Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.
Use "APPLICATION FOR PERMIT - " for such proposals

5. Lease Designation and Serial No.
NM - 010468

6. If Indian, Allottee or Tribe Name

7. If Unit or CA, Agreement Designation

1. Type of Well
☐ Oil Well ☒ Gas Well ☐ Other

8. Well Name and No.
HOWELL GAS COM #1

2. Name of Operator
AMOCO PRODUCTION COMPANY

Attention:
Nancy I. Whitaker

9. API Well No.
3004527533

3. Address and Telephone No.
P.O. BOX 800 DENVER, COLORADO 80201

303-830-5039

10. Field and Pool, or Exploratory Area
BASIN FRUITLAND COAL GAS

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
850 FNL 790 FEL Sec. 10 T 30N R 8W UNIT A

11. County or Parish, State
San Juan New Mexico

12. CHECK APPROPRIATE BOX(s) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION	
☒ Notice of Intent	☐ Abandonment	☐ Change of Plans
☐ Subsequent Report	☐ Recompletion	☐ New Construction
☐ Final Abandonment Notice	☐ Plugging Back	☐ Non-Routine Fracturing
	☐ Casing Repair	☐ Water Shut-Off
	☐ Altering Casing	☐ Conversion to Injection
	☒ Other DEPEEN RAT HOLE C/O	☐ Dispose Water

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

AMOCO PRODUCTION COMPANY REQUESTS PERMISSION TO DEPEN THE RAT HOLE, AND UNDERREAM OPEN HOLE SECTION ACCORDING TO THE ATTACHED PROCEDURES.

FOR TECHNICAL INFORMATION CONTACT MIKE KUTAS 303-830-5139

Maximum Total Depth - 3131'

RECEIVED
MAR 18 1997
OIL CON. DIV.
DIST. 3

14. I hereby certify that the foregoing is true and correct

Signed Nancy Whitaker Title Staff Assistant Date 03-05-1997

(This space for Federal or State office use)

/S/ Duane W. Spencer

Approved by _____ Title _____ Date MAR 14 1997

Conditions of approval, if any:

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

* See Instructions on Reverse Side

NMOCD

SJOET Well Work Procedure

Howell GC 1

Version: #1
Date: March 4, 1997
Budget: Well Repair
Work Type: **Deepen/ c/o /run-perf liner**

Objectives:

1. C/O wellhead,C/O fill, deepen for rat hole, underream open hole section
2. Run and perf liner, Replace 4 1/2" TBG w/2 7/8" TBG
3. Place well back on production

Pertinent Information:

Location:	850' FNL x 790' FEL; Sect 10A-T30N, R08W	Horizon:	FT
County:	San Juan	API #:	30-045-27533
State:	New Mexico	Engr:	Kutas
Lease:	BLM; NM-010468	Phone:	H--(303)840-3700
Well Flac:	70325001		W-(303)830-5159
			P--(303)553-6334

Economic Information:

APC WI:	38.9761%	Prod. Before Repair:	7100MCFD
Estimated Cost:	$120,000	Anticipated Prod.:	8100MCFD
Payout:	3 Month		
Max Cost -12 Mo. P.O.	>$500M		
PV15:			
Max Cost PV15:			

Note: **Economics will be run on all projects that have a payout exceeding ONE year.**

Formation Tops: (Estimated formation tops)

Nacimento:		Mesaverde:	
Ojo Alamo:		Point Lookout:	
Kirtland Shale:		Mancos Shale:	
Fruitland:	2810-3109'	Gallup:	
Pictured Cliffs:	3131'(est'd-Howell 2 PC)	Graneros:	
Cliff House:		Dakota:	
		Morrison:	

Bradenhead Test Information:

Test Date: 5/96 **Tubing:** 109 **Casing:** 194 **BH:** 0 psi

Time	BH	CSG	INT	CSG
5 min				
10 min				
15 min				

Comments: No flow of any kind

Howell GC 1:

Current wellbore info: 7" CSA 2883', OH at 2883-3114', 4 1/2" TSA 2879', Fill at 2931'KB
Current flow info: 7100 MCFD, FTP=106 psi, FCP=105 psi, LP=94 psi; Producing tubing and casing; Well has original TBG head and is currently producing through only one 2 1/8" CSG valve (1.5" ID).

General observations:
1. Well produces 100+ BWPD and has experienced minor loading problems
2. Well was cavitated in 1/90 and recavitated in 7/93, but not underreamed.
3. Ledge and sloughing problems were encounterd both times at approx. 2950'
4. Conoco offset experienced similar hole instability problems

Short term plans:
1. Replace WH, C/O, deepen and underream well, run liner; replace tubing

Long term plans:
1. Place on artificial lift (if needed); Rathole will be added for gas separation.

