Perrellgas, Inc. (Buckeye Gas Products)
NW/NE Sec. 8-T18N-R24E- Apache Cty. 646

COUNTY Apache AREA 16 mi W to Holbrook LEASE NO. Willaims Energy Co.

Beckeye Gas Products Adamana

WELL NAME ~~WILLIAMS ENERGY~~ COMPANY ~~[redacted]~~ NO 7 Lee

LOCATION NW/NW SEC 8 TWP 18N RANGE 24E FOOTAGE 423.595 & 150 E of NW Corner

ELEV 5347.0 GR 5352 KB SPUD DATE ~~8-14~~ 7-17-75 STATUS ~~LPG Storage~~ COMP. DATE 8-14-75 TOTAL DEPTH 1152'

CONTRACTOR J. O. Barnes Drilling Services, Inc.

CASING SIZE	DEPTH	CEMENT	LINER SIZE & DEPTH
13 3/8	164'	150 sx	
9 5/8	955	325 sx	
~~7~~	~~1122~~	~~Hung~~	
4 1/2	1138	Hung	

DRILLED BY ROTARY x

DRILLED BY CABLE TOOL

PRODUCTIVE RESERVOIR

INITIAL PRODUCTION

FORMATION TOPS	DEPTHS	SOURCE L.L.	SOURCE E.L.	REMARKS
See completion report				

ELECTRIC LOGS	PERFORATED INTERVALS	PROD. INTERVALS
Sonic-Gamma Ray	NA	NA

SAMPLE LOG

SAMPLE DESCRP.

SAMPLE NO.

CORE ANALYSIS

DSTs

REMARKS Samples Not Required

APP. TO PLUG

PLUGGING REP.

COMP. REPORT x

WATER WELL ACCEPTED BY

BOND CO. ~~The Aetna Casualty & Surety Co.~~ ~~Federal Ins. Co. filed in PW 778~~ St. Paul Fire & Casualty Co.

BOND NO. ~~8047-02-65~~ 340-32083

BOND AMT. $ 25,000 ✓

CANCELLED

DATE 1-15-80

ORGANIZATION REPORT 11-21-72

FILING RECEIPT 0376

LOC. PLAT x

WELL BOOK x

PLAT BOOK x

API NO. 02-001-20211

DATE ISSUED 6-3-75

DEDICATION LPG Storage Well

PERMIT NUMBER 646

Blue Pallo Pto Mesa

(over)

[redacted]

DRILL STEM TEST

NO.	FROM	TO	RESULTS

CORE RECORD

NO.	FROM	TO	RECOVERY	REMARKS

REMEDIAL HISTORY

DATE STARTED	COMPLETED	WORK PERFORMED	NEW PERFORATIONS

ADDITIONAL INFORMATION

RECEIVED

JUN 22 1982

O & G CONS. COMM.

WELL COMPLETION OR RECOMPLETION REPORT AND WELL LOG

DESIGNATE TYPE OF COMPLETION:

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

DESCRIPTION OF WELL AND LEASE

Operator: BUCKEYE GAS PRODUCTS CO.	Address: P.O. BOX 3478 TULSA, OK. 74101
Federal, State or Indian Lease Number or name of lessor if free lease: BUCKEYE GAS PRODUCTS CO.	Well Number: C7 / Field & Reservoir: ADAMANA, AZ.
Location: 423.59 FSL - 150.00 FWL	County:
Sec. TWP-Range or Block & Survey: SEC. 8, T-18N R-24E G. & S.R. B. & M.	

Date spudded	Date total depth reached	Date completed, ready to produce	Elevation (DF, RKB, RT or Gr.)	Elevation of casing hd. flange
7-17-75	8-14-75	8-14-75	5347 feet	5352 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.
1152	-	SALT SOLUTION	

Producing interval (s) for this completion	Rotary tools used (interval)	Cable tools used (interval)
955 TO 1138	G.L. TO T.D.	-

Was this well directionally drilled?	Was directional survey made?	Was copy of directional survey filed?	Date filed
NO	NO	NO	-

Type of electrical or other logs run (check logs filed with the commission): COMPENSATED SONIC LOG, GAMMA RAY NEUTRON, CEMENT BOND — Date filed:

CASING RECORD

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

Purpose	Size hole drilled	Size casing set	Weight (lb./ft.)	Depth set	Sacks cement	Amt. pulled
SURFACE	17½	13 3/8	48 lbs.	168	150	0
PROTECTION	12¼	9 5/8	32.30	955	325	0
INTERMEDIATE	12¼	7	20	991	HUNG-UNCEMENTED	
SOLUTION	12¼	4½	11.60	1138	HUNG-UNCEMENTED	

TUBING RECORD

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

LINER RECORD

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

PERFORATION RECORD

Number per ft.	Size & type	Depth Interval

ACID, SHOT, FRACTURE, CEMENT SQUEEZE RECORD

Am't. & kind of material used	Depth Interval

INITIAL PRODUCTION

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

Date of test	Hrs. tested	Choke size	Oil prod. during test	Gas prod. during test	Water prod. during test	Oil gravity
			bbls.	MCF	bbls.	°API (Corr)

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

Disposition of gas (state whether vented, used for fuel or sold):

CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the Mgr. of the Buckeye (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.

6-28-82
Date

Amado Padilla
Signature

Permit No. 646

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

DETAIL OF FORMATIONS PENETRATED

FORMATION	TOP	BOTTOM	DESCRIPTION*
SURFACE SOIL	0	20	SAND
	20	57	RED CLAY
	57	141	CLAY AND SAND SHELLS
	141	189	SAND SHELLS AND CLAY
	189	193	SAND
	193	220	SANDY SHALE
	220	291	SHALEY SAND
	291	335	SAND SHALE
COCONINO	335	794	COCONINO
	794	803	SHALE
	803	810	ANHYDRITE
	810	824	SHALE
	824	838	ANHYDRITE
	838	850	SHALE
	850	854	ANHYDRITE
	854	873	SAND
	873	879	SHALE
	879	888	POTASH
	888	895	SANDY SHALE
	896	1119	SALT
	1119	1152	SHALE

* 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

WELL COMPLETION OR RECOMPLETION REPORT AND WELL LOG

DESIGNATE TYPE OF COMPLETION:

