[redacted]

[redacted]

COUNTY Maricopa AREA Luke LEASE NO. Roach-Baker Fee

WELL NAME Ameri Gas (Cal-Gas) Roach-Baker No. 3

LOCATION SW NW SEC 2 TWP 2N. RANGE 1W. FOOTAGE 167' FWL & 2840' FSL

ELEV 1086' GR _____ KB SPUD DATE 12-18-76 STATUS Gas Storage COMP. DATE 1-25-77 Recomp. Date 5-9-90 TOTAL DEPTH 3200'

CONTRACTOR Morrow Drlg. Co. (Karl Morstain) - Well Tech for recompletion.

CASING IZE	DEPTH	CEMENT	LINER SIZE & DEPTH
20"	57'	Circ.	
10 3/4"	1493'	Cut (originally set to 1640')	
8 5/8"	1525'	Circ.	
5½"	2549'	hanging string	

DRILLED BY ROTARY X

DRILLED BY CABLE TOOL _____

PRODUCTIVE RESERVOIR N.A.

INITIAL PRODUCTION N.A.

FORMATION TOPS	DEPTHS	SOURCE L.L.	SOURCE E.L.	REMARKS
Sd., Cly., & Gvl.	0-1077			
Anhydrite	1077			
Salt	1169			

ELECTRIC LOGS	PERFORATED INTERVALS	PROD. INTERVALS
Gamma Ray - density		
CBL-VDL & XY Caliper		
Pipe Analysis & Elecromagnetic thickness		

SAMPLE LOG _____
SAMPLE DESCRP. _____
SAMPLE NO. _____
CORE ANALYSIS _____
DSTs _____

REMARKS This well recompleted 3-20-90 to 5-9-90.

APP. TO PLUG _____
PLUGGING REP. _____
COMP. REPORT 5-24-90

WATER WELL ACCEPTED BY _____

BOND CO. Safeco Insurance Co. of America BOND NO. 2597625

BOND AMT. $ 5,000 CANCELLED _____ DATE ORGANIZATION REPORT 7-30-73

FILING RECEIPT 714 LOC. PLAT X WELL BOOK X PLAT BOOK X

API NO. 02-013-20008 DATE ISSUED 10-22-76 DEDICATION N.A.

PERMIT NUMBER 670

(over)

DRILL STEM TEST

NO.	FROM	TO	RESULTS

CORE RECORD

NO.	FROM	TO	RECOVERY	REMARKS
1	2860'	2875'	None	

REMEDIAL HISTORY

DATE STARTED	COMPLETED	WORK PERFORMED	NEW PERFORATIONS
3-20-90	5-9-90	Cut 10 3/4" csg and cmtd new 8 5/8" csg to 1525'.	

ADDITIONAL INFORMATION

WELL COMPLETION OR RECOMPLETION REPORT AND WELL LOG

DESIGNATE TYPE OF COMPLETION:

New Well ☐ Work-Over ☒ Deepen ☐ Plug Back ☐ Same Reservoir ☐ Different Reservoir ☐ Oil ☐ Gas ☐ Dry ☐

DESCRIPTION OF WELL AND LEASE

Operator: AP PROPANE INC. dba CAL GAS	Address: P.O. BOX 28397 SACRAMENTO, CALIFORNIA 95828
Federal, State or Indian Lease Number or name of lessor if free lease: JOHN L. ROACH AND ARTHUR E. BAKER	Well Number: 3 — Field & Reservoir: SALT STORAGE WELL
Location: 167.4' EAST, 200' NORTH FROM W ¼ CORNER, SEC.2	County: MARICOPA
Sec. TWP-Range or Block & Survey: SEC.2, T2N, R1W, G&SRB&M	

AZ OIL & GAS CONSERVATION COMMISSION
MAY 29 1990

Date ~~spudded~~ workover	Date total depth reached	Date completed, ~~ready to produce~~	Elevation (DF, RKB, RT or Gr.)	Elevation of casing hd. flange
3/20/90	N/A	5/10/90	1086 feet	1087 feet

Total depth	P.B.T.D.	Single, dual or triple completion?	If this is a dual or triple completion, furnish separate report for each completion.
2664' of cavern	N/A	N/A	

Producing interval (s) for this completion	Rotary tools used (interval)	Cable tools used (interval)
N/A	N/A	N/A

Was this well directionally drilled?	Was directional survey made?	Was copy of directional survey filed?	Date filed
No	YES	NO	ATTACHED

Type of electrical or other logs run (check logs filed with the commission)	Date filed
BOREHOLE CALIPER, CAVERN SONAR SURVEY, CBL, CASING INSPECTION LOGS	ATTACHED

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	~~Amt. pulled~~
SURFACE	26"	20"	78.6	57'	6 yd redimix	orig. comp.
production	17 ½ "	10 3/4"	40.5	cut @ 1493'		casing cut
Csg. liner	17"	8 5/8"	32	1525'	300	new
hanging	10" +	5 1/2"	17	2549'		new

TUBING RECORD

Size	Depth set	Packer set at
in.	ft.	ft.

LINER RECORD

Size	Top	Bottom	Sacks cement	Screen (ft)
in.	ft.	ft.		

PERFORATION RECORD

Number per ft.	Size & type	Depth Interval

ACID, SHOT, FRACTURE, CEMENT SQUEEZE RECORD

Am't. & 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	Hrs. tested	Choke size	Oil prod. during test	Gas prod. during test	Water prod. during test	Oil gravity
			bbls.	MCF	bbls.	°API (Corr)

Tubing pressure	Casing pressure	Cal'ted rate of Production per 24 hrs.	Oil	Gas	Water	Gas—oil ratio
			bbls.	MCF	bbls.	

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 PROJECT MANAGER of the PB-KBB INC. (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.

05/24/90
Date

Tim Moran
Signature

PB-KBB INC. IS AGENT FOR CAL GAS

Permit No. 670

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
Well Completion or Recompletion Report and Well Log
File One Copy
Form No. 4

SUNDRY NOTICES AND REPORTS ON WELLS

1. Name of Operator: AmeriGas Propane Inc.
2. OIL WELL ☐ GAS WELL ☐ OTHER ☐ (Specify) Storage Well
3. Well Name: No. 3 Roach-Baker
   Location: 167.4' East, 200' North from W 1/4 Corner
   Sec. 2 Twp. 2N Rge. 1W County Maricopa, Arizona
4. Federal, State, or Indian Lease Number, or lessor's name if fee lease: John L. Roach and Arthur E. Baker
5. Field or Pool Name:
6. Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	☐	PULL OR ALTER CASING	☐	WATER SHUT-OFF	☐	WEEKLY PROGRESS	☐
FRACTURE TREAT	☐	DIRECTIONAL DRILL	☐	FRACTURE TREATMENT	☐	REPAIRING WELL	☐
SHOOT OR ACIDIZE	☐	PERFORATE CASING	☐	SHOOTING OR ACIDIZING	☐	ALTER CASING	☐
REPAIR WELL	☐	CHANGE PLANS	☐			ABANDONMENT	☐
(OTHER) Mechanical Integrity Test			X	(OTHER)			☐

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log Form 4)

7. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

Perform a mechanical Integrity Test on Well No. 3 by the attached procedure. The test is tentatively scheduled to commence March 3, 1999. During the procedure a "through casing" sonar will be run in Cavern No. 3

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

Signed [signature] Title Mgr. of Eng Date 3/1/99

PB-KBB, agent for AmeriGas Propane

Permit No. 670

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
Sundry Notice and Reports On Wells
File One Copy
Form No. 25

Mail Completed Form to: Oil & Gas Program Administrator
Arizona Geological Survey
416 W. Congress #100
Tucson AZ 85701-1315

6/96

PB-KBB	SPECIFICATION	Number 928
	AMERIGAS PROPANE L.P. WELL NO. 3 ROACH BAKER MECHANICAL INTEGRITY TEST PROCEDURE USING NITROGEN INTERFACE METHOD	Date 3/1/99
		Page 1 of 2

1.0 INTRODUCTION

The purpose of the cavern testing procedure is to test the mechanical integrity of the underground storage cavern to determine the suitability for storage of hydrocarbons. At the time of the test Cavern No. 3 has approximately 7,067,000 gallons (168,000 bbls) of butane in storage. The nitrogen test will be conducted over the stored butane, resulting in two interfaces, nitrogen/butane and butane/brine. In summary, this cavern testing procedure consists of the following basic steps: Pressuring the cavern with brine to a given test pressure; injecting nitrogen into the well so that the nitrogen/butane interface is below the cemented production casing shoe; then recording the nitrogen and brine wellhead pressures and nitrogen/butane interface level throughout a given test period. During this test procedure a "through casing" sonar survey will also be run on the cavern.

2.0 PREPARATION

2.1 Provide skillets, blind flanges and/or double valves to isolate the well during the test. Test flanges with 2" connections may be required for product and brine wellhead valves.

2.2 Install pressure gauges and pressure recorders on well connections to allow continuous monitoring of nitrogen and brine wellhead pressures.

NOTE: Pressure recorders and dead weight testers utilized in the testing shall be calibrated in accordance with manufacturer specifications and traceable to National Bureau of Standard.

2.3 Provide a top connection on the wellhead (2" I.D. minimum) to permit installing a wireline lubricator for well logging.

2.4 Provide a connection (1" minimum) to permit injecting nitrogen into the product annulus.

2.5 Pressurize the cavern by pumping saturated brine into the brine tubing. See M.I.T. Well Data Sheet Items 4.5 and 4.6 for brine wellhead pressure and estimated volume of brine required. Insure that the butane wellhead pressure does not exceed the maximum allowable storage pressure.

2.6 Monitor brine wellhead pressures until it stabilizes at an acceptable test pressure. Pressure decline rates should be less than 10 psi/day before starting the test.

3.0 NITROGEN INJECTION

3.1 Rig up wireline logging unit and install a lubricator on wellhead. Run base density and temperature log. Determine butane/brine interface depth.

3.2 Run "through casing" cavern sonar survey.

3.3 Rig up nitrogen pumping unit to inject into the product annulus and position the density tool at a depth of 500'. Start injecting nitrogen at a slow rate. Control the nitrogen injection temperature as close as possible to the final equilibrium temperature measured by the temperature log. Monitor and record nitrogen and brine pressures during injection. M.I.T. Well Data Sheet Items 2.8 and 2.9 present the appropriate wellhead test pressures. These pressures should not be exceeded. Monitor the differential nitrogen-brine pressure to insure the brine string is not subjected to collapse pressure condition.

PB-KBB	SPECIFICATION	Number 928
	AMERIGAS PROPANE L.P. WELL NO. 3 ROACH BAKER MECHANICAL INTEGRITY TEST PROCEDURE USING NITROGEN INTERFACE METHOD	Date 3/1/99
		Page 2 of 2

3.4 Find the nitrogen/butane interface with the density tool as it passes the 500' depth then track the interface movement down the well by moving the tool down in 300' increments. Continue tracking the interface until it reaches 50' above the casing shoe. Record nitrogen and brine wellhead pressures at each point.

3.5 When the nitrogen interface reaches 50' above the casing shoe stop nitrogen injection. Log interface depth and determine nitrogen volume injected. Monitor nitrogen and brine wellhead pressures and interface movement for a minimum of one hour to check for casing and wellhead leaks. Check all wellhead fittings and flanges and testing equipment fittings with liquid soap or equivalent to insure there are no wellhead leaks.

3.6 If no apparent casing or wellhead leaks are indicated, lower density tool to planned test interface depth and resume nitrogen injection. Continue to meter nitrogen and monitor wellhead pressures.

3.6 When the nitrogen interface reaches the planned interface depth stop nitrogen injection. Run a density log to verify the position of the nitrogen/butane interface relative to the production casing shoe. Determine total volume of nitrogen injected and estimate the borehole volume from casing shoe to interface.

See M.I.T Well Data Sheet for planned interface depth and estimated volumes.

3.7 After nitrogen injection, shut the well in to allow the nitrogen temperature to stabilize at the well temperature. Remove the logging tool from the well and close the logging valve.

3.8 During the temperature stabilization period, record nitrogen and brine wellhead pressures. Check all wellhead fitting and flanges with liquid soap or equivalent to insure there are no nitrogen leaks.

4.0 TEST INITIALIZATION

4.1 Rig up wireline logging unit and install lubricator on wellhead. Run initial density and temperature logs.

4.2 Record nitrogen and brine wellhead pressures.

5.0 TEST FINALIZATION

5.1 After the planned test duration, run the final density and temperature logs.

5.2 Record nitrogen and brine wellhead pressures.

5.3 If results indicate the test period must be extended, repeat steps 5.1 and 5.2 as required.

5.4 After the test, bleed off the brine pressure to the brine pond then bleed off nitrogen pressure. Do not allow the cavern pressure change to exceed 100 psi/hr.

6.0 REPORT ON TEST RESULTS

6.1 Prepare a written report presenting test procedures, results and conclusions, along with a chronology of test activity, wireline logs, wellhead pressure records, and supporting calculations.

PREPARED BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE	REVISION	DATE
T. Moran	3/1/99	R. Benefield	3/1/99	T. Moran	3/1/99	0	3/1/99

M.I.T. WELL DATA SHEET

2/22/99

1.0 WELL DESCRIPTION

1.1 Name		WELL #3
1.2 Operator		AmeriGas Propane L.P.
1.3 Location	Field	Glendale
	Parish	Maricopa
	State	Arizona
1.4 Cemented Casing	Size O.D.	8.625 inches
	Size I.D.	7.921 inches
	Depth	1525 feet
	Weight	32.00 lbs/ft
1.5 Hanging Casing String	Size	5.5 inches
	Depth	2548 feet
	Weight	17.0 lbs/ft
	Size	inches
	Depth	feet
	Weight	lbs/ft
1.5 Total Depth		2554 feet

2.0 TEST PRESSURES

2.1 Casing Shoe Depth	1525 feet
2.2 Test Gradient	0.85 psi/ft
2.3 Brine Density (Estimated)	1.20
2.4 Nitrogen Temperature	100 deg F
2.5 Interface Elevation (Nitrogen/Butane)	1657 feet
2.6 Interface Elevation (Butane/Brine, Estimated)	1900 feet
2.7 Casing Shoe Pressure	1298 psi
2.8 Surface Brine Pressure	396 psi
2.9 Surface Nitrogen Pressure	1234 psi

3.0 VOLUME ESTIMATE

3.1 Total Volume To Casing Shoe	48 bbls
3.2 Nitrogen Volume To Casing Shoe	22,700 SCF
3.3 Total Nitrogen Required (Approximate)	25,000 SCF

4.0 COMPRESSIBILITY RESPONSE

4.1 Cavern Volume	1,425,306 bbls
4.2 Displacement To Interface	53 bbls
4.3 Cavern Compressibility (Est. w/167mbbls butane)	6.26 bbls/psi
4.4 Cavern Pressure Increase Due To N2 Injection	8 psi
4.5 Cavern Pressure With Brine	386 psi
4.6 Brine Volume (estimate)	2400 bbls

SUNDRY NOTICES AND REPORTS ON WELLS

1. Name of Operator Amerigas Propane Inc.

2. OIL WELL [ ] GAS WELL [ ] OTHER [X] (Specify) Storage Well

3. Well Name No. 3 Roach-Baker

Location 167.4' East, 200' North from W 1/4 corner

Sec. 2 Twp. 2N Rge. 1W County Maricopa, Arizona.

4. Federal, State or Indian Lease Number, or lessor's name if fee lease John L. Roach and Arthur E. Baker

5. Field or Pool Name

6. Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	[ ]	PULL OR ALTER CASING	[ ]	WATER SHUT-OFF	[ ]	MONTHLY PROGRESS	[ ]
FRACTURE TREAT	[ ]	DIRECTIONAL DRILL	[ ]	FRACTURE TREATMENT	[ ]	REPAIRING WELL	[ ]
SHOOT OR ACIDIZE	[ ]	PERFORATE CASING	[ ]	SHOOTING OR ACIDIZING	[ ]	ALTERING CASING	[ ]
REPAIR WELL	[ ]	CHANGE PLANS	[ ]			ABANDONMENT	[ ]
(OTHER)			[ ]	(OTHER) Mechanical Integrity Test and Sonar Survey			[X]

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

7. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

Performed a Mechanical Integrity Test on Well No. 3 on February 14 - 23, 1994 as per the enclosed report. The well was tested using propane at an equivalent pressure gradient of 0.85 psi/ft at the casing seat. No leak was detected.

A Sonar Survey was performed through one hanging pipe on February 20, 1994 from a depth of 2600' to 1555'. The total volume was 1,425,300 Bbls. The Sonar report is enclosed.

AZ OIL & GAS CONSERVATION COMMISSION
MAY 25 1994

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

Signed Tommy L Smith Title Senior Engineer Date 5-20-94

Permit No. 670

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
Sundry Notices and Reports On Wells
Form No. 25 File One Copy

SUNDRY NOTICES AND REPORTS ON WELLS

1. Name of Operator: Amerigas Propane Inc.

2. OIL WELL ☐ GAS WELL ☒ OTHER ☒ (Specify) Storage Well

3. Well Name: No. 3 Roach-Baker

Location: 167.4' East, 200' North from W 1/4 corner

Sec. 2 Twp. 2N Rge. 1W County Maricopa, Arizona.

4. Federal, State or Indian Lease Number, or lessor's name if fee lease: John L. Roach and Arthur E. Baker

5. Field or Pool Name

6. Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	☐	PULL OR ALTER CASING	☐	WATER SHUT-OFF	☐	MONTHLY PROGRESS	☐
FRACTURE TREAT	☐	DIRECTIONAL DRILL	☐	FRACTURE TREATMENT	☐	REPAIRING WELL	☐
SHOOT OR ACIDIZE	☐	PERFORATE CASING	☐	SHOOTING OR ACIDIZING	☐	ALTERING CASING	☐
REPAIR WELL	☐	CHANGE PLANS	☐			ABANDONMENT	☐
(OTHER) Mechanical Integrity Test			X	(OTHER)			☐

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

7. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

Perform a Mechanical Integrity Test on Well No. 3 by the attached procedure. The test is tentatively scheduled for the week of February 14, 1994.

In addition, a "through casing" sonar will be run in Cavern No. 3.

AZ OIL & GAS
CONSERVATION COMMISSION
FEB 3 1994

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

Signed [signature] Title Senior Engineer Date

PB-KBB agent for Amerigas Propane

Permit No. 670

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
Sundry Notices and Reports On Wells
File One Copy
Form No. 25

AMERIGAS PROPANE INC.

WELL NO. 3 ROACH-BAKER

MECHANICAL INTEGRITY TEST PROCEDURE
USING BRINE/PRODUCT INTERFACE METHOD

AZ OIL & GAS
CONSERVATION COMMISSION
FEB 3 1994

I. INTRODUCTION

The objective of this procedure is to test the mechanical integrity of Cavern No. 3 in regard to product storage. The cavern testing program is accomplished by injecting product into the well casing to below the cemented casing seat, at a given test pressure, and recording the brine pressure, product pressure, injected product volume and product/brine interface level throughout a given test period.

II. PREPARATION

1. Inspect the cavern well head, valves and fittings for evidence of leakage or excessive corrosion. Correct all valve and flange leaks prior to the test.

2. Skillets, blind flanges and/or double valves shall be available at the time of the test to isolate the cavern after pressurization.

3. A top connection on the wellhead shall be provided (4" I.D. minimum) to permit mounting of the wireline lubricator. This will enable logging of the well through the brine string during the test.

4. Connections shall be provided for continuous pressure recorders and gauges to monitor both the tubing and annulus wellhead pressures.

5. Connections shall be provided to permit product injection during the cavern pressurization.

6. The capability to measure the product volume injected shall be provided.

7. The cavern should be pressured by pumping saturated brine into the brine tubing. See 4.5 on the Well Data Sheet for the appropriate brine pressure.

III. PRODUCT INJECTION

1. Install pressure recorders on the brine tubing and product annulus.
   Note: Pressure recorders and a dead weight tester utilized in the testing shall be calibrated in accordance with manufacturer specifications and traceable to the National Bureau of Standards.

2. Rig up a wireline lubricator on the well and install an interface logging tool. Run a base density log and a temperature log.

3. Carefully inject a metered volume of product into the annulus of the well. See Items 2.7 and 2.8 on the Well Data Sheet for the appropriate wellhead pressures to be achieved. Do not exceed these pressures.

PB-KBB
ENGINEERING CONSTRUCTION OPERATIONS

P/N 670

4. Find the product/brine interface as it passes the 300' depth. Once the interface passes 300', move the tool down in 200' increments until the product/brine interface reaches 50' above the casing shoe. Pressure readings should be taken as the interface passes each point.

   Obtain and record time, wellhead pressures, interface depth and incremental product volume added during all steps. Interface depth should be measured as close to required depths as is feasible due to well and tool conditions.

5. After the product/brine interface reaches a depth of 50' above the last cemented casing shoe, the injection of the product will be stopped. The purpose for this interruption is to check the casing and the wellhead for leaks.

   After establishing there are no casing or wellhead leaks, continue injecting product and establish a product/brine interface below the casing shoe.

   See items 3.1 and 3.2 on the Well Data Sheet for the volume of product required to fill the annulus and an estimate of product needed to fill the borehole below the casing shoe.

6. Isolate the cavern from the rest of the system by installing skillets or blind flanges and/or double valving.

7. Again check all wellhead fittings and connections with liquid soap (or equal) to insure there are no wellhead leaks.

8. Run a density log that locates the casing shoe and the product/brine interface.

9. Remove the logging tool from the well and secure the wellhead.

IV. TEST START - INITIALIZATION

1. When it is clear the pressures are stable (a minimum of 12 hours after last injection), run an initialization density and temperature log, noting casing shoe, and product/brine interface.

2. Record dead weight readings of wellhead brine and product pressures.

V. TEST COMPLETION

1. After 24 hours from test initialization run a finalization density and temperature log noting casing shoe, and product/brine interface.

2. Record dead weight readings of wellhead pressures.

3. If test results are inconclusive extend the test 24 hours, and repeat steps 1 and 2.

VI. REPORTS ON TEST RESULTS

A detailed written report of test procedures and results, including the density logs, will be furnished within 30 days.

AZ OIL & GAS
CONSERVATION COMMISSION
FEB 3 1994

PB-KBB
PHOENIX DIVISION
ENGINEERING CONSTRUCTION OPERATIONS

P/N 670

WELL DATA SHEET

CONSERVATION DIVISION
FEB 3 1994

1.0 WELL DESCRIPTION		
1.1 Name		Well # 3 (670)
1.2 Operator		Amerigas
1.3 Location	Field	Glendale
	County	Maricopa
	State	Arizona
1.4 Cemented Casing	Size	8-5/8inches
	Depth	1525 feet
	Weight	32.0 lbs/ft
	Grade	K-55
1.5 Hanging Pipe String	Size	5-1/2inches
	Depth	2549 feet
	Weight	17.0 lbs/ft
	Grade	K-55
1.6 Total Depth		2667 feet

2.0 TEST PRESSURES	
2.1 Casing Seat Depth	1525 feet
2.2 Test Gradient	0.85 psi/ft
2.3 Product Specific Gravity(Propane)	0.508
Brine Specific Gravity (Assumed)	1.20
2.4 Product Temperature	80 deg F
2.5 Interface Elevation	1550 feet
2.6 Casing Seat Pressure	1296 psi
2.7 Surface Brine Pressure	503 psi
2.8 Surface Product Pressure	961 psi
3.0 VOLUME ESTIMATE	
3.1 Total Volume To Casing Shoe	48 Bbls.
3.2 Total Product Volume Required (Approximate)	52 Bbls.
4.0 COMPRESSIBILITY RESPONSE	
4.1 Cavern Volume	1,357,000 bbls
4.2 Displacement To Interface	62 bbls
4.3 Cavern Compressibility	5.82 bbls/psi
4.4 Cavern Pressure Increase Due To Product Injection	11 psi
4.5 Cavern Pressure With Brine	493 psi
4.6 Brine Volume (estimate)	2869 bbls

P/N 670

SUNDRY NOTICES AND REPORTS ON WELLS

1. Name of Operator AP PROPANE INC. dba CAL GAS

2. OIL WELL ☐ GAS WELL ☐ OTHER ☒ (Specify) STORAGE WELL

3. Well Name NO. 3 ROACH-BAKER

Location 167.4' E & 200' N FROM W ¼ CORNER SEC. 2

Sec. 2 Twp. 2 N Rge. 1W County MARICOPA, Arizona.

4. Federal, State or Indian Lease Number, or lessor's name if fee lease

5. Field or Pool Name

6. Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	☐	PULL OR ALTER CASING	☐	WATER SHUT-OFF	☐	MONTHLY PROGRESS	☐
FRACTURE TREAT	☐	DIRECTIONAL DRILL	☐	FRACTURE TREATMENT	☐	REPAIRING WELL	☐
SHOOT OR ACIDIZE	☐	PERFORATE CASING	☐	SHOOTING OR ACIDIZING	☐	ALTERING CASING	☐
REPAIR WELL	☐	CHANGE PLANS	☐			ABANDONMENT	☐
(OTHER)			☐	(OTHER) MECHANICAL INTEGRITY TEST			X

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

7. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

On 5/30/90 - 6/01/90 a mechanical integrity test was conducted on Cal Gas' Well No. 3 Roach-Baker and witnessed by Steve Rauzzi, Arizona Oil & Gas Conservation Commission. The attached report presents the test procedure, results, and conclusions.

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

Signed [signature] Title Project Manager Date 7/5/90

PB-KBB INC. AGENT FOR CAL GAS

Permit No. 670

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
Sundry Notices and Reports On Wells
Form No. 26 File One Copy

SUNDRY NOTICES AND REPORTS ON WELLS

1. Name of Operator AP PROPANE, INC. dba CAL GAS

2. OIL WELL [ ] GAS WELL [ ] OTHER [X] (Specify) STORAGE WELL

3. Well Name NO. 3 ROACH-BAKER

Location 167.4' E & 200' N FROM W ¼ CORNER SEC. 2

Sec. 2 Twp. 2 N Rge. 1 W County MARICOPA, Arizona.

4. Federal, State or Indian Lease Number, or lessor's name if fee lease

5. Field or Pool Name

6. Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	[ ]	PULL OR ALTER CASING	[ ]	WATER SHUT-OFF	[ ]	MONTHLY PROGRESS	[ ]
FRACTURE TREAT	[ ]	DIRECTIONAL DRILL	[ ]	FRACTURE TREATMENT	[ ]	REPAIRING WELL	[ ]
SHOOT OR ACIDIZE	[ ]	PERFORATE CASING	[ ]	SHOOTING OR ACIDIZING	[ ]	ALTERING CASING	[ ]
REPAIR WELL	[ ]	CHANGE PLANS	[ ]			ABANDONMENT	[ ]
(OTHER) MECHANICAL INTEGRITY TEST			[X]	(OTHER)			[ ]

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

7. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

THE ATTACHED PROGRAM PRESENTS THE PROPOSED STEPS FOR CONDUCTING A MECHANICAL INTEGRITY TEST ON CAL GAS' WELL NO. 3 ROACH-BAKER. THE TEST IS TENTATIVELY SCHEDULED FOR THE LAST WEEK OF MAY 1990.

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

Signed [signature] Title PROJECT MANAGER Date 5/11/90

PB-KBB INC. AGENT FOR CAL GAS

Permit No. 670

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
Sundry Notices and Reports On Wells
Form No. 25 File One Copy

AP PROPANE INC. dba

CAL GAS

WELL NO. 3 ROACH-BAKER P/N 670

MECHANICAL INTEGRITY TEST PROCEDURE
USING BRINE/PRODUCT INTERFACE METHOD

I. **INTRODUCTION**

The objective of this procedure is to test the mechanical integrity of Cal Gas' Cavern No. 3 in regard to product storage. The cavern testing program is accomplished by injecting product into the well casing to below the cemented casing seat, at a given test pressure, and recording the brine pressure, product pressure, injected product volume and product/brine interface level throughout a given test period.

II. **PREPARATION**

1. Inspect the cavern well head, valves and fittings for evidence of leakage or excessive corrosion. Correct all valve and flange leaks prior to the test.

2. Skillets, blind flanges and/or double valves shall be available at the time of the test to isolate the cavern after pressurization.

3. A top connection on the wellhead shall be provided (2" I.D. minimum) to permit mounting of the wireline lubricator. This will enable logging of the well through the brine string during the test.

4. Connections shall be provided for continuous pressure recorders and gauges to monitor both the tubing and annulus wellhead pressures.

5. Connections shall be provided to permit product injection during the cavern pressurization.

6. The capability to measure the product volume injected shall be provided.

7. The cavern should be pressured by pumping saturated brine into the brine tubing. See 4.5 on the Well Data Sheet for the appropriate brine pressure.

III. **PRODUCT INJECTION**

1. Install pressure recorders on the brine tubing and product annulus. Note: Pressure recorders and a dead weight tester utilized in the testing shall be calibrated in accordance with manufacturer specifications and traceable to the National Bureau of Standards.

2. Rig up a wireline lubricator on the well and install an interface logging tool. Run a base density log and a temperature log.

3. Carefully inject a metered volume of product into the annulus of the well. See items 2.7 and 2.8 on the Well Data Sheet for the appropriate wellhead pressures to be achieved. Do not exceed these pressures.

4. Find the product/brine interface as it passes the 300' depth. Once the interface passes 300', move the tool down in 200' increments until the product/brine interface reaches 50' above the casing shoe. Pressure readings should be taken as the interface passes each point. Obtain and record time, wellhead pressures, interface depth and incremental product volume added during all steps. Interface depth should be measured as close to required depths as is feasible due to well and tool conditions.

5. After the product/brine interface reaches a depth of 50' above the last cemented casing shoe, the injection of the product will be stopped. The purpose for this interruption is to check the cemented casing and the wellhead for leaks.

   After establishing there is no product movement inside the annulus, continue injecting product and establish a product/brine interface below the casing shoe.

   See items 3.1 and 3.2 on the Well Data Sheet for the volume of product required to fill the annulus and an estimate of product needed to fill the borehole below the casing shoe.

6. Isolate the cavern from the rest of the system by installing skillets or blind flanges and/or double valving.

7. Again check all wellhead fittings and connections with liquid soap (or equal) to insure there are no wellhead leaks.

8. Run a density log that locates the casing shoe and the product/brine interface.

9. Remove the logging tool from the well and secure the wellhead.

IV. <u>TEST START - INITIALIZATION</u>

1. When it is clear the pressures are stable (a minimum of 12 hours after last injection), run an initialization density and temperature log, noting casing shoe, and product/brine interface.

2. Record dead weight readings of wellhead brine and product pressures.

3. If test results are inconclusive extend the test 24 hours, and repeat steps 1 and 2.

V. **TEST COMPLETION**

1. After 24 hours from test initialization run a finalization density and temperature log noting casing shoe, and product/brine interface.

2. Record dead weight readings of wellhead pressures.

VI. **REPORTS ON TEST RESULTS**

A detailed written report of test procedures and results, including the density logs, will be furnished to Cal Gas.

WELL DATA SHEET

1.0	**WELL DESCRIPTION**			
	1.1 Name	Well No. 3		
	1.2 Operator	AP Propane dba Cal Gas.		
	1.3 Location	Field	Luke	
		County	Maricopa	
		State	Arizona	
	1.4 Cemented Casing	Size	8 5/8	inches
		Depth	1525	feet
		Weight	32	lbs/ft
		Grade	K-55	
	1.5 Hanging Pipe Strings	Size	5 1/2	inches
		Depth	2549	feet
		Weight	17	lbs/ft
		Grade	K-55	
	1.6 Total Depth		2667	feet
2.0	**TEST PRESSURES**			
	2.1 Casing Seat Depth		1525	feet
	2.2 Test Gradient		0.85	psi/ft
	2.3 Brine Density (assumed)		1.20	S.G.
	2.4 Propane Density		.508	S.G.
	2.5 Interface Elevation		1550	feet
	2.6 Casing Seat Pressure		1296	psi
	2.7 Surface Brine Pressure		503	psi
	2.8 Surface Propane Pressure		960	psi
3.0	**NITROGEN VOLUME**			
	3.1 Total Volume to Casing Shoe		48	bbls
	3.2 Total Propane Required (approx)		49	bbls
4.0	**COMPRESSIBILITY RESPONSE**			
	4.1 Cavern Volume		1,357,000	bbls
	4.2 Displacement to Interface		49	bbls
	4.3 Cavern Compressibility		3.9	bbls/psi
	4.4 Cavern Pressure Increase due to Propane Inj.		13	psi
	4.5 Cavern Pressure with Brine		490	psi
	4.6 Brine Volume (estimate)		1900	bbls

AZ OIL & GAS
CONSERVATION COMMISSION
MAY 29 1990

AP PROPANE dba CAL GAS

WORKOVER REPORT

WELL NO. 3 ROACH-BAKER

P/N 670

Objective: After running an interface log on Well No. 3 in March 1989, a washout behind the 10 3/4" production casing was discovered. The objectives of this workover were to: 1) Perforate the production casing at the top of the washout and recover the trapped product, and 2) Create a new salt borehole and install and cement an 8 5/8" casing liner.

Product Recovery Dates: 2/13/90 - 3/12/90

Well Workover Dates: 3/20/90 - 5/10/90

Workover Log: The following is a chronological summary of the product recovery and workover operations.

Product Recovery

2/13/90	Rigged up French Well Survey (FWS) logging truck and ran a density log. Confirmed top of washout at 1554' and product interface at 1636' (10 3/4" casing shoe). Ran in with casing gun and perforated 10 3/4" casing (through 8 5/8" and 5 1/2" hanging strings) from 1552' to 1558' with 2 shots per foot. Pulled gun out of the hole and rigged down. Product was produced to surface and transferred.
2/13-3/12/90	Transferred trapped product from Well No. 3. Ran interface logs periodically as described below to check progress.
2/19/90	Log located product interface at 1631' - 5' rise.
2/20/90	Log located product interface at 1631' - no change.
2/21/90	Log located product interface at 1628'.
2/27/90	Ran Collar log. Ran in with casing gun and perforated from 1551'-1557' with 2 shots per foot. Interface log indicated product interface located at 1617'.
3/12/90	Log did not show product interface, indicating all trapped product had been produced.

Well Workover

3/20/90	WellTech crew arrived on location and commenced rigging up workover rig on Well No. 3.
3/21/90	Continued rigging up workover rig. Removed wellhead product line.
3/22/90	Continued rigging up. Removed 6" lines to wellhead.
3/23/90	Circulated the cavern with brine. Cleaned steel mud tanks.
3/24/90	Circulated the cavern. Removed top wellhead cross and nippled up double gate Blow Out Preventer.
3/25/90	Rigged up Coastal Casing Crew and pulled and laid down 80 joints, 2536' of 5 1/2" casing.
3/26/90	Bled off cavern pressure. Nippled down BOP and removed 10" x 10", 2000# spool. Nippled up a double gate BOP and an annular BOP, and pulled 15 joints of 8 5/8" casing.
3/27/90	Laid down 42 joints of 8 5/8" casing, total 2276'. Fabricated a drilling nipple and flowline.
3/28/90	Made up a 10 3/4" casing cutter, and picked up drill collars and drill pipe. Cut 10 3/4" casing at 1553', and the bottom 83' of 10 3/4" casing fell into the cavern.
3/29/90	Pulled 10 3/4" casing cutter. Rigged up FWS logging truck and ran the following logs: - Density log with collar locator-indicated casing was cut at top of washout. - 30"-4 Arm Caliper-indicated diameter of washout at casing cut was greater than 30". - Sonar Survey (Sonar & Well Testing)-indicated a 6' diameter at the casing cut. Total cavern volume was 1,357,732 barrels.
3/30/90	Ran Wilson directional survey. Survey indicated down hole displacement at 1550' to be 9.85' at S 17.9479° W.
3/31/90	Set an Alpha Oil Tools wireline 10 3/4" 32#-51# drillable bridge plug at 1550'. Spotted a 5' cement plug with a wireline bailer.
4/1/90	Tagged top of cement plug at 1545' and hydrostatic tested to 500 psi surface pressure. Test was good. Ran in with casing section mill and section milled 5' of 10 3/4" casing, from 1493' to 1498'.

4/2/90	Section milled 16' of 10 3/4" casing from 1498' to 1514'.
4/3/90	Section milled 22' of 10 3/4" casing from 1514' to 1536'.
4/4/90	Section milled 5' of 10 3/4" casing from 1536' to 1541' and pulled the section mill out of the hole. Blades were badly worn, indicating that part of the casing had been milled on the inside and not totally milled up. Redressed the section mill and tripped in the hole.
4/5/90	Section milled 25' of 10 3/4" casing from 1516' to 1541'. At 1534' vapor was detected in returns.
4/6/90	Ran in with a 14" underreamer and underreamed hole from 1493' to 1534'.
4/7/90	Underreamed 14" hole to 1541'. Ran Caliper log. Log indicated hole diameter was approximately 12 to 13 inches. (NOTE: Depths shown are workstring measurements, not log measurements.)
4/8/90	Decision was made to run 17" underreamer to ream hole out to salt. (NOTE: Original hole size was 17 1/2".) Ran in with 17" underreamer and underreamed from 1493' to 1541'. Pulled underreamer and found 1 arm had been left in hole.
4/9/90	Ran Caliper log. Log indicated that only top 20' of section had been opened up before the arm broke off. Ran in with globe basket and recovered underreamer arm. Redressed 17" underreamer, ran in the hole and underreamed from 1500' to 1530'.
4/10/90	Underreamed 17" hole to 1541'. Spotted a 9' cement plug with wireline bailer to attempt to seal well. (Vapors had been detected since section milling to 1534' on 4/5/90.) WOC 6 hours.
4/11/90	Opened well to bleed down pressure built up overnight. Steady flow of vapor detected. Attempts to pressure test plug failed. 1) 420 psi to 50 psi in 10 minutes 2) 395 psi to 50 psi in 6 minutes 3) 300 psi to 30 psi in 3 minutes. Monitored steady flow of brine from well.
4/12/90	Opened well to bleed down pressure built up overnight. Vapor and some liquid product flowed to the pit. Attempted to test plug with Dowell/Schlumberger (D/S) failed - 150 psi to 30 psi in 3 minutes, 180 psi to 30 psi in 3 minutes. Spotted a 5.7 barrel (40 ft^3) cement plug to fill up 20' of hole. Closed in the well with 40 psi. WOC.

	(NOTE: Leak could have been from 1) the bottom plug 2) outside of 10 3/4" casing cut at 1493', or 3) inside casing. Steps were taken to locate leak. Cement plug presumably sealed off bottom plug.)
4/13/90	Set a Baker full bore packer in the 10 3/4" casing at 1484'. Pressured up backside to 810 psi and held for 30 minutes. Casing tested good. (Casing test was done while WOC.)
4/14/90	Set Baker full bore packer at 1484'. Attempt to test below packer through drill pipe failed. Suspected leak in drill pipe. Released packer and tested casing, borehole and bottom plug, 300 psi to 280 psi in 10 minutes, repressured, 320 psi to 290 in 5 minutes, held at 290 psi. Test good. Process indicated original leak (4/11/90) was down bottom plug.
4/15/90	Ran in with 9 7/8" bit and tagged cement top at 1517'. Drilled out cement to 1533', then underreamed to 17" . (NOTE: Reason for drilling out was to set 8 5/8" liner as deep as possible. Assumed 4' of cured cement plug left). Pressured up on plug and test failed.
4/16/90	Spotted 20' cement plug (5.8 bbls of slurry mixed at 17.2 ppg). Applied pressure to squeeze cement. 140 psi - no drop, 230 psi - no drop, 280 psi - lost 10 psi. Final squeeze pressure 330 psi dropped to 300 psi in 5 minutes and to 30 psi in 2 hours and 30 minutes. WOC.
4/17/90	WOC.
4/18/90	WOC. Opened well to relieve pressure. Well flowed brine and some vapor for 2 minutes. Ran drill pipe in the hole and tagged top of cement at 1514.4' G.L.
4/19/90	WOC. Tested plug to 440 psi - dropped 60 psi in 1 hour. Test was considered adequate to run and cement 8 5/8" casing. Planned to set casing at 1511'. Informed Cal Gas of plan and waited on approval.
4/20/90	Cal Gas instruction was to attempt drilling out plug, to set casing deeper. Drilled 9 7/8" hole to 1531' and underreamed 17" hole to 1529'. First attempt to test failed. Vapor vented was believed to come from brine line supplying test fluid.
4/21/90	Pulled underreamer and ran drill pipe back in the hole open ended. Ran pressure test, 480 psi - dropped 80 psi in 1 hour. Test was considered adequate for running and cementing 8 5/8" casing. Slight leak in BOP contributed to pressure fall off. Rigged down BOP and cleaned casing head.

4/22/90	Rigged up BOP and lines, and prepared 8 5/8" casing for running.
4/23/90	Circulated the hole, then pulled drill string. Rigged up Loomis (casing testing) and Coastal Casing Crews. Started running 8 5/8" casing, internally testing each connection to 2500 psi using Loomis' HELL II procedure.
4/24/90	Completed running and testing 8 5/8" casing - total 38 joints, 1525.62' of 8 5/8", 32#, K-55, Special Clearance modified buttress casing. Rigged up D/S and cemented casing to surface with good returns throughout the job, and 15 bbls excess cement circulated to the pit. Lead cement was 36 bbls of slurry - Class "G" salt saturated cement mixed at 15.7 ppg. Tail cement was 35 bbls of slurry - D/S "Salt Bond II" mixed at 16 ppg. Total 300 sacks of cement (398 ft^3). Bumped plug with 740 psi and floats checked. Held O.K.
4/25/90	WOC.
4/26/90	WOC.
4/27/90	WOC. Nippled down BOP stack. Installed 10" x 10" 2000# casing spool and tested to 2000 psi by Oil Field Manufacturing Inc. (OFM). Installed BOP and ran in with 7 5/8" bit and drill collars.
4/28/90	Drilled out float collar and cement to within 2' of casing shoe. Pressure tested to 500 psi to check for surface leaks. None found.
4/29/90	Ran 8 5/8" casing scrapper required for casing inspection log. Logging was delayed 1 day because of equipment availability.
4/30/90	Rigged up Schlumberger and ran Cement Bond Log and Casing Inspection logs (PAL & ETL). Ran in with 7 5/8" bit and drilled out shoe and 4' of cement. Cleaned hole for testing.
5/1/90	Tested casing shoe to 460 psi for 1 hour - no drop in pressure. Test was witnessed by AO&GC. Drilled ahead to 1537' and the well kicked, flowed brine and some product for 2 hours.
5/2/90	Stopped drilling because of junk in the hole. Decision was made to install a rotating head to divert vapors away from rig floor before proceeding.

5/3/90	Installed rotating head. Made round trip with magnet. Recovered steel cuttings and part of float and shoe. Ran back in with magnet.
5/4/90	Pulled magnet and recovered more steel cuttings. Drilled to 1548', top of the drillable bridge plug.
5/5/90	Continued drilling on plug but made no progress. Pulled bit and ran mill.
5/6/90	Milled on plug but made no progress. Pulled mill and found it completely worn out from milling on junk. Made 2 trips with magnet. Each trip recovered steel cuttings and a full segment of slips from bridge plug.
5/7/90	Made three trips with magnet. Each trip recovered steel cuttings and segments of bridge plug slips.
5/8/90	Made 1 run with magnet and recovered cuttings and slip segments. Ran in with concave mill. Broke up bridge plug and pushed it down into cavern.
5/9/90	Lowered drill pipe into cavern, 180' below roof. Pulled and laid down drill pipe. Rigged up Coastal Casing Crew and ran 61 joints, 2552.01 of 5 1/2", 17#, K-55, LT&C casing. Landed at 2549' casing head flange. Installed adapter flange and top cross. OFM tested seals to 2000 psi. Installed blind flange on all wellhead outlets. (Cal Gas to install wellhead valves later.)
5/10/90	Western Hydro-Vac emptied and cleaned earth pit and rig steel pits. Released rig at 1000 hours. Job complete.

CASING TALLY

	1	2	3	4	5	6	7	8
	FEET	FEET	FEET	FEET	FEET	FEET	FEET	FEET
SHOE	1.52	c 40.71						
2	c 41.71	40.81		c = CENTRALIZERS				
FLOAT	1.52	39.56						
4	c 41.02	c 41.13						
5	40.55	41.64						
6	41.66	40.83						
7	c 41.75	c 41.21						
8	40.90	40.78						
9	41.17	c 41.26						
10	c 40.78	9.68						
TOTAL	332.58	377.61						
11	40.66							
12	41.11							
13	c 38.80							
14	39.68							
15	41.67							
16	c 40.14							
17	41.15							
18	41.57							
19	c 41.34							
20	40.94							
TOTAL	407.06							
21	41.39							
22	c 40.87							
23	40.41							
24	39.15							
25	c 40.55							
26	40.96							
27	41.38							
28	c 41.09							
29	41.66							
30	40.91							
TOTAL	408.37							
GRAND TOTAL	1148.01	377.61						

SUMMARY

(USE DIFFERENT COLUMNS FOR EACH PIPE OF DIFFERENT WEIGHT & GRADE)

	COL.	O.D.	BS/F	GRADE	CLASS	CONNECTION	COND.	FEET
DISTRICT: MARICOPA CO.								
FIELD: LUKE	1	8 5/8"	32#	K-55		MOD SC/BT&C	NEW	1525.62
LEASE: AP PROPANE	2							
WELL NO.: 3	3							
CSG.SET @ DEPTH:1525.62	4							
AFE/PO NO.:	5							
DATE: 4/18/90	6							
TALLIED BY: M. HASLET	7							
	8							
								TOTAL 1525.62

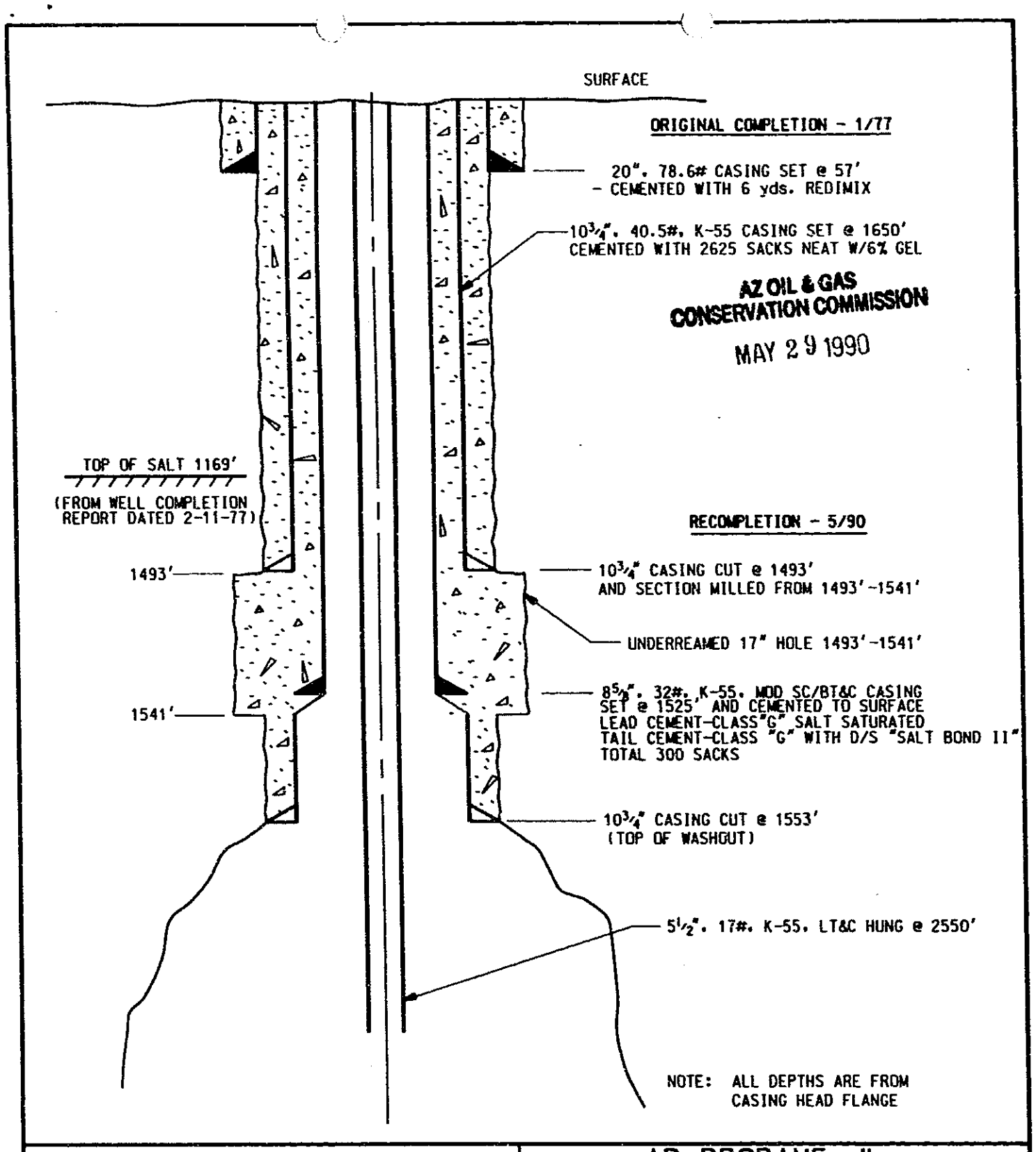
CASING TALLY

	1	2	3	4	5	6	7	8
	FEET	FEET	FEET	FEET	FEET	FEET	FEET	FEET
1	9.00	42.67	41.94					
2	42.67	42.63						
3	41.64	42.65						
4	42.14	42.29						
5	42.83	42.52						
6	40.91	43.67						
7	41.50	41.20						
8	42.30	43.19						
9	43.10	42.71						
10	42.26	42.80						
TOTAL	388.35	426.33						
11	42.50	41.98						
12	43.38	42.25						
13	42.59	41.62						
14	42.33	42.80						
15	41.87	41.76						
16	42.47	42.09						
17	42.29	40.78						
18	44.17	41.84						
19	41.62	42.49						
20	42.57	42.56						
TOTAL	425.79	420.17						
21	43.78	42.62						
22	41.40	41.72						
23	42.12	42.83						
24	42.27	42.45						
25	43.54	42.41						
26	40.69	42.80						
27	42.66	42.72						
28	43.57	42.28						
29	42.40	42.93						
30	42.24	42.05						
TOTAL	424.67	424.81						
GRAND TOTAL	1238.81	1271.31	41.94					

SUMMARY

(USE DIFFERENT COLUMNS FOR EACH PIPE OF DIFFERENT WEIGHT & GRADE)

	COL.	O.D.	LBS/FT	GRADE	CLASS	CONNECTION	COND.	FEET
DISTRICT: MARICOPA CO.								
FIELD: LUKE	1	5 1/2"	17	K-55		LT&C	NEW	2552.06
LEASE: AP PROPANE	2							
WELL NO.: 3	3							
CSG.SET @ DEPTH: 2550'	4			CORRECT TO		CASING HEAD FLANGE		-1.50
AFE/PO NO.:	5							
DATE: 5/9/90	6							
TALLIED BY: M. HASLET	7							
	8							
						CASING HEAD FLANGE		TOTAL 2550.56



AZ OIL & GAS
CONSERVATION COMMISSION
MAY 29 1990

PB-KBB Inc. Subsurface Systems & Technology	AP PROPANE dba CAL GAS Glendale, Arizona
STORAGE WELL No. 3 ROACH-BAKER	JOB No. 303008
DRAWN: JKH · CHECKED: TM · DATE: 5-23-90 · SCALE: NONE	DRAWING No. W-CG-010

WILSON DOWNHOLE DIRECTIONAL SERVICES

2-Apr-90

PB-KBB INC.
CAL GAS, WELL NO. 3
GLENDALE, ARIZONIA

GYROSCOPIC MULTI-SHOT SURVEY
JOB NO:D0-22866 DATE OF JOB:3-30-90
SURVEYOR:BILL McKINZIE

Vert. Sect. Dir. = N .0000 E Calculations using the Radius of Curvature Method

Meas. Depth	Hole Ang.	T.V.D.	V. S. Dist.	Hole Dir.	Total Coordinates Lat.	Dep.	CLOSURES Distance	Direction	D. L. Sev.
0	.00	.00	.00	Vertical	.00	.00	.00	N .0000 E	.00
50	.20	50.00	-.06	S 49.03 W	.06 S	.07 W	.09	S 49.0333 W	.40
100	.30	100.00	-.22	S 32.07 W	.22 S	.21 W	.30	S 42.9774 W	.25
150	.20	150.00	-.42	S 11.08 W	.42 S	.29 W	.51	S 34.0841 W	.27
200	.40	200.00	-.68	S 7.90 E	.68 S	.29 W	.75	S 23.2559 W	.45
250	.30	250.00	-.99	S 16.13 W	.99 S	.32 W	1.04	S 17.7518 W	.36
300	.20	300.00	-1.20	S 4.85 E	1.20 S	.34 W	1.25	S 15.6640 W	.27
350	.40	350.00	-1.44	S 46.18 W	1.44 S	.43 W	1.50	S 16.5065 W	.67
400	.50	399.99	-1.80	S 6.80 E	1.80 S	.55 W	1.88	S 17.1480 W	.86
450	.50	449.99	-2.22	S 17.77 E	2.22 S	.46 W	2.27	S 11.7359 W	.19
500	.50	499.99	-2.64	S 13.75 E	2.64 S	.34 W	2.66	S 7.4008 W	.07
550	.60	549.99	-3.12	S 7.27 W	3.12 S	.32 W	3.13	S 5.7895 W	.45
600	.60	599.99	-3.64	S 6.70 E	3.64 S	.32 W	3.65	S 5.0038 W	.29
650	.50	649.98	-4.10	S 26.68 E	4.10 S	.18 W	4.10	S 2.5375 W	.43
700	.30	699.98	-4.43	S 9.65 E	4.43 S	.07 W	4.43	S .9468 W	.47
750	.40	749.98	-4.73	S .63 E	4.73 S	.05 W	4.73	S .5551 W	.23
800	.50	799.98	-5.13	S 2.48 E	5.13 S	.04 W	5.13	S .3932 W	.20
850	.60	849.98	-5.61	S 1.53 W	5.61 S	.03 W	5.61	S .3189 W	.21
900	.70	899.97	-6.17	S 5.57 W	6.17 S	.07 W	6.17	S .6156 W	.22
950	.60	949.97	-6.74	S .58 W	6.74 S	.10 W	6.74	S .8225 W	.23
1000	.80	999.97	-7.35	S 1.40 E	7.35 S	.09 W	7.35	S .7202 W	.40
1050	.70	1049.96	-8.00	S 1.63 W	8.00 S	.09 W	8.00	S .6709 W	.22
1100	.60	1099.96	-8.57	S 5.65 W	8.57 S	.13 W	8.57	S .8674 W	.22
1150	.50	1149.96	-9.03	S 25.68 W	9.03 S	.26 W	9.03	S 1.6412 W	.43
1200	.50	1199.96	-9.42	S 27.70 W	9.42 S	.45 W	9.43	S 2.7638 W	.04

WILSON DOWNHOLE DIRECTIONAL SERVICES

2-Apr-90

PB-KBB INC.
CAL GAS, WELL NO. 3
GLENDALE, ARIZONIA

GYROSCOPIC MULTI-SHOT SURVEY
JOB NO:D0-22866 DATE OF JOB:3-30-90
SURVEYOR:BILL McKINZIE

Vert. Sect. Dir. = N .0000 E Calculations using the Radius of Curvature Method

Meas. Depth	Hole Ang.	T.V.D.	V. S. Dist.	Hole Dir.	Total Coordinates Lat.	Dep.	CLOSURES Distance	Direction	D. L. Sev.
1250	.20	1249.95	-9.65	S 53.73 W	9.65 S	.65 W	9.67 S	3.8674 W	.68
1300	.50	1299.95	-9.79	S 70.75 W	9.79 S	.92 W	9.83 S	5.3775 W	.63
1350	.30	1349.95	-9.83	N 84.23 W	9.83 S	1.27 W	9.91 S	7.3352 W	.53
1400	.60	1399.95	-9.77	N 79.20 W	9.77 S	1.65 W	9.91 S	9.6046 W	.61
1450	.50	1449.95	-9.65	N 70.13 W	9.65 S	2.12 W	9.88 S	12.3734 W	.27
1500	.60	1499.95	-9.50	N 73.05 W	9.50 S	2.57 W	9.84 S	15.1542 W	.21
1550	.50	1549.94	-9.37	N 75.98 W	9.37 S	3.03 W	9.85 S	17.9479 W	.21

Bottom Hole Closure 9.85 at S 17.9479 W

We certify that this is a true and correct report of our survey and that it affords a true and correct representation of our findings as to the nature and conditions of the well at the time the survey was made.
WILSON DOWNHOLE DIRECTIONAL DRILLING, INC.

Wm. McKinzie

WITNESS RECORD ON 4/24/90

ROACH-BAKER NO. 3, PERMIT NO. 670

Run 8 5/8 inch casing
Pressure test each connection to 2000 psi for 90 seconds

* * *

Start cement job at 4:30 pm
Bump plug ending cement job at 6:15 pm
Circulated about 10 to 15 barrels of cement

S. L. Rauzi

S. L. Rauzi, 4/25/90

Permit # 670

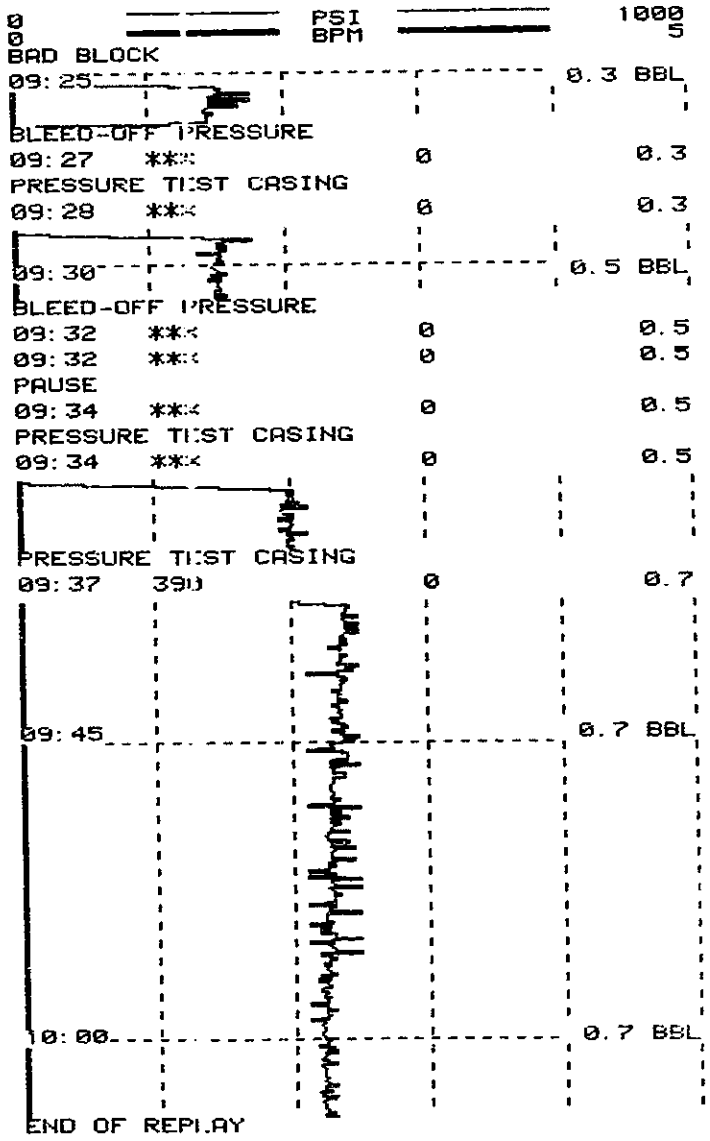
FACALOY

Company AmeriGas / PB-KBB
Well Cavern 3 Field AmeriGas Salt
District ENM SIR 1506-2985
Type Service PSI Test
Engineer Soberanheim
Date/Time Start Job 4-21-90
Remarks
Witnessed by S L Ranzi

Permit # 670

Curve 1 : Unit 1 Pressure
Curve 2 : Disabled
Curve 3 : Unit 1 Total Flow rate
Curve 4 : Disabled

Volume is computed from :
Unit 1 Total Flow rate
Scan Period (Sec) : 6
Playback : Recording Rate was 1 second



SLR/4-21-90 ⇒ CEMENT MODE Step # 25 in attached program

REAL-TIME MODE - OIL UNITS

4-21-90

Permit # 670

0938	480 psi
0942	460 psi
0947	450 psi
0952	440 psi
0958	440 psi
1004	440 psi
1018	430 psi
1028	410 psi
1036	400 psi
1038	400 psi

SLR / 4-21-90 test of cement plug for running and cementing of $8\frac{5}{8}$" Csg. ⇒ Step 25 in program

Permit # 670

Company Amerigas / PR-KBB
Well Cavern #3 Field Amerigas Salt
District FNM SIR 1506-2985
Type Service Psi Test
Engineer Sobernheim
Date/Time Start Job 4-20-90 1716
Remarks Testing Plug drilled out to within 3' of depth

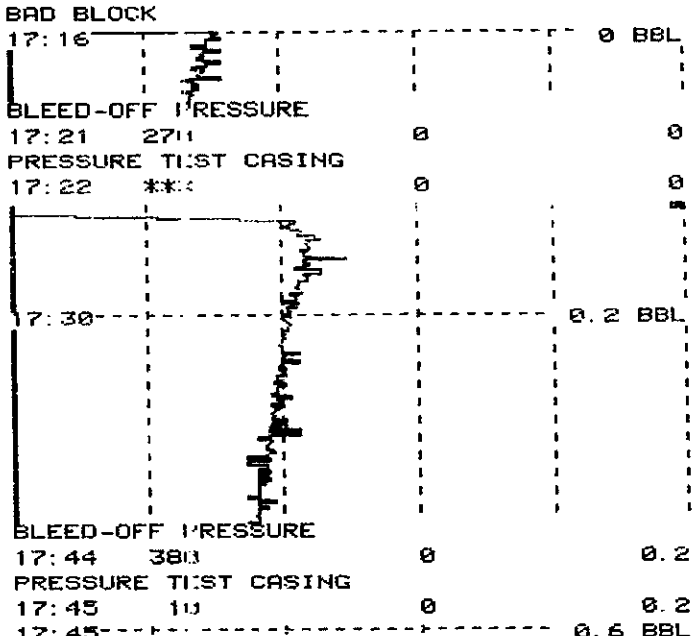
Witnessed by SL Rauzi

Permit # 670

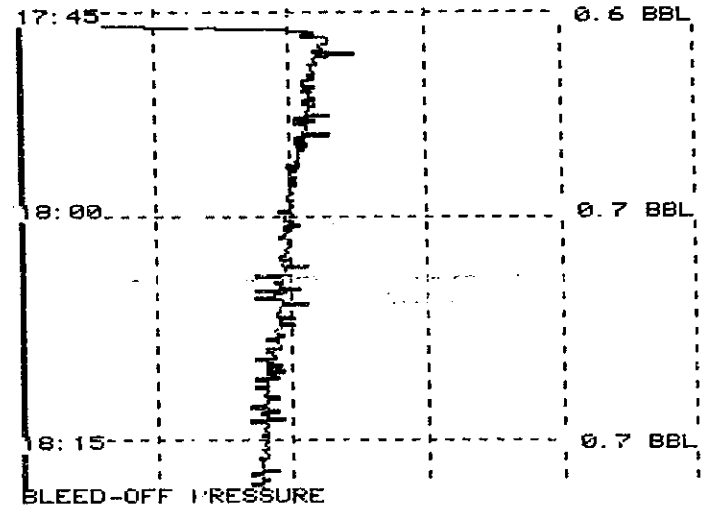
Curve 1 : Unit 1 Pressure
Curve 2 : Disabled
Curve 3 : Unit 1 Total Flow rate
Curve 4 : Disabled

Volume is computed from :
Unit 1 Total Flow rate
Scan Period (Sec) : 8
Playback : Recording Rate was 1 second

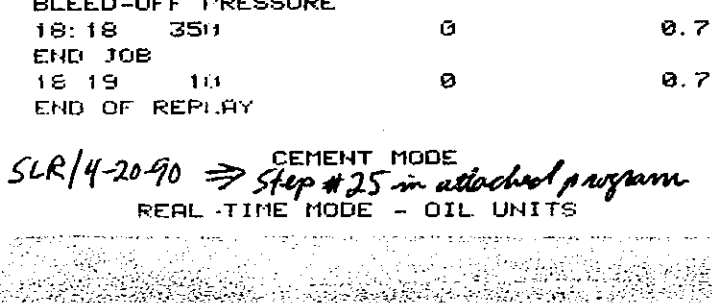
0 PSI 1000
0 BPM 5
BAD BLOCK
BAD BLOCK
17:16 0 BBL



BLEED-OFF PRESSURE
17:21 270 0 0
PRESSURE TEST CASING
17:22 *** 0 0
17:30 0.2 BBL



BLEED-OFF PRESSURE
17:44 380 0 0.2
PRESSURE TEST CASING
17:45 10 0 0.2
17:45 0.6 BBL
18:00 0.7 BBL
18:15 0.7 BBL



BLEED-OFF PRESSURE
18:18 350 0 0.7
END JOB
18:19 10 0 0.7
END OF REPLAY

SLR/4-20-90 ⇒ Step #25 in attached program

CEMENT MODE
REAL-TIME MODE - OIL UNITS

Permit # 670

Company Amerigas / PB-KBB
Well Cavern #3 Field Amerigas Salt
District FNM SIR 1506-2985
Type Service PSI Test
Engineer Sobernheim
Date/Time Start Job 4-20-90 1716
Remarks Testing Plug drilled out to within 5' of depth

Witnessed by SL Rauzi

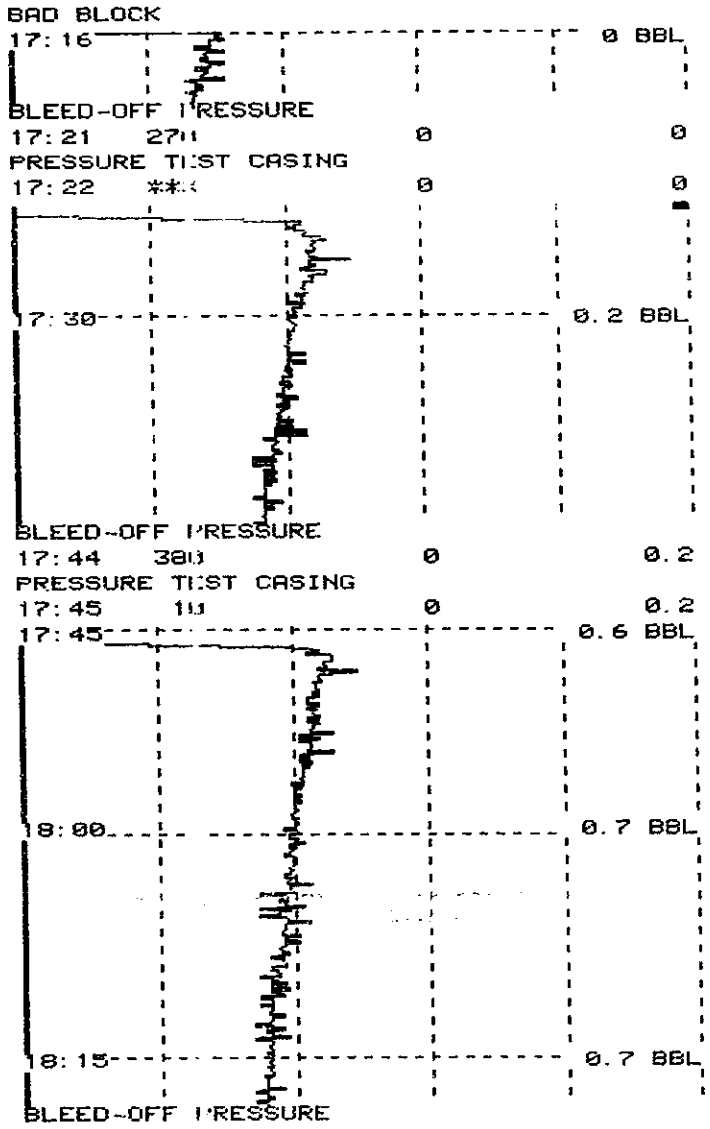
Permit # 670

Curve 1 : Unit 1 Pressure
Curve 2 : Disabled
Curve 3 : Unit 1 Total Flow rate
Curve 4 : Disabled

Volume is computed from :
Unit 1 Total Flow rate
Scan Period (Sec) : 8
Playback : Recording Rate was 1 second

0 PSI 1000
0 BPM 5

BAD BLOCK
BAD BLOCK
17:16 0 BBL



BLEED-OFF PRESSURE
17:21 270 0 0
PRESSURE TEST CASING
17:22 **** 0 0
17:30 0.2 BBL
BLEED-OFF PRESSURE
17:44 380 0 0.2
PRESSURE TEST CASING
17:45 10 0 0.2
17:45 0.6 BBL
18:00 0.7 BBL
18:15 0.7 BBL
BLEED-OFF PRESSURE
18:18 350 0 0.7
END JOB
18:19 10 0 0.7
END OF REPLAY

CEMENT MODE
SLR/4-20-90 ⇒ Step #25 in attached program
REAL-TIME MODE - OIL UNITS

Permit # 670

4-20-90

Test 1

1724	450 psi
1740	380 psi
1744	370 psi

Test 2

1747	450 psi
1752	430 psi
1757	410 psi
1800	(close hydrils - leaking)
1802	400 psi
1807	380 psi
1812	370 psi
1817	360 psi
1812	360 psi

SLR / 4-20-90 test of cement plug for running and cementing of $8\frac{5}{8}$" csg. ⇒ Step 25 in program

AZ OIL & GAS
CONSERVATION COMMISSION

JAN 15 1990

SUNDRY NOTICES AND REPORTS ON WELLS

1. Name of Operator AP Propane, Inc. dba Cal Gas

2. OIL WELL ☐ GAS WELL ☐ OTHER ☒ (Specify) Storage Well

3. Well Name No. 3 Roach-Baker

Location 167.4' E & 200' N from W ¼ Corner Sec. 2

Sec. 2 Twp. 2 N Rge. 1 W County Maricopa, Arizona.