1. MIRURT
2. ND tree, rig up BOP's w/cavitation capability, complete with venturies on blooie lines. Test BOE. Set plug in F-nipple in 4 1/2" TBG (2.75" F-nipple sa 1 jt off btm, at approx. 2839'). TOH and lay down 4 1/2" tubing
3. Set wireline EZSV in 7" at 2850'. Load csg and pressure test. NDBOE and change out TBG head to allow hanging 2 7/8" TBG (w/full opening 3 1/8" casing valves). NUBOE and test
4. Pick up 4.750" drill collars and 3.500" drill pipe with 6.250" bit, blow hole dry, drill up EZSV, clean out fill from 2,931' to total depth (3114') using air and foam. Drill out to a total depth of ~~3134-39~~ 3117'. C/O and stibilize hole. Underream open hole section from 6 1/4" to 9 1/2". Stabilize hole as quickly as possible to allow running liner (after reaching TD, trip out to casing shoe and wait for 4-6 hours and check to determine amount of fill and how difficult it is to clean up.
5. Run a blank 5.500" flush joint liner (Hydril 511) from TD back to approx. 2,750'. Install a tricone bit on bottom with a float immediately above bit and a Baker Model SLR-P Liner Hanger Packer. Strip in hole and drill to bottom with power swivel if necessary. Hang liner, lay down drill pipe
6. RU HES, run GR-CCL to identify correct coal seam depths; TIH and perforate liner as follows:

COAL ZONES		PERFORATIONS		
Ignacio	2,924 to 2,954'	2,924 to 2,954'	4 jspf	120 holes
Cottonwood	3,019 to 3,032'	3,019 to 3,032'	4 jspf	52 holes
Cahn	3,079 to 3,109'	3,079 to 3,109'	4 jspf	120 holes
		Total		**292 holes**

7. Pick up and run 2 7/8"TBG as follows:
   1) 10' 2 7/8" tbg sub
   2) 10' 2 7/8" tbg sub, w/ 5/8" hole in middle
   3) 2 7/8" std. SN (2.280" ID)with retrievable plug in place
   4) remainder 2 7/8" TBG (All TBG: 6.4# J55)

Land bottom of TBG at approximately 3132'(approx. 5' above liner PB). Pull retrievable plug. RDMODU. **Turn well over to production. Note: bring well on slowly, well may need swabbing in order to RTP.**

Dependent on speed of hole stabilization, I estimate this procedure to require approximately 5-6 days and to cost approximately $120,000 (see attached AFE form).

If problems are encountered, please contact:

Mike Kutas

(W) (303) 830-5159
(H) (303)840-3700
(P) (303)553-6334

Repair Well Cost Detail

Property - HOWELL GAS COM, Well# 001A10

SAN JUAN County, NM Property FLAC - 184800 Well FLAC - 703250
Operating Field - NEW MEXICO COAL DEGAS
Amoco Production Company

