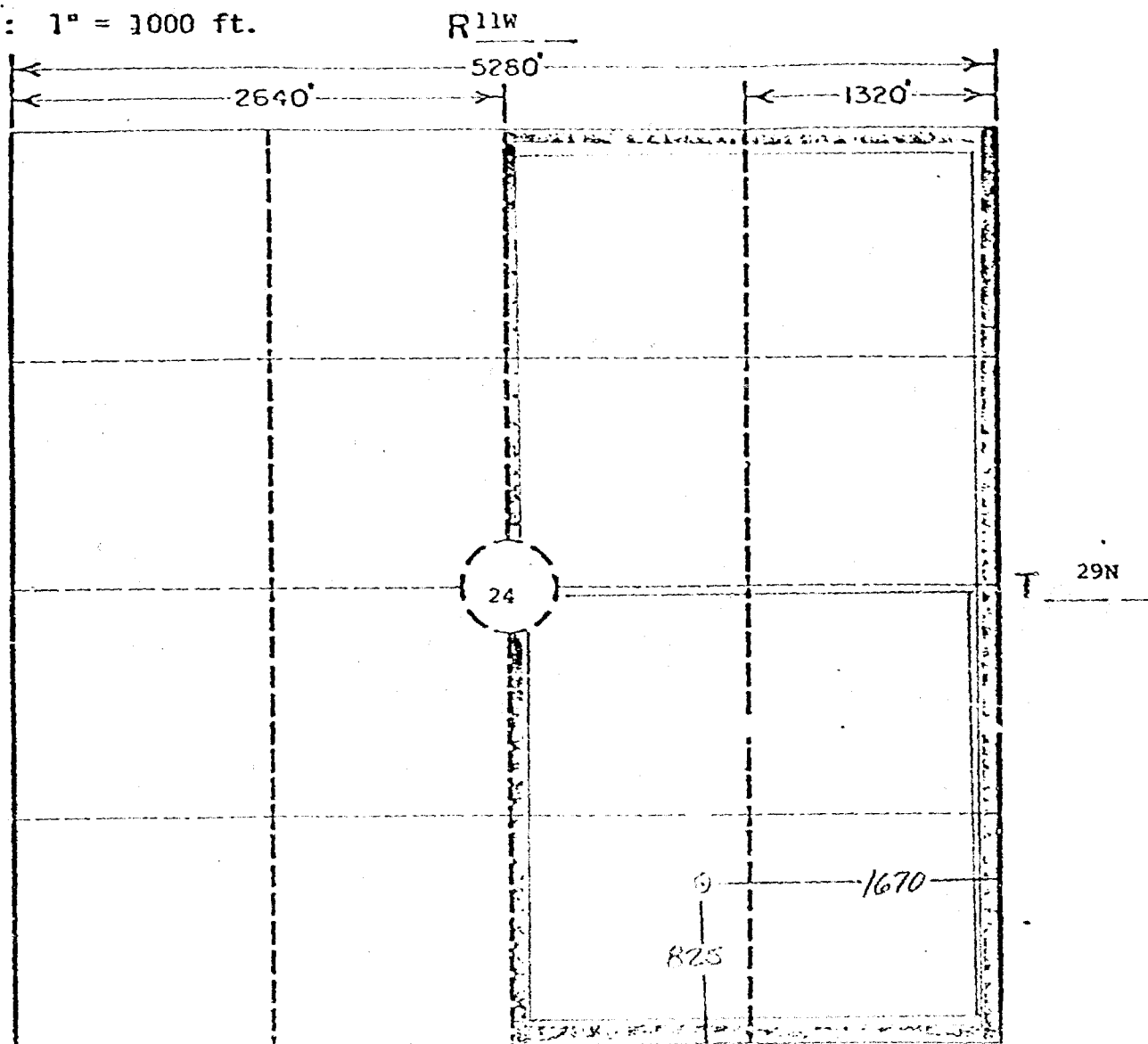
3950



TERNECO OIL
Penthouse
720 South Colorado Boulevard
Denver, Colorado 80222

WELL LOCATION PLAT AND DESCRIPTION

Well Name VALDEZ COM R-1
Location: 825 1670
1850 FSL 1850 FEL Section 24, T 29N, R 11W
1/4-1/4-1/4 Section SE NW SE County San Juan State New Mexico
Lease No.: Federal State NM 481 482 483 484 530 Fee
Spacing Unit MV 320 Chacra 160 Acres: Description Mesaverde: E/2 Chacra: SE/4
Location meets State rules Yes Field Rules Yes
Deepest Objective Mesaverde Est. TD 4500 Est. G.L. Elev 5450
Plat Scale: 1" = 1000 ft.



Preferred direction for relocation within legal boundaries shown SE

If relocation of more than 0 feet is necessary, please contact Carol Peavey

in the G.E. Section.

Prepared by Doug Brandon Approved by Original Signed By: R. H. CASTLE Date October 24, 1979

cc: Well File
Land
Properties
Administrative
Drilling

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

P. O. BOX 2028
SANTA FE, NEW MEXICO 87501

Form C-107
Revised 10-1-78

All distances must be from the outer boundaries of the Section.

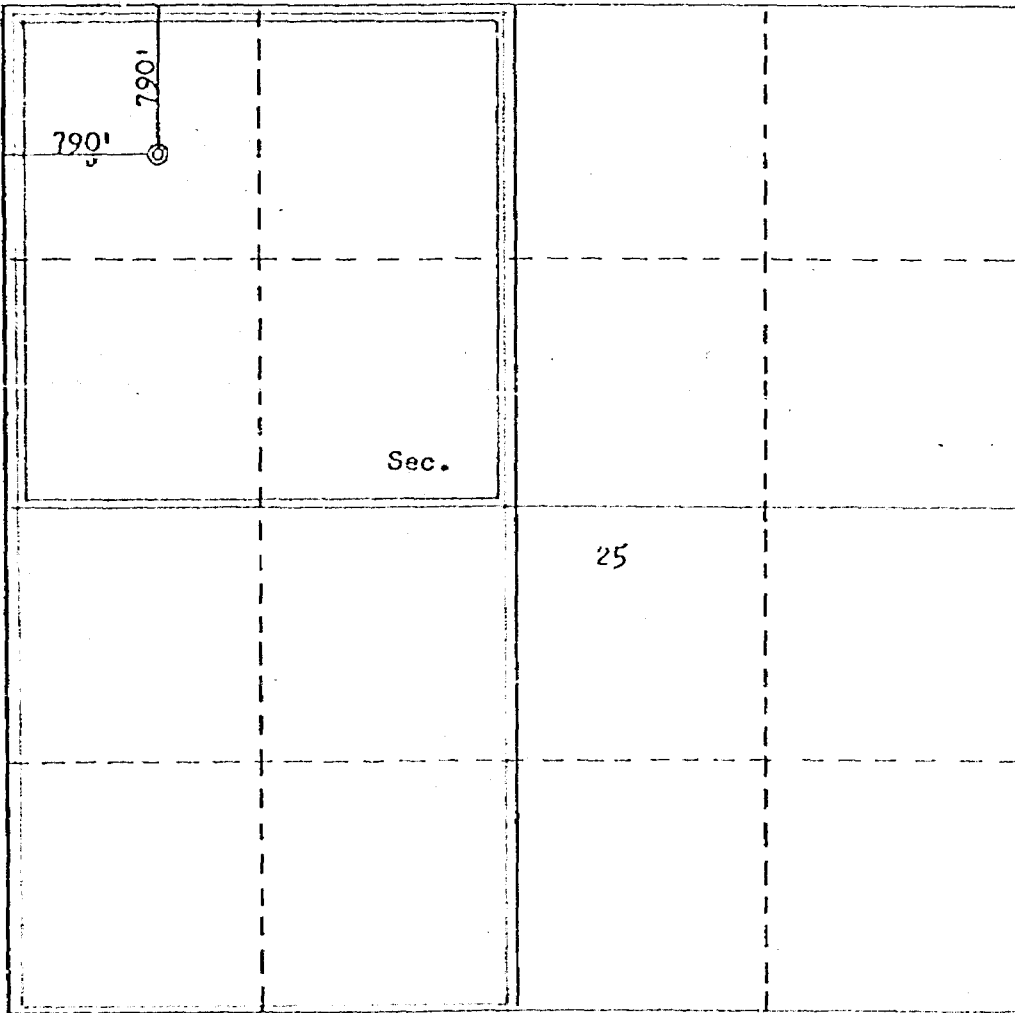
Operator TENNECO OIL COMPANY		Lease BRUCE SULLIVAN COM B		Well No. 1
Unit Letter D	Section 25	Township 29N	Range 11W	County San Juan
Actual Footage Location of Well: 790 feet from the North line and 790 feet from the West line				
Ground Level Elev. 5457	Producing Formation		Pool	Dedicated Acreage: Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hatchure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.

		CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief. Name _____ Position _____ Company _____ Date _____ I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief. Date Surveyed _____ November 26, 1979 Registered Professional Engineer and/or Land Surveyor Fred B. Kerr, Jr. Certification No. 3950
--	--	--

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

P. O. BOX 7088
SANTA FE, NEW MEXICO 87501

Form C-107
Revised 10-1-78

All distances must be from the outer boundaries of the Section.

