

SUNCOR DEV 1-2 SUNCOR DEV
SE SW 2-2N-1W (908)

COUNTY MARICOPA AREA LUKE SALT LEASE NO. FEE

WELL NAME SUNCOR DEVELOPMENT #1-2 SUNCOR

LOCATION SE SW SEC 2 TWP 2 N RANGE 1 W FOOTAGE 820' FSL & 2065' FWL

ELEV 1080' GR 1098' KB SPUD DATE 2/23/01 STATUS P & A TOTAL DEPTH 5135'
 COMP. DATE 3/16/01

CONTRACTOR NABORS DRILLING USA, BAKERSFIELD CA

CASING IZE	DEPTH	CEMENT	LINER SIZE & DEPTH	DRILLED BY ROTARY
24"	81'	57sx		5135'
12 1/4"	1118'	680sx		

DRILLED BY CABLE TOOL NONE
 PRODUCTIVE RESERVOIR N/A
 INITIAL PRODUCTION N/A

FORMATION TOPS	DEPTHS	SOURCE		REMARKS
		L.L.	E.L.	
VALLEY FILL				
GYPSUM/ANHYDRITE	864'		X	
SALT	872'		X	HALITE SALT TO TD 5135'

ELECTRIC LOGS	PERFORATED INTERVALS	PROD. INTERVALS	SAMPLE LOG
COMP NEUTRON - GR	NONE	NONE	SAMPLE DESCRP. _____
TRIPLE LITHO DENSITY			SAMPLE NO. _____
HIGHLY AZIMUTH LATEROLOG			CORE ANALYSIS _____
CALIPER			DSTs <u>NONE</u>
DIPLOE SONIC			

REMARKS DRILLED AS STRTIGRAPHIC TEST TO CORE SELECTED INTERVALS
OF THE LUKE SALT DEPOSIT

APP. TO PLUG YES
 PLUGGING REP. YES
 COMP. REPORT YES

WATER WELL ACCEPTED BY _____

BOND CO. DEVELOPERS INSURANCE CO BOND NO. 513662C
 DATE NOV 30, 2000
 BOND AMT. \$ 10,000.00 CANCELLED _____ ORGANIZATION REPORT YES
 FILING RECEIPT 3109 LOC. PLAT YES WELL BOOK YES PLAT BOOK YES
 API NO. 02-013-20026 DATE ISSUED 12-20-00 DEDICATION NOT APPLICABLE

PERMIT NUMBER 908

WELL COMPLETION OR RECOMPLETION REPORT AND WELL LOG

DESIGNATE TYPE OF COMPLETION							
New Well <input type="checkbox"/>	Temporary Abandon <input type="checkbox"/>	Work-Over <input type="checkbox"/>	Deepen <input type="checkbox"/>	Plug Back <input type="checkbox"/>	Same Reservoir <input type="checkbox"/>	Different Reservoir <input type="checkbox"/>	Oil <input type="checkbox"/> Gas <input type="checkbox"/> Dry <input checked="" type="checkbox"/>
DESCRIPTION OF WELL AND LEASE							
Operator Suncor Development Company				Address & Phone No. 3838 N. Central Ave. Ste. 1500			
Federal, State or Indian Lease Number or name of lessor if fee lease Suncor Development Company				Well Number 1-2		Field & Reservoir Wildcat	
Location 2065' FWL & 820' FSL				County Maricopa County, AZ			
Sec. Township-Range or Block & Survey Sec. 2, T2N, R1W							
Date spudded 2/23/01		Date total depth reached 3/16/01		Date completed, ready to produce		Elevation (DF, KB, RT or Gr.) 1080'gd/1098'KB	Elevation of casing head flange feet
Total depth 5135'		P.B.T.D.		Single, dual, or triple completion?		If this is a dual or triple completion furnish separate report for each completion	
Producing interval(s) for this completion				Rotary tools used (interval) All		Cable tools used (interval)	
Was this well directionally drilled? No		Was directional survey made? Yes		Was copy of directional survey filed?		Date filed 3/23/01	
Type of electric or other logs run (check logs filed with the Commission) Diploe Sonic/GR/HALS/TLD/MCFL/CNL							
CASING RECORD							
Casing (report all strings set in well - conductor, surface, intermediate, producing, etc.)							
Purpose	Size hole drilled	Size casing set	Weight (lb./ft.)	Depth set	Sacks cement	Amount pulled	
Conductor	30'	24'	-	81	57	-0-	
Surface	12 1/4"	9 5/8"	36	1,118'	680	-	
TUBING RECORD				LINER RECORD			
Size in.	Depth set ft.	Packer set at ft.	Size in.	Top ft.	Bottom ft.	Sacks cement	Screen (ft.)
PERFORATION RECORD				ACID, SHOT, FRACTURE, CEMENT SQUEEZE RECORD			
Number per ft.	Size & type	Depth interval		Amount & kind of material used		Depth interval	
INITIAL PRODUCTION							
Date of first production		Producing method (indicate if flowing, gas lift or pumping - if pumping, show size & type of pump)					
Date of test	Hours tested	Choke size	Oil prod. during test bbls.	Gas prod. during test MCF	Water prod. during test bbls.	Oil gravity °API	
Tubing pressure	Casing pressure	Calculated rate of production per 24 hrs.	Oil bbls.	Gas MCF	Water bbls.	Gas - oil ratio	
Disposition of gas (state whether vented, used for fuel or sold)							
CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the <u>Drilling Engineer</u> of the <u>Brammer Engineering, Inc.</u> (company), and that I am authorized by said company to make this report; and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to the best of my knowledge.							
Date <u>3-22-01</u>			Signature <i>James A. Brammer</i>				
Permit No. <u>908</u>				STATE OF ARIZONA OIL & GAS CONSERVATION COMMISSION Well Completion or Recompletion Report and Well Log File One Copy			
Mail completed form to: Oil and Gas Program Administrator Arizona Geological Survey 419 W. Congress, #100 Tucson, AZ 85701				Form No. 4			

PLUGGING RECORD

602/285-6872

Operator Suncor Development Company	Address & Phone number 3838 N. Central Ave. Ste. 1500, Maricopa, AZ
---	---

Federal, State, or Indian Lease No. or lessor's name if fee lease Suncor Development Company	Well No. 1-2	Field & Reservoir Wildcat
--	------------------------	---

Location of Well 2065' FWL & 820' FSL	Sec - Twp - Rge 2-2N-1W	County Maricopa
---	-----------------------------------	---------------------------

Application to drill this well was filed in name of Suncor Development Company	Has this well ever produced oil or gas NO	Character of well at completion (Initial production):		
--	---	--	--	--

Date plugged 3/16/01	Total depth 5135	Amount well producing when plugged:		Dry? Yes
--------------------------------	----------------------------	--	--	--------------------

Name of each formation containing oil or gas. Indicate which formation open to wellbore at time of plugging	Fluid content of each formation	Depth interval of each formation	Size, kind & depth of plugs used. Indicate zones squeeze cemented, giving amount of cement
Salt	None		118 sx cmt 1,220' to 1,000'
Valley Fill	Freshwater		102 sx cement 0-220'

CASING RECORD

Size pipe	Put in well (ft.)	Pulled out (ft.)	Left in well (ft.)	Give depth and method of parting casing (shot, etc.)	Packers and shoes
9 5/8"	1118'	0'	1118'	-	1118' - Shoe

Was well filled with heavy drilling mud, according to regulations? No	Indicate deepest formation containing fresh water
---	--

NAME AND ADDRESSES OF ADJACENT LEASE OPERATORS OR OWNERS OF THE SURFACE		
Name	Address	Direction from this well

In addition to other information required on this form, if this well was plugged back for use as a fresh water well, give all pertinent details of plugging operations to base of fresh water sand, perforated interval to fresh water sand, name and address of surface owner, and attach letter from surface owner authorizing completion of this well as a water well and agreeing to assume full liability for any subsequent plugging which might be required.

Use reverse side for additional detail.

CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the Drilling Engineer of the Brammer Engineering, Company (company) and that I am authorized by said company to make this report; and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to the best of my knowledge.

Date 3-22-01 Signature [Signature]

Permit No. <u>00908</u> <small>Mail completed form to: Oil and Gas Program Administrator Arizona Geological Survey 418 W. Congress, #100 Tucson, AZ 85701</small>	STATE OF ARIZONA OIL & GAS CONSERVATION COMMISSION Plugging Record File One Copy Form No. 10
--	--

APPLICATION TO PLUG AND ABANDON

3838 N. Central Ave., STE. 1500

FIELD Wildcat

OPERATOR Suncor Development Co. ADDRESS & PHONE Phoenix, AZ 85012

LEASE NUMBER(Lessor's name if fee) Suncor Development Co. WELL NO. 1-2

LOCATION 2065' FWL & 820' FSL of Section 2, Township 2N, Range 1W

Maricopa County, AZ

TYPE OF WELL Stratigraphic Test TOTAL DEPTH 5135'
(Oil, Gas, or Dry)

ALLOWABLE (If Assigned) NA

LAST PRODUCTION TEST OIL _____ (Bbls.) WATER _____ (Bbls.)

GAS _____ (MCF) DATE OF TEST _____

PRODUCING HORIZON _____ PRODUCING FROM _____ TO _____

1. COMPLETE CASING RECORD

1,118' 9 5/8" 36# J-55 ST&C

2. FULL DETAILS OF PROPOSED PLAN OF WORK

Displace mud from 1280' to surface w/freshwater. Set balanced cement plug from 1220' to 1000' w/118 SX cement. Set balanced cement plug from 220' to surface w/102 sx cmt.

Cement: Standard cement + 3/10% CIR + 18% Salt + 3/10% D Air 30000 + 2.5/10% HR5, wt-16.5 ppg, Yld-1.12 ft 3/sk.

DATE COMMENCING OPERATIONS 3/15/01

NAME OF PERSON DOING WORK James A. Lingafelter ADDRESS 333 Texas St. Suite 1425

James A. Lingafelter
Signature

Drilling Engineer

Title
333 Texas Street, Ste. 1425, Shreveport, LA. 71101-5323

Address

3-22-01
Date

Mail two copies of completed form to:
Oil and Gas Program Administrator
Arizona Geological Survey
418 W. Congress, #100
Tucson, AZ 85701

Date Approved Verbally 3-14-01
STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
By Steven L. Rainey

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
Application to Plug and Abandon
File Two Copies
Form No. 9

Permit No. 00908

STATE OF ARIZONA
OIL AND GAS CONSERVATION COMMISSION

REPORT OF WATER ENCOUNTERED DURING DRILLING

1. Well name and number: Suncor Development Company #1-2

API number: 0201320026

2. Well Location: QQ _____ Section 2 Township 2N Range 1W County Maricopa

3. Well operator: Brammer Engineering, Inc.

Address: 333 Texas Street, Ste. 1425

Shreveport, LA 93308

Phone: 318/ 429-2345

4. Drilling contractor: Nabors Drilling USA Inc.

Address: 3919 Rosedale Highway

Bakersfield, CA 93308

Phone: 602-285-6872

5. Water encountered (attach additional pages as needed):

DEPTH		VOLUME (FLOW RATE OR HEAD)	QUALITY (FRESH OR SALTY)
FROM	TO		
		None	

6. Formation tops: Valley fill _____ 0 _____ 850'

Anhydrite _____ 850' _____ 870'

Top of Salt _____ 870' _____ _____

If an analysis has been made of the water encountered, please attach a copy of the report to this form.

I hereby certify that this report is true and complete to the best of my knowledge. Date: 3-22-01

Name & Signature: James A. Longobello Title: Drilling Engineer

**DIRECTIONAL DRILLING
&
CORE SUMMARY
REPORT**

For
Brammer Eng
Well: Suncore #1-2
Maricopa

3/16/01

BAKER HUGHES INTEQ
6117 Schirra Court
Bakersfield, California
(661) 834-9654
Fax (661) 834-2450

Suncor #1-2

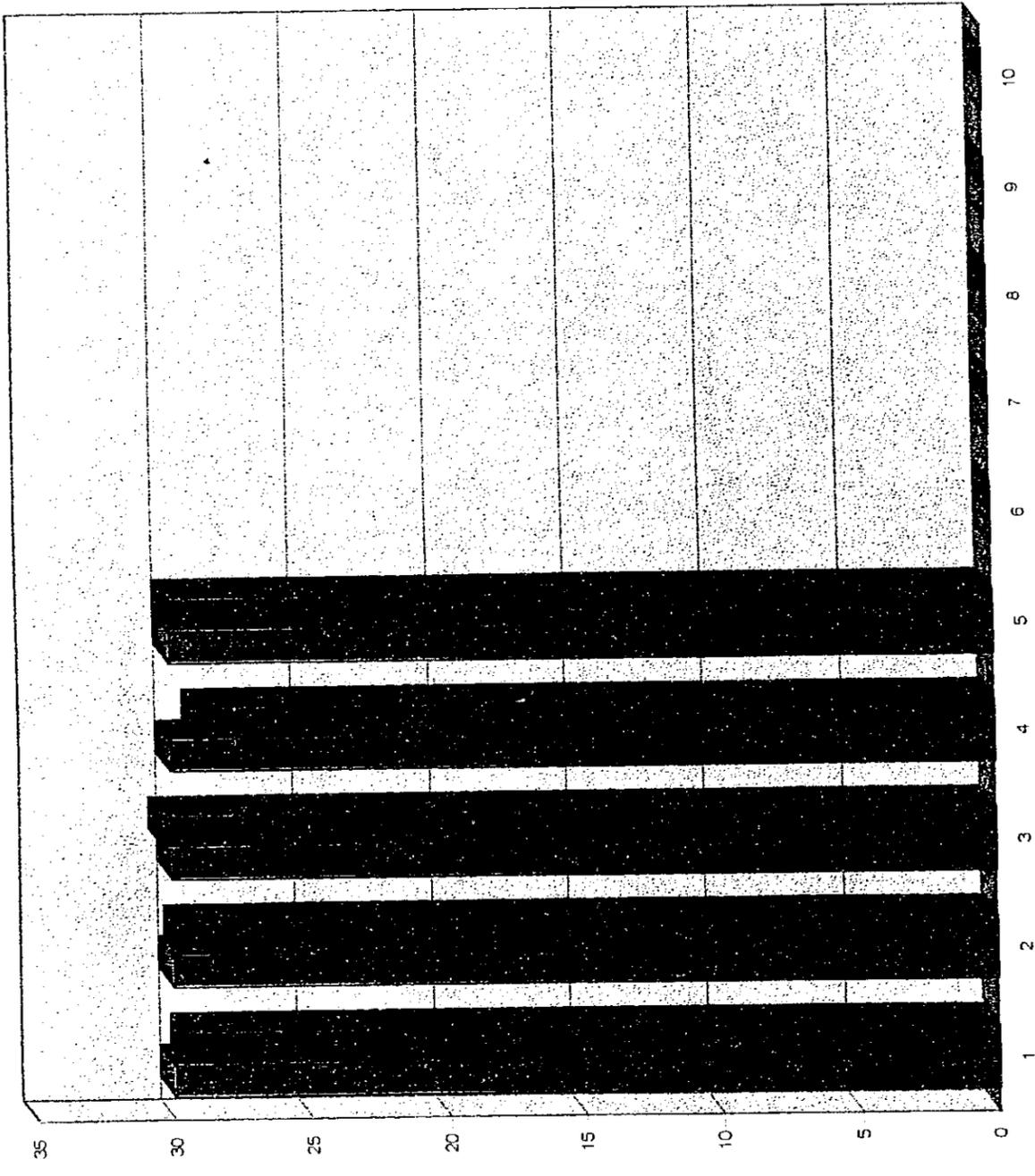


Fig. Cored
Core Rec

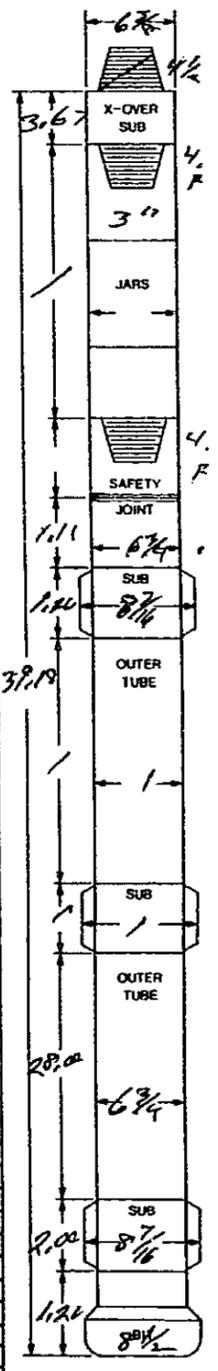


WELL INFORMATION
 Company BRAMMER ENGINEER
 Contractor BRAMMER ENGINEER Reg No 164
 Well Name & Number SUNCOR #1-2
 Field WILDCAT
 County/Area MARKOFF Platform/Pad _____
 State/Prov./Country AZ Sec/LSD 2
 Hole Size 8 7/8 Tr/Block 2N
 Hole Angle _____ RG/Subblock 1W
 Formation Name _____
 Lithology _____
 Mud Type SALTWATER Wt 10.2
 % DR _____ PV 16 YP 40 WL 10.9
 % Sand 42 % Solids 2.3 % LCM _____

EQUIPMENT
 Core Barrel Type 2.0-P No. 69A
 Size 6 3/4 x 4 Length 301
 Inner Tube Type Fiberglass Alum Steel
 Liner Yes No Type: PVC/ABS Alum
 CB Stab Size 8 7/16 CB Stab Type _____
 Lower Shoe and Catcher Type SLIP & DOG
 BR Style RC412 Size 8 3/4 OD 4 ID
 Bit Serial No. 0112634 TFA .50
 Bit Condition (% Wear) - Start .70
 Bit Condition (% Wear) - Finish _____
 Pump Pressure On/Off 0 Liner Size 6 1/2 x 7
 Strokes 73 GPM/LPM 195

PERFORMANCE
 Core No. 2
 Interval Cored - Finish 3030
 - Start 3000
 Amount Cored 30
 Core Recovery 29.0
 % Recovery 99
 Coring Hours 48 ROP 62.3
 Reaming No Yes Hrs _____
 Comments _____
 Service Engineer Name PRESTON MITCHELL
 Date _____
 District BAKERSFIELD
 Job No. _____ Saletrack No. _____

HO FEET CORED	INTERVAL	PENETRATION RATE MINUTES PER FOOT/METER										OPERATING CONDITIONS				
		1	2	3	4	5	6	7	8	9	10	WEIGHT	ROTATING RPM	TORQUE		
0	3000	4:35														
1	1	4:34														
2	2	4:34														
3	3	4:35														
4	4	4:36														
5	3005	4:37														
6	6	4:38														
7	7	4:40														
8	8	4:42														
9	9	4:44														
10	3010	4:45														
11	11	4:46														
12	12	4:47														
13	13	4:48														
14	14															
15	3015	4:49														
16	16	4:50														
17	17	4:51														
18	18	4:52														
19	19	4:53														
20	3020															
21	21	4:54														
22	22	4:55														
23	23	4:56														
24	24															
25	3025	4:57														
26	26	4:58														
27	27	4:59														
28	28	5:00														
29	29	5:01														
30	3030	5:02														
31																
32																
33																
34																
35																
36																
37																
38																
39																
40																
41																
42																
43																
44																
45																
46																
47																
48																
49																
50																
51																
52																
53																
54																
55																
56																
57																
58																
59																
60																

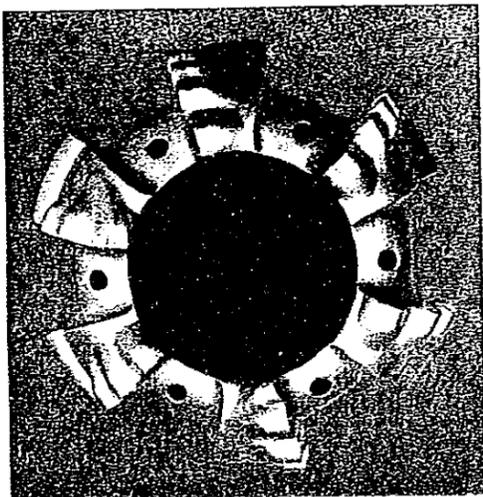




Technical Data Sheet

ARC412 / M355

Anti-Whirl / Low Invasion / Soft Formation Core Bit



Specifications

Core bit designation:	8 1/2" x 4" ARC412
Body type:	Infiltrated tungsten carbide (matrix)
Crown Profile:	Long Parabolic
Ribs:	6
Face discharge ports:	6
Cutters:	25
Primary cutter size:	1/2" diameter polycrystalline diamond compact (PDC)
Std. OD gauge length:	2"
Std. ID gauge length:	1/2" pre-shaped PDC cutters
TFA:	0.7 sq. in.
Junk slot area:	9.2 sq. in.

Recommended Operating Parameters

Weight on bit:	5 - 20 Klbs.
Rotation speed:	60 - 500 RPM
Hydraulic flow rate:	60 - 350 GPM

Application

The ARC412 is designed for use in ultra-soft to medium-hard formations with low to medium compressive strength and poor to moderate cementation and abrasiveness. Oil or water-based drilling fluid systems can be used. The bit is designed to produce "uninvaded" core at optimum penetration rates, while maximizing core bit life and reducing the likelihood of jamming.

The ARC412 is particularly well suited to coring unconsolidated or poorly consolidated formations when used in conjunction with Baker Hughes INTEQ's HydroLift Full Closure Core Catcher. In these types of formation, the anti-whirl design permits coring at high ROP with minimal invasion, while preventing disaggregation of the sediments by operating under mechanically stable conditions.

Standard Features

The ARC series design uses anti-whirl technology to extend the range of PDC applications into harder formations by reducing spalling and maintaining a self-sharpening diamond lip.

The ARC412 is specifically designed for use with Baker Hughes INTEQ's CoreGard Low Invasion coring system. Each feature of the ARC412 allows maximum penetration rates and minimal filtrate invasion of the core sample.

An extended lower-half pilot shoe is used in conjunction with the ARC412 to facilitate core entry and core protection, maximizing recovery of undisturbed, uninvaded core.

ARC412 / M355

Long Parabolic Profile

The profile of the ARC412 dictates that most of the formation is cut and removed above and away from the developing core column. The drilling fluid is directed to the annulus, thus minimizing filtrate invasion of the core.

Self-Stabilizing Design

The self-stabilizing design eliminates core bit vibration, reduces cutter damage and extends core bit life. This design delivers better quality core, improves core recovery and reduces the probability of jamming in difficult applications.

In particular, the application of anti-whirl technology to the coring of unconsolidated or friable formations prevents the disaggregation and re-working of "loose" sediments and therefore delivers a core which has retained its mechanical integrity and sedimentological features.

Cutter Technology

Optional PDC cutter designs are available for use in increasingly harder formations and harsher operating environments. Utilization of these Gold Series™ Stressed Engineered Cutters will promote high penetration rates and longer bit life, even under conditions of high tangential and axial loading.

The use of Black Ice™ polished cutters significantly improves cuttings removal, penetration rates and coring efficiency. This technology is particularly beneficial in coring soft plastic formations by minimizing "bit balling" with more efficient cuttings removal from the low friction. Cutter options are described below.

Cutter Placement

The high exposure, light density cutter layout and orientation maintains penetration rates throughout the run. The ribbed cutter setting protects the newly-formed filter cake, while the optimized depth of cut below the dynamic invasion zone reduces filtrate invasion ahead of the core bit. These features enhance penetration rates by coring in a balanced state.

Gauge Configuration

The OD gauge of the ARC412 features flush set, tungsten carbide inserts and natural diamonds. These wear resistant low friction gauge pads are fundamental components of anti-whirl technology.

The ID gauge of the ARC412 incorporates pre-shaped PDC trimmers. Same models also feature recessed natural diamond back-ups. This reduced ID gauge length design minimally disturbs the core and filter cake prior to the core entering the inner barrel and reduces the exposure time of the core to the drilling fluid.

Hydraulic Configuration

Large junk slot areas and a straight rib configuration ensure higher penetration rates in soft formations and effective cooling in harder, abrasive formations. Each rib is served by a face discharge port which provides optimum cleaning of the cutter structure and directs the drilling fluid away from the core surface.

Prefix	Suffix	Feature / Cutter Option
A		Antiwhirl
R		PDC (polycrystalline diamond compact) Cutters
C		Core Bit
	C1	Gold Series™ Carbide Supported Edges (CSE) on Cutters
	C2	CSE and Black Ice™ Polished Cutters
	C3	Black Ice™ Polished Cutters only
U		Ultra Series™ Premium Cutters with polished, CSE, and premium diamond table features

eg. ARC427C3 - Antiwhirl PDC Core Bit with polished cutters.

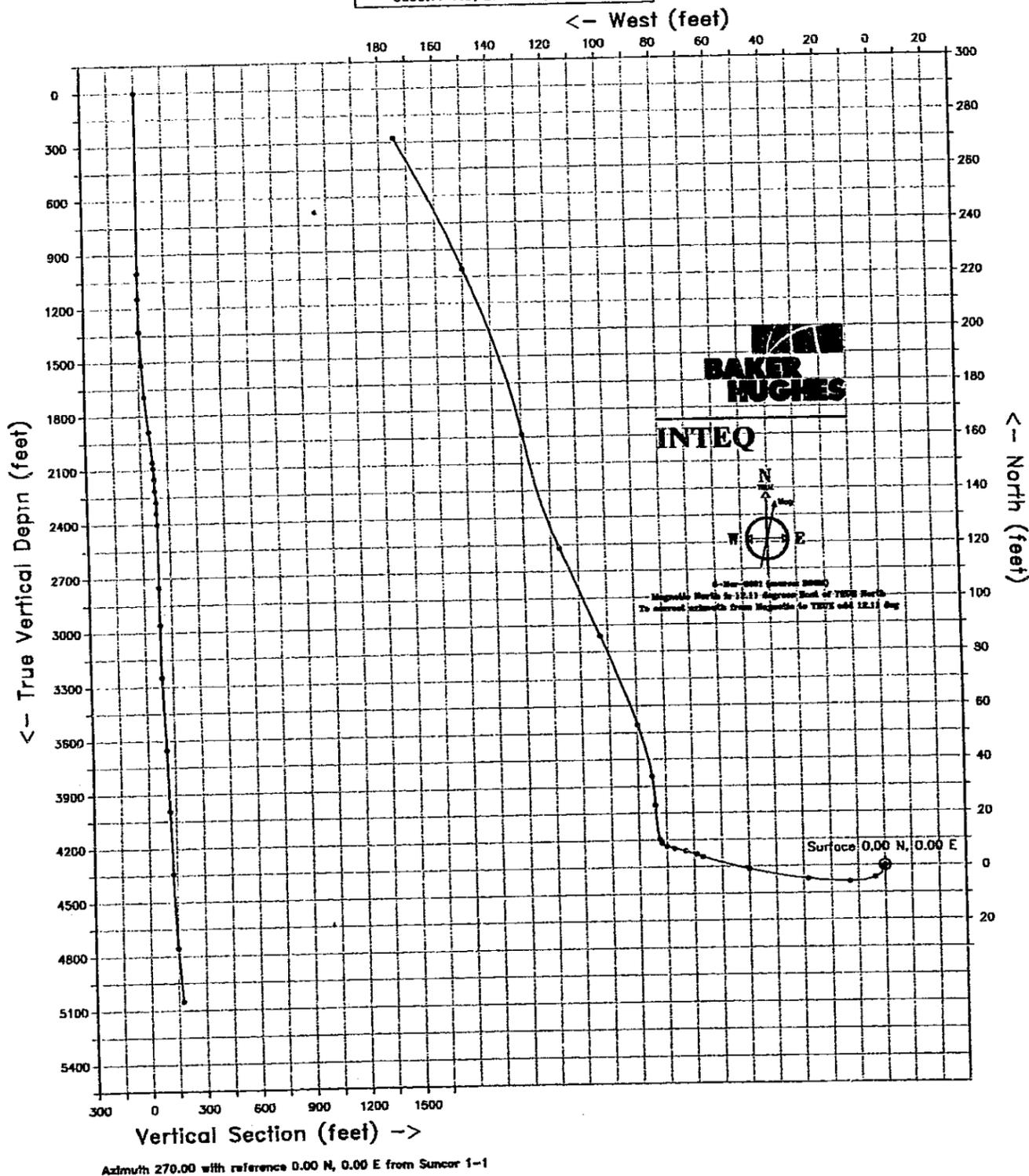
AUC 427 - Antiwhirl PDC Core Bit with Ultra Series cutters.

URC 427 - PDC Core Bit with Ultra Series cutters but no antiwhirl features.

BRAMMER ENG.

Structure : Goodyear Well : Suncor 1-2
Field : Morten Location : Arizona

FINAL BOTTOM HOLE LOCATION
5072.00 MD, 11.00 INC, 330.10 AZIMUTH
5050.77 TVD, 271.54 N, 174.67 W



BRAMMER ENG.
Goodyear

Suncor 1-2
Suncor 1-1
Morten
Arizona

SURVEY LISTING

by
Baker Hughes INTEQ

Your ref : Suncor#1-2
Our ref : svy22216
License :

Date printed : 14-Mar-2001
Date created : 5-Mar-2001
Last revised : 14-Mar-2001

Field is centred on n33 30 0.000,w112 20 0
Structure is centred on n33 30 0.000,w112 20 0

Slot location is n33 30 0.000,w112 20 0.000
Slot Grid coordinates are N 909674.209, E 372983.033
Slot local coordinates are 0.00 N 0.00 E

Projection type: mercator - Arizona Central (0202), Spheroid: Clarke - 1866

Reference North is True North

BRAMMER ENG.
Goodyear, Suncor 1-2
Morten, Arizona

SURVEY LISTING Page 1
Your ref : Suncor#1-2
Last revised : 14-Mar-2001

Measured Depth	Inclin. Degrees	Azimuth Degrees	True Vert Depth	RECTANGULAR COORDINATES	Dogleg Deg/100ft	Vert Sect
0.00	0.00	0.00	0.00	0.00 N 0.00 E	0.00	0.00
1000.00	0.00	0.00	1000.00	0.00 N 0.00 E	0.00	0.00
1142.00	1.00	185.00	1141.99	1.23 S 0.11 W	0.70	0.11
1329.00	2.25	246.10	1328.92	4.35 S 3.61 W	1.05	3.61
1516.00	3.75	270.60	1515.67	5.77 S 13.08 W	1.04	13.08
1692.00	6.25	276.10	1690.99	4.69 S 28.36 W	1.44	28.36
1887.00	6.75	283.10	1884.74	0.97 S 50.08 W	0.48	50.08
2061.00	4.75	290.10	2057.85	3.83 N 66.81 W	1.22	66.81
2092.00	4.00	292.10	2088.76	4.68 N 69.01 W	2.47	69.01
2154.00	4.00	282.10	2150.61	5.94 N 73.13 W	1.12	73.13
2218.00	3.25	286.10	2214.49	6.91 N 77.06 W	1.24	77.06
2281.00	2.25	288.10	2277.41	7.79 N 79.95 W	1.59	79.95
2344.00	1.75	317.10	2340.38	8.88 N 81.78 W	1.77	81.78
2405.00	1.50	346.10	2401.35	10.34 N 82.60 W	1.39	82.60
2754.00	2.75	357.90	2750.11	23.14 N 84.01 W	0.38	84.01
2960.00	3.25	352.10	2955.82	33.86 N 84.99 W	0.28	84.99
3253.00	4.50	340.90	3248.15	52.95 N 89.90 W	0.50	89.90
3660.00	5.50	337.10	3653.60	86.01 N 102.71 W	0.26	102.71
4000.00	6.50	336.10	3991.73	118.61 N 116.85 W	0.30	116.85
4353.00	8.00	349.10	4341.92	161.01 N 129.59 W	0.63	129.59
4772.00	10.00	336.10	4755.79	222.91 N 149.84 W	0.68	149.84
5072.00	11.00	330.10	5050.77	271.54 N 174.67 W	0.49	174.67

All data is in feet unless otherwise stated.
Coordinates from Suncor 1-1 and IVD from rotary table.
Bottom hole distance is 322.86 on azimuth 327.25 degrees from wellhead.
Vertical section is from wellhead on azimuth 270.00 degrees.
Calculation uses the minimum curvature method.
Presented by Baker Hughes INTEQ

MEMORANDUM TO FILE

DATE: February 26, 2001

FROM: ^{scb} Steven L. Rauzi
Oil and Gas Program Administrator

SUBJECT: CEMENT 9 5/8" SURFACE CASING
SunCor Development Company #1-2 SunCor, State Permit #908
SE SW Sec. 2, T. 2 N., R. 1 W., Maricopa County

Ground elevation is 1087⁰ ft. Kelly bushing is 18 ft above ground level or 1105¹⁰⁹⁸ ft.
Casing shoe at 1120 ft. Float collar at 1075 ft, (45 ft) above shoe.

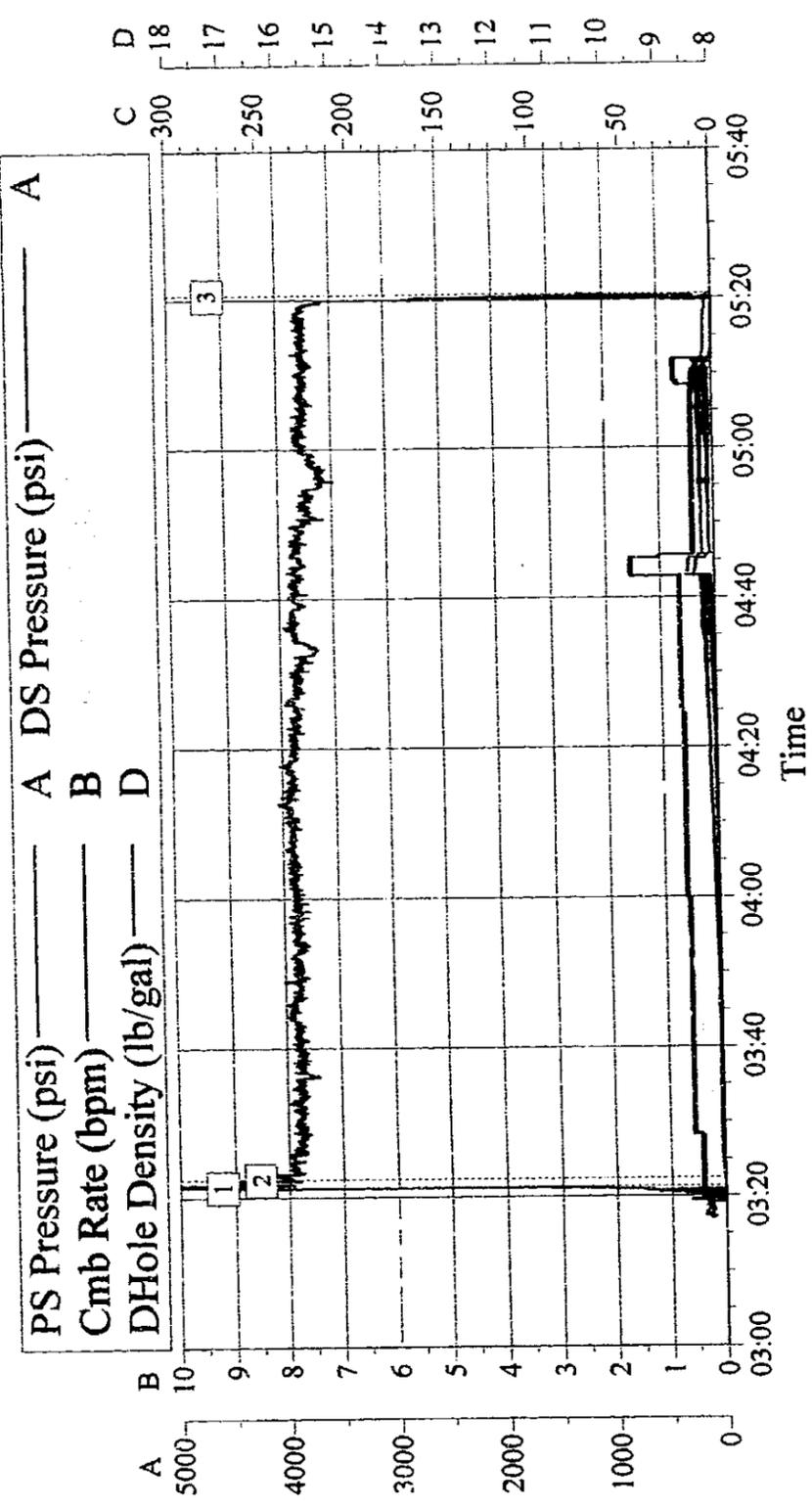
I witnessed Halliburton cement the referenced well on February 25 and 26.

