[redacted]

CA LIQ. GAS STOR.WELL #1A
2-T2N-R1W, Maricopa #865

COUNTY Maricopa AREA 7 mi. W. of Glendale LEASE NO. John L. Roach & Arthur E. Baker

WELL NAME Roach-Baker No. 1A

LOCATION SW/NW SEC 2 TWP 2N RANGE 1W FOOTAGE 2440' FNL & 1111' FWL

ELEV 1087 GR _____ KB SPUD DATE 12/31/88 STATUS LPG storage COMP. DATE 2-5-89 TOTAL DEPTH 2800' (top cavern) 1800'

CONTRACTOR Welltech drilling rig, Elk City, OK

CASING IZE	DEPTH	CEMENT	LINER SIZE & DEPTH
20 inch	160'	326 sx	7 5/8" to 2672'
13 3/8"	1402'	1200 sx	5" to 2732'
10 3/4"	1547'	350 sx	

DRILLED BY ROTARY X

DRILLED BY CABLE TOOL _____

PRODUCTIVE RESERVOIR _____

INITIAL PRODUCTION N/A (LPG storage)

FORMATION TOPS	DEPTHS	SOURCE L.L.	SOURCE E.L.	REMARKS
Alluvium	0-1010'			sand, gravel, clay
Luke salt	1010-TD			Salt

ELECTRIC LOGS	PERFORATED INTERVALS	PROD. INTERVALS
Comp density-GR		
4-arm caliper		
Acoustic-CBL-VDL-GR		
Vertilog & MIT		

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

REMARKS This well was drilled to replace the Roach-Baker No. 1 well (permit #617) into cavern No. 1.

APP. TO PLUG _____
PLUGGING REP. _____
COMP. REPORT 3/13/89

WATER WELL ACCEPTED BY _____

BOND CO. SAFECO INS. COMPANY OF AMERICA BOND NO. ~~210108~~ 5516428

BOND AMT. $ 5,000 CANCELLED _____ DATE ORGANIZATION REPORT Yes

FILING RECEIPT 2 LOC. PLAT X WELL BOOK X PLAT BOOK X

API NO. 02-013-20023 DATE ISSUED 11-9-87 DEDICATION N/A

PERMIT NUMBER 865

(over)

WELL COMPLETION OR RECOMPLETION REPORT AND WELL LOG

DESIGNATE TYPE OF COMPLETION:

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

DESCRIPTION OF WELL AND LEASE

Operator: AP Propane, Inc. dba Cal Gas	Address: P. O. Box 28397, Sacramento, CA 95828
Federal, State or Indian Lease Number or name of lessor if free lease: John L. Roach & Arthur E. Baker	Well Number: 1A; Field & Reservoir: storage well
Location: 1080.86' FEL & 192.77' FSL	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.)	Elevation of casing hd. flange
12/31/88	2/4/89	N/A	est. GR 1087 feet	est. 1088 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.
cavern approx. 2800'	N/A	N/A	

Producing interval (s) for this completion	Rotary tools used (interval)	Cable tools used (interval)
N/A	surface to TD	No

Was this well directionally drilled?	Was directional survey made?	Was copy of directional survey filed?	Date filed
Partially	yes	yes	attached

Type of electrical or other logs run (check logs filed with the commission)	Date filed
Caliper, CDL/GR, CBL & casing inspection log (vertilog)	attached

CASING RECORD

Casing (report all strings set in well — conductor, surface, intermediate, producing, etc.) * depths from CHF

Purpose	Size hole drilled	Size casing set	Weight (lb./ft.)	Depth set *	Sacks cement	Amt. pulled
conductor	26"	20"	94#	160'	326	none
surface	17½"	13 3/8"	61#	1402'	1200	"
final	14"	10 3/4"	45.5#	1547	350	"
hanging strings	11" borehole	7 5/8"/5"	26.4#/15#	2672'/2732'	n/a	n/a

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
	n/a	

ACID, SHOT, FRACTURE, CEMENT SQUEEZE RECORD

Am't. & kind of material used	Depth Interval
n/a	n/a

INITIAL PRODUCTION

Date of first production	Producing method (indicate if flowing, gas lift or pumping—if pumping, show size & type of pump:)
n/a	

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.

3/2/89
Date

Tim Moran
Signature Tim Moran

PB-KBB Inc. is agent for Cal Gas

Permit No. 865

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

DETAIL OF FORMATIONS PENETRATED

FORMATION	TOP	BOTTOM	DESCRIPTION*
Alluvium	0	1010'	sd., gravel, clay-
Luke	1010	TD	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

PB-KBB
FENIX & SCISSON
ENGINEERING CONSTRUCTION OPERATIONS

11757 Katy Freeway #600
Houston, Texas 77079
(281) 496-5590 Telex #792539

P.O. Box 19672
Houston, Texas 77224
Telecopy (281) 496-5658

TELECOPY TRANSMITTAL/MESSAGE SHEET

DATE:	1/25/00		
TO:	AZ GEOLOGICAL SURVEY	ATTENTION:	STEVE RAUZI
FROM:	TIM MORAN		
NO. OF PAGES:	5	TIME SENT:	
SUBJECT:	SUNDRY NOTICES FOR MIT OF AMERIGAS PROPANE WELL 1A		
PHONE:	520-770-3505	SPRINT CODE 50417	CHARGE NO. 50417

MESSAGE: STEVE,

ATTACHED IS THE SUNDRY NOTICES AND PROCEDURES FOR THE MECHANICAL INTEGRITY TEST AND SONAR SURVEY OF AMERIGAS PROPANE'S WELL NO. 1A. THE TEST IS TENTATIVELY SCHEDULED TO COMMENCE 2/14/00. IF YOU HAVE ANY QUESTIONS, PLEASE CALL.

Tim

TIM MORAN
MANAGER OF ENGINEERING
PHONE: 281-589-5823
FAX: 281-589-5865
E-MAIL: MORANT@PBWORLD.COM

CC: GARY POWDRILL, AMERIGAS

IN CASE OF INCOMPLETE RECEPTION, PLEASE CONTACT: (281) 496-5590

PLEASE NOTE: The information contained in this facsimile message may be privileged and confidential, and is intended only for the use of the individual named above and others who have been specifically authorized to receive it. If you are not the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error or if any problems occur with this transmission, please notify us immediately by telephone: (281) 496-5590 and return the original message to us at the address above via the United States mail. Thank you.

SUNDRY NOTICES AND REPORTS ON WELLS

1. Name of Operator AmeriGas Propane L.P.

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

3. Well Name No. 1A Roach-Baker

Location 1080.86' FEL and 192.77' FSL

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.1A by the attached procedure. The test is tentatively scheduled to commence February 14, 2000. During the procedure a "through casing" sonar will be run in Cavern No. 1

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

Signed [signature] Title Mgr. of Eng. Date 1/24/00

PB-KBB, agent for AmeriGas Propane

Permit No.

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

PB-KBB ENGINEERING CONSTRUCTION OPERATIONS	SPECIFICATION	Number 50417A
	AMERIGAS PROPANE L.P. WELL NO. 1A ROACH BAKER MECHANICAL INTEGRITY TEST PROCEDURE USING NITROGEN/BRINE INTERFACE METHOD	Date 1/24/00
		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. 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/brine interface is below the cemented production casing shoe; then recording the nitrogen and brine wellhead pressures and nitrogen/brine 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 (4" 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.

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.

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 2.7 and 2.8 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.

PREPARED BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE	REVISION	DATE
T. Moran	1/24/00	R. Benefield	1/24/00	T. Moran	1/24/00	0	1/24/00

PB-KBB	SPECIFICATION	Number 50417A
	AMERIGAS PROPANE L.P. WELL NO. 1A ROACH BAKER MECHANICAL INTEGRITY TEST PROCEDURE USING NITROGEN/BRINE INTERFACE METHOD	Date 1/24/00
		Page 2 of 2

3.4 Find the nitrogen/brine 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/brine 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	1/24/00	R. Benefield	1/24/00	T. Moran	1/24/00	0	1/24/00

M.I.T. WELL DATA SHEET

1/24/00

1.0 WELL DESCRIPTION

1.1 Name		WELL #1A Roach-Baker
1.2 Operator		AmeriGas Propane L.P.
1.3 Location	Field	Glendale
	Parish	Maricopa
	State	Arizona
1.4 Cemented Casing	Size O.D.	10.75 inches
	Size I.D.	9.95 inches
	Depth	1547 feet
	Weight	45.50 lbs/ft
1.5 Hanging Casing Strings	Size	7.625 inches
	Depth	2670 feet
	Weight	26.4 lbs/ft
	Size	5.0 inches
	Depth	2726 feet
	Weight	15 lbs/ft
1.5 Total Depth (Sonar Survey 3/25/94)		2730 feet

2.0 TEST PRESSURES

2.1 Casing Shoe Depth	1547 feet
2.2 Test Gradient	0.85 psi/ft
2.3 Brine Density (Estimated)	1.20
2.4 Nitrogen Temperature	90.0 deg F
2.5 Interface Elevation	1800 feet
2.6 Casing Shoe Pressure	1315 psi
2.7 Surface Brine Pressure	550 psi
2.8 Surface Nitrogen Pressure	1250 psi

3.0 VOLUME ESTIMATE

3.1 Total Volume To Casing Shoe	61 bbls
3.2 Nitrogen Volume To Casing Shoe	24,980 SCF
3.3 Total Nitrogen Required (Approximate)	28,852 SCF

4.0 COMPRESSIBILITY RESPONSE

4.1 Cavern Volume (Sonar Survey 3/25/94)	1,018,724 bbls
4.2 Displacement To Interface	82 bbls
4.3 Cavern Compressibility	3.09 bbls/psi
4.4 Cavern Pressure Increase Due To N2 Injection	27 psi
4.5 Cavern Pressure With Brine	523 psi
4.6 Brine Volume (estimate)	1600 bbls

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. 1-A Roach-Baker
   Location: 1080.86' FEL and 192.77' FSL
   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. 1-A as per the enclosed report on March 22 - March 26, 1994. The well was tested using propane at an equivalent pressure gradient of 0.86 psi/ft at the casing seat. No leak was detected.

Also, a sonar survey was performed through the two hanging pipes on March 25, 1994 from a depth of 2735' to 1550'. The total volume was 1,018,700 Bbls. The report is enclosed.

RECEIVED
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. 865

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 [X] (Specify) Storage Well

3. Well Name: No. 1-A Roach-Baker

Location: 1080.86' FEL and 192.77' FSL

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. 1-A by the attached procedure. The test is tentatively scheduled for the beginning of March 1994.

In addition, a "through casing" sonar will be run in Cavern No. 1.

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 Amergas Propane

Permit No. 865

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

AMERIGAS PROPANE INC.

WELL NO. 1-A ROACH-BAKER

MECHANICAL INTEGRITY TEST PROCEDURE
USING BRINE/PRODUCT INTERFACE METHOD

CONSERVATION DIVISION

FEB 3 1994

I. **INTRODUCTION**

The objective of this procedure is to test the mechanical integrity of Cavern No. 1 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
FENIX & SCISSON
ENGINEERING CONSTRUCTION OPERATIONS

P/N 865

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.

ALASKA OIL & GAS
CONSERVATION COMMISSION
FEB 3 1994

PB-KBB
FENIX & SCISSON
ENGINEERING CONSTRUCTION OPERATIONS

P/N 865

WELL DATA SHEET

FEB 3 1994

1.0 WELL DESCRIPTION		
1.1 Name		Well # 1–A (865)
1.2 Operator		Amerigas
1.3 Location	Field	Glendale
	County	Maricopa
	State	Arizona
1.4 Cemented Casing	Size	10–3/4inches
	Depth	1547 feet
	Weight	45.5 lbs/ft
	Grade	NA
1.5 Hanging Pipe String	Size	7–5/8 5 inches
	Depth	2670 2726feet
	Weight	26.4 15 lbs/ft
	Grade	NA NA
1.6 Total Depth		2760 feet
2.0 TEST PRESSURES		
2.1 Casing Seat Depth		1547 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		1600 feet
2.6 Casing Seat Pressure		1315 psi
2.7 Surface Brine Pressure		511 psi
2.8 Surface Product Pressure		974 psi
3.0 VOLUME ESTIMATE		
3.1 Total Volume To Casing Shoe		61 Bbls.
3.2 Total Product Volume Required (Approximate)		65 Bbls.
4.0 COMPRESSIBILITY RESPONSE		
4.1 Cavern Volume		956,000 bbls
4.2 Displacement To Interface		65 bbls
4.3 Cavern Compressibility		2.73 bbls/psi
4.4 Cavern Pressure Increase Due To Product Injection		24 psi
4.5 Cavern Pressure With Brine		487 psi
4.6 Brine Volume (estimate)		1329 bbls

P/N 865

WELL DATA SHEET

FEB 3 1994

1.0 WELL DESCRIPTION		
1.1 Name		Well # 1-A (865)
1.2 Operator		Amerigas
1.3 Location	Field	Glendale
	County	Maricopa
	State	Arizona
1.4 Cemented Casing	Size	10--3/4inches
	Depth	1547 feet
	Weight	45.5 lbs/ft
	Grade	NA
1.5 Hanging Pipe String	Size	7-5/8 5 inches
	Depth	2670 2726feet
	Weight	26.4 15 lbs/ft
	Grade	NA NA
1.6 Total Depth		2760 feet
2.0 TEST PRESSURES		
2.1 Casing Seat Depth		1547 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		1600 feet
2.6 Casing Seat Pressure		1315 psi
2.7 Surface Brine Pressure		511 psi
2.8 Surface Product Pressure		974 psi
3.0 VOLUME ESTIMATE		
3.1 Total Volume To Casing Shoe		61 Bbls.
3.2 Total Product Volume Required (Approximate)		65 Bbls.
4.0 COMPRESSIBILITY RESPONSE		
4.1 Cavern Volume		956,000 bbls
4.2 Displacement To Interface		65 bbls
4.3 Cavern Compressibility		2.73 bbls/psi
4.4 Cavern Pressure Increase Due To Product Injection		24 psi
4.5 Cavern Pressure With Brine		487 psi
4.6 Brine Volume (estimate)		1329 bbls

P/N 865

SUNDRY NOTICES AND REPORTS ON WELLS

1. Name of Operator AP Propane dba Cal Gas

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

3. Well Name No. 1A Roach-Baker

Location 1080.86' FEL & 192.77 FSL

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

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 3/6/89 - 3/8/89, a mechanical integrity test was conducted on Cal Gas' Well No. 1A Roach-Baker and witnessed by Steve Rauzi, 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 Tim Moore Title Project Manager Date 5/31/89

PB-KBB Inc. Agent for Cal Gas

Permit No. 865

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. 1A ROACH-BAKER permit # 865

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. 1A 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 guages 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 density base 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. **TEST START - INITIALIZATION**

1. When it is clear the pressures are stable (after 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 to CalGas.

WELL DATA SHEET

1.0 WELL DESCRIPTION

1.1 Name		Well No. 1A
1.2 Operator		Cal Gas
1.3 Location	Field	Glendale
	County	
	State	Arizona
1.4 Cemented Casing	Size	10-3/4 inches
	Depth	1547 feet
	Weight	45.5 lbs/ft
1.5 Hanging Pipe Strings	Size	7-5/8 inches
	Depth	2672 feet
	Weight	26.4 lbs/ft
	Size	5.0 inches
	Depth	2732 feet
	Weight	15.0 lbs/ft
1.6 Total Depth		2760 feet

2.0 TEST PRESSURES

2.1 Casing Seat Depth	1547 feet
2.2 Test Gradient	0.85 psi/ft
2.3 Brine Density (Assumed)	1.20
2.4 Product Density	0.508
2.5 Interface Elevation	1650 feet
2.6 Casing Seat Pressure	1315 psi
2.7 Surface Brine Pressure	511 psi
2.8 Surface Product Pressure	1005 psi

3.0 VOLUME ESTIMATE

3.1 Total Volume To Casing Shoe	61 bbls
3.2 Product Volume In Borehole (Approximate)	12 bbls

4.0 COMPRESSIBILITY RESPONSE

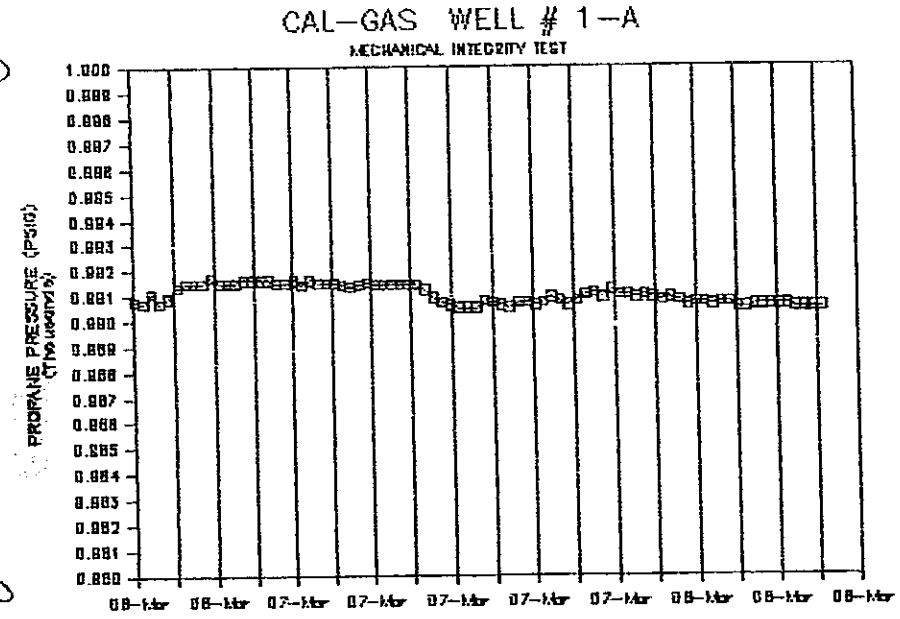
4.1 Cavern Volume	956,000 bbls
4.2 Displacement To Interface	73 bbls
4.3 Cavern Compressibility	3.2 bbls/psi
4.4 Cavern Pressure Increase Due To Product Injection	23 psi
4.5 Cavern Pressure With Brine	487 psi
4.6 Brine Volume (Estimate)	1,553 bbls

Permit # 865

CAL–GAS WELL # 1–A

MECHANICAL INTEGRITY TEST

1000



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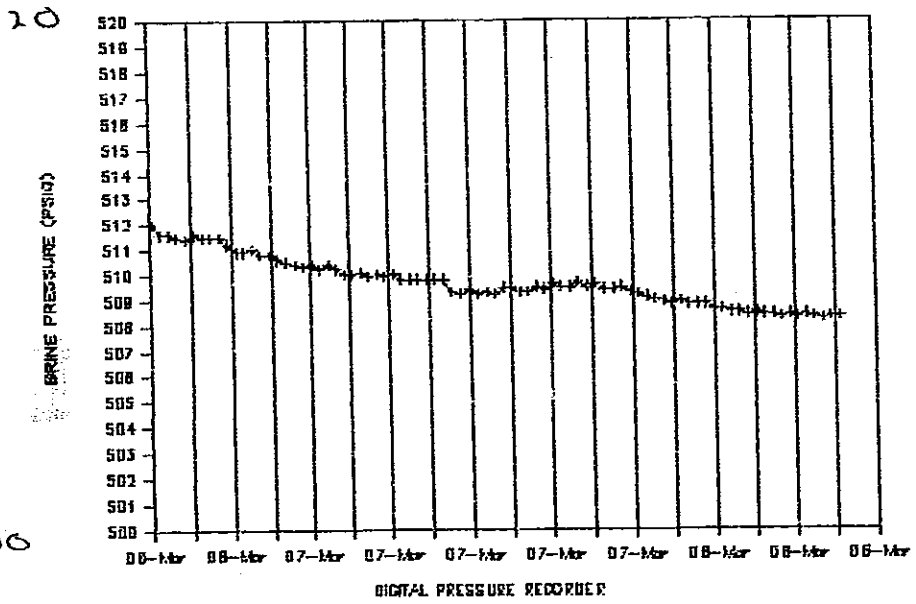
Permit # 865

520



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CAL-GAS WELL # 1-A
MECHANICAL INTEGRITY TEST

DATE	TIME	ELAPSED HOURS	BRINE PRESSURE (PSIG)	PROPANE PRESSURE (PSIG)
06-Mar-89	14:30	0.0	512.0	990.8
	15:00	0.5	511.6	990.7
	15:30	1.0	511.6	991.1
	16:00	1.5	511.5	990.7
	16:30	2.0	511.4	990.9
	17:00	2.5	511.6	991.3
	17:30	3.0	511.5	991.5
	18:00	3.5	511.5	991.5
	18:30	4.0	511.5	991.5
	19:00	4.5	511.2	991.7
	19:30	5.0	510.9	991.5
	20:00	5.5	510.9	991.5
	20:30	6.0	511.0	991.5
	21:00	6.5	510.8	991.6
	21:30	7.0	510.8	991.6
	22:00	7.5	510.6	991.6
	22:30	8.0	510.5	991.6
	23:00	8.5	510.4	991.5
	23:30	9.0	510.3	991.5
07-Mar-89	00:00	9.5	510.4	991.6
	00:30	10.0	510.2	991.4
	01:00	10.5	510.4	991.6
	01:30	11.0	510.2	991.5
	02:00	11.5	510.0	991.5
	02:30	12.0	510.0	991.5
	03:00	12.5	510.1	991.4
	03:30	13.0	509.9	991.3
	04:00	13.5	510.0	991.4
	04:30	14.0	509.9	991.5
	05:00	14.5	510.0	991.4
	05:30	15.0	509.8	991.4
	06:00	15.5	509.8	991.4
	06:30	16.0	509.8	991.4
	07:00	16.5	509.8	991.4
START TEST				
	07:30	17.0	509.8	991.4
	08:00	17.5	509.8	991.2
	08:30	18.0	509.3	990.9
	09:00	18.5	509.2	990.7
	09:30	19.0	509.4	990.6
	10:00	19.5	509.2	990.5
	10:30	20.0	509.3	990.5
	11:00	20.5	509.2	990.5
	11:30	21.0	509.5	990.8
	12:00	21.5	509.5	990.7
	12:30	22.0	509.3	990.6
	13:00	22.5	509.3	990.5

CAL-GAS WELL # 1-A
MECHANICAL INTEGRITY TEST

DATE	TIME	ELAPSED HOURS	BRINE PRESSURE (PSIG)	PROPANE PRESSURE (PSIG)
	13:30	23.0	509.5	990.7
	14:00	23.5	509.4	990.7
	14:30	24.0	509.6	990.6
	15:00	24.5	509.5	990.7
	15:30	25.0	509.5	990.9
	16:00	25.5	509.7	990.8
	16:30	26.0	509.5	990.6
	17:00	26.5	509.6	990.8
	17:30	27.0	509.4	991.0
	18:00	27.5	509.4	991.1
	18:30	28.0	509.5	990.9
	19:00	28.5	509.3	991.2
	19:30	29.0	509.2	991.0
	20:00	29.5	509.1	991.0
	20:30	30.0	509.0	990.9
	21:00	30.5	508.9	991.0
	21:30	31.0	508.8	990.9
	22:00	31.5	508.9	990.8
	22:30	32.0	508.8	990.9
	23:00	32.5	508.8	990.8
	23:30	33.0	508.8	990.6
08-Mar-89	00:00	33.5	508.6	990.7
	00:30	34.0	508.6	990.7
	01:00	34.5	508.5	990.6
	01:30	35.0	508.5	990.7
	02:00	35.5	508.4	990.7
	02:30	36.0	508.5	990.5
	03:00	36.5	508.4	990.5
	03:30	37.0	508.4	990.6
	04:00	37.5	508.3	990.6
	04:30	38.0	508.4	990.6
	05:00	38.5	508.3	990.6
	05:30	39.0	508.4	990.6
	06:00	39.5	508.3	990.5
	06:30	40.0	508.2	990.5
	07:00	40.5	508.3	990.5
	07:30	41.0	508.3	990.5

AP PROPANE INC. dba CALGAS

WELL HISTORY

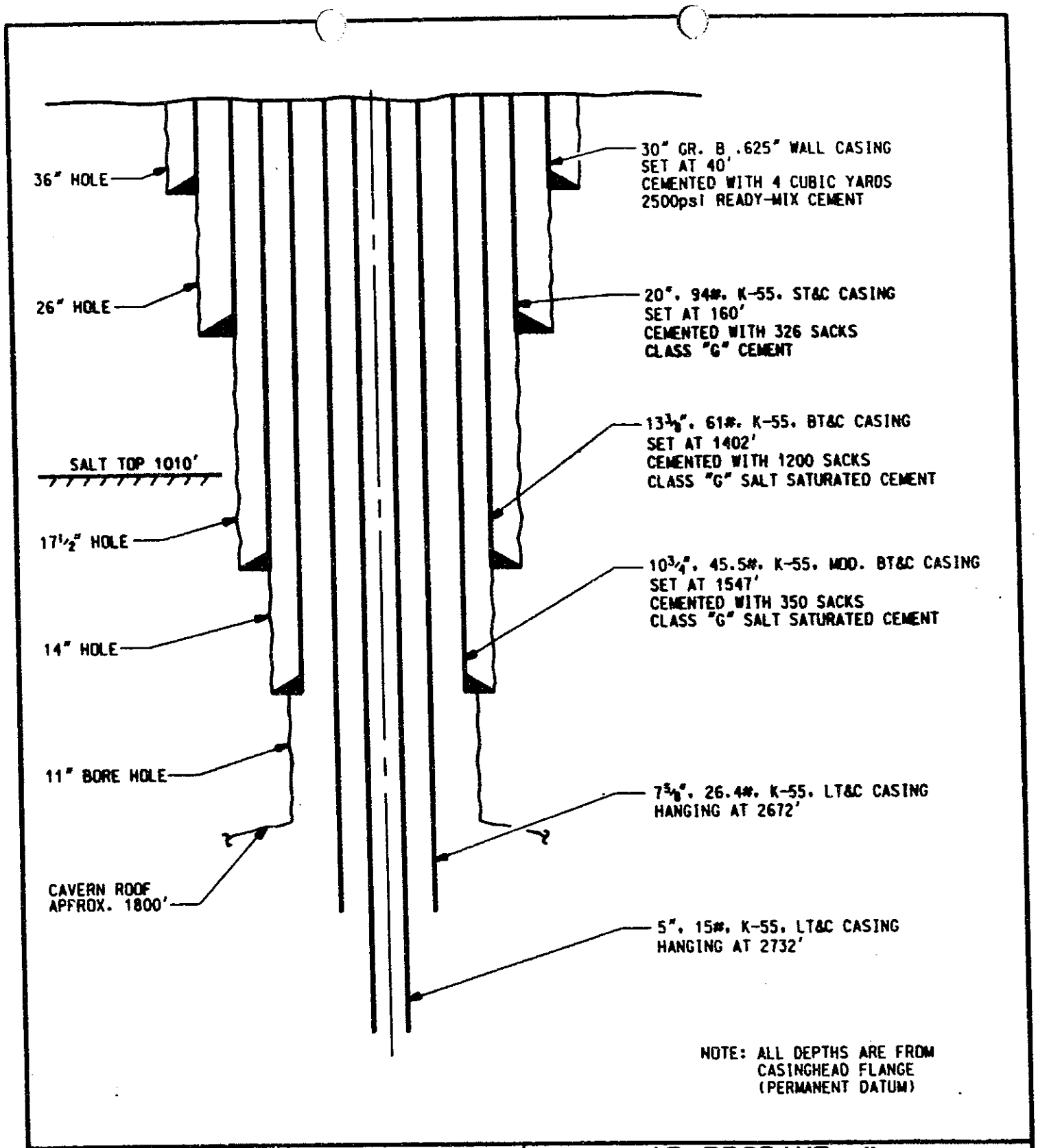
WELL NO. 1A ROACH-BAKER

Drilling Dates:	12/13/88 - 2/5/89
Objective:	Drill a reentry well into Cal Gas' Cavern No. 1.
Drilling Log:	The following is a chronological summary of the drilling operations. Note: All drilling depths are RKB unless otherwise noted. KB to casinghead flange 15.08'
12/13/88	Welltech, drilling rig contractor, began moving equipment to the location.
12/14/88	Continued moving equipment to the location. Surveyor surveyed the well location. Augered 40' of 36" hole for conductor.
12/15/88	Continued moving equipment to the location. The drilling unit and some trucks were held up at Winslow, Az. because of a train derailment that closed I-40. Set a 40' section of 30" O.D. 5/8" wall casing at 39' ground level, and grouted in place with four cubic yards of 2500 psi ready mix cement. Drilled 24' of 30" hole for the rathole and 16' of 18" hole for the mousehole.
12/16/88	Rig up trucks set two mud tanks, mud mixing equipment and two mud pumps in place. The drilling unit was still in Winslow due to highway closing. Spread gravel on the location to level equipment.
12/17/88	One crew arrived on location and began changing pump liners and did miscellaneous rig up work on the mud tanks. Waited on the drilling unit. I-40 still closed.
12/18/88	Crew and rig up trucks rigged up miscellaneous equipment. Waited on the drilling unit.
12/19/88	Waited on drilling unit. Unit arrived outside Phoenix city limits.
12/20/88	Installed derrick on the drilling unit, hooked up all hydraulic lines and guywires. Set the unit in place, centered up to the 36" conductor casing and ran the hydraulic system to work all of the air out of the system.

12/21/88	Raised the derrick, set in the sub-base, picked up the Kelly and swivel, set all stairs and hand rails in place. Shut down for Christmas.
12/22/88 - 12/27/88	Shut down for Christmas.
12/28/88	Rigged up desander and miscellaneous equipment.
12/29/88	Attempted to remove rotary beams. Pins could not be removed. (Beams must be removed to allow the 26" drilling tools to pass.)
12/30/88	Machine shop removed the old pins and machined new pins. Waited on 3 1/2" IF x 4 1/2" XH sub.
12/31/88	Waited on the 3 1/2" IF x 4 1/2" XH sub. Spudded well at 1400 hours. Lost circulation at 97' in the 17 1/2" hole. Continued drilling to 104'. Spotted a 30' plug (44 sacks) of Class G cement.
01/01/89	Drilled out the cement plug and drilled 17 1/2" hole from 104' to 190'.
01/02/89	Pulled 17 1/2" drilling assembly and ran the 26" drilling assembly. Opened 17 1/2" hole to 26" down to 144'.
01/03/89	Opened 17 1/2" hole to 26" from 144' to 190'. Rigged up to run 20" casing.
01/04/89	Ran and cemented in place five joints of 20", 94#, K-55, ST&C casing, set at 175' RKB, 160' casinghead flange. Cemented with 326 sacks of Class G cement.
01/05/89	Waited on cement. Nippled up 20" Hydril blow out preventer.
01/06/89	Completed nippling up 20" Hydril. Tested the Hydril and all lines to 500 psi for 30 minutes. Drilled out cement. Drilled 12 1/4" center punch hole to 198'.
01/07/89	Drilled the 12 1/4" center punch hole to 220', changed drilling assemblies and drilled 12 1/4" hole to 476'. Ran Totco deviation surveys at 252' - 1/2 Deg. and 345' - 1/2 Deg.
01/08/89	Drilled 12 1/4" hole from 476' to 933'. Deviation surveys at 435' - 1/2 Deg, 528' - 1/2 Deg, 620' - 1/4 Deg, 719' - 1/4 Deg. and 812' - 1/4 Deg.
01/09/89	Drilled 12 1/4" hole from 933' to 1007'. Tripped out for a new bit and converted mud system from fresh water to salt saturated. Deviation survey at 896' - 1/4 Deg.

01/10/89	Drilled 12 1/4" hole from 1007' to 1200'. Deviation surveys at 1060' - 1/2 Deg. and 1155' - 3/4 Deg. Found salt top at approximately 1010' casinghead flange.
01/11/89	Drilled 12 1/4" hole from 1200' to 1415'. Deviation survey at 1281' - 1/2 Deg.
01/12/89	Drilled 12 1/4" hole from 1415' to 1555'. Deviation surveys at 1410' -1 Deg. and 1440' - 1 Deg. Conditioned the hole for logging and ran a compensated density and gamma ray log.
01/13/89	Opened 12 1/4" hole to 17 1/2" from 274' to 516'.
01/14/89	Opened 12 1/4" hole to 17 1/2" from 516' to 847'.
01/15/89	Opened 12 1/4" hole to 17 1/2" from 847' to 955'. Made a trip for a new bit and hole opener at 905'.
01/16/89	Opened 12 1/4" hole to 17 1/2" from 955' to 1148'.
01/17/89	Opened 12 1/4" hole to 17 1/2" from 1148' to 1310'.
01/18/89	Opened 12 1/4" hole to 17 1/2" from 1310' to 1426'. Ran a caliper log. Maximum thermometer temperature at T.D. 96 Deg. F.
01/19/89	Rigged up and ran 37 joints of 13 3/8", 61#, K-55, BT&C casing - set at 1402 casinghead flange. Cemented in place with 1200 sacks of Class G salt saturated cement (297 bbl. of slurry). Cement to surface, circulated out 90 bbls.
01/20/89	Waited on cement.
01/21/89	Waited on cement.
01/22/89	Waited on cement. Cut of 13 3/8" casing. Welded on the 13 3/8" SOW casinghead. Flo-Control representative tested the head to 800 psi. Filled 36' of 20" x 13 3/8" annulus with 3000 psi Ready-Mix cement.
01/23/89	Nippled up the blowout preventer stack and tested the pipe rams and blind rams to 500 psi. Drilled out the float collar, shoe and 10' of hole. Tested the shoe to 300 psi.
01/24/89	Drilled 12 1/4" hole to 1570'. Underreamed the 12 1/4" hole to 14". Waited on cementing service company.

01/25/89	Rigged up and ran 37 joints of 10 3/4", 45.5#, K-55 Mod. BT&C casing. Set at 1547' casinghead flange. Cemented with 350 sacks of Class G salt saturated cement (77 bbls. of slurry) Cement to surface. Circulated out 2 bbls. of excess cement.
01/26/89 - 1/29/89	Waited on cement.
01/29/89	Installed "B" section wellhead spool and blowout preventer stack. Flo-Control tested "B" spool to 1100 psi. Tested BOP pipe and blind rams to 1000 psi. Drilled out cement in the casing and tested casing to 625 psi. Drilled out the shoe and 10' of hole. Tested the shoe to 550 psi. All tests except the shoe test was witnessed by the Arizona O&GC, Steve Rauzi. Ran directional survey in the casing before drilling out.
01/30/89	Ran a cement bond log. Waited on a 10 3/4" casing scraper. Made up the directional drilling tools while waiting on the casing scraper.
01/31/89	Ran a 10 3/4" casing scraper. Ran a casing inspection log (vertilog). Directionally drilled 9 5/8" hole to 1639'.
02/01/89	Directionally drilled 9 5/8" hole to 1737'. Shut down until daylight to reenter the cavern.
02/02/89	Drilled into the cavern at 1210 hours. Reentry depth was 1813'. Closed BOP and bled down cavern. Estimated 400 psi cavern pressure.
02/03/89	Pulled out of the hole, laid down all of the directional drilling assembly. Ran a 11" underreamer and underreamed the 9 5/8" hole to 11" into the cavern. Pulled the underreamer and laid down all drilling tools and drill pipe. Ran sinker bar on wire line. Tagged cavern bottom at 2744' casinghead flange.
02/04/89	Ran 64 joints (2674') of 7 5/8", 26.4#, K-55, LT&C casing landed at 2672' casinghead flange. Installed the "C" section wellhead spool and tested to 1100 psi by the Flo-Control representative. Ran 64 joints (2736') of 5", 15#, K-55, LT&C casing landed at 2732' casinghead flange.
02/05/89	Cleaned rig pumps and steel pits. Rig released at 0400 hours 2/5/89. Commenced rigging down.
02/06/89	Continued rigging down and stacking the rig.
02/07/89	Continued rigging down.
02/08/89	All crews and rig down trucks left the location.



PB-KBB Inc. Subsurface Systems & Technology	AP PROPANE dba CAL GAS Sacramento, California
STORAGE WELL No. 1A ROACH-BAKER (AS-BUILT)	JOB No. 303008
DRAWN: JKH · CHECKED: TM · DATE: 02-28-89 · SCALE: NONE	DRAWING No. CG-WS-01

WITNESS RECORD FOR ROACH-BAKER 1A
Permit #865

1-04-89 Cemented 20" conductor pipe to 174'.
Observed circulation of good cement at surface.

1-19-89 Cemented 13 3/8" surface casing to 1,440'.
Observed circulation of good cement at surface.

1-23-89 Tested BLIND RAMS at 400 psi for 20 minutes.
Tested PIPE RAMS at 450 psi for 20 minutes.
No line, flange, or valve leaks were observed.

1-26-89 Cemented 10 3/4" production casing to 1,550'.
Observed circulation of good cement at surface.

1-29-89 Tested BLIND RAMS at 1,000 psi for 15 minutes.
Tested PIPE RAMS at 1,000 psi for 15 minutes.
No line, flange, or valve leaks were observed.
Drilled out float collar.
Tested 10 3/4" casing at 600 psi for 1 hour.

S. L. Rauzi
S. L. Rauzi

STATE OF ARIZONA

OIL AND GAS CONSERVATION COMMISSION

PERMIT 865

REPORT ON PROPOSED OPERATIONS

(Gas Storage Project)

A P Propane dba Cal Gas Corporation
P.O. Box 28397
Sacramento, CA 95828

Phoenix, ARIZONA
November 9, 1987

Your _____ proposal to drill well No. 1A Roach-Baker, A.P.I. No. 02-013-20023, Section 2, T. 2N, R. 1W, G&SR B. & M., - field, West Glendale area, - pool, Maricopa County, dated 9/22/87, received 9/25/87 has been examined in conjunction with records filed in this office.

* NOTE: This well cannot be drilled until a rider to the performance bond (#2210108) for Well No. 1 Roach-Baker, transfering the bond to this well, is received.

THIS PROPOSAL IS APPROVED PROVIDED:

1. Drilling mud consistent with sound drilling practices is used at all times. Quantities of drilling mud materials sufficient to insure well control shall be maintained readily accessible for immediate use at all times.

2. The well is cased and cemented in such a manner as to protect all zones that contain fresh water and to provide well control during drilling operations.

3. Blowout prevention equipment shall be installed, used, maintained and tested in a manner necessary to assure well control throughout the drilling and completion of the well.

4. The status of completed drilling operations (Form 25) shall be completed and filed with the Commission as required.

5. THIS COMMISSION SHALL BE NOTIFIED:

   a. Immediately when drilling operations commence.

   b. To witness the installation and testing of the blowout prevention equipment.

   c. To witness the running in and cementing of the surface and final cemented strings of casing.

   d. To witness all casing and casing seat integrity testing.

BOND *

D. J. BRENNAN, Executive Director

By R. A. Yhana
Enforcement Director

A copy of this report and the proposal must be posted at the well site prior to commencing operations.

Records for work done under this permit are due within 30 days after the work has been completed or the operations have been suspended.

APPLICATION FOR PERMIT TO DRILL OR RE-ENTER

SEP 25 1987

APPLICATION TO DRILL ☐ RE-ENTER OLD WELL ☐

AP PROPANE dba CAL GAS (formerly California Liquids Gas Corporation)
NAME OF COMPANY OR OPERATOR

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

The Drilling Contractor has not been selected at this time.
Drilling Contractor

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: Storage Well No. 1A	Elevation (ground): 1087'
Nearest distance from proposed location to property or lease line: (See Remarks) Approx. 200 feet	Distance from proposed location to nearest drilling, completed or applied—for well on the same lease: Distance from Storage Well No. 2 Approx. 432 feet	
Number of acres in lease: 120	Number of wells on lease, including this well, completed in or drilling to this reservoir: Four (includes Storage Well No. 1)	
If lease, purchased with one or more wells drilled, from whom purchased: N/A (Name / Address)		
Well location (give footage from section lines): Approx. 1110' FWL & 2440' FNL	Section—township—range or block and survey: Sec. 2, T-2N, R-1W, G&SRB&M	Dedication (Comply with Rule 105): N/A
Field and reservoir (if wildcat, so state): LP-Gas Storage	County: Maricopa	
Distance in miles, and direction from nearest town or post office: 7 miles west of Glendale		
Proposed depth: 3200'	Rotary or cable tools: Rotary	Approx. date work will start: November 15, 1987
Bond Status See Remarks Amount	Organization Report: On file X Or attached	Filing Fee of $25.00: Attached X

Remarks:
1. Storage Well No. 1A will be located in close proximity to Storage Well No. 1 (to be plugged). The location plat for Storage Well No. 1 is attached.
2. A rider to the performance bond for Well No. 1, transferring the bond to Well No. 1A, will be filed after Well No. 1 is plugged. The bond for Well No. 1 is attached.
3. The drilling program for Storage Well No. 1A is attached.

CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the Project Manager 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.