Operator TENNECO OIL COMPANY			Lease SULLIVAN GAS UNIT "A"		Well No. 1-E
Unit Letter M	Section 25	Township 29N	Range 11W	County San Juan	
Actual Footage Location of Well:					
990 feet from the South line and		990 feet from the West line			
Ground Level Elev. 5583	Producing Formation		Pool	Dedicated Acreage:	Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hatchure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

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Sec.	
25	
990'	990'

CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Name

Position

Company

Date

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed

September 11, 1979

Registered Professional Engineer
and/or Land Surveyor

Fred B. Kerr, Jr.
Certified

3950

B. KERR, JR.

STATE OF NEW MEXICO
OIL AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form O-102
Revised 10-1-78

All distances must be from the outer boundaries of the Section.

Operator TENNECO OIL COMPANY		Lease EATON COM "B"		Well No. 1
Section Letter P	Section 25	Township 29N	Range 11W	County San Juan
Actual Footage Location of Well: 1040 feet from the South line and 790 feet from the East line				
Ground Level Elev. 5562	Producing Formation	Pool	Dedicated Acreage: Acres	

1. Outline the acreage dedicated to the subject well by colored pencil or hatchure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.

Sec.		25	
		790'	
		1040'	

CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Name

Position

Company

Date

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

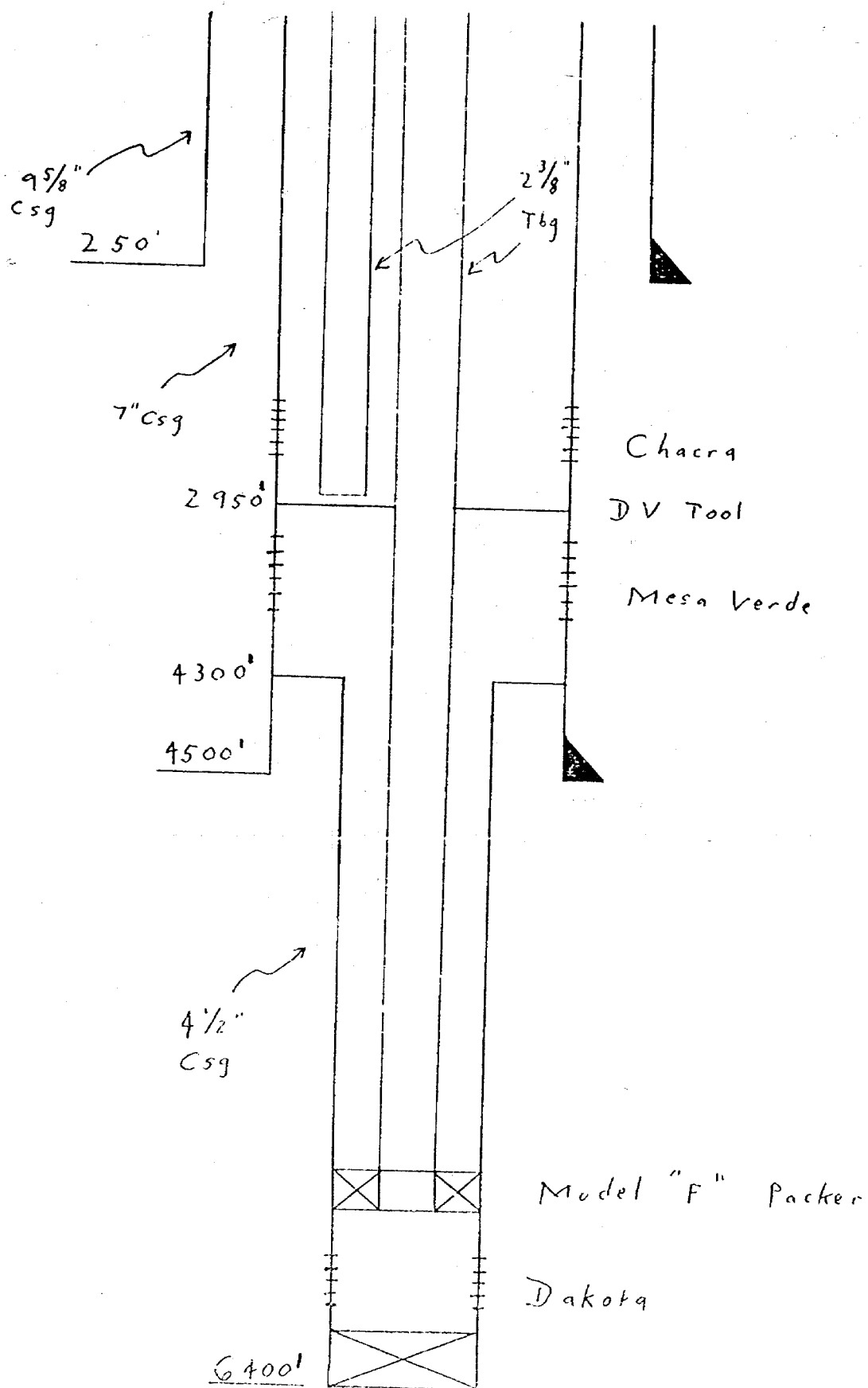
Date Surveyed

November 2, 1979
Registered Professional Engineer
and/or Licensed Surveyor

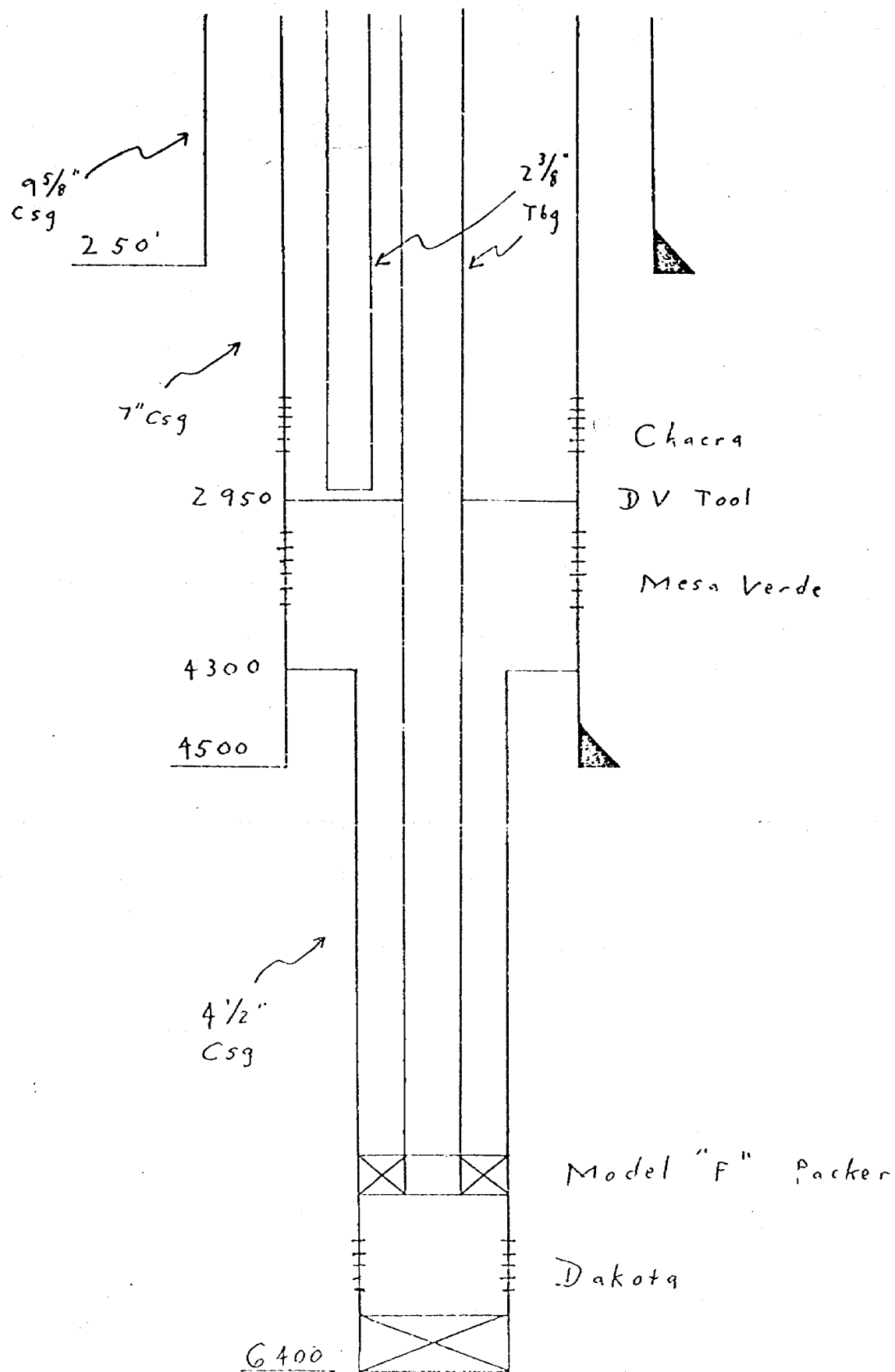
John B. Kerr, Jr.
Fred B. Kerr, Jr.
Certification No. 3950
B. KERR, JR.

