SUNDRY NOTICES AND REPORTS ON WELLS (Do not use this form for preparation of the Pyring form of the Control of th	Form 3160-5 November 1983) Formerly 9-331)	DEPARTMEN	TED STATES T OF THE INTE		5. LEASE DESI	Eureau No. 1004-0135 August 31, 1985 GNATION AND BERIAL NO. 0989
THE WALL WILL WAS SECTION OF APPROVAL BY ANT: Process of the pr	SUN (Do not use thi	IDRY NOTICES form for proposals to Use "APPLICATION	AND REPORTS drill or to deepen or pl FOR PERMIT—" for au	S ON WELLS ug back to a different reservoir. ch proposals.)		
Tenneco Oil Company E & P WRMD 3. ADDRESS OF OFFICE OIL COMPANY E & P WRMD 4. DOLLARS OF SELECTIVE OF THE SELECTIVE OIL FEED OIL COMPANY OF THE SELECTIVE OIL FEED OIL COMPANY OIL SELECTION OF THE SELECTIVE OIL FEED OIL COMPANY OIL SELECTION OF THE SELECTIVE OIL FEED OIL COMPANY OIL SELECTION OIL COMPANY OIL COMPANY OIL SELECTION OIL COMPANY OIL COMPANY OIL SELECTION OIL COMPANY OIL COMPA	OIL GAS	₩ -			7. UNIT AGREE	ARAN INSK
P. O. BOX 3249 Englewood, CO 8018 ECEIVE 10 First Read From 1985 Part Freedom P. D. BOX 3249 Englewood, CO 8018 ECEIVE 10 FIRST PART PART PART PART PART PART PART PAR		UN OTHER		•	S. PARN OR LI	MAN SEA
P. 0. Box 3249, Englewood, CO 8018 ECEIVE 1 4 December of the Proposition dearly and to recordance with any Bule requirements. SEP 6:395 1488' FIL, 1496' FEL BURGAL OF LAND MANAGEMENT FRIMINGIOL RESOURCE AREA 14. PRIMIT NO. II. BUXATIONS (Show believe by at the second of the se			E & P WRMD			s LS
A paction of the filters of the filter of th	*· ·		ewood CO 801	RECFIVE	Z	
1488 FNL, 1496 FEL BUREAU OF LAND MANAGEMENT FARMINGTON RESOURCE AREA 15. BLYSATIONS (Show weeker or, with each proposed area of the	4. LOCATION OF WELL (Report location clearly	and in accordance with	any State requirements.	9 /	POOL, OR WILDCAT
16. PREMIT NO. 16. LEVATIONS (Show whether or will dead of the composition of Parameter 12 coopy for Parameter 12 coopy for Parameter 13 coopy for Parameter 14 coopy for Parameter 15 coopy for Parameter 16 coopy for Parameter 16 coopy for Parameter 17 coopy for Parameter 18 coopy for Parameter 18 coopy for Parameter 19 coopy for Sales 19 coopy for Parameter 19 coopy for Parameter 19 coopy for Sales 19 coopy fo	At surface			SEP 6 1985	11. esc., T., B.	M., OR BLK. AND
16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data **Notice of Interior Notice of Interior Notice (Interior Nature of Notice, Report, or Other Data **Notice of Interior Nature (Interior Nature of Notice, Report, or Other Data **Notice of Interior Nature (Interior Nature of Nature of Notice, Report, or Other Data **Notice of Interior Nature (Interior Nature of Nat		-		UREAU OF LAND MANAGEMEN FARMINGTON RESOURCE AREA	T Sec.	
TEST WATER SECT-OFF TEST WATER SECTION OF	14. PERMIT NO.	15.		er DF, RT, GR, etc.)		1
TEST WATER SECT-OFF PRACTURE TREAT SENDOT OR ACTULE Y ADAPDON'S REPAIR WELL (Other) 17. IDEA SET PRODUCE OR CONFERENCE OF FRACTIONS (Clearly state all) persistent details, and measured products or recombination of the state	16.	Check Approp	riate Box To Indicat	e Nature of Notice, Report,	, or Other Data	
PRACTURE TREAT SHOOT OR ACIDIZE MADADON* ABADONIS MEDITINE WELL Other) 17. DESCRIPE PRODUCED OR COMPLETES OFFERATIONS (Clearly state all pertinent details, and give pertuent dates, including welling form). The management of this work, if well is directionally drilled, give subsurface locations and measured and rive vertical depths for all markers and solve pertuent to this work, if well is directionally drilled, give subsurface locations and measured and rive vertical depths for all markers and solve pertuent to this work, well a directionally drilled, give subsurface locations and measured and rive vertical depths for all markers and solve perturent to this work, well a directionally drilled, give subsurface locations and measured and rive vertical depths for all markers and solve perturent to this work, well a directionally drilled, give subsurface locations and measured and rive vertical depths for all markers and solve perturent to this work, well a directionally drilled, give subsurface locations and measured and rive vertical depths for all markers and solve perturent dates, including and recomplete the referenced well according to the attached detailed procedure. SEP 13 1985 OIL CON. DIV. The space for Federal or State office sale) APPROVED Title Sr. Regulatory Analyst Figure Approved the perturent dates, including and markers and solve perturent dates. Including and recomplete and solve perturent dates, including and recomplete and solve perturent dates. Including and recomplete and solve perturent dates and give perturent dates. Including and perturent dates and give perturent dates. Including and markers and give perturent dates. Including and perturent da		NOTICE OF INTENTION	ю:	•	TREEQUENT EMPORT OF	:
REPORT OR ACTIDIZE X X CHANGE PLANE (Other) REPAIR WELL X CHANGE PLANE (Other) 17. DURA RAISE PROPOSED OR COMPLETE: OPERATION ACTION		1 -11- 1				
(Other) (Ot		1			 	
17. Descript Proposed work. If well is directionally drilled: give subsurface locations and give pertinent date. Including setting and society pertinent date with setting and society pertinent date. Including setting and society pertinent date with setting and society pertinent date. Including setting and society pertinent date with setting and society pertinent date. Including setting and society pertinent date with setting and society pertinent date of setting and society setting setti	REPAIR WELL	X CHANG	E PLANS		results of multiple con	poletion on Wa''
Tenneco requests permission to plug off, sidetrack, run casing, and recomplete the referenced well according to the attached detailed procedure. Description Sep 13 1985 Oil CON. DIST. 3 Oil CON. DIST. 3				Completion or R	ecompletion Report and	Log form.)
SIGNED State office use) APPROVED BY CONDITIONS OF APPROVAL, IF ANY: TITLE Sr. Regulatory Analyst DATE May 15, 1985 TITLE FARMINGTON RESOURCE AGEA	the re	ferenced well		the attached detailed		EIVED 3 1985 V. DIV. 3
APPROVED BY	Soft	the foregoing is frue		Sr. Regulatory Ana	i i	
CONDITIONS OF APPROVAL, IF ANY: CARLEA MANAGER FARMINGTON RESOURCE AGEA	(This space for Fed	eral or State office use)		1	1 100
		PPROVAL, IF ANY:			SEPATO A SEPATO A MARIA	Kelle NAGER

