





# Anadarko Petroleum Corporation Geothermal Drilling Report

## PROPRIETARY DATA

WELL NAME: Pueblo Valley Federal 52-22A      DATE: 11/15/93  
 CONTRACTOR: Tonto Drilling Services      RIG #: 002  
 REPORT NO.: 3      RIG DAYS: 3      DRLD. DAYS: 2  
 DEPTH @ 0700: 46      FT. ROCKBIT 46      CORE \_\_\_\_\_  
 HOURS: DRLD 6      TRPD \_\_\_\_\_      REPAIR \_\_\_\_\_      OTHER 6  
 SUPERVISOR: J.H. Moss      FOREMAN: Mike LaOrange  
 DRILLERS: G. Behunin, C. McCracken

## CASING

9-5/8"	CND:	46
	CSG:	
	CSG:	
DATUM: GLI x I		KBI I
KB = GL + 8'		

## MUD

WT: \_\_\_\_\_      VIS: \_\_\_\_\_      W.L.: \_\_\_\_\_      CK: \_\_\_\_\_      pH: \_\_\_\_\_      CHL: \_\_\_\_\_  
 YP: \_\_\_\_\_      PV: \_\_\_\_\_      GELS: \_\_\_\_\_      SND% \_\_\_\_\_      SOL% \_\_\_\_\_      LCM: \_\_\_\_\_      #/BBL: \_\_\_\_\_

FORMATION DRLD: Samples collected for logging on 11/16.

LOST-CIRCULATION AND FLUID ENTRY ZONES: None.

## TEMPERATURES, °F (MUD-IN, MUD-OUT, BOTTOMHOLE)

DEPTH	IN	OUT	BH	DEPTH	IN	OUT	BH	DEPTH	IN	OUT	BH

## MECHANICAL

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT	HRS	WT	RPM	COND
1	12-1/4	Tricone				GL	46	46	6		xxxx	used

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZ. VEL.	ANN. VEL.

DRLG ASSY: \_\_\_\_\_

STRING WT: \_\_\_\_\_      PICKUP WT: \_\_\_\_\_      TORQUE: \_\_\_\_\_

## REMARKS FOR 24 HOURS ENDING AT 0700

Crews on location. Mixed pit of mud. Drilled 12-1/4" hole from GL to 46'. Ran 50' 9-5/8" 40# J-55 8 rd casing, hung bottom of casing at 46'. Cemented with 35 sks neet cement.  
CIP @ 1700 hrs. WOC

# Anadarko Petroleum Corporation Geothermal Drilling Report

## PROPRIETARY DATA

WELL NAME: Pueblo Valley Federal 52-22A      DATE: 11/16/93  
 CONTRACTOR: Tonto Drilling Services      RIG #: 002  
 REPORT NO.: 4      RIG DAYS: 4      DRLD. DAYS: 2  
 DEPTH @ 0700: 333      FT: ROCKBIT 287      CORE \_\_\_\_\_  
 HOURS: DRLD 20      TRPD \_\_\_\_\_      REPAIR \_\_\_\_\_      OTHER 4  
 SUPERVISOR: J.H. Moss      FOREMAN: Mike LaOrange  
 DRILLERS: G. Behunin, C. McKracken

## CASING

9-5/8	CND:	46	
	CSG:		
	CSG:		
DATUM: GLI x I		KBI J	
KB = GL + 8'			

## MUD

WT: 8.4      VIS: 45      W.L.: \_\_\_\_\_      CK: \_\_\_\_\_      pH: \_\_\_\_\_      CHL: \_\_\_\_\_  
 YP: \_\_\_\_\_      PV: \_\_\_\_\_      GELS: \_\_\_\_\_      SND% \_\_\_\_\_      SOL% \_\_\_\_\_      LCM: \_\_\_\_\_      #/BBL: \_\_\_\_\_

FORMATION DRLD: Silty clays & clayst: 0-50; clayst, silt & clay: 50-200; siltst: 200-260;  
clayst: 260-300.

LOST-CIRCULATION AND FLUID ENTRY ZONES: None.

## TEMPERATURES, °F (MUD-IN, MUD-OUT, BOTTOMHOLE)

DEPTH	IN	OUT	BH	DEPTH	IN	OUT	BH	DEPTH	IN	OUT	BH
50	44	44		170	45	59		300	44	72	
80	44	46		200	44	60					
110	44	53		230	44	63					
140	45	56		270	43	66					

## MECHANICAL

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT	HRS	WT	RPM	COND
2 RR	8-1/2		Tricore	BR 5387	-	46	333	287	20			

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZ. VEL.	ANN. VEL.

DRLG ASSY: \_\_\_\_\_

STRING WT: \_\_\_\_\_      PICKUP WT: \_\_\_\_\_      TORQUE: \_\_\_\_\_

## REMARKS FOR 24 HOURS ENDING AT 0700

Cleaned cement out of 9-5/8" casing at 46'. Drilled 8-1/2" hole from 46' to 333' with good returns to surface. Conditioned hole and mud. Prepare to run 7" surface casing.

# Anadarko Petroleum Corporation Geothermal Drilling Report

## PROPRIETARY DATA

WELL NAME: Pueblo Valley Federal 52-22A DATE: 11/17/93  
 CONTRACTOR: Tonto Drilling Services RIG #: 002  
 REPORT NO.: 5 RIG DAYS: 5 DRLD. DAYS: 3  
 DEPTH @ 0700: 333 FT: ROCKBIT 0 CORE 0  
 HOURS: DRLD 0 TRPD 6 REPAIR 0 OTHER 18  
 SUPERVISOR: J.H. Moss FOREMAN: Mike LaOrange  
 DRILLERS: G. Behunin, C. McCracken

## CASING

9-5/8"	CND:	46
7"	CSG:	332
	CSG:	
DATUM: GL [ x ] KBI [ ]		
KB = GL + 8'		

## MUD

WT: \_\_\_\_\_ VIS: \_\_\_\_\_ W.L.: \_\_\_\_\_ CK: \_\_\_\_\_ pH: \_\_\_\_\_ CHL: \_\_\_\_\_  
 YP: \_\_\_\_\_ PV: \_\_\_\_\_ GELS: \_\_\_\_\_ SND% \_\_\_\_\_ SOL% \_\_\_\_\_ LCM: \_\_\_\_\_ #/BBL: \_\_\_\_\_

## FORMATION DRLD: \_\_\_\_\_

## LOST-CIRCULATION AND FLUID ENTRY ZONES: \_\_\_\_\_

## TEMPERATURES, °F (MUD-IN, MUD-OUT, BOTTOMHOLE)

DEPTH	IN	OUT	BH	DEPTH	IN	OUT	BH	DEPTH	IN	OUT	BH

## MECHANICAL

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT	HRS	WT	RPM	COND

  

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZ. VEL.	ANN. VEL.

