



STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
AZTEC DISTRICT OFFICE

1000 RIO BRAZOS ROAD
AZTEC, NEW MEXICO 87410
(505) 334-6178

OIL CONSERVATION DIVISION
BOX 2088
SANTA FE, NEW MEXICO 87501

DATE 10-1-82

RE: Proposed MC _____
Proposed DHC α _____
Proposed NSL _____
Proposed SWD _____
Proposed WFX _____
Proposed PMX _____

Gentlemen:

I have examined the application dated 9-30-82
for the Chew Operator Atlantic C[#] 101 Lease and Well No. A-6-30N-10W Unit, S-T-R

and my recommendations are as follows:

Approve

Yours truly,

Frank T. Dwyer

ARCO Oil and Gas Company
Rocky Mountain District
Post Office Box 5540
Denver, Colorado 80217
Telephone 303 575 7004

J. G. Bradshaw
Manager
Engineering



CERTIFIED MAIL
RETURN RECEIPT REQUESTED

September 15, 1982

Mr. Michael Stogner
New Mexico Oil & Gas
Conservation Division
P.O. Box 2088
Santa Fe, New Mexico

Dear Mr. Stogner:

We wish to apply for downhole commingling of the Atlantic "C" #101, which is located 790' FNL and 1120' FEL, in Section 6-T30N-R10W, San Juan County, New Mexico. We are applying as described in the State of New Mexico, Energy and Minerals Department, Oil Conservation Division, Rules and Regulations, as set forth under Rule 303. Rule 303, paragraph C, part 1 (b), describes the conditions which must exist and/or be met. Part 2 lists the information which must be submitted for approval. This information is discussed in the following pages.

The items under paragraph C, part 1 (b), are discussed below.

- (1) The Atlantic "C" 101 was drilled and completed through the Dakota formation in June, 1982. The Dakota was perforated and tested in the upper and lower zones. Due to the low producing rate, the Gallup was also tested. Production from the Gallup was marginal and the zone was still making a great deal of frac water when completion operations were suspended and the well was shut-in. We are applying for downhole commingling to allow us to produce the well. As described, in more detail, below, the individual rates of each zone do not allow us to economically produce each zone through separate tubing strings and production facilities.
- (2) The well was completed with casing and cement throughout. As described in the enclosed daily drilling reports, the pressure difference, between the two zones, does not exceed fifty percent. There should be no problems with crossflow between zones.
- (3 & 4) The casing and cement should protect all of the zones not perforated from contamination by the fluids produced by the Gallup and Dakota zones. These produced fluids, as

described in 2 (g) below, and in the attached water analysis reports, should not cause any problems between the two produced zones. The fluids themselves should be compatible with each other, thus eliminating the formation of damaging precipitates.

- (5) The ownership of the zones to be commingled is common, including working interest, royalty, and overriding royalty. A copy of a letter, signed by Arco's Land Manager, discussing the interests is enclosed.
- (6) The bottomhole pressure reports, as discussed in 2 (f) below, are attached. The Atlantic "A" 101 Dakota pressure survey was used as the bottomhole pressure gradient for the Atlantic "C" 101, in the Dakota formation. The Atlantic "A" 101 is located in Section 22-T31N-R10W, about 3.8 miles to the northeast of the Atlantic "C" 101. The Atlantic "A" 101 has a Dakota mid-perf pressure of 2735 psi at a subsea depth of -1237'. The Atlantic "C" 101 has a Gallup mid-perf pressure of 1434 psi @ -267', as calculated from a Horner plot analysis of the enclosed pressure buildup obtained on August 16, 1982. The Dakota pressure test was taken as a static shut-in pressure after the well had been left shut-in for two to three weeks. The pressure gradient of 0.361 psi per foot (2744 psi divided by 7600') from the "A" 101 was used to adjust both zones to a common datum. The datum used was halfway between each zone at -752', subsea. The Gallup corrected down is 1434 psi + (485') (0.361) = 1609 psi. The Dakota corrected up is 2735 psi - (485') (0.361) = 2560 psi. Fifty percent of 2560 psi is 1280 psi, so the Gallup bottomhole pressure is not less than fifty percent of the Dakota bottomhole pressure, adjusted to a common datum.

The items under rule 303, paragraph C, part 2, are discussed in detail below and on the following pages.

- 2(a) The lease is operated by ARCO Oil & Gas Company, 707 17th Street, Denver, Colorado. Our mailing address is P.O. Box 5540, Zip Code 80217.
- 2(b) Lease Name: Atlantic "C"
Well Number: 101
Well Location: 790' FNL and 1120' FEL, Section 6-T30N-R10W, San Juan County, New Mexico.
Pools to be commingled: Basin Dakota and Gallup
- 2(c) A plat of the area with the offset ownership and acreage dedicated to the well is enclosed.

$$P_r = \frac{P_b}{(C \cdot 3.47 \times 10^{-5} \cdot \Delta L)}$$

- 2(d) The Atlantic "C" 101 was perforated and fracture treated in the Dakota "D" zone. The well was swabbed and flowed to the pit for about five days in an effort to recover the load water and clean the zone up before treating the upper Dakota. On July 13, 1982 a 2" orifice tester was installed with a 3/4" choke. At 10:30 a.m., CP 285 psi, TP 2-1/2 psi, 121 MCFPD, 3 BPH water. After swab run at 12:00 noon, CP 275 psi, TP 4 psi, choke 1", 283 MCFPD. At end of day had 638 bbls of frac. water left to recover. The well was flowed through the night, and the next morning, FCP 280 psi, FTP 0 psi, on 2" line, 5' flare gas and 1/8" stream water. Bucket test 0.3 BPH water, gas rate estimated at 100 MCFPD all night. The zone was isolated by setting a CIBP above the perfs in order to treat the upper Dakota zone.

The upper Dakota zones, the A, B, and C zones, were perforated and fractured, and the well was flowed and swabbed for ten days. On the seventh day of swabbing, FCP 275 psi, FTP 2 psi. Estimated rate @ 100 MCFPD w/FCP 225 psi. On the tenth day, the well was swabbed, made 6' flare of gas with CP 220 psi. In fifteen minutes the well died to fumes only, and in 2 hours the CP built to 400 psi. After swab run the CP was 250 psi, and well was making 6' flare. The well was killed and the bridge plug between the upper and lower Dakota was drilled out. A new bridge plug was set above the Dakota, in order to treat the Gallup zone.

The Gallup was perforated and fractured, and was swabbed for about eleven days. The maximum estimated rate was 150 MCFPD, which was seen on the August 15, 1982 report.

None of the three zones had a 24 hour productivity test run due to completion operations and lack of uninterrupted flow. It was not until after the Gallup was tested, that we decided to apply for approval to commingle. It is hoped this information will be adequate. Copies of the daily well history are enclosed.

- 2(e) This well is the only well on the section, or within a mile radius, which has been tested in the Dakota or Gallup formations. The well is not yet on production, therefore there is no production decline curve available for the well. The enclosed daily well histories show what work has been done on the well and the treatments for all of the zones.

Mr. Michael Stogner
September 15, 1982
Page Four

Offset production is limited, with the two nearest wells being located in Section 1-T30N-R11W, about a mile away. The Nye #11 is a Dakota completion drilled in 1964, and the Nye #3-A is a Dakota completion drilled in 1978. The enclosed production curves for these two wells indicate a decline of about 57%/year for around 9 months, with about a 5%/year remaining decline. It is expected that the Atlantic "C" 101 will follow a similar decline for the Dakota production.

The only Gallup producer found in the area is the El Paso Natural Gas Company, Schumacher #13. This well is located in the SW/4 of Section 17, T30N-R10W, in the Knickerbocker Buttes Gallup Field, and was completed in May, 1975. Due to a lack of any further data, it is assumed that the production trend for the Atlantic "C" 101 will be similar to that of the Schumacher #13, as shown on the attached production curve.

- 2(f) The Atlantic "C" 101 had a 47 hour bottomhole pressure run in the Gallup formation. The details of this test are enclosed. No bottomhole test was run on the Dakota formation of the Atlantic "C" 101 due to completion operations at that time. No record of a shut-in pressure was found in the drilling reports, and the zone is currently isolated by a bridge plug. The Atlantic "A" 101, which is also completed in the Dakota, is the nearest new offset well. The pressure build-up test for this well was used to calculate the pressure in the Atlantic "C" 101 Dakota formation, and a copy of the test is enclosed.
- 2(g) Samples were taken in both the Dakota and the Gallup formations and the water analysis reports for both zones are enclosed. The samples are very similar in content. The total dissolved solids and NaCl equivalents are about the same, and the CO₃, SO₄, and Fe are low, so no precipitates should form. Based on these reports, there should be no problems commingling the two zones.
- 2(h) The production from the lower Dakota formation is expected to be dry gas. The Gallup formation is expected to primarily produce gas, with some associated condensate. The small amount of condensate produced should not affect the Dakota production, and the fact that the Dakota has a somewhat higher pressure should help produce the Gallup condensate.

Mr. Michael Stogner
September 15, 1982
Page Five

- 2(i) Initial flow testing was done after the zones were completed and treated, but no 24 hour testing was done. As described in the drilling reports and above, the Dakota produced about 200 MCFPD total rate, and the Gallup made about 150 MCFPD total rate. Based on these rates the allocation factor for production would be $150/350$ or 0.4286 times total production for the Gallup, and $200/350$ or 0.5714 times total production for the Dakota.
- 2(j) The offset operators, as well as the MMS, have been notified in writing of the proposed commingling, and a copy of this entire application was sent to the MMS.

It is hoped that this information will meet the requirements, as set forth in the rules and regulations, to allow an exception to rule 303-A to be granted. If there is any further information which is needed, or any questions which I might be able to answer, please do not hesitate to contact me at (303) 575-7082 in Denver.

Sincerely,

W. M. Thomas

W. M. Thomas *sk*
Operations/Analytical Engineer

WMT/kjk



Date: September 15, 1982

Subject: Atlantic C #101
Comingling of Gallup and Dakota Zones
Township 30 North, Range 10 West
Section 6: 790' FNL and 1120' FEL (NE/4)
San Juan County, New Mexico
NM-388

From: C. L. Reese - DT 32117

To: Marty Thomas - DT 33083

ARCO's working and royalty interests in the subject lease as well as the override are the same in all formations below the base of the Mesaverde Formation.

The interests are as follows:

| | |
|----------------------|---------------|
| Working Interest | - 100 % |
| Royalty | - 12.5% |
| ORRI | - <u>2.0%</u> |
| Net Revenue Interest | - 85.5% |

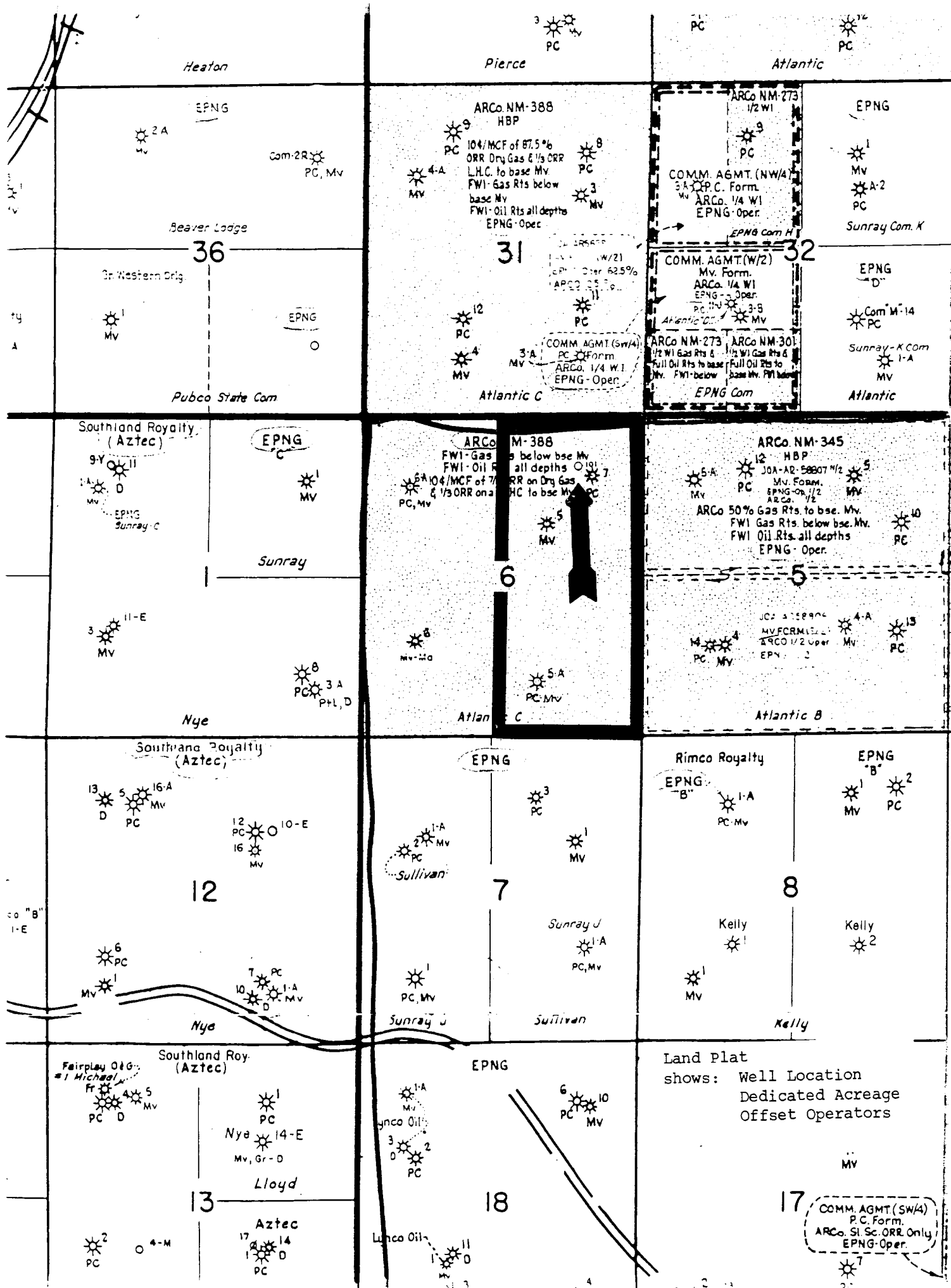
If you need anymore information, please let me know.

CLR: 

cc: J. R. Fiske - DT 32113



J. R. Solove
Land Manager



Instructions: This form is used during drilling or workover operations. If testing, logging or perforating, show formation name in describing work performed. Number all logs, stem tests sequentially. Attach description of all cores. Work performed by Producing Section will be reported on "Interim" sheets until final completion. Report drilling or representative test on "Final" form. Submit "Interim" sheets when filled out but not less frequently than every 30 days, or (2) on Wednesday of the week in which drilling is set. Submit weekly for workovers and following setting of oil string until completion.

| | | | |
|---------------------------------------|------------------------------|--|--|
| Prop Code: 69-2182-5 | | AFE #542661 | |
| District ROCKY MOUNTAIN | County or Parish San Juan | State New Mexico | |
| Field East Aztec | Lease or Unit Atlantic C | Well no. #101 | |
| Date and depth as of 5:00 a.m. | | Complete record for each day while drilling or workover in progress | |
| 5/16/82 7462 (PB 7434) | | Day-77. TD - Prep to POH w/BHP recorder. CU SD f/Sunday. Left well SI f/BHP bld up. \$1,021,215 | |
| 5/17/82 7462 (PB 7434) | | Day-78. TD - Prep to bleed dn & resume swbg Gallup 6276-6527 (OA). At 0800 am 8/16/82 TP 590, CP 900. POH w/press recorder - 44-1/2 hrs BHP 1175 psi; 47-1/2 hrs BHP 1189 psi - still bldg about 4 psi/hr. WIH w/3 hr recorder & gradient press chk. On gradient run FL 4945'. Gradient @ 2000' - .017; 4000' - .017; 5834' - .207; 6034' - .410; 6234' - .410 psi/ft. POH w/same @ 11:00 am. At 11:15 am opnd well, blew dn in 3 min. No fld recovery. Made 1 swb run @ 11:30 am to SN - FL est 5200'. Well kicked & flwd until 3:00 pm & flw decr'd to sml. At 3:00 pm CP 325 psi. Rec'd est 60 BFF & 1-2 BO. Made 2nd run to SN @ 3:15 pm, FL 5900' - little fld recovery. At 5:00 pm SI well & SDON. Load to recover 3312 bbls. \$1,024,931 | |
| 5/18/82 7462 (PB 7434) | | Day-79. TD - Prep to bleed dn & swb. 14 hr SITP 675 psi, SICP 700 psi. Bled dn tbg, rec'd gas & est 1 BO & BS & 10 BW. Made 1 swb run to SN - FL 1500', rec'd 1-3/4 bbl - 12% oil & BS & flwd 15 min. 2nd swb run rec'd mist only - flw decr'd to TSTM. SI/2 hrs & TP 150 psi blew dn in 2 min. Flwd 45 min after 3rd swb run; 4th swb run rec'd 1/4 BF. Recovery varied 11-20% oil & BS, rest appears frac fld. CP decr'd to 325 psi. Recovery today 15 bbls. Left to recover 3297 bbls. \$1,028,744 | |
| 8/19/82 7462 (PB 7434) | | Day-80. TD - Prep to move off compl rig. At 7:45 am 14-1/2 hr SI, SITP 475, SICP 515. Well flwd 1-1/2 hrs sml amt gas 1/2" strm wtr/oil & BS. Rec'd est 1/5 BO & 1-3/4 BW. Flwd only gas after 9:30 am TSTM. Rel'd CU @ 12:00 noon. Clnd tk & RD. SI, WO evaluation. SDON. \$1,032,177 | |
| 8/20/82- 7462 (PB 7434) 8/25/82 | | Day-80. TD - WO evaluation. \$1,032,177 | |

| | | |
|----------------------|------|---|
| The above is correct | | |
| Signature | Date | Title District Drilling Superintendent |

For form preparation and distribution
see Procedures Manual Section 10.
Drilling, Pages 86 and 87