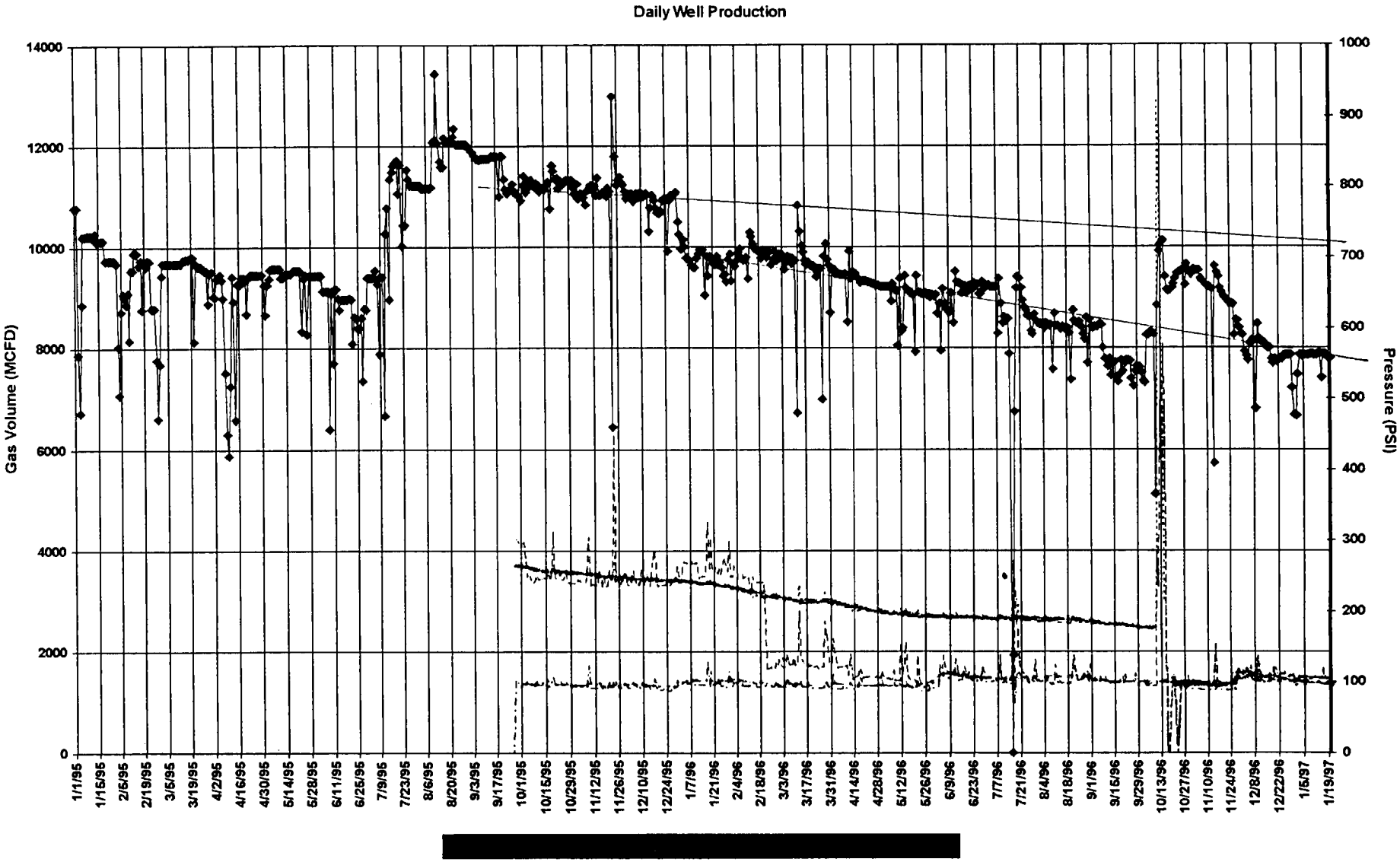
Ownership Code: 00

Intangibles	
Rig Cost	$65,500
Equipment Rental	$0
Circulating Media	$0
Cement and Service	$0
Packers and Equipment	$0
Perforate, Log, Wireline	$7,000
Stimulation	$0
Labor	$8,500
Special Equipment	$0
Fishing	$0
Other Intangibles	$11,100
Total Intangibles	$92,100

Tangibles	
Casing	$11,600
Tubing	$7,800
Wellhead	$8,500
Other	$0
Total Tangibles	$27,900

	Net	Gross
Total This Request	$46,771	$120,000
Previous Estimate	$0	$0
Total to Date Estimate	$46,771	$120,000