Title 18 L.S.C. Section 1001, makes it a crime for any person MCCC, and willfully to make to any department or agency of the United States any faise, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

*See Instructions on Reverse Side

SIDETRACK WORKOVER PROCEDURES-A

		9-5/8" Casi @ <u>171</u> FI	
•		∑7" Casing @ <u>4697</u> FT.	
		23/8 "Tubin @ 546/ FT. TD @ 5475 FT.	g

 4236-1
 LEASE Fields LS
 WELL NO.

 9-5/8 "OD, 25.4
 LB, CSG.W/125 SX

 TOC @ surface
 CSG.W/500 SX

 TOC @ 2600'
 CSG.W/500 SX

DETAILED SIDETRACKING PROCEDURE:

- Prepare location by blading and installing anchors, if necessary. Install blowdown lines and blow well.
- 2. MIRUSU. Kill tbg w/1% KCl water.
- NDWH. NU 11" 3M csg spool w/2-1/16" 3M plug valve. NU 7-1/16" DSA. NU 6" 3000 psi BOPE. NU blowdown lines to BOP.
- 4. Kill annulus w/1% KCl water.
- POOH laying down tubing. Visually inspect tbg on trip out.

NOTE: If tbg is stuck, do not pull over 40K# as tbg may be in very poor condition. RIH w/jet cutter and attempt first shot at least 100' below the 7" csg shoe.

- 6. RUWL and run GR-CCL log from 100' below 7" csg shoe to the Fruitland Coal top. RIH on wireline and set Baker cement retainer approx 200' above the 7" csg shoe. PU stinger, crossover, 2-7/8" drill pipe and TIH. Fill hole and PT to 1500 psi prior to stinging into retainer.
- 7. Sting into retainer and establish injection rate. Squeeze open hole w/300 sxs Class H w/1% CaCl₂ (sidetrack plug). Sting out, pick up 30', and reverse tbg clean. TOOH and LD stinger.

NOTE: Have cement tested w/field water for pump time and 24 hour compressive strength prior to cementing.