Tim Moran
Signature Tim Moran

September 22, 1987
Date

Fenix & Scisson, Inc. is Agent for Cal Gas

Permit Number: 865
Approval Date: 11/6/87
Approved By: R. A. Yoshum

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. See Remarks

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. See Remarks

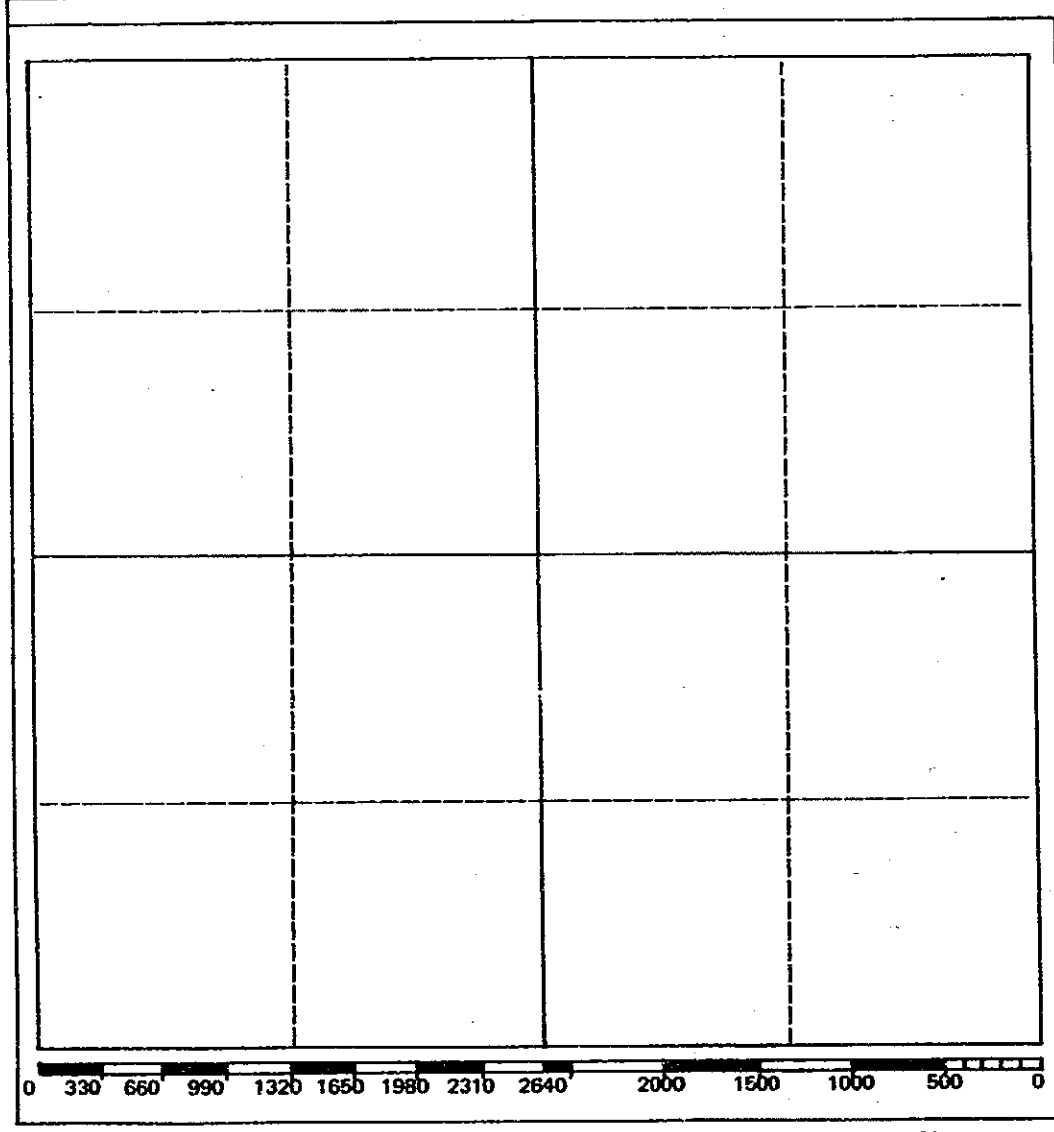
3. ALL DISTANCES SHOWN ON THE PLAT MUST BE FROM THE OUTER BOUNDARIES OF THE SECTION.

4. Is the Operator the only owner in the dedicated acreage outlined on the plat below? YES_____NO_____. N/A

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: N/A

Owner	Land Description



CERTIFICATION

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

Name

Position

Company

Date

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

Registered Professional Engineer and/or Land Surveyor

Certificate No.

PROPOSED CASING PROGRAM - See Remarks

Size of Casing	Weight	Grade & Type	Top	Bottom	Cementing Depths	Sacks Cement	Type
20"	94#	K-55	0	140'	To Surface	Approx. 360	Class A or H
13-3/8"	54.5#	K-55	0	1400'	To Surface	1000	Class H
10-3/4"	40.5#	K-55	0	1550'	To Surface	350	Class H
7"	20#	K-55	0	2670'	Suspended		
4-1/2"	10.5#	K-55	0	2730'	Suspended		

Job #528
September 1, 1987

DRILLING PROGRAM
CAVERN NO. 1
REENTRY WELL

SEP 25 1987

Cal Gas Storage Cavern No. 1 will be reactivated by plugging the existing storage well and directionally drilling a new reentry well into the cavern.

This program presents the proposed steps for drilling the reentry well into Cal Gas Cavern No. 1. The program is recommended for use as a general guideline. Actual conditions encountered during the process will dictate the required steps to be taken.

1. Locate reentry well in close proximity to existing Cal Gas Well No. 1. Build location to accommodate drilling rig.

   Note: Exact location will depend on directional survey data from Well No. 1.

2. Move in and rig-up the drilling rig. Drill rathole and mousehole.

3. Drill 17-1/2-inch to ± 150 feet, then open hole to 26-inches. Use a fresh water bentonite mud system.

4. Condition hole, then rig-up and run 20-inch conductor casing to ± 140 feet. Install a guide shoe on the bottom joint, a centralizer 10 feet above the shoe, and one centralizer across the coupling at the top of the second joint. BAKER-LOK all joints of casing. (See Figure 1 for casing diagram.)

5. Cement the 20-inch O.D. casing from the shoe to the surface. Immediately clean out the 26-inch hole X 20-inch casing annulus at surface. Wait 8 hours before cutting off casing. Top out cement in annulus if necessary.

6. Cut off the 20-inch casing and weld on flange. Install annular BOP, flow nipple and flow line.

7. Drill out cement and drill 12-1/4-inch hole to ± 1550 feet. Convert to salt mud as per mud program when the top of salt is encountered. Estimated depth to salt is ± 1010 feet.

   Note: The reentry well will be directionally drilled by correlating with directional survey data from the existing Cal Gas Storage Well No. 1. Horizontal displacement of hole from Well No. 1 at the 1550 foot depth should be ± 15 feet. (See Figure 2 for Schematic of Directional Reentry Well.)

8. Rig-up logging truck and run a Compensated Density Log and Gamma Ray Log from ± 1550 feet to 140 feet.

9. Pick up 17-1/2-inch bit and open the 12-1/4-inch hole to the depth of ± 1400 feet.

10. Rig-up logging truck and run a Caliper Log from ± 1400 feet to the surface.

11. Condition hole, then pull out and prepare for running casing. Rig-up 13-3/8-inch casing tools.

12. Run ± 1400 feet of 13-3/8-inch surface casing as per casing summary. Install a float collar on top and a float shoe on the bottom of the bottom joint. BAKER-LOK thread connections on float collar, shoe, and top of second joint. Install a centralizer on the middle of the bottom joint, then across the coupling of joint numbers 3, 4, 5, 7, 9, 11, 13, 15, 17, 19, and 21. Recommended API make-up torque is 5140 foot-pounds.

13. Circulate one hole volume, then cement the 13-3/8-inch casing back to the surface with materials shown on the cementing specifications.

14. Wait on cement. Convert mud system to brine. Start nippling up after 36-hours. Cut-off 13-3/8-inch casing at desired elevation and weld on 13-5/8-inch casinghead. Install annular BOP, flow nipple and flow line.

15. Hydrostatically test casing with 600 psi for 30 minutes.

    Note: All test pressures are at surface.

16. Drill out float collar, cement, and float shoe and 10 feet of hole.

17. Pull up into casing, close pipe rams and rig to pressure test 13-3/8-inch casing shoe. Hydrostatically test casing shoe to 300 psi for 30 minutes.

18. Underream 12-1/4-inch hole to 14-inches from ± 1400 feet to ± 1550 feet.

19. Condition hole, then pull out and prepare to run casing. Rig-up 10-3/4-inch casing tools.

20. Run ± 1550 feet of 10-3/4-inch production casing as per casing summary. Install a float collar on top and a float shoe on the bottom of the bottom joint of casing. BAKER-LOK thread connections on the float collar, shoe, and top of second joint. Install a centralizer at the middle of the bottom joint, then across the couplings of joint numbers 3, 5, 6, and 7. Recommended API makeup torque is 4500 foot-pounds. (See Figure 1 for casing diagram.)

21. Circulate one hole volume, then cement the 10-3/4-inch casing back to the surface with the materials shown on the cementing specifications.

22. Check for backflow, then hydrostatically test casing with 570 psi for one hour. (Test pressure equivalent to maximum operating pressure at casing shoe.)

23. Wait on cement. Start nippling up after 48-hours. Install 13-5/8-inch X 11-inch casinghead, double BOP with drill pipe and blind rams, annular BOP, flow nipple and flow line. Connect a diverter line to a side outlet of the 13-5/8-inch X 11-inch casinghead with double valves.

24. Drill out float collar, cement, and float shoe plus 10 feet of hole with a 9-7/8-inch bit.

25. Rig up logging truck and run "base" Casing Inspection Log.

26. Drill 9-7/8-inch hole from 1550 feet into Cavern. Some pressure and backflow can develop upon entry. Note loss of weight on bit. Check for backflow and take proper action with B.O.P.

    Note: Reentry target is the cavern roof at 1800 feet. If the cavern is not intersected at that point drilling will continue until intersection or to cavern T.D. A leaching program will then be initiated to improve access to the cavern and recover storage to the 1800-foot roof. (See Figure 2.)

27. Underream 9-7/8-inch hole to 11-inches from production casing to reentry depth.

28. P.O.H. laying down drill pipe and drilling assembly.

29. Rig up 7-inch casing tools and equipment.

30. Run and suspend ± 2670 feet of 7-inch, 20#, K-55 LT&C casing. Use a Texas pattern shoe on the bottom joint.

31. Install tubing spool to land and suspend 4-1/2-inch tubing.

32. Rig up and run ± 2730 feet of 4-1/2-inch tubing.

    Note: Final depth of suspended casing strings will depend upon point of cavern intersection.

33. Close in wellhead. Leave connection to bleed-off pressure.

34. Rig down and move out drilling rig and equipment.

35. Finalize wellhead connections.

36. Conduct well confirmation test.

Drilling Fluid Specifications

Surface Hole, 0 - 1020' or 10 feet into top of salt

Type	- Fresh water bentonite
Weight	- 8.9 - 9.0 #/gal
Viscosity	- 45 seconds
Gels	- 10/20 or less
W.L.	- N.C.
Ph	- 9.0
Cake	- 2/32"

Surface Hole, 1020' to 1400'

Type	- Fresh water bentonite converted to salt mud.
Weight	- 9.0# to 10.5#
Viscosity	- 45 seconds
Gels	- N.C.
W.L.	- N.C.
Ph	- 9.0
Cake	- 2/32"

Final Hole and Cavern Interval, 1400' to Total Depth

Type	- Brine
Weight	- 10.0 to 10.5 #/gal
Viscosity	- 35 to 37 seconds
W.L.	- N.C.

Casing Summary

Item	Interval	Size	Grade	Weight Per Foot		Weight In Air
Conductor Casing	0' - 140'	20" O.D.	K-55	94#	ST&C	13,160#
Surface Casing	0' - 1400'	13-3/8" O.D.	K-55	54.50#	ST&C	76,300#
Production Casing	0' - 1550'	10-3/4" O.D.	K-55	40.5#	ST&C	63,990#
Displacement Casing	0' - 2670'	7" O.D.	K-55	20#	LT&C	53,600#
Fresh Water Casing	0' - 2730'	4-1/2" O.D.	K-55	10.50#	LT&C	28,600#

Fenix & Scisson, Inc.

Casing Hardware

20" O.D. Conductor Casing

1 - Guide shoe
2 - Centralizers

13-3/8" O.D. Surface Casing

1 - Float collar
1 - Float shoe
12 - Centralizers

10-3/4" O.D. Production Casing

1 - Float collar
1 - Float shoe
5 - Centralizers

7" O.D. Displacement Casing

1 - Texas pattern shoe
1 - Casing hanger

4-1/2" O.D. Fresh Water Casing

1 - Casing hanger

Cementing Specifications

20" O.D. Conductor Casing -

Cement	- from 140' to surface
Type	- Class "A" or "H" Neat
Weight	- 15.6 #/gal
Yield	- 1.18 - cu ft/sk
Water	- 5.2 gal/sk
Sacks	- 360

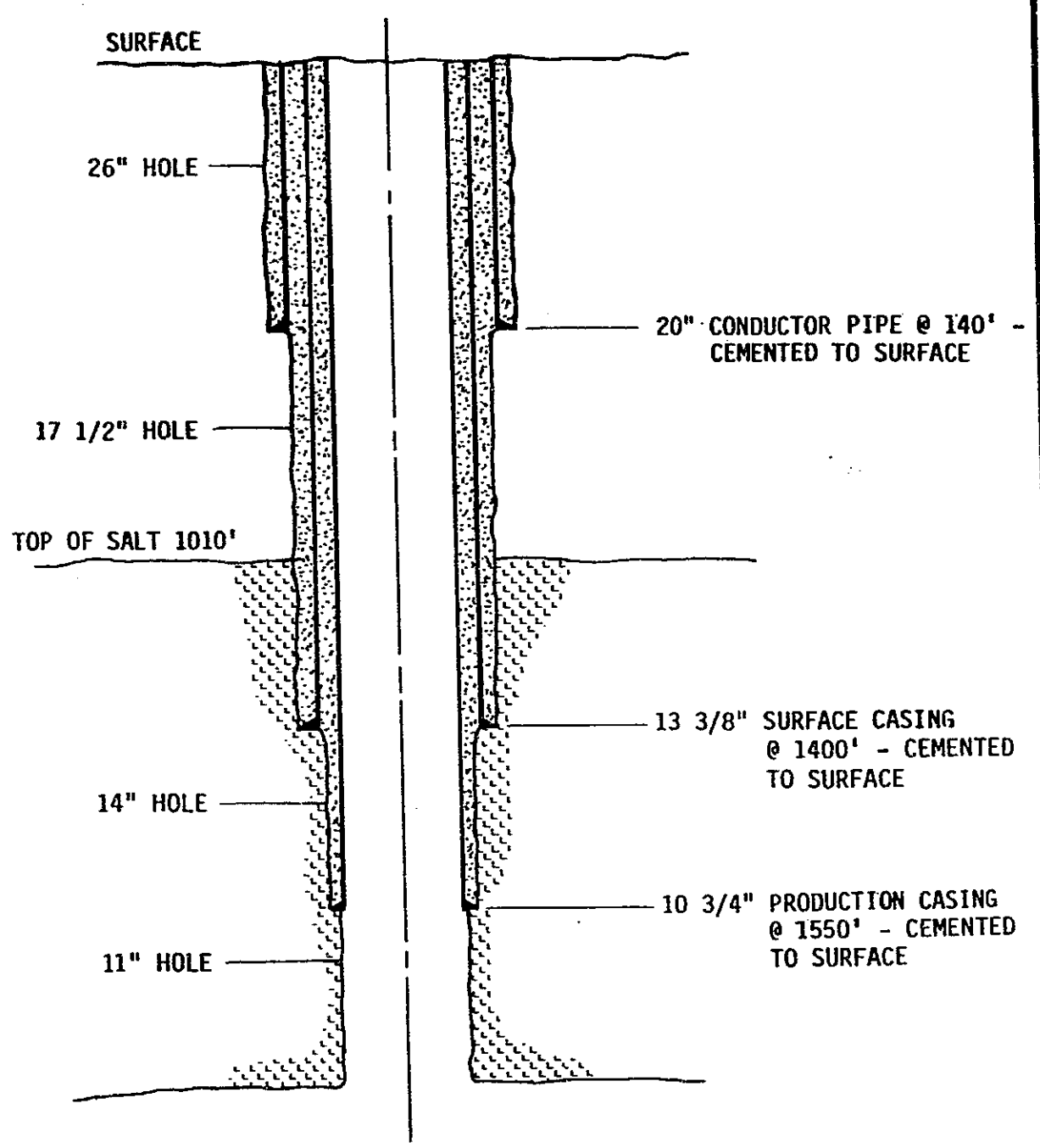
13-3/8" Surface Casing -

Cement	- 1400' to surface
Type	- Class "H" Neat, salt saturated plus 1/4#/sk defoamer
Weight	- 16.1 #/gal
Yield	- 1.28 cu ft/sk
Water	- 5.2 gal/sk
Sacks	- 1000

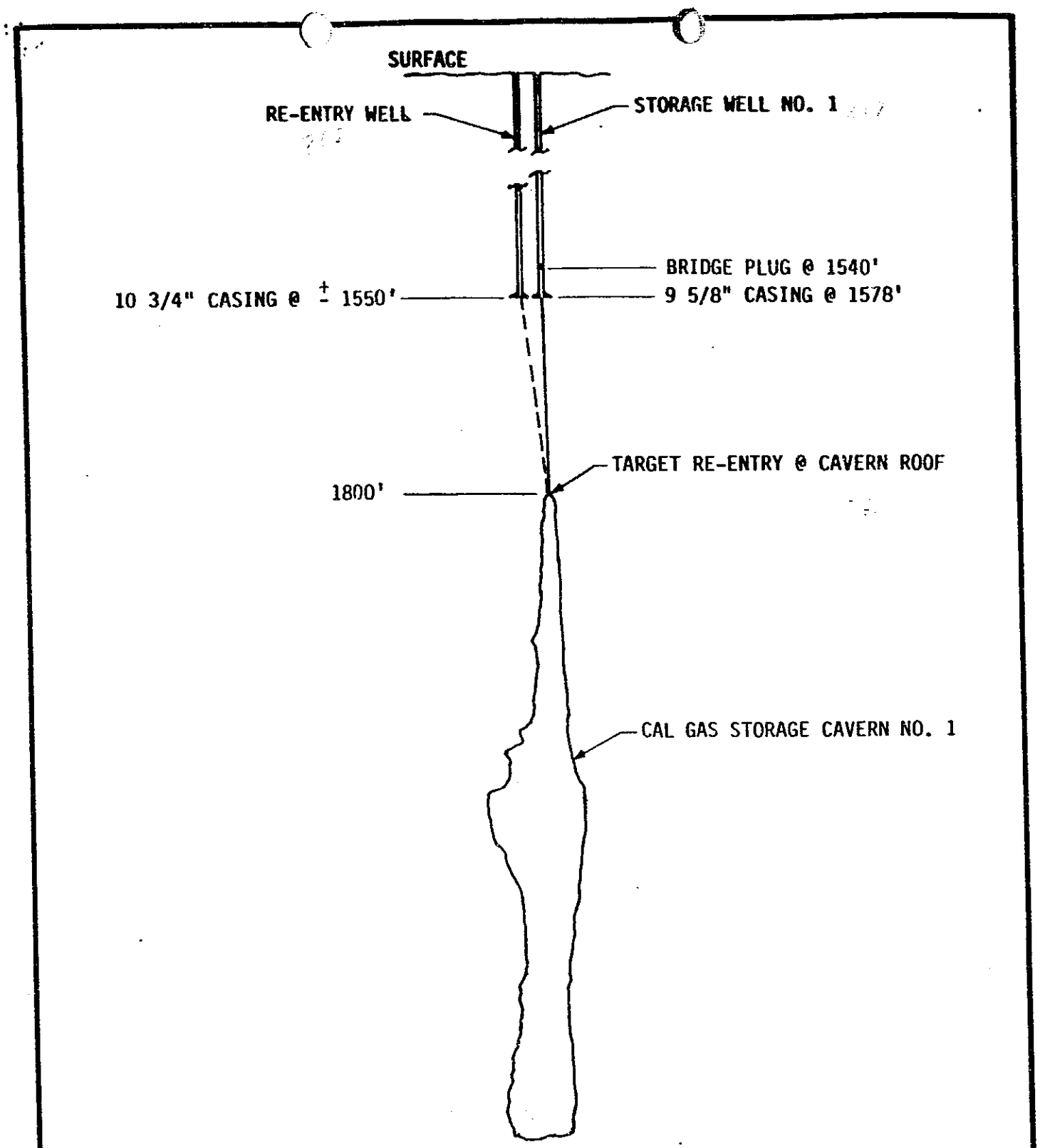
10-3/4" Production Casing

Cement	- 1580' to surface
Type	- Class "H" Neat, salt saturated plus 1/4#/sk defoamer
Weight	- 16.1 #/gal
Yield	- 1.28 cu ft/sk
Water	- 5.2 gal/sk
Sacks	- 350

NOTE: All cement volumes will be recalculated at the well site.



PREPARED BY FENIX & SCISSON, INC. ENGINEERS & CONTRACTORS TULSA, OKLAHOMA	FOR CAL GAS CORPORATION SACRAMENTO, CALIFORNIA
CASING DIAGRAM FOR CAVERN NO. 1 RE-ENTRY WELL	JOB NO. 528
DRAWN Marrs / CHECKED / DATE 7/27/87 / SCALE NONE	DRAWING NO. 1



CROSS SECTION

PREPARED BY FENIX & SCISSON, INC. ENGINEERS & CONTRACTORS TULSA, OKLAHOMA	FOR CAL GAS CORPORATION SACRAMENTO , CALIFORNIA

SCHEMATIC DIRECTIONAL RE-ENTRY WELL

JOB NO.	DRAWING NO.
528	2

DRAWN	CHECKED	DATE	SCALE
Marrs		8/28/87	NONE

PERMIT TO DRILL

This constitutes the permission and authority from the

OIL AND GAS CONSERVATION COMMISSION,
STATE OF ARIZONA,

To: A P Propane, Inc. dba Cal Gas Corporation
(OPERATOR)

to drill a well to be known as

No. 1A Roach-Baker
(WELL NAME)

located approximately 2440' FNL + 1111' FWL

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

The N/A 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 9th day of November, 1987.

OIL AND GAS CONSERVATION COMMISSION

By R. A. Hanna
~~EXECUTIVE DIRECTOR~~
Enforcement Director

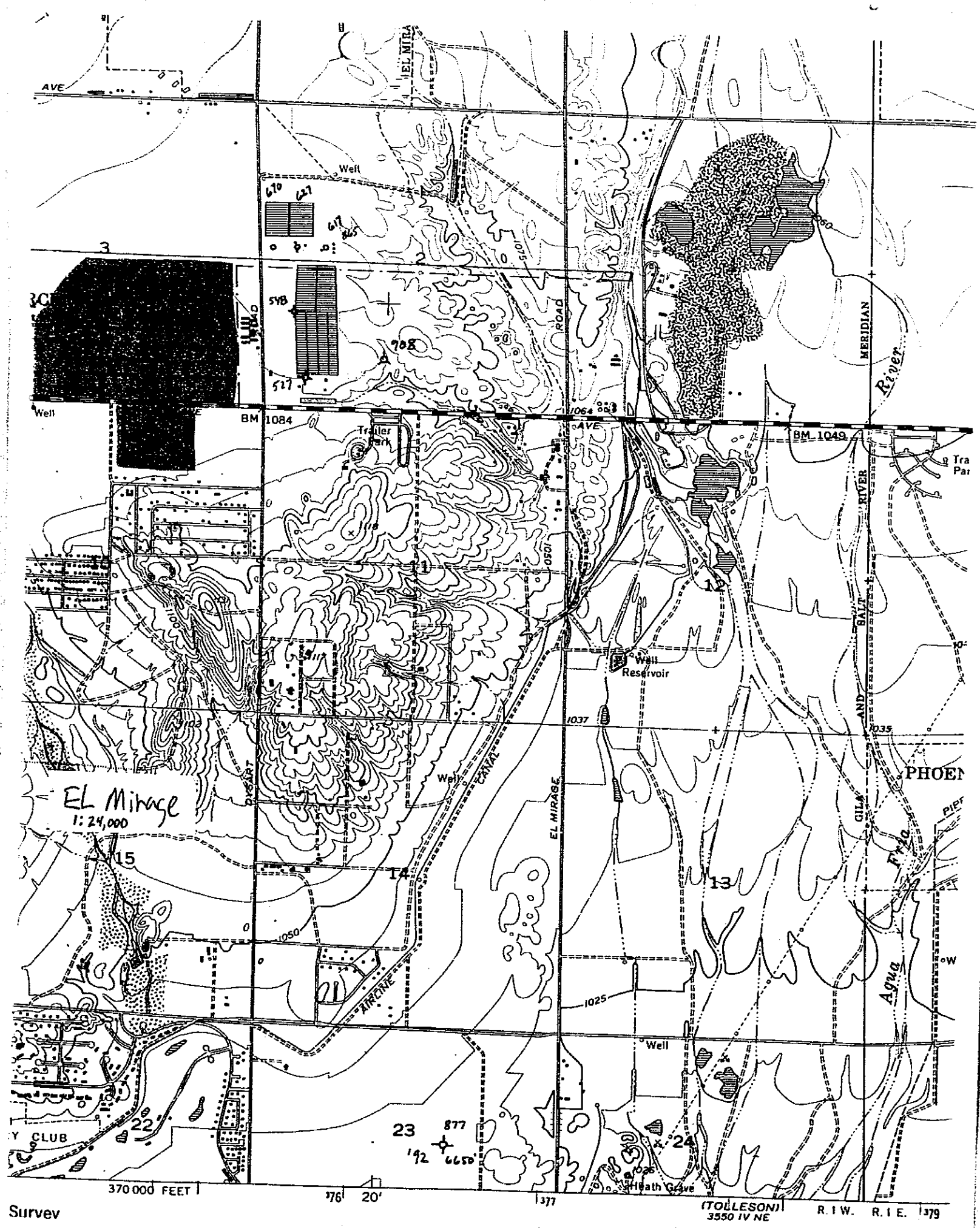
PERMIT 01965

RECEIPT NO. 2797

A.P.I. NO. 02-013-20023

State of Arizona
Oil & Gas Conservation Commission
Permit to Drill

FORM NO. 27


EL Mirage
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AVE
Well
BM 1084
Trailer Park
BM 1049
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River
ROAD
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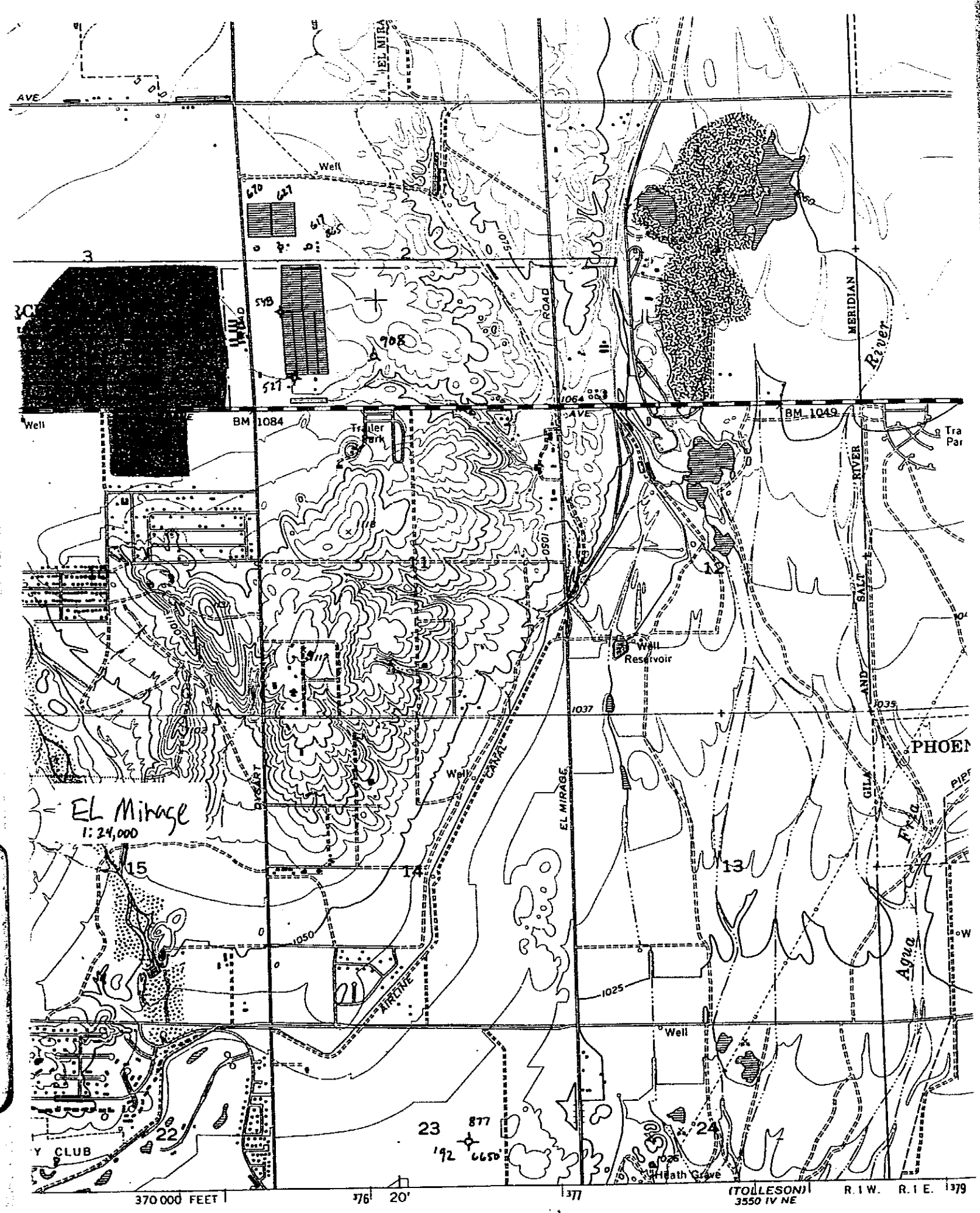
AND
Well
Reservoir
1037
1035
PHOEN
DIGGART
CANAL
EL MIRAGE
GILA
Agua
Fria
PIPE
AIRLINE
1050
1025
Well
CLUB
370 000 FEET
376
20'
377
Heath Grave
(TOLLESON)
3550 IV NE
R. 1 W.
R. 1 E.
379
Survey


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

Survey

FENIX & SCISSON, INC.
1401 SOUTH BOULDER • TULSA, OKLAHOMA 74119

No. 64510 -2

DATE September 23, 1987

Pay The sum of $25 and 00 cts Dollars $ -25.00-

FENIX & SCISSON, INC.

TO THE ORDER OF
Oil and Gas Conservation Commission
State of Arizona
3110 N 19th Ave., Ste. 190
Pheonix, AZ 85015

T. Scott

⑆064510⑈ ⑆103900036⑆ 102277442⑈

BANK OF OKLAHOMA, TULSA, OKLAHOMA

PERFORMANCE BOND

SEP 25 1987

KNOW ALL MEN BY THESE PRESENTS

Bond Serial No. 210108

That we: California Liquid Gas Corporation

of the County of Sacramento in the State of California

as principal, and Safeco Insurance Company of America

of Seattle, 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 $5,000.00 lawful money of the United States, for which payment, well and truly to be made, we bind ourselves, and each of us, and each of our heirs, executors, administrators or successors, and assigns jointly and severally, firmly by these presents.

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

The Southwest quarter of the Northwest quarter of Section 2, Township 2 North, Range 1 West of the G&SRB&M, County of Maricopa, 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 27th day of July, 19 73

California Liquid Gas Corporation

Principal Vice President

WITNESS our hands and seals this 27th day of July, 19 73

Safeco Insurance Company of America

Surety

Surety, Resident Arizona Agent
If issued in a state other than Arizona) Attorney-in-fact

(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 9-3-73

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSSION

By:

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSSION

Bond

File Two Copies

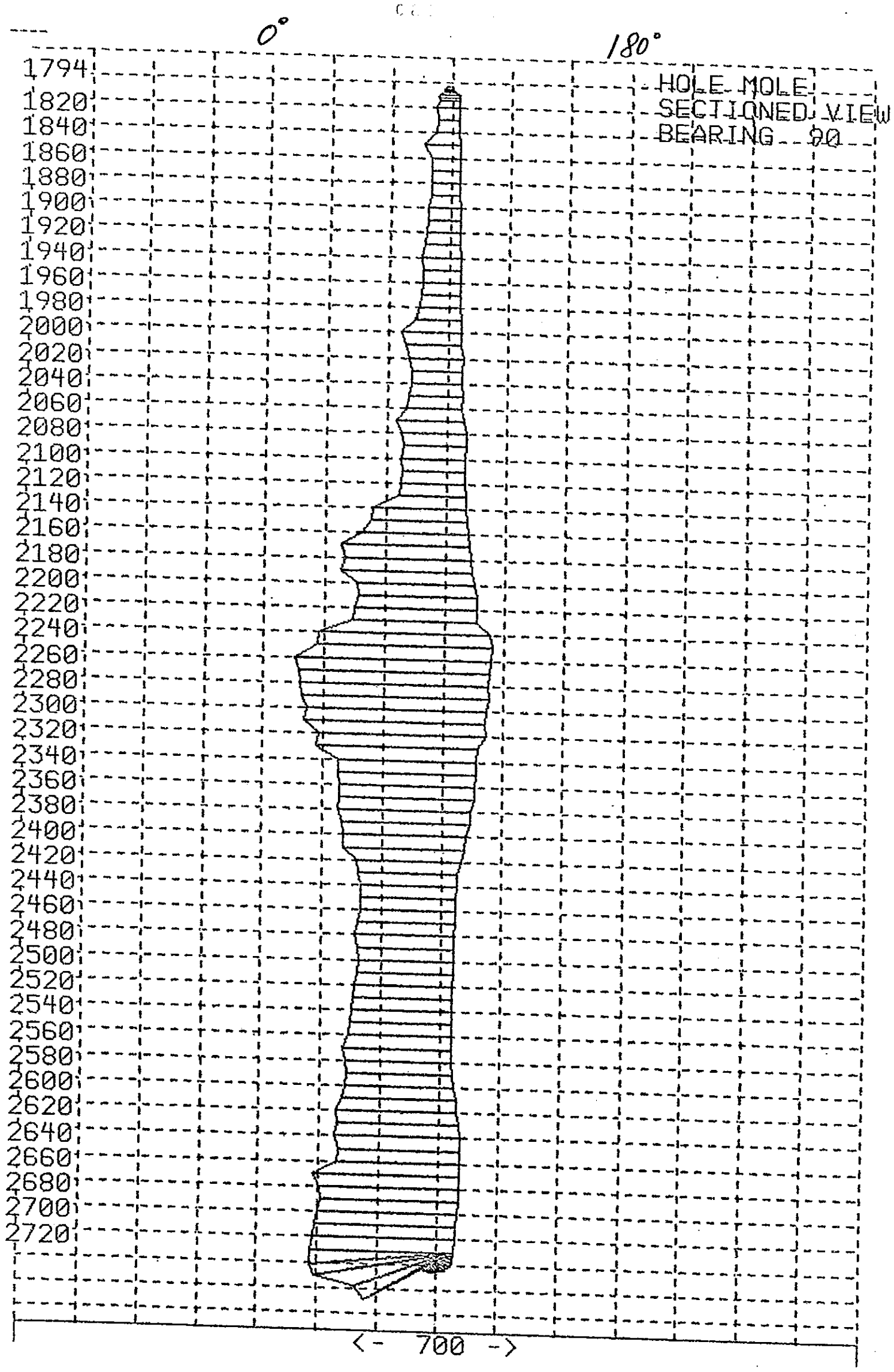
Form No. 2

RECEIVED
AUG 28 1973
O & G CONS. COMM.

Permit No. 017

CAE GAS
GLENDALE, AZ.
STORAGE WELL #1
MAY 21, 1987

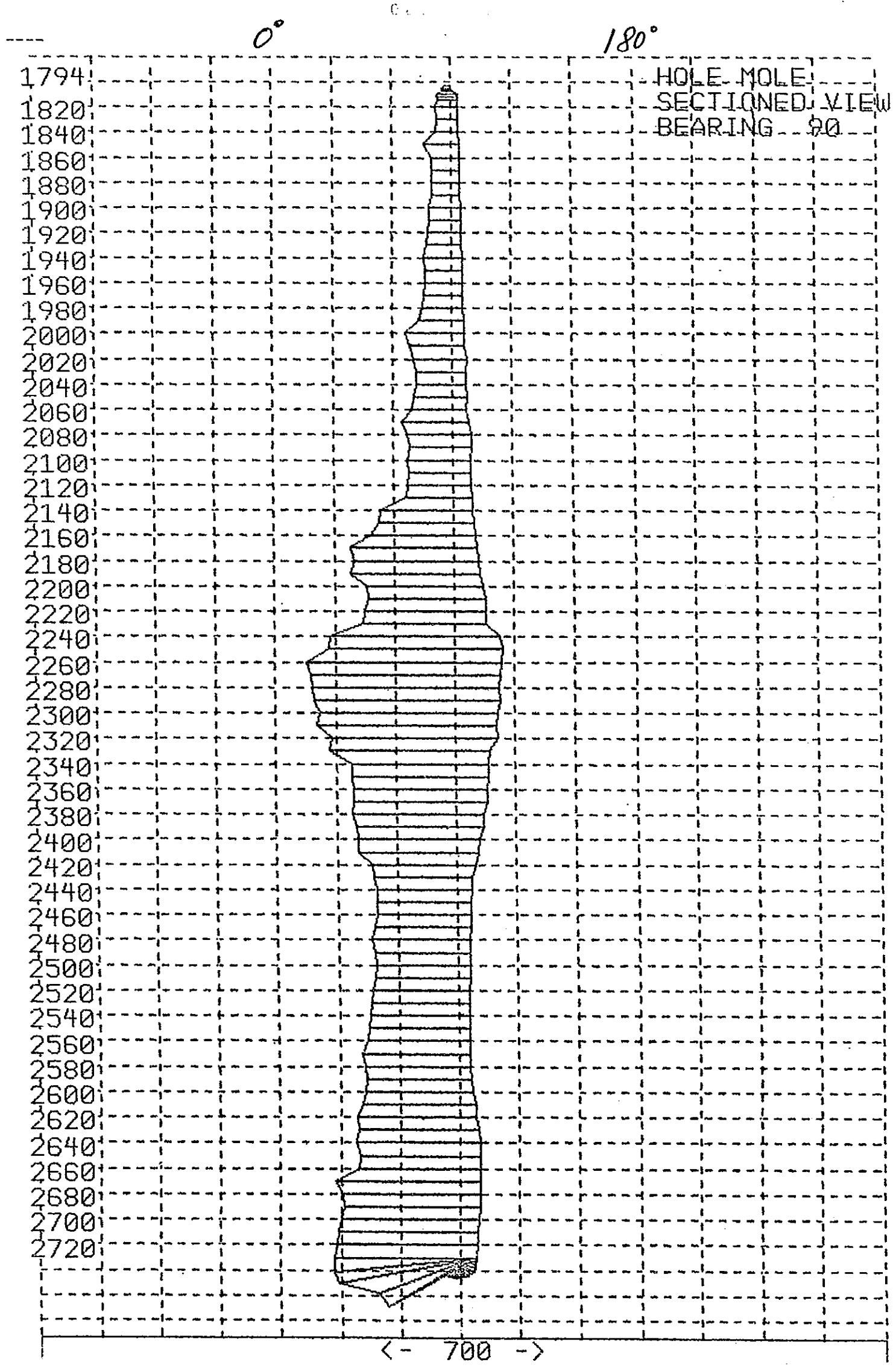
MAY 26 1987



50 FT DIV. HORIZ.
20 FT DIV. VERT.

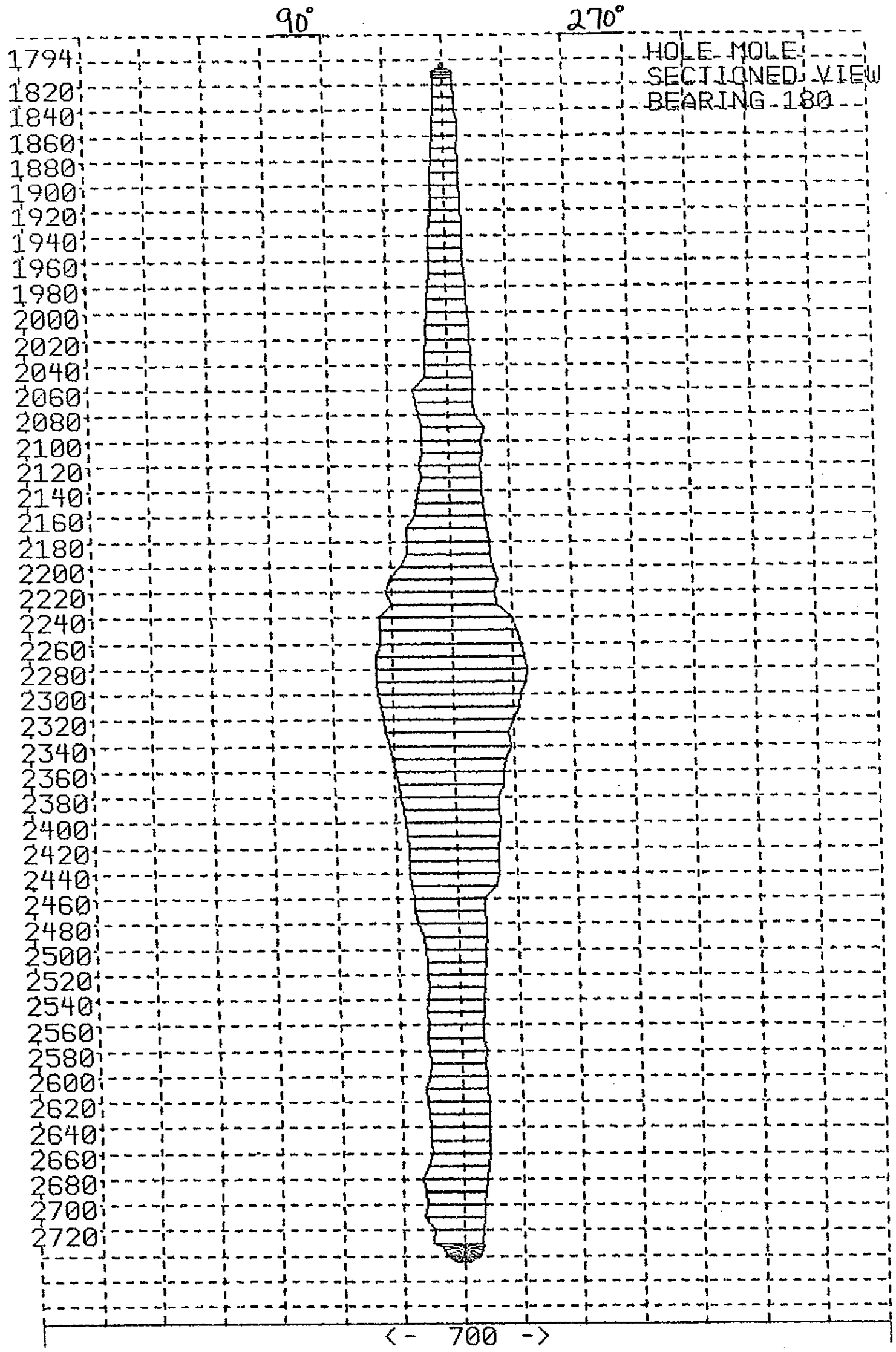
CAE GAS
Glendale, AZ.
Storage Well #1
May 21, 1987

MAY 26 1987



50 Ft Div. Horiz.
20 Ft Div. Vert.

CAL GAS
GLENDALE, AZ.
STORAGE WELL #1
MAY 21, 1987



50 FT. DIV. HORIZ.
20 FT. DIV. VERT.

AMPHIMAR
GLENDALE, ARIZONA
STORAGE WELL NO. 1A
MARCH 25, 1994
SONAR-THRU-FILE SURVEY

SONARWIRE
INC.