8-25-82

Instructions: This form is used during drilling or workover operations. If testing, coring, or perforating, show formation name in describing work performed. Number all drill stem tests sequentially. Attach description of all cores. Work performed by Producing Section will be reported on "Interim" sheets until final completion. Report official or representative test on "Final" form. 1) Submit "Interim" sheets when filled out but not less frequently than every 30 days, or (2) on Wednesday of the week in which oil string is set. Submit weekly for workovers and following setting of oil string until completion.

| | | | |
|--------------------------------|--|-------------|--|
| Prop Code: 69-2182-5 | | AFE #542661 | |
| District | County or Parish | State | |
| ROCKY MOUNTAIN | San Juan | New Mexico | |
| Field | Lease or Unit | Well no. | |
| East Aztec | Atlantic C | #101 | |
| Date and depth as of 3:00 a.m. | Complete record for each day while drilling or workover in progress | | |
| 8/11/82 7462 (PB 7434) | Day-73. TD - Prep to run tbg OE & chk sd Gallup perms 6276-6527'(OA). At 7:30 am 8/10/82 SICP = SITP = 0 psi. Cont'd in hole w/fshg tools - hit tite spt @ 5080'. Unable to wrk by. POH. Scrape marks 180° apart on OD of 3-3/4 OS - not egged. PU 3-7/8" bit (used) & csg scraper, XO, on 4 - 3-1/8 X 1-1/2" DC & WIH to 5205' w/no trouble. POH. PU fshg tools as before except ran 3-5/8" OD X 1" Bowen OS w/bskt grapple. WIH to top of fsh @ 6244' RKB w/no problem w/tite spt. Caught fsh - pld 16M# over string wt. Jarred once & moved up 1'. Jarred 2nd time & gained 1'. Pld 20M# over wt & had free travel of pkr mandrel. Wrkd pkr free. POH - no tite hole. Rec'd fsh. LD tools. No external damage or marks on pkr. SI & SDON. \$998,197 | | |
| 8/12/82 7462 (PB 7434) | Day-74. TD - Prep to swb well. At 7:30 am 8/11/82 SICP 0 psi. LD DC. TIH w/notched clr, 1 jt 2-3/8" tbg, 2-3/8" API SN & 208 jts 2-3/8" tbg. Tag sd @ 6505' KB. LD 2-3/8" tbg in derrick. Instl Bkr string flt @ top of 201st jt tbg. RU Nowco. CO sd w/N ₂ & foam to top of BP @ 6621'KB. POH to string flt. Land tbg on 2-3/8" x 6" ERC-TC-1A straight bare tbg hgr. Pipe landed @ 6266.77' KB. ND BOP. NU 5M psi Xmas tree. SI & SDON. \$1,004,669 | | |
| 8/13/82 7462 (PB 7434) | Day-75. TD - Prep to resume swbg Gallup perms 6276-6527'(OA). At 7:30 am 8/12 SICP 500 psi, SITP 460 psi. Opnd tbg to pit @ 7:30 am. Blew dry gas f/4 min & died. RU to swb. Strt FL 3200' - swbd f/3830'. 2nd run FL 3200', swbd f/6000'. 3rd run FL 3000', swbd f/SN. Remainder of swb runs made f/SN. Made total 14 swb runs, rec'd 128 BW. End FL 5200'. CP incr'd to 775 psi - making moderate blw of gas between swb runs. Load left to recover 3516 bbls. SI & SDON. \$1,014,822 | | |
| 8/14/82 7462 (PB 7434) | Day-76. TD - Prep to bleed dn & swb Gallup perms. At 7:30 am 8/13 SICP 950 psi, SITP 600 psi. Opnd tbg to pit & blew dn in 5 min. Made 2 swb runs. Strt FL 3900'. 2nd run puld f/SN, FL 4100'. Well strt'd flwg, CP 500 psi. Flwd 1-1/2 hrs until 10 am. Rec'd 100 BF - incl swb runs. Flw decr'd, made 3rd swb run to SN. FL 4900'. Well flwd until 12:30 pm, est rec'd 2 BFPH. Made 4th swb run. Flwd until 2:00 pm & decr'd. Made 4 more swb runs to SN - FL 5100' ea run. Recovery frac fld w/tr oil. Flw decr'd rapidly after ea of last 4 runs. CP gradually decr'd to 400 psi. Max gas rate est 150 MCFD, min 20-40 MCFD. SI well @ 5:00 pm & SDON. Load to recover est 3376 bbls. Todays recovery 140 bbls. \$1,018,145 | | |
| 8/15/82 7462 (PB 7434) | Day-77. TD - Well SI, taking BHP bld up. Prep to SD f/Sunday. After 14 hr SICP 725, SITP 600 psi. Blew dn tbg 7:00 am to 7:05 am. Made 1 swb run to SN @ 6234' - FL 4900'. Well kicked & flwd approx 1 hr. Rec'd 2 BF, flw decr'd to sml. Made 2nd run @ 9:00 am to SN. FL est 5800'. Well would not flw fld. RU Tefteller slick line & press recorder. WIH & left recorder @ 6234' @ 10:51 am 8/14/82. Left well opn flwg sml amt gas until 11:40 am. SI to obtain BHP bld up. SD til Monday. Left to recover 3372 bbls. Tr oil in recovery. \$1,021,218 | | |

| | | |
|---|---------|----------------------------------|
| The above is correct | | |
| Signature | Date | Title |
| <i>J. M. Mc Carthy</i> | 8-20-82 | District Drilling Superintendent |
| For form preparation and distribution see Procedures Manual Section 10, Drilling, Pages 86 and 87 | | |

8-12-82

Instructions: This form is used during drilling or workover operations. If testing, coring, or perforating, show formation name in describing work performed. Number all drill stem tests sequentially. Attach description of all cores. Work performed by Producing Section will be reported on "Interim" sheets until final completion. Report official or representative test on "Final" form. 1) Submit "Interim" sheets when filled out but not less frequently than every 30 days, or (2) on Wednesday of the week in which oil string is set. Submit weekly for workovers and following setting of oil string until completion.

| | | | |
|--------------------------------|---|-------------|--|
| Prop Code: 69-2182-5 | | AFE #542661 | |
| District | County or Parish | State | |
| ROCKY MOUNTAIN | San Juan | New Mexico | |
| Field | Lease or Unit | Well no. | |
| East Aztec | Atlantic C | #101 | |
| Date and depth as of 9:00 a.m. | Complete record for each day while drilling or workover in progress | | |
| 8/5/82 7462 (PB 7434) | Day-68. TD - Prep to cont swbg Gallup perfs 6276-6527'(OA). At 7:30 am 8/4 SITP 625 psi, SICP 0. Blew dn in 4 min - all dry gas. Strt swbg FL 2500'. Pld f/5400', well KO & flwd gas & wtr f/8 min & died. Swbd f/SN rest of time - FL constant @ 2500'. At 12:30 pm well KO, flwd gas & wtr 1 hr & died. Cont'd swbg - total runs 21 - rec'd 275 BF - load to recover 3889 bbls. SI & SDON @ 7:00 pm. Rec'd GCW. \$972,520 | | |
| 8/6/82 7462 (PB 7434) | Day-69. TD - Prep to resume swbg Gallup perfs 6276-6527'(OA). At 7:30 am 8/5/82 SICP 0, SITP 725 psi. Blew well dn in 6 min. FL 2500' @ strt swbg & 4000' @ end. All swb runs f/SN @ 6259'. Made total 22 swb runs. rec'd 153 BGCF. Well KO on 5th swb run & flwd gas & wtr f/5 min & died. Total load to recover 3736 bbls. SI & SDON. Flw is vy wk blw between runs. \$975,629 | | |
| 8/7/82 7462 (PB 7434) | Day-70. TD - Prep to blw well dn & TOH w/pkr. 7:30 am 8/6/82 SICP 0, SITP 820 psi. Opnd well @ 7:30 am 8/6 & flwd 60 BG&W w/well dead @ 10 am. Ran swb - FL @ 4400'. On swb runs 4 & 5, FL rose to 3000'. All 15 swb runs pld f/SN @ 6259' w/FL after 5th pull @ 4800'. Total recovery 8/6/82 (flwd & swbd) was 130 BW. Gas blw vy sli, stronger after ea swb pull, but vy wk. Total load yet to recover 3606 bbls. SI & SDON. \$978,679 | | |
| 8/8/82 7462 (PB 7434) | Day-71. TD - Prep to SD f/Sunday. 7:30 am 8/7 CP 0, SITHP 820 psi. Opnd well to pit & blew dn in 20 min unloading 10 BW & gas. Ran swb tagging FL @ 3800'. Pld 1 run f/SN @ 6259', recovering 6 BW. RD swb & RU to opn unloader - rel'd pkr & TOH. Pld to 45M#, but couldn't opn bypass (R-3 dble grip pkr). Pmpd 24 BW dn tbg while plg 45M# - tbg went on vac, but unloader wouldn't opn. Filled csg w/1 BW & press'd csg to 1M# - pkr stuck. Wrkd & pld on pkr to 60M# until 3:30 pm w/o success in freeing pkr. SI. Pld to 55M# on tbg & put 750 psi on backside & SDON & f/Sunday. Total load yet to recover is 3614 bbls. \$981,713 | | |
| 8/9/82 7462 (PB 7434) | Day-71. TD - Prep to run free pt. SD f/Sunday. \$981,713 | | |
| 8/10/82 7462 (PB 7434) | Day-72. TD - Prep to fin TI w/OS to jar on pkr. At 7:30 am 8/9/82 SICP 0, SITP 375 psi. Blew well dn in 4 min - all gas. RU Homco WL & ran free pt. Free pipe to 6249' WL meas. Stuck @ 6252' WL meas - (SN @ 6250' WL meas, pkr @ 6251' WL meas). Strung to 4 lines & instl deadline wt ind - chkd w/rigs pad Type wt indicator OK. Ran Homco chem cutter on WL & cut tbg @ 6242' WL meas - 25' below tbg clr. POH w/200 jts 2-3/8" tbg & 1 cut jt (24.75'). PU 3-3/4 X 1" Bowen OS w/bskt grapple (1.80'), 3-1/8 X 1" Bowen bmpr sub (4.42'), 3-1/8 x 1" Bowen jars (6.01'), 3-1/8 X 1" X0 (1.28'), 4 - 3-1/8 x 1-1/2" DC (119.38'), 3-1/2 x 1-1/2 X0 (.86'), 3-1/8 X 1" Bowen accelerator sub (8.60'), 3-1/8 X 1" X0 - Total 143.41'. WIH w/10 stds 2-3/8" tbg. SI & SDON. \$989,079 | | |

| | | |
|---|---------|----------------------------------|
| The above is correct | | |
| Signature | Date | Title |
| J. M. M. = Carthy | 8-12-82 | District Drilling Superintendent |
| For form preparation and distribution see Procedures Manual Section 10, Drilling, Pages 86 and 87 | | |

Instructions: This form is used during drilling or workover operations. If testing, coring, or perforating, show formation name in describing work performed. Number all test stems sequentially. Attach description of all cores. Work performed by Producing Section will be reported on "Interim" sheets until final completion. Report official or representative test on "Final" form. 1) Submit "Interim" sheets when filled out but not less frequently than every 30 days, or (2) on Wednesday of the week in which oil string is set. Submit weekly for workovers and following setting of oil string until completion.

| | | | |
|---|------------------|--|--|
| Prop Code: 69-2182-5 | | AFE #542661 | |
| District | County or Parish | State | |
| ROCKY MOUNTAIN | San Juan | New Mexico | |
| Field | Lease or Unit | Well no. | |
| East Aztec | Atlantic C | #101 | |
| Date and depth as of 8:00 a.m. | | | |
| Complete record for each day while drilling or workover in progress | | | |
| 7/31/82 7462 (PB 7434) | | Day-64. TD - Prep to RIH w/sd line & tag sd & run tracer log. At 7:30 am 7/30 SICP & SITP 0 psi. Fin'd TOH w/tbg & pkr. RU Sm Energy & frac'd Gallup perfs 5276-6527' (48 holes) by Schl DIL meas. Frac fld contained 2% diesel by vol plus Sm Energy GDX-7, 40# cross link gel w/2% KCl containing 1 gal/1000 gal SAA-1, 1 gal/1000 gal CSP-3, .25#/1000 gal BCS-1, 20# WEB-1 & 50# WCB-1 & using 388,000# 20/40 mesh sd as foll: 63,000 gals pad, 2200#, 37 BPM; 12,054 gals, 1# sd/gal (12,054#), 1800#, 41 BPM; 10,332 gals, 2# sd/gal (20,664#), 1700#, 40 BPM; 16,800 gals, 2-1/2# sd/gal (42,000#), 1600#, 38 BPM; 35,112 gals, 3# sd/gal (105,336#), 3400#, 37 BPM; 19,656 gals, 4# sd/gal (80,808#), 3700#, 38 BPM; 25,536 gals, 5# sd/gal (127,680#), 3600#, 38 BPM; 4,080 gals flush, 3600#, 38 BPM. Total 186,570 gals fld & 388,542# sd. JC 10:34 am 7/30. ISIP 1200 psi, 5 min SIP 900 psi, 10 min SIP 800 psi, 15 min SIP 800 psi. Min press 1600 psi, Max press 4200 psi, Avg press 3000 psi. Min inj 37 BPM, Max inj 41 BPM, Avg inj 38 BPM. SI & SDON. \$955,129 | |
| 8/1/82 7462 | | Day-65. TD - Prep to SD f/Sunday. Csg on vac @ 7:30 am. RU sd line. Tag sd @ 6319'. RU to run tbg. RIH w/notched clr, SN, 203 jts 2-3/8" tbg. Tag sd @ 6314'. Circ hole cln to BP @ 6620'. POH. RU Schl. Ran GR correl log 6624-5930'. Incr in GR f/ 6497-6488', 6432-6420', 6391-6381', 6368-6242'. RD Schl. RIH w/R-3 dble grip pkr (Mtn States), SN, 201 jts tbg. Set pkr @ 6260'. RU to swb. SI & SD f/Sunday. \$962,143 | |
| 8/2/82 7462 | | Day-65. TD - Prep to swb. SD f/Sunday. \$962,143 | |
| 8/3/82 7462 (PB 7434) | | Day-66. TD - Prep to resume swbg Gallup after frac job. On 8/2 @ 7:30 am SICP 300 psi, TP on vac. FL on 1st swb run @ 600'. Lowered FL to 1200' in 10 swb runs plg f/SN @ 6259'. During the next 10 swb runs f/SN lowered FL to 1700'. Well showed sml amt gas after 8th swb run, but wouldn't flw. Total fld rec'd on 8/2/82 by swbg was 266 bbls. Load yet to recover is 4415 bbls. \$966,321 | |
| 8/4/82 7462 (PB 7434) | | Day-67. TD - Prep to cont swbg Gallup interval. On 8/3/82 @ 7:30 am SITP 400 psi, CP 0 psi. Well bled dn immediately. RU swb & found FL @ 1700'. Pld 2 runs f/SN w/FL @ 2000'. Made total 22 swb runs f/SN w/final FL @ 2600'. Rec'd 251 BFF w/vy sli blw gas after ea pull. Total load left to recover 4164 bbls. SI & SDON. \$969,451 | |

The above is correct

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|----------------|--------|----------------------------------|
| Signature | Date | Title |
| J. M. McCarthy | 8-4-82 | District Drilling Superintendent |

For form preparation and distribution see Procedures Manual Section 10, Drilling, Pages 86 and 87

Instructions: This form is used during drilling or workover operations. If testing, coring, or perforating, show formation name in describing work performed. Number all drill stem tests sequentially. Attach description of all cores. Work performed by Producing Section will be reported on "Interim" sheets until final completion. Report official or representative test on "Final" form. 1) Submit "Interim" sheets when filled out but not less frequently than every 30 days, or (2) on Wednesday of the week in which oil string is set. Submit weekly for workovers and following setting of oil string until completion.

| | | | |
|--------------------------------|---|-------------|--|
| Prop Code: 69-2182-5 | | AFE #542661 | |
| District | County or Parish | State | |
| ROCKY MOUNTAIN | San Juan | New Mexico | |
| Field | Lease or Unit | Well no. | |
| East Aztec | Atlantic C | #101 | |
| Date and depth as of 9:00 a.m. | Complete record for each day while drilling or workover in progress | | |
| 7/25/82 7642 (PB 7434) | Day-59. TD - Tbg opn to pit - dead. CU prep to SD f/Sunday. No crew out Sat. Tbg dead, no flw, SICP 1300 psi. Bled csg to pit thru 2" to pit f/1 hr. No fld - in 3 hrs opn. SI csg & left tbg opn to pit til Monday. \$857,134 | | |
| 7/26/82 7642 (PB 7434) | Day-59. TD - Well opn to pit, prep to chk f/fld. CU SD f/Sunday. \$857,134 | | |
| 7/27/82 7642 (PB 7434) | Day-60. TD - Well opn to pit (Dak A, B & C zones; perfs 7121-7287') In am tbg dead - no flw, SICP 1780 psi. Made 4 swb runs, rec'd 7.74 BW. FL @ strt 3000'. Well KO @ 9:10 am & unloaded lots of wtr. After 1/2 hr, CP 230, TP 30 psi on 3/4" chk - rate 519 MCFD w/mist of wtr. After 1 hr total, CP 160 psi, TP 0, w/6' flare of gas & sli mist of wtr. Made swb run to SN - no fld rec'd. CP 220 psi. Cont'd to flw w/6' flare after swb run & in 15 min died to fumes only. After opn f/2 hrs w/fumes only, CP 400 psi. Swbd f/SN @ 2:00 pm. Rec'd 100' wtr (.38 bbls). CP after swb run 250 psi. Left well opn w/6' flare & SDON. \$859,384 | | |
| 7/28/82 7642 (PB 7434) | Day-61. TD - Prep to set BP above Dakota. In am sli blw on tbg. CP 150 psi. Made swb run - rec'd 200' wtr (.78 bbl). Bled CP & POH. WIH w/ 3-3/4" Sm bit (L85232 or L85233) used X0 (1.92'), 4 - 3-1/8" DC (119.38'), X0 (1.24'), 231 jts 2-3/8" tbg (7187.72'). Tagged sd @ 7314'. Loaded hole w/92 bbls 2% KCl - est rev circ. CO 32' sd to BP @ 7346'. Drld BP in 1 hr & cont'd in (235 jts) & tagged @ 7416' RKB. Drld & pushed BP jk to 7425' RKB. Circ cln. POH. SDON. \$862,194 | | |
| 7/29/82 7642 (PB 7434) | Day-62. TD - Prep to RIH w/tbg & pkr. SICP 550 psi, bled to pit. RU Welex & set BP @ 6620' KB. RIH w/210 jts tbg (6530.11') w/tail @ 6535' KB. RU Sm Energy & tst to 4500 psi 15 min - OK. Roll hole to 2% KCl wtr & spt 500 gals 15% HCl w/inhib, surfactant & demulsifier f/6535-5767'. POH w/tbg. RU Welex & perf Gallup f/top dn w/0.38" hole as foll: 6276', 78', 80', 82', 6318', 20', 22', 24', 26', 28', 30', 32', 34', 36', 38', 40', 43', 45', 47', 49', 51', 53', 55', 57', 80', 82', 84', 86', 88', 90', 6424', 26', 28', 30', 42', 44', 46', 91', 93', 95', 97', 99', 6517', 19', 21', 23', 25', 27'. No reaction @ surf after perf. FL remained @ 700'. With rig pmp pmpd acid @ 1 BPM @ 400 psi. ISIP 0 psi. SDON. \$872,447 | | |
| 7/30/82 7462 (PB 7434)(corr'd) | Day-63. TD - Prep to POH & frac. Csg on sli vac. RIH w/tension pkr & unloader (6.50'), SN (1.00') & 198 jts tbg (6158.46'). Set pkr @ 6169'KB. RU Sm Energy, est rate 5.2 BPM @ 2100 psi. Acidize w/2M gals 15% HCl w/Clay-Stay, inhib, surfactant, non-emulsifier w/96 ball sealers. Had gd ball action, but no ball off. Max press 4500 psi. Total load 105 bbls. ISIP 600 psi, 10 min SIP 400 psi. Max rate 6.2 BPM. Rel'd press. Rel'd pkr & lower thru perfs. Reset @ 6169'KB. RU to swb. Swbd well dn in 10 runs. Rec'd 60 BF. Wait 1 hr, rec'd 200' (0.8 bbls). Total rec'd 60.8 bbls. Rel'd pkr & POH 50 stds tbg. SI & SDON. Lost to recover 44.2 bbls. \$875,567 | | |