- 8. RDMOSU.
- MIRU Dwinell Bros. Rig #1. RU to drill w/water.
- 10. TIH w/6-1/4" J-1 bit, bit sub, 10 4-3/4" drill collars, and balance of drill pipe to TOC. Drill out cement retainer, and dress off open hole plug to 15' below the 7" csg shoe. Circulate hole clean and TOOH. NOTE: Caliper ALL tools, O.D. and I.D., before running in hole.
- 11. RU to drill w/gas. PU 6-1/4" J-33 bit, knuckle joint kick-off assembly, 4-3/4" drill collars and TIH. Blow hole dry w/N₂. Take inclination (TOTCO) survey on wireline before drilling. Drill 15'-20' and take another TOTCO survey. When angle has built approx 7°, blow hole clean and POOH.
- 12. LD knuckle joint. TIH w/J-33 bit, 6-3/16" near bit reamer, and 4-3/4" drill collars. Drill Mesaverde section w/gas to approx 450' below the top of the Point Lookout. Take TOTCO surveys every 500' or less as required, recording all surveys in the daily log. At T.D., blow hole clean and TOOH for logs.

			9-5/ @	8" <u>71</u> FT.
	\$ 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	X A X D O X & d X & d X X & d X X O X O X O X O X O X O X O X O X O	Stage Co @ <u># 450</u> 	o_FT.
Sidetra 4-1/2" Ca @± 575	A X 6 A A A A A A A A A A A A A A A A A	4 × 0 × 0 × 0 × 0 × 0 × 0 × 0 × 0 × 0 ×		_"Tubin; <u>)</u> FT. <u> 75</u> _FT.

MESAVERDE SIDETRACK WORKOVER - B

4236-2
LEASE Fields LS WELL NO.

9-5/8 "OD, 25.4 LB, CSG.W/125 SX

TOC @ surface
7 "OD, 20,23 LB, CSG.W/500 SX

TOC @ 2600'

DETAILED SIDETRACKING PROCEDURE (CONTINUED):

- RUWL and run GR-DIL and GR-CDL-Caliper over entire open hole. TIH for wiper trip, blow hole clean, POOH laying down, and RU to run csg.
- 14. Run 4-1/2" 10.5# K-55 STC csg as a full string as follows:
 - A) Conventional float shoe and shut off baffle one joint up.
 - B) One centralizer w/stop ring in the middle of the shoe joint and one centralizer on the collar above. Run one centralizer on every other collar in the open hole. Place one centralizer on the first collar below the wellhead (approx 15 centralizers total).
 - C) Run at least 1 short (flag) joint approx 200' off bottom.
 - D) Run stage collar tool @ 4500 ft. (approx 200' above 7" shoe).
 - E) Casing will be electronically inspected before arriving on location. Visually inspect body and end areas and drift to 4.052".
 - F) Thread lock all connections up to and including the float collar. Use API csg dope on all remaining connections. Recommended csg torque is 1460 ft-lbs.
 - A) Precede 1st stage cement w/10 BBLS mud flush containing fluid loss additive.

15.

- B) Reciprocate csg w/20' strokes and cement first stage w/150* sx Class B containing 6/10% fluid loss additive (D-60, Halad-9).
- C) Drop shut-off plug and displace w/84 BBLS 1% KCl water. If plug does not bump, do not overdisplace.
- D) Drop opening bomb. After allowing time for bomb to seat, pressure up csg to open stage tool.
- E) Cement 2nd stage w/300 sx 65/35 POZ-mix containing 6% gel (12.4 ppg, 1.84 FT. 3/SK, 9.9 gal/SK) & tail-in w/50 sx Class B containing 2% KCl.
- F) Drop closing bomb and displace w/70 BBLS fresh water. If plug does not bump, do not overdisplace.

 *Final amount to be determined by caliper log + 10%.

 NOTE: Have cement blends tested w/field water for pump time and 24 hour compressive strength prior to pumping. Use cementing company's csg hardware (float shoes, float collars, stage collars, etc.).
- 16. Set slips w/full csg weight. NDBOP and cut off 4-1/2" csg. NU tbg spool. PT wellhead to 3000 psi.
- 17. RDMO Dwinell Bros. #1.

Drilling Department

MESAVERDE SIDETRACK

COMPLETION DIAGRAM - C

		9-5/8" Casing	<u>DE</u> 18
		@ <u>/7/</u> FT.	20
•	2		2
			2
		Stage Collar	2
_	₫ ¶ [©FT. 7" Casing @ <u>4697</u> FT.	2
			2
			4
			2
			:
		PBTD @FT.	FT.
٠. <u>.</u>	£4	TD @FT.	

4236-3

LEASE Fields LS WELL NO.