SONARWIRE, INC.
P.O. BOX 576
ABITA SPRINGS, LA. 70420
(504) 893-9221
Survey conducted by: Gary McCool

Permit 865

AMERIGAS
GLENDALE, ARIZONA
STORAGE WELL NO. 1A
MARCH 25, 1994
SONAR-THRU-PIPE SURVEY

AZ OIL & GAS
CONSERVATION COMMISSION
MAY 25 1994

Sonar from 1975 ft. to 2726 ft.
Sonar T.D. at 2730 ft.
10 3/4 cemented casing at 1547 ft.
7 5/8 intermediate pipe at 2670 ft.
5 inch intermediate pipe at 2726 ft.
Zero sonar tool at B.H.F.
(found 7 5/8 inch pipe at 2666 ft., reset wireline to 2670 ft.)
Site personnel: Mr. Tommy Smith

VOLUME (in Barrels) VERSUS DEPTH (in feet)

Sonarwire, Inc.
AMERIGAS
STORAGE WELL NO. 1A \GLENDALE, AZ.
Fri, Mar 25, 1994 13:21

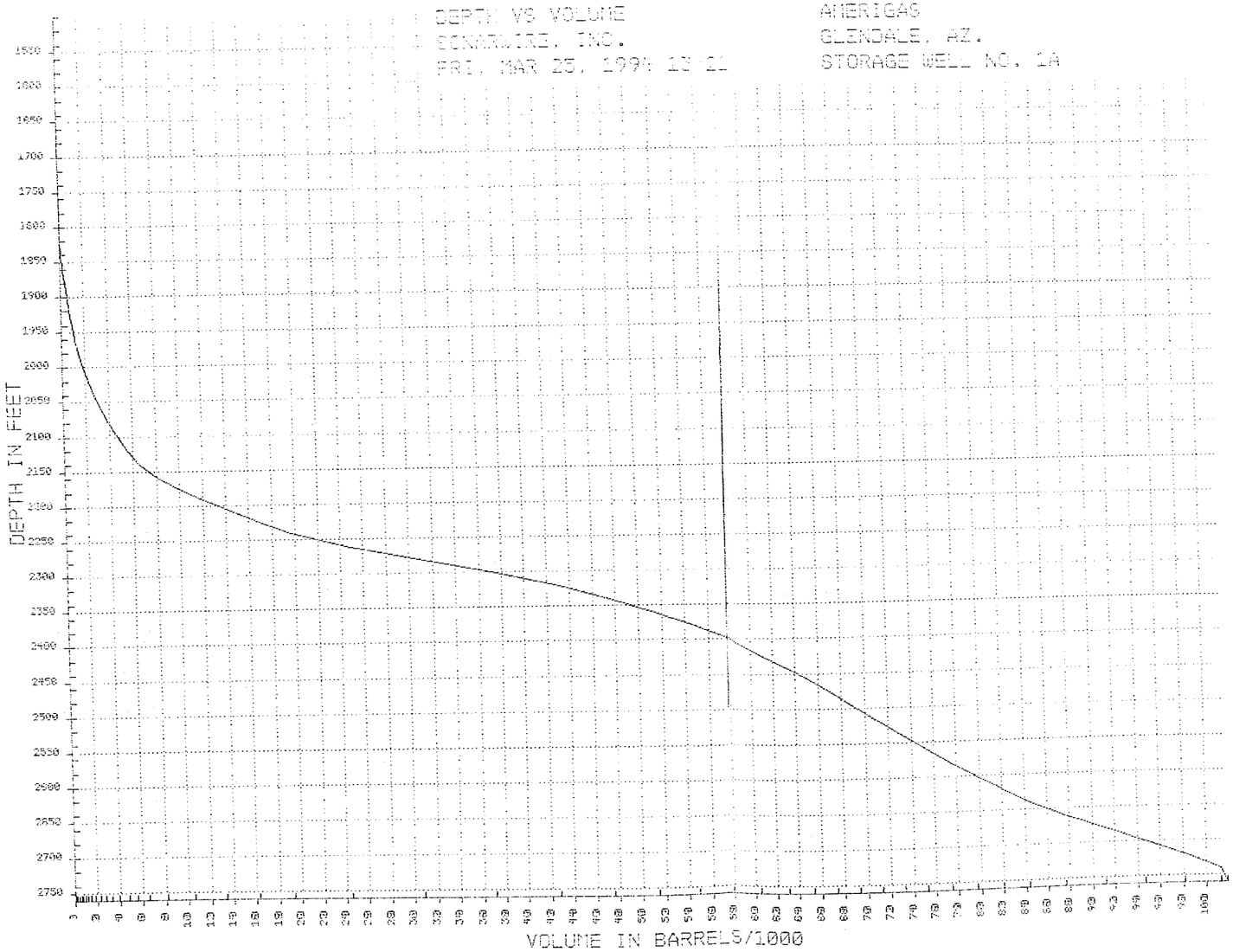
Depth	Volume/foot	Total Volume
1550	0.1	0.6
1555	0.3	2.2
1560	0.3	3.9
1565	0.4	5.6
1570	0.4	7.5
1575	0.4	9.4
1580	0.4	11.5
1585	0.4	13.7
1590	0.5	16.1
1595	0.5	18.5
1600	0.5	21.1
1605	0.5	23.8
1610	0.5	26.4
1615	0.5	29.0
1620	0.5	31.5
1625	0.5	34.0
1630	0.5	36.5
1635	0.5	39.0
1640	0.5	41.4
1645	0.5	43.8
1650	0.5	46.2
1655	0.5	48.6
1660	0.5	50.9
1665	0.5	53.2
1670	0.5	55.5
1675	0.5	57.7
1680	0.4	60.0
1685	0.4	62.2
1690	0.4	64.4
1695	0.4	66.5
1700	0.4	68.7
1705	0.5	70.9
1710	0.5	73.5
1715	0.6	76.5
1720	0.7	79.8
1725	0.7	83.6
1730	0.8	87.7
1735	0.9	92.4
1740	1.0	97.5
1745	1.1	103.1

Depth	Volume/foot	Total Volume
1750	1.2	109.3
1755	1.4	116.1
1760	1.5	123.5
1765	1.6	131.5
1770	1.7	140.1
1775	1.9	149.5
1780	2.0	159.5
1785	2.2	170.4
1790	2.3	181.9
1795	2.5	194.3
1800	15.8	273.4
1805	37.3	459.9
1810	39.7	658.3
1815	42.6	871.6
1820	43.8	1090.7
1825	45.8	1319.7
1830	48.6	1562.8
1835	58.3	1854.3
1840	77.5	2241.8
1845	83.8	2660.7
1850	75.4	3037.5
1855	70.7	3390.8
1860	68.8	3735.0
1865	69.7	4083.5
1870	73.3	4450.1
1875	75.9	4829.6
1880	77.4	5216.6
1885	80.2	5617.6
1890	84.4	6039.4
1895	87.8	6478.2
1900	90.4	6930.0
1905	93.5	7397.3
1910	97.1	7882.9
1915	101.9	8392.5
1920	107.9	8932.1
1925	115.6	9510.0
1930	125.2	10136.1
1935	130.8	10790.0
1940	132.0	11450.1
1945	132.5	12112.8
1950	132.2	12774.0
1955	135.0	13449.0
1960	140.9	14153.3
1965	147.5	14890.8
1970	155.0	15665.9
1975	164.8	16489.9
1980	177.1	17375.4
1985	200.0	18375.5
1990	237.4	19562.5
1995	255.7	20841.0

Depth	Volume/foot	Total Volume
2000	252.2	22101.9
2005	251.4	23358.9
2010	252.7	24622.3
2015	255.5	25899.8
2020	258.9	27194.4
2025	264.1	28514.6
2030	271.0	29869.7
2035	277.7	31258.0
2040	284.2	32678.9
2045	289.5	34126.5
2050	293.9	35595.8
2055	324.9	37220.1
2060	387.2	39156.1
2065	414.8	41230.1
2070	403.8	43248.8
2075	399.5	45246.1
2080	402.0	47256.1
2085	404.5	49278.6
2090	406.3	51310.0
2095	411.7	53368.4
2100	420.6	55471.2
2105	429.7	57619.9
2110	440.2	59821.0
2115	482.3	62232.7
2120	563.3	65049.0
2125	653.2	68315.0
2130	764.7	72138.4
2135	851.5	76395.7
2140	894.9	80870.4
2145	1009.8	85919.4
2150	1210.6	91972.6
2155	1337.2	98658.5
2160	1379.3	105555.1
2165	1401.2	112561.1
2170	1399.4	119558.1
2175	1395.6	126536.2
2180	1389.1	133481.5
2185	1403.8	140500.3
2190	1438.8	147694.3
2195	1472.0	155054.4
2200	1505.7	162582.7
2205	1524.5	170205.2
2210	1524.5	177827.7
2215	1538.8	185521.7
2220	1567.6	193359.8
2225	1863.3	202676.4
2230	2492.6	215139.6
2235	2887.2	229575.6
2240	2981.2	244481.8
2245	3077.1	259867.1

Depth	Volume/foot	Total Volume
2250	3174.7	275740.5
2255	3224.1	291860.8
2260	3224.1	307981.2
2265	3199.3	323977.6
2270	3150.0	339727.8
2275	3125.6	355355.7
2280	3125.6	370983.5
2285	3039.2	386179.3
2290	2872.6	400542.6
2295	2746.5	414275.3
2300	2655.7	427553.9
2305	2562.7	440367.3
2310	2474.9	452741.9
2315	2338.0	464431.8
2320	2160.7	475235.4
2325	2035.6	485413.4
2330	1950.1	495163.9
2335	1892.5	504626.6
2340	1861.1	513932.0
2345	1818.4	523023.9
2350	1763.2	531839.8
2355	1699.1	540335.4
2360	1629.0	548480.6
2365	1580.0	556380.6
2370	1549.2	564126.5
2375	1499.0	571621.4
2380	1431.6	578779.6
2385	1376.7	585662.9
2390	1333.4	592329.8
2395	1294.8	598803.5
2400	1259.1	605099.3
2405	1256.7	611382.6
2410	1286.4	617814.7
2415	1271.5	624172.4
2420	1212.9	630237.1
2425	1177.4	636123.9
2430	1163.3	641940.4
2435	1124.0	647560.1
2440	1068.4	652902.0
2445	1032.7	658065.3
2450	1008.1	663105.7
2455	995.9	668085.3
2460	995.9	673064.9
2465	995.9	678044.6
2470	995.9	683024.2
2475	995.9	688003.8
2480	995.9	692983.4
2485	989.9	697932.9
2490	977.9	702822.6
2495	972.0	707682.6

Depth	Volume/foot	Total Volume
2500	972.0	712542.6
2505	972.0	717402.6
2510	972.0	722262.6
2515	979.4	727159.4
2520	995.8	732138.6
2525	1003.2	737154.6
2530	1001.5	742161.9
2535	1006.2	747193.1
2540	1021.7	752301.4
2545	1049.0	757546.3
2550	1088.8	762990.2
2555	1104.2	768511.4
2560	1091.6	773969.4
2565	1087.8	779408.7
2570	1093.0	784873.8
2575	1112.0	790433.8
2580	1144.5	796156.4
2585	1162.0	801966.3
2590	1162.0	807776.2
2595	1162.0	813586.1
2600	1162.0	819395.9
2605	1168.4	825238.1
2610	1181.4	831145.1
2615	1194.5	837117.6
2620	1207.7	843156.1
2625	1339.3	849852.6
2630	1611.7	857911.2
2635	1759.1	866706.9
2640	1759.1	875502.7
2645	1766.9	884337.0
2650	1782.4	893248.8
2655	1790.1	902199.6
2660	1790.1	911150.3
2665	1790.1	920101.1
2670	1790.1	929051.8
2675	1776.0	937931.6
2680	1748.2	946672.8
2685	1732.7	955336.3
2690	1729.5	963983.7
2695	1714.7	972557.3
2700	1688.5	980999.6
2705	1663.3	989316.3
2710	1639.2	997512.4
2715	1615.3	1005588.8
2720	1592.7	1013552.4
2725	987.2	1018488.3
2730	46.5	1018720.8
2735	0.6	1018723.8



CA LIQ. GAS STOR. WELL #1A
2

VOLUME (in Cubic Feet) VERSUS DEPTH (in feet)

Sonarwire, Inc.
AMERIGAS
STORAGE WELL NO. 1A \GLENDALE, AZ.
Fri, Mar 25, 1994 13:21

Depth	Volume/foot	Total Volume
1550	0.7	3.4
1555	1.8	12.3
1560	1.9	21.6
1565	2.0	31.5
1570	2.1	42.0
1575	2.2	53.0
1580	2.3	64.7
1585	2.5	77.1
1590	2.6	90.1
1595	2.8	103.9
1600	2.9	118.5
1605	3.0	133.4
1610	2.9	148.1
1615	2.9	162.6
1620	2.9	177.0
1625	2.8	191.1
1630	2.8	205.2
1635	2.8	219.0
1640	2.7	232.7
1645	2.7	246.2
1650	2.7	259.6
1655	2.6	272.8
1660	2.6	285.9
1665	2.6	298.8
1670	2.6	311.6
1675	2.5	324.2
1680	2.5	336.7
1685	2.5	349.1
1690	2.5	361.3
1695	2.4	373.5
1700	2.4	385.5
1705	2.6	398.3
1710	2.9	412.9
1715	3.3	429.5
1720	3.7	448.2
1725	4.2	469.1
1730	4.7	492.6
1735	5.2	518.6
1740	5.8	547.4
1745	6.3	579.1

Depth	Volume/foot	Total Volume
1750	7.0	613.8
1755	7.6	651.8
1760	8.3	693.2
1765	9.0	738.2
1770	9.7	786.8
1775	10.5	839.3
1780	11.3	895.8
1785	12.1	956.5
1790	13.0	1021.5
1795	13.9	1091.0
1800	88.8	1535.0
1805	209.5	2582.3
1810	222.8	3696.3
1815	239.4	4893.6
1820	246.0	6123.7
1825	257.1	7409.3
1830	273.0	8774.3
1835	327.3	10410.9
1840	435.1	12586.6
1845	470.5	14938.9
1850	423.1	17054.4
1855	396.7	19038.1
1860	386.4	20970.2
1865	391.4	22927.3
1870	411.6	24985.4
1875	426.1	27116.0
1880	434.6	29288.9
1885	450.3	31540.4
1890	473.7	33908.7
1895	492.8	36372.5
1900	507.3	38909.0
1905	524.8	41532.9
1910	545.3	44259.4
1915	572.2	47120.3
1920	605.9	50149.7
1925	649.0	53394.5
1930	703.1	56910.0
1935	734.3	60581.4
1940	741.2	64287.4
1945	744.2	68008.4
1950	742.5	71720.9
1955	757.9	75510.5
1960	790.8	79464.7
1965	828.2	83605.8
1970	870.4	87957.7
1975	925.2	92583.7
1980	994.4	97555.8
1985	1123.0	103170.9
1990	1332.9	109835.5
1995	1435.6	117013.5

Depth	Volume/foot	Total Volume
1750	7.0	613.8
1755	7.6	651.8
1760	8.3	693.2
1765	9.0	738.2
1770	9.7	786.8
1775	10.5	839.3
1780	11.3	895.8
1785	12.1	956.5
1790	13.0	1021.5
1795	13.9	1091.0
1800	88.8	1535.0
1805	209.5	2582.3
1810	222.8	3696.3
1815	239.4	4893.6
1820	246.0	6123.7
1825	257.1	7409.3
1830	273.0	8774.3
1835	327.3	10410.9
1840	435.1	12586.6
1845	470.5	14938.9
1850	423.1	17054.4
1855	396.7	19038.1
1860	386.4	20970.2
1865	391.4	22927.3
1870	411.6	24985.4
1875	426.1	27116.0
1880	434.6	29288.9
1885	450.3	31540.4
1890	473.7	33908.7
1895	492.8	36372.5
1900	507.3	38909.0
1905	524.8	41532.9
1910	545.3	44259.4
1915	572.2	47120.3
1920	605.9	50149.7
1925	649.0	53394.5
1930	703.1	56910.0
1935	734.3	60581.4
1940	741.2	64287.4
1945	744.2	68008.4
1950	742.5	71720.9
1955	757.9	75510.5
1960	790.8	79464.7
1965	828.2	83605.8
1970	870.4	87957.7
1975	925.2	92583.7
1980	994.4	97555.8
1985	1123.0	103170.9
1990	1332.9	109835.5
1995	1435.6	117013.5

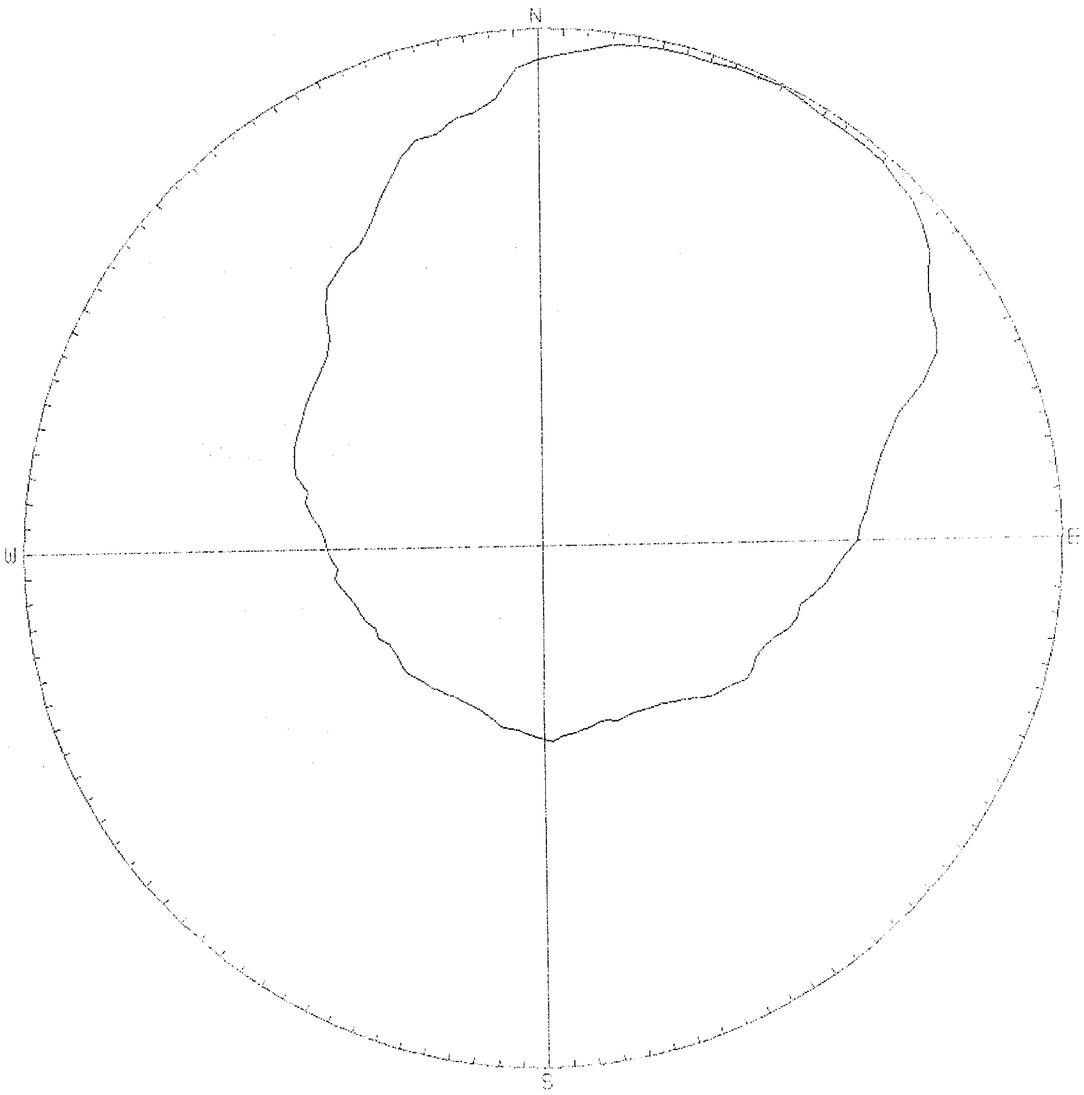
Depth	Volume/foot	Total Volume
2000	1415.9	124093.0
2005	1411.5	131150.5
2010	1418.7	138243.8
2015	1434.6	145416.7
2020	1453.6	152684.9
2025	1482.5	160097.6
2030	1521.6	167705.6
2035	1559.0	175500.5
2040	1595.6	183478.5
2045	1625.5	191606.0
2050	1649.8	199855.2
2055	1824.0	208975.3
2060	2173.9	219844.8
2065	2328.9	231489.5
2070	2266.9	242824.0
2075	2242.8	254038.0
2080	2257.1	265323.4
2085	2271.0	276678.4
2090	2281.1	288083.9
2095	2311.5	299641.1
2100	2361.2	311447.2
2105	2412.8	323511.3
2110	2471.7	335869.6
2115	2708.1	349410.3
2120	3162.4	365222.5
2125	3667.5	383559.8
2130	4293.3	405026.5
2135	4780.7	428929.8
2140	5024.7	454053.2
2145	5669.6	482401.5
2150	6797.2	516387.7
2155	7507.7	553926.0
2160	7744.3	592647.3
2165	7867.2	631983.1
2170	7857.1	671268.7
2175	7835.8	710447.5
2180	7799.0	749442.4
2185	7881.6	788850.4
2190	8078.2	829241.6
2195	8264.7	870565.3
2200	8453.7	912833.8
2205	8559.4	955630.9
2210	8559.4	998428.0
2215	8639.7	1041626.6
2220	8801.5	1085634.1
2225	10461.7	1137942.6
2230	13995.1	1207918.4
2235	16210.5	1288970.8
2240	16738.4	1372662.9
2245	17276.4	1459044.9

Depth	Volume/foot	Total Volume
2250	17824.4	1548167.1
2255	18101.8	1638676.1
2260	18101.8	1729185.1
2265	17962.7	1818998.6
2270	17686.2	1907429.5
2275	17548.8	1995173.3
2280	17548.8	2082917.0
2285	17063.6	2168235.0
2290	16128.7	2248878.5
2295	15420.7	2325982.0
2300	14910.8	2400535.8
2305	14388.4	2472477.8
2310	13895.6	2541955.8
2315	13126.8	2607589.5
2320	12131.5	2668247.3
2325	11429.1	2725392.8
2330	10949.0	2780137.5
2335	10625.8	2833266.8
2340	10449.1	2885512.3
2345	10209.5	2936559.8
2350	9899.5	2986057.0
2355	9539.8	3033756.0
2360	9146.4	3079488.0
2365	8871.0	3123843.0
2370	8698.0	3167333.3
2375	8416.2	3209414.0
2380	8038.0	3249604.0
2385	7729.3	3288250.8
2390	7486.3	3325682.5
2395	7269.5	3362030.0
2400	7069.6	3397378.0
2405	7055.7	3432656.3
2410	7222.8	3468770.0
2415	7139.2	3504466.0
2420	6810.0	3538516.3
2425	6610.5	3571568.8
2430	6531.3	3604225.5
2435	6310.5	3635778.0
2440	5998.5	3665770.5
2445	5798.0	3694760.5
2450	5659.9	3723060.0
2455	5591.7	3751018.5
2460	5591.7	3778977.0
2465	5591.7	3806935.5
2470	5591.7	3834894.0
2475	5591.7	3862852.5
2480	5591.7	3890811.0
2485	5557.9	3918600.5
2490	5490.7	3946054.3
2495	5457.4	3973341.0

Depth	Volume/foot	Total Volume
2500	5457.4	4000627.8
2505	5457.4	4027914.5
2510	5457.4	4055201.3
2515	5498.7	4082694.8
2520	5591.1	4110650.5
2525	5632.5	4138813.3
2530	5622.8	4166927.0
2535	5649.7	4195175.5
2540	5736.2	4223856.5
2545	5889.6	4253304.5
2550	6113.0	4283869.5
2555	6199.8	4314868.5
2560	6128.9	4345513.0
2565	6107.8	4376052.0
2570	6136.8	4406736.0
2575	6243.5	4437953.5
2580	6426.0	4470083.5
2585	6524.0	4502703.5
2590	6524.0	4535323.5
2595	6524.0	4567943.5
2600	6524.0	4600563.5
2605	6560.2	4633364.5
2610	6633.1	4666530.0
2615	6706.6	4700063.0
2620	6780.8	4733967.0
2625	7519.6	4771565.0
2630	9049.1	4816810.5
2635	9876.9	4866195.0
2640	9876.9	4915579.5
2645	9920.2	4965180.5
2650	10007.2	5015216.5
2655	10050.9	5065471.0
2660	10050.9	5115725.5
2665	10050.9	5165980.0
2670	10050.9	5216234.5
2675	9971.3	5266091.0
2680	9815.6	5315169.0
2685	9728.3	5363810.5
2690	9710.3	5412362.0
2695	9627.4	5460499.0
2700	9480.0	5507899.0
2705	9339.0	5554594.0
2710	9203.5	5600611.5
2715	9069.2	5645957.5
2720	8942.4	5690669.5
2725	5542.7	5718383.0
2730	261.1	5719688.5
2735	3.3	5719705.0

MAX RANGE VS BEARING
SONARWIRE, INC.
FRI, MAR 25, 1994 13:21

AMERIGAS
GLENDALE, AZ.
STORAGE WELL NO. 1A



SCALE (FEET)

MAXIMUM RADIUS and DEPTH VS BEARING SONARWIRE, INC.
AMERIGAS Fri, Mar 25, 1994 13:21
STORAGE WELL NO. 1A GLENDALE, AZ.

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	116 : 2250	117 : 2250	118 : 2250	120 : 2250
11.3	121 : 2250	121 : 2250	121 : 2250	121 : 2250
22.5	122 : 2250	122 : 2250	123 : 2250	122 : 2250
33.8	121 : 2250	121 : 2250	121 : 2250	121 : 2250
45.0	120 : 2250	120 : 2250	118 : 2250	115 : 2250
56.3	111 : 2250	107 : 2250	106 : 2250	104 : 2250
67.5	98 : 2250	90 : 2250	86 : 2250	83 : 2250
78.8	80 : 2250	78 : 2250	77 : 2250	75 : 2250
90.0	75 : 2250	71 : 2250	70 : 2290	68 : 2250
101.3	65 : 2250	63 : 2290	63 : 2310	61 : 2290
112.5	59 : 2290	58 : 2290	57 : 2310	58 : 2310
123.8	58 : 2310	56 : 2310	54 : 2310	54 : 2310
135.0	51 : 2310	49 : 2310	48 : 2310	47 : 2290
146.3	46 : 2290	46 : 2290	45 : 2290	45 : 2290
157.5	45 : 2290	44 : 2290	44 : 2250	44 : 2250
168.8	44 : 2250	45 : 2250	45 : 2250	46 : 2250
180.0	46 : 2250	45 : 2250	44 : 2250	44 : 2250
191.3	44 : 2250	44 : 2250	42 : 2250	42 : 2250
202.5	41 : 2250	41 : 2250	41 : 2250	41 : 2250
213.8	42 : 2250	42 : 2250	42 : 2250	42 : 2250
225.0	43 : 2250	44 : 2250	44 : 2250	43 : 2250
236.3	43 : 2250	43 : 2250	45 : 2250	44 : 2250
247.5	46 : 2250	46 : 2250	47 : 2250	47 : 2250
258.8	49 : 2250	50 : 2250	49 : 2250	51 : 2250
270.0	51 : 2250	52 : 2250	53 : 2250	56 : 2250
281.3	58 : 2250	58 : 2250	61 : 2250	63 : 2250
292.5	64 : 2250	64 : 2250	65 : 2250	66 : 2250
303.8	66 : 2250	67 : 2250	68 : 2250	69 : 2250
315.0	71 : 2250	77 : 2250	80 : 2250	82 : 2250
326.3	83 : 2250	84 : 2250	87 : 2250	90 : 2250
337.5	94 : 2250	99 : 2250	101 : 2250	101 : 2250
348.8	104 : 2250	104 : 2250	107 : 2250	114 : 2720

Between 1548 and 2726 foot depths, maximum radius was 123 feet at bearing 28.1 at 2250 foot depth.

Wall Ranges versus Depth
Sonarwire, Inc.
AMERIGAS
STORAGE WELL NO. 1A
Fri, Mar 25, 1994 13:21
GLENDALE, AZ.

Depth	N	NE	E	SE	S	SW	W	NW
1548	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
1600	1.3	1.3	0.8	0.7	0.7	0.7	0.7	1.4
1700	1.3	1.3	0.7	0.4	0.5	0.4	0.8	1.3
1795	4.6	2.1	1.4	1.0	0.8	1.1	1.6	2.5
1800	10.3	7.9	9.0	6.1	6.0	7.0	8.7	8.6
1802	10.4	8.8	7.7	7.0	6.6	6.9	8.4	9.9
1805	9.8	8.5	7.7	6.3	6.4	7.1	8.4	9.5
1810	11.5	10.2	7.6	6.2	6.2	7.1	8.6	10.4
1820	11.3	9.7	7.8	6.7	6.6	7.4	9.5	10.9
1830	11.6	10.1	8.0	7.4	6.8	7.7	9.9	11.1
1840	17.9	15.4	10.3	7.8	7.2	7.8	10.1	15.0
1850	15.2	13.3	9.1	7.6	7.4	8.6	11.6	13.3
1860	15.4	12.7	9.5	7.8	7.8	9.1	11.4	13.5
1870	15.6	13.3	10.3	8.2	7.8	9.5	11.8	14.6
1880	16.0	13.7	10.7	8.2	8.0	9.3	11.8	14.5
1890	17.7	14.3	11.0	8.6	8.4	9.5	11.8	15.6
1900	18.1	14.3	11.0	8.9	8.6	9.7	12.9	16.4
1910	19.0	15.2	11.4	8.9	8.6	10.1	13.7	17.1
1920	19.6	16.4	12.0	9.3	8.9	10.3	13.9	17.9
1930	22.6	18.3	12.9	10.3	9.3	10.8	14.3	17.7
1940	21.5	18.8	12.9	10.1	9.3	11.0	14.8	19.6
1950	21.5	17.5	13.1	10.3	9.7	11.2	15.0	20.0
1960	22.1	18.6	13.5	10.3	9.7	11.6	15.8	20.9
1970	23.4	20.3	14.4	11.0	10.1	12.0	16.3	22.4
1980	26.8	21.5	15.8	11.4	10.5	12.2	16.7	22.6
1990	38.4	22.8	15.6	11.8	11.0	12.9	17.3	23.2
2000	34.6	25.7	16.2	12.2	11.4	13.7	19.0	28.0
2010	35.4	26.6	14.2	8.5	8.2	11.4	19.3	30.3
2020	35.7	26.9	14.5	8.9	8.5	11.7	19.6	30.7
2030	36.4	27.5	15.2	9.5	9.2	12.3	20.2	31.3
2040	37.0	28.2	14.7	8.8	8.4	10.9	21.4	31.5
2050	42.5	27.8	15.6	10.5	9.3	11.8	19.8	31.1
2060	42.1	30.3	20.2	13.9	13.9	16.0	25.2	40.4
2070	41.6	32.4	20.6	14.3	13.0	13.9	23.5	35.3
2080	42.1	30.7	17.7	11.8	11.8	18.1	26.9	39.5
2090	44.6	29.9	16.4	12.2	11.4	15.6	24.8	40.8
2100	42.1	31.5	19.8	12.2	12.2	16.4	26.5	43.7
2110	46.7	32.5	18.9	13.1	12.6	14.2	26.2	38.8
2120	66.1	32.5	19.4	13.1	13.1	16.3	26.8	39.9
2130	70.9	59.8	25.7	16.3	13.6	14.7	23.6	37.8
2140	71.9	60.4	29.4	18.4	16.3	16.8	23.6	39.4
2150	88.2	83.5	31.0	17.3	15.7	17.3	24.1	45.1
2160	86.6	79.8	27.8	19.4	17.3	21.5	31.0	49.9

Depth	N	NE	E	SE	S	SW	W	NW
2170	83.5	75.6	31.0	25.2	18.9	23.1	31.5	58.3
2180	77.2	75.6	38.3	25.2	19.4	24.1	38.8	52.5
2190	75.6	72.4	37.3	27.3	24.1	26.8	39.9	57.7
2200	81.4	72.4	49.3	29.9	28.9	29.4	36.7	56.2
2210	81.4	72.4	49.3	29.9	28.9	29.4	36.7	56.2
2220	82.4	73.5	50.4	31.0	29.9	30.4	37.8	57.2
2230	110.7	115.1	69.6	39.8	40.5	37.9	46.2	66.4
2240	113.2	117.6	72.1	42.4	43.0	40.5	48.7	68.9
2250	115.7	120.1	74.6	44.9	45.5	43.0	51.2	71.4
2260	115.7	120.1	74.6	44.9	45.5	43.0	51.2	71.4
2270	114.4	118.9	73.3	43.6	44.3	41.7	50.0	70.2
2280	114.4	118.9	73.3	43.6	44.3	41.7	50.0	70.2
2290	98.0	108.1	70.2	47.4	38.6	36.0	47.4	67.7
2300	95.5	105.6	67.7	44.9	36.0	33.5	44.9	65.1
2310	104.3	102.4	68.9	51.2	38.6	33.5	35.4	50.6
2320	92.3	86.0	58.2	39.2	33.5	32.2	36.7	65.1
2330	89.8	91.7	56.9	39.8	31.0	34.8	36.0	51.8
2340	86.6	89.8	58.2	37.9	31.0	30.3	33.5	58.8
2350	86.6	86.6	52.5	36.0	29.1	28.5	34.8	55.6
2360	84.1	86.6	41.7	31.6	28.5	30.3	31.6	44.9
2370	82.8	82.8	44.3	32.2	26.6	29.1	31.0	55.6
2380	81.6	74.0	52.5	32.2	24.0	24.7	31.0	47.4
2390	78.4	75.9	44.9	24.0	20.2	22.1	31.0	48.1
2400	77.1	78.4	46.2	20.2	15.8	21.5	29.7	42.4
2410	79.0	80.3	44.3	21.5	17.1	23.4	31.0	45.5
2420	75.9	77.1	44.9	19.0	14.5	20.2	28.5	41.1
2430	75.2	76.5	44.3	18.3	13.9	19.6	27.8	40.5
2440	77.8	70.2	32.9	13.3	11.4	12.0	22.1	43.0
2450	76.5	68.9	31.6	12.0	10.1	10.7	20.9	41.7
2460	76.5	68.9	31.6	12.0	10.1	10.7	20.9	41.7
2470	76.5	68.9	31.6	12.0	10.1	10.7	20.9	41.7
2480	76.5	68.9	31.6	12.0	10.1	10.7	20.9	41.7
2490	75.9	68.3	31.0	11.4	9.5	10.1	20.2	41.1
2500	75.9	68.3	31.0	11.4	9.5	10.1	20.2	41.1
2510	75.9	68.3	31.0	11.4	9.5	10.1	20.2	41.1
2520	79.0	71.4	22.8	10.7	9.5	10.7	20.2	46.2
2530	81.6	65.1	22.8	10.1	9.5	10.1	21.5	47.4
2540	82.2	75.2	22.1	10.7	8.9	10.7	15.2	50.0
2550	86.6	68.9	24.0	11.4	8.9	10.7	17.1	53.1
2560	82.8	68.9	24.7	11.4	9.5	12.6	23.4	50.6
2570	81.6	75.9	24.0	12.0	10.7	12.0	19.6	45.5
2580	87.3	72.1	21.5	12.0	13.9	13.9	22.8	48.7
2590	87.3	72.1	21.5	12.0	13.9	13.9	22.8	48.7
2600	87.3	72.1	21.5	12.0	13.9	13.9	22.8	48.7
2610	87.9	72.7	22.1	12.6	14.5	14.5	23.4	49.3
2620	88.5	73.3	22.8	13.3	15.2	15.2	24.0	50.0
2630	108.1	90.4	21.5	13.9	15.8	16.4	20.2	53.7
2640	108.1	90.4	21.5	13.9	15.8	16.4	20.2	53.7
2650	108.8	91.0	22.1	14.5	16.4	17.1	20.9	54.4
2660	108.8	91.0	22.1	14.5	16.4	17.1	20.9	54.4
2670	108.8	91.0	22.1	14.5	16.4	17.1	20.9	54.4
2680	108.1	87.9	20.2	13.9	15.2	15.8	19.6	56.9
2690	110.7	91.7	19.0	13.3	14.5	15.2	18.3	58.8
2700	110.0	91.7	17.7	12.6	13.3	14.5	17.7	56.9
2710	112.5	87.9	16.4	12.0	12.6	13.3	17.1	52.5

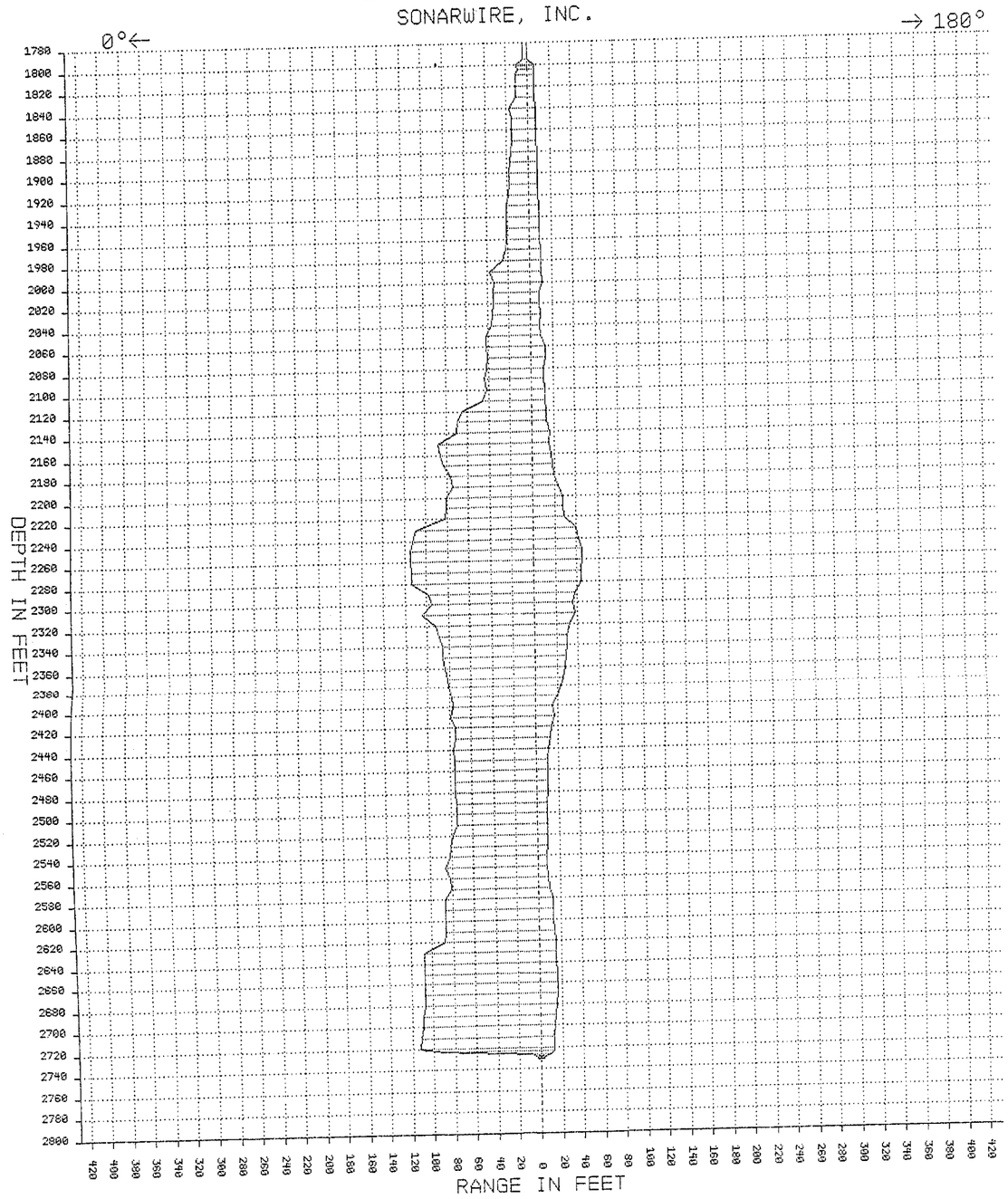
Depth	N	NE	E	SE	S	SW	W	NW
2720	113.2	86.6	16.4	11.4	12.0	12.6	16.4	56.3
2723	91.7	67.0	13.9	11.4	12.0	12.6	13.9	29.1
2726	9.8	11.1	11.5	9.6	9.8	9.8	9.6	9.4

Depth	Tilt	N	NE	E	SE	S	SW	W	NW
2726	-30	5.8	5.8	6.0	6.2	5.8	5.6	6.0	5.7
2726	-50	5.4	5.5	5.6	5.5	5.6	5.6	5.4	5.6
2726	-70	5.0	4.7	4.7	4.7	4.7	4.8	4.7	4.7
2726	-90	4.6	4.4	4.4	4.5	4.5	4.4	4.4	4.6

AMERIGAS
GLENDALE, AZ.