4. Federal, State or Indian Lease Number, or lessor's name if fee lease

5. Field or Pool Name

6. Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	☐	PULL OR ALTER CASING	☐	WATER SHUT-OFF	☐	MONTHLY PROGRESS	☐
FRACTURE TREAT	☐	DIRECTIONAL DRILL	☐	FRACTURE TREATMENT	☐	REPAIRING WELL	☐
SHOOT OR ACIDIZE	☐	PERFORATE CASING	☐	SHOOTING OR ACIDIZING	☐	ALTERING CASING	☐
REPAIR WELL	☐	CHANGE PLANS	☐			ABANDONMENT	☐
(OTHER) Install Cemented Casing Liner			X	(OTHER)			☐

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

7. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

The attached program presents the proposed steps for installing a cemented casing liner in Cal Gas' Well No. 3 Roach-Baker.

The workover is tentatively scheduled to commence 2/5/90.

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

Signed Jim Moran Title Project Manager Date 12/26/89
PB-KBB Inc. Agent for Cal Gas

Permit No. 670

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
Sundry Notices and Reports On Wells
Form No. 25 File One Copy

AZ OIL & GAS
CONSERVATION COMMISSION
JAN 15 1990

AP PROPANE INC. dba
CAL GAS

REMEDIAL WORKOVER PROGRAM
WELL NO. 3 ROACH-BAKER

This program presents the proposed steps for working over Cal Gas' Well No. 3 Roach-Baker. The objectives of the workover are: 1) perforate 10-3/4" casing and recover trapped product, 2) cut off casing and section mill to expose a new salt bore hole, 3) install a casing liner, and 4) conduct a mechanical integrity test.

The program is recommended for use as a general guideline for the remedial workover. Actual conditions encountered will dictate the required steps to be taken.

1. Displace all product from the cavern and circulate brine to the pit for a minimum of two days or as long as practical.

2. Shut well in overnight and record pressure buildup; then bleed down and vent during day. Continue until pressure buildup indicates acceptable product level.

3. Move in and rig up workover rig.

4. Remove cross section of wellhead and install blowout preventer equipment. Conduct function check.

5. Install steel line from wellhead to 30,000 gallon tank for product recovery.

6. Pull and laydown 5-1/2" casing. Install safety swage with valve before pulling each joint. Keep well full, with brine, at all times.

7. Rig down BOP and remove tubing spool. Install BOP equipment on starting head and conduct function test. (Shop wellhead components for modifications).

8. Pull and laydown 8-5/8" casing. Install safety swage with valve before pulling each joint. Keep well full, with brine, at all times.

9. Rig up logging truck and pressure control equipment.

10. Run density log with collar locator. Pick out top of washout and interval to be perforated from log.

11. Run in the hole with casing gun and perforate the top 6 feet of the washout with 4 holes per foot (approximately 1552' - 1558'). Then pull casing gun.

12. Produce recovered product into tank until pressure equalizes and product stops flowing.

13. Pump brine in the well to pressure up cavern. Quantity of brine will depend on estimate of remaining product.

14. Allow time for product to rise through brine and buildup at wellhead, then produce product into tank.

15. Continue steps 13 and 14 until brine is produced then divert to brine system and flare, and bleed down well.

16. Run density log to determine if any trapped product remains. If so, repeat steps 11 through 15 until all product is recovered.

Run Caliper

17. Run sonar survey and directional survey. Rig down logging truck and pressure equipment.

18. Nipple up a drilling nipple and flowline to rig tank. Run in the hole with marine cutter and cut 10-3/4" casing at the top of the washout (approximately 1554').

19. Set a drillable bridge plug 10'± above casing cut (approximately 1544').

20. Rig up logging truck and spot a 5' cement plug on top of bridge plug with dump bailer. WOC.

21. Pressure test plug to equivalent head of 16.0 ppg cement.

22. Run in the hole with 10-3/4" casing mill and tag cement (top of plug approximately 1539').

23. Pull up 50' and section mill 10-3/4" casing down to plug. (Approximately 1489' - 1539'). Gel up brine drilling fluid as required to remove cuttings.

24. Run in the hole with underreamer and underream 50' of section milled hole to 14".

25. Pressure test plug and hole (see step 20). what do results mean?
SLR 4-14, 4-19, 4-20, + 4-21 ⇒ acceptable results on 4-21 (must hold ~1530' 8⅝ csg + circ ¼ cmt.)
witness on

26. Rig up casing crew and internal testing equipment to run 8-5/8" 32 lb/ft K-55 MOD BT&C SCC. Torque each connection to special diamond mark and internally test to 2,000 psi for 90 seconds. (Approximately 1537').
4-24

27. Rig up cementing contractor and circulate 1-1/2 casing volume. 4-24 SLR

28. Cement 8-5/8" casing to surface. 4-24-90 SLR
    a. Lead cement - 1/2 volume. Class G salt saturated mixed at 15.7 ppg.
       Tail cement - 1/2 volume. Class G salt saturated mixed at 16.0 ppg.
    b. Precede cement with 20 barrels of brine.
    c. Pump a top plug down with brine, bump the plug with 800 psi ~~and hold the pressure for 30 minutes to test casing.~~

29. Wait on cement 72 hours.

30. Go in hole with 7-5/8" bit and drill out float collar and shoe, then continue on to top of cement plug.

31. Pressure test 8-5/8" casing shoe to .85 psi/ft gradient.

32. Drill out cement plug and bridge plug, then run drill string 90' into cavern. Pull out of hole racking back.

33. Nipple down the BOP, install tubing spool (check ID for reference to 8-5/8" casing scraper). Test the spool and 8-5/8" hanger to 2,000 psi. Nipple up the BOP.

34. Pick up a 8-5/8" 32 lb/ft. casing scraper and run in hole close to TD. Pull out of hole laying down drillstring and scraper.

35. Rig up logging truck and run casing inspection log and cement bond log. Pull out of hole and rig down wireline truck.

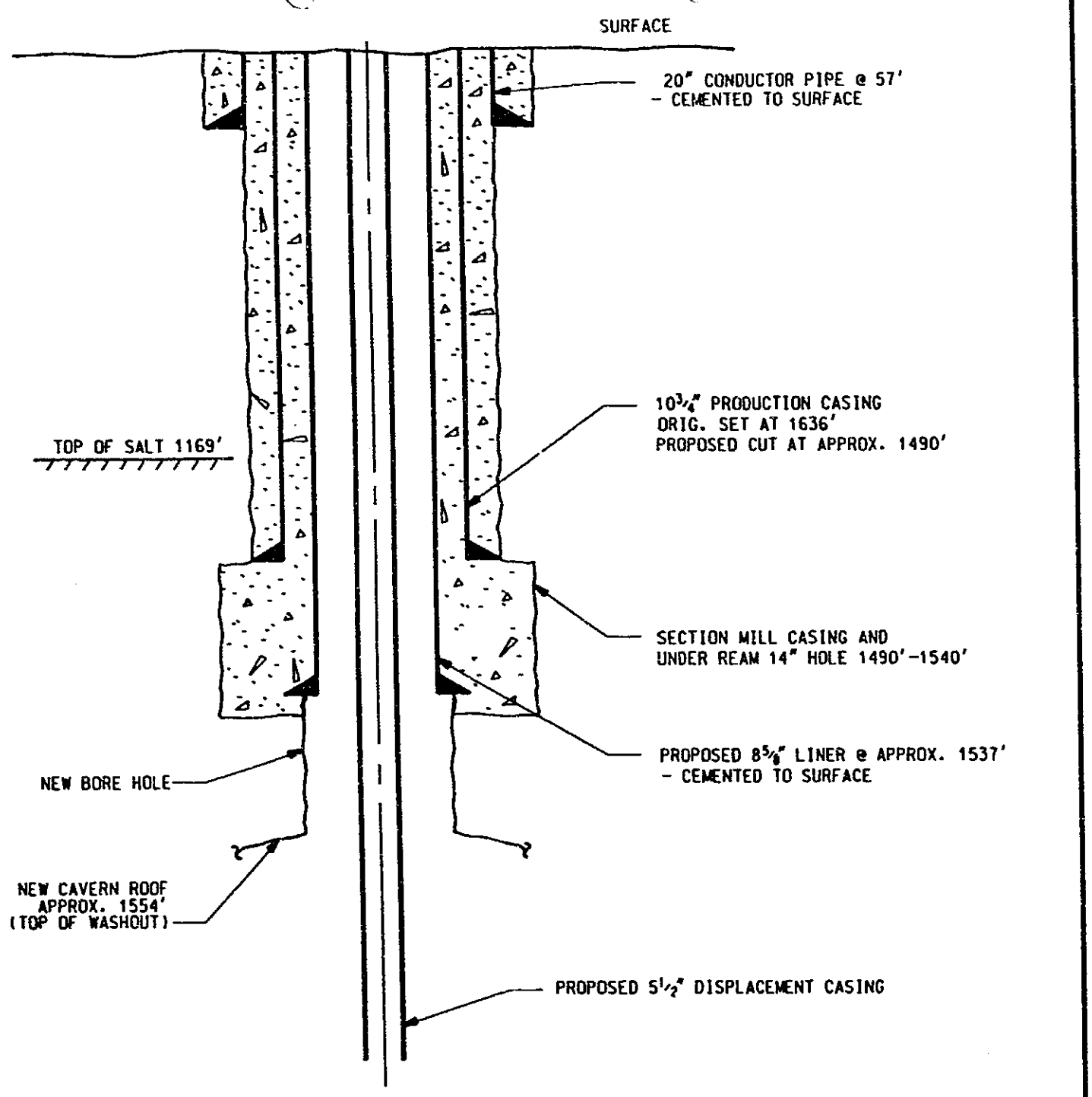
36. Rig up casing crew equipment to run 5-1/2" 17 lb/ft, K-55, LT&C tubing. Torque each connection to 2720 ft/lbs optimum, maximum 3400 ft/lbs. (approximately 2900', actual setting depth will be determined from Sonar).

37. Install cross section of wellhead and test 5-1/2" hanger to 2,000 psi.

38. Rig down and move out workover rig.

39. Hook up surface lines.

40. Run cavern mechanical integrity test.



PB-KBB Inc. Subsurface Systems & Technology		AP PROPANE dba CAL GAS Sacramento, California		
STORAGE WELL No. 3 ROACH-BAKER PROPOSED REMEDIAL WORKOVER				JOB No. 303008
DRAWN: JKH	CHECKED: TM	DATE: 10-12-89	SCALE: NONE	DRAWING No. SW-W-03

RECEIVED
JAN 24 1983
O & G CONS. COMM.

AKD
RAY

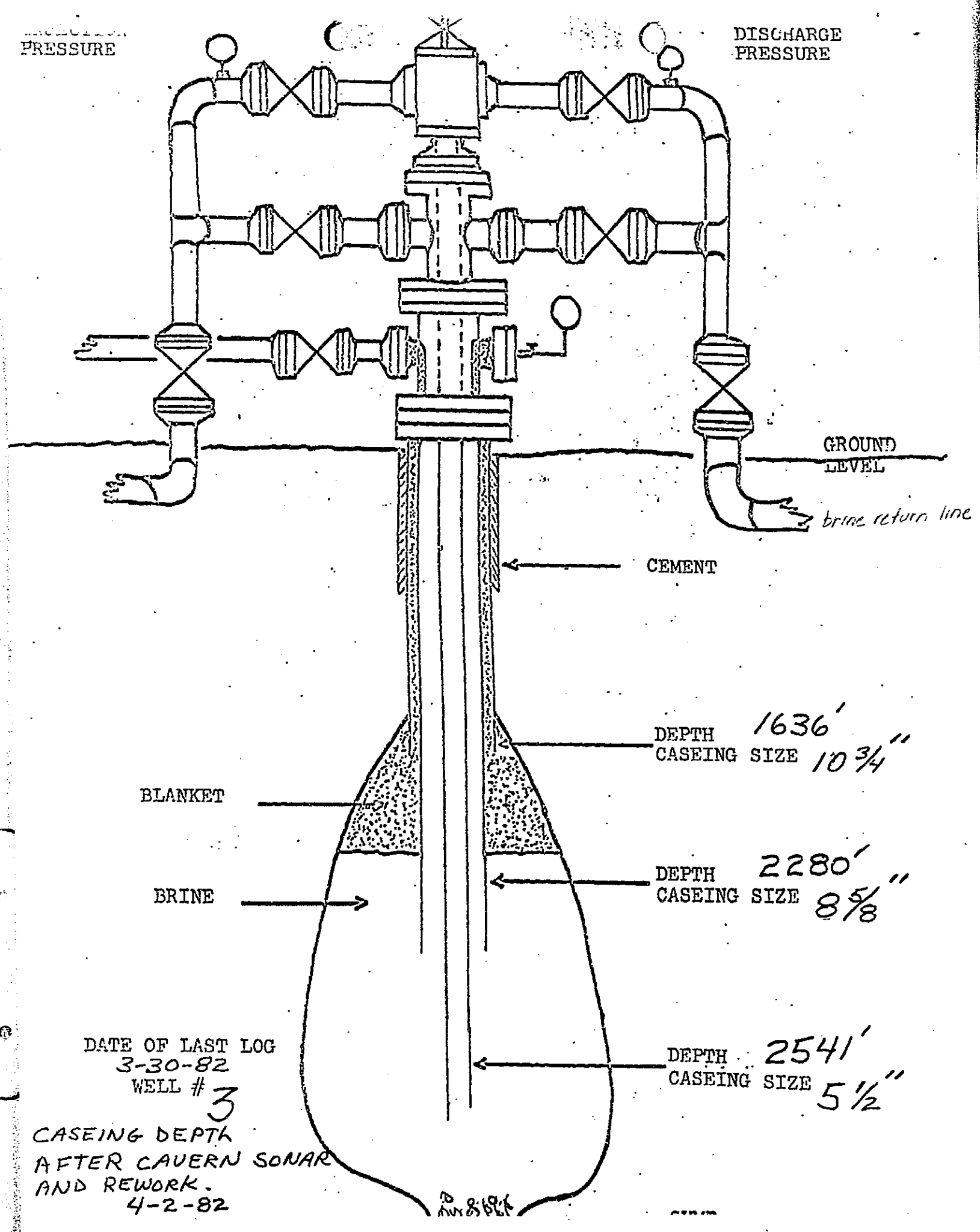
CAL GAS

4-2-82

A BILLINGHAM COMPANY

REPOSITION OF CASING #3 CAVERN	
5½" O.D. 15.50# LT+C J-55	8⅝" O.D. 32# LT+C J-55
SET @ 2541'	SET @ 2280'
NEW WEIGHT OF 5½" 39,386#	NEW WEIGHT OF 8⅝" 72,960#
139' OF 5½" WAS TAKEN OFF	76 FT WAS ADDED to 8⅝"
Bottom JOINT HAS MULE SHOE AND ¾" TELL-TALE HOLE 2 FT. FROM END.	MULE SHOE WAS cut OFF FLAT WITH ¾" TELL-TALE HOLE cut 2 FT. FROM END.
261' INTERVAL between Bottom OF 8⅝" + Bottom OF 5½" CASING.	SONAR + LOG RUN ON 3-30-82. Dowell + MICRO-GAGE H+H CASEING - POWER tongs.
NEW SETTING	PREVIOUS SETTING
5½" @ 2541'	5½" @ 2680'
8⅝" @ 2280'	8⅝" @ 2204'

P/N 670


PRESSURE
DISCHARGE PRESSURE
GROUND LEVEL
brine return line
CEMENT
DEPTH 1636'
CASEING SIZE 10 3/4"
BLANKET
BRINE
DEPTH 2280'
CASEING SIZE 8 5/8"
DATE OF LAST LOG
3-30-82
WELL # 3
DEPTH 2541'
CASEING SIZE 5 1/2"
CASEING DEPTH
AFTER CAVERN SONAR
AND REWORK.
4-2-82

SUNDRY NOTICES AND REPORTS ON WELLS

1. Name of Operator CAL-GAS TERMINAL

2. OIL WELL ☐ GAS WELL ☒ OTHER ☐ (Specify) LPG STORAGE

3. Well Name WELL #3

Location 7511 N. DYSART RD - GLENDALE, ARIZ.

Sec. _____ Twp. _____ Rge. _____ County MARICOPA, Arizona.

4. Federal, State or Indian Lease Number, or lessor's name if fee lease _____

5. Field or Pool Name _____

6. Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	☐	PULL OR ALTER CASING	☐	WATER SHUT-OFF	☐	MONTHLY PROGRESS	☐
FRACTURE TREAT	☐	DIRECTIONAL DRILL	☐	FRACTURE TREATMENT	☐	REPAIRING WELL	☐
SHOOT OR ACIDIZE	☐	PERFORATE CASING	☐	SHOOTING OR ACIDIZING	☐	ALTERING CASING	☐
REPAIR WELL	☐	CHANGE PLANS	☐			ABANDONMENT	☐
(OTHER) SONAR CAVERN			☒	(OTHER) INSPECT CASEING			☒

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

7. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

SEE ATTACHED NOTE-
PULLED 8 5/8" & 5 1/2" CASEING, SONARED CAVERN, RUN DENSITY INTERFACE LOG. REINSTALLED CASEINGS AT NEW SETTINGS. CASEING, PIPES, WELL HEAD & CAVERN FOUND TO BE IN EXCELLANT CONDITION.

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

Signed David J. Harbrecht Title TERM. MGR. Date 1-18-83

Permit No. _____

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
Sundry Notices and Reports On Wells
File One Copy
Form No. 25

SUNDRY NOTICES AND REPORTS ON WELLS

1. Name of Operator CAL-GAS TERMINAL

2. Oil WELL ☐ GAS WELL ☒ OTHER ☐ (Specify) LPG STORAGE

3. Well Name #3 CAVERN

Location 7511 N. DYSART Rd. GLENDALE, ARIZ.

Sec. _____ Twp. _____ Rge. _____ County MARICOPA Arizona.

4. Federal, State or Indian Lease Number, or lessor's name if fee lease _____

5. Field or Pool Name _____

6. Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	☐	PULL OR ALTER CASING	☐	WATER SHUT-OFF	☐	MONTHLY PROGRESS	☐
FRACTURE TREAT	☐	DIRECTIONAL DRILL	☐	FRACTURE TREATMENT	☐	REPAIRING WELL	☐
SHOOT OR ACIDIZE	☐	PERFORATE CASING	☐	SHOOTING OR ACIDIZING	☐	ALTERING CASING	☐
REPAIR WELL	☐	CHANGE PLANS	☐			ABANDONMENT	☐
(OTHER) SONAR CAVERN	☒			(OTHER) INSPECT CASEING			☒

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

7. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

PULLED 8 5/8 + 5 1/2 CASEING, SONARED CAVERN, RUN DENSITY INTERFACE LOG. REINSTALLED CASEINGS AT NEW SETTING. CASEING, PIPES, WELL HEAD + CAVERN FOUND TO be IN EXCELLANT CONDITION.

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

Signed David J. Harbstka Title TERM. MGR. Date 1-18-83

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
Sundry Notices and Reports On Wells
File 1 Copy
Form No. 25

Permit No. _____

WELL COMPLETION OR RECOMPLETION REPORT AND WELL LOG

DESIGNATE TYPE OF COMPLETION:

New Well ☐ Work-Over ☒ Deepen ☐ Plug Back ☐ Same Reservoir ☐ Different Reservoir ☐ Oil ☐ Gas ☐ Dry ☐

DESCRIPTION OF WELL AND LEASE

Operator: B.C.+M DRILLING.	Address:
Federal, State or Indian Lease Number or name of lessor if fee lease:	Well Number: #3 — Field & Reservoir:
Location: CAL-GAS 7511 N. DYSART Rd.	County: MARICOPA
Sec. TWP-Range or Block & Survey:	

Date spudded	Date total depth reached	Date completed, ready to produce	Elevation (DF, RKB, RT or Gr.) feet	Elevation of casing hd. flange feet
Total depth	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)	Cable tools used (interval)
Was this well directionally drilled? / Was directional survey made?	Was copy of directional survey filed?	Date filed
Type of electrical or other logs run (check logs filed with the commission)		Date filed

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	Amt. pulled

TUBING RECORD

Size in.	Depth set ft.	Packer set at ft.

LINER RECORD

Size in.	Top ft.	Bottom ft.	Sacks cement	Screen (ft.)

PERFORATION RECORD

Number per ft.	Size & type	Depth Interval

ACID, SHOT, FRACTURE, CEMENT SQUEEZE RECORD

Am't. & 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	Hrs. tested	Choke size	Oil prod. during test bbls.	Gas prod. during test MCF	Water prod. during test bbls.	Oil gravity °API (Corr)

Tubing pressure	Casing pressure	Cal'ted 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 TERMINAL MGR. of the CAL-GAS TERMINAL (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 1-18-83

David J. Harbrecht
Signature

Permit No.

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
Well Completion or Recompletion Report and Well Log
File One Copy
Form No. 4

(Complete Reverse Side)

WELL COMPLETION OR RECOMPLETION REPORT AND WELL LOG

DESIGNATE TYPE OF COMPLETION:

New Well [XX] Work-Over [ ] Deepen [ ] Plug Back [ ] Same Reservoir [ ] Different Reservoir [ ] Oil [ ] Gas [ ] Dry [ ]

DESCRIPTION OF WELL AND LEASE

Operator: California Liquid Gas Corporation	Address: P.O. Box 28397, Sacramento, CA 95828
Federal, State or Indian Lease Number or name of lessor if fee lease: John L. Roach and Arthur E. Baker	Well Number: 3
Field & Reservoir: Salt Storage Well	
Location: 167.4' East, 200' North from W 1/4 corner, Sec. 2	County: Maricopa
Sec. TWP-range or Block & Survey: Sec. 2, T2N, R1W, G & SRB & M	

Date spudded	Date total depth reached	Date completed, ready to produce	Elevation (DF, RKB, RT or Gr.) feet	Elevation of casing hd. flange feet
12/15/76	1/22/77	1/25/77	1086	1087

Total depth	P.B.T.D.	Single, dual or triple completion?	If this is a dual or triple completion, furnish separate report for each completion.
3200'	N/A	Single	N/A

Producing interval (s) for this completion	Rotary tools used (interval)	Cable tools used (interval)
N/A	Auger to 57', Rotary 57' to 3200'	None

Was this well directionally drilled?	Was directional survey made?	Was copy of directional survey filed?	Date filed
No	No	No	N/A

Type of electrical or other logs run (check logs filed with the commission)	Date filed
Caliper, Gamma Ray, Density	2/14/77

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	Amt. pulled
Surface	26" Auger	20	78.6	57'	6 yds. Redimix	0
Protection	17 1/2	10 3/4	40.5	1650	2625 + 6% gel	
Wash	17 1/2	8 5/8	32	2704	0	
	17 1/2	5 1/2	15.5	3152		

TUBING RECORD

Size in.	Depth set ft.	Packer set at ft.

LINER RECORD

Size in.	Top ft.	Bottom ft.	Sacks cement	Screen (ft.)

PERFORATION RECORD

Number per ft.	Size & type	Depth Interval

ACID, SHOT, FRACTURE, CEMENT SQUEEZE RECORD

Am't. & 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	Hrs. tested	Choke size	Oil prod. during test bbls.	Gas prod. during test MCF	Water prod. during test bbls.	Oil gravity ° API (Corr)

Tubing pressure	Casing pressure	Cal'ted 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 Project Engineer of the California Liquid Gas Corporation (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.

February 11, 1977
Date

Wm J Aaberg
Signature William J. Aaberg

O & G CONS. COMM.

Permit No

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
Well Completion or Recompletion Report and Well Log
File One Copy
Form No. 4

(Complete Reverse Side)

DETAIL OF FORMATIONS PENETRATED

Formation	Top	Bottom	Description*
Surface	0	1077	Variable lenses of sand, clay and gravel
	1077	1169	Anhydrite
	1169	3200	Salt

* Show all important zones of porosity, detail of all cores, and all drill-stem tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures, and recoveries.

INSTRUCTIONS:

Attach drillers log or other acceptable log of well.

This Well Completion or Recompletion report and well log shall be filed with the State of Arizona Oil & Gas Conservation Commission not later than thirty days after project completion.

Form No. 4

DIRECTIONAL DRILLING REPORT

AZ OIL & GAS
CONSERVATION COMMISSION
MAY 29 1990

DATE APRIL 2, 1990

COMPANY PB-KBB INC.

WELL CAL GAS, WELL NO. 3 P/N 670

LOCATION GLENDALE, ARIZONIA

SURVEY FROM SURFACE TO 1550' MD

MAGNETIC DECLINATION 12° 12' EAST (TRUE)

WILSON™

DIRECTIONAL DRILLING DIVISION

D0-22866

W-DD-1

WILSON DOWNHOLE DIRECTIONAL SERVICES

2-Apr-90

PB-KBB INC.
CAL GAS, WELL NO. 3
GLENDALE, ARIZONIA

GYROSCOPIC MULTI-SHOT SURVEY
JOB NO:D0-22866 DATE OF JOB:3-30-90
SURVEYOR:BILL McKINZIE

Vert. Sect. Dir. = N .0000 E Calculations using the Radius of Curvature Method

Meas. Depth	Hole Ang.	T.V.D.	V. S. Dist.	Hole Dir.	Total Coordinates Lat.	Dep.	CLOSURES Distance	Direction	D. L. Sev.
0	.00	.00	.00	Vertical	.00	.00	.00	N .0000 E	.00
50	.20	50.00	-.06	S 49.03 W	.06 S	.07 W	.09	S 49.0333 W	.40
100	.30	100.00	-.22	S 32.07 W	.22 S	.21 W	.30	S 42.9774 W	.25
150	.20	150.00	-.42	S 11.08 W	.42 S	.29 W	.51	S 34.0841 W	.27
200	.40	200.00	-.68	S 7.90 E	.68 S	.29 W	.75	S 23.2559 W	.45
250	.30	250.00	-.99	S 16.13 W	.99 S	.32 W	1.04	S 17.7518 W	.36
300	.20	300.00	-1.20	S 4.85 E	1.20 S	.34 W	1.25	S 15.6640 W	.27
350	.40	350.00	-1.44	S 46.18 W	1.44 S	.43 W	1.50	S 16.5065 W	.67
400	.50	399.99	-1.80	S 6.80 E	1.80 S	.55 W	1.88	S 17.1480 W	.86
450	.50	449.99	-2.22	S 17.77 E	2.22 S	.46 W	2.27	S 11.7359 W	.19
500	.50	499.99	-2.64	S 13.75 E	2.64 S	.34 W	2.66	S 7.4008 W	.07
550	.60	549.99	-3.12	S 7.27 W	3.12 S	.32 W	3.13	S 5.7895 W	.45
600	.60	599.99	-3.64	S 6.70 E	3.64 S	.32 W	3.65	S 5.0038 W	.29
650	.50	649.98	-4.10	S 26.68 E	4.10 S	.18 W	4.10	S 2.5375 W	.43
700	.30	699.98	-4.43	S 9.65 E	4.43 S	.07 W	4.43	S .9468 W	.47
750	.40	749.98	-4.73	S .63 E	4.73 S	.05 W	4.73	S .5551 W	.23
800	.50	799.98	-5.13	S 2.48 E	5.13 S	.04 W	5.13	S .3932 W	.20
850	.60	849.98	-5.61	S 1.53 W	5.61 S	.03 W	5.61	S .3189 W	.21
900	.70	899.97	-6.17	S 5.57 W	6.17 S	.07 W	6.17	S .6156 W	.22
950	.60	949.97	-6.74	S .58 W	6.74 S	.10 W	6.74	S .8225 W	.23
1000	.80	999.97	-7.35	S 1.40 E	7.35 S	.09 W	7.35	S .7202 W	.40
1050	.70	1049.96	-8.00	S 1.63 W	8.00 S	.09 W	8.00	S .6709 W	.22
1100	.60	1099.96	-8.57	S 5.65 W	8.57 S	.13 W	8.57	S .8674 W	.22
1150	.50	1149.96	-9.03	S 25.68 W	9.03 S	.26 W	9.03	S 1.6412 W	.43
1200	.50	1199.96	-9.42	S 27.70 W	9.42 S	.45 W	9.43	S 2.7638 W	.04

WILSON DOWNHOLE DIRECTIONAL SERVICES

2-Apr-90

PB-KBB INC.
CAL GAS, WELL NO. 3
GLENDALE, ARIZONIA

GYROSCOPIC MULTI-SHOT SURVEY
JOB NO:D0-22866 DATE OF JOB:3-30-90
SURVEYOR:BILL McKINZIE

Vert. Sect. Dir. = N .0000 E Calculations using the Radius of Curvature Method

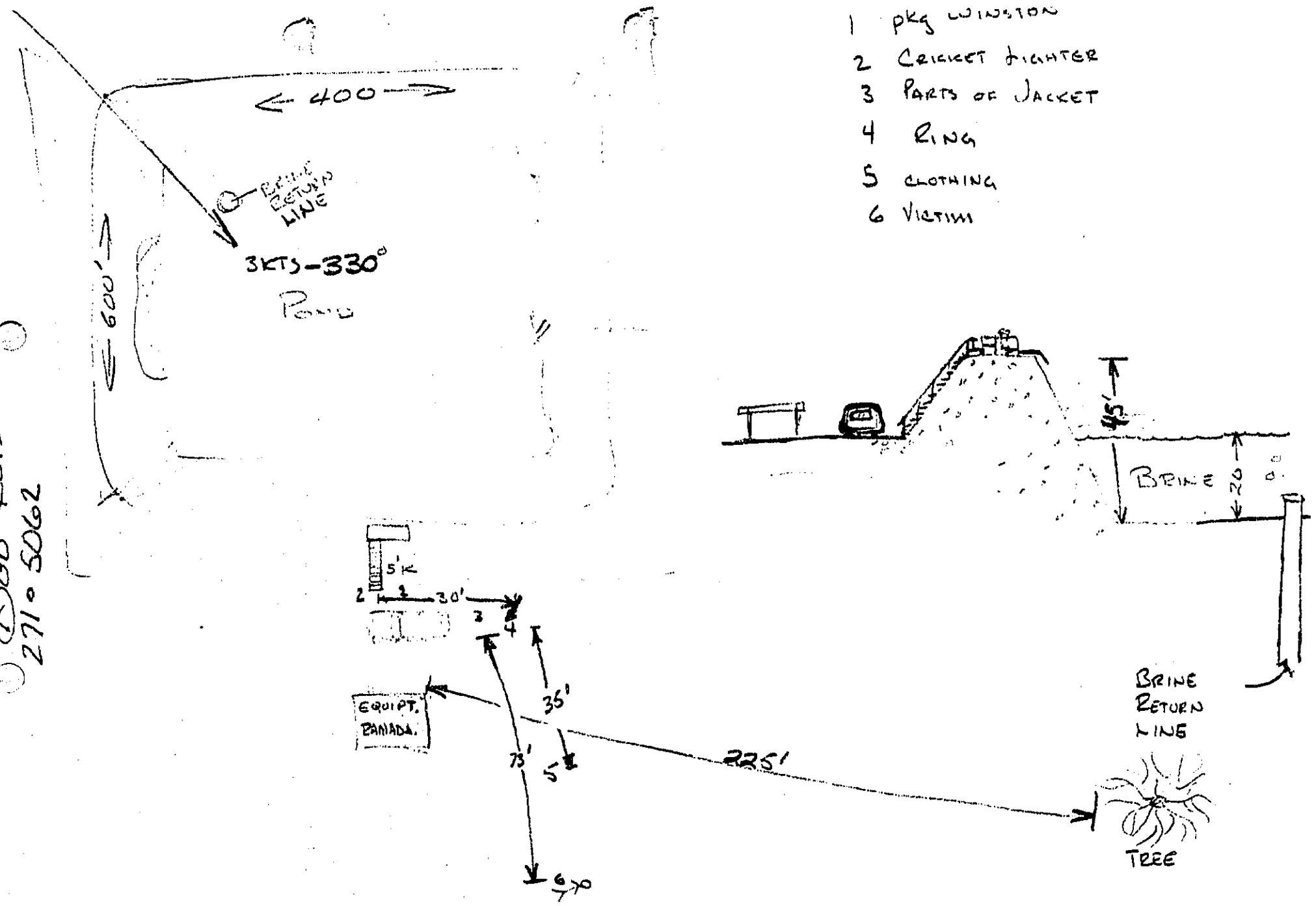
Meas. Depth	Hole Ang.	T.V.D.	V. S. Dist.	Hole Dir.	Total Coordinates Lat.	Dep.	CLOSURES Distance	Direction	D. L. Sev.
1250	.20	1249.95	-9.65	S 53.73 W	9.65 S	.65 W	9.67 S	3.8674 W	.68
1300	.50	1299.95	-9.79	S 70.75 W	9.79 S	.92 W	9.83 S	5.3775 W	.63
1350	.30	1349.95	-9.83	N 84.23 W	9.83 S	1.27 W	9.91 S	7.3352 W	.53
1400	.60	1399.95	-9.77	N 79.20 W	9.77 S	1.65 W	9.91 S	9.6046 W	.61
1450	.50	1449.95	-9.65	N 70.13 W	9.65 S	2.12 W	9.88 S	12.3734 W	.27
1500	.60	1499.95	-9.50	N 73.05 W	9.50 S	2.57 W	9.84 S	15.1542 W	.21
1550	.50	1549.94	-9.37	N 75.98 W	9.37 S	3.03 W	9.85 S	17.9479 W	.21

Bottom Hole Closure 9.85 at S 17.9479 W

We certify that this is a true and correct report of our survey and that it affords a true and correct representation of our findings as to the nature and conditions of the well at the time the survey was made.
WILSON DOWNHOLE DIRECTIONAL DRILLING, INC.

Wm. McKinzie

1 pkg WINSTON
2 CRICKET FIGHTER
3 PARTS OF JACKET
4 RING
5 CLOTHING
6 VICTIM



Bob Reid
271-5062

RECEIVED
JAN 31 1977
O & G CONS. COMM.

SUNDRY NOTICES AND REPORTS ON WELLS

1. Name of Operator: CAL-GAS

2. OIL WELL ☐ GAS WELL ☐ OTHER ☑ (Specify) UNDERGROUND STORAGE

3. Well Name: BAKER-ROACH - STORAGE WELL #3

Location

Sec. 2 Twp. 2N Rge. 1W County MARICOPA Arizona.

4. Federal, State or Indian Lease Number, or lessor's name if fee lease

5. Field or Pool Name: LUKE

6. Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	☐	PULL OR ALTER CASING	☐	WATER SHUT-OFF	☐	MONTHLY PROGRESS	☐
FRACTURE TREAT	☐	DIRECTIONAL DRILL	☐	FRACTURE TREATMENT	☐	REPAIRING WELL	☐
SHOOT OR ACIDIZE	☐	PERFORATE CASING	☐	SHOOTING OR ACIDIZING	☐	ALTERING CASING	☐
REPAIR WELL	☐	CHANGE PLANS	☐			ABANDONMENT	☐
(OTHER)			☐	(OTHER)			☐

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

7. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

DRILL 17½" HOLE TO 3200' G.L. ~ RUN DENSITY & GAMMA-RAY LOGS. ATTEMPTED TO CORE @ 2860' W/ NO RECOVERY. RAN 1640', 10¾, 40.50#, K-55, L.T&C CASING. CEMENTED TO SURFACE W/ 2625 cu. ft. CL. A, 6% GEL CEMENT. CEMENT CIRCULATED TO SURFACE. RAN 2743, 32#, L.T.&C., K-55 8 RND THD CASING. HUNG OFF IN WKM XMAS TREE. RAN 3191', 15.50, K-55, 8 RND THD 4½" O.D. CASING & HUNG OFF IN XMAS TREE.

RIG DOWN DRILLING RIG & PREPARE TO START CIRCULATION 1/26/77.

FINAL REPORT

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

Signed: E. B. Allison Title: Mgr. Date: 1/27/77

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
Sundry Notices and Reports On Wells
File Two Copies
Form No. 28

Permit No. 670

RECEIVED
DEC 31 1976
O & G CONS. COMM.

SUNDRY NOTICES AND REPORTS ON WELLS

1. Name of Operator CAL / GAS

2. Oil WELL ☐ GAS WELL ☐ OTHER ☑ (Specify) PROPANE - BUTANE STORAGE

3. Well Name TANZ - PEACH #3

Location LUKE SALT DOME County MARICOPA CO. Arizona.

Sec. 2 Twp. 2N Rge. 1W

4. Federal, State or Indian Lease Number, or lessor's name if fee lease

5. Field or Pool Name LUKE SALT DOME

6. Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:

TEST WATER SHUT-OFF	☐	PULL OR ALTER CASING	☐
FRACTURE TREAT	☐	DIRECTIONAL DRILL	☐
SHOOT OR ACIDIZE	☐	PERFORATE CASING	☐
REPAIR WELL	☐	CHANGE PLANS	☐

(OTHER)

SUBSEQUENT REPORT OF:

WATER SHUT-OFF	☐	MONTHLY PROGRESS	☐
FRACTURE TREATMENT	☐	REPAIRING WELL	☐
SHOOTING OR ACIDIZING	☐	ALTERING CASING	☐
		ABANDONMENT	☐

(OTHER)

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

7. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

DRILL 17½" HOLE TO 1450' G.L. — SHUT DOWN OPERATIONS FOR HOLIDAYS ~ WILL START DRILLING AHEAD 1/2/77

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

Signed E.B. [illegible] Title Mgr. Date 12/29/76

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
Sundry Notices and Reports On Wells
File Two Copies

Form No. 25

Permit No. 670

CONFIDENTIAL

SUNDRY NOTICES AND REPORTS ON WELLS

1. Name of Operator CALIFORNIA LIQUID GAS CORP.

2. OIL WELL ☐ GAS WELL ☐ OTHER ☒ (Specify) STORAGE CAVERN

3. Well Name BAKER-ROACH #3

Location 167.4' FWL & 2840' FSL

Sec. 2 Twp. T2N Rge. 21W County MARICOPA Arizona.

4. Federal, State or Indian Lease Number, or lessor's name if fee lease

5. Field or Pool Name Lease BAKER-ROACH

6. Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	☐	PULL OR ALTER CASING	☐	WATER SHUT-OFF	☐	MONTHLY PROGRESS	☐
FRACTURE TREAT	☐	DIRECTIONAL DRILL	☐	FRACTURE TREATMENT	☐	REPAIRING WELL	☐
SHOOT OR ACIDIZE	☐	PERFORATE CASING	☐	SHOOTING OR ACIDIZING	☐	ALTERING CASING	☐
REPAIR WELL	☐	CHANGE PLANS	☐			ABANDONMENT	☐
(OTHER)			☐	(OTHER) ✓			☐

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

7. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

SPUD 17½" hole @ 4:00 PM 12-18-76 ~ DRILL 17½" hole TO 698' ON 12-20-76 ~ RUNNING DEVIATION SURVEYS (TOTCO) EACH 90' ~ MAX DEVIATION ¼° @ 616' ~

FORMATION CONSISTS OF SAND - GRAVEL - CLAY.
NO LOSS CIRCULATION HAS BEEN ENCOUNTERED TO THIS DEPTH.
VISCOSITY IS BEING MAINTAINED @ 45/50 SEC./PT. ~
10' SAMPLES WILL BE CAUGHT STARTING AT 800' G.L.

NOTE: 20" CONDUCTOR SET @ 57' ~ CEMENTED TO SURFACE

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

Signed EB Allman Title Mgr Date 12/20/76

RECEIVED
DEC 21 1976
O & G CONS. COMM.

Permit No. 670

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
Sundry Notices and Reports On Wells
File Two Copies
Form No. 25

APPLICATION FOR PERMIT TO DRILL OR RE-ENTER

APPLICATION TO DRILL ☒ RE-ENTER OLD WELL ☐

California Liquid Gas Corporation
NAME OF COMPANY OR OPERATOR

P.O. Box 28397 — Sacramento, — California 95828
Address — City — State

Morrow Drilling Company , Mr. Karl Morstain
Drilling Contractor

1138 North Barkley, Mesa, Arizona 85902
Address

DESCRIPTION OF WELL AND LEASE

Federal, State or Indian Lease Number, or if fee lease, name of lessor: John L. Roach & Arthur E. Baker	Well number: 3	Elevation (ground): 1083
Nearest distance from proposed location to property or lease line: 138 feet	Distance from proposed location to nearest drilling, completed or applied—for well on the same lease: 500 feet	
Number of acres in lease: 30	Number of wells on lease, including this well, completed in or drilling to this reservoir: 4	
If lease, purchased with one or more wells drilled, from whom purchased: N.A.	Name	Address
Well location (give footage from section lines) 167.4' FWL & 2840 FSL Sec. 2, T2N, R1W	Section—township—range or block and survey: 2-2N-R1W-G & SRB & M	Dedication (Comply with Rule 105): N.A.
Field and reservoir (if wildcat, so state): Salt Storage Well	County: Maricopa	
Distance, in miles, and direction from nearest town or post office: 9 Miles East of Glendale		
Proposed depth: 3,200'	Rotary or cable tools: Rotary	Approx. date work will start: November 1976
Bond Status 2597625 Amount $5,000.00	Organization Report On file X Or attached	Filing Fee of $25.00 Attached

Remarks: Well #3 will be a duplicate to our Wells #1 and #2.

CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the Project Engineer of the California Liquid Gas Corp. (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.

Wm J Dabeng
Signature

10/19/76
Date

Permit Number: 670
Approval Date: 10-22-76
Approved By: W. E. Allen

Notice: Before sending in this form be sure that you have given all information requested. Much unnecessary correspondence will thus be avoided.

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
Application to Drill or Re-enter
File Two Copies

Form No. 3

(Complete Reverse Side)

1. Operator shall outline the dedicated acreage for both oil and gas wells on the plat.

2. A registered professional engineer or land surveyor registered in the State of Arizona or approved by the Commission shall show on the plat the location of the well and certify this information in the space provided.

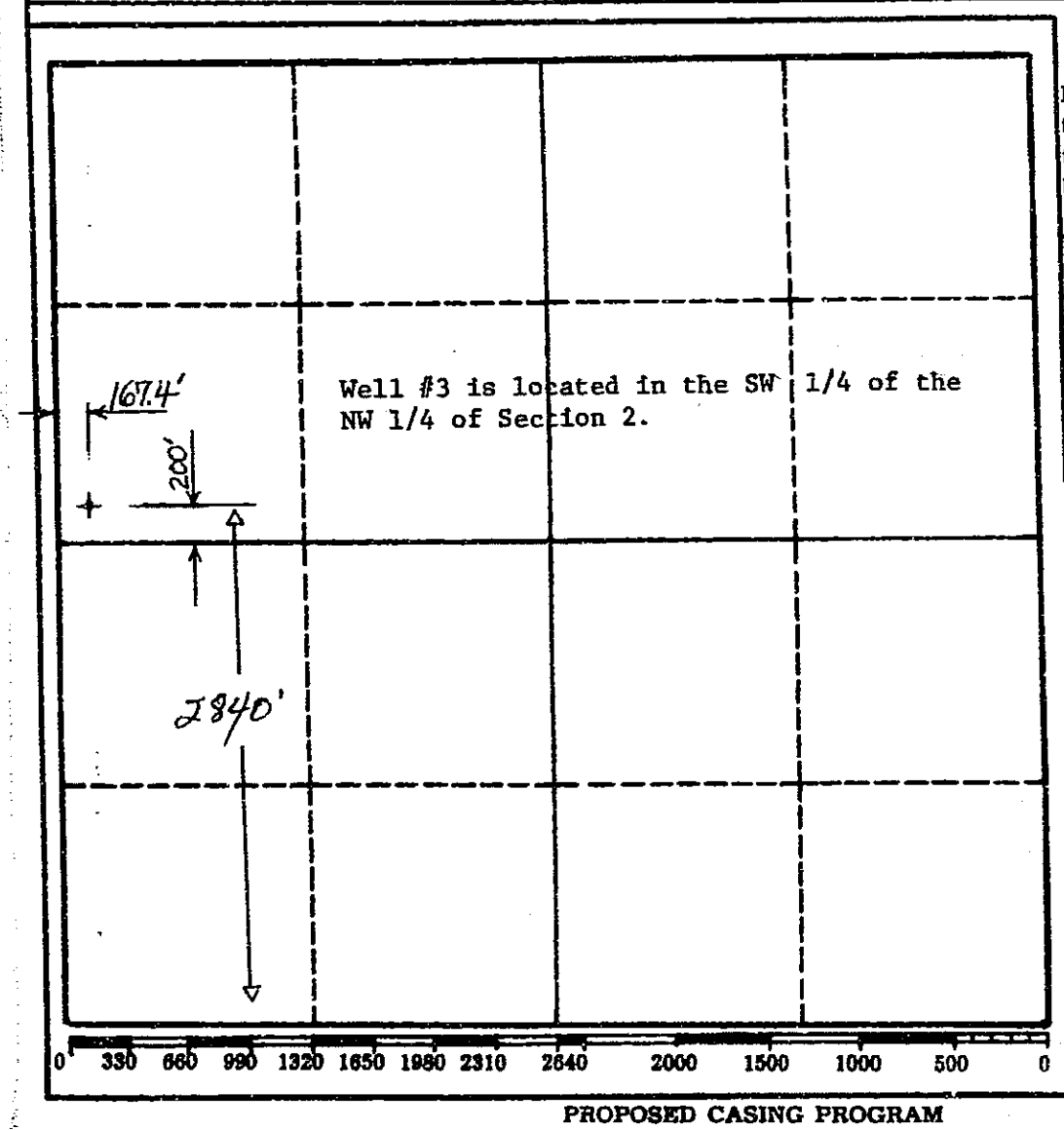
3. All distances shown on the plat must be from the outer boundaries of the Section.

4. Is the Operator the only owner in the dedicated acreage outlined on the plat below? YES X NO_____

5. If the answer to question four is "no," have the interests of all the owners been consolidated by communitization agreement or otherwise? YES_____ NO_____ If answer is "yes," Type of Consolidation N.A.

6. If the answer to question four is "no," list all the owners and their respective interests below:

Owner	Land Description
N.A.	



CERTIFICATION

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

Name: William J. Aaberg

Position: Project Engineer

Company: Cal Gas

Date: 10/19/76

I hereby certify that the well location shown on the plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed: 7/22/74

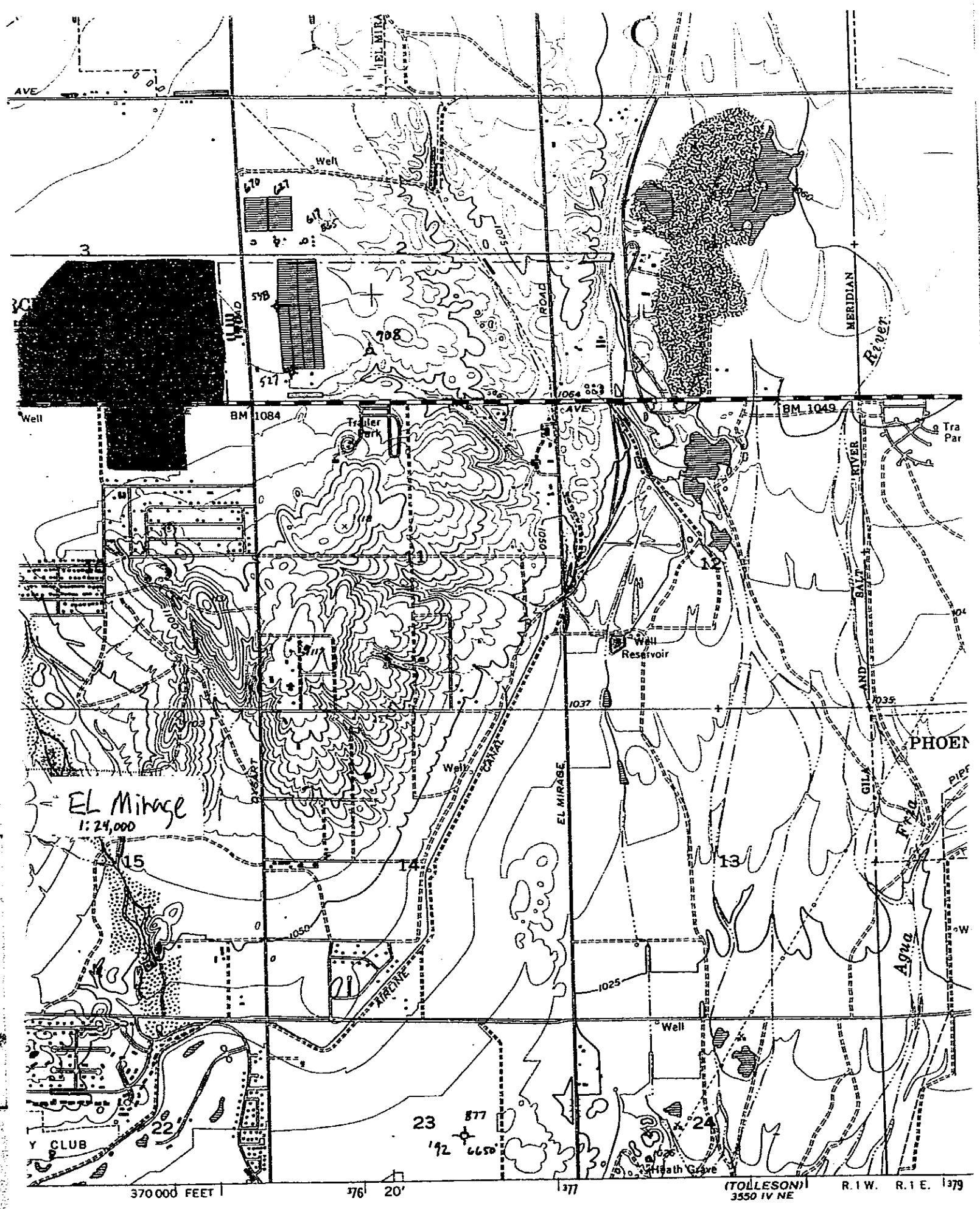
Registered Professional Engineer and/or Land Surveyor: Eugene V. Skelley

Certificate No. 1681

PROPOSED CASING PROGRAM

See attached drawing #L-74-6807

Size of Casing	Weight	Grade & Type	Top	Bottom	Cementing Depths	Sacks Cement
13 3/8	54.5	K-55	1083	956	956	200
10 3/4	45.5	K-55	1083	-500	-500	1300
8 5/8	31.1	K-55	1083	-1190	Hung	Uncemented
5 1/2	15.3	K-55	1083	-1650		


EL MIRAGE
1:24,000
AVE
Well
BM 1084
Trailer Park
BM 1049
Tra
Par
MERIDIAN
River
SALT
RIVER
Well Reservoir
PHOEN
GILA
Agua
EL MIRAGE
CANAL
AIRLINE
ROAD
Well
Y CLUB
Heath Grave
370 000 FEET
20'
(TOLLESON)
3550 IV NE
R. 1 W.
R. 1 E.

Survey

PERMIT TO DRILL

This constitutes the permission and authority from the

OIL AND GAS CONSERVATION COMMISSION,
STATE OF ARIZONA,

To: California Liquid Gas Corporation
(OPERATOR)

to drill a well to be known as

Roach - Baker No. 3
(WELL NAME)

located 167.4' FWL & 2840 FSL Sec 2, T2N, R1W Maricopa County Arizona

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

The NA 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 22 day of October, 19 76.

OIL AND GAS CONSERVATION COMMISSION

By W. E. [illegible]
EXECUTIVE SECRETARY

PERMIT No. 670

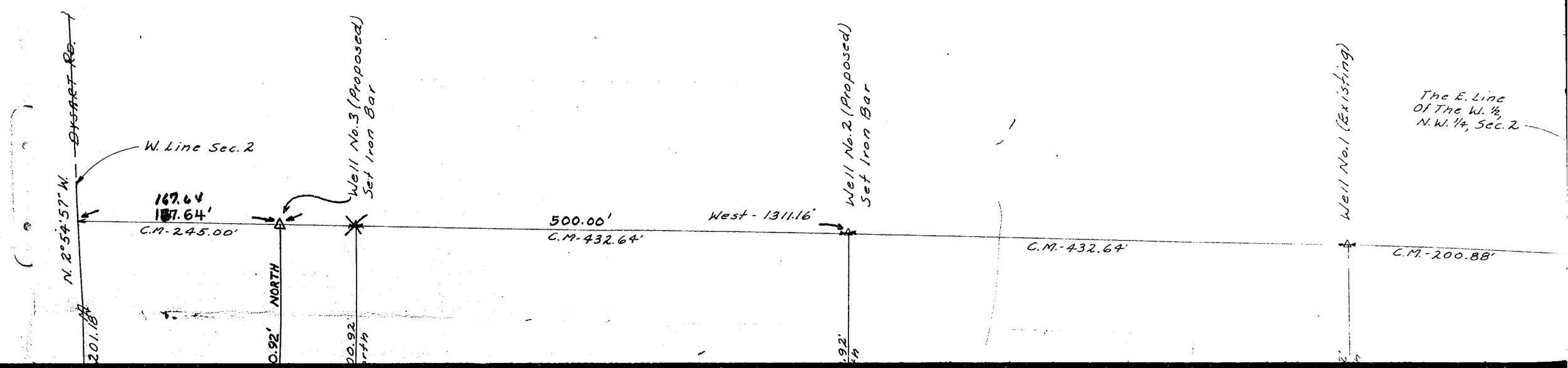
RECEIPT NO. 714
API No. 02-013-20008

State of Arizona
Oil & Gas Conservation Commission
Permit to Drill

FORM NO. 27

Description For Well No.3: Beginning At The West 1/4 Cor, Sec.2, T.2N., R.1W., G.&S.R.B.&M., Mar. Co., Az., thence East (Assumed Brg.) Along The East-West Mid-Line Of Said Sec.2, ~~667.41'~~ 167.41'; Thence North, 200.92' To The Center Of Fresh Water Well No.3.

Description For Well No.2: Beginning At The West 1/4 Cor. Sec. 2, T.2 N., R.1W., G.&S.R.B.&M., Mar. Co., Az.; Thence East (Assumed Brg.) Along The East-West Mid-Line Of Said Sec.2, 667.41', Thence North, 200.92' To The Center Of Fresh Water Well No.2.



REPORT OF SURVEY

OF

Three Fresh Water Well Sites Lying
In The S.W. 1/4, N.W. 1/4, Sec. 2, T2N, R1W,
G.&S.R.B.&M., Maricopa Co., Arizona

FOR

FENIX & SCISSON, INC.

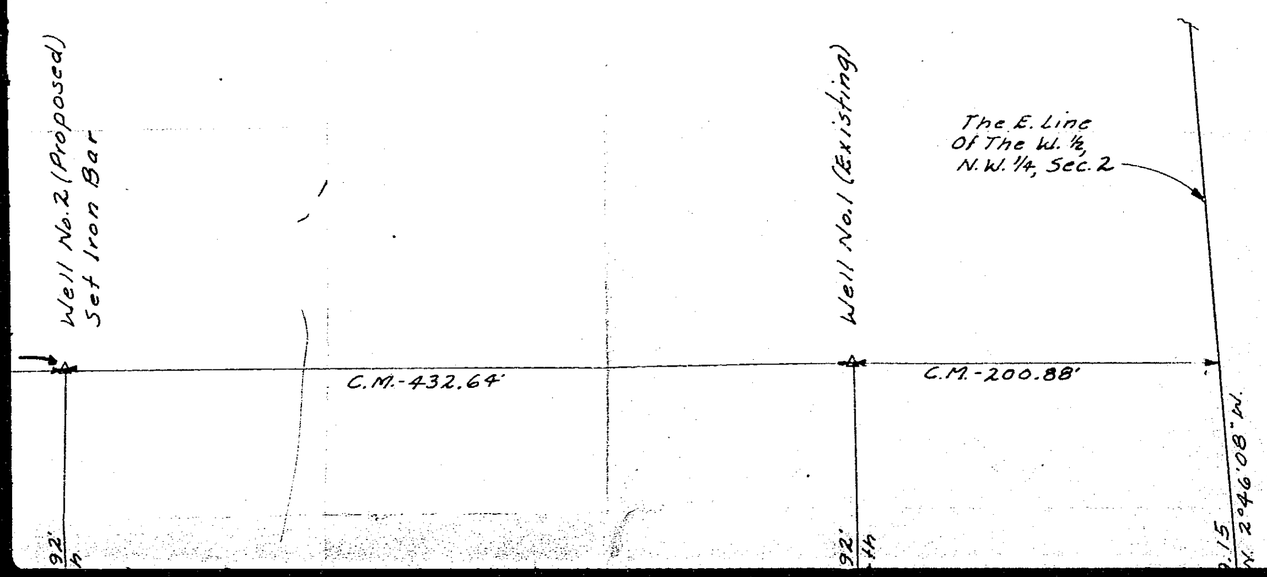
ENGINEERS & CONTRACTORS

P.O. Bx. 15609
TULSA, OKLAHOMA

n For Well No.2: Beginning At The West 1/4 Cor. Sec. 2,
., G.&S.R.B.&M., Mar. Co., Ag.; Thence East (Assumed Brg.)
East-West Mid-Line Of Said Sec. 2, 667.41', Thence
0.92' To The Center Of Fresh Water Well No.2.

N

Scale: 1" = 60'

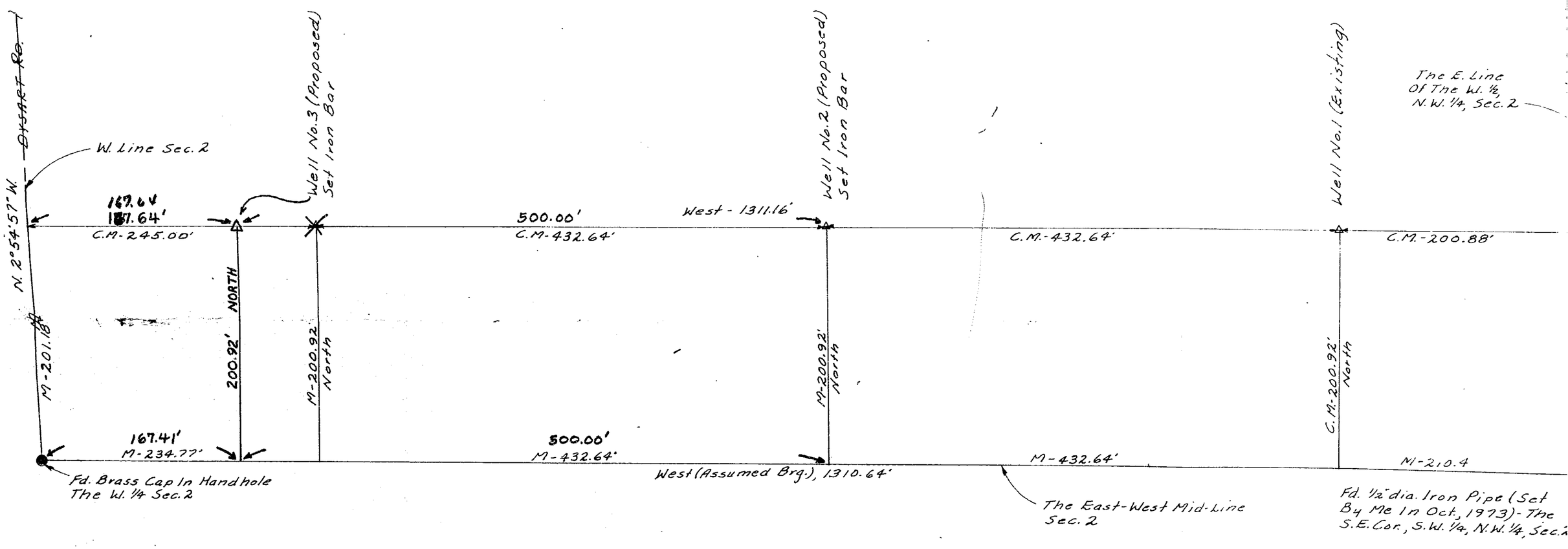


LEGEND

- ● = Monument Found
- ● = Iron Pipe or Iron Bar Found
- ○ = 1/2" I.D. Iron Pipe Tagged L.S. 1681 Set This Survey
- R = Data From Maricopa County Records
- CR = Calculated From R
- M = Measured in Field
- CM = Calculated From M
- x x x x = Wire or Wood Fence
- o o o = Chain Link Fence
- = Block or Stone Wall

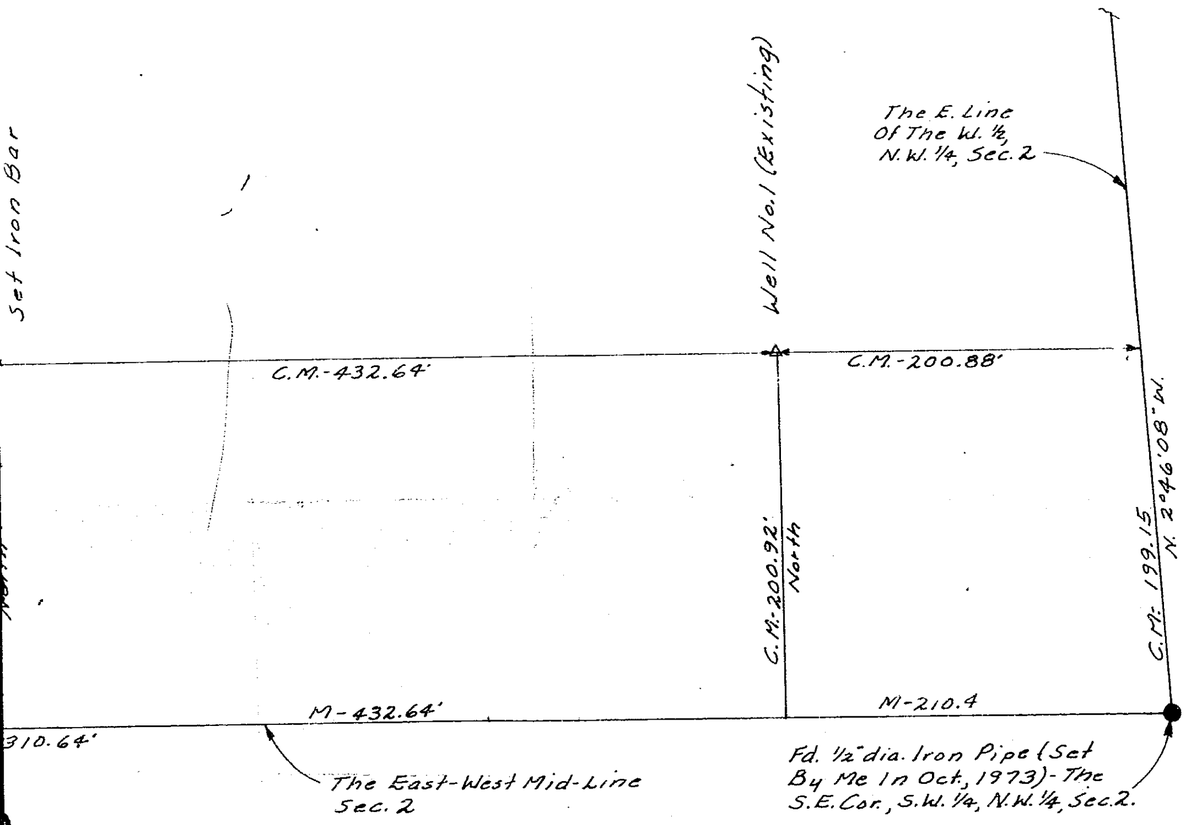
Description For Well No.3: Beginning At The West 1/4 Cor., Sec. 2, T. 2 N., R. 1 W., G. & S. R. B. & M., Mar. Co., Az., thence East (Assumed Brg.) Along The East-West Mid-Line Of Said Sec. 2, ~~167.41'~~ 167.4'; Thence North, 200.92' To The Center Of Fresh Water Well No. 3.