Started job with pressure test of lines to 1000 psi. Pumped 10.0 bbls of fresh water spacer at 5 bpm. Pumped 96 bbls (480 sxs) of 16.5 ppg cement slurry at 5 to 3 to 2 bpm. Displaced cement with 83 bbls of water, plug down at 11 pm. No cement to surface.

Rigged up 1" tubing and tagged top of cement in annulus at 70 ft KB or 52 ft below ground level. Pumped 42 bbls (200 sxs) of 15.6 ppg cement slurry at 0.2 bpm. Circulated cement to surface. Cement expanded out of conductor pipe upon setting.

The details of the cement job and top out are described in the attached Halliburton Job Log and charts.

TOP OUT CEMENT

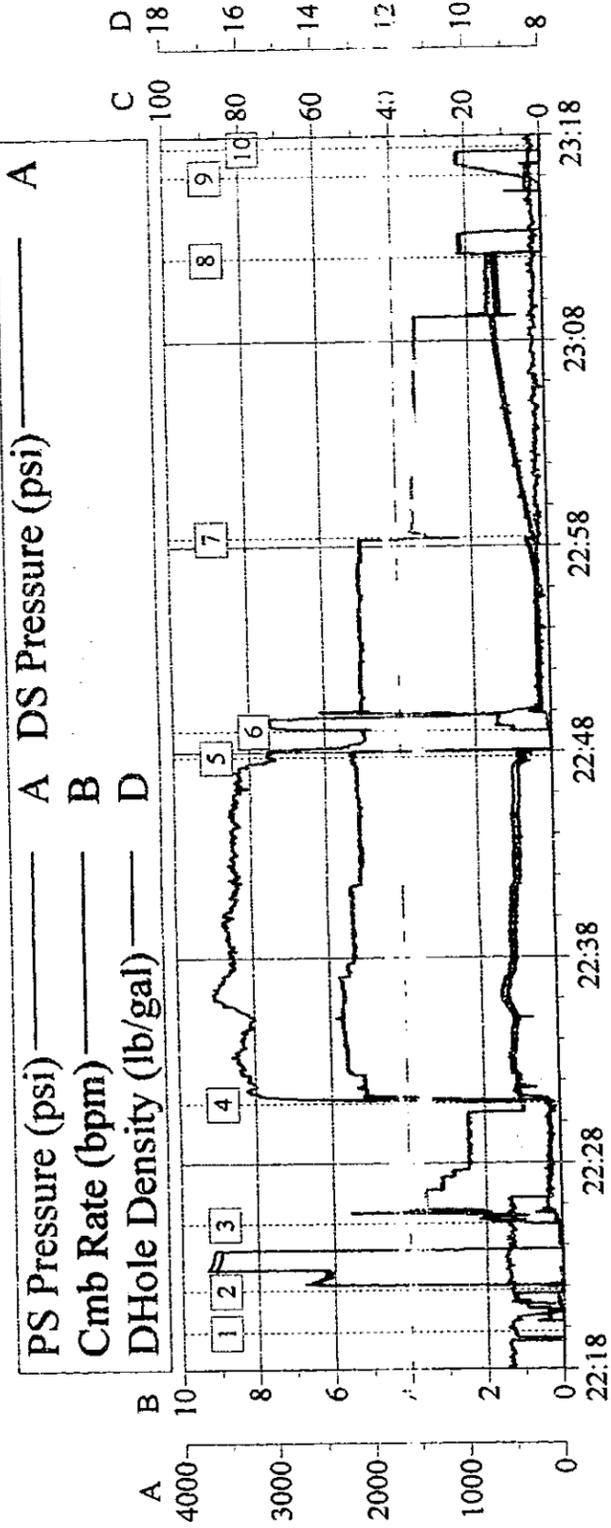


Event Log			
1	Start Job	03:21:21	05:20:36
2	Pump Cement @ 15.6#/gal	03:22:24	
3	End Job		

Customer: _____ Job Date: _____ Ticket #: _____
 Well Description: _____ UWI: _____

HALLIBURTON
 CamWin v1.3.0
 26-Feb-01 05:36

9 5/8 CEMENT SURFACE



Event Log		
Event #	Description	Time
1	Start Job	22:19:49
2	Test Lines	22:21:51
3	Pump Spacer 1 (H2O)	22:25:05
4	Pump Cement (@ 16.5 #/GAL.)	22:30:55
5	Drop Plug	22:47:47
6	Pump Displacement (H2O)	22:49:03
7	Displ Reached Cement	22:58:27
8	Bump Plug	23:12:03
9	Pressure Up Well	23:16:03
10	End Job	23:17:26

Customer: BRAMMER ENGINEERING
 SHOE @ 1120.47 FT. COLLAR @ 1075.31 FT.

Job Date: 2/25/01
 TD @ 1118 FT. CO. REP. CHARLES TUCKER

Ticket #: 1159054
 OP. VIRGIL LUCERO

HALLIBURTON
 CemWin v1.3.0
 25-Feb-01 23:32

2-13-01 Matt Reid called
24" conductor pipe set + contd @ 81'
Rig moving in from Utah - snowing there
4-5 days to move in, 3-4 trucks
Anticipated spud date 20th

2-16-01 Charles Tucker, Braumert Engrs.
Rig moving in from Fallon NV.
Cell phone 318-773-1671 = give him home phone.

2-22-01 Expects to spud between midnight + morning.
Has 1000' CSS + plan to set CSS 200 ft into salt

\$ 10,500 / day
~ 1,200 / day fuel cost

~ 11,700 / day Rig.
~ 10,000 / core @ 5 core ~ 50,000

FW: Suncor # 1-2 Progress

Subject: FW: Suncor # 1-2 Progress
Date: Wed, 7 Feb 2001 07:07:10 -0700
From: "Reid, Matthew J(Z78047)" <MJREID@apsc.com>
To: "rauzy_steve@pop.state.az.us" <rauzy_steve@pop.state.az.us>

Steve:

FYI....it looks like the conductor work will begin on Friday.

-----Original Message-----

From: Duede, Gary W(V33846)
Sent: Tuesday, February 06, 2001 2:41 PM
To: Reid, Matthew J(Z78047); Brechtel, Curt E(Z15513); Sauvageau, Marc F(V82585)
Subject: FW: Suncor # 1-2 Progress

Good News. Looks like Friday is the conductor drill date.

Gary W. Duede, APS
(602) 250-4350
fax (602) 250-3628

-----Original Message-----

From: Billy Suggs [<mailto:billy.suggs@brammer.com>]
Sent: Tuesday, February 06, 2001 1:35 PM
To: dhayden@crystalgas.com
Cc: gduede@apsc.com; David Hall; Jim Lingafelter
Subject: Suncor # 1-2 Progress

David,

To bring you up to date on todays developments:

The conductor rig and equipment will be on location Friday,9th, barring any unforeseen developments, and he did say that he would work over the weekend to finish.

We have notified Nabors and fired the starting pistol to move the rig. However, there are many variables here, they have to get cranes and trucks to load out in Fallon, Utah and then it would take about 3 days to get to Phoenix and it is possible that they cannot move on weekends due to permits. Also availability of trucks may be very thin due levels of activity. This situation will become much clearer tomorrow, but Nabors is working the problem now.

BR

2-6-01 Matt Reid called
Finished addressing FERC conditions
SHPD, Biological/Cultural Resource Eval, Endangered Species.
Finished site prep last week - Cleared pad except pit.
looking for small rig to dig conductor 24" x 60'
looking @ Feb 15th to move in big rig.



PERMIT TO DRILL

This constitutes the permission and authority from the
OIL AND GAS CONSERVATION COMMISSION,
STATE OF ARIZONA,

To: SUNCOR DEVELOPMENT CO.
(OPERATOR)

to drill a well to be known as

#1-2 SUNCOR DEVELOPMENT CO.
(WELL NAME)

located 2065' FWL & 820' FSL

Section 2 Township 2N Range 1W, MARICOPA County, Arizona.

The NOT APPLICABLE - STRATIGRAPHIC TEST of said
Section, Township and Range is dedicated to this well.

Said well is to be drilled substantially as outlined in the attached Application and must be drilled
in full compliance with all applicable laws, statutes, rules and regulations of the State of Arizona.

Issued this 20 day of DECEMBER, 2000, 1900.

OIL AND GAS CONSERVATION COMMISSION

By Steven L. Rainey

OIL & GAS PROGRAM ADMINISTRATOR

PERMIT 00008

RECEIPT NO. 3109

A.P.I. NO. 02-013-20026

State of Arizona
Oil & Gas Conservation Commission
Permit to Drill

FORM NO. 27

APPLICATION FOR PERMIT TO DRILL OR RE-ENTER

APPLICATION TO DRILL

RE-ENTER OLD WELL

NAME OF COMPANY OR OPERATOR Suncor Development Co.				
Address		City	State	Phone Number
3838 North Central Avenue, Suite 1500, Phoenix, AZ 85012				(602) 285-6872
Drilling Contractor Nabors Drilling USA Incorporated				
Address 3919 Rosedale Hwy, Bakersfield, CA 93308				
DESCRIPTION OF WELL AND LEASE				
Federal, State or Indian Lease Number, or if fee lease, name of lessor Suncor Development Co. <i>OWNER</i>		Well number #1-2	Elevation (ground) 1080 ft.	
Nearest distance from proposed location to property or lease line: 400 feet		Distance from proposed location to nearest drilling, completed or applied-for well on the same lease: N/A feet		
Number of acres in lease 40 Acres <i>59</i>		Number of wells on lease, including this well, completed in or drilling to this reservoir: 1		
If lease purchased with one or more wells drilled, from whom purchased: N/A		Name	Address	
Well location (give footage from section lines) 2065 FWL & 1320 FSL		Section - township - range or block and survey Sec 2 - T2N - R1W		Dedication [A.A.C. R12-7-104(A)(3)]
Field and reservoir (if wildcat, so state) Wildcat (stratigraphic test)		County Maricopa		
Distance in miles and direction from nearest town or post office				
Proposed depth: 5200	Rotary or cable tools Rotary		Approximate date work will start February 1, 2001	
Bond status <u>Attached</u>	Organization Report		Filing Fee of \$25.00	
Amount \$10,000.00	On file	Or attached <input checked="" type="checkbox"/>	Attached <input checked="" type="checkbox"/>	
Remarks This will be a stratigraphic test only with plans to plug and abandon according to Oil & Gas Commission Regulations. <i>APL# 02-013-20026</i>				
CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the <u>Vice-President</u> of the <u>Suncor Development Co.</u> (company), and that I am authorized by said company to make this report; and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to the best of my knowledge.				
Signature <u>Steven Gorwin</u>				
Date <u>12/19/2000</u>				
Permit Number: <u>908</u>		STATE OF ARIZONA OIL & GAS CONSERVATION COMMISSION Application to Drill or Re-enter File Two Copies		
Approval Date: <u>12-20-00</u>				
Approved By: <u>Steven L. Raing</u>				
NOTICE: Before sending in this form be sure that you have given all information requested. Much unnecessary correspondence will thus be avoided.		Form No. 3		

Mail completed form to:
Oil and Gas Program Administrator
Arizona Geological Survey
416 W. Congress, #100
Tucson, AZ 85701-1315

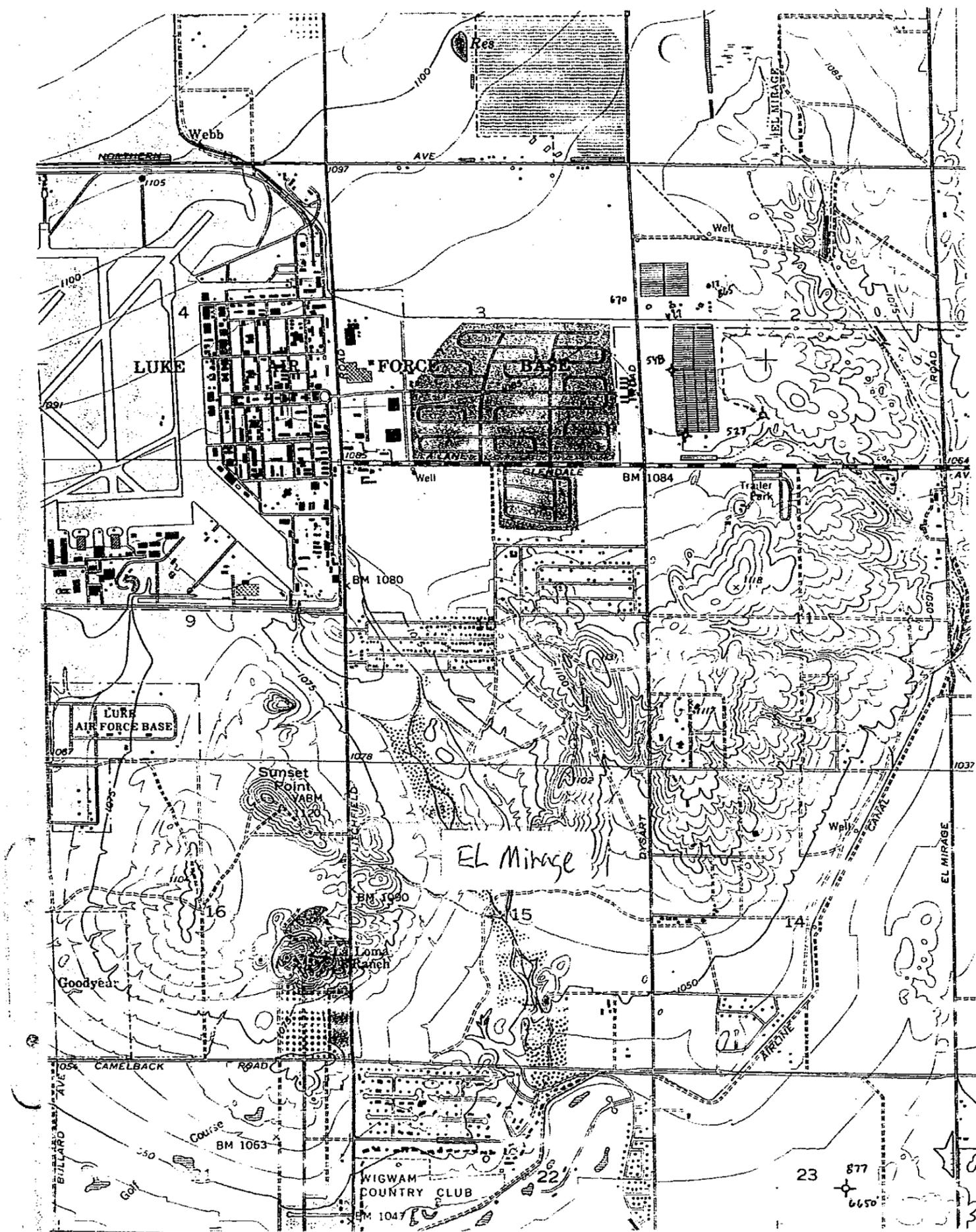
- Operator shall outline on the plat the acreage dedicated to the well in compliance with A.A.C. R12-7-107.
This is a stratigraphic test and core hole and is exempt from the spacing rules as per A.A.C. R12-7-128.
- A registered surveyor shall show on the plat the location of the well and certify this information in the space provided.
- ALL DISTANCES SHOWN ON THE PLAT MUST BE FROM THE OUTER BOUNDARIES OF THE SECTION.
- Is the operator the only owner in the dedicated acreage outlined on the plat below? YES NO
- If the answer to question four is "no", have the interests of all owners been consolidated by communitization agreement or otherwise?
YES NO If answer is "yes", give type of consolidation _____
- If the answer to question four is "no", list all the owners and their respective interests below:

Owner Suncor Development Company	Land Description Open undeveloped acreage adjacent to an industrial area.
-------------------------------------	--

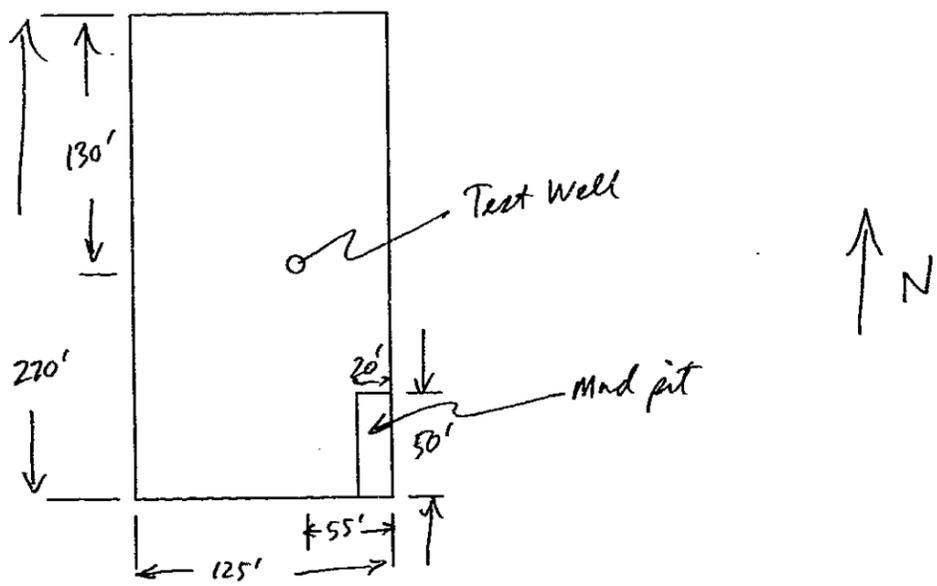
	<p align="center">CERTIFICATION</p> <p>I hereby certify that the information above is true and complete to the best of my knowledge and belief.</p> <p><i>Steven Gervais</i> Name Vice President Position SUNCOR DEV. CO. Company Dec. 19, 2000 Date</p>
	<p>I hereby certify that the location shown on the plat is true and correct to the field notes of actual survey and that the same is true and correct to the best of my knowledge and belief.</p> <p align="center">MICHAEL D. BRADEN Date signed 12/19/00 MICHAEL D. Braden</p>
	<p>Date Surveyed 12/19/2000</p> <p>Registered Land Surveyor <i>Michael D. Braden</i></p> <p>Certificate No. LS 16292</p>

PROPOSED CASING PROGRAM

Size of Casing	Weight	Grade & Type	Top	Bottom	Cementing Depths	Sacks Cement	Type
16"	65#	H-40	Surf.	40'	40' to surface		Redi-mix
9 5/8"	40#	K-55	Surf.	1600'	1600' to surface	487	Lite



Draft - Pad Layout for SunCor Development Co. Stratigraphic Test Well #1-2



ORGANIZATION REPORT

Full Name of the Company, Organization, or Individual

SunCor Development Company

Mailing Address and Phone Number

3838 North Central, Suite 1500, Phoenix, AZ 85012 (602) 285-6800

Plan of Organization (State whether organization is a corporation, joint stock association, trust or partnership, or individual)

Corporation

Purpose of Organization (State type of business in which engaged)

Real Estate Development

If a reorganization, give name and address of previous organization

n/a

If a foreign corporation, give (1) State where incorporated

n/a

(2) Name and mailing address of state agent

n/a

(3) Date of permit to do business in state

n/a

Principal Officers or Partners (if partnership)
NAME

TITLE

MAILING ADDRESS

Richard Snell

Chairman of the Board

Same as above

John C. Ogden

President & CEO

Same as above

Geoffrey L. Appleyard

V.P. & CFO

Same as above

Duane S. Black

V.P. & COO

Same as above

Jay T. Ellingson

V.P.

Same as above

Steven Gervais

V.P.

Same as above

Margaret E. Kirch

V.P.

Same as above

Thomas A. Patrick

V.P.

Same as above

DIRECTORS NAME

MAILING ADDRESS

Kristine R. Garrett

Same as above

Pamela Grant

Same as above

Humberto S. Lopez

Same as above

John C. Ogden

Same as above

William J. Post

Same as above

Henry B. Sargent

Same as above

Richard Snell

Same as above

CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the Assistant Secretary of the SunCor Development Company (company), and that I am authorized by said company to make this report and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to the best of my knowledge.

Signature Steven Gervais

Date Dec. 1, 2000

Date

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION

Organization Report
File One Copy

Form No. 1

Mail completed form to:
Oil and Gas Program Administrator
Arizona Geological Survey
416 W. Congress, #100
Tucson, AZ 85701



February 5, 2001

STATE OF ARIZONA
416 WEST CONGRESS OFFICE 100
TUCSON, AZ 85721

RE: Bond Number: 513662C
Principal Name: SUNCOR DEVELOPMENT COMPANY

Dear Obligee:

You have recently received a letter regarding the merger of Developers Insurance Company (DICO) into Developers Surety and Indemnity Company (DSI). The merger was effective December 29, 2000, at which time all active DICO bonds, including yours, referenced above, were automatically transferred into the name of DSI. Please accept this letter and the attached Merger Endorsement as an additional legal notice of the merger.

As approved within the merger agreement, please use the attached Merger Endorsement as the official notice for the transfer of bonded liability from DICO to DSI for all of the listed active bonds. ***If this letter and endorsement are not sufficient vehicles of notification of the merger, please contact our Service Department at 800-782-1546 to request further information.***

Thank you for your cooperation during our merger process.

Sincerely,

David H. Rhodes
Executive Vice President
Chief Underwriting Officer



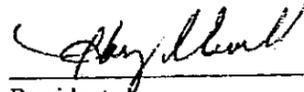
MERGER ENDORSEMENT

In accordance with the merger of Developers Insurance Company with and into Developers Surety and Indemnity Company, effective the 29th day of December, 2000, your insurance company is now Developers Surety and Indemnity Company (the "Company"). The address of the Company's administrative office is:

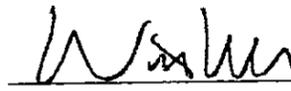
17780 Fitch, Ste. 200
Irvine, California 92614

No terms, conditions or benefits of your bond have changed. All servicing of your bond will be done by the Company or its affiliated representatives.

Please keep this endorsement with your bond. If you have any questions, you may write the Company at the above address.



President



Secretary





January 22, 2001

STATE OF ARIZONA
416 WEST CONGRESS OFFICE 100
TUCSON, AZ 85721

Dear Oblige:

The INSCO/DICO Group has received permission from the Insurance Departments in California and Iowa, respectively, to merge Developers Insurance Company (DICO) with and into Developers Surety and Indemnity Company (DSI). As of December 29, 2000, DICO merged into DSI and all DICO bond(s) were automatically transferred into the name of DSI. Please accept this letter and the attached endorsement as legal notice of the merger.

From this point on, the attached endorsement should serve as verification of the transfer of bonded liability from all in force DICO bonds to DSI. *If this letter and endorsement are not sufficient vehicles of notification of the merger, you will need to contact our Service Department at 800-782-1546 to request further information.*

This combining of our two well-established affiliates will create a surety with more than \$35 million of assets supporting its obligations. The merger will serve to strengthen our commitment to remaining a successful, service oriented surety company.

Again, if you should require any further documentation regarding the merger, please contact our Service Department immediately.

Very truly yours,

David H. Rhodes
Executive Vice President
Chief Underwriting Officer



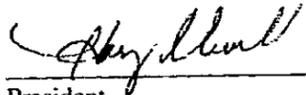
MERGER ENDORSEMENT

In accordance with the merger of Developers Insurance Company with and into Developers Surety and Indemnity Company, effective the 29th day of December, 2000, your insurance company is now Developers Surety and Indemnity Company (the "Company"). The address of the Company's administrative office is:

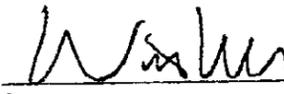
17780 Fitch, Ste. 200
Irvine, California 92614

No terms, conditions or benefits of your bond have changed. All servicing of your bond will be done by the Company or its affiliated representatives.

Please keep this endorsement with your bond. If you have any questions, you may write the Company at the above address.



President



Secretary



PERFORMANCE BOND
KNOW ALL MEN BY THESE PRESENTS

Bond Serial No. 513662C

That we: Suncor Development Company
of the County of Phoenix in the State of Arizona
as principal, and Developers Insurance Company
of Irvine California

AUTHORIZED TO DO BUSINESS WITHIN THE STATE OF ARIZONA.

as surety, are held and firmly bound unto the State of Arizona and the Oil and Gas Conservation Commission, hereinafter referred to as the "Commission", in the penal sum of Ten Thousand & 00/100 (\$10,000.00) lawful money of the United States, for which payment, well and truly to be made, we bind ourselves, and each of us, and each of our heirs, executors, administrators or successors, and assigns jointly and severally, firmly by these presents.

The conditions of this obligation are that, whereas the above bounden principal proposes to drill a well or wells for oil, gas or stratigraphic purposes in and upon the following described land situated within the State, to-wit:

Stratographic Test to Determine Salt Characteristics

(May be used as blanket bond or for single well)

NOW, THEREFORE, if the above bounden principal shall comply with all the provisions of the Laws of this State and the rules, regulations and orders of the Commission, especially with reference to the requirements of A.R.S. § 27-516, providing for the proper drilling, casing and plugging of said well or wells, and filling with the Oil and Gas Conservation Commission all notices and records required by said Commission, then in the event said well or wells do not produce oil or gas in commercial quantities, or cease to produce oil or gas in commercial quantities, this obligation is void; otherwise it shall remain in full force and effect.

Whenever the principal shall be, and declared by the Oil and Gas Conservation Commission in violation of the Laws of this State and the rules, regulations and orders of the Commission, the surety shall promptly:

- 1. Remedy the violation by its own efforts, or
- 2. Obtain a bid or bids for submission to the Commission to remedy the violation, and upon determination by the Commission and the Surety of the lowest responsible bidder, arrange for a contract between such bidder and the Commission, and make available as work progresses sufficient funds to pay the cost of remedying the violation; but not exceeding, including other costs and damages for which the surety may be liable hereunder, the amount set forth in the first paragraph hereof.

Liability under this bond may not be terminated without written permission of this Commission.

WITNESS our hands and seals, this 30th day of November 2000

Suncor Development Company

X Steven Green, Vice President
Principal

WITNESS our hands and seals, this 30th day of November 2000

Developers Insurance Company

Lori L. Dawson
Surety

Lori L. Dawson, Attorney-in-Fact

(Surety, Resident Arizona Agent
if issued in a state other than Arizona)

(If the principal is a corporation, the bond should be executed by its duly authorized officers, with the seal of the corporation affixed. When principal or surety executes this bond by agent, power of attorney or other evidence of authority must accompany the bond.)

Approved Date 12-20-00
STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
By: Steven L. Rainz

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
Bond
File Two Copies
Form No. 2

Permit No. 908

**POWER OF ATTORNEY OF
INDEMNITY COMPANY OF CALIFORNIA
AND DEVELOPERS INSURANCE COMPANY**
P.O. BOX 19725, IRVINE, CA 92623 • (949) 263-3300

Nº 068912

- NOTICE: 1. All power and authority herein granted shall in any event terminate on the 31st day of March, 2002.
2. This Power of Attorney is void if altered or if any portion is erased.
3. This Power of Attorney is void unless the seal is readable, the text is in brown ink, the signatures are in blue ink and this notice is in blue ink.
4. This Power of Attorney should not be returned to the Attorney(s)-In-Fact, but should remain a permanent part of the obligee's records.

KNOW ALL MEN BY THESE PRESENTS, that except as expressly limited, INDEMNITY COMPANY OF CALIFORNIA and DEVELOPERS INSURANCE COMPANY, do each severally, but not jointly, hereby make, constitute and appoint

*****Steven E. Minard, Mikal F. Cronin, Michael D. Specht, Lori L. Dawson, M. Christine McDonald, Deborah K. Anderson, jointly or severally*****

the true and lawful Attorney(s)-In-Fact, to make, execute, deliver and acknowledge, for and on behalf of said corporations as sureties, bonds, undertakings and contracts of suretyship in an amount not exceeding Ten Million Dollars (\$10,000,000) in any single undertaking; giving and granting unto said Attorney(s)-In-Fact full power and authority to do and to perform every act necessary, requisite or proper to be done in connection therewith as each of said corporations could do, but reserving to each of said corporations full power of substitution and revocation; and all of the acts of said Attorney(s)-In-Fact, pursuant to these presents, are hereby ratified and confirmed.

This Power of Attorney is granted and is signed by facsimile under and by authority of the following resolutions adopted by the respective Board of Directors of INDEMNITY COMPANY OF CALIFORNIA and DEVELOPERS INSURANCE COMPANY, effective as of September 24, 1986:

RESOLVED, that the Chairman of the Board, the President and any Vice President of the corporations be, and that each of them hereby is, authorized to execute Powers of Attorney, qualifying the attorney(s) named in the Powers of Attorney to execute, on behalf of the corporations, bonds, undertakings and contracts of suretyship; and that the Secretary or any Assistant Secretary of the corporations be, and each of them hereby is, authorized to attest the execution of any such Power of Attorney;

RESOLVED, FURTHER, that the signatures of such officers may be affixed to any such Power of Attorney or to any certificate relating thereto by facsimile, and any such Power of Attorney or certificate bearing such facsimile signatures shall be valid and binding upon the corporation when so affixed and in the future with respect to any bond, undertaking or contract of suretyship to which it is attached.

IN WITNESS WHEREOF, INDEMNITY COMPANY OF CALIFORNIA and DEVELOPERS INSURANCE COMPANY have severally caused these presents to be signed by their respective Presidents and attested by their respective Secretaries this 3rd day of December, 1999.

INDEMNITY COMPANY OF CALIFORNIA

DEVELOPERS INSURANCE COMPANY

By *Harry Crowell*
Harry Crowell
President

By *Harry Crowell*
Harry Crowell
President

By *Walter Crowell*
Walter Crowell
Secretary

By *Walter Crowell*
Walter Crowell
Secretary

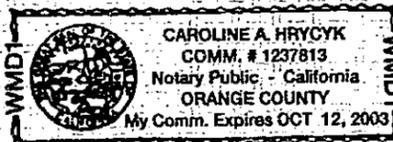


STATE OF CALIFORNIA)
COUNTY OF ORANGE) SS.

On December 3, 1999, before me, Caroline A. Hrycyk, personally appeared Harry Crowell and Walter Crowell, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

Signature *Caroline A. Hrycyk*



CERTIFICATE

The undersigned, as Senior Vice President of INDEMNITY COMPANY OF CALIFORNIA, and Senior Vice President of DEVELOPERS INSURANCE COMPANY, does hereby certify that the foregoing and attached Power of Attorney remains in full force and has not been revoked; and furthermore, that the provisions of the resolutions of the respective Boards of Directors of said corporations set forth in the Power of Attorney, are in force as of the date of this Certificate.

This Certificate is executed in the City of Irvine, California, this 30th day of November, 2000

INDEMNITY COMPANY OF CALIFORNIA

DEVELOPERS INSURANCE COMPANY

By *William T. Sherer*
William T. Sherer
Senior Vice President

By *William T. Sherer*
William T. Sherer
Senior Vice President



PINNACLE WEST ENERGY

P.O. BOX 53940
PHOENIX, AZ 85072-2034

A subsidiary of Pinnacle West Capital Corporation

TWENTY FIVE DOLLARS AND NO CENTS

11-3511210

② No 72000019

③ DATE 12-19-2000

④ AMOUNT
*****25.00**

VOID IF PRESENTED MORE THAN
90 DAYS FROM DATE OF ISSUE

PAY TO THE ORDER OF:
72000019

Bank of America, Concord, CA

STATE OF ARIZONA OIL & GAS CONSERVATION COMMISSION

AUTHORIZED SIGNATURE

⑈ 72000019⑈ ⑆ 121000358⑆ 12330⑈ 32504⑈

RECEIPT		Date	December 20, 2000	No.	3109
Received From		Sunco Development Co. (Pinnacle West)			
Address		3838 North Central Ave., Suite 1520 Phoenix, AZ 85012			
For		Filing application fee - Permit 908			
AMOUNT		Twenty five dollars \$25.00			
AMOUNT PAID		Twenty five dollars \$25.00			
BALANCE DUE					
ACCOUNT		HOW PAID			
CASH					
CHECK		25.00			
MONEY ORDER					
		By <i>Georganna Meeker</i>			

8K806 Rediform

INTERNATIONAL GAS CONSULTING, INC.



Crystal Gas Storage SunCor #1-2 Stratigraphic Core Test

Section 2, Township 2N, Range 1W

Glendale, Arizona

The test well was drilled in February and March 2001. Top of salt was encountered at a depth of 872 feet below kelly bushing which is 18 feet above ground elevation of 1,080 feet above mean sea level. Nine and five eighths inch surface casing was cemented at 1,117 feet (Schlumberger), 1,118 feet (driller). Total depth of 5,130 feet was reached at the bottom of Core #5.

The following cores were obtained;

Core #1, 2,500 to 2,530 feet	Roof salt
Core #2, 3,000 to 3,030 feet	Roof salt
Core #3, 3,700 to 3,730 feet	Near top of proposed cavern(s)
Core #4, 4,400 to 4,430 feet	Near center of proposed cavern(s)
Core #5, 5,100 to 5,130 feet	Near bottom of proposed cavern(s)



Photo quality varies since the film was developed at different locations. Some photos are smaller since the photographer did not adjust the camera correctly. Colors and grain size descriptions are based on subjective visual judgements and may be subject to different interpretations. Some colors may differ from the descriptive log since the cores were logged while wet and the photos were taken dry.