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

DESCRIPTION OF WELL AND LEASE

Operator: Williams Energy Company	Address: P. O. Box 3478, Tulsa, Oklahoma 74101
Federal, State or Indian Lease Number or name of lessor if fee lease: Williams Energy Company	Well Number: 7
	Field & Reservoir: Adamana
Location: 424' FNL & 150' FWL	County: Apache
Sec. TWP-Range or Block & Survey: NW NW Section 8, T 18N, R 24E G & S R B & M	

Date spudded	Date total depth reached	Date completed, ready to produce	Elevation (DF, RKB, RT or (Gr) feet	Elevation of casinghead
7-17-75	8-7-75	8-14-75	5347	KB 5352 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.
1152	---	LPG Storage	

Producing interval (s) for this completion	Rotary tools used (interval)	Cable tools used (interval)
----	0-1152	No

Was this well directionally drilled?	Was directional survey made?	Was copy of directional survey filed?	Date filed
No	No	----	----

Type of electrical or other logs run (check logs filed with the commission): Sonic-Gamma Ray — Date filed:

CASING RECORD

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

Purpose	Size hole drilled	Size casing set	Weight (lb./ft.)	Depth set	Sacks cement	Amt. pulled
Surface	17½	13-3/8"	48.00	164	150	0
Protection	12¼	9-5/8"	32.30	955	325	0
Solution		7"	20#	1122	Hung	0
Solution		4½"	11.60#	1138	Hung	0

TUBING RECORD

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

LINER RECORD

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

PERFORATION RECORD

Number per ft.	Size & type	Depth Interval

ACID, SHOT, FRACTURE, CEMENT SQUEEZE RECORD

Am't. & kind of material used	Depth Interval

INITIAL PRODUCTION

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

Date of test	Hrs. tested	Choke size	Oil prod. during test bbls.	Gas prod. during test MCF	Water prod. during test bbls.	Oil gravity ° API (Corr)

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

Disposition of gas (state whether vented, used for fuel or sold):

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

Date: 9/8/75

Signature: R. J. Wiruth

RECEIVED
SEP 10 1975
O & G CONS. COMM.

Permit No. 646

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

(Complete Reverse Side)

DETAIL OF FORMATIONS PENETRATED

Formation	Top	Bottom	Description*
Surface	0	40	Soil
	40	66	Red clay
	66	150	Clay & Shells
	150	376	Shale with sand stringers
Coconino	376	794	Sand
	794	828	Shaley sand
	828	850	Sandy shale
	850	860	Shaley anhydrite
	860	877	Anhydrite
	877	891	Shale
	891	899	Anhydrite
	899	901	Shale
Top Salt	901	1140	Salt with shale stringers
	1140	1152	Shale
TD		1152	

* 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

SUNDRY NOTICES AND REPORTS ON WELLS

1. Name of Operator WILLIAMS ENERGY Co.

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

3. Well Name ADAMANA #7

Location NW NW

Sec. 8 Twp. 18N Rge. 24E County APACHE Arizona.

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

5. Field or Pool Name ADAMANA

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) PROGRESS			☐

(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.)

RAN SONIC-GAMMA & BOND LOG

HUNG 7" OD CSG AT 1122'

HUNG 4½" OD CSG AT 1138

WELL COMPLETED 8-14-75

RECEIVED
AUG 26 1975
O & G CONS. COMM.

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

Signed Ben Pancock Title Supt Date 8-15-75

Permit No. 646

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

SUNDRY NOTICES AND REPORTS ON WELLS

1. Name of Operator WILLIAMS ENERGY Co

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

3. Well Name ADAMANA #7

Location NW NW

Sec. 8 Twp. 18N Rge. 24E County APACHE Arizona.

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

5. Field or Pool Name ADAMANA

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) WEEKLY			☐

(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.)

TOTAL DEPTH DRILLED 1152' 12¼" HOLE

9⅝" 32.30# CSG. CEMENTED WITH 325 SAX 50-50 POZ

2% GEL - 30% SALT - ¼# FLOCELE PER SACK AT 955'.

RECEIVED
AUG 1 0 1975
O & G CONS. COMM.

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

Signed [signature] Title Asst Dist Date 8-8-75

Permit No. 646

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

SUNDRY NOTICES AND REPORTS ON WELLS

1. Name of Operator WILLIAMS ENERGY CO.

2. OIL WELL ☐ GAS WELL ☐ OTHER ☑ (Specify) LPG CAVERN

3. Well Name ADAMANA No. 7

Location NW NW

Sec. 8 Twp. 18N Rge. 24E County APACHE Arizona.

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

5. Field or Pool Name ADAMANA

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

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

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

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

DRILLING AT 820' IN SHALE

RECEIVED
AUG - 5 1975
O & G CONS. COMM.

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

Signed [signature] Title Supt Date 8-2-75

Permit No. 646

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

SUNDRY NOTICES AND REPORTS ON WELLS

1. Name of Operator WILLIAMS ENERGY CO.

2. OIL WELL ☐ GAS WELL ☐ OTHER ☑ (Specify) LPG CAVERN

3. Well Name ADAMANA No. 7

Location NW NW

Sec 8 Twp. 18N Rge. 24E County APACHE Arizona.

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

5. Field or Pool Name ADAMANA

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

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

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

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

DRILLING AT 820' IN SHALE

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

Signed [signature] Title Supt Date 8-2-75

Permit No. 646

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

SUNDRY NOTICES AND REPORTS ON WELLS

1. Name of Operator WILLIAMS ENERGY CO.

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

3. Well Name ADAMANA #7

Location NW NW

Sec. 8 Twp. 18N Rge. 24E County APACHE Arizona.

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

5. Field or Pool Name ADAMANA

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

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

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

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

SPUD DATE 7-17-75 4:30 P.M.
DRILLING AT 545 - 7-25-75 IN
SHALE & ANHYDRITE

RAN 167.70 13 3/8" 48# H-40 NEW 8RD THD CASING
CEMENTED BY HALLIBURTON W/150 SX CLASS "B"
CEMENT 11:00 P.M. 7-18-75. CEMENT CIRCULATED
USED HALLIBURTON GUIDE SHOE & BAFFLE RING
W/2 HALLIBURTON CENTRALIZERS AT 50' & 130'

RECEIVED
JUL 30 1975
O & G CONS. COMM.