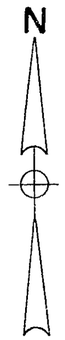
Description For Well No. 2: Beginning At The West 1/4 Cor. Sec. 2, T. 2 N., R. 1 W., G. & S. R. B. & M., Mar. Co., Az.; Thence East (Assumed Brg.) Along The East-West Mid-Line Of Said Sec. 2, 667.41'; Thence North, 200.92' To The Center Of Fresh Water Well No. 2.



TULSA, OKLAHOMA

ll No. 2: Beginning At The West 1/4 Cor. Sec. 2, B. & M., Mar. Co., Az.; Thence East (Assumed Brg.) est Mid-Line Of Said Sec. 2, 667.41', Thence The Center Of Fresh Water Well No. 2.





Scale: 1" = 60'

LEGEND

- ● = Monument Found
- ● = Iron Pipe or Iron Bar Found
- ○ = 1/2" I.D. Iron Pipe Tagged L.S. 1681 Set This Survey
- R = Data From Maricopa County Records
- CR = Calculated From R
- M = Measured in Field
- CM = Calculated From M
- = Wire or Wood Fence
- = Chain Link Fence
- = Block or Stone Wall

CERTIFICATION: This will certify that the survey shown hereon was done under my supervision during the month of

Eugene F. Shelley
7/22/74

ARIZONA SURVEYING SERVICE
2802 W. SOLANO DR., N., PHOENIX, ARIZONA
Drawing No. L-74-6807 Phone: 242-0539

Sheet 1 of 3 Sheets.

SONARWIRE

AMERICAN
GENERAL
STOP AND WELL NO.
MANCHE 1980
SONAR FIBRE PIPE SURVEY

SONARWIRE
INC.

SONARWIRE, INC.
P.O. BOX 576
ABITA SPRINGS, LA 70420

504-893-9221

Survey conducted by: Sean McCool

AMERIGAS
GLENDALE, AZ
STORAGE WELL NO. 3
MARCH 4, 1999
SONAR-THRU-PIPE SURVEY

670

Survey from 1553 ft. to 2549 ft.
Sonar T.D. at 2554 ft.
8 5/8 inch cemented liner at 1525 ft.
10 ¾ inch pipe at 1553 ft.
5 ½ inch tubing at ~~2879 ft.~~ 2549 ft.
Butane/Brine interface at 1900 ft. (per sonar tool)
Zero sonar tool at C.H.F.
Site personnel: Mr. Mike Haynes (PB-KBB)

JUN 1999
ARIZONA
GEOLOGICAL
SURVEY

Note: The sonar tool was unable to obtain data from depth 1843 to 1900. Data was taken from the 1994 survey and used to create a completed view of the cavern.

SONARWIRE INC.
Depth versus Volume

AMERIGAS
GLENDALE, AZ

STORAGE WELL NO. 3
Thu, Mar 4, 1999

Depth	Cubic ft. per ft.	Cubic ft. total	Barrels per ft.	Barrels total
1554	20.3	20.3	3.6	3.6
1555	19.2	39.5	3.4	7.0
1556	18.3	57.8	3.3	10.3
1557	19.7	77.5	3.5	13.8
1558	21.1	98.7	3.8	17.6
1559	22.6	121.3	4.0	21.6
1560	24.2	145.4	4.3	25.9
1561	25.8	171.2	4.6	30.5
1562	26.4	197.6	4.7	35.2
1563	27.0	224.6	4.8	40.0
1564	27.6	252.2	4.9	44.9
1565	28.2	280.4	5.0	49.9
1566	28.9	309.3	5.1	55.1
1567	29.5	338.8	5.3	60.3
1568	30.2	369.0	5.4	65.7
1569	30.8	399.8	5.5	71.2
1570	31.5	431.4	5.6	76.8
1571	32.2	463.6	5.7	82.6
1572	34.8	498.4	6.2	88.8
1573	37.7	536.0	6.7	95.5
1574	40.8	576.9	7.3	102.7
1575	44.3	621.2	7.9	110.6
1576	48.2	669.4	8.6	119.2
1577	47.6	717.0	8.5	127.7
1578	47.1	764.1	8.4	136.1
1579	46.7	810.9	8.3	144.4
1580	46.4	857.3	8.3	152.7
1581	46.1	903.5	8.2	160.9
1582	47.5	951.0	8.5	169.4
1583	48.9	999.9	8.7	178.1
1584	50.4	1050.3	9.0	187.1
1585	51.9	1102.2	9.2	196.3
1586	53.4	1155.6	9.5	205.8
1587	55.0	1210.6	9.8	215.6
1588	56.6	1267.2	10.1	225.7
1589	58.2	1325.4	10.4	236.1
1590	59.9	1385.3	10.7	246.7
1591	61.6	1446.9	11.0	257.7
1592	62.1	1509.0	11.1	268.8
1593	62.7	1571.8	11.2	279.9
1594	63.4	1635.2	11.3	291.2
1595	64.1	1699.3	11.4	302.7
1596	64.9	1764.1	11.6	314.2
1597	63.9	1828.0	11.4	325.6
1598	63.0	1891.0	11.2	336.8
1599	62.2	1953.2	11.1	347.9

AMERIGAS
GLENDALE, AZ

STORAGE WELL NO. 3
Thu, Mar 4, 1999

Depth	Cubic ft. per ft.	Cubic ft. total	Barrels per ft.	Barrels total
1600	61.4	2014.7	10.9	358.8
1601	60.7	2075.4	10.8	369.6
1602	60.8	2136.2	10.8	380.5
1603	61.0	2197.2	10.9	391.3
1604	61.3	2258.5	10.9	402.3
1605	61.6	2320.1	11.0	413.2
1606	62.1	2382.2	11.1	424.3
1607	60.1	2442.3	10.7	435.0
1608	58.1	2500.4	10.3	445.3
1609	56.1	2556.5	10.0	455.3
1610	54.3	2610.8	9.7	465.0
1611	52.4	2663.2	9.3	474.3
1612	105.3	2768.5	18.8	493.1
1613	179.5	2948.0	32.0	525.1
1614	253.7	3201.7	45.2	570.2
1615	346.8	3548.5	61.8	632.0
1616	458.8	4007.2	81.7	713.7
1617	437.5	4444.7	77.9	791.6
1618	417.8	4862.6	74.4	866.1
1619	399.7	5262.3	71.2	937.3
1620	383.3	5645.6	68.3	1005.5
1621	368.5	6014.1	65.6	1071.1
1622	369.7	6383.7	65.8	1137.0
1623	371.0	6754.7	66.1	1203.1
1624	372.3	7127.1	66.3	1269.4
1625	373.8	7500.9	66.6	1336.0
1626	375.3	7876.1	66.8	1402.8
1627	376.9	8253.0	67.1	1469.9
1628	378.5	8631.5	67.4	1537.3
1629	380.2	9011.8	67.7	1605.1
1630	382.0	9393.8	68.0	1673.1
1631	383.9	9777.7	68.4	1741.5
1632	391.2	10168.9	69.7	1811.2
1633	398.6	10567.5	71.0	1882.2
1634	406.2	10973.7	72.3	1954.5
1635	413.9	11387.6	73.7	2028.2
1636	421.7	11809.3	75.1	2103.3
1637	429.6	12238.9	76.5	2179.8
1638	437.6	12676.5	77.9	2257.8
1639	445.8	13122.4	79.4	2337.2
1640	454.1	13576.4	80.9	2418.1
1641	462.5	14038.9	82.4	2500.4
1642	465.3	14504.2	82.9	2583.3
1643	468.2	14972.5	83.4	2666.7
1644	471.2	15443.6	83.9	2750.6
1645	474.2	15917.8	84.5	2835.1
1646	477.2	16395.0	85.0	2920.1
1647	480.3	16875.2	85.5	3005.6

AMERIGAS
GLENDALE, AZ

STORAGE WELL NO. 3
Thu, Mar 4, 1999

Depth	Cubic ft. per ft.	Cubic ft. total	Barrels per ft.	Barrels total
1648	483.4	17358.6	86.1	3091.7
1649	486.5	17845.1	86.7	3178.4
1650	489.7	18334.9	87.2	3265.6
1651	493.0	18827.8	87.8	3353.4
1652	499.8	19327.7	89.0	3442.4
1653	506.9	19834.5	90.3	3532.7
1654	514.1	20348.7	91.6	3624.3
1655	521.6	20870.2	92.9	3717.1
1656	529.2	21399.4	94.2	3811.4
1657	537.0	21936.4	95.6	3907.0
1658	545.0	22481.3	97.1	4004.1
1659	553.1	23034.5	98.5	4102.6
1660	561.5	23596.0	100.0	4202.6
1661	570.1	24166.1	101.5	4304.2
1662	569.1	24735.1	101.4	4405.5
1663	568.6	25303.7	101.3	4506.8
1664	568.6	25872.3	101.3	4608.1
1665	569.2	26441.5	101.4	4709.4
1666	570.3	27011.9	101.6	4811.0
1667	572.0	27583.9	101.9	4912.9
1668	574.2	28158.0	102.3	5015.2
1669	576.9	28735.0	102.8	5117.9
1670	580.2	29315.1	103.3	5221.2
1671	584.0	29899.1	104.0	5325.3
1672	579.3	30478.4	103.2	5428.4
1673	574.8	31053.3	102.4	5530.8
1674	570.5	31623.7	101.6	5632.4
1675	566.2	32189.9	100.8	5733.3
1676	562.1	32752.0	100.1	5833.4
1677	558.1	33310.1	99.4	5932.8
1678	554.2	33864.3	98.7	6031.5
1679	550.5	34414.7	98.0	6129.5
1680	546.9	34961.6	97.4	6226.9
1681	543.4	35505.0	96.8	6323.7
1682	546.8	36051.8	97.4	6421.1
1683	550.3	36602.1	98.0	6519.1
1684	553.9	37156.0	98.7	6617.8
1685	557.5	37713.5	99.3	6717.1
1686	561.2	38274.7	100.0	6817.0
1687	564.9	38839.6	100.6	6917.6
1688	568.8	39408.4	101.3	7018.9
1689	572.6	39981.0	102.0	7120.9
1690	576.5	40557.5	102.7	7223.6
1691	580.5	41138.1	103.4	7327.0
1692	580.6	41718.7	103.4	7430.4
1693	580.7	42299.4	103.4	7533.9
1694	581.0	42880.4	103.5	7637.3
1695	581.2	43461.6	103.5	7740.8

AMERIGAS
GLENDALE, AZ

STORAGE WELL NO. 3
Thu, Mar 4, 1999

Depth	Cubic ft. per ft.	Cubic ft. total	Barrels per ft.	Barrels total
1696	581.6	44043.2	103.6	7844.4
1697	582.0	44625.2	103.7	7948.1
1698	582.5	45207.6	103.7	8051.8
1699	583.0	45790.6	103.8	8155.7
1700	583.6	46374.2	103.9	8259.6
1701	584.2	46958.4	104.1	8363.7
1702	606.4	47564.9	108.0	8471.7
1703	630.1	48195.0	112.2	8583.9
1704	655.2	48850.2	116.7	8700.6
1705	681.9	49532.1	121.5	8822.0
1706	710.0	50242.1	126.5	8948.5
1707	739.7	50981.8	131.7	9080.2
1708	770.8	51752.6	137.3	9217.5
1709	803.4	52556.0	143.1	9360.6
1710	837.5	53393.4	149.2	9509.8
1711	873.1	54266.5	155.5	9665.3
1712	908.7	55175.2	161.8	9827.1
1713	949.6	56124.8	169.1	9996.3
1714	995.6	57120.5	177.3	10173.6
1715	1046.9	58167.4	186.5	10360.1
1716	1103.4	59270.7	196.5	10556.6
1717	1079.1	60349.9	192.2	10748.8
1718	1057.3	61407.2	188.3	10937.1
1719	1038.0	62445.2	184.9	11122.0
1720	1021.1	63466.3	181.9	11303.8
1721	1006.7	64473.1	179.3	11483.1
1722	983.6	65456.7	175.2	11658.3
1723	961.0	66417.7	171.2	11829.5
1724	938.9	67356.6	167.2	11996.7
1725	917.3	68273.9	163.4	12160.1
1726	896.2	69170.1	159.6	12319.7
1727	875.6	70045.8	156.0	12475.7
1728	855.6	70901.3	152.4	12628.1
1729	836.0	71737.4	148.9	12777.0
1730	817.0	72554.4	145.5	12922.5
1731	798.5	73352.8	142.2	13064.7
1732	793.5	74146.4	141.3	13206.0
1733	788.8	74935.1	140.5	13346.5
1734	784.1	75719.2	139.7	13486.2
1735	779.6	76498.8	138.9	13625.0
1736	775.2	77274.0	138.1	13763.1
1737	771.0	78045.0	137.3	13900.4
1738	766.9	78811.9	136.6	14037.0
1739	762.9	79574.9	135.9	14172.9
1740	759.1	80334.0	135.2	14308.1
1741	755.4	81089.4	134.5	14442.6
1742	798.4	81887.8	142.2	14584.9
1743	846.6	82734.4	150.8	14735.6

AMERIGAS
GLENDALE, AZ

STORAGE WELL NO. 3
Thu, Mar 4, 1999

Depth	Cubic ft. per ft.	Cubic ft. total	Barrels per ft.	Barrels total
1744	899.9	83634.3	160.3	14895.9
1745	958.4	84592.7	170.7	15066.6
1746	1022.0	85614.7	182.0	15248.6
1747	1062.8	86677.6	189.3	15437.9
1748	1108.2	87785.8	197.4	15635.3
1749	1158.2	88944.0	206.3	15841.6
1750	1212.7	90156.6	216.0	16057.6
1751	1271.7	91428.4	226.5	16284.1
1752	1308.0	92736.4	233.0	16517.1
1753	1346.7	94083.1	239.9	16756.9
1754	1387.7	95470.9	247.2	17004.1
1755	1431.1	96902.0	254.9	17259.0
1756	1476.8	98378.8	263.0	17522.0
1757	1524.9	99903.7	271.6	17793.6
1758	1575.3	101479.1	280.6	18074.2
1759	1628.1	103107.2	290.0	18364.2
1760	1683.2	104790.4	299.8	18664.0
1761	1740.7	106531.2	310.0	18974.0
1762	1778.0	108309.2	316.7	19290.7
1763	1816.9	110126.1	323.6	19614.3
1764	1857.2	111983.3	330.8	19945.1
1765	1899.1	113882.4	338.2	20283.3
1766	1942.4	115824.8	346.0	20629.3
1767	1987.3	117812.1	354.0	20983.2
1768	2033.7	119845.8	362.2	21345.5
1769	2081.6	121927.4	370.7	21716.2
1770	2131.0	124058.5	379.6	22095.8
1771	2181.9	126240.4	388.6	22484.4
1772	2170.2	128410.6	386.5	22870.9
1773	2159.0	130569.6	384.5	23255.5
1774	2148.3	132717.9	382.6	23638.1
1775	2138.1	134855.9	380.8	24018.9
1776	2128.4	136984.3	379.1	24398.0
1777	2119.2	139103.5	377.4	24775.4
1778	2110.5	141214.0	375.9	25151.3
1779	2102.3	143316.3	374.4	25525.7
1780	2094.7	145411.0	373.1	25898.8
1781	2087.5	147498.5	371.8	26270.6
1782	2103.2	149601.7	374.6	26645.2
1783	2120.0	151721.8	377.6	27022.8
1784	2137.9	153859.7	380.8	27403.6
1785	2157.0	156016.7	384.2	27787.8
1786	2177.1	158193.7	387.8	28175.5
1787	2198.3	160392.0	391.5	28567.1
1788	2220.6	162612.6	395.5	28962.5
1789	2244.0	164856.5	399.7	29362.2
1790	2268.5	167125.0	404.0	29766.2
1791	2294.1	169419.0	408.6	30174.8

AMERIGAS
GLENDALE, AZ

STORAGE WELL NO. 3
Thu, Mar 4, 1999

Depth	Cubic ft. per ft.	Cubic ft. total	Barrels per ft.	Barrels total
1792	2354.9	171773.9	419.4	30594.3
1793	2418.8	174192.7	430.8	31025.1
1794	2485.8	176678.5	442.7	31467.8
1795	2555.8	179234.3	455.2	31923.0
1796	2628.8	181863.1	468.2	32391.2
1797	2704.9	184568.0	481.8	32873.0
1798	2784.1	187352.1	495.9	33368.9
1799	2866.3	190218.4	510.5	33879.4
1800	2951.5	193169.9	525.7	34405.1
1801	3039.9	196209.8	541.4	34946.5
1802	3224.7	199434.5	574.4	35520.8
1803	3417.9	202852.5	608.8	36129.6
1804	3619.4	206471.9	644.7	36774.2
1805	3829.3	210301.2	682.0	37456.3
1806	4047.4	214348.6	720.9	38177.1
1807	4273.9	218622.4	761.2	38938.3
1808	4508.6	223131.1	803.0	39741.4
1809	4751.7	227882.8	846.3	40587.7
1810	5003.1	232885.8	891.1	41478.8
1811	5262.8	238148.6	937.3	42416.1
1812	5449.1	243597.8	970.5	43386.6
1813	5641.2	249238.9	1004.7	44391.4
1814	5838.9	255077.9	1040.0	45431.3
1815	6042.4	261120.2	1076.2	46507.5
1816	6251.5	267371.7	1113.4	47621.0
1817	6466.4	273838.1	1151.7	48772.7
1818	6686.9	280525.0	1191.0	49963.7
1819	6913.2	287438.2	1231.3	51195.0
1820	7145.1	294583.3	1272.6	52467.6
1821	7382.8	301966.1	1314.9	53782.5
1822	7429.0	309395.1	1323.2	55105.7
1823	7477.2	316872.4	1331.8	56437.4
1824	7527.5	324399.8	1340.7	57778.1
1825	7579.8	331979.6	1350.0	59128.1
1826	7634.0	339613.6	1359.7	60487.8
1827	7690.3	347304.0	1369.7	61857.5
1828	7748.6	355052.6	1380.1	63237.6
1829	7809.0	362861.6	1390.8	64628.4
1830	7871.3	370732.9	1401.9	66030.4
1831	7935.7	378668.5	1413.4	67443.8
1832	7944.9	386613.5	1415.1	68858.8
1833	7955.2	394568.7	1416.9	70275.7
1834	7966.5	402535.2	1418.9	71694.6
1835	7978.8	410514.1	1421.1	73115.7
1836	7992.1	418506.2	1423.5	74539.2
1837	8006.4	426512.6	1426.0	75965.2
1838	8021.8	434534.4	1428.7	77393.9
1839	8038.1	442572.5	1431.6	78825.6

AMERIGAS
GLENDALE, AZ

STORAGE WELL NO. 3
Thu, Mar 4, 1999

Depth	Cubic ft. per ft.	Cubic ft. total	Barrels per ft.	Barrels total
1840	8055.4	450627.9	1434.7	80260.3
1841	8073.7	458701.6	1438.0	81698.3
1842	8067.1	466768.7	1436.8	83135.1
1843	8061.4	474830.1	1435.8	84570.9
1844	8056.5	482886.6	1434.9	86005.8
1845	8052.6	490939.2	1434.2	87440.1
1846	8049.5	498988.7	1433.7	88873.7
1847	8047.3	507036.0	1433.3	90307.0
1848	8046.1	515082.1	1433.1	91740.1
1849	8045.7	523127.7	1433.0	93173.1
1850	8046.2	531173.9	1433.1	94606.2
1851	8047.5	539221.5	1433.3	96039.5
1852	8049.2	547270.7	1433.6	97473.1
1853	8051.2	555321.9	1434.0	98907.1
1854	8053.6	563375.4	1434.4	100341.5
1855	8056.3	571431.7	1434.9	101776.4
1856	8059.3	579491.0	1435.4	103211.8
1857	8062.7	587553.7	1436.0	104647.8
1858	8066.4	595620.0	1436.7	106084.5
1859	8070.4	603690.5	1437.4	107521.9
1860	8074.8	611765.3	1438.2	108960.1
1861	8079.6	619844.9	1439.0	110399.2
1862	8099.6	627944.5	1442.6	111841.8
1863	8120.1	636064.5	1446.2	113288.0
1864	8141.1	644205.7	1450.0	114738.0
1865	8162.7	652368.4	1453.8	116191.8
1866	8184.8	660553.2	1457.8	117649.6
1867	8207.5	668760.7	1461.8	119111.4
1868	8230.7	676991.3	1465.9	120577.4
1869	8254.4	685245.7	1470.2	122047.5
1870	8278.6	693524.4	1474.5	123522.0
1871	8303.4	701827.8	1478.9	125000.9
1872	8339.7	710167.5	1485.4	126486.3
1873	8377.3	718544.8	1492.1	127978.4
1874	8416.2	726961.0	1499.0	129477.4
1875	8456.4	735417.3	1506.1	130983.5
1876	8497.9	743915.2	1513.5	132497.0
1877	8540.7	752455.9	1521.2	134018.2
1878	8584.8	761040.7	1529.0	135547.2
1879	8630.3	769671.0	1537.1	137084.3
1880	8677.0	778348.1	1545.4	138629.8
1881	8725.1	787073.2	1554.0	140183.8
1882	8729.9	795803.1	1554.9	141738.7
1883	8735.7	804538.8	1555.9	143294.6
1884	8742.4	813281.3	1557.1	144851.7
1885	8750.1	822031.4	1558.5	146410.1
1886	8758.7	830790.0	1560.0	147970.1
1887	8768.2	839558.3	1561.7	149531.8

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Depth	Cubic ft. per ft.	Cubic ft. total	Barrels per ft.	Barrels total
1888	8778.7	848336.9	1563.5	151095.4
1889	8790.1	857127.0	1565.6	152660.9
1890	8802.4	865929.4	1567.8	154228.7
1891	8815.7	874745.1	1570.1	155798.8
1892	8829.2	883574.3	1572.5	157371.4
1893	8842.9	892417.2	1575.0	158946.4
1894	8856.8	901274.1	1577.5	160523.9
1895	8871.0	910145.0	1580.0	162103.8
1896	8885.3	919030.3	1582.5	163686.4
1897	8899.8	927930.1	1585.1	165271.5
1898	8914.5	936844.6	1587.7	166859.2
1899	8929.4	945774.0	1590.4	168449.6
1900	8944.5	954718.5	1593.1	170042.7
1901	8959.8	963678.3	1595.8	171638.5
1902	8975.3	972653.6	1598.6	173237.1
1903	9025.9	981679.5	1607.6	174844.7
1904	9076.7	990756.2	1616.6	176461.3
1905	9127.8	999884.0	1625.7	178087.1
1906	9179.1	1009063.1	1634.9	179721.9
1907	9230.7	1018293.8	1644.1	181366.0
1908	9282.5	1027576.2	1653.3	183019.3
1909	9334.5	1036910.8	1662.6	184681.8
1910	9386.8	1046297.6	1671.9	186353.7
1911	9439.4	1055737.0	1681.2	188034.9
1912	9491.0	1065228.0	1690.4	189725.3
1913	9543.0	1074771.0	1699.7	191425.0
1914	9595.3	1084366.3	1709.0	193134.0
1915	9647.9	1094014.3	1718.4	194852.4
1916	9700.9	1103715.1	1727.8	196580.2
1917	9754.1	1113469.2	1737.3	198317.5
1918	9807.7	1123276.8	1746.8	200064.3
1919	9861.5	1133138.4	1756.4	201820.7
1920	9915.7	1143054.1	1766.1	203586.7
1921	9970.2	1153024.3	1775.8	205362.5
1922	10018.9	1163043.2	1784.4	207147.0
1923	10068.4	1173111.6	1793.3	208940.2
1924	10118.8	1183230.4	1802.2	210742.5
1925	10170.1	1193400.6	1811.4	212553.8
1926	10222.3	1203622.9	1820.7	214374.5
1927	10275.4	1213898.3	1830.1	216204.7
1928	10329.4	1224227.7	1839.7	218044.4
1929	10384.2	1234611.9	1849.5	219893.9
1930	10439.9	1245051.9	1859.4	221753.3
1931	10496.6	1255548.4	1869.5	223622.9
1932	10745.5	1266293.9	1913.9	225536.7
1933	11000.9	1277294.8	1959.3	227496.0
1934	11262.7	1288557.5	2006.0	229502.0
1935	11531.1	1300088.6	2053.8	231555.8

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Depth	Cubic ft. per ft.	Cubic ft. total	Barrels per ft.	Barrels total
1936	11805.9	1311894.4	2102.7	233658.5
1937	12087.1	1323981.6	2152.8	235811.3
1938	12374.9	1336356.4	2204.1	238015.4
1939	12669.1	1349025.5	2256.5	240271.9
1940	12969.8	1361995.3	2310.0	242581.9
1941	13276.9	1375272.2	2364.7	244946.6
1942	13282.3	1388554.5	2365.7	247312.3
1943	13288.1	1401842.6	2366.7	249679.0
1944	13294.3	1415136.9	2367.8	252046.8
1945	13301.0	1428438.0	2369.0	254415.8
1946	13308.1	1441746.1	2370.3	256786.1
1947	13315.7	1455061.8	2371.6	259157.7
1948	13323.7	1468385.5	2373.0	261530.8
1949	13332.1	1481717.6	2374.5	263905.3
1950	13340.9	1495058.5	2376.1	266281.5
1951	13350.2	1508408.8	2377.8	268659.2
1952	13409.7	1521818.5	2388.4	271047.6
1953	13469.5	1535288.0	2399.0	273446.6
1954	13529.7	1548817.7	2409.8	275856.4
1955	13590.3	1562408.0	2420.5	278276.9
1956	13651.3	1576059.3	2431.4	280708.3
1957	13712.6	1589771.9	2442.3	283150.6
1958	13774.3	1603546.1	2453.3	285603.9
1959	13836.3	1617382.5	2464.4	288068.3
1960	13898.8	1631281.2	2475.5	290543.8
1961	13961.6	1645242.8	2486.7	293030.4
1962	14036.0	1659278.9	2499.9	295530.4
1963	14111.4	1673390.2	2513.3	298043.7
1964	14187.6	1687577.9	2526.9	300570.6
1965	14264.7	1701842.6	2540.7	303111.3
1966	14342.7	1716185.3	2554.5	305665.8
1967	14421.6	1730606.9	2568.6	308234.4
1968	14501.3	1745108.3	2582.8	310817.2
1969	14582.0	1759690.2	2597.2	313414.4
1970	14663.5	1774353.7	2611.7	316026.1
1971	14745.9	1789099.6	2626.4	318652.4
1972	14782.7	1803882.3	2632.9	321285.4
1973	14820.7	1818703.0	2639.7	323925.0
1974	14859.9	1833563.0	2646.7	326571.7
1975	14900.4	1848463.4	2653.9	329225.6
1976	14942.2	1863405.6	2661.3	331886.9
1977	14985.1	1878390.7	2669.0	334555.9
1978	15029.3	1893420.0	2676.8	337232.7
1979	15074.8	1908494.8	2684.9	339917.6
1980	15121.4	1923616.2	2693.2	342610.9
1981	15169.3	1938785.5	2701.8	345312.7
1982	15247.4	1954032.9	2715.7	348028.3
1983	15328.2	1969361.2	2730.1	350758.4

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Depth	Cubic ft. per ft.	Cubic ft. total	Barrels per ft.	Barrels total
1984	15411.9	1984773.1	2745.0	353503.4
1985	15498.3	2000271.4	2760.4	356263.8
1986	15587.5	2015858.9	2776.3	359040.0
1987	15679.5	2031538.4	2792.6	361832.7
1988	15774.3	2047312.8	2809.5	364642.2
1989	15871.9	2063184.7	2826.9	367469.1
1990	15972.3	2079157.0	2844.8	370313.9
1991	16075.5	2095232.6	2863.2	373177.1
1992	16103.9	2111336.4	2868.2	376045.3
1993	16133.0	2127469.5	2873.4	378918.7
1994	16163.0	2143632.4	2878.7	381797.5
1995	16193.7	2159826.1	2884.2	384681.7
1996	16225.2	2176051.3	2889.8	387571.5
1997	16257.4	2192308.7	2895.6	390467.1
1998	16290.5	2208599.2	2901.5	393368.6
1999	16324.3	2224923.5	2907.5	396276.0
2000	16358.9	2241282.4	2913.6	399189.7
2001	16394.3	2257676.7	2919.9	402109.6
2002	16411.9	2274088.7	2923.1	405032.7
2003	16429.9	2290518.6	2926.3	407959.0
2004	16448.3	2306966.9	2929.6	410888.6
2005	16467.0	2323433.9	2932.9	413821.5
2006	16486.0	2339919.9	2936.3	416757.8
2007	16505.4	2356425.2	2939.7	419697.5
2008	16525.1	2372950.3	2943.2	422640.7
2009	16545.1	2389495.4	2946.8	425587.6
2010	16565.5	2406060.9	2950.4	428538.0
2011	16586.2	2422647.1	2954.1	431492.1
2012	16654.4	2439301.5	2966.3	434458.4
2013	16723.3	2456024.8	2978.6	437437.0
2014	16793.0	2472817.8	2991.0	440427.9
2015	16863.4	2489681.2	3003.5	443431.4
2016	16934.6	2506615.8	3016.2	446447.6
2017	17006.5	2523622.3	3029.0	449476.6
2018	17079.1	2540701.4	3041.9	452518.5
2019	17152.5	2557853.9	3055.0	455573.5
2020	17226.6	2575080.5	3068.2	458641.7
2021	17301.5	2592382.0	3081.5	461723.2
2022	17311.0	2609693.0	3083.2	464806.4
2023	17321.2	2627014.2	3085.0	467891.5
2024	17332.2	2644346.4	3087.0	470978.5
2025	17344.0	2661690.5	3089.1	474067.6
2026	17356.6	2679047.1	3091.3	477158.9
2027	17370.0	2696417.0	3093.7	480252.7
2028	17384.1	2713801.1	3096.2	483348.9
2029	17399.0	2731200.1	3098.9	486447.8
2030	17414.7	2748614.8	3101.7	489549.5
2031	17431.1	2766045.9	3104.6	492654.1

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Depth	Cubic ft. per ft.	Cubic ft. total	Barrels per ft.	Barrels total
2032	17434.3	2783480.2	3105.2	495759.3
2033	17438.1	2800918.3	3105.9	498865.2
2034	17442.6	2818360.9	3106.7	501971.8
2035	17447.6	2835808.5	3107.6	505079.4
2036	17453.3	2853261.8	3108.6	508187.9
2037	17459.6	2870721.4	3109.7	511297.6
2038	17466.6	2888188.0	3110.9	514408.6
2039	17474.2	2905662.2	3112.3	517520.9
2040	17482.4	2923144.6	3113.7	520634.6
2041	17491.2	2940635.8	3115.3	523749.9
2042	17562.4	2958198.2	3128.0	526877.9
2043	17636.7	2975835.0	3141.2	530019.2
2044	17714.1	2993549.1	3155.0	533174.2
2045	17794.7	3011343.7	3169.4	536343.5
2046	17878.3	3029222.0	3184.3	539527.8
2047	17965.0	3047187.0	3199.7	542727.5
2048	18054.8	3065241.9	3215.7	545943.2
2049	18147.8	3083389.7	3232.3	549175.5
2050	18243.8	3101633.5	3249.4	552424.8
2051	18343.0	3119976.5	3267.0	555691.9
2052	18402.1	3138378.6	3277.6	558969.4
2053	18462.1	3156840.7	3288.2	562257.7
2054	18522.9	3175363.6	3299.1	565556.7
2055	18584.6	3193948.2	3310.1	568866.8
2056	18647.1	3212595.3	3321.2	572188.0
2057	18710.6	3231305.9	3332.5	575520.5
2058	18774.9	3250080.7	3343.9	578864.4
2059	18840.0	3268920.7	3355.5	582220.0
2060	18906.0	3287826.7	3367.3	585587.3
2061	18972.9	3306799.7	3379.2	588966.5
2062	18919.7	3325719.4	3369.7	592336.3
2063	18867.4	3344586.8	3360.4	595696.7
2064	18816.0	3363402.8	3351.3	599048.0
2065	18765.6	3382168.4	3342.3	602390.3
2066	18716.1	3400884.5	3333.5	605723.8
2067	18667.5	3419551.9	3324.8	609048.6
2068	18619.8	3438171.7	3316.3	612364.9
2069	18573.0	3456744.7	3308.0	615672.9
2070	18527.1	3475271.8	3299.8	618972.7
2071	18482.2	3493754.1	3291.8	622264.5
2072	18482.2	3512236.2	3291.8	625556.4
2073	18482.4	3530718.6	3291.9	628848.2
2074	18482.9	3549201.6	3292.0	632140.2
2075	18483.8	3567685.4	3292.1	635432.3
2076	18485.0	3586170.3	3292.3	638724.6
2077	18486.4	3604656.8	3292.6	642017.2
2078	18488.2	3623144.9	3292.9	645310.1
2079	18490.3	3641635.2	3293.3	648603.3

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Depth	Cubic ft. per ft.	Cubic ft. total	Barrels per ft.	Barrels total
2080	18492.6	3660127.8	3293.7	651897.0
2081	18495.3	3678623.1	3294.2	655191.2
2082	18516.7	3697139.8	3298.0	658489.1
2083	18538.3	3715678.1	3301.8	661790.9
2084	18560.3	3734238.4	3305.7	665096.7
2085	18582.6	3752821.0	3309.7	668406.4
2086	18605.2	3771426.2	3313.7	671720.1
2087	18628.1	3790054.4	3317.8	675037.9
2088	18651.4	3808705.7	3321.9	678359.9
2089	18674.9	3827380.6	3326.1	681686.0
2090	18698.7	3846079.4	3330.4	685016.4
2091	18722.9	3864802.3	3334.7	688351.1
2092	18713.4	3883515.6	3333.0	691684.1
2093	18704.2	3902219.8	3331.4	695015.4
2094	18695.3	3920915.1	3329.8	698345.2
2095	18686.8	3939602.0	3328.3	701673.5
2096	18678.7	3958280.7	3326.8	705000.3
2097	18671.0	3976951.7	3325.4	708325.8
2098	18663.6	3995615.3	3324.1	711649.9
2099	18656.6	4014271.8	3322.9	714972.8
2100	18649.9	4032921.7	3321.7	718294.5
2101	18643.6	4051565.3	3320.6	721615.0
2102	18702.0	4070267.3	3331.0	724946.0
2103	18761.8	4089029.1	3341.6	728287.6
2104	18822.9	4107852.0	3352.5	731640.1
2105	18885.3	4126737.2	3363.6	735003.7
2106	18949.0	4145686.2	3375.0	738378.7
2107	19014.1	4164700.3	3386.6	741765.2
2108	19080.5	4183780.8	3398.4	745163.6
2109	19148.2	4202929.0	3410.4	748574.1
2110	19217.2	4222146.2	3422.7	751996.8
2111	19287.6	4241433.9	3435.3	755432.1
2112	19297.7	4260731.6	3437.1	758869.2
2113	19308.4	4280039.9	3439.0	762308.1
2114	19319.6	4299359.5	3441.0	765749.1
2115	19331.4	4318690.9	3443.1	769192.2
2116	19343.8	4338034.7	3445.3	772637.4
2117	19356.7	4357391.4	3447.6	776085.0
2118	19370.2	4376761.7	3450.0	779535.0
2119	19384.3	4396146.0	3452.5	782987.5
2120	19399.0	4415544.9	3455.1	786442.6
2121	19414.2	4434959.1	3457.8	789900.4
2122	19385.1	4454344.2	3452.6	793353.0
2123	19356.6	4473700.8	3447.6	796800.6
2124	19328.9	4493029.7	3442.6	800243.2
2125	19301.9	4512331.6	3437.8	803681.1
2126	19275.6	4531607.1	3433.1	807114.2
2127	19250.0	4550857.1	3428.6	810542.7

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Depth	Cubic ft. per ft.	Cubic ft. total	Barrels per ft.	Barrels total
2128	19225.0	4570082.1	3424.1	813966.9
2129	19200.8	4589283.0	3419.8	817386.7
2130	19177.3	4608460.3	3415.6	820802.3
2131	19154.5	4627614.8	3411.6	824213.9
2132	19167.2	4646782.0	3413.8	827627.7
2133	19180.4	4665962.4	3416.2	831043.9
2134	19194.2	4685156.6	3418.6	834462.5
2135	19208.6	4704365.2	3421.2	837883.7
2136	19223.6	4723588.8	3423.9	841307.6
2137	19239.2	4742828.0	3426.6	844734.2
2138	19255.4	4762083.4	3429.5	848163.8
2139	19272.1	4781355.5	3432.5	851596.3
2140	19289.5	4800645.0	3435.6	855031.9
2141	19307.4	4819952.4	3438.8	858470.7
2142	19246.9	4839199.3	3428.0	861898.7
2143	19186.8	4858386.1	3417.3	865316.0
2144	19127.2	4877513.3	3406.7	868722.7
2145	19068.1	4896581.4	3396.2	872118.9
2146	19009.4	4915590.7	3385.7	875504.6
2147	18951.1	4934541.8	3375.3	878880.0
2148	18893.3	4953435.1	3365.0	882245.0
2149	18835.9	4972271.0	3354.8	885599.8
2150	18779.0	4991050.1	3344.7	888944.5
2151	18722.6	5009772.6	3334.6	892279.1
2152	18686.5	5028459.1	3328.2	895607.3
2153	18650.6	5047109.7	3321.8	898929.2
2154	18614.9	5065724.6	3315.5	902244.6
2155	18579.3	5084303.9	3309.1	905553.7
2156	18543.9	5102847.9	3302.8	908856.6
2157	18508.7	5121356.6	3296.5	912153.1
2158	18473.6	5139830.2	3290.3	915443.4
2159	18438.7	5158268.9	3284.1	918727.5
2160	18404.0	5176672.9	3277.9	922005.4
2161	18369.4	5195042.3	3271.7	925277.1
2162	18328.6	5213370.9	3264.5	928541.6
2163	18288.0	5231658.9	3257.2	931798.8
2164	18247.5	5249906.4	3250.0	935048.8
2165	18207.2	5268113.5	3242.8	938291.7
2166	18167.0	5286280.5	3235.7	941527.3
2167	18127.0	5304407.5	3228.6	944755.9
2168	18087.1	5322494.6	3221.4	947977.3
2169	18047.4	5340542.0	3214.4	951191.7
2170	18007.8	5358549.7	3207.3	954399.0
2171	17968.3	5376518.1	3200.3	957599.3
2172	17899.0	5394417.0	3187.9	960787.3
2173	17829.8	5412246.8	3175.6	963962.9
2174	17760.8	5430007.7	3163.3	967126.2
2175	17692.1	5447699.8	3151.1	970277.3

AMERIGAS
GLENDALE, AZ

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Thu, Mar 4, 1999

Depth	Cubic ft. per ft.	Cubic ft. total	Barrels per ft.	Barrels total
2176	17623.6	5465323.4	3138.9	973416.3
2177	17555.3	5482878.8	3126.7	976543.0
2178	17487.3	5500366.0	3114.6	979657.6
2179	17419.4	5517785.4	3102.5	982760.1
2180	17351.8	5535137.2	3090.5	985850.6
2181	17284.4	5552421.6	3078.5	988929.1
2182	17233.9	5569655.6	3069.5	991998.6
2183	17183.7	5586839.3	3060.5	995059.2
2184	17133.6	5603972.9	3051.6	998110.8
2185	17083.8	5621056.6	3042.7	1001153.5
2186	17034.1	5638090.7	3033.9	1004187.4
2187	16984.6	5655075.3	3025.1	1007212.5
2188	16935.3	5672010.5	3016.3	1010228.8
2189	16886.1	5688896.7	3007.6	1013236.4
2190	16837.2	5705733.9	2998.8	1016235.2
2191	16788.5	5722522.3	2990.2	1019225.4
2192	16766.8	5739289.2	2986.3	1022211.7
2193	16745.8	5756035.0	2982.6	1025194.2
2194	16725.4	5772760.3	2978.9	1028173.1
2195	16705.5	5789465.8	2975.4	1031148.5
2196	16686.2	5806152.1	2971.9	1034120.5
2197	16667.5	5822819.6	2968.6	1037089.1
2198	16649.4	5839469.0	2965.4	1040054.5
2199	16631.9	5856101.0	2962.3	1043016.7
2200	16615.0	5872716.0	2959.3	1045976.0
2201	16598.7	5889314.7	2956.4	1048932.4
2202	16453.3	5905767.9	2930.5	1051862.8
2203	16308.8	5922076.8	2904.7	1054767.5
2204	16165.4	5938242.2	2879.2	1057646.7
2205	16023.0	5954265.2	2853.8	1060500.6
2206	15881.6	5970146.8	2828.6	1063329.2
2207	15741.1	5985887.9	2803.6	1066132.8
2208	15601.7	6001489.6	2778.8	1068911.6
2209	15463.3	6016952.9	2754.1	1071665.7
2210	15325.8	6032278.7	2729.6	1074395.4
2211	15189.4	6047468.1	2705.3	1077100.7
2212	15085.9	6062554.0	2686.9	1079787.6
2213	14983.8	6077537.8	2668.7	1082456.4
2214	14882.9	6092420.7	2650.8	1085107.1
2215	14783.3	6107204.0	2633.0	1087740.1
2216	14684.9	6121888.9	2615.5	1090355.6
2217	14587.9	6136476.7	2598.2	1092953.8
2218	14492.1	6150968.8	2581.1	1095535.0
2219	14397.5	6165366.3	2564.3	1098099.3
2220	14304.3	6179670.6	2547.7	1100647.0
2221	14212.3	6193882.9	2531.3	1103178.3
2222	14098.7	6207981.6	2511.1	1105689.4
2223	13985.9	6221967.5	2491.0	1108180.4

AMERIGAS
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Thu, Mar 4, 1999

Depth	Cubic ft. per ft.	Cubic ft. total	Barrels per ft.	Barrels total
2224	13874.1	6235841.6	2471.1	1110651.5
2225	13763.3	6249604.9	2451.3	1113102.8
2226	13653.3	6263258.2	2431.8	1115534.6
2227	13544.3	6276802.5	2412.3	1117946.9
2228	13436.2	6290238.7	2393.1	1120340.0
2229	13329.0	6303567.7	2374.0	1122714.0
2230	13222.8	6316790.5	2355.1	1125069.1
2231	13117.5	6329908.0	2336.3	1127405.4
2232	13003.0	6342911.0	2315.9	1129721.4
2233	12889.4	6355800.4	2295.7	1132017.1
2234	12776.6	6368577.0	2275.6	1134292.7
2235	12664.7	6381241.7	2255.7	1136548.4
2236	12553.6	6393795.3	2235.9	1138784.3
2237	12443.5	6406238.8	2216.3	1141000.5
2238	12334.1	6418572.9	2196.8	1143197.3
2239	12225.7	6430798.6	2177.5	1145374.8
2240	12118.0	6442916.6	2158.3	1147533.1
2241	12011.3	6454927.9	2139.3	1149672.4
2242	11915.1	6466843.0	2122.2	1151794.6
2243	11819.6	6478662.5	2105.2	1153899.8
2244	11724.8	6490387.4	2088.3	1155988.0
2245	11630.9	6502018.2	2071.5	1158059.6
2246	11537.6	6513555.9	2054.9	1160114.5
2247	11445.2	6525001.1	2038.5	1162153.0
2248	11353.5	6536354.5	2022.1	1164175.2
2249	11262.5	6547617.1	2005.9	1166181.1
2250	11172.3	6558789.4	1989.9	1168171.0
2251	11082.9	6569872.3	1973.9	1170144.9
2252	10981.2	6580853.5	1955.8	1172100.8
2253	10880.5	6591733.9	1937.9	1174038.7
2254	10780.7	6602514.7	1920.1	1175958.8
2255	10682.0	6613196.7	1902.5	1177861.3
2256	10584.2	6623780.8	1885.1	1179746.5
2257	10487.4	6634268.2	1867.9	1181614.3
2258	10391.6	6644659.8	1850.8	1183465.2
2259	10296.7	6654956.5	1833.9	1185299.1
2260	10202.8	6665159.3	1817.2	1187116.3
2261	10109.9	6675269.3	1800.7	1188916.9
2262	10030.8	6685300.1	1786.6	1190703.5
2263	9952.3	6695252.4	1772.6	1192476.1
2264	9874.3	6705126.7	1758.7	1194234.8
2265	9796.8	6714923.5	1744.9	1195979.7
2266	9719.9	6724643.4	1731.2	1197710.8
2267	9643.5	6734286.9	1717.6	1199428.4
2268	9567.7	6743854.6	1704.1	1201132.5
2269	9492.4	6753347.0	1690.7	1202823.2
2270	9417.7	6762764.6	1677.4	1204500.5
2271	9343.5	6772108.1	1664.1	1206164.7

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Depth	Cubic ft. per ft.	Cubic ft. total	Barrels per ft.	Barrels total
2272	9281.0	6781389.1	1653.0	1207817.7
2273	9219.0	6790608.2	1642.0	1209459.7
2274	9157.5	6799765.7	1631.0	1211090.7
2275	9096.4	6808862.0	1620.1	1212710.8
2276	9035.7	6817897.7	1609.3	1214320.2
2277	8975.5	6826873.2	1598.6	1215918.8
2278	8915.7	6835789.0	1588.0	1217506.7
2279	8856.4	6844645.4	1577.4	1219084.1
2280	8797.5	6853442.9	1566.9	1220651.0
2281	8739.1	6862182.0	1556.5	1222207.5
2282	8673.8	6870855.8	1544.9	1223752.4
2283	8609.1	6879464.9	1533.3	1225285.7
2284	8544.9	6888009.8	1521.9	1226807.7
2285	8481.3	6896491.0	1510.6	1228318.2
2286	8418.2	6904909.2	1499.3	1229817.6
2287	8355.6	6913264.8	1488.2	1231305.8
2288	8293.6	6921558.4	1477.2	1232782.9
2289	8232.1	6929790.5	1466.2	1234249.1
2290	8171.2	6937961.7	1455.4	1235704.5
2291	8110.8	6946072.5	1444.6	1237149.1
2292	8057.5	6954130.0	1435.1	1238584.2
2293	8004.7	6962134.7	1425.7	1240009.9
2294	7952.2	6970086.9	1416.3	1241426.2
2295	7900.1	6977987.0	1407.1	1242833.3
2296	7848.4	6985835.4	1397.9	1244231.2
2297	7797.1	6993632.6	1388.7	1245619.9
2298	7746.3	7001378.8	1379.7	1246999.6
2299	7695.8	7009074.6	1370.7	1248370.2
2300	7645.7	7016720.2	1361.8	1249732.0
2301	7596.0	7024316.2	1352.9	1251084.9
2302	7517.2	7031833.4	1338.9	1252423.8
2303	7439.3	7039272.7	1325.0	1253748.8
2304	7362.1	7046634.7	1311.2	1255060.0
2305	7285.6	7053920.4	1297.6	1256357.6
2306	7209.9	7061130.3	1284.1	1257641.8
2307	7135.0	7068265.3	1270.8	1258912.6
2308	7060.8	7075326.1	1257.6	1260170.1
2309	6987.4	7082313.5	1244.5	1261414.7
2310	6914.8	7089228.3	1231.6	1262646.2
2311	6842.9	7096071.2	1218.8	1263865.0
2312	6797.3	7102868.5	1210.7	1265075.7
2313	6752.1	7109620.6	1202.6	1266278.3
2314	6707.4	7116328.1	1194.6	1267472.9
2315	6663.2	7122991.2	1186.8	1268659.7
2316	6619.3	7129610.6	1179.0	1269838.6
2317	6575.9	7136186.5	1171.2	1271009.9
2318	6533.0	7142719.5	1163.6	1272173.4
2319	6490.5	7149210.0	1156.0	1273329.4

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Depth	Cubic ft. per ft.	Cubic ft. total	Barrels per ft.	Barrels total
2320	6448.4	7155658.4	1148.5	1274477.9
2321	6406.8	7162065.2	1141.1	1275619.0
2322	6360.2	7168425.4	1132.8	1276751.8
2323	6314.3	7174739.7	1124.6	1277876.5
2324	6269.2	7181008.8	1116.6	1278993.1
2325	6224.8	7187233.6	1108.7	1280101.7
2326	6181.2	7193414.8	1100.9	1281202.7
2327	6138.3	7199553.1	1093.3	1282295.9
2328	6096.2	7205649.3	1085.8	1283381.7
2329	6054.8	7211704.0	1078.4	1284460.1
2330	6014.1	7217718.2	1071.2	1285531.3
2331	5974.3	7223692.4	1064.1	1286595.3
2332	5917.2	7229609.6	1053.9	1287649.2
2333	5860.8	7235470.4	1043.9	1288693.1
2334	5805.1	7241275.5	1033.9	1289727.0
2335	5750.0	7247025.5	1024.1	1290751.1
2336	5695.6	7252721.2	1014.4	1291765.6
2337	5641.9	7258363.1	1004.9	1292770.4
2338	5588.9	7263951.9	995.4	1293765.9
2339	5536.5	7269488.4	986.1	1294751.9
2340	5484.8	7274973.1	976.9	1295728.8
2341	5433.7	7280406.9	967.8	1296696.6
2342	5415.7	7285822.5	964.6	1297661.2
2343	5398.1	7291220.7	961.5	1298622.6
2344	5381.1	7296601.8	958.4	1299581.1
2345	5364.6	7301966.4	955.5	1300536.5
2346	5348.7	7307315.1	952.6	1301489.2
2347	5333.2	7312648.3	949.9	1302439.1
2348	5318.3	7317966.7	947.2	1303386.3
2349	5303.9	7323270.5	944.7	1304331.0
2350	5290.0	7328560.6	942.2	1305273.2
2351	5276.6	7333837.2	939.8	1306213.0
2352	5241.9	7339079.1	933.6	1307146.6
2353	5207.5	7344286.6	927.5	1308074.1
2354	5173.6	7349460.3	921.5	1308995.6
2355	5140.1	7354600.4	915.5	1309911.1
2356	5107.1	7359707.5	909.6	1310820.7
2357	5074.4	7364781.9	903.8	1311724.4
2358	5042.2	7369824.0	898.0	1312622.5
2359	5010.3	7374834.3	892.4	1313514.9
2360	4978.9	7379813.3	886.8	1314401.7
2361	4948.0	7384761.2	881.3	1315282.9
2362	4915.7	7389676.9	875.5	1316158.5
2363	4883.7	7394560.6	869.8	1317028.3
2364	4852.0	7399412.6	864.2	1317892.4
2365	4820.6	7404233.2	858.6	1318751.0
2366	4789.5	7409022.6	853.0	1319604.1
2367	4758.7	7413781.4	847.6	1320451.6

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Depth	Cubic ft. per ft.	Cubic ft. total	Barrels per ft.	Barrels total
2368	4728.2	7418509.6	842.1	1321293.8
2369	4698.0	7423207.6	836.8	1322130.5
2370	4668.1	7427875.8	831.4	1322962.0
2371	4638.6	7432514.3	826.2	1323788.1
2372	4620.3	7437134.6	822.9	1324611.0
2373	4602.4	7441737.0	819.7	1325430.8
2374	4584.9	7446321.9	816.6	1326247.4
2375	4567.8	7450889.7	813.6	1327060.9
2376	4551.0	7455440.8	810.6	1327871.5
2377	4534.7	7459975.4	807.7	1328679.2
2378	4518.7	7464494.1	804.8	1329484.0
2379	4503.1	7468997.1	802.0	1330286.0
2380	4487.8	7473485.0	799.3	1331085.3
2381	4473.0	7477957.9	796.7	1331882.0
2382	4458.2	7482416.1	794.0	1332676.0
2383	4443.6	7486859.7	791.4	1333467.4
2384	4429.1	7491288.8	788.9	1334256.3
2385	4414.8	7495703.5	786.3	1335042.6
2386	4400.6	7500104.1	783.8	1335826.4
2387	4386.6	7504490.7	781.3	1336607.7
2388	4372.7	7508863.5	778.8	1337386.5
2389	4359.0	7513222.5	776.4	1338162.9
2390	4345.5	7517568.0	774.0	1338936.8
2391	4332.1	7521900.1	771.6	1339708.4
2392	4317.2	7526217.3	768.9	1340477.3
2393	4302.6	7530519.9	766.3	1341243.7
2394	4288.2	7534808.1	763.8	1342007.4
2395	4274.1	7539082.1	761.2	1342768.7
2396	4260.2	7543342.3	758.8	1343527.4
2397	4246.5	7547588.8	756.3	1344283.8
2398	4233.1	7551821.9	754.0	1345037.7
2399	4220.0	7556041.9	751.6	1345789.3
2400	4207.0	7560248.9	749.3	1346538.6
2401	4194.4	7564443.3	747.1	1347285.7
2402	4179.2	7568622.5	744.4	1348030.0
2403	4164.4	7572786.9	741.7	1348771.8
2404	4149.9	7576936.9	739.1	1349510.9
2405	4135.8	7581072.7	736.6	1350247.5
2406	4122.0	7585194.7	734.2	1350981.7
2407	4108.6	7589303.3	731.8	1351713.4
2408	4095.5	7593398.7	729.4	1352442.9
2409	4082.7	7597481.5	727.2	1353170.0
2410	4070.3	7601551.8	725.0	1353895.0
2411	4058.2	7605610.0	722.8	1354617.8
2412	4043.4	7609653.4	720.2	1355338.0
2413	4028.7	7613682.2	717.5	1356055.5
2414	4014.2	7617696.3	715.0	1356770.5
2415	3999.7	7621696.1	712.4	1357482.9

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Depth	Cubic ft. per ft.	Cubic ft. total	Barrels per ft.	Barrels total
2416	3985.4	7625681.5	709.8	1358192.7
2417	3971.3	7629652.8	707.3	1358900.0
2418	3957.2	7633610.0	704.8	1359604.8
2419	3943.3	7637553.2	702.3	1360307.1
2420	3929.5	7641482.7	699.9	1361007.0
2421	3915.8	7645398.6	697.4	1361704.4
2422	3911.6	7649310.1	696.7	1362401.1
2423	3907.5	7653217.6	696.0	1363097.1
2424	3903.6	7657121.3	695.3	1363792.4
2425	3899.9	7661021.2	694.6	1364487.0
2426	3896.4	7664917.5	694.0	1365180.9
2427	3893.0	7668810.6	693.4	1365874.3
2428	3889.9	7672700.5	692.8	1366567.1
2429	3886.9	7676587.3	692.3	1367259.4
2430	3884.1	7680471.4	691.8	1367951.2
2431	3881.5	7684352.9	691.3	1368642.5
2432	3872.7	7688225.5	689.7	1369332.3
2433	3864.1	7692089.6	688.2	1370020.5
2434	3855.7	7695945.3	686.7	1370707.2
2435	3847.5	7699792.8	685.3	1371392.5
2436	3839.6	7703632.3	683.9	1372076.3
2437	3831.8	7707464.1	682.5	1372758.8
2438	3824.3	7711288.4	681.1	1373439.9
2439	3817.0	7715105.4	679.8	1374119.8
2440	3809.9	7718915.3	678.6	1374798.3
2441	3803.0	7722718.3	677.3	1375475.7
2442	3786.8	7726505.1	674.5	1376150.1
2443	3770.8	7730275.9	671.6	1376821.8
2444	3754.9	7734030.8	668.8	1377490.5
2445	3739.3	7737770.1	666.0	1378156.5
2446	3723.9	7741494.0	663.3	1378819.8
2447	3708.7	7745202.7	660.5	1379480.3
2448	3693.6	7748896.3	657.9	1380138.2
2449	3678.8	7752575.1	655.2	1380793.4
2450	3664.1	7756239.2	652.6	1381446.0
2451	3649.7	7759888.9	650.0	1382096.1
2452	3638.2	7763527.1	648.0	1382744.0
2453	3627.0	7767154.1	646.0	1383390.0
2454	3616.3	7770770.4	644.1	1384034.1
2455	3606.1	7774376.5	642.3	1384676.4
2456	3596.2	7777972.7	640.5	1385316.9
2457	3586.8	7781559.5	638.8	1385955.8
2458	3577.8	7785137.3	637.2	1386593.0
2459	3569.2	7788706.5	635.7	1387228.7
2460	3561.1	7792267.6	634.3	1387863.0
2461	3553.3	7795820.9	632.9	1388495.8
2462	3543.4	7799364.3	631.1	1389126.9
2463	3533.6	7802898.0	629.4	1389756.3

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Depth	Cubic ft. per ft.	Cubic ft. total	Barrels per ft.	Barrels total
2464	3524.0	7806422.0	627.7	1390384.0
2465	3514.5	7809936.4	626.0	1391009.9
2466	3505.1	7813441.5	624.3	1391634.2
2467	3495.9	7816937.4	622.6	1392256.8
2468	3486.7	7820424.1	621.0	1392877.9
2469	3477.8	7823901.9	619.4	1393497.3
2470	3468.9	7827370.8	617.8	1394115.1
2471	3460.2	7830831.0	616.3	1394731.4
2472	3479.8	7834310.7	619.8	1395351.2
2473	3499.9	7837810.7	623.4	1395974.5
2474	3520.7	7841331.4	627.1	1396601.6
2475	3542.2	7844873.6	630.9	1397232.5
2476	3564.2	7848437.8	634.8	1397867.3
2477	3586.9	7852024.6	638.8	1398506.1
2478	3610.1	7855634.8	643.0	1399149.1
2479	3634.0	7859268.8	647.2	1399796.4
2480	3658.5	7862927.3	651.6	1400448.0
2481	3683.6	7866610.9	656.1	1401104.1
2482	3780.0	7870390.9	673.2	1401777.3
2483	3880.3	7874271.2	691.1	1402468.4
2484	3984.6	7878255.7	709.7	1403178.1
2485	4092.8	7882348.6	729.0	1403907.1
2486	4205.0	7886553.6	749.0	1404656.0
2487	4321.2	7890874.8	769.6	1405425.7
2488	4441.3	7895316.2	791.0	1406216.7
2489	4565.4	7899881.6	813.1	1407029.8
2490	4693.5	7904575.1	835.9	1407865.8
2491	4825.5	7909400.6	859.5	1408725.2
2492	4783.3	7914183.9	851.9	1409577.2
2493	4743.6	7918927.6	844.9	1410422.1
2494	4706.4	7923634.0	838.2	1411260.3
2495	4671.6	7928305.6	832.1	1412092.4
2496	4639.4	7932945.0	826.3	1412918.7
2497	4609.5	7937554.5	821.0	1413739.7
2498	4582.2	7942136.7	816.1	1414555.8
2499	4557.3	7946694.0	811.7	1415367.5
2500	4534.9	7951228.8	807.7	1416175.2
2501	4514.9	7955743.7	804.1	1416979.3
2502	4512.2	7960255.9	803.7	1417783.0
2503	4510.7	7964766.7	803.4	1418586.4
2504	4510.5	7969277.2	803.4	1419389.7
2505	4511.6	7973788.8	803.5	1420193.3
2506	4513.9	7978302.6	804.0	1420997.2
2507	4517.4	7982820.1	804.6	1421801.8
2508	4522.2	7987342.3	805.4	1422607.3
2509	4528.3	7991870.6	806.5	1423413.8
2510	4535.6	7996406.2	807.8	1424221.6
2511	4544.2	8000950.4	809.3	1425031.0

AMERIGAS
GLENDALE, AZ

STORAGE WELL NO. 3
Thu, Mar 4, 1999

Depth	Cubic ft. per ft.	Cubic ft. total	Barrels per ft.	Barrels total
2512	4537.4	8005487.7	808.1	1425839.1
2513	4531.0	8010018.7	807.0	1426646.1
2514	4525.0	8014543.7	805.9	1427452.1
2515	4519.5	8019063.2	805.0	1428257.0
2516	4514.3	8023577.5	804.0	1429061.0
2517	4509.6	8028087.1	803.2	1429864.2
2518	4505.3	8032592.4	802.4	1430666.7
2519	4501.4	8037093.8	801.7	1431468.4
2520	4497.9	8041591.6	801.1	1432269.5
2521	4494.8	8046086.4	800.6	1433070.0
2522	4498.7	8050585.0	801.2	1433871.3
2523	4503.6	8055088.6	802.1	1434673.4
2524	4509.5	8059598.0	803.2	1435476.6
2525	4516.3	8064114.4	804.4	1436281.0
2526	4524.2	8068638.6	805.8	1437086.8
2527	4533.2	8073171.8	807.4	1437894.2
2528	4543.1	8077714.8	809.2	1438703.3
2529	4554.0	8082268.8	811.1	1439514.4
2530	4565.9	8086834.7	813.2	1440327.6
2531	4578.8	8091413.5	815.5	1441143.1
2532	4490.9	8095904.3	799.9	1441943.0
2533	4405.1	8100309.5	784.6	1442727.6
2534	4321.5	8104631.0	769.7	1443497.3
2535	4240.0	8108871.0	755.2	1444252.5
2536	4160.6	8113031.6	741.0	1444993.5
2537	4083.4	8117115.0	727.3	1445720.8
2538	4008.3	8121123.3	713.9	1446434.7
2539	3935.3	8125058.6	700.9	1447135.6
2540	3864.4	8128923.0	688.3	1447823.9
2541	3795.7	8132718.7	676.0	1448499.9
2542	3632.1	8136350.8	646.9	1449146.8
2543	3480.0	8139830.8	619.8	1449766.6
2544	3339.4	8143170.2	594.8	1450361.4
2545	3210.3	8146380.5	571.8	1450933.2
2546	3092.7	8149473.2	550.8	1451484.0
2547	2939.6	8152412.8	523.6	1452007.6
2548	2825.2	8155238.0	503.2	1452510.8
2549	2749.4	8157987.4	489.7	1453000.5
2550	2712.3	8160699.7	483.1	1453483.5
2551	2667.9	8163367.6	475.2	1453958.7
2552	2593.5	8165961.0	461.9	1454420.6
2553	2519.9	8168481.0	448.8	1454869.5
2554	2476.8	8170957.8	441.1	1455310.6
2555	2413.0	8173370.8	429.8	1455740.4
2556	2351.1	8175721.9	418.8	1456159.1
2557	2299.0	8178020.9	409.5	1456568.6
2558	2253.0	8180273.9	401.3	1456969.9
2559	2244.2	8182518.2	399.7	1457369.6

AMERIGAS
GLENDALE, AZ

STORAGE WELL NO. 3
Thu, Mar 4, 1999

Depth	Cubic ft. per ft.	Cubic ft. total	Barrels per ft.	Barrels total
2560	2231.2	8184749.3	397.4	1457767.0
2561	2124.4	8186873.7	378.4	1458145.3
2562	2083.6	8188957.3	371.1	1458516.5
2563	2038.7	8190996.0	363.1	1458879.6
2564	1991.9	8192987.8	354.8	1459234.3
2565	1945.9	8194933.8	346.6	1459580.9
2566	1902.9	8196836.7	338.9	1459919.8
2567	1853.2	8198689.9	330.1	1460249.9
2568	1819.1	8200508.9	324.0	1460573.9
2569	1795.4	8202304.3	319.8	1460893.7
2570	1773.7	8204078.0	315.9	1461209.6
2571	1727.9	8205805.8	307.7	1461517.3
2572	1682.3	8207488.1	299.6	1461816.9
2573	1647.3	8209135.4	293.4	1462110.3
2574	1616.2	8210751.7	287.9	1462398.2
2575	1577.9	8212329.5	281.0	1462679.2
2576	1542.1	8213871.6	274.7	1462953.9
2577	1503.7	8215375.3	267.8	1463221.7
2578	1468.9	8216844.2	261.6	1463483.3
2579	1438.2	8218282.4	256.2	1463739.5
2580	1405.0	8219687.4	250.2	1463989.7
2581	1356.2	8221043.5	241.5	1464231.3
2582	1310.2	8222353.7	233.4	1464464.6
2583	1250.3	8223604.0	222.7	1464687.3
2584	1198.1	8224802.1	213.4	1464900.7
2585	1144.6	8225946.8	203.9	1465104.6
2586	1090.1	8227036.9	194.2	1465298.7
2587	1035.1	8228072.0	184.4	1465483.1
2588	979.5	8229051.5	174.4	1465657.5
2589	929.6	8229981.0	165.6	1465823.1
2590	876.4	8230857.5	156.1	1465979.2
2591	826.5	8231684.0	147.2	1466126.4
2592	776.4	8232460.4	138.3	1466264.7
2593	726.4	8233186.8	129.4	1466394.1
2594	677.9	8233864.7	120.7	1466514.8
2595	631.4	8234496.1	112.5	1466627.3
2596	576.1	8235072.3	102.6	1466729.9
2597	518.8	8235591.1	92.4	1466822.3
2598	464.1	8236055.1	82.7	1466904.9
2599	408.6	8236463.7	72.8	1466977.7
2600	352.3	8236816.0	62.8	1467040.5
2601	295.3	8237111.4	52.6	1467093.1
2602	237.6	8237349.0	42.3	1467135.4
2603	185.9	8237534.9	33.1	1467168.5
2604	137.9	8237672.8	24.6	1467193.1
2605	99.7	8237772.5	17.7	1467210.8
2606	62.5	8237835.0	11.1	1467221.9
2607	36.4	8237871.4	6.5	1467228.4

AMERIGAS
GLENDALE, AZ

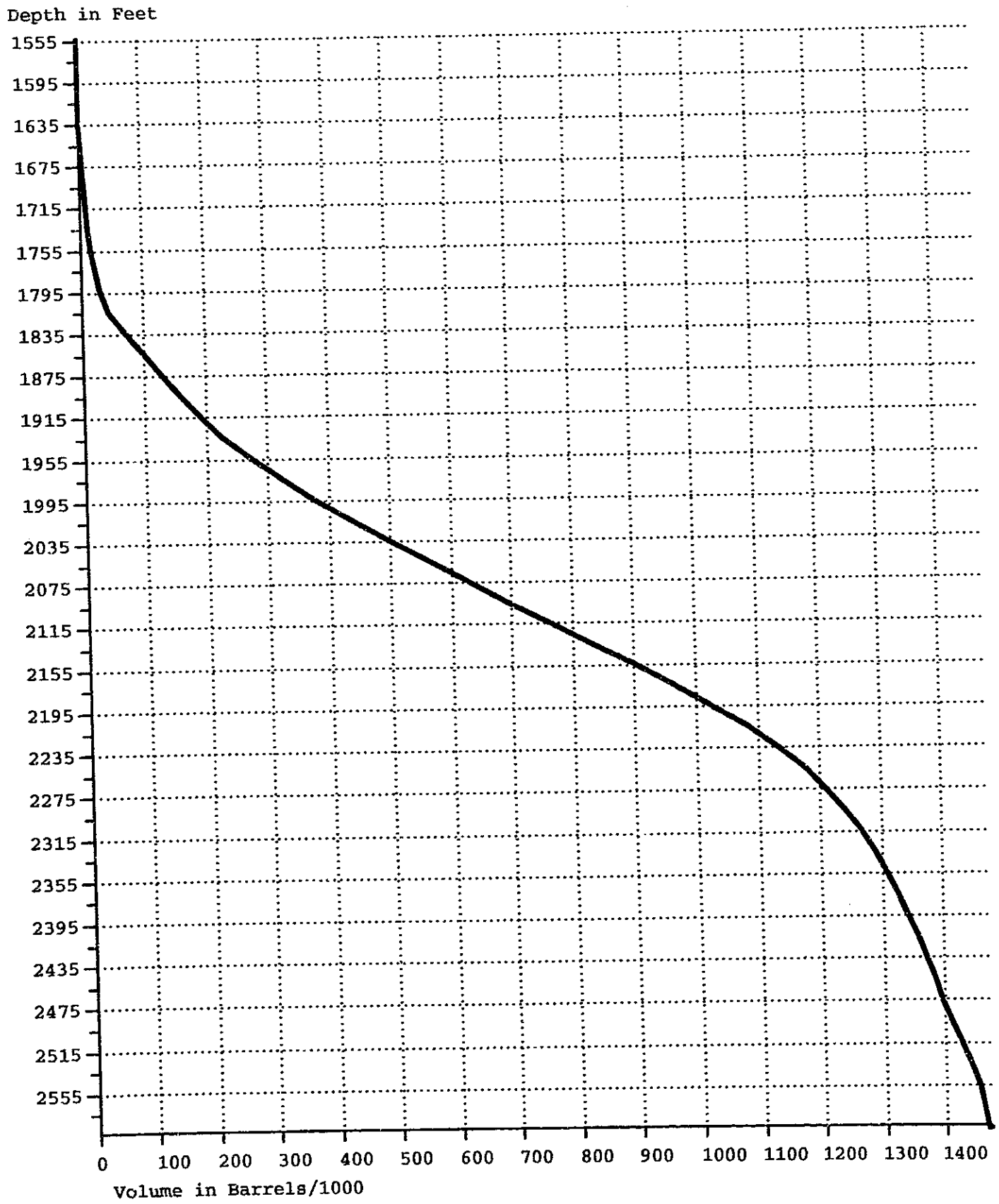
STORAGE WELL NO. 3
Thu, Mar 4, 1999

Depth	Cubic ft. per ft.	Cubic ft. total	Barrels per ft.	Barrels total
2608	14.1	8237885.5	2.5	1467230.9

AMERIGAS
GLENDALE, AZ

SONARWIRE, INC
Depth vs Volume

STORAGE WELL NO. 3
Thu, Mar 4, 1999



SONARWIRE INC.
Max Radius & Depth vs Bearing

AMERIGAS
GLENDALE, AZ

STORAGE WELL NO. 3
Thu, Mar 4, 1999

This table lists the maximum radius (in feet) found at each of the 128 bearings at which soundings were taken. Also listed after each radius, (separated by ':'), is the depth (in feet) at which that maximum radius was found. Bearings are shown, (in degrees), for each row of four 'radius : depth' pairs.