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|---|--------|----------------------------------|
| The above is correct | | |
| Signature | Date | Title |
| J. M. Mc Carthy | 8-4-82 | District Drilling Superintendent |
| For form preparation and distribution see Procedures Manual Section 10, Drilling, Pages 86 and 87 | | |

Instructions: This form is used during drilling or workover operations. If testing, coring, or perforating, show formation name in describing work performed. Number all drill stem tests sequentially. Attach description of all cores. Work performed by Producing Section will be reported on "Interim" sheets until final completion. Report official or representative test on "Final" form. 1) Submit "Interim" sheets when filled out but not less frequently than every 30 days, or (2) on Wednesday of the week in which oil string is set. Submit weekly for workovers and following setting of oil string until completion.

| | | | |
|---|------------------------------|--|--|
| Prop Code: 69-2182-5 | | AFE #542661 | |
| District ROCKY MOUNTAIN | County or Parish San Juan | State New Mexico | |
| Field East Aztec | Lease or Unit Atlantic C | Well no. #101 | |
| Date and depth as of 8:00 a.m. | | | |
| Complete record for each day while drilling or workover in progress | | | |
| 7/20/82 7642 (PB 7434) | | Day-55. TD - Well open to pit. Prep to check fluid level: Dakota A,B, & C perfs 7121-7287' In am, well dead on tbg. CP 800 psi. Ran swab - FL 3000' - pulled f/5000' & well flowing w/heavy mist. Flowed thru 2" f/1 hr - burned continuously w/1/4" stream wtr - CP 200 psi. Put on 3/4" choke @ 9 am. After 1/2 hr FCP 200 FTP psi @ rate 210 MCFPD. Made swab run to SN - rec 300' (1.16 bbl) gas cut wtr. Cont'd to flow well to pit w/1 swab run at noon, 2 pm & 4 pm - rec'd 200' or 3/4 bbl each run. Well contd to flare at 200 MCFD between swab runs w/trace of wtr. Left well open to pit thru 3/4" choke - CP 200 psi. Caught sample fluid on last swab run. \$814,555 | |
| 7/21/82 7642 (PB 7434) | | Day-56. TD - Well open to pit. Dakota A,B & C zones In am, well flowing on 3/4" choke. FTP 8 psi, FCP 300 psi, rate 247 MCFD - dry gas. Made 1 swab run @ 8 am. Rec 150' gas cut wtr. Made 1 run @ 10 am - rec 100' gas cut wtr. Flowed well til 1 pm. FTP 5-3 psi @ 205 MCFD to 185 MCFD, FCP 275 psi. Made swab run @ 1 pm - rec 100' foamy load wtr. At 5 pm, FTP 3 psi, FCP 275 psi, rate 185 MCFD. Left open on 3/4" choke. \$816,805 | |
| 7/22/82 7642 (PB 7434) | | Day-57. TD - Well opn to pit. In am FCP 250 psi, FCP 0 - fumes only out flwline. Made swb run, rec'd 400' (1.5 bbls) wtr. Flwd 15 min & made 2nd swb run, rec'd 100' wtr (.38 bbls). FCP 220 psi, FTP 0 psi - w/6' lazy flare gas & show of condensate in flare - constant f/2 hrs. Made swb run @ 10 am, rec'd .6 BW. Instl 2" orifice tstr. FCP 225 psi - in 1 hr thru tstr FTP decr'd f/12 psi (288 MCFD) to 1 psi (76 MCFD) w/fine spray wtr. CP @ end of 1 hr 190 psi. Bled csg to pit & lowered 236 jts (7340.70') & tagged fill @ 7331' or 15' fill. Pld 3 jts leaving end of tbg @ 7282'RKB. Left tbg opn to pit thru 3/4" chk 0/N. At 2:00 pm (after 2 hrs) CP 0 & only fumes out of tbg. \$849,145 | |
| 7/23/82 7642 (PB 7434) | | Day-58. TD - Well opn to pit Dakota A, B & C zones perfs 7121-7287'(OA). Well dead in am CP 225#. Made swb run to SN, rec'd 200' & well KO flwg. Swb run @ 10:00, rec'd 100' fld - FCP 275 psi, FTP 2 psi. Swb run @ noon, rec'd 100' wtr, CP 275 psi, FTP 2 psi. Run @ 1:30 pm - 75' wtr (.29 bbl). Est rate @ 100 MCFD w/FCP 225 psi. Left well opn on 3/4" chk. \$851,385 | |
| 7/24/82 7642 (PB 7434) | | Day-59. TD - Well opn to pit (Dak A, B & C zones: perfs 7121-7287'OA). Well flwg dry gas w/TP 0#, CP 275#. Ran swb, rec'd 100' (.38 BW). Bled CP to pit & POH w/tbg. RU Blue Jet Inc. - PI 10 bbl 2% KCl wtr. Reperf'd Dak B & C zones 7214-28' & 7269-86' w/1 JSPF. No surf reaction after perf. WIH w/notched clr & SN 1jtt up & 234 jts tbg (7278.74'). Tbg btm @ 7281' RKB. Made swb run @ 3:00 pm, rec'd 35' wtr. Flwd f/10 min & died w/CP 150 psi & TP 0. Made swb run @ 4:00 pm, no recovery, CP 220, TP 0. 6' flare gas on 3/4" chk. Left opn thru 3/4" chk 0/N. No chg in flw rate. \$856,100 | |

The above is correct

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|------------------------------------|-----------------|---|
| Signature <i>J. M. McCarthy</i> | Date 7-29-82 | Title District Drilling Superintendent |
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For form preparation and distribution see Procedures Manual Section 10, Drilling, Pages 86 and 87

7-23-82

Instructions: This form is used during drilling or workover operations. If testing, coring, or perforating, show formation name in describing work performed. Number all drill stem tests sequentially. Attach description of all cores. Work performed by Producing Section will be reported on "Interim" sheets until final completion. Report official or representative test on "Final" form. 1) Submit "Interim" sheets when filled out but not less frequently than every 30 days, or (2) on Wednesday of the week in which oil string is set. Submit weekly for workovers and following setting of oil string until completion.

| | | | |
|--|-------------------------------|----------------------|--|
| Prop Code: 69-2182-5 | | AFE #542661 | |
| District: ROCKY MOUNTAIN | County or Parish: San Juan | State: New Mexico | |
| Field: East Aztec | Lease or Unit: Atlantic C | Well no.: #101 | |
| Date and depth as of 8:00 a.m. Complete record for each day while drilling or workover in progress | | | |

| | |
|-------------------------------------|---|
| ATLANTIC "C" #101 Cont'd: (7/16/82) | |
| | All fld cont 1 gal/1000 non emulsifier, 1/2 gal/1000 clay stabilizer, 1/4 gal bacteriacide, 0.6 gal/100 crosslinker, 2% KCl, 500 std ft ³ /bbl CO ₂ gel conc tapered 45#/1000 gal to 60#/1000 gal @ strt of 3#/gal. Avg inj rate 3l BPM before screenout, max press 4500, min press 3600, avg trt press 4000. ISIP 2100, 5 min SIP 1600, 10 min SIP 1500 psi, 15 min SIP 1400 psi. Total load 136l BW. When 3#/gal hit fm press steadily incr'd f/3600-4500. Strtd flush @ 19 BPM & ended @ 12 BPM @ 4500 psi. JC 2:00 pm. Left well SI 3 hrs, SIP 3 hr 700 psi. Opnd to pit thru 3/4" chk - unloading gd - gel was brkn after 2 hr - FCP 50 psi. Left well opn O/N on 3/4" positive chk. \$805,617 |
| 7/17/82 7642 (PB 7434) | Day-53. TD - Prep to cont swabbing after CO ₂ frac Well dead 7:30 am, 7/16. Ran in hole w/notched collar & SN one jt up on 234 jts tbg (overall 7278.74') & tagged sand @ 7270' KB (lower set of perfs covered). Reversed out sand to BP @ 7346' requiring 8 bbls to fill hole @ start of reversing. Returns were very gas cut - circ hole for 1/2 hr. Pulled 6 jts to place btm tbg @ 7160' KB & begin swabbing. FL @ surf. Made 9 swab runs f/SN in 5 hrs & rec'd 156 bbls of load wtr. Fluid level stood @ 3600' & pulling f/SN @ 7130' KB. All runs gas cut w/slight blow after every pull. CP on vaccuum. Left tbg open to pst overnite & SDON. Load yet to recover is 913 bbls. Gas was flammable. \$808,508 |
| 7/18/82 7642 (PB 7434) | Day-54. TD - Well open to pit. Upper Dak A,B & C zones. CP 800 unloading out tbg. Flowed mostly wtr f/1 hr w/CP dec to 650 psi. Ran swab; fluid scattered but near 3000'. Made 13 runs f/SN in 7 hrs to 3 pm. Rec 128 BLW all gas cut & foamy, well kicked off & flowing thru 2" line. Flowed by heads f/1 hr & died w/CP 675 psi. Made 1 run - fld level 5000' & well KO flowing. FCP 675, FTP 15 psi unloading slugs wtr & gas. Contd flowing f/4-6 pm. Left open thru 2". Est swbd & flowed 228 bbl - leaving 685 bbl to recover. Flow still wet. \$811,259 |
| 7/19/82 7642 (PB 7434) | Day-54. TD - Well open to pit. Prep to resume swabbing. Upper Dak A,B & C zones. Completion unit SD Sunday 7/18. Well was dead between 7:30 am & 10 am, 7/18. CP 600 psi - vy wk blow on tbg. Est flowed 100 BW before dying. Lack 585 BLW. \$811,934 |

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|---|-----------------|---|
| The above is correct | | |
| Signature <i>J. M. Mc Carthy</i> | Date 7-23-82 | Title District Drilling Superintendent |
| For form preparation and distribution see Procedures Manual Section 10, Drilling, Pages 86 and 87 | | |

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| Prop Code: 69-2182-5 | | AFE #542661 | |
| District: ROCKY MOUNTAIN | County or Parish: San Juan | State: New Mexico | |
| Field: East Aztec | Lease or Unit: Atlantic C | Well no. #101 | |

| Date and depth as of 8:00 a.m. | Complete record for each day while drilling or workover in progress | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------------------|--|-----------|----------|-----------|-----------|----------|-------|------|--------|-----|-----|----|----|------|-------|-------|----|-------|----------|-------|--|----|-------|----|-------|----------|-------|--|----|-------|-----|-------|-------|-------|--|----|-------|-----|-------|-------|--------|------|--|--------|-----|-------|-------|--------|-----------|--|-------|----|-------|----|----|--|--|--------|------|--|--|--------|--|--|
| 7/14/82 7462 (PB 7434) | Day-50. TD - Prep to run pkr & acidize Dak A, B & C zones. In am FCP 280, FTP 0 on 2" line, 5' flare gas & 1/8" strm wtr. Bucket tst .3 BPH wtr, Cl 11,934, Fe 64, Sp gr 1.016, gas rate est 100 MCFD all nite. Bled csg dn & PI tbg 20 bbls KCl wtr. With 238 jts (7403.74') tagged fill @ 7406' RKB. CO to PBD 7434'. (W/239 jts) Circ hole cln w/2% KCl wtr. Took 95 bbls to fill - theor vol 102 to fill. POH. RU Welex & set Howco Speed E line CIBP @ 7346' RKB. RU Nowsco & press tst to 4500 psi f/15 min - OK. WIH w/234 jts 2-3/8" tbg (7277.24') - btm @ 7285' RKB. Sptd 200 gals 15% HCl w/claymaster Fe sequestering agent & surfactant 7285-6979'. POH. Welex perf'd Dakota A, B & C zones w/17 - .38" holes @ foll'g depths: 7121', 23', 7213', 16', 19', 21', 23', 26', 29', 68', 70', 72', 74', 78', 81', 84', 87'. No surf reaction after perf, but FL dropped f/800' to 1200'. SION. \$765,194 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7/15/82 7462 (PB 7434) | Day-51. TD - Prep to POH & frac Dak A, B & C zones. In am SICP 10 psi - bled off immed. WIH w/Mtn States Type "3A" tension pkr (6.65'), API SN (1.00') & 225 jts 2-3/8" tbg (6999.09'). Set pkr @ 7010' RKB. RU Nowsco & w/pkr bypass opn, filled hole w/10 bbls KCl wtr. Acidized w/1000 gal 15% HCl (sptd acid) w/42 ball sealers, 3 bbl acid then 2 ball/bbl (acid w/claymaster, iron seq agent & surfactant). FBDP 4000 psi @ 4 BPM. Balled off to 5600 psi w/11 bbls acid in tbg. Held press 5 min. Surged off balls & balled off to 5000 psi w/5 bbls left in tbg. Held 4 min - surged off balls & displ rest of acid @ 4 BPM 1900 psi & 6 BPM @ 3200 psi. Overdispl'd 5 bbls. ISIP 1000 psi, 10 min SIP 50 psi, 15 min SIP 0 psi. Rel'd pkr & lowered (236 jts total) to BP @ 7346'. Pld up to btm tbg @ 7110'. RU to swb. Total load 163 bbls. Made 7 runs in 3-1/2 hrs - rec'd 77 BLW & well strt'd flwg. After 1/2 hr flwg inst 3/4" positive chk; after 1-1/2 hr flw FCP 0, FTP 35-135 psi - gas would burn; after 3 hr flw FCP 0, FTP 70 psi w/hvy spray wtr. Left opn on 3/4" chk O/N - still wet. \$771,158 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7/16/82 7462 (PB 7434) | Day-52. TD - Well dead, prep to run tbg to CO. Well flwg dry gas, FCP 250, FTP 0 w/8' flare on 2" line est 250 MCF. Bled off csg press & POH. RU Nowsco & frac'd Dakota A, B & C 7121-7287' (OA) w/46,363 gals NOW Frac II LR-45, 13,440 gal NOW Frac II LR-60, 35 tons CO ₂ , 7500# 100 mesh sd, 63,008# 20/40 sd staged as foll: CO ₂ ,Wtr&Sd <table><tr><th>Gals</th><th>Bbls</th><th>Prop Conc</th><th>Prop</th><th>Prop Wt.</th><th>Press</th><th>Rate</th></tr><tr><td>27,000</td><td>643</td><td>Pad</td><td>--</td><td>--</td><td>4000</td><td>27-28</td></tr><tr><td>2,500</td><td>60</td><td>1 ppg</td><td>100 mesh</td><td>2,500</td><td></td><td>31</td></tr><tr><td>2,500</td><td>60</td><td>2 ppg</td><td>100 mesh</td><td>5,000</td><td></td><td>31</td></tr><tr><td>6,000</td><td>143</td><td>1 ppg</td><td>20/40</td><td>6,000</td><td></td><td>31</td></tr><tr><td>7,000</td><td>167</td><td>2 ppg</td><td>20/40</td><td>14,000</td><td>3600</td><td></td></tr><tr><td>13,440</td><td>320</td><td>3 ppg</td><td>20/40</td><td>43,008</td><td>3600-4500</td><td></td></tr><tr><td>3,995</td><td>94</td><td>Flush</td><td>--</td><td>--</td><td></td><td></td></tr><tr><td>62,395</td><td>1487</td><td></td><td></td><td>70,508</td><td></td><td></td></tr></table> | Gals | Bbls | Prop Conc | Prop | Prop Wt. | Press | Rate | 27,000 | 643 | Pad | -- | -- | 4000 | 27-28 | 2,500 | 60 | 1 ppg | 100 mesh | 2,500 | | 31 | 2,500 | 60 | 2 ppg | 100 mesh | 5,000 | | 31 | 6,000 | 143 | 1 ppg | 20/40 | 6,000 | | 31 | 7,000 | 167 | 2 ppg | 20/40 | 14,000 | 3600 | | 13,440 | 320 | 3 ppg | 20/40 | 43,008 | 3600-4500 | | 3,995 | 94 | Flush | -- | -- | | | 62,395 | 1487 | | | 70,508 | | |
| Gals | Bbls | Prop Conc | Prop | Prop Wt. | Press | Rate | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27,000 | 643 | Pad | -- | -- | 4000 | 27-28 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2,500 | 60 | 1 ppg | 100 mesh | 2,500 | | 31 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2,500 | 60 | 2 ppg | 100 mesh | 5,000 | | 31 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6,000 | 143 | 1 ppg | 20/40 | 6,000 | | 31 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7,000 | 167 | 2 ppg | 20/40 | 14,000 | 3600 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13,440 | 320 | 3 ppg | 20/40 | 43,008 | 3600-4500 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3,995 | 94 | Flush | -- | -- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 62,395 | 1487 | | | 70,508 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| The above is correct | | |
| Signature <i>J. M. McCarthy</i> | Date 7-23-82 | Title District Drilling Superintendent |