DRLG ASSY: \_\_\_\_\_

STRING WT: \_\_\_\_\_ PICKUP WT: \_\_\_\_\_ TORQUE: \_\_\_\_\_

## REMARKS FOR 24 HOURS ENDING AT 0700

Made wiper trip. Hole in good shape. Circulate hole clean, POH. Rigged up and ran 15 jts 7" 23# J-55 ST&C 8 rd casing for a total of 332 ft. Hung guide shoe at 332' with insert float at 311 ft. Mixed and pumped 569 gal class B cmt (63 sks or 75 cu ft). Displaced with 510 gal water. Bumped plug with 450 psi. Good returns to surface throughout job. Pumped app 30 gal cement to pit. CIP at 1715. WOC.

# Anadarko Petroleum Corporation Geothermal Drilling Report

**PROPRIETARY DATA**

WELL NAME: Pueblo Valley Federal 52-22A DATE: 11/18/93  
 CONTRACTOR: Tonto Drilling Services RIG #: 002  
 REPORT NO.: 6 RIG DAYS: 6 DRLD. DAYS: 4  
 DEPTH @ 0700: 333 FT: ROCKBIT \_\_\_\_\_ CORE \_\_\_\_\_  
 HOURS: DRLD 0 TRPD 0 REPAIR \_\_\_\_\_ OTHER 24  
 SUPERVISOR: J.H. Moss FOREMAN: Mike LaOrange  
 DRILLERS: G. Behunin, C. McKracken

**CASING**

9-5/8"	CND:	46
7"	CSG:	332
	CSG:	
DATUM: GL [ x ] KBL [ ]		

KB = GL + 8'

**MUD**

WT: \_\_\_\_\_ VIS: \_\_\_\_\_ W.L.: \_\_\_\_\_ CK: \_\_\_\_\_ pH: \_\_\_\_\_ CHL: \_\_\_\_\_  
 YP: \_\_\_\_\_ PV: \_\_\_\_\_ GELS: \_\_\_\_\_ SND% \_\_\_\_\_ SOL% \_\_\_\_\_ LCM: \_\_\_\_\_ #/BBL: \_\_\_\_\_

**FORMATION DRLD:** \_\_\_\_\_

**LOST-CIRCULATION AND FLUID ENTRY ZONES:** \_\_\_\_\_

**TEMPERATURES, °F (MUD-IN, MUD-OUT, BOTTOMHOLE)**

DEPTH	IN	OUT	BH	DEPTH	IN	OUT	BH	DEPTH	IN	OUT	BH

**MECHANICAL**

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT	HRS	WT	RPM	COND
3 RR	6-1/8	HTC			out	333						

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZ. VEL.	ANN. VEL.

DRLG ASSY: \_\_\_\_\_

STRING WT: \_\_\_\_\_ PICKUP WT: \_\_\_\_\_ TORQUE: \_\_\_\_\_

**REMARKS FOR 24 HOURS ENDING AT 0700**

WOC. Nipple up **BOPS** at 1730, tested blind rams with 1000 psi for 25 min, held ok. Attempted to test pipe rams. BOP stack out of alignment with rig. When BOP stack was pulled in line with rig, wellhead jumped threads in surface casing collar. Removed BOP stack and wellhead. Checked, threads on wellhead, looked ok. Re-installed wellhead on 7" casing. Reset BOP stack. Lined up with rig. Unable to complete BOP test due to freezing of suction and pressure lines. **Air temperature: 5°F**. Drained all lines at 0430. Test suspended pending warmer temperatures

# Anadarko Petroleum Corporation Geothermal Drilling Report

## PROPRIETARY DATA

WELL NAME: Pueblo Valley Federal 52-22A      DATE: 11/19/93  
 CONTRACTOR: Tonto Drilling Services      RIG #: 002  
 REPORT NO.: 7      RIG DAYS: 7      DRLD. DAYS: 4  
 DEPTH @ 0700: 333      FT: ROCKBIT \_\_\_\_\_      CORE \_\_\_\_\_  
 HOURS: DRLD \_\_\_\_\_ TRPD \_\_\_\_\_ REPAIR \_\_\_\_\_ OTHER 24  
 SUPERVISOR: J.H. Moss      FOREMAN: Mike LaOrange  
 DRILLERS: G. Behunin, C. McKracken

CASING	
9-5/8"	CND: <u>46</u>
7"	CSG: <u>332</u>
	CSG: _____
DATUM: <u>GL   x   KBI  </u>	
KB = GL + 8'	

### MUD

WT: \_\_\_\_\_ VIS: \_\_\_\_\_ W.L.: \_\_\_\_\_ CK: \_\_\_\_\_ pH: \_\_\_\_\_ CHL: \_\_\_\_\_  
 YP: \_\_\_\_\_ PV: \_\_\_\_\_ GELS: \_\_\_\_\_ SND% \_\_\_\_\_ SOL% \_\_\_\_\_ LCM: \_\_\_\_\_ #/BBL: \_\_\_\_\_

### FORMATION DRLD: \_\_\_\_\_

### LOST-CIRCULATION AND FLUID ENTRY ZONES: \_\_\_\_\_

### TEMPERATURES, °F (MUD-IN, MUD-OUT, BOTTOMHOLE)

DEPTH	IN	OUT	BH	DEPTH	IN	OUT	BH	DEPTH	IN	OUT	BH

### MECHANICAL

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT	HRS	WT	RPM	COND

  

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZ. VEL.	ANN. VEL.

DRLG ASSY: \_\_\_\_\_

STRING WT: \_\_\_\_\_ PICKUP WT: \_\_\_\_\_ TORQUE: \_\_\_\_\_

### REMARKS FOR 24 HOURS ENDING AT 0700

Unable to complete BOP test. Could not comply with BLM rep. Dennis Simontacchi and hold 1000#  
 psi with kill pump or rig pump. Kill pump had frozen during previous test attempts and one piston  
 was leaking. Rig shut down until pump could be replaced.

# Anadarko Petroleum Corporation Geothermal Drilling Report

## PROPRIETARY DATA

WELL NAME: Pueblo Valley Federal 52-22A      DATE: 11/20/93  
 CONTRACTOR: Tonto Drilling Services      RIG #: 002  
 REPORT NO.: 8      RIG DAYS: 8      DRLD. DAYS: 5  
 DEPTH @ 0700: 471      FT: ROCKBIT 138      CORE 0  
 HOURS: DRLD 9.5      TRPD 0      REPAIR 0      OTHER 14.5  
 SUPERVISOR: J.H. Moss      FOREMAN: Mike LaOrange  
 DRILLERS: G. Behunin, C. McCracken

CASING	
9-5/8"	CND: <u>46</u>
7"	CSG: <u>332</u>
	CSG: <u> </u>
DATUM: GLI x I    KBI I	
KB = GL + 8'	

## MUD

WT: 8.4      VIS: 40      W.L.:        CK:        pH:        CHL:    
 YP:        PV:        GELS:        SND%        SOL%        LCM:        #/BBL:  

FORMATION DRLD: Clay and sand.