JAI - 4/2/2001

Top Core #1





2,512'



2,515'



2,517.3'



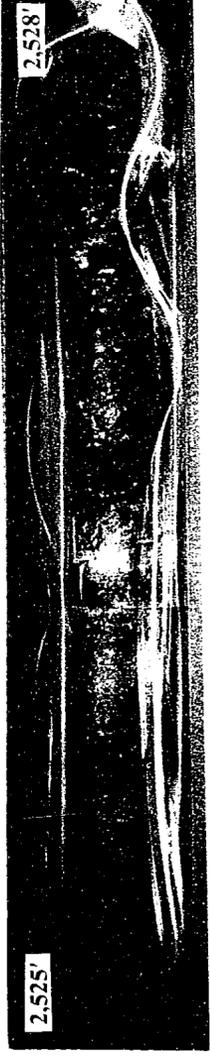
2,519.4'

2,522'



2,522'

2,525'



2,525'

2,528'



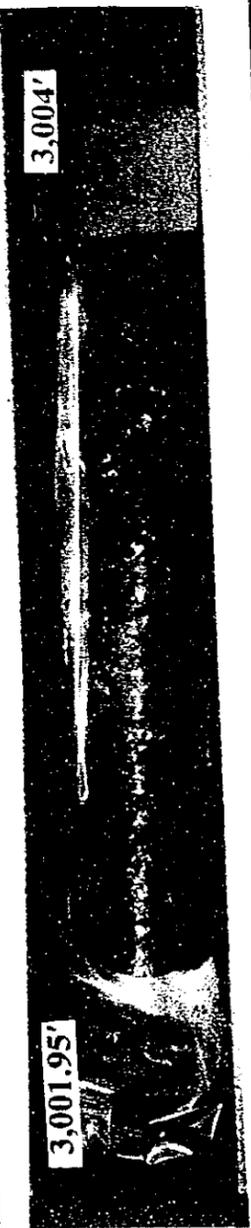
2,528'

2,529.6'

Bottom Core #1

(806) MI N° 1
SITE S&S
ASH. ROOMS
SUNCOAST REFINERY
SUNCOAST DIV.

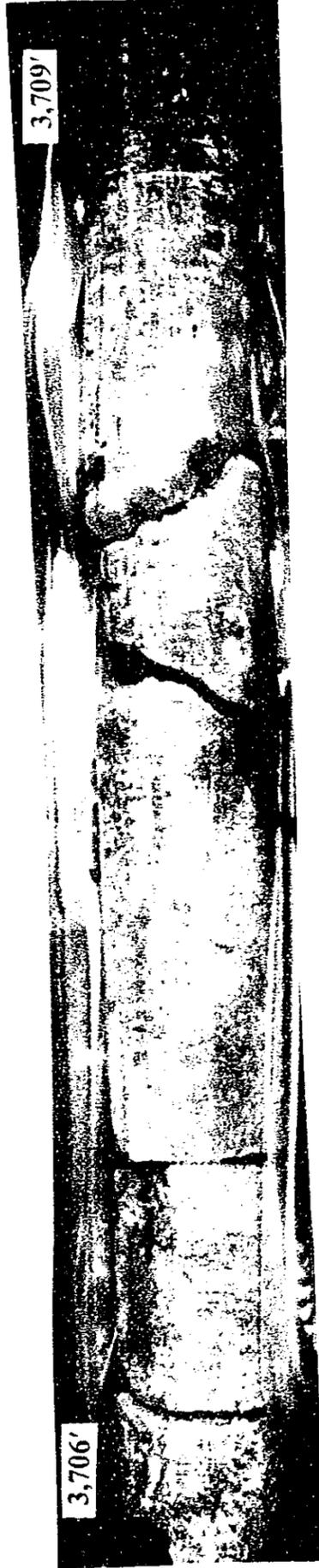
Top Core #2





Bottom Core #2

Top Core #3



3.712'



3.709'

Mud



3.712'

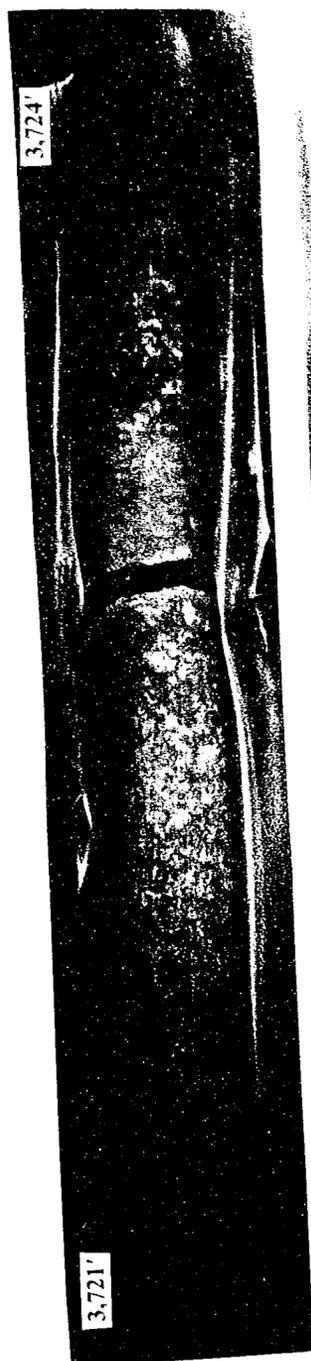


3.715'



3.718'

3.721'



3.721'

3.724'



3.727'

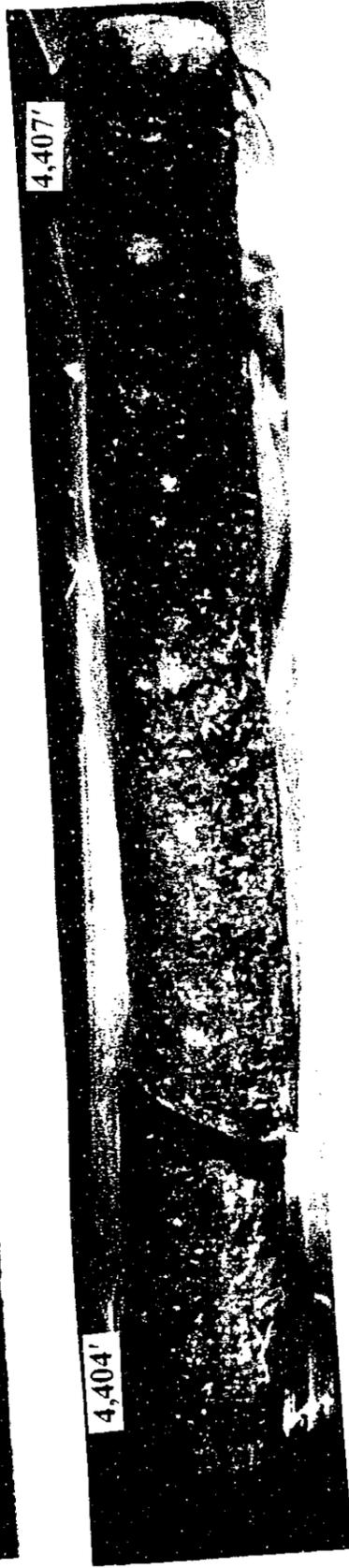
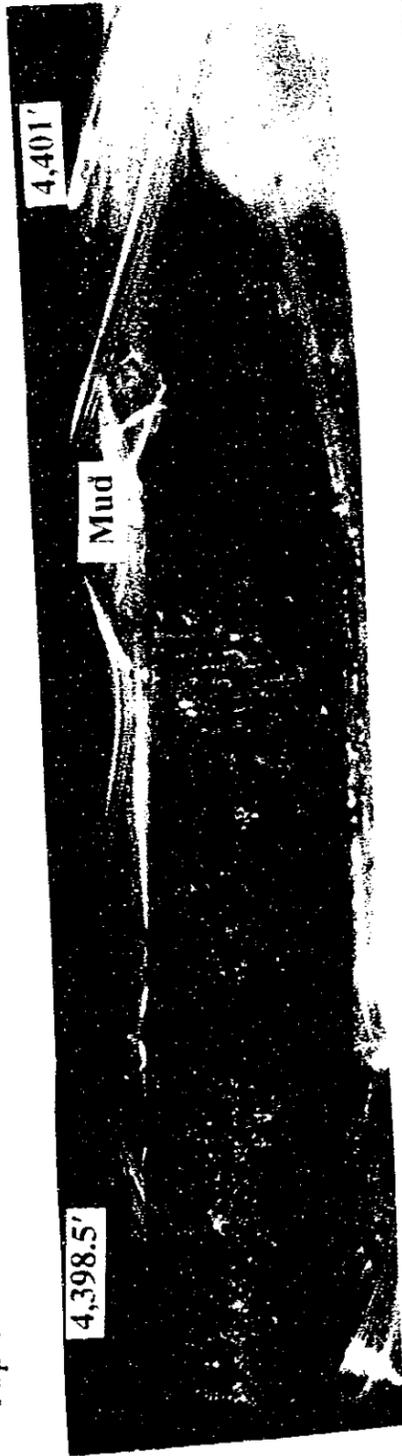


3.730'

3.730'

Bottom Core #3

Top Core #4





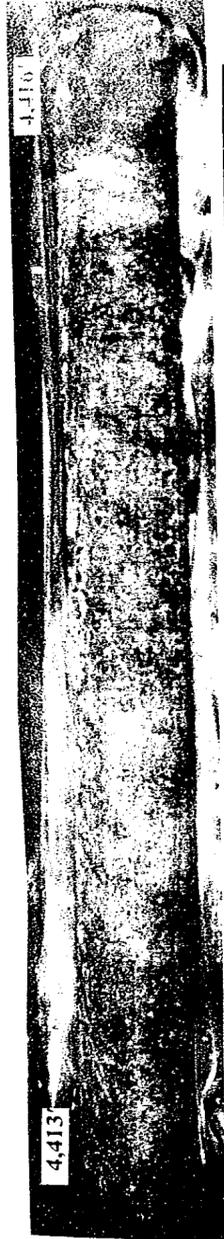
4,407'

4,410'



4,410'

4,413'



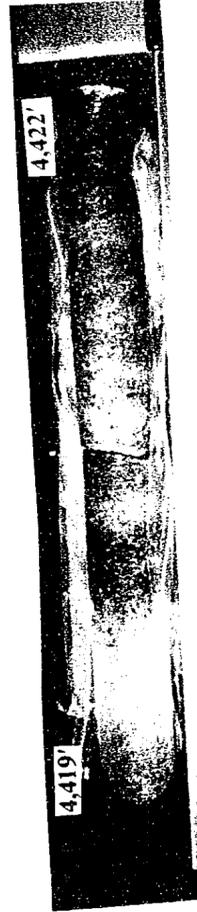
4,413'

4,416'



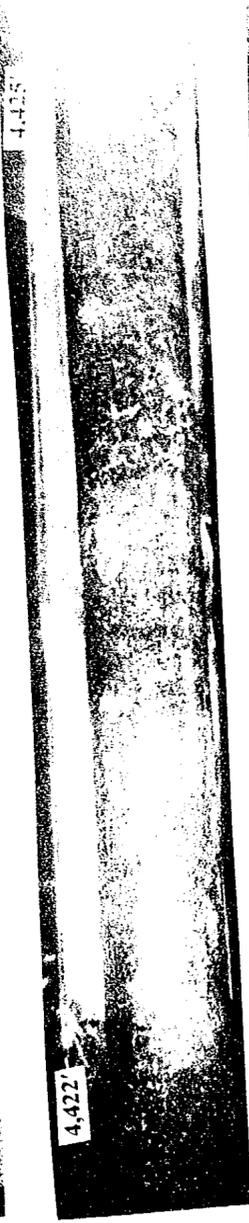
4,419'

4,422'



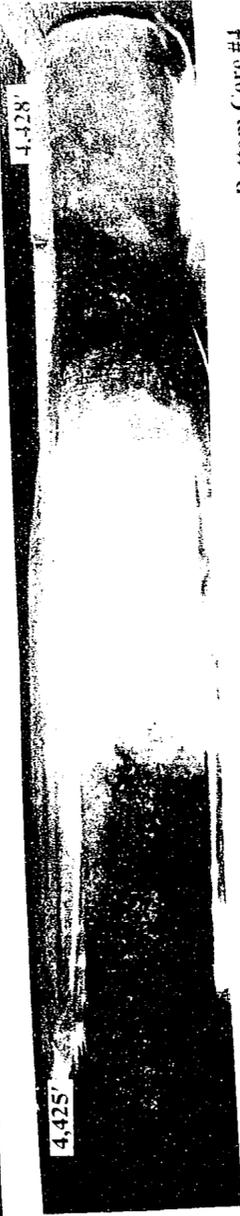
4,419'

4,422'



4,425'

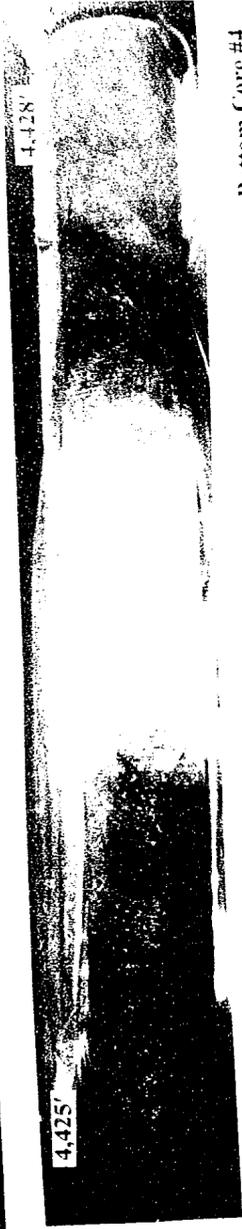
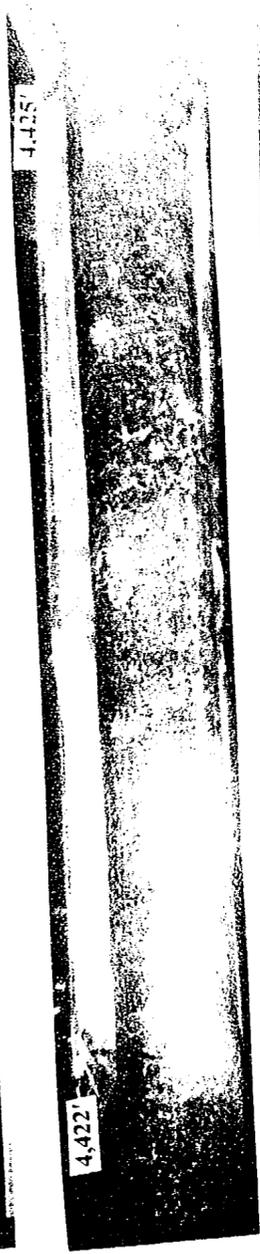
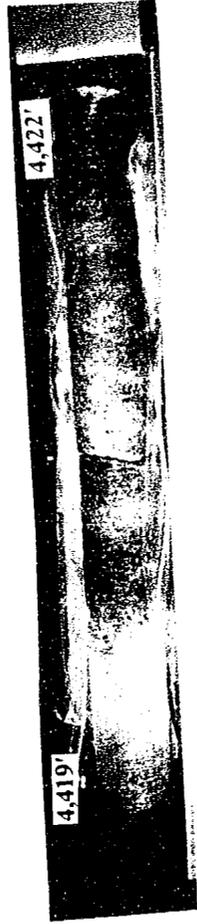
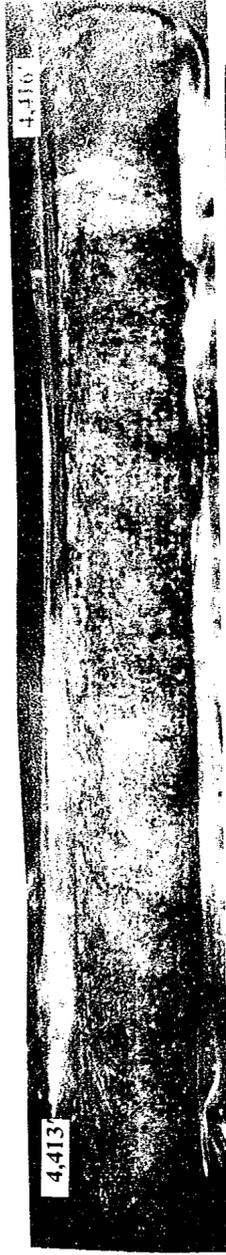
4,428'



4,425'

4,428'

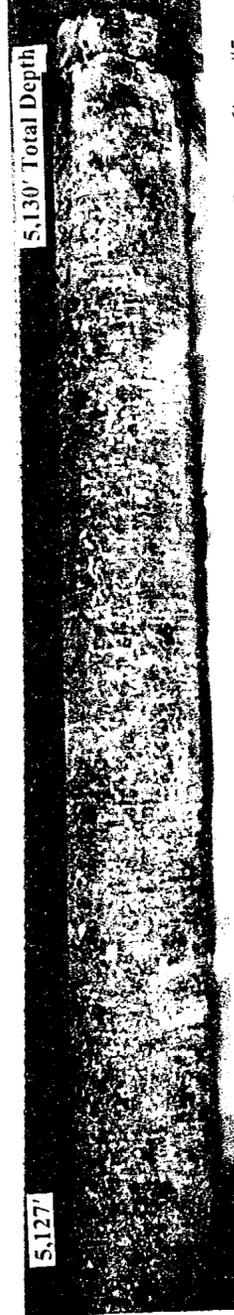
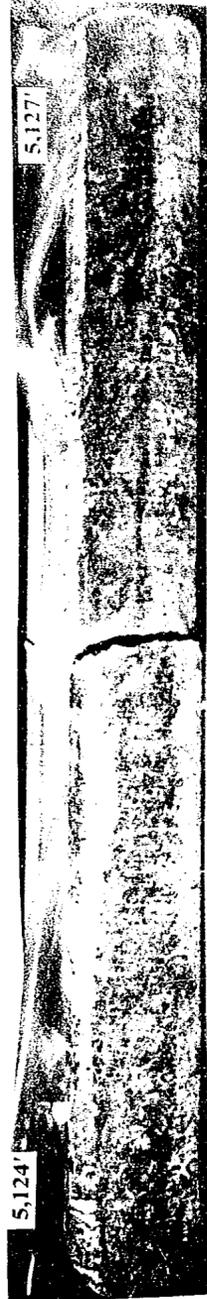
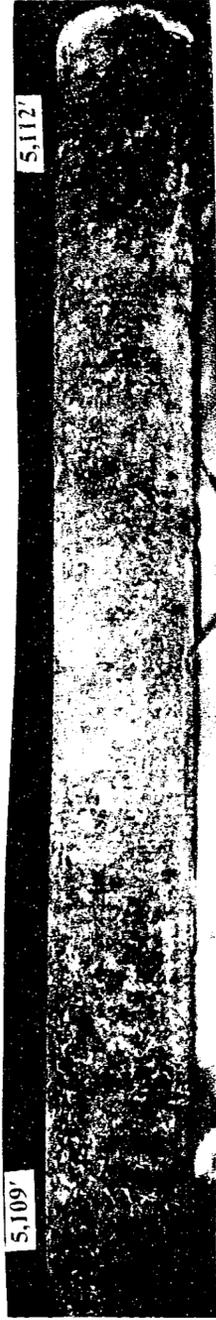
Bottom Core #4



Bottom Core #4

Top Core #5





Bottom Core #5

440-03

Preliminary Summary

**DEVELOPMENT OF ARIZONA PUBLIC SERVICE
PROPOSED NATURAL GAS STORAGE
FACILITY IN THE LUKE SALT BASIN**



Presented to

APS Arizona Public Service
400 N. 5th Street, MS 8974
Phoenix, Arizona 85004

For Presentation to

Arizona Department of Environmental Quality

May 21, 2001



AGAPITO ASSOCIATES, INC.
715 Horizon Dr., Ste. 340, Grand Junction, CO 81506
970/242-4220 • FAX 970/245-9234 • www.agapito.com

APPENDIX A

PRELIMINARY SUMMARY

**DEVELOPMENT OF ARIZONA PUBLIC SERVICE PROPOSED
NATURAL GAS STORAGE FACILITY IN THE LUKE SALT BASIN**

Table of Contents

	<u>Page</u>
1.0 Introduction.....	2
2.0 Regulatory Agencies.....	2
3.0 Salt Cavern Development.....	4
4.0 Well Design.....	6
5.0 Hydrogeology of the Luke Basin.....	8
6.0 Scope of the Aquifer Protection Permit Application.....	9
APPENDIX A—Scope of Work for EPA Class I and Class III Permit Applications.....	11

List of Figures

	<u>Page</u>
Figure 1. Location Map.....	3
Figure 2. Idealized Cavern Development—Brine Injection Schematic.....	5
Figure 3. Idealized Injection Well Profile.....	7
Figure 4. Idealized East-West Profile—Luke Basin.....	10

APPENDIX A

1.0 INTRODUCTION

Underground storage of natural gas is a vital part of the natural gas industry and the nation's energy supply. The ability to store gas assures there will be a reliable supply during periods of heavy power demand. Natural gas storage serves as a buffer to variability in wellhead production and promotes efficient management of inventory levels.

Pinnacle West Energy Corporation and Crystal Gas Storage, Inc., (the Applicants) are proposing to develop several caverns within the Luke Basin salt body for the purpose of storing natural gas. The Luke Basin is located northwest of Phoenix, Arizona, in the Salt River Valley. The Luke Basin salt body is a continuous body of commercial-grade sodium chloride. The salt body appears to continuously underlie all but the flanks of the basin, where it is believed to be interstratified with clastic, valley fill sediments.

The Applicants are just beginning to assemble information on the Luke Basin. Therefore, the current level of characterization is limited. A deep drill hole, a seismic survey, and a literature search are planned to facilitate better characterization of the Luke Basin.

Caverns are developed in salt by injecting non-saline water into the salt mass and pumping out saline-rich brine. The Applicants are proposing to dispose of the brine by injecting it into a deep well below the base of the salt. The U. S. Environmental Protection Agency (EPA) is currently classifying the cavern development wells as Class III wells and the injection well(s) as Class I wells.

Figure 1 is a location map showing the proposed Class I and Class III well sites and outline of the Luke Basin salt body.

2.0 REGULATORY AGENCIES

The Applicants are anticipating that the project will require permits from EPA Region 9, Arizona Oil & Gas Commission, Arizona Department of Environmental Quality (ADEQ), Arizona Department of Water Resources (ADWR), and Federal Energy Regulatory Commission (FERC). The following permits are anticipated:

- EPA—Underground Injection Control Permit for Class I Wells
- EPA—Underground Injection Control Permit for Class III Wells
- Arizona Oil & Gas Commission—Permit for Injection Wells
- ADEQ—Aquifer Protection Plan permit
- ADWR—Type 2 Water Permit
- FERC—7C Filing

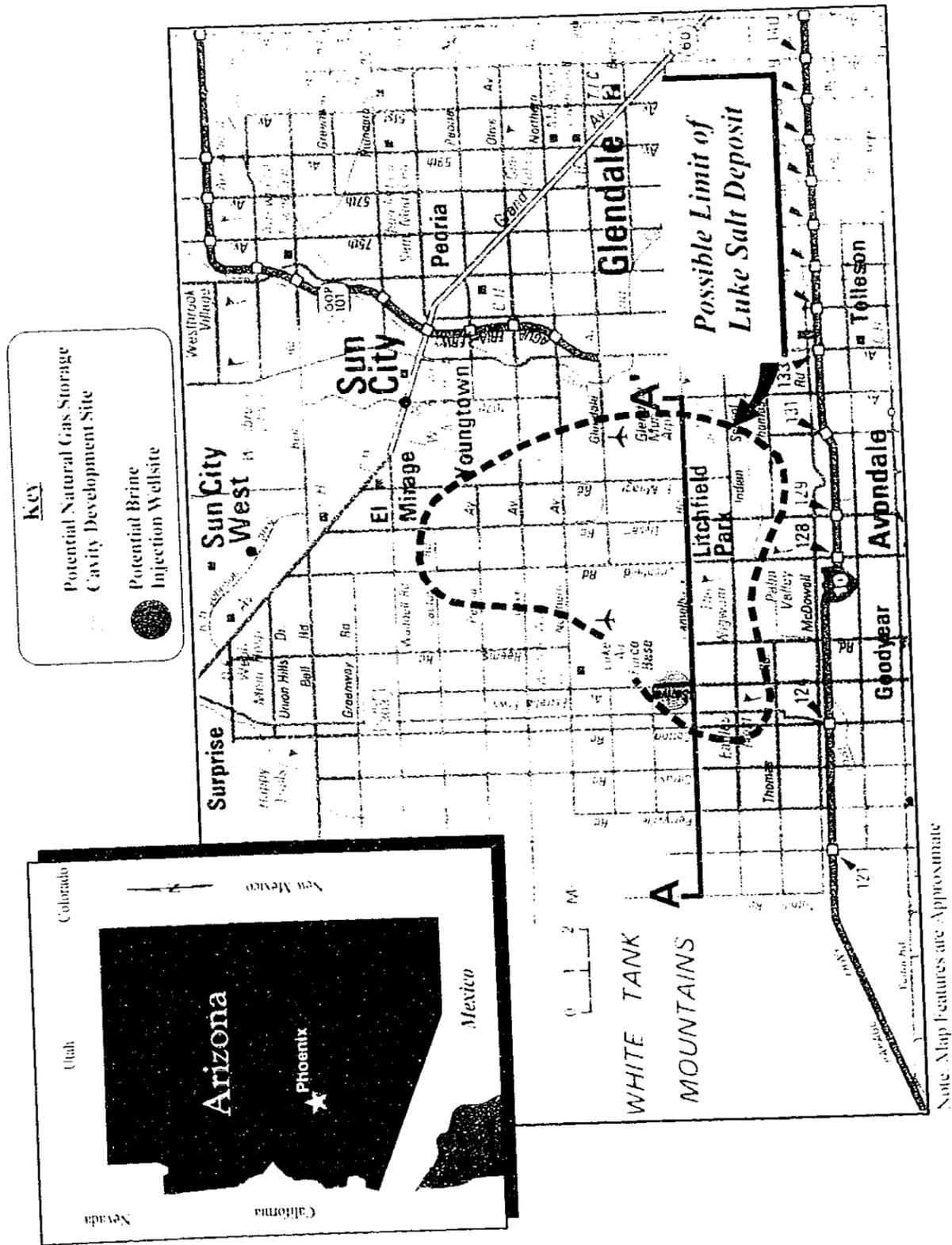


Figure 1. Location Map

AGAPITO ASSOCIATES, INC.
Consulting Engineers

Draft: May 22, 2001

Page 4

The Applicants held an initial meeting with EPA Region 9 concerning this project. The Applicants are scheduled to hold initial meetings with ADEQ and Arizona Oil & Gas Commission on May 25, 2001.

3.0 SALT CAVERN DEVELOPMENT

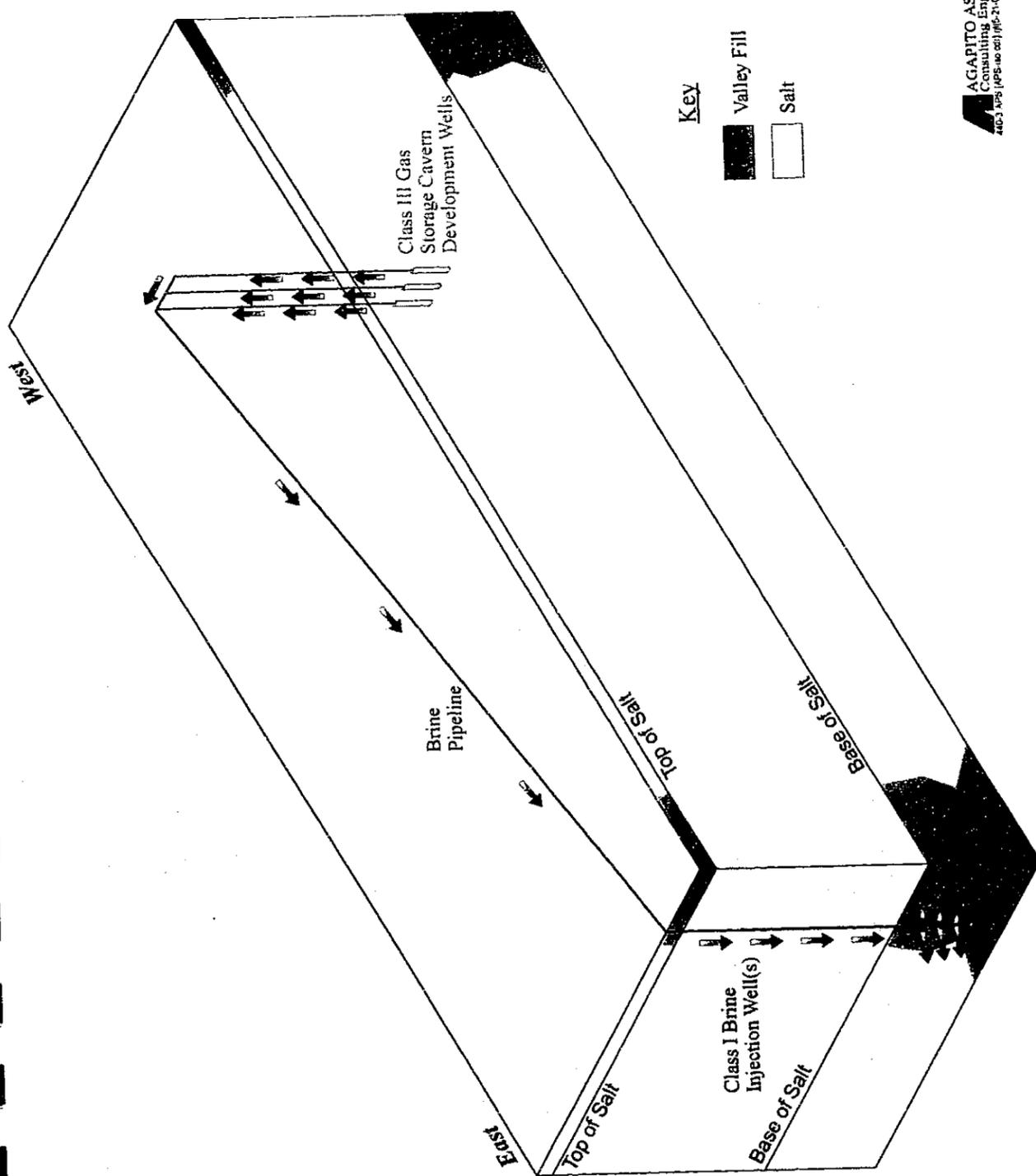
There are three types of natural gas storage currently used. These include storage in depleted hydrocarbon fields, storage in aquifers, and storage in salt caverns. As of 1998, there were 343 depleted hydrocarbon field gas storage facilities, 40 aquifer storage facilities, and 27 salt cavern storage facilities developed in the United States. Of the three types of underground gas storage facilities, salt caverns afford comparatively high rates of injection and withdrawal and have very low base gas requirements (the amount of gas required to maintain a viable storage facility). Depleted hydrocarbon fields and aquifer storage facilities are typically seasonal supply facilities, which store gas during low demand seasons and release it during high demand seasons. In contrast, salt cavern storage facilities are typically considered high-deliverability sites. The relatively high withdrawal rates and low base gas requirements associated with salt cavern storage provide a rapid response to volatile peaking demands, emergency back-up, and system balancing. This type of gas storage facility will become increasingly important to our nation's energy supply as energy demands continue to climb.

Salt formations have several properties that make them ideal for storing natural gas. A salt cavern is essentially impermeable to gas migration and has the strength of structural steel once developed. A salt cavern occupies an area that is typically up to 100 times smaller than a depleted hydrocarbon facility, allowing much less subsurface impact and a significantly smaller monitoring area. Salt cavern storage can cost up to three times more than development of a depleted hydrocarbon field. However, the relatively quick development time and the high deliverability make these projects economically viable.

The Applicants are currently envisioning developing three natural gas storage caverns in the Luke Basin salt body. Figure 2 is an idealized isometric block diagram showing cavern development wells, a pipeline, and an injection well with geologic strata. The dissolution rate is currently anticipated to be about 750 gallons per minute (gpm). Therefore, the brine injection well(s) will need to operate at a rate that is compatible with actual dissolution rates. The permeability of the injection

Draft: May 22, 2001

Page 5



AGAPITO ASSOCIATES, INC.
Consulting Engineers
4003 WPS (APS-00-001) (1/6-21-01)

Figure 2. Idealized Cavern Development—Brine Injection Schematic

APPENDIX A

Draft: May 22, 2001

zone will determine the rate that brine can be disposed. The ultimate dissolution and disposal rates will be a balance between the rate that brine is produced by dissolution at the Class III wells and the rate that brine can be disposed of in the Class I well(s). Pressure at the injection wellhead is currently anticipated to be about 300 psig.

Each cavern is expected to be about 1200 ft in height and about 200 ft in diameter. Initial cavern development is expected to take about three years, including permitting time. Additional caverns could take another four years to develop. Therefore, the dissolution of the gas caverns and the associated injection of brine are expected to take approximately seven years.

4.0 WELL DESIGN

The project will involve Class III injection wells to facilitate gas storage cavern development and Class I injection well(s) to dispose of brine generated by cavern development.

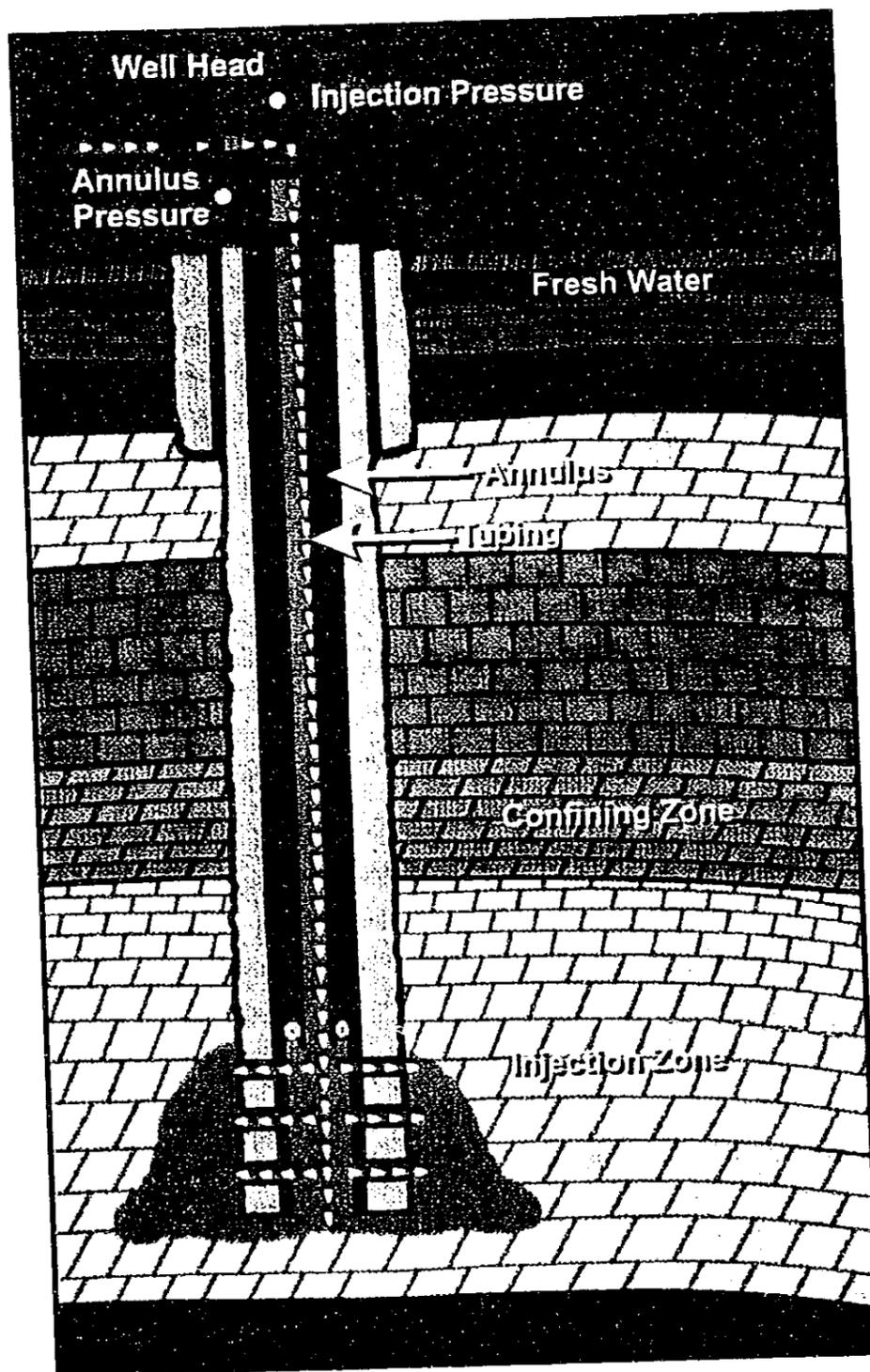
The planned Class I injection well(s), as defined in 40CFR 146.5, "Classification of Injection Wells," will dispose of the brine produced from cavern development below the lowest United States Drinking Water (USDW) aquifer. The target zone for injection is in sediments below the Luke Basin salt body, where it is likely that any aquifer would have an ambient high salinity.