Wellname: **HOWELL GC 001- FT** Flacwell: **70325001** Amoco - OIDB/Synergy Data

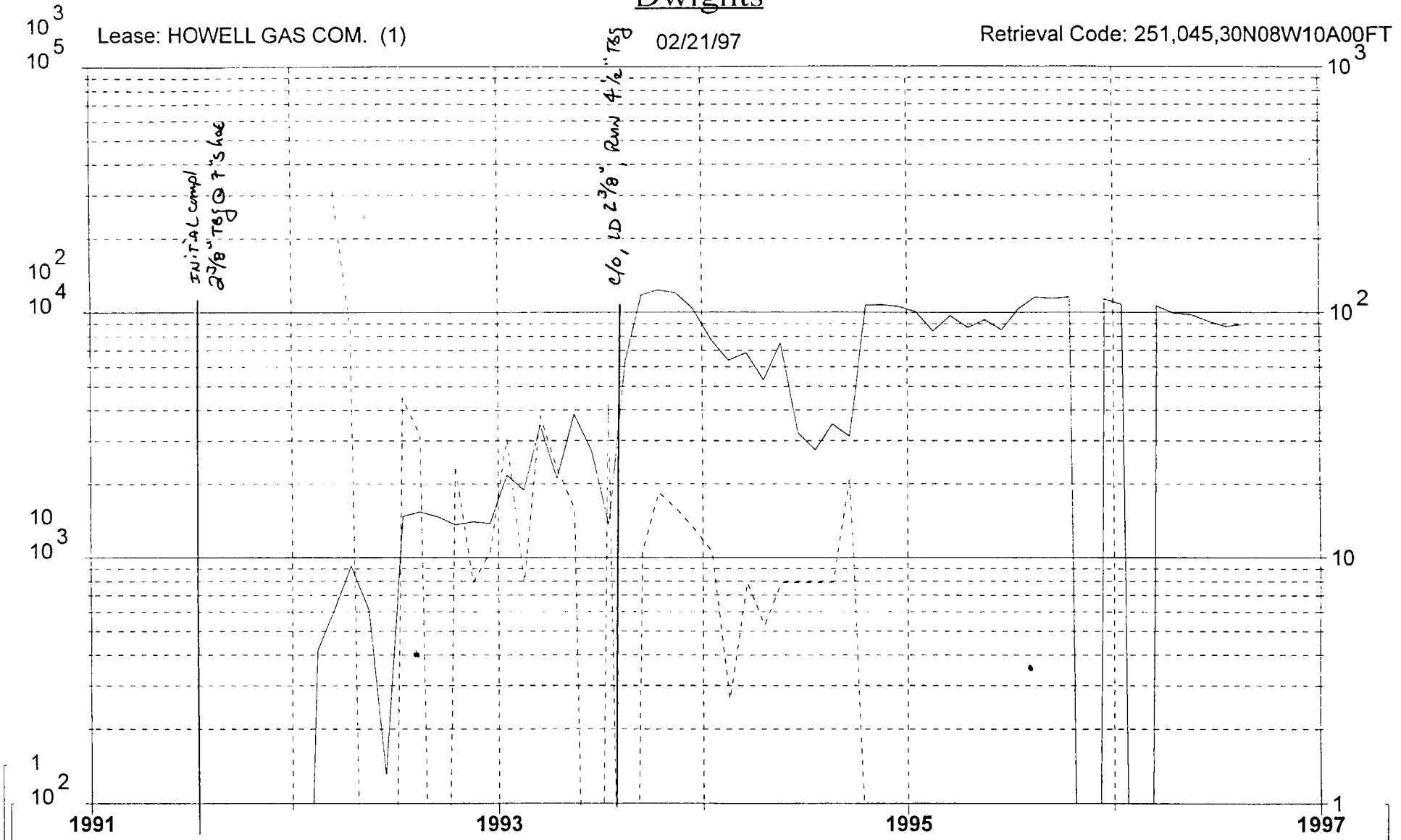


Dwights

Lease: HOWELL GAS COM. (1)

02/21/97

Retrieval Code: 251,045,30N08W10A00FT



Gas (mcf/day) ——

Oil (bbl/day) - - - - - -