For form preparation and distribution see Procedures Manual Section 10, Drilling, Pages 86 and 87

7-17-82

Instructions: This form is used during drilling or workover operations. If testing, coring, or perforating, show formation name in describing work performed. Number all drill stem tests sequentially. Attach description of all cores. Work performed by Producing Section will be reported on "Interim" sheets until final completion. Report official or representative test on "Final" form. 1) Submit "Interim" sheets when filled out but not less frequently than every 30 days, or (2) on Wednesday of the week in which oil string is set. Submit weekly for workovers and following setting of oil string until completion.

| | | | |
|--------------------------------|---|-------------|--|
| Prop Code: 69-2182-5 | | AFE #542661 | |
| District | County or Parish | State | |
| ROCKY MOUNTAIN | San Juan | New Mexico | |
| Field | Lease or Unit | Well no. | |
| East Aztec | Atlantic C | #101 | |
| Date and depth as of 8:00 a.m. | Complete record for each day while drilling or workover in progress | | |
| 7/10/82 7462 (PB 7434) | Day-47. TD - Flwg to pit to cln up frac'd Dak zone. 7:30 am 7/9/82 SICP 500 psi. Opnd well & blew dn in 10 min. Mixed 2% KCl wtr. TIH w/1 jt 2-3/8" tbg, SN & 235 jts 2-3/8" tbg w/tbg pmpout plug in btm. Tagged top sd @ 7363'KB. Circ & 'CO sd to 7434'KB & circ'd hole cln. Lost 40 bbls KCl wtr while circ'g out sd. Pld 5 jts tbg to 7289'. RU swb making 5 runs - rec'd 57 BF. FL @ surf on 1st pull, 5000' after 2nd pull & then incr'g higher on 3rd & 4th, and @ surf on 5th pull. On 5th pull well began flwg sml strm fld. FTHP 25 psi & CO 0 psi. Flw was stronger by 6 pm & in 1-1/2 hrs flwd 45 bbls. Left well flwg O/N w/watchman. Total load rec'd 502 bbls - Load yet to recover 1138 bbls. \$740,856 | | |
| 7/11/82 7462 | Day-48. TD - Well opn flwg to pit Dakota "D" zone. Cont'd flwg Dakota "D" zone as foll: 8:30 pm 7/9, FCP 0, FTP 25, 2" strm wtr - 2 pm 7/10/82, FCP 300, FTP 25. Well died @ 2:30 pm. Made 2 swb runs- 1st to 5000', no recovery - 2nd to SN & rec'd 1 bbl & well KO @ 4:30 pm 7/10/82; 5 pm 7/10, FCP 500, FTP 15, gas & wtr; 6 pm 7/10, FCP 400, FTP 25, hvy spray wtr. Est rec'd 300 BW 8:30 pm 7/9 to 6 pm 7/10. Total recovery 802 BW. Lack 838 bbls. Left opn to pit. No sd recently. \$748,577 | | |
| 7/12/82 7462 (PB 7434) | Day-48. TD - Cont flwg f/cln up. At 7 am 7/12/82 flwg @ 456 MCFD w/ 1/2" strm foam wtr, FTHP 25 psi, CP 275 psi. Beginning @ 7 pm 7/11/82 flwd well to pit using night watchman. Flwd as foll: 7 pm, CP 425, TP 25, Chk 2", gas & 1" strm wtr to 5 pm, CP 325, TP 35, chk 3/4", rate 581 MCFD, 1/2" strm wtr, will burn. Caught wtr sample @ 8 am, analysis Cl - 11,199 ppm, Fe 51 ppm, H ₂ S 0 ppm, Ph 7.0, S.G. 1.015. Est well flwd 150 BW - Left to recover 688 bbls. \$753,898 | | |
| 7/13/82 7462 (PB 7434) | Day-49. TD - Well opn to pit, prep to chk f/sd fill Dak "D". Cont'd flwg Dak "D" to pit as foll: 7:00 am, CP 275, TP 25, Chk 3/4", 456 MCFD, 1/2" strm wtr, burns cont, caught sple; 10:00 am, CP 275, TP 8, Chk 3/4", 247 MCFD, 1/2" strm wtr, burns; 10:15 am, Instl 2" orifice tstr w/3/4" plate; 10:30 am, CP 275, TP 2-1/2, Chk 3/4", 121 MCFD, 3 BPH wtr; 11:00 am, CP 275, TP 1-1/2, Chk 3/4", 93 MCFD, 1.2 BPH wtr; 11:15 am, made swb run to SN, fld strung out, rec'd 2 BW; 12:00 noon, CP 275, TP 4, Chk 1", 283 MCFD; 12:10 pm, CP 275, TP 3-1/2, Chk 1", 263 MCFD; 12:20 pm, CP 275, TP 3, Chk 1", 242 MCFD; 12:30 pm, CP 275, TP 2, Chk 1", 195 MCFD; Removed orifice well tstr @ 12:30 pm; 12:45 pm, CP 275, TP 0, Chk 2", 5' flare gas, no wtr; 12:50 pm, made swb run to SN, fld strung out, rec'd .38 BW; 1:00 pm, CP 275, TP 0, Chk 2", 5' flare, no wtr; 2:00 pm, CP 275, TP 0, Chk 2", heading foamy wtr; 3:00 pm, CP 325, TP 0, Chk 2", heading foamy wtr; 4:00 pm, CP 275, TP 0, Chk 2", heading foamy wtr. Left opn on 2" O/N w/fire out - Est 50 BLW swbd & flwd last 24 hrs. Lack 638 bbls. Spl Cl 14,929 ppm, Fe 65 ppm, Sp Gr 1.02. \$756,379 | | |

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|---|---------|----------------------------------|
| The above is correct | | |
| Signature | Date | Title |
| <i>J. M. McCarthy</i> | 7-14-82 | District Drilling Superintendent |
| For form preparation and distribution see Procedures Manual Section 10, Drilling, Pages 86 and 87 | | |

Instructions: This form is used during drilling or workover operations. If testing, coring, or perforating, show formation name in describing work performed. Number all drill stem tests sequentially. Attach description of all cores. Work performed by Producing Section will be reported on "Interim" sheets until final completion. Report official or representative test on "Final" form. 1) Submit "Interim" sheets when filled out but not less frequently than every 30 days, or (2) on Wednesday of the week in which oil string is set. Submit weekly for workovers and following setting of oil string until completion.

Prop Code: 69-2182-5

AFE #542661

| | | |
|-----------------------------|------------------------------|---------------------|
| District: ROCKY MOUNTAIN | County or Parish San Juan | State New Mexico |
| Field East Aztec | Lease or Unit Atlantic C | Well no. #101 |

Date and depth
as of 9:00 a.m.

Complete record for each day while drilling or workover in progress

7/8/827462
(PB 7434)

Day-45. TD - Flowing well after frac

At 7 am, FTP thru 1/2" orifice well tstr plate 3 psi. SICP 0 psi. Well avg rate 60 MCF/D. RU swab, tag fluid @ 5000'. Pull 1st run f/6500'. Rec 1-1/2 bbl fluid. Made 2nd run f/SN, rec 1/2 bbl fluid. RU pmp. Filled tbg w/2% KCl wtr. Rel pkr. Pmpd dn annulus up tbg to circ out gas. RD pmp. POH. RU Newsco. Tstd lines to 5500 psi - OK. Cooled CO₂. Pmpd frac into Dakota "D" fm. Perf 7354-7379, 7384-7394 (DIL/SFL log meas). Frac as follows: Newsco Now frac II LR-40, 2% KCl wtr, w/40#/1000 gal NWP-12, 1 gal/1000 NNE 257H, 1/2 gal/1000 NCS 227, 1/4 gal/1000 NBA 570, 0.6 gal/1000 gal NCA 570, 500 SCF/bbl CO₂ w/100 mesh & 20/40 mesh sand.

| bbls | Consc | Prop | Weight | Fluid | Press | Rate |
|------|-------|----------|----------|-------------------|-------|------|
| 655 | Pad | - | - | Now Frac II | 3730 | 28.6 |
| | | | | w/CO ₂ | | |
| 48 | 1 | 100 mesh | 2000# | " | 3620 | 28.7 |
| 48 | 2 | 100 mesh | 4000# | " | 3700 | 28.9 |
| 138 | 1 | 20/40 | 5000# | " | 3750 | 28.5 |
| 148 | 2 | 20/40 | 12400# | " | 3670 | 28.9 |
| 167 | 3 | 20/40 | 21000# | " | 3600 | 28.8 |
| 196 | 4 | 20/40 | 33000# | " | 3620 | 28.6 |
| 265 | 5 | 20/40 | 55750# | " | 3920 | 28.4 |
| 137 | 6 | 20/40 | 34524# | " | 4180 | 5 |
| 6 | flush | - | - | Slick wtr | 4200 | 3 |
| 1808 | | | 167,674# | | | |

Well started sanding off w/167 bbls 5# 20/40 pmpd. Started 6# sand. Press incr f/3920-4180 psi. Reduced rate f/28.4 BPM to 3 BPM in stages while holding 4200 psi. (Rate = 1 BPM wtr, 2 BPM CO₂ = 3 BPM). Started flush. Pmpd 6 bbl flush @ 3 BPM. SI well. ISIP 4000 psi, 5 min 3000 psi, 10 min 2700 psi, 15 min 2500 psi. Total load 1600 bbl wtr. Left well SI 3 hrs. SIP 1500 psi. Opened well to pit thru 1/2" choke. FCP 600 psi. Flowed 10 min thru 1/2" choke. SI well. Changed to 1/4" choke. SICP 1000 psi. Opened well thru 1/4" choke. FCP 800 psi. Dropped to 240 psi @ 0100 hrs 7/8/82. Choke plugged w/sand. changed to 1/2". FCP 140 psi decr to 25 psi by 0700 hrs.

\$733,956

7/9/827462
(PB 7434)

Day-46. TD - Prep to TIH w/2-3/8" tbg & CO to PBTD (sand)

At 7 am, flwg. Csg press 25 psi thru 1/2" choke. Cont flow back frac to reserve pit thru 1/2" pos choke. Well flowing wtr & gas alternately. Flowing CP dropped f/25# to 10# in 8-1/2 hrs. Removed pos chk f/flowline, well started heading w/ vy wk blow of gas w/slugs of wtr. SI well @ 1530 on 7/8/82. Nipple dn xmas tree. Chg rams & BOP. RU two lines off csg head. Left well SION. CP built up f/10# @ 1530 to 400# @ 1830. Load rec'd = 400 bbls. Load left to rec = 1200 bbls.

\$737,281

The above is correct

Signature
S. M. McCarthy

Date
7-19-82

Title
District Drilling Superintendent

For form preparation and distribution
see Procedures Manual Section 10,
Drilling, Pages 86 and 87

Number all daily well history forms consecutively
as they are prepared for each well.

Page no.
8

AR3B-459-2-B

Instructions: This form is used during drilling or workover operations. If testing, coring, or perforating, show formation name in describing work performed. Number all drill stem tests sequentially. Attach description of all cores. Work performed by Producing Section will be reported on "Interim" sheets until final completion. Report official or representative test on "Final" form. 1) Submit "Interim" sheets when filled out but not less frequently than every 30 days, or (2) on Wednesday of the week in which oil string is set. Submit weekly for workovers and following setting of oil string until completion.

| | | | |
|--------------------------------|---|-------------|--|
| Prop Code: 69-2182-5 | | AFE #542661 | |
| District | County or Parish | State | |
| ROCKY MOUNTAIN | San Juan | New Mexico | |
| Field | Lease or Unit | Well no. | |
| East Aztec | Atlantic C | #101 | |
| Date and depth as of 8:00 a.m. | Complete record for each day while drilling or workover in progress | | |
| 7/4/82 7462 (PB 7434) | Day-41. TD - Well shut in. Comp rig SD - holiday. Dakota "D" zone. WIH w/Mtn States SCL pkr, API SN & 232 jts 2-3/8" tbg. Set pkr 7233' w/28000# comp. RU NOWSCO & tstd annulus to 1000 psi. Treated w/1000 gal 15% HCl w/2 gal NIS 161, 100# NSI 227, 1 gal NNE 227, w/45 ball sealers. Flushed w/32 bbl 2% KCl wtr. Slight ball action. Max press 2500 psi, min press 1600, avg press 2000 psi. Max rate 3.5 BPM, min rate 2 BPM, avg 3 BPM. ISIP 1000 psi, 5 min SIP 800 psi, 10 min 710 psi, 15 min 700 psi. JC @ 1230 pm. Left SI 1 hr. Opened to pit & flowed 20 BW & died. RU to swab. Made 14 swab runs. FL dec fr surf to 5100'. Very gas cut wtr. Blowing to pit w/very weak blow between runs. Rec 55 bbl wtr while swabbing. Total load had been 70 bbl. Total recovery today 75 bbls. Rel pkr & lowered pkr to 7419' & reset pkr @ 7293'. RU Swab - could not get dwn. Well kicked off while swabbing to 1000'. Well flowing gas & wtr then died. RD swab. SI well & SD. \$675,745 | | |
| 7/5/82 7462 (PB 7434) | Day-42. TD - Well SI. Comp unit SD - holiday. Dakota "D" zone At 1 pm, 7/4/82, 8 hr SITP 600 psi. Opened well & bled dwn to vry weak blow f/45 min. No fluid to surf. Shut in @ 2 pm, 7/4. \$675,745 | | |
| 7/6/82 7462 (PB 7434) | Day-43. TD - Well SI. Prep to swab Dakota "D" zone Comp unit SD 7/5 - holiday | | |
| 7/7/82 7462 (PB 7434) | Day-44. TD - Prep to POH. 7:30 am, SICP 0, SITP 475 psi. Opened to pit, blew dwn to vry wk blow immediately. RU to swab FL @ 1100'. Swab to SN @ 7287' in 4 runs. Made 5th run w/vry little fluid rec. Wait 1 hr & made 3 swab runs. No FL. Rec less than 1 bbl per run. RU 2" orifice well tester w/1/2" plate. Flowed f/3:05-4:30 pm. Max 5 psi - 78.1 MCF/D. Min 2 psi - 47.7 MCF/D. Ave 3 psi = 59.2 MCF/D. Made swab run w/less than 1 bbl rec. Opemd thru tester f/5-6 pm. Max 7 psi = 94.7 MCF/D. Min 1 psi = 33.9 MCF/D. Ave 3 psi = 59.2 MCF/D. At 6 pm made last swab run. Less than 1 bbl rec. Install 3/4" positive choke in flowline. RD swab. Left well flowing to pit. SDON. \$681,670 | | |

| | | |
|---|---------|----------------------------------|
| The above is correct | | |
| Signature | Date | Title |
| J. M. Mc Carthy | 7-19-82 | District Drilling Superintendent |
| For form preparation and distribution see Procedures Manual Section 10, Drilling, Pages 86 and 87 | | |

7-8-82

Instructions: This form is used during drilling or workover operations. If testing, coring, or perforating, show formation name in describing work performed. Number all drill stem tests sequentially. Attach description of all cores. Work performed by Producing Section will be reported on "Interim" sheets until final completion. Report official or representative test on "Final" form. 1) Submit "Interim" sheets when filled out but not less frequently than every 30 days, or (2) on Wednesday of the week in which oil string is set. Submit weekly for workovers and following setting of oil string until completion.

| | | | | | |
|--------------------------------|--|--|--|------------|--|
| District | | County or Parish | | State | |
| ROCKY MOUNTAIN | | San Juan | | New Mexico | |
| Field | | Lease or Unit | | Well no. | |
| East Aztec | | Atlantic C | | #101 | |
| Date and depth as of 8:00 a.m. | | Complete record for each day while drilling or workover in progress | | | |
| 6/20-21- 7462 6/25/82 | | Day-36. TD - WO completion. | | \$635,474 | |
| 6/29/82 7462 | | Day-36. TD - Prep to MI CU. | | \$635,474 | |
| 6/30/82 7462 | | Day-37. TD - Prep to TIH to drl next DV tool. (KB @ 14' - FC @ 7428' f/drlg log). MI RU CU 6/29/82. Unloaded 244 jts 2-3/8", 4.75", J-55, EUE tbg. NU 5000 psi tbg hd. Tst OK to 1300 psi. NU 5000 psi BOP & stripping hd. PU 3-7/8" flat btm mill, 4-1/2" csg scraper, XO, 4 X 3-1/8" DC, XO, 50 jts 2-3/8" EUE 8rd tbg. Tag cmt @ 1683' KB. Milled cmt to 1716' KB & milled DV. Circ hole & RD power swivel, instl TIW valve. Pld up 1 std tbg & SI well. SDON. | | \$645,524 | |
| 7/1/82 7462 | | Day-38. TD - Prep to fin CO. PU 40 jts 2-3/8" tbg (total 90 jts). Tag cmt @ 2936' KB. Milled cmt to top of 2nd DV @ 3026' KB. Milled out DV. RIH. Had tite spts @ 5043' & 5093'. Set dn @ 5351' & could not wrk thru. POH. LD 3-7/8" flat btm mill. PU 3-7/8" Sm SN #L85231 bit. RIH. No tite spts. Tag @ 7345' KB. Drld to 7348' KB. Circ up LCM & metal jk, no cmt. PU & circ hole cln. LD 1 jt & power swivel. Instl TIW valve. PU 1 std. SI & SDON. | | \$648,884 | |
| 7/2/82 7462 | | Day-39. TD - Prep to spt acid. RIH w/1 std & 1 jt 2-3/8" tbg to 7348'. CO 2' of cuttings. Drld cmt to 7434'. Circ hole cln. Mixed 40 sx KCl f/8.6 ppg KCl wtr. POH w/tbg & BHA. LD BHA. RU Schl. Ran CNL/GR f/7433-4300' & f/2900-700'; LTD 7436', DTD 7434'. Ran CBL/VDL/GR f/7419-4250' & f/3246-800'. Gd bond 7419-6973'. SI & SDON. | | \$654,169 | |
| 7/3/82 7462 (PB 7434) | | Day-40. TD - Prep to run pkr & acidize Dakota "D" zone. RU NOWSCO & mix 2% KCl wtr in 400 bbl tank. Filled csg w/2% KCl wtr. Filled 9-5/8" X 4-1/2" annulus w/wtr. Press tstd csg - blind rams to 4500 psi. OK (after tighten flange below BOP). RU to run tbg. WIH w/2-3/8" tbg OE to 7403'. RU NOWSCO & spotted 200 gal 15% HCl w/2 gal/1000# NIS (inhib) 100#/1000 gal SI 227, 1 gal/1000 NWE 227 f/7403-7100'. POH w/tbg. RU Schlum & perf Dakota "D" w/1 ultrajet .34" hole per ft f/7354-7379' & 7384-7394' w/35 shots. Schlum DIL SFL mea (=7357-7382 & 7387-7397 Schlum bond log mea). Pmpd 6 bbl 2% KCl wtr @ 1/2 BPM @ 1500 psi to disp acid into perfs. ISI 1400 psi 15 min SI 1100 psi. SI well & SDON. | | \$668,625 | |

| | | |
|------------------------|--------|----------------------------------|
| The above is correct | | |
| Signature | Date | Title |
| <i>J. M. Mc Carthy</i> | 7-3-82 | District Drilling Superintendent |