LOST-CIRCULATION AND FLUID ENTRY ZONES: None.

## TEMPERATURES, °F (MUD-IN, MUD-OUT, BOTTOMHOLE)

DEPTH	IN	OUT	BH	DEPTH	IN	OUT	BH	DEPTH	IN	OUT	BH
350	46	43		470	52	58					
380	46	48									
410	46	51									
440	51	53									

## MECHANICAL

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT	HRS	WT	RPM	COND
3 RR	6-1/8	HTC	AT J22	D46WV	out	333			9.5			

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZ. VEL.	ANN. VEL.

DRLG ASSY: 6-1/8" bit, bit sub. HQ rods.

STRING WT:        PICKUP WT:        TORQUE:  

## REMARKS FOR 24 HOURS ENDING AT 0700

Rigged up new kill pump. Testing BOPS. Changed both blind rams and pipe rams, both were ice cut. Tested blind rams with 1000 psi for 20 min, lost 40 psi. Tested pipe rams with 1000 psi for 20 min also lost 40 psi. Tested hydrill with 700 psi, lost 60 psi in 15 min. Tested 7" casing and choke manifold with 700 psi, lost 60 psi in 20 min. Drilled out wiper plug and float valve at 310', drilled firm cement from 312' to 327', guide shoe at 328', formation from 333' to 338'. Conducted formation integrity test to WHP of 74 psi (.65 psi/ft) dropped to 58 psi in 10 min. All tests witnessed by B. L. M. rep Dennis Simontacchi. All tests completed at 2000 hrs. Drilled 6-1/8" hole from 338' to 471' in clay and sand with good mud returns.



# Anadarko Petroleum Corporation Geothermal Drilling Report

## PROPRIETARY DATA

WELL NAME: Pueblo Valley Federal 52-22A DATE: 11/21/93  
 CONTRACTOR: Tonto Drilling Services RIG #: 002  
 REPORT NO.: 9 RIG DAYS: 9 DRLD. DAYS: 6  
 DEPTH @ 0700: 865 FT: ROCKBIT 394 CORE 0  
 HOURS: DRLD 22 TRPD 0 REPAIR 2 OTHER 0  
 SUPERVISOR: J.H. Moss FOREMAN: Mike LaOrange  
 DRILLERS: G. Behunin, C. McCracken

### CASING

9-5/8"	CND: 46
7"	CSG: 332
	CSG:
DATUM: GL [ x ] KBL [ ]	

KB = GL + 8'

### MUD

WT: 8.5 VIS: 40 W.L.:   CK:   pH:   CHL:    
 YP:   PV:   GELS:   SND%   SOL%   LCM:   #/BBL:  

FORMATION DRLD: Clay: 470 - 660; mudstone: 660 - 780; sand: 780 - 840; Siltstone: 840 - 865.

LOST-CIRCULATION AND FLUID ENTRY ZONES: Intermittent partial circulation losses noted on mud log below 780.

### TEMPERATURES, °F (MUD-IN, MUD-OUT, BOTTOMHOLE)

DEPTH	IN	OUT	BH	DEPTH	IN	OUT	BH	DEPTH	IN	OUT	BH
470	52	58		590	57	71		710	72	79	
500	51	63		620	63	75		740	71	87	
530	53	66		650	67	78		770	69	88	
560	59	69		680	68	81		860	80	90	

### MECHANICAL

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT	HRS	WT	RPM	COND
3 RR	6-1/8	HTC	AT J22	D46WV	out	333						

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZ. VEL.	ANN. VEL.

DRLG ASSY: 6-1/8" bit, bit sub, HQ rods.

STRING WT:   PICKUP WT:   TORQUE:  

### REMARKS FOR 24 HOURS ENDING AT 0700

Drilled 6-1/8" hole from 471' to 865' with continuous returns to surface. Function tested pipe rams.

# Anadarko Petroleum Corporation Geothermal Drilling Report

## PROPRIETARY DATA

WELL NAME: Pueblo Valley Federal 52-22A DATE: 11/22/93  
 CONTRACTOR: Tonto Drilling Services RIG #: 002  
 REPORT NO.: 10 RIG DAYS: 10 DRLD. DAYS: 7  
 DEPTH @ 0700: 1265 FT: ROCKBIT 400 CORE \_\_\_\_\_  
 HOURS: DRLD 23 TRPD 0 REPAIR 1 OTHER 0  
 SUPERVISOR: J.H. Moss FOREMAN: Mike LaOrange  
 DRILLERS: G. Behunin, C. McCracken

CASING	
9-5/8"	CND: 46
7"	CSG: 332
	CSG: _____
DATUM: GLI x] KBL ]	
KB = GL + 8'	

## MUD

WT: 8.9 VIS: 35 W.L.: 9.8 CK: 1/32 pH: 8 CHL: 500  
 YP: 9 PV: 8 GELS: 2-6 SND%: 25 SOL%: 5 LCM: 0 #/BBL: 0

FORMATION DRLD: Siltst: 865 - 960; Clayst: 960 - 1080; Siltst: 1080 - 1230;  
Clayst: 1230 - 1265.

LOST-CIRCULATION AND FLUID ENTRY ZONES: None.

## TEMPERATURES, °F (MUD-IN, MUD-OUT, BOTTOMHOLE)

DEPTH	IN	OUT	BH	DEPTH	IN	OUT	BH	DEPTH	IN	OUT	BH
890	82	87		1010	79	90		1130	80	93	
920	78	83		1040	80	91		1160	89	93	
950	78	86		1070	80	92		1220	90	94	
980	79	88		1100	81	93		1265	83	89	

## MECHANICAL

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT	HRS	WT	RPM	COND
3 RR	6-1/8	HTC	AT J22	D46WV	out	333		932	54.5			

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZ. VEL.	ANN. VEL.

DRLG ASSY: 6-1/8" bit, bit sub, HQ rods.

STRING WT: \_\_\_\_\_ PICKUP WT: \_\_\_\_\_ TORQUE: \_\_\_\_\_

## REMARKS FOR 24 HOURS ENDING AT 0700

Drilled 6-1/8" hole from 865' to 1265' with good returns to surface. Conditioned hole at 1000 for 45 min, 95% mud return. Function tested BOPS.