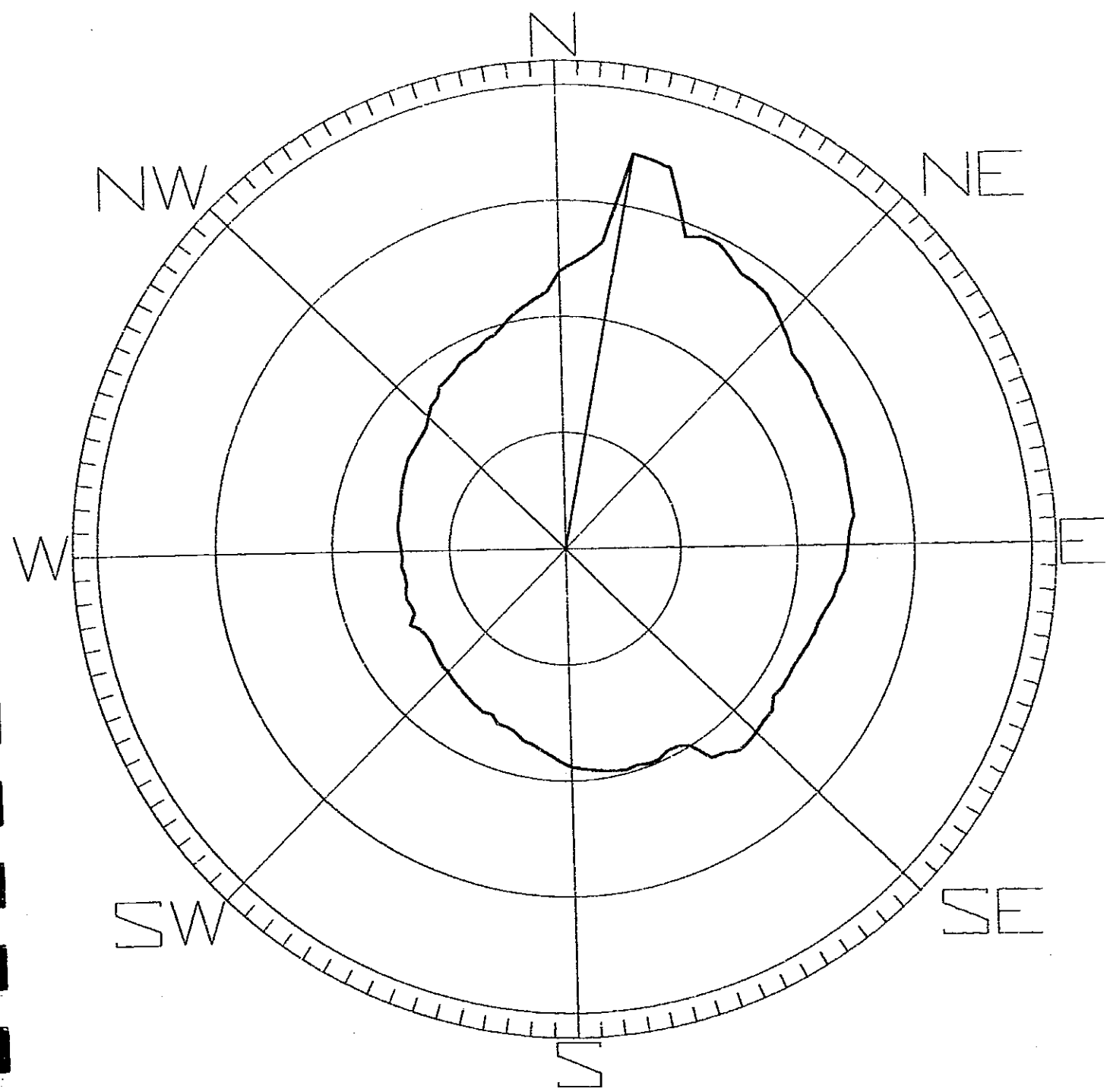
Bearing	+0.0	+2.8	+5.6	+8.4
0.0	95.3: 2150	98.2: 2150	101.2: 2140	106.3: 2110
11.3	138.1: 2120	137.3: 2120	136.1: 2110	125.5: 2120
22.5	115.2: 2120	117.7: 2050	117.7: 2050	115.2: 2050
33.8	112.7: 2050	112.6: 2060	112.0: 2060	110.1: 2060
45.0	107.6: 2060	105.7: 2060	103.1: 2060	103.1: 2030
56.3	103.1: 2030	101.9: 2030	101.2: 2060	101.2: 2060
67.5	101.2: 2060	101.2: 2060	101.2: 2060	100.6: 2060
78.8	100.0: 2060	100.0: 2060	100.0: 2060	98.1: 2060
90.0	97.4: 2060	96.8: 2060	96.2: 2060	94.3: 2060
101.3	93.6: 2060	91.8: 2070	90.5: 2060	90.1: 2140
112.5	89.3: 2140	88.6: 2140	87.9: 2140	87.9: 2140
123.8	87.9: 2140	87.1: 2140	89.9: 2060	89.9: 2060
135.0	90.5: 2060	91.1: 2060	91.1: 2060	88.6: 2060
146.3	87.3: 2060	79.7: 2100	77.8: 2060	77.8: 2060
157.5	79.1: 2110	79.1: 2110	78.3: 2120	79.0: 2120
168.8	78.3: 2120	77.5: 2130	76.8: 2130	76.1: 2130
180.0	75.3: 2140	73.8: 2140	71.6: 2140	70.1: 2150
191.3	68.7: 2150	67.9: 2160	65.7: 2130	65.0: 2130
202.5	65.0: 2130	62.8: 2140	63.5: 2140	62.8: 2140
213.8	62.0: 2140	61.3: 2140	60.5: 2160	59.8: 2140
225.0	59.1: 2140	59.1: 2160	58.3: 2130	57.6: 2140
236.3	56.9: 2170	56.9: 2170	57.6: 2130	59.8: 2140
247.5	56.9: 2130	56.9: 2130	57.6: 2140	56.9: 2140
258.8	56.1: 2130	56.1: 2140	56.9: 2140	56.3: 2040
270.0	56.4: 1990	56.9: 2100	57.6: 2100	58.2: 2100
281.3	58.2: 2100	58.2: 2100	58.8: 2040	59.5: 2100
292.5	60.1: 2040	60.7: 2100	61.4: 2100	62.0: 2100
303.8	62.0: 2100	62.2: 1990	62.6: 2090	63.3: 2090
315.0	65.2: 2090	67.1: 2090	67.7: 2090	70.2: 2090
326.3	70.9: 2090	71.5: 2090	73.4: 2090	74.0: 2090
337.5	74.7: 2090	76.6: 2090	77.2: 2090	79.6: 1990
348.8	82.3: 1990	84.2: 2150	86.4: 2150	88.6: 2150

Between 1553 and 2608 foot depths, maximum radius
was 138.1 feet at bearing 11.3 at 2120.0 foot depth

AMERIGAS
STORAGE WELL NO. 3 W-3
GLENDALE, AZ

SONARWIRE, INC
Max Range vs Bearing

Max Radius=138.1 ft @ 11.2 deg
Depth= 2170 ft. Thu, Mar 4, 1999



160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160

SONARWIRE INC.
Wall Ranges versus Depth (ft.)

AMERIGAS
GLENDALE, AZ

STORAGE WELL NO. 3
Thu, Mar 4, 1999

Depth	Tilt	N	NE	E	SE	S	SW	W	NW
1553	0	2.4	3.1	3.0	2.7	2.4	2.2	2.3	2.2
1555	0	2.1	2.5	2.8	2.5	2.3	2.2	2.3	2.4
1560	0	2.7	3.0	3.2	3.0	3.0	2.5	2.6	2.7
1570	0	3.4	3.3	3.3	3.3	3.2	3.0	2.9	3.1
1575	0	3.7	5.5	5.5	4.5	2.8	2.7	3.0	3.2
1580	0	3.7	4.4	5.4	3.6	3.3	3.2	3.4	3.6
1590	0	4.3	6.1	6.1	4.6	3.6	3.2	3.3	3.6
1595	0	4.3	5.9	6.3	4.5	3.4	3.3	3.4	3.8
1600	0	5.0	5.6	5.1	4.4	3.4	3.3	3.6	4.3
1605	0	4.3	5.0	5.6	5.2	4.5	3.5	3.4	3.6
1610	0	4.0	4.9	5.3	4.8	4.3	3.3	2.8	3.2
1612	0	10.1	9.2	10.1	10.2	5.2	4.8	3.5	4.5
1615	0	11.4	14.2	18.9	13.5	7.1	8.9	10.2	11.3
1620	0	9.9	14.2	13.5	12.6	10.4	6.7	8.5	9.2
1630	0	11.2	12.4	13.7	12.7	10.5	8.5	8.3	10.0
1640	0	11.6	13.6	17.0	14.4	10.2	9.1	9.2	10.6
1650	0	12.3	14.4	16.3	13.4	10.5	9.3	9.4	10.2
1660	0	12.2	15.1	21.1	13.4	10.8	9.8	9.5	10.5
1670	0	15.0	22.4	15.3	14.2	10.5	9.7	10.1	11.7
1680	0	12.6	18.5	16.7	14.3	10.8	9.8	9.7	10.6
1690	0	13.0	17.4	17.2	15.4	11.7	10.5	10.3	10.9
1700	0	14.6	17.9	16.3	13.5	11.1	10.5	10.8	12.7
1710	0	14.2	33.8	25.9	15.0	12.1	10.8	10.9	12.2
1715	0	15.1	30.1	27.2	24.5	13.0	11.3	11.3	12.6
1720	0	15.1	27.0	21.9	21.1	16.1	13.8	11.6	12.6
1730	0	15.3	20.3	22.1	15.8	13.7	11.8	11.4	12.2
1740	0	16.9	17.9	19.3	17.2	14.0	11.8	12.1	13.8
1745	0	17.8	20.8	35.8	16.9	14.6	12.0	12.2	13.7
1750	0	18.5	19.7	34.1	19.1	13.1	11.6	12.0	13.7
1760	0	26.8	31.8	31.5	18.9	15.0	14.8	15.4	18.9
1770	0	25.7	42.3	42.5	18.7	16.7	16.3	18.2	23.2
1780	0	23.1	40.2	39.7	21.5	16.9	15.8	18.0	20.9
1790	0	25.2	37.0	36.7	22.8	19.8	18.5	20.7	21.7
1800	0	29.2	37.3	37.6	36.5	24.4	22.3	23.1	26.3
1810	0	57.6	48.3	52.2	40.2	32.5	30.9	32.2	35.1
1820	0	60.5	52.8	63.5	44.6	45.1	35.2	36.9	39.1
1830	0	50.2	61.8	61.3	47.2	45.0	36.0	38.6	42.5
1840	0	59.9	61.2	58.2	47.1	47.6	37.4	39.1	47.6
1850	0	52.8	59.8	59.8	50.0	44.9	40.5	40.5	43.3
1860	0	54.7	58.5	59.4	47.7	44.6	42.1	41.7	51.9
1870	0	53.4	57.9	64.5	49.6	45.5	44.6	41.7	48.1
1880	0	52.5	59.4	61.3	52.2	46.2	53.1	42.7	45.8
1890	0	57.2	61.3	61.3	51.9	45.2	48.1	44.0	53.8
1901	0	57.0	63.3	62.9	53.2	48.1	44.7	44.7	50.2
1910	0	57.8	64.1	65.4	54.4	47.2	44.7	46.4	51.0
1920	0	62.0	63.3	68.3	56.5	48.5	45.6	47.7	51.9
1930	0	61.2	66.2	64.1	62.8	52.3	46.8	47.7	51.5

AMERIGAS
GLENDALE, AZ

STORAGE WELL NO. 3
Thu, Mar 4, 1999

Depth	Tilt	N	NE	E	SE	S	SW	W	NW
1940	0	66.5	89.1	84.9	61.7	51.7	48.0	51.7	57.0
1950	0	66.5	89.7	83.9	58.5	52.7	48.5	52.7	58.5
1960	0	69.6	90.7	85.4	61.2	53.3	50.1	53.3	59.6
1970	0	68.0	92.3	94.4	61.7	52.7	51.2	52.7	59.1
1980	0	68.5	92.8	90.7	61.7	53.8	52.2	54.3	60.6
1990	0	84.9	102.3	87.0	56.9	53.3	52.2	56.4	63.3
2000	0	80.4	101.2	88.6	59.5	55.0	53.2	55.7	62.0
2010	0	77.2	99.3	90.5	67.1	54.4	52.5	55.7	62.0
2020	0	77.8	103.1	89.2	74.7	53.8	53.2	55.0	62.6
2030	0	84.2	102.5	89.2	67.7	53.2	52.5	55.7	62.6
2040	0	83.5	101.2	89.2	79.1	53.2	53.2	56.3	63.3
2050	0	72.2	105.1	96.8	88.0	57.6	52.5	55.1	63.3
2060	0	74.7	107.6	97.4	90.5	58.2	52.5	55.7	60.7
2070	0	75.9	104.4	95.5	79.1	60.1	53.8	55.1	62.0
2080	0	80.4	101.9	94.9	79.7	60.1	53.2	55.7	62.6
2090	0	81.0	101.9	94.3	77.8	62.0	53.8	55.1	65.2
2100	0	82.3	101.2	94.3	77.2	61.4	54.4	56.3	65.2
2110	0	81.0	100.6	93.7	77.8	67.1	55.1	55.1	62.7
2120	0	85.7	100.4	93.0	78.3	70.9	56.1	53.2	61.3
2130	0	82.0	98.9	93.0	76.8	73.8	57.6	54.6	59.8
2140	0	92.3	97.5	93.0	81.2	75.3	59.1	56.1	59.1
2150	0	95.3	96.7	91.6	79.7	73.1	58.3	54.6	59.1
2160	0	88.6	95.3	91.6	78.3	71.6	58.3	53.2	59.8
2170	0	88.6	95.3	90.1	76.8	70.2	57.6	53.9	57.6
2180	0	85.6	93.0	89.3	76.8	67.9	56.1	52.4	56.8
2190	0	83.4	93.8	87.9	75.3	66.4	55.4	51.7	56.8
2200	0	79.7	90.1	88.6	78.3	67.9	57.6	52.4	53.9
2210	0	76.8	90.8	85.6	74.6	62.0	53.2	50.9	53.9
2220	0	69.1	89.7	82.8	72.3	56.4	50.6	49.6	55.9
2230	0	62.2	85.9	82.8	68.5	53.3	46.4	49.0	55.4
2240	0	62.2	84.9	80.1	64.3	45.3	43.2	46.4	50.1
2250	0	58.0	81.7	80.1	61.2	43.2	40.6	44.3	42.7
2260	0	59.1	80.1	77.0	55.4	42.7	34.3	39.0	40.6
2270	0	58.5	80.1	74.9	53.3	41.1	34.8	33.2	37.4
2280	0	57.5	79.1	72.8	51.7	39.5	31.6	30.1	33.2
2290	0	53.8	74.9	70.7	59.1	39.0	29.5	27.9	32.7
2300	0	52.2	73.3	68.6	57.0	38.0	26.9	28.5	30.1
2310	0	50.6	71.2	66.4	43.2	36.4	23.7	24.8	29.5
2320	0	48.0	70.1	63.3	43.2	34.8	22.1	25.3	26.4
2330	0	45.4	68.6	63.8	56.4	29.5	22.1	24.3	26.4
2340	0	44.3	67.5	60.3	42.2	27.0	21.5	23.6	24.9
2350	0	43.0	68.3	59.0	43.0	23.6	20.2	22.8	24.9
2360	0	40.5	67.1	56.5	40.9	19.8	18.6	21.9	24.9
2370	0	40.1	62.9	55.7	39.2	19.4	18.1	20.7	23.6
2380	0	41.3	64.1	54.0	39.2	18.6	17.3	19.8	23.2
2390	0	39.2	62.0	55.3	37.5	18.1	16.9	19.4	22.8
2400	0	41.3	62.9	52.3	28.7	18.6	17.3	19.0	21.9
2410	0	38.0	59.1	55.3	33.8	18.6	17.7	18.6	20.7
2420	0	34.2	59.5	53.2	32.5	19.0	17.7	19.0	21.5
2430	0	35.4	61.2	51.5	31.6	19.4	17.7	18.6	21.1

AMERIGAS
GLENDALE, AZ

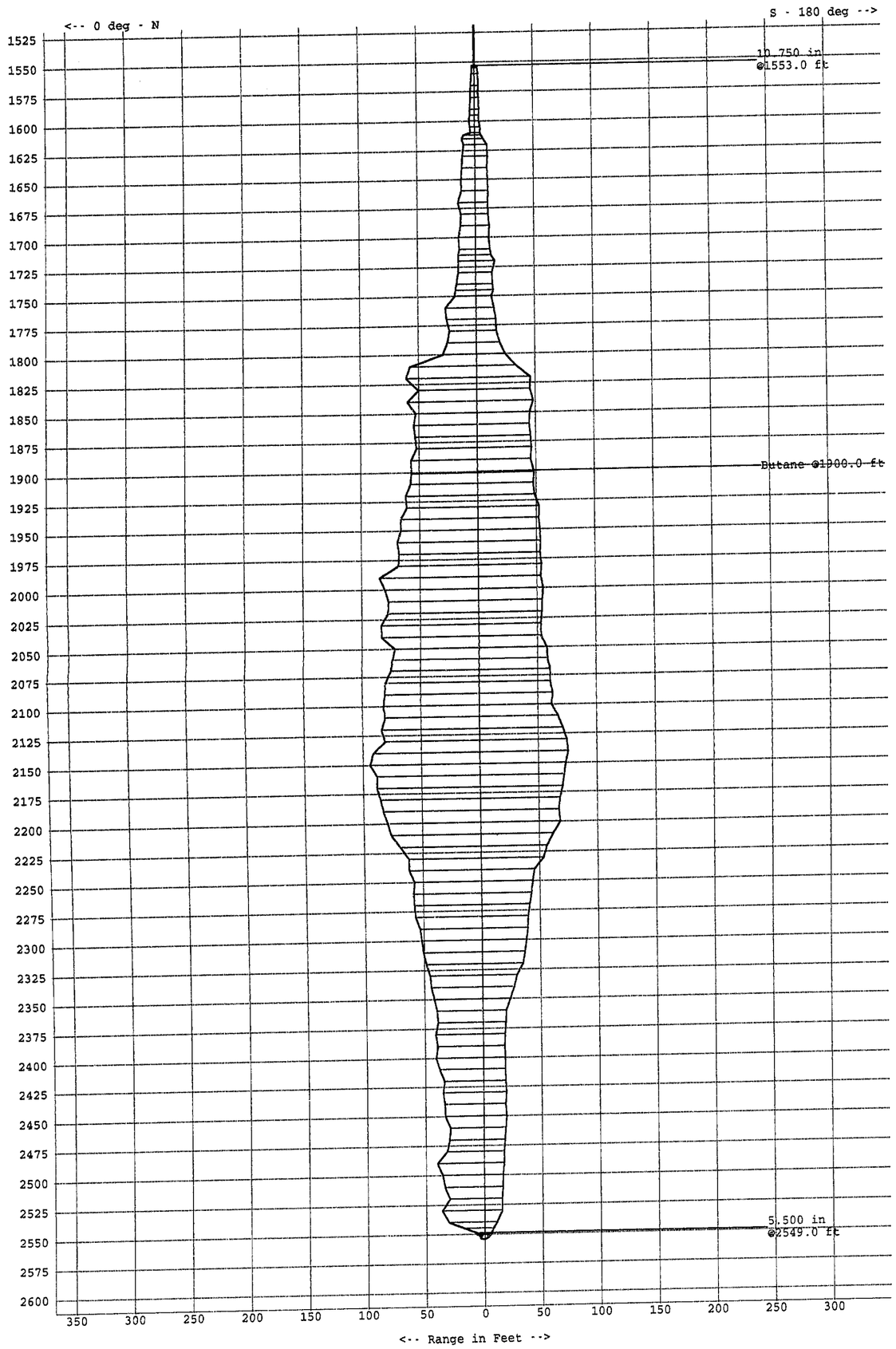
STORAGE WELL NO. 3
Thu, Mar 4, 1999

Depth	Tilt	N	NE	E	SE	S	SW	W	NW
2440	0	34.2	57.8	50.2	30.4	18.6	17.7	19.0	21.1
2450	0	33.3	56.9	48.9	29.1	19.4	17.3	18.1	20.2
2460	0	29.1	54.0	54.0	40.5	18.6	16.9	18.1	19.0
2470	0	29.9	53.1	54.8	29.1	17.7	16.0	18.1	19.0
2480	0	32.5	54.0	57.4	27.8	16.9	16.4	17.7	19.0
2490	0	40.5	73.8	70.0	19.0	16.9	16.9	17.3	19.4
2500	0	35.9	71.3	65.8	24.5	16.0	16.0	16.5	17.3
2510	0	35.0	69.2	66.7	25.3	15.6	15.6	16.0	16.5
2520	0	30.0	66.7	65.0	20.2	15.2	15.2	15.6	14.8
2530	0	39.7	64.1	64.1	19.0	15.2	14.8	15.2	16.5
2540	0	30.8	63.3	60.3	14.8	10.5	10.1	10.5	14.3
2545	0	17.3	55.7	60.3	9.7	7.6	7.6	8.0	8.9
2549	0	6.8	46.4	61.6	7.2	5.5	4.6	4.2	3.8
2549	-10	7.2	44.7	58.6	7.2	5.1	4.2	4.2	4.2
2549	-20	5.5	43.5	59.5	7.2	5.1	4.2	3.8	3.8
2549	-30	5.5	47.3	62.9	6.3	4.2	4.2	3.8	3.8
2549	-40	4.6	61.2	67.9	7.2	4.6	4.2	3.8	3.8
2549	-50	5.9	56.1	73.8	6.8	4.6	4.2	4.2	4.2
2549	-90	5.3	5.2	5.2	5.3	5.4	5.4	5.4	5.4

AMERIGAS
GLENDALE, AZ

SONARWIRE, INC
Vertical Cross Section

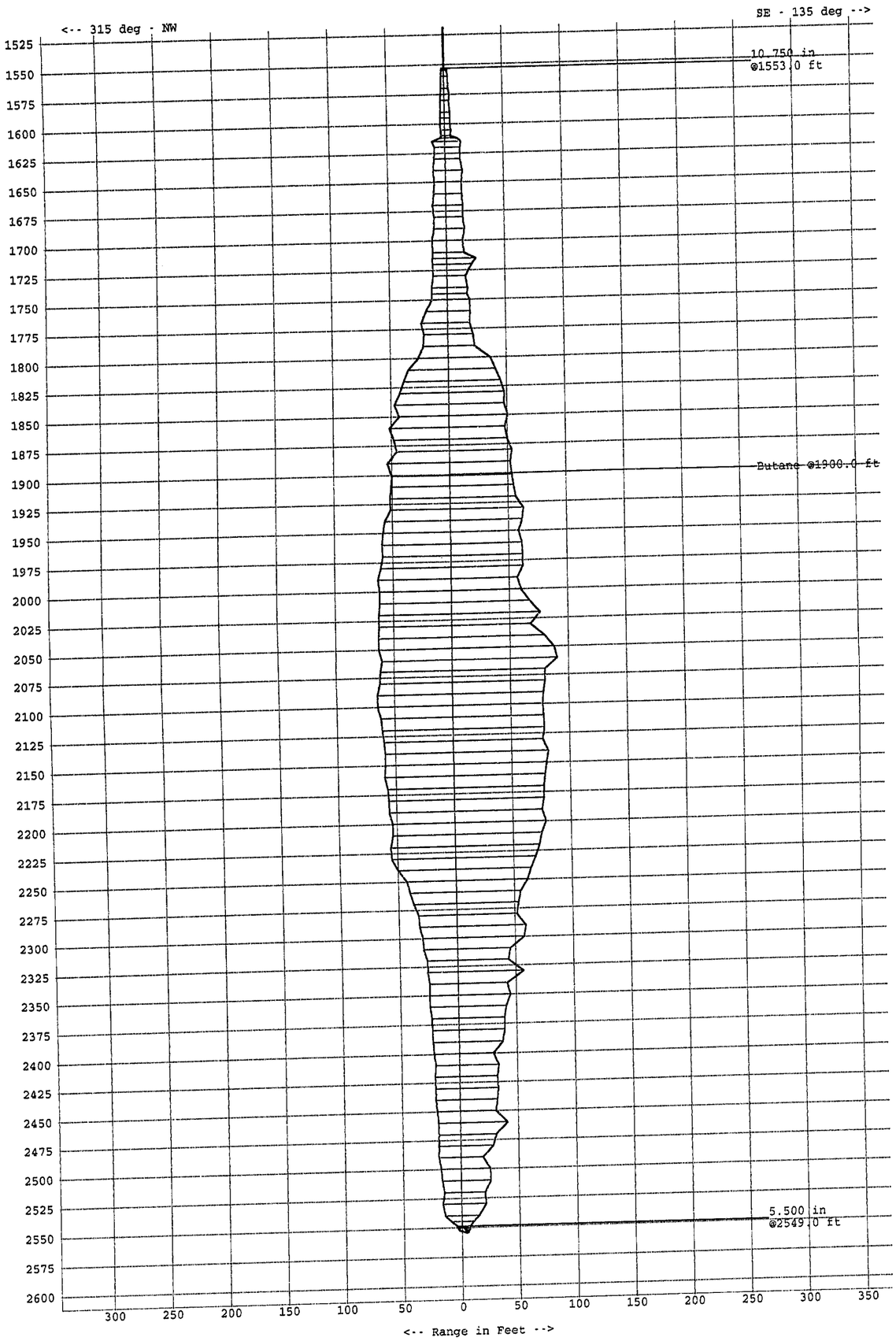
STORAGE WELL NO. 3
W-3 Thu, Mar 4, 1999



AMERIGAS
GLENDALE, AZ

SONARWIRE, INC
Vertical Cross Section

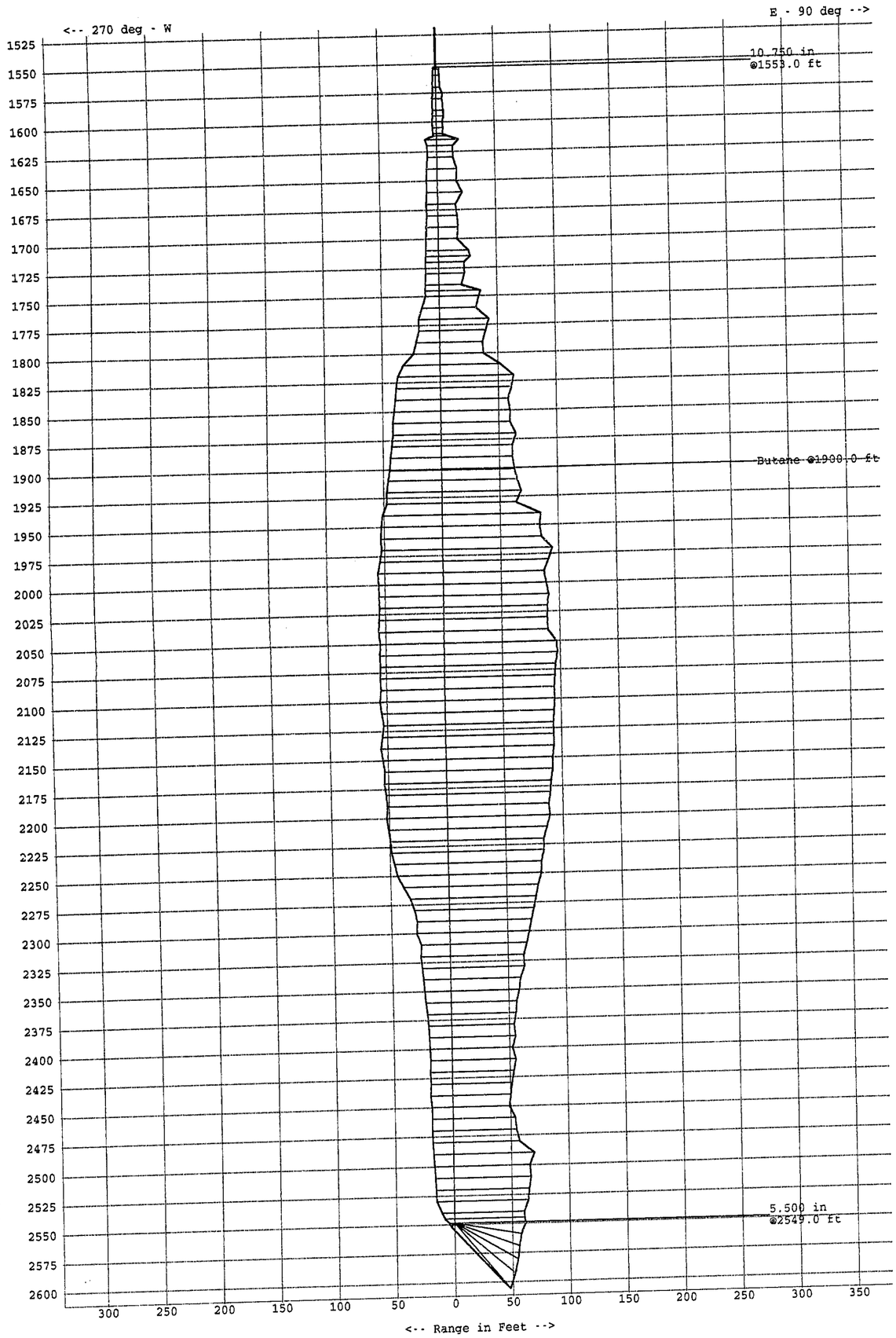
STORAGE WELL NO. 3
W-3 Thu, Mar 4, 1999



AMERIGAS
GLENDALE, AZ

SONARWIRE, INC
Vertical Cross Section

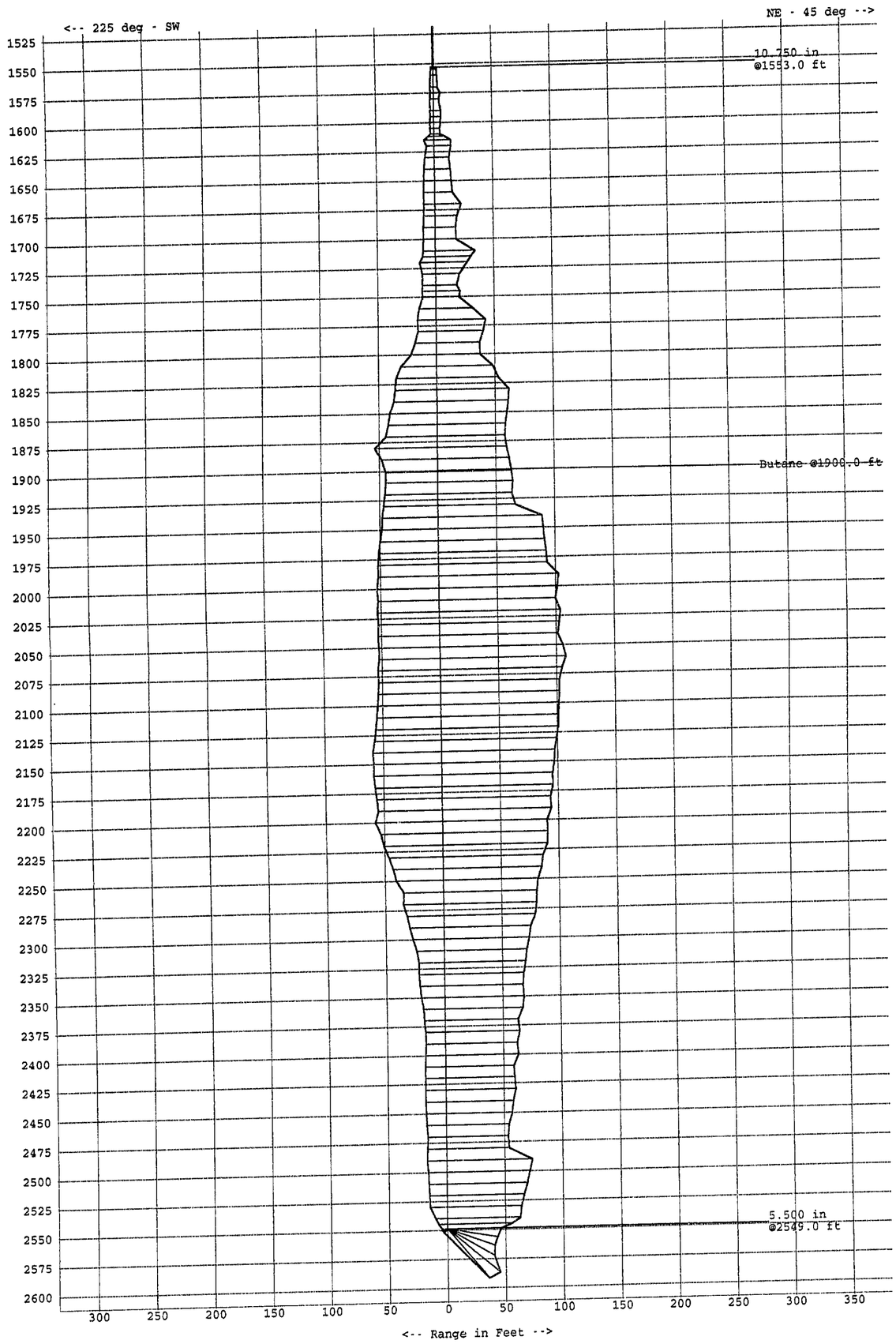
STORAGE WELL NO. 3
W-3 Thu, Mar 4, 1999



AMERIGAS
GLENDALE, AZ

SONARWIRE, INC
Vertical Cross Section

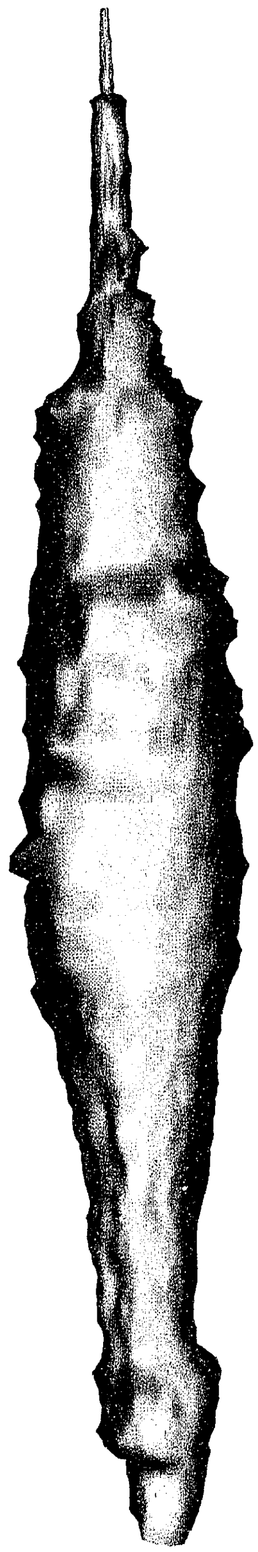
STORAGE WELL NO. 3
W-3 Thu, Mar 4, 1999



3D SHADE PLOT

AMERIGAS
GLENDALE, AZ
STORAGE WELL NO. 3
THUR. MAR. 4, 1999

VIEWING AZIMUTH: 45
AXIS TILT: -10 DEGS.



3D SHADE PLOT

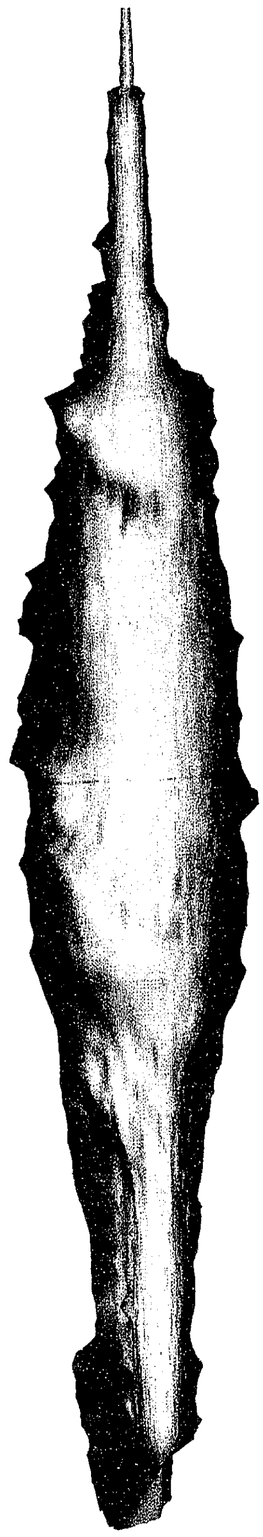
AMERIGAS
GLENDALE, AZ
STORAGE WELL NO. 3
THUR. MAR. 4, 1999

VIEWING AZIMUTH: 135
AXIS TILT: -10 DEGS.

3D SHADE PLOT

AMERIGAS
GLENDALE, AZ
STORAGE WELL NO. 3
THUR. MAR. 4, 1999

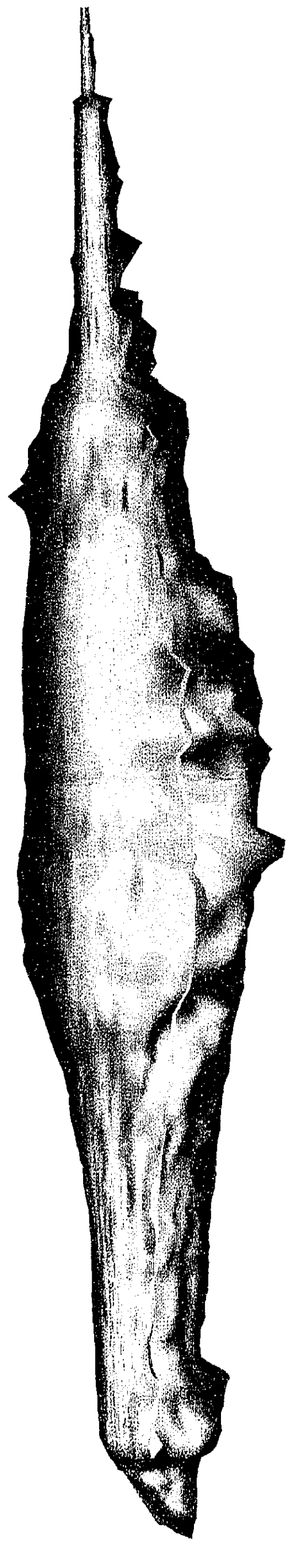
VIEWING AZIMUTH: 225
AXIS TILT: -10 DEGS.



3D SHADE PLOT

AMERIGAS
GLENDALE, AZ
STORAGE WELL NO. 3
THUR. MAR. 4, 1999

VIEWING AZIMUTH: 315
AXIS TILT: -10 DEGS.



SONARWIRE INC.
Wall Ranges versus Depth (ft.)

AMERIGAS
GLENDALE, AZ

STORAGE WELL NO. 3
Thu, Mar 4, 1999

DEPTH: 1553 TILT: 0 RANGE: 12.0 VOS: 2878

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	2.4	2.3	2.3	2.2	2.2	2.2	2.3	2.3
22.5	2.3	2.2	2.2	2.2	2.2	2.3	2.5	2.7
45.0	3.1	3.4	3.4	3.4	3.4	3.4	3.4	3.3
67.5	3.2	3.2	3.1	3.1	3.0	3.0	3.0	3.0
90.0	3.0	2.9	2.9	2.9	2.9	2.9	2.9	2.9
112.5	2.9	2.8	2.8	2.8	2.8	2.8	2.7	2.7
135.0	2.7	2.6	2.6	2.5	2.5	2.5	2.4	2.4
157.5	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.4
180.0	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
202.5	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3
225.0	2.2	2.3	2.3	2.2	2.3	2.3	2.3	2.3
247.5	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
270.0	2.3	2.3	2.2	2.3	2.3	2.4	2.4	2.3
292.5	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2
315.0	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3
337.5	2.2	2.2	2.3	2.3	2.3	2.3	2.4	2.4

DEPTH: 1555 TILT: 0 RANGE: 12.0 VOS: 2872

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2
22.5	2.2	2.2	2.3	2.3	2.4	2.4	2.5	2.5
45.0	2.5	2.6	2.6	2.6	2.6	2.6	2.6	2.7
67.5	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.9
90.0	2.8	2.7	2.8	2.7	2.8	2.7	2.7	2.7
112.5	2.7	2.7	2.6	2.6	2.6	2.6	2.6	2.5
135.0	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.4
157.5	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3
180.0	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2
202.5	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.2
225.0	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3
247.5	2.3	2.3	2.3	2.4	2.4	2.3	2.3	2.3
270.0	2.3	2.3	2.4	2.4	2.4	2.3	2.3	2.3
292.5	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4
315.0	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3
337.5	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1

DEPTH: 1560 TILT: 0 RANGE: 12.7 VOS: 3044

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
22.5	2.7	2.8	3.0	3.1	3.1	3.1	3.1	3.0
45.0	3.0	3.0	3.1	3.2	3.2	3.3	3.3	3.3
67.5	3.3	3.4	3.4	3.4	3.4	3.4	3.3	3.3
90.0	3.2	3.2	3.1	3.1	3.1	3.1	3.1	3.1
112.5	3.1	3.1	3.0	3.0	3.0	3.0	3.0	3.0
135.0	3.0	3.0	3.0	3.1	3.1	3.1	3.1	3.1
157.5	3.1	3.1	3.0	3.0	3.0	3.0	3.0	3.0
180.0	3.0	3.0	3.1	3.1	3.0	3.0	3.0	2.9
202.5	2.9	2.8	2.6	2.6	2.5	2.5	2.6	2.6
225.0	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
247.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
270.0	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
292.5	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.7
315.0	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
337.5	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7

DEPTH: 1570 TILT: 0 RANGE: 12.7 VOS: 3044

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
22.5	3.4	3.4	3.4	3.4	3.4	3.4	3.3	3.3
45.0	3.3	3.3	3.4	3.4	3.4	3.4	3.3	3.3
67.5	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
90.0	3.3	3.3	3.3	3.4	3.3	3.3	3.3	3.3
112.5	3.3	3.4	3.3	3.3	3.3	3.3	3.3	3.2
135.0	3.3	3.3	3.3	3.3	3.3	3.4	3.3	3.3
157.5	3.3	3.3	3.3	3.2	3.2	3.2	3.2	3.2
180.0	3.2	3.2	3.1	3.1	3.1	3.1	3.1	3.1
202.5	3.1	3.1	3.0	3.0	2.9	3.0	3.0	3.0
225.0	3.0	3.0	3.0	3.0	2.9	2.8	2.8	2.8
247.5	2.8	2.8	2.9	3.0	3.0	3.0	3.0	2.9
270.0	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
292.5	3.0	3.0	3.0	3.0	3.1	3.1	3.1	3.1
315.0	3.1	3.2	3.2	3.2	3.3	3.3	3.3	3.3
337.5	3.3	3.3	3.4	3.4	3.4	3.4	3.4	3.4

DEPTH: 1575 TILT: 0 RANGE: 12.7 VOS: 3044

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	3.7	3.8	3.7	3.8	3.8	3.9	3.8	3.8
22.5	3.8	3.8	3.7	3.9	4.0	4.0	5.4	5.4
45.0	5.5	5.7	5.7	5.7	5.7	5.8	6.0	6.0
67.5	5.9	6.0	6.0	5.9	6.0	5.8	5.6	5.5
90.0	5.5	5.5	5.5	5.4	5.3	5.1	5.0	5.0
112.5	4.5	4.6	4.6	4.7	4.7	4.7	4.4	4.5
135.0	4.5	4.3	4.1	3.2	3.1	3.2	3.2	3.2
157.5	3.2	3.1	3.1	3.0	3.0	3.0	2.9	2.9
180.0	2.8	2.8	2.8	2.8	2.8	2.8	2.7	2.7
202.5	2.7	2.7	2.6	2.6	2.7	2.7	2.7	2.7
225.0	2.7	2.7	2.8	2.7	2.7	2.7	2.8	2.8
247.5	2.8	2.8	2.8	2.8	2.8	2.8	2.9	2.9
270.0	3.0	3.0	3.0	3.0	3.1	3.1	3.1	3.2
292.5	3.1	3.1	3.2	3.2	3.2	3.2	3.2	3.2
315.0	3.2	3.2	3.3	3.4	3.4	3.4	3.4	3.5
337.5	3.5	3.5	3.5	3.6	3.6	3.6	3.7	3.7

DEPTH: 1580 TILT: 0 RANGE: 12.7 VOS: 3044

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	3.7	3.7	3.8	3.7	3.7	3.7	3.8	3.8
22.5	3.8	3.8	3.8	3.8	3.9	3.9	4.0	4.1
45.0	4.4	4.9	5.0	5.1	5.1	5.1	5.1	5.1
67.5	5.2	5.2	5.2	5.3	5.3	5.4	5.4	5.4
90.0	5.4	5.2	5.1	5.0	4.8	4.6	4.1	4.0
112.5	3.9	3.8	3.7	3.6	3.8	3.7	3.5	3.5
135.0	3.6	3.5	3.5	3.5	3.5	3.5	3.5	3.5
157.5	3.4	3.4	3.4	3.4	3.4	3.3	3.3	3.3
180.0	3.3	3.3	3.3	3.2	3.2	3.2	3.2	3.2
202.5	3.2	3.2	3.3	3.2	3.2	3.2	3.2	3.2
225.0	3.2	3.2	3.2	3.2	3.2	3.1	3.1	3.2
247.5	3.2	3.3	3.3	3.3	3.3	3.3	3.3	3.3
270.0	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.5
292.5	3.5	3.4	3.5	3.6	3.6	3.6	3.6	3.6
315.0	3.6	3.5	3.5	3.5	3.6	3.6	3.6	3.8
337.5	3.8	3.8	3.8	3.8	3.8	3.8	3.7	3.7

DEPTH: 1590 TILT: 0 RANGE: 12.7 VOS: 3044

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	4.3	4.3	4.4	4.3	4.3	4.3	4.4	4.4
22.5	4.8	5.0	5.3	5.3	5.5	5.8	6.0	6.1
45.0	6.1	6.3	6.5	6.7	6.8	6.9	7.0	7.0
67.5	6.9	6.5	6.2	6.2	6.2	6.2	6.2	6.1
90.0	6.1	6.0	5.7	5.4	5.0	4.8	4.7	4.7
112.5	4.7	4.7	4.7	4.7	4.7	4.6	4.6	4.6
135.0	4.6	4.5	4.3	4.2	4.1	4.1	4.0	4.0
157.5	4.0	3.9	3.8	3.7	3.8	3.8	3.6	3.6
180.0	3.6	3.6	3.5	3.5	3.4	3.4	3.4	3.4
202.5	3.4	3.4	3.4	3.4	3.4	3.3	3.2	3.2
225.0	3.2	3.2	3.2	3.2	3.2	3.2	3.3	3.3
247.5	3.3	3.3	3.3	3.3	3.3	3.2	3.2	3.2
270.0	3.3	3.3	3.3	3.3	3.4	3.3	3.3	3.4
292.5	3.4	3.5	3.5	3.5	3.5	3.5	3.6	3.6
315.0	3.6	3.6	3.6	3.6	3.6	3.8	3.8	3.8
337.5	3.9	3.9	4.0	4.0	4.0	4.1	4.2	4.3

DEPTH: 1595 TILT: 0 RANGE: 12.7 VOS: 3044

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	4.3	4.5	4.5	4.9	5.0	5.2	5.4	5.8
22.5	5.8	5.9	5.8	5.8	5.8	5.8	5.9	5.8
45.0	5.9	5.9	5.9	6.0	5.9	5.9	6.0	6.0
67.5	6.0	6.1	6.2	6.2	6.2	6.3	6.4	6.4
90.0	6.3	6.3	6.3	6.3	6.3	6.2	6.0	5.9
112.5	5.8	5.7	5.5	5.5	4.8	4.6	4.5	4.5
135.0	4.5	4.4	4.3	4.3	4.3	4.2	4.1	4.0
157.5	3.9	3.8	3.7	3.7	3.6	3.5	3.5	3.5
180.0	3.4	3.4	3.3	3.3	3.3	3.3	3.3	3.3
202.5	3.3	3.3	3.2	3.2	3.2	3.2	3.2	3.2
225.0	3.3	3.3	3.3	3.2	3.2	3.2	3.3	3.3
247.5	3.3	3.3	3.3	3.3	3.3	3.4	3.4	3.4
270.0	3.4	3.5	3.5	3.5	3.6	3.6	3.6	3.6
292.5	3.6	3.7	3.7	3.7	3.7	3.8	3.8	3.9
315.0	3.8	3.8	3.7	3.7	3.7	3.7	3.8	3.9
337.5	4.1	4.1	4.1	4.2	4.2	4.2	4.3	4.3

DEPTH: 1600 TILT: 0 RANGE: 12.7 VOS: 3044

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	5.0	5.1	5.2	5.3	5.3	5.3	5.3	5.3
22.5	5.3	5.3	5.4	5.5	5.6	5.6	5.6	5.6
45.0	5.6	5.5	5.5	5.5	5.5	5.5	5.5	5.4
67.5	5.4	5.3	5.2	5.2	5.2	5.2	5.1	5.2
90.0	5.1	5.1	5.0	5.0	5.0	5.0	5.0	4.9
112.5	4.8	4.8	4.8	4.7	4.7	4.6	4.7	4.5
135.0	4.4	4.4	4.3	4.3	4.2	4.2	4.0	4.0
157.5	3.9	3.8	3.8	3.6	3.5	3.4	3.4	3.4
180.0	3.4	3.4	3.3	3.4	3.3	3.3	3.3	3.3
202.5	3.3	3.4	3.3	3.3	3.3	3.3	3.3	3.3
225.0	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
247.5	3.3	3.4	3.4	3.4	3.4	3.4	3.5	3.5
270.0	3.6	3.6	3.6	3.5	3.6	3.6	3.6	3.6
292.5	3.6	3.9	3.9	3.9	4.0	4.1	4.2	4.2
315.0	4.3	4.3	4.4	4.5	4.5	4.6	4.6	4.6
337.5	4.6	4.7	4.7	4.8	4.8	4.9	4.9	4.9

DEPTH: 1605 TILT: 0 RANGE: 12.7 VOS: 3044

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	4.3	4.3	4.3	4.5	4.6	4.6	4.7	4.8
22.5	4.8	4.8	4.8	4.9	5.0	5.0	5.0	5.0
45.0	5.0	5.0	5.1	5.2	5.2	5.2	5.2	5.2
67.5	5.3	5.3	5.4	5.5	5.7	5.6	5.5	5.5
90.0	5.6	5.5	5.5	5.5	5.6	5.6	5.6	5.6
112.5	5.6	5.6	5.6	5.5	5.5	5.4	5.4	5.3
135.0	5.2	5.2	5.1	5.0	5.0	4.9	4.8	4.8
157.5	4.8	4.8	4.7	4.6	4.6	4.6	4.6	4.6
180.0	4.5	4.5	4.3	4.2	4.2	4.2	4.1	4.0
202.5	3.9	3.8	3.8	3.7	3.6	3.6	3.5	3.5
225.0	3.5	3.5	3.5	3.5	3.5	3.4	3.4	3.4
247.5	3.4	3.4	3.3	3.3	3.3	3.3	3.3	3.4
270.0	3.4	3.4	3.3	3.3	3.3	3.3	3.3	3.3
292.5	3.3	3.3	3.3	3.3	3.4	3.4	3.5	3.5
315.0	3.6	3.6	3.6	3.6	3.8	3.8	3.9	3.9
337.5	3.9	3.9	3.9	4.0	4.0	4.1	4.2	4.3

DEPTH: 1610 TILT: 0 RANGE: 12.7 VOS: 3044

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	4.0	4.0	4.1	4.1	4.1	4.2	4.2	4.3
22.5	4.3	4.3	4.4	4.5	4.6	4.7	4.8	4.9
45.0	4.9	5.0	5.0	5.1	5.1	5.1	5.1	5.2
67.5	5.2	5.4	5.3	5.4	5.3	5.3	5.4	5.4
90.0	5.3	5.1	4.9	4.9	4.8	4.8	4.7	4.7
112.5	4.6	4.6	4.5	4.5	4.5	4.6	4.6	4.7
135.0	4.8	4.6	4.8	4.7	4.8	4.8	4.8	4.8
157.5	4.7	4.7	4.6	4.5	4.5	4.3	4.3	4.3
180.0	4.3	4.3	4.2	4.1	4.0	3.8	3.6	3.5
202.5	3.4	3.4	3.3	3.3	3.3	3.3	3.3	3.3
225.0	3.3	3.2	3.1	3.1	3.0	3.0	3.0	3.0
247.5	3.0	3.0	3.0	3.0	3.0	2.9	2.9	2.9
270.0	2.8	2.9	2.9	2.9	2.9	2.9	3.0	3.0
292.5	3.0	3.0	3.1	3.1	3.2	3.1	3.1	3.2
315.0	3.2	3.2	3.2	3.4	3.4	3.4	3.4	3.4
337.5	3.4	3.4	3.4	3.5	3.7	3.8	3.9	3.9

DEPTH: 1612 TILT: 0 RANGE: 17.8 VOS: 3044

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	10.1	10.1	10.1	10.1	10.1	10.2	10.1	10.3
22.5	10.3	10.3	10.3	10.1	9.8	9.7	9.5	9.3
45.0	9.2	8.9	8.7	8.6	8.6	8.6	8.7	8.9
67.5	8.9	9.1	9.3	9.4	9.5	9.6	9.9	10.1
90.0	10.1	10.1	10.2	10.3	10.3	10.3	10.4	10.4
112.5	10.4	10.5	10.6	10.4	10.4	10.4	10.5	10.5
135.0	10.2	10.2	10.1	10.2	8.5	7.6	7.2	7.0
157.5	6.9	6.8	6.7	6.3	6.0	5.9	5.8	5.4
180.0	5.2	5.1	5.1	5.1	5.1	5.1	5.1	5.1
202.5	5.1	5.0	5.0	5.0	4.9	4.7	4.8	4.8
225.0	4.8	4.7	4.7	4.7	4.6	4.4	3.8	3.8
247.5	3.8	3.6	3.6	3.6	3.6	3.6	3.6	3.6
270.0	3.5	3.5	3.5	3.5	3.5	3.6	3.6	3.7
292.5	4.4	4.4	4.4	4.4	4.4	4.5	4.5	4.5
315.0	4.5	4.6	4.6	4.6	4.6	4.7	4.9	6.0
337.5	6.2	6.5	7.1	7.8	9.7	10.0	10.0	10.1

DEPTH: 1615 TILT: 0 RANGE: 25.4 VOS: 3044

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	11.4	11.5	11.6	11.6	11.6	11.5	11.5	11.6
22.5	11.8	11.8	11.9	13.9	14.1	14.2	14.1	14.2
45.0	14.2	14.2	14.2	14.2	14.2	14.2	16.8	18.0
67.5	18.1	18.2	18.7	18.9	18.9	18.8	18.8	18.8
90.0	18.9	18.6	17.9	13.9	13.9	13.8	13.7	13.7
112.5	13.7	13.7	13.6	13.5	13.5	13.5	13.6	13.5
135.0	13.5	13.3	13.2	12.8	12.4	12.0	11.5	11.1
157.5	6.5	6.7	6.8	6.8	6.8	6.8	6.9	7.0
180.0	7.1	7.7	8.0	8.2	8.2	8.3	8.3	8.4
202.5	8.5	8.7	8.6	8.6	8.6	8.7	8.8	8.8
225.0	8.9	9.0	9.1	9.4	9.4	9.7	9.9	10.0
247.5	10.1	10.2	10.2	10.3	10.3	10.1	10.0	10.1
270.0	10.2	10.4	10.5	10.6	10.7	10.8	10.9	11.2
292.5	11.2	11.2	11.2	11.3	11.2	11.2	11.3	11.3
315.0	11.3	11.2	11.1	11.1	11.1	11.1	11.1	10.9
337.5	10.9	11.1	11.2	11.2	11.2	11.3	11.4	11.4

DEPTH: 1620 TILT: 0 RANGE: 25.4 VOS: 3044

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	9.9	10.0	10.1	10.1	10.1	10.2	10.3	10.2
22.5	10.2	10.4	10.4	13.8	13.8	13.9	14.1	14.2
45.0	14.2	13.9	13.8	13.7	13.7	13.7	13.7	13.7
67.5	13.7	13.7	13.5	13.5	13.5	13.5	13.5	13.5
90.0	13.5	13.5	13.6	13.7	13.7	13.6	13.4	13.3
112.5	13.3	13.3	13.3	13.2	13.1	12.9	12.8	12.7
135.0	12.6	12.4	12.4	12.6	12.6	12.4	12.3	12.1
157.5	12.1	11.9	11.7	11.5	11.3	11.1	10.7	10.5
180.0	10.4	10.3	10.4	10.2	10.5	10.6	10.4	9.7
202.5	9.3	8.9	8.8	8.8	8.3	7.7	7.2	6.8
225.0	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
247.5	6.8	7.0	7.1	7.5	8.3	8.4	8.4	8.4
270.0	8.5	8.5	8.5	8.5	8.5	8.4	8.5	8.6
292.5	8.9	9.0	9.2	9.0	9.0	9.1	9.2	9.1
315.0	9.2	9.0	8.9	8.9	8.9	8.8	8.8	8.7
337.5	8.7	8.8	9.0	9.2	9.4	9.5	9.7	9.8

DEPTH: 1630 TILT: 0 RANGE: 25.4 VOS: 3044

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	11.2	11.3	11.3	11.4	11.4	11.6	11.7	11.7
22.5	11.7	11.7	11.9	12.0	12.1	12.2	12.2	12.3
45.0	12.4	12.4	12.4	12.6	12.8	12.9	13.2	13.5
67.5	13.8	13.9	13.9	13.8	13.7	13.6	13.6	13.6
90.0	13.7	13.8	13.8	13.8	13.6	13.6	13.3	13.2
112.5	13.0	12.8	12.7	12.7	12.7	12.7	12.7	12.7
135.0	12.7	12.6	12.6	12.6	12.4	12.3	12.3	12.3
157.5	12.1	12.1	12.0	11.8	11.7	11.5	11.2	10.7
180.0	10.5	10.3	9.9	9.5	9.1	8.9	8.9	8.7
202.5	8.6	8.6	8.7	8.7	8.6	8.5	8.5	8.5
225.0	8.5	8.5	8.5	8.5	8.5	8.5	8.4	8.4
247.5	8.4	8.5	8.4	8.4	8.3	8.3	8.4	8.4
270.0	8.3	8.3	8.4	8.3	8.3	8.3	8.4	8.6
292.5	8.8	8.8	8.9	9.0	9.1	9.3	9.5	9.8
315.0	10.0	10.1	10.3	10.4	10.5	10.5	10.6	10.7
337.5	10.7	10.8	10.9	10.9	11.1	11.1	11.2	11.3