For form preparation and distribution see Procedures Manual Section 10, Drilling, Pages 86 and 87

6-24-82
7-1-82

Instructions: This form is used during drilling or workover operations. If testing, coring, or perforating, show formation name in describing work performed. Number all drill stem tests sequentially. Attach description of all cores. Work performed by Producing Section will be reported on "Interim" sheets until final completion. Report official or representative test on "Final" form. 1) Submit "Interim" sheets when filled out but not less frequently than every 30 days, or (2) on Wednesday of the week in which oil string is set. Submit weekly for workovers and following setting of oil string until completion.

| | | | |
|--------------------------------|------------------|--|--|
| Prop Code: 69-2182-5 | | AFE #542661 | |
| District | County or Parish | State | |
| ROCKY MOUNTAIN | San Juan | New Mexico | |
| Field | Lease or Unit | Well no. | |
| East Aztec | Atlantic C | #101 | |
| Date and depth as of 8:00 a.m. | | Complete record for each day while drilling or workover in progress | |
| 6/15/82 | 7457 | Day-32, Ftg-0. Wshg thru bridge @ 6950'. Mud: 8.5#, vis 45, WL 16. Wshd thru bridge 6066-6136'. Lost full returns. Ran 3 stds of DP 6414' - no bridge. Pld out 5 stds. Bit @ 5974'. Mix mud & LCM. Bld vol. Mix 140 bbl salt gel in premix tk. Vis 100+, MW 10 ppg, LCM 40%. Pmpd 45 bbls @ 2.5 BPM. Displ'd w/50 BM. Regained partial returns. Pld 7 stds - bit @ 5293'. Wait 30 min. Pmpd 45 bbls salt gel @ 2.5 BPM. Regained partial returns. Displ'd w/70 BM. Closed BOP rams. Displ'd dn annulus 40 BM @ 2.5 BPM - no press. Fld standing @ surf @ end. W0 sqz. Filled annulus 7.5 bbls. TIH. Wshg & pushing thru bridges 6070-6200'. Hard bridge & tite hole @ 6950'. Seepage losses 5 BPH & foamy mud. \$471,723 | |
| 6/16/82 | 7462 | Day-33, Ftg-5. Circ, mix mud, bld vol. Mud: 8.6#, vis 58, WL 6. Wshd thru bridges 6950-7100'. Cond mud. Cln up tite hole. Wshd to btm - losing 20 BMPH. Circ on btm. Mix mud. Bld vol. Drld 5'. Bld vol losing 10 BMPH. Circ. Mix mud. Bld vol. Cond mud. Losing 5 BMPH. \$490,436 | |
| 6/17/82 | 7462 | Day-34, Ftg-0. Circ'g f/csg. Mud: 8.6#, vis 48, WL 8. Circ. Mix mud & bld vol. Losing 5 BMPH. Sht trip 10 stds. Hole tite 6950-7050', lost 10 BM - no fill. Circ & cond mud. Sht trip 10 stds. Hole tite @ 6950' - no mud loss - no fill. Circ f/logs. TOH f/logs. RU Schl. Ran DIL-IES f/TD to surf csg. Bridge @ 6112'. Hung tool up @ 7118'. Pld loose. LTD 7461'. Top of Morrison 7396'. Lost 150 BM while logging. TIH. Brk circ - 5' fill. Mix mud & LCM. Bld vol. Circ hole & shake out LCM. 1-1/4° @ 7452'. \$515,560 | |
| 6/18/82 | 7462 | Day-35, Ftg-0. Circ f/2nd stage cmt. Mud: 8.6#, vis 48, WL 8. Circ. Mix mud. Bld vol. Shake out LCM. LD DP. RU & ran 180 jts 4-1/2" csg (7466.26') as foll: 1 jt 4-1/2" OD, 11.6#, K-55, LT&C, shoe jt (31.19') w/GS (0.85') & FC (1.42'); 62 jts 4-1/2" OD, 11.6#, L-80, LT&C (2800.95'); 80 jts 4-1/2" OD, 11.6#, N-80, LT&C (3479.22'); 37 jts 4-1/2" OD, 11.6#, K-55, LT&C (1154.90') w/2 stage tools set @ 3016' & 1707'; FC @ 7428'; 10 cntrlzrs @ 7451', 7381', 7292', 7154', 7022', 5124', 4988', 3060', 2838' & 1752'; 5 cmt bskts @ 6110', 5210', 3104', 1838' & 1794'. Set csg @ 7461'. Circ csg w/mud. RU cmtrs. Cmt csg 1st stage: pmpd 3 BW, 20 bbl mud sweep, 5 BW, 1500 gals chk flw & 5 BW; cmtd w/600 sx 50/50 Poz Cl "H" w/6% gel, 6# salt/sx 2% CaCl ₂ & 12.5# gilsonite/sx; foll'd by 150 sx Cl "H", 6# salt/sx & 2% CaCl ₂ . Displ'd w/66 bbls frsh wtr, foll'd by 49 BM. Lost 25-75% returns last 160 bbls pmpd during mixing & displcmnt. PD 4:40 am 6/18/82. Drop bomb to opn stage tool. Circ'd w/mud. \$580,396 | |
| 6/19/82 | 7462 | Day-36. TD - MORT. Circ f/2nd stage. Cmtd 2nd stge w/20 bbl mud sweep, 3 BW, 470 sx 50/50 Poz "H" w/6% gel, 6# salt/sx, 2% CaCl ₂ , 1/2 cu ft perlite/sx. Displ w/20 BW & 27 BM. Full returns. PD 7:52 am 6/18/82. Drop bomb, opn 3rd stge tool & circ. Circ 70 sx cmt out f/2nd stge. Cmt 3rd stge w/620 sx cmt as above. Displ w/27 BW. Full returns during stge, circ 130 sx cmt to surf. PD 11:50 am 6/18/82. ND BOP, set slips & cut off csg. RR 1400 hrs 6/18/82. RD & MORT. \$635,474 | |

| | | |
|----------------------|---------|----------------------------------|
| The above is correct | | |
| Signature | Date | Title |
| J. M. McCarthy | 6-24-82 | District Drilling Superintendent |

For form preparation and distribution see Procedures Manual Section 10, Drilling, Pages 86 and 87

Instructions: This form is used during drilling or workover operations. If testing, coring, or perforating, show formation name in describing work performed. Number all drill stem tests sequentially. Attach description of all cores. Work performed by Producing Section will be reported on "Interim" sheets until final completion. Report official or representative test on "Final" form. 1) Submit "Interim" sheets when filled out but not less frequently than every 30 days, or (2) on Wednesday of the week in which oil string is set. Submit weekly for workovers and following setting of oil string until completion.

| | | | |
|--------------------------------|--|-------------|--|
| Prop Code: 69-2182-5 | | AFE #542661 | |
| District | County or Parish | State | |
| ROCKY MOUNTAIN | San Juan | New Mexico | |
| Field | Lease or Unit | Well no. | |
| East Aztec | Atlantic C | #101 | |
| Date and depth as of 8:00 a.m. | Complete record for each day while drilling or workover in progress | | |
| 6/8/82 7270 | Day-25, Ftg-95. Drlg - losing returns. Mud: 8.1#, vis 38, WL 7.6. Drld - seepage losses. LCM 15-17%. Survey. Trip f/new bit. Brk circ on TIH. Wshd 20' to btm. Drld - seepage losses. LCM 10-18%. 1-1/2° @ 7198'. \$367,223 | | |
| 6/9/82 7380 | Day-26, Ftg-110. Drlg. Mud: 8.4#, vis 46, WL 8.4. Drld. Hole taking fld. Rig service - wrk BOPs. Drld. Hole taking fld. Lost 90% returns @ 7378'. Pld 10 stds; hole tite 8 stds. Mix mud & LCM. TIH 5 stds. Circ & cond mud. Wsh to btm thru bridges. Drld w/full returns. Lost 400 BM. \$387,244 | | |
| 6/10/82 7452 | Day-27, Ftg-72. Circ'g f/logs. Mud: 8.4#, vis 43, WL 6.8. Drld. Rig service & wrk BOPs. Drld. Circ f/logs. Sht trip 15 stds - bridge @ 6950'. Circ f/logs. \$401,252 | | |
| 6/11/82 7452 | Day-28, Ftg-0. WO input shaft f/drwwrks. Mud: 8.5#, vis 46, WL 8. Circ f/logs. Shake out LCM. Survey. TOH f/logs. Brk input shaft on drwwrks. WO shaft. 4 jts of DP & BHA (20 DCs, bit sub & bit) in hole. Bit inside csg. Hole taking some fld - 75 bbls first 12 hrs & 10 bbls last 6 hrs. \$406,076 | | |
| 6/12/82 7457 | Day-29, Ftg-5. Wshg to btm, now @ 6990'. Mud: 8.4#, vis 48, WL 8. WO drwwrks input shaft & instl shaft. Rep rig. Fin POH & PU new bit. TI, brk circ. Hit bridge @ 6085'. Circ btms up, wsh thru bridges 6085' & 7340'. Drld 5'. Circ f/logs. Strt TO to log. Pld tite f/btm 10 stds. Wsh thru 70' bridges 6870-6940'. Pull 4 stds, mix mud & bld vol. Wsh to btm - bridge @ 6990'. Lost 300 BM total while pmpg, etc, since rig repair. \$416,496 | | |
| 6/13/82 7457 | Day-30, Ftg-0. Mixing mud, bld vol & LCM. Mud: 8.5#, vis 48, WL 14. Wshd to 7440'. Lost compl returns. POH 5 stds. Mix mud, bld vol (15% LCM). PI @ slow rate. No returns. POH 10 stds. Mix 20% LCM. PI @ slow rate - 25% returns all wtr. POH 10 std to 5108'. Mix mud 25% LCM. PI hole, 35-50% returns, sli GC, brackish wtr (Cl 700, Ca 400), some WCDM. Mix mud & LCM (35-40%). PI hole - 50% returns, all wtr - no gas. Mix mud & LCM & bld vol. Total loss 1200 BM - 24 hr daywork. \$432,904 | | |
| 6/14/82 7457 | Day-31, Ftg-0. Wshg thru bridge @ 6066'. Mud: 8.5#, vis 47, WL 8. Mix mud & LCM, bld vol, mix 150 bbls Attapulgate-Barites. Sqz mud in premix tk. Vis 100, MW 10 ppg, LCM 40%. PIH 3-30 bbl stages @ 30 min intervals. Displ'd ea stage w/60 BM & 1-50 bbl stage. FL stdg 45' below rotary table while pmpg. Pld 10 stds DP, 35 stds in derrick. Bit @ 4186'. WO sqz. Mix mud & LCM, bld vol. PIH. Dmp 50 bbls fm wtr. Bld vol. TIH w/21 stds DP, brkg circ. Brdige @ 6066'. Losing 20% returns. (Drld 70' of bridge. Lost all returns. Ran 3 stds of DP - no bridges. Pld out 5 stds DP. Bit @ 5974'. 16 stds in derrick. Mixing mud & LCM. Prep to make salt gel sqz). \$453,535 | | |

| | | |
|----------------------|---------|----------------------------------|
| The above is correct | | |
| Signature | Date | Title |
| J. M. McCarthey | 6-21-82 | District Drilling Superintendent |

For form preparation and distribution see Procedures Manual Section 10, Drilling, Pages 86 and 87

6-21-82

Instructions: This form is used during drilling or workover operations. If testing, coring, or perforating, show formation name in describing work performed. Number all drill stem tests sequentially. Attach description of all cores. Work performed by Producing Section will be reported on "Interim" sheets until final completion. Report official or representative test on "Final" form. 1) Submit "Interim" sheets when filled out but not less frequently than every 30 days, or (2) on Wednesday of the week in which oil string is set. Submit weekly for workovers and following setting of oil string until completion.

| | | | |
|-----------------------------------|---|---------------------|--|
| Prop Code: 69-2182-5 | | AFE #542661 | |
| District: ROCKY MOUNTAIN | County or Parish San Juan | State New Mexico | |
| Field East Aztec | Lease or Unit Atlantic C | Well no. #101 | |
| Date and depth as of 8:00 a.m. | Complete record for each day while drilling or workover in progress | | |
| 5/30/82 5797 | Day-16, Ftg-151. Circ 3 stds off btm. Mud: 8.7#, vis 45, WL 10. Drlg w/partial returns. Lost returns @ 5797' - lost 425 bbls. Pull 7 stds. Mix mud & LCM. Lost 450 bbls. RIH 4 stds. Circ w/full returns. Bld vol. \$252,226 | | |
| 5/31/82 5956 | Day-17, Ftg-159. Circ 20 stds off btm. Mud: 8.6#, vis 38, WL 10. RIH 3 stds - no fill. Drld w/full returns. Survey & rig service. Drld full to partial returns - lost complete returns @ 5956'. Lost 250 bbls. POH 8 stds. Mix mud, regain 30% returns after 350 bbls. POH 12 stds. Mix mud & LCM. Circ 100 bbls WCM - regain full returns. 3/4° @ 5821'. \$265,489 | | |
| 6/1/82 5968 | Day-18, Ftg-12. Drlg. Mud: 8.6#, vis 44, WL 9. Circ & cond mud - full returns. TIH. Brk circ to 6 stds off btm. Lost circ. Pld 14 stds DP. Mix mud & LCM. Circ w/10-50% returns; regained circ. TIH. Brk circ - 100% returns. Drld w/full returns. Lost 1100 BM total yesterday. \$288,655 | | |
| 6/2/82 6174 | Day-19, Ftg-206. Mixing mud & LCM, bldg vol. Mud: 8.6#, vis 49, WL 6.8. Drld. Rig service. Drld - losing 10-15 BMPH. Lost returns 6174'. Go thru pmps. Pld 5 stds DP. Mixed mud & LCM. Circ w/ 1/3 returns. LCM 20%. Pld 5 stds DP. Mix mud & LCM, bld vol - regained 90% returns. Lost 650 BM. \$305,743 | | |
| 6/3/82 6443 | Day-20, Ftg-269. Drlg. Mud: 8.7#, vis 37, WL 6. Mix mud & LCM, bld vol. Circ & cond mud 75-100% returns. TIH brk circ. Drld. Survey. Drld. 3/4° @ 6312'. \$319,237 | | |
| 6/4/82 6607 | Day-21, Ftg-164. Drlg. Mud: 8.9#, vis 37, WL 6. Drld. Rig service & wrk BOPs. Drld. Survey & TFB. Cut drlg line 125'. TIH brkg circ. Drld. 1-1/2° @ 6585'. \$332,561 | | |
| 6/5/82 6810 | Day-22, Ftg-203. Drlg. Mud: 8.6#, vis 42, WL 8. Drld. Service rig, chk BOPs, jet pits. Drld, lost part returns @ 6790' & all @ 6802'. TOH 10 stds, mix mud & LCM & circ w/part returns. TIH 5 stds. Circ 95% returns, mix mud & LCM. TIH to btm - no fill. Drlg w/full returns. Lost 200 BM. \$343,518 | | |
| 6/6/82 7023 | Day-23, Ftg-213. Drlg w/50% returns. Mud: 8.6#, vis 30, WL 14. Drlg w/full returns. Rig service, wrk BOP. Drld w/full returns & part to full returns (10-50%). Survey. 1-3/4° @ 7021'. \$352,492 | | |
| 6/7/82 7175 | Day-24, Ftg-152. Drlg. Mud: 8.7#, vis 40, WL 8. Drld w/partial returns. Lost circ @ 7027'. Pld 5 stds. Mix mud & LCM. Bld vol. PI hole. Circ 75-100% returns, LCM 20%. Drld w/95-75% returns. LCM 14-23%. \$362,825 | | |

The above is correct

| | | |
|-----------------------------------|-----------------|---|
| Signature <i>C. E. Latchum</i> | Date 6-10-82 | Title District Drilling Superintendent |
|-----------------------------------|-----------------|---|

For form preparation and distribution
see Procedures Manual Section 10,
Drilling, Pages 86 and 87

6-3-82

Instructions: This form is used during drilling or workover operations. If testing, coring, or perforating, show formation name in describing work performed. Number all drill stem tests sequentially. Attach description of all cores. Work performed by Producing Section will be reported on "Interim" sheets until final completion. Report official or representative test on "Final" form. 1) Submit "Interim" sheets when filled out but not less frequently than every 30 days, or (2) on Wednesday of the week in which oil string is set. Submit weekly for workovers and following setting of oil string until completion.