0 330 660 990 1320 1650 1980 2310 2640 2970 3300 3630 3960 4290 4620 4950 5280 5610 5940 6270 6600 6930 7260 7590 7920 8250 8580 8910 9240 9570 9900 0

TENNECO OIL COMPANY
BLOOMFIELD AREA
R10411 W, T29N
SAN JUAN COUNTY, NEW MEXICO
DAKOTA DUAL WITH MESA VERDE-CHACRA COMINGLES



TENNECO OIL COMPANY
BLOOMFIELD AREA
R10+11 W, T29 N
SAN JUAN COUNTY, NEW MEXICO
DAKOTA DUAL WITH MESA VERDE-CHACRA COMINGLED



STATE OF NEW MEXICO
DEPARTMENT OF ENERGY AND MINERALSOIL CONTROL DIVISION
OIL CONSERVATION DIVISION
SANTA FE

IN THE MATTER OF THE APPLICATION
OF TENNECO OIL COMPANY FOR DUAL
COMPLETION AND DOWNHOLE COMMINGLING,
SAN JUAN COUNTY, NEW MEXICO.

APPLICATION

Case 6847

COMES NOW TENNECO OIL COMPANY, by and through its attorneys,
KELLAHIN & KELLAHIN, and applies to the New Mexico Oil Conservation
Division for approval to drill ten wells in which the Chacra and
Mesa Verde production will be commingled and then produced as
a dual completion with the Dakota formation, all in San Juan
County, New Mexico, and in support thereof would show:

1. Applicant is the operator of each of the units and for-
mations involved in this application as shown on the attached sur-
face plat.

2. Applicant requests approval to commingle production from
the Chacra and Mesaverde formations and to dually complete those
commingled zones with the Dakota formation for the following
wells:

1. Bunce Com Well No. 1, Unit C, Sec. 19,
T29N, R10W, NMPM;
2. Elvin J. Paynes Gas Unit "A" Well No. 1-E,
Unit N, Sec. 19, T29N, R10W, NMPM;
3. Sullivan Frame Gas Unit "A" Well No. 1-E,
Unit A, Sec. 30, T29N, R10W, NMPM;
4. Sullivan Frame Com "B" Well No. 1, Unit D,
Sec. 30, T29N, R10W, NMPM;
5. Valdez Gas Unit "A" Well No. 1-E, Unit G,
Sec. 24, T29N, R11W, NMPM;
6. Marquis C. Eaton Gas Unit "A" Well No. 1-E,
Unit A, Sec. 25, T29N, R11W, NMPM;
7. Valdez Com B-1 Well No. 1, Unit O, Sec. 24,
T29N, R11W, NMPM;

8. Bruce Sullivan Com B Well No. 1, Unit D,
Sec. 25, T29N, R11W, NMPM;
9. Sullivan Gas Unit "A" Well No. 1-E,
Unit M, Sec 25, T29N, R11W, NMPM;
10. Eaton Com "B" Well No. 1, Unit P,
Sec. 25, T29N, R11W, NMPM.

Attached hereto and incorporated by reference are Division Forms C-102 for each well.

3. Applicant proposes to dedicate a 320-acre Dakota unit to each well and a 160-acre Chacra-Mesaverde unit to each well as shown on the Form C-102 attached hereto and incorporated by reference.

4. Applicant proposes to complete each well as shown on the wellbore schematic attached hereto and incorporated by reference.

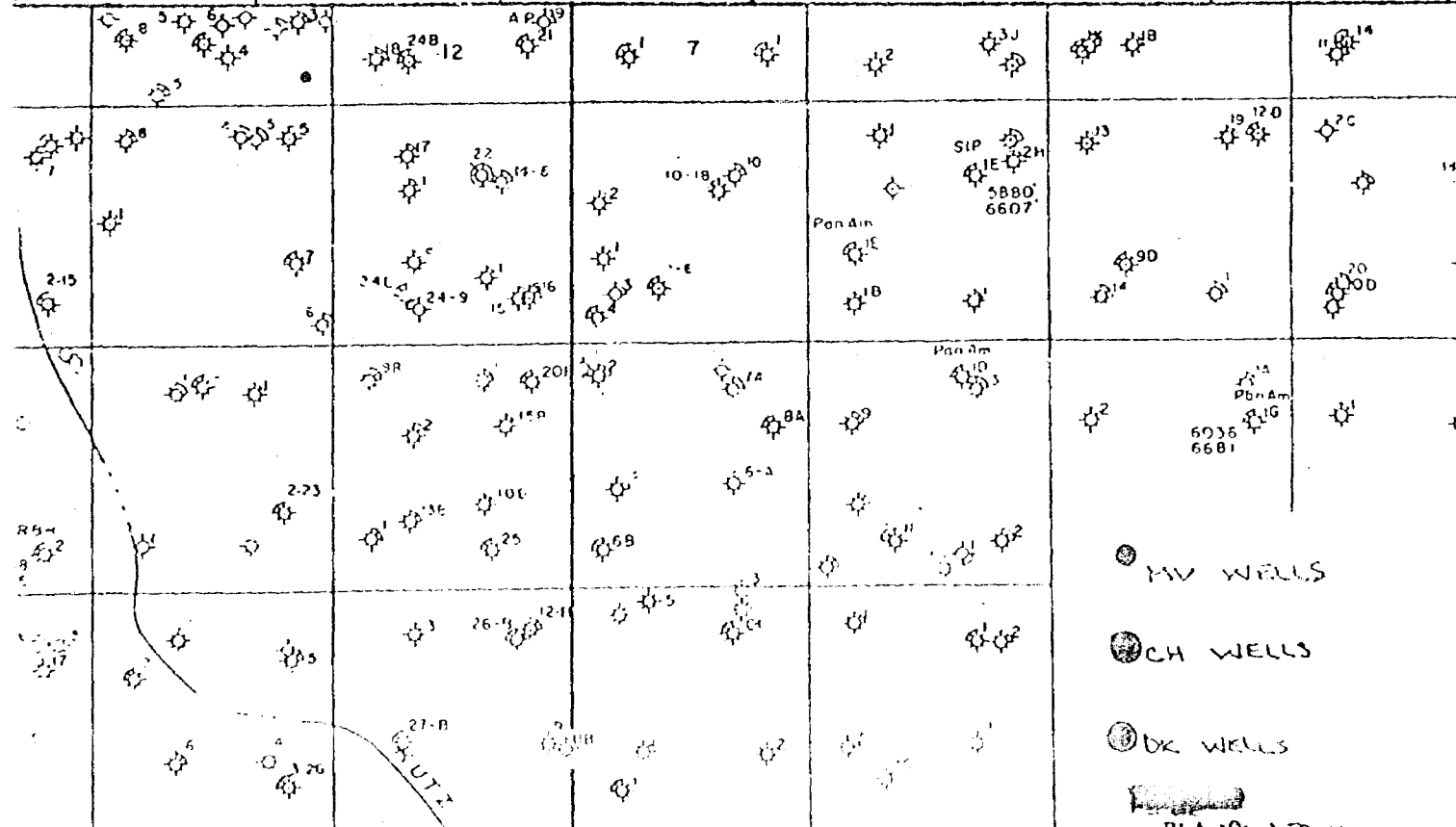
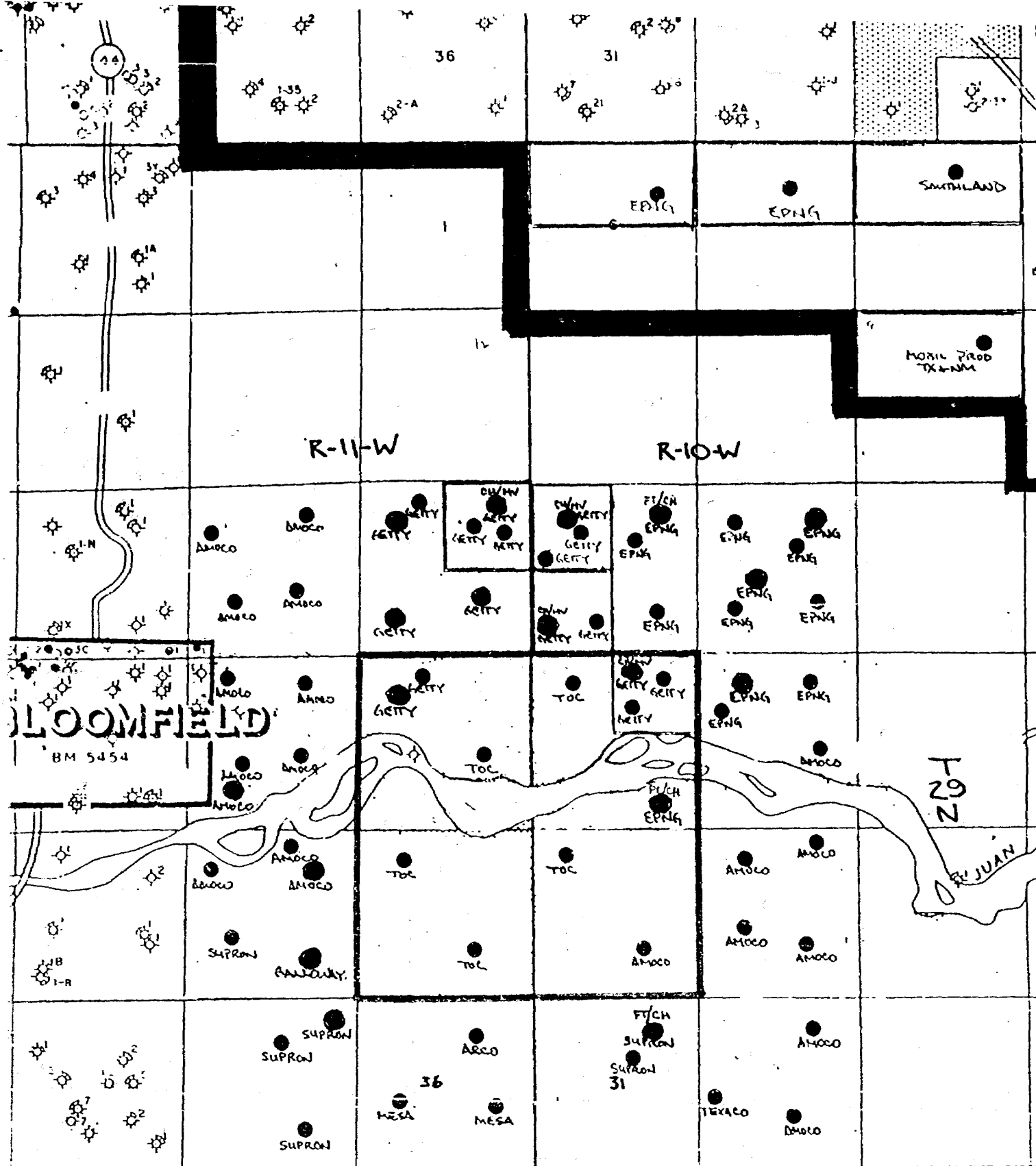
5. That approval of the application will be in the best interest of conservation, the prevention of waste and the protection of correlative rights.