Water (bbl/day) - - - - - -

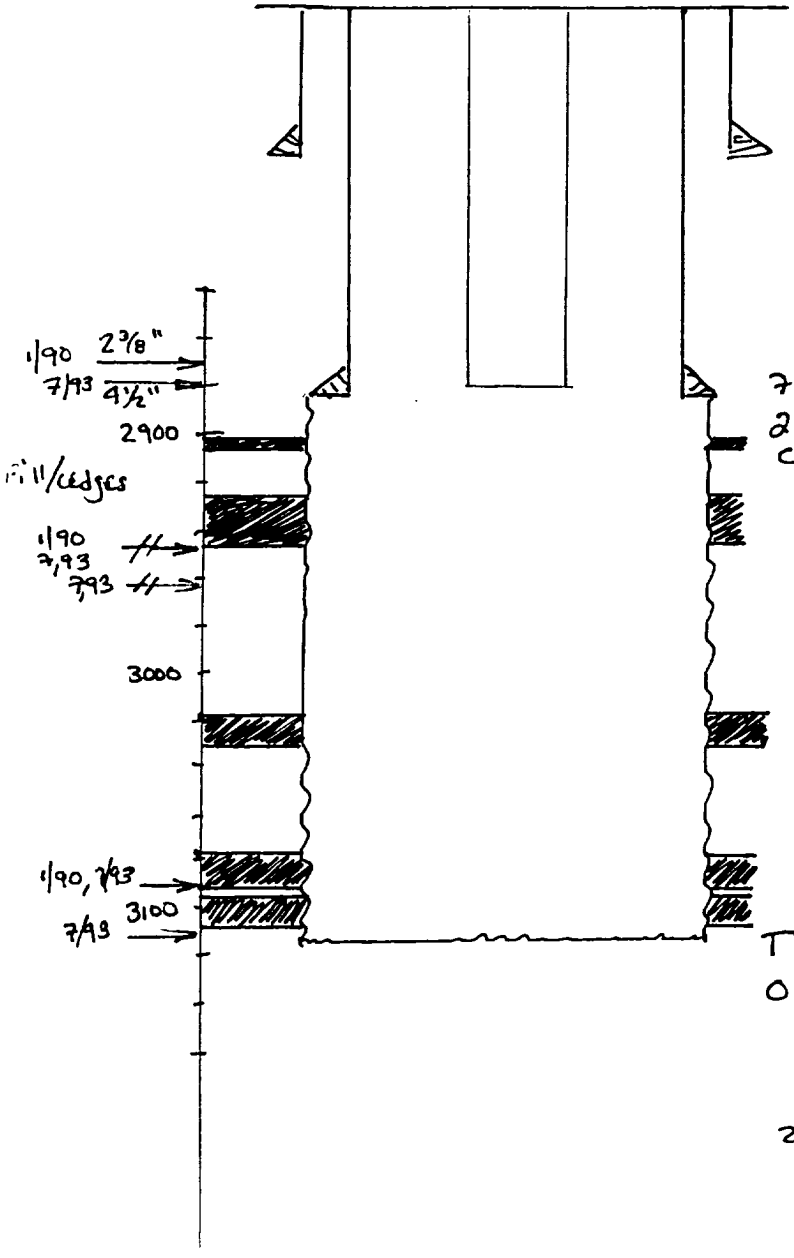
County: SAN JUAN, NM	F.P. Date: 01/92
Field: BASIN (FRUITLAND COAL) FT	Oil Cum: 0 bbl
Reservoir: FRUITLAND COAL	Gas Cum: 10.30 bcf
Operator: AMOCO PRODUCTION CO	Location: 10A 30N 8W