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

Signed [signature] Title DIST. SUPT. Date 7-25-75

Permit No. 646

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

APPLICATION FOR PERMIT TO DRILL OR RE-ENTER

APPLICATION TO DRILL ☒ RE-ENTER OLD WELL ☐

WILLIAMS ENERGY COMPANY
NAME OF COMPANY OR OPERATOR

P. O. BOX 3478 | TULSA | OKLAHOMA 74101
Address | City | State

J. O. BARNES DRILLING SERVICES, INC.
Drilling Contractor

P. O. BOX 141, CASA GRANDE, ARIZONA 85222
Address

DESCRIPTION OF WELL AND LEASE

Federal, State or Indian Lease Number, or if fee lease, name of lessor	Well number	Elevation (ground)
WILLIAMS ENERGY COMPANY	7	5347.00'

Nearest distance from proposed location to property or lease line:	Distance from proposed location to nearest drilling, completed or applied—for well on the same lease:
150 feet	400 feet

Number of acres in lease:	Number of wells on lease, including this well, completed in or drilling to this reservoir:
114	8

If lease, purchased with one or more wells drilled, from whom purchased: Name: N/A Address:

Well location (give footage from section lines)	Section—township—range or block and survey	Dedication (Comply with Rule 105)
423.59' South & 150' East of NW Corner	SEC.8, T18N, R24E, G&S.R.B.&M.	

Field and reservoir (if wildcat, so state)	County
Unnamed	Apache

Distance, in miles, and direction from nearest town or post office
16 miles west to Holbrook, Arizona

Proposed depth:	Rotary or cable tools	Approx. date work will start
1100	Rotary	June 23, 1975
Bond Status Amount	Organization Report On file Yes Or attached	Filing Fee of $25.00 Attached Yes

Remarks: Request that Commission grant an exception to Rule 105 describing minimum distances since these wells are a part of a liquified petroleum gas storage cavern complex in a salt strata.

CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the Manager of Operations of the Williams Energy (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.

RECEIVED
JUN 3 1975
D & G CONS. COMM.

Robert J. Wiruth
Signature R. J. Wiruth

Date

Permit Number: 646
Approval Date: 6-3-75
Approved By: WBC

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)

Webster notified

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

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

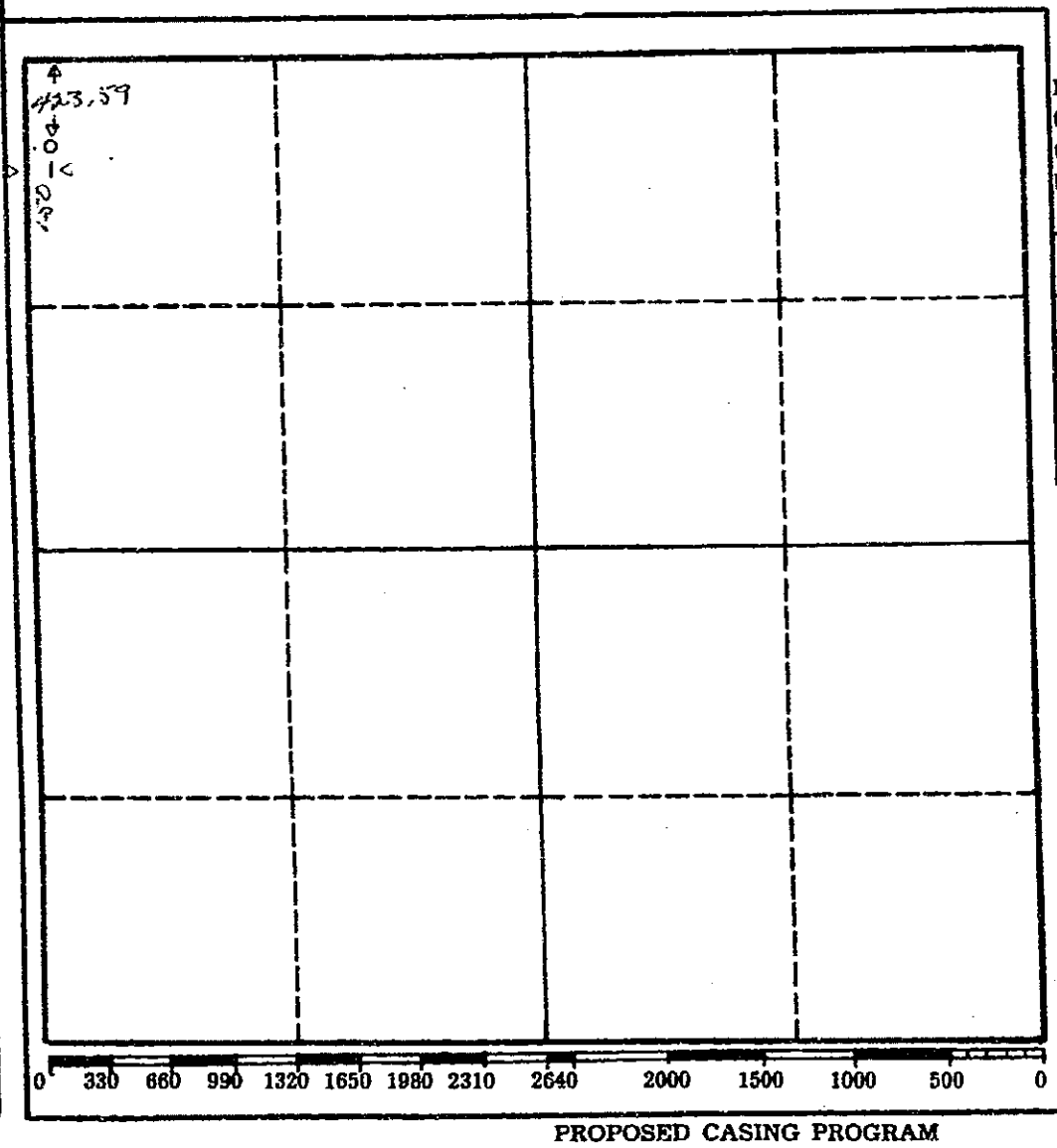
3. All distances shown on the plat must be from the outer boundaries of the Section.

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

5. If the answer to question four is "no," have the interests of all the owners been consolidated by communitization agreement or otherwise? YES_____NO_____. If answer is "yes," Type of Consolidation_____

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

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

Size of Casing	Weight	Grade & Type	Top	Bottom	Cementing Depths	Sacks Cement
13 3/8"	48	H-40	G.L.	150'	Top to Bottom	
9 5/8"	32.3	H-40	G.L.	900'	Top to Bottom	

PERMIT TO DRILL

This constitutes the permission and authority from the

OIL AND GAS CONSERVATION COMMISSION,
STATE OF ARIZONA,

To: WILLIAMS ENERGY COMPANY
(OPERATOR)

to drill a well to be known as

WILLIAM ENERGY COMPANY WELL NO. 7
(WELL NAME)

located 423.59' South & 150' East of NW corner

Section 8 Township 18N Range 24E, Apache County, Arizona.