WHEREFORE, Applicant requests that this matter be set for hearing and that after notice and hearing, the Division approve the application as requested.

TENNECO OIL COMPANY

By


W. Thomas Kellahin
KELLAHIN & KELLAHIN
P. O. Box 1769
Santa Fe, New Mexico 87501
ATTORNEYS FOR APPLICANT



STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

P. O. BOX 2048
SANTA FE, NEW MEXICO 87501

Form C-107
Revised 10-1-78

All distances must be from the outer boundaries of the Section.

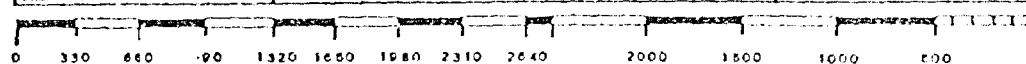
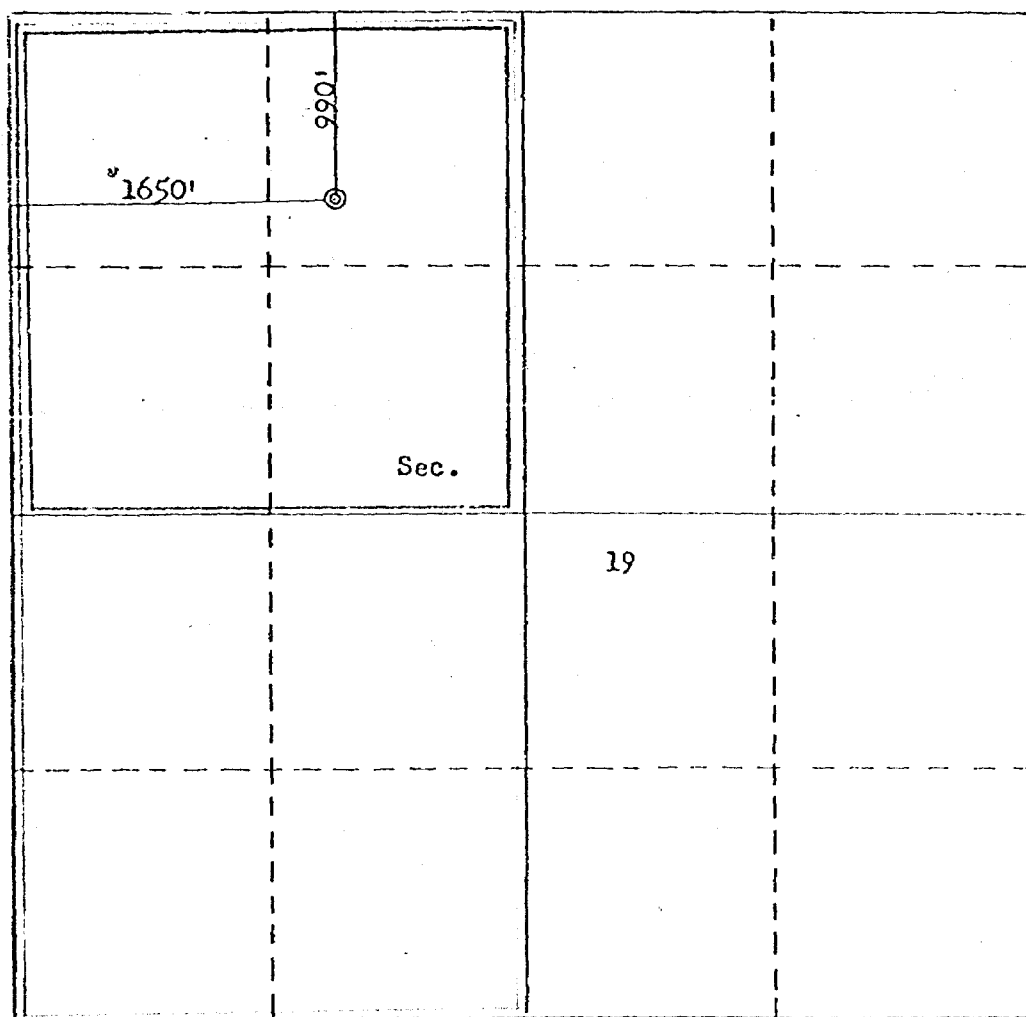
Operator TENNECO OIL COMPANY		Lease BUNCE COM		Well No. 1
Well Letter C	Section 19	Township 29N	Range 10W	County San Juan
Actual Footage Location of Well: 990 feet from the North line and 1650 feet from the West line				
Ground Level Elev. 5521	Producing Formation		Pool	Dedicated Acreage: Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hatchure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.



CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Name

Position

Company

Date

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed

November 26, 1979
Registered Professional Engineer
and/or Land Surveyor

Fred B. Kerr, Jr.
Certified
3950
B. KERR, JR.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form C-102
Revised 10-1-78

All distances must be from the outer boundaries of the Section

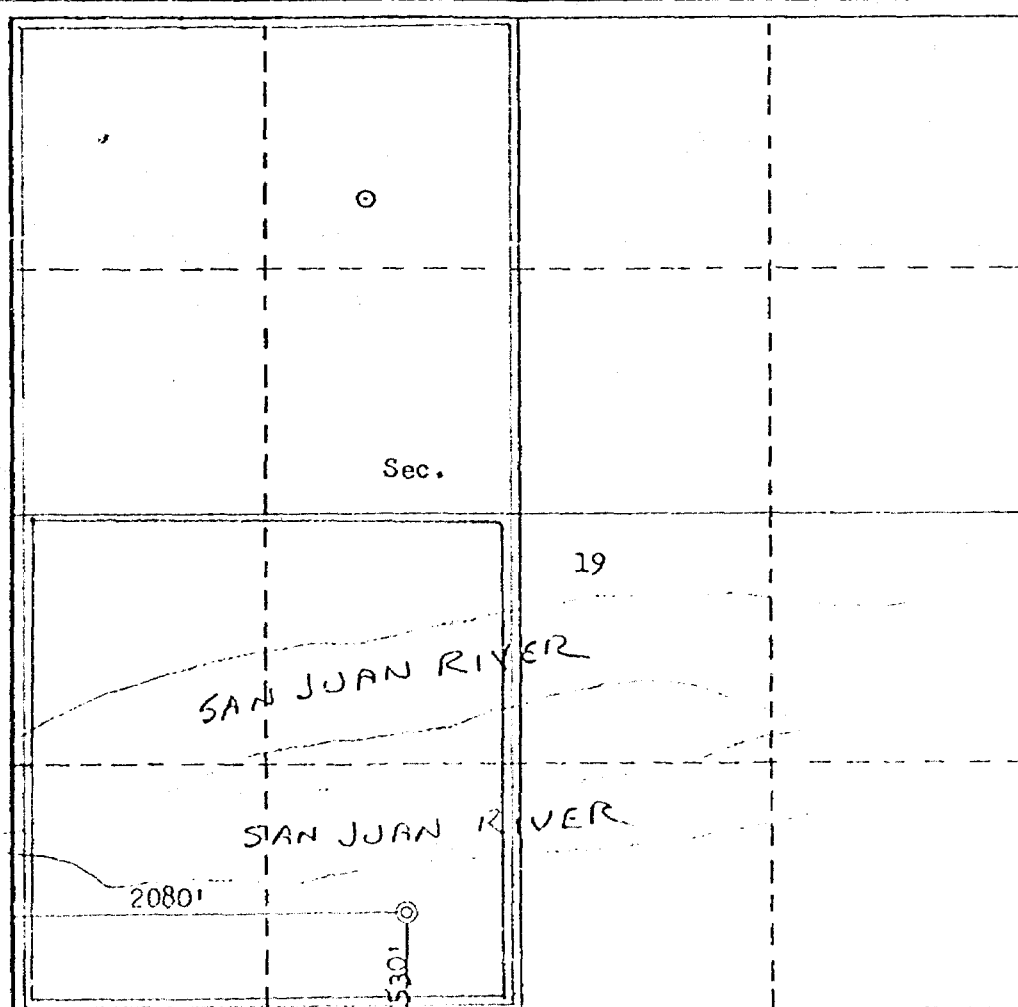
Operator TENNECO OIL COMPANY			Lease ELVIN J. PAYNE GAS UNIT "A"		Well No. 1-E
Unit Letter N	Section 19	Township 29N	Range 10W	County San Juan	
Actual Footage Location of Well: 530 feet from the South line and 2080 feet from the West line					
Ground Level Elev. 5476	Producing Formation		Pool		Dedicated Acreage: Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hatchure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
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CERTIFICATION

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Name _____

Position _____

Company _____

Date _____

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed _____

September 7, 1979

Registered Professional Engineer
and/or Land Surveyor

Fred B. Kerr

Certification No. 3950

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form C-102
Revised 10-1-78

All distances must be from the outer boundaries of the Section.