DEPTH: 1640 TILT: 0 RANGE: 25.4 VOS: 3044

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	11.6	11.6	11.6	11.5	11.6	11.7	11.8	11.9
22.5	12.0	12.1	12.2	12.2	12.3	12.4	12.7	13.0
45.0	13.6	14.2	14.6	15.1	15.5	15.8	16.0	16.0
67.5	16.1	16.4	16.6	16.6	16.8	17.1	17.2	17.3
90.0	17.0	16.7	16.5	16.0	15.3	15.2	15.2	14.8
112.5	14.7	14.6	14.6	14.4	14.5	14.4	14.4	14.4
135.0	14.4	14.3	13.9	13.7	13.5	13.4	13.3	12.9
157.5	11.8	11.2	10.8	10.8	10.6	10.5	10.4	10.3
180.0	10.2	10.1	10.1	10.0	9.9	9.8	9.8	9.7
202.5	9.5	9.4	9.3	9.3	9.3	9.3	9.1	9.1
225.0	9.1	9.2	9.2	9.2	9.1	9.1	9.1	9.0
247.5	9.0	9.1	9.1	9.0	9.0	9.1	9.1	9.2
270.0	9.2	9.2	9.3	9.4	9.5	9.5	9.7	9.7
292.5	9.8	9.8	9.8	9.9	10.0	10.0	10.4	10.5
315.0	10.6	10.6	10.9	11.2	11.3	11.3	11.3	11.2
337.5	11.2	11.2	11.2	11.2	11.3	11.4	11.4	11.5

DEPTH: 1650 TILT: 0 RANGE: 25.4 VOS: 3045

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	12.3	12.6	12.7	12.8	12.9	13.2	13.4	13.6
22.5	13.6	14.1	14.0	14.0	14.0	14.0	14.1	14.2
45.0	14.4	14.6	15.1	15.9	16.4	17.7	18.1	18.2
67.5	18.2	18.0	17.8	17.5	17.1	16.9	16.7	16.4
90.0	16.3	16.3	16.2	16.2	16.2	16.2	15.3	14.6
112.5	14.3	14.0	13.8	13.7	13.6	13.5	13.4	13.4
135.0	13.4	13.7	13.7	14.0	13.6	13.4	13.1	13.1
157.5	13.0	12.5	11.9	11.8	11.3	11.1	10.8	10.6
180.0	10.5	10.3	10.2	10.2	10.1	10.1	9.9	9.9
202.5	9.8	9.8	9.8	9.8	9.7	9.6	9.6	9.4
225.0	9.3	9.6	9.6	9.4	9.4	9.6	9.7	9.7
247.5	9.4	9.4	9.3	9.2	9.2	9.3	9.3	9.3
270.0	9.4	9.3	9.4	9.4	9.9	9.9	9.9	10.0
292.5	10.0	10.1	10.1	10.1	10.1	10.1	10.1	10.1
315.0	10.2	10.3	10.3	10.3	10.4	10.5	10.5	10.6
337.5	10.8	11.4	11.7	11.9	12.1	12.2	12.3	12.3

DEPTH: 1660 TILT: 0 RANGE: 38.1 VOS: 3045

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	12.2	12.2	12.4	12.6	12.7	12.9	12.9	13.2
22.5	13.4	13.7	13.8	14.0	14.0	14.2	14.6	15.0
45.0	15.1	15.1	14.8	14.8	14.8	17.7	20.3	21.6
67.5	22.0	22.4	22.5	22.7	22.2	22.4	22.2	22.0
90.0	21.1	20.4	19.8	18.2	18.0	17.9	17.7	17.7
112.5	17.7	17.4	17.1	16.7	16.6	16.1	16.1	15.3
135.0	13.4	13.2	12.9	12.9	12.7	12.6	12.4	12.1
157.5	11.9	11.7	11.7	11.4	11.1	10.9	10.9	10.8
180.0	10.8	10.8	10.8	10.5	10.5	10.5	10.5	10.3
202.5	10.3	10.1	10.3	10.1	10.0	9.8	9.8	9.8
225.0	9.8	9.5	9.7	9.5	9.5	9.3	9.3	9.3
247.5	9.2	9.2	9.3	9.2	9.2	9.2	9.3	9.3
270.0	9.5	9.5	9.7	9.8	10.0	10.0	10.0	10.0
292.5	10.1	10.1	10.1	10.3	10.3	10.3	10.3	10.3
315.0	10.5	10.6	10.6	10.6	10.6	10.6	10.8	10.9
337.5	11.3	11.3	11.4	11.6	11.6	11.6	11.6	11.9

DEPTH: 1670 TILT: 0 RANGE: 38.1 VOS: 3045

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	15.0	15.3	15.8	15.8	16.1	16.3	17.1	17.1
22.5	17.7	18.2	18.2	18.5	18.8	19.0	22.2	22.2
45.0	22.4	22.5	22.4	18.5	18.0	17.7	17.4	17.2
67.5	16.9	16.7	16.3	15.9	15.9	15.6	15.6	15.4
90.0	15.3	15.1	15.1	15.0	15.0	15.0	15.0	15.0
112.5	14.8	14.8	14.8	14.8	14.6	14.6	14.6	14.5
135.0	14.2	14.2	13.7	13.5	12.9	12.7	12.6	12.2
157.5	12.1	11.9	11.9	11.7	11.3	11.1	10.9	10.8
180.0	10.5	10.3	10.1	10.0	9.8	9.8	9.8	9.8
202.5	9.7	9.7	9.7	9.7	9.7	9.5	9.7	9.7
225.0	9.7	9.7	9.7	9.8	9.8	9.8	9.8	9.8
247.5	9.8	9.8	9.8	9.8	10.0	10.0	10.1	10.1
270.0	10.1	10.1	10.3	10.5	10.5	10.5	10.5	10.6
292.5	10.6	10.9	11.3	11.3	11.3	11.3	11.4	11.6
315.0	11.7	11.7	11.9	11.9	11.9	11.9	12.1	12.1
337.5	12.2	12.7	12.9	13.2	13.5	13.8	14.8	15.0

DEPTH: 1680 TILT: 0 RANGE: 38.1 VOS: 3045

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	12.6	12.6	12.9	13.0	13.2	13.2	13.2	13.4
22.5	13.2	13.4	19.0	19.0	19.0	19.0	18.8	18.7
45.0	18.5	18.3	18.2	18.2	18.0	17.9	17.9	17.9
67.5	17.7	17.7	17.4	17.2	17.1	16.9	16.9	16.9
90.0	16.7	16.7	16.4	16.4	16.3	16.3	16.1	15.6
112.5	15.1	15.1	15.1	14.8	14.8	14.5	14.5	14.3
135.0	14.3	14.0	13.7	13.4	13.2	12.9	12.1	11.6
157.5	11.4	11.4	11.4	11.3	11.1	10.9	10.9	10.9
180.0	10.8	10.6	10.6	10.5	10.5	10.5	10.5	10.3
202.5	10.3	10.3	10.1	10.1	10.0	9.8	9.8	9.8
225.0	9.8	9.8	9.7	9.7	9.7	9.7	9.7	9.5
247.5	9.7	9.5	9.7	9.5	9.7	9.7	9.7	9.7
270.0	9.7	9.8	10.1	10.0	10.1	10.1	10.1	10.3
292.5	10.3	10.3	10.3	10.1	10.5	10.5	10.6	10.6
315.0	10.6	10.8	10.9	11.1	11.3	11.6	11.7	11.7
337.5	11.9	11.9	11.9	12.1	12.1	12.2	12.2	12.4

DEPTH: 1690 TILT: 0 RANGE: 38.1 VOS: 3045

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	13.0	13.5	13.7	14.3	14.8	15.6	15.8	15.8
22.5	16.1	16.3	16.4	16.9	17.4	17.4	17.4	17.4
45.0	17.4	17.4	17.4	17.5	17.5	17.7	17.7	17.7
67.5	17.7	17.7	17.7	17.7	17.5	17.2	17.2	17.2
90.0	17.2	17.1	17.1	17.1	16.7	16.4	16.3	16.1
112.5	16.1	15.9	15.9	15.9	15.9	15.9	15.8	15.6
135.0	15.4	15.1	15.1	15.0	14.3	13.8	13.4	13.2
157.5	12.9	12.9	12.7	12.4	12.4	12.4	12.2	12.1
180.0	11.7	11.7	11.6	11.3	11.1	10.8	10.9	10.8
202.5	10.6	10.5	10.5	10.5	10.5	10.6	10.6	10.5
225.0	10.5	10.3	10.3	10.3	10.3	10.1	10.1	10.1
247.5	10.1	10.1	10.0	10.1	10.1	10.1	10.1	10.3
270.0	10.3	10.3	10.3	10.3	10.5	10.6	10.6	10.6
292.5	10.6	10.6	10.6	10.6	10.8	10.8	10.8	10.9
315.0	10.9	10.9	10.9	11.1	11.4	11.4	11.6	11.6
337.5	11.6	11.9	12.1	12.1	12.4	12.6	12.7	12.9

DEPTH: 1700 TILT: 0 RANGE: 38.1 VOS: 3045

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	14.6	14.8	14.8	15.0	15.1	15.3	15.3	15.4
22.5	15.9	16.1	16.3	16.6	17.1	17.1	17.5	17.9
45.0	17.9	17.5	17.5	17.2	17.2	17.1	16.9	16.9
67.5	16.9	16.7	16.7	16.6	16.6	16.6	16.4	16.4
90.0	16.3	16.1	16.1	16.1	16.1	15.9	15.9	15.9
112.5	15.8	15.4	15.4	15.1	14.6	14.2	14.2	13.7
135.0	13.5	13.5	13.5	13.2	13.2	13.2	13.2	13.0
157.5	12.6	12.4	12.2	12.2	11.9	11.7	11.6	11.4
180.0	11.1	11.1	11.1	11.1	10.9	10.9	10.9	10.8
202.5	10.6	10.8	10.5	10.3	10.5	10.3	10.3	10.3
225.0	10.5	10.5	10.3	10.3	10.3	10.3	10.3	10.3
247.5	10.3	10.5	10.5	10.6	10.6	10.6	10.8	10.8
270.0	10.8	10.9	10.9	10.9	11.3	11.4	11.6	11.4
292.5	11.4	11.6	11.6	11.9	12.1	12.6	12.9	12.7
315.0	12.7	12.9	13.2	13.0	13.2	13.7	13.7	13.7
337.5	13.7	14.0	13.8	13.8	14.0	14.3	14.3	14.5

DEPTH: 1710 TILT: 0 RANGE: 38.1 VOS: 3046

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	14.2	14.5	14.5	14.8	15.0	15.3	15.5	15.5
22.5	15.5	15.5	15.5	15.5	15.6	15.8	15.8	33.6
45.0	33.8	33.8	33.8	33.8	27.2	26.9	26.2	25.9
67.5	25.8	25.8	26.1	26.2	25.9	25.8	25.8	25.9
90.0	25.9	26.1	26.4	26.6	26.6	26.7	16.3	16.3
112.5	16.3	16.1	15.9	15.8	15.6	15.5	15.1	15.0
135.0	15.0	14.5	14.2	14.2	14.0	13.7	13.5	13.4
157.5	13.2	13.4	13.0	12.9	12.9	12.7	12.4	12.4
180.0	12.1	11.8	11.6	11.4	11.3	11.3	11.1	11.3
202.5	10.9	10.9	10.9	11.1	10.9	10.9	10.8	10.8
225.0	10.8	10.6	10.5	10.6	10.6	10.6	10.5	10.5
247.5	10.5	10.5	10.5	10.5	10.6	10.6	10.8	10.8
270.0	10.9	10.8	10.8	10.8	10.9	11.1	11.3	11.1
292.5	11.4	11.4	11.4	11.3	11.4	11.8	11.9	11.9
315.0	12.2	12.7	12.9	13.0	13.0	13.0	13.0	13.2
337.5	13.4	13.4	13.4	13.5	13.7	13.7	13.8	14.0

DEPTH: 1715 TILT: 0 RANGE: 38.1 VOS: 3046

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	15.1	15.1	15.1	15.3	15.5	15.5	15.5	15.6
22.5	15.6	15.9	16.1	29.8	30.1	30.3	30.3	30.3
45.0	30.1	29.1	28.7	28.3	27.8	25.3	25.1	25.1
67.5	25.1	25.3	25.4	25.4	26.4	26.4	26.7	27.0
90.0	27.2	27.4	27.7	27.7	27.8	28.2	28.2	28.2
112.5	28.2	28.0	27.5	27.2	26.9	26.7	26.6	26.1
135.0	24.5	23.0	22.2	21.1	19.5	15.6	15.1	15.0
157.5	14.8	14.6	14.5	14.2	14.2	14.0	13.7	12.9
180.0	13.0	12.9	12.7	12.4	12.4	12.2	12.1	11.9
202.5	11.8	11.8	11.6	11.6	11.4	11.3	11.3	11.3
225.0	11.3	11.1	11.3	11.1	11.1	11.1	11.1	11.1
247.5	11.1	11.3	11.1	11.1	11.1	11.3	11.1	11.3
270.0	11.3	11.4	11.4	11.4	11.6	11.8	11.9	11.9
292.5	11.9	11.9	12.1	12.1	12.2	12.2	12.2	12.6
315.0	12.6	12.7	13.0	13.2	13.2	13.4	13.2	13.4
337.5	13.5	13.8	14.0	14.2	14.0	14.3	14.5	14.6

DEPTH: 1720 TILT: 0 RANGE: 38.1 VOS: 3046

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	15.1	15.3	15.3	15.3	15.6	15.6	15.6	20.9
22.5	21.2	22.1	22.7	23.7	24.8	25.6	26.4	26.9
45.0	27.0	27.0	27.0	27.2	27.2	27.0	25.9	24.3
67.5	23.2	21.9	21.7	21.7	21.7	21.9	21.9	21.9
90.0	21.9	21.9	22.1	22.2	22.2	22.2	21.9	21.9
112.5	21.9	21.7	21.7	21.7	21.4	21.4	21.2	21.1
135.0	21.1	21.1	21.1	21.1	20.9	20.4	20.3	19.8
157.5	19.2	18.0	17.5	16.9	16.4	16.1	16.1	15.9
180.0	16.1	15.9	15.9	15.8	15.8	15.3	15.1	15.0
202.5	14.5	14.5	14.2	14.0	14.0	14.0	14.0	14.0
225.0	13.8	13.2	12.7	12.7	12.6	12.4	12.2	12.1
247.5	11.9	11.8	11.8	11.8	11.9	11.8	11.8	11.6
270.0	11.6	11.6	11.6	11.8	11.8	11.9	11.9	11.9
292.5	12.1	12.2	12.4	12.4	12.4	12.4	12.6	12.6
315.0	12.6	12.7	12.9	12.9	13.0	13.2	13.4	13.5
337.5	13.8	14.0	14.2	14.3	14.6	15.0	15.0	15.0

DEPTH: 1730 TILT: 0 RANGE: 38.1 VOS: 3046

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	15.3	15.5	15.6	15.9	16.3	16.7	16.9	17.4
22.5	18.2	19.0	20.0	20.0	20.1	20.1	20.3	20.3
45.0	20.3	20.1	20.0	20.0	20.0	20.3	20.4	20.6
67.5	21.1	21.2	21.7	21.9	22.1	22.2	22.1	22.1
90.0	22.1	22.1	22.1	22.1	22.1	21.9	21.9	21.6
112.5	21.4	21.1	20.6	20.1	18.3	17.9	17.4	15.9
135.0	15.8	15.6	15.5	15.1	15.0	14.8	14.6	14.6
157.5	14.6	14.5	14.3	14.2	14.0	13.8	13.8	13.8
180.0	13.7	13.5	13.2	13.4	12.9	12.7	12.6	12.2
202.5	12.2	12.1	11.9	11.8	11.8	11.9	11.8	11.8
225.0	11.8	11.6	11.4	11.6	11.6	11.3	11.3	11.3
247.5	11.3	11.4	11.3	11.3	11.3	11.3	11.4	11.4
270.0	11.4	11.4	11.4	11.4	11.4	11.4	11.6	11.8
292.5	11.8	11.8	11.8	12.1	12.1	12.1	12.1	12.1
315.0	12.2	12.7	12.9	13.2	13.4	13.8	14.3	14.5
337.5	14.8	15.0	15.0	15.0	15.0	15.0	15.3	15.3

DEPTH: 1740 TILT: 0 RANGE: 38.1 VOS: 3046

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	16.9	17.1	17.4	17.4	17.4	17.4	17.4	17.5
22.5	17.5	17.4	17.4	17.4	17.5	17.7	17.9	17.9
45.0	17.9	18.0	18.2	17.9	18.0	18.2	18.3	18.5
67.5	18.7	19.0	18.8	19.0	19.3	19.3	19.5	19.3
90.0	19.3	19.3	19.3	19.2	19.0	19.0	18.8	18.8
112.5	18.8	18.8	18.5	18.3	18.3	17.9	17.7	17.4
135.0	17.2	17.1	16.9	16.7	16.4	16.3	15.9	15.6
157.5	15.5	15.1	15.0	14.6	14.6	14.5	14.5	14.3
180.0	14.0	13.8	13.5	13.4	13.4	13.4	13.2	13.0
202.5	12.9	12.7	12.6	12.4	12.1	12.1	11.9	11.8
225.0	11.8	11.8	11.8	11.8	11.9	11.9	11.9	11.9
247.5	11.9	11.9	11.9	12.1	12.1	12.1	12.1	12.1
270.0	12.1	12.1	12.1	12.2	12.2	12.2	12.2	12.2
292.5	12.2	12.2	12.2	12.4	12.7	13.0	13.0	13.0
315.0	13.8	13.8	14.0	14.2	14.2	14.3	14.2	14.3
337.5	14.3	14.5	14.5	14.6	15.1	15.8	16.3	16.7

DEPTH: 1745 TILT: 0 RANGE: 50.8 VOS: 3046

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	17.8	17.8	17.6	17.6	17.4	17.2	17.2	17.2
22.5	17.2	17.2	17.4	17.6	17.8	18.9	19.3	19.7
45.0	20.8	21.7	21.9	22.1	22.1	21.9	21.9	21.7
67.5	21.7	21.7	35.0	35.2	35.4	35.8	35.8	35.8
90.0	35.8	36.0	36.0	21.7	21.7	21.2	21.0	20.6
112.5	20.4	19.3	18.9	18.5	17.8	17.4	17.2	16.9
135.0	16.9	16.5	16.5	16.5	16.1	16.1	15.9	15.9
157.5	15.9	15.9	15.9	15.7	15.4	15.2	15.0	15.0
180.0	14.6	14.4	14.2	14.2	13.5	12.7	12.7	12.4
202.5	12.2	12.2	12.0	12.0	11.8	11.8	11.8	11.8
225.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
247.5	12.0	12.0	12.0	12.0	12.0	12.0	12.2	12.2
270.0	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.4
292.5	12.4	12.4	12.7	13.1	13.1	13.1	13.3	13.5
315.0	13.7	13.7	13.9	14.2	14.2	14.4	14.6	14.8
337.5	15.2	15.9	16.7	16.9	17.2	17.8	17.8	17.8

DEPTH: 1750 TILT: 0 RANGE: 50.8 VOS: 3046

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	18.5	18.2	18.0	18.0	18.0	17.8	18.0	18.5
22.5	18.5	18.7	18.7	18.7	18.7	18.9	19.1	19.3
45.0	19.7	33.3	33.3	33.9	34.1	34.3	34.3	34.3
67.5	34.3	34.1	33.9	33.9	33.9	33.9	33.9	33.9
90.0	34.1	34.3	34.3	34.3	34.3	34.1	34.1	33.7
112.5	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9
135.0	19.1	19.3	19.3	19.1	18.2	18.0	17.6	16.9
157.5	16.9	16.9	16.7	15.7	14.6	14.2	13.5	13.3
180.0	13.1	13.1	12.9	12.9	12.7	12.4	12.4	12.2
202.5	12.0	12.0	12.0	12.0	12.0	11.6	11.6	11.6
225.0	11.6	11.6	11.6	11.6	11.8	11.8	11.6	11.6
247.5	11.6	11.6	11.6	11.8	11.6	11.6	11.8	11.8
270.0	12.0	12.0	12.0	12.0	12.2	12.2	12.4	12.7
292.5	12.7	12.9	13.1	13.1	13.1	13.3	13.3	13.5
315.0	13.7	14.2	14.4	15.4	16.1	16.7	17.2	17.6
337.5	18.0	18.5	18.5	18.7	18.5	18.7	18.7	18.7

DEPTH: 1760 TILT: 0 RANGE: 50.8 VOS: 3046

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	26.8	26.8	27.2	27.5	27.7	28.3	29.6	30.0
22.5	30.7	31.1	31.3	31.3	31.5	31.5	31.3	31.5
45.0	31.8	32.0	32.4	32.4	32.4	32.4	32.4	32.4
67.5	32.4	32.4	32.4	32.2	31.8	31.8	31.5	31.5
90.0	31.5	31.5	31.5	31.3	31.3	31.1	30.9	30.9
112.5	30.7	30.7	30.7	30.5	27.0	24.0	21.9	20.4
135.0	18.9	17.6	17.2	16.9	16.9	16.5	16.5	16.3
157.5	16.1	15.9	15.7	15.9	15.7	15.4	15.4	15.2
180.0	15.0	15.0	15.0	15.0	15.0	15.2	15.2	15.2
202.5	15.2	15.4	15.4	15.2	15.0	15.0	15.0	14.8
225.0	14.8	14.8	14.8	14.6	14.6	14.4	14.4	14.4
247.5	14.6	14.6	14.6	14.8	14.8	14.8	15.2	15.4
270.0	15.4	15.4	15.7	15.7	15.7	19.1	19.5	20.0
292.5	23.0	23.0	23.0	23.2	23.2	23.2	19.5	19.1
315.0	18.9	19.1	19.5	21.0	21.7	22.1	23.0	23.6
337.5	24.5	25.1	25.1	25.1	25.3	25.7	26.2	26.6

DEPTH: 1770 TILT: 0 RANGE: 50.8 VOS: 3046

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	25.7	26.0	26.0	26.6	27.2	27.9	28.5	29.0
22.5	29.2	29.4	29.4	29.4	29.8	41.6	41.6	42.1
45.0	42.3	42.3	42.5	42.5	42.5	42.5	42.3	42.3
67.5	42.3	42.3	42.3	42.1	41.6	41.8	42.3	42.5
90.0	42.5	42.3	42.3	41.8	41.6	27.7	27.0	26.0
112.5	25.1	24.7	24.5	23.8	21.2	20.0	19.7	19.3
135.0	18.7	18.5	18.2	17.6	17.6	17.8	17.4	17.4
157.5	17.2	16.9	16.7	16.5	16.3	16.3	16.3	16.5
180.0	16.7	16.5	16.3	16.1	16.1	16.1	16.1	16.1
202.5	16.1	16.1	15.9	15.9	15.9	16.1	16.1	16.3
225.0	16.3	16.3	16.3	16.3	16.3	16.5	16.5	16.5
247.5	16.7	16.7	16.9	16.9	16.9	17.2	17.6	17.8
270.0	18.2	18.2	19.1	19.5	20.0	20.4	21.0	21.5
292.5	21.5	21.9	22.1	22.1	22.5	22.5	22.7	22.7
315.0	23.2	23.4	23.6	23.6	23.8	24.0	24.0	24.0
337.5	24.2	24.2	24.2	24.5	24.2	24.5	24.9	25.3

DEPTH: 1780 TILT: 0 RANGE: 63.6 VOS: 3046

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	23.1	23.9	24.7	25.5	25.8	26.3	26.3	26.3
22.5	26.8	26.8	27.6	27.9	39.7	39.7	39.7	39.7
45.0	40.2	40.2	40.0	40.0	40.2	40.2	40.2	40.5
67.5	40.5	40.5	40.2	40.2	40.2	40.0	40.0	39.7
90.0	39.7	39.7	38.6	37.6	37.6	37.6	37.3	37.3
112.5	37.3	23.3	23.3	23.3	22.5	22.3	22.0	21.7
135.0	21.5	21.2	21.2	21.2	20.9	20.4	20.4	20.1
157.5	19.0	19.0	18.5	18.2	18.0	18.0	18.0	17.7
180.0	16.9	16.6	16.4	16.4	15.8	15.8	15.6	15.8
202.5	15.8	15.8	16.1	16.1	15.8	15.8	15.8	15.8
225.0	15.8	15.8	16.1	16.1	16.1	15.8	16.1	16.4
247.5	16.6	16.6	16.9	17.2	17.2	17.2	17.4	17.7
270.0	18.0	17.7	17.7	18.0	18.5	18.5	19.0	19.6
292.5	19.8	19.8	20.1	20.1	20.1	20.4	20.7	20.9
315.0	20.9	20.9	21.2	21.2	21.2	21.5	21.5	21.5
337.5	21.5	21.5	21.7	22.0	22.5	22.5	22.5	23.1

DEPTH: 1790 TILT: 0 RANGE: 63.6 VOS: 3046

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	25.2	25.8	26.0	26.0	26.3	26.3	26.3	26.3
22.5	26.6	26.8	43.2	43.5	42.6	37.3	37.3	37.3
45.0	37.0	37.0	36.7	36.5	36.5	36.7	36.7	37.0
67.5	37.0	37.3	37.3	37.3	37.3	37.3	37.0	37.0
90.0	36.7	36.5	36.5	36.2	36.2	35.9	35.9	35.9
112.5	35.9	35.9	36.2	36.2	35.9	36.5	36.5	22.8
135.0	22.8	22.8	22.8	22.3	22.0	21.7	21.5	21.2
157.5	20.9	20.9	20.9	20.7	20.4	20.4	20.1	19.8
180.0	19.8	19.6	19.6	19.3	19.3	19.3	19.0	19.0
202.5	19.0	19.0	19.0	19.0	18.8	18.5	18.8	18.8
225.0	18.5	18.8	18.5	18.5	18.8	19.0	19.0	19.3
247.5	19.6	19.8	19.8	19.8	20.1	20.4	20.4	20.4
270.0	20.7	20.7	20.7	20.7	20.7	20.7	20.9	20.9
292.5	20.7	20.9	20.9	20.9	21.2	21.2	21.5	21.5
315.0	21.7	22.0	22.0	22.3	22.5	22.5	22.8	22.8
337.5	23.1	23.3	23.6	23.6	24.1	24.4	24.9	25.2

DEPTH: 1800 TILT: 0 RANGE: 63.6 VOS: 3047

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	29.2	29.5	29.5	47.8	47.8	47.8	47.5	47.2
22.5	37.8	37.8	37.3	37.3	37.3	37.6	37.6	37.6
45.0	37.3	37.3	37.3	37.3	37.3	37.6	37.6	37.6
67.5	37.6	37.6	37.6	37.6	37.8	37.8	37.8	37.8
90.0	37.6	37.6	37.0	36.5	36.5	36.5	36.2	36.2
112.5	36.2	36.0	35.7	34.9	34.6	34.1	34.1	34.9
135.0	36.5	37.8	40.5	41.3	41.3	41.3	41.3	25.0
157.5	25.0	25.0	25.0	24.7	24.7	24.7	24.4	24.7
180.0	24.4	23.9	23.9	23.9	23.6	23.3	22.8	22.8
202.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
225.0	22.3	22.3	22.3	22.3	22.5	22.8	22.5	22.8
247.5	23.1	22.8	22.8	22.8	22.8	22.8	23.1	23.1
270.0	23.1	23.3	23.3	23.9	23.9	24.1	24.1	24.4
292.5	24.7	24.7	25.0	25.2	25.2	25.2	25.8	26.0
315.0	26.3	26.6	26.8	26.8	26.8	27.4	27.6	27.6
337.5	27.9	27.9	28.2	28.2	28.4	28.7	29.2	29.2

DEPTH: 1810 TILT: 0 RANGE: 76.3 VOS: 3047

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	57.6	57.3	56.7	56.0	55.1	49.3	49.3	48.9
22.5	48.9	48.6	48.6	49.3	49.3	48.9	48.6	48.3
45.0	48.3	47.6	47.3	46.7	46.7	46.4	46.0	46.4
67.5	46.4	46.4	46.4	47.0	48.3	49.6	52.5	52.5
90.0	52.2	50.2	49.6	48.6	45.1	43.1	41.9	41.5
112.5	40.9	40.6	40.6	40.6	40.2	39.9	40.2	40.2
135.0	40.2	40.2	39.9	39.6	39.9	40.6	40.9	41.5
157.5	43.5	51.2	51.8	52.2	52.5	42.5	42.2	40.2
180.0	32.5	31.9	31.5	31.2	31.2	30.9	30.6	30.6
202.5	30.9	30.6	30.6	30.9	30.9	30.9	30.9	30.9
225.0	30.9	30.9	30.9	30.9	30.9	30.9	31.2	31.5
247.5	31.5	31.5	31.9	31.9	31.9	31.5	31.9	32.2
270.0	32.2	32.5	32.5	32.5	32.8	33.2	33.2	33.2
292.5	33.8	34.1	34.4	34.4	34.4	34.4	34.8	34.8
315.0	35.1	35.4	35.7	35.7	35.7	36.1	36.1	36.1
337.5	36.1	36.1	36.4	36.4	37.0	37.3	57.6	57.6

DEPTH: 1820 TILT: 0 RANGE: 101.7 VOS: 3047

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	60.5	55.8	50.2	49.8	49.8	49.4	49.4	49.4
22.5	49.4	50.2	50.7	51.9	52.4	52.4	51.9	52.4
45.0	52.8	54.1	61.0	61.0	61.0	61.4	61.8	62.7
67.5	62.2	62.2	62.2	62.7	62.7	63.1	63.1	63.1
90.0	63.5	63.5	64.0	64.0	64.4	64.8	64.8	64.8
112.5	64.4	63.5	63.5	44.2	44.2	44.2	44.6	44.6
135.0	44.6	45.1	45.1	45.1	45.5	45.9	45.9	45.9
157.5	48.9	55.4	56.7	57.5	57.1	54.9	52.8	48.9
180.0	45.1	40.3	39.1	36.9	36.5	36.1	35.6	35.6
202.5	35.6	35.6	35.2	35.2	34.8	34.8	35.2	35.2
225.0	35.2	35.2	35.2	35.2	35.6	36.1	35.6	36.1
247.5	36.1	36.1	36.1	36.5	36.5	36.5	36.9	36.9
270.0	36.9	36.9	37.3	37.3	37.8	37.3	37.8	38.2
292.5	38.6	38.2	38.2	38.6	39.1	39.1	39.5	39.1
315.0	39.1	39.5	39.9	39.9	40.3	40.3	40.3	40.8
337.5	41.6	42.9	48.9	54.5	63.5	63.5	63.1	62.2

DEPTH: 1830 TILT: 0 RANGE: 101.7 VOS: 3045

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	50.2	50.2	50.2	50.2	50.6	51.9	65.6	65.6
22.5	65.6	65.6	64.3	62.6	62.6	61.8	62.2	62.2
45.0	61.8	61.8	61.8	62.2	62.2	62.2	61.8	61.8
67.5	61.8	61.8	61.8	61.3	61.3	61.3	61.3	61.3
90.0	61.3	60.9	61.3	61.3	61.3	61.3	59.6	58.8
112.5	58.8	58.3	57.5	55.8	55.8	53.6	51.0	49.8
135.0	47.2	46.3	45.9	45.5	45.0	44.6	44.6	44.6
157.5	45.5	52.8	54.0	57.1	58.3	58.8	56.2	46.3
180.0	45.0	45.0	44.2	42.9	40.8	39.5	38.2	36.9
202.5	36.9	36.5	36.9	36.5	36.5	36.5	36.0	36.0
225.0	36.0	36.5	36.5	36.5	36.5	36.5	36.9	36.9
247.5	37.3	37.3	37.3	37.7	38.2	38.2	38.2	38.6
270.0	38.6	38.6	39.0	38.6	39.5	39.5	39.5	39.5
292.5	39.9	39.9	39.9	40.3	40.3	41.2	41.6	42.0
315.0	42.5	42.9	43.3	43.3	45.9	46.3	47.2	49.8
337.5	51.9	56.6	58.8	60.5	60.1	50.6	50.2	50.2

DEPTH: 1840 TILT: 0 RANGE: 100.7 VOS: 3015

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	59.9	60.7	61.2	60.7	61.2	61.2	61.6	62.9
22.5	63.3	63.7	63.3	63.3	63.3	63.3	62.9	61.2
45.0	61.2	60.7	60.7	60.3	60.3	60.3	60.3	60.3
67.5	59.9	59.5	59.5	59.0	59.0	58.6	58.2	58.2
90.0	58.2	57.8	57.3	57.3	56.9	56.5	56.1	56.1
112.5	55.6	55.2	54.8	53.5	53.1	49.7	49.3	48.8
135.0	47.1	45.4	45.0	45.0	45.0	44.6	44.6	44.6
157.5	44.6	45.0	45.4	46.7	53.5	53.5	51.8	51.0
180.0	47.6	47.6	46.3	46.3	45.4	44.2	43.3	42.0
202.5	39.5	39.1	39.1	37.4	37.4	37.0	37.4	37.0
225.0	37.4	37.4	37.4	37.4	37.8	37.8	37.8	37.8
247.5	37.8	38.2	38.2	38.2	38.7	38.7	39.1	39.1
270.0	39.1	39.5	39.5	39.5	39.9	39.9	40.4	40.8
292.5	41.2	41.2	41.6	41.6	42.0	42.5	42.5	45.4
315.0	47.6	48.8	49.7	50.5	52.2	54.4	54.8	55.6
337.5	58.6	58.2	57.8	57.3	56.5	56.9	58.2	59.0

DEPTH: 1850 TILT: 0 RANGE: 74.9 VOS: 5966

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	52.8	53.1	53.8	56.0	56.6	57.5	57.5	58.2
22.5	58.2	58.5	58.8	58.8	59.1	59.4	60.1	60.1
45.0	59.8	60.1	60.1	60.1	60.7	60.7	60.7	60.7
67.5	60.7	60.7	60.7	60.4	60.4	60.4	60.1	60.1
90.0	59.8	59.8	59.4	59.1	59.1	59.1	59.1	58.8
112.5	58.2	57.2	56.3	55.3	54.4	53.8	53.1	51.9
135.0	50.0	50.0	49.3	48.4	47.7	47.1	46.8	46.5
157.5	45.8	45.8	45.2	45.5	45.8	45.8	45.2	45.2
180.0	44.9	50.0	52.2	53.1	52.2	52.8	50.0	48.1
202.5	46.5	45.5	44.9	44.3	43.6	43.0	42.7	41.4
225.0	40.5	40.2	39.8	39.8	39.8	39.8	39.5	39.8
247.5	39.5	39.5	39.2	39.5	39.5	39.8	39.8	40.2
270.0	40.5	40.5	40.5	40.8	40.8	40.8	41.1	41.1
292.5	41.1	41.4	42.1	41.7	42.1	42.7	42.7	43.0
315.0	43.3	44.0	45.2	46.5	48.4	49.0	50.9	51.2
337.5	51.5	52.2	52.8	53.1	54.1	54.1	53.4	52.8

DEPTH: 1860 TILT: 0 RANGE: 74.9 VOS: 5966

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	54.7	54.7	54.7	55.0	55.7	56.3	56.6	57.2
22.5	57.5	57.5	58.2	58.2	57.9	58.2	58.2	58.5
45.0	58.5	58.5	58.8	59.1	59.1	59.4	59.4	59.4
67.5	59.8	59.8	59.8	59.8	59.8	60.1	59.8	59.8
90.0	59.4	59.1	58.8	58.5	58.2	56.9	55.7	55.3
112.5	54.7	53.4	52.5	51.5	50.9	50.0	49.6	48.4
135.0	47.7	47.1	47.1	46.8	46.8	47.1	47.4	47.4
157.5	47.4	46.5	45.5	45.5	44.9	44.6	44.3	44.3
180.0	44.6	47.7	49.6	50.3	53.1	53.1	51.5	50.3
202.5	48.4	45.2	44.9	44.9	44.6	44.0	43.0	42.7
225.0	42.1	41.7	41.4	41.1	41.1	41.1	40.8	40.8
247.5	40.8	40.8	40.8	40.8	41.1	40.8	41.1	41.1
270.0	41.7	41.4	41.7	41.7	42.4	42.4	42.4	42.4
292.5	42.7	43.3	43.3	44.0	44.3	46.5	48.1	51.2
315.0	51.9	51.9	50.9	51.2	53.4	55.0	55.0	54.4
337.5	52.8	52.5	52.8	53.1	53.4	53.1	53.4	54.1

DEPTH: 1870 TILT: 0 RANGE: 74.9 VOS: 5966

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	53.4	54.7	54.7	55.0	55.0	54.7	55.3	56.0
22.5	56.9	56.6	57.2	56.9	56.9	56.9	57.2	57.5
45.0	57.9	57.5	57.5	57.9	58.2	59.4	59.8	61.0
67.5	61.0	61.0	61.3	62.6	63.9	63.6	64.2	65.1
90.0	64.5	64.5	64.8	64.5	64.5	64.5	61.7	57.2
112.5	56.3	55.0	53.8	52.5	52.2	51.2	50.6	50.0
135.0	49.6	49.3	48.4	47.7	47.4	46.8	46.5	46.5
157.5	46.2	46.2	46.5	46.5	46.5	46.2	45.8	45.5
180.0	45.5	45.5	45.5	44.9	44.3	44.3	44.3	44.6
202.5	53.4	53.4	53.4	52.2	50.3	46.8	44.0	44.3
225.0	44.6	44.0	43.0	42.7	42.4	42.4	42.1	42.4
247.5	42.1	42.1	41.7	41.4	41.1	41.4	41.4	41.4
270.0	41.7	41.7	41.7	42.4	42.4	42.7	42.7	43.0
292.5	44.0	44.3	44.9	45.8	46.2	46.8	47.1	47.7
315.0	48.1	48.1	48.4	52.5	54.7	56.0	56.0	56.6
337.5	51.2	51.2	51.5	51.9	51.9	52.2	52.2	52.8

DEPTH: 1880 TILT: 0 RANGE: 74.9 VOS: 5966

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	52.5	53.4	54.4	54.4	54.7	55.0	54.7	55.0
22.5	55.3	56.3	56.9	58.5	58.5	58.2	58.2	58.5
45.0	59.4	60.1	61.0	61.7	62.3	62.6	61.7	62.0
67.5	62.0	62.0	62.0	61.7	61.3	61.7	62.3	61.3
90.0	61.3	61.3	62.0	62.0	62.0	62.0	62.3	62.9
112.5	63.6	63.6	63.2	62.9	62.9	62.6	62.3	61.7
135.0	52.2	51.9	51.9	51.2	51.2	50.9	50.6	49.6
157.5	49.3	49.3	49.3	48.7	48.7	48.4	47.4	46.5
180.0	46.2	45.8	45.8	45.2	45.2	44.9	44.6	44.6
202.5	44.6	44.3	44.0	44.0	43.6	59.4	59.4	57.2
225.0	53.1	52.5	51.9	50.9	50.0	49.0	45.5	44.9
247.5	44.0	43.3	43.0	43.0	43.0	43.0	43.0	43.0
270.0	42.7	42.7	42.7	42.7	42.7	42.7	43.0	43.3
292.5	43.3	43.6	44.0	44.3	44.9	45.5	45.5	45.2
315.0	45.8	46.5	46.8	48.7	49.6	51.5	52.2	52.5
337.5	52.8	52.2	52.2	51.2	51.2	51.5	51.9	51.9

DEPTH: 1890 TILT: 0 RANGE: 74.9 VOS: 5966

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	57.2	57.5	58.2	58.5	58.2	58.2	58.8	58.8
22.5	59.4	59.4	60.4	60.7	61.0	61.0	61.0	61.3
45.0	61.3	61.7	61.3	61.3	61.3	61.0	61.0	61.0
67.5	61.0	61.7	62.0	62.6	62.0	61.7	61.3	61.3
90.0	61.3	60.7	60.4	60.1	60.1	58.8	58.5	57.9
112.5	58.2	58.8	58.8	58.5	57.2	56.3	54.7	53.1
135.0	51.9	51.5	51.5	51.9	51.9	51.5	51.2	49.0
157.5	47.1	46.8	46.2	46.2	45.8	45.8	45.8	45.5
180.0	45.2	44.6	44.3	44.6	44.3	43.6	43.6	43.6
202.5	43.3	43.3	43.3	43.3	48.7	48.4	48.1	48.1
225.0	48.1	47.7	47.4	45.8	45.8	45.5	44.9	44.3
247.5	43.6	43.3	43.3	43.3	43.6	43.6	44.0	44.0
270.0	44.0	44.3	44.3	44.6	45.2	45.5	46.5	48.7
292.5	50.3	50.9	51.9	52.5	52.8	52.2	52.2	54.1
315.0	53.8	52.2	52.2	52.5	52.5	52.8	52.5	52.5
337.5	53.1	53.4	55.0	55.7	56.3	56.3	56.3	56.6

DEPTH: 1901 TILT: 0 RANGE: 100.0 VOS: 5992

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	57.0	57.0	57.4	58.6	59.1	59.1	59.1	59.9
22.5	61.2	61.6	63.3	63.3	63.3	63.3	63.3	63.3
45.0	63.3	62.9	62.9	62.4	62.4	62.4	62.4	62.4
67.5	62.4	62.4	62.9	62.9	62.9	62.9	62.9	62.9
90.0	62.9	62.9	62.4	62.4	62.4	62.0	61.6	60.7
112.5	59.9	59.1	58.2	57.0	56.1	55.7	55.3	54.4
135.0	53.2	52.7	51.9	51.9	51.5	50.6	49.8	49.4
157.5	49.4	49.4	48.9	48.9	49.4	49.4	49.4	49.4
180.0	48.1	46.8	46.4	45.6	46.0	46.0	46.0	46.0
202.5	46.0	45.6	45.6	45.6	45.1	44.7	44.7	44.7
225.0	44.7	44.7	45.1	44.7	44.7	44.3	44.3	44.7
247.5	44.7	44.7	45.1	45.6	45.6	45.6	45.6	44.7
270.0	44.7	44.7	45.1	45.6	45.6	46.0	46.0	47.2
292.5	47.7	47.7	48.5	49.4	49.4	49.4	50.2	50.2
315.0	50.2	50.6	50.6	50.6	51.5	51.5	51.5	51.5
337.5	52.3	52.7	54.0	54.8	55.3	55.7	56.1	56.5

DEPTH: 1910 TILT: 0 RANGE: 100.0 VOS: 5992

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	57.8	57.8	58.6	59.9	61.2	61.6	62.0	62.4
22.5	65.0	66.2	66.2	65.8	65.8	64.5	64.5	64.5
45.0	64.1	63.3	63.3	63.3	63.3	63.3	63.3	63.3
67.5	63.3	63.3	63.3	63.7	63.7	63.7	64.1	64.1
90.0	65.4	65.8	66.7	67.1	67.1	66.7	66.2	65.4
112.5	65.0	62.9	60.3	59.1	58.2	57.8	57.4	55.7
135.0	54.4	54.0	53.6	53.2	51.9	51.5	51.0	50.6
157.5	50.2	50.2	49.8	49.8	49.4	48.9	48.5	48.1
180.0	47.2	47.2	47.2	47.2	46.8	46.4	46.0	46.0
202.5	46.0	45.1	45.1	45.1	45.1	45.1	44.7	44.7
225.0	44.7	44.7	45.1	45.1	45.1	45.6	46.0	46.0
247.5	46.0	46.0	46.4	46.0	46.0	46.0	45.6	45.6
270.0	46.4	46.0	46.0	46.4	46.8	47.2	48.1	48.9
292.5	48.9	49.4	49.4	49.4	49.8	50.2	50.6	50.6
315.0	51.0	51.0	51.5	51.9	52.7	53.6	53.6	54.0
337.5	54.4	55.3	55.7	56.1	56.5	56.5	56.5	57.4

DEPTH: 1920 TILT: 0 RANGE: 100.0 VOS: 5992

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	62.0	62.9	66.2	67.9	67.9	67.9	67.9	67.9
22.5	67.5	67.1	66.7	66.2	65.8	65.8	65.4	64.1
45.0	63.3	63.3	63.7	63.7	63.7	63.7	64.1	64.1
67.5	64.1	64.5	64.5	65.4	66.7	67.5	68.3	68.3
90.0	68.3	67.9	67.5	67.1	66.2	66.2	65.8	65.4
112.5	65.4	65.4	64.5	62.9	60.7	59.1	58.6	57.0
135.0	56.5	56.1	54.4	54.0	53.2	52.3	51.9	51.0
157.5	50.2	49.8	48.9	48.9	48.5	48.5	48.5	48.1
180.0	48.5	48.1	47.7	46.8	46.8	47.2	46.8	46.4
202.5	46.0	45.6	45.6	45.6	45.6	45.6	45.6	45.6
225.0	45.6	45.6	45.6	45.6	45.6	45.6	46.0	46.4
247.5	46.4	46.8	46.8	46.8	46.8	46.8	47.2	47.7
270.0	47.7	47.7	48.9	49.4	49.4	49.8	49.8	50.2
292.5	50.2	50.2	50.2	50.6	51.0	51.0	51.5	51.9
315.0	51.9	52.3	52.3	53.2	53.6	54.4	54.8	56.1
337.5	57.4	57.8	59.1	59.1	59.5	59.9	60.3	61.6

DEPTH: 1930 TILT: 0 RANGE: 100.0 VOS: 5993

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	61.2	61.6	61.6	64.1	64.5	65.0	67.5	67.9
22.5	67.9	67.9	67.9	67.5	67.5	67.1	67.1	67.1
45.0	66.2	66.2	66.2	65.4	64.1	63.7	62.8	62.4
67.5	79.7	79.3	78.9	77.6	62.8	62.0	62.8	63.3
90.0	64.1	64.5	65.8	65.8	66.2	66.2	66.2	66.2
112.5	65.8	65.8	65.8	65.4	65.0	64.5	63.7	63.3
135.0	62.8	62.4	62.0	60.3	59.9	57.8	56.1	55.7
157.5	55.3	54.4	54.0	54.0	53.6	53.6	53.1	52.7
180.0	52.3	51.9	51.5	50.6	50.2	50.2	49.3	48.5
202.5	48.5	48.1	47.7	47.7	47.2	46.8	46.8	46.8
225.0	46.8	46.4	46.4	46.8	46.4	46.8	46.8	46.8
247.5	46.8	46.8	46.8	47.7	47.7	47.2	47.2	47.7
270.0	47.7	47.7	48.1	48.5	48.5	48.5	48.9	49.3
292.5	49.8	49.8	50.2	50.6	51.0	51.0	51.5	51.5
315.0	51.5	51.5	52.3	53.6	53.6	54.8	55.3	56.1
337.5	57.8	58.6	59.0	59.9	59.9	59.9	60.3	60.7

DEPTH: 1940 TILT: 0 RANGE: 125.0 VOS: 5993

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	66.5	67.0	67.5	67.5	68.0	68.0	69.1	73.3
22.5	79.6	82.8	85.4	86.0	88.1	88.1	88.1	88.1
45.0	89.1	89.1	89.1	88.6	87.0	86.5	84.4	83.9
67.5	83.3	82.8	83.3	83.9	84.4	85.4	85.4	85.4
90.0	84.9	84.9	84.9	84.4	84.4	83.3	82.3	82.3
112.5	82.3	81.2	77.0	70.7	63.3	63.3	61.7	61.7
135.0	61.7	60.1	59.6	57.0	55.9	55.4	55.4	55.4
157.5	55.4	55.4	55.4	54.8	52.7	51.7	51.7	51.7
180.0	51.7	51.2	50.6	49.6	48.0	48.0	48.0	48.0
202.5	47.5	47.5	47.5	47.5	47.5	47.5	48.0	48.0
225.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	49.6
247.5	49.6	49.6	49.6	49.6	50.1	50.6	51.2	51.7
270.0	51.7	52.2	51.7	51.7	51.7	52.7	52.7	53.3
292.5	53.3	53.3	53.3	53.8	54.8	55.4	54.8	55.9
315.0	57.0	57.5	58.0	58.5	58.5	59.1	59.6	60.1
337.5	60.6	61.2	61.7	62.8	63.3	63.8	65.4	65.9

DEPTH: 1950 TILT: 0 RANGE: 125.0 VOS: 5993

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	66.5	67.0	68.6	70.7	72.3	72.8	74.9	75.4
22.5	78.1	81.2	87.0	89.7	91.8	92.3	92.3	91.2
45.0	89.7	87.5	85.4	84.9	84.9	84.9	84.4	83.9
67.5	83.3	83.3	82.8	82.8	82.8	83.3	83.3	83.9
90.0	83.9	83.9	83.3	83.3	82.8	82.8	81.2	79.6
112.5	76.5	71.2	61.7	61.2	60.6	60.1	59.6	59.6
135.0	58.5	58.5	58.0	57.5	57.0	55.9	55.9	55.9
157.5	55.9	55.9	55.4	54.8	54.3	53.8	53.3	52.7
180.0	52.7	51.7	51.2	50.6	49.6	49.6	48.5	48.5
202.5	48.5	48.5	48.0	48.0	48.5	48.5	48.5	48.5
225.0	48.5	49.0	49.0	49.0	49.0	49.6	49.6	49.6
247.5	50.1	50.1	50.6	51.2	51.7	51.7	51.7	52.2
270.0	52.7	52.7	53.3	53.3	53.8	53.8	54.3	54.8
292.5	54.8	55.9	56.4	57.0	57.5	57.5	57.5	58.0
315.0	58.5	58.5	59.1	59.6	59.6	60.6	61.2	61.7
337.5	62.8	63.3	63.8	63.8	64.3	65.4	65.4	65.9

DEPTH: 1960 TILT: 0 RANGE: 125.0 VOS: 5993

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	69.6	70.1	70.1	70.7	70.7	71.7	72.3	73.8
22.5	77.0	79.6	83.3	92.3	92.3	92.3	92.3	91.8
45.0	90.7	90.2	89.7	89.1	89.1	88.6	87.5	87.0
67.5	87.0	87.0	86.5	86.5	85.4	84.9	84.9	84.9
90.0	85.4	86.0	86.0	86.5	88.1	88.1	88.1	87.0
112.5	77.5	77.5	69.1	69.1	68.6	65.4	62.8	61.7
135.0	61.2	60.1	59.1	58.5	57.0	57.0	55.4	55.4
157.5	55.4	54.3	54.3	54.3	54.3	54.3	53.8	53.8
180.0	53.3	52.7	51.7	51.2	50.6	50.1	49.6	50.1
202.5	50.1	50.1	50.1	50.1	50.1	49.6	50.1	50.1
225.0	50.1	50.1	49.6	50.1	49.6	50.1	50.6	51.2
247.5	51.2	51.2	51.7	52.2	52.2	52.7	52.7	52.7
270.0	53.3	52.7	53.3	53.3	53.8	54.3	54.3	54.8
292.5	55.4	55.9	56.4	57.0	57.5	58.0	59.1	59.1
315.0	59.6	60.1	59.6	60.1	60.6	60.6	61.2	62.2
337.5	62.2	62.8	62.8	63.3	64.9	65.9	67.5	68.6

DEPTH: 1970 TILT: 0 RANGE: 125.0 VOS: 5993

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	68.0	68.6	69.1	69.6	70.1	70.7	70.7	71.2
22.5	71.7	71.7	92.8	93.3	93.9	93.3	92.8	92.3
45.0	92.3	91.8	90.7	90.2	90.2	91.8	93.3	93.9
67.5	93.9	93.9	93.9	93.9	94.9	95.5	95.5	94.9
90.0	94.4	91.2	90.7	89.1	87.5	87.5	87.5	87.5
112.5	86.0	86.0	86.0	82.8	71.7	67.0	63.3	62.2
135.0	61.7	60.6	60.1	60.1	59.6	59.1	58.0	57.5
157.5	57.5	57.5	56.4	55.4	54.8	54.3	53.3	53.3
180.0	52.7	52.2	52.2	52.2	51.7	51.7	51.7	51.7
202.5	51.2	51.2	51.2	51.2	51.2	51.2	51.2	51.7
225.0	51.2	51.2	51.2	51.2	51.7	51.7	51.7	51.7
247.5	52.2	52.2	52.7	52.7	52.7	52.7	52.7	52.7
270.0	52.7	53.3	53.8	54.3	54.8	54.8	55.4	55.4
292.5	55.4	55.9	55.9	56.4	56.4	57.0	57.5	58.0
315.0	59.1	59.1	59.6	60.1	60.1	60.6	60.6	61.2
337.5	62.2	62.2	63.3	63.8	64.9	65.4	65.9	67.5

DEPTH: 1980 TILT: 0 RANGE: 125.0 VOS: 5994

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	68.5	68.5	69.6	70.1	71.2	71.2	92.3	92.3
22.5	92.8	92.8	92.8	92.8	92.8	92.8	92.8	92.8
45.0	92.8	92.8	92.8	92.3	92.3	92.3	92.3	92.8
67.5	92.8	92.8	92.8	92.8	92.8	91.7	91.7	91.7
90.0	90.7	89.1	87.5	87.5	87.5	87.5	87.0	86.5
112.5	86.5	86.5	83.3	64.9	64.3	63.3	62.7	62.2
135.0	61.7	61.2	60.6	60.1	60.1	59.1	58.5	58.5
157.5	58.0	56.9	56.4	55.9	55.4	54.8	54.8	54.3
180.0	53.8	53.3	52.7	52.7	52.2	52.2	52.2	52.2
202.5	52.2	52.7	53.3	53.3	52.7	52.2	52.2	52.2
225.0	52.2	52.2	52.2	52.2	52.2	52.2	52.2	52.7
247.5	52.7	53.3	53.3	53.3	53.3	53.8	53.8	53.8
270.0	54.3	54.3	54.3	54.3	54.8	55.4	55.4	55.9
292.5	56.4	56.9	57.5	58.0	58.5	59.1	60.1	60.6
315.0	60.6	62.2	62.2	62.2	62.7	63.3	63.8	65.4
337.5	65.4	65.9	67.0	67.5	68.5	68.5	68.5	68.5

DEPTH: 1990 TILT: 0 RANGE: 125.0 VOS: 5994

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	84.9	84.9	85.4	87.5	93.9	94.4	94.4	94.9
22.5	94.9	94.9	94.9	97.0	102.3	102.3	102.8	102.8
45.0	102.3	100.7	100.2	99.7	98.1	97.0	97.0	96.0
67.5	95.4	94.4	93.9	91.2	89.1	88.6	88.1	87.5
90.0	87.0	85.9	85.4	84.9	84.4	83.8	82.3	79.1
112.5	74.3	63.8	62.2	61.2	60.1	59.1	57.5	56.9
135.0	56.9	56.9	56.4	57.5	57.5	57.5	57.5	56.9
157.5	56.9	56.4	55.4	55.4	54.8	54.3	53.8	53.8
180.0	53.3	52.7	52.7	52.7	52.2	52.2	52.2	52.2
202.5	52.2	52.2	52.2	52.2	52.2	52.2	52.2	52.2
225.0	52.2	52.2	52.2	52.2	52.7	52.7	52.7	53.3
247.5	53.3	53.8	53.8	53.8	54.8	54.8	55.4	55.4
270.0	56.4	56.9	57.5	58.0	58.0	58.0	58.5	59.1
292.5	59.1	59.6	60.1	61.2	61.7	62.2	62.2	62.7
315.0	63.3	63.8	64.9	65.4	65.4	65.9	65.9	66.4
337.5	67.5	69.1	72.8	79.6	82.3	83.3	83.8	84.4

DEPTH: 2000 TILT: 0 RANGE: 150.0 VOS: 5994

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	80.4	81.6	81.6	81.6	84.2	84.2	96.2	99.3
22.5	100.0	100.0	100.0	101.2	103.8	103.1	101.9	101.9
45.0	101.2	100.6	100.6	100.0	100.0	98.7	98.1	98.1
67.5	97.4	94.9	93.6	92.4	92.4	92.4	91.1	90.5
90.0	88.6	88.0	86.7	86.7	86.1	85.4	84.2	81.6
112.5	79.7	77.8	75.3	72.8	69.6	69.0	65.2	62.6
135.0	59.5	58.8	58.2	57.6	57.6	56.9	56.3	56.3
157.5	56.3	56.3	55.7	55.7	55.7	55.7	55.7	55.0
180.0	55.0	55.0	55.0	54.4	54.4	54.4	53.8	53.8
202.5	53.8	53.8	53.8	53.8	53.8	53.2	53.2	53.2
225.0	53.2	53.2	53.2	53.2	53.2	53.2	53.2	53.2
247.5	53.8	53.8	53.8	53.8	54.4	55.0	55.0	55.0
270.0	55.7	56.3	56.3	56.3	56.9	57.6	58.2	58.2
292.5	58.8	59.5	60.1	60.7	60.7	61.4	62.0	62.0
315.0	62.0	62.0	63.3	63.9	63.9	64.5	65.8	66.4
337.5	69.0	69.6	72.1	72.8	75.9	76.6	79.1	79.1

DEPTH: 2010 TILT: 0 RANGE: 150.0 VOS: 5994

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	77.2	77.2	79.7	80.4	83.5	91.7	98.7	100.0
22.5	100.0	100.0	100.0	102.5	105.7	105.7	103.1	100.6
45.0	99.3	99.3	99.3	99.3	99.3	99.3	99.3	98.1
67.5	98.1	97.4	96.8	96.2	94.9	94.9	93.0	92.4
90.0	90.5	89.2	88.0	88.0	88.0	87.3	86.7	86.1
112.5	84.8	83.5	81.6	78.5	72.8	70.9	69.6	68.3
135.0	67.1	64.5	62.6	60.1	59.5	58.8	58.2	57.6
157.5	56.3	55.7	55.7	55.0	55.0	55.0	55.0	54.4
180.0	54.4	54.4	53.8	53.8	53.8	53.2	53.2	53.2
202.5	53.2	53.2	53.2	53.2	53.2	53.2	52.5	52.5
225.0	52.5	52.5	52.5	52.5	52.5	53.2	53.2	53.2
247.5	53.2	53.2	53.2	53.8	53.8	54.4	54.4	55.0
270.0	55.7	55.7	56.3	56.9	57.6	57.6	57.6	58.2
292.5	58.2	58.8	59.5	59.5	60.1	60.7	60.7	61.4
315.0	62.0	62.0	62.6	62.6	63.3	63.9	64.5	65.8
337.5	65.8	66.4	67.1	69.0	70.2	72.8	75.3	77.2

DEPTH: 2020 TILT: 0 RANGE: 150.0 VOS: 5994

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	77.8	80.4	84.8	87.3	89.2	91.7	97.4	100.6
22.5	100.6	101.9	111.4	110.7	109.5	108.2	108.2	105.7
45.0	103.1	102.5	101.9	101.2	100.0	98.7	98.1	97.4
67.5	96.2	96.2	94.9	93.6	93.6	93.0	91.7	91.1
90.0	89.2	89.2	88.6	88.0	87.3	86.7	86.7	86.1
112.5	85.4	85.4	85.4	85.4	84.8	84.8	84.8	82.9
135.0	74.7	66.4	65.2	64.5	63.9	63.3	62.6	61.4
157.5	60.1	56.9	56.3	55.7	55.0	55.0	55.0	54.4
180.0	53.8	53.8	54.4	54.4	53.8	53.2	53.2	52.5
202.5	52.5	52.5	52.5	52.5	52.5	52.5	52.5	53.2
225.0	53.2	53.2	53.2	53.2	53.2	53.8	53.8	53.8
247.5	53.8	53.8	54.4	54.4	54.4	55.0	55.0	55.0
270.0	55.0	55.7	56.3	56.9	56.9	56.9	57.6	58.2
292.5	58.8	58.8	59.5	60.7	61.4	61.4	62.0	62.6
315.0	62.6	62.6	63.3	63.3	63.9	64.5	65.2	65.8
337.5	67.1	67.7	68.3	70.2	70.9	74.0	74.7	77.2

DEPTH: 2030 TILT: 0 RANGE: 150.0 VOS: 5994

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	84.2	87.3	90.5	94.3	94.9	94.9	113.3	113.3
22.5	112.6	111.4	108.8	106.9	104.4	103.1	103.1	102.5
45.0	102.5	102.5	102.5	103.1	103.1	101.9	99.3	98.7
67.5	96.8	93.6	93.0	92.4	92.4	91.1	90.5	89.8
90.0	89.2	89.2	88.6	86.7	85.4	85.4	85.4	85.4
112.5	86.1	86.7	86.7	86.7	86.1	83.5	71.5	68.3
135.0	67.7	66.4	65.2	63.9	63.3	62.0	60.1	58.8
157.5	56.9	55.7	55.0	54.4	54.4	53.8	53.2	52.5
180.0	53.2	53.2	52.5	52.5	52.5	52.5	52.5	52.5
202.5	52.5	52.5	52.5	52.5	51.9	51.9	52.5	52.5
225.0	52.5	52.5	53.2	53.2	53.2	53.2	53.2	53.8
247.5	53.8	53.8	54.4	54.4	54.4	55.0	55.0	55.7
270.0	55.7	56.3	56.3	56.3	56.9	56.9	58.2	58.2
292.5	58.2	58.8	59.5	60.1	61.4	61.4	62.0	62.6
315.0	62.6	63.3	63.3	63.3	63.9	64.5	65.2	65.8
337.5	67.1	69.0	70.9	72.1	73.4	75.3	79.1	81.6

DEPTH: 2040 TILT: 0 RANGE: 150.0 VOS: 5994

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	83.5	87.3	89.2	89.8	93.0	93.6	117.1	115.2
22.5	112.6	108.8	107.6	106.9	104.4	102.5	101.9	101.2
45.0	101.2	101.2	101.2	101.2	101.2	100.0	100.0	99.3
67.5	98.1	96.8	96.2	95.5	94.9	93.0	92.4	91.1
90.0	89.2	89.2	88.0	86.1	83.5	81.6	79.1	77.2
112.5	77.2	77.2	77.2	77.2	80.4	82.3	84.8	82.9
135.0	79.1	68.3	63.9	63.3	61.4	60.7	59.5	58.8
157.5	58.8	57.6	56.9	55.7	55.0	54.4	53.8	53.2
180.0	53.2	53.2	53.2	52.5	53.2	52.5	52.5	52.5
202.5	52.5	52.5	52.5	52.5	53.2	53.8	53.8	53.2
225.0	53.2	53.2	53.2	53.8	53.8	53.8	54.4	54.4
247.5	54.4	54.4	55.0	55.0	55.7	55.7	56.3	56.3
270.0	56.3	56.9	56.9	57.6	57.6	58.2	58.8	59.5
292.5	60.1	60.1	60.7	60.7	60.7	61.4	62.6	63.3
315.0	63.3	63.3	63.9	64.5	65.2	65.8	67.1	70.2
337.5	71.5	72.1	72.8	74.0	75.3	77.2	78.5	81.0

DEPTH: 2050 TILT: 0 RANGE: 150.0 VOS: 5996

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	72.2	72.8	74.1	74.7	75.3	98.7	101.9	107.0
22.5	112.7	117.7	117.7	115.2	112.7	108.9	108.2	107.6
45.0	105.1	103.2	101.9	101.9	101.3	100.6	100.6	100.0
67.5	99.4	99.4	99.4	99.4	98.7	97.5	97.5	96.8
90.0	96.8	94.9	94.9	93.0	92.4	88.6	86.7	85.4
112.5	84.2	82.9	82.3	82.9	82.9	83.5	86.1	86.7
135.0	88.0	88.0	86.7	84.2	81.0	77.2	76.0	73.4
157.5	72.2	68.4	66.5	61.4	61.4	60.1	59.5	58.9
180.0	57.6	57.0	55.7	55.1	54.4	54.4	53.8	53.8
202.5	53.8	53.2	52.5	52.5	52.5	52.5	52.5	52.5
225.0	52.5	52.5	52.5	52.5	53.2	53.2	53.8	53.8
247.5	54.4	54.4	53.8	54.4	54.4	54.4	55.1	55.1
270.0	55.1	55.7	55.7	56.3	56.3	57.0	57.6	57.6
292.5	58.2	58.2	58.9	58.9	60.1	60.1	61.4	62.7
315.0	63.3	63.3	63.3	63.3	63.3	63.3	63.9	63.9
337.5	64.6	65.8	66.5	67.1	69.6	69.6	70.9	71.5

DEPTH: 2060 TILT: 0 RANGE: 150.0 VOS: 5996

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	74.7	79.1	84.2	92.4	94.3	101.2	105.7	106.3
22.5	106.3	107.6	109.5	112.0	112.6	112.6	112.0	110.1
45.0	107.6	105.7	103.1	101.9	101.2	101.2	101.2	101.2
67.5	101.2	101.2	101.2	100.6	100.0	100.0	100.0	98.1
90.0	97.4	96.8	96.2	94.3	93.6	91.1	90.5	88.0
112.5	87.3	85.4	85.4	85.4	86.1	86.1	89.9	89.9
135.0	90.5	91.1	91.1	88.6	87.3	78.5	77.8	77.8
157.5	77.2	75.3	74.7	70.9	68.3	63.3	60.1	59.5
180.0	58.2	58.2	57.6	57.6	56.9	56.3	56.3	55.7
202.5	55.1	54.4	53.2	53.2	52.5	52.5	52.5	52.5
225.0	52.5	52.5	52.5	52.5	52.5	53.2	53.2	53.2
247.5	53.2	53.2	53.2	53.8	53.8	54.4	55.1	55.7
270.0	55.7	55.7	55.7	55.7	55.7	55.7	56.3	56.3
292.5	56.3	56.9	56.9	57.6	58.2	58.8	58.8	59.5
315.0	60.7	61.4	62.0	62.0	62.0	62.0	62.6	63.9
337.5	65.2	65.8	67.7	67.7	68.3	69.0	70.2	71.5