The NA (LPG STORAGE WELL) 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 3rd day of June, 19 75.

OIL AND GAS CONSERVATION COMMISSION

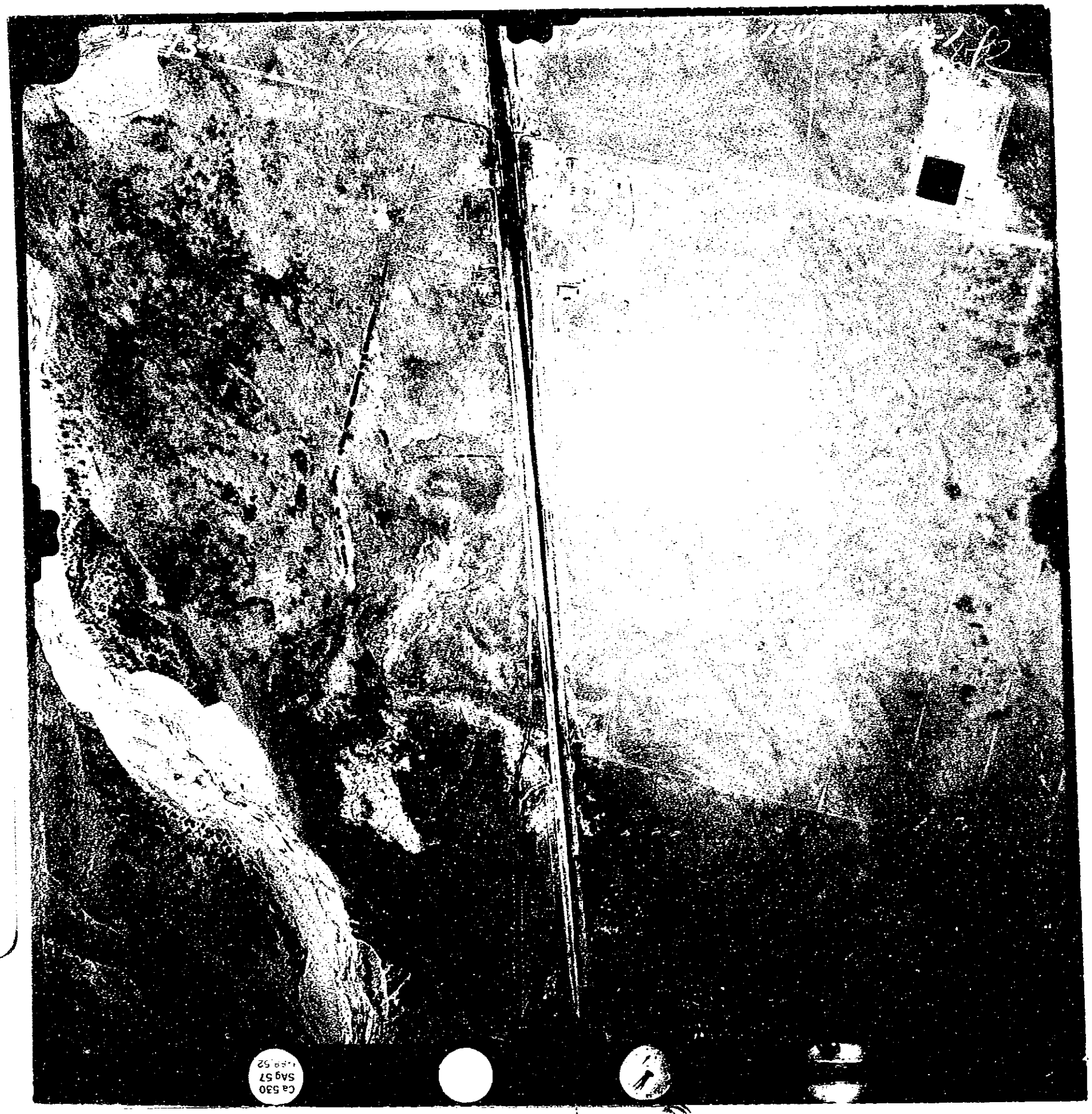
By W.E. Allen
EXECUTIVE SECRETARY

PERMIT Nº 646

RECEIPT NO. 0376
API NO. 02-001-20211

SAMPLES ARE REQUIRED

State of Arizona
Oil & Gas Conservation Commission
Permit to Drill
FORM NO. 27



FERRELLGAS
HOLBROOK, AZ
STORAGE WELL NO. 2
MARCH 11, 1998
SONAR THRU PIPE SURVEY

SONARWIRE
INC.

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

(504) 893-9221

Survey conducted by: Gary McCool

FERRELLGAS P/N 646
HOLBROOK, AZ
STORAGE WELL NO. 7
MARCH 11, 1996
SONAR-THRU-PIPE SURVEY

Survey from 956 ft. to 1077 ft.
Sonar T.D. at 1078 ft.
9 5/8 inch cemented casing at 955 ft.
7 inch intermediate pipe ends at 991 ft.
4 1/2 inch tubing at 1077 ft.
Zero sonar tool at B.H.F.
Site personnel: Mr. Dale Thompson