The Class I injection well(s) will be constructed in compliance with 40CFR 146.11, "Criteria and Standards Applicable to Class I Non-hazardous Wells." Figure 3 is an idealized representation of a Class I type injection well.

The planned Class III injection wells, as defined in 40CFR 146.5, will be used to develop the caverns in salt for gas storage. The Class III cavern development wells will be constructed in accordance with 40CFR 146.31, "Criteria and Standards Applicable to Class III Wells."

The key components of both types of wells include an outer casing that extends to at or below the top of the injection zone and an inner tubing string that extends into the injection zone. The outer casing is bonded to the wall rock by pressure-grouted cement. Downhole geophysics are used to verify the quality of that bond.

In the case of Class I well(s), migration of fluid between the outer casing and the inner tubing is prevented by either a packer or by maintaining fluid pressure in the annulus between the outer casing and the inner tubing. Once the caverns are developed, the Class I injection well(s) will be placed on care and maintenance status. In the event that the gas storage cavern volume decreases



APPENDIX A

AGAPITO ASSOCIATES, INC.
Consulting Engineers
440 J. R. S. T. Rd. (near W. 1st St.) #5-22-01

Figure 3. Idealized Injection Well Profile

Draft: May 22, 2001

Page 8

in response to salt creep or cavern wall spalling, the cavern would be redeveloped to the original dimensions by injecting fresh water through the Class III wells. The Class I injection well(s) would then be necessary to dispose of the brine that would be generated. Should the project be terminated, the wells will be plugged and abandoned according to EPA guidelines.

The Class III wells will be constructed of multiple casing and tubing strings. Mechanical integrity is assured by multiple concentric cemented casing strings that extend from surface to below the USDW, and others that extend into the salt body. After initial cavern sump development, salt dissolution will be accomplished by injecting fresh water into a casing string located near the top of the cavern, and pumping from the tubing string that extends to near the base of the cavern. In the event that the project is terminated, the wells will be plugged and abandoned according to EPA guidelines.

The mechanical integrity of the wells, with respect to leakage, will be tested before injection, usually with an EPA representative present, and at least every five years of operation. Well pressures and flow rates will be continuously monitored during operation.

5.0 HYDROGEOLOGY OF THE LUKE BASIN

The Luke Basin lies between the White Tank Mountains and the Sierra Estrella Mountains, northwest of Phoenix. It is an extensional basin within the Basin and Range geologic province. Valley fill is typically comprised of clastic erosional sediments.

The top of the Luke Basin salt body lies between several hundred to almost 1,000-ft below ground surface (bgs). In profile, the top of the salt body is convex-down arcuate, and the base is roughly an inverted triangle. The base of the salt body appears to be about 14,500-ft bgs at the deepest point, based on two-dimensional seismic survey data generated by Exxon in 1979. The base of the Luke Basin salt body has not been penetrated by drilling.

Based on seismic data, salt at the flanks of the basin appears to be interstratified with valley fill sediments.

The following activities are planned to facilitate characterization of the Luke Basin:

- A seismic survey is planned, which should have sufficient resolution to better define the bounds of the salt body and the stratigraphy of the flanks of the basin.

Draft: May 22, 2001

Page 9

- A deep drill hole is planned (stratigraphic test), which will provide data on stratigraphy, aquifer location and geochemistry, and the injection uptake potential of the injection zone.
- A literature search is planned to discover any research or exploration that has been conducted in the Luke Basin.

Figure 4 is an idealized E-W cross section through the western portion of Luke Basin, based on interpretation of two-dimensional seismic data, showing the proposed locations of the Class III and Class I wells.

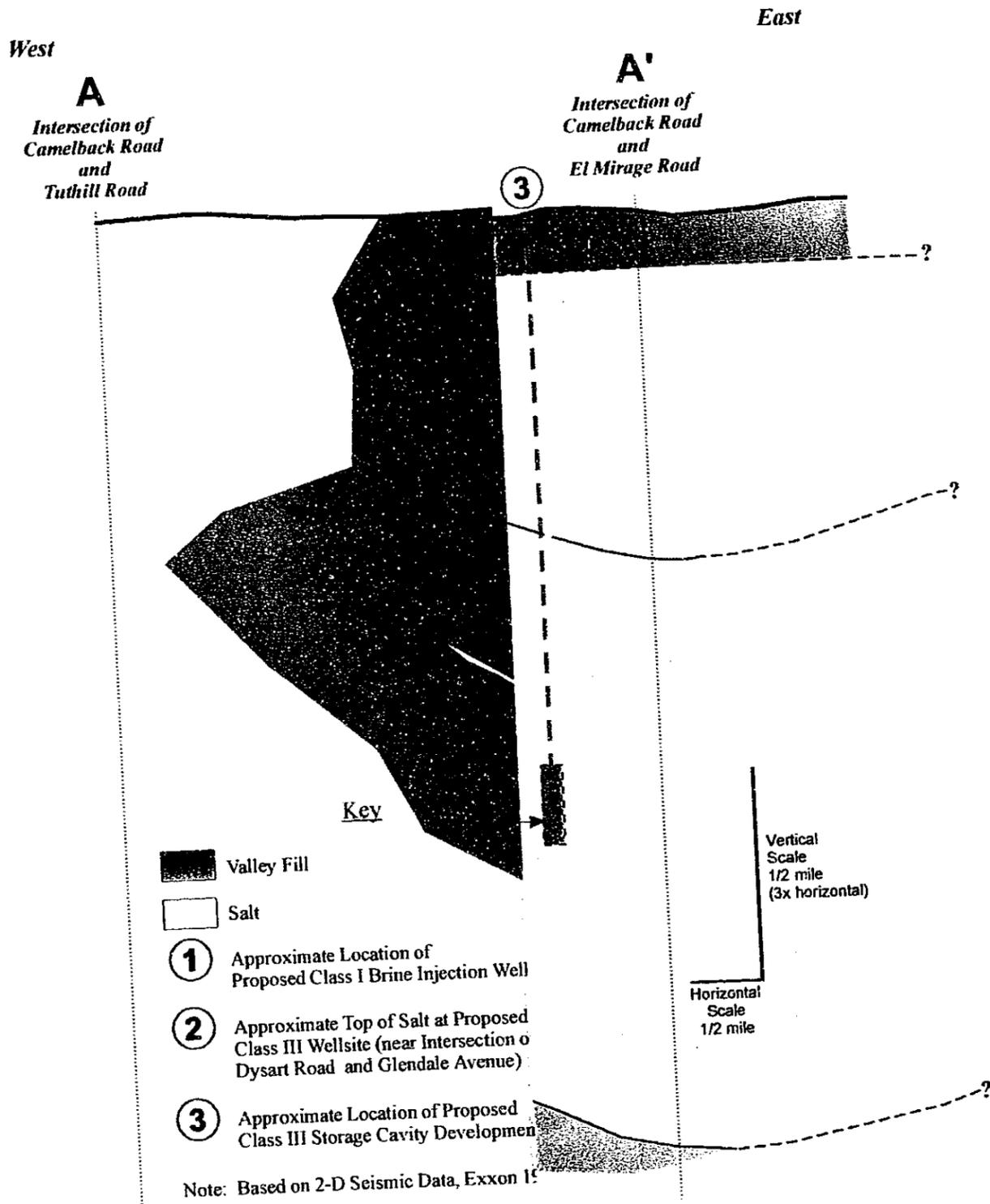
The Luke Basin salt body should provide excellent confinement because of the extremely low permeability inherent to salt formations. The potential for upward migration of the injected fluid (injectate) will be further minimized by the expected low injection pressures at the wellhead.

Brine injection has less attached risk, with respect to contamination of USDWs than evaporation ponds, because ponds may overlie USDWs. An accidental breach in an evaporation pond would place concentrated brine on the surface, with the potential for migration into a USDW.

6.0 SCOPE OF THE AQUIFER PROTECTION PERMIT APPLICATION

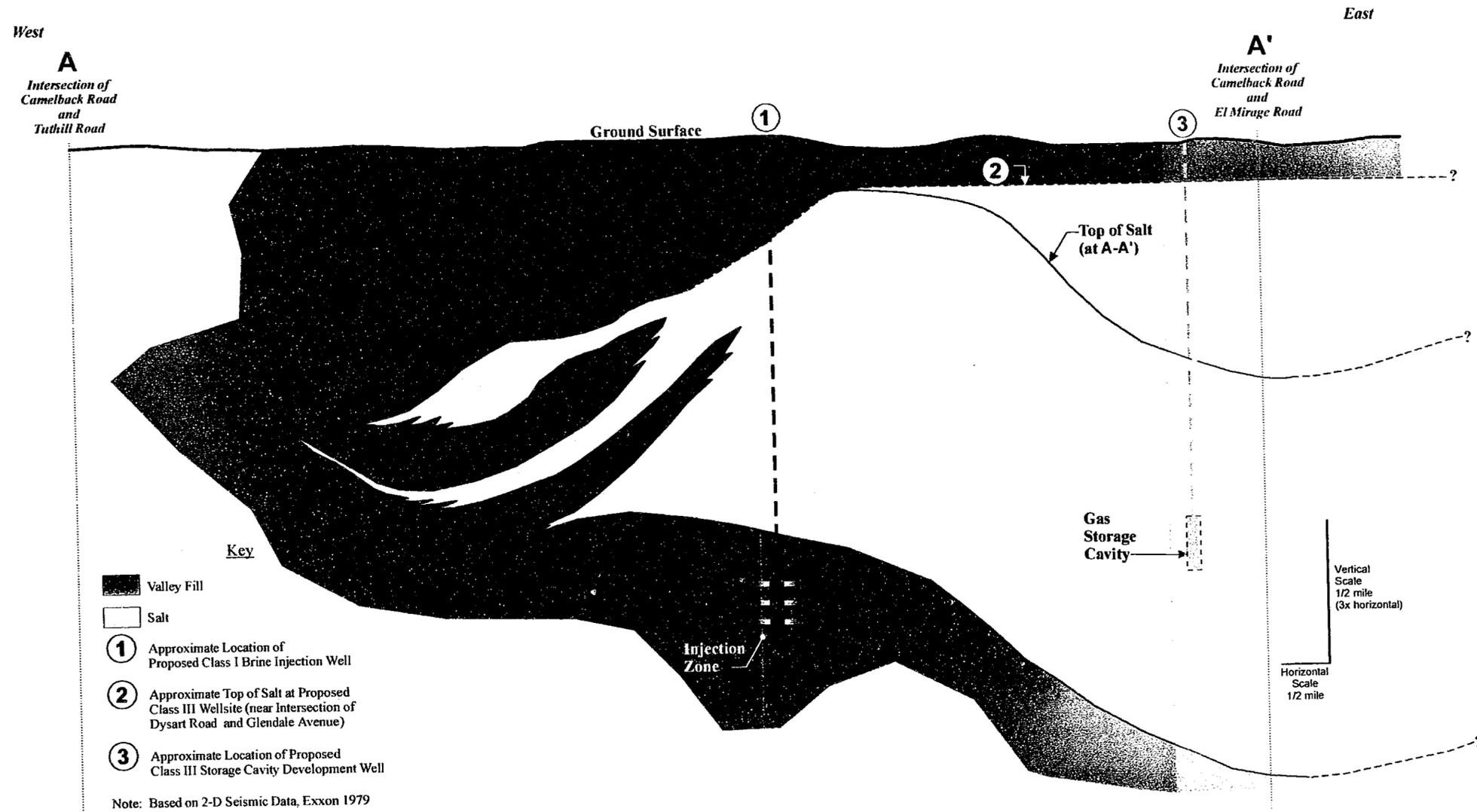
A summary of the planned scope of the EPA Class I and Class III injection well permit applications is provided in Appendix A. This defines the topics that the Applicants plan to develop. The scope is provided so that ADEQ can identify the elements of the planned scope that would be relevant to the Aquifer Protection Permit (APP). This also provides ADEQ with an opportunity to identify any elements essential to an APP application that may be missing from the planned scope of the project.

APPENDIX A



APPENDIX A

Figure 4. Idealized East-West Profile — Luke Basin



- Key**
-  Valley Fill
 -  Salt
 - 1** Approximate Location of Proposed Class I Brine Injection Well
 - 2** Approximate Top of Salt at Proposed Class III Well site (near Intersection of Dysart Road and Glendale Avenue)
 - 3** Approximate Location of Proposed Class III Storage Cavity Development Well

Note: Based on 2-D Seismic Data, Exxon 1979

Figure 4. Idealized East-West Profile — Luke Basin

SUNCOR DEV 1-2 SUNCOR DEV
 SE SW 7-2N-1W
 (908)

APPENDIX A

Draft: May 22, 2001

Page 11

APPENDIX A

**SCOPE OF WORK FOR EPA CLASS I AND CLASS III PERMIT
APPLICATIONS**

SCOPE OF WORK FOR EPA CLASS I AND CLASS III PERMIT APPLICATIONS

The UIC permitting program requires Attachments A, B, C, D, F, H, I, J, K, L, M, N, O, P, Q, R, S, and U for a new Class I well. These attachments form the bulk of the application and constitute the technical basis for approval of the permit.

A. Area of Review

The location of the injection well and the boundary of the area of review will be presented in this section. The area of review (AoR) is generally set at a ¼-mile radius from the proposed borehole.

B. Map of Wells and Area of Review

This attachment will generally consist of a few paragraphs of text and a topographic map. Wells within the area of review and property owners will be identified. The topographic map will extend one mile beyond the property boundaries. The map will include the area of review, locations of wells, locations of discharge/intake structures, waste areas, monitoring wells, surface water bodies, and drinking water wells.

Property owners will be notified that the applicant is applying for a UIC permit. A copy of the "Notice of Intent" (NOI) will be provided with the application, along with a list of property owners.

C. Corrective Action Plan and Well Data

Information will be provided on wells that are within the area of review, including those owned and operated by others. This information includes items such as type of well, horizontal and vertical location, well construction details, ownership data, date constructed, and plugging and abandonment details. If there are abandoned wells that may be a potential contamination pathway for the proposed well, corrective action may be required.

In order to obtain the well information to complete Attachments A, B, and C, the Arizona Department of Water Resources (ADWR) will be contacted and a well search conducted within the AoR.

D. Maps and Cross Section of USDWs

A map will be provided that shows the vertical and horizontal locations of USDWs within the area of review, or the lack of USDWs. The injection zone and direction of water flow also needs to be shown. We will likely develop a thorough discussion of regional and site hydrology to support the delineation of USDWs. Supporting data such as water quality data, aquifer data (hydraulic conductivity, storativity, etc.), groundwater uses in the area, and other related items will be included.

F. Maps and Cross Section of the Geologic Structure of the Area

Maps will be provided that show a cross section of the geologic structure of the local and regional area. We will develop a thorough discussion of regional and site geology, including stratigraphy and structure. Within this attachment, we will address some of the primary technical issues that will be of concern to EPA. At this time we anticipate that the ability of the formation to accept the projected volume of disposal fluid and the analysis of pressure to show that fracturing would not occur (or propagation of existing fractures) under the proposed operating conditions will be two of the key issues.

Detailed technical information for the receiving formation may not be readily available. Depending on the amount of information available and the anticipated operating pressures, it may be necessary to conduct formation testing prior to or during well construction, particularly for fracture potential data and formation receptivity.

H. Operating Data

This attachment is essentially the operational plan for the well. Injection data will be provided, including flow rates, pressure, annulus fluid details, source of injection constituents (waste), and physical and chemical composition of the injection fluid. Stimulation techniques (acid washing) will also be defined. Disposal fluid testing data will be provided with solubilities of the constituents at proposed injection temperatures and pressures to assess the potential for well plugging.

I. Formation Testing Program

Any planned formation testing will be provided in this attachment. As noted in Attachment F, the application for the well would include substantial information regarding how the formation would accept the injected fluids and fracture potential if formation testing is not proposed. Additionally, it will be necessary to determine the physical and chemical characteristics of formation fluids. We expect that a formation-testing program will need to be developed, at least for testing the receptivity of the formation.

J. Stimulation Program

A description of any well stimulation program will be provided. This will include the methods and constituents used in the stimulation program.

K. Injection Procedures

This attachment will consist of information regarding the procedures for injection, such as where the fluid would be introduced, how the measuring devices would be used, startup and shutdown details, etc. Any plan for treatment such as acid washing will be addressed here and also discussed in Attachments H and N.

Draft: May 22, 2001

Page 14

L. Construction Procedures for Wells

This attachment is essentially the detailed well design and construction methods. Before this attachment is prepared, a significant amount of work will be done to select the casing, determine perforation details, design the wellhead and fluid delivery system, etc. Drilling and construction details will be provided that include casing and cementing information, logging measures, methods for checking borehole deviation, coring methods, and other testing procedures. Casing will need to be specified based on the nature of the fluids, depth of the well, and method of drilling.

In general, the well will need to incorporate the use of a tubing string within a long string casing. A packer or fluid seal is required to be installed above the injection zone. The annulus between the tubing and long string must be filled with a fluid and a positive pressure shall be maintained on the annulus. It will be necessary to complete resistivity, spontaneous potential, gamma ray, porosity, and caliper logs prior to setting casing and a cement bond, temperature, or density log after the casing is cemented. A fracture finder log is likely to be included for intermediate and long string casings.

M. Construction Details

A diagram of the well will be provided that shows surface and subsurface detail. Geological and hydrological data will also be included. Although not specifically required in the regulations, a map or site plan of the well pad will also be included.

N. Changes in Injected Fluid

Expected changes in injection pressures, fluid characteristics, and flow patterns will be included in this attachment. Assuming that the operation of the well is fairly consistent including maximum flow rates and durations, fluid characteristics, and operating pressures, this attachment should be fairly minor. In large part it should need only to describe the variability in the operation described in Attachment H including any treatment programs.

O. Plan for Well Failure

This attachment will discuss the contingency plan to deal with shutting down (or shutting in) a well to prevent fluid migration into USDWs if a well failure occurred. In general, we anticipate that this section will include a discussion of the fact that tubing failures would be contained in the outer casing. It will be necessary to show that there is adequate monitoring (Attachment P) to detect a well failure and to detail what conditions will be considered indicative of well failure. EPA will likely require a fairly detailed definition of the conditions that would constitute well failure. The well failure plan will need to provide for corrective action such as cementing, spray coatings, etc. to repair the casing upon identification of a well failure.

A contingency plan for handling or storage of the injection fluid in the event of a shut down should also be included. Perhaps temporary pond storage would be available in this case.

P. Monitoring Program

This attachment will include locations and details of monitoring wells, sampling frequencies, monitoring equipment specifications, and analytical constituents. It will describe well failure detection, mechanical integrity testing, process monitoring, and reporting. In general, it will thoroughly describe the equipment and sensitivity used in monitoring the well and the injection fluid. At a minimum, necessary monitoring includes periodic analysis of injection fluid, continuous recording of injection pressure, flow rate, and volume; mechanical integrity testing at least every 5 years; and the proposed well monitoring program for USDWs. Existing wells may be adequate for the USDW monitoring depending on the site hydrology. Additional monitoring requirements may be imposed by EPA and ADEQ.

Q. Plugging and Abandonment Plan

The Plugging and Abandonment Plan will include the type, number, and placement of plugs, cement specifications, and plug placing method information. A separate form (7520-14) will be provided in this attachment. At a minimum, it will be necessary to provide plugs across any hydrologic zone that might impact a USDW. The plan will provide details on how the well will be stabilized prior to plugging, the number and location of plugs, and cementing details including methods.

R. Necessary Resources

This attachment requires a surety bond or financial statement that verifies the financial resources necessary to close, plug, or abandon the well are available. An estimate of the costs to plug and abandon the well according to the specifications in Attachment Q will be provided.

S. Aquifer Exemption

If an aquifer is to be exempted from categorization as a USDW, details need to be provided in this attachment. It is not anticipated that an aquifer exemption would be needed for this well.

U. Description of Business

A brief description of the nature of the business (the Applicants) is all that needs to be provided in this attachment.



January 5, 2001

FEDERAL EXPRESS
(520) 770-3500

Mr. Steven L. Rauzi
State of Arizona
Arizona Geological Survey
416 W. Congress, Suite 100
Tucson, AZ 85701

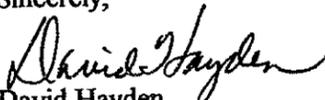
RE: SunCor Development #1-2 Well; Section 2-T2N-R1W; Maricopa County, AZ
State Permit #908

Dear Mr. Rauzi:

As per your request and our previous discussions, please find enclosed the drilling prognosis for the above captioned well. The package includes information on the drilling of the proposed stratigraphic test well, including information on the mud, casing and cementing programs. Please note that as a result of some possible concerns about drilling approximately 800 feet into the salt before setting the surface casing, the procedure has been changed to drill through the anhydrite (approximately 200 feet into the salt) and then set the surface casing. Please advise if a change needs to be made to the drilling permit or if this notice and drilling prognosis will suffice.

If you have any questions, please feel free to give me a call at (318) 677-5511.

Sincerely,


David Hayden
Sr. Vice President

Enclosure

DRILLING PROGRAM

SUNCOR DEVELOPMENT
SUNCOR # 1-2

P/N 908

WILDCAT
MARICOPA COUNTY, ARIZONA
SEC 02 - T2N - R1W

PREPARED BY B. R. SUGGS

December 15, 2000
Revised 12/28/00

BRAMMER ENGINEERING, INC.
333 TEXAS STREET, SUITE 1425
SHREVEPORT, LA 71101-5323
(318) 429-2345

TABLE OF CONTENTS

Permit Plat	1
Well Information Overview	2 & 3
Well Bore Schematic	4
Drilling Curve	5
Chronological Prognosis	6
Specifications	7
Deviation Survey Req'd	8
Mud and Bits	9
Logging & Evaluation	10
Conductor Pipe & Surface Casing	11
Cement	12
Wellhead	13

**WELL INFORMATION
OVERVIEW**

Operator:	Suncor Development	Proposed TD:	+/- 5200'
Well Name:	Suncor # 1-2	Serial No:	To be furn. At a later
Field:	Wildcat	Elevations:	Date
Co/Ph, State:	Maricopa County, Arizona		
Surface Loc:	Sec. 02-T2N-R1W 2065'FWL & 823'FSL		
BHL:	Same, Vertical Hole	Estimated Days:	20
		Surface:	5
Objectives:	Salt Stratagraphic Test	Production Hole:	13
		Final:	2
		Total to TD:	20

Location Contractor: Unknown at this time

Drilling Contractor: Nabors Drilling

Contract Type: IADC Daywork

Conservation Agent: Steven L. Rauzi, Oil and Gas Program Administrator, Arizona Geological Survey, 416 W Congress, Suite 100, Tucson, Arizona 85701, 520-770-3500

NOTIFY AT SPUD, SETTING CASING, TESTING BOP'S AND PxA. Give 48 hrs notice.

Direction to Well: Go west on I-10 from Phoenix, turn right and go north on loop 101, turn left on Glendale Ave. and go west 3 miles, turn right and go north on El Mirage 1/2 mile to entrance on left, South of canal.

Remarks: This will be permitted as a stratagraphic test and will be drilled and cored, logged and Plugged. Fresh water and 10 ppg brine will be available from the Morton salt facility 2000' to the west of the location. If conductor and rathole is not done it can be done with drilling rig.

Hole Section: MD	Hole Size:	Casing:	Cement:	MW	Other:
0-40' to 80'		16" x 0.375"	Grouted to surface		
0-1000'	12-1/4"	9-5/8", 36#/ft, H-40, ST&C	Salt slurry: 18% salt, 0.3% CFR-3, 0.15% D-air mixed with fresh water.	8.8 - 10.0	
1,000' to 5,200'	8-1/2"	To be P x A	P x A cement, same as above slurry	10.0-11.0	

FORMATION	ESTIMATED TOP - TVD
Anhydrite	600' to 800'
Salt	800' to TD

INVOICES:

All equipment and services should be billed to:

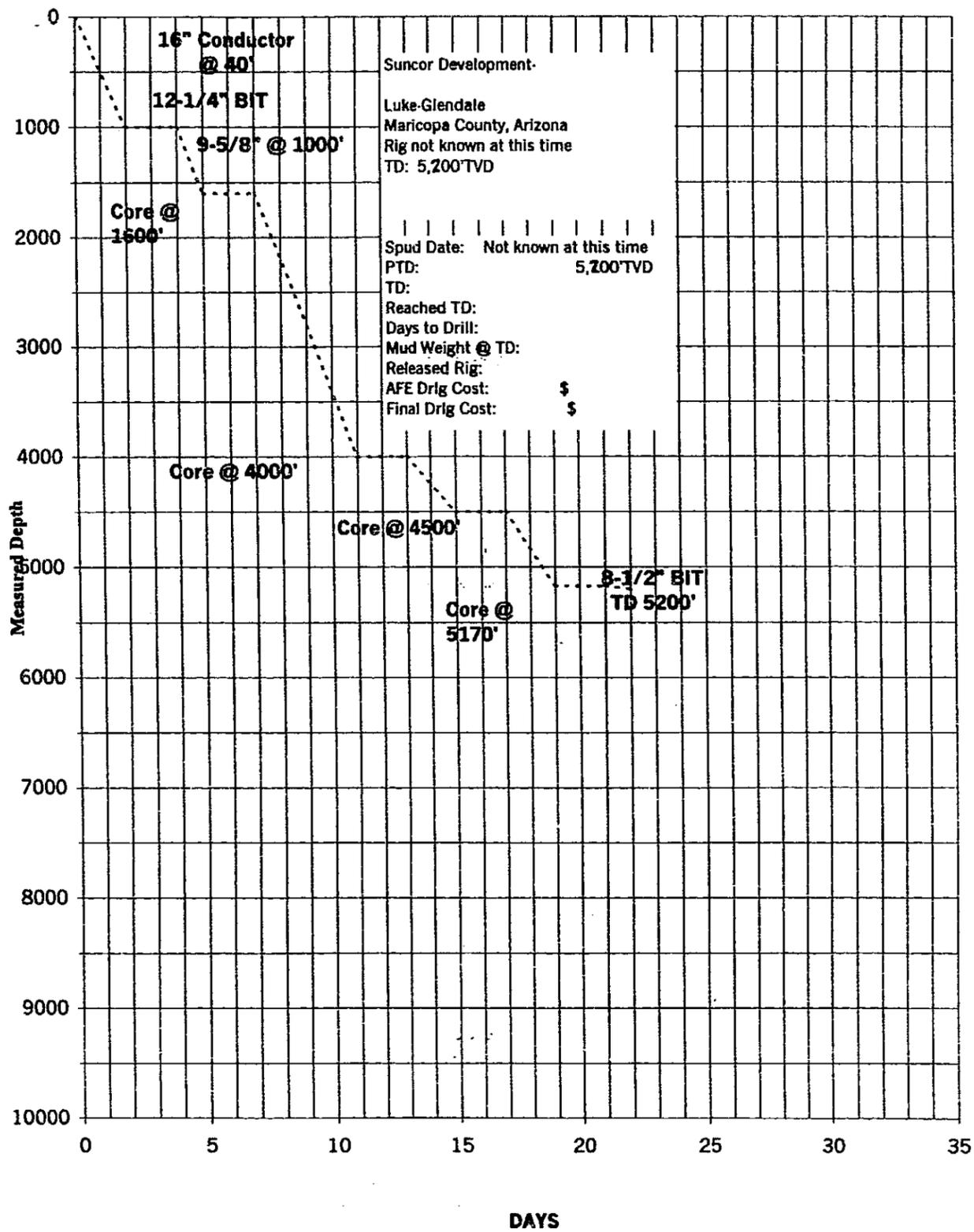
Brammer Engineering, Inc.
333 Texas Street, Suite 1425
Shreveport, La 71101-5323

Rig Phone:

Co. Representative
Mud Logger

To be determined
Gas Detector Only

SUNCOR DEVELOPMENT



CHRONOLOGICAL PROGNOSIS

NOTE: See Details and Specifications Section for Additional Information and Instructions!

1. Move in and RU Land Rig
2. Drill Rat Hole, Set 40' to 80' of 16" conductor pipe if not already set
3. Drill 12 1/4" hole to 1,000' or 200' into the salt or a major chloride increase.

NOTE: There will be a 200' to 400' Anhydrite cap above the top of salt.

Expect top of salt at +/- 800'

4. Run 9-5/8" surface casing to 1,000' and cement to surface. WOC 6 hrs before cutting
5. NU 11" 5000# X 9-5/8" SOW casing head. NU 13-5/8" 5000 psi BOP's. Test rams and valves to 250 psi/5000 psi. Test annular to 250 psi/3000 psi.
6. Install wear bushing in casing head before drilling out surface casing.
7. Clean out 9 5/8" casing to float collar with 8-1/2" bit. Test casing to 1000 psi. Drill FC and 20' of cement. Retest casing. Drill shoe and 5' of formation. Test casing shoe to leak off or not to exceed 13 ppg EMW. Squeeze and retest if necessary.
8. Change over to Salt-saturated mud system and drill to 1650'.
9. Drill and core 8-1/2" hole to +/-5200'. Attempt 30' cores at 1650', 4000', 4500', 5170'.
10. Condition hole, run open-hole logs, and evaluate as required.
11. Trip in hole and circulate gelled brine in the hole. Set cement plug using salt cement slurry will be set from 100' below the casing shoe up to 100' inside the casing shoe. Gelled fresh water is to be left in the casing from TOC to surface. A 200' cement plug is to be set in the 9-5/8" from 200' to surf. Wellhead is to be removed and a cap welded on the 9-5/8" with a 4" pipe extended 4' above the GL with the well location and identity inscribed on the pipe. REFER TO PROPOSED P x A WELLBORE SCHEMATIC.

CHRONOLOGICAL PROGNOSIS

NOTE: See Details and Specifications Section for Additional Information and Instructions!

1. Move in and RU Land Rig
2. Drill Rat Hole, Set 40' to 80' of 16" conductor pipe if not already set
3. Drill 12 1/4" hole to 1,000' or 200' into the salt or a major chloride increase.

NOTE: There will be a 200' to 400' Anhydrite cap above the top of salt.

Expect top of salt at +/- 800'

4. Run 9-5/8" surface casing to 1,000' and cement to surface. WOC 6 hrs before cutting
5. NU 11" 5000# X 9-5/8" SOW casing head. NU 13-5/8" 5000 psi BOP's. Test rams and valves to 250 psi/5000 psi. Test annular to 250 psi/3000 psi.
6. Install wear bushing in casing head before drilling out surface casing.
7. Clean out 9 5/8" casing to float collar with 8-1/2" bit. Test casing to 1000 psi. Drill FC and 20' of cement. Retest casing. Drill shoe and 5' of formation. Test casing shoe to leak off or not to exceed 13 ppg EMW. Squeeze and retest if necessary.
8. Change over to Salt-saturated mud system and drill to 1650'.
9. Drill and core 8-1/2" hole to +/-5200'. Attempt 30' cores at 1650', 4000', 4500', 5170'.
10. Condition hole, run open-hole logs, and evaluate as required.
11. Trip in hole and circulate gelled brine in the hole. Set cement plug using salt cement slurry will be set from 100' below the casing shoe up to 100' inside the casing shoe. Gelled fresh water is to be left in the casing from TOC to surface. A 200' cement plug is to be set in the 9-5/8" from 200' to surf. Wellhead is to be removed and a cap welded on the 9-5/8" with a 4" pipe extended 4' above the GL with the well location and identity inscribed on the pipe. **REFER TO PROPOSED P x A WELLBORE SCHEMATIC.**

SUNCOR DEVELOPMENT INC.