Amoco Production Company

ENGINEERING CHART

Sheet No Of
File
Appn
Date 2-21-97
By GMK

SUBJECT Howell GC #1



2/13/96 TAG & GRAD; TAG FILL @ 2910'

Depth	PSIG	GRAD
0	116	.045
1000	161	.034
2000	195	.032
2500	211	
2905	221	.025

2/97 TAG INFO: TAG FILL @ 2916' GL, F. Nipple @ 2827'
NO Fluid LEVEL

Amoco Production Company

ENGINEERING CHART

Sheet No 1 Of

File

Appn

Date 2-21-97

By GMK

SUBJECT Howell GC #1

9 5/8" CSA 286', 36# J55, CMT circ'd — Spud: 12/22/89

7" CSA 2883', 23# K55, CMT didn't circ x 100% Returns — RREL: 12/28/89

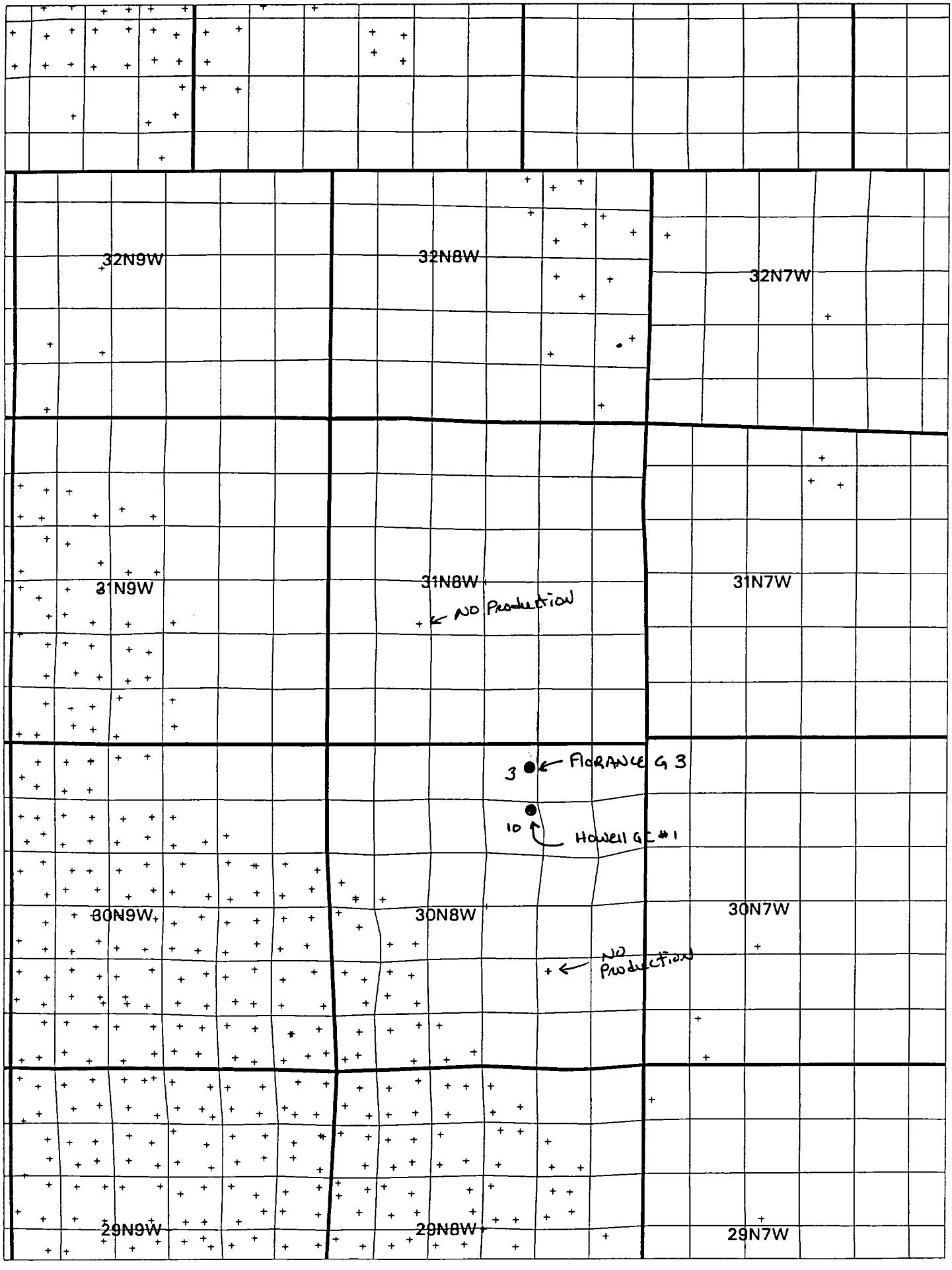
INTERVAL	depth	Shows
Stringer	2901-05	
IG	2924-44', 2944-54'	20' FLARE
CW	3019-32'	20 → 25' FLARE
CAHN	3079-91', 3095-3109'	30-40' FLARE