SONARWIRE INC.
Depth versus Volume

FERRELLGAS
HOLBROOK, AZ

STORAGE WELL NO. 7
Mon, Mar 11, 1996

Depth	Cubic ft. per ft.	Cubic ft. total	Barrels per ft.	Barrels total
956	0.9	0.9	0.2	0.2
957	99.6	100.5	17.7	17.9
958	102.3	202.8	18.2	36.1
959	105.0	307.8	18.7	54.8
960	107.8	415.7	19.2	74.0
961	110.7	526.3	19.7	93.7
962	115.4	641.8	20.6	114.3
963	120.3	762.1	21.4	135.7
964	125.4	887.5	22.3	158.1
965	130.6	1018.0	23.3	181.3
966	133.8	1151.8	23.8	205.1
967	137.0	1288.9	24.4	229.6
968	140.4	1429.3	25.0	254.6
969	143.8	1573.1	25.6	280.2
970	161.4	1734.5	28.7	308.9
971	179.9	1914.4	32.0	341.0
972	199.6	2114.0	35.5	376.5
973	220.2	2334.2	39.2	415.7
974	5705.3	8039.5	1016.2	1431.9
975	5985.7	14025.2	1066.1	2498.0
976	5589.6	19614.9	995.6	3493.6
977	5210.8	24825.7	928.1	4421.6
978	4869.6	29695.2	867.3	5289.0
979	4547.7	34242.9	810.0	6098.9
980	4048.4	38291.3	721.1	6820.0
981	3623.7	41915.0	645.4	7465.4
982	3581.9	45497.0	638.0	8103.4
983	3603.5	49100.5	641.8	8745.2
984	3440.6	52541.0	612.8	9358.0
985	3334.2	55875.2	593.8	9951.8
986	3598.8	59474.1	641.0	10592.8
987	4081.3	63555.4	726.9	11319.7
988	5343.6	68899.0	951.7	12271.4
989	7961.7	76860.7	1418.0	13689.5
990	8451.8	85312.5	1505.3	15194.8
991	9567.1	94879.6	1704.0	16898.8
992	9497.0	104376.6	1691.5	18590.3
993	9435.3	113811.9	1680.5	20270.8
994	9510.1	123322.0	1693.8	21964.6
995	9610.4	132932.4	1711.7	23676.3
996	9632.4	142564.8	1715.6	25391.9
997	9657.7	152222.4	1720.1	27112.0
998	9703.4	161925.9	1728.3	28840.2
999	9750.7	171676.6	1736.7	30576.9
1000	9800.7	181477.3	1745.6	32322.5
1001	9853.1	191330.4	1754.9	34077.4
1002	9840.0	201170.4	1752.6	35830.0

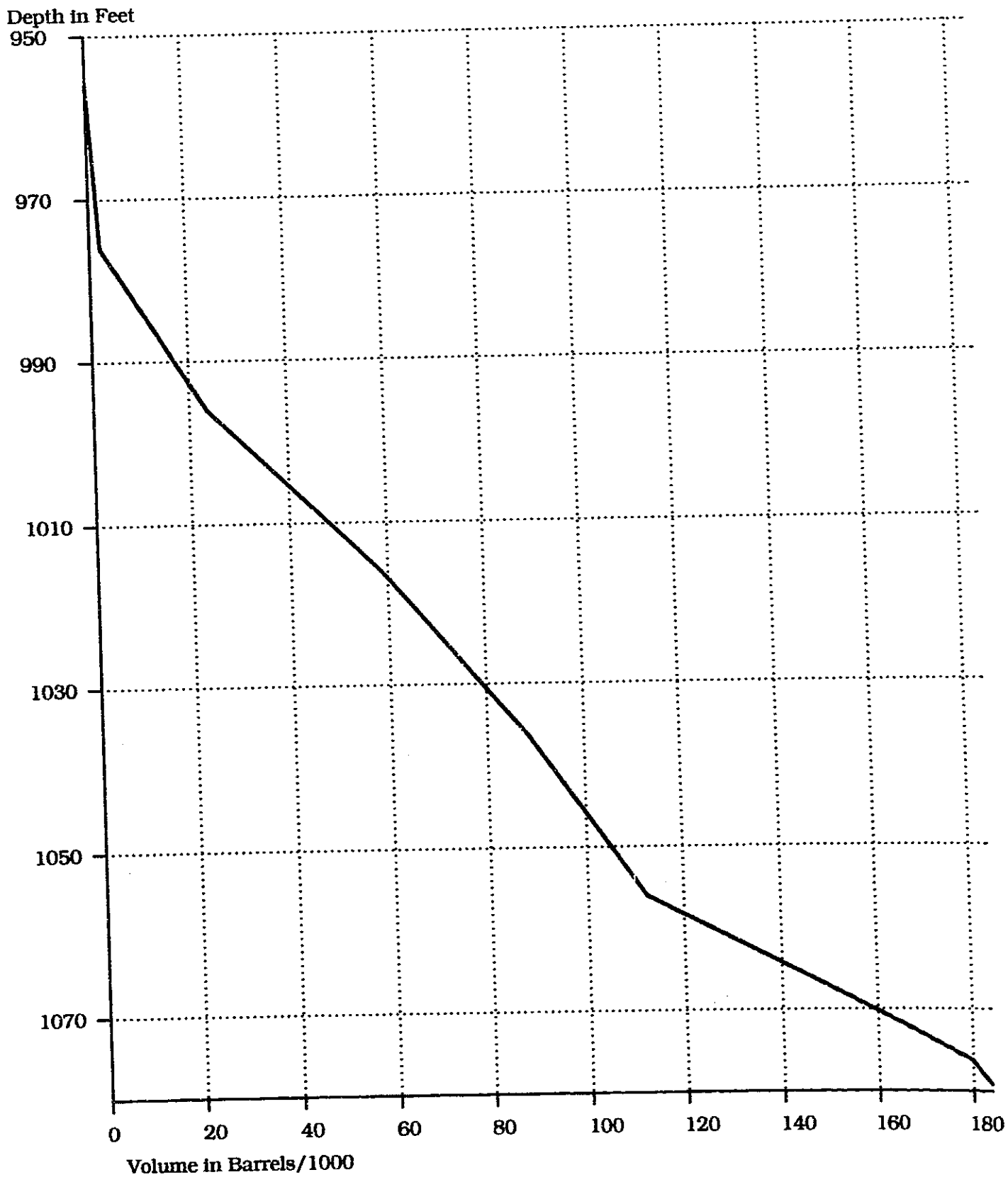
Depth	Cubic ft. per ft.	Cubic ft. total	Barrels per ft.	Barrels total
1003	9850.1	211020.5	1754.4	37584.4
1004	9877.4	220897.9	1759.2	39343.6
1005	9908.1	230805.9	1764.7	41108.3
1006	9826.8	240632.8	1750.2	42858.5
1007	9750.9	250383.7	1736.7	44595.3
1008	9856.0	260239.6	1755.4	46350.7
1009	9966.9	270206.6	1775.2	48125.9
1010	9924.8	280131.4	1767.7	49893.6
1011	9885.5	290016.9	1760.7	51654.2
1012	9987.1	300004.0	1778.8	53433.0
1013	10101.3	310105.4	1799.1	55232.2
1014	10147.7	320253.0	1807.4	57039.5
1015	10206.7	330459.8	1817.9	58857.4
1016	10165.9	340625.7	1810.6	60668.1
1017	10133.7	350759.5	1804.9	62473.0
1018	9994.0	360753.5	1780.0	64253.0
1019	9857.3	370610.8	1755.7	66008.6
1020	9647.5	380258.2	1718.3	67726.9
1021	9443.0	389701.2	1681.9	69408.8
1022	9188.2	398889.5	1636.5	71045.3
1023	8951.6	407841.1	1594.4	72639.6
1024	9365.0	417206.1	1668.0	74307.6
1025	9803.0	427009.2	1746.0	76053.6
1026	9923.4	436932.5	1767.4	77821.1
1027	10045.2	446977.7	1789.1	79610.2
1028	9769.5	456747.2	1740.0	81350.2
1029	9501.2	466248.4	1692.2	83042.4
1030	9243.9	475492.3	1646.4	84688.9
1031	8994.1	484486.5	1601.9	86290.8
1032	8792.7	493279.2	1566.1	87856.8
1033	8598.6	501877.8	1531.5	89388.3
1034	7788.6	509666.4	1387.2	90775.5
1035	7019.4	516685.8	1250.2	92025.7
1036	6602.0	523287.8	1175.9	93201.6
1037	6198.7	529486.4	1104.0	94305.6
1038	5966.4	535452.9	1062.7	95368.3
1039	5740.0	541192.9	1022.3	96390.6
1040	5608.1	546801.0	998.8	97389.5
1041	5482.5	552283.5	976.5	98366.0
1042	5217.4	557500.9	929.3	99295.2
1043	4960.0	562461.0	883.4	100178.6
1044	5668.2	568129.2	1009.5	101188.2
1045	6488.7	574617.9	1155.7	102343.9
1046	6116.7	580734.5	1089.4	103433.3
1047	5759.0	586493.6	1025.7	104459.0
1048	5238.1	591731.7	933.0	105392.0
1049	4754.4	596486.1	846.8	106238.8
1050	7679.7	604165.7	1367.8	107606.6
1051	11825.7	615991.4	2106.3	109712.8
1052	13627.3	629618.7	2427.1	112139.9
1053	16268.4	645887.1	2897.5	115037.5
1054	16228.3	662115.5	2890.4	117927.9
1055	16196.6	678312.1	2884.7	120812.6
1056	17192.2	695504.4	3062.1	123874.7