STORAGE WELL NO. 1A
FRI, MAR 25, 1994 13:21

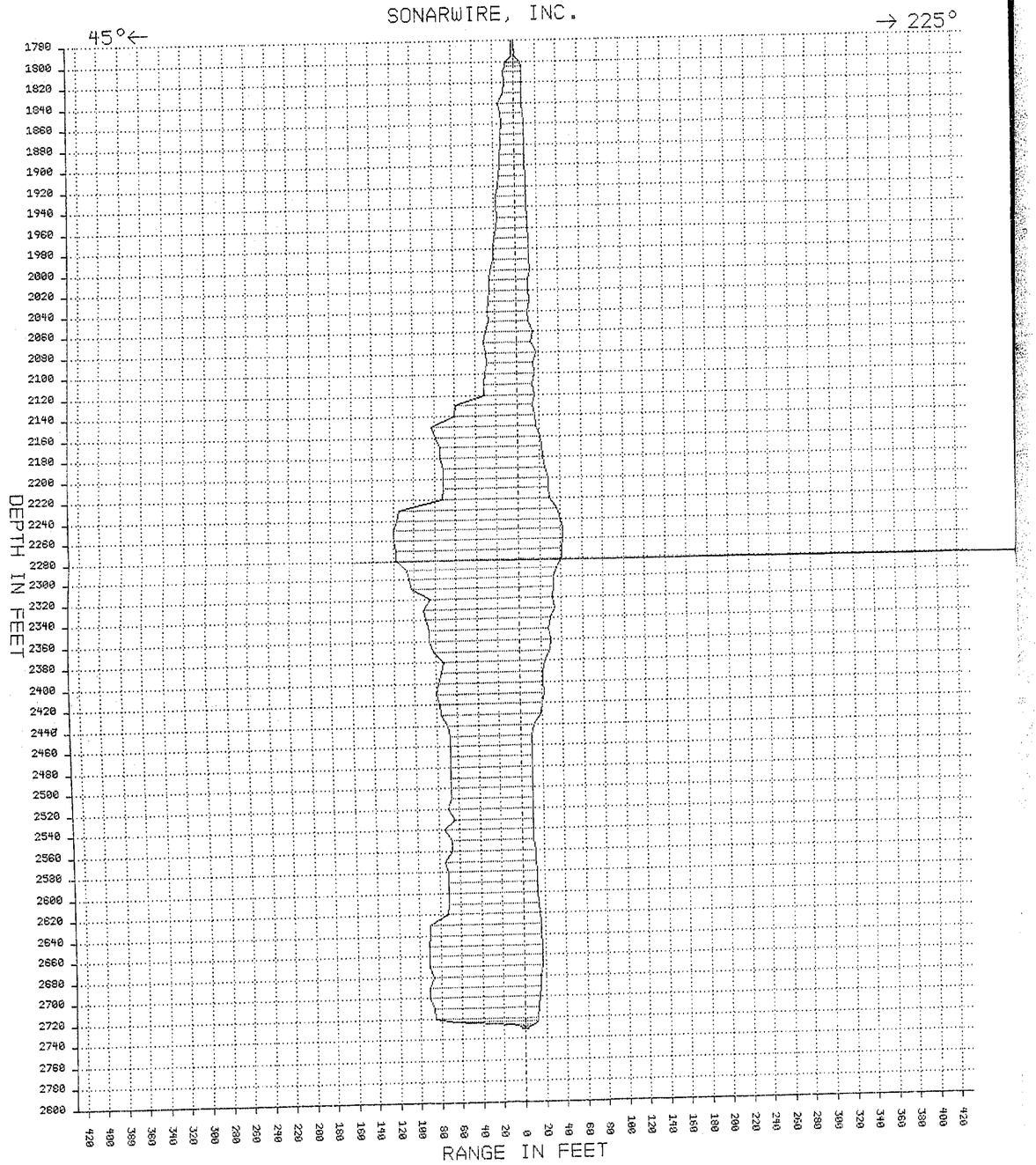
VERTICAL CROSS-SECTION
SONARWIRE, INC.



AMERIGAS
GLENDALE, AZ.

STORAGE WELL NO. 1A
FRI, MAR 25, 1994 13:21

VERTICAL CROSS-SECTION
SONARWIRE, INC.



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GLENDALE, AZ.

STORAGE WELL NO. 1A
FRI, MAR 25, 1994 13:21

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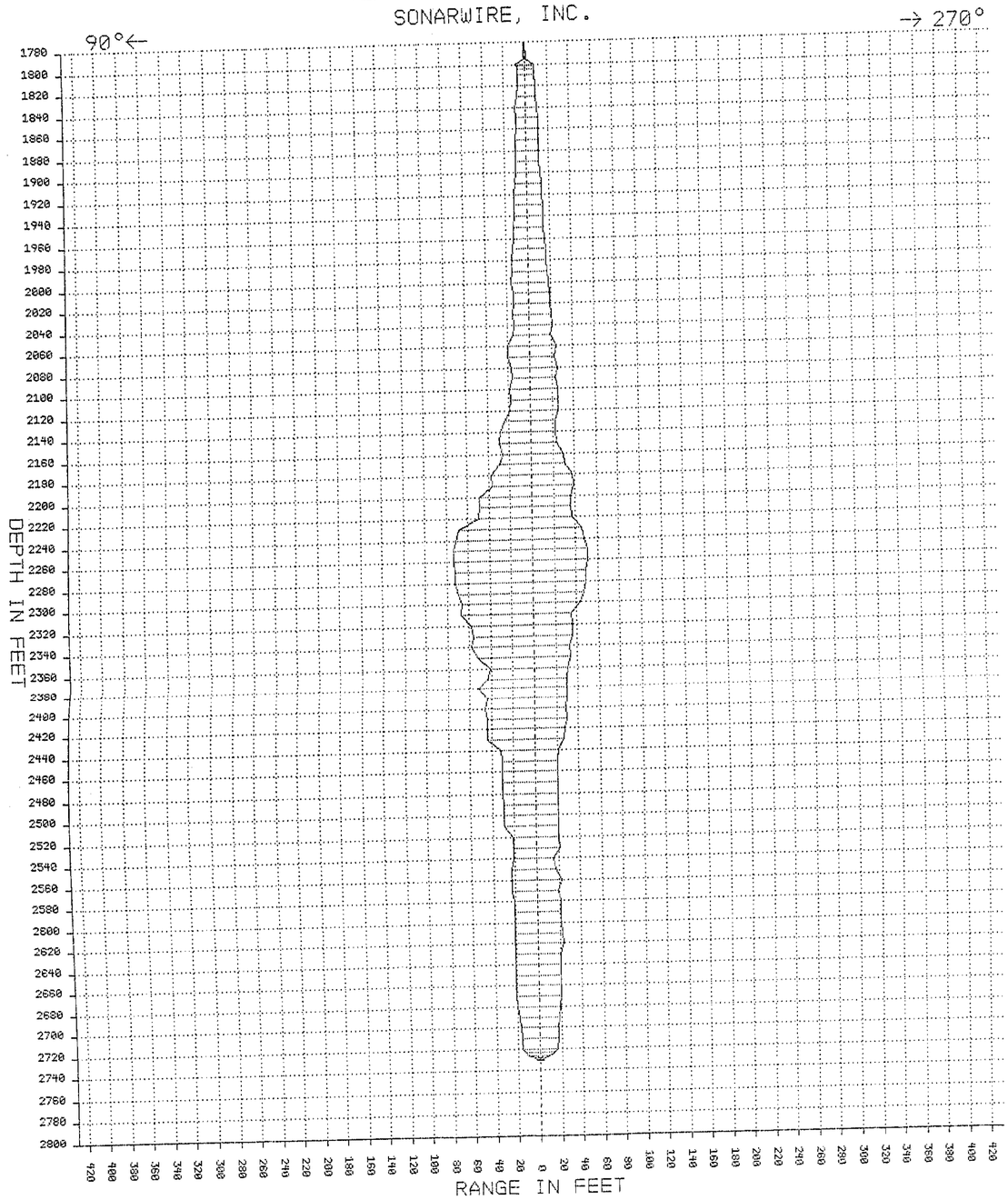
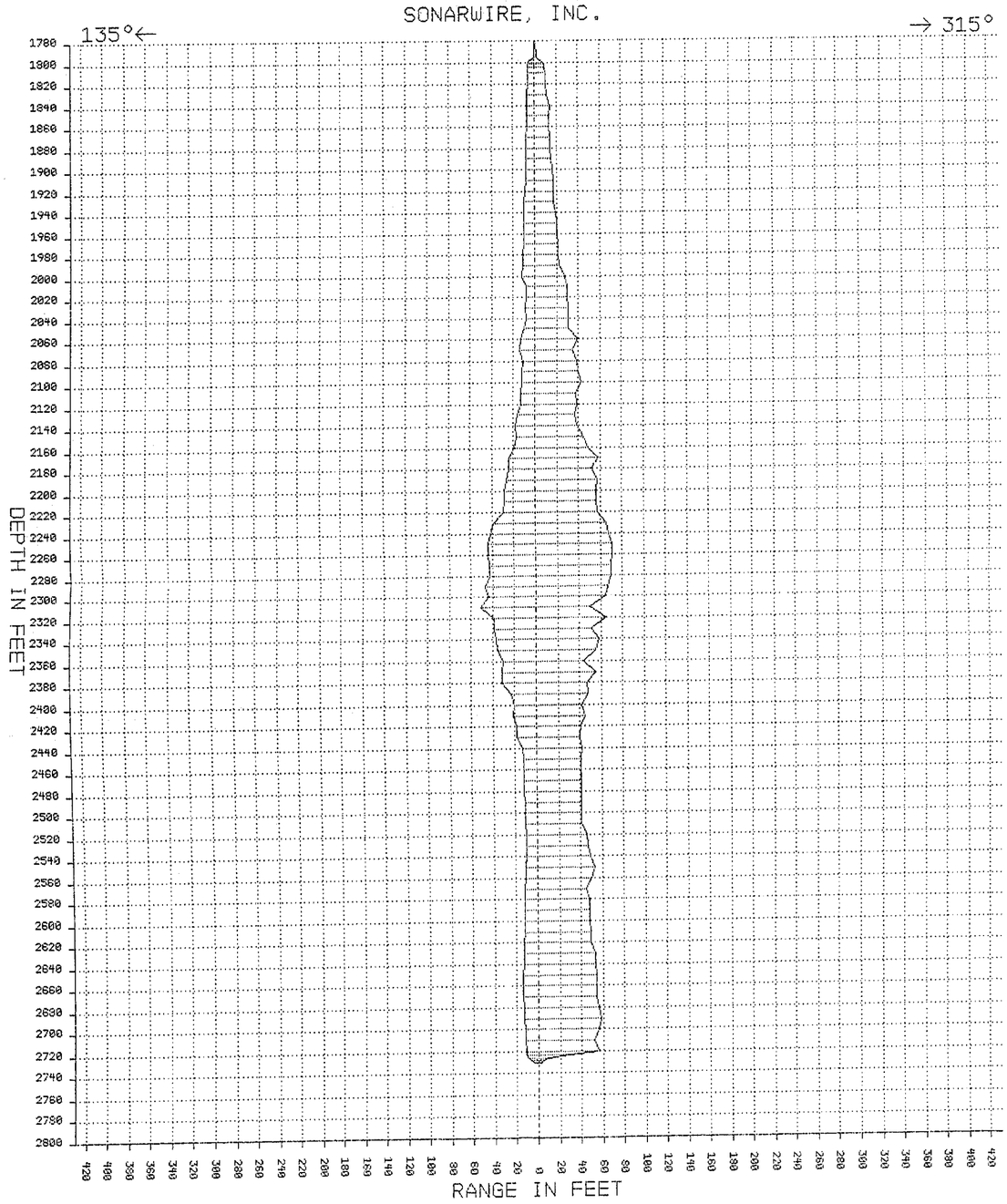
SONARWIRE, INC.



AMERIGAS
GLENDALE, AZ.

STORAGE WELL NO. 1A
FRI, MAR 25, 1994 13:21

VERTICAL CROSS-SECTION
SONARWIRE, INC.



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STORAGE WELL NO. 1A
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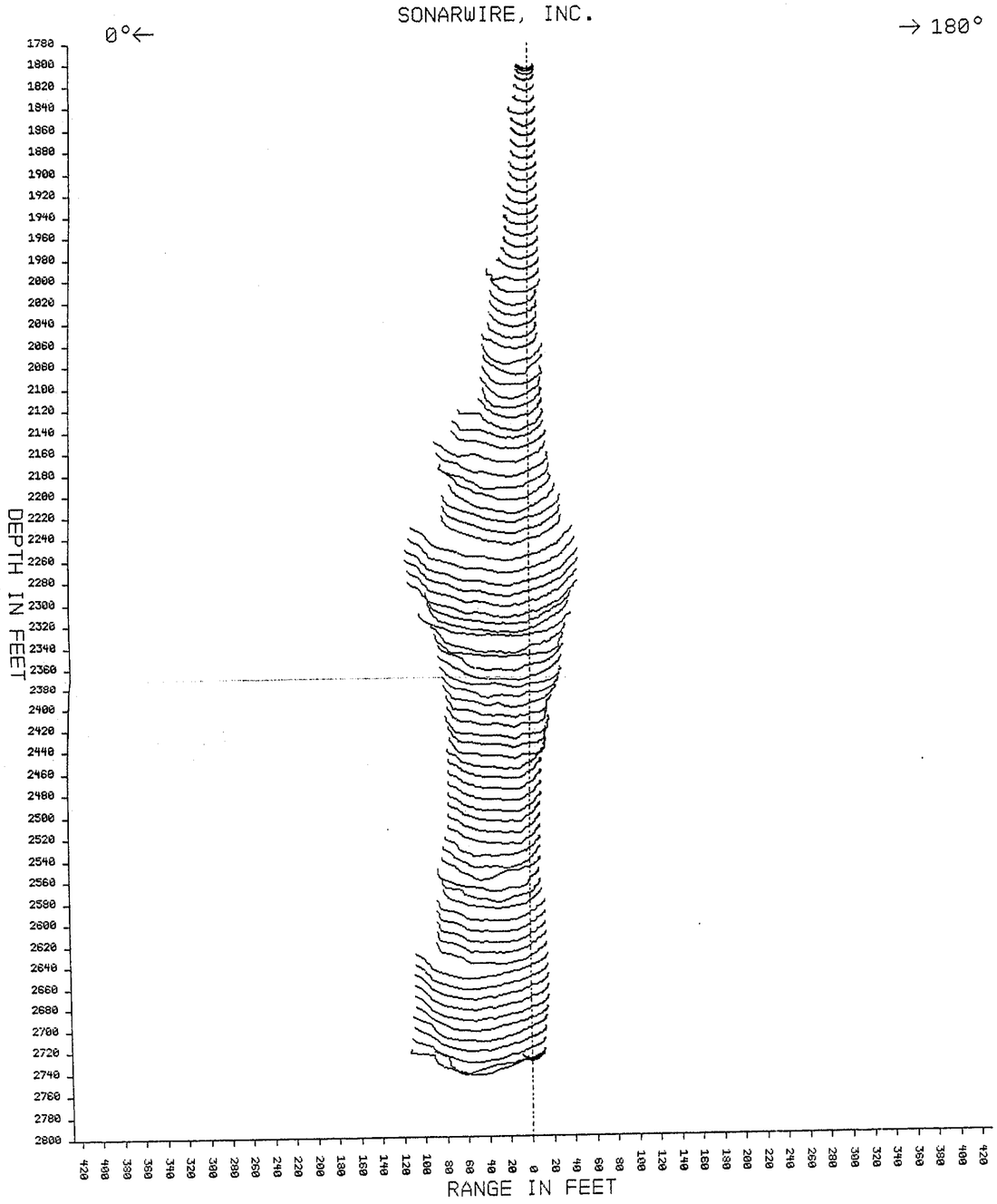
HORIZONTAL HALF-SECTIONS
SONARWIRE, INC.



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GLENDALE, AZ.

STORAGE WELL NO. 1A
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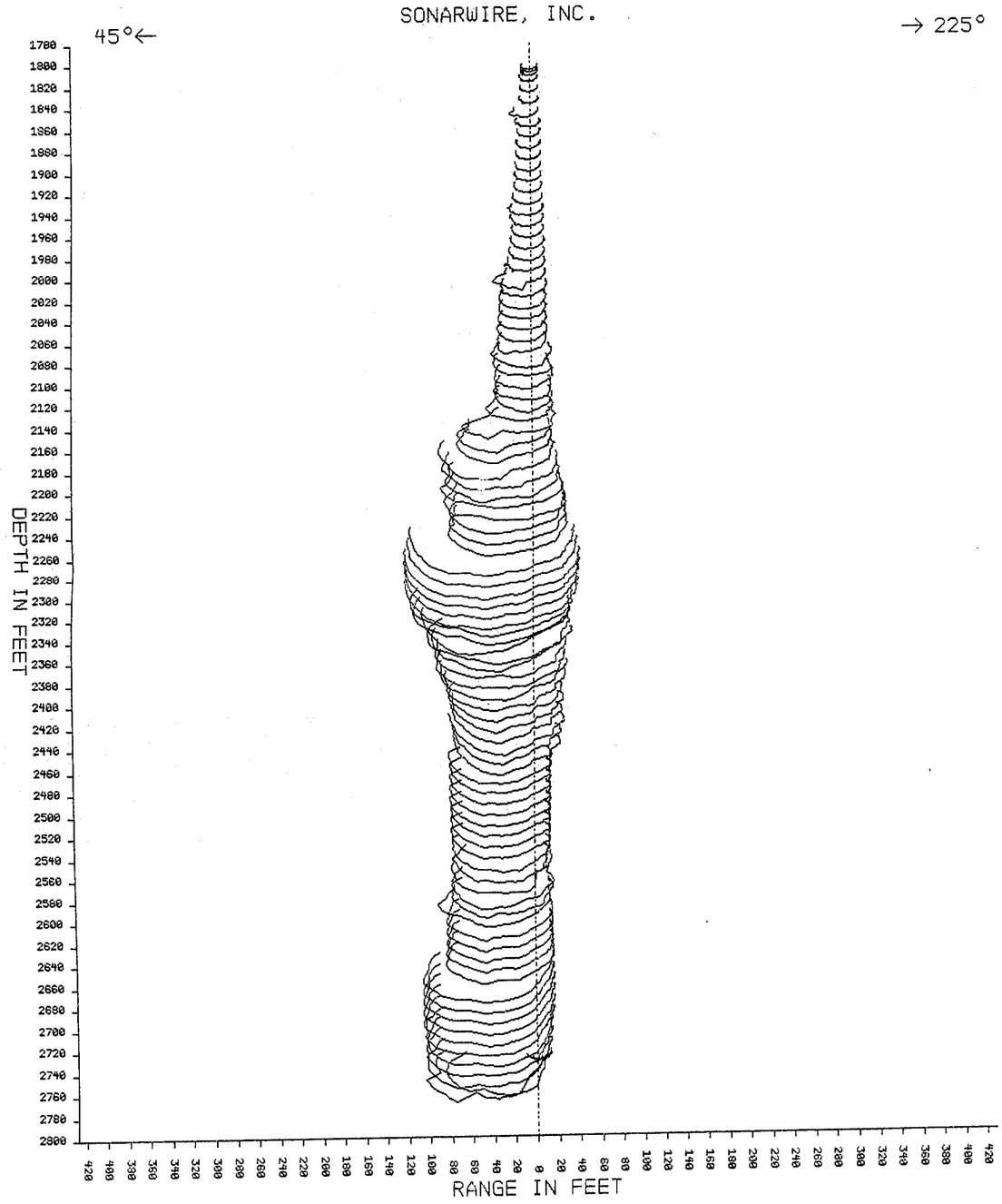
HORIZONTAL HALF-SECTIONS
SONARWIRE, INC.



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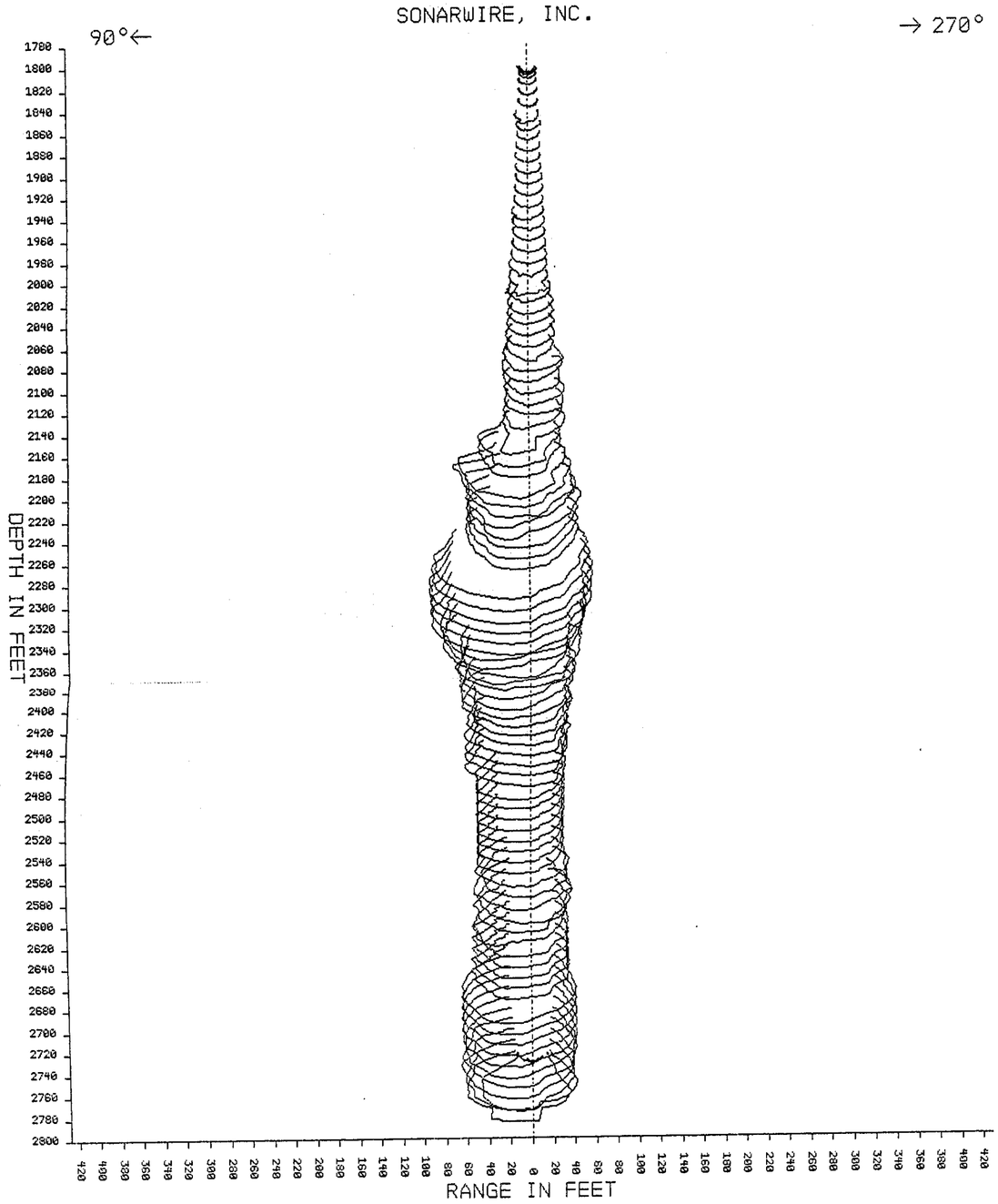
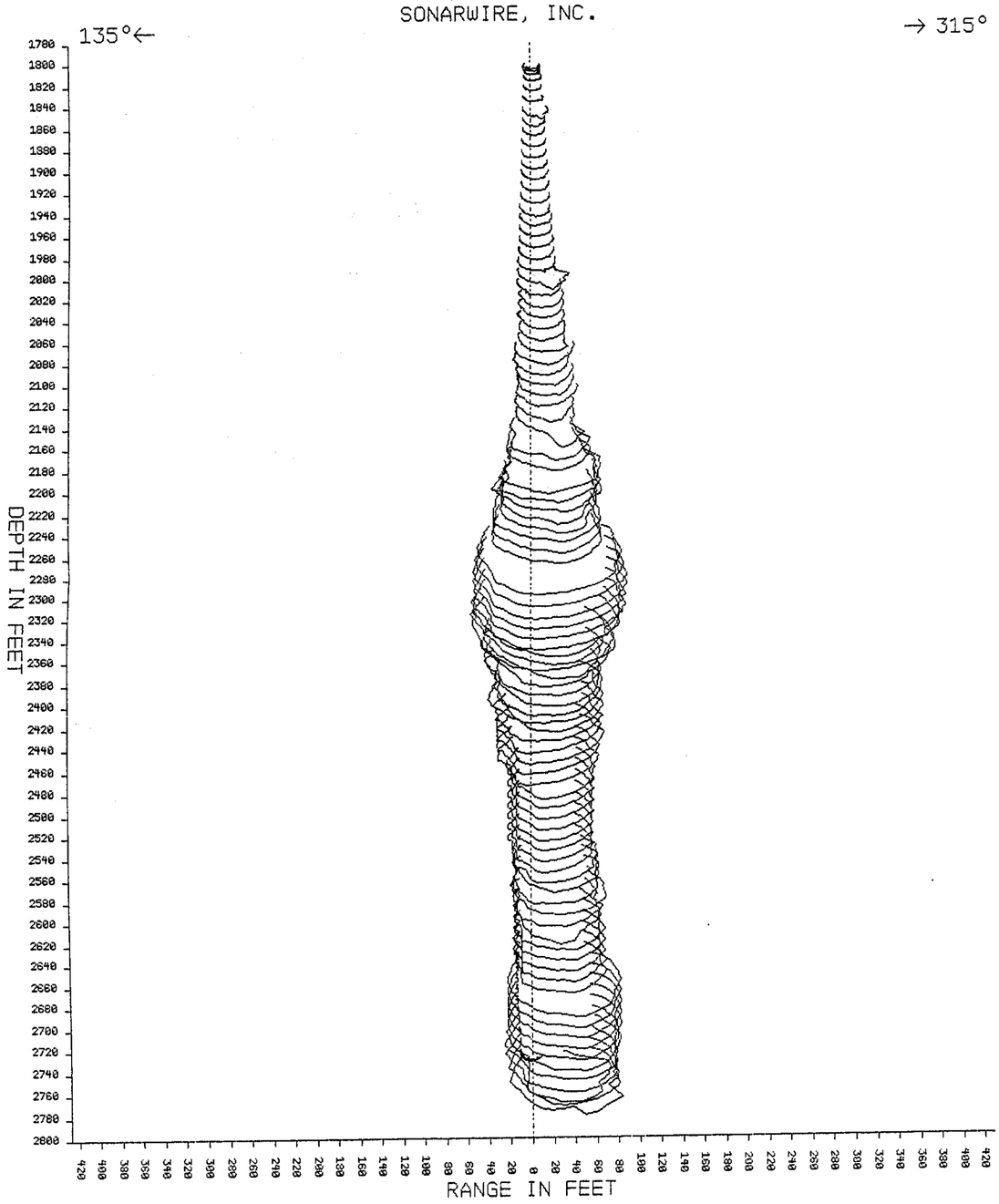
HORIZONTAL HALF-SECTIONS
SONARWIRE, INC.



AMERIGAS
GLENDALE, AZ.

STORAGE WELL NO. 1A
FRI, MAR 25, 1994 13:21

HORIZONTAL HALF-SECTIONS
SONARWIRE, INC.



Wall Range versus Bearing and Depth
Sonarwire, Inc.
AMERIGAS
STORAGE WELL NO. 1A
Fri, Mar 25, 1994 13:21
GLENDALE, AZ.

Depth: 1548 Tilt: 0 Range: 24.7 VOS: 5960

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
180.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	1.0	0.7	0.7	0.7	0.7

Depth: 1600 Tilt: 0 Range: 24.7 VOS: 5960

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	1.3	1.6	1.6	1.3	1.3	1.3	1.3	1.3
22.5	1.3	1.1	1.1	1.3	1.3	1.0	1.0	1.3
45.0	1.3	1.3	1.3	1.3	1.3	1.1	1.1	1.1
67.5	0.8	0.6	0.8	0.9	0.8	0.8	0.8	0.8
90.0	0.8	0.6	0.6	0.6	0.6	0.6	0.6	0.6
112.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
180.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.6
247.5	0.8	0.7	0.8	0.8	0.8	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8
292.5	1.1	1.1	1.1	1.3	1.3	1.3	1.4	1.4
315.0	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
337.5	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.5

Depth: 1700 Tilt: 0 Range: 24.7 VOS: 5960

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	1.3	1.3	1.1	1.1	1.3	1.3	1.3	1.3
22.5	1.1	1.1	1.4	1.3	1.3	1.3	1.3	1.3
45.0	1.3	1.0	1.0	0.8	0.8	0.8	0.8	0.8
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.6	0.6	0.6	0.5	0.5	0.5	0.4	0.4
135.0	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4
157.5	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.4
180.0	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4
202.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4
225.0	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5
247.5	0.6	0.7	0.8	0.8	0.9	0.8	0.8	0.8
270.0	0.8	0.8	0.8	0.8	0.8	0.8	0.9	1.0
292.5	1.0	1.0	1.1	1.3	1.3	1.1	1.1	1.1
315.0	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
337.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3

Depth: 1795 Tilt: 0 Range: 25.4 VOS: 5960

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	4.6	4.4	4.3	5.1	5.1	5.1	5.1	5.1
22.5	5.0	5.1	2.4	2.4	2.4	2.4	2.4	2.1
45.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
67.5	1.9	1.9	1.6	1.6	1.6	1.4	1.4	1.4
90.0	1.4	1.4	1.4	1.3	1.3	1.3	1.3	1.3
112.5	1.3	1.3	1.3	1.2	1.1	1.1	1.0	1.0
135.0	1.0	1.0	1.0	0.9	0.9	0.9	0.8	0.8
157.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
180.0	0.8	0.8	0.8	0.8	0.9	0.9	0.9	0.9
202.5	0.9	1.0	1.0	1.1	1.1	1.1	1.1	1.1
225.0	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2
247.5	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.3
270.0	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
292.5	1.6	1.6	1.8	1.9	1.9	2.0	2.3	2.4
315.0	2.5	2.5	2.6	2.6	2.7	2.7	2.8	2.8
337.5	2.8	2.8	2.9	2.9	3.1	3.1	3.3	3.3

Depth: 1800 Tilt: 0 Range: 24.6 VOS: 5774

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	10.3	10.1	9.9	9.8	9.8	9.9	9.9	9.8
22.5	9.4	9.0	8.8	8.8	9.4	9.2	8.0	7.9
45.0	7.9	7.8	7.7	8.8	8.8	8.8	7.3	7.3
67.5	7.3	9.0	9.2	9.4	7.2	9.5	9.5	9.5
90.0	9.0	8.3	8.0	7.7	7.5	7.4	7.4	7.3
112.5	7.3	7.3	6.7	6.7	6.7	6.7	6.3	6.3
135.0	6.1	6.1	6.1	5.8	5.9	5.9	5.9	5.8
157.5	5.9	6.0	5.9	5.8	5.9	6.1	6.0	6.1
180.0	6.0	6.1	6.1	6.1	6.0	6.0	6.3	6.4
202.5	6.5	6.3	6.4	6.4	6.7	6.7	6.9	6.9
225.0	7.0	7.1	7.3	7.3	7.2	7.2	7.5	7.5
247.5	7.6	7.6	7.8	7.9	8.2	8.3	8.5	8.6
270.0	8.7	7.6	8.5	7.8	8.2	8.1	8.2	8.2
292.5	8.2	8.2	10.5	10.6	10.7	8.4	8.4	8.5
315.0	8.6	8.7	8.9	9.0	9.2	9.1	9.1	10.0
337.5	10.1	9.0	8.9	8.9	11.4	10.8	10.5	10.3

Depth: 1802 Tilt: 0 Range: 24.6 VOS: 5778

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	10.4	10.3	10.3	10.2	10.1	10.1	10.1	10.2
22.5	9.3	9.2	9.2	9.0	8.9	8.8	8.8	8.8
45.0	8.8	8.5	8.4	8.4	8.6	8.7	8.6	8.5
67.5	8.4	8.4	8.2	8.0	7.9	7.9	7.7	7.7
90.0	7.7	7.7	7.8	7.8	7.9	8.0	8.0	8.0
112.5	8.0	8.0	7.6	7.5	7.4	7.3	7.1	7.1
135.0	7.0	6.6	6.3	6.3	6.2	6.3	6.3	6.3
157.5	6.3	6.2	6.6	6.6	6.6	6.7	6.7	6.7
180.0	6.6	6.8	6.9	6.8	6.6	6.8	6.8	6.6
202.5	6.4	6.7	6.8	6.8	6.8	6.7	6.8	6.8
225.0	6.9	7.0	7.1	7.2	7.2	7.3	7.3	7.2
247.5	8.0	8.0	8.1	8.1	8.1	8.2	8.4	8.4
270.0	8.4	8.6	8.6	8.6	8.6	8.6	8.6	8.7
292.5	8.8	8.7	8.8	8.8	9.2	9.2	9.3	9.2
315.0	9.9	9.2	9.2	9.2	9.2	9.3	9.4	9.5
337.5	9.7	9.8	9.9	9.9	9.9	11.6	10.4	10.4

Depth: 1805 Tilt: 0 Range: 24.6 VOS: 5778

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	9.8	9.8	9.9	9.9	9.9	9.9	9.6	9.5
22.5	9.4	9.4	9.3	9.2	8.9	8.7	8.6	8.5
45.0	8.5	8.4	8.3	8.3	8.3	8.3	8.2	8.2
67.5	8.2	8.2	8.2	8.2	8.2	8.1	8.1	7.9
90.0	7.7	7.6	7.6	7.2	7.0	6.9	6.9	6.7
112.5	6.7	6.7	6.6	6.4	6.3	6.3	6.7	6.6
135.0	6.3	6.2	6.3	6.3	6.3	6.3	6.3	6.3
157.5	6.3	6.3	6.4	6.4	6.6	6.7	6.6	6.8
180.0	6.4	6.3	6.3	6.2	6.2	6.2	6.3	6.3
202.5	6.4	6.6	6.7	6.7	6.9	6.9	7.2	7.1
225.0	7.1	7.2	7.1	7.1	7.4	7.4	7.7	7.8
247.5	7.9	8.0	8.1	8.2	8.4	8.4	8.3	8.4
270.0	8.4	8.4	8.4	8.5	8.8	8.9	9.0	9.2
292.5	9.3	9.3	9.3	9.5	9.4	9.4	9.5	9.4
315.0	9.5	9.6	9.6	9.8	9.9	9.9	10.0	10.0
337.5	10.1	10.1	10.2	10.2	10.5	12.1	12.0	10.0

Depth: 1810 Tilt: 0 Range: 24.6 VOS: 5774

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	11.5	11.4	10.9	10.8	10.6	10.7	10.8	10.6
22.5	10.6	10.7	10.7	10.7	10.6	10.6	10.5	10.3
45.0	10.2	10.1	9.5	9.4	9.4	9.4	9.4	9.2
67.5	8.7	8.7	8.6	8.4	8.2	8.2	7.6	7.7
90.0	7.6	7.5	7.5	7.4	7.3	7.3	7.2	7.1
112.5	7.1	7.0	6.9	6.8	6.7	6.5	6.5	6.4
135.0	6.2	6.3	6.2	6.2	6.2	6.1	6.2	6.2
157.5	6.1	6.1	6.1	6.1	6.1	6.0	6.1	6.2
180.0	6.2	6.2	6.3	6.3	6.2	6.3	6.3	6.4
202.5	6.4	6.5	6.4	6.5	6.8	6.9	6.9	7.1
225.0	7.1	7.1	7.1	7.1	7.5	7.6	7.7	7.8
247.5	7.9	7.9	7.9	8.0	8.3	8.3	8.4	8.5
270.0	8.6	8.6	8.7	8.7	9.1	9.2	9.2	9.5
292.5	9.7	9.9	10.0	10.0	10.0	10.0	10.0	10.2
315.0	10.4	10.5	10.5	10.8	10.8	10.9	10.9	10.7
337.5	10.7	11.3	11.3	12.1	12.2	12.2	12.0	11.6

Depth: 1820 Tilt: 0 Range: 24.6 VOS: 5778

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	11.3	11.2	11.1	11.3	11.3	11.3	11.2	10.9
22.5	10.7	10.6	10.5	10.4	10.2	10.0	9.9	9.9
45.0	9.7	9.7	9.6	9.4	9.2	9.0	8.9	8.8
67.5	8.8	8.6	8.5	8.5	8.3	8.2	8.1	8.0
90.0	7.8	7.7	7.6	7.5	7.5	7.4	7.4	7.3
112.5	7.1	7.1	7.0	7.0	6.9	6.9	6.8	6.7
135.0	6.7	6.7	6.7	6.6	6.6	6.6	6.4	6.4
157.5	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
180.0	6.6	6.7	6.7	6.7	6.7	6.8	6.8	6.9
202.5	6.9	7.0	7.1	7.1	7.2	7.3	7.3	7.4
225.0	7.4	7.5	7.6	7.7	7.8	7.9	7.9	8.0
247.5	8.2	8.3	8.5	8.6	8.7	8.9	9.0	9.2
270.0	9.5	9.6	9.6	9.7	9.7	9.8	9.9	9.9
292.5	10.0	10.1	10.1	10.1	10.2	10.3	10.5	10.6
315.0	10.9	11.0	11.0	11.2	11.4	11.5	11.5	11.3
337.5	11.3	11.3	11.3	11.3	11.3	12.6	12.4	11.6

Depth: 1830 Tilt: 0 Range: 24.6 VOS: 5774

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	11.6	11.5	11.5	11.3	11.4	11.2	12.1	11.4
22.5	11.3	11.2	11.1	10.8	10.8	10.7	10.2	10.2
45.0	10.1	9.9	9.8	9.8	9.7	9.5	9.4	9.2
67.5	9.1	9.0	8.8	8.7	8.6	8.3	8.3	8.2
90.0	8.0	7.9	7.9	7.9	7.8	7.8	7.8	7.6
112.5	7.5	7.5	7.6	7.8	7.8	7.7	7.5	7.5
135.0	7.4	7.5	7.4	7.3	7.2	7.2	7.1	7.0
157.5	7.0	6.9	6.8	6.7	6.7	6.8	6.9	6.9
180.0	6.8	6.8	6.8	6.8	6.9	6.8	6.9	7.0
202.5	7.1	7.2	7.3	7.3	7.3	7.4	7.5	7.6
225.0	7.7	7.8	7.9	8.0	8.3	8.4	8.5	8.6
247.5	8.7	9.7	9.7	9.8	9.8	9.9	9.9	9.8
270.0	9.9	9.9	10.2	10.2	10.3	10.4	10.7	10.7
292.5	10.7	10.7	11.0	11.0	11.0	11.0	11.1	11.1
315.0	11.1	12.3	12.0	12.2	12.6	12.5	12.6	12.6
337.5	12.7	12.7	12.8	13.8	13.8	12.0	12.0	11.8

Depth: 1840 Tilt: 0 Range: 49.9 VOS: 5774

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	17.9	21.3	22.1	22.3	23.4	23.4	23.2	22.3
22.5	16.6	16.6	16.9	16.6	16.0	15.8	16.4	15.4
45.0	15.4	15.2	15.2	15.0	14.5	14.3	13.5	13.1
67.5	12.0	11.8	11.4	11.2	10.7	10.7	10.7	10.5
90.0	10.3	10.1	9.9	9.9	9.3	9.1	8.9	8.6
112.5	8.6	8.6	8.4	8.4	8.2	8.0	8.0	7.8
135.0	7.8	8.0	8.0	8.0	8.0	7.8	7.6	7.4
157.5	7.4	7.4	7.4	7.2	7.2	7.2	7.2	7.2
180.0	7.2	7.2	7.4	7.4	7.4	7.4	7.4	7.4
202.5	7.4	7.2	7.4	7.4	7.4	7.6	7.6	7.8
225.0	7.8	7.8	8.0	8.0	8.2	8.4	8.4	8.6
247.5	8.6	8.9	9.1	9.3	9.5	9.7	9.7	9.9
270.0	10.1	10.1	10.3	10.5	10.5	10.5	11.4	11.8
292.5	12.0	12.2	12.4	12.6	13.1	13.5	14.1	14.5
315.0	15.0	15.8	16.0	16.2	16.6	17.1	17.1	17.7
337.5	18.8	19.0	19.2	19.2	18.3	18.5	18.3	18.1