# Anadarko Petroleum Corporation Geothermal Drilling Report

## PROPRIETARY DATA

WELL NAME: Pueblo Valley Federal 52-22A      DATE: 11/23/93  
 CONTRACTOR: Tonto Drilling Services      RIG #: 002  
 REPORT NO.: 11      RIG DAYS: 11      DRLD. DAYS: 8  
 DEPTH @ 0700: 1325      FT. ROCKBIT 60      CORE \_\_\_\_\_  
 HOURS: DRLD 5      TRPD 4.5      REPAIR 0      OTHER 14.5  
 SUPERVISOR: J.H. Moss      FOREMAN: Mike LaOrange  
 DRILLERS: G. Behunin, C. McCracken

### CASING

9-5/8"	CND:	46
7"	CSG:	332
4-1/2"	CSG:	1322
DATUM: GL[ x ]		KB[ 1 ]

KB = GL + 8'

### MUD

WT: 9.0      VIS: 38-42      W.L.: \_\_\_\_\_      CK: \_\_\_\_\_      pH: \_\_\_\_\_      CHL: \_\_\_\_\_  
 YP: \_\_\_\_\_      PV: \_\_\_\_\_      GELS: \_\_\_\_\_      SND% \_\_\_\_\_      SOL% \_\_\_\_\_      LCM: \_\_\_\_\_      #/BBL: \_\_\_\_\_

FORMATION DRLD: Clayey mudst: 1260 - 1300; muddy siltst: 1300 - 1325.

LOST-CIRCULATION AND FLUID ENTRY ZONES: None.

### TEMPERATURES, °F (MUD-IN, MUD-OUT, BOTTOMHOLE)

DEPTH	IN	OUT	BH	DEPTH	IN	OUT	BH	DEPTH	IN	OUT	BH
1280	90	92	_____	_____	_____	_____	_____	_____	_____	_____	_____
1310	88	90	_____	_____	_____	_____	_____	_____	_____	_____	_____
1325	90	92	_____	_____	_____	_____	_____	_____	_____	_____	_____

### MECHANICAL

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT	HRS	WT	RPM	COND
3RR	6-1/8	ATJ22D46WV	_____	_____	_____	333	1325	992	36.5	_____	_____	_____

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZ. VEL.	ANN. VEL.

DRLG ASSY: \_\_\_\_\_

STRING WT: \_\_\_\_\_      PICKUP WT: \_\_\_\_\_      TORQUE: \_\_\_\_\_

### REMARKS FOR 24 HOURS ENDING AT 0700

Drilled 6-1/8" hole from 1265' to 1281'. Bit balled up with clay. POH and cleaned blue clay from bit. RIH, drilled 6-1/8" hole from 1281' to 1325'. Circulated hole clean, conditioned mud and hole. POH. Rigged up and ran 67 jts, 4-1/2", 11.6# WC75 flush jt csg for a total of 1317'. Hung shoe at 1322', circulated drlg mud for 1/2 hr. With Halliburton, mixed and pumped through shoe at 1322', 72 sks class G cement with 1-to-1 perlite, 40% silca flour, .65% CFR2, 4% gel. Tail slury: 37 sks class G cement, 40% silca flour, .65% CFR3. Displaced with 20.3 bbl water, bumped plug with 400 psi. Good returns to surface throughout job. Thin cement to surface at end of displacement. CIP at 2315. WOC. Function tested pipe rams. Changed pipe rams from 3-1/2" to 4-1/2" before running casing.

# Anadarko Petroleum Corporation Geothermal Drilling Report

## PROPRIETARY DATA

WELL NAME: Pueblo Valley Federal 52-22A      DATE: 11/24/93  
 CONTRACTOR: Tonto Drilling Services      RIG #: 002  
 REPORT NO.: 12      RIG DAYS: 12      DRLD. DAYS: 9  
 DEPTH @ 0700: 1325      FT: ROCKBIT \_\_\_\_\_      CORE \_\_\_\_\_  
 HOURS: DRLD \_\_\_\_\_      TRPD \_\_\_\_\_      REPAIR \_\_\_\_\_      OTHER \_\_\_\_\_  
 SUPERVISOR: J.H. Moss      FOREMAN: Mike LaOrange  
 DRILLERS: G. Behunin, C. McKracken

### CASING

9-5/8"	CND:	46
7"	CSG:	332
4-1/2"	CSG:	1322
DATUM: GLL x   KBI		

KB = GL + 8'

### MUD

WT: \_\_\_\_\_      VIS: \_\_\_\_\_      W.L.: \_\_\_\_\_      CK: \_\_\_\_\_      pH: \_\_\_\_\_      CHL: \_\_\_\_\_  
 YP: \_\_\_\_\_      PV: \_\_\_\_\_      GELS: \_\_\_\_\_      SND% \_\_\_\_\_      SOL% \_\_\_\_\_      LCM: \_\_\_\_\_      #/BBL: \_\_\_\_\_

### FORMATION DRLD: \_\_\_\_\_

### LOST-CIRCULATION AND FLUID ENTRY ZONES: \_\_\_\_\_

### TEMPERATURES, °F (MUD-IN, MUD-OUT, BOTTOMHOLE)

DEPTH	IN	OUT	BH	DEPTH	IN	OUT	BH	DEPTH	IN	OUT	BH

### MECHANICAL

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT	HRS	WT	RPM	COND

  

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZ. VEL.	ANN. VEL.

DRLG ASSY: \_\_\_\_\_

STRING WT: \_\_\_\_\_      PICKUP WT: \_\_\_\_\_      TORQUE: \_\_\_\_\_

### REMARKS FOR 24 HOURS ENDING AT 0700

WOC. Removed BOP stack and 7" wellhead. Installed 4-1/2" casing head. Nippled up BOP stack.  
 Prepare for BOP test. Ambient temp: 0°F.

# Anadarko Petroleum Corporation Geothermal Drilling Report

## PROPRIETARY DATA

WELL NAME: Pueblo Valley Federal 52-22A DATE: 11/25/93  
 CONTRACTOR: Tonto Drilling Services RIG #: 002  
 REPORT NO.: 13 RIG DAYS: 13 DRLD. DAYS: 10  
 DEPTH @ 0700: 1367 FT: ROCKBIT 0 CORE 42  
 HOURS: DRLD 8.5 TRPD 6 REPAIR 0 OTHER 9.5  
 SUPERVISOR: J.H. Moss FOREMAN: Mike LaOrange  
 DRILLERS: G. Behunin, C. McKracken

CASING	
9-5/8"	CND: <u>46</u>
7"	CSG: <u>332</u>
4-1/2"	CSG: <u>1322</u>
DATUM: <u>GL [ x ] KBI [ ]</u>	

KB = GL + 8'

### MUD

WT: 8.3-8.4 VIS: 42-45 W.L.: \_\_\_\_\_ CK: \_\_\_\_\_ pH: \_\_\_\_\_ CHL: \_\_\_\_\_  
 YP: \_\_\_\_\_ PV: \_\_\_\_\_ GELS: \_\_\_\_\_ SND% \_\_\_\_\_ SOL% \_\_\_\_\_ LCM: \_\_\_\_\_ #/BBL: \_\_\_\_\_

FORMATION DRLD: Siltstone.

### LOST-CIRCULATION AND FLUID ENTRY ZONES:

### TEMPERATURES, °F (MUD-IN, MUD-OUT, BOTTOMHOLE)

DEPTH	IN	OUT	BH	DEPTH	IN	OUT	BH	DEPTH	IN	OUT	BH
1325	89	96									
1355	39	83									
1367	38	85									

### MECHANICAL

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT	HRS	WT	RPM	COND
4	3-7/8"	Mill	Tricone	NR1052	Drill out.	Wiper plug	float collar	and guide shoe.				
5	3.90		Diacore			1325		42	8.5			

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZ. VEL.	ANN. VEL.