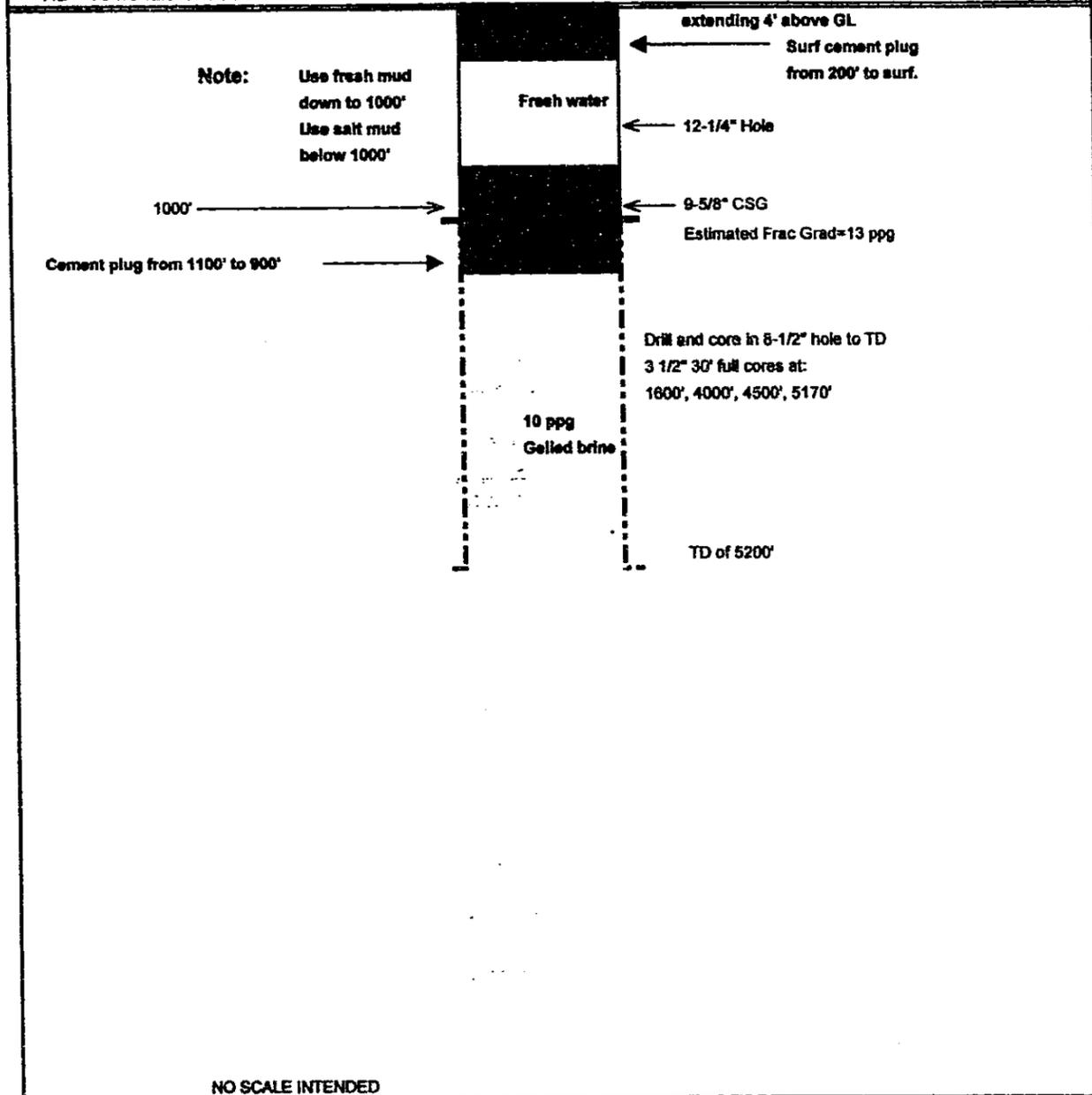
Suncor # 1-2
Maricopa County, Arizona
Luke-Glendale Field

WELLBORE SCHEMATIC

KB - To be furnished at a later date

FOR P x A

NOTE: 9-5/8" csg cutoff and capped with 4" pipe



DRILLING SPECIFICATIONS

GENERAL INSTRUCTIONS:

1. Run appropriate BHA. Discuss with operations supervisor.
2. Two TIW and one inside Gray BOP safety valves of appropriate sizes to be in open position on rig floor at all times.
3. Inspect, measure, and caliper all subsurface drilling tools prior to running in hole.
4. Design drill strings for 100,000# over pull and ensure that recommended torque values along with proper makeup procedures are used.
5. Minimize casing wear by using smooth hard band or non-hard banded drill strings inside casing. Use DP rubbers (one every other joint) inside all casing strings.
6. Optimize hydraulics.
7. Record slow pump pressures and rates each tower.
8. Insure that safety meetings are conducted daily with each crew.

BOP REQUIREMENTS:

Hole Size	Number	Size	WP psi	Test Pressure psi	Configuration
12-1/4"	NONE	REQUIRED			
8-1/2"	1 - Ann 2 - Ram	13-5/8"	5000 5000	250/3000 250/5000	Annular-Pipe-Blind-

Instructions:

1. Test BOP's to above pressure when installed (with 3rd party) and every 14 days there after. Note all tests on IADC tower report.
2. Work rams on all trips. Record on morning report and IADC tower report.
3. Ensure that accumulator/closing units are checked daily.
4. Conduct BOP drills once per week with each crew as appropriate.

PERIPHERAL EQUIPMENT:

DEVIATION SURVEYS: Run Deviation Survey at 500' intervals or casing points. Must not deviate greater than 100' from surface hole.

MUD SPECIFICATIONS

Controlled by Operator. Use Baroid for mud & chemicals. Maintain mud parameters as follows:

					V.P.
0' - 1000'	8.8 - 9.0	45-50	NC	NC	20-25
1,000' - 5200'	10.0-10.0	36-40	10-8	8-10	10-14

BIT SPECIFICATIONS

RECOMMENDED BIT PROGRAM:

No.	Size	IADC CODE	DEPTH OUT	HRS	Cum Hrs	ROP FT/HR	WOB	RPM
1	12-1/4"	116	1000'	40	40	24	20 to 35	150/120
SET 9 5/8" CASING @ 1000'								
2	8-1/2"	M-96	5200'	184	220	30	10 to 20	70/60

Note: Drilling hrs does not include coring time.

LOGGING & EVALUATION SPECIFICATIONS

CUTTINGS: None needed

MUD LOGGER: None needed

DRILLSTEM TEST: None

CORES: (4) 3-1/2" 30' Full cores at 1650', 4000', 4500', and 5170'

ELECTRIC LOGGING:

At 5200': 1) Triple Combo from TD to base of surface casing
Or TD

LOGGING WHILE DRILLING: None

CASING SPECIFICATIONS

CONDUCTOR PIPE : (0' - 40' to 80')
16" x 0.375" Wall Grade B Line Pipe

SURFACE CASING : (0-1000')
9-5/8" 36 #/ft H-40 ST&C (New, API, Prime)

Running Instructions:

1. Visually inspect, strap, and number each joint. Compare strap to delivery ticket.
2. Remove thread protectors and clean threads if necessary.
3. Run float shoe and float collar one joint above shoe. Weld float shoe and float collar.
4. Run centralizers 5' above shoe, at float collar, at 1st collar above float collar, and at every other collar to surface.
5. Torque to API recommended values.
6. Use API-HP thread lubricant.
7. Tag bottom and check measurements. Pick up off bottom and circulate at least 1 1/2 casing volumes or two bottoms up minimum prior to cementing.
8. Reciprocate casing while circulating and cementing.
9. Hang string in full tension.
10. WOC 6 hrs. Monitor annulus while WOC.
11. Do 150 sx top job with fresh water cement

NOTE: Do not drill out or test casing for 12 hr minimum after cementing.

Testing Instructions:

1. Clean out casing with 8-1/2" bit to float collar.
2. Test casing to 1000 psi for 30 minutes.
3. Drill FC plus 20' of cement and retest casing to 1000 psi.
4. Drill out rest of shoe joint plus 5' of formation.
5. Circ hole clean and test shoe to 13 ppg EMW. If shoe fails to test, squeeze and retest.

CASING SPECIFICATIONS

CONDUCTOR PIPE : (0' - 40' to 80')
16" x 0.375" Wall Grade B Line Pipe

SURFACE CASING : (0-1000')
9-5/8" 36 #/ft H-40 ST&C (New, API, Prime)

Running Instructions:

1. Visually inspect, strap, and number each joint. Compare strap to delivery ticket.
2. Remove thread protectors and clean threads if necessary.
3. Run float shoe and float collar one joint above shoe. Weld float shoe and float collar.
4. Run centralizers 5' above shoe, at float collar, at 1st collar above float collar, and at every other collar to surface.
5. Torque to API recommended values.
6. Use API-HP thread lubricant.
7. Tag bottom and check measurements. Pick up off bottom and circulate at least 1 1/2 casing volumes or two bottoms up minimum prior to cementing.
8. Reciprocate casing while circulating and cementing.
9. Hang string in full tension.
10. WOC 6 hrs. Monitor annulus while WOC.
11. Do 150 sx top job with fresh water cement

NOTE: Donot drill out or test casing for 12 hr minimum after cementing.

Testing Instructions:

1. Clean out casing with 8-1/2" bit to float collar.
2. Test casing to 1000 psi for 30 minutes.
3. Drill FC plus 20' of cement and retest casing to 1000 psi.
4. Drill out rest of shoe joint plus 5' of formation.
5. Circ hole clean and test shoe to 13 ppg EMW. If shoe fails to test, squeeze and retest.

CEMENT SPECIFICATIONS

SURFACE CASING:

Casing Size:	9 5/8"	Mud Weight:	10.0 ppg
Hole Size:	12 1/4"	Fillup:	Surface
Depth:	1000'	Excess:	65%

Recommended Cement:

Lead Slurry:	480 sx Salt Slurry, 16.5 ppg, 1.12 yield, 18% salt + 0.3% CFR-3 + 0.15% D-Air, mixed with fresh water.		
Tail Slurry:	Same		
Top Out Slurry:	Cl A + 2% CACL ₂		

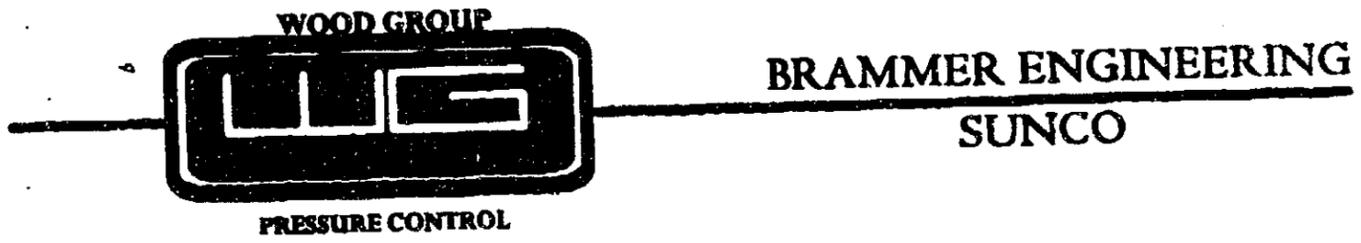
Instructions:

1. Reciprocate casing while circulating and cementing
2. Bump plug with 500 psi over circulating pressure.
3. Perform top job using 1" pipe, if necessary.
4. Hold casing in full tension until initial cement set up.
5. WOC 6 hrs before cutting csg.
6. WOC 12 hrs before drilling out.

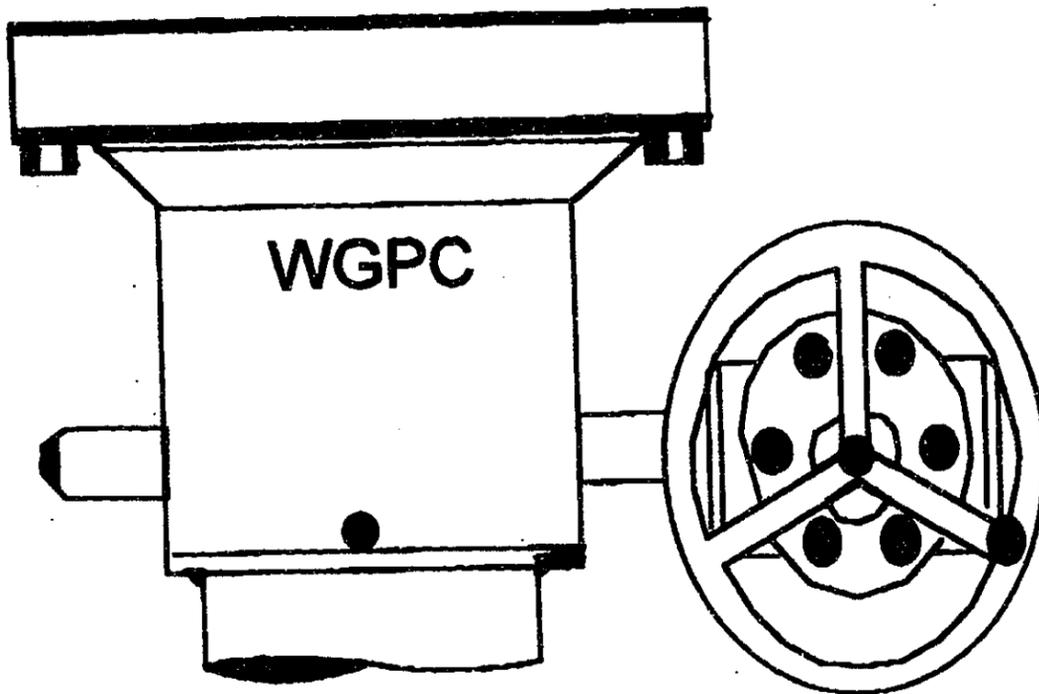
WELLHEAD SPECIFICATIONS

11" 5000# X 9-5/8" SOW braden head with one outlet with 2" 5000 psi gate valve, company.

NOTE: This is a rental item and will be returned after the well is P x A.



RENTAL HEAD 11" 5000# X 9-5/8", SOW
W/2" LINE PIPE GATE VALVE = \$450.00



BAROID
INDUSTRIAL DRILLING PRODUCTS
a Halliburton Company
3810 E. 40th Street
Tucson, Arizona 85713

December 29, 2000
(Revised)

DRILLING FLUIDS PROGRAM

SUNCOR #1 - 2
5200' Salt Test
Section 2 / R 1 W / T 2 N
Maricopa County, Arizona

For: Billy Ray Suggs
Brammer Engineering
Shreveport, Louisiana

By: Dwaine Hussey - Area Supv.
BAROID IDP
(O) 520/745-6181
(C) 520/419-5871

cc. Dennis Johnson - Grp. Mgr.
Bill Harder - Phx. Eng. (602/339-2367)

**BAROID INDUSTRIAL DRILLING PRODUCTS
RECOMMENDED DRILLING MUD PROGRAM**

SYNOPSIS

Brammer Engineering / Suncor #1-2 / 5200' Salt Test

Drilling will commence using Conventional Mud Rotary. A 12 1/4" hole will be drilled to the depth of 1000' and 9 5/8" casing set. This section will be drilled with a modified Spud Mud, maintaining properties as needed to keep hole clean and maintained.

Drilling will continue with a 8 1/2" hole to a total depth of 5200'+/- . While drilling from under casing four (4) cores will be cut, at 1600', 4000', 4500' and the last at 5170'. A Salt Mud will be used to drill this section also.

Products

- | | |
|--|--|
| SODA ASH | - To treat calcium and build pH. |
| AQUA GEL | - To build spud mud viscosity. |
| ZEOGEL | - To build initial viscosity. |
| DRISPAC PLUS | - For filtrate control and Clay/Shale stabilization. |
| IMPERMEX | - For additional hole stabilization, and filtrate control. |
| SODIUM CHLORIDE BRINE
(Will be furnished by Operator) | - For borehole and drilling fluid inhibition. |
| CAUSTIC SODA | - For pH control if needed. |
| DESCO CF | - Thinner to treat Anhydrite. |

ESTIMATED COST

Well cost are estimated to be \$35,000.00 (revision due to operator furnishing Brine) not including Loss of Circulation, Abnormal Formation Pressure, or any unforeseen hole or drilling problems.

Some caverns have been encountered in this general area also.

**Baroid Industrial Drilling Products
Recommended Drilling Fluids Program**

Brammer Engineering / Suncor #1-2 / 5200' Salt Test

Depth	Properties	Product Units
0' - 1000'	Weight - <9.4 #/gal Viscosity - 50+/- sec/qt Filtrate Control - < 25 cc's Rheology Control - Anhydrite Contamin.	Spud Mud Soda Ash & Aqua Gel Drispac Plus Reg. Desco
1000' - 5200'	Weight - 10.0 #/gal ** Viscosity - 40 +/- sec/qt Filtrate Control - < 15. cc's Chloride's - 186,000ppm	Zoogel for Viscosity Drispac Plus for Filtrate. Impermex " " Sodium Chloride (Salt)

Other potential problems that can exist are: 1. Loss of Circulation
2. Abnormal Formation Pressure

These will have to be dealt with if they occur by all concerned.

The Drilling Fluid Properties will need to be checked and recorded by the Drilling Crew twice each tour (shift).

A Drilling Fluids Engineer will set up the initial program and check drilling fluid daily or as needed if a problem occurs, and can't be handled by the drill crews.

All materials are available at our Phoenix distributor/Bill Johnson Equipment Company with backup via Baroid's Tucson Warehouse.

Pricing will be F.O.B. Warehouse - Rates are \$28.00/hr for Truck &/or Trailer, this is 4 pallets maximum. Larger loads are cost plus.

Baroid & B.J.E.C. request at least 10 days prior notice as most of these products are not stocked locally.

**BAROID INDUSTRIAL DRILLING PRODUCTS
RECOMMENDED DRILLING MUD PROGRAM**

Brammer Engineering / Suncor #1-2 / 5200' Salt Test

FORMATIONS

ESTIMATED FORMATION TOPS

Surface Sand & Gravels	0'	-	230' +/-
Sands, Cemented Sands & Clays	230'	-	605' +/-
Anhydrite, Gypsum, & Shale	605'	-	800' +/-
Salt (Halite)	800'	-	T.D. +/-

**Brammer Engineering
333 Texas St. Suite 1400
Shreveport, LA 77101**

Suncor #1-2

Maricopa, AZ

**Cementing
Recommendation**

Prepared for: Billy Ray Suggs

12/15/00

Revision

1

**Prepared by:
Nathan Smith
Halliburton Energy Services
4109 East Main Street
Farmington, NM 87402**

(505) 324-3500



The Future Is Working Together.



***Halliburton appreciates the opportunity to present
this proposal and looks forward to being of service to you.***

Foreword

Enclosed is our recommended procedure for cementing the surface casing of the referenced well. The information in this proposal and recommendation include well data, calculations, material requirements and cost estimates. The information in this proposal is based on information from field personnel and previous cementing services in the area. Halliburton appreciates the opportunity to present this proposal for your consideration and we look forward to being of service to you. If you require any additional information or additional designs, please feel free to contact myself or our representatives listed below.

Prepared by: Nathan Smith

Service Center:	Farmington
Service Coordinatore:	Randy Snyder
Oper. Engineer:	Matthew Gusdorf
Phone Number:	(505) 324-3500



Cement Production Casing

Well Information

Hole Size	12 1/4 in.
Casing Size	9 5/8 in.
TD	1000 ft.
Salt Formation Begins @	800 ft.
Cased Hole to	1000 ft.
Open Hole to	5200 ft.

**Cement Production Casing****Calculations**

SALT SLURRY: (1000 ft fill)

$$1000 \text{ ft} * 0.3132 \text{ ft}^3/\text{ft} * 65 \% = 516.76 \text{ ft}^3$$

$$\text{TOTAL SALT SLURRY} = 516.76 \text{ ft}^3$$
$$= 92.03 \text{ bbls}$$

SHOE JOINT VOLUME: (40 ft fill)

$$40 \text{ ft} * 0.0773 \text{ bbl}/\text{ft} = 17.36 \text{ ft}^3$$
$$= 3.09 \text{ bbls}$$

SALT SLURRY PLUS SHOE JOINT

$$= 534.12 \text{ ft}^3$$
$$= 95.12 \text{ bbls}$$

TOTAL DISPLACEMENT VOLUME: (1000 ft casing)

$$1000 \text{ ft} * 0.0773 \text{ bbl}/\text{ft} = 77.31 \text{ bbls}$$

$$= 77.31 \text{ bbls}$$

DISPLACEMENT VOLUME TO SHOE JOINT:

$$77.31 \text{ bbls} - 3.09 \text{ bbls} = 74.21 \text{ bbls}$$



Cement Production Casing

Job Recommendation

FLUID 1: SALT SLURRY

Salt Cement Slurry
.3% CRR-3 (Dispersant)
18% Salt (18%)
.15% D-21R 1-Powder (Defoamer)
Mixed With Fresh Water

Fluid Weight:	16.50 lb/gal
Fluid Yield:	1.12 ft ³ /sk
Fluid Water Ratio:	4.48 gal/sk
Total Mixing Fluid:	51.2 bbbls
Top of Fluid:	0 ft
Calculated Fill:	1000 ft
Fluid Volume:	95.12 bbbls
Calculated Volume:	461.5 sks
Shoe Joint Volume:	15.50 sks
Total Volume:	477.00 sks
Proposed Volume:	480 sks

FLUID 2: DISPLACEMENT

Total Displacement Volume:	77.31 bbbls
Spacer On Top Of Plug: 9 bbbls	
Displacement to Shoe Joint:	74.21 bbbls

Aborts slurry will also be used to plug and abandon the well
Slurry volumes are for cementing the casing to surface at 65% excess

**Cement Production Casing****Job Recommendation****FLUID 1: SALT SLURRY**

Salt Cement Slurry
.3% CFR-3 (Dispersant)
18% Salt (18 %)
.15% D-AIR 1- Powder (Defoamer)
Mixed With Fresh Water

Fluid Weight:	16.50 lb/gal
Fluid Yield:	1.12 ft ³ /sk
Fluid Water Ratio:	4.48 gal/sk
Total Mixing Fluid:	51.2 bbls
Top of Fluid:	0 ft
Calculated Fill:	1000 ft
Fluid Volume:	95.12 bbls
Calculated Volume:	461.5 sks
Shoe Joint Volume:	15.50 sks
Total Volume:	477.00 sks
Proposed Volume:	480 sks

FLUID 2: DISPLACEMENT

Total Displacement Volume:	77.31 bbls
Spacer On Top Of Plug:	0 bbls
Displacement to Shoe Joint:	74.21 bbls

Above slurry will also be used to plug and abandon the well
Slurry volumes are for cementing the casing to surface at 65% excess



Cement Production Casing

Cost Estimate

Price Ref	Description	Qty	U/M	Unit Price	Total
001-016	CEMENTING CASING	1000	FT	\$ 2,405.00	\$ 2,405.00
		1	UNT		
001-018	CEMENTING CASING - ADD HRS	0	HR	522.00	0.00
000-117	MILEAGE CEMENTING ROUND TRIP	1000	MI	4.05	4,050.00
		1	UNT		
000-119	MILEAGE FOR CREW	1000	MI	2.38	2,380.00
		1	UNT		
000-150	ENVIRONMENTAL SURCHARGE	1	JOB	66.24	66.24
000-151	IRON SAFETY INSPECTION SURCHG	1	JOB	39.74	39.74
500-207	BULK SERVICE CHARGE 3965	526	CFT	1.94	1,020.44
500-306	MILEAGE CMTG MAT DEL 76400	12135	TMI	1.39	16,867.65
045-050	PORT DATA ACQUISITION W/HALL	1	JOB	916.00	916.00
		1	DAY		
500-285	ENGINEERING FEE	1	EA	612.00	612.00
504-308	CEMENT - STANDARD 100003684	480	SK	14.43	6,926.40
507-153	CFR-3 100003653	136	LB	7.16	973.76
509-968	SALT	3215	LB	0.22	707.30
507-970	D-AIR 1- POWDER	68	LB	4.33	294.44
030-016	WOODEN PLUG	9.625	IN	117.00	1,126.13
		1	EA		
40	CENTRALIZER 9-5/8" X 12-1/4"	6	EA	95.00	570.00
	Part Number: 806.60065				
24A	INSERT FLOAT VALVE - 9 5/8" BRD	1	EA	266.00	266.00
	Part Number: 815.19551				
12A	GUIDE SHOE - 9 5/8" BRD THD.	1	EA	274.00	274.00
	Part Number: 825.221				
000-513	FOOD AND LODGING	2	DAY	244.00	0.00
TOTAL AMOUNT					\$ 39,495.10
DISCOUNT AMOUNT					15,553.25
DISCOUNTED TOTAL					\$ 23,941.85

NOTE: Service Location - Farmington



Conditions

NOTE

The cost in this analysis is good for the materials and/or services outlined within. These prices are based on Halliburton being awarded the work on a first call basis. Prices will be reviewed for adjustments if awarded on 2nd or 3rd call basis and/or after 30 days of this written analysis. This is in an effort to schedule our work and maintain a high quality of performance for our customers.

The unit prices stated in the proposal are based on our current published prices. The projected equipment, personnel, and material needs are only estimates based on information about the work presently available to us. At the time the work is actually performed, conditions then existing may require an increase or decrease in the equipment, personnel, and/or material needs. Charges will be based upon unit prices in effect at the time the work is performed and the amount of equipment, personnel, and/or material actually utilized in the work. Taxes, if any, are not included. Applicable taxes, if any, will be added to the actual invoice.

It is understood and agreed between the parties that with the exception of the subject discounts, all services performed and equipment and materials sold are provided subject to Halliburton's General Terms and Conditions contained in our current price list, (which include LIMITATION OF LIABILITY and WARRANTY provisions), and pursuant to the applicable Halliburton Work Order Contract (whether or not executed by you), unless a Master Service and/or Sales Contract applicable to the services, equipment, or materials supplied exists between your company and Halliburton, in which case the negotiated Master Contract shall govern the relationship between the parties. We enclose a copy of the General Terms and Conditions, for your convenient review, and we would appreciate receiving any questions you may have about them. Should your company be interested in negotiating a Master Contract with Halliburton, our Law Department would be pleased to work with you to finalize a mutually agreeable contract. In this connection, it is also understood and agreed that Customer will continue to execute Halliburton usual field work orders and/or tickets customarily required by Halliburton in connection with the furnishing of said services, equipment, and materials.

Any terms and conditions contained in purchase orders or other documents issued by the customer shall be of no effect except to confirm the type and quantity of services, equipment, and materials to be supplied to the customer.

If customer does not have an approved open account with Halliburton or a mutually executed written contract with Halliburton, which dictates payment terms different than those set forth in this clause, all sums due are payable in cash at the time of performance of services or delivery of equipment, products, or materials. If customer has an approved open account, invoices are payable on the twentieth day after date of invoice. Customer agrees to pay interest on any unpaid balance from the date payable until paid at the highest lawful contract rate applicable, but never to exceed 18% per annum. In the event Halliburton employs an attorney for collection of any account, customer agrees to pay attorney fees of 20% of the unpaid account, plus all collection and court costs.

**Brammer Engineering
Sun Core #1
Maricopa County, Arizona**

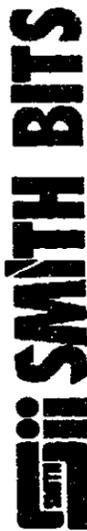


SMITH ii SMITH BITS

RECOMMENDED DRILLING PROGRAM

**Presented to:
Billy Ray Suggs**

December 1, 2000



RECOMMENDED DRILLING PROGRAM

OPERATOR:		CONTRACTOR/NO.:		WELL NAME / NUMBER:		PROPOSAL NO.:										
Brammer Engineering		Sun Core #1		Billy Ray Suggs												
COUNTY/STATE:		FIELD:		FIELD LOCATION:		FIELD REPRESENTATIVE:										
Maricopa County, Arizona		Bakersfield, California		Robbie Mundorf												
PREPARED BY:		PHONE:		DATE:		PROJECT NO.:										
Terry Kerr		303-623-8195		December 1, 2000		805-832-4034										
Bit No.	Bit Size (in)	Bit Type	JADC Code	MD Out	Pg	Drift Hrs	Conn. Drilling Hrs	ROP	WOB (lbs)	RPM	Bit Cost	Trips Hrs	Drift Hrs/Day	Advt Hrs (Cap. Log, DST...)	Days	Comments
1	12 1/4"	FDS+	116	1600	1580	65	65	24.0	20/35	150/120	\$7,820	1.8	20		3.3	
Set 9 5/8" Casing																
2	8 1/2"	Core		1690	90	30	95	3.0	10/20	60/50		1.7	16		6.3	
3	8 1/2"	M91	PDC	4000	2310	77	172	30.0	10/20	70/60	\$8,950	4.0	18		10.7	PDC Rental for Entire Well \$7,500 Minimum - \$ 3,000/M
4	8 1/2"	Core		4090	90	30	202	3.0	10/20	70/60		4.1	16		12.8	
5	8 1/2"	M91 - RR#3	PDC	4500	410	14	216	29.3	10/20	70/60	\$1,230	4.5	18		13.7	
6	8 1/2"	Core		4590	90	30	248	3.0	10/20	70/60		4.6	16		15.8	
7	8 1/2"	M91 - RR#5	PDC	5650	1060	35	281	30.3	10/20	70/60	\$3,180	5.7	18		18.0	
8	8 1/2"	Core		5740	90	30	311	3.0	10/20	70/60		5.7	16		20.1	

DRILLING SUMMARY			
	Total Hours	Percent	Total Days
Drilling Time	311.0	64.54%	13.0
Tripping Time	31.9	6.61%	1.3
Casing, Logging, DST Time	24.0	4.98%	1.0
Non-Drilling Time	115.0	23.87%	4.8
TOTAL	481.9	100%	20.1



DRILLING COST ANALYSIS

OPERATOR: **Brammer Engineering**
 COUNTY/STATE: **Maricopa County, Arizona**
 PREPARED BY: **Terry Keft**
 PHONE: **303-623-8195**

WELL NAME/NUMBER: **Sun Core #1**
 CONTRACTOR/FIG NO: _____
 FIELD: _____

PREPARED FOR: **Billy Ray Suggs**
 DATE: **December 1, 2000**
 PHONE: **805-832-4034**

FIELD REPRESENTATIVE: **Robbie Mundorf**

Bit No.	Bit Size	Bit Type	MO Out	Pig	Digs. W/L	ROP	Cum. Digs W/L	Oper. Rate	Interval Drilling Cost			Access. Dng Cost				
									Bit	Dng	Trip	Total	Per Ft.	Non-Dng	Total	Per Ft.
1	12 1/4"	FDS+	1600	1560	65	24.0	65	\$450	\$7,620	\$29,250	\$720	\$37,590	\$24.10	\$5,850	\$43,440	\$27.85
2	8 1/2"	Core	1690	90	30	3.0	95	\$550	\$16,500	\$930	\$17,430	\$193.66	\$8,250	\$69,120	\$41.89	
3	8 1/2"	M91	4000	2310	77	30.0	172	\$450	\$6,930	\$34,650	\$1,800	\$43,380	\$18.78	\$11,550	\$124,050	\$31.33
4	8 1/2"	Core	4090	90	30	3.0	202	\$550	\$16,500	\$2,250	\$18,750	\$208.33	\$8,250	\$151,049	\$37.30	
5	8 1/2"	M91 - RR#3	4500	410	14	29.3	216	\$450	\$1,230	\$6,300	\$2,025	\$9,555	\$23.30	\$2,100	\$162,704	\$38.48
6	8 1/2"	Core	4590	90	30	3.0	246	\$550	\$16,500	\$2,525	\$19,025	\$211.38	\$8,250	\$189,979	\$41.75	
7	8 1/2"	M91 - RR#5	5650	1060	35	30.3	281	\$450	\$3,180	\$15,750	\$2,543	\$21,473	\$20.26	\$5,250	\$216,701	\$38.83
8	8 1/2"	Core	5740	90	30	3.0	311	\$550	\$16,500	\$3,157	\$19,657	\$218.41	\$8,250	\$244,608	\$42.91	

COST SUMMARY

	Total Cost	Percentage
Drilling Cost	\$151,950	59.49%
Tripping Cost	\$15,948	6.24%
Bit Cost	\$18,960	7.42%
Casing, Logging, DST, etc... Time Cost	\$10,800	4.23%
Non-Drilling Cost	\$57,750	22.61%
TOTAL	\$255,408	100%

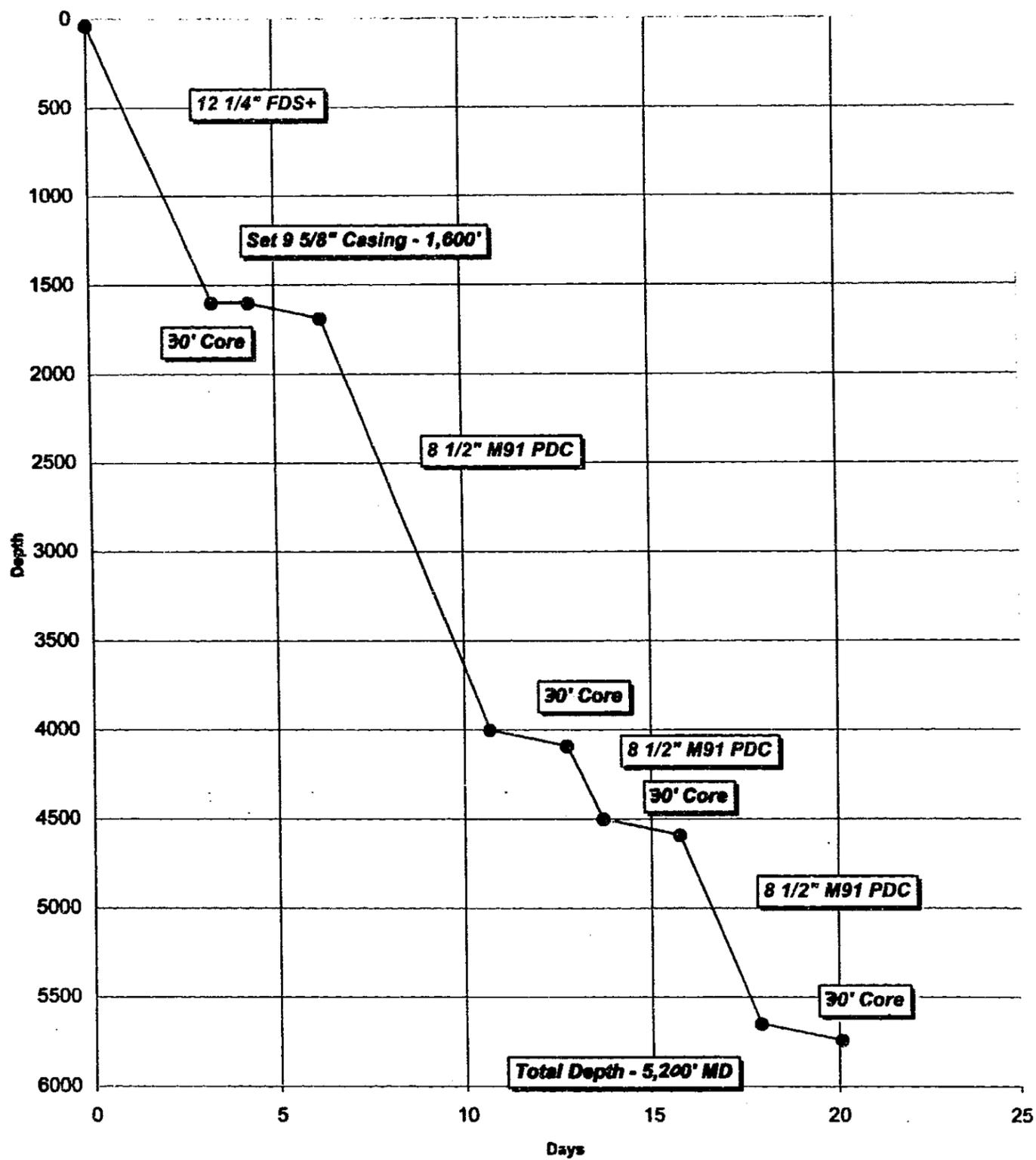
DRILLING COST ASSUMPTIONS

	Hourly Cost	Daily Cost
Rotary Drilling	\$450	\$10,800
Coring	\$550	\$13,200
Directional/Horizontal	\$750	\$18,000

SMITH BITS

Brammer Engineering
Sun Core #1

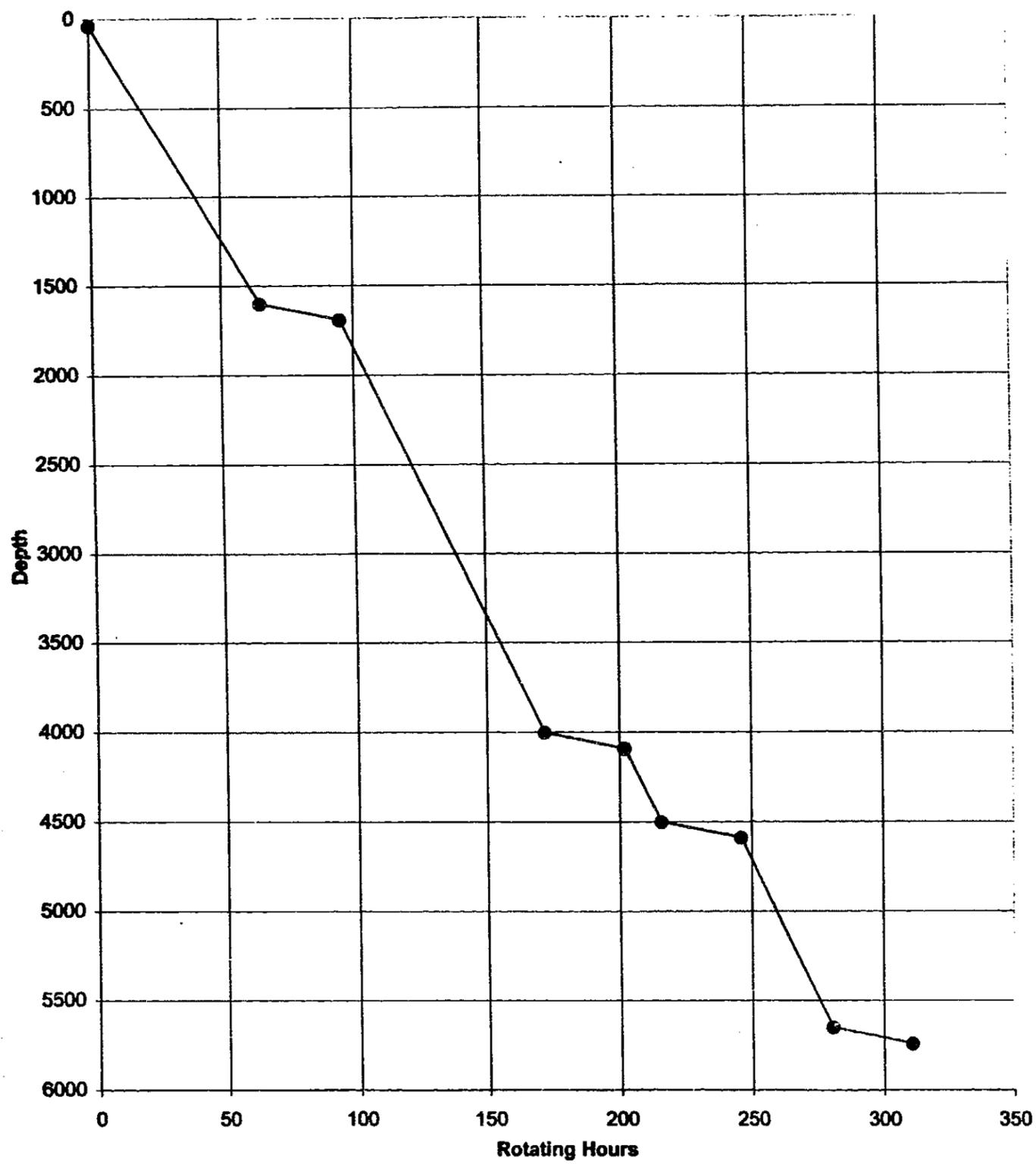
DAYS VS. DEPTH

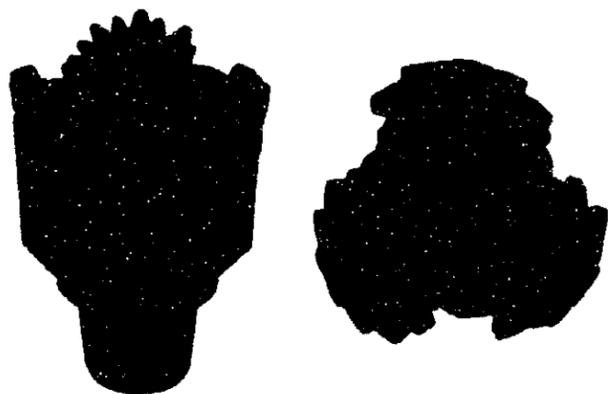


SMITH BITS

*Brammer Engineering
Sun Core #1*

ROTATING HOURS vs. DEPTH





**Smith
Tool**

IADC 116

Type

FDS+

Size

12-1/4"
(317.2mm)

Drilling Applications

Designed to drill long intervals of soft to medium-soft, low-compressive strength, unconsolidated formations such as clays, marls, soft shales, unconsolidated sands, halites and gypsums.