DEPTH: 2070 TILT: 0 RANGE: 150.0 VOS: 5996

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	75.9	79.7	80.4	91.1	104.4	110.1	110.1	109.5
22.5	109.5	109.5	109.5	108.2	107.6	106.9	106.3	105.0
45.0	104.4	103.1	101.9	101.2	100.0	99.3	99.3	98.7
67.5	98.7	98.7	98.7	98.1	98.1	96.8	96.8	96.2
90.0	95.5	93.6	93.0	92.4	91.8	91.8	88.6	86.1
112.5	83.5	81.6	80.4	80.4	81.0	81.6	81.6	81.6
135.0	79.1	77.8	76.6	74.7	74.7	74.7	75.3	75.3
157.5	75.3	72.8	70.9	69.6	67.1	65.2	63.9	62.0
180.0	60.1	59.5	57.6	57.6	56.9	56.3	55.1	55.7
202.5	55.1	55.1	54.4	53.8	54.4	54.4	54.4	54.4
225.0	53.8	53.8	53.8	54.4	54.4	54.4	54.4	53.8
247.5	54.4	54.4	54.4	55.1	54.4	54.4	55.1	55.1
270.0	55.1	55.7	56.3	56.3	56.3	56.9	56.9	56.9
292.5	57.6	58.2	58.2	58.8	58.8	60.7	60.7	61.4
315.0	62.0	62.6	63.3	64.5	63.9	65.8	65.8	67.1
337.5	67.7	69.6	69.6	70.2	70.9	70.9	71.5	73.4

DEPTH: 2080 TILT: 0 RANGE: 150.0 VOS: 5996

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	80.4	82.3	89.9	98.7	103.1	113.3	112.6	110.1
22.5	106.3	106.3	106.3	106.3	105.7	105.0	104.4	102.5
45.0	101.9	100.6	99.3	98.7	98.7	98.1	98.1	98.7
67.5	98.7	98.1	97.4	97.4	96.8	96.8	96.2	96.2
90.0	94.9	93.6	91.1	90.5	87.3	85.4	84.8	82.9
112.5	82.3	82.3	81.0	80.4	80.4	80.4	79.7	79.1
135.0	79.7	78.5	76.6	75.9	75.3	74.7	74.7	74.7
157.5	74.0	73.4	72.1	71.5	69.6	67.1	63.9	62.6
180.0	60.1	58.8	58.8	58.2	56.9	56.9	56.9	56.3
202.5	55.7	55.1	53.8	53.8	53.2	53.2	53.2	53.2
225.0	53.2	53.2	53.2	53.2	53.8	53.8	53.8	53.8
247.5	53.8	53.8	53.8	55.1	55.1	55.1	55.1	55.1
270.0	55.7	56.3	56.3	56.3	56.9	57.6	58.2	58.2
292.5	58.2	58.8	58.8	59.5	60.1	60.7	60.7	62.0
315.0	62.6	62.6	63.3	65.8	66.4	67.1	68.3	69.6
337.5	70.2	71.5	72.1	72.8	75.3	77.2	78.5	79.1

DEPTH: 2090 TILT: 0 RANGE: 150.0 VOS: 5996

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	81.0	81.6	86.1	93.0	100.6	112.6	112.6	110.1
22.5	108.8	106.3	106.3	104.4	103.8	103.1	103.1	102.5
45.0	101.9	101.2	101.2	100.6	100.0	100.0	99.3	99.3
67.5	98.7	99.3	98.1	96.8	96.2	96.2	94.9	94.3
90.0	94.3	93.6	93.0	91.8	89.2	87.3	85.4	83.5
112.5	82.3	81.0	80.4	79.7	79.1	78.5	79.1	78.5
135.0	77.8	78.5	77.2	76.6	77.2	77.2	75.3	74.7
157.5	71.5	71.5	70.9	73.4	76.6	75.3	67.1	65.2
180.0	62.0	60.1	58.8	57.6	56.9	56.9	56.9	56.3
202.5	55.7	55.1	55.7	55.7	55.1	54.4	53.8	53.8
225.0	53.8	53.8	54.4	54.4	53.8	53.2	53.8	53.8
247.5	53.8	54.4	54.4	54.4	54.4	55.1	55.1	55.1
270.0	55.1	55.1	55.1	54.4	54.4	55.1	55.1	55.1
292.5	55.7	56.3	56.9	57.6	60.7	62.0	62.6	63.3
315.0	65.2	67.1	67.7	70.2	70.9	71.5	73.4	74.0
337.5	74.7	76.6	77.2	77.8	78.5	79.1	79.7	80.4

DEPTH: 2100 TILT: 0 RANGE: 150.0 VOS: 5996

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	82.3	83.5	84.8	100.0	115.2	113.9	109.5	105.7
22.5	103.8	103.1	102.5	102.5	102.5	102.5	102.5	101.9
45.0	101.2	100.6	100.6	100.0	100.0	99.3	100.0	100.6
67.5	100.0	99.3	98.1	97.4	96.8	96.2	95.5	95.5
90.0	94.3	92.4	91.1	87.3	86.1	84.8	83.5	82.9
112.5	81.0	80.4	79.7	79.1	78.5	77.2	77.8	77.8
135.0	77.2	75.9	76.6	77.2	78.5	79.7	77.2	75.3
157.5	74.0	70.2	68.3	68.3	74.7	75.3	67.1	62.0
180.0	61.4	58.8	58.2	57.6	56.9	58.2	57.6	56.3
202.5	56.3	55.7	55.7	55.7	55.7	55.7	55.1	55.1
225.0	54.4	53.8	53.8	53.2	53.8	54.4	54.4	54.4
247.5	53.8	53.8	53.8	54.4	54.4	54.4	55.1	55.7
270.0	56.3	56.9	57.6	58.2	58.2	58.2	58.2	59.5
292.5	59.5	60.7	61.4	62.0	62.0	62.0	62.6	63.3
315.0	65.2	65.8	66.4	67.7	68.3	69.0	70.2	70.9
337.5	72.1	72.8	74.7	75.9	77.2	78.5	79.7	81.0

DEPTH: 2110 TILT: 0 RANGE: 150.0 VOS: 5997

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	81.0	82.3	86.1	106.3	136.1	136.1	136.1	115.8
22.5	113.9	104.4	101.9	101.3	101.9	101.9	101.9	101.3
45.0	100.6	100.6	100.6	100.0	99.4	98.7	99.4	99.4
67.5	98.7	99.4	99.4	98.1	97.5	96.2	95.6	94.3
90.0	93.7	93.0	93.0	91.8	89.9	88.0	87.3	86.1
112.5	86.1	84.8	82.9	82.9	79.7	78.5	77.2	77.8
135.0	77.8	77.2	76.6	75.9	76.6	77.2	76.6	77.2
157.5	79.1	79.1	76.6	75.3	71.5	68.4	66.5	66.5
180.0	67.1	66.5	61.4	60.8	59.5	58.9	58.9	58.2
202.5	58.2	58.2	57.6	57.0	56.3	55.7	55.7	55.7
225.0	55.1	55.1	54.4	54.4	54.4	54.4	54.4	54.4
247.5	54.4	54.4	53.8	53.8	53.8	54.4	54.4	54.4
270.0	55.1	55.7	55.7	55.7	56.3	57.6	57.6	57.6
292.5	57.6	57.6	57.6	58.2	58.2	58.9	59.5	60.1
315.0	62.7	63.3	64.6	65.2	65.8	66.5	67.1	67.7
337.5	69.6	70.2	72.8	73.4	75.9	77.2	77.8	80.4

DEPTH: 2120 TILT: 0 RANGE: 175.0 VOS: 5997

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	85.7	87.1	93.8	97.5	138.1	137.3	133.6	125.5
22.5	115.2	110.0	105.6	101.9	101.2	99.7	100.4	100.4
45.0	100.4	100.4	100.4	99.7	98.9	99.7	99.7	98.9
67.5	98.2	97.5	96.7	96.0	95.3	94.5	93.8	93.0
90.0	93.0	91.6	90.8	90.1	90.1	89.3	88.6	87.9
112.5	87.1	85.7	85.7	83.4	82.0	80.5	80.5	79.0
135.0	78.3	76.8	76.1	76.1	75.3	74.6	75.3	74.6
157.5	75.3	76.8	78.3	79.0	78.3	76.1	74.6	72.4
180.0	70.9	66.5	66.5	66.5	66.5	65.0	64.2	62.0
202.5	59.8	59.1	57.6	57.6	58.3	58.3	56.9	56.9
225.0	56.1	56.1	56.1	56.1	56.9	56.1	56.1	56.1
247.5	55.4	54.6	55.4	54.6	53.9	53.9	53.2	53.2
270.0	53.2	53.2	53.2	53.2	53.9	54.6	54.6	56.1
292.5	56.1	56.1	56.9	57.6	59.1	59.8	61.3	60.5
315.0	61.3	62.0	62.0	62.8	62.8	63.5	65.0	64.2
337.5	65.0	66.5	69.4	70.1	71.6	73.1	74.6	76.1

DEPTH: 2130 TILT: 0 RANGE: 175.0 VOS: 5997

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	82.0	85.7	97.5	98.9	115.2	121.1	121.1	118.1
22.5	113.0	110.8	106.3	104.1	101.9	100.4	98.9	98.2
45.0	98.9	98.2	98.2	98.2	97.5	96.7	96.7	97.5
67.5	96.7	96.0	96.0	95.3	95.3	95.3	94.5	93.8
90.0	93.0	93.0	92.3	91.6	90.8	90.1	88.6	87.9
112.5	87.9	86.4	85.7	84.2	82.7	80.5	79.7	77.5
135.0	76.8	76.1	76.1	76.1	75.3	74.6	73.8	73.1
157.5	74.6	74.6	74.6	73.8	75.3	77.5	76.8	76.1
180.0	73.8	72.4	70.9	69.4	66.5	65.7	65.7	65.0
202.5	65.0	62.0	61.3	61.3	60.5	59.1	57.6	57.6
225.0	57.6	58.3	58.3	56.9	56.9	56.9	57.6	57.6
247.5	56.9	56.9	56.1	55.4	56.1	55.4	55.4	55.4
270.0	54.6	54.6	55.4	55.4	55.4	56.1	56.1	56.9
292.5	57.6	57.6	58.3	59.1	59.1	59.1	59.1	59.8
315.0	59.8	60.5	61.3	62.0	62.8	63.5	65.7	65.0
337.5	65.0	67.2	68.7	69.4	70.1	71.6	74.6	76.8

DEPTH: 2140 TILT: 0 RANGE: 175.0 VOS: 5997

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	92.3	96.7	101.2	104.9	107.1	109.3	111.5	111.5
22.5	111.5	110.0	107.1	104.9	101.9	98.9	97.5	96.7
45.0	97.5	97.5	97.5	97.5	98.2	98.2	97.5	97.5
67.5	96.0	95.3	94.5	94.5	94.5	93.8	93.8	93.8
90.0	93.0	93.0	92.3	91.6	91.6	90.8	90.1	90.1
112.5	89.3	88.6	87.9	87.9	87.9	87.1	84.2	82.0
135.0	81.2	79.0	77.5	78.3	74.6	74.6	73.8	73.8
157.5	74.6	74.6	73.1	73.1	73.8	73.8	75.3	74.6
180.0	75.3	73.8	71.6	69.4	67.9	66.5	65.0	64.2
202.5	62.8	62.8	63.5	62.8	62.0	61.3	59.8	59.8
225.0	59.1	58.3	57.6	57.6	56.9	56.9	56.9	59.8
247.5	56.9	56.9	57.6	56.9	56.1	56.1	56.9	56.1
270.0	56.1	56.9	56.1	56.1	56.1	56.1	56.9	56.9
292.5	56.9	56.9	56.9	56.9	56.9	57.6	57.6	58.3
315.0	59.1	59.1	59.8	60.5	61.3	62.0	61.3	62.8
337.5	65.0	67.2	68.7	70.1	73.8	78.3	82.7	87.1

DEPTH: 2150 TILT: 0 RANGE: 175.0 VOS: 5997

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	95.3	98.2	99.7	100.4	101.9	104.9	106.3	106.3
22.5	104.9	104.1	101.2	98.9	98.2	97.5	97.5	97.5
45.0	96.7	96.0	96.0	96.0	96.0	95.3	95.3	94.5
67.5	94.5	93.8	93.8	93.8	93.8	93.0	93.0	92.3
90.0	91.6	91.6	90.8	90.1	89.3	87.9	87.1	86.4
112.5	85.7	84.2	83.4	83.4	82.7	82.0	81.2	79.7
135.0	79.7	79.7	79.0	76.8	74.6	73.8	72.4	71.6
157.5	71.6	70.9	71.6	72.4	73.1	73.8	73.8	73.8
180.0	73.1	72.4	71.6	70.1	68.7	65.7	64.2	63.5
202.5	63.5	62.8	62.0	61.3	61.3	59.8	59.1	58.3
225.0	58.3	57.6	56.9	56.1	56.1	56.1	56.1	55.4
247.5	55.4	55.4	54.6	54.6	54.6	54.6	54.6	54.6
270.0	54.6	55.4	55.4	56.1	56.1	56.1	56.1	56.9
292.5	56.9	56.9	56.9	56.9	57.6	57.6	57.6	58.3
315.0	59.1	59.8	60.5	61.3	61.3	61.3	63.5	67.9
337.5	69.4	71.6	75.3	77.5	80.5	84.2	86.4	88.6

DEPTH: 2160 TILT: 0 RANGE: 175.0 VOS: 5997

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	88.6	93.8	95.3	95.3	96.7	101.2	105.6	108.5
22.5	106.3	104.1	100.4	98.2	96.7	96.0	96.0	95.3
45.0	95.3	95.3	95.3	96.0	95.3	96.0	95.3	95.3
67.5	94.5	93.8	93.8	93.0	93.0	93.0	93.0	92.3
90.0	91.6	90.8	90.8	89.3	87.9	87.1	86.4	85.7
112.5	84.9	83.4	83.4	82.7	82.0	80.5	79.0	78.3
135.0	78.3	76.8	76.1	75.3	75.3	73.8	73.1	73.1
157.5	72.4	72.4	71.6	72.4	72.4	73.1	72.4	71.6
180.0	71.6	71.6	69.4	69.4	68.7	67.9	65.7	63.5
202.5	62.8	61.3	60.5	62.0	61.3	61.3	60.5	59.1
225.0	58.3	59.1	58.3	56.9	56.9	56.9	56.1	55.4
247.5	55.4	54.6	54.6	53.9	53.2	53.9	53.9	53.9
270.0	53.2	53.9	53.9	53.9	53.9	53.9	54.6	55.4
292.5	55.4	55.4	56.1	56.9	56.9	57.6	58.3	60.5
315.0	59.8	59.8	60.5	61.3	62.8	62.8	65.0	66.5
337.5	67.9	70.1	73.8	76.8	79.7	82.0	84.2	86.4

DEPTH: 2170 TILT: 0 RANGE: 175.1 VOS: 5999

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	88.6	89.4	90.1	93.8	96.8	99.7	104.1	104.9
22.5	102.7	99.7	98.2	95.3	94.5	94.5	95.3	95.3
45.0	95.3	95.3	96.0	95.3	95.3	95.3	94.5	93.8
67.5	93.1	93.1	93.1	92.3	92.3	91.6	90.9	90.1
90.0	90.1	90.1	89.4	87.9	86.4	85.7	84.9	83.5
112.5	82.7	82.7	82.0	80.5	79.8	79.8	79.0	78.3
135.0	76.8	76.8	76.8	76.8	76.1	74.6	73.9	72.4
157.5	71.6	71.6	71.6	72.4	72.4	71.6	71.6	70.9
180.0	70.2	70.9	70.2	68.7	67.2	66.5	65.0	62.8
202.5	61.3	60.6	59.8	59.1	58.4	57.6	57.6	56.9
225.0	57.6	57.6	56.9	56.9	56.9	56.9	56.1	55.4
247.5	53.9	53.2	53.9	54.7	53.9	53.9	53.2	53.9
270.0	53.9	53.9	53.9	53.9	53.9	53.9	54.7	54.7
292.5	54.7	54.7	55.4	56.1	56.1	56.1	56.9	56.9
315.0	57.6	59.1	59.8	60.6	62.0	63.5	65.7	67.2
337.5	69.4	72.4	73.9	79.0	81.2	83.5	85.7	87.9

DEPTH: 2180 TILT: 0 RANGE: 175.0 VOS: 5999

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	85.6	86.4	88.6	90.8	94.5	98.9	101.1	100.4
22.5	98.2	95.2	93.8	93.0	93.0	92.3	93.0	93.0
45.0	93.0	93.8	93.8	93.8	93.8	93.0	93.0	92.3
67.5	92.3	91.5	91.5	90.8	90.1	90.1	89.3	89.3
90.0	89.3	88.6	87.9	87.1	86.4	85.6	84.2	83.4
112.5	83.4	83.4	81.2	80.5	79.7	79.7	78.3	76.8
135.0	76.8	76.0	75.3	74.6	73.8	73.1	72.3	71.6
157.5	69.4	69.4	70.1	70.1	70.1	70.1	69.4	68.7
180.0	67.9	68.7	67.9	66.4	66.4	64.2	63.5	62.8
202.5	62.8	62.8	61.3	60.5	57.6	57.6	56.8	56.8
225.0	56.1	56.1	55.4	54.6	54.6	53.2	52.4	52.4
247.5	52.4	51.7	51.7	51.7	51.7	51.7	51.7	52.4
270.0	52.4	52.4	53.2	53.2	53.2	53.2	53.2	53.2
292.5	53.9	53.9	53.9	54.6	54.6	55.4	55.4	56.1
315.0	56.8	58.3	59.8	61.3	63.5	64.2	65.7	66.4
337.5	67.9	71.6	74.6	76.8	79.0	81.2	82.7	84.9

DEPTH: 2190 TILT: 0 RANGE: 175.0 VOS: 5999

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	83.4	87.1	89.3	91.5	96.0	100.4	98.9	95.2
22.5	93.0	90.1	89.3	89.3	90.1	90.1	92.3	93.0
45.0	93.8	93.8	93.8	93.8	93.0	92.3	91.5	91.5
67.5	90.8	90.1	89.3	89.3	88.6	88.6	87.9	87.9
90.0	87.9	87.9	87.1	85.6	84.9	83.4	82.7	81.9
112.5	81.2	80.5	79.7	79.0	77.5	76.8	76.0	75.3
135.0	75.3	75.3	73.8	73.1	73.1	72.3	71.6	70.9
157.5	70.9	70.1	70.1	69.4	69.4	68.7	68.7	68.7
180.0	66.4	65.0	64.2	63.5	62.0	61.3	60.5	60.5
202.5	60.5	59.8	59.1	58.3	57.6	56.8	55.4	55.4
225.0	55.4	54.6	54.6	53.9	53.9	53.2	53.2	52.4
247.5	52.4	51.7	51.7	51.7	51.7	50.9	51.7	51.7
270.0	51.7	52.4	52.4	52.4	53.2	53.2	53.2	53.2
292.5	52.4	53.2	53.9	53.9	54.6	54.6	55.4	55.4
315.0	56.8	57.6	59.1	60.5	63.5	64.2	65.7	67.2
337.5	71.6	73.1	74.6	76.0	79.0	81.2	81.9	82.7

DEPTH: 2200 TILT: 0 RANGE: 175.0 VOS: 5999

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	79.7	82.7	83.4	84.2	86.4	90.1	92.3	91.5
22.5	90.8	88.6	87.1	87.1	87.1	88.6	89.3	90.1
45.0	90.1	90.8	92.3	93.0	93.0	93.0	93.0	92.3
67.5	91.5	91.5	91.5	90.8	90.1	90.1	89.3	89.3
90.0	88.6	88.6	87.1	85.6	84.2	84.2	83.4	83.4
112.5	81.9	81.9	81.2	81.2	80.5	80.5	80.5	79.0
135.0	78.3	77.5	77.5	77.5	76.0	74.6	73.8	73.1
157.5	72.3	70.9	70.1	69.4	68.7	67.9	67.9	67.9
180.0	67.9	67.9	67.9	67.2	66.4	66.4	65.7	65.0
202.5	62.8	62.0	61.3	59.8	59.8	59.1	58.3	58.3
225.0	57.6	56.8	56.1	55.4	54.6	53.9	53.9	53.9
247.5	53.2	53.2	53.2	53.2	53.2	53.2	52.4	52.4
270.0	52.4	51.7	51.7	51.7	51.7	51.7	50.9	50.9
292.5	50.9	51.7	51.7	52.4	51.7	52.4	52.4	53.2
315.0	53.9	55.4	55.4	57.6	58.3	59.8	59.8	62.0
337.5	65.0	66.4	68.7	73.1	76.0	77.5	79.0	79.7

DEPTH: 2210 TILT: 0 RANGE: 175.0 VOS: 5999

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	76.8	76.8	76.8	77.5	78.3	79.0	81.2	81.9
22.5	81.2	81.2	81.9	82.7	84.2	84.9	86.4	87.9
45.0	90.8	91.5	92.3	92.3	91.5	91.5	90.8	90.8
67.5	90.1	88.6	87.9	87.1	87.9	87.9	87.1	85.6
90.0	85.6	85.6	84.9	84.9	83.4	82.7	82.7	81.9
112.5	80.5	79.7	79.7	79.7	78.3	76.8	76.8	75.3
135.0	74.6	73.8	73.1	73.1	72.3	71.6	69.4	67.2
157.5	65.7	65.0	63.5	63.5	63.5	62.8	62.0	61.3
180.0	62.0	62.0	62.0	61.3	60.5	59.8	59.8	59.1
202.5	57.6	57.6	56.1	55.4	55.4	55.4	55.4	53.9
225.0	53.2	52.4	52.4	53.2	51.7	51.7	51.7	50.9
247.5	50.9	50.9	50.9	50.9	50.9	50.9	50.9	50.9
270.0	50.9	50.2	50.2	50.9	50.9	50.9	50.9	50.9
292.5	51.7	51.7	51.7	53.2	53.9	53.9	53.9	53.9
315.0	53.9	55.4	55.4	56.1	56.8	57.6	58.3	59.8
337.5	61.3	63.5	65.7	70.9	73.1	74.6	76.0	77.5

DEPTH: 2220 TILT: 0 RANGE: 125.0 VOS: 6000

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	69.1	69.6	70.7	68.6	67.5	69.1	71.7	77.0
22.5	81.8	82.8	83.9	88.1	90.2	90.2	91.2	91.2
45.0	89.7	89.1	89.1	88.6	88.1	87.6	87.0	86.5
67.5	87.0	87.0	86.5	86.0	85.4	84.9	84.4	83.3
90.0	82.8	82.3	81.8	81.2	80.2	79.6	78.6	77.5
112.5	76.0	74.9	74.9	73.8	73.3	73.3	72.8	72.8
135.0	72.3	70.1	69.1	68.6	67.5	64.9	63.3	61.7
157.5	60.1	59.1	57.5	57.0	56.4	55.9	55.9	55.9
180.0	56.4	57.0	57.5	56.4	55.9	54.9	54.3	53.3
202.5	52.7	52.2	51.7	51.7	51.7	51.2	51.2	50.6
225.0	50.6	50.1	49.6	49.6	50.1	49.6	49.6	49.6
247.5	49.6	49.6	49.1	49.1	49.1	48.5	49.6	49.6
270.0	49.6	50.1	50.1	50.1	50.1	50.6	50.6	50.1
292.5	50.6	51.2	52.2	51.7	51.7	54.3	54.9	55.9
315.0	55.9	57.0	60.7	61.7	62.2	63.3	64.9	67.5
337.5	70.7	71.7	72.8	73.3	72.8	70.7	69.6	69.1

DEPTH: 2230 TILT: 0 RANGE: 125.0 VOS: 6000

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	62.2	61.7	62.2	63.8	69.6	71.7	77.5	80.1
22.5	87.0	87.5	88.6	88.6	88.1	88.1	86.5	85.9
45.0	85.9	86.5	86.5	85.9	85.9	85.4	85.9	85.9
67.5	87.0	85.9	84.9	84.9	84.9	84.4	83.8	83.3
90.0	82.8	81.2	79.1	76.5	75.4	73.3	72.8	72.2
112.5	71.2	71.2	71.2	70.7	69.6	69.6	69.1	69.6
135.0	68.5	67.5	66.4	65.9	61.7	58.0	57.5	56.9
157.5	56.4	54.8	53.8	53.3	52.7	52.7	52.7	52.7
180.0	53.3	53.3	52.2	51.7	51.1	51.1	50.1	49.0
202.5	48.5	47.5	46.9	47.5	47.5	47.5	46.9	46.9
225.0	46.4	46.4	46.9	47.5	47.5	47.5	48.0	48.0
247.5	47.5	47.5	47.5	47.5	47.5	48.0	48.5	48.5
270.0	49.0	49.0	49.0	49.6	49.0	49.0	48.5	48.5
292.5	49.6	50.6	51.1	51.1	51.1	52.7	52.7	54.3
315.0	55.4	56.4	57.5	58.5	59.6	61.2	62.7	63.8
337.5	65.4	67.0	65.9	64.3	63.3	62.2	61.7	62.2

DEPTH: 2240 TILT: 0 RANGE: 125.0 VOS: 6000

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	62.2	62.7	64.9	67.0	71.2	72.2	74.3	77.0
22.5	79.6	86.5	85.9	85.4	84.9	84.9	84.4	84.4
45.0	84.9	84.9	84.9	84.9	84.4	84.4	84.4	84.4
67.5	85.9	85.4	84.4	84.4	84.4	83.3	82.3	81.2
90.0	80.1	78.6	77.0	75.4	73.8	72.2	71.2	70.7
112.5	69.6	68.5	68.5	68.0	66.4	66.4	66.4	65.4
135.0	64.3	63.3	62.7	59.6	58.5	57.5	56.4	55.4
157.5	54.3	53.3	51.7	51.7	50.1	48.5	46.9	44.8
180.0	45.3	45.3	44.8	45.3	45.3	44.8	43.8	43.8
202.5	42.2	42.2	42.7	42.7	43.2	42.2	42.2	42.7
225.0	43.2	43.8	44.3	44.8	44.8	45.3	45.3	45.3
247.5	44.8	44.8	45.3	45.3	45.3	45.9	46.4	46.4
270.0	46.4	46.4	46.4	46.4	45.9	45.3	45.9	45.9
292.5	46.4	46.4	46.9	47.5	47.5	47.5	48.5	48.5
315.0	50.1	51.1	54.3	54.8	56.4	57.5	58.0	58.5
337.5	61.7	61.7	58.0	57.5	56.9	57.5	59.1	60.1

DEPTH: 2250 TILT: 0 RANGE: 125.0 VOS: 6000

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	58.0	59.6	61.7	63.8	67.0	70.7	72.2	74.3
22.5	78.0	80.1	80.7	83.3	83.3	81.7	81.2	80.7
45.0	81.7	81.7	82.3	82.8	82.8	82.3	82.3	82.8
67.5	82.8	83.3	83.3	83.3	82.8	82.8	81.7	80.7
90.0	80.1	79.6	78.6	77.5	75.9	74.9	73.3	71.2
112.5	69.6	68.5	66.4	65.4	63.3	63.3	62.7	61.7
135.0	61.2	60.1	59.1	58.0	57.5	56.4	55.9	54.8
157.5	54.3	54.3	53.3	51.7	50.1	48.0	46.9	45.9
180.0	43.2	42.2	41.7	41.7	41.7	41.7	40.6	40.1
202.5	39.5	39.0	38.5	39.0	39.0	40.1	40.1	40.6
225.0	40.6	40.6	41.1	41.7	42.2	42.2	42.7	43.8
247.5	43.8	43.2	43.2	43.2	43.2	43.2	43.2	43.2
270.0	44.3	44.8	44.3	44.3	43.2	42.7	42.7	42.7
292.5	43.2	43.2	42.7	42.7	42.2	41.7	41.7	42.2
315.0	42.7	44.8	45.9	48.0	49.6	49.0	49.6	53.3
337.5	53.8	54.8	54.8	54.8	52.7	53.3	54.8	55.9

DEPTH: 2260 TILT: 0 RANGE: 125.0 VOS: 6000

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	59.1	61.7	68.5	71.2	72.8	73.3	73.8	74.9
22.5	75.9	77.0	76.5	76.5	77.0	78.6	79.6	80.1
45.0	80.1	80.7	80.7	80.7	80.1	79.6	79.6	80.1
67.5	82.3	82.3	82.3	81.7	81.2	80.7	80.1	78.6
90.0	77.0	75.4	74.3	73.3	70.7	69.1	68.5	67.0
112.5	65.9	63.8	62.7	62.7	63.3	62.2	61.7	54.8
135.0	55.4	55.4	55.4	54.3	53.8	53.8	54.3	53.8
157.5	52.7	50.6	49.6	45.3	44.3	43.8	42.2	42.2
180.0	42.7	39.5	39.0	38.5	38.0	38.0	38.0	36.9
202.5	36.4	35.9	35.3	35.3	35.3	35.3	34.8	34.3
225.0	34.3	34.8	38.5	39.0	39.0	39.0	39.0	39.0
247.5	39.0	39.0	39.0	39.0	38.5	38.5	38.5	38.5
270.0	39.0	38.5	37.4	36.9	36.9	36.9	36.9	37.4
292.5	37.4	36.9	36.9	36.9	36.9	36.9	37.4	38.0
315.0	40.6	42.7	43.2	46.4	46.4	46.9	48.0	51.1
337.5	52.2	52.2	52.7	52.2	52.2	52.7	54.8	56.4

DEPTH: 2270 TILT: 0 RANGE: 125.0 VOS: 6000

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	58.5	60.1	64.3	70.1	72.2	71.7	70.7	71.2
22.5	71.7	71.2	71.7	72.8	73.8	76.5	78.0	79.1
45.0	80.1	80.1	79.6	79.1	79.1	78.6	79.1	79.1
67.5	78.0	77.0	77.5	78.0	78.0	77.5	77.5	76.5
90.0	74.9	72.8	70.1	69.6	69.6	68.5	67.5	65.9
112.5	63.8	63.8	63.3	62.7	62.7	61.7	53.3	53.3
135.0	53.3	53.3	53.3	53.3	53.3	53.3	52.7	52.7
157.5	50.6	49.6	47.5	43.8	42.2	41.1	40.6	41.1
180.0	41.1	39.5	39.0	38.0	36.9	35.9	36.4	35.9
202.5	35.3	35.3	34.8	34.3	33.7	34.3	34.3	34.8
225.0	34.8	34.8	34.8	35.3	35.3	35.3	35.3	35.3
247.5	35.9	35.3	34.3	34.3	33.7	33.7	34.3	34.3
270.0	33.2	33.2	32.2	31.6	32.2	32.2	32.2	32.7
292.5	33.2	33.7	34.3	34.8	34.8	34.8	35.3	35.3
315.0	37.4	39.5	39.5	39.5	40.6	45.3	46.4	51.1
337.5	51.1	50.6	48.5	50.1	51.1	52.2	53.8	55.4

DEPTH: 2280 TILT: 0 RANGE: 125.0 VOS: 6000

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	57.5	59.1	63.3	65.9	67.5	66.4	64.9	65.9
22.5	66.4	65.9	67.5	70.1	72.2	74.3	75.9	78.0
45.0	79.1	78.0	77.0	76.5	77.0	77.0	77.0	76.5
67.5	76.5	75.9	75.4	75.4	75.4	75.4	75.4	74.3
90.0	72.8	72.8	72.2	70.1	69.6	68.0	65.9	64.9
112.5	63.8	63.8	63.8	63.3	62.2	62.2	60.6	51.7
135.0	51.7	51.1	50.6	50.1	49.6	50.1	51.1	51.1
157.5	49.6	48.5	48.0	44.8	42.2	41.1	41.1	40.1
180.0	39.5	39.0	37.4	36.4	36.4	35.9	35.9	34.8
202.5	33.7	33.2	33.7	33.2	33.2	31.6	31.1	31.1
225.0	31.6	31.6	31.6	31.1	31.1	31.1	31.6	32.2
247.5	32.2	31.6	32.2	31.1	31.1	31.1	31.1	30.6
270.0	30.1	30.1	30.1	30.1	29.5	30.1	30.1	30.6
292.5	30.6	30.6	31.1	31.1	31.1	31.6	32.2	33.2
315.0	33.2	33.7	35.3	35.9	40.1	41.7	43.2	50.1
337.5	49.6	48.5	48.5	49.6	51.1	52.7	53.8	54.8

DEPTH: 2290 TILT: 0 RANGE: 125.0 VOS: 6001

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	53.8	54.8	56.4	59.1	61.7	62.8	63.3	62.8
22.5	62.2	62.2	62.2	62.2	67.5	69.1	73.3	73.8
45.0	74.9	75.4	75.4	75.4	75.4	74.9	74.4	74.9
67.5	74.9	74.4	73.3	73.8	74.4	73.3	72.2	71.7
90.0	70.7	69.1	69.1	68.6	67.5	67.0	67.0	67.0
112.5	65.9	65.4	64.9	63.3	62.2	62.2	60.6	60.1
135.0	59.1	47.5	46.9	46.9	46.9	46.9	46.4	46.9
157.5	47.5	47.5	46.9	46.4	43.8	42.7	41.1	39.6
180.0	39.0	39.0	38.0	35.3	34.3	32.7	32.2	31.6
202.5	30.6	31.6	31.1	30.6	31.1	31.1	30.1	29.5
225.0	29.5	29.5	29.0	29.0	29.0	29.5	30.1	30.1
247.5	30.1	30.1	30.1	30.1	29.5	29.0	29.0	28.5
270.0	27.9	28.5	29.0	27.9	28.5	27.9	28.5	29.0
292.5	28.5	28.5	28.5	29.0	29.0	29.0	29.5	31.1
315.0	32.7	32.7	33.7	34.8	35.3	36.9	41.7	44.3
337.5	44.8	45.4	48.0	48.5	49.6	50.1	50.6	50.6

DEPTH: 2300 TILT: 0 RANGE: 125.0 VOS: 6001

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	52.2	53.3	54.3	55.9	56.4	57.5	58.0	59.1
22.5	59.1	59.1	59.6	59.6	71.2	71.7	72.2	72.8
45.0	73.3	73.8	74.4	74.4	73.8	73.3	72.8	72.8
67.5	73.3	73.3	72.8	72.2	71.2	71.2	70.7	69.6
90.0	68.6	68.0	67.0	67.0	66.4	65.9	65.9	65.4
112.5	63.8	63.3	61.7	60.6	59.6	60.1	60.6	60.6
135.0	57.0	48.0	45.4	44.8	43.2	42.2	41.7	41.1
157.5	42.2	42.2	41.7	41.1	40.6	40.6	39.6	38.0
180.0	38.0	38.0	37.4	37.4	36.4	34.8	33.7	29.0
202.5	27.9	26.9	26.4	26.4	26.4	26.4	25.8	26.9
225.0	26.9	27.4	27.9	27.9	27.4	27.9	28.5	28.5
247.5	29.5	29.0	29.5	29.5	29.5	29.5	29.0	29.0
270.0	28.5	27.9	27.4	26.9	26.9	27.4	26.9	26.9
292.5	26.9	27.4	27.9	28.5	29.0	29.5	29.5	30.1
315.0	30.1	30.1	30.1	31.1	30.6	38.5	43.2	43.2
337.5	44.8	45.9	46.4	46.9	47.5	48.5	49.0	51.2

DEPTH: 2310 TILT: 0 RANGE: 125.0 VOS: 6001

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	50.6	50.6	50.1	50.6	54.3	58.5	58.0	57.0
22.5	56.4	57.0	57.5	58.0	60.1	69.1	70.1	70.7
45.0	71.2	72.2	72.8	72.8	72.2	72.2	71.2	71.2
67.5	71.2	71.2	69.6	68.6	68.6	68.0	67.5	67.0
90.0	66.4	65.9	64.3	63.8	63.8	64.9	64.9	63.8
112.5	62.8	62.8	59.1	58.5	58.0	58.5	58.5	58.0
135.0	43.2	42.7	42.2	41.1	39.6	38.5	38.0	37.4
157.5	36.4	36.4	36.4	35.9	35.9	35.9	35.3	36.4
180.0	36.4	36.9	37.4	36.4	34.8	34.3	33.2	29.5
202.5	28.5	26.4	23.7	23.7	24.3	24.3	24.3	23.7
225.0	23.7	23.7	23.2	23.7	25.8	26.4	26.4	26.4
247.5	26.4	26.9	26.4	25.8	24.8	24.8	24.8	24.8
270.0	24.8	24.8	24.8	24.8	24.8	24.8	24.8	25.3
292.5	25.8	26.4	27.4	27.9	27.9	28.5	28.5	29.0
315.0	29.5	29.5	30.1	30.1	32.2	33.2	34.8	37.4
337.5	38.0	38.0	39.6	39.6	41.7	46.4	50.6	50.6

DEPTH: 2320 TILT: 0 RANGE: 125.0 VOS: 6001

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	48.0	48.0	48.5	50.1	53.8	53.8	55.4	55.4
22.5	55.9	56.4	57.0	57.5	67.5	68.0	68.6	69.1
45.0	70.1	72.2	72.2	71.7	71.2	70.1	70.1	70.7
67.5	70.7	69.1	68.6	68.0	67.5	67.0	64.9	64.3
90.0	63.3	62.2	62.2	62.2	62.8	63.3	62.8	62.2
112.5	61.2	58.5	58.0	58.0	57.5	58.0	57.5	45.9
135.0	43.2	42.7	32.7	32.7	32.7	32.2	31.6	32.2
157.5	32.7	33.7	33.2	33.2	32.7	32.2	33.2	34.8
180.0	34.8	35.3	35.3	34.3	32.7	31.6	29.0	28.5
202.5	25.8	24.3	22.7	22.7	22.1	22.1	22.1	22.1
225.0	22.1	22.7	23.2	23.7	24.8	25.3	25.3	25.3
247.5	25.3	25.8	25.8	25.8	25.8	25.8	25.8	25.8
270.0	25.3	25.3	24.8	24.3	24.8	24.3	24.3	24.3
292.5	24.8	24.8	25.3	25.8	26.4	26.9	26.4	26.4
315.0	26.4	26.9	27.4	28.5	30.6	31.1	34.3	36.9
337.5	37.4	38.5	39.6	40.1	41.1	45.9	49.0	49.0

DEPTH: 2330 TILT: 0 RANGE: 125.0 VOS: 6001

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	45.4	45.9	45.9	46.9	48.5	49.6	50.1	50.6
22.5	51.2	51.7	53.8	54.3	57.0	58.5	67.0	67.0
45.0	68.6	69.1	70.1	70.1	70.1	69.6	68.6	68.0
67.5	68.6	68.6	68.0	67.0	65.9	65.9	64.9	64.3
90.0	63.8	61.7	60.6	59.1	59.1	59.6	60.1	60.6
112.5	60.6	60.1	59.1	59.1	58.5	58.5	57.5	57.0
135.0	56.4	42.7	42.7	42.7	31.6	31.1	29.0	28.5
157.5	27.9	28.5	28.5	28.5	28.5	28.5	28.5	29.0
180.0	29.5	30.1	30.6	30.6	30.6	29.5	26.9	26.9
202.5	26.9	25.3	22.7	22.7	22.1	22.1	22.1	22.1
225.0	22.1	22.1	22.1	22.1	22.1	22.1	22.7	23.2
247.5	24.3	24.8	24.8	24.3	24.3	24.3	24.8	24.8
270.0	24.3	24.3	23.7	23.7	23.7	23.7	23.2	23.7
292.5	23.2	23.2	24.3	24.8	25.3	25.3	25.3	25.8
315.0	26.4	25.8	25.8	26.9	27.4	29.0	30.6	32.2
337.5	35.3	36.4	38.0	39.0	41.7	41.1	42.7	44.3

DEPTH: 2340 TILT: 0 RANGE: 100.0 VOS: 6001

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	44.3	44.3	44.3	44.7	45.1	45.5	47.2	50.6
22.5	51.5	53.1	54.0	54.8	56.1	56.1	56.5	67.1
45.0	67.5	68.3	69.2	69.2	68.7	67.9	67.1	67.1
67.5	67.5	67.9	67.1	65.8	65.0	63.7	62.8	60.7
90.0	60.3	59.0	58.2	57.8	57.4	57.4	57.8	56.9
112.5	56.1	56.1	55.3	54.4	54.0	54.4	55.7	43.0
135.0	42.2	42.2	31.2	30.8	30.8	28.3	27.8	24.5
157.5	24.0	24.0	24.0	24.0	24.5	24.9	26.6	27.0
180.0	27.0	27.4	27.4	27.0	26.6	26.6	26.1	26.1
202.5	21.9	21.5	21.9	21.9	21.5	21.5	21.5	21.5
225.0	21.5	21.5	21.9	21.9	21.9	22.4	22.4	22.8
247.5	23.6	24.0	24.0	23.6	23.6	23.2	23.2	23.6
270.0	23.6	23.2	22.8	22.8	22.8	22.8	23.6	23.2
292.5	22.8	23.6	23.6	24.0	24.5	24.9	24.9	24.9
315.0	24.9	24.9	25.3	25.3	26.6	27.0	27.4	32.9
337.5	35.8	36.7	38.0	38.0	38.0	38.4	38.8	44.7

DEPTH: 2350 TILT: 0 RANGE: 100.0 VOS: 6001

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	43.0	43.0	43.4	43.9	46.8	50.2	50.2	51.0
22.5	51.9	53.1	54.4	55.7	56.1	66.6	66.6	67.9
45.0	68.3	68.3	68.7	67.9	67.5	65.4	64.5	65.0
67.5	65.4	65.0	63.7	62.8	62.4	61.6	61.2	60.3
90.0	59.0	57.4	56.9	56.5	56.1	55.7	54.8	54.8
112.5	54.4	54.4	53.6	53.1	54.0	54.4	55.3	55.7
135.0	43.0	42.6	41.3	30.4	28.3	27.4	24.0	23.2
157.5	23.2	22.8	22.4	21.9	21.9	21.9	22.4	22.8
180.0	23.6	23.2	23.2	22.4	21.1	20.7	19.8	20.2
202.5	19.8	20.2	20.7	20.7	20.7	19.8	19.8	20.2
225.0	20.2	21.1	21.1	21.1	21.5	21.5	22.4	22.8
247.5	22.8	24.0	24.0	23.2	22.8	22.8	22.8	22.8
270.0	22.8	22.8	22.8	22.4	22.4	22.8	23.2	23.2
292.5	23.6	23.6	24.0	24.5	24.5	24.5	24.5	25.3
315.0	24.9	24.9	24.9	26.1	26.6	26.6	26.6	26.6
337.5	35.4	35.4	36.7	37.1	36.7	36.3	36.7	36.7

DEPTH: 2360 TILT: 0 RANGE: 100.0 VOS: 6003

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	40.5	42.6	45.1	47.3	47.7	48.1	48.9	50.6
22.5	52.7	53.6	54.4	55.7	65.8	65.8	66.2	66.7
45.0	67.1	67.1	67.5	66.2	63.7	63.3	62.9	62.9
67.5	62.9	62.9	61.6	61.2	60.8	59.9	58.6	57.8
90.0	56.5	54.8	54.4	54.4	54.4	53.2	52.7	52.3
112.5	52.3	51.9	51.0	51.5	52.3	53.6	54.0	40.9
135.0	40.9	40.5	31.6	31.2	30.8	23.2	22.4	22.4
157.5	21.5	21.1	20.7	20.7	20.7	20.7	19.8	19.8
180.0	19.8	19.4	19.0	18.6	19.0	18.6	18.6	18.6
202.5	19.0	19.0	19.0	19.0	19.0	19.0	19.0	18.6
225.0	18.6	19.0	19.4	19.8	19.4	19.4	20.3	21.5
247.5	21.9	22.4	22.8	23.2	23.2	22.8	22.4	21.9
270.0	21.9	21.9	21.5	21.5	21.5	21.5	21.5	21.5
292.5	21.5	21.9	22.4	22.8	22.8	23.6	24.0	24.5
315.0	24.9	24.9	25.3	25.7	26.2	26.2	27.0	32.9
337.5	33.3	33.8	34.6	35.0	35.0	35.0	35.0	35.4

DEPTH: 2370 TILT: 0 RANGE: 100.0 VOS: 6003

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	40.1	40.1	40.1	45.1	46.0	46.0	46.0	51.0
22.5	51.0	51.5	52.3	53.2	54.0	61.2	61.6	62.0
45.0	62.9	64.6	65.0	65.4	65.0	64.6	62.4	61.6
67.5	61.6	61.6	61.2	61.2	59.5	58.6	57.8	56.5
90.0	55.7	54.8	54.8	54.8	54.0	54.0	53.6	51.9
112.5	51.5	51.0	50.6	50.6	50.6	51.0	51.5	40.1
135.0	39.2	39.2	39.2	27.8	27.0	25.7	24.0	22.8
157.5	21.9	21.9	21.5	21.1	20.3	19.8	19.4	19.4
180.0	19.4	19.4	19.0	18.6	18.1	18.1	18.1	18.1
202.5	17.7	18.1	18.1	18.1	18.1	18.1	17.7	18.1
225.0	18.1	17.7	18.1	18.1	18.1	19.0	19.4	19.4
247.5	19.8	20.3	20.7	21.1	20.7	20.7	21.1	21.1
270.0	20.7	20.7	20.7	20.3	20.7	20.3	19.8	19.4
292.5	20.3	20.7	21.1	21.1	22.4	23.6	23.2	21.9
315.0	23.6	24.0	24.5	24.5	25.7	26.2	26.6	27.0
337.5	29.1	31.2	31.6	32.9	32.9	33.3	33.3	34.2

DEPTH: 2380 TILT: 0 RANGE: 100.0 VOS: 6003

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	41.3	43.9	46.0	47.3	48.1	49.4	51.5	52.3
22.5	53.6	54.0	54.0	54.4	57.8	58.6	60.3	63.3
45.0	64.1	64.6	63.7	62.0	61.2	61.2	61.2	60.8
67.5	60.3	59.9	59.5	59.1	58.2	57.0	56.1	55.7
90.0	54.0	53.2	53.2	53.2	52.7	50.2	49.8	49.8
112.5	49.4	48.9	48.5	48.5	48.5	48.5	40.5	40.1
135.0	39.2	30.0	29.5	27.0	23.2	22.4	21.9	21.5
157.5	21.1	20.7	20.3	19.8	19.4	19.0	19.0	18.6
180.0	18.6	18.1	18.1	17.7	17.7	17.7	17.3	17.3
202.5	17.3	16.9	16.9	16.9	16.9	16.9	16.9	16.9
225.0	17.3	17.3	17.3	17.3	17.7	18.6	19.0	19.4
247.5	19.8	20.3	19.8	19.8	20.3	19.8	19.8	19.8
270.0	19.8	19.8	19.8	19.8	19.4	19.8	20.3	20.3
292.5	20.3	21.1	21.1	20.7	21.5	22.8	23.2	23.2
315.0	23.2	23.2	24.0	24.0	24.5	24.9	25.3	26.2
337.5	27.4	28.7	30.4	31.6	32.5	39.2	39.2	39.2

DEPTH: 2390 TILT: 0 RANGE: 100.0 VOS: 6003

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	39.2	40.5	48.9	48.1	48.5	48.9	49.4	49.8
22.5	49.8	50.2	52.3	54.8	56.5	58.6	58.6	60.3
45.0	62.0	62.4	62.0	62.0	61.6	61.2	60.3	60.3
67.5	60.3	59.5	59.1	58.6	58.2	57.4	56.5	55.7
90.0	55.3	53.6	53.2	52.7	52.7	52.3	49.8	48.9
112.5	48.5	48.1	46.0	46.0	46.0	46.0	37.1	37.1
135.0	37.5	37.1	27.4	26.6	25.7	24.5	24.0	21.9
157.5	21.5	21.1	19.0	19.0	18.6	18.1	18.1	18.1
180.0	18.1	18.1	18.1	17.7	18.1	18.1	17.7	17.3
202.5	17.3	17.7	17.3	17.3	17.3	17.3	17.3	17.3
225.0	16.9	16.9	17.3	17.3	17.3	17.3	17.3	18.1
247.5	18.6	19.0	19.0	19.4	19.4	19.4	19.4	19.4
270.0	19.4	19.8	19.8	19.4	19.4	19.8	19.8	19.8
292.5	19.8	19.8	20.7	21.1	21.1	21.5	22.8	22.4
315.0	22.8	22.8	22.8	23.2	23.6	24.0	24.5	24.9
337.5	26.6	27.4	30.0	30.4	31.2	32.1	39.2	39.2

DEPTH: 2400 TILT: 0 RANGE: 100.0 VOS: 6003

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	41.3	43.9	46.4	46.8	47.3	48.5	48.5	48.5
22.5	48.9	49.4	51.9	53.6	57.4	58.6	60.3	62.9
45.0	62.9	62.9	61.2	60.3	58.6	59.1	59.5	59.9
67.5	59.9	59.1	59.1	59.1	58.6	58.2	57.0	54.4
90.0	52.3	52.3	52.3	52.3	51.5	50.6	48.5	48.5
112.5	47.7	46.8	45.6	46.0	45.1	35.4	34.6	32.5
135.0	28.7	26.6	25.7	24.5	22.8	21.9	21.1	21.1
157.5	20.7	20.3	19.4	19.0	19.0	19.0	19.0	18.6
180.0	18.6	18.1	18.1	18.1	17.7	17.7	17.3	17.3
202.5	17.7	17.7	17.3	16.9	17.3	17.7	17.7	17.7
225.0	17.3	17.7	17.7	17.7	17.7	17.7	17.7	17.7
247.5	18.1	18.1	18.6	18.6	18.6	19.0	19.0	19.0
270.0	19.0	19.0	19.0	19.0	19.4	19.4	19.8	19.8
292.5	19.8	20.3	20.3	20.3	20.7	20.7	21.1	21.5
315.0	21.9	22.4	22.4	23.2	23.2	23.6	25.7	26.6
337.5	29.1	29.5	30.0	30.4	32.5	35.0	36.3	38.0

DEPTH: 2410 TILT: 0 RANGE: 100.0 VOS: 6003

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	38.0	38.8	39.2	42.6	45.6	46.4	47.7	48.1
22.5	48.1	47.7	47.7	48.1	48.9	52.7	56.1	57.0
45.0	59.1	62.0	62.4	61.6	61.2	59.9	59.1	58.6
67.5	58.6	59.1	58.6	57.8	57.0	57.4	56.5	55.7
90.0	55.3	55.3	52.7	50.6	50.2	50.2	49.8	47.7
112.5	47.7	47.3	46.4	45.6	45.1	44.7	34.2	33.8
135.0	33.8	31.6	31.2	29.1	26.2	24.9	21.9	21.5
157.5	21.1	20.7	20.3	19.4	19.0	19.0	19.0	19.0
180.0	18.6	18.6	18.6	18.6	18.6	18.1	18.1	18.1
202.5	18.1	17.7	17.7	17.7	17.3	17.3	17.7	17.7
225.0	17.7	17.7	17.7	17.7	17.7	17.7	18.1	18.1
247.5	17.7	18.1	18.1	18.1	18.1	18.1	18.6	18.6
270.0	18.6	18.6	19.0	19.0	19.4	19.4	19.8	19.8
292.5	19.8	19.8	19.8	20.3	20.7	20.7	20.7	20.7
315.0	20.7	21.1	21.9	22.4	23.2	23.6	24.0	25.7
337.5	25.7	26.6	27.4	28.7	30.0	30.8	30.8	38.0

DEPTH: 2420 TILT: 0 RANGE: 100.0 VOS: 6003

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	34.2	36.3	38.4	38.4	43.5	45.1	46.4	47.3
22.5	47.3	47.3	47.7	48.1	49.4	52.3	54.4	58.6
45.0	59.5	61.6	62.0	61.6	61.2	60.3	59.5	58.6
67.5	58.6	58.2	57.0	56.5	55.7	54.8	54.4	54.4
90.0	53.2	51.0	50.6	50.6	50.2	49.8	49.8	48.5
112.5	46.8	46.8	46.8	45.6	45.1	44.7	33.8	32.9
135.0	32.5	27.8	27.0	24.9	24.0	22.8	22.4	22.4
157.5	21.5	20.7	20.7	19.4	19.4	20.3	19.8	18.6
180.0	19.0	18.6	18.1	18.1	18.1	18.1	18.1	18.1
202.5	18.1	18.1	18.1	18.1	17.7	17.7	17.7	17.7
225.0	17.7	17.7	17.7	17.7	17.7	17.7	17.7	18.1
247.5	18.1	18.1	18.1	18.6	18.6	18.6	18.6	19.0
270.0	19.0	19.0	19.4	19.0	19.4	19.8	19.8	19.8
292.5	19.8	19.8	19.8	20.3	21.1	21.1	21.1	21.1
315.0	21.5	21.9	21.9	21.9	22.4	22.8	23.2	23.2
337.5	23.6	24.5	24.9	25.7	27.0	27.8	29.5	32.1

DEPTH: 2430 TILT: 0 RANGE: 100.0 VOS: 6004

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	35.4	38.0	38.0	40.1	44.7	45.2	46.0	46.0
22.5	46.0	46.0	46.4	46.4	51.9	54.4	54.9	55.3
45.0	61.2	61.2	60.8	59.9	58.7	58.7	57.8	57.0
67.5	56.5	56.1	55.3	55.3	54.0	53.6	53.6	52.3
90.0	51.5	51.1	51.1	50.6	49.8	49.8	48.5	46.8
112.5	46.0	45.6	45.2	45.2	45.2	45.2	45.2	43.0
135.0	31.6	30.0	29.1	25.7	24.5	21.5	21.1	20.7
157.5	20.7	20.7	20.3	20.3	19.8	20.3	19.8	19.4
180.0	19.4	18.6	18.1	18.1	18.1	18.1	17.7	17.7
202.5	17.7	17.7	17.7	18.1	18.1	18.1	18.1	17.7
225.0	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7
247.5	17.7	18.1	18.1	18.1	18.1	18.1	18.6	18.6
270.0	18.6	18.6	19.0	19.0	19.0	19.4	20.3	20.3
292.5	21.1	20.7	20.7	21.1	21.1	20.7	20.7	21.1
315.0	21.1	21.1	21.5	21.9	22.4	22.8	23.2	23.2
337.5	24.1	24.9	25.7	27.8	28.7	28.7	29.5	32.5

DEPTH: 2440 TILT: 0 RANGE: 100.0 VOS: 6004

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	34.2	37.5	40.1	40.9	44.7	45.6	46.4	46.4
22.5	46.8	47.7	48.5	51.0	52.3	53.6	54.4	57.4
45.0	57.8	58.6	59.0	58.2	57.8	57.4	56.1	56.1
67.5	55.7	55.3	54.8	54.0	53.1	52.3	51.9	51.0
90.0	50.2	49.3	49.3	48.5	47.7	45.6	44.7	44.3
112.5	43.9	43.9	43.9	42.6	42.2	42.2	42.6	42.6
135.0	30.4	29.5	27.8	26.2	25.3	24.5	27.0	27.4
157.5	27.4	27.0	26.2	22.4	21.5	19.8	18.6	18.6
180.0	18.6	18.6	18.1	17.7	17.7	18.1	18.1	18.1
202.5	18.1	17.7	17.7	17.7	17.7	17.7	17.7	17.3
225.0	17.7	17.7	17.7	18.1	18.1	18.1	18.1	18.1
247.5	18.6	18.6	18.6	18.6	18.6	18.6	19.0	19.0
270.0	19.0	19.0	19.4	19.4	19.4	19.4	19.0	19.4
292.5	19.4	19.4	19.4	19.8	20.2	20.2	20.2	20.7
315.0	21.1	21.1	21.5	21.5	22.4	22.8	23.6	23.6
337.5	26.6	27.0	26.2	26.2	27.4	29.5	30.4	31.2

DEPTH: 2450 TILT: 0 RANGE: 100.0 VOS: 6004

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	33.3	35.9	36.7	42.6	43.9	44.3	44.7	44.7
22.5	45.1	45.1	46.8	46.8	50.2	53.1	54.4	56.1
45.0	56.9	59.0	58.6	57.8	56.9	56.5	56.1	56.1
67.5	56.1	55.7	55.3	54.8	54.0	53.1	51.9	49.3
90.0	48.9	48.9	48.5	47.7	46.8	46.8	46.8	45.1
112.5	44.3	43.0	43.0	42.6	42.2	41.8	41.3	41.8
135.0	29.1	28.7	25.7	24.5	22.4	21.1	20.7	20.7
157.5	20.2	19.8	20.2	19.8	19.8	19.4	20.2	20.2
180.0	19.4	19.0	18.6	18.1	18.1	18.1	17.7	17.7
202.5	17.7	17.7	17.3	17.3	17.3	16.9	16.9	17.3
225.0	17.3	17.3	17.3	17.7	17.3	17.7	17.7	17.7
247.5	17.7	18.1	18.1	17.7	17.7	18.1	18.1	18.1
270.0	18.1	18.6	18.6	18.6	18.6	18.6	18.6	18.6
292.5	18.6	18.6	19.0	19.0	19.0	19.4	19.4	19.4
315.0	20.2	20.2	21.1	21.1	21.9	22.4	22.4	23.2
337.5	24.0	24.5	24.9	25.3	25.7	29.5	31.6	32.9

DEPTH: 2460 TILT: 0 RANGE: 100.0 VOS: 6004

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	29.1	31.2	33.7	35.0	37.1	38.8	39.6	41.8
22.5	43.4	43.9	44.7	45.1	46.0	48.1	51.5	53.1
45.0	54.0	54.4	55.3	55.7	56.5	56.9	56.5	56.1
67.5	55.7	55.7	55.7	55.7	55.7	55.3	54.8	54.4
90.0	54.0	53.6	53.1	52.7	51.0	50.6	46.8	44.3
112.5	41.8	41.8	41.3	41.3	40.9	40.9	40.5	40.5
135.0	40.5	29.1	29.1	28.3	28.3	25.7	25.3	24.5
157.5	20.2	19.8	19.8	19.0	19.0	19.0	19.0	18.6
180.0	18.6	18.1	18.1	17.3	17.3	17.3	17.3	17.3
202.5	17.3	17.3	17.3	17.3	17.3	16.9	16.9	16.9
225.0	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9
247.5	16.9	16.9	16.9	16.9	16.9	17.3	17.7	18.1
270.0	18.1	18.1	18.1	18.1	18.1	18.1	18.1	18.1
292.5	18.1	18.1	18.1	18.6	18.6	19.0	19.0	19.0
315.0	19.0	19.4	19.8	20.2	20.7	21.1	21.1	21.5
337.5	22.4	22.8	23.6	24.0	24.9	27.4	27.8	27.8

DEPTH: 2470 TILT: 0 RANGE: 100.0 VOS: 6004

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	29.9	30.4	31.2	33.7	37.1	38.4	40.5	41.8
22.5	43.0	44.3	44.7	45.6	46.4	47.7	49.3	52.3
45.0	53.1	54.0	54.4	54.8	55.7	55.7	55.7	55.3
67.5	55.3	55.3	55.3	55.3	55.3	55.3	55.3	55.3
90.0	54.8	54.4	54.0	54.0	50.6	49.3	46.8	45.6
112.5	43.4	42.6	40.5	40.1	40.1	39.6	39.6	39.6
135.0	29.1	28.7	28.7	25.7	25.3	24.5	20.7	19.8
157.5	19.8	19.4	19.0	18.1	18.6	18.6	18.6	18.6
180.0	17.7	17.3	17.3	16.9	16.9	16.9	16.9	16.4
202.5	16.4	16.4	16.4	16.4	16.4	16.4	16.4	16.4
225.0	16.0	16.4	16.4	16.4	16.9	16.9	17.3	17.3
247.5	17.3	17.3	17.3	17.7	17.7	18.1	17.7	17.7
270.0	18.1	17.7	18.6	18.6	18.6	18.6	18.6	18.1
292.5	18.1	18.1	18.1	18.6	19.0	19.0	18.6	18.6
315.0	19.0	19.0	19.0	19.0	19.8	20.2	20.7	21.1
337.5	21.1	22.8	22.8	23.6	24.5	24.9	25.3	28.7

DEPTH: 2480 TILT: 0 RANGE: 100.0 VOS: 6004

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	32.5	33.3	36.7	38.0	39.6	40.5	41.3	42.6
22.5	43.4	44.3	45.6	46.4	47.7	50.2	51.9	53.6
45.0	54.0	54.8	55.3	56.1	56.5	56.9	56.5	56.5
67.5	56.5	56.9	57.4	57.4	57.4	57.4	57.4	57.4
90.0	57.4	57.8	57.8	63.7	64.1	64.1	64.1	39.2
112.5	38.8	38.8	38.4	38.0	38.0	38.0	37.1	28.3
135.0	27.8	27.8	27.4	26.6	25.3	20.2	19.0	19.0
157.5	18.6	18.1	18.1	17.7	17.7	16.9	16.9	16.9
180.0	16.9	16.9	16.4	16.4	16.4	16.4	16.4	16.4
202.5	16.4	16.4	16.4	16.4	16.4	16.9	16.4	16.4
225.0	16.4	16.9	16.9	16.9	16.9	16.9	16.9	16.9
247.5	16.9	17.3	17.3	17.3	17.3	17.3	17.3	17.7
270.0	17.7	17.7	17.7	17.7	18.1	18.1	18.1	18.1
292.5	18.1	18.1	18.1	18.6	18.6	18.6	19.0	19.0
315.0	19.0	19.0	19.4	19.4	20.2	20.2	21.1	21.5
337.5	22.4	22.8	23.6	24.0	24.5	25.3	28.7	30.8

DEPTH: 2490 TILT: 0 RANGE: 100.0 VOS: 6005

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	40.5	41.8	42.6	43.0	43.9	44.7	46.8	48.5
22.5	49.8	51.9	52.3	52.3	75.1	75.1	75.1	74.2
45.0	73.8	73.4	72.6	72.6	70.9	68.8	67.9	67.5
67.5	66.7	66.7	66.7	67.1	67.1	67.5	69.2	69.6
90.0	70.0	69.2	68.8	67.5	67.1	67.9	68.3	36.3
112.5	35.9	29.5	28.3	27.4	25.3	23.6	19.8	19.0
135.0	19.0	19.0	18.6	18.1	17.7	17.7	17.3	17.3
157.5	16.9	16.5	16.5	16.5	16.5	16.5	16.9	16.9
180.0	16.9	16.5	16.5	16.5	16.5	16.5	16.5	16.5
202.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5
225.0	16.9	16.9	16.9	16.5	16.9	16.9	16.9	17.3
247.5	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3
270.0	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3
292.5	17.7	17.7	18.1	18.1	18.1	18.1	19.0	19.0
315.0	19.4	20.2	20.7	21.1	21.1	21.5	23.2	24.0
337.5	26.2	28.3	28.7	31.2	35.0	37.1	38.0	39.7

DEPTH: 2500 TILT: 0 RANGE: 100.0 VOS: 6005

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	35.9	36.7	38.8	39.2	41.8	41.8	41.8	42.2
22.5	43.5	45.6	48.1	49.4	50.6	51.9	52.3	70.9
45.0	71.3	71.3	70.4	70.4	69.6	69.6	70.4	70.4
67.5	70.0	67.5	66.7	66.2	66.2	66.2	66.2	65.8
90.0	65.8	66.7	67.1	67.1	66.7	65.8	65.0	63.7
112.5	62.0	61.2	28.7	28.7	28.7	27.8	27.4	27.4
135.0	24.5	20.7	19.0	19.0	19.0	18.1	17.3	16.5
157.5	16.5	16.0	16.0	16.0	15.6	16.0	16.0	16.0
180.0	16.0	15.6	15.6	15.6	15.2	15.2	15.6	15.6
202.5	15.6	15.6	15.6	15.6	16.0	16.0	16.0	16.0
225.0	16.0	16.0	16.0	16.0	16.0	16.5	15.6	16.5
247.5	16.5	16.9	16.9	16.9	16.9	16.5	16.5	16.5
270.0	16.5	16.5	16.5	16.9	16.5	16.5	16.5	16.5
292.5	16.5	16.5	16.5	17.3	17.3	17.3	17.3	17.3
315.0	17.3	17.3	17.7	18.6	19.0	19.4	19.8	21.5
337.5	22.4	24.0	26.2	26.6	27.8	29.5	30.4	35.0

DEPTH: 2510 TILT: 0 RANGE: 100.0 VOS: 6005

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	35.0	35.4	35.9	38.4	39.2	40.9	41.8	42.2
22.5	43.0	45.6	47.7	52.3	54.0	69.6	70.0	70.0
45.0	69.2	67.5	67.1	67.1	67.5	67.5	67.9	67.9
67.5	67.5	67.1	66.2	65.8	65.8	66.7	67.1	67.1
90.0	66.7	65.4	64.5	65.0	64.5	64.5	64.1	63.7
112.5	62.4	60.3	58.2	56.1	26.6	26.6	26.2	25.3
135.0	25.3	21.5	17.7	17.7	17.7	17.3	16.5	16.0
157.5	16.5	16.9	16.0	16.0	16.5	16.0	16.0	15.6
180.0	15.6	15.6	15.2	15.2	14.8	14.8	15.2	15.2
202.5	15.2	15.6	15.6	15.2	15.6	15.6	15.2	15.2
225.0	15.6	15.6	16.0	15.6	15.6	15.6	15.6	16.0
247.5	16.0	16.0	16.0	16.5	16.5	16.0	16.0	16.0
270.0	16.0	16.0	16.0	15.6	15.6	15.6	15.2	15.6
292.5	15.6	15.2	15.6	15.6	15.2	15.6	16.5	16.5
315.0	16.5	16.5	16.5	16.9	17.3	17.3	17.3	19.0
337.5	19.0	20.7	21.9	25.3	26.2	26.6	27.8	29.5