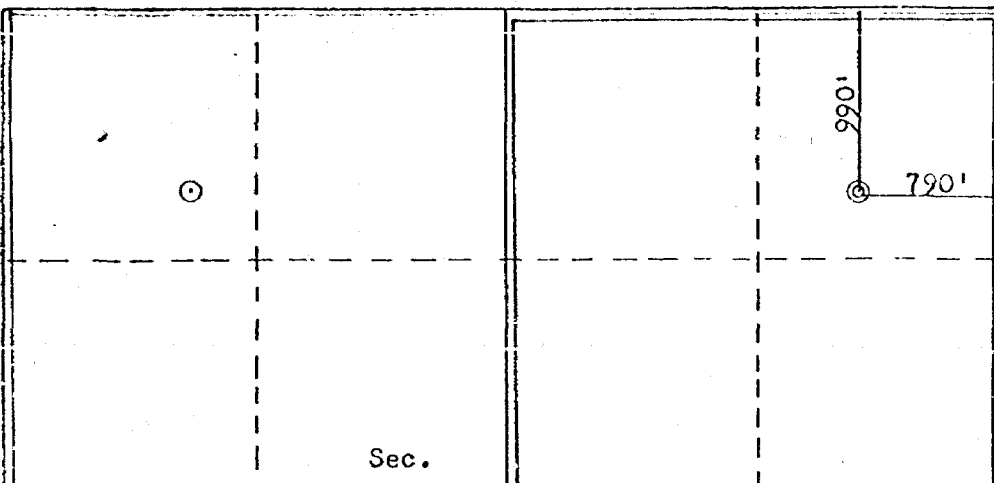
Operator TENNECO OIL COMPANY		Lease SULLIVAN FRAME GAS UNIT "A"		Well No. 1-E
Unit Letter A	Section 30	Township 29N	Range 10W	County San Juan
Actual Footage Location of Well:				
990 feet from the North line and		790 feet from the East line		
Ground Level Elev. 5502	Producing Formation Dakota	Pool Basin Dakota	Dedicated Acreage: Acres	

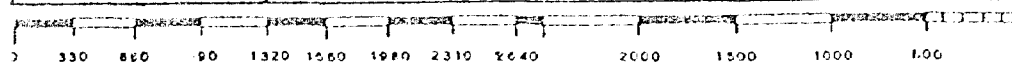
1. Outline the acreage dedicated to the subject well by colored pencil or hatchure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
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☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

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		CERTIFICATION	
		I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief. Name _____ Position _____ Company _____ Date _____ I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief. Date Surveyed _____ Registered Professional Engineer and/or Land Surveyor <i>Frederick H. H. H.</i> Certification No. 3950	



STATE OF NEW MEXICO
OIL AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form C-107
Revised 10-1-78

All distances must be from the outer boundaries of the Section.

Operator TENNECO OIL COMPANY			Lease SULLIVAN FRAME COM "B"		Well No. 1
Init Letter D	Section 30	Township 29N	Range 10W	County San Juan	
Actual Footage Location of Well:					
1100 feet from the North line and		800 feet from the West line		Dedicated Acreage:	
Ground Level Elev. 5466	Producing Formation		Pool		Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

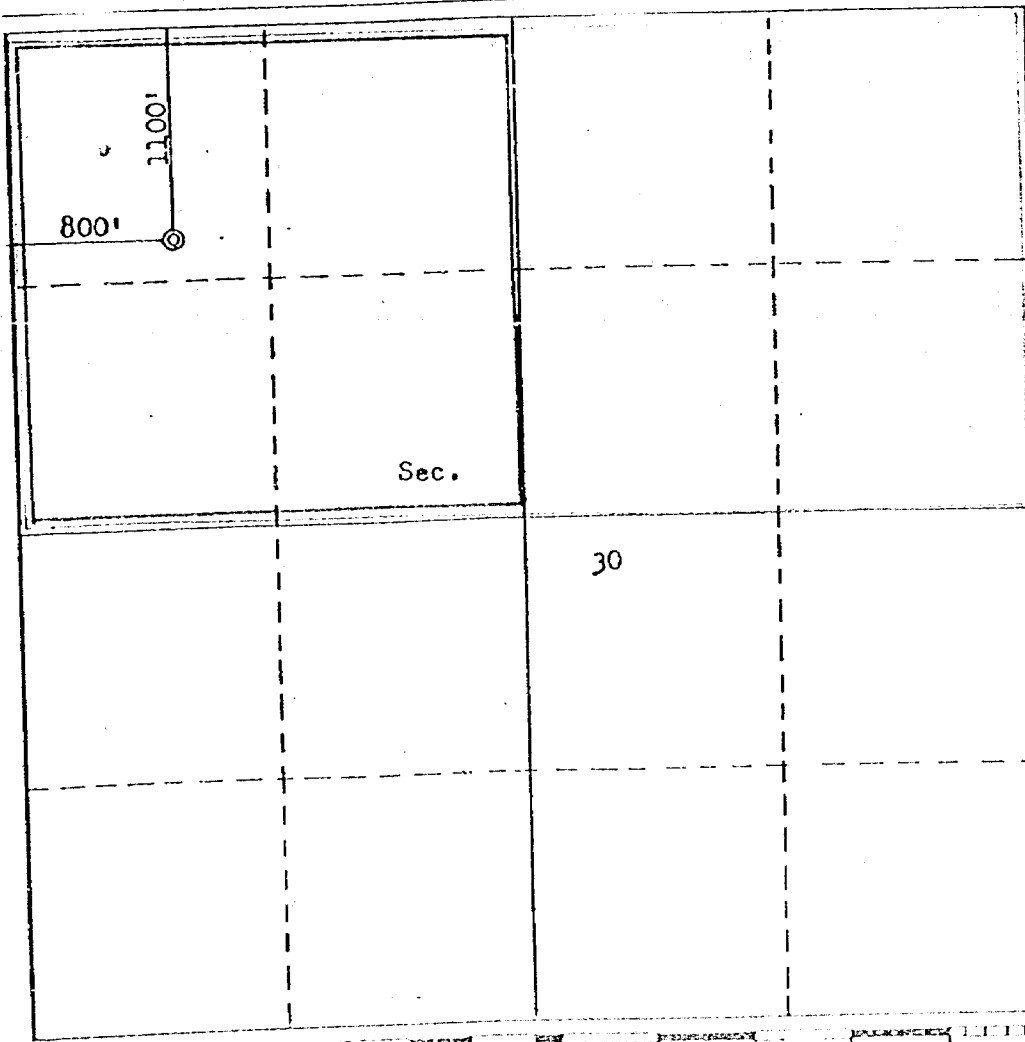
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

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		CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief. Name _____ Position _____ Company _____ Date _____ I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief. Date Surveyed _____ November 27, 1983 Registered Professional Engineer and/or Land Surveyor No. 3950 Fred D. Keer, Jr. Certificate No. 3950	
--	--	--	--