Depth: 1850 Tilt: 0 Range: 50.0 VOS: 5778

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	15.2	15.0	15.0	14.3	16.4	16.2	16.2	16.0
22.5	16.0	15.8	15.2	15.0	14.1	13.9	13.7	13.5
45.0	13.3	12.9	12.9	12.7	12.4	12.0	11.8	11.8
67.5	11.4	10.5	10.3	10.1	9.7	9.7	9.5	9.3
90.0	9.1	8.6	8.6	8.6	8.4	8.2	8.2	8.2
112.5	8.2	8.0	7.8	7.8	7.8	7.6	7.6	7.6
135.0	7.6	7.6	7.4	7.4	7.4	7.4	7.4	7.4
157.5	7.4	7.2	7.2	7.4	7.4	7.4	7.4	7.4
180.0	7.4	7.4	7.4	7.6	7.6	7.6	7.8	8.0
202.5	8.0	8.0	8.2	8.2	8.2	8.4	8.4	8.6
225.0	8.6	8.9	8.9	9.1	9.3	9.5	9.9	9.9
247.5	10.1	10.3	10.5	10.8	10.8	11.0	11.4	11.4
270.0	11.6	11.8	12.4	12.7	12.9	12.9	13.1	13.5
292.5	13.7	13.7	13.5	13.3	13.3	13.1	13.1	13.1
315.0	13.3	13.5	13.5	13.7	13.7	14.1	14.3	14.3
337.5	14.3	15.2	15.4	15.0	15.4	15.6	15.6	15.6

Depth: 1860 Tilt: 0 Range: 50.0 VOS: 5778

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	15.4	15.2	14.6	14.6	14.3	14.1	14.1	13.9
22.5	13.7	13.9	13.7	13.5	13.3	13.3	13.1	12.9
45.0	12.7	12.4	12.2	11.8	11.6	11.4	11.4	11.2
67.5	11.0	10.8	10.5	10.3	10.1	9.9	9.9	9.5
90.0	9.5	9.3	9.3	9.1	8.9	8.9	8.6	8.4
112.5	8.4	8.2	8.2	8.0	8.0	8.0	8.0	8.0
135.0	7.8	7.8	7.8	7.6	7.6	7.6	7.6	7.6
157.5	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.8
180.0	7.8	7.8	7.8	7.8	7.8	8.0	8.0	8.0
202.5	8.2	8.4	8.4	8.4	8.4	8.6	8.6	8.9
225.0	9.1	9.1	9.3	9.3	9.5	9.7	9.9	9.9
247.5	9.9	9.9	10.1	10.3	10.5	10.8	11.0	11.2
270.0	11.4	11.6	11.8	11.8	12.0	12.2	12.2	12.0
292.5	12.2	12.4	12.4	12.9	13.1	13.1	13.1	13.3
315.0	13.5	13.5	13.5	13.7	13.7	13.9	13.9	13.7
337.5	13.9	14.1	14.3	14.3	14.6	15.2	15.4	15.4

Depth: 1870 Tilt: 0 Range: 50.0 VOS: 5778

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	15.6	15.8	15.4	15.2	15.2	15.0	14.8	14.8
22.5	14.3	14.3	14.1	13.7	13.5	13.5	13.5	13.5
45.0	13.3	13.1	12.9	12.9	12.7	12.7	12.0	11.8
67.5	11.4	11.4	11.4	11.2	11.0	11.0	10.5	10.3
90.0	10.3	10.1	9.7	9.5	9.3	9.3	9.3	9.1
112.5	9.1	8.9	8.9	8.9	8.6	8.6	8.4	8.4
135.0	8.2	8.2	8.2	8.2	8.2	8.2	8.0	8.0
157.5	8.0	8.2	8.0	8.0	8.0	7.8	7.8	7.8
180.0	7.8	7.8	7.8	7.8	8.0	8.0	8.0	8.0
202.5	8.2	8.4	8.4	8.6	8.9	8.9	9.3	9.3
225.0	9.5	9.5	9.5	9.7	9.7	9.9	9.9	9.9
247.5	10.3	10.3	10.3	10.8	11.0	11.2	11.4	11.6
270.0	11.8	12.0	12.0	12.2	12.2	12.2	12.4	12.7
292.5	12.9	12.9	13.3	13.7	13.7	14.1	14.3	14.6
315.0	14.6	14.8	14.8	14.8	14.8	14.8	14.8	15.0
337.5	15.2	15.4	15.4	15.4	15.2	15.8	15.8	15.8

Depth: 1880 Tilt: 0 Range: 49.9 VOS: 5774

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	16.0	15.8	15.6	15.4	15.4	15.2	15.2	15.0
22.5	15.0	14.8	14.5	14.3	14.1	14.3	14.1	13.9
45.0	13.7	13.5	13.5	13.3	13.1	13.3	13.1	12.9
67.5	12.9	12.6	12.6	12.6	12.0	11.8	11.4	11.0
90.0	10.7	10.3	9.9	9.9	9.7	9.7	9.5	9.5
112.5	9.3	9.1	8.9	8.6	8.4	8.4	8.4	8.4
135.0	8.2	8.2	8.4	8.4	8.4	8.2	8.0	8.0
157.5	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
180.0	8.0	8.0	8.0	8.0	8.2	8.2	8.2	8.2
202.5	8.4	8.4	8.4	8.6	8.6	8.9	9.1	9.1
225.0	9.3	9.3	9.5	9.7	9.9	9.9	10.1	10.1
247.5	10.3	10.3	10.5	10.7	11.0	11.2	11.2	11.4
270.0	11.8	12.0	12.0	12.2	12.4	12.6	12.9	13.1
292.5	13.1	13.3	13.3	13.5	13.7	13.7	14.1	14.3
315.0	14.5	14.5	14.5	14.5	14.8	15.0	15.2	15.4
337.5	15.4	15.4	15.4	15.8	15.6	16.0	16.2	16.2

Depth: 1890 Tilt: 0 Range: 50.0 VOS: 5778

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	17.7	17.1	16.9	16.7	16.4	16.0	16.0	15.8
22.5	15.4	15.4	15.4	15.6	15.4	15.0	14.8	14.6
45.0	14.3	14.1	13.9	13.9	13.5	13.1	12.9	12.7
67.5	12.4	12.0	12.0	12.0	12.0	11.2	11.2	11.2
90.0	11.0	10.8	10.8	10.3	10.1	10.1	10.1	9.9
112.5	9.5	9.5	9.3	9.1	9.1	9.3	9.1	8.9
135.0	8.6	8.6	8.6	8.6	8.9	8.6	8.9	8.6
157.5	8.6	8.4	8.4	8.4	8.6	8.4	8.4	8.2
180.0	8.4	8.6	8.6	8.6	8.4	8.6	8.9	8.9
202.5	8.9	9.1	9.3	9.1	9.1	9.3	9.5	9.5
225.0	9.5	9.7	9.7	9.7	9.7	10.3	10.1	10.3
247.5	10.5	10.8	11.0	11.2	11.4	11.4	11.4	11.6
270.0	11.8	12.2	12.4	12.7	12.9	12.9	13.3	13.5
292.5	13.9	14.3	14.6	14.8	14.8	15.0	15.2	15.4
315.0	15.6	16.0	16.2	16.2	16.7	16.7	16.7	16.7
337.5	16.7	16.4	16.4	16.4	16.4	16.4	16.7	17.5

Depth: 1900 Tilt: 0 Range: 50.0 VOS: 5778

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	18.1	18.8	16.9	16.9	16.7	16.7	16.9	16.7
22.5	16.7	16.2	16.0	16.0	15.6	15.2	15.0	14.8
45.0	14.3	14.1	13.7	13.5	13.3	13.1	12.7	12.4
67.5	12.2	12.0	11.8	11.6	11.6	11.4	11.2	11.0
90.0	11.0	10.8	10.5	10.5	10.3	10.3	10.1	9.9
112.5	9.7	9.7	9.3	9.3	9.3	9.3	9.3	8.9
135.0	8.9	8.9	8.9	8.9	8.9	8.6	8.6	8.6
157.5	8.6	8.6	8.6	8.6	8.6	8.6	8.4	9.1
180.0	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.9
202.5	8.9	8.9	9.1	9.1	9.3	9.3	9.3	9.7
225.0	9.7	9.9	10.1	10.1	10.3	10.3	10.5	10.8
247.5	11.0	11.2	11.4	11.6	11.8	12.0	12.4	12.7
270.0	12.9	13.3	13.5	13.7	13.7	14.1	14.3	14.8
292.5	15.0	15.2	15.4	15.8	16.0	16.0	16.2	16.2
315.0	16.4	16.4	16.7	16.7	16.9	16.9	16.7	16.7
337.5	16.7	16.9	17.1	17.1	17.1	17.3	17.9	17.9

Depth: 1910 Tilt: 0 Range: 49.9 VOS: 5774

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	19.0	18.5	17.9	17.9	17.7	17.7	17.5	17.1
22.5	16.9	16.6	16.2	16.0	15.8	15.8	15.6	15.4
45.0	15.2	15.0	14.8	14.5	14.3	13.9	13.7	13.5
67.5	13.3	13.1	12.6	12.2	12.0	11.8	11.8	11.4
90.0	11.4	11.0	10.7	10.5	10.3	10.3	10.1	9.9
112.5	9.9	9.7	9.7	9.5	9.5	9.1	9.1	8.9
135.0	8.9	8.6	8.6	8.6	8.4	8.4	8.4	8.2
157.5	8.2	8.2	8.4	8.6	8.4	8.4	8.4	8.6
180.0	8.6	8.6	8.6	8.6	8.9	8.9	8.9	9.1
202.5	9.1	9.1	9.3	9.5	9.5	9.7	9.9	9.9
225.0	10.1	10.1	10.7	11.0	11.0	11.0	11.2	11.4
247.5	11.4	11.6	11.6	11.8	12.2	12.6	12.9	13.3
270.0	13.7	13.9	14.3	14.5	14.8	15.2	15.4	15.6
292.5	15.8	15.8	16.0	16.2	16.2	16.4	16.4	16.9
315.0	17.1	17.1	17.5	17.5	17.5	17.7	17.9	17.7
337.5	17.7	17.7	17.9	17.9	18.3	18.5	18.8	19.0

Depth: 1920 Tilt: 0 Range: 50.0 VOS: 5778

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	19.6	19.6	19.4	19.4	19.6	19.6	19.6	19.4
22.5	19.0	18.3	17.9	17.7	17.3	17.1	16.7	16.7
45.0	16.4	16.2	15.8	15.4	15.2	14.8	14.6	14.3
67.5	13.7	13.7	13.3	13.1	12.9	12.7	12.4	12.2
90.0	12.0	11.6	11.4	11.2	11.0	10.8	10.8	10.5
112.5	10.3	10.1	10.1	9.9	9.9	9.7	9.3	9.3
135.0	9.3	9.1	9.1	9.1	9.1	9.1	8.9	8.9
157.5	8.9	8.9	8.6	8.6	8.6	8.9	8.9	8.9
180.0	8.9	8.9	8.9	9.1	9.3	9.3	9.5	9.5
202.5	9.5	9.5	9.7	9.7	9.9	10.1	9.9	10.1
225.0	10.3	10.5	10.8	11.0	11.2	11.4	11.6	11.6
247.5	11.8	12.0	12.2	12.4	12.9	13.1	13.3	13.7
270.0	13.9	14.1	14.3	14.8	15.2	15.6	15.6	15.8
292.5	16.2	16.2	16.2	16.7	16.9	17.1	17.5	17.9
315.0	17.9	18.1	18.3	18.6	18.8	19.0	19.0	19.0
337.5	19.0	19.2	19.4	19.4	19.6	19.8	19.8	19.8

Depth: 1930 Tilt: 0 Range: 50.0 VOS: 5778

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	22.6	22.6	22.4	22.8	22.8	22.8	22.6	22.4
22.5	21.9	21.7	22.1	22.4	19.2	19.2	19.4	18.6
45.0	18.3	18.3	18.3	17.9	17.9	17.7	17.3	16.9
67.5	16.2	15.6	15.4	15.0	14.6	14.3	13.5	13.1
90.0	12.9	12.9	12.7	12.7	12.4	12.4	12.2	12.2
112.5	11.8	11.6	11.4	11.2	11.0	10.5	10.5	10.3
135.0	10.3	9.9	9.9	9.9	9.9	9.9	9.7	9.7
157.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.3
180.0	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.5
202.5	9.5	9.5	9.7	9.9	10.1	10.1	10.1	10.3
225.0	10.8	10.8	11.2	11.4	11.2	11.6	12.0	12.0
247.5	12.2	12.7	12.9	13.1	13.3	13.5	13.9	13.9
270.0	14.3	14.3	15.0	15.2	15.4	15.6	16.0	16.4
292.5	16.4	16.7	16.9	17.1	17.3	17.5	17.5	17.7
315.0	17.7	17.9	18.1	18.3	18.6	18.8	18.8	18.8
337.5	18.8	19.4	19.6	19.6	21.5	21.9	22.4	22.6

Depth: 1940 Tilt: 0 Range: 49.9 VOS: 5774

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	21.5	21.3	21.1	20.9	20.7	20.4	20.2	19.8
22.5	19.8	19.8	20.7	20.7	20.4	19.8	19.2	19.0
45.0	18.8	18.3	17.9	17.5	17.3	16.6	16.0	15.8
67.5	15.6	15.4	14.5	14.3	13.9	13.7	13.5	13.3
90.0	12.9	12.4	12.4	12.2	12.0	11.8	11.8	11.6
112.5	11.4	11.2	11.0	11.0	10.7	10.5	10.3	10.3
135.0	10.1	10.1	10.1	10.1	10.1	10.1	10.1	9.9
157.5	9.7	9.5	9.5	9.3	9.3	9.3	9.3	9.3
180.0	9.3	9.5	9.5	9.5	9.5	9.5	9.7	9.7
202.5	9.9	9.9	9.9	9.9	10.1	10.3	10.5	10.7
225.0	11.0	11.2	11.4	11.6	11.8	12.0	12.2	12.6
247.5	12.9	13.1	13.1	13.3	13.5	13.9	14.1	14.3
270.0	14.8	15.0	15.2	15.6	16.0	16.2	16.4	16.6
292.5	16.9	17.3	17.5	18.3	18.8	19.0	19.0	19.2
315.0	19.6	19.8	20.2	20.7	20.9	20.9	21.1	21.5
337.5	21.5	21.7	21.3	21.1	21.1	23.6	23.4	23.4

Depth: 1950 Tilt: 0 Range: 49.9 VOS: 5774

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	21.5	21.5	21.3	20.9	20.7	20.7	20.4	20.0
22.5	19.8	19.6	19.4	19.4	18.8	18.5	18.1	17.7
45.0	17.5	17.3	17.1	16.6	16.4	16.2	16.0	15.8
67.5	15.4	15.4	14.8	14.3	14.1	13.7	13.5	13.5
90.0	13.1	12.9	12.4	12.4	12.2	11.8	11.8	11.4
112.5	11.4	11.2	11.2	11.0	11.0	10.7	10.7	10.5
135.0	10.3	10.3	10.1	10.1	9.9	9.9	9.9	9.9
157.5	9.9	9.9	9.7	9.7	9.7	9.7	9.7	9.7
180.0	9.7	9.7	9.7	9.9	9.9	9.9	9.9	9.9
202.5	10.1	10.3	10.5	10.5	10.5	10.5	10.7	11.0
225.0	11.2	11.4	11.6	11.8	12.0	12.2	12.4	12.6
247.5	12.9	13.3	13.5	13.5	14.1	14.3	14.5	14.8
270.0	15.0	15.2	15.4	16.0	16.4	16.6	16.9	17.5
292.5	17.7	17.9	18.1	18.3	19.0	19.2	19.4	19.6
315.0	20.0	20.0	20.2	20.4	20.7	20.7	20.7	21.1
337.5	21.1	21.3	21.5	21.7	21.7	21.7	21.7	21.7

Depth: 1960 Tilt: 0 Range: 50.0 VOS: 5778

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	22.1	21.7	21.5	21.3	21.3	21.3	21.3	21.1
22.5	20.7	20.5	20.2	20.0	20.0	19.6	19.2	18.8
45.0	18.6	18.3	17.9	17.7	17.3	16.9	16.4	15.8
67.5	15.8	15.4	15.2	14.8	14.6	14.3	13.9	13.9
90.0	13.5	13.3	13.1	12.9	12.4	12.2	12.0	11.8
112.5	11.4	11.4	11.4	11.2	11.0	10.8	10.5	10.5
135.0	10.3	10.3	10.1	10.1	10.1	9.9	9.9	9.9
157.5	9.9	9.9	9.9	9.9	9.7	9.7	9.5	9.7
180.0	9.7	9.9	9.9	9.9	9.9	10.1	10.1	10.3
202.5	10.5	10.5	10.8	10.8	11.0	11.0	11.2	11.4
225.0	11.6	11.8	12.0	12.2	12.4	12.7	13.1	13.1
247.5	13.5	13.7	13.9	14.3	14.8	15.2	15.6	15.6
270.0	15.8	16.2	16.2	16.7	17.1	17.5	17.9	18.1
292.5	18.8	19.0	19.2	19.4	20.2	21.1	20.7	20.7
315.0	20.9	21.1	21.3	21.5	21.9	22.1	22.6	22.6
337.5	23.0	23.0	22.4	22.4	22.4	22.6	22.8	23.2

Depth: 1970 Tilt: 0 Range: 50.0 VOS: 5783

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	23.4	23.2	22.8	22.8	23.2	23.0	22.6	22.6
22.5	22.8	22.4	22.4	22.0	21.7	21.5	20.9	20.5
45.0	20.3	19.8	19.2	18.6	18.2	17.7	17.3	17.1
67.5	16.9	16.7	16.3	15.8	15.4	15.4	15.2	14.6
90.0	14.4	14.1	13.9	13.5	13.3	13.1	13.1	12.9
112.5	12.2	12.0	12.0	11.6	11.6	11.4	11.2	11.0
135.0	11.0	11.0	10.8	10.8	10.6	10.6	10.6	10.6
157.5	10.6	10.6	10.6	10.6	10.6	10.3	10.3	10.3
180.0	10.1	10.1	10.1	10.1	10.1	10.3	10.6	10.6
202.5	10.6	10.6	10.8	11.0	11.2	11.4	11.6	11.8
225.0	12.0	12.0	12.2	12.5	12.7	12.9	13.1	13.3
247.5	13.5	13.7	14.1	14.6	14.8	15.2	15.4	15.8
270.0	16.3	16.7	17.1	17.3	17.7	17.9	18.8	19.2
292.5	19.6	19.8	20.3	20.7	20.9	21.5	22.4	22.6
315.0	22.4	22.2	22.2	22.4	22.4	22.6	22.8	22.8
337.5	22.8	22.8	22.8	23.2	23.2	23.4	23.4	24.9

Depth: 1980 Tilt: 0 Range: 50.0 VOS: 5778

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	26.8	26.6	26.2	25.9	25.3	28.7	28.5	24.7
22.5	24.3	23.8	23.2	22.8	22.6	22.1	21.9	21.7
45.0	21.5	20.9	20.9	21.1	20.7	20.5	20.0	19.8
67.5	19.2	18.8	18.6	18.1	17.3	16.7	16.2	16.0
90.0	15.8	15.4	15.2	15.0	14.6	14.3	14.1	13.7
112.5	13.3	12.9	12.7	12.4	12.0	11.8	11.6	11.4
135.0	11.4	11.2	11.0	10.8	10.8	10.8	10.5	10.5
157.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5
180.0	10.5	10.5	10.5	10.5	10.5	10.8	10.8	11.0
202.5	11.0	11.2	11.2	11.4	11.6	11.6	12.0	12.2
225.0	12.2	12.4	12.9	13.1	13.3	13.5	13.7	13.9
247.5	14.3	14.8	15.0	15.2	15.6	16.0	16.0	16.2
270.0	16.7	17.1	17.7	18.3	18.6	18.8	19.0	19.2
292.5	19.6	19.8	20.2	20.7	20.9	21.5	21.9	22.1
315.0	22.6	22.8	23.4	23.6	23.8	24.0	24.3	24.5
337.5	24.9	25.3	25.3	25.9	26.4	29.3	27.2	27.2

Depth: 1990 Tilt: 0 Range: 49.9 VOS: 5774

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	38.4	38.4	40.9	41.1	41.7	42.2	37.3	37.1
22.5	26.3	26.1	26.1	26.1	24.7	24.4	24.4	23.6
45.0	22.8	22.3	21.9	21.3	21.1	20.9	18.8	18.5
67.5	18.5	18.1	17.7	17.5	17.3	16.9	16.6	16.0
90.0	15.6	15.4	15.0	15.0	14.1	13.9	13.7	13.5
112.5	13.5	13.1	13.1	12.9	12.4	12.2	12.0	12.0
135.0	11.8	11.6	11.6	11.4	11.4	11.2	11.2	11.2
157.5	11.2	11.0	11.0	11.0	11.0	11.0	11.0	10.7
180.0	11.0	11.0	11.0	11.0	11.0	11.2	11.2	11.2
202.5	11.4	11.8	11.8	12.0	12.0	12.2	12.4	12.4
225.0	12.9	12.9	13.1	13.5	13.5	13.7	13.9	14.5
247.5	14.8	15.2	15.2	15.6	15.8	16.2	16.6	17.1
270.0	17.3	17.7	17.9	18.3	18.8	19.6	20.2	20.2
292.5	20.2	20.7	21.1	21.5	21.9	22.1	22.3	23.0
315.0	23.2	23.4	23.6	24.0	24.2	37.1	36.9	37.7
337.5	36.5	35.8	35.8	39.2	38.6	38.6	38.6	38.4

Depth: 2000 Tilt: 0 Range: 49.9 VOS: 5774

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	34.6	34.6	34.4	34.6	35.6	32.0	30.3	30.3
22.5	31.2	29.5	29.7	28.2	28.2	27.6	27.4	26.8
45.0	25.7	28.0	22.8	22.8	24.2	19.8	19.4	19.2
67.5	19.0	18.5	18.1	17.5	17.3	17.1	16.9	16.6
90.0	16.2	15.8	15.4	15.0	14.8	14.3	14.1	13.9
112.5	13.7	13.7	13.5	13.3	13.1	12.6	12.4	12.2
135.0	12.2	12.0	11.8	11.8	11.8	11.6	11.6	11.6
157.5	11.4	11.4	11.4	11.4	11.4	11.2	11.2	11.4
180.0	11.4	11.4	11.4	11.6	11.6	11.8	11.8	11.8
202.5	12.0	12.0	12.4	12.6	12.9	13.1	13.3	13.5
225.0	13.7	13.9	14.1	14.3	14.3	14.8	15.0	15.4
247.5	15.8	16.2	16.6	17.1	17.5	17.7	17.9	18.5
270.0	19.0	19.6	20.0	20.9	21.1	21.5	21.5	21.9
292.5	22.6	22.8	23.2	24.0	24.9	26.1	27.0	27.6
315.0	28.0	28.5	28.5	28.9	29.9	30.1	30.3	30.6
337.5	30.8	31.2	31.4	32.2	32.9	33.3	33.3	33.5

Depth: 2010 Tilt: 0 Range: 74.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	35.4	35.4	35.7	35.4	35.1	34.5	34.1	33.2
22.5	32.9	32.2	31.3	30.3	29.4	28.8	27.8	27.2
45.0	26.6	25.9	25.0	23.7	22.1	21.5	20.2	18.7
67.5	17.7	17.1	16.8	16.4	15.8	15.2	14.5	14.5
90.0	14.2	13.9	13.9	13.9	13.9	13.6	13.3	12.3
112.5	11.4	10.7	10.4	9.8	9.5	9.2	9.2	8.9
135.0	8.5	8.5	8.5	8.5	8.5	8.5	8.2	8.2
157.5	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.5
180.0	8.2	8.2	8.2	8.2	8.2	8.5	8.5	8.5
202.5	8.9	9.2	9.2	9.5	9.5	9.5	9.8	10.7
225.0	11.4	12.0	12.6	12.3	12.6	12.6	13.3	13.3
247.5	13.6	14.5	14.9	16.8	16.8	17.1	17.4	18.3
270.0	19.3	19.3	19.9	20.2	20.9	22.1	22.8	23.7
292.5	25.0	26.6	27.8	27.8	27.8	28.1	28.8	29.4
315.0	30.3	30.0	30.7	31.0	31.6	31.9	32.2	32.2
337.5	32.9	32.9	33.2	33.8	34.5	34.5	34.8	35.1

Depth: 2020 Tilt: 0 Range: 74.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	35.7	35.7	36.0	35.7	35.4	34.8	34.5	33.5
22.5	33.2	32.6	31.6	30.7	29.7	29.1	28.1	27.5
45.0	26.9	26.2	25.3	24.0	22.4	21.8	20.5	19.0
67.5	18.0	17.4	17.1	16.8	16.1	15.5	14.9	14.9
90.0	14.5	14.2	14.2	14.2	14.2	13.9	13.6	12.6
112.5	11.7	11.1	10.7	10.1	9.8	9.5	9.5	9.2
135.0	8.9	8.9	8.9	8.9	8.9	8.9	8.5	8.5
157.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.9
180.0	8.5	8.5	8.5	8.5	8.5	8.9	8.9	8.9
202.5	9.2	9.5	9.5	9.8	9.8	9.8	10.1	11.1
225.0	11.7	12.3	13.0	12.6	13.0	13.0	13.6	13.6
247.5	13.9	14.9	15.2	17.1	17.1	17.4	17.7	18.7
270.0	19.6	19.6	20.2	20.5	21.2	22.4	23.1	24.0
292.5	25.3	26.9	28.1	28.1	28.1	28.5	29.1	29.7
315.0	30.7	30.3	31.0	31.3	31.9	32.2	32.6	32.6
337.5	33.2	33.2	33.5	34.1	34.8	34.8	35.1	35.4

Depth: 2030 Tilt: 0 Range: 74.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	36.4	36.4	36.7	36.4	36.0	35.4	35.1	34.1
22.5	33.8	33.2	32.2	31.3	30.3	29.7	28.8	28.1
45.0	27.5	26.9	25.9	24.7	23.1	22.4	21.2	19.6
67.5	18.7	18.0	17.7	17.4	16.8	16.1	15.5	15.5
90.0	15.2	14.9	14.9	14.9	14.9	14.5	14.2	13.3
112.5	12.3	11.7	11.4	10.7	10.4	10.1	10.1	9.8
135.0	9.5	9.5	9.5	9.5	9.5	9.5	9.2	9.2
157.5	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.5
180.0	9.2	9.2	9.2	9.2	9.2	9.5	9.5	9.5
202.5	9.8	10.1	10.1	10.4	10.4	10.4	10.7	11.7
225.0	12.3	13.0	13.6	13.3	13.6	13.6	14.2	14.2
247.5	14.5	15.5	15.8	17.7	17.7	18.0	18.3	19.3
270.0	20.2	20.2	20.9	21.2	21.8	23.1	23.7	24.7
292.5	25.9	27.5	28.8	28.8	28.8	29.1	29.7	30.3
315.0	31.3	31.0	31.6	31.9	32.6	32.9	33.2	33.2
337.5	33.8	33.8	34.1	34.8	35.4	35.4	35.7	36.0

Depth: 2040 Tilt: 0 Range: 99.7 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	37.0	37.0	36.6	36.2	35.7	34.9	34.9	34.9
22.5	34.9	34.5	34.1	32.4	31.5	29.9	29.4	29.0
45.0	28.2	28.2	26.9	25.2	24.8	24.0	23.1	22.3
67.5	21.0	19.8	19.3	18.5	17.7	17.2	16.8	16.4
90.0	14.7	14.7	13.9	13.9	13.5	13.0	12.6	11.4
112.5	10.9	10.9	10.1	10.1	9.7	9.7	8.8	8.8
135.0	8.8	8.8	8.8	8.8	8.8	8.4	8.4	8.4
157.5	8.0	8.0	8.0	8.0	8.0	8.4	8.0	8.0
180.0	8.4	8.0	8.4	8.0	8.4	8.4	8.4	8.8
202.5	9.3	9.3	9.7	9.7	10.1	10.1	10.5	10.9
225.0	10.9	11.4	12.2	12.6	13.5	13.9	14.3	14.7
247.5	15.6	16.0	16.4	17.2	18.1	18.9	19.8	20.6
270.0	21.4	21.9	22.3	23.1	23.5	24.0	24.4	25.2
292.5	26.1	27.3	28.2	29.0	29.9	30.7	31.1	31.5
315.0	31.5	32.4	32.4	32.8	33.2	34.1	34.1	34.5
337.5	35.3	36.2	37.0	37.0	37.0	37.0	37.0	37.0

Depth: 2050 Tilt: 0 Range: 99.7 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	42.5	42.1	40.0	38.7	37.4	36.6	36.2	34.9
22.5	34.1	34.1	32.8	32.4	31.5	30.3	29.4	29.0
45.0	27.8	27.3	26.9	26.1	24.4	24.4	23.1	21.4
67.5	21.4	20.6	19.3	18.5	18.1	17.2	16.4	15.6
90.0	15.6	14.7	14.7	14.3	13.9	13.5	13.0	12.6
112.5	12.6	12.2	11.8	11.8	10.9	10.9	10.9	10.9
135.0	10.5	10.1	10.1	10.1	10.1	9.7	9.7	9.7
157.5	9.7	9.7	9.3	9.3	9.3	9.3	9.3	9.3
180.0	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3
202.5	9.7	10.1	10.1	10.1	10.5	10.5	10.9	11.4
225.0	11.8	12.2	12.6	13.0	13.5	13.9	14.3	14.7
247.5	15.1	15.6	15.6	16.4	16.8	17.2	18.5	18.9
270.0	19.8	19.8	20.6	21.4	21.9	22.7	23.1	24.4
292.5	25.7	26.5	26.9	27.3	27.8	28.6	29.0	29.9
315.0	31.1	31.5	31.5	32.0	32.4	33.2	33.6	34.1
337.5	34.5	34.9	36.2	37.4	42.1	42.1	42.1	42.1

Depth: 2060 Tilt: 0 Range: 99.7 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	42.1	42.5	42.1	42.1	42.1	42.1	42.1	42.1
22.5	39.1	37.8	36.6	34.9	34.1	32.8	32.0	31.1
45.0	30.3	29.4	28.6	27.8	26.9	26.5	26.1	26.1
67.5	25.2	24.4	24.0	23.5	22.3	21.9	21.0	20.6
90.0	20.2	19.8	19.3	18.1	17.7	17.2	16.4	16.4
112.5	15.6	15.1	14.7	14.7	14.7	14.7	14.3	13.9
135.0	13.9	13.5	13.5	13.9	13.9	13.9	13.9	13.9
157.5	13.9	13.9	13.9	13.9	13.9	13.9	13.9	13.9
180.0	13.9	13.9	13.5	13.9	14.3	14.3	14.3	14.3
202.5	14.3	14.3	14.3	14.3	14.7	15.1	15.6	15.6
225.0	16.0	16.0	16.4	16.4	16.8	17.2	17.7	18.1
247.5	19.3	20.6	21.0	21.9	22.3	23.5	24.4	24.8
270.0	25.2	24.8	25.7	26.1	26.9	28.2	29.0	29.9
292.5	32.4	33.6	36.6	39.1	39.5	40.0	39.5	40.0
315.0	40.4	40.8	41.6	41.6	41.6	41.6	41.6	41.6
337.5	42.1	42.1	42.1	42.1	42.1	41.6	41.6	42.1

Depth: 2070 Tilt: 0 Range: 99.7 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	41.6	41.6	41.2	41.2	41.2	40.8	40.4	40.0
22.5	39.1	38.7	37.4	36.6	35.7	35.3	34.1	33.6
45.0	32.4	32.0	30.7	29.9	29.0	28.2	27.3	26.1
67.5	25.7	25.2	24.8	24.4	22.7	21.9	21.9	20.6
90.0	20.6	20.2	19.8	19.8	19.8	18.9	18.1	16.8
112.5	16.4	16.0	16.0	15.6	15.1	15.1	14.7	14.7
135.0	14.3	13.9	13.9	13.5	13.5	13.5	13.5	13.5
157.5	13.5	13.5	13.0	13.0	13.0	13.0	13.0	13.0
180.0	13.0	13.0	13.5	13.5	13.5	13.5	13.5	13.9
202.5	13.5	13.5	13.5	13.5	13.5	13.5	13.9	13.5
225.0	13.9	14.3	14.3	15.1	15.6	16.0	16.0	16.0
247.5	16.4	16.8	16.8	17.7	18.5	19.8	20.2	22.3
270.0	23.5	28.6	30.7	31.1	31.5	32.0	33.2	34.5
292.5	34.1	34.5	34.5	34.1	34.5	34.5	34.9	34.9
315.0	35.3	35.7	36.2	36.6	36.6	36.6	37.0	37.4
337.5	37.8	38.7	39.1	40.4	40.8	40.8	41.2	41.2

Depth: 2080 Tilt: 0 Range: 99.7 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	42.1	42.5	43.3	43.3	42.9	40.8	39.1	37.4
22.5	37.0	36.2	35.7	34.5	33.6	32.4	32.4	31.5
45.0	30.7	29.4	29.0	28.2	27.3	26.9	26.5	26.5
67.5	24.8	24.0	22.7	21.4	20.6	19.8	19.8	18.9
90.0	17.7	17.2	16.8	16.8	16.4	16.0	15.6	14.7
112.5	14.7	13.9	13.5	13.0	12.6	12.6	12.6	12.2
135.0	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8
157.5	12.2	11.8	11.8	11.8	11.8	11.8	11.8	11.8
180.0	11.8	11.8	11.8	12.2	12.2	12.2	12.6	13.0
202.5	13.5	13.9	14.7	15.1	16.0	16.4	17.7	17.7
225.0	18.1	17.7	18.1	18.5	18.5	18.9	19.8	20.2
247.5	20.6	21.0	21.4	22.3	23.1	24.0	25.2	26.5
270.0	26.9	27.3	28.2	29.0	29.4	29.9	30.3	30.7
292.5	31.5	32.0	33.2	34.1	34.5	36.2	37.4	38.7
315.0	39.5	40.0	40.4	40.4	40.8	40.8	40.8	40.4
337.5	40.4	40.8	41.2	41.6	41.6	42.1	42.1	42.1

Depth: 2090 Tilt: 0 Range: 99.7 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	44.6	44.2	44.2	40.4	40.0	39.5	38.7	37.8
22.5	37.4	36.2	35.7	34.5	33.2	31.5	31.1	31.1
45.0	29.9	28.6	28.2	27.3	26.5	26.5	26.1	25.2
67.5	23.5	21.9	21.0	19.3	18.5	17.7	17.7	17.2
90.0	16.4	16.0	15.6	15.1	14.7	14.7	13.9	14.3
112.5	13.5	13.0	12.6	12.6	12.6	12.6	12.2	12.6
135.0	12.2	12.2	11.8	11.8	11.8	11.8	11.8	12.2
157.5	11.8	11.8	11.4	11.4	11.4	11.8	11.4	11.4
180.0	11.4	11.4	11.8	11.8	12.2	12.2	12.6	12.2
202.5	12.6	12.6	12.6	13.0	13.0	13.5	13.9	14.3
225.0	15.6	16.4	17.2	17.7	18.1	18.5	18.5	18.9
247.5	19.3	18.9	19.8	21.0	21.4	22.3	23.1	24.0
270.0	24.8	26.9	28.2	29.0	30.7	32.4	34.1	35.7
292.5	36.6	37.4	38.7	39.1	39.5	40.0	40.4	40.8
315.0	40.8	40.8	40.8	40.8	40.8	40.8	40.8	41.2
337.5	41.6	41.6	41.2	42.1	42.1	42.9	43.7	43.7

Depth: 2100 Tilt: 0 Range: 99.7 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	42.1	42.1	41.6	40.8	40.0	39.5	38.7	37.8
22.5	37.4	37.0	36.6	37.0	35.7	34.5	33.2	32.8
45.0	31.5	31.1	29.0	28.6	26.1	25.2	24.0	23.1
67.5	22.7	22.3	22.3	21.9	21.0	20.6	20.6	20.6
90.0	19.8	18.5	17.2	16.4	15.6	14.7	14.3	13.9
112.5	13.5	13.0	13.0	13.0	12.6	12.6	12.2	12.2
135.0	12.2	12.2	11.8	12.2	11.8	11.8	11.8	11.8
157.5	11.4	11.4	11.4	11.4	11.4	11.4	11.8	11.8
180.0	12.2	12.2	12.2	12.6	12.6	12.6	13.0	13.0
202.5	13.0	13.5	13.9	14.3	14.7	15.1	15.1	15.6
225.0	16.4	16.4	16.8	16.8	16.8	17.2	17.7	18.9
247.5	19.3	21.0	21.4	22.3	23.1	24.0	24.8	26.1
270.0	26.5	27.3	28.2	29.0	30.3	32.0	32.8	34.1
292.5	35.3	35.7	36.6	37.4	39.1	40.4	40.8	42.5
315.0	43.7	44.6	45.0	44.2	44.2	44.2	44.2	43.7
337.5	43.3	42.9	42.1	42.5	42.5	42.1	42.5	42.5

Depth: 2110 Tilt: 0 Range: 124.4 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	46.7	47.2	48.3	48.8	48.3	48.3	48.3	47.8
22.5	46.2	43.0	40.4	38.3	37.3	35.7	34.1	33.6
45.0	32.5	31.5	30.4	29.4	28.9	27.3	25.7	24.1
67.5	23.6	22.6	22.6	22.0	21.0	20.5	19.9	19.4
90.0	18.9	18.9	17.8	18.4	17.8	17.3	16.3	15.7
112.5	15.7	15.2	14.7	14.7	14.2	14.2	13.6	13.1
135.0	13.1	13.1	13.1	12.6	12.6	12.6	13.1	12.6
157.5	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6
180.0	12.6	12.6	13.1	13.1	13.1	13.6	13.6	13.6
202.5	13.1	13.6	13.6	13.6	13.6	14.2	14.2	14.2
225.0	14.2	14.7	15.2	16.8	17.8	18.4	18.9	18.9
247.5	20.5	19.9	21.0	23.6	23.1	24.1	25.2	25.7
270.0	26.2	25.7	26.8	27.8	28.3	28.9	29.9	33.6
292.5	33.6	34.1	34.6	36.2	36.7	36.7	37.3	38.3
315.0	38.8	38.8	39.9	40.4	40.9	41.5	41.5	42.5
337.5	42.5	42.5	42.5	43.0	43.0	43.6	44.1	45.1

Depth: 2120 Tilt: 0 Range: 124.4 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	66.1	66.1	68.2	70.9	72.4	73.5	73.0	73.0
22.5	70.3	46.7	40.9	40.4	38.3	37.8	35.7	33.1
45.0	32.5	32.5	31.5	31.0	29.9	28.3	26.8	25.7
67.5	25.2	24.7	24.7	22.6	22.0	22.0	21.5	21.0
90.0	19.4	18.9	17.8	16.8	16.8	16.3	16.3	15.7
112.5	15.2	15.2	14.7	14.2	13.6	13.6	13.6	13.1
135.0	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1
157.5	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1
180.0	13.1	13.6	14.2	14.2	14.2	14.2	14.2	14.2
202.5	14.7	14.2	14.7	15.2	15.2	15.7	15.7	16.3
225.0	16.3	16.8	17.3	17.3	17.8	18.9	19.4	21.5
247.5	21.5	23.1	24.7	24.7	24.7	25.2	25.2	25.7
270.0	26.8	27.3	28.9	32.0	34.1	35.7	36.2	36.7
292.5	37.3	37.3	37.8	38.3	38.3	39.4	39.9	40.4
315.0	39.9	39.9	40.4	40.9	41.5	42.0	43.0	43.6
337.5	44.1	44.6	44.6	45.1	45.1	46.2	65.1	65.1

Depth: 2130 Tilt: 0 Range: 124.4 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	70.9	71.9	73.5	74.5	75.6	76.1	75.6	75.6
22.5	74.5	75.1	71.9	67.7	61.4	60.4	60.4	60.4
45.0	59.8	59.3	57.7	57.2	56.2	54.6	54.1	52.5
67.5	49.3	43.6	31.5	28.9	27.8	27.3	26.8	26.2
90.0	25.7	25.2	25.2	23.6	23.1	23.1	22.0	21.0
112.5	19.4	18.9	18.4	17.8	17.3	16.8	16.3	16.3
135.0	16.3	15.7	15.2	14.7	14.7	14.7	14.2	14.2
157.5	14.7	14.2	14.2	14.2	13.6	13.6	13.6	13.6
180.0	13.6	13.6	13.6	13.6	13.6	13.6	13.6	13.6
202.5	13.6	13.6	14.2	14.2	14.2	14.7	14.7	14.7
225.0	14.7	14.7	15.2	15.7	16.3	16.3	16.8	16.8
247.5	17.3	17.8	17.8	18.9	20.5	21.0	21.5	22.6
270.0	23.6	24.7	24.7	25.2	25.7	26.8	27.8	29.9
292.5	30.4	32.5	32.5	33.1	34.1	35.7	36.7	37.3
315.0	37.8	38.3	39.4	39.4	39.9	40.9	42.5	44.1
337.5	45.7	47.2	50.4	65.1	66.1	67.2	67.7	69.3

Depth: 2140 Tilt: 0 Range: 124.4 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	71.9	73.5	74.5	75.1	75.6	75.6	76.1	76.1
22.5	75.6	75.1	74.0	70.3	68.2	66.1	65.1	63.0
45.0	60.4	59.8	57.7	57.7	55.6	54.6	53.5	52.0
67.5	50.4	48.3	47.2	44.6	42.0	39.4	34.1	32.0
90.0	29.4	27.8	26.8	26.2	25.2	24.7	23.6	23.1
112.5	22.0	21.0	20.5	19.9	19.4	19.4	18.9	18.4
135.0	18.4	17.8	17.3	17.8	17.3	16.8	16.8	16.8
157.5	16.8	16.8	16.8	16.8	17.3	16.8	16.8	16.3
180.0	16.3	16.3	16.3	16.3	16.8	16.8	16.8	16.8
202.5	16.3	16.8	16.8	16.8	16.8	16.8	16.8	16.8
225.0	16.8	17.3	17.3	17.8	17.8	18.4	18.4	18.9
247.5	19.9	19.9	20.5	21.0	21.5	22.0	22.0	22.6
270.0	23.6	24.1	25.7	25.7	28.9	28.9	30.4	31.0
292.5	32.5	32.5	33.1	34.1	34.6	35.2	37.3	38.8
315.0	39.4	39.9	40.4	40.9	42.0	44.1	45.1	46.2
337.5	48.8	52.5	59.8	65.6	67.2	68.8	69.8	70.9