| | | | |
|--------------------------------|---|-------------|--|
| Prop Code: 69-2182-5 | | AFE #542661 | |
| District | County or Parish | State | |
| ROCKY MOUNTAIN | San Juan | New Mexico | |
| Field | Lease or Unit | Well no. | |
| East Aztec | Atlantic C | #101 | |
| Date and depth as of 8:00 a.m. | Complete record for each day while drilling or workover in progress | | |
| 5/23/82 5260 | Day-9, Ftg-175. Drlg. Mud: 8.6#, vis 37, WL 9. Mix mud & LCM & bld vol (LCM 30%). Regained returns. RIH 10 stds, circ w/full returns (LCM 19%). RIH 10 stds, circ w/full returns (LCM 20%). RIH 5 stds, circ w/full returns. RIH w/5 stds, circ w/partial returns (LCM 20%). Wshd 30' to btm w/partial to full returns. Drld & gradually regaining full returns. Est loss 200 bbls last 24 hrs. \$137,680 | | |
| 5/24/82 5411 | Day-10, Ftg-151. Mixing mud & LCM, bldg vol. Mud: 8.6#, vis 44, WL 12. Drld. Service rig - chk BOPs. Drld. Survey. Drld. Lose partial returns @ 5393'. Lose compl returns @ 5403'. Pld 5 stds - mix mud & LCM - regain full returns. Lost 150 bbls. RIH 5 stds. Circ; full returns. Drld - full & partial returns - lose compl returns @ 5411'. Pld 10 stds. Mix mud & LCM. Bld vol. Lose 300 bbls. Bld vol. Mix mud & LCM. Circ 50% returns. 3/4° @ 5303'. \$151,078 | | |
| 5/25/82 5437 | Day-11, Ftg-26. Trip f/bit. Mud: 8.5#, vis 39, WL 6.5. Circ. Mix mud & LCM w/50% returns. Pld 10 stds DP. Mixed mud & LCM. Regained circ. TIH 17 stds. Mixed mud & LCM - 50% returns. Pld 3 stds. Bld vol - 50-100% returns. TIH to btm. Circ w/full returns. LCM - 35-40%. Drld - partial returns. Trip f/bit. \$171,670 | | |
| 5/26/82 5627 12.6. | Day-12, Ftg-190. Mixing mud & LCM - bldg vol. Mud: 8.6#, vis 48, WL Trip f/bit. LD jk bskt. Brk circ on TIH. Drld - full returns. Loose compl returns @ 5627'. Pld 7 stds DP. Mix mud & LCM. Pmp dn DP & annulus - no returns. Press incr'd to 300 psi & lost 600 bbls. Pld 11 stds DP. Mix mud & LCM & bld vol. 1° @ 5437'. \$183,737 | | |
| 5/27/82 5627 | Day-13, Ftg-0. Circ'g @ 2470'. Mixing mud & bldg vol. Mud: 8.7#, vis 90, WL 7.2 Mix mud & LCM. Pmpd 900 BM. Pld 12 stds - total 30 stds out. Pld 5 stds. Regained partial circ. Lose 400 BM. Mix mud & LCM. Circ 150 BW w/coal. Lose 200 BM. Wrk thru bridge @ 2470'. Circ full returns. Lose 100 BM. Mix mud & LCM - bld vol. \$201,382 | | |
| 5/28/82 5627 | Day-14, Ftg-0. Mixing mud & LCM, bldg vol. Mud: 8.5#, vis 40, WL 12. TIH. Wshd thru bridges @ 4345', 4472', 4730'. Lost 600 BM. Pld 12 stds. Mix mud & LCM. Bld vol. Regained full circ. TIH. Wshd thru bridges @ 5210' & 5241'. Partial returns. Lost 600 BM. Lost complete returns. Pld 6 stds DP. Bld vol. Lost 800 BM. Mud cutting w/wtr. Pld 15 stds of DP = total 25 stds of DP in derrick. Bit @ 3250'. Mix mud & LCM. Bld vol. \$222,113 | | |
| 5/29/82 5646 | Day-15, Ftg-19. Drlg. Mud: 8.6#, vis 40, WL 8.4. Mix mud & LCM 25 stds off btm. POH 10 stds, bit @ 2330'. Mix mud to circ. RIH, circ & cond @ 3 std intervals - full returns. Bit @ 5381'. Partial returns. Mix mud & bld vol. RIH, drl bridges & fill - full & partial returns. Drlg w/full returns. \$235,546 | | |

The above is correct

| | | |
|----------------------|--------|----------------------------------|
| Signature | Date | Title |
| <i>D. E. Latchum</i> | 6-3-82 | District Drilling Superintendent |

For form preparation and distribution see Procedures Manual Section 10, Drilling, Pages 86 and 87

Instructions: Prepare and submit the "Initial Report" on the first Wednesday after a well is spudded or workover operations are started.
Daily work prior to spudding should be summarized on the form giving inclusive dates only.

Prop Code: 69-2182-5

| | | |
|----------------------------------|------------------------------|---------------------|
| District ROCKY MOUNTAIN | County or Parish San Juan | State New Mexico |
| Field East Aztec | Lease or Unit Atlantic C | Well no. #101 |
| Auth. or W.O. no. AFE #542661 | Title Exploratory | |

Loc: NE NE 790' FNL & 1120' FEL, Sec. 6-30N-10W API #30-045-25339

| | | |
|--------------------------------------|--------------------------------------|-----------------------|
| Operator ARCO Oil and Gas Company | ARCO Lse #NM-388 Fed Lse #NM-0607 | A.R.Co's W.I. 100% |
| Spudded or W.O. begun SPUD | Date 5/14/82 | Hour 12:45 P.M. |
| Prior status if a W.O. | | |

| Date and depth as of 8:00 a.m. | Complete record for each day reported |
|-----------------------------------|--|
| 5/15/82 706 | Day-1, Ftg-706. Cmtg csg. Spud mud. RU. Drld rathole & mousehole. SPUD 12:45 pm 5/14/82. Drld. Repair C150. Drld, survey. Trip & repair pop valve in C-150. Drld, circ & survey. POH. Ran 16 jts (706') 10-3/4", 40.5#, K-55, ST&C csg w/GS & diff FC & 4 cntlrs; set @ 706' RKB. Circ. Cmtd w/700 sx Cl "H" & 2% CaCl ₂ . Displ'd w/65 BW. PD 6:25 am 5/15/82. Circ 70 sx cmt to surf. 3/4° @ 168', 1/2° @ 292', 1° @ 706'. \$ 34,659 |
| 5/16/82 1585 | Day-2, Ftg-879. Drlg w/wtr. Cmt csg. WOC. Cut csg & weld on csghd. NU BOP. Tst BOP & manifold 650 psi- OK. Tstd ea valve. TI - tstd pipe rams to 650 psi - OK. Drl plug - 46' cmt & shoe. Drld & surveyed. GL Elev 6121', RKB 6135' (GL to RKB 14.00'). 3/4° @ 1117', 1/2° @ 1517'. \$ 56,501 |
| 5/17/82 2885 | Day-3, Ftg-1300. Drlg. Mud: 8.8#, vis 35, WL 10.6. Trip f/bit. Repair hydromatic. Survey & drld. Mud up @ 2700'. 1° @ 1609' & 2070', 3/4° @ 2501'. \$ 74,783 |
| 5/18/82 3735 | Day-4, Ftg-850. Drlg. Mud: 9#, vis 34, WL 16. Survey. Drld. Service rig & wrk BOPs. Drld & surveyed. 1° @ 2904', 3/4° @ 3333'. \$ 87,745 |
| 5/19/82 4215 | Day-5, Ftg-480. Drlg. Mud: 9.3#, vis 37, WL 9. Survey. Drld. Rig service - chk BOPs. Drld. Survey. Trip f/new bit. Drld. 1-1/4° @ 3735', 1° @ 3938'. \$ 94,800 |
| 5/20/82 4690 | Day-6, Ftg-475. Drlg. Mud: 8.8+#, vis 32, WL 10. Drld. Rig service. Wrk BOPs. Drld. Survey. Drld. 3/4° @ 4366'. \$104,293 |
| 5/21/82 5004 | Day-7, Ftg-314. Mixing mud & bldg vol. Mud: 8.8#, vis 44, WL 14. Drld. Service rig - chk BOPs. Drld. Trip f/new bit - rmd 30'. Drld. Lost circ @ 5004', 5' drlg brk f/3 min/ft to 1 min/ft - 4999-5004'. Mix LCM pill & pmp away. Pull 5 stds. Mix mud & bld vol. Lost 450 BM. Loss zone is Upper part of Pt Lookout fm. 3/4° @ 4808'. \$114,102 |
| 5/22/82 5085 | Day-8, Ftg-81. Mixing mud & LCM & bldg vol. Mud: 8.6#, vis 72. Mix mud & LCM & bld vol - circ out GCW @ 5004'. TIH 5 stds DP. Drlg w/full returns. Repair C-250 pmp. Drlg w/full returns & 9% LCM in mud. Lost compl returns - pld 5 stds, mix mud & LCM & pmpd 455 bbls w/o returns. Pld 5 stds & mixed mud & LCM - pmpd 450 bbls w/o returns. Pld 10 stds - mixed mud & LCM - pmpd 450 bbls w/partial plugged bit - no returns. Pld 10 stds & unplugged bit. Mixed mud & LCM. \$123,906 |

The above is correct:

| | | |
|-----------------------------------|-----------------|---|
| Signature <i>C. E. Latchum</i> | Date 5/27/82 | Title District Drilling Superintendent |
|-----------------------------------|-----------------|---|

For form preparation and distribution,
see Procedures Manual, Section 10,
Drilling, Pages 86 and 87.

Number all daily well history forms consecutively
as they are prepared for each well.

Page no.