DRLG ASSY: \_\_\_\_\_

STRING WT: \_\_\_\_\_ PICKUP WT: \_\_\_\_\_ TORQUE: \_\_\_\_\_

### REMARKS FOR 24 HOURS ENDING AT 0700

WOC. **Tested BOPS** with non-toxic anti-freeze at air temperatures down to -4°F. Tested blind rams and pipe rams with 1000 psi for 20 min, no drop in pressure. Tested casing and choke manifold with 1000 psi, lost 60 psi in 21 min. RIH with 3-7/8" rockbit, drilled out wiper plug and float collar at 1300, cement from 1302 to shoe at 1321. Cleaned hole to 1325 and conducted **integrity test at WH pressure of 290 psig**, no pressure drop in 5 min. POH, RU for coring. RIH w/diamond bit and core barrel and cored from 1325 to 1367 with good mud returns. All tests witnessed by Dennis Simontacchi, BLM, and Dennis Olmstead, DOGAMI.

# Anadarko Petroleum Corporation Geothermal Drilling Report

## PROPRIETARY DATA

WELL NAME: Pueblo Valley Federal 52-22A      DATE: 11/26/93  
 CONTRACTOR: Tonto Drilling Services      RIG #: 002  
 REPORT NO.: 14      RIG DAYS: 14      DRLD. DAYS: 11  
 DEPTH @ 0700: 1519      FT. ROCKBIT 0      CORE 152  
 HOURS: DRLD 22      TRPD 0      REPAIR 1.5      OTHER 0.05  
 SUPERVISOR: J.H. Moss      FOREMAN: Mike LaOrange  
 DRILLERS: G. Behunin, C. McCracken

### CASING

9-5/8"	CND:	46
7"	CSG:	332
4-1/2"	CSG:	1322
DATUM: GL [ x ] KBL [ ]		

KB = GL + 8'

### MUD

WT: 8.6      VIS: 42      W.L.: \_\_\_\_\_      CK: \_\_\_\_\_      pH: \_\_\_\_\_      CHL: \_\_\_\_\_  
 YP: \_\_\_\_\_      PV: \_\_\_\_\_      GELS: \_\_\_\_\_      SND% \_\_\_\_\_      SOL% \_\_\_\_\_      LCM: \_\_\_\_\_      #/BBL: \_\_\_\_\_

FORMATION DRLD: Mudstone: 1367 - 1507; Ash tuff: 1507 - 1519.

LOST-CIRCULATION AND FLUID ENTRY ZONES: None.

### TEMPERATURES, °F (MUD-IN, MUD-OUT, BOTTOMHOLE)

DEPTH	IN	OUT	BH	DEPTH	IN	OUT	BH	DEPTH	IN	OUT	BH
1370	38	85		1520	79	88					
1400	39	99									
1430	79	89									
1500	79	85									

### MECHANICAL

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT	HRS	WT	RPM	COND
5	3.90		Diacore			1325		194	30.5			

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZ. VEL.	ANN. VEL.

DRLG ASSY: Core bit, core bbl, HQ rods.

STRING WT: \_\_\_\_\_      PICKUP WT: \_\_\_\_\_      TORQUE: \_\_\_\_\_

### REMARKS FOR 24 HOURS ENDING AT 0700

Diamond cored from 1367 to 1519 with good returns to surface. Function tested pipe rams.

CO<sub>2</sub>: 480 - 220 ppm.      H<sub>2</sub>S: 0 ppm.

# Anadarko Petroleum Corporation Geothermal Drilling Report

## PROPRIETARY DATA

WELL NAME: Pueblo Valley Federal 52-22A DATE: 11/27/93  
 CONTRACTOR: Tonto Drilling Services RIG #: 002  
 REPORT NO.: 15 RIG DAYS: 15 DRLD. DAYS: 12  
 DEPTH @ 0700: 1723 FT. ROCKBIT 0 CORE 206  
 HOURS: DRLD 22 TRPD 0 REPAIR 0 OTHER 2  
 SUPERVISOR: J.H. Moss FOREMAN: Mike LaOrange  
 DRILLERS: G. Behunin, C. McCracken

CASING	
9-5/8"	CND: <u>46</u>
7"	CSG: <u>332</u>
4-1/2"	CSG: <u>1322</u>
DATUM: <u>GL</u> <u>x</u> <u>L</u> <u>KBL</u> <u>L</u>	
KB = GL + 8'	

### MUD

WT: 9.1-8.8 VIS: 46-42 W.L.: \_\_\_\_\_ CK: \_\_\_\_\_ pH: \_\_\_\_\_ CHL: \_\_\_\_\_  
 YP: \_\_\_\_\_ PV: \_\_\_\_\_ GELS: \_\_\_\_\_ SND% \_\_\_\_\_ SOL% \_\_\_\_\_ LCM: \_\_\_\_\_ #/BBL: \_\_\_\_\_

FORMATION DRLD: Ash tuff: 1519 - 1523; Lithic tuff: 1523 - 1572; Ash tuf: 1572 - 1628;  
Ash: 1628 - 1648; Ashy siltstone: 1648 - 1723.

LOST-CIRCULATION AND FLUID ENTRY ZONES: None.

### TEMPERATURES, °F (MUD-IN, MUD-OUT, BOTTOMHOLE)

DEPTH	IN	OUT	BH	DEPTH	IN	OUT	BH	DEPTH	IN	OUT	BH
1519	79	88		1640	90	111					
1550	93	100		1670	45	88					
1580	88	102		1700	48	99					
1610	92	104		1723	62	96					

### MECHANICAL

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT	HRS	WT	RPM	COND
5	3.90	Diamond	Core		1325		398	52.5				

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZ. VEL.	ANN. VEL.

DRLG ASSY: Core bit, core bbl, HQ rods.

STRING WT: \_\_\_\_\_ PICKUP WT: \_\_\_\_\_ TORQUE: \_\_\_\_\_

### REMARKS FOR 24 HOURS ENDING AT 0700

Diamond cored from 1519 to 1723 with good returns to surface. Function tested pipe rams.

CO<sub>2</sub> 280 - 1960 ppm. H<sub>2</sub>S: 0 ppm.