DEPTH: 2520 TILT: 0 RANGE: 100.0 VOS: 6005

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	30.0	32.5	38.4	38.8	40.5	40.9	42.2	46.0
22.5	46.8	50.6	54.4	65.0	65.4	65.4	65.4	65.4
45.0	66.7	67.5	67.9	68.3	69.2	68.3	68.3	68.3
67.5	67.9	67.5	67.1	67.5	67.1	66.7	66.2	65.8
90.0	65.0	64.1	63.7	63.3	62.9	62.4	62.0	60.7
112.5	58.6	55.7	54.4	52.3	20.7	21.1	21.1	20.7
135.0	20.2	19.4	18.6	17.7	16.9	16.5	16.9	16.0
157.5	16.5	16.5	15.6	15.6	15.2	15.2	15.2	14.8
180.0	15.2	15.2	15.2	15.2	15.6	15.2	14.8	14.8
202.5	14.8	14.8	15.2	15.2	15.2	15.2	15.6	15.2
225.0	15.2	15.2	15.2	15.2	15.2	15.2	15.6	15.6
247.5	15.6	15.6	15.6	15.2	15.2	15.6	15.6	15.2
270.0	15.6	15.6	15.2	15.2	14.8	14.8	14.8	14.3
292.5	14.3	14.3	14.3	14.8	14.8	14.8	14.3	14.8
315.0	14.8	15.2	15.6	16.5	16.9	16.9	18.6	20.7
337.5	23.2	24.5	25.3	25.7	26.2	27.0	28.3	29.1

DEPTH: 2530 TILT: 0 RANGE: 100.0 VOS: 6005

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	39.7	40.1	39.7	39.7	40.1	42.2	43.9	46.8
22.5	48.9	52.3	55.7	62.4	62.4	63.3	63.3	63.3
45.0	64.1	67.9	68.3	68.8	68.8	68.8	68.8	68.3
67.5	67.9	67.5	66.7	66.2	65.8	65.8	65.4	64.5
90.0	64.1	63.7	63.3	62.9	62.9	62.4	60.7	60.3
112.5	57.8	55.7	54.4	54.4	41.8	41.8	41.3	40.9
135.0	19.0	18.6	18.6	18.6	18.6	18.6	18.1	16.5
157.5	16.0	15.2	15.6	15.6	15.6	15.6	15.6	15.2
180.0	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2
202.5	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2
225.0	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.3
247.5	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.8
270.0	15.2	15.2	15.2	15.2	14.8	14.8	14.8	14.8
292.5	14.8	14.8	14.8	14.8	15.2	15.6	15.6	16.0
315.0	16.5	16.5	16.5	16.5	16.5	16.5	16.9	17.3
337.5	17.7	21.1	21.5	21.9	25.7	26.2	26.2	26.6

DEPTH: 2540 TILT: 0 RANGE: 100.0 VOS: 6005

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	30.8	32.1	35.4	37.5	38.4	39.2	42.6	44.7
22.5	47.2	51.5	54.4	55.7	57.8	58.2	58.6	60.7
45.0	63.3	63.7	64.5	65.4	65.8	65.4	65.0	64.5
67.5	64.1	63.7	63.7	64.1	63.7	62.9	62.0	61.2
90.0	60.3	59.5	59.1	59.1	58.2	57.4	56.5	54.0
112.5	51.0	50.6	41.8	39.2	36.7	16.5	15.6	15.6
135.0	14.8	14.8	14.8	14.3	14.3	13.1	12.7	12.7
157.5	12.7	12.2	11.8	11.4	11.4	11.4	11.4	10.5
180.0	10.5	10.1	10.1	10.1	9.7	9.7	9.7	9.7
202.5	9.7	9.7	9.7	10.1	10.1	10.1	10.1	10.1
225.0	10.1	10.1	10.5	10.1	10.1	10.1	10.1	10.1
247.5	10.1	10.1	10.1	10.5	10.5	10.5	10.5	10.5
270.0	10.5	10.5	10.1	10.1	10.1	11.4	12.2	12.2
292.5	12.7	12.7	12.7	13.1	13.5	13.5	13.5	13.5
315.0	14.3	14.8	16.5	17.3	17.7	18.1	18.6	19.4
337.5	19.8	20.2	20.2	23.2	26.6	27.0	27.8	29.5

DEPTH: 2545 TILT: 0 RANGE: 100.0 VOS: 6033

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	17.3	19.0	23.2	26.6	27.4	28.7	30.0	31.6
22.5	38.0	41.3	44.7	46.4	47.7	48.9	52.7	53.6
45.0	55.7	57.8	59.5	61.2	62.9	64.1	64.6	63.7
67.5	63.7	63.7	62.9	62.4	62.4	62.4	62.4	61.6
90.0	60.3	59.5	59.5	58.6	57.0	56.5	55.7	54.0
112.5	53.2	52.3	48.9	9.3	9.7	9.7	9.7	9.7
135.0	9.7	9.7	9.3	9.3	9.3	8.9	8.4	8.0
157.5	8.0	8.0	7.6	8.0	7.6	7.6	7.6	7.6
180.0	7.6	7.6	7.6	7.6	8.0	7.6	8.0	8.0
202.5	8.0	8.0	7.6	7.6	7.6	7.6	7.6	7.6
225.0	7.6	8.0	8.0	8.0	7.6	7.6	7.6	8.0
247.5	7.6	7.6	7.6	7.6	7.6	8.0	7.6	8.0
270.0	8.0	7.6	7.6	7.6	7.6	7.6	7.6	7.6
292.5	7.6	8.0	8.0	8.0	8.0	8.0	8.4	8.4
315.0	8.9	8.9	8.9	9.3	10.1	10.5	11.4	11.8
337.5	12.2	12.7	13.9	13.9	13.9	14.8	15.6	16.5

DEPTH: 2549 TILT: 0 RANGE: 100.0 VOS: 6033

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	6.8	8.0	8.9	8.9	13.5	16.0	18.1	20.7
22.5	22.4	23.2	24.1	30.0	30.0	33.8	41.3	45.6
45.0	46.4	48.5	51.1	51.5	52.7	54.9	56.1	57.8
67.5	58.2	59.9	60.8	61.6	61.6	61.6	61.6	62.0
90.0	61.6	61.2	60.3	59.5	58.2	57.0	56.5	55.7
112.5	54.4	54.4	53.2	52.3	51.5	51.1	50.2	7.2
135.0	7.2	7.2	7.2	7.2	6.8	6.8	6.8	5.9
157.5	5.9	5.9	5.9	5.9	5.9	5.5	5.5	5.5
180.0	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
202.5	5.1	5.1	5.1	5.1	5.1	5.1	4.6	4.6
225.0	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
247.5	4.6	4.6	4.2	4.2	4.2	4.2	4.2	4.2
270.0	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
292.5	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
315.0	3.8	3.8	3.8	3.8	3.8	3.8	3.8	4.2
337.5	4.6	4.6	4.6	4.6	5.1	5.5	5.9	6.3

DEPTH: 2549 TILT: -10 RANGE: 100.0 VOS: 6033

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	7.2	7.6	8.0	9.3	10.5	11.4	14.3	14.3
22.5	18.1	20.3	25.7	27.4	31.2	34.6	35.9	39.2
45.0	44.7	46.8	47.7	49.4	51.5	52.7	54.0	55.3
67.5	56.5	57.8	58.2	59.1	59.1	59.1	58.6	58.6
90.0	58.6	58.6	58.2	57.4	56.5	55.7	55.3	53.6
112.5	52.7	51.9	51.1	50.6	49.8	49.8	7.6	7.6
135.0	7.2	7.2	6.8	6.8	6.3	6.3	5.5	5.5
157.5	5.5	5.5	5.5	5.5	5.5	5.5	5.1	5.1
180.0	5.1	5.1	5.1	5.1	5.1	5.1	5.1	4.6
202.5	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
225.0	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
247.5	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
270.0	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
292.5	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
315.0	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.6
337.5	5.1	5.5	5.5	5.9	5.9	6.3	6.3	6.8

DEPTH: 2549 TILT: -20 RANGE: 100.0 VOS: 6033

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	5.5	5.9	6.3	6.8	8.0	8.9	11.8	14.3
22.5	18.6	20.7	22.4	32.9	34.6	35.4	37.1	40.5
45.0	43.5	45.6	49.4	51.9	52.7	54.4	55.3	56.5
67.5	57.0	57.8	59.1	59.9	60.8	60.3	60.3	59.9
90.0	59.5	59.9	59.5	58.2	57.4	56.5	56.1	54.9
112.5	54.0	53.6	52.7	52.3	52.3	7.6	7.6	7.2
135.0	7.2	7.2	6.8	6.8	6.3	5.5	5.5	5.1
157.5	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
180.0	5.1	4.6	4.6	4.6	4.6	4.6	4.6	4.6
202.5	4.6	4.6	4.6	4.6	4.2	4.2	4.2	4.2
225.0	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
247.5	4.2	4.2	4.2	3.8	3.8	3.8	3.8	3.8
270.0	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
292.5	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
315.0	3.8	3.8	3.8	3.8	4.2	4.2	4.2	4.6
337.5	4.6	4.6	4.6	4.6	4.6	4.6	4.6	5.1

DEPTH: 2549 TILT: -30 RANGE: 100.0 VOS: 6033

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	5.5	5.9	6.3	6.8	8.0	11.0	12.2	13.9
22.5	17.3	21.1	24.5	26.6	32.1	36.7	39.7	43.5
45.0	47.3	47.7	58.6	58.6	59.5	59.5	60.3	61.6
67.5	62.0	63.7	64.1	64.6	64.6	64.1	63.7	63.7
90.0	62.9	62.9	62.0	61.6	60.3	59.5	59.1	57.4
112.5	56.1	55.7	54.9	7.6	7.2	6.8	6.3	6.3
135.0	6.3	5.9	5.9	5.9	5.5	5.1	4.6	4.6
157.5	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
180.0	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
202.5	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
225.0	4.2	4.2	4.2	4.2	3.8	3.8	3.8	3.8
247.5	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
270.0	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
292.5	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
315.0	3.8	3.8	3.8	3.8	3.8	3.8	3.8	4.2
337.5	4.6	4.6	5.1	5.1	5.1	5.1	5.1	5.5

DEPTH: 2549 TILT: -40 RANGE: 100.0 VOS: 6033

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	4.6	4.6	5.1	5.5	5.9	6.3	6.8	12.2
22.5	23.2	24.9	26.2	30.0	37.6	40.9	45.6	49.4
45.0	61.2	61.6	62.9	63.7	65.4	65.8	65.8	68.4
67.5	69.6	70.0	70.9	70.5	70.5	69.6	68.8	67.5
90.0	67.9	67.1	66.2	65.8	64.1	63.3	62.0	61.2
112.5	60.8	59.9	8.0	8.0	7.6	7.6	7.6	7.2
135.0	7.2	7.2	7.2	6.8	6.8	6.8	6.8	6.3
157.5	5.9	5.9	5.5	5.5	5.1	4.6	4.6	4.6
180.0	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
202.5	4.6	4.6	4.6	4.6	4.6	4.2	4.2	4.2
225.0	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
247.5	4.2	4.2	4.2	4.2	3.8	3.8	3.8	3.8
270.0	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
292.5	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
315.0	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
337.5	3.8	3.8	3.8	3.8	3.8	3.8	3.8	4.2

DEPTH: 2549 TILT: -50 RANGE: 100.0 VOS: 6033

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	5.9	6.3	6.3	6.3	9.7	9.7	10.1	10.5
22.5	10.5	11.0	11.0	13.1	46.8	49.4	51.5	53.2
45.0	56.1	69.6	70.5	71.3	71.3	73.8	73.8	74.3
67.5	74.3	76.4	76.4	76.8	76.8	76.8	76.8	75.1
90.0	73.8	72.2	69.6	68.8	68.8	67.9	8.9	8.4
112.5	8.0	7.6	7.6	7.6	7.2	7.2	7.2	7.2
135.0	6.8	6.8	6.3	5.9	5.5	5.5	5.5	5.5
157.5	5.5	5.5	5.5	5.5	4.6	4.6	4.6	4.6
180.0	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
202.5	4.6	4.6	4.6	4.6	4.6	4.6	4.2	4.2
225.0	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
247.5	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
270.0	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
292.5	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
315.0	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
337.5	4.6	5.1	5.1	5.1	5.1	5.5	5.5	5.5

DEPTH: 2549 TILT: -90 RANGE: 25.0 VOS: 6033

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	5.3	5.2	5.2	5.2	5.2	5.2	5.2	5.2
22.5	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2
45.0	5.2	5.2	5.2	5.2	5.1	5.1	5.1	5.1
67.5	5.2	5.3	5.3	5.3	5.3	5.3	5.3	5.2
90.0	5.2	5.2	5.2	5.2	5.3	5.3	5.3	5.3
112.5	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
135.0	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
157.5	5.3	5.3	5.4	5.4	5.4	5.4	5.4	5.4
180.0	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
202.5	5.4	5.4	5.4	5.5	5.5	5.4	5.4	5.4
225.0	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
247.5	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
270.0	5.4	5.3	5.3	5.3	5.3	5.3	5.3	5.3
292.5	5.3	5.4	5.4	5.4	5.4	5.4	5.4	5.4
315.0	5.4	5.4	5.4	5.3	5.3	5.3	5.3	5.3
337.5	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3

DOWELL SONAR CALIPER SURVEY

TREATMENT NO: 11-42-0369

JOB NO: 344

WELL DATA

ZERO @ BHF

T.D. DOWELL 2514 FT

CASING SIZE 9-5/8 IN

INTERMEDIATE 6-5/8 IN

TUBING 4-1/2 IN

OPERATOR 2514 FT

DEPTH 1594 FT
LINER - FT
DEPTH OUT FT

DEPTH OUT FT

670

SOUTHWEST SALT COMPANY

WELL NO: ROACH BAKER #3

ROACH BAKER FIELD

AUGUST 16,1979

PRODUCTION: SALT

GENERAL COMMENTS

BORE HOLE FROM 1594 TO 1800.

MAILING ADDRESS

STREET/BOX: P.O. BOX 1237

CITY: LITCHFIELD PARK STATE: ARIZONA

ZIP: 85340

ATTN: MR. JERRY GROTT

MR. JERRY GROTT
COMPANY REPRESENTATIVE

HL VAN METRE
DOWELL ENGINEER

DOWELL SONAR CALIPER SURVEY

SOUTHWEST SALT COMPANY ROACH BAKER FIELD AUGUST 16,1979

WELL NO. ROACH BAKER #3 JOB NO. 344

RADII IN FT

DEPTH	N	S	E	W	NE	SW	SE	NW
1810	1.0	0.5	0.7	0.7	0.9	0.6	0.6	0.8
1820	1.0	0.5	0.7	0.7	0.9	0.6	0.6	0.8
1827	1.3	0.7	0.8	0.8	1.1	0.7	0.6	1.1
1828	51.0	32.0	52.0	42.0	52.0	34.0	47.0	43.0
1830	51.0	34.0	51.0	42.0	52.0	34.0	48.0	42.0
1840	51.0	33.0	51.0	39.0	53.0	32.0	43.0	45.0
1850	47.0	29.0	43.0	37.0	50.0	31.0	37.0	43.0
1860	41.0	28.0	37.0	34.0	42.0	29.0	33.0	40.0
1870	37.0	26.0	32.0	31.0	40.0	27.0	29.0	35.0
1880	36.0	22.0	27.0	28.0	34.0	25.0	26.0	33.0
1890	32.0	21.0	24.0	27.0	30.0	22.0	25.0	29.0
1900	29.8	20.2	23.3	21.6	26.9	21.1	19.7	27.5
1910	28.1	16.8	22.0	20.1	24.6	19.0	18.7	24.2
1920	26.6	16.1	21.4	19.2	24.6	17.6	18.0	24.5
1930	24.8	15.9	20.9	20.0	22.8	17.4	17.6	22.9
1940	23.7	15.6	19.5	19.6	22.7	17.1	16.9	22.9
1950	24.1	15.1	19.3	19.1	22.7	16.7	16.5	22.5
1960	24.2	15.2	19.3	19.2	22.7	16.5	16.6	22.1

RADII IN FT

DEPTH	N	S	E	W	NE	SW	SE	NW
1970	24.5	14.9	19.0	19.8	23.0	16.3	16.2	23.2
1980	26.4	15.1	20.1	19.6	25.4	16.3	16.1	23.2
1990	26.0	15.8	19.8	20.0	23.2	17.2	16.8	23.3
2000	24.2	14.6	18.0	18.9	20.0	15.8	15.5	22.8
2010	23.8	14.2	18.9	18.2	22.5	15.9	15.8	21.6
2020	24.6	12.7	18.9	17.2	24.3	13.8	14.6	21.5
2030	25.0	13.2	19.7	16.2	24.6	13.6	15.2	21.7
2040	25.6	13.5	20.2	17.8	24.5	14.4	15.1	22.4
2060	25.8	12.9	19.2	16.8	25.3	13.7	13.9	21.4
2080	26.4	13.2	20.4	17.2	26.0	14.0	14.9	21.9
2100	27.6	13.1	20.1	17.6	26.4	14.1	15.1	22.9
2120	27.7	12.5	19.8	17.3	27.1	13.4	14.3	23.3
2140	28.7	12.8	19.5	17.2	28.0	13.6	14.3	23.4
2160	32.0	11.9	19.1	17.1	29.1	13.2	13.1	23.7
2180	29.6	10.9	20.1	15.8	29.4	11.9	13.3	23.6
2200	31.4	11.1	21.0	15.9	30.7	11.7	13.6	24.4
2220	33.0	10.5	21.9	16.9	31.0	11.7	13.3	26.2
2240	33.4	10.6	21.0	16.4	31.3	11.7	13.1	25.5

RADII IN FT

DEPTH	N	S	E	W	NE	SW	SE	NW
2260	33.7	10.7	21.6	16.2	32.1	11.6	12.8	25.7
2280	35.4	10.9	21.3	16.2	32.6	11.9	13.1	26.1
2300	36.0	10.0	23.0	15.0	37.0	11.0	12.0	26.0
2320	38.0	10.0	20.0	15.0	33.0	11.0	12.0	27.0
2340	41.0	10.0	23.0	15.0	38.0	11.0	13.0	30.0
2360	38.0	9.0	22.0	15.0	36.0	10.0	13.0	28.0
2380	38.0	9.0	22.0	14.0	36.0	10.0	12.0	28.0
2400	39.0	10.0	23.0	16.0	37.0	10.0	13.0	29.0
2420	41.0	10.0	23.0	16.0	39.0	11.0	13.0	30.0
2440	44.0	10.0	24.0	16.0	38.0	10.0	13.0	31.0
2460	46.0	9.0	23.0	15.0	37.0	10.0	13.0	32.0
2480	47.0	11.0	22.0	17.0	35.0	11.0	14.0	35.0
2500	44.0	10.0	18.0	14.0	35.0	10.0	12.0	30.0

DOWELL SONAR CALIPER SURVEY

SOUTHWEST SALT COMPANY ROACH BAKER FIELD AUGUST 16,1979

WELL NO: ROACH BAKER #3 JOB NO: 344

RADII IN FEET

DEPTH	ANGLE	N	S	E	W	NE	SW	SE	NW
2500	90	44.0	10.0	19.0	14.0	35.0	10.0	12.0	30.0
2500	95	44.0	10.0	18.0	13.0	33.0	10.0	11.0	29.0
2500	100	42.0	10.0	17.0	14.0	34.0	10.0	12.0	29.0
2500	105	43.0	10.0	17.0	16.0	36.0	10.0	12.0	31.0
2500	110	44.0	10.0	17.0	15.0	36.0	11.0	12.0	32.0
2500	115	38.0	11.0	17.0	16.0	29.0	11.0	13.0	30.0
2500	120	32.3	10.5	16.9	15.5	26.7	11.3	12.1	27.2
2500	125	28.2	10.6	16.2	15.1	23.1	11.7	12.5	22.7
2500	130	24.7	11.6	15.1	14.6	20.5	12.0	12.3	19.8
2500	135	22.7	13.0	14.6	14.5	19.6	13.0	11.5	19.0
2500	140	20.5	12.8	13.3	14.4	18.3	13.0	11.3	18.5
2500	145	18.4	12.4	12.9	14.0	17.5	12.8	11.1	17.2
2500	150	17.5	12.0	12.3	13.8	15.5	12.3	11.4	16.0
2500	155	15.2	11.9	12.6	13.1	14.6	12.2	11.5	14.8
2500	160	14.7	12.0	12.7	13.0	13.7	12.2	11.7	14.2
2500	165	14.0	11.8	12.9	13.0	13.6	12.2	12.0	13.7
2500	170	14.1	11.9	12.6	13.1	13.3	12.3	12.2	13.4
2500	175	14.1	12.1	12.7	13.3	13.2	12.5	12.2	13.4

DOWELL SONAR CALIPER SURVEY

SOUTHWEST SALT COMPANY ROACH BAKER FIELD AUGUST 16,1979

WELL NO: ROACH BAKER #3 JOB NO: 344

VOLUME CALCULATIONS

DEPTH	INCR CU FT	TOTAL CU FT	INCR BBLS	BBLS
1810	0	0	0	0
1820	18	18	3	3
1827	15	33	3	6
1828	2133	2166	380	386
1830	12598	14764	2244	2629
1840	61991	76755	11040	13669
1850	56231	132986	10014	23683
1860	46771	179757	8329	32013
1870	37134	216890	6613	38626
1880	29589	246479	5270	43896
1890	24003	270481	4275	48170
1900	19576	290056	3486	51656
1910	16355	306411	2913	54569
1920	14605	321016	2601	57170
1930	13669	334684	2434	59604
1940	12806	347489	2281	61885
1950	12370	359858	2203	64088
1960	12247	372104	2181	66269

VOLUME CALCULATIONS

DEPTH	INCR CU FT	TOTAL CU FT	INCR BBLS	BBLS
1970	12358	384462	2201	68470
1980	12984	397446	2312	70782
1990	13434	410880	2392	73175
2000	12449	423328	2217	75392
2010	11536	434863	2054	77446
2020	11417	446279	2033	79479
2030	11467	457745	2042	81521
2040	11940	469685	2126	83648
2060	24027	493711	4279	87927
2080	24305	518015	4328	92255
2100	25641	543655	4566	96821
2120	26057	569712	4641	101462
2140	26220	595932	4670	106132
2160	27249	623180	4853	110984
2180	27352	650531	4871	115855
2200	27798	678328	4950	120806
2220	29931	708258	5330	126136
2240	30718	738976	5471	131607

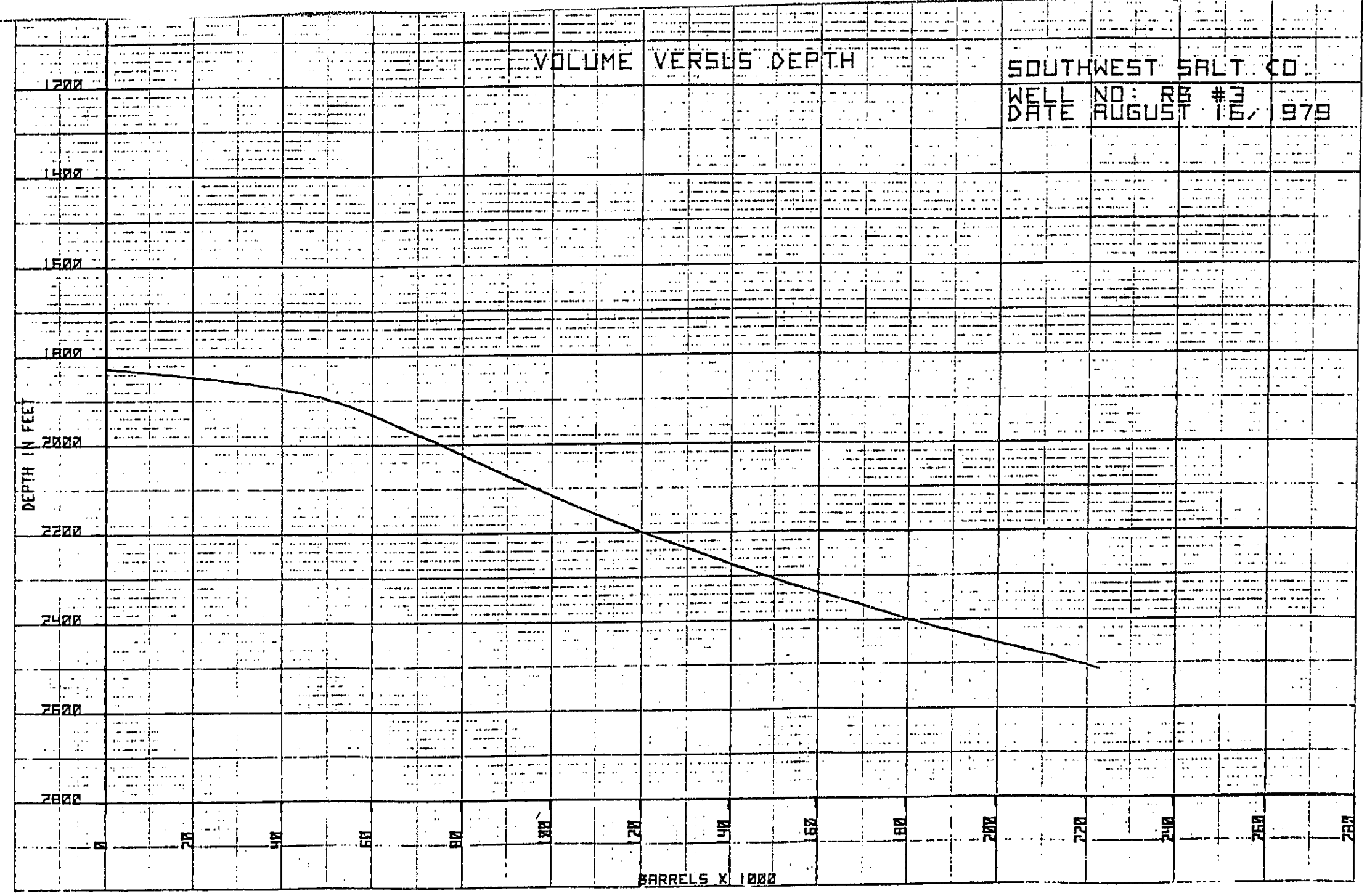
VOLUME CALCULATIONS

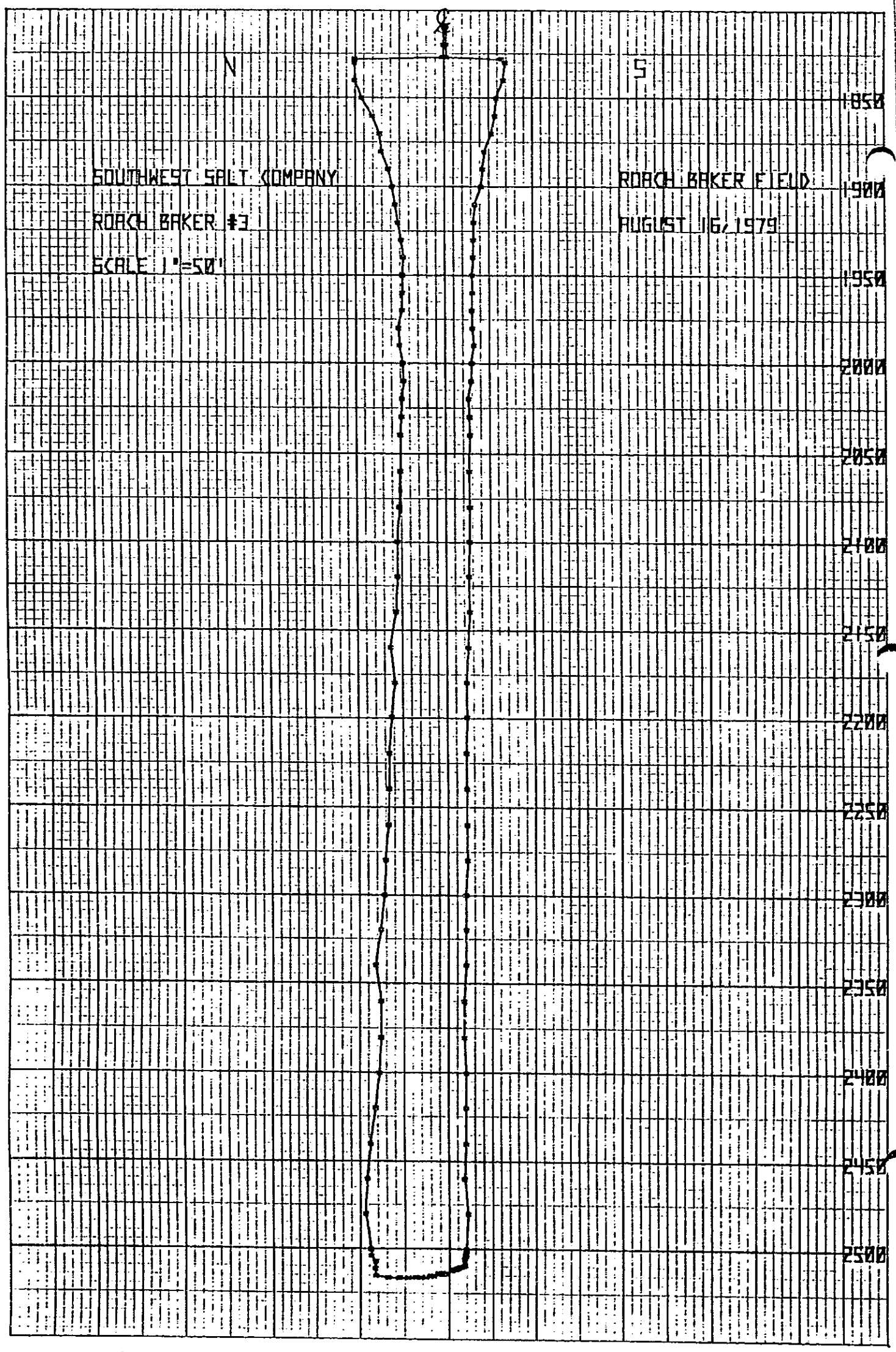
DEPTH	INCR CU FT	TOTAL CU FT	INCR BBLS	BBLS
2260	31002	769978	5521	137128
2280	32107	802084	5718	142846
2300	33695	835779	6001	148847
2320	34125	869903	6077	154924
2340	36831	906733	6559	161483
2360	38415	945147	6841	168324
2380	36262	981408	6458	174782
2400	37324	1018730	6647	181429
2420	39898	1058620	7105	188535
2440	41990	1100600	7478	196013
2460	43681	1144280	7779	203792
2480	45101	1189380	8032	211824
2500	42385	1231760	7548	219372
INCLUDES VOLUME BELOW 2500		1257422		223942

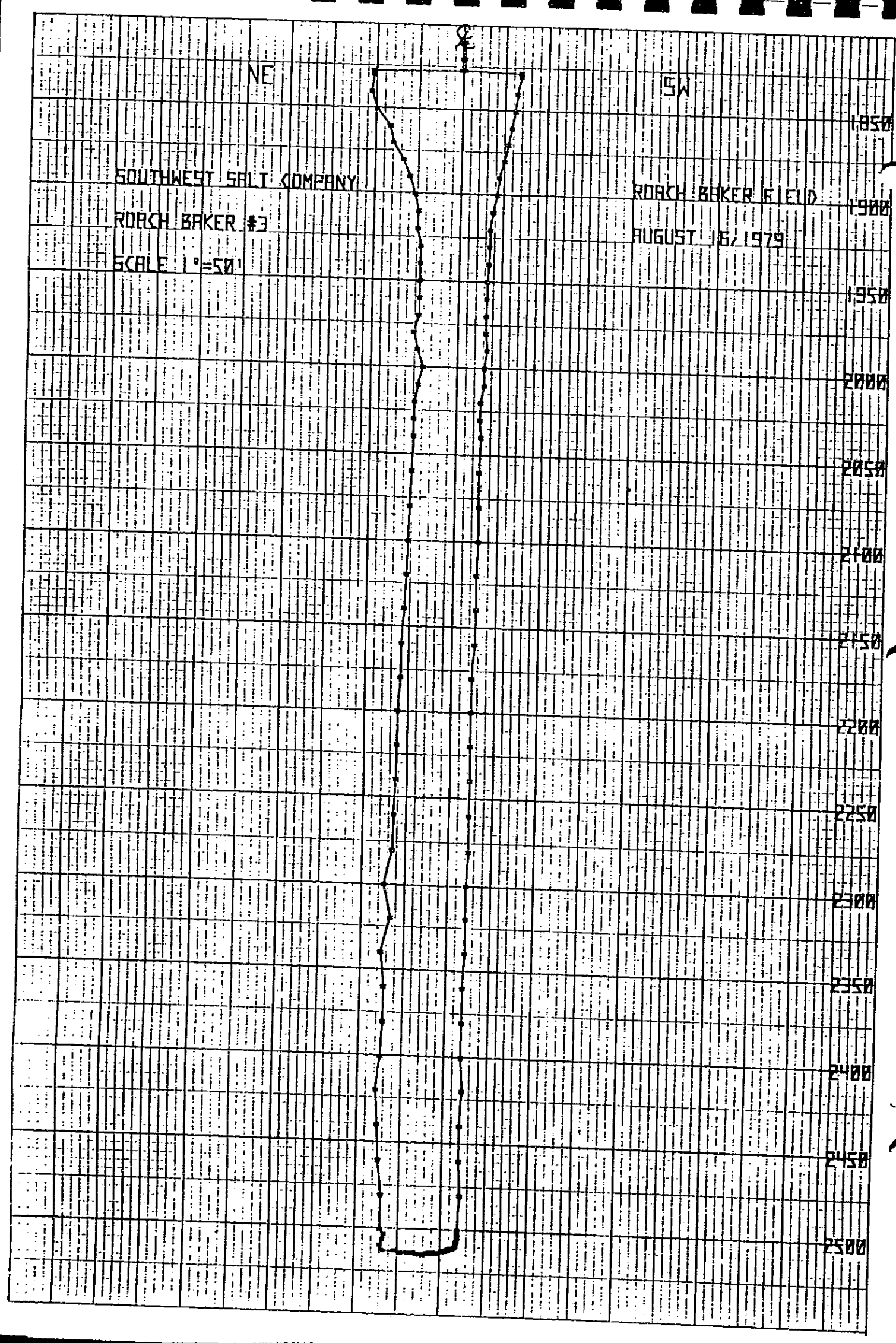
1231760
126662

1131 tons dirt

22,662 tons soil


VOLUME VERSUS DEPTH
SOUTHWEST SALT CO.
WELL NO: RB #3
DATE AUGUST 16, 979
DEPTH IN FEET
1200
1400
1600
1800
2000
2200
2400
2600
2800
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
BARRELS X 1000


N
S
SOUTHWEST SALT COMPANY
ROACH BAKER #3
SCALE 1"=50'
ROACH BAKER FIELD
AUGUST 16, 1979
1850
1900
1950
2000
2050
2100
2150
2200
2250
2300
2350
2400
2450
2500


NE
SW
SOUTHWEST SALT COMPANY
ROACH BAKER #3
SCALE 1"=50'
ROACH BAKER FIELD
AUGUST 16, 1979
1850
1900
1950
2000
2050
2100
2150
2200
2250
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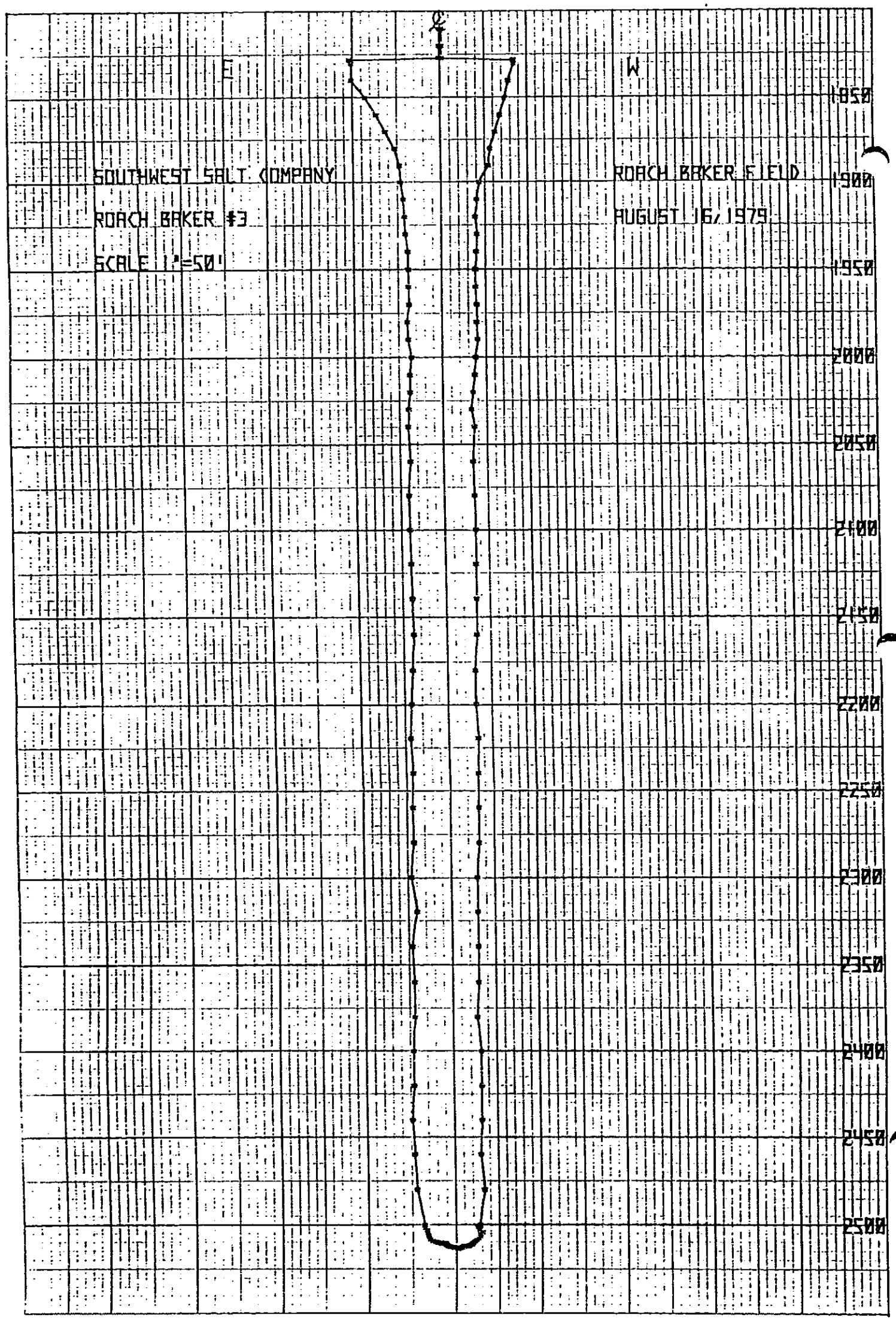
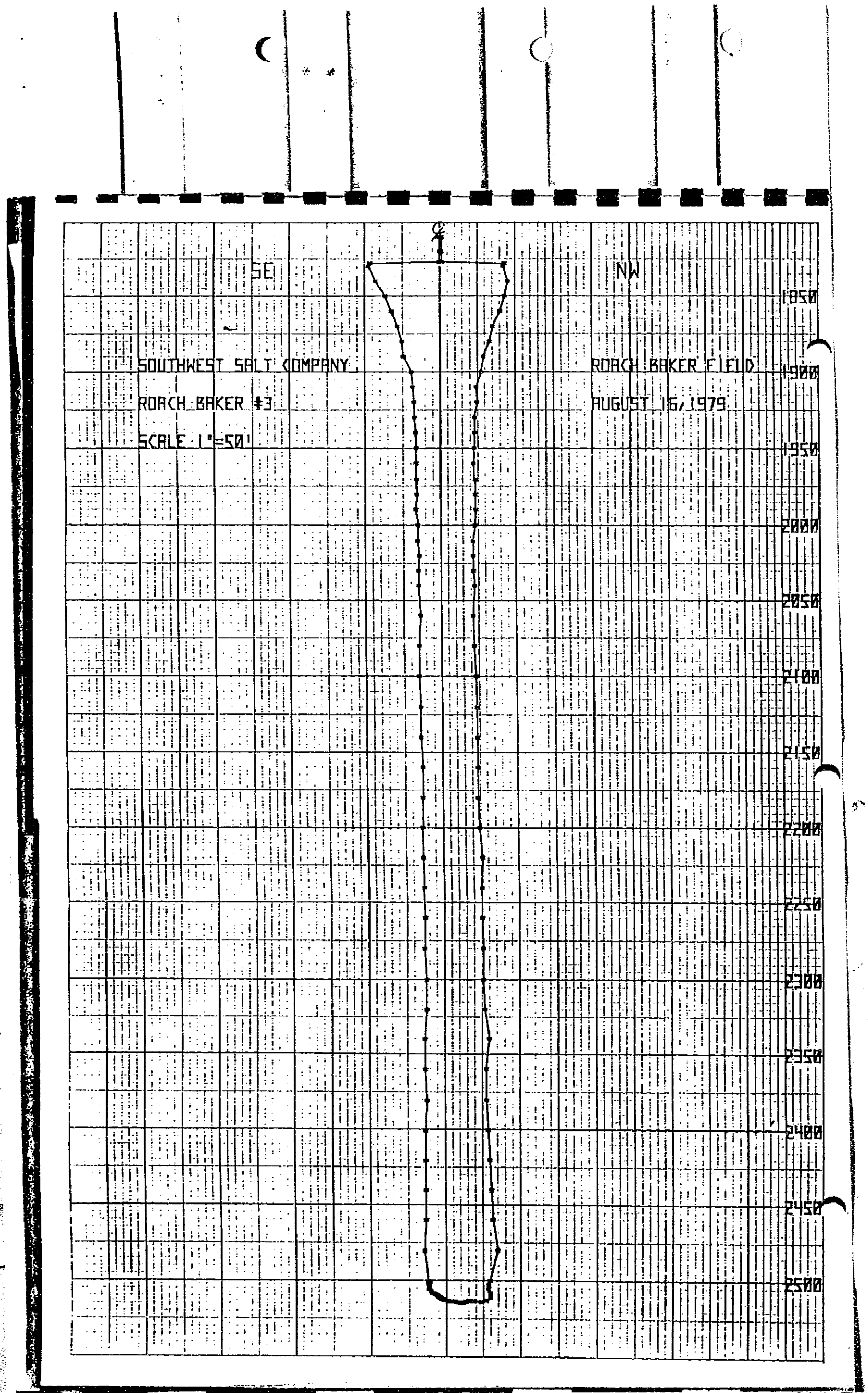
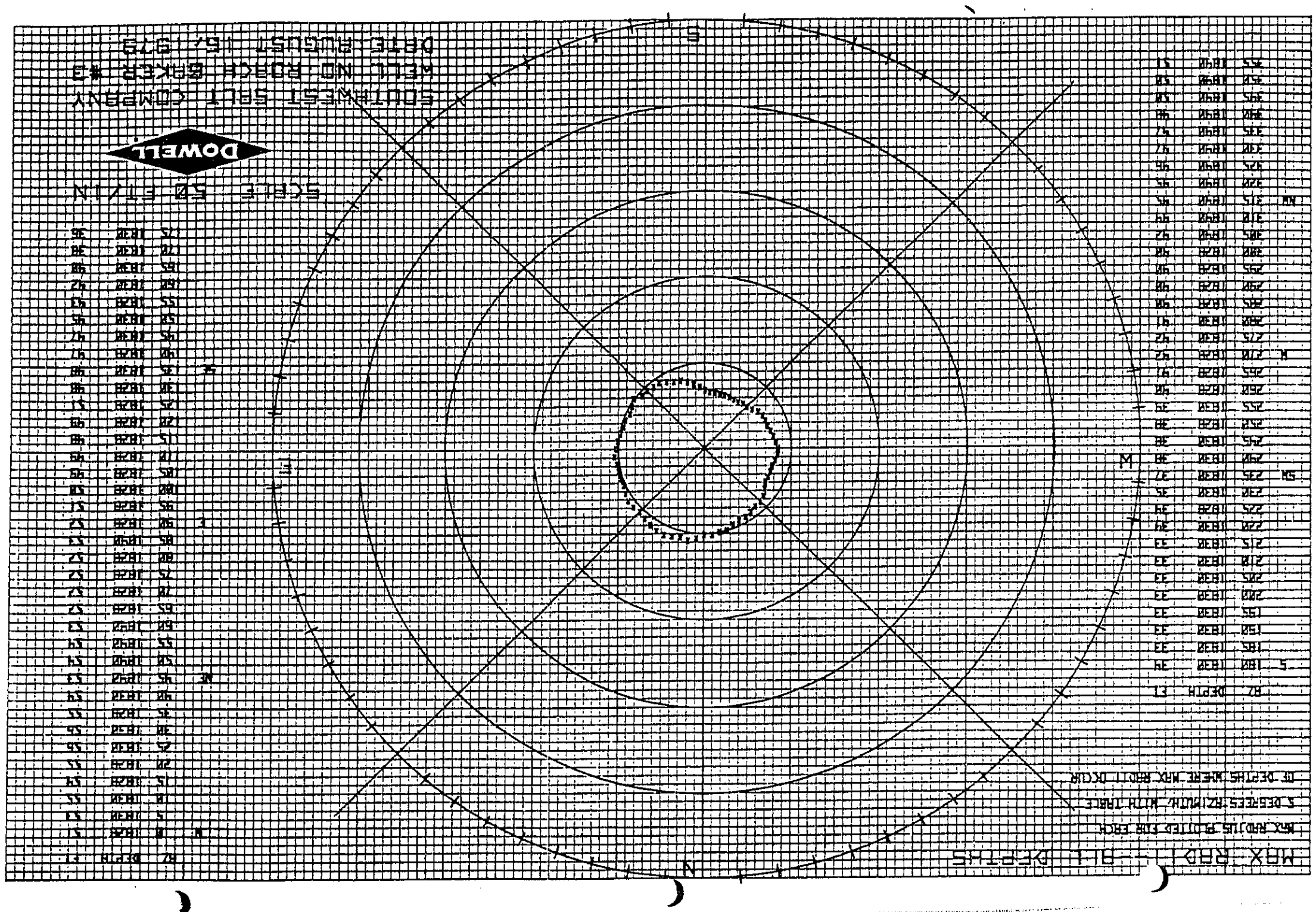
2400
2450
2500


E
W
SOUTHWEST SALT COMPANY
ROACH BAKER #3
SCALE 1"=50'
ROACH BAKER FIELD
AUGUST 16, 1979
1850
1900
1950
2000
2050
2100
2150
2200
2250
2300
2350
2400
2450
2500


SE
NW
SOUTHWEST SALT COMPANY
ROACH BAKER #3
SCALE 1"=50'
ROACH BAKER FIELD
AUGUST 16, 1979
1850
1900
1950
2000
2050
2100
2150
2200
2250
2300
2350
2400
2450
2500


MAX RAD
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N DEPTHS WHERE MAX RADII OCCUR
AZ DEPTH E1
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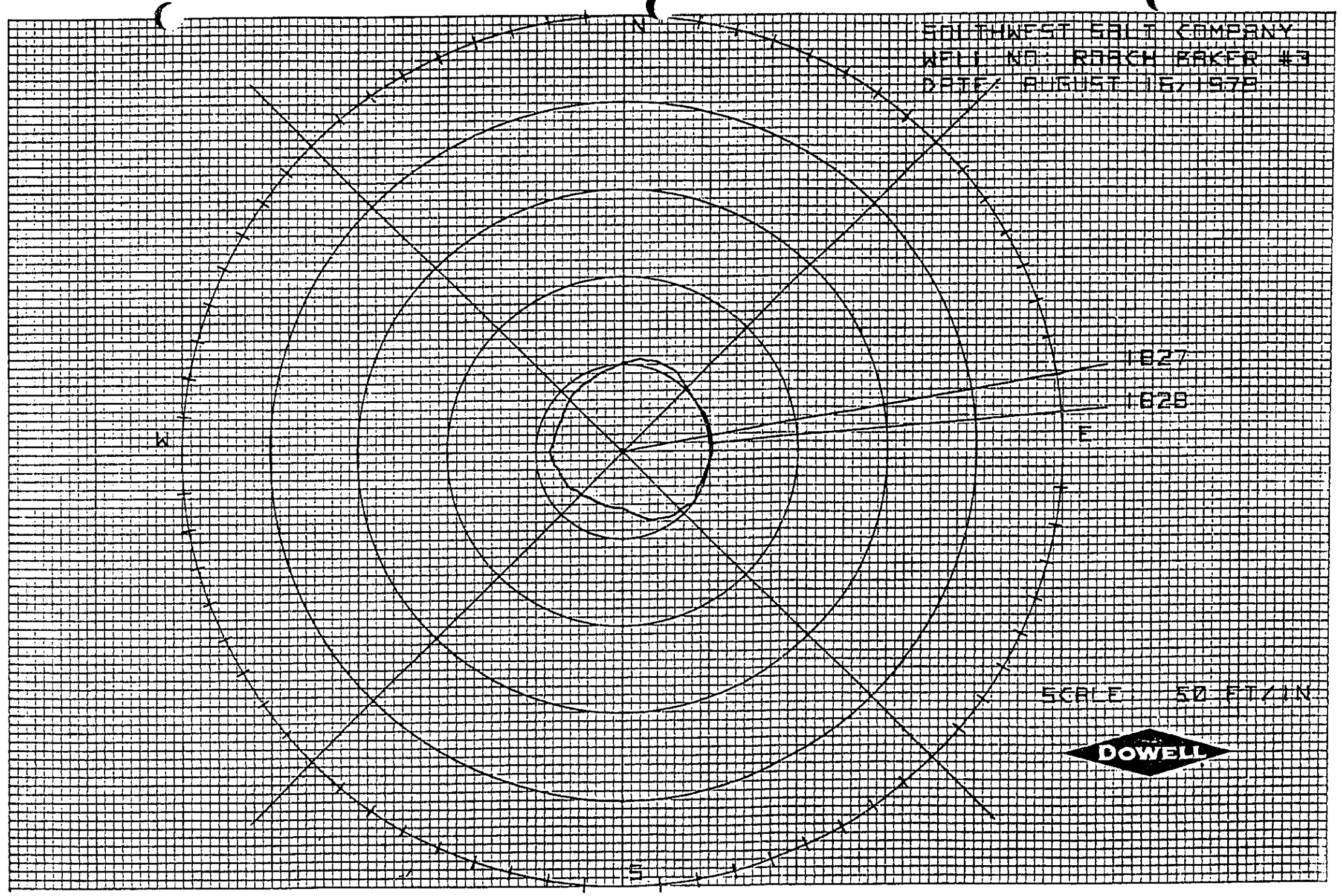
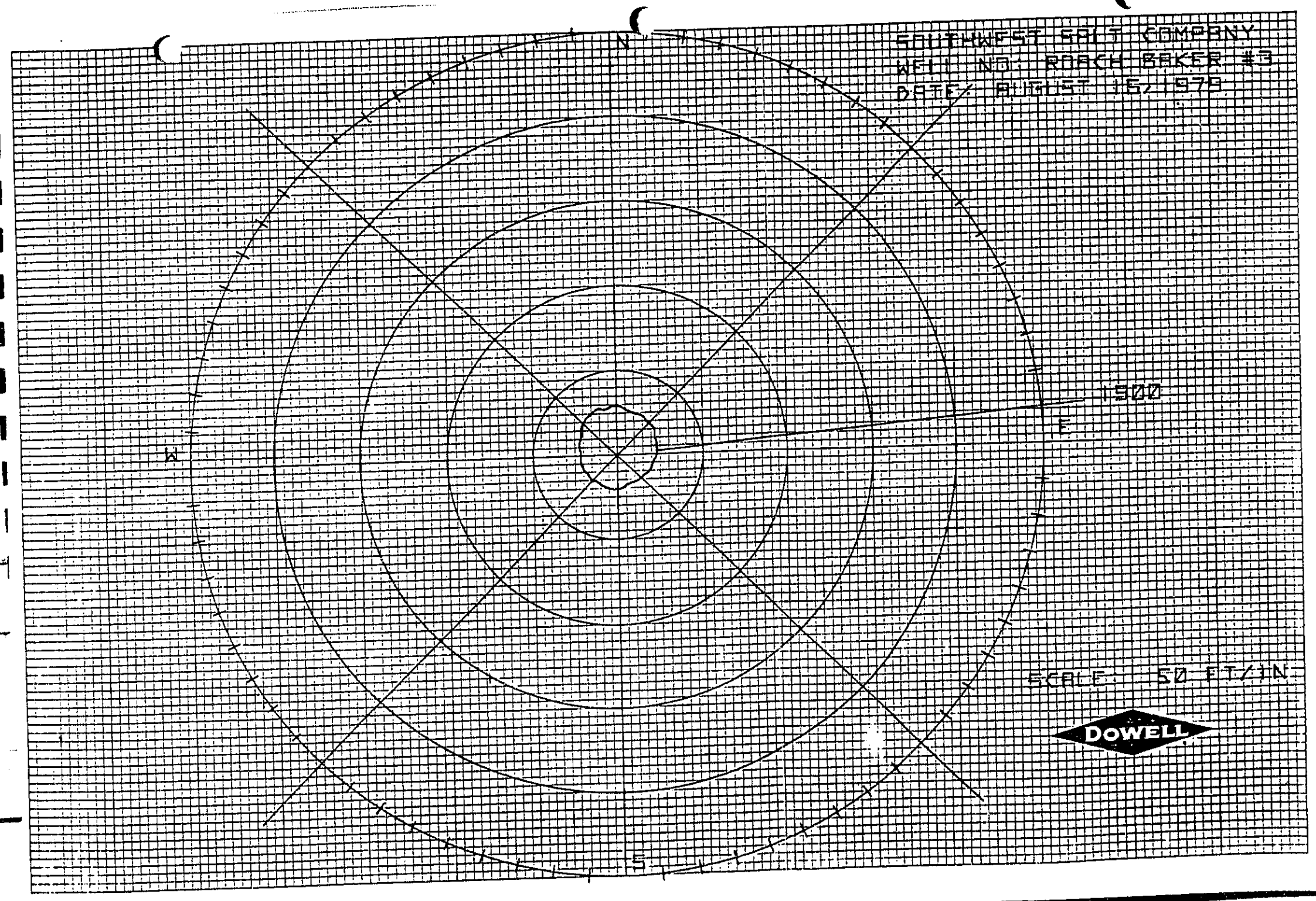
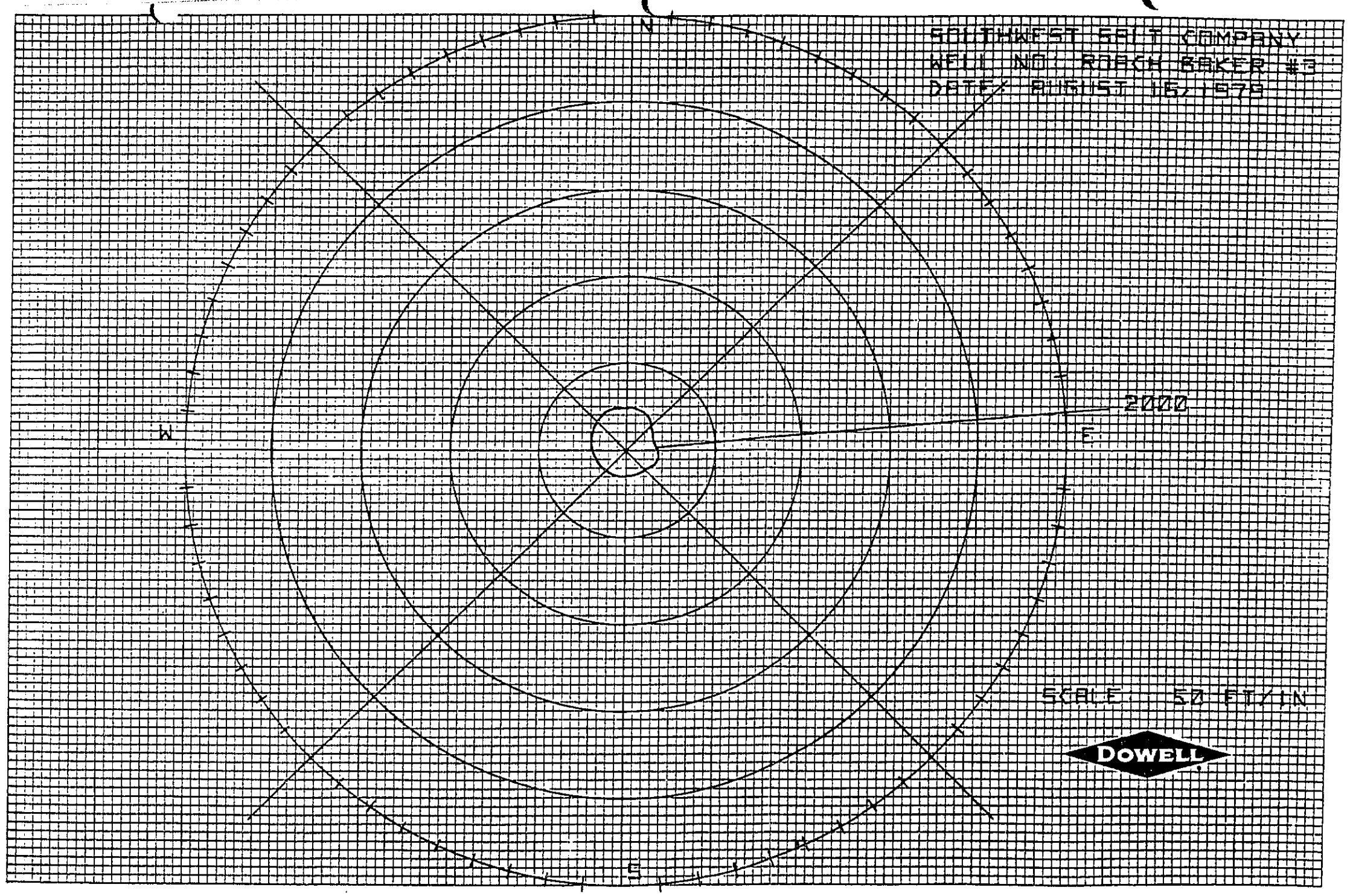
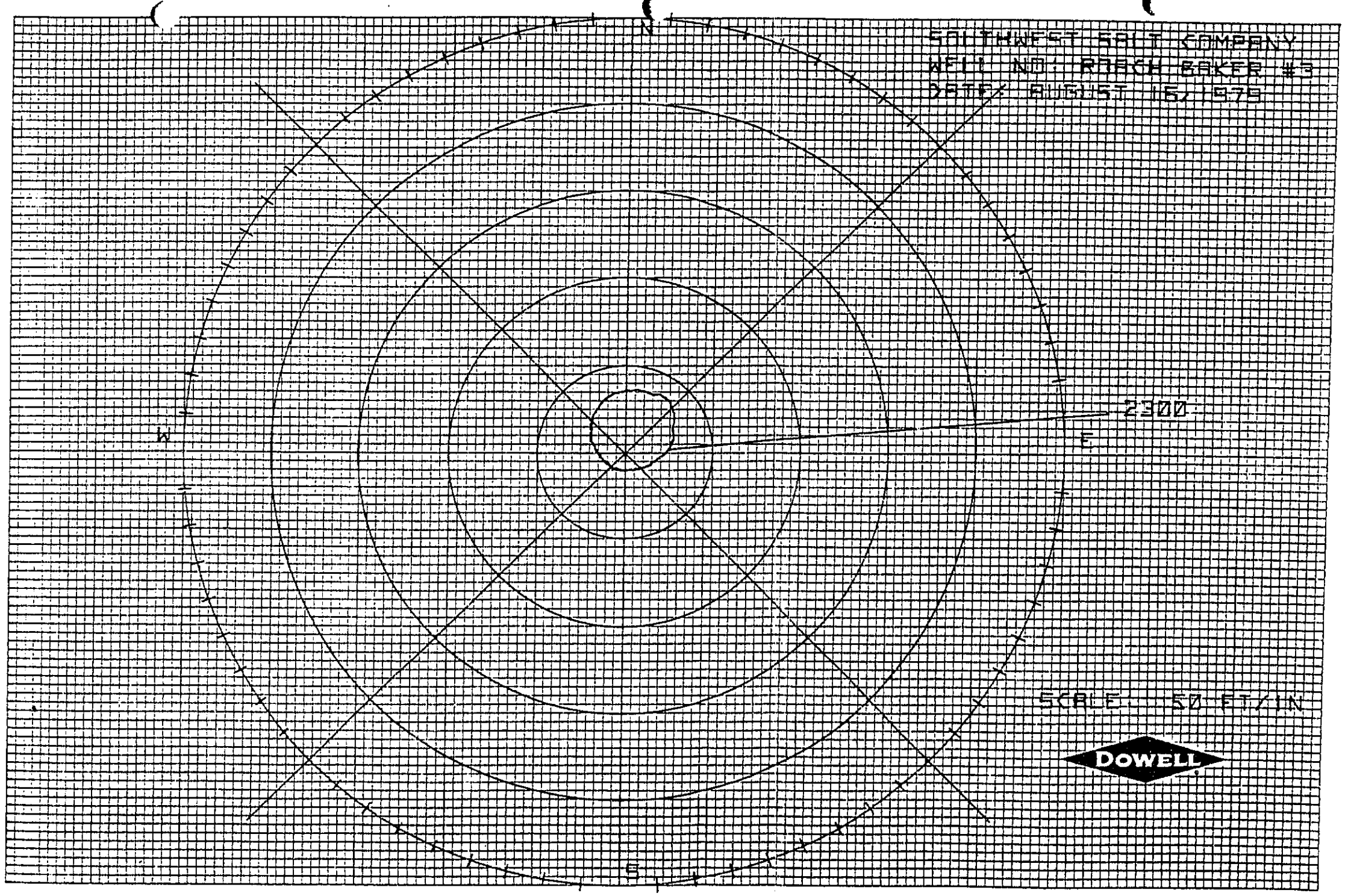
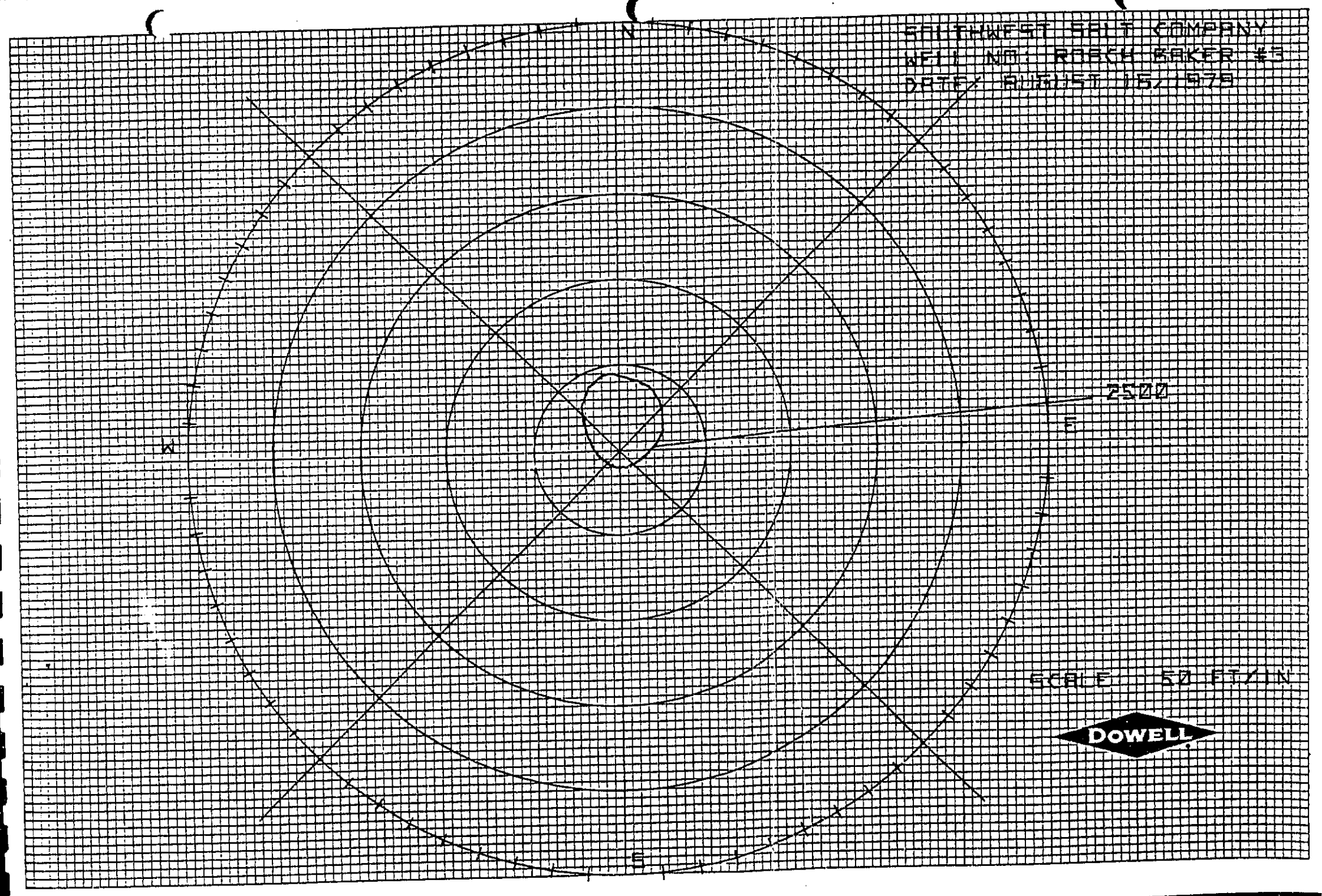
300 1830 33
305 1830 33
310 1830 33
315 1830 33
320 1830 33
325 1830 33
330 1830 33
335 1830 33
340 1830 33
345 1830 33
350 1830 33
355 1830 33
SCALE 50 FT/IN
DOWELL
SOUTHWEST SALT COMPANY
WELL NO ROACH BRKER #3
DATE AUGUST 16, 1979


SOUTHWEST SALT COMPANY
WELL NO: ROACH BAKER #3
DATE: AUGUST 16, 1978
N
W
E
S
1827
1828
SCALE 50 FT/IN
DOWELL


SOUTHWEST SALT COMPANY
WELL NO. ROACH BAKER #3
DATE: AUGUST 15, 1978
N
W
E
S
1500
SCALE: 50 FT/IN
DOWELL


SOUTHWEST SALT COMPANY
WELL NO. ROACH BAKER #3
DATE: AUGUST 16, 1978
N
W
E
S
2000
SCALE: 50 FT/IN
DOWELL


SOUTHWEST SALT COMPANY
WELL NO: RANCH BAKER #3
DATE: AUGUST 16, 1979
N
W
E
S
2300
SCALE: 50 FT/IN
DOWELL


SOUTHWEST SALT COMPANY
WELL NO: ROACH BAKER #3
DATE: AUGUST 16, 1979
N
W
E
S
2500
SCALE: 50 FT/IN
DOWELL

AmeriGas®

America's Propane Company

May 21, 1997

Mr. Steven L. Rauzi
Oil & Gas Administrator
Arizona Geological Survey
416 W. Congress, Suite 100
Tucson, AZ 85701

Re: Permit Nos. 627, 670 and 865

Dear Mr. Rauzi,

Enclosed please find the completed Organization Report for AmeriGas Propane, L.P. which has been executed by a corporate officer.