1

1000

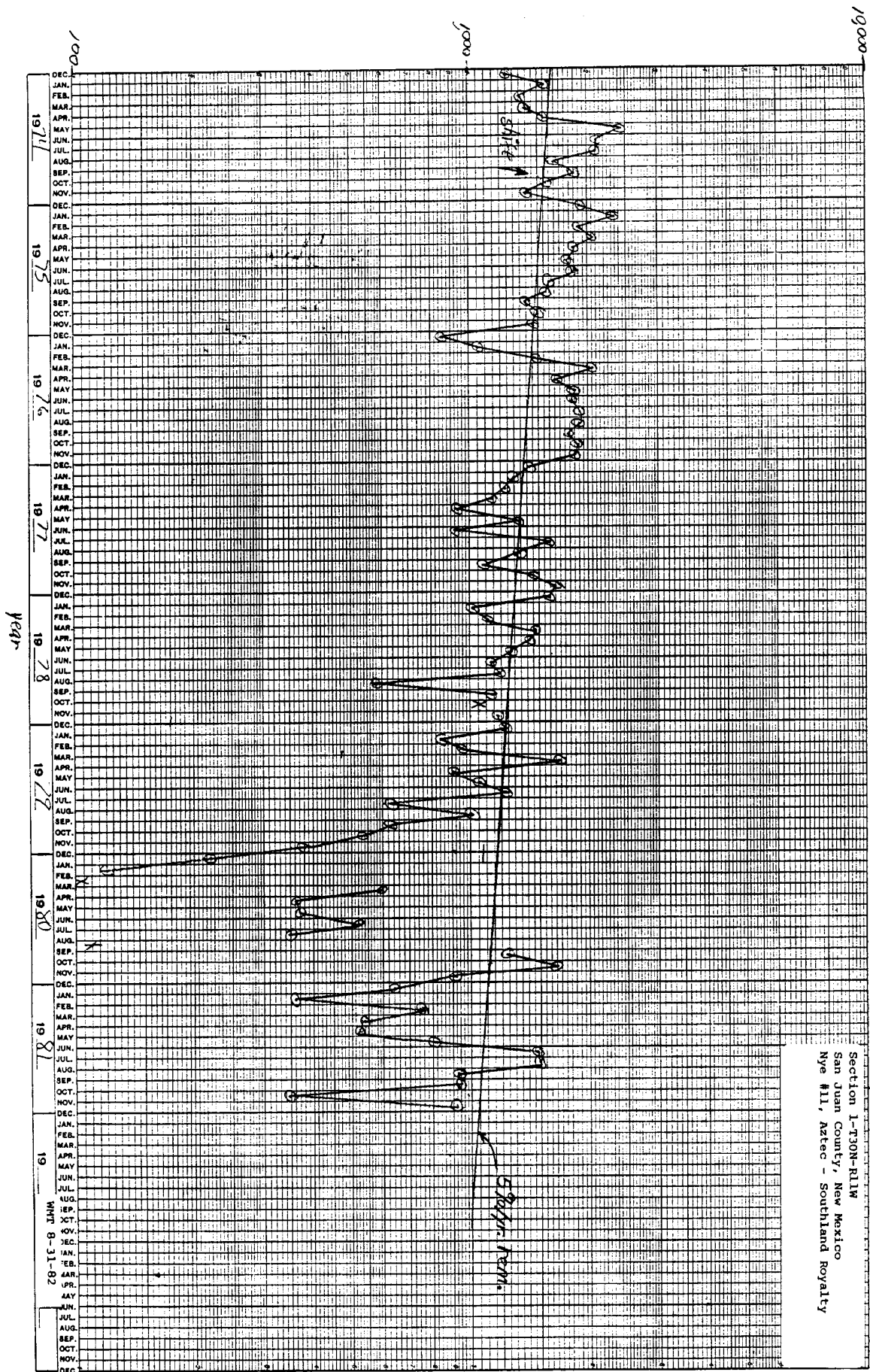
Section 1-T30N-R11W

San Juan County, New Mexico

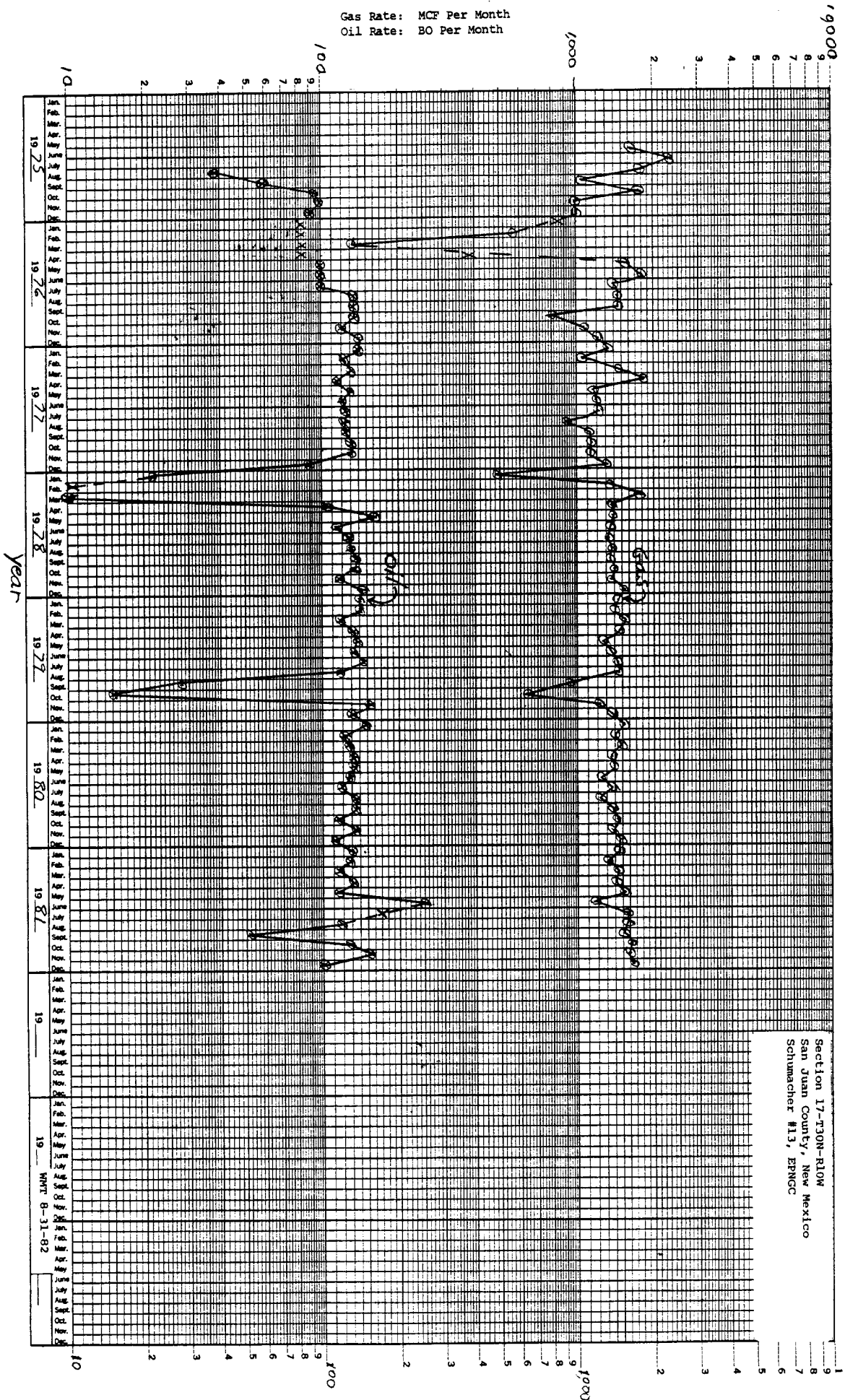
Nye #11, Aztec - Southland Royalty

WMT 8-31-82

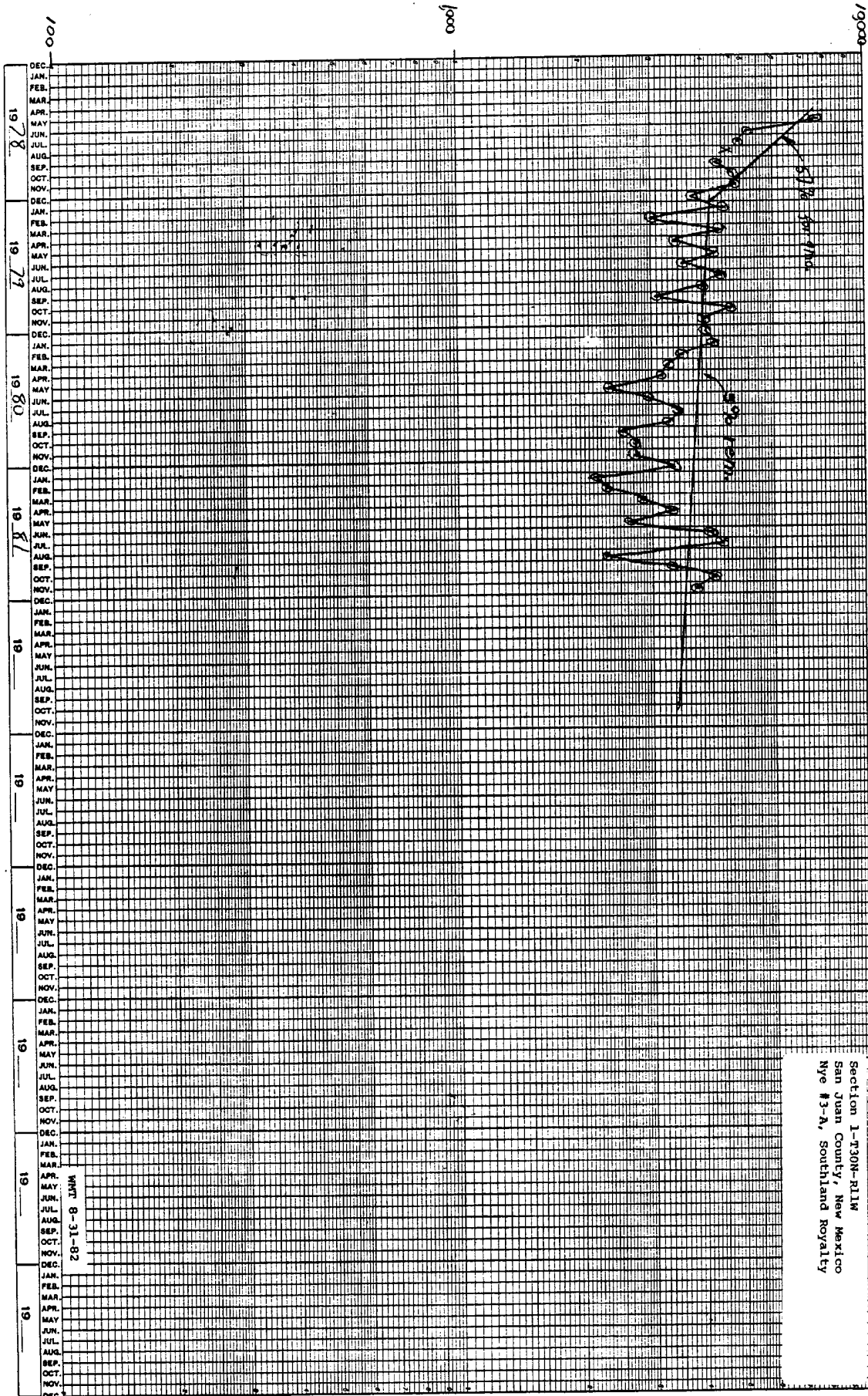
year



Gas Rate: MCF Per Month
Oil Rate: BO Per Month



Rate: MCF Per Month



COMPLETION REPORT SEC 1 TWP 30N RGE 11W
 PI# 30-A-0044 07-14-64 PAGE 1

STATE COUNTY LOCATION/FOOTAGE SPOT WELL CLASS
 NMEX SAN JUAN 910 S/N 1190 E/W NW NW D DG

OPERATOR WELL NO. LEASE NAME
 AZTEC OIL & GAS 11 NYE

OPER ELEV DISTRICT FIELD/POOL/AREA
 5981 DF 5971 GR BASIN

COMM ELEV LEASE NUMBER PERMIT OR WELL I/D#

TYPE TOOL STATUS
 SPUD 05/25/1964 COMP 06/27/1964 ROTARY GAS

PROJ DEPTH 7225 DAKOTA CONTR ARAPAHOE
 DTD 7226 PB 7193 FM/TO DAKOTA

CASING DATA
 CSG 8 5/8 288 W/ 225 4 1/2 7226 W/ 550 01 02

TUBING DATA
 TBG 2 3/8 AT 6948

INITIAL POTENTIAL
 IPF 3400MCFD 48/64CK 3HRS
 DAKOTA PERF W/ 4/FT 6941- 7087 GROSS 003
 PERF 6941- 6946 6953- 6957 7020- 7034 7064- 7087
 SWFR 6941- 7087 84460GALS 60000LBS SAND FBRKP 3000
 RATE 318/MIN TP 2700
 TP 275 CP 647 SITP 1995 SICP 1993 CAOF 3925 MCFD

| TYPE | FORMATION | DEPTH | DATUM | FORMATION | DEPTH | DATUM |
|------|-----------|-------|-------|-----------|-------|-------|
| LOG | PIC CLIF | 2548 | | GREENHRN | 6825 | |
| | CLIF HSE | 4100 | | GRANEROS | 6886 | |
| | PT LKOUT | 4783 | | DAKOTA | 7018 | |
| | GALLUP | 6084 | | | | |

DRILLING MEDIA /TYPE,DEPTH/
 MUD TO 7226

LOST CIRCULATION /DEPTH,FORMATION/
 4931 MANCOS

COMPLETION REPORT SEC 1 TWP 30N RGE 11W
PI# 30-A-0044 07-14-64 PAGE 2

AZTEC OIL & GAS 11 NYE

DRILLING PROGRESS DETAILS

DEDICATED ACREAGE-W/2 OF SEC 1

03/27 LOC
05/26 DRLG 479
06/10 7226 TD. PREP TO PERF
06/24 PERF 6941-7087
SWFR
SI
07/08 7226 TD PB 7193
COMP 6/30/64, IPF 3400 MCFD. 3/4 CK ON
TBG, 3 HRS, FTP 275 FCP 647, SI 7 DAYS
SITP 1995 SICP 1993, CAOF 3925 MCFD
PROD ZONE-GRANEROS-DAKOTA 6941-7087
NO CORES OR DSTS

WRS COMPLETION REPORT

PI# 30-T-0044 03/07/78

SEC 01 TWP 30N RGE 11W

PAGE 1

NMEX SAN JUAN 800 FSL 800 FEL NW SE SE D DG
 STATE COUNTY FOOTAGE SPOT INIT FIN.

SOUTHLAND ROYALTY 3-A NYE
 OPERATOR WELL NO. LEASE NAME

OPER ELEV 6027 GR DISTRICT BASIN
 FIELD/POOL/AREA

COMMERCIAL ELEV. LEASE NO.

API 30-045- 22696-00
 PERMIT OR WELL ID NO.

08/19/1977 01/18/1978 ROTARY
 START DATE COMPLETION DATE TYPE TOOL

2 GAS
 STATUS

7258 DAKOTA FOUR CORNERS
 PROD. EST. FORM CONTRACTOR

DTD 7271 PB 7120 FM/ID DAKOTA
 CALLER'S T.D. LOG T.D. PLUG BACK T.D. OLD T.D. FORM T.D.

CASING DATA

CSG 9 5/8 @ 315 W/ 270 7 @ 5411 W/ 290 01 02

LINER DATA

LNR 4 1/2 BLANK 5255- 7270 W/ 235 003

TUBING DATA

TBG 1 1/2 AT 5086 2 3/8 AT 7078

WELL IDENTIFICATION CHANGES

WHCS CODE # 30N030W01101770877
 OPR CHANGED FROM AZTEC O&G

INITIAL POTENTIAL

IPF 1857MCFD 48/64CK
 PT LKOUT PERF 4831- 5104 GROSS 004
 PERF 4831- 4831 4838- 4838 4847- 4847 4854- 4854
 PERF 4861- 4861 4872- 4872 4880- 4880 4888- 4888
 PERF 4896- 4896 4904- 4904 4910- 4910 4918- 4918
 PERF 4926- 4926 4934- 4934 4942- 4942 4950- 4950
 PERF 5104- 5104
 SWFR 4831- 5104 115000GALS 57500LBS SAND
 TP 150 CP 902 CAOF 5608 MCFD

IPF 472MCFD 48/64CK
 DAKOTA PERF 6986- 7093 GROSS 005
 PERF 6986- 6986 6990- 6990 6994- 6994 6998- 6998
 PERF 7081- 7081 7085- 7085 7089- 7089 7093- 7093
 SWFR 6986- 7093 65688GALS 60000LBS SAND

IC#

PI-WRS-RMR
 Form No. 339

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b-2

PI# 30-T-0044 03/07/78

SEC 01 TWP 30N RGE 11W

PAGE

2

SOUTHLAND ROYALTY

3-A NYE

INITIAL POTENTIAL

TP 29

CAOF

473 MCFD

| TYPE | FORMATION | DEPTH | FORMATION | DEPTH | FORMATION | DEPTH |
|------|-----------|-------|-----------|-------|-----------|-------|
|------|-----------|-------|-----------|-------|-----------|-------|

| | | | | | | |
|-----|----------|------|----------|------|----------|------|
| LOG | OJO ALMO | 1136 | PIC CLIF | 2463 | CLIF HSE | 4140 |
| LOG | PT LKOUT | 4825 | GREENHRN | 6875 | GRANEROS | 6982 |
| LOG | DAKOTA | 7076 | | | | |

LOGS AND SURVEYS /INTERVAL,TYPE,COMPANY/

GRL
CORL

IES

DRILLING PROGRESS DETAILS

08/22
08/23
02/28

LOC
DRLG 2982
7271 TD, PB 7120
COMP 1/18/78, IPF 1857 MCFGPD, 48/64 CK
FTP-150, FCP-902
PROD ZONE - PT LKOUT 4831-5104 /GROSS/
IPF 472 MCFGPD, 48/64 CK, FTP-29
PROD ZONE - DAKOTA 6986-7093 /GROSS/
DUAL COMPLETION
NO CORES OR DSTS

C-1

WHS COMPLETION REPORT
PI# 30-A-0048 06/30/75

SEC 17 TWP 30N RGE 10W
PAGE 1

NMEX SAN JUAN 980 FSL 1460 FWL NW SE SW D DG
EL PASO NATURAL GAS 13 SCHUMACHER

6387 GR

UNNAMED Knickerbocker

IDN 30-045- 21679-00

03/20/1975 05/21/1975 ROTARY

GAS

6800 GALLUP FOUR CORNERS

DTD 6815

PB 6799

FM/TD GALLUP

CASING DATA

CSG 9 5/8 @ 221 W/ 224 4 1/2 @ 6815 W/ 1412 01 02

WELL IDENTIFICATION CHANGES

WHCS CODE # 30N030W01017370175

INITIAL POTENTIAL

IPF 720MCFD 48/64CK 3HRS
GALLUP PERF W/ 1/FT 6440- 6779 GROSS 004
PERF 6440- 6440 6454- 6454 6484- 6484 6496- 6496
PERF 6528- 6528 6548- 6548 6561- 6561 6594- 6594
PERF 6634- 6634 6713- 6713 6734- 6734 6779- 6779
SWFR 6440- 6779
TP 87 CP 260 SITP 903 SICP 1262
SI 14 DAYS

TYPE FORMATION DEPTH FORMATION DEPTH FORMATION DEPTH

LOG PIC CLIF 2938 CHACRA 3932 MESAVRDE 4580
LOG PT LKOUT 5237 GALLUP 6440

PRODUCTION TEST DATA

PTF 744MCFD
GALLUP PERF W/ 1/FT 6440- 6779 GROSS 003
PERF 6440- 6440 6454- 6454 6484- 6484 6496- 6496
PERF 6528- 6528 6548- 6548 6561- 6561 6594- 6594
PERF 6634- 6634 6713- 6713 6734- 6734 6779- 6779
SWFR 6440- 6779 74540GALS 70000LBS SAND
ADDTV NTGN W/WTR

PL-WHS-RMR
Form No. 339

Production Information

PI# 30-A-0048 06/30/75 SEC 17 TWP 30N RGE 10W
PAGE 2

EL PASO NATURAL GAS 13 SCHUMACHER

PRODUCTION TEST DATA

CAOF 744 MCFD

LOGS AND SURVEYS /INTERVAL,TYPE,COMPANY/

IES
GRL

CDL

DRILLING PROGRESS DETAILS

01/15
06/24

LOC
6815 TD, PB 6799
COMP 5/21/75, IPF 720 MCFGPD CK-48/64, 3
HRS, FTP-87, FCP-260, SITP-903, SICP-1262
PROD ZONE - GALLUP 6440-6779 /GROSS/
NO CORES OR DSTS

H & H WIRELINE SERVICE
2008 CAMINA PLACER
FARMINGTON, NEW MEXICO 87401

SUBSURFACE PRESSURE SURVEY

COMPANY ARCO OIL AND GAS COMPANY LEASE ATLANTIC 'A' WELL NO. 101
FIELD BASIN DAKOTA COUNTY SAN JUAN STATE NEW MEXICO
FORMATION DAKOTA TESTDATE AUGUST 20, 1982
ELEVATION G.L. 6315 RKB 6329 FEET CASING _____ PSIG
SUBSEA DATUM _____ FEET TUBING PRESSURE 2278 PSIG
TOTAL DEPTH BP TD 7664' KB FEET OIL LEVEL _____ FEET
PERFORATION 7440 TO 7692 FEET WATER LEVEL 7535 FEET
TUBING SIZE 2-3/8 TO 7446 KB FEET TEMPERATURE 210 F AT 7600 FEET
CASING SIZE 4-1/2 TO 7793 KB FEET ATMOSPHERIC TEMPERATURE _____ F
PACKER _____ FEET AMERADA ELEMENT NUMBER 49883
BOTTOM HOLE CHOKE _____ FEET ELEMENT RANGE 0 TO 4000
MAXIMUM DAFE TEST DEPTH _____ FEET OPERATOR ARCHIE HUGHES UNIT NO. 1

WELL STATUS:

| <u>DEPTH</u> <u>FEET</u> | <u>PRESSURE</u> <u>PSIG</u> | <u>GRADIENT</u> <u>PSI/FT</u> |
|-----------------------------|--------------------------------|----------------------------------|
| 0 | 2278 | |
| 2000' | 2400 | .006 |
| 4000' | 2518 | .006 |
| 6000' | 2633 | .006 |
| 7000' | 2681 | .005 |
| 7200' | 2687 | .030 |
| 7400' | 2693 | .030 |
| 7600' | 2744 | .255 |



TEFTELLER, INC.

reservoir engineering data

MIDLAND, TEXAS / FARMINGTON, NEW MEXICO
GRAND JUNCTION, COLORADO

P. O. Box 5247
Midland, Texas 79704
(915) 682-5574

August 22, 1982

Arco Oil & Gas Company
Box 2197
Farmington, New Mexico 87401

Attn: Mr. C. R. Thompson

Subject: Build Up Measurement
Atlantic C-101
East Aztec Field
San Juan County, New Mexico
Our File No. 2-13370-BU

Gentlemen:

Attached hereto are the results of a build up measurement which was conducted on the above captioned well August 14 thru August 16, 1982.

The data presented are in tabular and graphical form.

It has been our pleasure to have conducted this service for you. If we may be of further assistance, please call us at any time.

Respectfully submitted,

TEFTELLER, INC.



G. W. Taylor
Operations Manager

GWT/lw
cc: Arco Oil & Gas Company
P.O. Box 5540
Denver, Colorado 80217
Attn: Mr. S. C. Rose

Serving the Permian Basin & Rocky Mountain Area

TEFTELLER, INC.
RESERVOIR ENGINEERING DATA
Midland, Texas

Well : ATLANTIC NO. C-101

Page 1 of 4

Field : EAST AZTEC

File 2-13370-BU

CHRONOLOGICAL PRESSURE AND PRODUCTION DATA

| 1982 Date | Status of Well | Time | Elapsed Time | | Daily Rate Gas MCF/D | Wellhead Pressure Tubing | BHP @ 6222' Psig |
|--------------|-----------------------|-------|-----------------|------|-------------------------|--------------------------------|------------------------|
| | | | Hrs. | Min. | | | |
| 8-14 | Arrived on location | 10:00 | | | TSTM | | |
| " | flowing | 10:50 | | | | | 521 |
| " | Tandem inst's @ 6222' | 11:30 | | | | | 523 |
| " | " | 11:30 | 0 | 00 | | | |
| " | Shut in for Build Up | 11:36 | 0 | 06 | | | 562 |
| " | " | 11:42 | 0 | 12 | | | 567 |
| " | " | 11:48 | 0 | 18 | | | 576 |
| " | " | 11:53 | 0 | 24 | | | 585 |
| " | " | 12:00 | 0 | 30 | | | 594 |
| " | " | 12:06 | 0 | 36 | | | 599 |
| " | " | 12:12 | 0 | 42 | | | 606 |
| " | " | 12:18 | 0 | 48 | | | 611 |
| " | " | 12:24 | 0 | 54 | | | 617 |
| " | " | 12:30 | 1 | 00 | | | 623 |
| " | " | 12:45 | 1 | 15 | | | 638 |
| " | " | 13:00 | 1 | 30 | | | 651 |
| " | " | 13:15 | 1 | 45 | | | 663 |
| " | " | 13:30 | 2 | 00 | | | 676 |
| " | " | 14:00 | 2 | 30 | | | 701 |
| " | " | 14:30 | 3 | 00 | | | 719 |
| " | " | 15:00 | 3 | 30 | | | 737 |
| " | " | 15:30 | 4 | 00 | | | 754 |
| " | " | 16:30 | 5 | 00 | | | 781 |
| " | " | 17:30 | 6 | 00 | | | 804 |
| " | " | 18:30 | 7 | 00 | | | 827 |
| " | " | 19:30 | 8 | 00 | | | 847 |
| " | " | 20:30 | 9 | 00 | | | 865 |
| " | " | 21:30 | 10 | 00 | | | 880 |
| " | " | 23:30 | 12 | 00 | | | 909 |
| 8-15 | " | 01:30 | 14 | 00 | | | 933 |
| " | " | 03:30 | 16 | 00 | | | 956 |
| " | " | 05:30 | 18 | 00 | | | 974 |
| " | " | 07:30 | 20 | 00 | | | 993 |
| " | " | 11:30 | 24 | 00 | | | 1028 |