# Anadarko Petroleum Corporation Geothermal Drilling Report

## PROPRIETARY DATA

WELL NAME: Pueblo Valley Federal 52-22A      DATE: 11/29/93  
 CONTRACTOR: Tonto Drilling Services      RIG #: 002  
 REPORT NO.: 17      RIG DAYS: 17      DRLD. DAYS: 14  
 DEPTH @ 0700: 2062      FT: ROCKBIT \_\_\_\_\_      CORE: 169  
 HOURS: DRLD 22      TRPD 0      REPAIR 0      OTHER 2  
 SUPERVISOR: J.H. Moss      FOREMAN: Mike LaOrange  
 DRILLERS: G. Behunin, C. McCracken

## CASING

9-5/8"	CND:	46
7"	CSG:	332
4-1/2"	CSG:	1322
DATUM: GL [x] KBI [ ]		

KB = GL + 8'

## MUD

WT: 8.8-8.9      VIS: 42-44      W.L.: \_\_\_\_\_      CK: \_\_\_\_\_      pH: \_\_\_\_\_      CHL: \_\_\_\_\_  
 YP: \_\_\_\_\_      PV: \_\_\_\_\_      GELS: \_\_\_\_\_      SND% \_\_\_\_\_      SOL% \_\_\_\_\_      LCM: \_\_\_\_\_      #/BBL: \_\_\_\_\_

FORMATION DRLD: Ashy siltstone with interbedded sandstone and ash.

LOST-CIRCULATION AND FLUID ENTRY ZONES: None.

## TEMPERATURES, °F (MUD-IN, MUD-OUT, BOTTOMHOLE)

DEPTH	IN	OUT	BH	DEPTH	IN	OUT	BH	DEPTH	IN	OUT	BH
1893	105	107		2010	89	104	240				
1920	107	114	240	2040	88	107					
1950	86	89		2062	90	104	248				
1980	90	104	230								

## MECHANICAL

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT	HRS	WT	RPM	COND
5	3.90	Diamond Core				1325						

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZ. VEL.	ANN. VEL.

DRLG ASSY: Diamond bit, core bbl, HQ rods.

STRING WT: \_\_\_\_\_      PICKUP WT: \_\_\_\_\_      TORQUE: \_\_\_\_\_

## REMARKS FOR 24 HOURS ENDING AT 0700

Diamond cored from 1893 to 2062 with good returns to surface. Function tested pipe rams.

CO<sub>2</sub>: 370 - 1830 ppm.      H<sub>2</sub>S: 0 ppm.

# Anadarko Petroleum Corporation Geothermal Drilling Report

## PROPRIETARY DATA

WELL NAME: Pueblo Valley Federal 52-22A      DATE: 11/30/93  
 CONTRACTOR: Tonto Drilling Services      RIG #: 002  
 REPORT NO.: 18      RIG DAYS: 18      DRLD. DAYS: 15  
 DEPTH @ 0700: 2203      FT: ROCKBIT \_\_\_\_\_      CORE 141  
 HOURS: DRLD 22      TRPD 0      REPAIR 1      OTHER 1  
 SUPERVISOR: J.H. Moss      FOREMAN: Mike LaOrange  
 DRILLERS: G. Behunin, C. McKracken

## CASING

9-5/8"	CND:	46
7"	CSG:	332
4-1/2"	CSG:	1322
DATUM: GL [ x ] KBI [ ]		
KB = GL + 8'		

## MUD

WT: 8.5      VIS: 52      W.L.: 10      CK: 1/32      pH: 8.5      CHL: 500  
 YP: 14      PV: 12      GELS: 3-7      SND% tr      SOL% 4      LCM: \_\_\_\_\_      #/BBL: \_\_\_\_\_

**FORMATION DRLD:** Ashy siltst: 2062 - 2067; Xtal ash tuff, unwelded: 2067 - 2133;  
Ash tuff: 2133 - 2187; Xtal ash tuff, unwelded: 2187 - 2191; Xtal lith tuff, welded and  
frac: 2191 - 2203.

**LOST-CIRCULATION AND FLUID ENTRY ZONES:** Partial circulation loss at 2193, complete.  
circulation loss in frac at 2195.

## TEMPERATURES, °F (MUD-IN, MUD-OUT, BOTTOMHOLE)

DEPTH	IN	OUT	BH	DEPTH	IN	OUT	BH	DEPTH	IN	OUT	BH
2062	90	104		2180	85	105	266				
2090	92	105	250	2193	62	90	260				
2120	90	113		2203	80						
2150	87	118	252								

## MECHANICAL

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT	HRS	WT	RPM	COND
5	3.90	Diamond	Core			1325						

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZ. VEL.	ANN. VEL.

DRLG ASSY: Diamond core bit. Core bbl. HQ rods.

STRING WT: \_\_\_\_\_ PICKUP WT: \_\_\_\_\_ TORQUE: \_\_\_\_\_

## REMARKS FOR 24 HOURS ENDING AT 0700

Diamond cored from 2062 to 2193 with good returns to surface. Cored from 2193 to 2195 with  
partial returns. Cored from 2195 - 2203 with **no returns** to surface. Function tested pipe rams.

CO<sub>2</sub>: 450 - 1920 ppm. H<sub>2</sub>S: 0 ppm.

# Anadarko Petroleum Corporation Geothermal Drilling Report

## PROPRIETARY DATA

WELL NAME: Pueblo Valley Federal 52-22A DATE: 12/01/93  
 CONTRACTOR: Tonto Drilling Services RIG #: 002  
 REPORT NO.: 19 RIG DAYS: 19 DRLD. DAYS: 16  
 DEPTH @ 0700: 2263 FT: ROCKBIT \_\_\_\_\_ CORE 60  
 HOURS: DRLD 16.5 TRPD 6 REPAIR 0 OTHER 1.5  
 SUPERVISOR: J.H. Moss FOREMAN: Mike LaOrange  
 DRILLERS: G. Behunin, C. McKracken

### CASING

9-5/8"	CND:	<u>46</u>
7"	CSG:	<u>332</u>
4-1/2"	CSG:	<u>1322</u>
_____	_____:	_____
_____	_____:	_____
DATUM: GL [ <input checked="" type="checkbox"/> ]		KB [ <input type="checkbox"/> ]

KB = GL + 8'

### MUD

WT: 8.6-8.8 VIS: 74 W.L.: 9.6 CK: 1/32 pH: 8.5 CHL: 450  
 YP: 16 PV: 12 GELS: 3-8 SND% tr SOL% 96 LCM: \_\_\_\_\_ #/BBL: \_\_\_\_\_

FORMATION DRLD: Xtal lithic ash tuff, welded and fracd: 2203 - 2247; Ash tuff, welded: 2247 - 2263  
 Open fracs: 2203 - 2213, 2229 - 2233.

LOST-CIRCULATION AND FLUID ENTRY ZONES: No mud return below 2195.

### TEMPERATURES, °F (MUD-IN, MUD-OUT, BOTTOMHOLE)

DEPTH	IN	OUT	BH	DEPTH	IN	OUT	BH	DEPTH	IN	OUT	BH
<u>2231</u>	<u>-</u>	<u>-</u>	<u>194</u>	_____	_____	_____	_____	_____	_____	_____	_____
<u>2251</u>	<u>-</u>	<u>-</u>	<u>222</u>	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____

### MECHANICAL

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT	HRS	WT	RPM	COND
<u>5</u>	<u>3.90</u>	<u>Diamond</u>	<u>Core</u>	_____	_____	<u>1325</u>	_____	<u>878</u>	<u>118.5</u>	_____	_____	<u>Damaged</u>
<u>6</u>	<u>3.90</u>	<u>Diamond</u>	<u>Core</u>	<u>L23059</u>	_____	<u>2202</u>	<u>2263</u>	<u>41</u>	<u>16.5</u>	_____	_____	_____

PUMP      LINER      STROKE      SPM      GPM      PSI      TOTAL GPM      NOZ. VEL.      ANN. VEL.