Depth	Cubic ft. per ft.	Cubic ft. total	Barrels per ft.	Barrels total
1057	18267.1	713771.4	3253.5	127128.2
1058	18983.5	732754.9	3381.1	130509.3
1059	19728.8	752483.8	3513.9	134023.2
1060	20167.0	772650.8	3591.9	137615.1
1061	20746.0	793396.8	3695.0	141310.1
1062	20896.4	814293.2	3721.8	145031.9
1063	21059.0	835352.1	3750.8	148782.7
1064	21512.6	856864.7	3831.6	152614.2
1065	22004.5	878869.2	3919.2	156533.4
1066	22871.8	901741.0	4073.6	160607.0
1067	23772.1	925513.2	4234.0	164841.0
1068	22787.5	948300.7	4058.6	168899.7
1069	21852.3	970153.0	3892.1	172791.7
1070	21668.3	991821.3	3859.3	176651.0
1071	21489.0	1013310.4	3827.4	180478.4
1072	21130.8	1034441.1	3763.6	184241.9
1073	20792.4	1055233.5	3703.3	187945.2
1074	20425.6	1075659.1	3638.0	191583.2
1075	20085.3	1095744.3	3577.3	195160.5
1076	18275.3	1114019.6	3255.0	198415.5
1077	6255.1	1120274.7	1114.1	199529.6
1078	697.7	1120972.4	124.3	199653.8

FERRELLGAS
HOLBROOK, AZ

SONARWIRE, INC
Depth vs Volume

STORAGE WELL NO. 7
Mon, Mar 11, 1996



SONARWIRE INC.
Max Radius & Depth vs Bearing

FERRELLGAS
HOLBROOK, AZ

STORAGE WELL NO. 7
Mon, Mar 11, 1996

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.