TEFTELLER, INC.
RESERVOIR ENGINEERING DATA
Midland, Texas

Well : ATLANTIC NO. C-101

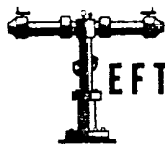
Page 2 of 4

Field : EAST AZTEC

File 2-13370-BU

CHRONOLOGICAL PRESSURE AND PRODUCTION DATA

| <u>1982</u> <u>Date</u> | <u>Status of Well</u> | <u>Time</u> | <u>Elapsed</u> <u>Time</u> <u>Hrs.Min.</u> | <u>Daily Rate</u> <u>Gas MCF/D</u> | <u>Wellhead</u> <u>Pressure</u> <u>Tubing</u> | <u>BHP @</u> <u>6222'</u> <u>Psig</u> |
|----------------------------|-----------------------|-------------|--|---------------------------------------|---|---|
| 8-15 | Continued shut in | 15:30 | 28 00 | | | 1070 |
| " | " | 19:30 | 32 00 | | | 1102 |
| " | " | 23:30 | 36 00 | | | 1130 |
| 8-16 | " | 03:30 | 40 00 | | | 1159 |
| " | " | 07:30 | 44 00 | | | 1174 |
| " | " | 08:00 | 44 30 | | | 1175 |
| " | Gradient Traverse | 11:00 | 47 30 | | 566 | 1189 |



EFTELLER, INC.

reservoir engineering data

MIDLAND, TEXAS

Page 3 of 4

File 2-13370-BU

Company ARCO OIL & GAS COMPANY

Formation

GALLUP

Well ATLANTIC NO. C-101

County

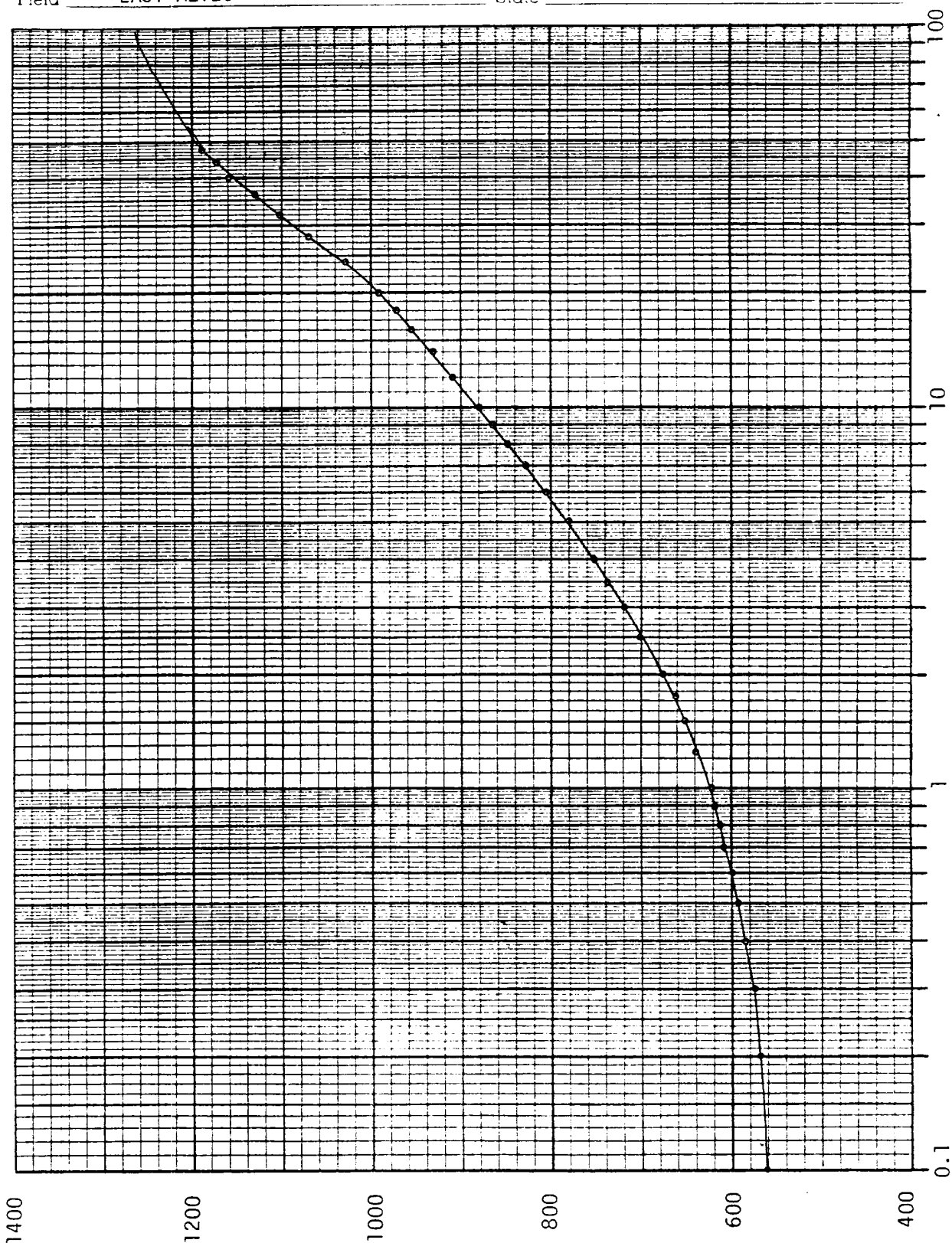
SAN JUAN

Field EAST AZTEC

State

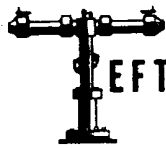
NEW MEXICO

BUILD UP CURVE



SHUT IN TIME : HOURS

PRESSURE : PSIG @ 6222 FEET



LEFTELLER, INC.

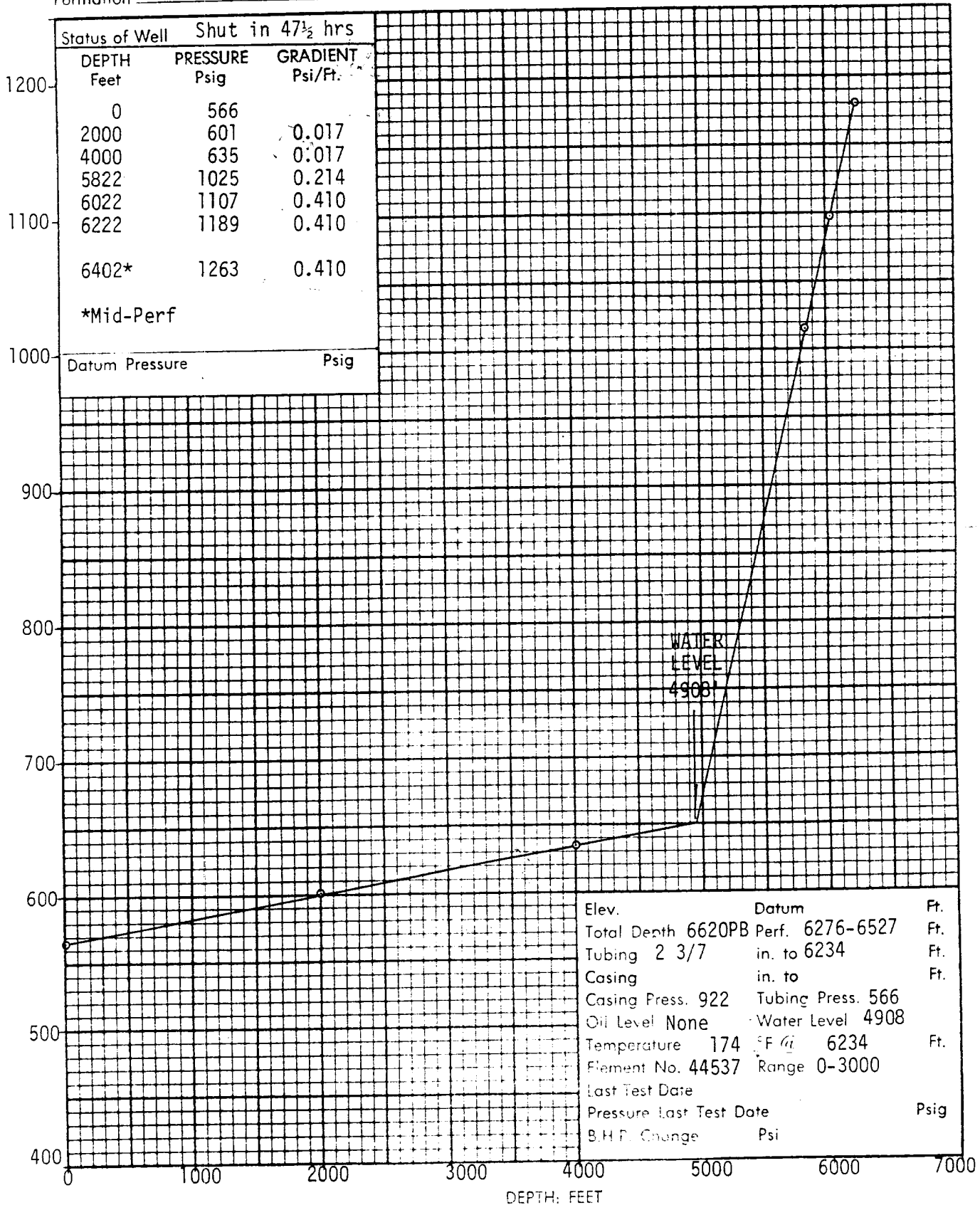
reservoir engineering data

MIDLAND, TEXAS

Page 4 of 4

File 2-13370-BU

Company ARCO OIL & GAS COMPANY Lease ATLANTIC Well No. C-101
Field EAST AZTEC County SAN JUAN State NEW MEXICO
Formation GALLUP / RKB=6135' Test Date AUGUST 16, 1982



CHEMICAL & GEOLOGICAL LABORATORIES

P. O. Box 2794
Casper, Wyoming

WATER ANALYSIS REPORT

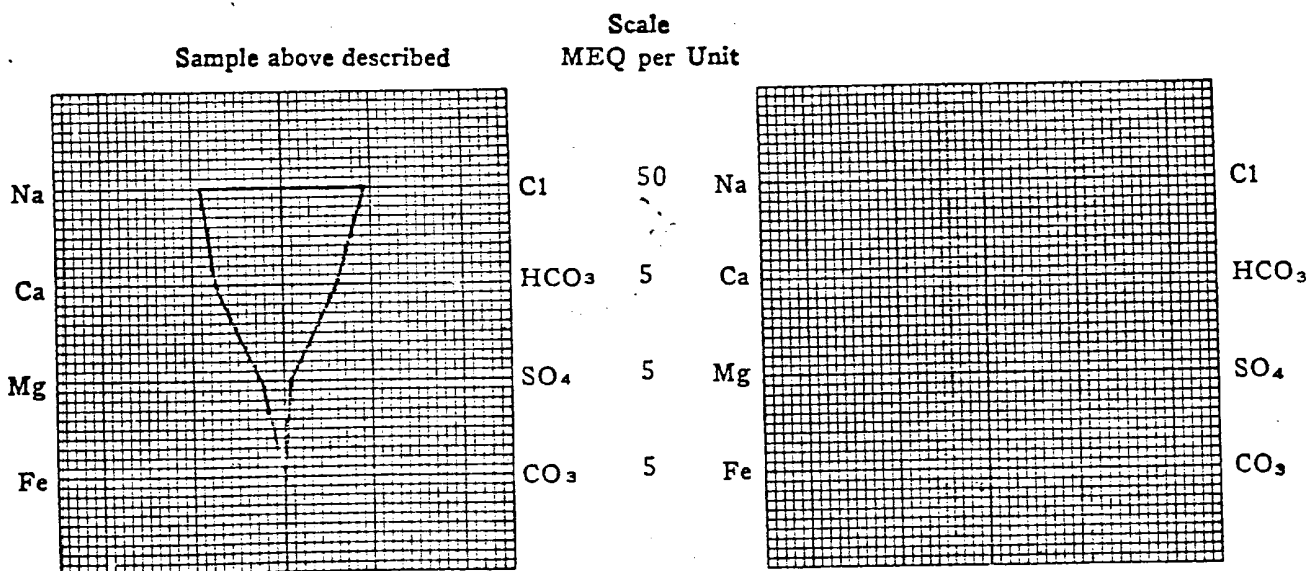
| | | | | | |
|----------|----------------------|-------------|------------------------------|---------|---------|
| OPERATOR | ARCO Oil and Gas Co. | DATE | 8-19-82 | LAB NO. | 41256-3 |
| WELL NO. | Atlantic "C" 101 | LOCATION | NENE 6-30N-10W | | |
| FIELD | Basin Dakota | FORMATION | Dakota | | |
| COUNTY | San Juan | INTERVAL | 7354-7394 | | |
| STATE | New Mexico | SAMPLE FROM | Swabbed after acid (7-21-82) | | |

REMARKS & CONCLUSIONS:

| Cations | | | Anions | | |
|---------------|------|--------|------------------|-------|--------|
| | mg/l | meq/l | | mg/l | meq/l |
| Sodium | 9383 | 408.14 | Sulfate | 129 | 2.68 |
| Potassium | 1529 | 39.14 | Chloride | 16500 | 465.30 |
| Lithium | - | - | Carbonate | 0 | 0.00 |
| Calcium | 751 | 37.47 | Bicarbonate | 1829 | 30.00 |
| Magnesium | 161 | 13.23 | Hydroxide | - | - |
| Iron | - | - | Hydrogen sulfide | - | - |
| Total Cations | | 497.98 | Total Anions | | 497.98 |

| | | | | |
|------------------------------|-------|------------------------------|-------|------------|
| Total dissolved solids, mg/l | 29352 | Specific resistance @ 68°F.: | | |
| NaCl equivalent, mg/l | 28820 | Observed | 0.285 | ohm-meters |
| Observed pH | 7.5 | Calculated | 0.240 | ohm-meters |

WATER ANALYSIS PATTERN



(Na value in above graphs includes Na, K, and Li)

NOTE: Mg/l=Milligrams per liter Meq/l= Milligram equivalents per liter

Sodium chloride equivalent=by Dunlap & Hawthorne calculation from components

CHEMICAL & GEOLOGICAL LABORATORIES

P. O. Box 2794
Casper, Wyoming

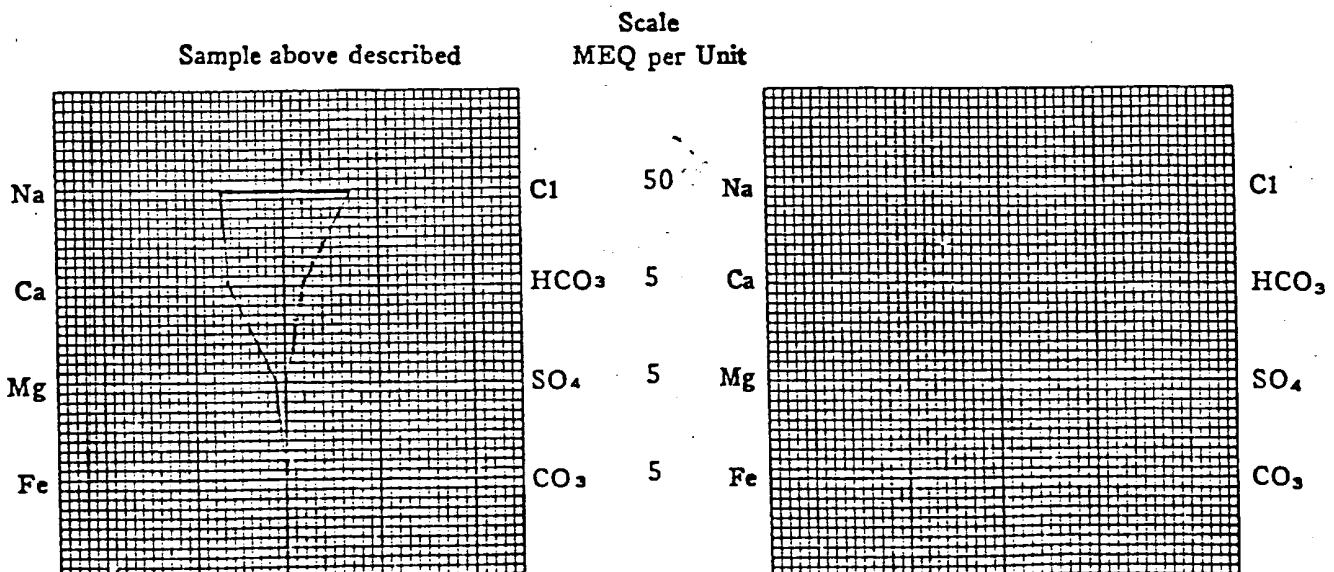
WATER ANALYSIS REPORT

OPERATOR ARCO Oil and Gas DATE 8-31-82 LAB NO. 41349-2
WELL NO. Atlantic "C" 101 Gallup LOCATION _____
FIELD Basin Dakota FORMATION GALLUP
COUNTY San Juan INTERVAL 6276-6527
STATE New Mexico SAMPLE FROM (8-15-82)

REMARKS & CONCLUSIONS:

| Cations | mg/l | meq/l | Anions | mg/l | meq/l |
|--|-------|--------|--|-------|------------|
| Sodium - - - - - | 7691 | 334.56 | Sulfate - - - - - | 88 | 1.83 |
| Potassium - - - - - | 869 | 22.25 | Chloride - - - - - | 13600 | 383.52 |
| Lithium - - - - - | - | - | Carbonate - - - - - | 0 | 0.00 |
| Calcium - - - - - | 671 | 33.48 | Bicarbonate - - - - - | 602 | 9.87 |
| Magnesium - - - - - | 60 | 4.93 | Hydroxide - - - - - | - | - |
| Iron - - - - - | - | - | Hydrogen sulfide - - - - - | - | - |
| Total Cations - - - - - | | 395.22 | Total Anions - - - - - | | 395.22 |
| Total dissolved solids, mg/l - - - - - | 23275 | | Specific resistance @ 68°F.: - - - - - | | |
| NaCl equivalent, mg/l - - - - - | 23021 | | Observed - - - - - | 0.310 | ohm-meters |
| Observed pH - - - - - | 7.0 | | Calculated - - - - - | 0.295 | ohm-meters |

WATER ANALYSIS PATTERN



(Na value in above graphs includes Na, K, and Li)

NOTE: Mg/l = Milligrams per liter Meq/l = Milligram equivalents per liter

NaCl equivalent = the Dumas & MacDonell method of calculation