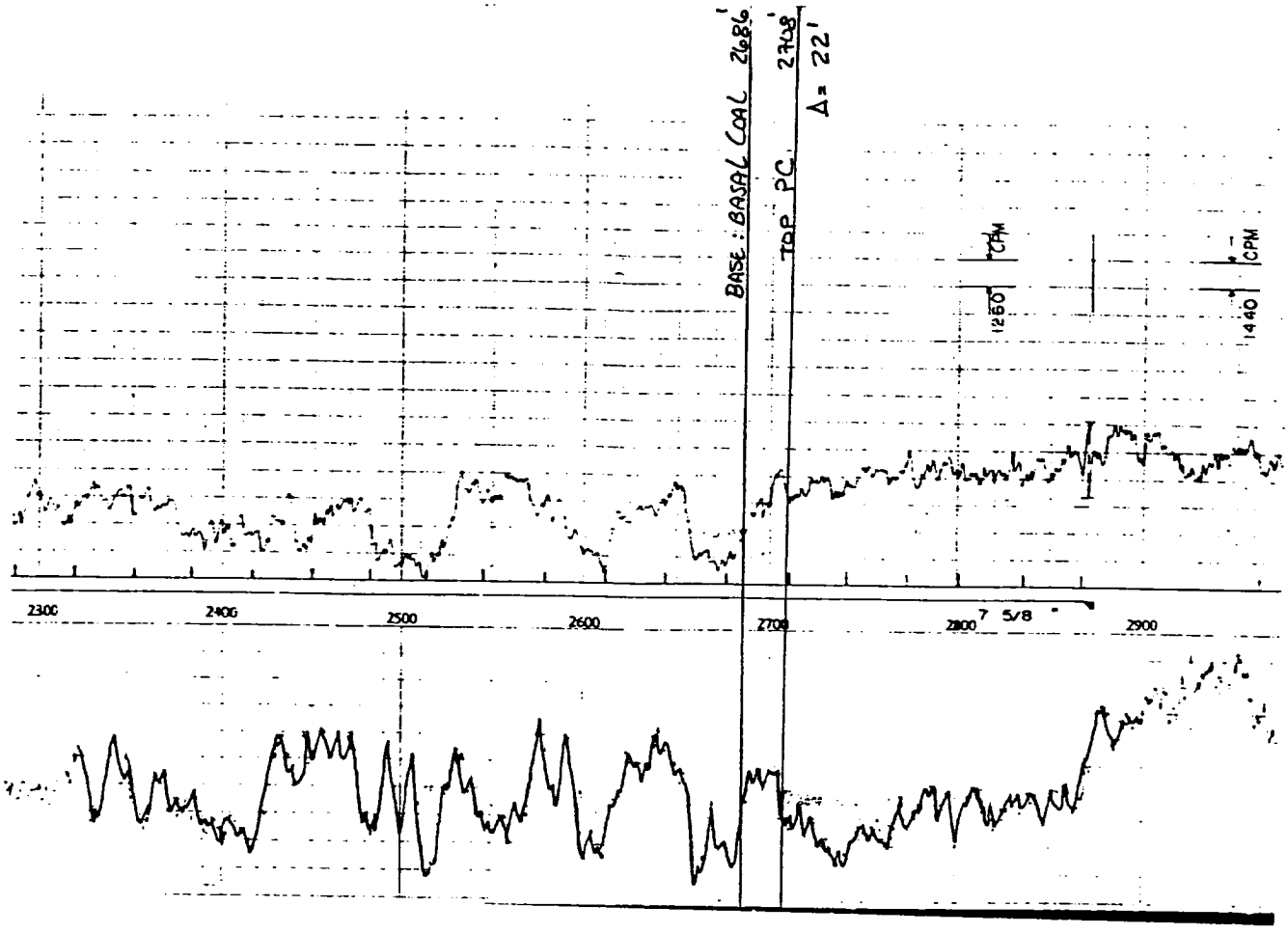
1/6/90 - MIRUSU

- Drill CMT
- DRL OUT TO 3114', COAL ENCOUNTERED:
  FLOW TEST: 3/4" 3½ HR, 50 → 250 psi, 450-870 BWPD
  726 → 2503 MCFD
  SI, 3 HRS, PRS = 1000 psi. (1000 @ 30 MIN'S)
- CST #1 x 6, 1000 psi. - REC COAL, DUST, WTR; CIRC, R/R, 35-40' FLARE
- FLOWTEST, 4 HRS, 3/4" ch, 120 → 350 psi, 1740-5075 MCFD, 0 → 753 BWPD
  CST #2 x 14, 1100 → 1375 PSI, TAG: C/O 180' FILL, LEDGE @ 3095', BTM 19' - HIGH TORQ, REC BLACK WTR, 3/4-1" COAL
- CIRC, STUCK @ 3105' - FREE UP, BIT PLUGGED - C/O
- WASH 2370-2587', SD & MOVE TO LEVEL RIG; SIP = 1040 psi.
- C/O FROM 2587-2647', HARD REAMING FROM 2647-2978', STUCK @ 2978' - WORKED FREE STICK AGAIN @ 2978'
- RUN FREE POINT - STUCK @ 2767, FREE @ 2745, MU & UP - FISH/WORK TO RECOVER DP
- CONTINUE FISH OPERATIONS
- MOVE RIG AGAIN, SETTLING
- CONTINUE FISH OPERATIONS; WASH OVER & RECOVER FISH - DRILL FIRE PLUGGED
- MUD APPEARS TO BE HELPING C/O HOLE, LOOSING 5-7 BPH @ 2957'
- REAM & WASH 2957-88', TIGHT @ 2927', WASH/REAM 2988-3019' OK, CONT TO 3080'; HIGH VOL OF COAL RETURNS, STILL LOSING 6 BPH
- FINISH REAM @ 3080-3114' - RECOVERING LARGE! AMTS BIG COAL CHUNKS - HOLE HEAVING
- CONTINUE REAMING & C/O, LEDGE @ 2945'
- " " & C/O, HOLE CLEANING UP & FLARE INCR
- " " HARD REAM @ 2944-3013', 157' FILL @ 2957', HARD REAM @ 3035+ REC'ING LARGE AMTS COAL
- FLOW TEST: 4 HRS, 3/4" ch, 200 → 525 psi, 3123 → 4708 MCFD, WATER REC? SI 4 HR, PRS = 1290 psi
- R/R, C/O BRIDGE @ 2946' - NO TROUBLE 2960 to 3114'
- FLOW TEST: 4 HRS, 3/4" ch, 200 → 600 psi, 3124-6702 MCFD, MISTING WATER C/O - TAG BRIDGE @ 2940' - REAM OUT - HOLE SURGING lg AMTS COAL; C/O TO TD
- FLOW TEST: 6 HRS, 3/4", 280# → 600 psi, 4286-7595 MCFD, HEAVY MIST C/O LEDGE @ 2944', REAM TIGHT SPOT @ 2944-57', NO PROBLEMS TO TD!, LAST 5' STKY

- SI, 6 hrs, 1190psi ; c/o Bridge @ 2944, Tight Areas @ 2944-57', c/o 20' Fill on BTM
- Circ on BTM, Work @ 2944', c/o 5' Fill @ TD ; TOH & LD D.P.
- SNUB in 2 3/8" Tbg ; TSA 2871', mule shoe w/exp check, 1 jt tbg, 1.78" F-Nipple
- RREL: 1/31/90 ; Pump out Exp. check
- Flow Test Well: FTP/SICP = 538/978 psi ; 3558 MCFD, 345 BW in 8.5 Hrs FL @ 2480'.