9-5/8 "OD, 25.4 LB, CSG.W/125 SX

TOC @ surface
7 "OD, 20,23 LB, CSG.W/500 SX

TOC @ 2600'

DETAILED COMPLETION PROCEDURE:

- 18. MIRUSU. NU BOPE.
- 19. PU 3-7/8" bit, csg scraper, 2-3/8" 4.7# J-55
 EUE 8rd tbg & tally in hole. Fill hole & PT
 csg to 3500 psi. Rev hole clean & displace
 w/1% KCl wtr.
- 20. Spot a sufficient quantity of 7-1/2% DI HCl to cover the perforated interval + 200'. POOH & LD bit & scraper.
- 21. RUWL. Run GR—CCL fr PBTD to 150' above the highest pay. Perf the Lower Mesaverde under lubricator as directed by the Geological Dept from the top interval down. Use 3—1/8" hollow carrier csg guns loaded 2 JSPF @ 120° phasing.
- 22. Acidize down csg w/20 gal per perf of 15% wgtd HCl containing 600# NaCl/1000 gal & 1.5 1.1 SG RCN ball sealers per perforation. Displace at maximum rate w/MSP less than 3500 psi.
- 23. RIH w/junk basket on WL to knock off & recover ball slrs.
- 24. RU & frac Lower Mesaverde w/slickwater containing 1% KCl, 15#/1000 gal friction reducer & 2500#/ft 20/40 sand @ 1 BPM/perf; fluid/sand design on following page. Flush to 10 BBLS shy of top perf & close blind rams ASAP.
- 25. RUWL & RIH w/Baker 4-1/2" RBP. Set approx 50' above top perf. Dump 2 sx frac sand on RBP, load csg w/1% KCl water, & PT RBP to 3500 psi.
- 26. TIH w/2-3/8" tbg to approx 10' above the RBP & spot a sufficient quantity of 7-1/2% DI HCl to cover the top perf + 200'. POOH.
- 27. RUWL. Perforate the Upper Mesaverde under lubricator as directed by the Geological Engineering Dept from the top interval down. Use 3-1/8" hollow carrier csg gun loaded w/2 JSPF @ 120° phasing.
- 28. Acidize down csg w/20 gal per perf of 15% wgtd HCl containing 600# NaCl/1000 gal & 1.5 1.1 SG RCN ball sealers per perforation. Displace at max rate w/MSP less than 3500 psi.
- 29. RIH w/junk basket on wireline to knock off & recover ball sealers.
- 30. RU & frac Upper Mesaverde w/slickwater containing 1% KCl, 15#/1000 friction reducer, & 2500#/ft 20/40 sand @ 1 BPM/perf; fluid/sand design on following page. Flush to 10 BBLS shy of top perf.
- 31. RD frac head. PU retrieving head for 4-1/2" RBP & TIH on 2-3/8" tubing. CO to RBP w/foam. Latch on to RBP & POOH. LD RBP & retrieving head.

MESAVERDE SIDETRACK

COMPLETION DIAGRAM - C

			1
			<u>D</u>
			3
-	9-5/8" Casing @ <u>/7/</u> FT.	•	
			3
			3
			3
			ţ
		*	;
			;
	Stage Collar		•
	eFT.		
	7" Casing @ <u>4697</u> FT.		
	- <u> </u>		
	7		
\bowtie	PBTD @FT.		
		I	T.
	TD @FT.		

4236-4			
LEASE Fields LS		WELL NO	
9-5/8 "OD, 25.4	LB,	CSG.W/125	sx
TOC @ surface			
7 "OD, 20,23	LB,	CSG.W/ <u>500</u>	sx

DETAILED COMPLETION PROCEDURE (CONTINUED):

- 32. TIH w/2-3/8" production string as follows: 1 jt 2-3/8" tbg 1 1.781" ID SN w/expendable plug Balance of 2-3/8" tbg
- 33. Tag fill & record amount. CO to PBTD w/N2 foam. PU & set bottom of the within 20' of lowest perforation. Land tbg & NUWH.
- 34. Kick well around w/N2 & FTCU.
- 35. RDMOSU. SWI for AOF.

MESAVERDE FRAC DESIGN:

- 1. 2500 #20/40 sand per ft. net pay.
- 2. 2 BPM per ft. net pay.
- 3. Fluid to contain 1% KCl, 15#/1000 gal friction reducer.
- 4. Schedule

TOC @ 2600'

30% pad

- 1 csg volume @ 1/2 ppg 20/40 sand
- 1 csg volume @ 1 ppg 20/40 sand
- 1 csg volume @ 1-1/2 ppg 20/40 sand

Remains @ 2 ppg 20/40 sd

Roter M Mueller Production Department