Depth: 2150 Tilt: 0 Range: 124.4 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	88.2	90.3	91.3	90.8	90.3	90.3	89.8	89.2
22.5	89.8	90.3	90.3	91.3	90.8	88.7	86.6	85.6
45.0	83.5	81.4	79.3	78.7	77.2	75.6	74.5	73.0
67.5	71.9	69.8	42.0	38.8	35.2	33.6	33.6	32.5
90.0	31.0	29.9	27.8	25.7	22.6	21.5	20.5	19.9
112.5	19.4	19.4	18.9	18.4	18.4	17.8	17.3	17.3
135.0	17.3	17.3	16.3	16.3	15.7	15.7	15.7	15.7
157.5	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7
180.0	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7
202.5	16.3	16.3	16.3	16.8	16.8	16.8	17.3	17.3
225.0	17.3	17.8	17.8	18.4	18.9	20.5	21.5	21.0
247.5	21.0	21.0	21.5	21.5	22.0	23.1	23.6	23.6
270.0	24.1	25.2	26.2	28.9	30.4	31.5	33.6	36.2
292.5	36.2	37.3	37.8	39.4	39.9	40.9	42.5	44.1
315.0	45.1	46.2	46.2	47.2	49.3	49.3	51.4	52.0
337.5	55.6	71.4	72.4	75.1	77.7	80.3	81.4	84.5

Depth: 2160 Tilt: 0 Range: 124.4 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	86.6	87.7	87.1	87.1	87.7	87.7	87.7	88.7
22.5	89.8	90.3	89.2	86.1	84.5	81.9	81.4	79.8
45.0	79.8	79.8	78.7	77.7	75.6	73.5	73.0	72.4
67.5	71.9	73.5	74.0	73.0	45.7	40.9	40.4	28.3
90.0	27.8	26.8	26.2	26.2	25.7	25.2	24.7	23.1
112.5	22.0	21.5	21.0	20.5	20.5	19.4	19.9	19.9
135.0	19.4	18.9	18.9	18.4	17.8	17.3	17.3	17.3
157.5	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3
180.0	17.3	17.8	17.8	17.8	17.8	17.8	18.4	18.4
202.5	18.9	19.9	19.9	20.5	21.0	20.5	21.0	21.0
225.0	21.5	22.0	22.6	22.6	23.1	23.6	24.1	24.7
247.5	24.7	24.7	25.2	25.7	26.2	27.8	29.4	29.9
270.0	31.0	32.0	33.1	34.6	36.2	37.3	39.9	41.5
292.5	42.5	43.6	44.6	44.6	45.1	46.7	47.2	48.8
315.0	49.9	50.4	51.4	53.5	60.4	61.9	63.5	64.0
337.5	66.1	68.2	67.7	69.3	75.1	81.4	82.4	84.5

Depth: 2170 Tilt: 0 Range: 124.4 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	83.5	83.5	85.0	85.6	87.7	88.2	88.7	89.2
22.5	88.7	87.1	82.9	80.8	80.3	79.8	78.2	78.2
45.0	75.6	75.6	74.0	73.0	71.4	68.8	66.1	64.0
67.5	63.0	63.5	61.9	61.9	59.8	35.2	34.1	32.0
90.0	31.0	31.0	30.4	30.4	29.4	29.4	28.3	27.8
112.5	26.8	26.8	25.2	25.2	24.7	24.7	24.7	25.2
135.0	25.2	25.2	25.2	25.2	25.7	25.2	24.1	22.0
157.5	21.5	20.5	19.9	19.4	18.9	18.9	18.4	18.9
180.0	18.9	18.9	19.4	19.4	19.4	19.4	19.4	19.9
202.5	19.9	19.9	20.5	21.0	21.5	21.5	22.0	22.6
225.0	23.1	23.1	23.1	22.6	23.6	24.1	24.7	25.7
247.5	26.8	26.8	27.3	27.8	28.3	28.9	29.4	30.4
270.0	31.5	33.6	35.7	38.3	39.4	39.9	41.5	42.0
292.5	43.0	44.1	44.6	46.7	47.2	49.3	53.5	56.2
315.0	58.3	59.8	60.4	59.8	60.4	60.4	63.0	63.5
337.5	65.1	66.1	69.3	74.0	79.3	81.9	84.5	84.0

Depth: 2180 Tilt: 0 Range: 124.4 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	77.2	77.2	79.8	82.9	88.2	89.2	89.8	90.8
22.5	90.8	90.3	90.3	83.5	80.3	77.7	76.6	75.6
45.0	75.6	75.1	73.5	71.9	69.8	69.3	66.1	63.0
67.5	61.9	59.8	59.3	55.6	51.4	45.7	42.5	40.9
90.0	38.3	35.7	34.1	33.1	32.0	31.5	29.9	29.4
112.5	28.9	28.9	27.8	26.8	26.8	25.7	25.7	25.2
135.0	25.2	24.1	24.1	23.6	23.1	22.6	22.0	21.5
157.5	21.5	21.0	20.5	19.9	19.4	19.4	19.4	18.9
180.0	19.4	19.4	19.4	19.4	19.9	21.0	21.5	21.5
202.5	22.0	22.0	22.6	22.6	22.6	23.1	23.6	23.6
225.0	24.1	24.1	24.7	24.7	25.2	25.7	26.2	26.2
247.5	26.8	27.8	29.9	31.5	32.0	33.6	34.6	36.7
270.0	38.8	39.9	41.5	42.5	43.0	44.6	45.7	46.7
292.5	47.2	48.3	49.3	49.9	51.4	51.4	51.4	52.0
315.0	52.5	53.5	54.1	55.6	57.7	59.8	60.4	61.9
337.5	63.5	66.1	67.7	69.8	70.3	71.4	72.4	74.5

Depth: 2190 Tilt: 0 Range: 124.4 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	75.6	77.7	83.5	87.7	89.8	90.8	90.3	89.8
22.5	89.2	88.2	85.6	81.9	77.2	76.1	74.0	72.4
45.0	72.4	72.4	70.9	69.8	67.2	65.6	64.0	63.5
67.5	61.9	59.8	57.7	55.6	52.0	47.8	42.5	39.4
90.0	37.3	36.2	35.2	34.1	33.6	33.1	32.5	32.0
112.5	31.5	31.0	30.4	29.9	29.4	29.4	28.3	27.8
135.0	27.3	26.2	25.2	24.7	24.7	24.7	24.1	24.1
157.5	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1
180.0	24.1	24.1	24.7	24.7	24.7	24.1	24.1	24.7
202.5	25.2	25.2	25.2	25.2	24.7	25.2	25.7	26.2
225.0	26.8	27.8	28.3	28.9	28.9	28.9	29.4	29.4
247.5	29.9	31.0	32.5	34.1	34.1	36.2	37.3	38.3
270.0	39.9	42.0	43.0	45.7	48.8	50.4	50.4	51.4
292.5	52.0	52.0	52.0	52.5	53.5	53.5	54.1	55.6
315.0	57.7	59.3	61.4	61.9	61.9	63.5	64.0	65.1
337.5	66.1	67.7	68.8	70.9	71.4	73.0	73.5	73.5

Depth: 2200 Tilt: 0 Range: 124.4 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	81.4	82.9	83.5	84.0	84.5	84.5	85.0	85.0
22.5	85.0	83.5	80.8	78.2	75.1	75.1	74.5	74.0
45.0	72.4	70.3	68.8	68.8	67.7	65.6	64.0	61.9
67.5	63.0	61.9	61.4	59.8	59.3	57.7	55.6	52.0
90.0	49.3	47.8	45.7	43.6	42.0	39.4	37.8	36.7
112.5	35.7	35.2	34.6	33.1	32.5	31.5	30.4	30.4
135.0	29.9	29.4	29.4	29.4	29.4	28.9	29.4	29.4
157.5	28.9	29.4	28.9	28.9	28.9	28.9	28.9	28.9
180.0	28.9	28.9	28.3	28.3	28.9	28.9	29.4	29.9
202.5	29.9	29.9	29.9	29.4	29.4	29.4	29.4	29.4
225.0	29.4	29.9	29.9	30.4	31.0	31.5	31.5	31.5
247.5	32.5	34.1	34.6	35.2	35.7	36.2	36.2	36.7
270.0	36.7	37.8	38.3	40.4	42.5	44.6	46.7	48.3
292.5	48.8	49.9	49.9	50.4	51.4	52.0	53.5	54.6
315.0	56.2	57.2	57.7	59.3	59.8	61.9	64.0	66.1
337.5	68.8	70.9	73.0	76.1	78.7	79.3	80.3	80.8

Depth: 2210 Tilt: 0 Range: 124.4 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	81.4	82.9	83.5	84.0	84.5	84.5	85.0	85.0
22.5	85.0	83.5	80.8	78.2	75.1	75.1	74.5	74.0
45.0	72.4	70.3	68.8	68.8	67.7	65.6	64.0	61.9
67.5	63.0	61.9	61.4	59.8	59.3	57.7	55.6	52.0
90.0	49.3	47.8	45.7	43.6	42.0	39.4	37.8	36.7
112.5	35.7	35.2	34.6	33.1	32.5	31.5	30.4	30.4
135.0	29.9	29.4	29.4	29.4	29.4	28.9	29.4	29.4
157.5	28.9	29.4	28.9	28.9	28.9	28.9	28.9	28.9
180.0	28.9	28.9	28.3	28.3	28.9	28.9	29.4	29.9
202.5	29.9	29.9	29.9	29.4	29.4	29.4	29.4	29.4
225.0	29.4	29.9	29.9	30.4	31.0	31.5	31.5	31.5
247.5	32.5	34.1	34.6	35.2	35.7	36.2	36.2	36.7
270.0	36.7	37.8	38.3	40.4	42.5	44.6	46.7	48.3
292.5	48.8	49.9	49.9	50.4	51.4	52.0	53.5	54.6
315.0	56.2	57.2	57.7	59.3	59.8	61.9	64.0	66.1
337.5	68.8	70.9	73.0	76.1	78.7	79.3	80.3	80.8

Depth: 2220 Tilt: 0 Range: 124.4 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	82.4	84.0	84.5	85.0	85.6	85.6	86.1	86.1
22.5	86.1	84.5	81.9	79.3	76.1	76.1	75.6	75.1
45.0	73.5	71.4	69.8	69.8	68.8	66.7	65.1	63.0
67.5	64.0	63.0	62.5	60.9	60.4	58.8	56.7	53.0
90.0	50.4	48.8	46.7	44.6	43.0	40.4	38.8	37.8
112.5	36.7	36.2	35.7	34.1	33.6	32.5	31.5	31.5
135.0	31.0	30.4	30.4	30.4	30.4	29.9	30.4	30.4
157.5	29.9	30.4	29.9	29.9	29.9	29.9	29.9	29.9
180.0	29.9	29.9	29.4	29.4	29.9	29.9	30.4	31.0
202.5	31.0	31.0	31.0	30.4	30.4	30.4	30.4	30.4
225.0	30.4	31.0	31.0	31.5	32.0	32.5	32.5	32.5
247.5	33.6	35.2	35.7	36.2	36.7	37.3	37.3	37.8
270.0	37.8	38.8	39.4	41.5	43.6	45.7	47.8	49.3
292.5	49.9	50.9	50.9	51.4	52.5	53.0	54.6	55.6
315.0	57.2	58.3	58.8	60.4	60.9	63.0	65.1	67.2
337.5	69.8	71.9	74.0	77.2	79.8	80.3	81.4	81.9

Depth: 2230 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	110.7	111.9	113.2	115.1	115.7	116.3	116.3	116.3
22.5	117.0	117.0	117.6	117.0	116.3	116.3	116.3	116.3
45.0	115.1	114.4	112.5	110.0	105.6	102.4	101.2	98.6
67.5	92.9	84.7	80.9	77.8	75.2	73.3	72.1	70.2
90.0	69.6	66.4	63.9	62.6	60.1	56.3	53.1	51.2
112.5	49.3	47.4	45.5	45.5	43.6	42.4	41.7	40.5
135.0	39.8	39.2	38.6	37.9	37.3	37.9	37.9	37.3
157.5	37.3	37.9	38.6	39.2	39.2	39.8	39.8	41.1
180.0	40.5	39.8	39.2	38.6	38.6	38.6	37.3	36.7
202.5	36.0	36.0	36.0	36.0	36.7	36.7	37.3	37.3
225.0	37.9	38.6	38.6	37.9	37.9	37.9	39.8	39.2
247.5	40.5	41.1	41.7	42.4	43.6	44.9	44.3	45.5
270.0	46.2	46.8	48.1	50.6	52.5	52.5	56.3	57.5
292.5	58.8	59.4	60.1	60.7	61.3	62.0	62.6	63.9
315.0	66.4	71.4	75.2	76.5	78.4	79.0	81.6	85.4
337.5	89.2	93.6	96.1	96.1	98.6	99.3	101.8	107.5

Depth: 2240 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	113.2	114.4	115.7	117.6	118.2	118.9	118.9	118.9
22.5	119.5	119.5	120.1	119.5	118.9	118.9	118.9	118.9
45.0	117.6	117.0	115.1	112.5	108.1	105.0	103.7	101.2
67.5	95.5	87.3	83.5	80.3	77.8	75.9	74.6	72.7
90.0	72.1	68.9	66.4	65.1	62.6	58.8	55.6	53.7
112.5	51.8	50.0	48.1	48.1	46.2	44.9	44.3	43.0
135.0	42.4	41.7	41.1	40.5	39.8	40.5	40.5	39.8
157.5	39.8	40.5	41.1	41.7	41.7	42.4	42.4	43.6
180.0	43.0	42.4	41.7	41.1	41.1	41.1	39.8	39.2
202.5	38.6	38.6	38.6	38.6	39.2	39.2	39.8	39.8
225.0	40.5	41.1	41.1	40.5	40.5	40.5	42.4	41.7
247.5	43.0	43.6	44.3	44.9	46.2	47.4	46.8	48.1
270.0	48.7	49.3	50.6	53.1	55.0	55.0	58.8	60.1
292.5	61.3	62.0	62.6	63.2	63.9	64.5	65.1	66.4
315.0	68.9	74.0	77.8	79.0	80.9	81.6	84.1	87.9
337.5	91.7	96.1	98.6	98.6	101.2	101.8	104.3	110.0

Depth: 2250 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	115.7	117.0	118.2	120.1	120.8	121.4	121.4	121.4
22.5	122.0	122.0	122.7	122.0	121.4	121.4	121.4	121.4
45.0	120.1	119.5	117.6	115.1	110.7	107.5	106.2	103.7
67.5	98.0	89.8	86.0	82.8	80.3	78.4	77.1	75.2
90.0	74.6	71.4	68.9	67.7	65.1	61.3	58.2	56.3
112.5	54.4	52.5	50.6	50.6	48.7	47.4	46.8	45.5
135.0	44.9	44.3	43.6	43.0	42.4	43.0	43.0	42.4
157.5	42.4	43.0	43.6	44.3	44.3	44.9	44.9	46.2
180.0	45.5	44.9	44.3	43.6	43.6	43.6	42.4	41.7
202.5	41.1	41.1	41.1	41.1	41.7	41.7	42.4	42.4
225.0	43.0	43.6	43.6	43.0	43.0	43.0	44.9	44.3
247.5	45.5	46.2	46.8	47.4	48.7	50.0	49.3	50.6
270.0	51.2	51.8	53.1	55.6	57.5	57.5	61.3	62.6
292.5	63.9	64.5	65.1	65.8	66.4	67.0	67.7	68.9
315.0	71.4	76.5	80.3	81.6	83.5	84.1	86.6	90.4
337.5	94.2	98.6	101.2	101.2	103.7	104.3	106.9	112.5

Depth: 2260 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	115.7	117.0	118.2	120.1	120.8	121.4	121.4	121.4
22.5	122.0	122.0	122.7	122.0	121.4	121.4	121.4	121.4
45.0	120.1	119.5	117.6	115.1	110.7	107.5	106.2	103.7
67.5	98.0	89.8	86.0	82.8	80.3	78.4	77.1	75.2
90.0	74.6	71.4	68.9	67.7	65.1	61.3	58.2	56.3
112.5	54.4	52.5	50.6	50.6	48.7	47.4	46.8	45.5
135.0	44.9	44.3	43.6	43.0	42.4	43.0	43.0	42.4
157.5	42.4	43.0	43.6	44.3	44.3	44.9	44.9	46.2
180.0	45.5	44.9	44.3	43.6	43.6	43.6	42.4	41.7
202.5	41.1	41.1	41.1	41.1	41.7	41.7	42.4	42.4
225.0	43.0	43.6	43.6	43.0	43.0	43.0	44.9	44.3
247.5	45.5	46.2	46.8	47.4	48.7	50.0	49.3	50.6
270.0	51.2	51.8	53.1	55.6	57.5	57.5	61.3	62.6
292.5	63.9	64.5	65.1	65.8	66.4	67.0	67.7	68.9
315.0	71.4	76.5	80.3	81.6	83.5	84.1	86.6	90.4
337.5	94.2	98.6	101.2	101.2	103.7	104.3	106.9	112.5

Depth: 2270 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	114.4	115.7	117.0	118.9	119.5	120.1	120.1	120.1
22.5	120.8	120.8	121.4	120.8	120.1	120.1	120.1	120.1
45.0	118.9	118.2	116.3	113.8	109.4	106.2	105.0	102.4
67.5	96.7	88.5	84.7	81.6	79.0	77.1	75.9	74.0
90.0	73.3	70.2	67.7	66.4	63.9	60.1	56.9	55.0
112.5	53.1	51.2	49.3	49.3	47.4	46.2	45.5	44.3
135.0	43.6	43.0	42.4	41.7	41.1	41.7	41.7	41.1
157.5	41.1	41.7	42.4	43.0	43.0	43.6	43.6	44.9
180.0	44.3	43.6	43.0	42.4	42.4	42.4	41.1	40.5
202.5	39.8	39.8	39.8	39.8	40.5	40.5	41.1	41.1
225.0	41.7	42.4	42.4	41.7	41.7	41.7	43.6	43.0
247.5	44.3	44.9	45.5	46.2	47.4	48.7	48.1	49.3
270.0	50.0	50.6	51.8	54.4	56.3	56.3	60.1	61.3
292.5	62.6	63.2	63.9	64.5	65.1	65.8	66.4	67.7
315.0	70.2	75.2	79.0	80.3	82.2	82.8	85.4	89.2
337.5	92.9	97.4	99.9	99.9	102.4	103.1	105.6	111.3

Depth: 2280 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	114.4	115.7	117.0	118.9	119.5	120.1	120.1	120.1
22.5	120.8	120.8	121.4	120.8	120.1	120.1	120.1	120.1
45.0	118.9	118.2	116.3	113.8	109.4	106.2	105.0	102.4
67.5	96.7	88.5	84.7	81.6	79.0	77.1	75.9	74.0
90.0	73.3	70.2	67.7	66.4	63.9	60.1	56.9	55.0
112.5	53.1	51.2	49.3	49.3	47.4	46.2	45.5	44.3
135.0	43.6	43.0	42.4	41.7	41.1	41.7	41.7	41.1
157.5	41.1	41.7	42.4	43.0	43.0	43.6	43.6	44.9
180.0	44.3	43.6	43.0	42.4	42.4	42.4	41.1	40.5
202.5	39.8	39.8	39.8	39.8	40.5	40.5	41.1	41.1
225.0	41.7	42.4	42.4	41.7	41.7	41.7	43.6	43.0
247.5	44.3	44.9	45.5	46.2	47.4	48.7	48.1	49.3
270.0	50.0	50.6	51.8	54.4	56.3	56.3	60.1	61.3
292.5	62.6	63.2	63.9	64.5	65.1	65.8	66.4	67.7
315.0	70.2	75.2	79.0	80.3	82.2	82.8	85.4	89.2
337.5	92.9	97.4	99.9	99.9	102.4	103.1	105.6	111.3

Depth: 2290 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	98.0	102.4	106.2	108.1	110.0	112.5	115.1	117.0
22.5	118.9	118.9	118.9	117.6	117.0	115.1	113.2	110.7
45.0	108.1	105.0	104.3	102.4	99.9	97.4	94.8	90.4
67.5	86.6	82.8	80.9	79.0	79.0	76.5	72.7	71.4
90.0	70.2	68.9	69.6	67.7	64.5	62.6	61.3	61.3
112.5	58.8	57.5	55.0	53.1	52.5	50.0	48.7	48.1
135.0	47.4	47.4	46.8	46.8	46.2	45.5	44.9	44.9
157.5	44.9	43.6	42.4	42.4	41.1	39.8	39.2	38.6
180.0	38.6	37.9	37.9	37.9	37.9	37.9	37.3	37.3
202.5	36.0	36.7	36.0	36.0	36.0	36.0	35.4	35.4
225.0	36.0	35.4	35.4	35.4	36.7	37.3	37.3	37.3
247.5	37.9	39.2	40.5	41.7	43.6	44.9	45.5	44.9
270.0	47.4	50.0	50.6	51.2	52.5	54.4	55.0	55.6
292.5	56.3	56.9	58.8	60.7	61.3	62.6	64.5	66.4
315.0	67.7	70.2	72.7	74.6	77.1	80.3	83.5	86.0
337.5	88.5	92.9	94.2	95.5	95.5	96.7	96.7	98.0

Depth: 2300 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	95.5	99.9	103.7	105.6	107.5	110.0	112.5	114.4
22.5	116.3	116.3	116.3	115.1	114.4	112.5	110.7	108.1
45.0	105.6	102.4	101.8	99.9	97.4	94.8	92.3	87.9
67.5	84.1	80.3	78.4	76.5	76.5	74.0	70.2	68.9
90.0	67.7	66.4	67.0	65.1	62.0	60.1	58.8	58.8
112.5	56.3	55.0	52.5	50.6	50.0	47.4	46.2	45.5
135.0	44.9	44.9	44.3	44.3	43.6	43.0	42.4	42.4
157.5	42.4	41.1	39.8	39.8	38.6	37.3	36.7	36.0
180.0	36.0	35.4	35.4	35.4	35.4	35.4	34.8	34.8
202.5	33.5	34.1	33.5	33.5	33.5	33.5	32.9	32.9
225.0	33.5	32.9	32.9	32.9	34.1	34.8	34.8	34.8
247.5	35.4	36.7	37.9	39.2	41.1	42.4	43.0	42.4
270.0	44.9	47.4	48.1	48.7	50.0	51.8	52.5	53.1
292.5	53.7	54.4	56.3	58.2	58.8	60.1	62.0	63.9
315.0	65.1	67.7	70.2	72.1	74.6	77.8	80.9	83.5
337.5	86.0	90.4	91.7	92.9	92.9	94.2	94.2	95.5

Depth: 2310 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	104.3	105.6	106.2	105.6	105.6	105.6	105.6	105.6
22.5	105.6	106.2	105.0	105.0	105.0	105.0	105.0	104.3
45.0	102.4	101.2	99.9	99.3	98.0	94.8	91.0	89.2
67.5	86.6	84.7	81.6	80.9	79.7	77.8	73.3	70.8
90.0	68.9	67.7	65.8	64.5	63.2	62.6	62.6	60.7
112.5	58.8	57.5	56.9	57.5	57.5	55.6	54.4	53.7
135.0	51.2	49.3	48.1	46.2	44.3	44.3	43.0	42.4
157.5	41.1	40.5	39.8	39.8	39.8	39.8	39.8	38.6
180.0	38.6	37.9	36.7	36.0	35.4	34.8	34.8	34.8
202.5	34.1	34.1	34.1	34.1	34.1	34.1	34.1	33.5
225.0	33.5	34.1	34.1	34.1	34.1	34.8	34.8	34.8
247.5	34.1	34.8	34.8	34.8	34.1	34.8	34.1	34.8
270.0	35.4	36.0	36.7	37.3	38.6	39.2	39.8	40.5
292.5	40.5	41.1	42.4	43.6	44.3	46.2	46.8	48.7
315.0	50.6	52.5	56.3	60.1	63.9	67.7	71.4	75.9
337.5	79.0	81.6	85.4	89.8	92.9	97.4	101.2	103.7

Depth: 2320 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	92.3	92.9	95.5	96.7	99.3	103.1	105.6	106.2
22.5	105.6	103.7	103.1	101.8	99.9	96.7	93.6	89.8
45.0	86.0	83.5	82.2	79.7	77.1	75.2	73.3	70.8
67.5	68.9	68.9	67.7	64.5	63.2	61.3	60.1	58.8
90.0	58.2	57.5	56.3	54.4	52.5	50.6	49.3	47.4
112.5	46.2	44.9	44.3	42.4	41.7	40.5	40.5	39.8
135.0	39.2	39.2	39.2	37.9	37.3	36.0	35.4	35.4
157.5	35.4	34.1	33.5	34.1	34.1	33.5	32.9	32.9
180.0	33.5	33.5	32.9	33.5	32.9	32.9	32.2	32.2
202.5	32.2	32.9	32.9	32.2	32.2	31.6	32.2	32.2
225.0	32.2	32.2	32.2	34.1	34.8	34.1	34.8	32.9
247.5	33.5	34.1	35.4	35.4	35.4	35.4	35.4	36.0
270.0	36.7	38.6	41.7	44.3	46.8	48.7	50.6	51.2
292.5	50.6	53.1	53.1	53.7	55.6	56.9	59.4	62.6
315.0	65.1	66.4	68.3	68.9	70.8	73.3	77.1	80.3
337.5	82.8	85.4	84.7	86.0	86.6	87.3	89.2	92.3

Depth: 2330 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	89.8	90.4	90.4	91.0	94.2	97.4	97.4	97.4
22.5	97.4	97.4	97.4	96.7	96.1	95.5	94.8	92.3
45.0	91.7	89.2	87.9	82.2	77.8	74.6	71.4	68.3
67.5	65.8	65.1	62.6	60.7	60.1	59.4	58.2	57.5
90.0	56.9	57.5	56.9	56.3	55.0	53.1	51.8	50.6
112.5	48.7	46.8	45.5	44.9	43.6	42.4	41.1	40.5
135.0	39.8	39.2	38.6	38.6	37.9	37.9	36.7	36.0
157.5	35.4	34.1	33.5	32.9	32.9	32.2	32.2	31.6
180.0	31.0	30.3	31.0	31.0	30.3	31.0	30.3	30.3
202.5	31.0	31.0	31.0	31.6	32.2	33.5	34.8	34.8
225.0	34.8	35.4	36.0	36.0	36.7	36.7	36.7	36.0
247.5	35.4	34.8	34.8	34.8	34.8	34.8	34.8	35.4
270.0	36.0	36.0	35.4	35.4	36.0	36.7	38.6	39.2
292.5	39.8	40.5	41.7	43.6	44.9	46.8	47.4	50.0
315.0	51.8	55.0	57.5	58.8	62.6	65.1	68.3	72.7
337.5	79.0	82.2	82.2	83.5	85.4	87.9	88.5	89.2

Depth: 2340 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	86.6	87.9	89.8	91.0	92.9	94.8	95.5	96.1
22.5	96.1	96.1	96.1	94.2	92.3	91.0	90.4	89.8
45.0	89.8	88.5	84.7	82.8	80.9	79.0	79.0	77.1
67.5	72.7	67.7	65.8	63.9	62.6	62.6	62.0	60.7
90.0	58.2	56.9	54.4	53.1	52.5	50.6	48.1	46.2
112.5	44.9	44.3	43.0	41.7	39.8	39.2	38.6	37.9
135.0	37.9	37.9	37.9	37.9	37.3	36.7	36.7	36.7
157.5	36.0	35.4	34.8	34.1	34.1	33.5	32.2	31.6
180.0	31.0	30.3	30.3	29.7	29.7	29.1	29.1	29.1
202.5	29.1	29.1	29.1	29.1	29.1	29.7	29.7	29.7
225.0	30.3	30.3	30.3	31.0	31.0	31.6	31.6	32.2
247.5	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.9
270.0	33.5	34.1	34.8	35.4	38.6	41.7	44.3	45.5
292.5	46.2	46.8	47.4	48.1	48.7	49.3	51.8	56.3
315.0	58.8	60.1	61.3	63.2	65.8	66.4	67.7	67.7
337.5	68.3	68.3	70.2	72.7	76.5	80.9	83.5	85.4

Depth: 2350 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	86.6	89.2	91.7	92.3	93.6	93.6	94.8	94.8
22.5	95.5	96.1	94.2	92.3	91.7	90.4	88.5	87.9
45.0	86.6	86.0	83.5	78.4	74.6	72.7	69.6	67.0
67.5	64.5	64.5	62.0	58.2	58.2	56.3	54.4	51.8
90.0	52.5	50.0	49.3	48.1	47.4	47.4	47.4	47.4
112.5	46.8	44.9	42.4	39.8	37.9	37.9	37.3	36.0
135.0	36.0	34.1	34.8	34.1	33.5	33.5	33.5	33.5
157.5	33.5	33.5	32.9	32.2	31.6	31.6	30.3	29.7
180.0	29.1	29.1	29.1	28.5	28.5	28.5	28.5	28.5
202.5	28.5	27.8	27.8	27.8	27.8	27.8	28.5	28.5
225.0	28.5	28.5	29.1	29.1	29.1	29.7	29.7	29.7
247.5	30.3	31.0	31.6	32.2	32.9	32.9	32.9	32.9
270.0	34.8	36.0	38.6	41.1	42.4	44.3	44.3	44.9
292.5	44.9	45.5	46.2	46.2	47.4	49.3	51.2	53.7
315.0	55.6	58.2	59.4	61.3	63.2	63.9	64.5	68.3
337.5	68.3	69.6	71.4	74.0	75.2	77.8	80.3	84.1

Depth: 2360 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	84.1	85.4	85.4	86.6	89.2	91.0	91.7	91.0
22.5	91.0	91.0	90.4	89.8	88.5	87.9	87.3	87.3
45.0	86.6	86.0	82.2	80.3	77.8	75.9	74.6	72.7
67.5	67.7	66.4	62.0	58.8	55.6	52.5	47.4	43.6
90.0	41.7	41.1	39.2	37.9	36.7	35.4	34.8	34.8
112.5	34.1	34.1	32.9	32.2	31.6	31.0	31.0	31.0
135.0	31.6	31.6	31.0	31.6	31.6	31.6	31.6	31.0
157.5	30.3	30.3	30.3	30.3	30.3	29.7	29.1	28.5
180.0	28.5	28.5	28.5	29.1	28.5	28.5	29.1	29.1
202.5	29.7	29.7	29.7	29.1	29.1	29.7	29.7	30.3
225.0	30.3	31.0	31.0	31.6	31.6	31.6	31.0	31.6
247.5	31.6	31.6	31.6	31.6	31.6	31.6	31.6	31.6
270.0	31.6	32.2	32.9	34.1	36.7	38.6	39.8	40.5
292.5	40.5	41.1	41.1	42.4	41.7	42.4	43.0	44.3
315.0	44.9	46.8	51.2	55.6	58.2	63.2	65.8	68.9
337.5	71.4	72.7	74.0	75.2	77.8	80.3	80.9	82.2

Depth: 2370 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	82.8	84.1	85.4	86.6	87.3	87.3	88.5	87.9
22.5	87.9	85.4	84.1	84.1	84.1	84.7	83.5	82.8
45.0	82.8	82.2	82.2	79.0	76.5	72.7	67.7	65.1
67.5	61.3	58.8	56.9	55.6	53.7	51.8	48.7	45.5
90.0	44.3	43.6	43.6	43.0	41.1	38.6	37.3	36.0
112.5	35.4	36.0	34.8	34.8	34.1	34.1	33.5	32.9
135.0	32.2	31.0	31.0	31.0	31.0	31.0	30.3	29.7
157.5	29.1	28.5	27.8	27.2	27.2	27.2	27.2	27.2
180.0	26.6	26.6	26.6	26.6	26.6	27.2	26.6	27.2
202.5	26.6	27.2	27.2	27.2	27.8	28.5	28.5	29.1
225.0	29.1	29.7	29.7	29.7	29.7	30.3	30.3	31.0
247.5	31.0	31.0	31.6	31.6	31.0	31.0	31.0	31.0
270.0	31.0	31.6	31.6	33.5	37.3	39.2	39.8	39.8
292.5	40.5	39.8	40.5	42.4	43.0	43.6	46.2	50.0
315.0	55.6	57.5	59.4	58.8	58.8	60.1	62.0	63.9
337.5	66.4	72.1	75.9	77.1	78.4	80.3	80.3	81.6

Depth: 2380 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	81.6	81.6	81.6	81.6	82.2	82.8	82.8	83.5
22.5	84.1	84.1	82.8	81.6	79.7	79.0	78.4	75.9
45.0	74.0	72.7	67.7	63.9	61.3	59.4	59.4	58.8
67.5	56.9	55.6	54.4	53.1	52.5	52.5	51.8	52.5
90.0	52.5	50.6	49.3	49.3	48.7	44.3	44.9	43.0
112.5	40.5	38.6	36.7	37.3	36.7	36.0	34.1	33.5
135.0	32.2	30.3	29.7	28.5	27.8	26.6	25.9	25.3
157.5	24.7	24.7	24.7	24.7	24.0	23.4	23.4	24.0
180.0	24.0	24.0	23.4	24.0	24.0	23.4	24.0	23.4
202.5	22.8	23.4	23.4	23.4	24.0	24.0	24.0	24.7
225.0	24.7	25.3	25.3	25.9	25.9	27.2	26.6	27.2
247.5	27.2	27.8	28.5	29.1	30.3	30.3	29.7	31.0
270.0	31.0	32.9	34.8	35.4	36.7	37.9	38.6	39.8
292.5	41.1	42.4	41.7	42.4	43.0	42.4	42.4	43.0
315.0	47.4	52.5	54.4	54.4	56.3	58.2	60.1	62.6
337.5	65.1	72.7	76.5	76.5	77.1	77.8	79.7	80.3

Depth: 2390 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	78.4	78.4	78.4	79.0	79.0	79.0	79.7	79.7
22.5	79.7	79.7	79.0	78.4	77.8	77.1	77.1	76.5
45.0	75.9	75.2	75.2	74.0	70.2	68.3	67.0	63.2
67.5	58.8	58.2	56.3	54.4	51.8	51.8	50.0	46.2
90.0	44.9	44.3	41.7	41.1	41.1	41.1	40.5	37.9
112.5	35.4	33.5	31.0	28.5	27.8	27.2	25.3	24.7
135.0	24.0	22.8	22.1	21.5	22.1	21.5	21.5	21.5
157.5	20.9	20.2	20.2	19.6	19.6	20.2	20.2	20.2
180.0	20.2	20.2	19.6	19.6	19.6	19.6	19.6	19.0
202.5	19.0	18.3	19.0	19.0	19.6	20.2	20.2	20.9
225.0	22.1	24.0	25.3	27.2	27.2	27.8	28.5	29.1
247.5	29.7	30.3	30.3	30.3	29.7	29.7	29.7	29.7
270.0	31.0	32.2	33.5	34.1	34.8	34.8	36.0	39.8
292.5	39.8	39.8	39.8	41.1	41.7	41.7	41.7	44.3
315.0	48.1	50.0	53.1	55.0	55.6	56.3	58.2	60.1
337.5	63.2	68.9	75.9	75.9	75.9	76.5	77.8	78.4

Depth: 2400 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	77.1	77.8	77.1	76.5	77.1	76.5	76.5	77.8
22.5	77.8	78.4	77.8	77.1	77.8	77.1	77.8	77.1
45.0	78.4	79.0	78.4	77.1	74.6	67.7	62.6	60.1
67.5	56.9	56.3	53.7	51.2	50.0	50.0	50.6	48.7
90.0	46.2	43.0	41.1	41.1	39.2	36.7	32.9	29.7
112.5	27.2	25.3	23.4	22.8	22.1	22.1	21.5	20.9
135.0	20.2	20.2	19.6	19.0	18.3	18.3	17.7	17.7
157.5	17.7	17.7	17.7	17.1	17.7	17.7	16.4	16.4
180.0	15.8	15.8	16.4	16.4	16.4	16.4	17.1	17.1
202.5	17.7	17.7	17.7	17.7	19.0	19.0	19.6	19.6
225.0	21.5	22.1	23.4	25.3	25.3	25.9	26.6	27.8
247.5	27.8	28.5	29.7	29.7	29.7	29.7	29.1	29.7
270.0	29.7	29.7	30.3	30.3	30.3	31.0	32.9	36.7
292.5	38.6	39.2	38.6	39.2	39.2	39.8	41.1	41.1
315.0	42.4	44.3	48.7	51.8	55.0	56.3	58.2	61.3
337.5	67.0	72.1	72.7	74.0	74.6	75.2	75.9	77.1

Depth: 2410 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	79.0	78.4	77.8	78.4	77.8	77.8	79.0	79.0
22.5	79.7	79.0	78.4	79.0	78.4	79.0	78.4	79.7
45.0	80.3	79.7	78.4	75.9	68.9	63.9	61.3	58.2
67.5	57.5	55.0	52.5	51.2	51.2	51.8	50.0	47.4
90.0	44.3	42.4	42.4	40.5	37.9	34.1	31.0	28.5
112.5	26.6	24.7	24.0	23.4	23.4	22.8	22.1	21.5
135.0	21.5	20.9	20.2	19.6	19.6	19.0	19.0	19.0
157.5	19.0	19.0	18.3	19.0	19.0	17.7	17.7	17.1
180.0	17.1	17.7	17.7	17.7	17.7	18.3	18.3	19.0
202.5	19.0	19.0	19.0	20.2	20.2	20.9	20.9	22.8
225.0	23.4	24.7	26.6	26.6	27.2	27.8	29.1	29.1
247.5	29.7	31.0	31.0	31.0	31.0	30.3	31.0	31.0
270.0	31.0	31.6	31.6	31.6	32.2	34.1	37.9	39.8
292.5	40.5	39.8	40.5	40.5	41.1	42.4	42.4	43.6
315.0	45.5	50.0	53.1	56.3	57.5	59.4	62.6	68.3
337.5	73.3	74.0	75.2	75.9	76.5	77.1	78.4	78.4

Depth: 2420 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	75.9	76.5	75.9	75.2	75.9	75.2	75.2	76.5
22.5	76.5	77.1	76.5	75.9	76.5	75.9	76.5	75.9
45.0	77.1	77.8	77.1	75.9	73.3	66.4	61.3	58.8
67.5	55.6	55.0	52.5	50.0	48.7	48.7	49.3	47.4
90.0	44.9	41.7	39.8	39.8	37.9	35.4	31.6	28.5
112.5	25.9	24.0	22.1	21.5	20.9	20.9	20.2	19.6
135.0	19.0	19.0	18.3	17.7	17.1	17.1	16.4	16.4
157.5	16.4	16.4	16.4	15.8	16.4	16.4	15.2	15.2
180.0	14.5	14.5	15.2	15.2	15.2	15.2	15.8	15.8
202.5	16.4	16.4	16.4	16.4	17.7	17.7	18.3	18.3
225.0	20.2	20.9	22.1	24.0	24.0	24.7	25.3	26.6
247.5	26.6	27.2	28.5	28.5	28.5	28.5	27.8	28.5
270.0	28.5	28.5	29.1	29.1	29.1	29.7	31.6	35.4
292.5	37.3	37.9	37.3	37.9	37.9	38.6	39.8	39.8
315.0	41.1	43.0	47.4	50.6	53.7	55.0	56.9	60.1
337.5	65.8	70.8	71.4	72.7	73.3	74.0	74.6	75.9

Depth: 2430 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	75.2	75.9	75.2	74.6	75.2	74.6	74.6	75.9
22.5	75.9	76.5	75.9	75.2	75.9	75.2	75.9	75.2
45.0	76.5	77.1	76.5	75.2	72.7	65.8	60.7	58.2
67.5	55.0	54.4	51.8	49.3	48.1	48.1	48.7	46.8
90.0	44.3	41.1	39.2	39.2	37.3	34.8	31.0	27.8
112.5	25.3	23.4	21.5	20.9	20.2	20.2	19.6	19.0
135.0	18.3	18.3	17.7	17.1	16.4	16.4	15.8	15.8
157.5	15.8	15.8	15.8	15.2	15.8	15.8	14.5	14.5
180.0	13.9	13.9	14.5	14.5	14.5	14.5	15.2	15.2
202.5	15.8	15.8	15.8	15.8	17.1	17.1	17.7	17.7
225.0	19.6	20.2	21.5	23.4	23.4	24.0	24.7	25.9
247.5	25.9	26.6	27.8	27.8	27.8	27.8	27.2	27.8
270.0	27.8	27.8	28.5	28.5	28.5	29.1	31.0	34.8
292.5	36.7	37.3	36.7	37.3	37.3	37.9	39.2	39.2
315.0	40.5	42.4	46.8	50.0	53.1	54.4	56.3	59.4
337.5	65.1	70.2	70.8	72.1	72.7	73.3	74.0	75.2

Depth: 2440 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	77.8	78.4	79.7	80.3	80.9	81.6	81.6	82.2
22.5	82.2	82.8	82.2	81.6	82.2	81.6	80.3	75.9
45.0	70.2	67.7	65.1	62.6	62.0	56.9	50.6	45.5
67.5	44.3	43.6	39.2	37.3	34.8	33.5	34.1	34.1
90.0	32.9	31.0	28.5	24.0	22.1	20.2	19.6	19.0
112.5	17.7	16.4	15.8	15.2	14.5	13.9	13.9	13.3
135.0	13.3	12.6	12.6	12.6	12.0	12.0	12.0	12.0
157.5	12.6	12.6	12.0	12.0	12.0	12.0	12.0	12.0
180.0	11.4	12.0	12.0	12.0	11.4	11.4	12.0	12.0
202.5	12.6	12.6	12.6	12.0	12.0	12.6	12.0	12.0
225.0	12.0	12.6	12.6	13.3	13.3	13.9	13.9	15.2
247.5	16.4	17.1	17.7	18.3	19.6	20.2	21.5	21.5
270.0	22.1	23.4	23.4	24.7	28.5	30.3	33.5	34.1
292.5	34.8	35.4	36.0	36.7	39.2	39.8	41.1	41.7
315.0	43.0	44.9	47.4	50.0	52.5	55.0	58.2	59.4
337.5	62.0	64.5	67.7	67.7	69.6	70.8	75.9	77.8