7/14/93 - MIRUSU, SET BLANKING PLUG
- Strip out of Hole w/Tbg, SET RET @ 2785', Test 1500 psi & csg ; PU & TIH x BKR
- DO. Ret, TIH, Tag & c/o Bridge @ 2962' & Fill from 3090-3114' CST #1 x 4, 760 psi, Gas & Wtr to Surf - No Coal
- CST #2 x 8, 760 psi " " ", Tag Bridge/Ledge @ 2990, Wash-Ream Thru Bridges & Fill @ 2990'-3113' ; Flow Test: 2 Hrs, 625 psi, 9062 MCF c/o Bridge @ 2945'-50' & c/o 5' Fill - Little Coal Rec'd
- CST #3 x ?, Work Thru Ledge @ 2930-60' & Bridge @ 3081', R&R @ 3114 Flw Test: 2 Hrs, 3/4" ch, ≈ 9000 MCFD ; TIH x Tag Bridges @ 2941-57' & c/o .5' Fill on BTM ; CST #4 x 4, 720 psi - No Coal Returns
- CST #4 x 7 (cont'd) ; c/o 2957-3114', Hole Tight @ 3096-3114' ; R&R @ 3114' Foam Sweep on BTM - Heavy Coal Returns
- R&R @ 3114 ; Flow Test 7/4" ch, 600 psi, 8.7 MMCFD ; CST #5 x 13, 700 psi Heavy Coal Returns
- TIH x Tag Bridge @ 2958' c/o + 4' Fill on BTM ; Flw Test 9.4 MMCFD, 3/4", 650 psi
- Flow Test, 3/4", 650 psi, 9.4 MMCFD ; TIH x Tag Bridges @ 2955 & 70, c/o TO 3114
- SNUB out of Hole w/DP & collars ; SNUB 4.5" Tbg ; TSA 2879.24' mule shoe w/Profile Nipple w/exp check, 1 jt tbg, 2.75" F Nipple


32N9W
32N8W
32N7W
31N9W
31N8W
NO Production
31N7W
3
FLORANCE G 3
10
HOWELL GC #1
30N9W
30N8W
NO Production
30N7W
29N9W
29N8W
29N7W



LANE WELLS *Radioactivity Log*

COMPANY
WELL Howell 2 MW
FIELD
COUNTY STATE
LOCATION 10-T30N-R8W

16

LOG MEAS FROM
DRLG MEAS FROM
PERM DATUM

NEUTRON
MULTI-SPACED
RADIATION INTENSITY INCREASES

LANE WELLS COMPANY
RADIOACTIVITY LOG

File No. [illegible]05

Location of Well	
COMPANY	[illegible] OIL CORPORATION
WELL	FLORENCE NO. 36
FIELD	[illegible]
COUNTY	SAN JUAN
STATE	N. M.
LOCATION	[illegible] 33 ON - 28 W 8
	1850' FR N & 990' FR E LINE

LOG MEAS. FROM	[illegible]	ELEV. 6205
DRLG. MEAS. FROM	[illegible]	ELEV. 6205
PERM. DATUM	[illegible]	ELEV. 6272

	GAMMA RAY	NEUTRON
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
TYPE OF FLUID IN HOLE	DRY	DRY
FLUID LEVEL	NONE	NONE
MAXIMUM RECORDED TEMP.	-	7.00 N
NEUTRON SOURCE STRENGTH & TYPE	-	0.25
SOURCE SPACING - IN.	-	9
LENGTH OF MEASURING DEVICE - IN.	36	9
O.D. OF INSTRUMENT - IN.	3 3/8	3 3/8
TIME CONSTANT - SECONDS	5	5
LOGGING SPEED FT. MIN.	38	38
STATISTICAL VARIATION - IN.	-	-
SENSITIVITY REFERENCE	.74	275
RECORDED BY	[illegible]	[illegible]
WITNESSED BY	[illegible]	[illegible]

REC [illegible] SEP [illegible] U. S. GEOLOGICAL SURVEY FARMINGTON, N. M.

CASING RECORD

RUN NO.	BIT SIZE	CASING	WEIGHT	FROM	WELL RECORD	FROM R A LOG
1	6 1/2	4 1/2	17	4895	TO BTM.	TO
1	3 7/8	OPEN HOLE		4895	TO 5000	TO
					TO	TO
					TO	TO
					TO	TO

REMARKS OR OTHER DATA

GAMMA RAY	DEPTH	NEUTRON
→ RADIATION INTENSITY INCREASES		→ RADIATION INTENSITY INCREASES