DRLG ASSY: Diamond core bit, core bbl. HQ rods.

STRING WT: \_\_\_\_\_ PICKUP WT: \_\_\_\_\_ TORQUE: \_\_\_\_\_

### REMARKS FOR 24 HOURS ENDING AT 0700

Trip for new bit. Worked pipe rams, blind rams, and Hydrill while out of hole. Diamond cored from 2203 to 2263 with **no returns** to surface. Coring with high torque. Trip for new bit.

CO<sub>2</sub>: 420 - 1920 ppm. H<sub>2</sub>S: 0 ppm.

# Anadarko Petroleum Corporation Geothermal Drilling Report

## PROPRIETARY DATA

### CASING

WELL NAME: Pueblo Valley Federal 52-22A      DATE: 12/02/93  
 CONTRACTOR: Tonto Drilling Services      RIG #: 002  
 REPORT NO.: 20      RIG DAYS: 20      DRLD. DAYS: 17  
 DEPTH @ 0700: 2323      FT: ROCKBIT 2      CORE 0  
 HOURS: DRLD \_\_\_\_\_ TRPD \_\_\_\_\_ REPAIR \_\_\_\_\_ OTHER \_\_\_\_\_  
 SUPERVISOR: J.H. Moss      FOREMAN: Mike LaOrange  
 DRILLERS: G. Behunin, C. McCracken

9-5/8"	CND:	46
7"	CSG:	332
4-1/2"	CSG:	1322
DATUM: GL   KBL		
KB = GL + 8'		

### MUD

WT: 8.5      VIS: 65      W.L.: 9.2      CK: 1/32      pH: 8.5      CHL: 450  
 YP: 12      PV: 12      GELS: 3-7      SND% tr      SOL% \_\_\_\_\_      LCM: \_\_\_\_\_      #/BBL: \_\_\_\_\_

FORMATION DRLD: Bred ash tuff: 2259 - 2264; Bred xtal lithic tuff: 2264 - 2323.  
Fault zone from 2264 - 2303 w/boxwork bx. Open frac at 2307.

LOST-CIRCULATION AND FLUID ENTRY ZONES: No mud return below 2195.

### TEMPERATURES, °F (MUD-IN, MUD-OUT, BOTTOMHOLE)

DEPTH	IN	OUT	BH	DEPTH	IN	OUT	BH	DEPTH	IN	OUT	BH
2265	-	-	269								
2295	-	-	210								
2310	-	-	206								
2317	-	-	225								

### MECHANICAL

BIT #	SIZE	MAKE	TYPE	SER# NO.	JETS	IN	OUT	FT	HRS	WT	RPM	COND
7	3.90	HO 9	Diamond	3q 31975	-	2263		60	21			

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZ. VEL.	ANN. VEL.

DRLG ASSY: Diamond core bit, core bbl. HQ rods.

STRING WT: \_\_\_\_\_ PICKUP WT: \_\_\_\_\_ TORQUE: \_\_\_\_\_

### REMARKS FOR 24 HOURS ENDING AT 0700

Closed blind rams while out of hole. Ran in hole with new bit. Daimond cored from 2263 - 2323, formation very broken. Hole was caving from 2286 - 2302. Cleaned out hole, drilling ok.

CO<sub>2</sub>: 320 - 2060 ppm. H<sub>2</sub>S: 0 ppm.

# Anadarko Petroleum Corporation Geothermal Drilling Report

## PROPRIETARY DATA

WELL NAME: Pueblo Valley Federal 52-22A      DATE: 12/03/93  
 CONTRACTOR: Tonto Drilling Services      RIG #: 002  
 REPORT NO.: 21      RIG DAYS: 21      DRLD. DAYS: 18  
 DEPTH @ 0700: 2423      FT: ROCKBIT 0      CORE 100  
 HOURS: DRLD 22      TRPD 0      REPAIR 0      OTHER 2  
 SUPERVISOR: J.H. Moss      FOREMAN: Mike LaOrange  
 DRILLERS: G. Behunin, C. McCracken

### CASING

9-5/8"	CND:	46
7"	CSG:	332
4-1/2"	CSG:	1322
DATUM: GLI x ] KBI ]		

KB = GL + 8'

### MUD

WT: 8.5      VIS: 65      W.L.: 9.6      CK: 1/32      pH: 8.5      CHL: 500  
 YP: 16      PV: 12      GELS: 3-9      SND% tr      SOL% 3      LCM: \_\_\_\_\_      #/BBL: \_\_\_\_\_

FORMATION DRLD: Welded xtal tuff: 2323 - 2338; volcanic bx: 2338 - 2415; xtal tuff: 2415 - 2423.

LOST-CIRCULATION AND FLUID ENTRY ZONES: No mud return below 2195.

### TEMPERATURES, °F (MUD-IN, MUD-OUT, BOTTOMHOLE)

DEPTH	IN	OUT	BH	DEPTH	IN	OUT	BH	DEPTH	IN	OUT	BH
2323	42			2423	46			2323			185
2350	44							2373			192
2380	45							2393			190
2410	46							2413			212

### MECHANICAL

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT	HRS	WT	RPM	COND
7	3.90	HO 9	diamond	3 Q31975		2263		160	43			

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZ. VEL.	ANN. VEL.

DRLG ASSY: Diamond core bit core bbl. HQ rods.

STRING WT: \_\_\_\_\_ PICKUP WT: \_\_\_\_\_ TORQUE: \_\_\_\_\_

### REMARKS FOR 24 HOURS ENDING AT 0700

Diamond cored from 2323 to 2423 with no returns to surface. Function tested pipe rams.

CO<sub>2</sub>: 500 - 2180 ppm.      H<sub>2</sub>S: 0 ppm.

# Anadarko Petroleum Corporation Geothermal Drilling Report

## PROPRIETARY DATA

WELL NAME: Pueblo Valley Federal 52-22A      DATE: 12/04/93  
 CONTRACTOR: Tonto Drilling Services      RIG #: 002  
 REPORT NO.: 22      RIG DAYS: 22      DRLD. DAYS: 19  
 DEPTH @ 0700: 2520 TD      FT: ROCKBIT \_\_\_\_\_      CORE 97  
 HOURS: DRLD 15      TRPD 5      REPAIR 0      OTHER 4  
 SUPERVISOR: J.H. Moss      FOREMAN: Mike LaOrange  
 DRILLERS: G. Behunin, C. McCracken

### CASING

9-5/8"	CND:	46
7"	CSG:	332
4-1/2"	CSG:	1322
DATUM: GL [ x ] KBL [ ]		
KB = GL + 8'		

### MUD

WT: 8.5-8.8      VIS: 52      W.L.: 10.4      CK: 1-32      pH: 8.5      CHL: 400  
 YP: 13      PV: 11      GELS: 2-5      SND% tr      SOL% 3      LCM: 0      #/BBL: \_\_\_\_\_

FORMATION DRLD: Xtal tuff: 2423 - 2465; tuff bx: 2465 - 2488; volcanic bx: 2488 - 2520.