I have also enclosed copies of two statements that were previously sent with regard to corporate history which shows the path of Cal Gas and AP Propane, Inc. to AmeriGas Propane, Inc.

In addition to these facts, as part of a corporate restructuring in 1994, AmeriGas Propane, L.P. was formed to acquire, own and operate substantially all of the assets of AmeriGas Propane, Inc. Subsequently, on April 12, 1995, AmeriGas Propane, Inc. merged with and into AmeriGas Propane, L.P.

I hope the enclosed report and corporate history provide you with the information necessary to proceed with changing the names on the above-referenced permits to AmeriGas Propane, L.P.

If you should have any questions or require any further information, please do not hesitate to contact me. Thank you for your assistance in this matter.

Sincerely,

Linda G. Brennan

Linda G. Brennan
Senior Paralegal

MAY 1997
ARIZONA GEOLOGICAL SURVEY

Enclosure

AmeriGas Propane, L.P.
P.O. Box 965, Valley Forge, PA 19482 (610) 337-7000 FAX (610) 992-3258

ORGANIZATION REPORT

Full Name of the Company, Organization, or Individual
AmeriGas Propane, L.P.

Mailing Address and Phone Number
460 N. Gulph Road, King of Prussia, PA 19406

Plan of Organization (State whether organization is a corporation, joint stock association, firm or partnership, or individual
Limited Partnership

Purpose of Organization (State type of business in which engaged)
Retail propane marketer serving residential, commerical, industrial, agricultural and engine fuel customers.

If a reorganiztion, give name and address of previous organization
AmeriGas Propane, Inc.

If a foreign corporation, give (1) State where incorporated	(2) Name and mailing address of state agent	(3) Date of permit to do business in state
AmeriGas Propane, L.P. is a Delaware limited partnership	The Prentice-Hall Corp. Sys.Inc 7037 North 11th Street Pheonix, AZ 85020	March 22, 1995

Principal Officers or Partners (if partnership) NAME	TITLE	MAILING ADDRESS
AmeriGas Propane, Inc.	General Partner	Box 965, Valley Forge, PA 19482
AmeriGas Partners, L.P.	Limited Partner	Box 965, Valley Forge, PA.19482

DIRECTORS NAME	MAILING ADDRESS
AmeriGas Propane, L.P. does not have directors as it is a partnership. See attached sheet for directors of AmeriGas Propane, Inc., as the General Partner.	

CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the Vice President of AmeriGas Propane, Inc. of the General Partner of AmeriGas Propane, L.P. (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 Eugene V.N. Bissell

5/20/97
Date

MAY 1997
ARIZONA GEOLOGICAL SURVEY

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

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
Organization Report
File One Copy
Form No. 1

2/96

05/21/1997

Directors and Officers
AmeriGas Propane, Inc.

DIRECTORS:

Thomas F. Donovan	Director
Robert C. Forney	Director
Lon R. Greenberg	Director
James W. Stratton	Director
Stephen A. Van Dyck	Director
David I. J. Wang	Director

OFFICERS:

Lon R. Greenberg	Chairman, President and CEO (Principal Executive Officer)
Eugene V. N. Bissell	Vice President - Sales and Operations
Brendan P. Bovaird	Vice President and General Counsel
Diane L. Carter	Vice President - Human Resources
R. Paul Grady	Vice President - Sales and Operations
William D. Katz	Vice President - Corporate Development
Robert H. Knauss	Vice President - Law, Associate General Counsel, Secretary, Assistant Treasurer
Charles L. Ladner	Vice President - Finance and Accounting
Gordon E. Regan, Jr.	Vice President - Purchasing and Transportation
Michael J. Cuzzolina	Treasurer, Assistant Secretary
Samuel R. Mauriello	Assistant Treasurer

MAY 1998 ARIZONA GEOLOGICAL SURVEY

UGI
CORPORATION

BOX 858 VALLEY FORGE, PA 19482 • 610-337-1000

May 15, 1997

Mr. Steven L. Rauzi
Arizona Geological Survey
Oil & Gas Division
416 W. Congress, Suite 100
Tucson, AZ 85701

P/N's 627
670
865

RE: AmeriGas Propane, L.P.
Permit Nos. 627, 670 and 865

Dear Mr. Rauzi:

Enclosed please find the three bond riders that change the name of the principal to AmeriGas Propane, L.P.

We trust all is in order.

Sincerely,

PAMonaco

Paul A. Monaco
Sr. Risk Analyst

PAM:mrs

cc: T. J. Bonner
L. G. Brennan (w/enc.)

Enclosures

460 NORTH GULPH ROAD, KING OF PRUSSIA, PA 19406

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

Fife Symington
Governor

Larry D. Fellows
Director and State Geologist

April 16, 1997

file 670

Ms. Linda Brennan
Amerigas
Box 858
Valley Forge, PA 19482

Dear Ms. Brennan:

Thank you for calling to advise me of your corporate changes. As a result of your call, I have enclosed several blank organization report forms and a copy of our rules for your file. R12-7-194 explains the organization report. Rules R12-7-175 through R12-7-182 provide specific regulation for injection and storage wells.

Please do not hesitate to contact me if I may be of further assistance.

Sincerely,

Steven L. Rauzi

Steven L. Rauzi
Oil & Gas Administrator

enclosures

State of Arizona
Arizona Geological Survey
845 North Park Avenue, #100
Tucson, Arizona 85719
(602) 882-4795

Fife Symington
Governor

Larry D. Fellows
Director and State Geologist

April 10, 1995

Mr. Ray Moore
Meyer & Hendricks
P.O. Box 33449
Phoenix, Arizona 85067-3449

Re: Amerigas wells 2, 3, and 1A (State Permits 627, 670, and 865)

Dear Mr. Moore:

The information on the three wells we talked about this afternoon is enclosed (Amerigas wells 2, 3, and 1A; permits 627, 670, and 865). This includes the (1) application to drill, (2) permit to drill, (3) well completion report, and (4) performance bond for each.

The relevant rules regarding transfer of ownership include A.A.C. R12-7-103 and R12-7-178. Even though, as I noted in our conversation, I plan to be out of the office Wednesday, Thursday, and Friday of this week, please do not hesitate to call this office if I may be of any further assistance.

Sincerely,

Steven L. Rauzi
Oil & Gas Program Administrator

Enclosures

PB-KBB
FENIX & SCISSON
ENGINEERING CONSTRUCTION OPERATIONS

11757 Katy Freeway #600
Houston, Texas 77079
(713) 496-5590 Telex #792539

P.O. Box 19672
Houston, Texas 77224
Telecopy (713) 496-5658

May 20, 1994

file 670

Oil and Gas Commission
State of Arizona
845 North Park Ave., #100
Tucson, AZ 85719

Attn: Mr. Steve Rauzi

Re: Amerigas Propane Inc. Wells 1-A, 2 and 3

Dear Mr. Rauzi:

Enclosed please find Sundry Reports for the Mechanical Integrity Tests and Sonar Surveys of Amerigas' Wells No. 1-A, 2 and 3. If you have any questions or require additional information, please give me a call.

Sincerely,

Tommy Smith

Tommy Smith
Sr. Engineer

cc: Mr. Gus Harbushka
Amerigas Propane Inc.
14702 West Olive Ave.
Waddell, AZ 85355

Mr. Don Flemmons
Amerigas Propane Inc.
11757 Katy Freeway, Ste. 1430
Houston, TX 77079

MAY 25 1994

AmeriGas
America's Propane Company

November 20, 1990 670

To Whom It May Concern:

Effective November 15, 1990, AP Propane, Inc. amended its Certificate of Incorporation whereby its name was changed to AmeriGas Propane, Inc.

Very truly yours,

AMERIGAS PROPANE, INC.

By: _____
Lon R. Greenberg
Vice President

P.O. Box 965, Valley Forge, PA 19482 (215) 337-7000

AmeriGas

America's Propane Company

670

To Whom It May Concern:

This will serve to confirm the corporate history and proper corporate name of the entity operating the underground storage facility and Terminal at Bumstead (Waddell). This facility was originally constructed and operated by Cal Gas Corporation. On May 10, 1987, AP Propane, Inc. acquired all of the stock of Cal Gas Corporation and Cal Gas was merged into AP Propane, effective July 27, 1987. Thereafter, AP Propane continued to do business as Cal Gas for a period of time, but reidentified the name of its facilities nationwide to its trade name AmeriGas by the Spring of 1990. Effective November 15, 1990, AP Propane, Inc. changed its name to AmeriGas Propane, Inc. and continued to use the trade name AmeriGas. These facilities continue to be operated by AmeriGas Propane, Inc., trading as AmeriGas.

P.O. Box 965, Valley Forge, PA 19482 (215) 337-7000

PB-KBB
FENIX & SCISSON
ENGINEERING CONSTRUCTION OPERATIONS

11757 Katy Freeway #600
Houston, Texas 77079
(713) 496-5590 Telex #792539

P.O. Box 19672
Houston, Texas 77224
Telecopy (713) 496-5658

Oil and Gas Comission
State of Arizona
845 North Park Ave. #100
Tuscon, Arizona 85719

Attn: Mr. Steven Rauzi

Re: Amerigas Propane Inc., Wells 1-A, 2, and 3

Dear Mr. Rauzi:

Enclosed, please find Sundry Notices for the Mechanical Integrity Tests and Sonar Surveys of Amerigas' Wells No. 1-A, 2, and 3. If you have any questions or require additional information please give me a call.

Sincerely,

Mark Meece
Sr. Engineer

cc: Gus Harbushka
Amerigas Propane Inc.
14702 West Olive Ave.
Waddell, Arizona 85355

PB-KBB Inc.
Subsurface Systems & Technology

11767 Katy Freeway #810
Houston, Texas 77079
P.O. Box 19672
Houston, Texas 77224
(713) 496-5590 - Telex #792539
Telecopy (713) 496-5658

July 5, 1990

Arizona Oil & Gas Commission
5150 N. 16th Street Suite B141
Phoenix, Arizona 85016

Attn: Mr. Dan Brennan

Re: AP Propane, Inc. dba Cal Gas Corp.
Well No. 3 Roach-Baker Permit # 670
Maricopa County, Arizona

Dear Mr. Brennan:

Enclosed please find the Sundry Report presenting the Mechanical Integrity Test recently conducted on Cal Gas' Well No. 3 Roach-Baker. If you have any questions or require additional information, please call.

Sincerely,

Tim Moran

Tim Moran
Project Manager

TM;pl

Enclosure

cc: Diana Smith, Amerigas, Houston
Gus Harbushka, Amerigas, Phoenix

WITNESS RECORD

ROACH-BAKER NO. 3, PERMIT NO. 670

5/30/90: Run Temperature and Density logs (baseline logs).
Set up 24 hour chart, dead weights, and digital recording unit.
Inject propane into annulus, take several interface readings.
Establish interface just above cemented csg shoe, hold one hour.
Take readings and log depth of interface (lowered about 1 foot).
Annulus held pressure.

Inject propane/brine interface into cavern neck to stabilize.

5/31/90: Run temperature and density logs and record all pressure readings.
Change chart on the 24 hour pressure recorder.
Log interface to initialize the 24 hour MIT.

6/01/90: Run temperature and density logs and record all pressure readings.
Log interface to finalize the 24 hour MIT.
Depth of interface and deadweight readings indicated a good test.

S. L. Rauzi

S. L. Rauzi, 6/01/90

PB-KBB Inc.
Subsurface Systems & Technology

11767 Katy Freeway #810
Houston, Texas 77079
P.O. Box 19672
Houston, Texas 77224
(713) 496-5590 - Telex #792539
Telecopy (713) 496-5658

May 11, 1990

Arizona Oil & Gas Commission
5150 N. 16th Street Suite B141
Phoenix, Arizona 85016

Attn: Mr. Dan Brennan

P/N 670

Re: AP Propane, Inc. dba Cal Gas Corp.
Well No. 3 Roach-Baker
Maricopa County, Arizona

Dear Mr. Brennan:

Enclosed please find the Sundry Report presenting the proposed Mechanical Integrity Test Procedure for Cal Gas Well No. 3 Roach-Baker. If you have any questions or require additional information, please call.

Sincerely,

Tim Moran
Project Manager

TM;pl

Enclosure

cc: Don Flemmons, Houston, Cal Gas
Gus Harbushka, Phoenix Terminal, Cal Gas

PB-KBB Inc.
Subsurface Systems & Technology

11767 Katy Freeway #810
Houston, Texas 77079
P.O. Box 19672
Houston, Texas 77224
(713) 496-5590 - Telex #792539
Telecopy (713) 496-5658

May 24, 1990

AZ OIL & GAS
CONSERVATION COMMISSION
MAY 29 1990

Mr. Steve Rauzi
Arizona Oil and Gas Commission
5150 N. 16th Street, Suite B141
Phoenix, Arizona 85016

RE: AP Propane Inc. dba Cal Gas
Well No. 3 Roach-Baker, Maricopa County, Arizona
Permit No. 670

Dear Mr. Rauzi:

Please find enclosed the following documents concerning the Workover of Cal Gas' Well No. 3 Roach-Baker:

1. State of Arizona O&GCC - Well Completion or Recompletion Report and Well Log, Form No. 4, date 5/24/90
2. Workover Report for Well No. 3 Roach-Baker
3. Well Schematic - Storage Well. No. 3 Roach-Baker
4. Sonar and Well Testing Services - Sonar Caliper Report, dated 3/29/90
5. Wilson - Directional Survey, dated 4/2/90
6. French Well Survey - 4-Arm Caliper Log, date 4/9/90
7. Schlumberger - Cement Bond Log, dated 4/30/90
8. Schlumberger - Electromagnetic Thickness Log, dated 4/30/90
9. Schlumberger - Pipe Analysis Log, dated 4/30/90

If you have any questions or require additional information, please call.

Sincerely,

Tim Moran
Project Manager

TM:cj

Enclosures

cc: Don Flemmons/Diana Smith-Amerigas-Houston
Gus Harbushka, Amerigas - Phoenix

Oil and Gas Conservation Commission
STATE OF ARIZONA
5150 N. 16th STREET, SUITE B-141
PHOENIX, ARIZONA 85016
PHONE: (602) 255-5161

file Permit # 670

January 17, 1990

Mr. Tim Moran
PB-KBB Inc.
P. O. Box 19672
Houston, TX 77224

RE: Workover of Roach-Baker No. 3
Sec. 2-T2N-R1W
Maricopa County, AZ

Dear Tim:

We have received your proposed workover of the Amerigas Roach-Baker No. 3 well and Sundry Notice dated 26 December 1989. This letter constitutes our approval of the proposed steps as presented in this plan.

Sincerely,

Steve

Steven L. Rauzi
Oil & Gas Specialist

PB-KBB Inc.
Subsurface Systems & Technology

11767 Katy Freeway #810
Houston, Texas 77079
P.O. Box 19672
Houston, Texas 77224
(713) 496-5590 - Telex #792539
Telecopy (713) 496-5658

AZ OIL & GAS
CONSERVATION COMMISSION

JAN 15 1990

December 27, 1989

Arizona Oil & Gas Commission
ATTN: Mr. Dan Brennan
3110 North 19th Avenue, Suite 190
Phoenix, Arizona 85105

Re: AP Propane, Inc. dba Cal Gas Corp.
Well No. 3 Roach-Baker
Maricopa County, Arizona State PN 670

Dear Mr. Brennan:

Enclosed please find the Sundry Report presenting the proposed remedial workover for Cal Gas Well No. 3 Roach-Baker. If you have any questions or require additional information, please call.

Sincerely,

Tim Moran
Project Manager

Enclosure

CC: Don Flemmons, Sacramento, Cal Gas
Gus Harbushka, Phoenix Terminal, Cal Gas

Oil and Gas Conservation Commission
STATE OF ARIZONA
3110 N. 19th AVENUE, SUITE 190
PHOENIX, ARIZONA 85015
PHONE: (602) 255-5161

file P/N 670

June 5, 1989

Mr. Don Flemmons
Director of Terminals
AP Propane Inc. dba Cal Gas
P. O. Box 28397
Sacramento, CA 95828

Dear Mr. Flemmons:

I am writing to follow up our telephone conversation of June 2, 1989, in which we discussed postponing the workover of Cavern #3 at the Peoria, Arizona, storage facility.

In the conversation, you indicated that Cavern #3 would receive product until Cavern #2 is returned to service in late June, whereupon Cavern #3 would be shut-in until about October, 1989. In October, your intention is to unload Cavern #3 first after which you anticipate the workover of Cavern #3 to commence in mid-December, 1989, or early January, 1990.

This letter represents our approval of the above described postponement provided that Cavern #3 wellhead pressures are closely monitored while shut-in to ensure against the loss of product. Any apparent loss of product should be reported to this Commission.

Sincerely,

Steven L. Rauzi

Steven L. Rauzi
Oil & Gas Specialist

SLR:lr

Friday 6-2-89

Don Flemmons (Cal Gas) called

They have a lot of product coming in
currently loading into Cavern # 3 (~ 30 million gallons)
Plan on doing M.I.T. on Cavern # 2 6-19-
When # 2 in service will S.I. # 3
leave # 3 S.I. until discharge season (~ Mid-October)
Will unload # 3 first
Work over # 3 Mid-December to early January
wants Commission approval of this schedule

January 13, 1983

Mr. David Harbushka
Cal Gas Corporation
14702 W. Olive Ave.
Peoria, AZ 85345

Dear Gus:

This letter follows our conversation of January 10 regarding this agency's requirement on well reentry to rework or alter the original condition of wells.

The rule involved is R12-7-122. Basically it requires that, with the exception of routine maintenance operations, the Commission be notified on Form 25 (copy enclosed) of the proposed well work. After the work is completed we require a report on Forms 4 and 25 outlining the nature of the work performed. This helps to keep us current on the status of wells.

If you have any questions on this matter, please call.

Sincerely,

R. A. Ybarra
Enforcement Director

RAY:os
Enc.

June 27, 1980

Re: Cal Gas 1 (617)
2 (627)
3 (670)

Inspected safety valves on above caverns. Greenwood valves operating satisfactorily.

Flare systems working as designed.

Don Whittaker

OFFICE OF
Oil and Gas Conservation Commission
STATE OF ARIZONA
1645 WEST JEFFERSON, SUITE 420
PHOENIX, ARIZONA 85007
PHONE: (602) 271-5161

March 28, 1978

Mr. E. O. Hudson
California Liquid Gas Corporation
P.O. Box 28397
Sacramento, California 95828

Dear Mr. Hudson:

Recent developments connected with the underground storage of LPG in Arizona have caused this Commission to make a study of various safety devices which would tend to prevent any accidents from occurring during the pumping of LPG into a storage reservoir. It has been concluded that a flare system, properly installed and operated in a proper manner, would be the safest and most economical of all safety systems.

These conclusions make it necessary that this Commission request all operators of LPG storage projects within the State to install a flare system at their respective storage sites as quickly as possible. The Commission does not intend to dictate to the operator the technical design of this system, but does retain the right to approve the system selected.

Your full and early cooperation in the installation of such a safety system is expected.

Very truly yours,

W. E. Allen
Director
Enforcement Section

WEA/vb

cc - Glen W. Sorensen

California Liquid Gas Corporation
Storage Well No. 3
SW/NW/4 Sec. 2, T2N, R1W
Maricopa County, Arizona
Permit No. 670

At approximately 2:30 the morning of November 21, 1977, there was a surface explosion and fire at the Bumpstead LPG storage project. This explosion and fire resulted in the death of one employee, Norbert E. "Jim" Schmidtke, age about 41 years. Also destroyed was a Plymouth station wagon belonging to Cal Gas.

The Rural Metro Fire Department responded to the fire. It is my understanding that only the station wagon was burning when the fire department arrived. The explosion and resulting fire ball scorched all wood, trees and equipment for a distance of 200 feet south-southeast of Brine Pit No. 1. The pit liner in Pit No. 1 was damaged on the west and south sides of the pit.

The station wagon was parked at the foot of the stairway leading to the top of Brine Pit No. 1. Mr. Schmidtke's body was found approximately 50 feet south of the station wagon. Bits of clothing, ring, billfold, cigarettes and cigarette lighter were found in the vicinity of the station wagon and scattered to the spot where the body was found.

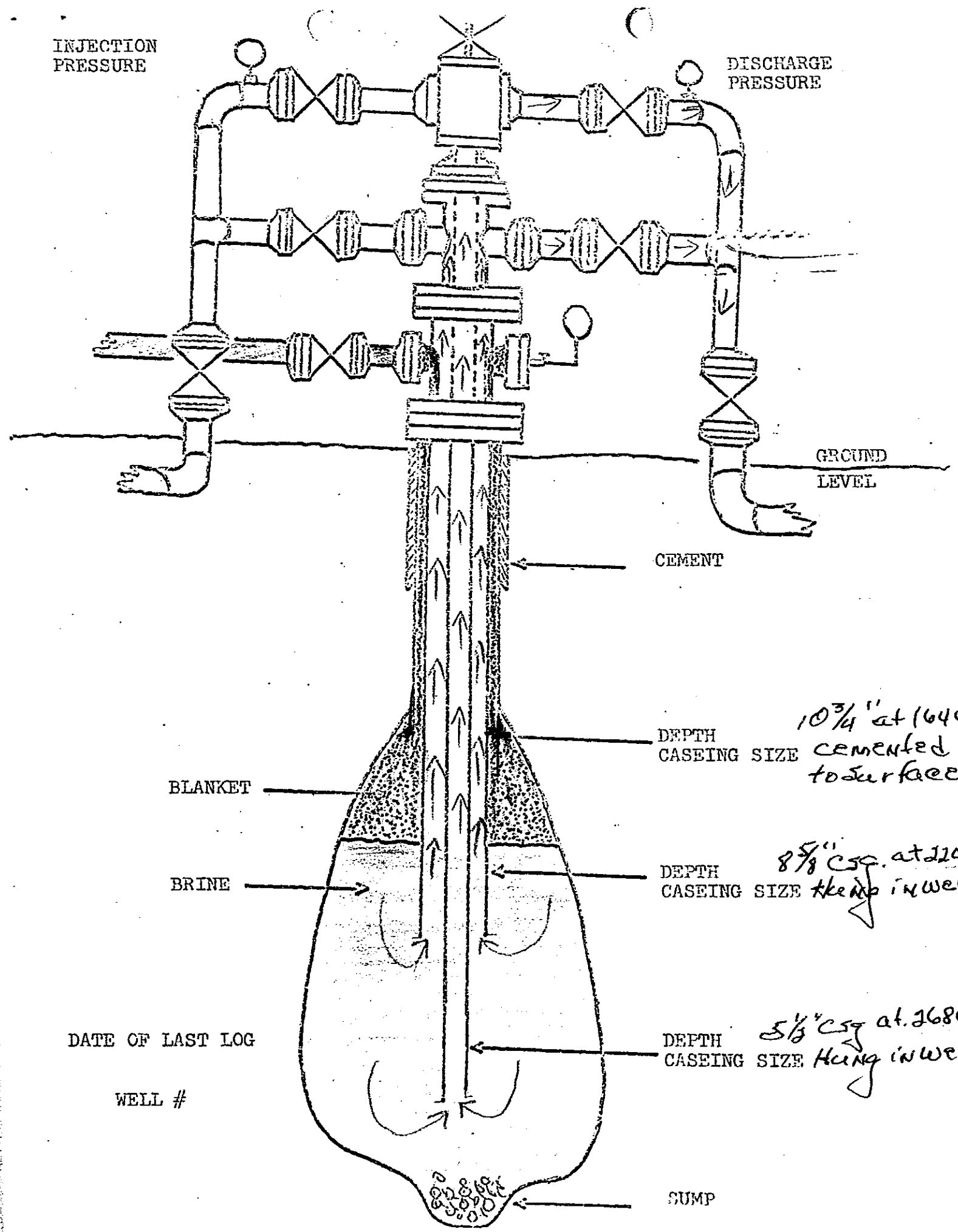
At the time of the explosion the operators were pumping LPG from the loading terminal, a distance of 4 miles from the storage site, into Storage Well No. 3. The LPG was being pumped down the 10-3/4" casing and brine was returned to the brine pit through both the 8-5/8" and 5-1/2" casings. (The 10-3/4" casing was set and cemented at 1640 feet; the 8-5/8" casing was at 2204 feet and the 5-1/2" casing was at 2680 feet. See attached diagram.)

It is my opinion that the operators overestimated the capacity of the reservoir and pumped LPG below the 8-5/8" casing, causing this product to exit through the brine line into the pit where it accumulated until such time as some form of ignition set off the explosion, causing the resulting damage.

The No. 3 Storage Well is fairly new - no sonic logs had been run to determine the exact size of the reservoir that had been created and neither had the safety device designed to detect LPG in the returning brine been installed. This safety device, upon detecting LPG in the brine line, closes all valves, thereby preventing the product from reaching the surface in dangerous quantities.

I met with Weldon Paxton, Fire Prevention Supervisor for Rural Metro; Bob Reid from the State Fire Marshal's Office; Gale West and T. R. Ramaley, both from the State Division of Occupational Safety and Health; two investigators from the Maricopa County Sheriff's Office; a representative from the Corporation Commission and Fred Burdick, Cal Gas.

It might be noted that Schmidtke had been working for Cal Gas for about two weeks.


INJECTION PRESSURE
DISCHARGE PRESSURE
GROUND LEVEL
CEMENT
DEPTH
CASEING SIZE
10 3/4" at 1640 cemented to surface
BLANKET
BRINE
DEPTH
CASEING SIZE
8 5/8" Csg. at 2204 hung in well
DATE OF LAST LOG
WELL #
DEPTH
CASEING SIZE
5 1/2" Csg at 2680 Hung in well
SUMP

CAL GAS

A Dillingham Company

RECEIVED
MAY 6 1977
O & G CONS. COMM.

April 29, 1977

Mr. John Bannister
Arizona Oil and Gas
Conservation Commission
8686 North Central Avenue
Suite 186
Phoenix, Arizona 85020

Dear John:

The construction of Cal Gas Brine Pit #1 is complete as of April 26, 1977. We delayed filling the pond until additional tests were run on the Hypalon liner to ensure a leak free pond.

We are very happy with the installation and are confident that it was built in a first class way.

Again, I thank you for your help in granting our construction permit.

Sincerely,

Bill Aaberg

William J. Aaberg
Project Engineer

WJA:msc

cc: Bill Allen, Oil and Gas Commission
Gene Alleman, Cal Gas Terminals, Phoenix

California Liquid Gas Corporation
P.O. Box 28397 Sacramento, CA 95828 (916) 428-7010
Telex: 37-7322

February 16, 1977

Mr. William Aaberg
California Liquid Gas Corporation
P.O. Box 28397
Sacramento, California 95828

Re: Roach-Baker Storage Well No. 3, State Permit 670

Dear Bill:

You are aware that this Commission requires a set of ten foot samples and core chips, where applicable, on each well drilled within the state.

Our Geology Department does not need our set of samples, however the Bureau of Mines, University of Arizona, Tucson 85721, does need the samples and core chips on the above-referred well.

Thank you for your cooperation.

Very truly yours,

William E. Allen
Director
Enforcement Section

WEA/vb

CAL GAS

A Dillingham Company

1 5 1977

O & G CONS. COMM.

February 11, 1977

Mr. Bill Allen
Arizona Oil and Gas
Conservation Commission
8686 North Central Avenue
Suite 186
Phoenix, Arizona 85020

Dear Bill:

Enclosed is your Form 4, Well Completion Report, for the drilling of Cal Gas Storage Well #3.

Your copy of the Caliper, Gamma Ray and Density log should arrive to you by the time you read this letter. I apologize for the delay in filing this report.

Thank you,

Bill Aaberg

William J. Aaberg
Project Engineer
California Liquid Gas Corporation

WJA:msc
Enclosure

CC: Gene Alleman, Cal Gas Terminals, Phoenix

California Liquid Gas Corporation
P.O. Box 28397 Sacramento, CA 95828 (916) 428-7010
Telex: 37-7322

February 8, 1977

Mr. Glen Sorensen
Vice President
California Liquid Gas Corporation
P.O. Box 28397
Sacramento, California 95828

Dear Mr. Sorensen:

This letter signifies this Commission's approval for your company to construct a second Brine Pit at your L.P.G. storage site on Dysart Road north of Glendale Avenue.

This approval is, of course, contingent upon you constructing this pit in accordance with the plans and specifications as submitted to this Commission by Mr. William Aaberg.

If this Commission can be of any assistance to you in this enterprise, please let us know.

Very truly yours,

William E. Allen
Director
Enforcement Section

WEA/vb

cc - William Aaberg

February 8, 1977

Mr. Glen Sorensen
Vice President
California Liquid Gas Corporation
P.O. Box 28397
Sacramento, California 95828

Dear Mr. Sorensen:

This letter signifies this Commission's approval for your company to construct a second Brine Pit at your L.P.G. storage site on Dysart Road north of Glendale Avenue.

This approval is, of course, contingent upon you constructing this pit in accordance with the plans and specifications as submitted to this Commission by Mr. William Aaberg.

If this Commission can be of any assistance to you in this enterprise, please let us know.

Very truly yours,

William E. Allen
Director
Enforcement Section

WEA/vb

cc - William Aaberg

CAL GAS

A Dillingham Company

RECEIVED
FEB 7 1977
O & G CONS. COMM.

February 3, 1977

Mr. John Bannister
Arizona Oil and Gas
Conservation Commission
8686 N. Central Avenue
Suite 186
Phoenix, Arizona 85020

Dear Mr. Bannister:

California Liquid Gas Corporation is seeking a permit to construct a second Brine Pit at our L.P.G. storage site on Dysart Road, north of Glendale Boulevard.

I have previously furnished two copies of our plans and specifications at our meeting on Tuesday, February 1, 1977.

This pit will be constructed in the same way as our first pit. The first pit has proved to be a very safe, well constructed installation. The second pit is needed so our aboveground storage will exceed our underground storage, thus a great savings in our use of fresh well water.

Thank you for your courtesy extended to Cal Gas and your prompt actions on this matter.

Sincerely,

Bill Aaberg

William J. Aaberg
Civil Engineer
California Liquid Gas Corporation

WJA:msc
Enclosure

CC: Bill Allen

California Liquid Gas Corporation
P.O. Box 28397 Sacramento, CA 95828 (916) 428-7010
Telex: 37-7322

February 3, 1977

NOTE TO MR. JOHN BANNISTER:

This is a copy of the water table report which I received from Anthony Tellier of the Arizona Water Commission.

Bill Aaberg

William J. Aaberg
Civil Engineer
California Liquid Gas Corporation

CALIFORNIA LIQUID GAS CORPORATION
A DILLINGHAM COMPANY

RECEIVED
FEB 7 1977
O & G CONS. COMM.

February 3, 1977

Mr. John Bannister
Arizona Oil and Gas
Conservation Commission
8686 N. Central Avenue
Suite 136
Phoenix, Arizona 85020

Dear Mr. Bannister:

California Liquid Gas Corporation is seeking a permit to construct a second Brine Pit at our L.P.G. storage site on Dysart Road, north of Glendale Boulevard.

I have previously furnished two copies of our plans and specifications at our meeting on Tuesday, February 1, 1977.

This pit will be constructed in the same way as our first pit. The first pit has proved to be a very safe, well constructed installation. The second pit is needed so our aboveground storage will exceed our underground storage, thus a great savings in our use of fresh well water.

Thank you for your courtesy extended to Cal Gas and your prompt actions on this matter.

Sincerely,

Bill Aaberg

William J. Aaberg
Civil Engineer
California Liquid Gas Corporation

WJA:msc
Enclosure

CC: Bill Allen

COPY

CALIFORNIA LIQUID GAS CORPORATION
A DILLINGHAM COMPANY

February 3, 1977

NOTE TO MR. JOHN BANNISTER:

This is a copy of the water table report which I received from Anthony Tellier of the Arizona Water Commission.

Bill Aaberg

William J. Aaberg
Civil Engineer
California Liquid Gas Corporation

COPY

WILLIAM H. WHEELER, CH.
PETER F. BIANCO, V. CH.
WESLEY E. STEINER
EXECUTIVE DIRECTOR
AND
STATE WATER ENGINEER
VICKIE MOONEY
SECRETARY

RAUL H. CASTRO, GOVERNOR
Arizona Water Commission
222 NORTH CENTRAL AVENUE, SUITE 800
Phoenix, Arizona 85004
TELEPHONE (602) 258-7561

MEMBERS
GLEN G. CURTIS
KEL FOX
JOHN L. LEIBER
W. N. JACK SHAWVER
J. C. WETZLER
EXOFFICIO MEMBERS
ANDREW L. BETTWY
MARSHALL HUMPHREY

October 5, 1976

Mr. Bill Aaberg
California Liquid Gas Corporation
P.O. Box 28397
Sacramento, CA 95828
(916)428-7010

Bill:

In response to our telephone call of October 1, 1976, I have enclosed some information concerning the groundwater in and about the SW¼ of the NW¼ of Section 2, Township 2 North, Range 1 West, G & SR B & M. I have also included a handy explanation of the well numbering system employed here and the USGS.

Goodyear Farms well, (B-2-1)2aba, is located less than one mile to the northeast of your area of interest. Systematic water level measurements have been made over the past years by the United States Geologic Survey (USGS). A copy of the USGS well schedule is accompanied by a plot of the depths to water as a function of time. An eight-year period, 1968 to 1976, is covered and the measured depths are plotted at the months of January, March, June and September, dividing the year into four segments. The overall water level decline is a steady six-seven foot per year drop. Superimposed on the long-term decline are the seasonal variations attributed to agricultural pumpage. This variation accounts for a seasonal fluctuation of up to twelve feet (± 6').

This seasonal variation should be recalled when looking at the enclosed tabulated water level records. With the exception of the aforementioned well, these water levels are "when drilled". It is worth mentioning several points: 1) that well (B-2-1)2aba has experienced a decline of 213 feet from 1946 to 1976, over seven feet per year; and 2) the total well depth is only forty-nine feet <u>greater</u> than the 1976 depth to water. Originally yielding 1156 gallons/minute, at a drawdown of 18 feet, this well, if it has not been deepened, will be operating very inefficiently and probably drawing air and/or sand.

Large withdrawals of groundwater in the Luke area are manifested by several items. The enclosed portion of the USGS topographic map El Mirage, Arizona 7½' quadrangle indicates a rather steep groundwater gradient due to local drawdown. The north-south trending earth crack may be due to aquifer dewatering and/or the presence of the margin of the Luke Salt Dome, a large intrusive(?) body of halite (NaCl). Records for 1960 state that Goodyear Farms pumped 51,000 acre-feet of groundwater from their property in the area. Current information is proprietary, however the pumpage is probably of the same magnitude.

In general, a properly designed and constructed well will yield water in direct proportion to the thickness of saturated aquifer penetrated. In the Luke-Goodyear Farms area, it appears that one may expect at least two gallons per minute yield for each foot of saturated aquifer. Thus, a well should be increased to a total depth half the projected demand (in gallons per minute) plus the current depth to water, with an additional allowance for bottom-hole pump clearance. The casing should be perforated the full saturated length.

If you have further interest in the Luke area, there are two United States Geologic Survey publications that deal with it:

Eaton, G.P., Peterson, D.L., and Schumann, H.H., 1972, Geophysical, Geohydrological, and Geochemical Reconnaissance of the Luke Salt Body, Central Arizona: U.S. Geol. Survey Prof. Paper 753, 28 p.

Stulik, R.S., and Twenter, F.R., 1964, Geology and Groundwater of the Luke Area, Maricopa County, Arizona: U.S. Geol. Survey Water-Supply Paper 1779-P, 30 p.

The former is quite technical and deals generally with the physical aspects of the area. The latter is a summary of data collected no later than 1961, 15 years ago, and the groundwater contours are no longer valid within your area of interest. However, the lithological and topographical aspects are still valid.

I hope this answers your questions. If not, please contact this office.

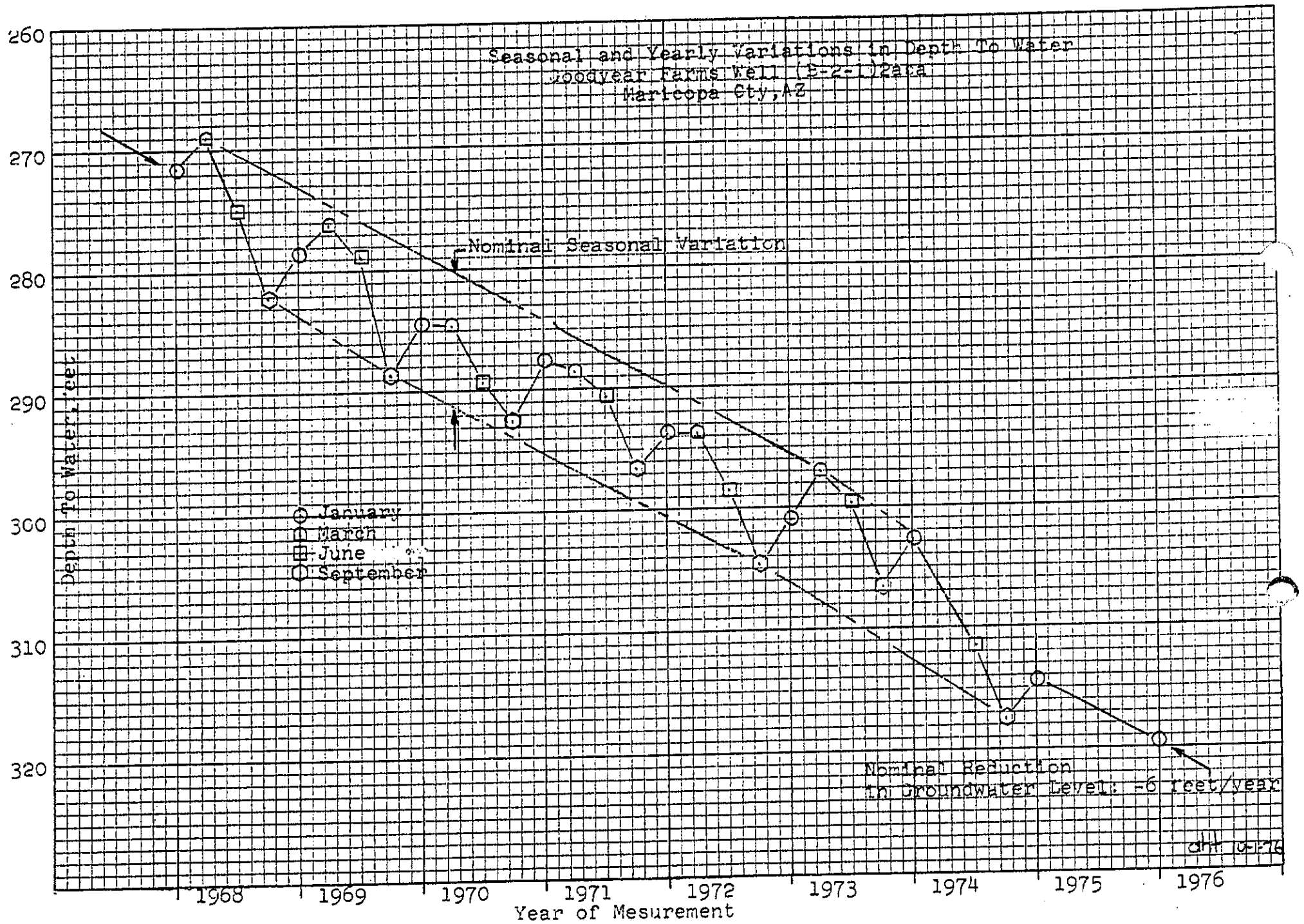
Sincerely,

AHTellier

Anthony Tellier
Staff Hydrologist

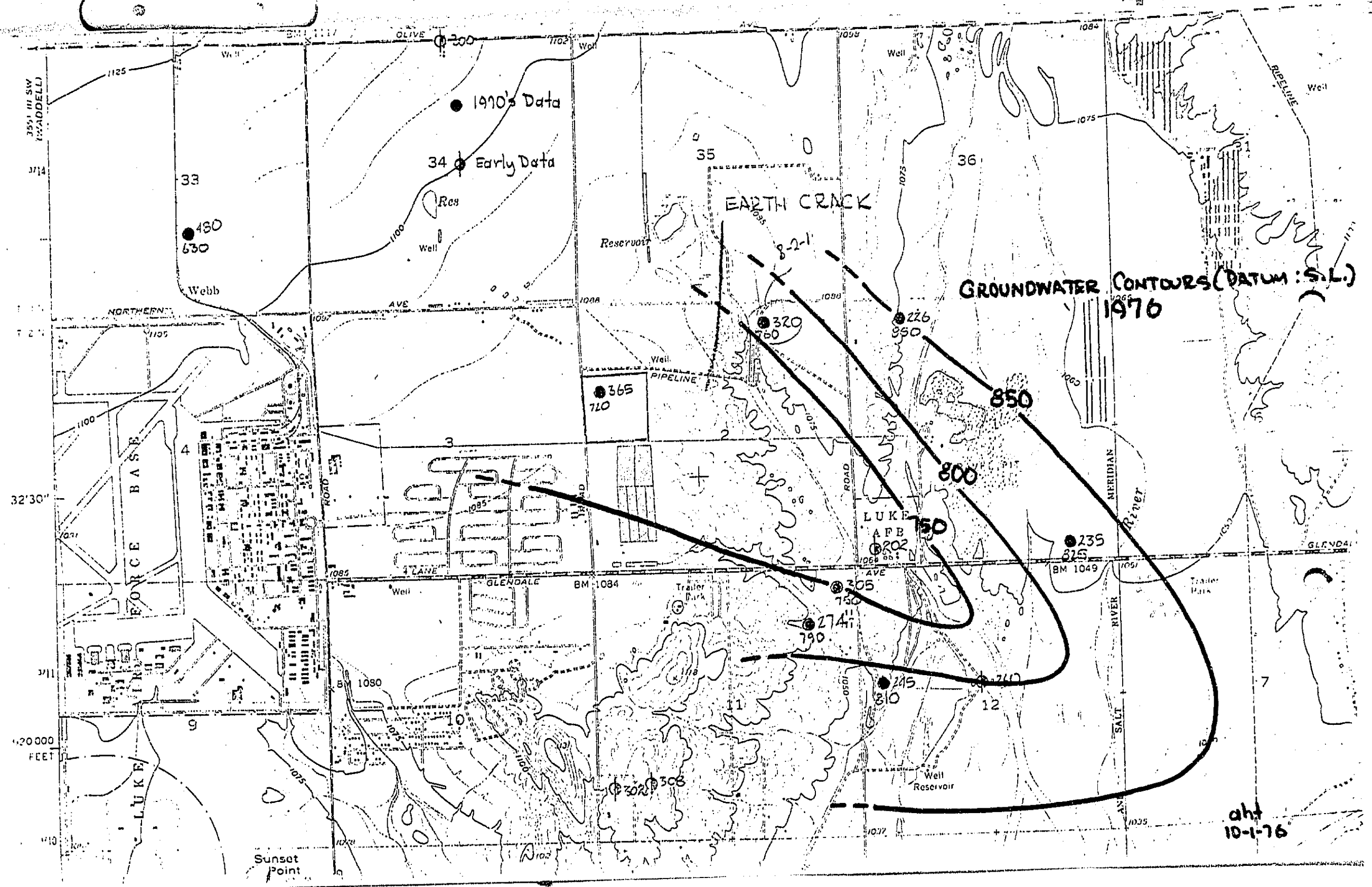
AHT:nm
Enc. 5

K+E 10 X 10 TO THE INCH 46 0702
7 X 10 INCHES MADE IN U.S.A.
KEUFFEL & ESSER CO.



SUMMARY OF PERTINENT WELL DATA

Well Location	Depth of Well(ft)	Perforated Interval (ft)	Depth to Water(ft)	Diameter of Casing (ft)	Yield (gpm)	Drawdown (ft)	Groundwater Elevation (ft)	Yield per thickness of Aquifer Penetrated (gpm/ft)	Year Measured
(B-2-1)1bba	300	N/A	226	8	18(?)	324(?)	849	0.24(?)	1972
1ccc	660	360-553	202	12	--	---	865½	---	1960
1ddc	250	open end	235	6	12(?)	---	827	0.80(?)	1971
2aba	368	70-276	106 319	20	1156 ?	18 ?	971 758	6.80 ?	1946 1976
2bcb	818	400-790	365	16	380	402(?)	722½	0.97	1973
11aaa	600	N/A	305	8	--	---	751	---	1974
11aac	335	325-335	274	8	--	---	791	---	[illegible]
11cca	431(?)	N/A	308	8	6(?)	---	780	---	1967
11ccb	700(?)	380-400	302	8	--	---	786	---	1967
12bcc	962	300-950	245	16	1300	99	810	2.00	1973
12bdd	1015	400-730 800-997	260	16	1657	46	785	3.14	1965
(B-3-1)33dbc	605	N/A	480	8	--	---	631	---	1972
34abb	975	N/A	300	18	1500	36	807½	2.22	1962


GROUNDWATER CONTOURS (DATUM: S.L.)
1976
EARTH CRACK
1970's Data
Early Data
850
800
750
LUKE AFB
GLENDALE
OLIVE
NORTHERN
AVE
PIPELINE
MERIDIAN
ROAD
SALT
RIVER
Reservoir
Sunset Point
aht
10-1-76

CAL GAS

A Dillingham Company

January 31, 1977

Mr. John Bannister
Oil and Gas Conservation Commission
State of Arizona
8686 North Central Avenue
Suite 186
Phoenix, Arizona

Dear Mr. Bannister:

California Liquid Gas Corporation is seeking a permit to construct a second brine pit at our liquid petroleum gas storage site near Luke Air Force Base.

We currently have three underground storage wells with a projected storage capacity of 65,000,000 gallons by August 1977. The existing brine pit has a storage of 45,000,000 gallons. A new brine pit is needed in order that our above ground storage is equal to or greater than our underground storage.

The above ground storage is used as a displacement product for our storage wells. During the months of April to September, propane and butane are pumped into the storage wells, displacing an equal volume of brine which is pumped into the brine pits for storage. During the winter months when the demand for fuel is the greatest, the process is reversed. Brine is pumped from the brine pits into the storage wells, displacing an equal volume of LPG which is loaded into rail tank cars for distribution throughout the Cal Gas network.

Previously, Cal Gas used fresh water to displace the product. With the larger above ground storage, we will displace product with brine. This means the savings of 65,000,000 gallons of fresh water in 1977.

Thank you very much.

Sincerely,

Bill Aaberg

William J. Aaberg
Civil Engineer
California Liquid Gas Corporation

WJA:msc
CC: Bill Allen, Oil and Gas Commission

California Liquid Gas Corporation
P.O. Box 28397 Sacramento, CA 95828 (916) 428-7010
Telex: 37-7322

October 22, 1976

Mr. Bill Aaberg, Civil Engineer
California Liquid Gas Corporation
P.O. Box 28397
Sacramento, California 95828

Dear Bill:

Enclosed please find approved application for drilling storage well #3, Drilling Permit #670 and receipt for $25.00

Very truly yours,

William E. Allen
Director, Enforcement
Section

WEA/vb

Enc.

CAL GAS

A Dillingham Company

RECEIVED
OCT 21 1976
O & G CONS. COMM.

October 19, 1976

Mr. Bill Allen
State of Arizona
Oil & Gas Conservation Commission
8686 North Central, Suite 106
Phoenix, Arizona 85020

Dear Bill:

Attached is the application for the drilling of storage well #3 along with a check for $25.00 for the filling fee. Also enclosed is a performance bond for $5,000.00.

Bill, the attached drawing from Arizona Surveying Service shows well #3 at a different location. We want to move the well location 68 feet West of the location as shown on the map. This is to increase the distance between well #2 and well #3 as well as the distance between our well #3 and the well of Southwest Salt Company.

We hope to begin drilling by November 8, 1976, so your prompt attention would be appreciated. Let me or Gene Alleman know if you have any questions.

Thank you,

Bill Aaberg

Bill Aaberg
Civil Engineer

Enclosures

WJA/pc

California Liquid Gas Corporation
P.O. Box 28397 Sacramento, CA 95828 (916) 428-7010
Telex: 37-7322

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS

Bond Serial No. 2597625

That we: CALIFORNIA LIQUID GAS CORPORATION

of the County of Sacramento in the State of Sacramento

as principal, and Safeco Insurance Company of America

of Washington

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 Five Thousand and no/100ths ($5,000) lawful money of the United States

COUNTERSIGNATURE RIDER

In accordance with the laws of the State of Arizona, it is certified that the attached countersignature is the signature of the company's authorized agent in and for the State of Arizona.

All terms and conditions of the bond to which this rider is attached remain unchanged.

IN WITNESS WHEREOF, SAFECO INSURANCE COMPANY OF AMERICA has caused this rider to be signed by its duly authorized attorney-in-fact and countersigned by its authorized resident agent.

Countersigned by

Donald W. Burnes
Authorized Agent

Attorney-in-fact
R.J.Wood

670

day of October, 1976, before me personally appeared R. J. Wood, known to me to be the Attorney-in-Fact of SAFECO INSURANCE COMPANY OF AMERICA, GENERAL INSURANCE COMPANY OF AMERICA or FIRST NATIONAL INSURANCE COMPANY OF AMERICA, the corporation that executed the within instrument, and acknowledged to me that such corporation executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, at my office in the aforesaid County, the day and year in this certificate first above written.

SANDRA E. ELLINGSON
NOTARY PUBLIC - CALIFORNIA
CITY AND COUNTY OF SACRAMENTO
(Seal)
MY COMMISSION EXPIRES JUNE 18, 1977
SF250 R3 10/72

Sandra E. Ellingson
Notary Public in the State of
County of

PRINTED IN U.S.A.

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS

Bond Serial No. 2597625

That we: CALIFORNIA LIQUID GAS CORPORATION

of the County of Sacramento in the State of Sacramento

as principal, and Safeco Insurance Company of America

of Washington

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 Five Thousand and no/100ths ($5,000) 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:

Storage Well No. 3 at the Cal Gas site nine miles west of Glendale, Arizona

(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 filing 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 quantites, 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 15th day of October, 1976

CALIFORNIA LIQUID GAS CORPORATION

Principal

Treasurer

ACKNOWLEDGMENT BY SURETY

STATE OF California
County of Sacramento } ss

On this 15th day of October, 1976, before me personally appeared R. J. Wood, known to me to be the Attorney-in-Fact of SAFECO INSURANCE COMPANY OF AMERICA, GENERAL INSURANCE COMPANY OF AMERICA or FIRST NATIONAL INSURANCE COMPANY OF AMERICA, the corporation that executed the within instrument, and acknowledged to me that such corporation executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, at my office in the aforesaid County, the day and year in this certificate first above written.

SANDRA E. ELLINGSON
NOTARY PUBLIC - CALIFORNIA
CITY AND COUNTY OF SACRAMENTO
MY COMMISSION EXPIRES JUNE 18, 1977

(Seal)

Sandra E. Ellingson

Notary Public in the State of
County of

9230 R3 10/72

PRINTED IN U.S.A.

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS

Bond Serial No. 2597625

That we: CALIFORNIA LIQUID GAS CORPORATION

of the County of Sacramento in the State of Sacramento

as principal, and Safeco Insurance Company of America

of Washington 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 Five Thousand and no/100ths ($5,000) 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:

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(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 filing 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 quantites, 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 15th day of October, 19 76

CALIFORNIA LIQUID GAS CORPORATION

Principal

Treasurer

WITNESS our hands and seals this ~~[illegible]~~ 15th day of October, 19 76

Safeco Insurance Company of America

Surety

R. J. Wood

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 10-22-76

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSSION

By: W. C. Allen

Permit No. 670

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSSION

Bond

File Two Copies

Form No. 2

SAFECO INSURANCE COMPANY OF AMERICA
HOME OFFICE: 4347 BROOKLYN AVE. N.E., SEATTLE, WASHINGTON 98105

POWER OF ATTORNEY

No. 3692

KNOW ALL MEN BY THESE PRESENTS:

That **Safeco Insurance Company of America**, a Washington corporation, does hereby appoint

---------- R. J. WOOD ----------

its true and lawful attorney(s)-in-fact, with full authority to execute on behalf of the company fidelity and surety bonds or undertakings and other documents of a similar character issued by the company in the course of its business, and to bind **Safeco Insurance Company of America** thereby as fully as if such instruments had been duly executed by its regularly elected officers at its home office.

IN WITNESS WHEREOF, Safeco Insurance Company of America has executed and attested these presents

this 13th day of April, 19 73.

W D HAMMERSLA, SECRETARY

GORDON H. SWEANY, PRESIDENT

CERTIFICATE

Extract from the By-Laws of Safeco Insurance Company of America:

"Article VI, Section 12.–FIDELITY AND SURETY BONDS . . . the President, any Vice President, and the Secretary shall each have authority to appoint individuals as attorneys-in-fact or under other appropriate titles with authority to execute on behalf of the company fidelity and surety bonds and other documents of similar character issued by the company in the course of its business . . . . On any instrument making or evidencing such appointment, the signatures may be affixed by facsimile. On any instrument conferring such authority or on any bond or undertaking of the company, the seal, or a facsimile thereof, may be impressed or affixed or in any other manner reproduced; provided, however, that the seal shall not be necessary to the validity of any such instrument or undertaking."

Extract from a Resolution of the Board of Directors of
Safeco Insurance Company of America adopted July 28, 1970

"On any certificate executed by the Secretary or an assistant secretary of the Company setting out,
(i) The provisions of Article VI, Section 12 of the Bylaws, and
(ii) A copy of the power-of-attorney appointment, executed pursuant thereto, and
(iii) Certifying that said power-of-attorney appointment is in full force and effect,
the signature of the certifying officer may be by facsimile, and the seal of the Company may be a facsimile thereof."

I, W. D. Hammersla, Secretary of Safeco Insurance Company of America, do hereby certify that the foregoing extracts of the By-Laws and of a Resolution of the Board of Directors of this corporation, and of a Power of Attorney issued pursuant thereto, are true and correct, and that both the By-Laws, the Resolution and the Power of Attorney are still in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the facsimile seal of said corporation

SAFECO INSURANCE COMPANY OF AMERICA CORPORATE SEAL 1953 STATE OF WASHINGTON

this 15th day of October, 1976.

W. D. HAMMERSLA, SECRETARY

S-1300 7/72

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SAFECO®

SURETY RIDER

SAFECO INSURANCE COMPANY OF AMERICA
GENERAL INSURANCE COMPANY OF AMERICA
FIRST NATIONAL INSURANCE COMPANY OF AMERICA
HOME OFFICE: SAFECO PLAZA
SEATTLE, WASHINGTON 98185

To be attached to and form a part of

Bond No. 2597625

Type of Bond: License & Permit - Oil, Gas Well Drilling

dated / effective October 15, 1976
(MONTH-DAY-YEAR)

executed by California Liquid Gas Corporation, as Principal,
(PRINCIPAL)

and by SAFECO INSURANCE COMPANY OF AMERICA, as Surety,

in favor of Arizona Department of Land Management
(OBLIGEE)

in consideration of the mutual agreements herein contained the Principal and the Surety hereby consent to changing

The Name of Principal

From: California Liquid Gas Corporation

To: AmeriGas Propane, L.P.

Nothing herein contained shall vary, alter or extend any provision or condition of this bond except as herein expressly stated.

This rider is effective May 6, 1997
(MONTH-DAY-YEAR)

Signed and Sealed May 13, 1997
(MONTH-DAY-YEAR)

AmeriGas Propane, L.P.
AmeriGas Propane, Inc., Its General Partner
(PRINCIPAL)

By: Robert H. Knauss
(PRINCIPAL) Robert H. Knauss, Vice President

SAFECO INSURANCE COMPANY OF AMERICA

By: Darella E. White
(ATTORNEY-IN-FACT)
Darella E. White

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S-443/EP 3/90

SAFECO®

POWER
OF ATTORNEY

SAFECO INSURANCE COMPANY OF AMERICA
GENERAL INSURANCE COMPANY OF AMERICA
HOME OFFICE: SAFECO PLAZA
SEATTLE, WASHINGTON 98185

No. 5014

KNOW ALL BY THESE PRESENTS:

That **SAFECO INSURANCE COMPANY OF AMERICA** and **GENERAL INSURANCE COMPANY OF AMERICA**, each a Washington corporation, does each hereby appoint
*****DARELLA E. WHITE; DONALD J. BAILEY; DAMON BENDESKY, Philadelphia, Pennsylvania**********

its true and lawful attorney(s)-in-fact, with full authority to execute on its behalf fidelity and surety bonds or undertakings and other documents of a similar character issued in the course of its business, and to bind the respective company thereby.

IN WITNESS WHEREOF, SAFECO INSURANCE COMPANY OF AMERICA and **GENERAL INSURANCE COMPANY OF AMERICA** have each executed and attested these presents

this 22nd day of March, 19 95.

CERTIFICATE

Extract from the By-Laws of **SAFECO INSURANCE COMPANY OF AMERICA**
and of **GENERAL INSURANCE COMPANY OF AMERICA:**

"Article V, Section 13. - FIDELITY AND SURETY BONDS . . . the President, any Vice President, the Secretary, and any Assistant Vice President appointed for that purpose by the officer in charge of surety operations, shall each have authority to appoint individuals as attorneys-in-fact or under other appropriate titles with authority to execute on behalf of the company fidelity and surety bonds and other documents of similar character issued by the company in the course of its business . . . On any instrument making or evidencing such appointment, the signatures may be affixed by facsimile. On any instrument conferring such authority or on any bond or undertaking of the company, the seal, or a facsimile thereof, may be impressed or affixed or in any other manner reproduced; provided, however, that the seal shall not be necessary to the validity of any such instrument or undertaking."

Extract from a Resolution of the Board of Directors of **SAFECO INSURANCE COMPANY OF AMERICA**
and of **GENERAL INSURANCE COMPANY OF AMERICA** adopted July 28, 1970.

"On any certificate executed by the Secretary or an assistant secretary of the Company setting out,
(i) The provisions of Article V, Section 13 of the By-Laws, and
(ii) A copy of the power-of-attorney appointment, executed pursuant thereto, and
(iii) Certifying that said power-of-attorney appointment is in full force and effect,
the signature of the certifying officer may be by facsimile, and the seal of the Company may be a facsimile thereof."

I, R. A. Pierson, Secretary of **SAFECO INSURANCE COMPANY OF AMERICA** and of **GENERAL INSURANCE COMPANY OF AMERICA**, do hereby certify that the foregoing extracts of the By-Laws and of a Resolution of the Board of Directors of these corporations, and of a Power of Attorney issued pursuant thereto, are true and correct, and that both the By-Laws, the Resolution and the Power of Attorney are still in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the facsimile seal of said corporation

this 13th day of May, 19 97.

S-974/EP 1/93

® Registered trademark of SAFECO Corporation.

ORGANIZATION REPORT

Full Name of the Company, Organization, or Individual
California Liquid Gas Corporation

Post Office Address (Box or Street Address)
P.O. Box 28397 Sacramento, CA 95828

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

Purpose of Organization (State type of business in which engaged)
Wholesale/retail sale of LP-gas

If a reorganization, give name and address of previous organization.

If a foreign corporation, give (1) State where incorporated	(2) Name and post office address of state agent	(3) Date of permit to do business in state
Delaware	Secretary of state	Application pending

Principal Officers or Partners (if partnership) NAME	TITLE	POST OFFICE ADDRESS
See attached list		

DIRECTORS NAME	POST OFFICE ADDRESS
See attached list	

CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the secretary of the California Liquid Gas Corp. (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

July 30, 1973
Date

670

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AUG 29 1973
O & G CONS. COMM.

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
Organization Report
File One Copy
Form No. 1

617

DIRECTORS AND OFFICERS
CALIFORNIA LIQUID GAS CORPORATION

Name	Address	Office	Term Expires
A. C. Tiedeman	P. O. Box 28397 Sacramento, Ca. 95828	* President	10/73
A. F. Riedel	"	* Senior Vice President	"
G. W. Sorensen	"	* Vice President	"
Paul E. Jones	"	* Vice President	"
John L. Smith	"	Vice President	"
C. B. Swanson	"	Vice President & Secretary	"
R. E. Dunn	"	Vice President	"
J. P. Wilson	"	Vice President	"
E. O. Hudson	"	Vice President	"
T. D. Porter	"	Vice President	"
C. V. Fisher	"	Treasurer	"
Michael M. Mattingly	"	Asst. Vice President Administration & Assistant secretary	"
E. G. Owens	P. O. Box 16847 Memphis, Tenn. 38116	Vice President	"
H. L. Robinson	P. O. Box 3468 Honolulu, Hawaii 96801	Asst. Secretary	"
C. E. Chafin	"	Asst. Treasurer	"
S. E. Peters	"	Asst. Treasurer	"
C. R. Westbrook, Jr.	"	Asst. Treasurer	"
S. E. Hoyt	"	Asst. Treasurer	"

* Also Directors

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AUG 29 1973
O & G CONS. COMM.

ORGANIZATION REPORT

Full Name of the Company, Organization, or Individual

Fenix & Scisson, Inc.

Post Office Address (Box or Street Address)

P. O. Box 15609 Tulsa, Oklahoma 74115

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

Corporation

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

Construction/ Engineering

If a reorganization, give name and address of previous organization.

If a foreign corporation, give (1) State where incorporated	(2) Name and post office address of state agent	(3) Date of permit to do business in state
Oklahoma		7-31-59

Principal Officers or Partners (if partnership) NAME	TITLE	POST OFFICE ADDRESS
S. E. Scisson	President	P. O. Box 15609 Tulsa, Okla.
R. S. Mayfield	Executive Vice President	P. O. Box 15609 Tulsa, Okla.
C. T. Brandt	Senior Vice President	P. O. Box 15609 Tulsa, Okla.
G. C. Mathis	Vice President	P. O. Box 15609 Tulsa, Okla.
M. H. May	Vice President	P. O. Box 15609 Tulsa, Okla.
Fred Scharf	Vice President	P. O. Box 15609 Tulsa, Okla.
L. C. McKinney	Secretary Treasurer	P. O. Box 15609 Tulsa, Okla.
T. J. Costello	Assistant Secretary	P. O. Box 15609 Tulsa, Okla.

DIRECTORS NAME	POST OFFICE ADDRESS
S. E. Scisson	P. O. Box 15609 Tulsa, Oklahoma
R. S. Mayfield	P. O. Box 15609 Tulsa, Oklahoma
C. T. Brandt	P. O. Box 15609 Tulsa, Oklahoma
Fenelon Boesche	P. O. Box 15609 Tulsa, Oklahoma
E. C. Senft	P. O. Box 15609 Tulsa, Oklahoma
J. L. Wetzel	P. O. Box 15609 Tulsa, Oklahoma

CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the Assistant Secretary of the Fenix & Scisson, Inc. (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 T. J. Costello

Date 7/25/73

RECEIVED
AUG 29 1973
O & G CONS. COMM.

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
Organization Report
File One Copy
Form No. 1

017

DATE	INVOICE NO.	DESCRIPTION		AMOUNT	DISC. OR DEDUCTION	NET AMOUNT
		Filing Fee Permit Storage Well #3 Job # 1-76-15D	422	25.00		

RECEIVED
OCT 21 1976
O & G CONS. COMM.

714

PLEASE DETACH
THIS REMITTANCE ADVICE
BEFORE DEPOSITING CHECK

CAL-GAS TERMINALS INC., PHOENIX
SACRAMENTO, CALIFORNIA 95828

THE ATTACHED CHECK
IS IN PAYMENT OF THE
ITEMS LISTED ABOVE