Design Specifications

Bearing Type	Spinodal
Seal Type	O-RING
Journal Angle	32-1/2°
Offset	3/8"
Number of Rows	7
Number of Teeth	65
Bit Connection Type	6-5/8" Reg.

General Operating Parameters

Weight-on-bit	
Lbs.	20,000 to 45,000
daN	8,896 to 20,017
Tonnes	9 to 20
Rotary Speed	50 to 160 rpm

Features	Benefits
Full cap hardfacing, Grade 70C+ hardmetal	Increased carbide content and application of hardmetal significantly reduces wear, extending tooth life and increasing ROP.
Highly aggressive cutting structure	Maximizes ROP in soft, highly drillable formations.
Maximum offset	Allows drilling at high ROP in speed-responsive formations.
Spinodal bearing	Greater tensile strength increases weight and rpm capability. High ductility provides increased impact resistance.
ST70M hardfacing on gage	Grade 70M hardfacing is a special alloy with large macrocrystalline grains that provides exceptional wear and impact resistance.

DSP970821110006 - Smith Tool Technical Services Rock Bit Database v. 3.1.24

SMITH TOOL

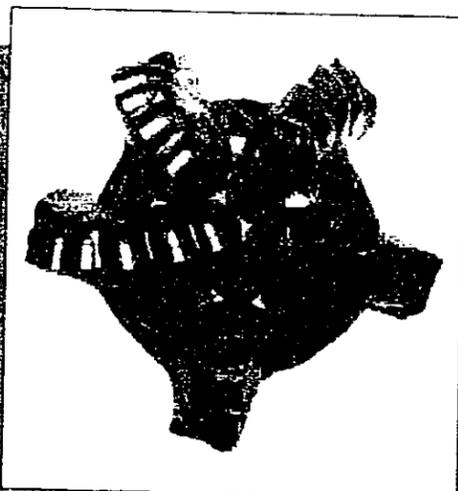
ER 1254

8-1/2" M91

IADC Code: M123

Design Specifications

Rotations	26
Weight	16
Length	12
Outer Diameter	8.5
Inner Diameter	2.5
Wear Resistant	50000
Material	Stainless Steel
Finish	Polished
Drilling Rate	1000



Features

- Advanced Cutter Placement
- Spiraled Blades and Gage
- Force Balanced
- Unsymmetrical Blade Layout
- Incremental Back Rake

Options

Special options are available upon request.



Operating Parameters

Rotations	26
Weight	16
Length	12
Outer Diameter	8.5
Inner Diameter	2.5
Wear Resistant	50000
Material	Stainless Steel
Finish	Polished
Drilling Rate	1000

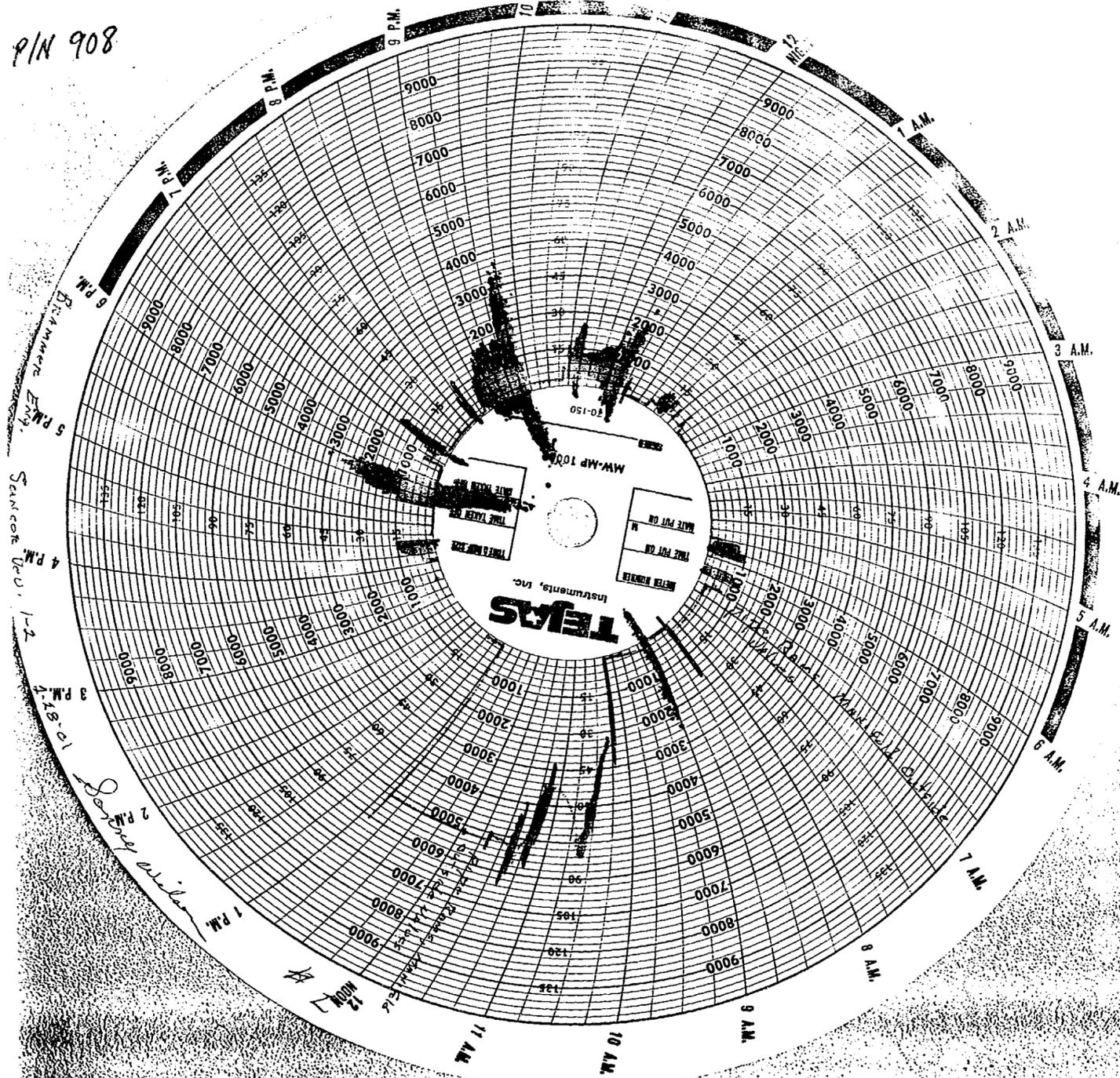
The M91 is a matrix body bit designed with stability enhancing features. Applications ranging from very soft to medium-soft formations. Good for transitional and directional drilling.

ER 1254 BITS

GEODIAMOND

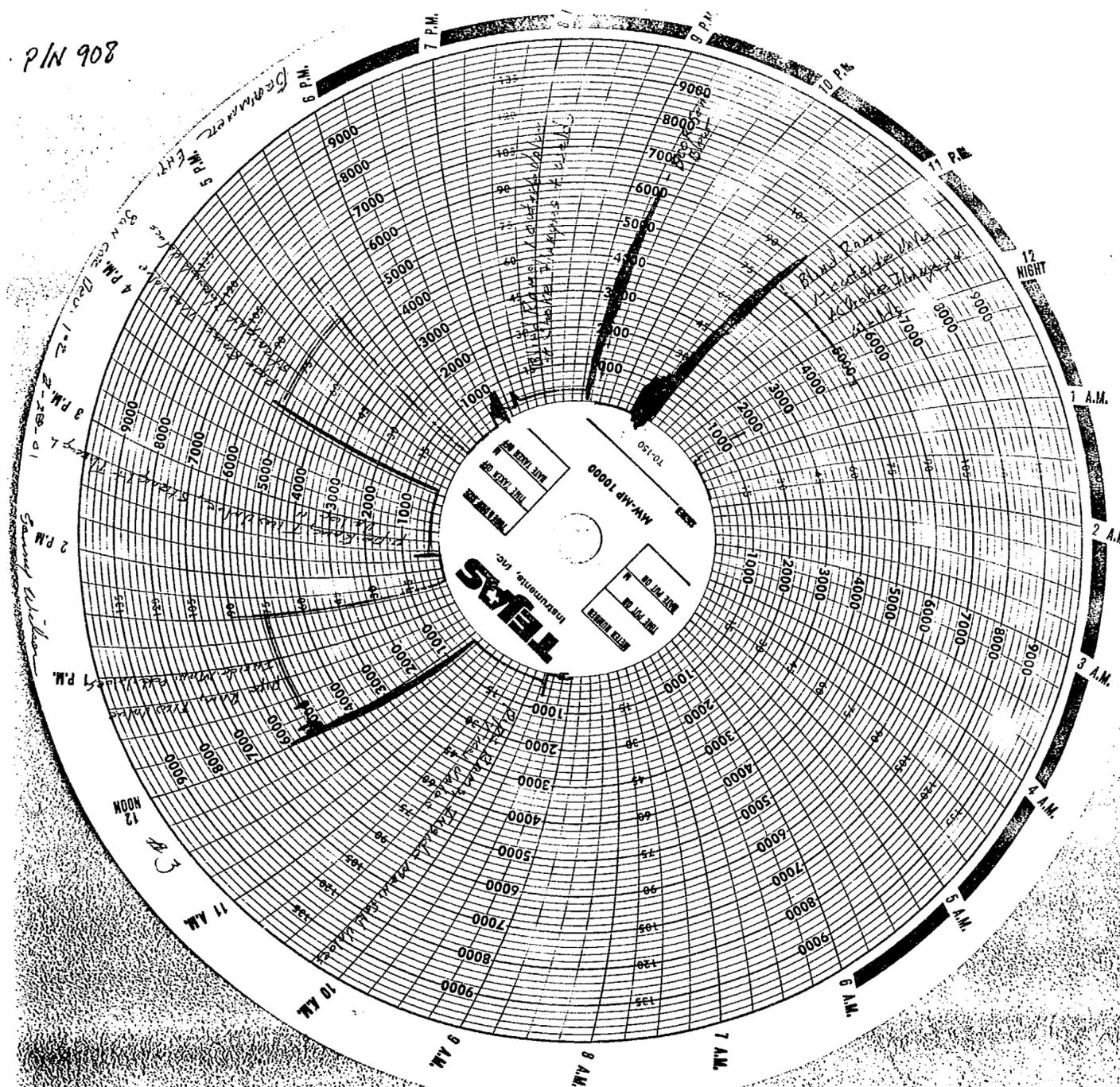
Geo-data 0714-01 0600

809 N/P



SINGOR DEV 1-2 SINGOR DEV
SE SW 2-2N-1W
(908)

PN 908



SUNCOR DEV 1-7 SUNCOR DEV
SE SW 2-2N-1W (908)

1-11-02

Curt Brechtel, APS called

Contracted w/ Waste Mgmt to clean # 1-2 pits on Monday.

Also - Tracker expects to be near top salt @ # 1-2Y

- Saw in AZ Rep that SRP planning a pipeline + massive storage facility @ Red Lake by 2005.



Sections	West Valley View - Business News
Home	December 19, 2001
News	
Viewpoint	
Letters	
Education	
Sports	
Classifieds	
Entertainment	
Business News	
Business	
Calendar	
Obituaries	
Religion	
Police Logs	
Area Directory	
About us	
Send Letters	
Send Resume	
Article Search	

Natural gas storage plans bogged down in red tape

by Darryl Henning
Associate Editor

Last January, Pinnacle West Energy announced it was about to conduct a study on the feasibility of putting an underground natural gas storage facility in a salt cavern on a 30-acre site near the Morton Salt facility at Glendale Avenue and Dysart Road in the West Valley.

All of February was spent getting drilling core samples and plugging up the hole. Several months now have elapsed, and while the results of that study have not yet been released, Pinnacle West spokeswoman Sherri Foote said that company officials are closely analyzing the results.

"There are so many different components here to be laid out in front of us," she said recently. "We're analyzing all sorts of factors."

When the plan was first announced, Pinnacle West declared that if the decision was made to go forward with the project, cavern development could begin as early as June 2002. While declining to confirm that date, Foote did say that if the feasibility decision were positive, "it [storage facility] still would start next year." A checkerboard of regulatory approval is needed before a natural gas storage facility can be put in a West Valley salt cavern.

Corporation Commission would not be involved

The first inquiry made was to the Arizona Corporation Commission, which regulates the state's utilities, including the natural gas industry. Rate setting and oversight of pipeline safety are but a few of its duties.

"The commission regulates the utility side, but it's not involved" in the drilling and storage side, said Heather Murphy, spokeswoman for the ACC's Utilities Division, who referred the reporter to the state's Department of Environmental Quality, Department of Mines and Mineral Resources and Arizona Geological Survey.

Ken Phillips of the Department of Mines and Mineral Resources said he thought the site being studied would be perfect for such a storage facility.

"That's the deepest salt deposit in the state," Phillips said, referring to the site at Glendale Avenue and Dysart Road, where the Morton Salt facility sits. "It's 30 cubic miles. A cubic mile is one mile wide by one mile long by one mile deep." Additionally, it's well over 1,000 feet down to the tip of the cavern, he said, and a liquefied petroleum gas storage facility is nearby that's been there for 20 years. "It's uniquely stable," Phillips said, referring to salt cavern storage of the natural gas. "I don't believe there's ever been a report of any coming to the surface out of a cavern. Liquid gases will not dissolve salt. It's a real stable environment."

As far as development of an underground natural gas storage facility, however, his department would not be involved in the regulatory process, Phillips said.

"ADEQ would be involved with water quality issues, and maybe the ACC for pipeline safety, though it's more geology safety than pipeline safety," he said.

"You want to talk with Steve Rauzi of the Oil and Gas Commission at the Arizona Geological Survey."

A call next to ADEQ spokesman Kurt Maurer required some research to see just

West Valley View: December 19, 2001

what involvement his department might have with such a project. "We'd have to issue an aquifer protection permit for the storage facility once it was operational," Maurer said in a subsequent phone call.

Oil and Gas Commission would inspect project

Visiting the Arizona Geological Survey's Web site (www.azgs.state.az.us) and Rauzi, administrator for Survey's Oil and Gas Commission, tapped a veritable mother lode of pertinent information. The commission's Web page on AGS' Web site confirmed that Pinnacle West (through its subsidiary, SunCor Development Co., owner of the site being studied) had applied for and received a drilling permit to perform a stratigraphic test in the Luke salt deposit earlier this year. "They drilled down 4,000 to 5,000 feet. It's a deep cavern," Rauzi said. "The top of the cavern is about 3,000 feet into the salt." Arizona Administrative Code §12-7-103 required the company to file a \$10,000 performance bond with the commission, Rauzi said. And per the code section, the bond was conditioned upon the driller's faithful performance "to drill each well in a manner to prevent waste, plug each dry or abandoned well, repair each well causing waste or pollution and maintain and restore the well site." If Pinnacle West decides to proceed with developing its proposed natural gas storage facility, it will have to file a request for an injection well permit with the Oil and Gas Commission.

"The Oil and Gas Commission has to make sure the application is in compliance with the rules," Rauzi said, specifying Arizona Administrative Code §12-7-175 and 176. "There's a whole bunch of things they have to do."

AAC §12-7-176 requires a permit applicant to file with his application:

- A detailed plat showing the location of each proposed injection well and the location and status of all wells within one-half mile of the proposed well
- A detailed geologic study
- A detailed engineering study
- A detailed injection plan
- Proof of notification to neighboring operators and surface owners within one-half mile of the proposed well
- Supplementary data as required by AAC §12-7-180 for storage-well projects
- Any additional information that the commission may determine is necessary to adequately clarify the information submitted above.

"I go over the application and materials and make sure they're in accordance with the rules," he said. "Then I make a recommendation to the commission."

A hearing before the Oil and Gas Commission is then scheduled and a notice of hearing issued.

"All adjacent landowners are notified," Rauzi said.

The commission normally takes matters under submission, issuing its decision soon thereafter.

"And then if approved, we make inspections every year, of course," Rauzi added. In fact, AAC §12-7-182C provides for two inspections annually.

"Each operator of a storage well shall conduct semiannual safety inspections of the operator's facility ... [and] notify the Commission at least 5 days before an inspection to allow a representative of the Commission to witness the inspection," according to the code.

Additionally, a full written report on the inspection procedures and results then must be filed with the Oil and Gas Commission within five days following the inspection.

Facility to serve large region

The proposed West Valley natural gas storage facility project is the joint project of Pinnacle West; Crystal Gas Storage Inc., an affiliate of El Paso Energy Corp.; and Gaz de France, an international natural gas storage developer.

There are about 400 underground natural gas storage projects in the United States, 27 of which are salt cavern projects similar to the one under consideration by Pinnacle West. None currently exists in Arizona.

West Valley View: **December 19, 2001**

Depleted reservoirs and aquifers are the most common type of natural gas storage, but salt caverns are becoming more common. Salt caverns are formed by injecting water into a salt deposit to dissolve the salt, and then pumping out the brine until the cavern reaches a pre-determined depth.

"Customarily, the storage cavern is 1,000 feet tall and about 180 feet in diameter," Pinnacle West spokesman Alan Bunnell told the View earlier this year.

"The gas would be stored about 2,000 feet below the surface of the ground." The salt in the salt cavern is naturally sealing, providing an additional security feature to such storage. And there's no danger of explosion.

"There's no oxygen underground, so it can't explode," Bunnell said. "Physically, the natural gas is less dense than propane or butane — even air. And if it escaped into the air, it would dissipate almost immediately."

The storage facility would serve as a regional alternative to gas storage facilities in other states. In addition to offering a reliable, quick-response supply buffer during periods of high seasonal demand, it also would provide a source of natural gas for turbines at power plants currently under construction in western Maricopa County.

The cavern also could serve other natural gas users in the Southwest United States. The proposed location is about two miles from an existing, major natural gas transmission system.

Darryl Henning can be reached by e-mail at dhenning@westvalleyview.com.

© 2001 West Valley View-Material may be copied for private, non-commercial use only. No material may be copied for commercial use. All Rights Reserved.

10-24-01 Dattell Henry, West Valley View

Has contacted ADEQ and ACC.

Heather Murray @ ACC referred him to me.

Asked about bundles to drill storage facility.

I indicate strat wells to obtain subsurface info

If all is feasible then would drill pursuant to ACC R12-7-176.

Walk him into the AAC on SOS web page.

He heard about the seismic work

I advise its to delineate the extent of subsurface salt.

10-23-01 Conf call: Matt Reid, Curt Brechtel,
Jeff Balen, Dave Hayden

Brine disposal project:

Strat test located 1070 fsl 330 fel 24-2u-2w
SunCor agricultural property - working arrangement w/ SunCor
Have filed exemption w/ FERC, expect ~6 weeks for approval ~ end November

PTD 7000-7500' : bond cut-off is 10,000'

No check shot survey: est. depths may be off by 10-15%

Propose 60' conductor cmt'd back to surf.

3000' 13³/₈" csg " " " "

6000' 9⁵/₈" csg " " " "

Drill out of 9⁵/₈" to TD 7000' (est top basement)

Run ind, dens, neut, sonic, check shot survey

DST proposed interval of injection (press, tds, etc.)

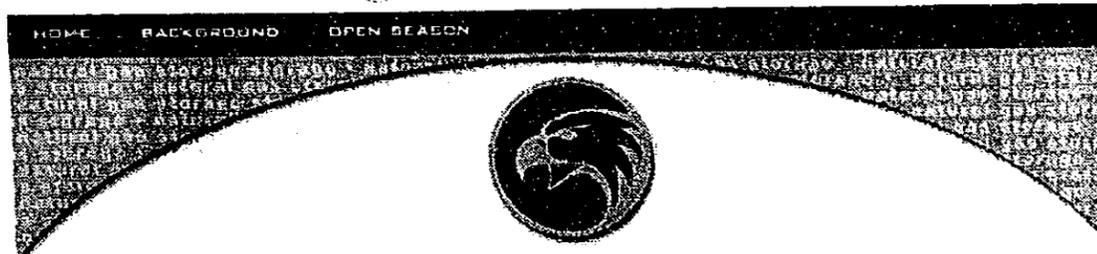
Run short term limited volume injection test of zone

POH w/ inj string + packer

Set bp with cut spot or cmt 50' in + out of 9⁵/₈" csg shoe

100' plus at surface.

- Seismic est top salt ~ 2980' will set 13³/₈" shallower if salt higher
- Intent is to stay below frac pressure on injection test.
- Will use mud logger from surf to t.d.
- Will have 3 reserve pits - plan to use brine from 3rd pit for inj test.
- SunCor owns all acreage = well Copper East 124 SunCor
- Closest water well ~ $\frac{1}{4}$ mi. = may use as monitor well.
- Getting org rpt, bond, APD, prognosis + expect to bring down probably by Friday or Monday next.



COPPER EAGLE GAS STORAGE

WHO

Copper Eagle Gas Storage, L.L.C. ("Copper Eagle") was formed in August 2001 by Phoenix-based Pinnacle West Energy and Shreveport, Louisiana-based Crystal Gas Storage, Inc., to determine the feasibility of a proposed underground natural gas storage facility in a salt deposit in Phoenix's west valley.

Pinnacle West Energy is the wholesale electric generating affiliate of Pinnacle West Capital Corporation, a Phoenix-based company with consolidated assets of approximately \$7.5 billion. Through its Pinnacle West Energy and APS subsidiaries, the company operates more than 8,000 megawatts of generating capacity and has an additional 3,200 megawatts of capacity in development.

Crystal Gas Storage, Inc., an affiliate of El Paso Corporation, operates two natural gas storage facilities near Hattiesburg, Miss., and is generally recognized as a leader in the development of natural gas storage in salt formations.

WHAT

Natural gas is a valuable energy commodity that is produced and distributed nationally. Underground storage is a vital part of the industry. The ability to store gas ensures reliability during periods of heavy demand by supplementing pipeline capacity.

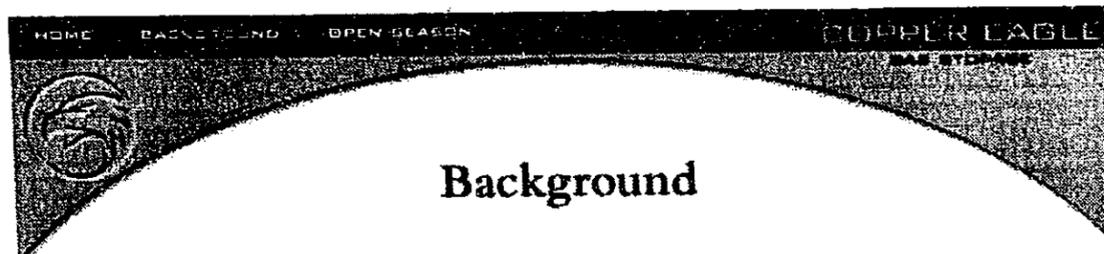
Based on positive study results for this project, natural gas will be stored in caverns developed deep in the underlying salt that is present in the area. The storage facility, if deemed feasible, will serve as a regional, competitive alternative to gas storage facilities in other states and would offer a reliable, quick-response natural gas supply buffer for its customers during periods of high seasonal demand. For more on the proposed project, visit our Background page.

Copper Eagle has issued an Open Season for capacity in the storage facility.

WHEN

Core sampling at the site, located on a thick, naturally occurring salt deposit, is complete. Test results of the core samples indicate that the physical qualities of the salt are similar to other salt formations in the country where natural gas is safely stored.

If additional studies indicate that the area is favorable for storage development, and Copper Eagle decides to move forward with the project, cavern development could begin in late 2002, pending regulatory approval. It is anticipated that the facility would be placed into service in the fourth quarter of 2004.



In recent months, electric utilities have announced plans to build about 100,000 megawatts of new natural gas-fired, combined cycle generating capacity in the Western United States. While not all of these power plants will be built, current forecasts indicate that as much as 26,000 megawatts will likely be commercially operational by 2005.

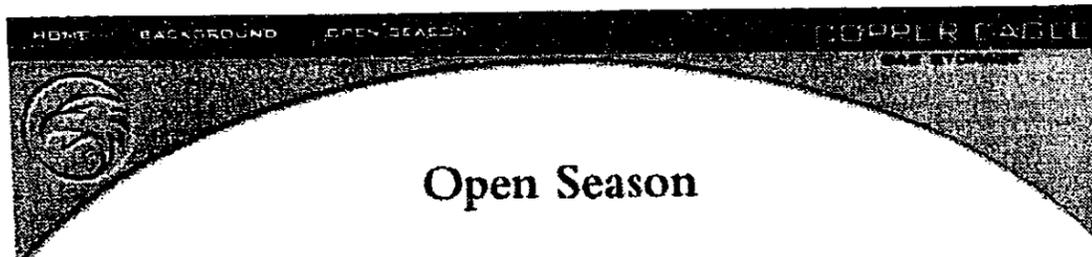
The Gas Research Institute forecasts that natural gas demand will grow in the United States by as much as 50 percent over the next 15 years. For electricity generation, natural gas consumption is expected to almost triple by 2020. The new power plants proposed in Arizona, New Mexico and western Texas alone will require more than 2.3 billion cubic feet of gas a day.

As demand on pipeline capacity increases, so too will the need for storage facilities that offer reliability to the pipeline system. Copper Eagle is pursuing the development of a natural gas storage facility as a means to offer security of supply that might otherwise be strained during times of seasonal high gas demand. Working gas stored in the facilities could be easily withdrawn for delivery.

There are about 400 underground natural gas storage projects in the United States, at least 27 of which are salt cavern projects similar to the one Copper Eagle is investigating. While depleted reservoirs and aquifers are more common types of storage, salt caverns have become increasingly more desirable, because the geological qualities of salt formations, like the one Copper Eagle is studying west of Phoenix, are ideal for gas storage in that they are virtually impermeable to gas and the caverns have the structural strength of steel – essentially making it impossible for gas to escape.

There are several benefits that a gas storage facility like this would offer its customers. It would:

- Act as a reliable, quick-response supply buffer during periods of high seasonal natural gas demand.
- Serve as a regional alternative to natural gas storage facilities in California and other western states.
- Mitigate large natural gas price swings.
- Alleviate supply restrictions during times of reduced transportation capacity on the areas natural gas pipeline systems.
- Provide the flexibility of hourly swing service for electric generation needs.



Copper Eagle Gas Storage, L.L.C. Open Season for Firm Natural Gas Storage Service

Copper Eagle Gas Storage, L.L.C. ("Copper Eagle"), is conducting a non-binding open season for the development of a natural gas storage facility west of Phoenix, Arizona, with 3.2 billion cubic feet (Bcf) of high-deliverability natural gas storage capacity. The proposed facility would be capable of withdrawing the entire working gas volume in 10 days and injecting the same volume in 20 days. It is currently anticipated that the facility will have interconnects with the El Paso Natural Gas pipeline system. Following a successful open season, it is anticipated that the 3.2 Bcf of working gas capacity would be available for service in the fourth quarter of 2004.

This non-binding open season, begins at 9 a.m. CDT on October 10, 2001 and continues until 5 p.m. CDT on October 24, 2001. Participation in this open season shall be considered non-binding on both the participants and on Copper Eagle. This open season will allow Copper Eagle to evaluate the market interest, economics and design parameters for the new facility. Open season requests must be submitted on the [Non-Binding Service Request Form](#).

Copper Eagle is seeking service requests which provide for a primary term of 10 years or greater. However, shorter service contract terms may be accepted. During this period, non-binding expressions of interest will be accepted for firm storage services at negotiated rates. Available capacity will ultimately be awarded to those customers providing Copper Eagle the highest economic value given, but not limited to, service, rates, term and interconnects, provided the negotiated rates meet Copper Eagle's minimum economic requirements. All services offered herein are explicitly subject to and conditioned upon Copper Eagle's receipt of all applicable regulatory approvals in a manner satisfactory to Copper Eagle in Copper Eagle's sole discretion. Further, in light of uncertainties surrounding regulatory and other approvals, Copper Eagle reserves the right, in its sole discretion, to revise the proposed scope of the storage project.

Copper Eagle will use the results of this open season in determining whether to proceed with the proposed project and whether a binding open season is necessary. Copper Eagle may decide to proceed with the proposed project but not hold a binding open season and in that event, would proceed to enter into discussions with parties submitting expressions of interest for the purpose of executing binding precedent agreements. The final agreement is expected to be substantially in the form of the attached [precedent agreement](#).

An example of firm storage services and associated suggested minimum rates are outlined on the [Non-Binding Service Request Form](#). The minimum suggested rates shown are based on an interconnect with EPNG on the Maricopa Crossover line only. Other interconnects may require additional capital expenditures on the behalf of Copper Eagle and may affect the minimum required rates. If you have any questions or need additional information regarding this open season offering, please contact Russ Kavin at (832) 676-5659.

Copyright © 2001 Copper Eagle Gas Storage, L.L.C. All rights reserved.

10-19-01 Jim Lingefelt, Brammer Engineering, Strouesspott
Plan to drill hole & then walk away for awhile
Set $9\frac{5}{8}$ " CSS to about 5680' or so
~ 50' below base of salt

After injection test & looks good TA for awhile
What requirement?
= BP above shoe of $9\frac{5}{8}$ " CSS & spot w/ ~ 20' cert.

10-17-01 Dave Hayden (continued)

Salt core in storage at Respect Labs in North Dakota

Large crystals in it

In the testing at Respect Labs it is extremely strong

Stronger than the domal salt at the petal dome in Mississippi.

Putting enough pressure in the lab to cause slippage across XL faces.

XL's move across each other but do not fracture or crack.

Which is important in designing minimum pressure draw down.

Working gas and cushion gas

Operating ranges 1000-3500 psi

At morton: ~ 4 mo of year have sufficient ponds + evap to ~ 700 gpm

Rest of year ~ 300-320 gpm.

Leach rate between 1000-2000 gpm

Disposal well to take the rest of what Morton can not.

Copper Eagle Gas Storage LLC beleased to public - facility

Requesting bids for potential customers

Open season (ability to bid) closes Wednesday Oct 24, 2001

Have received sufficient bids to justify facility

Hope to set everything up & wrapped up by Friday

Run by me in draft form by Monday (10-22)

Martin Zelleniski, EPA rep in San Francisco by Wed (10-24)

Seeking FERC exemption & expect ~ 6 weeks.

Looking at moving in Rig ~ Nov 23 or 24th

SunCon Verifying acreage - also part of Copper Eagle Gas Storage LLC

Matt & Gary talking to Waste Management to dispose p.t.