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form C-107
Revised 10-1-78

All distances must be from the outer boundaries of the Section

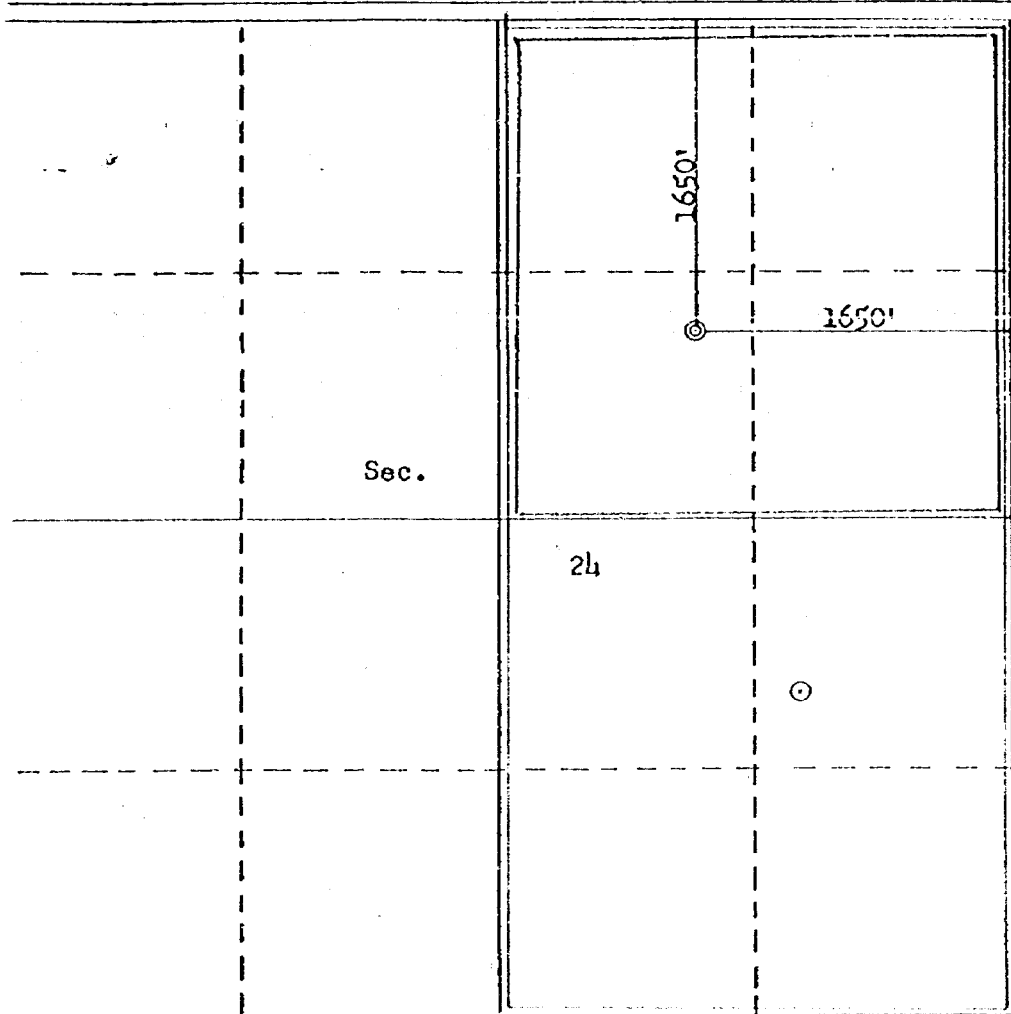
Operator TENNECO OIL COMPANY			Lease VALDEZ GAS UNIT "A"		Well No. 1-E
Well Letter G	Section 24	Township 29N	Range 11W	County San Juan	
Actual Footage Location of Well: 1650 feet from the North line and 1650 feet from the East line					
Ground Level Elev. 5486	Producing Formation Dakota		Pool Basin Dakota		Dedicated Acreage: Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hatchure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

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CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Name _____

Position _____

Company _____

Date _____

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed _____

February 15, 1980

Registered Professional Engineer
and/or Land Surveyor

Fred B. Kerr, Jr.
Fred B. Kerr, Jr.

Certificate No. B. KERR, JR.

3950

230 660 90 1920 1680 1980 2310 2640 2000 1600 1000 600 0

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form C-102
Revised 10-1-78

All distances must be from the outer boundaries of the Section.

Operator TENNECO OIL COMPANY		Lease MARQUIS G. EATON GAS UNIT "A"		Well No. 1-E
Unit Letter A	Section 25	Township 29N	Range 11W	County San Juan
Actual Footage Location of Well:				
990 feet from the North line and		990 feet from the East line		
Ground Level Elev. 5457	Producing Formation Dakota	Pool Basin Dakota	Dedicated Acreage: Acres	

1. Outline the acreage dedicated to the subject well by colored pencil or hatchure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

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Sec.		25	
990'		990'	
0		0	

CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Name _____
Position _____
Company _____
Date _____

I hereby certify that the well location shown on this plat was plotted from notes of actual surveys made by me under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed
September 14, 1979
Registered Professional Engineer
and/or Land Surveyor
Fred B. Kerr Jr.
Certificate No.

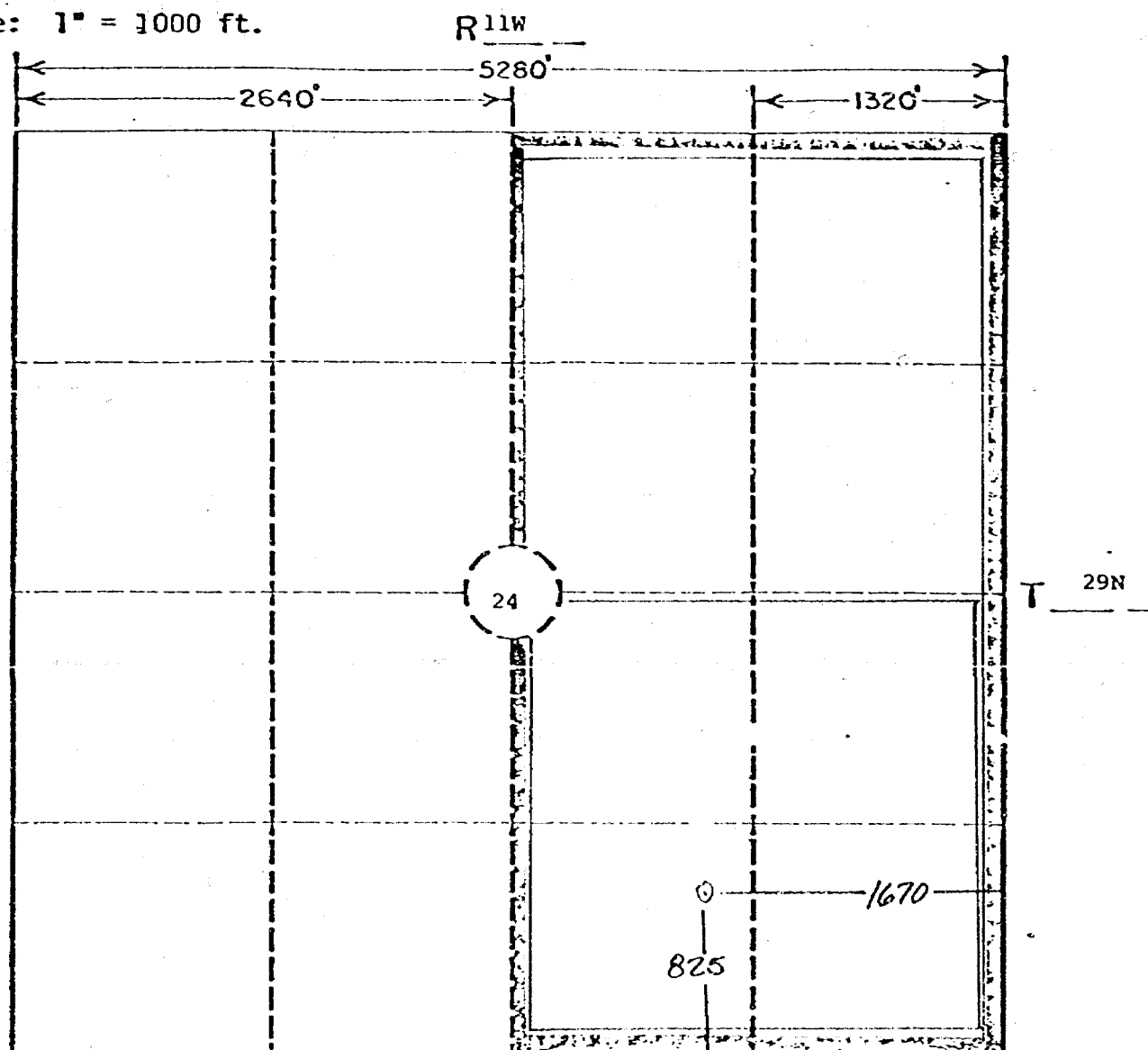
3950

TERNECO OIL
Penthouse
720 South Colorado Boulevard
Denver, Colorado 80222

WELL LOCATION PLAT AND DESCRIPTION

Well Name VALDEZ COM B-1
Location: 825 1670
1050 FSL 1050 FEL Section 24 , T 29N , R 11W
1/4-1/4-1/4 Section SE NW SE County San Juan State New Mexico
Lease No.: Federal State NM 481 482 483 484 530 Fee
MV 320
Spacing Unit Chacra 160 Acres: Description Mesaverde: E/2 Chacra: SE/4
Location meets State rules Yes Field Rules Yes
Deepest Objective Mesaverde Est. TD 4500 Est. G.L. Elev. 5450

Plat Scale: 1" = 1000 ft.



Preferred direction for relocation within legal boundaries shown SE

If relocation of more than 0 feet is necessary, please contact Carol Peavey

in the G.E. Section.

Prepared by Doug Brandon Approved by R.H. CASTLE Original Signed By: Date October 24, 1979

cc: Well File
Land
Properties
Administrative
Drilling

All distances must be from the outer boundaries of the Section.

Operator TENNECO OIL COMPANY			Lease BRUCE SULLIVAN COM B		Well No. 1
Unit Letter D	Section 25	Township 29N	Range 11W	County San Juan	
Actual Footage Location of Well: 790 feet from the North line and 790 feet from the West line					
Ground Level Elev. 5457	Producing Formation		Pool	Dedicated Acreage: Acres	

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.