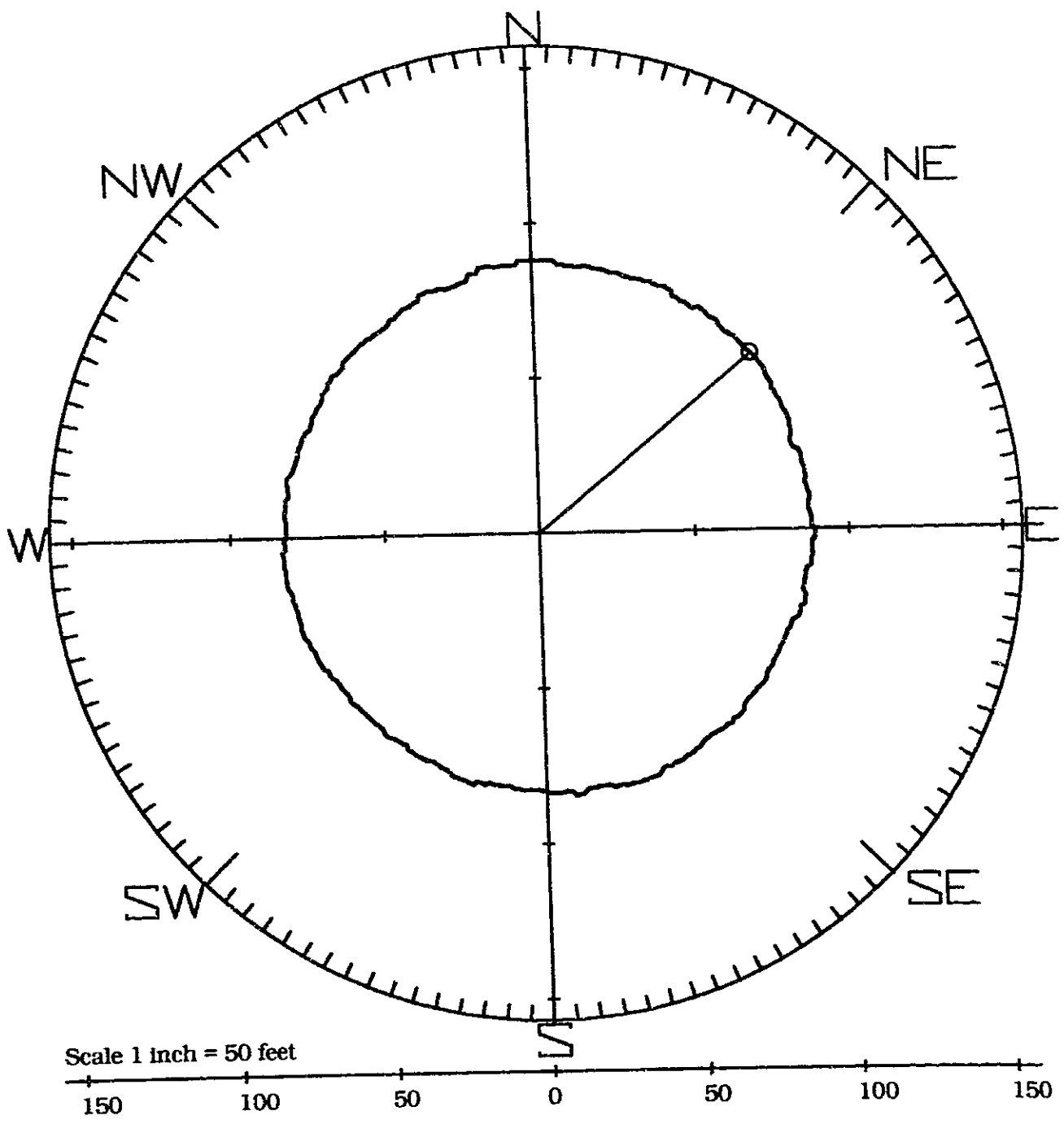
Bearing	+0.0	+2.8	+5.6	+8.4
0.0	88.4: 1072	88.4: 1072	87.1: 1060	87.1: 1072
11.3	87.8: 1072	87.8: 1068	87.8: 1072	87.8: 1072
22.5	88.4: 1068	89.1: 1068	89.8: 1068	88.4: 1068
33.8	88.4: 1068	89.8: 1068	89.8: 1068	89.1: 1068
45.0	89.8: 1068	89.8: 1068	90.5: 1066	90.5: 1066
56.3	90.5: 1066	89.8: 1066	89.1: 1066	89.1: 1066
67.5	89.1: 1066	88.4: 1066	88.4: 1060	88.4: 1062
78.8	88.4: 1066	88.4: 1070	87.8: 1066	88.4: 1070
90.0	89.1: 1070	88.4: 1070	88.4: 1070	87.1: 1070
101.3	87.1: 1070	88.4: 1070	87.8: 1070	86.4: 1068
112.5	85.7: 1064	85.7: 1068	85.7: 1066	85.7: 1062
123.8	86.4: 1068	85.7: 1066	85.7: 1064	86.4: 1064
135.0	85.7: 1064	86.4: 1066	85.7: 1066	85.1: 1066
146.3	85.7: 1066	85.7: 1064	85.7: 1066	86.4: 1064
157.5	86.4: 1064	85.7: 1064	85.1: 1064	83.7: 1064
168.8	83.7: 1066	85.1: 1070	83.7: 1064	83.7: 1064
180.0	83.0: 1064	83.0: 1064	83.0: 1064	82.4: 1064
191.3	82.4: 1064	83.0: 1064	84.4: 1066	83.7: 1066
202.5	83.7: 1066	82.4: 1066	82.4: 1064	82.4: 1064
213.8	81.0: 1064	81.7: 1064	82.4: 1066	81.7: 1064
225.0	81.7: 1064	81.7: 1064	82.4: 1066	81.7: 1064
236.3	82.4: 1062	83.0: 1062	83.0: 1062	83.3: 1075
247.5	83.9: 1075	83.3: 1075	83.0: 1060	83.0: 1060
258.8	83.7: 1060	83.7: 1060	83.7: 1060	83.0: 1060
270.0	82.4: 1060	82.4: 1062	83.0: 1066	83.0: 1066
281.3	83.0: 1066	83.7: 1066	82.4: 1062	82.4: 1062
292.5	82.4: 1060	81.7: 1060	82.4: 1060	82.4: 1060
303.8	83.0: 1060	83.7: 1060	83.0: 1060	83.7: 1060
315.0	83.7: 1060	83.7: 1060	83.0: 1060	83.0: 1060
326.3	83.7: 1060	84.4: 1060	84.4: 1060	85.7: 1060
337.5	85.1: 1060	84.4: 1060	84.4: 1060	86.4: 1072
348.8	87.8: 1072	87.1: 1072	87.1: 1072	88.4: 1072

Between 955 and 1078 foot depths, maximum radius
was 90.5 feet at bearing 50.6 at 1066.0 foot depth

FERRELLGAS
STORAGE WELL NO. 7
HOLBROOK, AZ

SONARWIRE, INC
Max Range vs Bearing

Mon, Mar 11, 1996
Azimuth= 50.6 deg
Max Radius= 90.5 ft.
Depth=1066.0 ft.



SONARWIRE INC.
Wall Ranges versus Depth (ft.)