Has dried out & just need to reclaim salt

10-17-01 Dave Hayden, Crystal Gas Storage

Working on APD for strat test. Will drill, test, plug + abandon.

Come back ~ 1.5 years later to equip for disposal

Operator will be Copper Eagle Gas Storage. (www.coppereagle.com)

Seismic identified ① base of salt and ② top of basement.

Salt runs all the way to the White Tank Mtns to the west.

Some question as to exactly where the top of salt is

Real good character in two wells.

From 2mi east of Mtns to just west of Lake (~2mi) top salt fades out.

Seismic still looks like salt.

Strong reflector deeper in salt maybe dirty salt.

In Sunco #1-2 salt between 1000-3000' contained 28% insolubles

between 3000 ft + to 5200 ft contained < 2% insolubles (98-99% halite)

Clear, strong reflectors between salt and basement.

Shot about 48 linear miles of seismic

Strat test will be in the area when top salt not strongly defined on seismic

Estimating surface into salt between 1800-1900 ft

Surface casing @ 2100-2200 ft

2nd string 9 5/8" casing set through salt + cement back to surface.

Estimate base of salt at ~ 5900 ft.

Plan to drill and tag basement at about 7000 ft.

Interval between base salt and basement ~ 800-1000 ft thick.

Will use mud logger from surface to td.

Will log surface and entire hole

Will run VSP with either air gun in mud pit or vibroseis truck

Then tie velocities to what is seen during drilling and be process possible.

Salt trends updip slightly to the west

Base salt at location ~ 5900 ft

Back to the east ~ 3-4 miles (location of 1st well) ~ 14,000'

Theory that salt was there 1st. Then erosion

See more movement in salt than originally thought.

10-17-01

Matt Reid called.

Finished seismic over 48 linear miles

Results are in & honing in on location

3 possible sites south of Luke AFB on SunCor property.

Agricultural land.

If all goes right will submit FERC exemption within
next day or so.

= Probably 6 weeks for ruling.

Hope to apply for permit within next 2 weeks.

Will arrange conference call late this week or Monday, 22.

Considering a company Copper Eagle LLC

= Include Crystal Gas, APS, Etc.

May drill well or possibly SunCor again.

9-6-01 Matt Reid Hrus call.

Advise him of note from bonding company. = told them wait on reclamation
One of 3 pits is dry. 2nd ~ 6-8" wtr, 3rd relatively dry.

Seismic testing is underway.

Hope to finish in 4-5 days

Take 2 weeks to look at it

Cores sent to lab in So. Dakota. = can send hence permanent.

9-10-01 Jeanne Winograd, 623-876-3698 is fax.

Called to ask about the oil drilling in west valley ~ Cotton Lake.
= no drilling but seismic to delineate Luke Salt.

drilled salt from 800-5000 ft west Morton.

Sending down sound waves to see where salt only 1000-2000' thick

drill well to dispose of trine below salt.

Fax her oil booklet with diagram of seismic principal.

Give her Sheri Footes phone #

ARIZONA GEOLOGICAL SURVEY 416 W. CONGRESS, SUITE 100, TUCSON, AZ 85701

FAX

Date: 9-10-01

Number of pages including cover sheet: 16

To: Jeanne Winograd

Phone: _____

Fax phone: 623-876-3698

CC: _____

From: Steve Rauzi

Arizona Geological Survey

416 W. Congress, Suite 100

Tucson, AZ 85701

Phone: (520) 770-3500

Fax phone: (520) 770-3505

REMARKS: Urgent For your review Reply ASAP Please comment

Booklet about oil + gas - note the "seismic" work on p. 10. They're using this method to delineate the western edge of the Luke salt.

* Jeanne called to ask about the "seismic" work going on in the west Valley. = about salt + not about oil + gas. No drilling involved just vibrators. look to dispose of brine below 1000-2000 ft of salt. Contact Sheri Foote's # @ 602-250-2363.



17780 Fitch, Irvine, CA 92614
(949) 263-3300 FAX (949) 252-1955

SURETY COMPANY SUBDIVISION STATUS INQUIRY

STATE OF ARIZONA
416 WEST CONGRESS OFFICE 100
TUCSON AZ 85721

file 908

08-20-2001
DATE

513662C
BOND NUMBER

DEVELOPERS SURETY AND INDEMNITY COMPANY
COMPANY

SUBDIVIDER	SUNCOR DEVELOPMENT COMPANY	
DESCRIPTION OF WORK	Tract: N/A	
	Type of Work: STRATOGRAPHIC TEST - SALT CHAR Stratographic Test To Determine Salt Characteristics	
Work to be Completed:	Bond Amount:	Effective Date:
\$ 10,000.00	\$ 10,000.00	11-30-2000

Without prejudicing your rights or affecting our liability under our bond described above, we would appreciate such of the following information as is now available.

1 0400 RC 40090

Very Truly Yours,
The INSCO/DICO Group

By: Service Department, Home Office

- IF THE BONDED IMPROVEMENTS HAVE BEEN COMPLETED, PLEASE STATE:
n/a Approximate date of acceptance of work _____ ATTACH copy of minutes, if possible.
- IF THE BONDED IMPROVEMENTS ARE NOT COMPLETED, PLEASE STATE:
n/a Approximate uncompleted portion of work: \$ _____ and or _____ %
Anticipated date of completion _____
- Are you aware of any unpaid bills for labor or material, stop notices, or mechanics liens? (check) YES NO If yes, please give details.
n/a _____

4. Remarks / Comments:

Waiting on final reclamation of well site

Signature SL Rauzi Date 8-28-01 Title/Dept. Oil & Gas Administrator / Ariz Geol Survey
 Print Name Steve Rauzi Telephone No. 520-770-3500



Business Center

Fax Cover Sheet

To: Steve Rauzi
Company: AZ Oil & Gas Commission
Department:

Date: July 16, 2001
Phone: 520 770-3500
Fax: 520 770-3505

From: Matt Reid
Department: APS

Phone: 606 250-3109
Fax: 602 250-3628

Subject: Seismic Test - Boundary

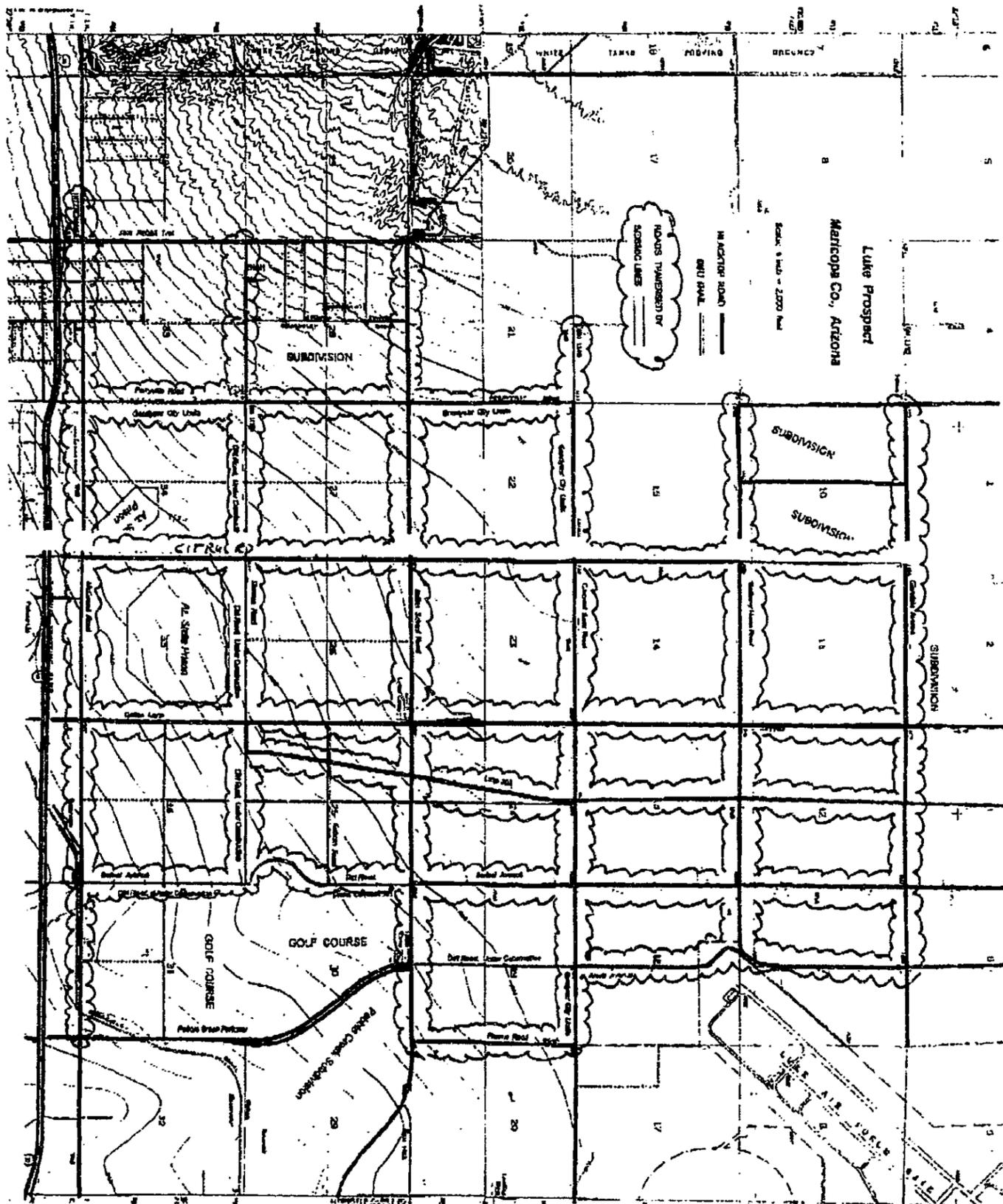
Total pages including this sheet: 2

Comments:

Steve:

I have attached a copy of a map of the boundaries of the proposed seismic test for your information. We may not shoot the entire area but plan to remain within the boundaries shown.

If you have any questions please give me a call.





VIA FEDERAL EXPRESS
(520) 770-3500

April 2, 2001

State of Arizona
Arizona Geological Survey
Attn: Mr. Steven L. Rauzi
416 W. Congress, Suite 100
Tucson, AZ 85701

RE: Final Electric Logs
Suncor Development
Suncor #1-2
Maricopa County, Arizona



Dear Mr. Rauzi:

Please find enclosed a copy of the final Compensated Neutron, Laterolog and Sonic logs from the captioned well. Please note the change that was made on the top log interval on the Compensated Neutron log from the field copy to accurately reflect the top interval logged with the Gamma Ray.

Should you have any questions, please give me a call at (318) 677-5511.

Sincerely,

David L. Hayden
Sr. Vice President
Crystal Gas Storage

DLH/jps

enclosures

Rocky Mountain



March 23, 2001 Volume 74 Number 58

Newsletter Edition

ExxonMobil stakes stepout from LaBarge Platform field

EXXONMOBIL CORP has scheduled a 10,400-ft exploratory test on the LaBarge Platform on the eastern edge of the Overthrust Belt approximately 17 miles northwest of LaBarge in southwestern Wyoming.

The 3526 Lake Ridge Unit will be directionally drilled from a surface location 1987 ft from the north line and 694 ft from the east line (se ne) of section 26-28n-115w, southwestern Sublette County, northwestward to a proposed bottom-hole location 1245 ft from the north line and 1300 ft from the east line (ne ne) of the same section. It will evaluate the gas potential of Frontier. Kelly bushing elevation is estimated at 9741 ft.

The site is about a mile southwest of a 17,368-ft producer in Fogarty Creek field, Exxon's 11-24 Fogarty Creek

Unit in sw se 24-28n-115w. That well was completed in 1982 producing from Bear River; it also encountered a pay (high-CO2 content) in Madison

between 15,969 and 16,291 ft. Log tops, measured from a Kelly bushing elevation of 9301 ft,

(Continued on following page)

Stratigraphic test near Phoenix at total depth

NABORS DRILLING USA's Rig #164 has drilled a stratigraphic test for SunCor Development Co on the western outskirts of the greater Phoenix metropolitan area in south-central Arizona (RMRR 1-10-01).

The 1-2 SunCor Development Co, se sw 2-2n-1w, north-central Maricopa County, was drilled to a total depth of approximately 5250 ft. No details are yet available.

It was drilled on undeveloped acreage adjacent to an industrial area near Luke Air Force Base. SunCor, a wholly owned subsidiary of Pinnacle West Capital Corp—among other things the holding company for Arizona Public Service, Arizona's largest electric utility—is a Phoenix-based real estate developer.

Five other wells previously were drilled in the section,

(Continued on following page)



Drilling Wire
Rocky Mountain

Jim Anderson-Managing Editor
 Phone: 303-736-3639
 Email: jim.anderson@ihsenergy.com

Ed Marker-Editor
 Phone: 303-736-3232
 Email: ed.marker@ihsenergy.com

Bob Knowles-Editor
 Phone: 303-736-3586
 Email: bob.knowles@ihsenergy.com

Steve Trammel-Product Manager
 Phone: 303-736-3259
 Email: steve.trammel@ihsenergy.com



15 Inverness Drive E.
 Englewood, CO 80112-5776

© Copyright 2001

All rights reserved. Petroleum Information/Dwights LLC d/b/a IHS Energy Group. All trademarks belong to Petroleum Information/Dwights LLC unless otherwise noted.

Petroleum Information/Dwights LLC d/b/a IHS Energy Group. The material and data contained herein have been compiled for the exclusive use of subscribers of IHS Energy Group and no part hereof shall be reproduced, quoted or published in any manner without the written consent of IHS Energy Group. Information presented in and used by IHS Energy Group is obtained from operator sources but is not warranted as to its accuracy by the publishers.

PI/Dwights Plus Drilling Wire™, Rocky Mountain (USPS 113-170). Price: \$2.328 per year. Published daily except Saturday and Sunday by Petroleum Information/Dwights LLC d/b/a IHS Energy Group, 15 Inverness Way E., Englewood, CO 80112-5776. Periodicals postage paid at Englewood CO 80112 and additional offices. Postmaster: Send address changes to: PI/Dwights Plus Drilling Wire™, Rocky Mountain, IHS Energy Group, 15 Inverness Way E., Englewood, CO 80112-5776.

Montana BLM drops nine tracts from March 27 offering

THE MONTANA State Office of the Bureau of Land Management has deleted nine parcels covering 8,213.83 acres that were to have been offered at its March 27 competitive oil and gas lease sale in Billings.

Page 2 of the sale list, which described Parcels 03-01-10 through

03-01-18, was omitted from the official sale notice posted in the agency's Public Records and Information Center at the Montana State Office. The lands must be posted for a period of 45 days prior to the sale. The lands, which did appear in the listing published in RMRR 2-16-01, will be offered with the May 30 sale.

(LaBarge, from preceding page)

include Frontier at 7220 ft, Mowry 8962, Bear River 9412, Preuss 10,754 and Twin Creek at 11,080 ft.

It's a mile and a half southeast of the southernmost producer in Lake Ridge field, Exxon's 422 Lake Ridge Unit in sw ne 22-28n-115w, a 16,944-ft well completed in 1985. The latter well also encountered gas with a high CO2 content and was tested flowing 24,900,000 cu ft of gas per day from Madison between 15,896 and 16,736 ft. It logged the top of Frontier at 7695 ft from a kelly bushing elevation of 10,043 ft.

(Arizona, from preceding page)

primarily LPG-storage/utility and salt solution-mining wells. Total depths range from 3200 to 4503 ft. The SunCor venture was expected to be drilled into the Miocene Luke salt deposit.

In 1992, Arrowhead Resources (USA) Ltd completed a 6650-ft dry hole at the 32-23 SunCor-Melange, sw ne 23-2n-1w, about two and a half miles south and slightly east of the stratigraphic probe. That wildcat, which had been set up to penetrate volcanics, encountered a water aquifer at a depth of 400-600 ft.

Contents	Section I
Newsletter	Page 5
This Week	Page 16
Statistics	Page 18
Crude Oil Prices	Page 21
Personals & Notes	Page 22
Calendar	

FEB. 6.2201 10:58AM FUEL PROCUREMENT

NO.450 P.1/7

APS

F.Y.B.
For Your Business

Business Center

Fax Cover Sheet

To: Steve Rauzi
Company: AZ Oil & Gas Commission
Department:

Date: February 6, 2001
Phone: 520 770-3500
Fax: 520 770-3505

From: Matt Reid
Department: APS

Phone: 606 250-3109
Fax: 602 250-3628

Subject: Stratigraphic Test - FERC Exemption **Total pages including this sheet:** 8

Comments:

Steve:

I have attached a copy of the Final FERC Exemption for the stratigraphic test.

I have also attached a letter from EPG Inc. that describes which of the requirements applied to this project. All applicable evaluations were completed prior to the start of the site prep work.

If you have any questions please give me a call.

FEB. 6.2001 11:01AM

FUEL PROCUREMENT

NO.450 P.7/7



Mrs. Kelly Daly
January 29, 2001
Page 2

If you have any questions or require additional information, please do not hesitate to contact me by telephone (602-956-4370) or e-mail (gdarrington@epgaz.com).

Sincerely,

A handwritten signature in cursive script, appearing to read "Glenn P. Darrington".

Glenn P. Darrington, RPA
Cultural Resource Manager

cc: Mat Reid - Pinnacle West Energy

94 FERC ¶ 61,077

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Curt Hébert, Jr., Chairman;
William L. Massey, and Linda Breathitt.

SunCor Development Company

Docket No. CP01-57-000

ORDER GRANTING PETITION FOR EXEMPTION
OF TEMPORARY ACT OR OPERATION

(Issued January 25, 2001)

On December 21, 2000, SunCor Development Company (SunCor) filed a petition under Rule 207(a) (5) of the Commission's Rules of Practice and Procedure¹ requesting under section 7(c)(1)(B) of the Natural Gas Act (NGA) an exemption from the certificate requirements of section 7(c) of the NGA for SunCor to drill a stratigraphic test well. Test results will help to determine whether it is technologically feasible to locate a salt cavern storage facility for natural gas in the Luke salt deposit. For the reasons discussed herein, we will grant SunCor's petition.

A. SunCor's Petition

SunCor is not a "natural gas company" within the meaning of section 2(6) of the NGA and holds no section 7 certificates. SunCor is a corporation organized under the laws of the State of Arizona and a wholly-owned subsidiary of Pinnacle West Capital Corporation.

SunCor proposes to drill a 5,200-foot-deep stratigraphic test well into the Luke salt deposit located in Section 2, Township 2 North, Range 1 West, Maricopa County, Arizona. SunCor states that the test well will enable it to extract core samples and conduct mechanical laboratory analysis on the samples. The laboratory analysis will determine the physical integrity of the salt formation, and whether it can accommodate a high pressure natural gas storage facility. SunCor states that it will comply with the environmental requirements of and has obtained a Permit To Drill from the Arizona Oil and Gas Conservation Commission (AOGCC).

¹18 CFR § 385.207 (2000).

010129.0073.2

FERC - DOCKETED
JAN 25 2001

Docket No. CP01-57-000

- 2 -

B. Notice and Interventions

Notice of SunCor's petition was published in the Federal Register on January 5, 2001 (66 Fed. Reg. 1,116). A timely unopposed motion to intervene was filed on January 8, 2001, by the Salt River Project Agricultural Improvement and Power District.²

C. Discussion

SunCor's proposal is subject to the certificate requirements of section 7 of the NGA because involves potential storage facilities for natural gas transported in interstate commerce. Section 7(c)(1)(B), however, provides that "the Commission may . . . exempt from the requirements of this section temporary acts or operations . . ." Previously, the Commission has granted exemptions to allow minor operations of a temporary nature that have no effects on the ratepayer, the quality of service provided by the pipeline, or on the public as a whole.³

SunCor states that its purpose in drilling the proposed test well is to determine the feasibility of developing the site as a gas storage facility. Since SunCor is not currently a natural gas company, there are no existing jurisdictional facilities or current storage services or customers that might be affected.

SunCor will bear the full costs of drilling the well. The construction and testing will be temporary in nature in order to determine the feasibility of the storage project. No service will be rendered. The exemption shall be used solely for the testing of the site. Under these circumstances, the Commission finds that the test-related activities constitute a temporary act or operation within the meaning of section 7(c)(1)(B) that may be exempted from the certificate requirements of section 7 of the NGA. The Commission further finds that SunCor's proposed temporary act warrants an exemption from the certificate requirements of section 7(c) of the NGA. Issuance of the exemption, however, is without prejudice to any decision the Commission may make in regard to any application SunCor may file for authorization for a storage project at the site.

²Timely unopposed motions to intervene are allowed by operation of Rule 214(c) of the Commission's Rules of Practice and Procedure, 18 C.F.R. §385.214 (2000).

³See Stanfield Hub Services, LLC, 92 FERC ¶ 61,124 (2000); Central New York Oil and Gas Company, LLC, 89 FERC ¶ 61,006 (1999); Universal Resources Corp., 76 FERC ¶ 61,002 (1996); and Avoca Natural Gas Storage, 67 FERC ¶ 61,337 (1994).

Docket No. CP01-57-000

- 3 -

The Commission has approved similar exemptions from section 7(c) certificate requirements in which it directed the petitioner, or the petitioner had agreed, to comply with the environmental requirements of 18 CFR § 157.206(b).⁴ However, SunCor does not believe that it is necessary for the Commission to require that SunCor comply with the environmental regulations under 157.206(b), because SunCor intends to conduct the well test in compliance with the environmental requirements of the AOGCC. While we will grant the exemption from the certification requirements of NGA section 7(c) for SunCor's testing activities, we will not waive the environmental requirements of section 157.206(b) for such activities. Those regulations contain the conditions that the Commission has found to be appropriate for activities of natural gas companies under their Part 157 blanket certificates, including the development of observation wells for the testing of underground reservoirs for the storage of gas.⁵ Since all of the conditions applicable pursuant to section 157.206(b) of our environmental regulations may not be applicable under the AOGCC's requirements, we will require that SunCor comply with section 157.206(b), as modified by Order No. 603,⁶ in implementing its proposed activities to ensure environmental protection in this case.⁷

At a hearing held on January 24, 2001, there was received and made a part of the record in these proceedings all evidence, including the application, supplements, and exhibits thereto, submitted in support of the authorizations sought herein, and in consideration thereof.

The Commission orders:

(A) Pursuant to section 7(c)(1)(B) of the NGA, SunCor is granted an exemption from the certificate requirements of that section to install facilities to test the feasibility of using the subject site as a storage field, as described above and more fully in SunCor's petition.

⁴Id.

⁵18 C.F.R. § 157.215(a) (2001).

⁶Order No. 603, Revision of Existing Regulations Under Part 157 and Related Sections of the Commission's Regulations Under the Natural Gas Act, FERC Stats & Regs., ¶ 31,073 (1999).

⁷This order's exemption under NGA section 7(c)(1)(b) applies only to the testing activities described herein. Prior to SunCor's or any other entity's using the test facilities to provide storage services involving interstate gas supplies, the requisite section 7(c) certificate authorization must be obtained.

Docket No. CP01-57-000

- 4 -

(B) SunCor shall notify the Commission within ten days of beginning the drilling described above and within ten days of the end of drilling.

(C) The test well shall be used solely for the testing purposes described above.

(D) The exemption granted in Ordering Paragraph (A) is effective upon issuance of this order.

(E) The authorized drilling and testing activities shall be completed within one year of the date of this order.

(F) SunCor shall comply with the requirements of section 157.206(b) of our regulations in implementing the authorized drilling and testing activities.

By the Commission.

(SEAL)

David P. Boegers
David P. Boegers,
Secretary.



West Valley View

Sections

- Home
- News
- Viewpoint
- Letters
- Sports
- Classifieds
- Entertainment
- Businesses
- Calendar
- Obituaries
- Police Logs
- Area Directory
- About us
- Send Letters
- Send Resume
- Article Search

West Valley View News
Howling from the Mountains

Your Community Newspaper!

West Valley site studied for storage of natural gas

by Darryl Henning
associate editor

A study to evaluate creating a natural gas storage facility in an underground cavern on a 30-acre site east of Luke Air Force Base is set to begin in February. Pinnacle West Energy, generation subsidiary of Pinnacle West Capital Corporation (PWCC), is contracting for the study, which will examine an industrial area near the intersection of Dysart Road and Glendale Avenue. The 30-acre site is on a thick, naturally occurring salt deposit, and will be evaluated to determine if it has the potential to be an underground cavern storage facility.

SunCor Development Co., another PWCC subsidiary, owns the land. SunCor already has applied for the necessary permits to conduct the study. Geological testing is expected to begin next month and take about 30 days. If the study indicates the area is favorable for such a storage development and Pinnacle West Energy elects to move forward with the project, cavern development could begin as early as June 2002.

"A natural gas storage facility will provide additional security for Arizona's fuel supply during periods of high electricity and gas demand," Pinnacle West Energy president Bill Stewart said in a written statement announcing the study. "The western U.S. electricity market experienced its most volatile year in recent memory," Stewart continued, "and extreme weather conditions across the country have put a strain on the nation's gas supply. Both cases make a strong argument for studying the value of owning this type of facility."

Working with Pinnacle West Energy on the project is Crystal Gas Storage Inc., an affiliate of El Paso Energy Corporation, and Gaz de France, an international natural gas storage developer. All three companies would be involved in developing the storage facility if the decision were made to proceed with it after the feasibility study.

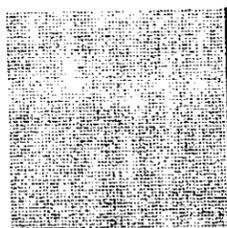
If study gives green light
 The storage facility would serve as a regional alternative to gas storage facilities in other states.

"It would serve as a short-term supply buffer for Maricopa County and Arizona primarily," Pinnacle West Energy spokeswoman Sherri Foote said. Such a natural gas storage facility also could help insure that four natural gas-fueled, electricity generating power plants about to be constructed near the Palo Verde Nuclear Generating Station have the fuel supply necessary to meet their needs.

While depleted reservoirs and aquifers are more commonly used for natural gas storage, salt caverns are becoming increasingly popular. There are about 400 underground natural gas storage projects in the United States, 27 of which are salt cavern projects similar to the one under consideration by Pinnacle West Energy. Just how safe would it be for such a natural gas storage facility to be in the proximity of a mixed residential-industrial area?

"Crystal Gas Storage has a tremendous safety record," Foote observed. "They've never had an accident at one of their facilities and they'll be involved with developing the site if the decision is made to go forward with it."

JANUARY 17, 2001



developing the site if the decision is made to go forward with it."
Foote noted that Pinnacle West representatives have met and been working with
community leaders on the project up to now.
"If and when the time comes for the project to move forward, we'll hold some
community meetings for the public as well," Foote said.

© 2001 West Valley View All Rights Reserved.

Curt -
Fyll. This
was in today's (1/17/01)
West Valley View

ilison, Ariz. 50¢ January 17, 2001

West Valley site studied for storage of natural gas

by Darryl Henning
associate editor

A study to evaluate creating a natural gas storage facility in an underground cavern on a 30-acre site east of Luke Air Force Base is set to begin in February.

Pinnacle West Energy, generation subsidiary of Pinnacle West Capital Corporation (PWCC), is contracting for the study, which will examine an industrial area near the intersection of Dysart Road and Glendale Avenue.

The 30-acre site is on a thick, naturally occurring salt deposit, and will be evaluated to determine if it has the potential to be an underground cavern storage facility.

SunCor Development Co., another PWCC subsidiary, owns the land. SunCor already has applied for the necessary permits to conduct the study.

Geological testing is expected to begin next month and take about 30 days. If the study indicates the area is favorable for such a storage development and Pinnacle West Energy elects to move forward with the project, cavern development could begin as early as June 2002.

"A natural gas storage facility will provide additional security for Arizona's fuel supply during periods of high electricity and gas demand," Pinnacle West Energy president Paul Stewart said in a written statement announcing the study.

"The western U.S. electricity market experienced its most volatile year in recent memory," Stewart continued, "and extreme weather conditions across the country have

(See Gas on page A4)

A4

Gas

(From page A1)

put a strain on the nation's gas supply. Both cases make a strong argument for studying the value of owning this type of facility."

Working with Pinnacle West Energy on the project is Crystal Gas Storage Inc., an affiliate of El Paso Energy Corporation, and Gaz de France, an international natural gas storage developer. All three companies would be involved in developing the storage facility if the decision were made to proceed with it after the feasibility study.

If study gives green light

The storage facility would serve as a regional alternative to gas storage facilities in other states.

"It would serve as a short-term supply buffer for Maricopa County and Arizona primarily," Pinnacle West Energy spokeswoman Sherri Foote said.

Such a natural gas storage facility also could help insure that four natural gas-fueled, electricity generating power plants about to be constructed near the Palo Verde Nuclear Generating Station have the fuel supply necessary to meet their needs.

While depleted reservoirs and aquifers are more commonly used for natural gas storage, salt caverns are becoming increasingly popular. There are about 400 underground natural gas storage projects in the United States, 27 of which are salt cavern projects similar to the one under consideration by Pinnacle West Energy.

Just how safe would it be for such a natural gas storage facility to be in the proximity of a mixed residential-industrial area?

"Crystal Gas Storage has a tremendous safety record," Foote observed. "They've never had an accident at one of their facilities and they'll be involved with developing the site if the decision is made to go forward with it."

Foote noted that Pinnacle West representatives have met and been working with community leaders on the project up to now.

"If and when the time comes for the project to move forward, we'll hold some community meetings for the public as well," Foote said.

Avondale fills key

by Jeff Billington
staff writer

Avondale's city staff is growing by two people this week.

David Fitzhugh has been hired as city engineer and Nathan Crane as senior planner.

Felipe Zubia, director of Avondale's Development Services Department, has seen the two men work, and said they will be beneficial to the city.

"I worked with both of them in the past," he said.

Before Avondale hired him, Zubia had worked with the two men at the city of Peoria.

The arrival of Fitzhugh and Crane helps to fill some of the city's last open positions, Zubia said.

"It fills two of the vital holes," he said. "It frees up some of my time."

Zubia, who formerly was the senior planner, has been performing many of the senior planner's duties since being promoted in November.

Fitzhugh, who started with Avondale Tuesday, moved from the city of Goodyear where he was the assistant city engineer. Before working there, he had been a civil engineer for the city of Peoria and previously held engineering positions at Island County, Wash., and Eugene, Ore.

From 1971 with the U.S. Service. He from the Or Zubia said larly will be used in the

"His stor involves big rience you h numbers."

Fitzhugh as well, Zub

The know there will be such as the l said.

Crane, wh leaving a pla ing for Goox Ada County,

Crane rec Young Univi agement. He the city, Zub

COSTCO, Harkins 20-pl

by Darryl Henning
associate editor

Building permits soon could be in sight for a multi-acre planned development at 99th Avenue and McDowell Road in Avondale that is to be anchored by a COSTCO wholesale store and a Harkins Theaters 20-screen complex.

Avondale Economic Development Director Lorie Black confirmed that site plans for the project have been submitted to the city's planning agency, the Development Services Department. DSD, in turn, has responded with its comments regarding the project's feasibility and design.

"They're still discussing the infrastructure right now,"

Black said. " diligence."

In additior as many as n planned. Wh 450,000 squ

A formal I Black said. P

"You shou Harkins thea

Currently, is being calle

"That's the later." Black

623-535-8439

West Valley View, Litchfield Park, Arizona, January 17, 2001

www.westvalleyview.com

West Valley View

View offices will be closed Friday, Jan. 19
Thank you for your busin



TILE CARPET TILE CARPET TILE

Hayden's
Carpet

• Serving the West Valley

Underground natural gas storage considered for Valley

By Max Jarman
The Arizona Republic

Pinnacle West Energy is considering building a natural gas storage facility in the northwest Valley to hedge against possible shortages and price spikes.

With natural gas-fired power plants under construction in west Phoenix and near Palo Verde Nuclear Generating Station, Pinnacle West will be increasingly reliant on natural gas.

The electricity-generating

arm of Pinnacle West Capital Corp. is evaluating a 30-acre site in the northwest Valley to determine whether it will support an underground cavern storage facility. The site is on a naturally occurring salt deposit, which would be dissolved to create an underground cavern the size of a skyscraper. The 1,000-foot by 180-foot cavern would rest 1,000 feet below the surface and hold natural gas for other users besides Pinnacle West. There are eight natural-gas-fired power plants proposed

for Maricopa County.

"A natural gas storage facility will provide additional security for Arizona's fuel supply during periods of high electricity and gas demand," Pinnacle West Energy President Bill Stewart said in a statement. He noted that recent high electricity demand has put a strain on the nation's gas supply. That has produced record high natural gas prices and warnings about possible shortages in certain areas.

Underground natural gas storage considered for Valley

http://www.arizonarepublic.com/business/articles/0113gas13.html

azcentral.com * EMAIL * ENTERTAINMENT * TRAVEL * CALENDAR * SHOPPING * JOBS * CAR * REAL ESTATE * YELLOW PAGES

PHOENIX: 43
More Weather

THE ARIZONA REPUBLIC online Edition

FRONT PAGE | VALLEY & STATE | SPORTS | BUSINESS & MONEY | SMART LIVING | OPINIONS

TALK BACK | CLASSIFIEDS | ADVERTISE | SUBSCRIBE | ARCHIVES | ABOUT US

EMAIL Newsletters
SIGN UP TO RECEIVE SPECIAL NEWSLETTERS VIA EMAIL

BUSINESS AND MONEY | MAIL STORY | PRINT STORY

Underground natural gas storage considered for Valley

By Max Jarman
The Arizona Republic
Jan. 13, 2001

Pinnacle West Energy is considering building a natural gas storage facility in the northwest Valley to hedge against possible shortages and price spikes.

With natural gas-fired power plants under construction in west Phoenix and near Palo Verde Nuclear Generating Station, Pinnacle West will be increasingly reliant on natural gas.

The electricity-generating arm of Pinnacle West Capital Corp. is evaluating a 30-acre site in the northwest Valley to determine whether it will support an underground cavern storage facility. The site is on a naturally occurring salt deposit, which would be dissolved to create an underground cavern the size of a skyscraper. The 1,000-foot by 180-foot cavern would rest 1,000 feet below the surface and hold natural gas for other users besides Pinnacle West. There are eight natural-gas-fired power plants proposed for Maricopa County.