790' 790' Sec. 25	CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.	
	Name _____	
	Position _____	
	Company _____	
Date _____		I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.
Date Surveyed _____		
November 26, 1979		
Registered Professional Engineer and/or Land Surveyor		
Fred B. Kerr, Jr.		Certificate No. 3950
B. KERR, JR.		

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form C-102
Revised 10-1-78

All distances must be from the outer boundaries of the Section.

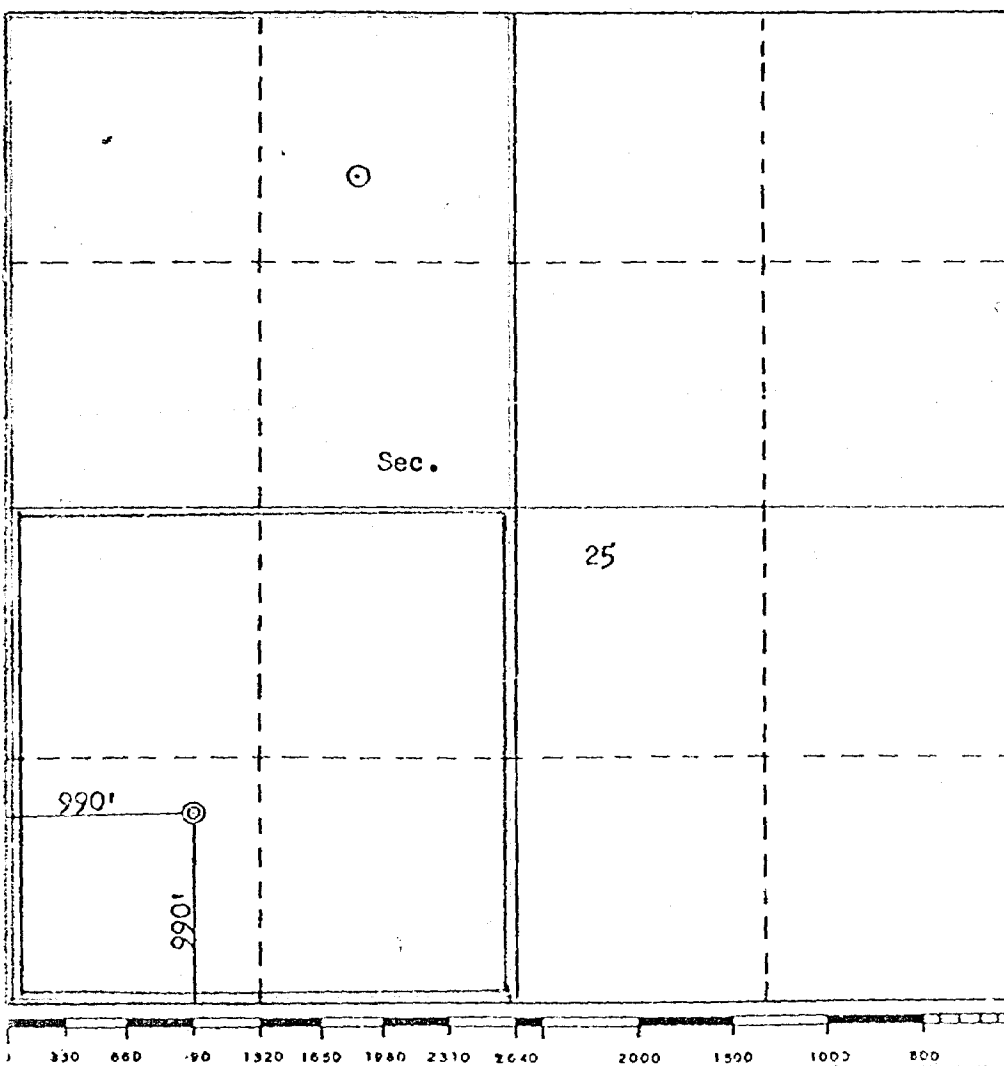
Operator TENNECO OIL COMPANY		Lease SULLIVAN GAS UNIT "A"		Well No. 1-E
Unit Letter M	Section 25	Township 29N	Range 11W	County San Juan
Actual Footage Location of Well: 990 feet from the South line and 990 feet from the West line				
Ground Level Elev. 5583	Producing Formation	Pool	Dedicated Acreage: Acres	

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.

	CERTIFICATION <i>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.</i>
	Name _____ Position _____ Company _____ Date _____ <i>I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.</i> Date Surveyed September 11, 1979 Registered Professional Engineer and/or Land Surveyor Fred B. Kerr, Jr. Certificate No. 3950 FRED B. KERR, JR.

STATE OF NEW MEXICO
OIL AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

P. O. BOX 2048
SANTA FE, NEW MEXICO 87501

Form C-107
Revised 10-1-78

All distances must be from the outer boundaries of the Section.

Operator TENNECO OIL COMPANY			Lease EATON COM. "B"		Well No. 1
II Letter P	Section 25	Township 29N	Range 11W	County San Juan	
Actual Footage Location of Well: 1040 feet from the South line and 790 feet from the East line					
Ground Level Elev. 5562	Producing Formation		Pool	Dedicated Acreage: Acres	

1. Outline the acreage dedicated to the subject well by colored pencil or hatchure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.

Sec.	
25	
790'	
1040'	

0 330 660 990 1320 1650 1980 2310 2640 2000 1800 1600 1400 1200 1000 800 600 400 200 0

CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Name

Position

Company

Date

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed

November 14, 1979

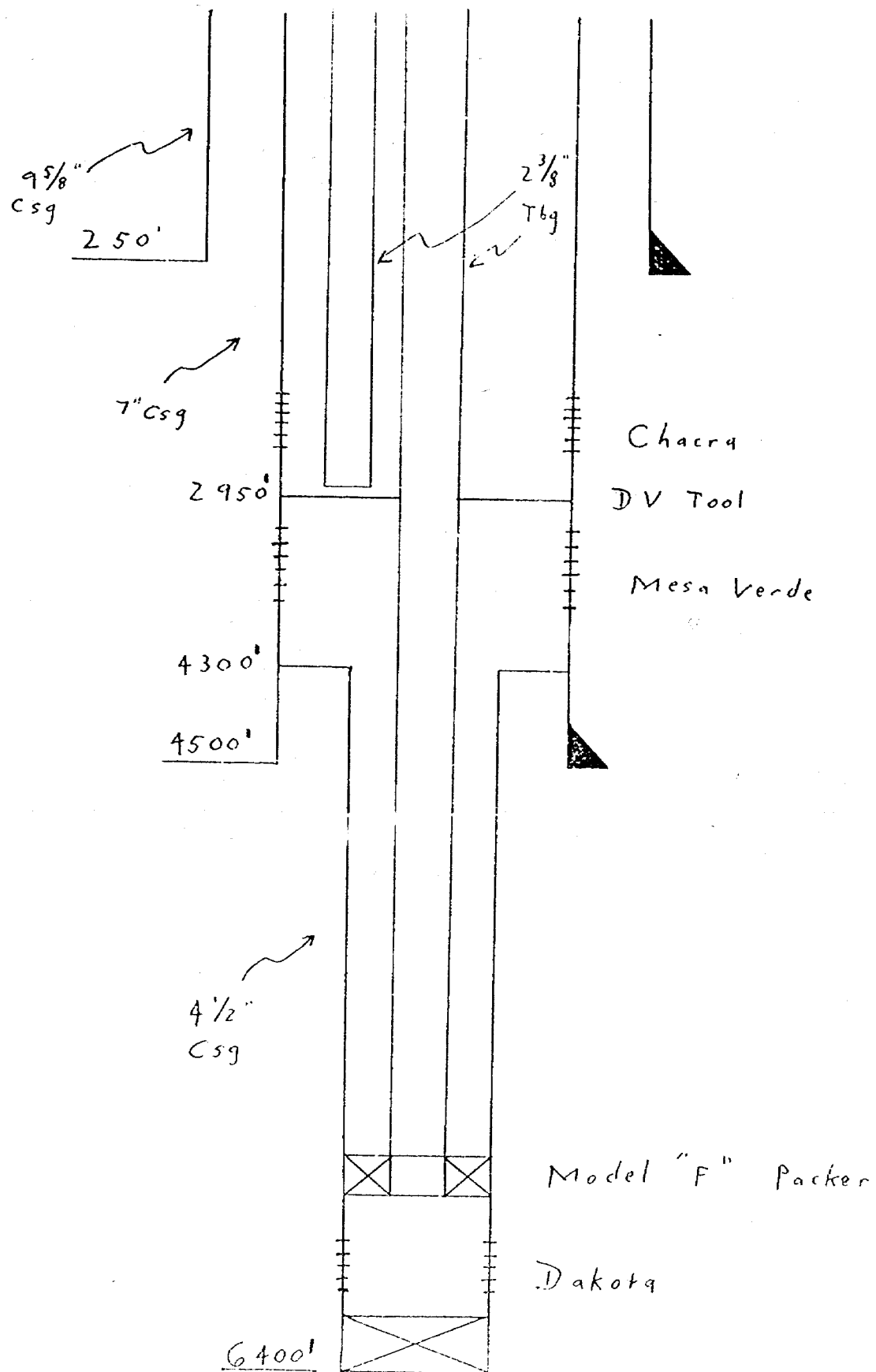
Registered Professional Engineer
and/or Land Surveyor

Fred A. Kerr, Jr.