Depth: 2450 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	76.5	77.1	78.4	79.0	79.7	80.3	80.3	80.9
22.5	80.9	81.6	80.9	80.3	80.9	80.3	79.0	74.6
45.0	68.9	66.4	63.9	61.3	60.7	55.6	49.3	44.3
67.5	43.0	42.4	37.9	36.0	33.5	32.2	32.9	32.9
90.0	31.6	29.7	27.2	22.8	20.9	19.0	18.3	17.7
112.5	16.4	15.2	14.5	13.9	13.3	12.6	12.6	12.0
135.0	12.0	11.4	11.4	11.4	10.7	10.7	10.7	10.7
157.5	11.4	11.4	10.7	10.7	10.7	10.7	10.7	10.7
180.0	10.1	10.7	10.7	10.7	10.1	10.1	10.7	10.7
202.5	11.4	11.4	11.4	10.7	10.7	11.4	10.7	10.7
225.0	10.7	11.4	11.4	12.0	12.0	12.6	12.6	13.9
247.5	15.2	15.8	16.4	17.1	18.3	19.0	20.2	20.2
270.0	20.9	22.1	22.1	23.4	27.2	29.1	32.2	32.9
292.5	33.5	34.1	34.8	35.4	37.9	38.6	39.8	40.5
315.0	41.7	43.6	46.2	48.7	51.2	53.7	56.9	58.2
337.5	60.7	63.2	66.4	66.4	68.3	69.6	74.6	76.5

Depth: 2460 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	76.5	77.1	78.4	79.0	79.7	80.3	80.3	80.9
22.5	80.9	81.6	80.9	80.3	80.9	80.3	79.0	74.6
45.0	68.9	66.4	63.9	61.3	60.7	55.6	49.3	44.3
67.5	43.0	42.4	37.9	36.0	33.5	32.2	32.9	32.9
90.0	31.6	29.7	27.2	22.8	20.9	19.0	18.3	17.7
112.5	16.4	15.2	14.5	13.9	13.3	12.6	12.6	12.0
135.0	12.0	11.4	11.4	11.4	10.7	10.7	10.7	10.7
157.5	11.4	11.4	10.7	10.7	10.7	10.7	10.7	10.7
180.0	10.1	10.7	10.7	10.7	10.1	10.1	10.7	10.7
202.5	11.4	11.4	11.4	10.7	10.7	11.4	10.7	10.7
225.0	10.7	11.4	11.4	12.0	12.0	12.6	12.6	13.9
247.5	15.2	15.8	16.4	17.1	18.3	19.0	20.2	20.2
270.0	20.9	22.1	22.1	23.4	27.2	29.1	32.2	32.9
292.5	33.5	34.1	34.8	35.4	37.9	38.6	39.8	40.5
315.0	41.7	43.6	46.2	48.7	51.2	53.7	56.9	58.2
337.5	60.7	63.2	66.4	66.4	68.3	69.6	74.6	76.5

Depth: 2470 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	76.5	77.1	78.4	79.0	79.7	80.3	80.3	80.9
22.5	80.9	81.6	80.9	80.3	80.9	80.3	79.0	74.6
45.0	68.9	66.4	63.9	61.3	60.7	55.6	49.3	44.3
67.5	43.0	42.4	37.9	36.0	33.5	32.2	32.9	32.9
90.0	31.6	29.7	27.2	22.8	20.9	19.0	18.3	17.7
112.5	16.4	15.2	14.5	13.9	13.3	12.6	12.6	12.0
135.0	12.0	11.4	11.4	11.4	10.7	10.7	10.7	10.7
157.5	11.4	11.4	10.7	10.7	10.7	10.7	10.7	10.7
180.0	10.1	10.7	10.7	10.7	10.1	10.1	10.7	10.7
202.5	11.4	11.4	11.4	10.7	10.7	11.4	10.7	10.7
225.0	10.7	11.4	11.4	12.0	12.0	12.6	12.6	13.9
247.5	15.2	15.8	16.4	17.1	18.3	19.0	20.2	20.2
270.0	20.9	22.1	22.1	23.4	27.2	29.1	32.2	32.9
292.5	33.5	34.1	34.8	35.4	37.9	38.6	39.8	40.5
315.0	41.7	43.6	46.2	48.7	51.2	53.7	56.9	58.2
337.5	60.7	63.2	66.4	66.4	68.3	69.6	74.6	76.5

Depth: 2480 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	76.5	77.1	78.4	79.0	79.7	80.3	80.3	80.9
22.5	80.9	81.6	80.9	80.3	80.9	80.3	79.0	74.6
45.0	68.9	66.4	63.9	61.3	60.7	55.6	49.3	44.3
67.5	43.0	42.4	37.9	36.0	33.5	32.2	32.9	32.9
90.0	31.6	29.7	27.2	22.8	20.9	19.0	18.3	17.7
112.5	16.4	15.2	14.5	13.9	13.3	12.6	12.6	12.0
135.0	12.0	11.4	11.4	11.4	10.7	10.7	10.7	10.7
157.5	11.4	11.4	10.7	10.7	10.7	10.7	10.7	10.7
180.0	10.1	10.7	10.7	10.7	10.1	10.1	10.7	10.7
202.5	11.4	11.4	11.4	10.7	10.7	11.4	10.7	10.7
225.0	10.7	11.4	11.4	12.0	12.0	12.6	12.6	13.9
247.5	15.2	15.8	16.4	17.1	18.3	19.0	20.2	20.2
270.0	20.9	22.1	22.1	23.4	27.2	29.1	32.2	32.9
292.5	33.5	34.1	34.8	35.4	37.9	38.6	39.8	40.5
315.0	41.7	43.6	46.2	48.7	51.2	53.7	56.9	58.2
337.5	60.7	63.2	66.4	66.4	68.3	69.6	74.6	76.5

Depth: 2490 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	75.9	76.5	77.8	78.4	79.0	79.7	79.7	80.3
22.5	80.3	80.9	80.3	79.7	80.3	79.7	78.4	74.0
45.0	68.3	65.8	63.2	60.7	60.1	55.0	48.7	43.6
67.5	42.4	41.7	37.3	35.4	32.9	31.6	32.2	32.2
90.0	31.0	29.1	26.6	22.1	20.2	18.3	17.7	17.1
112.5	15.8	14.5	13.9	13.3	12.6	12.0	12.0	11.4
135.0	11.4	10.7	10.7	10.7	10.1	10.1	10.1	10.1
157.5	10.7	10.7	10.1	10.1	10.1	10.1	10.1	10.1
180.0	9.5	10.1	10.1	10.1	9.5	9.5	10.1	10.1
202.5	10.7	10.7	10.7	10.1	10.1	10.7	10.1	10.1
225.0	10.1	10.7	10.7	11.4	11.4	12.0	12.0	13.3
247.5	14.5	15.2	15.8	16.4	17.7	18.3	19.6	19.6
270.0	20.2	21.5	21.5	22.8	26.6	28.5	31.6	32.2
292.5	32.9	33.5	34.1	34.8	37.3	37.9	39.2	39.8
315.0	41.1	43.0	45.5	48.1	50.6	53.1	56.3	57.5
337.5	60.1	62.6	65.8	65.8	67.7	68.9	74.0	75.9

Depth: 2500 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	75.9	76.5	77.8	78.4	79.0	79.7	79.7	80.3
22.5	80.3	80.9	80.3	79.7	80.3	79.7	78.4	74.0
45.0	68.3	65.8	63.2	60.7	60.1	55.0	48.7	43.6
67.5	42.4	41.7	37.3	35.4	32.9	31.6	32.2	32.2
90.0	31.0	29.1	26.6	22.1	20.2	18.3	17.7	17.1
112.5	15.8	14.5	13.9	13.3	12.6	12.0	12.0	11.4
135.0	11.4	10.7	10.7	10.7	10.1	10.1	10.1	10.1
157.5	10.7	10.7	10.1	10.1	10.1	10.1	10.1	10.1
180.0	9.5	10.1	10.1	10.1	9.5	9.5	10.1	10.1
202.5	10.7	10.7	10.7	10.1	10.1	10.7	10.1	10.1
225.0	10.1	10.7	10.7	11.4	11.4	12.0	12.0	13.3
247.5	14.5	15.2	15.8	16.4	17.7	18.3	19.6	19.6
270.0	20.2	21.5	21.5	22.8	26.6	28.5	31.6	32.2
292.5	32.9	33.5	34.1	34.8	37.3	37.9	39.2	39.8
315.0	41.1	43.0	45.5	48.1	50.6	53.1	56.3	57.5
337.5	60.1	62.6	65.8	65.8	67.7	68.9	74.0	75.9

Depth: 2510 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	75.9	76.5	77.8	78.4	79.0	79.7	79.7	80.3
22.5	80.3	80.9	80.3	79.7	80.3	79.7	78.4	74.0
45.0	68.3	65.8	63.2	60.7	60.1	55.0	48.7	43.6
67.5	42.4	41.7	37.3	35.4	32.9	31.6	32.2	32.2
90.0	31.0	29.1	26.6	22.1	20.2	18.3	17.7	17.1
112.5	15.8	14.5	13.9	13.3	12.6	12.0	12.0	11.4
135.0	11.4	10.7	10.7	10.7	10.1	10.1	10.1	10.1
157.5	10.7	10.7	10.1	10.1	10.1	10.1	10.1	10.1
180.0	9.5	10.1	10.1	10.1	9.5	9.5	10.1	10.1
202.5	10.7	10.7	10.7	10.1	10.1	10.7	10.1	10.1
225.0	10.1	10.7	10.7	11.4	11.4	12.0	12.0	13.3
247.5	14.5	15.2	15.8	16.4	17.7	18.3	19.6	19.6
270.0	20.2	21.5	21.5	22.8	26.6	28.5	31.6	32.2
292.5	32.9	33.5	34.1	34.8	37.3	37.9	39.2	39.8
315.0	41.1	43.0	45.5	48.1	50.6	53.1	56.3	57.5
337.5	60.1	62.6	65.8	65.8	67.7	68.9	74.0	75.9

Depth: 2520 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	79.0	80.3	80.3	80.3	81.6	81.6	81.6	81.6
22.5	80.9	80.3	80.3	79.0	79.0	78.4	77.8	76.5
45.0	71.4	63.2	55.6	54.4	53.7	53.7	54.4	50.6
67.5	44.9	38.6	35.4	34.1	31.0	29.7	27.2	25.3
90.0	22.8	20.9	19.6	18.3	17.1	15.8	15.8	13.9
112.5	13.9	12.6	12.0	11.4	11.4	10.7	10.7	10.7
135.0	10.7	10.7	10.7	10.7	10.1	10.7	10.1	10.1
157.5	10.1	10.1	10.1	10.1	9.5	9.5	9.5	9.5
180.0	9.5	9.5	8.9	8.9	9.5	10.1	10.1	10.1
202.5	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1
225.0	10.7	10.7	10.7	10.7	10.7	11.4	12.0	13.9
247.5	14.5	15.2	15.8	16.4	17.1	17.7	18.3	19.0
270.0	20.2	20.9	22.1	25.3	25.3	25.9	26.6	28.5
292.5	32.2	32.9	35.4	36.0	37.3	39.2	41.1	44.3
315.0	46.2	48.1	50.0	52.5	58.2	62.6	62.6	63.2
337.5	65.8	68.9	69.6	70.2	70.8	71.4	75.2	79.0

Depth: 2530 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	81.6	80.9	81.6	81.6	81.6	82.2	81.6	80.9
22.5	80.3	80.3	80.3	77.8	74.0	70.8	68.3	65.8
45.0	65.1	62.6	58.2	53.1	48.1	46.2	42.4	39.2
67.5	39.2	37.9	36.0	34.1	29.7	27.2	24.7	23.4
90.0	22.8	21.5	19.0	17.7	17.1	14.5	14.5	14.5
112.5	13.3	13.9	12.0	12.6	11.4	11.4	11.4	10.7
135.0	10.1	10.1	10.1	10.1	10.1	9.5	9.5	9.5
157.5	8.9	8.9	8.9	9.5	8.9	8.9	9.5	9.5
180.0	9.5	9.5	9.5	9.5	9.5	9.5	8.9	9.5
202.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	10.1
225.0	10.1	10.7	10.7	10.7	11.4	12.6	13.3	13.3
247.5	13.9	13.9	14.5	15.2	17.7	19.0	19.6	20.2
270.0	21.5	24.0	25.3	25.9	27.8	29.1	31.6	33.5
292.5	34.8	38.6	41.1	41.7	43.0	43.6	44.9	45.5
315.0	47.4	50.6	52.5	56.9	62.6	63.9	65.1	65.1
337.5	66.4	69.6	71.4	73.3	73.3	74.6	77.8	81.6

Depth: 2540 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	82.2	84.1	84.7	86.0	85.4	86.0	84.7	82.8
22.5	82.2	81.6	81.6	80.3	78.4	77.1	77.8	77.8
45.0	75.2	71.4	65.8	61.3	58.8	53.1	48.1	44.9
67.5	41.1	36.0	32.2	29.1	25.9	24.7	22.8	21.5
90.0	22.1	22.1	21.5	20.2	19.0	18.3	17.7	17.1
112.5	15.8	15.2	14.5	13.9	13.9	12.6	11.4	10.7
135.0	10.7	10.1	10.1	10.1	9.5	10.1	9.5	9.5
157.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5
180.0	8.9	9.5	9.5	9.5	9.5	9.5	8.9	9.5
202.5	9.5	9.5	10.7	10.1	10.7	10.7	10.7	10.7
225.0	10.7	11.4	11.4	11.4	11.4	11.4	11.4	11.4
247.5	12.0	13.3	13.9	13.9	13.9	13.9	14.5	15.2
270.0	15.2	15.8	16.4	16.4	17.1	17.1	18.3	20.2
292.5	22.8	24.7	25.3	26.6	27.2	27.8	29.1	31.0
315.0	50.0	55.0	60.1	62.0	63.2	63.2	63.9	65.8
337.5	68.3	70.2	70.2	72.1	72.7	76.5	79.7	82.2

Depth: 2550 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	86.6	87.3	87.9	87.3	86.0	86.0	86.0	84.1
22.5	82.8	81.6	81.6	78.4	76.5	75.9	72.7	69.6
45.0	68.9	66.4	61.3	55.6	53.1	49.3	44.9	42.4
67.5	39.8	39.2	36.0	32.9	30.3	27.2	25.9	25.3
90.0	24.0	22.8	19.6	18.3	17.7	17.1	15.8	16.4
112.5	15.2	14.5	13.9	13.3	12.0	12.0	12.0	12.0
135.0	11.4	11.4	11.4	10.7	10.7	10.7	10.7	10.1
157.5	10.1	10.1	10.1	9.5	9.5	9.5	9.5	9.5
180.0	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9
202.5	9.5	8.9	8.9	9.5	10.1	10.1	10.7	10.1
225.0	10.7	10.7	10.7	10.7	11.4	11.4	12.0	12.0
247.5	12.6	12.6	13.3	13.3	13.9	14.5	14.5	15.2
270.0	17.1	21.5	27.2	29.7	31.6	32.2	33.5	34.1
292.5	36.0	36.0	37.3	38.6	43.0	46.8	50.6	51.8
315.0	53.1	54.4	54.4	55.6	58.2	61.3	67.7	70.2
337.5	73.3	74.6	77.1	80.9	84.7	86.6	86.6	86.6

Depth: 2560 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	82.8	83.5	84.7	85.4	85.4	84.7	85.4	85.4
22.5	84.7	82.2	81.6	79.7	79.7	79.0	77.1	72.1
45.0	68.9	67.7	67.0	67.0	61.3	55.6	50.0	45.5
67.5	33.5	32.2	31.6	28.5	27.8	27.8	27.2	26.6
90.0	24.7	23.4	23.4	23.4	23.4	22.8	20.9	20.9
112.5	20.9	19.0	18.3	13.3	12.6	12.0	12.0	11.4
135.0	11.4	11.4	10.7	11.4	10.7	10.7	10.7	10.7
157.5	10.7	10.7	10.1	10.1	9.5	9.5	9.5	9.5
180.0	9.5	9.5	9.5	9.5	9.5	9.5	9.5	10.7
202.5	10.7	10.7	10.7	10.7	10.7	11.4	11.4	12.0
225.0	12.6	12.6	12.6	13.3	13.3	13.3	13.9	13.9
247.5	15.8	14.5	15.8	18.3	20.9	20.9	22.1	22.8
270.0	23.4	24.7	24.7	25.3	26.6	27.2	28.5	29.7
292.5	31.6	32.9	33.5	37.3	44.3	46.8	48.7	49.3
315.0	50.6	51.2	52.5	55.6	58.2	60.1	62.6	63.2
337.5	67.0	66.4	67.0	68.9	80.9	80.9	82.8	82.8

Depth: 2570 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	81.6	80.9	81.6	85.4	84.7	87.3	91.0	94.8
22.5	95.5	95.5	95.5	89.8	85.4	82.8	80.3	78.4
45.0	75.9	68.9	65.8	60.1	50.0	45.5	42.4	40.5
67.5	36.0	33.5	30.3	28.5	27.2	26.6	25.9	25.3
90.0	24.0	23.4	22.1	22.1	20.9	20.2	19.6	18.3
112.5	17.7	16.4	15.2	13.9	13.3	12.6	12.0	12.0
135.0	12.0	11.4	11.4	11.4	11.4	11.4	11.4	11.4
157.5	11.4	11.4	10.7	10.7	10.7	10.7	10.7	10.1
180.0	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.7
202.5	10.7	10.7	10.7	10.7	10.7	11.4	11.4	12.0
225.0	12.0	12.0	12.6	12.6	12.6	13.3	13.3	13.9
247.5	13.9	14.5	15.2	16.4	17.1	17.7	18.3	19.0
270.0	19.6	20.9	21.5	23.4	25.9	27.2	27.8	29.1
292.5	29.7	31.0	32.2	34.8	36.7	38.6	40.5	43.6
315.0	45.5	46.8	48.7	51.2	53.1	57.5	59.4	63.2
337.5	65.8	67.7	72.1	74.6	78.4	79.7	80.3	81.6

Depth: 2580 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	87.3	89.2	89.8	90.4	91.7	92.9	92.9	92.3
22.5	89.8	86.0	86.0	82.8	80.9	79.0	78.4	76.5
45.0	72.1	70.2	69.6	68.3	51.8	43.6	43.0	36.0
67.5	36.0	36.0	29.7	25.3	24.7	24.7	24.7	23.4
90.0	21.5	21.5	20.9	20.2	20.9	19.6	18.3	17.1
112.5	15.8	14.5	13.3	13.3	13.3	12.6	12.0	12.0
135.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
157.5	12.0	12.6	12.6	13.3	13.3	13.9	13.9	13.9
180.0	13.9	13.9	13.9	13.9	13.9	13.9	13.9	13.9
202.5	13.9	13.3	13.9	13.3	13.9	13.9	13.3	13.9
225.0	13.9	13.9	13.9	13.9	13.9	13.9	14.5	15.8
247.5	16.4	17.1	18.3	18.3	19.0	19.0	19.6	20.9
270.0	22.8	23.4	24.7	26.6	27.8	29.1	30.3	32.2
292.5	34.8	36.0	37.9	39.8	41.7	43.6	44.9	47.4
315.0	48.7	50.6	53.1	57.5	60.1	65.1	66.4	67.0
337.5	68.3	69.6	72.7	75.9	83.5	85.4	86.0	86.0

Depth: 2590 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	87.3	89.2	89.8	90.4	91.7	92.9	92.9	92.3
22.5	89.8	86.0	86.0	82.8	80.9	79.0	78.4	76.5
45.0	72.1	70.2	69.6	68.3	51.8	43.6	43.0	36.0
67.5	36.0	36.0	29.7	25.3	24.7	24.7	24.7	23.4
90.0	21.5	21.5	20.9	20.2	20.9	19.6	18.3	17.1
112.5	15.8	14.5	13.3	13.3	13.3	12.6	12.0	12.0
135.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
157.5	12.0	12.6	12.6	13.3	13.3	13.9	13.9	13.9
180.0	13.9	13.9	13.9	13.9	13.9	13.9	13.9	13.9
202.5	13.9	13.3	13.9	13.3	13.9	13.9	13.3	13.9
225.0	13.9	13.9	13.9	13.9	13.9	13.9	14.5	15.8
247.5	16.4	17.1	18.3	18.3	19.0	19.0	19.6	20.9
270.0	22.8	23.4	24.7	26.6	27.8	29.1	30.3	32.2
292.5	34.8	36.0	37.9	39.8	41.7	43.6	44.9	47.4
315.0	48.7	50.6	53.1	57.5	60.1	65.1	66.4	67.0
337.5	68.3	69.6	72.7	75.9	83.5	85.4	86.0	86.0

Depth: 2600 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	87.3	89.2	89.8	90.4	91.7	92.9	92.9	92.3
22.5	89.8	86.0	86.0	82.8	80.9	79.0	78.4	76.5
45.0	72.1	70.2	69.6	68.3	51.8	43.6	43.0	36.0
67.5	36.0	36.0	29.7	25.3	24.7	24.7	24.7	23.4
90.0	21.5	21.5	20.9	20.2	20.9	19.6	18.3	17.1
112.5	15.8	14.5	13.3	13.3	13.3	12.6	12.0	12.0
135.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
157.5	12.0	12.6	12.6	13.3	13.3	13.9	13.9	13.9
180.0	13.9	13.9	13.9	13.9	13.9	13.9	13.9	13.9
202.5	13.9	13.3	13.9	13.3	13.9	13.9	13.3	13.9
225.0	13.9	13.9	13.9	13.9	13.9	13.9	14.5	15.8
247.5	16.4	17.1	18.3	18.3	19.0	19.0	19.6	20.9
270.0	22.8	23.4	24.7	26.6	27.8	29.1	30.3	32.2
292.5	34.8	36.0	37.9	39.8	41.7	43.6	44.9	47.4
315.0	48.7	50.6	53.1	57.5	60.1	65.1	66.4	67.0
337.5	68.3	69.6	72.7	75.9	83.5	85.4	86.0	86.0

Depth: 2610 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	87.9	89.8	90.4	91.0	92.3	93.6	93.6	92.9
22.5	90.4	86.6	86.6	83.5	81.6	79.7	79.0	77.1
45.0	72.7	70.8	70.2	68.9	52.5	44.3	43.6	36.7
67.5	36.7	36.7	30.3	25.9	25.3	25.3	25.3	24.0
90.0	22.1	22.1	21.5	20.9	21.5	20.2	19.0	17.7
112.5	16.4	15.2	13.9	13.9	13.9	13.3	12.6	12.6
135.0	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6
157.5	12.6	13.3	13.3	13.9	13.9	14.5	14.5	14.5
180.0	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5
202.5	14.5	13.9	14.5	13.9	14.5	14.5	13.9	14.5
225.0	14.5	14.5	14.5	14.5	14.5	14.5	15.2	16.4
247.5	17.1	17.7	19.0	19.0	19.6	19.6	20.2	21.5
270.0	23.4	24.0	25.3	27.2	28.5	29.7	31.0	32.9
292.5	35.4	36.7	38.6	40.5	42.4	44.3	45.5	48.1
315.0	49.3	51.2	53.7	58.2	60.7	65.8	67.0	67.7
337.5	68.9	70.2	73.3	76.5	84.1	86.0	86.6	86.6

Depth: 2620 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	88.5	90.4	91.0	91.7	92.9	94.2	94.2	93.6
22.5	91.0	87.3	87.3	84.1	82.2	80.3	79.7	77.8
45.0	73.3	71.4	70.8	69.6	53.1	44.9	44.3	37.3
67.5	37.3	37.3	31.0	26.6	25.9	25.9	25.9	24.7
90.0	22.8	22.8	22.1	21.5	22.1	20.9	19.6	18.3
112.5	17.1	15.8	14.5	14.5	14.5	13.9	13.3	13.3
135.0	13.3	13.3	13.3	13.3	13.3	13.3	13.3	13.3
157.5	13.3	13.9	13.9	14.5	14.5	15.2	15.2	15.2
180.0	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2
202.5	15.2	14.5	15.2	14.5	15.2	15.2	14.5	15.2
225.0	15.2	15.2	15.2	15.2	15.2	15.2	15.8	17.1
247.5	17.7	18.3	19.6	19.6	20.2	20.2	20.9	22.1
270.0	24.0	24.7	25.9	27.8	29.1	30.3	31.6	33.5
292.5	36.0	37.3	39.2	41.1	43.0	44.9	46.2	48.7
315.0	50.0	51.8	54.4	58.8	61.3	66.4	67.7	68.3
337.5	69.6	70.8	74.0	77.1	84.7	86.6	87.3	87.3

Depth: 2630 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	108.1	110.7	113.8	113.8	114.4	115.7	116.3	117.0
22.5	114.4	110.7	106.9	104.3	102.4	101.2	98.0	94.8
45.0	90.4	84.7	83.5	79.7	74.6	71.4	67.0	62.0
67.5	58.8	53.7	48.1	42.4	36.7	33.5	29.1	24.7
90.0	21.5	18.3	17.1	17.1	16.4	15.8	16.4	16.4
112.5	15.8	15.2	14.5	14.5	13.9	13.9	14.5	13.9
135.0	13.9	13.9	13.9	13.9	13.9	14.5	14.5	14.5
157.5	15.2	15.2	15.2	15.8	15.8	16.4	16.4	15.8
180.0	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8
202.5	15.8	15.8	15.8	15.8	16.4	16.4	16.4	16.4
225.0	16.4	16.4	16.4	17.1	17.1	17.1	17.1	17.7
247.5	17.7	18.3	18.3	18.3	19.0	19.0	19.0	19.6
270.0	20.2	21.5	22.8	23.4	24.7	26.6	27.8	29.7
292.5	31.6	32.9	34.1	36.0	39.2	41.7	46.8	52.5
315.0	53.7	60.1	67.0	70.2	75.2	77.8	80.9	84.7
337.5	87.9	90.4	94.2	96.1	96.7	98.6	100.5	103.7

Depth: 2640 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	108.1	110.7	113.8	113.8	114.4	115.7	116.3	117.0
22.5	114.4	110.7	106.9	104.3	102.4	101.2	98.0	94.8
45.0	90.4	84.7	83.5	79.7	74.6	71.4	67.0	62.0
67.5	58.8	53.7	48.1	42.4	36.7	33.5	29.1	24.7
90.0	21.5	18.3	17.1	17.1	16.4	15.8	16.4	16.4
112.5	15.8	15.2	14.5	14.5	13.9	13.9	14.5	13.9
135.0	13.9	13.9	13.9	13.9	13.9	14.5	14.5	14.5
157.5	15.2	15.2	15.2	15.8	15.8	16.4	16.4	15.8
180.0	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8
202.5	15.8	15.8	15.8	15.8	16.4	16.4	16.4	16.4
225.0	16.4	16.4	16.4	17.1	17.1	17.1	17.1	17.7
247.5	17.7	18.3	18.3	18.3	19.0	19.0	19.0	19.6
270.0	20.2	21.5	22.8	23.4	24.7	26.6	27.8	29.7
292.5	31.6	32.9	34.1	36.0	39.2	41.7	46.8	52.5
315.0	53.7	60.1	67.0	70.2	75.2	77.8	80.9	84.7
337.5	87.9	90.4	94.2	96.1	96.7	98.6	100.5	103.7

Depth: 2650 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	108.8	111.3	114.4	114.4	115.1	116.3	117.0	117.6
22.5	115.1	111.3	107.5	105.0	103.1	101.8	98.6	95.5
45.0	91.0	85.4	84.1	80.3	75.2	72.1	67.7	62.6
67.5	59.4	54.4	48.7	43.0	37.3	34.1	29.7	25.3
90.0	22.1	19.0	17.7	17.7	17.1	16.4	17.1	17.1
112.5	16.4	15.8	15.2	15.2	14.5	14.5	15.2	14.5
135.0	14.5	14.5	14.5	14.5	14.5	15.2	15.2	15.2
157.5	15.8	15.8	15.8	16.4	16.4	17.1	17.1	16.4
180.0	16.4	16.4	16.4	16.4	16.4	16.4	16.4	16.4
202.5	16.4	16.4	16.4	16.4	17.1	17.1	17.1	17.1
225.0	17.1	17.1	17.1	17.7	17.7	17.7	17.7	18.3
247.5	18.3	19.0	19.0	19.0	19.6	19.6	19.6	20.2
270.0	20.9	22.1	23.4	24.0	25.3	27.2	28.5	30.3
292.5	32.2	33.5	34.8	36.7	39.8	42.4	47.4	53.1
315.0	54.4	60.7	67.7	70.8	75.9	78.4	81.6	85.4
337.5	88.5	91.0	94.8	96.7	97.4	99.3	101.2	104.3

Depth: 2660 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	108.8	111.3	114.4	114.4	115.1	116.3	117.0	117.6
22.5	115.1	111.3	107.5	105.0	103.1	101.8	98.6	95.5
45.0	91.0	85.4	84.1	80.3	75.2	72.1	67.7	62.6
67.5	59.4	54.4	48.7	43.0	37.3	34.1	29.7	25.3
90.0	22.1	19.0	17.7	17.7	17.1	16.4	17.1	17.1
112.5	16.4	15.8	15.2	15.2	14.5	14.5	15.2	14.5
135.0	14.5	14.5	14.5	14.5	14.5	15.2	15.2	15.2
157.5	15.8	15.8	15.8	16.4	16.4	17.1	17.1	16.4
180.0	16.4	16.4	16.4	16.4	16.4	16.4	16.4	16.4
202.5	16.4	16.4	16.4	16.4	17.1	17.1	17.1	17.1
225.0	17.1	17.1	17.1	17.7	17.7	17.7	17.7	18.3
247.5	18.3	19.0	19.0	19.0	19.6	19.6	19.6	20.2
270.0	20.9	22.1	23.4	24.0	25.3	27.2	28.5	30.3
292.5	32.2	33.5	34.8	36.7	39.8	42.4	47.4	53.1
315.0	54.4	60.7	67.7	70.8	75.9	78.4	81.6	85.4
337.5	88.5	91.0	94.8	96.7	97.4	99.3	101.2	104.3

Depth: 2670 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	108.8	111.3	114.4	114.4	115.1	116.3	117.0	117.6
22.5	115.1	111.3	107.5	105.0	103.1	101.8	98.6	95.5
45.0	91.0	85.4	84.1	80.3	75.2	72.1	67.7	62.6
67.5	59.4	54.4	48.7	43.0	37.3	34.1	29.7	25.3
90.0	22.1	19.0	17.7	17.7	17.1	16.4	17.1	17.1
112.5	16.4	15.8	15.2	15.2	14.5	14.5	15.2	14.5
135.0	14.5	14.5	14.5	14.5	14.5	15.2	15.2	15.2
157.5	15.8	15.8	15.8	16.4	16.4	17.1	17.1	16.4
180.0	16.4	16.4	16.4	16.4	16.4	16.4	16.4	16.4
202.5	16.4	16.4	16.4	16.4	17.1	17.1	17.1	17.1
225.0	17.1	17.1	17.1	17.7	17.7	17.7	17.7	18.3
247.5	18.3	19.0	19.0	19.0	19.6	19.6	19.6	20.2
270.0	20.9	22.1	23.4	24.0	25.3	27.2	28.5	30.3
292.5	32.2	33.5	34.8	36.7	39.8	42.4	47.4	53.1
315.0	54.4	60.7	67.7	70.8	75.9	78.4	81.6	85.4
337.5	88.5	91.0	94.8	96.7	97.4	99.3	101.2	104.3

Depth: 2680 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	108.1	110.7	113.2	115.7	117.0	117.0	117.0	116.3
22.5	111.9	110.0	108.8	106.9	105.6	99.3	96.1	91.7
45.0	87.9	83.5	79.7	77.1	74.0	71.4	67.0	62.6
67.5	57.5	55.0	50.6	48.1	38.6	31.6	26.6	22.1
90.0	20.2	19.0	17.1	16.4	15.8	15.8	15.2	15.2
112.5	15.8	15.2	13.9	14.5	13.9	13.9	13.9	13.9
135.0	13.9	13.9	13.9	13.9	13.9	13.9	13.9	13.9
157.5	13.9	13.9	14.5	14.5	14.5	14.5	14.5	15.2
180.0	15.2	15.2	15.8	15.8	15.8	15.8	15.8	15.8
202.5	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8
225.0	15.8	16.4	16.4	16.4	17.1	17.7	17.1	17.1
247.5	17.1	17.7	17.7	18.3	18.3	18.3	19.0	19.6
270.0	19.6	20.2	20.9	22.1	24.0	25.3	26.6	27.2
292.5	27.8	30.3	34.1	34.8	37.3	39.8	42.4	49.3
315.0	56.9	60.1	65.1	69.6	71.4	77.1	82.2	84.1
337.5	86.0	88.5	91.7	94.2	96.7	97.4	100.5	103.7

Depth: 2690 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	110.7	113.2	113.8	114.4	115.1	115.1	113.8	113.2
22.5	111.3	109.4	106.2	104.3	100.5	98.6	96.7	94.8
45.0	91.7	86.0	79.0	72.7	68.3	65.8	63.2	62.0
67.5	59.4	56.9	56.3	50.6	37.9	29.7	25.9	21.5
90.0	19.0	17.1	16.4	15.8	15.8	15.2	14.5	13.9
112.5	13.9	13.3	13.3	13.3	13.3	13.3	13.3	13.3
135.0	13.3	13.3	13.3	13.3	13.3	13.3	13.3	13.9
157.5	13.9	13.9	13.9	13.9	13.9	14.5	13.9	13.9
180.0	14.5	14.5	13.9	13.9	13.9	13.9	13.9	13.9
202.5	14.5	13.9	14.5	14.5	14.5	15.2	15.2	15.2
225.0	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.8
247.5	15.8	15.8	15.8	16.4	16.4	17.1	18.3	18.3
270.0	18.3	19.0	20.2	21.5	23.4	24.7	25.3	27.8
292.5	29.1	32.2	34.8	37.9	40.5	46.8	49.3	53.7
315.0	58.8	62.6	65.8	68.3	71.4	77.1	82.2	86.6
337.5	89.2	91.0	92.3	94.2	94.8	96.1	101.8	107.5

Depth: 2700 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	110.0	112.5	112.5	113.8	115.1	114.4	114.4	114.4
22.5	111.9	110.0	108.1	106.2	102.4	99.3	96.7	93.6
45.0	91.7	89.2	84.7	68.3	67.0	63.2	61.3	59.4
67.5	57.5	54.4	51.2	50.0	29.7	27.8	27.2	22.1
90.0	17.7	16.4	15.2	14.5	13.9	13.9	13.9	13.3
112.5	13.3	13.3	13.3	13.9	12.6	12.6	12.6	12.6
135.0	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6
157.5	12.6	12.6	13.3	13.3	13.3	13.3	13.3	13.3
180.0	13.3	13.3	13.9	13.9	13.9	13.9	14.5	13.9
202.5	13.9	13.9	13.9	13.9	15.2	13.9	13.9	14.5
225.0	14.5	14.5	14.5	14.5	14.5	14.5	14.5	15.2
247.5	15.8	15.8	15.8	16.4	16.4	17.1	17.1	17.1
270.0	17.7	18.3	19.0	19.6	21.5	22.1	22.8	25.9
292.5	28.5	29.7	31.6	32.9	36.0	39.8	43.6	46.2
315.0	56.9	58.2	60.1	65.8	70.8	75.2	79.0	80.9
337.5	84.1	87.3	90.4	91.7	92.9	96.7	101.8	106.9

Depth: 2710 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	112.5	111.9	113.2	113.8	114.4	114.4	114.4	113.8
22.5	111.3	108.8	107.5	106.2	98.6	96.1	94.2	91.7
45.0	87.9	84.1	75.9	72.1	67.0	62.6	58.2	57.5
67.5	55.6	53.7	44.9	39.2	32.9	29.7	23.4	19.6
90.0	16.4	15.8	15.2	14.5	13.9	13.9	13.9	13.9
112.5	13.3	12.6	12.6	12.0	12.0	12.0	12.0	12.0
135.0	12.0	12.0	12.6	12.6	12.0	12.0	11.4	12.0
157.5	12.0	12.0	12.0	12.0	12.6	12.6	12.6	12.6
180.0	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6
202.5	13.3	13.3	13.3	13.3	13.3	13.3	13.3	13.3
225.0	13.3	13.3	13.9	13.9	13.9	13.9	14.5	14.5
247.5	14.5	14.5	14.5	15.2	15.2	15.2	15.2	15.8
270.0	17.1	17.1	17.7	18.3	19.0	20.2	22.1	25.3
292.5	26.6	28.5	31.0	32.2	34.1	37.9	41.7	49.3
315.0	52.5	56.3	62.0	67.0	70.8	75.2	76.5	79.0
337.5	82.8	86.6	89.2	91.7	92.9	94.2	102.4	109.4

Depth: 2720 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	113.2	113.8	113.2	113.8	115.7	116.3	115.1	115.7
22.5	99.3	98.6	99.3	98.6	98.0	96.1	96.1	89.8
45.0	86.6	82.8	77.1	70.8	65.8	64.5	62.0	60.1
67.5	56.9	46.2	38.6	37.3	22.8	19.0	17.1	16.4
90.0	16.4	15.8	15.2	15.2	13.9	13.9	13.3	13.3
112.5	12.6	12.6	12.6	12.6	12.6	12.0	12.0	11.4
135.0	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4
157.5	11.4	11.4	11.4	11.4	11.4	12.0	12.0	12.6
180.0	12.0	12.6	12.6	12.6	12.6	12.0	12.6	12.6
202.5	12.6	12.6	12.6	13.3	13.3	12.6	12.6	12.6
225.0	12.6	12.6	13.3	12.6	13.3	13.3	13.3	13.3
247.5	13.9	14.5	14.5	14.5	14.5	15.2	15.2	15.8
270.0	16.4	16.4	17.1	17.7	18.3	18.3	19.0	19.6
292.5	20.2	20.9	23.4	27.2	31.6	35.4	39.2	44.3
315.0	56.3	62.6	66.4	70.2	72.1	75.2	77.1	80.3
337.5	83.5	88.5	89.8	92.3	92.3	92.3	91.7	113.8

Depth: 2723 Tilt: 0 Range: 149.9 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	91.7	91.7	94.2	93.6	93.6	93.6	93.6	93.6
22.5	92.3	91.7	87.9	86.6	84.1	77.8	72.7	69.6
45.0	67.0	64.5	59.4	23.4	20.2	19.0	17.1	16.4
67.5	15.2	14.5	15.2	14.5	14.5	14.5	14.5	13.9
90.0	13.9	13.3	13.3	12.6	12.6	11.4	11.4	11.4
112.5	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4
135.0	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4
157.5	10.7	11.4	11.4	12.0	12.0	12.0	12.0	12.6
180.0	12.0	12.0	12.0	12.0	12.0	12.0	12.6	12.6
202.5	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6
225.0	12.6	12.6	12.6	13.3	13.3	13.3	13.9	13.9
247.5	13.9	13.9	13.9	13.9	13.9	13.9	13.9	14.5
270.0	13.9	14.5	14.5	14.5	14.5	14.5	15.2	16.4
292.5	17.1	17.1	17.1	19.0	20.2	21.5	23.4	26.6
315.0	29.1	31.6	34.8	37.3	40.5	72.7	75.9	77.8
337.5	77.8	78.4	80.3	79.7	80.3	79.7	79.7	86.0

Depth: 2726 Tilt: 0 Range: 49.5 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	9.8	9.6	9.6	9.8	9.6	10.0	10.0	10.4
22.5	11.1	10.9	10.2	10.2	10.4	10.4	10.9	11.1
45.0	11.1	11.1	10.9	10.4	10.9	11.1	11.5	11.7
67.5	11.9	11.9	11.9	12.1	12.1	11.9	11.9	11.9
90.0	11.5	11.3	10.9	10.2	10.0	10.0	10.0	10.0
112.5	10.2	10.2	10.2	10.0	10.0	9.6	9.6	9.6
135.0	9.6	9.8	10.2	10.0	10.0	10.0	10.0	10.2
157.5	10.4	10.4	10.2	10.2	10.2	10.2	10.0	9.8
180.0	9.8	9.8	9.6	9.8	9.8	9.6	9.6	9.8
202.5	9.8	9.6	9.8	9.8	9.8	9.8	10.0	10.0
225.0	9.8	9.8	9.6	9.8	9.6	9.8	9.8	10.0
247.5	9.8	9.6	9.6	9.6	9.6	9.6	9.6	9.6
270.0	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6
292.5	9.4	9.6	9.8	9.6	9.4	9.2	9.0	9.2
315.0	9.4	9.4	9.2	9.2	9.2	9.4	9.4	9.4
337.5	9.4	9.4	9.6	9.6	9.6	9.8	9.8	9.8