"A natural gas storage facility will provide additional security for Arizona's fuel supply during periods of high electricity and gas demand," Pinnacle West Energy President Bill Stewart said in a statement. He noted that recent high electricity demand has put a strain on the nation's gas supply. That has produced record high natural gas prices and warnings about possible shortages in certain areas.

homepage

Copyright 2000, The Arizona Republic. All rights reserved

Sections

Site Search GO

SUNDAY SECTIONS
AZ
ARIZONA DIARY
IDEAS
JOBS ARIZONA
TRAVEL

FEATURE SECTIONS
AZ HOME
THE GOOD LIFE
PREVIEW
WHEELS

LOCAL SECTIONS
CHANDLER
TEMPE
MESA
GLendale
NORTHEAST
SCOTTSDALE
NORTH SCOTTSDALE
SUN CITY/SUPAI
GLendale/PEORIA
NORTH PHOENIX
CENTRAL PHOENIX
SOUTHWEST VALLEY

ON AZCENTRAL.COM
THE REP
CALENDARS
ARIZONA GUIDE
PHOENIXAZ.COM
COMMUNITY STORIES
GOLF
HOME & GARDEN
ELECTION 2000
COMICS & GAMES
NEWS FROM HOME
ACCESS MAGAZINE
OBITUARIES

7 DAY ARCHIVE
SUNDAY
MONDAY
TUESDAY
WEDNESDAY
THURSDAY
FRIDAY
SATURDAY

Business and Money on azcentral.com

- Arizona Business Gazette
- Computing
- Stocks Challenge
- Investing
- AP Business
- AP MoneyWire
- AP Technology

azcentral.com | EMAIL | ENTERTAINMENT | TRAVEL | CALENDAR | SHOPPING | JOBS | CARS | REAL ESTATE | YELLOW PAGES

PHOENIX: 43
More Weather

THE ARIZONA REPUBLIC online Edition

FRONT PAGE | VALLEY & STATE | SPORTS | BUSINESS & MONEY | SMART LIVING | OPINIONS | [Email newsletters](#)

TALK BACK | CLASSIFIEDS | ADVERTISE | SUBSCRIBE | ARCHIVES | ABOUT US

SIGN UP TO RECEIVE SPECIAL NEWSLETTERS VIA EMAIL

Sections

Site Search

SUNDAY SECTIONS
ALL
ARIZONA DIARY
IDEAS
JOBS ARIZONA
TRAVEL

FEATURE SECTIONS
AZ HOME
THE GOOD LIFE
PREVIEW
WHEELS

LOCAL SECTIONS
CHANDLER
TEMPE
MESA
GLENDALE
NORTHEAST
SCOTTSDALE
NORTH SCOTTSDALE
SUN CITIES/SUPRISE
GLENDALE/PEORIA
NORTH PHOENIX
CENTRAL PHOENIX
SOUTHWEST VALLEY

ON AZCENTRAL.COM
THE REP
CALENDARS
ARIZONA GUIDE
PHOENIXAZ.COM
COMMUNITY STORIES
GOLF
HOME & GARDEN
ELECTION 2000
COMICS & GAMES
NEWS FROM HOME
PROCESS MAGAZINE
OBITUARIES

7 DAY ARCHIVE
SUNDAY
MONDAY
TUESDAY
WEDNESDAY
THURSDAY
FRIDAY
SATURDAY

Business and Money on azcentral.com

- [Arizona Business Gazette](#)
- [Computing](#)
- [Stocks Challenge](#)
- [Investing](#)
- [AP Business](#)
- [AP MoneyWire](#)
- [AP Technology](#)

Underground natural gas storage considered for Valley

By Max Jarman
The Arizona Republic
Jan. 13, 2001

BUSINESS AND MONEY | [MAIL STORY](#) | [PRINT STORY](#)

Pinnacle West Energy is considering building a natural gas storage facility in the northwest Valley to hedge against possible shortages and price spikes.

With natural gas-fired power plants under construction in west Phoenix and near Palo Verde Nuclear Generating Station, Pinnacle West will be increasingly reliant on natural gas.

The electricity-generating arm of Pinnacle West Capital Corp. is evaluating a 30-acre site in the northwest Valley to determine whether it will support an underground cavern storage facility. The site is on a naturally occurring salt deposit, which would be dissolved to create an underground cavern the size of a skyscraper. The 1,000-foot by 180-foot cavern would rest 1,000 feet below the surface and hold natural gas for other users besides Pinnacle West. There are eight natural-gas-fired power plants proposed for Maricopa County.

"A natural gas storage facility will provide additional security for Arizona's fuel supply during periods of high electricity and gas demand," Pinnacle West Energy President Bill Stewart said in a statement. He noted that recent high electricity demand has put a strain on the nation's gas supply. That has produced record high natural gas prices and warnings about possible shortages in certain areas.

homepage

Copyright 2000, The Arizona Republic. All rights reserved

Stratigraphic test near Phoenix projected to 5200 ft

SUNCOR DEVELOPMENT Co has plans to drill a 5200-ft stratigraphic test in south-central Arizona on the western outskirts of the greater Phoenix metropolitan area. SunCor, a wholly owned subsidiary of Pinnacle West Capital Corp—among other things the holding company for Arizona Public Service, Arizona's largest electric utility—is a Phoenix-based real estate developer.

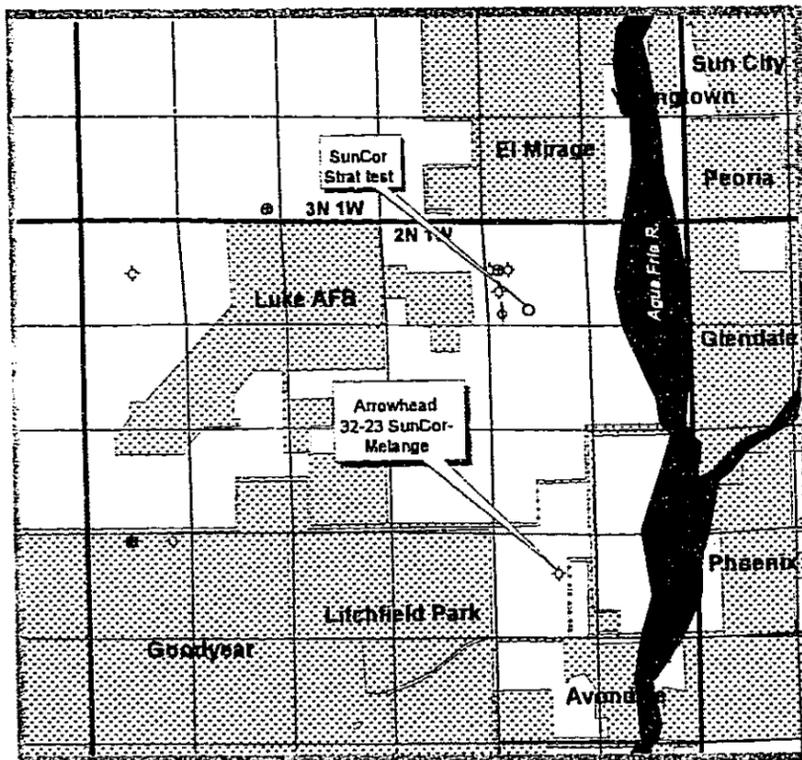
The company's 1-2 SunCor Development Co is to be drilled by a Nabors Drilling USA rig in se sw 2-2n-1w, north-central Maricopa County, on undeveloped acreage adjacent to an industrial area just east of Luke Air Force Base. It's expected to get under way around February 1.

Five other wells previously were drilled in the section, primarily LPG-storage/utility and salt solution-mining wells. Total depths range from 3200 to 4503 ft. The SunCor venture is expected to be drilled into the Miocene Luke salt deposit.

In 1992, Arrowhead Resources (USA) Ltd completed a 6650-ft dry

hole wildcat at the 32-23 SunCor-Melange, sw ne 23-2n-1w, about two and a half miles south and slightly east of the stratigraphic probe. The

wildcat, which had been set up to be drilled into volcanics, encountered a water aquifer at a depth of 400-600 ft.



PINNACLE WEST ENERGY



NEWS

FOR IMMEDIATE RELEASE

January 11, 2001

Page 1 of 2

Media Contact: Alan Bunnell; 602-250-3376, 602-326-7610 (cell)
Sheri Foote; 602-250-2363, 602-684-1332 (cell)
Analyst Contact: Rebecca Hickman; 602-250-5668
Website: www.pwenergy.com

PINNACLE WEST ENERGY EXPLORES FEASIBILITY OF A NATURAL GAS STORAGE FACILITY

PHOENIX – Pinnacle West Energy, the generation subsidiary of Pinnacle West Capital Corporation (NYSE: PNW), announced today that it is conducting a feasibility study to evaluate the creation of an underground natural gas storage facility west of Phoenix.

As part of the study, a 30-acre site, located on a thick, naturally occurring salt deposit, is being evaluated to determine if it has the potential to support an underground cavern storage facility. The property is located in an industrial area near the intersection of Dysart Road and Glendale Avenue, near Luke Air Force Base. SunCor Development Company, a sister company of Pinnacle West Energy, is the property's current owner and has applied for the necessary permits to conduct the study.

Geological testing is anticipated to begin in February and last about 30 days. If the study indicates the area is favorable for storage development and the Company decides to move forward with the project, cavern development could begin as early as June 2002.

The project is being proposed by Pinnacle West Energy; Crystal Gas Storage, Inc., an affiliate of El Paso Energy Corporation (NYSE: EPG); and Gaz de France, an international natural gas storage developer.

"A natural gas storage facility will provide additional security for Arizona's fuel supply during periods of high electricity and gas demand," said Bill Stewart, president of Pinnacle West Energy. "The western U.S. electricity market experienced its most volatile year in recent memory, and extreme weather conditions across the country have put a strain on the nation's gas supply. Both cases make a strong argument for studying the value of owning this type of facility."

The storage facility would serve as a regional alternative to gas storage facilities in other states. In addition, this project would offer a reliable, quick-response supply buffer during periods of high seasonal demand. This would help ensure that gas-fired power plants in the

Salt Cavern Storage Feasibility Study

**January 11, 2001
Page 2 of 2**

area, such as Pinnacle West Energy's Redhawk and West Phoenix power plants, have the fuel supply necessary to meet customer demand. The cavern also could serve other natural gas users in the Southwest. The proposed location is about two miles from an existing, major natural gas transmission system.

Currently, there are about 400 underground natural gas storage projects in the United States, 27 of which are salt cavern projects similar to the one under consideration by Pinnacle West Energy. While depleted reservoirs and aquifers are the most common types of natural gas storage, salt caverns have become increasingly more common.

Salt caverns are formed by injecting water into a salt deposit. Once the salt dissolves in the water, the resultant brine is pumped out until the cavern reaches a pre-determined depth.

Pinnacle West Capital Corporation is a Phoenix-based company with consolidated assets of approximately \$7 billion. Through its subsidiaries, the company generates, sells and delivers electricity and sells energy-related products and services to retail and wholesale customers in the western United States. It also develops residential, commercial and industrial real estate projects.

- 30 -

This press release contains forward-looking statements that involve risks and uncertainties, which include, but are not limited to, the ongoing restructuring of the electric industry; the outcome of the regulatory proceedings relating to the restructuring; regional economic and market conditions, which could affect customer growth and the cost of power supplies; the cost of debt and equity capital; weather variations affecting customer usage; the successful completion of a generation expansion program; and regulatory issues associated with generation expansion, such as permitting and licensing. These factors and the other matters discussed above may cause future results to differ materially from historical results, or from results or outcomes currently expected or sought by the Company.



Jane Dee Hull
Governor

State of Arizona
Arizona Geological Survey
416 W. Congress, Suite 100
Tucson, Arizona 85701
(520) 770-3500



Larry D. Fellows
Director and State Geologist

January 8, 2001

Mr. David R. Smith
County Administrative Officer
301 W. Jefferson
Phoenix, AZ 85003

Re: Suncor Development Co. #1-2 Suncor Development Co.
SE SW Sec. 2, T. 2 N., R. 1 W.
State Permit #908

Dear Mr. Smith:

I have enclosed a copy of an approved Application to Drill in accordance with the Arizona Oil and Gas Conservation Commission's policy to keep county government informed about proposed exploration and stratigraphic drilling in the county. The referenced well is a stratigraphic test. It is being drilled for the sole purpose of obtaining subsurface geological information.

The Commission issues its Permit to Drill under A.R.S. § 27-513. The Commission approves an Application to Drill after it has determined that the well is in compliance with applicable law (A.R.S. § 27-516) and rules (12 A.A.C. 7) and that public health and safety, correlative rights, and subsurface resources are not compromised.

Please let me know if we may be of further assistance.

Sincerely,

Steven L. Rauzi
Oil and Gas Administrator

Enclosure

c J. Dale Nations, Chairman, Oil and Gas Conservation Commission
Larry D. Fellows, Director and State Geologist

All interested parties and Staff are permitted to attend. For additional information, please contact Robert Christin (202) 208-1022.

Linwood A. Watson, Jr.,
Acting Secretary.
[FR Doc. 01-298 Filed 1-4-01; 8:45 am]
BILLING CODE 6717-01-M

DEPARTMENT OF ENERGY

Federal Energy Regulatory Commission

[Docket No. CP01-57-000]

SunCor Development Company; Notice of Petition

December 29, 2000.

Take notice that on December 21, 2000, SunCor Development Company (SunCor), 3838 North Central, Suite 1500, Phoenix, Arizona 85012, filed in Docket No. CP01-57-000, a Petition for Exemption of Temporary Acts and Operations from Certificate Requirements, pursuant to Rule 207(a)(5) of the Commission's Rules of Practice and Procedure (18 CFR 387.207(a)(5)), and section 7(c)(1)(B) of the Natural Gas Act (NGA), seeking approval of an exemption from certificate requirements to perform temporary activities related to drill site preparation and the drilling of a stratigraphic test well, all as more fully set forth in this petition which is on file with the Commission and open to public inspection. SunCor has requested expedited consideration of this Petition. This filing may be viewed on the web at <http://www.ferc.fed.us/online/rims.htm> (call 202-208-2222 for assistance).

Specifically, SunCor seeks authorization to engage in certain temporary activities for the sole purpose of drilling a 5,200 foot stratigraphic test well in the Luke salt deposit located in Section 2, Township 2 North, Range 1 West, Maricopa County, Arizona. SunCor states the proposed stratigraphic test well is critical in determining of the Luke salt deposit would be suitable for development of a natural gas salt storage facility. SunCor states that it intends to conduct the well test in compliance with any environmental requirements of the Arizona Oil & Gas Conservation Commission. SunCor also requests that the Commission grant pregranted abandonment authority under Section 7(b) of the NGA to the extent it is necessary or required.

Any questions regarding this petition should be directed to Steve Garvais, Vice President and General Counsel,

SunCor Development Company, 3838 North Central, Suite 1500, Phoenix, Arizona 85012 at (603) 285-6800.

There are two ways to become involved in the Commission's review of this project. First, any person wishing to obtain legal status by becoming a party to the proceedings for this project should, on or before January 9, 2001, file with the Federal Energy Regulatory Commission, 888 First Street, NE., Washington, DC 20426, a motion to intervene in accordance with the requirements of the Commission's Rules of Practice and Procedure (18 CFR 385.214 or 385.211) and the Regulations under the NGA (18 CFR 157.10). A person obtaining party status will be placed on the service list maintained by the Secretary of the Commission and will receive copies of all documents filed by the applicant and by all other parties. A party must submit 14 copies of filings made with the Commission and must mail a copy to the applicant and to every other party in the proceeding. Only parties to the proceeding can ask for court review of Commission orders in the proceeding.

However, a person does not have to intervene in order to have comments considered. The second way to participate is by filing with the Secretary of the Commission, as soon as possible, an original and two copies of comments in support of or in opposition to this project. The Commission will consider these comments in determining the appropriate action to be taken, but the filing of a comment alone will not serve to make the filer a party to the proceeding. The Commission's rules require that persons filing comments in opposition to the project provide copies of their protests only to the party or parties directly involved in the protest.

Persons who wish to comment only on the environmental review of this project should submit an original and two copies of their comments to the Secretary of the Commission. Environmental commenters will be placed on the Commission's environmental mailing list, will receive copies of the environmental documents, and will be notified of meetings associated with the Commission's environmental review process. Environmental commenters will not be required to serve copies of filed documents on all other parties. However, the non-party commenters will not receive copies of all documents filed by other parties or issued by the Commission (except for the mailing of environmental documents issued by the Commission) and will not have the right

to seek court review of the Commission's final order.

The Commission may issue a preliminary determination on non-environmental issues prior to the completion of its review of the environmental aspects of the project. This preliminary determination typically considers such issues as the need for the project and its economic effect on existing customers of the applicant, on other pipelines in the area, and on landowners and communities. For example, the Commission considers the extent to which the applicant may need to exercise eminent domain to obtain rights-of-way for the proposed project and balances that against the non-environmental benefits to be provided by the project. Therefore, if a person has comments on community and landowner impacts form this proposal, it is important either to file comments or to intervene as early in the process as possible.

Comments and protests may be filed electronically via the Internet in lieu of paper. See, 18 CFR 385.2001(a)(1)(iii) and the instructions on the Commission's web site at <http://www.ferc.fed.us/efi/doorbell.htm>.

If the Commission decides to set the application for a formal hearing before an Administrative Law Judge, the Commission will issue another notice describing that process. At the end of the Commission's review process, a final commission order approving or denying a certificate will be issued.

Linwood A. Watson, Jr.,
Acting Secretary.
[FR Doc. 01-301 Filed 1-4-01; 8:45 am]
BILLING CODE 6717-01-M

DEPARTMENT OF ENERGY

Federal Energy Regulatory Commission

[Docket No. EG01-72-000, et al.]

Geysers Statutory Trust, et al.; Electric Rate and Corporate Regulation Filings

December 28, 2000.

Take notice that the following filings have been made with the Commission:

1. Geysers Statutory Trust

[Docket No. EG01-72-000]

Take notice that on December 19, 2000, Geysers Statutory Trust (Geysers Trust), tendered for filing with the Federal Energy Regulatory Commission (Commission) an application for determination of exempt wholesale generator (EWG) status pursuant to Part 365 of the Commission's Regulations.

FILED
OFFICE OF THE SECRETARY

03 DEC 21 PM 4:11

MORRISON & HECKER L.L.P.

ATTORNEYS AT LAW

1150 18th Street N.W., Suite 800
Washington, D.C. 20036-3816
Telephone (202) 785-9100
Telefax (202) 785-9163
December 22, 2000

FEDERAL ENERGY
REGULATORY COMMISSION

Mr. David Boergers
Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

Re: Sun Cor Development Company, CP - - - - -

1-2-00
Dear Rafael Montag, FERC, 202-208-0985
Encl
Com
Requ
Also
If you
Called to discuss ADSCC Environment Regs.
Ours are substantially different
They are prone to require FERC less.
① Endangered species (consult w/ FWS)
② wetlands (consult w/ Army Corp Engineers)
③ Archeology/Cultural Resources (Clearance of SHPO)
- call & advise Matt Reid / mts today.

Development
Certificate
on this matter.
Microsoft Word 97.

pany

Kelly A. Daly
Kelly A. Daly
MORRISON & HECKER, L.L.P.
1150 18th Street, N.W., Suite 800
Washington, D.C. 20036-3816
(202)785-9100

Its Attorney

Enclosures
cc: State of AZ Oil & Gas Commission

FILED
OFFICE OF THE SECRETARY

MORRISON & HECKER L.L.P.

ATTORNEYS AT LAW

1150 18th Street N.W., Suite 800
Washington, D.C. 20036-3816
Telephone (202) 785-9100
Telefax (202) 785-9163
December 22, 2000

00 DEC 21 PM 4:11

FEDERAL ENERGY
REGULATORY COMMISSION

Mr. David Boergers
Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

Re: Sun Cor Development Company, CP _____

Dear Secretary Boergers:

Enclosed for filing is the original and fourteen (14) copies of a Petition of SunCor Development Company ("SunCor") For Exemption Of Temporary Acts and Operations From Certificate Requirements. As discussed in the filing, SunCor is requesting Expedited Action on this matter.

Also enclosed is a computer disk containing the filing and a Form Notice in Microsoft Word 97. If you have any questions, please do not hesitate to call me.

Respectfully submitted,

SunCor Development Company

Kelly A. Daly
Kelly A. Daly
MORRISON & HECKER, L.L.P.
1150 18th Street, N.W., Suite 800
Washington, D.C. 20036-3816
(202)785-9100

Its Attorney

Enclosures
cc: State of AZ Oil & Gas Commission

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

00 DEC 21 PM 4:11
REGULATORY COMMISSION

SunCor Development Company) Docket No. CP - _____
) EXPEDITED ACTION REQUESTED

**PETITION OF SUNCOR DEVELOPMENT COMPANY
FOR EXEMPTION OF TEMPORARY ACTS AND
OPERATIONS FROM CERTIFICATE REQUIREMENTS**

Pursuant to Section 7(c)(1)(B) of the Natural Gas Act, as amended ("NGA"), 15 U.S.C. § 717(c)(1)(B), and Rule 207(a)(5) of the Federal Energy Regulatory Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.207(a)(5), SunCor Development Company ("SunCor") hereby petitions the Commission for a determination that certain temporary acts and operations SunCor intends to undertake are exempt from the requirements of Section 7 of the NGA.

SunCor is not a "natural gas company" within the meaning of Section 2(6) of the NGA and holds no Section 7 certificates. SunCor hereby requests FERC authorization, to the extent necessary, to engage in certain temporary activities for the sole purpose of drilling one stratigraphic test well in the Luke salt deposit located in Section 2, Township 2 North, Range 1 West, Maricopa County, Arizona. The proposed stratigraphic test well is critical in determining if the Luke salt deposit would be suitable for development of a natural gas salt storage facility. The specific temporary activity for which approval is requested is the drilling of one stratigraphic well as approved by the Arizona Oil and Gas Conservation Commission.

Currently, there are no natural gas storage facilities in Arizona. The Commission's policy strongly encourages the development of natural gas storage facilities in order to meet the projected demand for gas supply to satisfy the nation's future energy requirements.

SunCor plans to drill a stratigraphic test well into the Luke salt deposit to a total depth of 5,200 feet. The test well is designed to recover cores from the salt deposits which can be tested to determine the physical integrity of the salt formation and whether it can accommodate a high pressure natural gas storage facility. The test well will be plugged and abandoned in accordance with Arizona Oil & Gas Conservation Commission regulations.

Accordingly, this project is simply to drill a test well and collect data on salt core samples in order to verify the suitability of the Luke salt deposit for later storage development. SunCor estimates that it will require two months of laboratory testing on core samples to obtain any results. Inasmuch as the well test is needed to perform a non-jurisdictional purpose (*i.e.* recover salt core samples for laboratory testing) and since the salt cavern storage facility may never be developed, it is not altogether clear whether SunCor requires Commission authorization under Section 7 of the NGA to undertake the initial test well phase of the project. Nonetheless, in an abundance of caution SunCor hereby requests any necessary exemptions and waivers under Section 7(c)(1)(B). In support hereof, SunCor respectfully states as follows:

I. COMMUNICATIONS

Communications concerning this petition should be addressed to the following persons.

Steve Gervais
Vice President and General Counsel
SunCor Development Company
3838 North Central, Suite 1500
Phoenix, Arizona 85012

David D'Alessandro
Kelly A. Daly
Morrison & Hecker L.L.P.
1150 18th Street, N.W.
Suite 800
Washington, D.C. 20036

II. DESCRIPTION OF APPLICANT

The exact legal name of petitioner is SunCor Development Company which is organized under the laws of the State of Arizona. Its principal offices are located at 3838 N. Central Avenue, Suite 1500, Phoenix, Arizona 85012. SunCor is a wholly-owned subsidiary of Pinnacle West Capital Corporation.

III. BASIS FOR EXEMPTION FROM CERTIFICATE REQUIREMENTS

SunCor owns both the surface and subsurface mineral rights to certain lands located in the Luke salt deposit, Maricopa County, Arizona. Available geological data do not provide sufficient information of the physical characteristics of the Luke salt deposit for SunCor's potential project. SunCor plans to drill a 5,200 foot stratigraphic test well into the Luke salt deposit in order to (i) extract salt core samples and (ii) conduct mechanical laboratory analysis on those core samples. Test results will help to determine whether it is technologically feasible to locate a high performance natural gas salt cavern storage facility in the Luke salt deposit.

Under Arizona law, only a drilling permit from the Arizona Oil & Gas Conservation Commission is required in order to conduct the well test. A copy of the approved permit is attached hereto. A performance bond accompanies the state application.

IV. THE COMMISSION HAS GRANTED SUCH AUTHORIZATIONS PREVIOUSLY

The Commission has granted exemptions of temporary acts and authorizations pursuant to NGA Section 7(c)(1)(B) in a number of instances. See Avoca Natural Gas Storage, 67 FERC ¶ 61,337 (1994); Universal Resources Corp., 76 FERC ¶ 61,002 (1996); and Central New York Oil and Gas Company, LLC, 89 FERC ¶ 61,006 (1999).

Those cases support an exemption here. SunCor intends to conduct the well test in compliance with any environmental requirements of the Arizona Oil & Gas Conservation Commission. Therefore, SunCor does not believe it is necessary for the Commission to attach any additional environmental requirements under 18 C.F.R. § 157.206(d) as it did in Avoca, Universal Resources and Central New York. Further, SunCor does not believe a Section 7(b) abandonment authorization is needed to commence and terminate any exempt temporary acts and operations as described herein. In the event any 7(b) authorizations are required, SunCor asks that the Commission include pregranted abandonment authority to accompany the grant of an exemption under Section 7(c)(1)(B).

V. REQUEST FOR EXPEDITED TREATMENT

SunCor respectfully requests expedited treatment of its petition because: (i) it has been issued a drilling permit by the Arizona Oil and Gas Conservation Commission; and (ii) it has contracted a drilling rig which will be ready to mobilize within the next three weeks. With the increase in demand for drilling rigs and their limited availability, SunCor would like to move forward in an expedited manner in order to retain the contracted drilling rig and commence operations prior to the expiration of the drilling permit. The public interest is plainly served by expediting the preliminary and temporary procedures for testing the feasibility of locations for the possible development of market area storage.

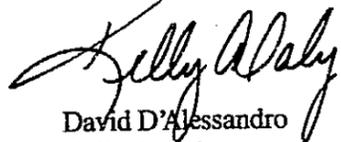
CONCLUSION

The public interest is plainly served by permitting SunCor to drill a test well into the Luke salt deposit in order to conduct salt core analysis for the purpose of determining whether a natural gas storage cavern can be developed. Without conducting such a test, SunCor cannot make an informed business and engineering decision as to whether a salt cavern facility is feasible. Moreover, no natural gas storage facilities exist in Arizona. The Commission's policy has been to encourage the growth and development of storage facilities to meet increased demand for natural gas throughout the United States.

WHEREFORE, for all the foregoing reasons, SunCor Development Company respectfully requests that the Commission expeditiously grant: (i) an exemption from NGA Section 7 pursuant to Section 7(c)(1)(B) to undertake temporary acts and operations for the purpose of drilling a test well and gathering core analysis on the Luke salt deposit; and (ii) pregranted abandonment under Section 7(b) of the NGA to the extent it is necessary or required.

Respectfully submitted,

Steve Gervais
Vice President and General Counsel
SunCor Development Company
3838 North Central, Suite 1500
Phoenix, Arizona 85012

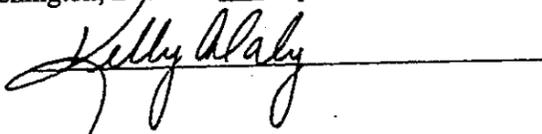


David D'Alessandro
Kelly A. Daly
Morrison & Hecker L.L.P.
1150 18th Street, N.W.
Suite 800
Washington, D.C. 20036

Its Attorneys

CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing document by first-class mail, postage prepaid, to all parties on the official service list compiled by the Secretary in this proceeding. Dated at Washington, D.C. this 21st day of December, 2000.





PERMIT TO DRILL

This constitutes the permission and authority from the
OIL AND GAS CONSERVATION COMMISSION,
STATE OF ARIZONA.

To: SUNCOR DEVELOPMENT CO.
(OPERATOR)

to drill a well to be known as

#1-2 SUNCOR DEVELOPMENT CO.
(WELL NAME)

located 2065' FWL & 820' FSL

Section 2 Township 2N Range 1W, MARICOPA County, Arizona.

The NOT APPLICABLE - STRATIGRAPHIC TEST of said
Section, Township and Range is dedicated to this well.

Said well is to be drilled substantially as outlined in the attached Application and must be drilled
in full compliance with all applicable laws, statutes, rules and regulations of the State of Arizona.

Issued this 20 day of DECEMBER, 2000, 19

OIL AND GAS CONSERVATION COMMISSION

By Steven L. Rainey

OIL & GAS PROGRAM ADMINISTRATOR

PERMIT 00908

RECEIPT NO. 3109

A.P.I. NO. 02-013-20026

State of Arizona
Oil & Gas Conservation Commission
Permit to Drill

FORM NO. 27



Jane Dee Hull
Governor

State of Arizona
Arizona Geological Survey
416 W. Congress, Suite 100
Tucson, Arizona 85701
(520) 770-3500



Larry D. Fellows
Director and State Geologist

December 20, 2000

Mr. Steven Gervais
Suncor Development Co.
3838 North Central Avenue, Suite 1500
Phoenix AZ 85012

Re: Suncor Development Co. #1-2 Suncor Development Co.
SE SW Sec. 2, T. 2 N., R. 1 W.
State Permit #908

Dear Mr. Gervais:

I have attached an approved copy of your Application to Drill, Permit to Drill #908; and filing fee receipt #3109. You should post a copy of the Permit to Drill in a conspicuous place at the well site during drilling operations.

This permit is issued on the condition that you conduct operations in compliance with all applicable rules and substantially as outlined in the drilling prognosis submitted with the Application to Drill, and that you notify me at least 24 hours before you:

- 1) move in the drilling rig and commence drilling operations;
- 2) run and cement surface casing; and
- 3) nipple up and test the BOPE before drilling out of the surface casing.

I have enclosed several Sundry Notices (Form 25) for you to provide this office with a weekly summary of wellsite activity (drilling, running casing, coring, testing, logging, etc.). Please record water encountered on the separate "Report of Water Encountered During Drilling" form. Samples are required per R12-7-121.

This office will hold all information confidential under R12-7-121.

Sincerely,

Steven L. Rauzi
Oil & Gas Administrator

Enclosures



Fax Cover Sheet

To:	Steve Rossi	Date:	December 19, 2000
Company:	AZ Oil & Gas Comm.	Phone:	520-770-3500
Department:		Fax:	520-770-3505
From:	Matt Reid	Phone:	602-250-3109
Department:		Fax:	602-250-3628
Subject:	Draft Permit Application	Total pages including this sheet:	3

Comments:

Steve:

Here is a copy of the draft application. I talked with David Hayden about including a "Drilling Prognosis". He will prepare a summary and email it to me tonight so that I can be included with the application.

Please call me if you have any questions. THANKS!

Matt Reid

12-19-00 Call & ask Matt about Drilling Prognosis, casing into salt deposit with fresh water, BOP stack, Drill pad layout. He'll call David Hayden & will provide summary Prognosis.

David Hayden calls. Has 29-page prognosis. Will summarize in 2-3 pages. = okay. Plan to switch from fresh mud to salt in the overlying anhydrite. Drill ~ 800' into salt then set casing. That way shouldn't enlarge hole diameter in salt. Will monitor with loss to make sure a good clay ~~sheath~~ sheath protects overlying aquifers. - Will be standing by if any additional questions come up tomorrow.



Jane Dee Hull
Governor

State of Arizona
Arizona Geological Survey
416 W. Congress, Suite 100
Tucson, Arizona 85701
(520) 770-3500



Larry D. Fellows
Director and State Geologist

MEMORANDUM TO FILE

DATE: December 18, 2000

FROM: *SLR* Steven L. Rauzi
Oil and Gas Administrator

SUBJECT: Known and reasonably estimated freshwater aquifers in vicinity of
proposed Suncor Development Company stratigraphic test located in:

SE SW Sec. 2, T. 2 N., R. 1 W., Maricopa County, Permit to Drill #908

Rick Herther, Basic Data Section, Arizona Department of Water Resources, provided the following information about 11 water wells that are registered with the department in the vicinity of the proposed well. These are:

Sec. 2, T. 2 N., R. 1 W.

B(02-01)02aca, 538' deep, 20", Goodyear Farms well
B(02-01)02acd, 750' deep, 24", water level at 297', registered 1947, Roosevelt Irrigation Dist.
B(02-01)02add, 370' deep, 06", water level at 309', registered 1974, Phoenix Vegetable Farms

B(02-01)02bdb, 817' deep, 24", water level at 400', registered 1973, Roach-Baker Ranches

B(02-01)02cbb, 650' deep, 20", water level at 400', registered 1971, Roach-Baker Ranches
B(02-01)02cbb, 824' deep, 12", water level at 377', registered 1988, Morton Salt
B(02-01)02cbb, 158' deep, no information, drilled in 1987, Southwest Salt

Sec. 11, T. 2 N., R. 1 W.

B(02-01)11aaa, 345' deep, 06", water level at 220', registered 2000, Advantage Storage
B(02-01)11adc, 515' deep, 08", water level at 380', registered 1978, Kevin Ross

B(02-01)11bbb, 500' deep, 08", registered 1990, Santa Fe Pacific

Suncor's proposal to set 9 5/8" surface casing from the surface to the top of the salt or 1600' will be sufficient to protect the surface waters and all other reasonably estimated aquifers in the vicinity of the proposed well.



Jane Dee Hull
Governor

State of Arizona
Arizona Geological Survey

416 W. Congress, Suite 100
Tucson, Arizona 85701
(520) 770-3500



Larry D. Fellows
Director and State Geologist

July 31, 2000

Mr. John Barnwell
Brammer Engineering
333 Texas Street, Ste 1425
Shreveport, LA 71101

Dear John:

The following forms for permitting, drilling, and completing oil or gas wells in Arizona are enclosed. Legible copies of the forms are acceptable with an original signature. Permitting of Class II injection wells require notice and hearing and are subject to requirements in A.A.C. R12-7-175 through R12-7-182. The oil and gas rules may be viewed on the Secretary of State's web page at www.sosaz.com.

- | | |
|----------|---|
| Form 1) | Organization Report [see A.A.C. R12-7-194] |
| Form 2) | Performance Bond (or cash alternative) [see A.A.C. R12-7-103] |
| Form 3) | Application for Permit to Drill or Reenter [see A.A.C. R12-7-104] |
| Form 4) | Completion Report [see A.A.C. R12-7-121] |
| Form 9) | Application to Plug and Abandon [see A.A.C. R12-7-126] |
| Form 10) | Plugging Record [see A.A.C. R12-7-127] |
| Form 25) | Sundry Report (BLM Form 3160-5 may be substituted for Form 25). |

Submit Forms 1, 2 (or cash alternative), 3 (include drilling prognosis), and a \$25 application fee to my attention at the letterhead address. A Permit to Drill is issued on approval. Forms 4, 9, and 10 are submitted after completion of drilling. Submit Form 25, Sundry Notices, to report all other drilling, testing, and wellsite activity. Use the attached special form for reporting water encountered during drilling.

Alternatives for surety include cash (cashiers check) or a certificate of deposit payable to **Arizona Oil and Gas Conservation Commission**. CD's must be automatically renewable, drawn on a federally insured bank physically doing business in Arizona, and sent to this office with the enclosed assignment form properly filled out. Irrevocable letters of credit are not accepted.

I have attached the salt depths and map that we talked about. Please let me know if I may be of further assistance.

Sincerely,

Steven L. Rauzi
Oil & Gas Administrator

Enclosures

Matt Reid, APS
602 250 3109
fax 602 250 3628

Dave Hayden
318-677-5511