### LOST-CIRCULATION AND FLUID ENTRY ZONES:

### TEMPERATURES, °F (MUD-IN, MUD-OUT, BOTTOMHOLE)

DEPTH	IN	OUT	BH	DEPTH	IN	OUT	BH	DEPTH	IN	OUT	BH
2433			230	2511			210				
2453			212								
2470			212								
2491			227								

### MECHANICAL

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT	HRS	WT	RPM	COND
7	3.90	HO 9	Diamond	3 Q31975		2263	2520	257	58			

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZ. VEL.	ANN. VEL.

DRLG ASSY: Diamond bit, core bbl, HQ rods.

STRING WT: \_\_\_\_\_ PICKUP WT: \_\_\_\_\_ TORQUE: \_\_\_\_\_

### REMARKS FOR 24 HOURS ENDING AT 0700

Diamond cored from 2423 to **2520** with no returns to surface. Function tested pipe rams.  
 Pulled bit to 2280 worked back to 2350. Hole trying to bridge. Worked pipe from 2350 to 2280, five times, some improvement each time. Ran bit to 2420. POH. **Well trying to flow with bit at 1750.**  
 Pumped 50 gal **8.8 ppg mud**. Continued out of hole.

CO<sub>2</sub>: 580 - 1960 ppm. H<sub>2</sub>S: 0 ppm.

# Anadarko Petroleum Corporation Geothermal Drilling Report

## PROPRIETARY DATA

WELL NAME: Pueblo Valley Federal 52-22A      DATE: 12/05/93  
 CONTRACTOR: Tonto Drilling Services      RIG #: 002  
 REPORT NO.: 23      RIG DAYS: 23      DRLD. DAYS: 19  
 DEPTH @ 0700: 2520 TD      FT: ROCKBIT 0      CORE 0  
 HOURS: DRLD      TRPD 2      REPAIR 0      OTHER 22  
 SUPERVISOR: J.H. Moss      FOREMAN: Mike LaOrange  
 DRILLERS: G. Behunin, C. McKracken

### CASING

9-5/8"	CND:	46
7"	CSG:	332
4-1/2"	CSG:	1322
DATUM: GL [ x ]		KBI [ ]

KB = GL + 8'

### MUD

WT: \_\_\_\_\_ VIS: \_\_\_\_\_ W.L.: \_\_\_\_\_ CK: \_\_\_\_\_ pH: \_\_\_\_\_ CHL: \_\_\_\_\_  
 YP: \_\_\_\_\_ PV: \_\_\_\_\_ GELS: \_\_\_\_\_ SND% \_\_\_\_\_ SOL% \_\_\_\_\_ LCM: \_\_\_\_\_ #/BBL: \_\_\_\_\_

### FORMATION DRLD:

### LOST-CIRCULATION AND FLUID ENTRY ZONES:

### TEMPERATURES, °F (MUD-IN, MUD-OUT, BOTTOMHOLE)

DEPTH	IN	OUT	BH	DEPTH	IN	OUT	BH	DEPTH	IN	OUT	BH

### MECHANICAL

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT	HRS	WT	RPM	COND

  

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZ. VEL.	ANN. VEL.

DRLG ASSY: \_\_\_\_\_

STRING WT: \_\_\_\_\_ PICKUP WT: \_\_\_\_\_ TORQUE: \_\_\_\_\_

### REMARKS FOR 24 HOURS ENDING AT 0700

Finished pulling out of hole. Stood pipe in derrick. **Rigged up for flow test.** Nipped down BOP stack. Opened well for pretest flow at 1830. Flowed well for 15 min. Produced 1700 gal water. Flow line temp: 274°. Shut in wellhead press: 75 psi. Ran temp survey with Amerada and pressure survey with capillary tubing. **Maximum downhole temp** prior to pre-test flow: **305°F.**

# Anadarko Petroleum Corporation Geothermal Drilling Report

## PROPRIETARY DATA

WELL NAME: Pueblo Valley Federal 52-22A      DATE: 12/06/93  
 CONTRACTOR: Tonto Drilling Services      RIG #: 002  
 REPORT NO.: 24      RIG DAYS: 24      DRLD. DAYS: 19  
 DEPTH @ 0700: 2520 TD      FT: ROCKBIT 0      CORE 0  
 HOURS: DRLD 0      TRPD 0      REPAIR 0      OTHER 24  
 SUPERVISOR: J.H. Moss      FOREMAN: Mike LaOrange  
 DRILLERS: G. Behunin, C. McCracken

CASING	
9-5/8"	CND: <u>46</u>
7"	CSG: <u>332</u>
4-1/2"	CSG: <u>1322</u>
DATUM: GL [ x ]    KBI [ ]	
KB = GL + 8'	

### MUD

WT: \_\_\_\_\_      VIS: \_\_\_\_\_      W.L.: \_\_\_\_\_      CK: \_\_\_\_\_      pH: \_\_\_\_\_      CHL: \_\_\_\_\_  
 YP: \_\_\_\_\_      PV: \_\_\_\_\_      GELS: \_\_\_\_\_      SND% \_\_\_\_\_      SOL% \_\_\_\_\_      LCM: \_\_\_\_\_      #/BBL: \_\_\_\_\_

### FORMATION DRLD: \_\_\_\_\_

### LOST-CIRCULATION AND FLUID ENTRY ZONES: \_\_\_\_\_

### TEMPERATURES, °F (MUD-IN, MUD-OUT, BOTTOMHOLE)

DEPTH	IN	OUT	BH	DEPTH	IN	OUT	BH	DEPTH	IN	OUT	BH

### MECHANICAL

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT	HRS	WT	RPM	COND

  

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZ. VEL.	ANN. VEL.

DRLG ASSY: \_\_\_\_\_

STRING WT: \_\_\_\_\_      PICKUP WT: \_\_\_\_\_      TORQUE: \_\_\_\_\_

### REMARKS FOR 24 HOURS ENDING AT 0700

On bank with drill rods. Check test equipment before flow test. RIH w/capillary tubing to 2150.  
 Opened well at 1015 for 4 hr test. Initial flow rate: 240 GPM (wtr only). Final flow  
 rate: 173 GPM. FBHP: 939.7 PSIA. FWHP: 50 PSIG. SIBHP: 942.5 PSIA. SIWHP: 100 PSIG.  
 FWHT: 290°F. Rigged down test equipment. Layed down drill pipe.