Depth: 2726 Tilt: -30 Range: 24.7 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	5.8	5.8	5.8	5.7	5.7	5.7	5.8	5.8
22.5	5.8	5.8	5.7	5.6	5.7	5.7	5.6	5.7
45.0	5.8	5.6	5.6	5.6	5.8	5.8	5.8	5.8
67.5	5.8	5.8	6.0	6.0	6.0	6.0	6.0	6.0
90.0	6.0	6.0	6.0	6.2	6.2	6.1	6.1	6.0
112.5	6.0	6.1	6.2	6.1	6.1	6.2	6.3	6.3
135.0	6.2	6.2	6.1	6.3	6.1	6.1	6.0	6.1
157.5	6.1	6.0	6.0	6.0	6.0	6.0	6.1	6.1
180.0	5.8	6.0	6.0	6.0	6.0	6.0	6.0	5.8
202.5	5.8	5.7	5.7	5.7	5.7	5.7	5.7	5.7
225.0	5.6	5.6	5.6	5.7	5.7	5.6	5.6	5.7
247.5	5.7	5.7	6.0	6.0	6.0	5.8	6.0	6.0
270.0	6.0	6.0	6.0	6.0	6.0	5.8	5.8	5.8
292.5	5.8	5.8	6.0	6.0	6.0	6.0	6.0	5.7
315.0	5.7	5.8	6.0	6.0	5.8	6.0	6.0	6.0
337.5	6.0	6.0	6.0	5.8	5.8	5.8	5.7	5.7

Depth: 2726 Tilt: -50 Range: 24.7 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	5.4	5.4	5.5	5.4	5.4	5.4	5.5	5.5
22.5	5.4	5.4	5.4	5.5	5.5	5.5	5.5	5.5
45.0	5.5	5.5	5.6	5.6	5.6	5.5	5.5	5.5
67.5	5.5	5.6	5.6	5.6	5.6	5.6	5.7	5.7
90.0	5.6	5.5	5.5	5.5	5.6	5.6	5.5	5.5
112.5	5.6	5.6	5.6	5.6	5.5	5.5	5.4	5.5
135.0	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
157.5	5.5	5.6	5.6	5.6	5.6	5.5	5.5	5.6
180.0	5.6	5.5	5.5	5.6	5.6	5.6	5.6	5.6
202.5	5.6	5.5	5.4	5.5	5.5	5.5	5.6	5.6
225.0	5.6	5.6	5.6	5.6	5.6	5.6	5.5	5.5
247.5	5.5	5.5	5.5	5.5	5.6	5.5	5.4	5.4
270.0	5.4	5.4	5.5	5.6	5.6	5.6	5.5	5.5
292.5	5.6	5.5	5.5	5.5	5.5	5.5	5.5	5.6
315.0	5.6	5.5	5.4	5.5	5.5	5.5	5.4	5.5
337.5	5.5	5.6	5.6	5.5	5.3	5.4	5.3	5.4

Depth: 2726 Tilt: -70 Range: 24.7 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	5.0	5.0	4.8	5.0	4.8	4.8	4.8	5.0
22.5	5.0	5.0	5.0	4.8	4.8	4.8	4.8	4.7
45.0	4.7	4.7	4.8	5.0	4.8	4.8	4.7	4.7
67.5	4.7	4.8	5.0	5.1	5.0	4.8	4.7	4.7
90.0	4.7	4.7	4.7	4.8	4.8	4.8	5.0	4.8
112.5	4.8	4.7	4.7	4.7	4.7	4.8	4.8	4.8
135.0	4.7	4.7	4.7	4.7	4.8	5.0	4.8	4.8
157.5	4.8	4.7	4.7	4.8	4.8	4.7	4.7	4.7
180.0	4.7	4.7	4.7	4.8	4.7	4.8	4.7	4.7
202.5	4.7	4.8	5.0	5.0	4.8	4.8	4.7	4.7
225.0	4.8	4.8	5.0	5.0	4.8	5.0	5.0	4.8
247.5	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
270.0	4.7	4.8	4.8	4.7	4.7	4.8	4.8	4.7
292.5	4.8	4.8	4.8	4.7	4.7	4.7	4.7	4.7
315.0	4.7	4.7	5.0	5.0	5.0	4.8	4.8	4.8
337.5	4.8	4.8	4.8	4.8	4.8	4.8	4.8	5.0

Depth: 2726 Tilt: -90 Range: 24.7 VOS: 5965

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	4.6	4.5	4.6	4.5	4.5	4.5	4.4	4.4
22.5	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
45.0	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.5
67.5	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
90.0	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
112.5	4.4	4.4	4.4	4.4	4.5	4.5	4.5	4.5
135.0	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
157.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
180.0	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
202.5	4.5	4.5	4.5	4.5	4.5	4.4	4.4	4.4
225.0	4.4	4.4	4.4	4.4	4.5	4.5	4.5	4.5
247.5	4.5	4.5	4.5	4.5	4.4	4.4	4.4	4.4
270.0	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
292.5	4.4	4.4	4.4	4.4	4.5	4.5	4.6	4.6
315.0	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
337.5	4.6	4.6	4.6	4.6	4.6	4.6	4.5	4.5

SCIENTIFIC DRILLING INT'L.
OKLAHOMA CITY, OKLAHOMA

GYROSCOPIC DIRECTIONAL SURVEY
FOR
****
PB-KBB INC.
****

JOB NUMBER:	34D189017
WELL NAME:	ROACH-BAKER #1
LOCATION:	GLENDALE, ARIZONA
SURVEY DATE:	01/30/89
SURVEY ENGINEER:	G. CATES
METHOD OF CALCULATION:	THE RADIUS OF CURVATURE
COMMENTS:	

```
*****************************************
*    THIS SURVEY IS CORRECT TO THE BEST OF MY    *
*KNOWLEDGE AND IS SUPPORTED BY ACTUAL FIELD DATA.*
*                                               *
*                                               *
*   ***************************************     *
*              COMPANY REPRESENTATIVE           *
*****************************************
```

SCIENTIFIC DRILLING INT'L.
OKLAHOMA CITY, OKLAHOMA

JOB NUMBER: 34D189017 DATE: 01/30/89

INRUN SURVEY

BY

THE RADIUS OF CURVATURE

MEAS. DEPTH	VERT. DEPTH	VERT. SECT.	COURSE DEV.	INC D M	BEARING D M	COORDINATES LATITUDE	COORDINATES DEPARTURE	D-LEG PER 100
84.00	84.00	-.03	.03	0- 3 S	21-38 W	.03 S	.01 W	.06
184.00	184.00	-.22	.31	0-18 S	2-14 W	.33 S	.08 W	.25
284.00	284.00	-.35	.58	0-22 S	32-29 E	.89 S	.07 E	.21
384.00	384.00	-.31	.66	0-23 S	29- 4 E	1.45 S	.41 E	.03
484.00	483.99	-.11	.75	0-29 S	58- 5 E	1.99 S	.92 E	.24
584.00	583.99	.36	.57	0-10 N	60-30 E	2.00 S	1.46 E	.43
684.00	683.99	.62	.29	0-10 N	13-44 E	1.77 S	1.63 E	.13
784.00	783.99	.91	.33	0-11 N	80-50 E	1.56 S	1.86 E	.19
884.00	883.99	1.03	.18	0- 1 S	41-21 E	1.62 S	2.02 E	.18
984.00	983.99	1.25	.32	0-21 N	70-38 E	1.70 S	2.31 E	.34
1084.00	1083.99	1.94	.74	0-30 N	20-59 E	1.20 S	2.83 E	.38
1184.00	1183.98	2.74	1.21	0-53 N	6-55 E	.03 S	3.12 E	.42
1284.00	1283.97	3.88	1.47	0-48 N	40-48 E	1.29 N	3.70 E	.50
1384.00	1383.95	5.48	1.79	1-15 N	31- 4 E	2.74 N	4.75 E	.48
1484.00	1483.93	7.10	2.05	1- 6 N	18-28 E	4.60 N	5.61 E	.30

SCIENTIFIC DRILLING INT'L.
OKLAHOMA CITY, OKLAHOMA

JOB NUMBER: 34D189017 DATE: 01/30/89

INRUN SURVEY

BY

THE RADIUS OF CURVATURE

MEAS. DEPTH	VERT. DEPTH	VERT. SECT.	COURSE DEV.	INC D M	BEARING D M	COORDINATES LATITUDE	DEPARTURE	D-LEG PER 100
1492.00	1491.93	7.21	.15	1- 5	N 16-12 E	4.74 N	5.65 E	.58
1541.00	1540.92	7.86	.93	1- 5	N 16-12 E	5.63 N	5.91 E	.00
1562.00	1561.92	8.29	.47	1-30	N 87- 0 E	5.91 N	6.26 E	7.31
1625.00	1624.79	11.89	3.71	5-15	N 62- 0 E	6.89 N	9.80 E	6.26
1687.00	1686.47	18.23	6.35	6-30	N 66- 0 E	9.67 N	15.51 E	2.12
1751.00	1750.06	25.44	7.25	6-30	N 69- 0 E	12.45 N	22.20 E	.53
1798.00	1796.75	30.73	5.32	6-30	N 69- 0 E	14.35 N	27.17 E	.00

****
THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF
****
1798.00 FEET EQUALS 30.72 FEET AT N 62- 9 E.
****

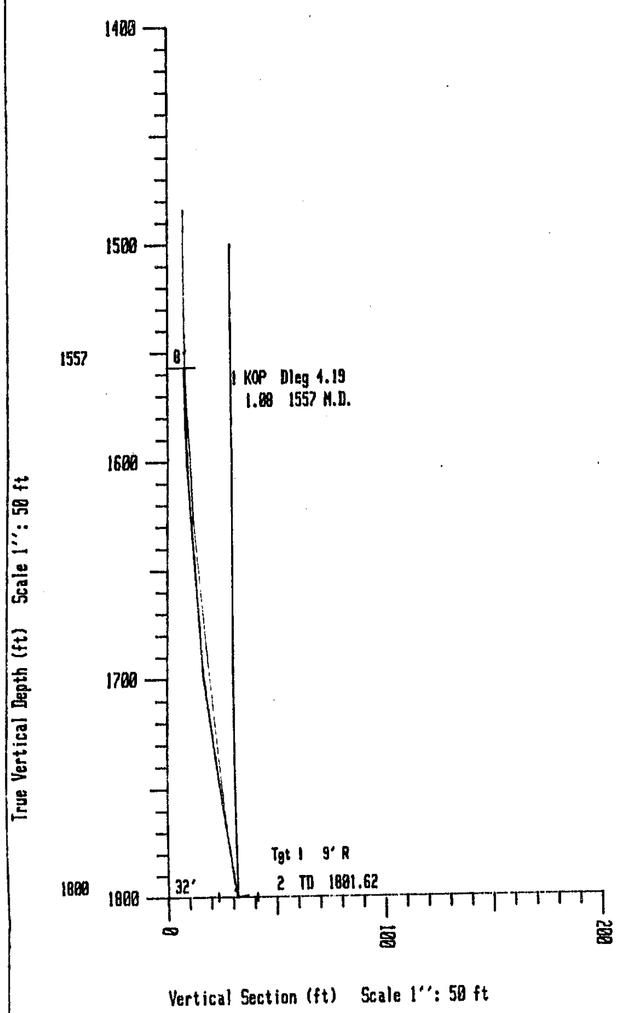
SCIENTIFIC DRILLING INTERNATIONAL
for PB -KBB INCORPORATED
Well : ROACH - BAKER NO. 1
GLENDALE ARIZONA
OKLAHOMA DISTRICT

All Directions Rel To
PLATFORM NORTH (Lat)
True N (+0°)
Mag N (+0°)

Date 30 JAN 89

Proposal Direction N 63.07 E

—— CGRB1AZ
---- PBRB1AZC



ALL DEPTHS IN FEET

Platform Location (GRID) :	0.0 N	0.0 E
Platform Center (LOCAL) :	0.0 N	0.0 E
Slot Coordinate (LOCAL) :	0.0 N	0.0 E

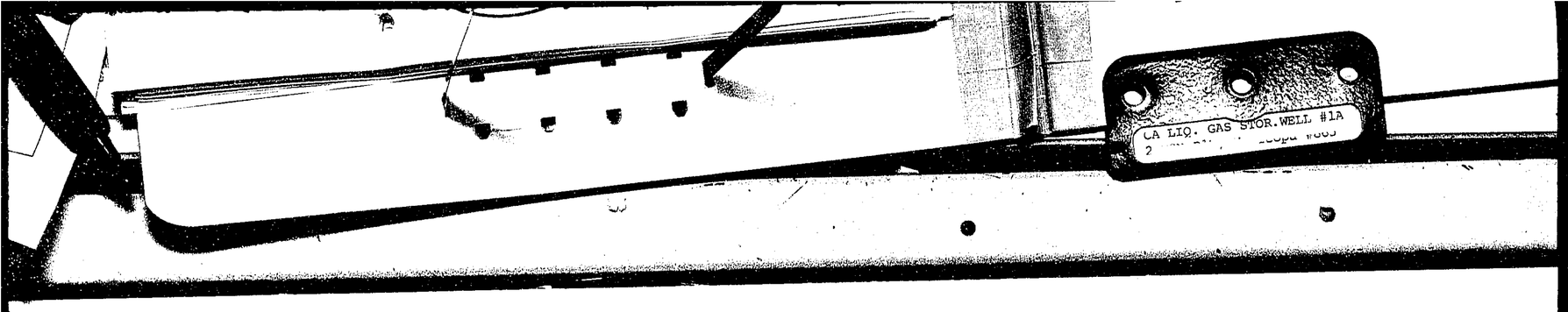
TARGETS	No	TVD	Lat	Dep
	1	1800	14	29

WELL PROPOSAL

#	MD	TVD	VS	Inc	Dir	Lat	Dep	Tgt
1	1557	1557	8	1.1	N 16.20 E	6	6	
2	1802	1800	32	10.8	N 73.29 E	14	29	1

CASING

No	Size	TVD	MD



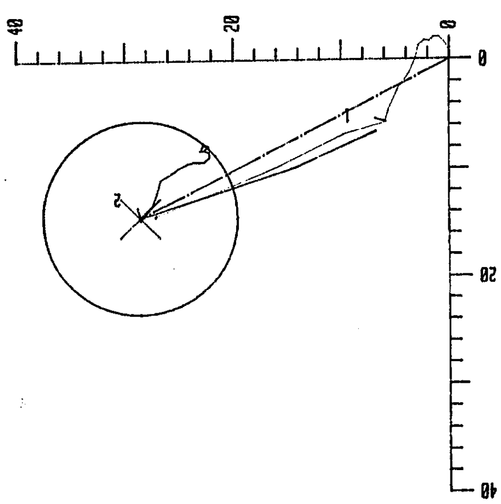
SCIENTIFIC DRILLING INTERNATIONAL
for PB -KBB INCORPORATED
Well : ROACH - BAKER NO. 1
GLENDALE ARIZONA
OKLAHOMA DISTRICT

All Directions Rel To
PLATFORM NORTH (Lat)
True N (+0°)
Mag N (+0°)

Date 30 JAN 89

CGRB1RZ
PBRB1RZC

Latitude (ft) N Scale 1'': 10 ft



Departure (ft) E Scale 1'': 10 ft

TARGETS	No	TVD	Lat	Dep
	1	1800	14	29

Platform Location (GRID) :	0.0 N	0.0 E
Platform Center (LOCAL) :	0.0 N	0.0 E
Slot Coordinate (LOCAL) :	0.0 N	0.0 E

WELL PROPOSAL

#	MD	TVD	VS	Inc	Dir	Lat	Dep	Tgt
1	1557	1557	0	1.1	N 16.20 E	6	6	
2	1802	1800	32	10.8	N 73.29 E	14	29	1

CASING

No	Size	TVD	MD

ALL DEPTHS IN FEET

PB-KBB
FENIX & SCISSON
ENGINEERING CONSTRUCTION OPERATIONS

11757 Katy Freeway #600
Houston, Texas 77079
(281) 496-5590

P.O. Box 19672
Houston, Texas 77224
Fax (281) 496-5658

March 28, 2000

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

P/N 865

Re: Mechanical Integrity Test
AmeriGas Propane LP
Well No. 1A Roach-Baker
Glendale, Arizona

Dear Mr. Rauzi:

Please find enclosed one copy of the Mechanical Integrity Test Report, AmeriGas Well No. 1A Roach-Baker. The report includes a copy of the Sonarwire "Sonar-Thru-Pipe" Survey for Cavern No. 1A. If you have any questions regarding the report or sonar survey please call or e-mail me.

Sincerely,

Tim Moran
Manager of Engineering

Phone: 281-589-5823
Fax: 281-589-5865
e-mail: morant@pbworld.com

APR 2000
ARIZONA GEOLOGICAL SURVEY

CC: Mr. Gary Powdrill, AmeriGas, Waddell, AZ.
Mr. Mark Thomas, AmeriGas, Houston, TX.

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

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

865

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

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 865

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

CONSER... MAY 25 1994

AmeriGas
America's Propane Company

November 20, 1990

865

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

865

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

965 627 670

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

CRONIN & STANEWICH
Name: Robert S. Cronin, Jr., Esq.
Address: 3636 North Central Avenue, #560
City, State, Zip: Phoenix, Arizona 85012
Telephone: (602)222-4647
State Bar Code: 002573
Client: Attorneys for Defendants

ARIZONA SUPERIOR COURT, County of Maricopa

AP PROPANE, INC., a corporation, and CERTAIN UNDERWRITERS AT LLOYD'S LONDON, and COMPANIES SUBSCRIBING TO POLICY NO. 86/0139N, Plaintiffs, v. FENIX & SCISSON, INC.; and DOES 1 through 25, Defendants.	**ACTION NO:** CV 89-06608 **AMENDED** **CIVIL SUBPOENA** ☒ Duces Tecum Assigned to the Hon. Armando de Leon - Div. 26

THE STATE OF ARIZONA TO: Custodian of Records
State of Arizona
Oil & Gas Conservation Commission

YOU ARE COMMANDED to appear and give testimony at the time and place specified below:

BEFORE WHOM APPEARANCE TO BE MADE: COURT REPORTER/NOTARY PUBLIC

DATE AND TIME OF APPEARANCE: July 10, 1991 at 10 a.m.
(Previously scheduled, July 11, 1991 at 10 a.m.)

PLACE OF APPEARANCE: Law offices of CRONIN & STANEWICH, 3636 North Central Avenue, #560, Phoenix, Arizona 85012

YOU ARE ALSO COMMANDED to bring with you and produce these books, papers, documents, or tangible things: See the attached Exhibit A for documents to be produced.

THIS SUBPOENA IS FOR DEPOSITION TESTIMONY. PLEASE CONTACT THIS OFFICE TWO DAYS PRIOR TO CONFIRM YOUR AVAILABILITY. (602)222-4647.

In the event this Subpoena is for appearance before the Court, please contact the division of this Court stated above to determine if the trial or hearing time has been changed. **ARS §§ 22-217, 12-2211; RCP 45(a), 53(e).**

You have been subpoened by: Defendants

whose attorney's name, address, and telephone number is: Same as above.

YOU ARE HEREBY NOTIFIED THAT ANY FAILURE TO OBEY THIS SUBPOENA WITHOUT ADEQUATE EXCUSE MAY BE DEEMED A CONTEMPT OF THIS COURT, AND A CIVIL ARREST WARRANT MAY BE ISSUED. A CIVIL ARREST IS AN ORDER DIRECTING ANY POLICE OFFICER IN ARIZONA TO ARREST YOU AND BRING YOU BEFORE THIS COURT FOR FUTURE PROCEEDINGS.

COPY
JUN 26 91

SIGNED AND SEALED this date: _____

Clerk

By _____
Deputy Clerk

JUDITH ALLEN CLERK
S. OLSEN
DEPUTY CLERK

2-1 © LawForms 11-87, 12-85, 9-87

CRONIN & STANEWICH
Name: Robert S. Cronin, Jr., Esq.
Address: 3636 North Central Avenue, Suite 560
City, State, Zip: Phoenix, Arizona 85012
Telephone: (602) 222-4647
State Bar Code: 002573
Client: Attorneys for Defendants

COPY

JUN 26 '91

ARIZONA SUPERIOR COURT, County of Maricopa

AP PROPANE, INC., a corporation, and CERTAIN UNDERWRITERS AT LLOYD'S LONDON, and COMPANIES SUBSCRIBING TO POLICY NO. 86/0139N, Plaintiffs,	JUDITH ALLEN, CLERK S. OLESIO DEPUTY CLERK ACTION NO: CV 89-06608
vs.	AMENDED
FENIX & SCISSON, INC.; and DOES 1 through 25, Defendants.	NOTICE OF DEPOSITION WITH CERTIFICATION OF SERVICE Assigned to the Hon. Armando De Leon

YOU ARE HEREBY NOTIFIED that, pursuant to **RCP 26 and 30**, the deposition will be taken upon oral examination of the persons whose names and addresses are stated below at the time and place stated below before an officer authorized by law to administer oaths. If the names are not known, a general description sufficient to identify those persons or the particular classes or groups to which those persons belong is given below.

PERSONS TO BE EXAMINED: Custodian of Records
State of Arizona
Oil & Gas Conservation Commission
5150 North 16th Street, Suite B141
Phoenix, Arizona 85016

DATE AND TIME OF DEPOSITION: July 10, 1991 at 10 a.m.
(Previously scheduled, July 11, 1991 at 10 a.m.)

PLACE OF DEPOSITION: Law offices of CRONIN & STANEWICH, 3636 North Central Avenue, #560, Phoenix, Arizona 85012

The undersigned certifies that copies of this notice have been served on the below date as follows:

Served by: ☒ Mailing; ☐ Delivering a copy to: R. Richard Audley, Esq.

Served by: ☒ Mailing; ☐ Delivering a copy to: W. Lloyd Benner, Esq.

Served by: ☒ Mailing; ☐ Delivering a copy to: Voss & Associates

Dated 6/26/91

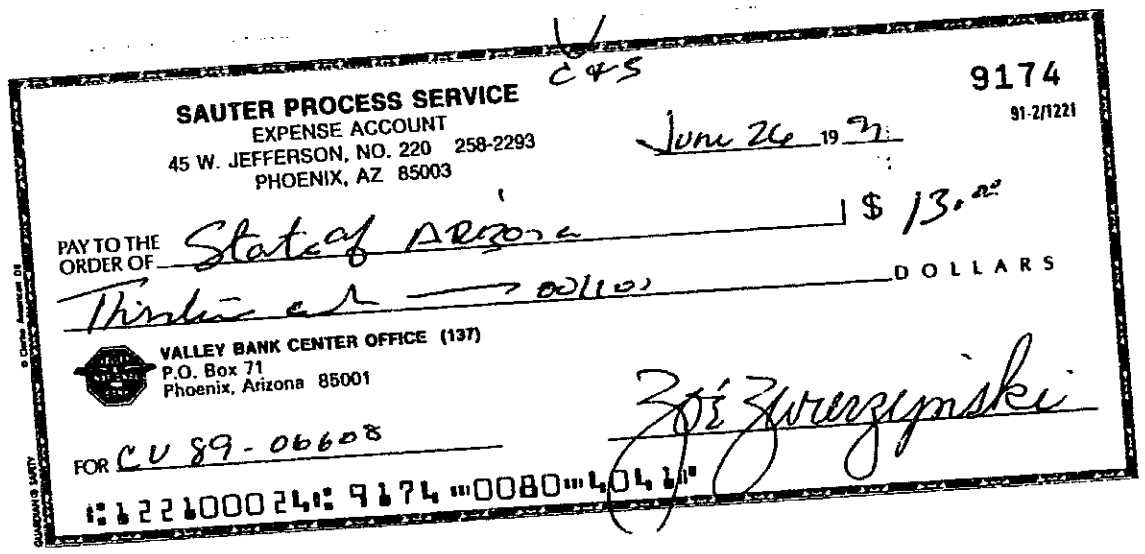
Attorney for Defendants

2-2 © LawForms 11-87, 7-84, 10-85 9-87

EXHIBIT A

Related to drilling permit #865. Well #1. Roach-Baker. API#02-013-20006. Section 2. T. 2N. RIW. GSRB&M.

Cavern #1, Goodyear, Arizona. Bond #210108. Any and records. reports, memoranda, documents, items of correspondence, photographs or other writings in the possession of the Arizona Gas and Oil Conservation Commission and contained within its files pertinent to the liquid propane gas leakage incident which occurred at 7511 North Disart, Glendale on or before 3/16/87 through 4/3/87.


SAUTER PROCESS SERVICE
EXPENSE ACCOUNT
45 W. JEFFERSON, NO. 220 258-2293
PHOENIX, AZ 85003

9174
91-2/1221

June 26 19 92

PAY TO THE ORDER OF State of Arizona $ 13.00

Thirteen & 00/100 DOLLARS

VALLEY BANK CENTER OFFICE (137)
P.O. Box 71
Phoenix, Arizona 85001

FOR CV 89-06608

Zoe Zwierzynski

⑆122100024⑆ 9174 ⑈0080⑈ 4041⑈

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

T3N 617 + 265

August 1, 1990

Mr. Gus Harbushka
AmeriGas Terminal
14702 West Olive Ave.
Peoria, AZ 85345

Dear Gus:

I am reviewing the active bonds on file with this Commission.

One of these bonds (210108) is for Roach-Baker 1 which was recently plugged and abandoned. Since the Roach-Baker 1A has its own bond (5516428), you may now request cancellation of bond 210108.

Sincerely,

Steve

Steven L. Rauzi
Oil & Gas Specialist

Enclosure

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 31, 1989

Mr. Steve Rauzi
Oil and Gas Conservation Commission
State of Arizona
3110 N. 19th Avenue, Suite 190
Phoenix, Arizona 85015

RE: AP Propane Inc. dba Cal Gas Well No. 1A Roach-Baker Maricopa County, Arizona
Drilling Permit No. 865

Dear Mr. Rauzi:

Please find enclosed the Form No. 26, Sundry Notices and Reports on Wells, and PB-KBB Inc.'s report concerning the Mechanical Integrity Test conducted on Cal Gas' Well No. 1A Roach-Baker.

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

Sincerely,

Tim Moran
Project Manager

TM/sbo

cc: Don Flemmons, Cal Gas Sacramento
Gus Harbushka, Cal Gas Phoenix

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

March 2, 1989

Mr. Dan Brennan
Executive Director
Arizona Oil & Gas Commission
3110 N. 19th Avenue, Suite 190
Phoenix, Arizona 85015

RE: AP Propane Inc. dba Cal Gas
Well No. 1A Roach-Baker
Maricopa County, Arizona
Drilling Permit No. 865

Dear Mr. Brennan:

Please find enclosed the following documents concerning the completion of Cal Gas' Well No. 1A Roach-Baker:

1. State of Arizona O&GCC - Well Completion or Recompletion Report and Well Log, Form No. 4, dated 3/2/89
2. Well History for Well No. 1A Roach-Baker
3. Well Schematic - Storage Well No. 1A Roach-Baker (as built)
4. Atlas Wireline Services - 4-Arm Caliper Log, dated 1/19/9
5. Atlas Wireline Services - Acoustic Cement Bond Log, dated 1/30/89
6. Atlas Wireline Services - Vertilog, dated 1/30/89
7. Scientific Drilling International - Gyroscopic Directional Survey, dated 1/30/89

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

Sincerely,

Tim Moran
Project Manager

TM/sbo

Enclosures

cc: Don Flemmons, Cal Gas - Sacramento
Gus Harbushka, Cal Gas - Phoenix

File

AmeriGas

CAL GAS

AMERICA'S PROPANE COMPANY

November 4, 1988

Oil & Gas Commission
3110 N. 19th Avenue
Suite 190
Phoenix, AZ 85015

Attn: Dr. Dan Brennan

Re: Permit No. 00865

Dear Dr. Brennan:

According to my records, the referenced plugging and drilling permit expires November 7, 1988. We have encountered some problems that have caused some delay in the plugging process.

The plugging of the abandoned No. 1 Roach-Baker well is now in progress, but the drilling of the No. 1A Roach-Baker re-entry will not commence prior to November 7, 1988.

We would appreciate the Commission granting Cal Gas another 90 day extension to this permit.

Sincerely,

Don Flemmons

Don Flemmons
Director of Terminals

DLF:je

8401 GERBER ROAD, P.O. BOX 28397 SACRAMENTO, CA 95828-0397 916-423-2010

AmeriGas

CAL GAS

AMERICA'S PROPANE COMPANY

September 27, 1988

Arizona Oil & Gas Commission
3110 N. 19th Avenue, Suite 180
Phoenix, AZ 85150

Attn: Mr. Dan Brennan

Dear Mr. Brennan:

Enclosed are two copies of a performance bond for the new re-entry well at Cal Gas' Luke underground storage.

This well is referred to as the No. 1A Roach-Baker well on our drill permit No.00865.

Please sign and return one copy of this bond for our files.

Sincerely,

Don Flemmons

Don Flemmons
Director of Terminals

Enclosure
DLF:je

Sent back his copy on 9/30/88
LR

8401 GERBER ROAD, P.O. BOX 28397 SACRAMENTO, CA 95828-0397 916-423-2010

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

June 30, 1988

Mr. Don Flemmons
Director of Terminals
Amerigas
8401 Gerber Road
Sacramento, CA 95828

Re: Storage Cavern No. 1 Roach-Baker

Dear Mr. Flemmons:

This letter constitutes Commission approval for you to start the five-year sonar requirement schedule on the day the cavern is returned to full operation.

We totally agree that the cavern has been completely shut in since the day the bridge plug was placed at 1540' in order to test the integrity of the casing.

If we can be of further assistance, please let us know.

Sincerely,

R. A. Ybarra
Enforcement Director

RAY:lr

AmeriGas

AMERICA'S PROPANE COMPANY

CAL GAS

RECEIVED

JUN 30 1988

June 27, 1988

Arizona Oil & Gas Commission
3110 N. 19th Avenue, Suite 180
Phoenix, AZ 85150

Attn: Mr. Rudy Ybarra

Dear Mr. Ybarra:

On May 21, 1987 our #1 storage cavern was sonared by Sonarwire, Inc. On May 24, 1987 there was a bridge plug set at 1540 feet completely closing the cavern.

Our plan is to drill a re-entry well into the #1 cavern to put it back into service. This drilling is scheduled to begin around the first of October and the well should be in usable condition by year end.

Since the Oil & Gas regulations require the cavern to be sonared every five years, we propose that the clock start on the five year requirement when the well is placed in usable condition. The cavern has remained plugged since May 24, 1987 making it impossible for any leaching to have taken place.

Please let us know what is required to begin the five year requirement at this later date.

Thank you for your assistance in having this set up.

Sincerely,

Don Flemmons

Don Flemmons
Director of Terminals

cc: Gus Harbushka, Phoenix Terminal
Joe Pettus, Supply & Trans., Sacramento

DLF:je

8401 GERBER ROAD SACRAMENTO, CA 95828 (916) 423-2010

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

June 28, 1988

Mr. Donald L. Flemmons
Director of Terminals
A P Propane, Inc., dba Cal Gas
P.O. Box 28397
Sacramento, CA 95828

Re: Extension of Drilling Permit #865

Dear Don:

This is in response to your letter of June 20, 1988, requesting an additional extension on the above drilling permit.

Your request is approved for an additional 90 days from August 9, 1988.

If I can be of further assistance, please feel free to call.

Yours truly,

R. A. Ybarra

R. A. Ybarra
Enforcement Director

RAY:lr

AmeriGas

CAL GAS

AMERICA'S PROPANE COMPANY

June 20, 1988

Arizona Oil & Gas Commission
3110 N. 19th Avenue, Suite 180
Phoenix, AZ 85150

Attn: Dr. Dan Brennan and Mr. R.A. Ybarra

Re: Extension of Drilling Permit #865

Dear Dr. Brennan and Mr. Ybarra:

To our surprise, the wellhead required to repair our #1 storage cavern is going to take 14 weeks for delivery.

The bids came back with the best delivery time of 14 weeks. All other bids required 18 to 22 weeks. As a result of this new development, I am forced to request another extension.

Based on a 14 week delivery, all the required equipment should be in our yard by the last week in September. As an added cushion for any further unknowns, we would like to extend the permit date to October 20, 1988. Surely we will have started by this date.

I certainly want to express my appreciation and the appreciation of AP Propane for your patience and understanding.

Sincerely,

Don Flemmons
Director of Terminals

cc: Joe Pettus, Cal Gas-Supply & Trans.
Ric Collins, Cal Gas-Engineering
Gus Harbushka, Cal Gas-Phoenix Terminal
Tim Moran, PB-KBB, Inc.

DLF:je

8401 GERBER ROAD SACRAMENTO, CA 95828 (916) 423-2010

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

May 18, 1988

Cal Gas
8401 Gerber Road
P.O. Box 28397
Sacramento, CA 95828-0397

Attention: Don Flemmons

Re: Drilling Permit #865

Dear Don:

This is in response to your letter of May 6, 1988, requesting an extension on the above drilling permit.

Your request is approved until August 9, 1988.

Yours truly,

R. A. Ybarra

R. A. Ybarra
Enforcement Director

RAY:lr

MAY 9 1988

O & G CONS. COMM.

AmeriGas CAL GAS

AMERICA'S PROPANE COMPANY

May 6, 1988

Arizona Oil & Gas Commission
3110 N. 19th Avenue, Suite 180
Phoenix, AZ 85150

Attn: Rudy Ybarra

Re: Permit to Drill #00865

Dear Rudy:

We have received approval of funds to proceed with plugging of well #1 Roach-Baker and drilling replacement well #1A Roach-Baker.

We will not be able to award bids and begin drilling before our Permit #00865 expires on May 9, 1988. We would very much appreciate the Commission granting a 60 day extention on this permit.

If you have any questions, please give me a call.

Sincerely,

Don Flemmons

Don Flemmons
Director of Terminals

cc: Joe Pettus, Cal Gas-Sacramento
Gus Harbushka, Cal Gas-Phoenix Terminal
Ric Collins, Cal Gas-Sacramento
Tim Moran, PB-KBB, Inc.-Houston

DLF:je

8401 GERBER ROAD SACRAMENTO, CA 95828 (916) 423-2010

CAL GAS

RECEIVED
FEB 22 1988
O&G

February 18, 1988

Arizona Oil & Gas Commission
3110 N. 19th Avenue, Suite 180
Phoenix, AZ 85150

Attn: Rudy Ybarra

Re: Semi-Annual Safety Inspection

Dear Rudy:

In order to comply with the regulations of the Oil and Gas Commission, Cal Gas has developed a report to be used for the semi-annual safety inspection. I have enclosed a copy of this report for your review.

Gus Harbushka will be notifying you shortly of our first safety inspection using this report.

It is conceivable that we will make some changes to this report after our first actual application.

Sincerely,

Don Flemmons

Don Flemmons
Director of Terminals

cc: Joe Pettus, Supply & Trans., Cal Gas
Gus Harbushka, Phoenix Terminal, Cal Gas

DLF:ja
Enclosure

8401 GERBER ROAD P.O. BOX 28397 SACRAMENTO, CA 95828-0397 (916) 423-2010

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

February 9, 1988

Mr. Donald L. Flemmons
Director of Terminals
8401 Gerber Road
P.O. Box 28397
Sacramento, CA 95828-0397

Re: A P Propane, Inc. dba Cal Gas Corp.
Drilling Permit No. 865
Maricopa County, Arizona

Dear Mr. Flemmons:

This is to acknowledge receipt of your letter of February 5, 1988, requesting a 90 day extension to the above drilling permit.

Your request is approved from the date your request was received, February 9, 1988.

Yours truly,

R. A. Ybarra

R. A. Ybarra
Enforcement Director

RAY:lr

CAL GAS

RECEIVED
FEB 9 1988
O & G CONS. COMM.

February 5, 1988

Arizona Oil & Gas Commission
3110 N. 19th Avenue, Suite 180
Phoenix, AZ 85105

Attn: Rudy Ybarra

Re: Permit No. 00865 to AP Propane, Inc., dba Cal Gas

Dear Mr. Ybarra:

On November 9, 1987 Cal Gas was issued Permit No. 00865 (copy attached) for drilling a well known as No. 1A Roach-Baker. As I understand the requirement of the Commission, drilling must begin within 90 days from the date this permit was issued. We have not yet began drilling this well, but we still have full intentions of doing so. Cal Gas would very much appreciate an additional 90 days to get the project under way. I feel certain we will begin within this timeframe.

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

Sincerely,

Don Flemmons

Donald L. Flemmons
Director of Terminals

cc: Joe Pettus, Supply & Trans., Cal Gas
Bob Knauss, Legal Dept., UGI Corp.
Gus Harbushka, Phoenix Terminal, Cal Gas

DLF:ja
Attachment

8401 GERBER ROAD P.O. BOX 28397 SACRAMENTO, CA 95828-0397 (916) 423-2010

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

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

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

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 1997
ARIZONA GEOLOGICAL SURVEY

ORGANIZATION REPORT

Full Name of the Company, Organization, or Individual
AP Propane, Inc. dba Cal Gas

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)
Delaware Corporation

Purpose of Organization (State type of business in which engaged)
Liquid Petroleum Gas

If a reorganization, give name and address of previous organization.
Cal Gas Corporation

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	14702 W. Olive Ave. Peoria, AZ 85344	9-23-88

Principal Officers or Partners (if partnership) NAME	TITLE	POST OFFICE ADDRESS
James A. Sutton	Chairman of the Board	P.O. Box 858, Valley Forge, PA
Robert C. Mauch	President	P.O. Box 965, Valley Forge, PA
Luis A. Gomez	Sr. V.P.-Operations-East	" "
Lee C. Jordan	Sr. V.P.-Finance	" "
Ronald D. Paliughi	Sr. V.P.-Operations-West	P.O. Box 28397, Sacramento, CA
Frank M. Gracar	V.P.-Pacific Region	" "
Larry K. Kenobbie	V.P.-Transportation	" "

DIRECTORS NAME	POST OFFICE ADDRESS
Charles L. Ladner	P.O. Box 858, Valley Forge, PA 19482
Thomas V. Lefeure	" "
Robert C. Mauch	P.O. Box 965, Valley Forge, PA 19482
James A. Sutton	P.O. Box 858, Valley Forge, PA 19482
George P. Maginness	" "

CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the Director of Terminals of the AP Propane, Inc., dba Cal Gas (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

September 29, 1988
Date

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

4/82

RECEIVED
SEP 28 1987
O & G CONS. COMM.

ORGANIZATION REPORT

Full Name of the Company, Organization, or Individual
AP Propane, Inc., dba Cal Gas

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 and Retail LP Gas and Related Activities

If a reorganization, give name and address of previous organization.
Cal Gas Corp. P.O. Box 28397, Sacramento, CA 95828

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	CT Corp. System 3225 North Central Ave. Phoenix, AZ 85012	8/10/87

Principal Officers or Partners (if partnership) NAME	TITLE	POST OFFICE ADDRESS
Robert C. Mauch	President	P.O. Box 858 Valley Forge, PA 19482
Ronald D. Paliughi	Senior Vice Pres. Oprtns-West	P.O. Box 28397 Sacramento, CA 95828
Joseph H. Pettus	Senior V.P., Supply & Trans.	P.O. Box 28397 Sacramento, CA 95828
Lon R. Greenberg	V.P., General Counsel & Secrt.	P.O. Box 858 Valley Forge, PA 19482
Robert L. Rawls	V.P. Intermountain Region	2950 S. Jamaica Court, Suite 104 Aurora, CO 80014-2626
William M. Graff	Treasurer	P.O. Box 858 Valley Forge, PA 19482

DIRECTORS NAME	POST OFFICE ADDRESS
Charles L. Ladner	P.O. Box 858, Valley Forge, PA 19482
Thomas V. Lefevre	P.O. Box 858, Valley Forge, PA 19482
Robert C. Mauch	P.O. Box 858, Valley Forge, PA 19482
James A. Sutton	P.O. Box 858, Valley Forge, PA 19482

CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the Director of Terminals of the AP Propane, Inc., dba Cal Gas (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.

Don Flemmons
Signature

9-22-87
Date

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

4/82

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS

Bond Serial No. 5516428

That we: AP PROPANE, INC. DBA CAL GAS

of the County of MONTGOMERY in the State of PENNSYLVANIA

as principal, and SAFECO INSURANCE COMPANY OF AMERICA

of SAFECO PLAZA, Seattle, Washington 98185

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 00/100---------- 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:
The Southwest Quarter of the Northwest Quarter of Section 2, Township 2 North, Range 1 West of the G&SRB&M, County of Maricopa i.e. Roach Baker # 1A

(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 quantities, this obligation is void; otherwise it shall remain in full force and effect.

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

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

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

WITNESS our hands and seals, this 8th day of September, 1988.

AP PROPANE, INC. DBA CAL GAS

BY: Lee Jordan Pres

Lee Jordan, Sr. Vice President

WITNESS our hands and seals, this 8th day of September, 1988.

SAFECO INSURANCE COMPANY OF AMERICA

BY: Edward W. Horstmeyer

EDWARD W. HORTSTMEYER, Surety 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 9/30/88
STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
By: [illegible]

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

Permit No. 865

COUNTERSIGNED BY:
Susan Ann Toomey
Susan Ann Toomey

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
----------SAMUEL T. ALVINO; RICHARD A. JACOBUS; JOHN E. SCHERF; MARIE T. McCORMICK, EDWARD W. HORSTMEYER, 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 21st day of July, 19 87.

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, Boh A. Dickey, 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 8th day of September, 19 88.

SAFECO INSURANCE COMPANY OF AMERICA CORPORATE SEAL 1953 STATE OF WASHINGTON

GENERAL INSURANCE COMPANY OF AMERICA CORPORATE SEAL 1923 STATE OF WASHINGTON

S-974 R10 3/86

PRINTED IN U.S.A.

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. 5516428

Type of Bond: Contract - Drill Well(s) for Oil, Gas, Etc.

dated effective September 8, 1988
(MONTH-DAY-YEAR)

executed by AP Propane, Inc. dba Cal Gas, as Principal,
(PRINCIPAL)

and by SAFECO INSURANCE COMPANY OF AMERICA, as Surety,

in favor of State of Arizona
(OBLIGEE)

in consideration of the mutual agreements herein contained the Principal and the Surety hereby consent to changing

The Name of Principal

From: AP Propane, Inc. dba Cal Gas

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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PRINTED IN U.S.A.

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.

SEAL

CORPORATE SEAL

S-974/EP 1/93

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