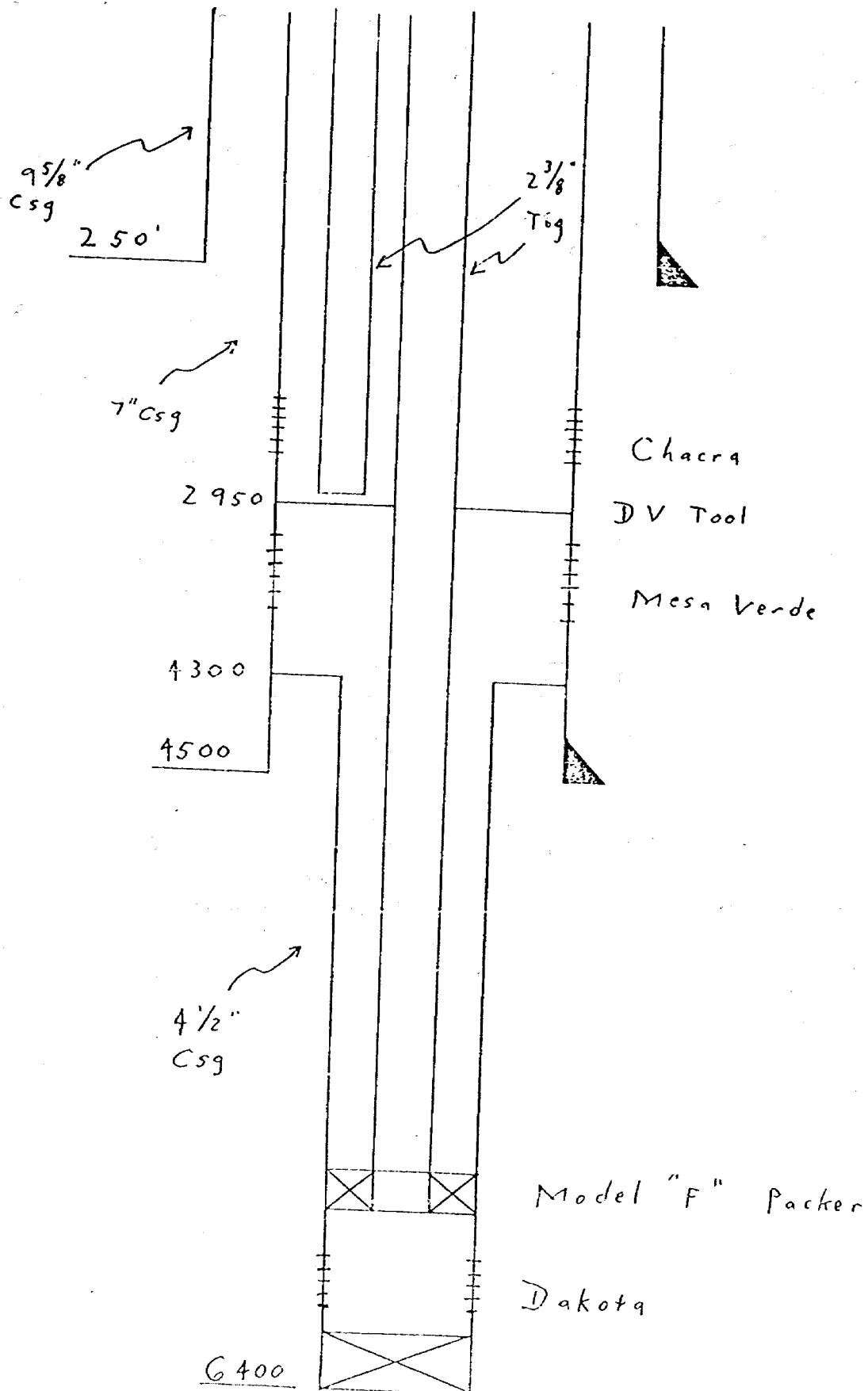
Certified to

3950 B. KERR, JR.

TENNECO OIL COMPANY
BLOOMFIELD AREA
R10411 W, T29N
SAN JUAN COUNTY, NEW MEXICO
DAKOTA DUAL WITH MESA VERDE-CHACRA COMINGLE



TENNECO OIL COMPANY
BLOOMFIELD AREA
R10#11 W, T29N
SAN JUAN COUNTY, NEW MEXICO
DAKOTA DUAL WITH MESA VERDE-CHACRA COMINGLED



ROUGH

dr/

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

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

CASE NO. 6847

Order No. R- 6313

APPLICATION OF TENNECO OIL COMPANY
FOR A DUAL COMPLETIONS AND DOWNHOLE COMMINGLING, SAN JUAN
COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 o'clock a.m. on
March 26, 1980, at Santa Fe, New Mexico, before
Examiner Richard L. Stamets.

NOW, on this _____ day of _____, 1980, the
Division Director, having considered the testimony, the record,
and the recommendations of the Examiner, and being fully advised
in the premises,

FINDS:

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

(2) That the applicant, Tenneco Oil Company,
dually seeks authority to complete, ~~xxx~~ in such a manner as to produce gas from
the Dakota formation and commingled Chacra and Mesaverde production through
~~well xxxxxxxxxxxx located in Unit xxxxxxxxxxxx of Section xxxxxxxxxxxx, Town~~
parallel strings of tubing, ten proposed wells to be located as follows:

in Township 29 North, Range 10 West: Unit C, Section 19;
Unit N, Section 19; Unit A, Section 30; and Unit D, Section 30;
in Township 29 North, Range 11 West: Unit G, Section 24;
Unit O, Section 24; Unit A, Section 25; Unit D, Section 25;
Unit M, Section 25; and Unit P, Section 25.

(3) That at the hearing the applicant amended the subject application to eliminate the request for dual completion of the commingled Chacra ~~Mesaverte~~ zones with the Dakota zone for five ^{of the} proposed wells to be located as follows: in Township 29 North, Range 10 West: Unit ~~E~~, Section 19, ~~and Unit R, Section~~ ~~D~~, Section 30; in ~~Township~~ 29 North Range 11 West: in Unit O, Section 24; Unit D, Section 25; and Unit P, Section 25.

(4) That the Chacra and Mesaverte zones in each of the ten wells proposed to be drilled ~~are~~ expected to be capable of low rates of production.

(5) (5) That the proposed commingling may result in the recovery of additional hydrocarbons from each of the subject pools, thereby preventing waste, and will not violate correlative rights.

(6) (6) That the reservoir characteristics of each of the subject zones are such that underground waste would not be caused by the proposed commingling provided that ^{any such} the well is not shut-in for an extended period.

(7) (7) That to afford the Division the opportunity to assess the potential for waste and to expeditiously order appropriate remedial action, the operator should notify the Pattec district office of the Division any time ^{any of} the subject wells is shut-in for 7 consecutive days.

(8) That in order to allocate the commingled production to each of the commingled zones in the wells, applicant should consult with the supervisor of the Pattec district office of the Division and determine an allocation formula for each of the production zones.

(9) (9) That the mechanics of the proposed dual completions are feasible and in accord with good conservation practices.

(10) (10) That approval of the subject application will prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That the applicant, Tenneco Oil Company, Inc., is hereby authorized to commingle Chacra and Mesa Verde production within the wellbore of the Ten proposed wells to be located ^{as follows:} in Unit of

in Township 29 North, Range 10 West: Unit C, Section 19;
Unit N, Section 19; Unit A, Section 30; and Unit D, Section 30;
in Township 29 North, Range 11 West: Unit G, Section 24;
Unit O, Section 24; Unit A, Section 25; Unit D, Section 25;
Unit M, Section 25; and Unit P, Section 25; all in San Juan
County New Mexico

(2) That the applicant is further authorized to duly complete in such a manner as to produce gas from the commingle Chacra and Mesa Verde zones and gas from the Dakota zone ~~the~~ live of said wells ~~located~~ located as follows:
in Township 29 North, Range 10 West: Unit N, Section 19; Unit A, Section 30; in Township 29 North, Range 11 West: Unit G, Section 24; Unit A, Section 25; and Unit M, Section 25, each of said wells being equipped with parallel strings of tubing and a packer between the commingled zones and the Dakota.

PROVIDED HOWEVER, that the applicant shall complete, operate, and produce said wells in accordance with the provisions of Rule 112-A of the Division Rules and Regulations insofar as said rule is not inconsistent with this order;

PROVIDED FURTHER, that the applicant shall take Packer leakage tests upon completion and annually thereafter during the ~~annual~~ Deliverability Test Period for ~~the~~ gas wells in Northwest New Mexico Pool.

(3) 427 That the applicant shall consult with the Supervisor of the Artec district office of the Division and determine an allocation formula for the allocation of production to each zone in each of the subject wells.

(ALTERNATE)

(2) That _____ percent of the commingled production shall be allocated to the _____ zone and _____ percent of the commingled production shall be allocated to the _____ zone.

(4) That the operator of the subject well shall immediately notify the Division's Artec district office any time ^{any of} the well has been shut-in for 7 consecutive days and shall concurrently present, to the Division, a plan for remedial action.

(5) That 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.

Commingled