FERRELLGAS
HOLBROOK, AZ

STORAGE WELL NO. 7
Mon, Mar 11, 1996

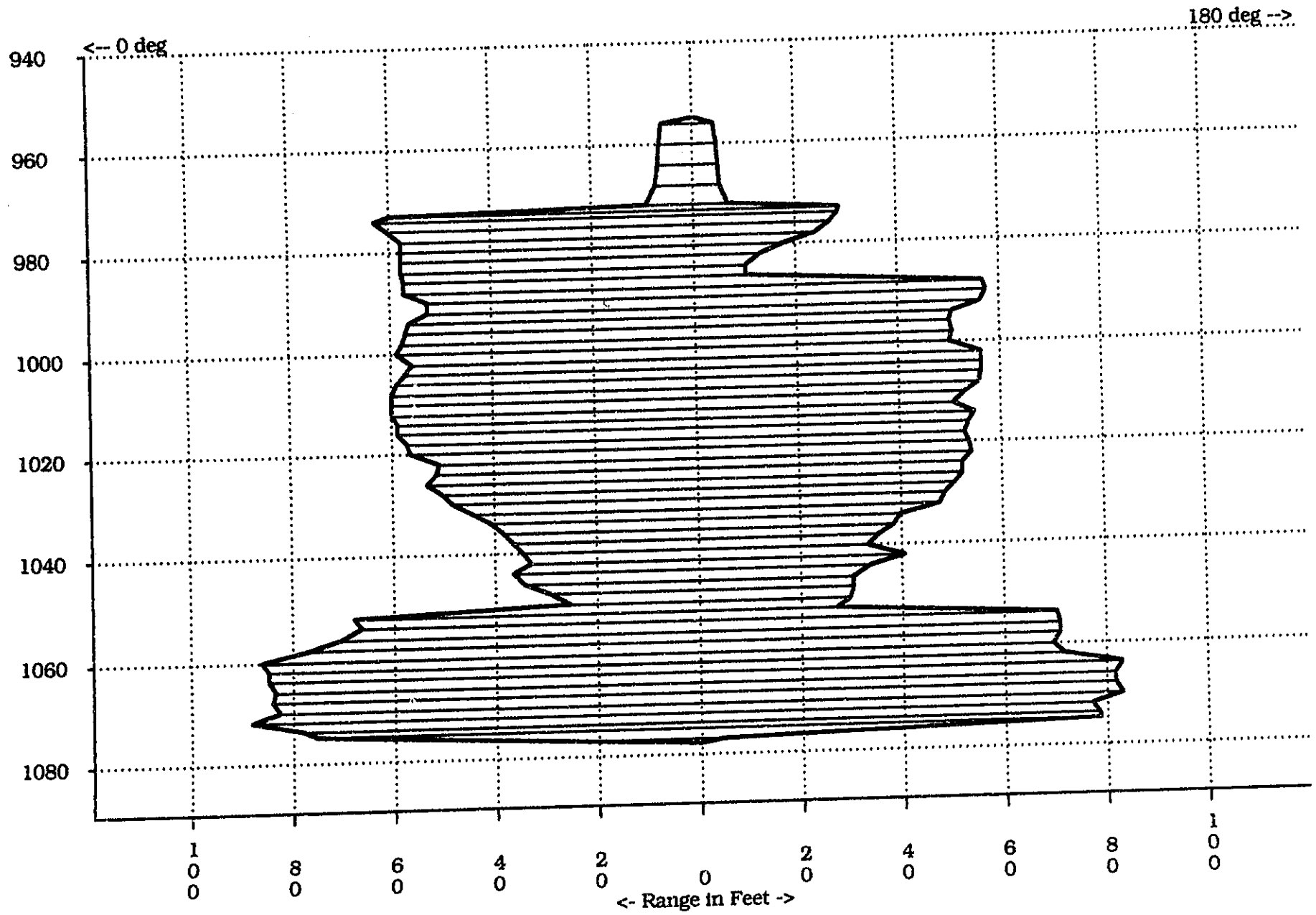
Depth	Tilt	N	NE	E	SE	S	SW	W	NW
955	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
956	0	6.3	6.8	7.6	5.1	4.2	4.2	4.0	5.5
960	0	6.8	7.2	7.8	5.5	4.6	4.4	4.4	5.5
964	0	7.2	7.6	8.2	5.9	5.1	4.4	5.3	6.3
968	0	7.6	8.2	8.2	6.3	5.3	4.9	6.1	6.5
972	0	9.5	9.9	9.9	7.4	6.8	6.5	7.8	8.6
973	0	60.2	64.3	48.6	31.9	28.9	32.9	32.9	27.3
974	0	63.3	63.8	56.7	33.4	28.4	32.9	32.4	30.4
976	0	60.8	59.7	51.6	30.4	26.8	31.9	28.4	26.3
978	0	58.2	58.7	46.6	27.3	23.8	28.4	23.8	23.8
980	0	58.2	57.2	38.5	22.8	17.7	23.3	20.8	17.7
982	0	58.2	53.7	53.7	19.7	13.2	19.7	15.7	11.1
984	0	58.2	55.2	57.2	10.6	10.1	15.7	11.6	9.1
986	0	57.7	56.2	56.2	11.1	10.1	14.2	13.2	9.1
988	0	57.7	56.2	56.7	55.7	56.7	11.1	13.7	56.7
990	0	53.1	54.2	57.7	56.2	57.2	54.7	54.7	51.6
992	0	53.1	58.2	57.2	58.2	56.2	52.6	50.1	52.6
994	0	56.7	61.7	55.2	53.1	50.6	52.1	55.2	57.7
996	0	57.2	60.7	55.2	52.6	50.1	54.7	56.7	59.7
998	0	58.2	60.7	55.7	53.7	50.6	53.1	56.7	58.2
1000	0	59.2	59.7	57.2	54.7	50.1	54.7	56.7	57.7
1002	0	56.2	59.2	59.2	57.7	56.2	54.2	52.2	54.2
1004	0	57.7	60.3	58.7	58.7	56.2	51.1	50.1	56.2
1006	0	59.2	60.3	56.7	58.2	56.2	51.1	50.1	55.2
1008	0	60.3	60.8	57.2	55.7	55.7	48.6	54.2	58.7
1010	0	60.2	61.2	58.2	56.7	53.1	48.6	54.2	56.2
1012	0	60.2	60.2	57.2	54.2	50.6	54.7	55.7	59.2
1014	0	59.2	59.2	60.2	58.7	54.7	52.6	54.2	55.2
1016	0	59.2	59.2	58.7	54.2	53.7	54.2	57.7	59.2
1018	0	57.2	57.7	58.2	55.7	52.6	52.1	56.2	58.2
1020	0	56.7	58.2	56.7	54.7	53.7	50.6	51.6	55.2
1022	0	51.1	56.7	56.7	53.7	54.2	54.7	51.6	49.1
1024	0	51.6	55.2	56.2	52.1	52.1	51.1	50.6	48.6
1026	0	53.7	55.2	57.2	53.7	52.1	49.6	50.1	50.6
1028	0	50.6	55.7	56.2	56.2	50.6	50.1	52.1	52.1
1030	0	48.6	52.7	55.7	50.6	48.6	51.6	52.7	49.6
1032	0	44.5	51.1	56.2	50.6	47.6	50.6	52.6	50.6
1034	0	41.2	46.6	50.6	46.6	39.8	45.2	49.3	41.9
1036	0	38.8	43.0	47.2	46.4	38.4	42.2	47.2	40.1
1038	0	36.7	42.6	44.7	46.8	35.4	40.1	43.9	39.2
1040	0	35.0	40.9	44.7	41.8	33.3	38.4	41.8	36.7
1042	0	33.3	39.2	41.3	39.2	40.5	36.7	38.0	35.0
1044	0	36.7	39.6	53.6	58.2	33.7	37.1	35.0	27.8
1046	0	34.6	38.0	49.8	58.6	30.4	48.1	55.3	24.9
1048	0	29.7	35.8	37.1	56.7	30.4	48.6	52.0	24.3
1050	0	25.6	74.9	70.9	52.0	29.7	31.0	46.6	22.3
1052	0	68.2	72.2	71.5	66.8	27.0	30.4	49.9	68.2
1054	0	66.8	74.2	72.9	66.8	70.2	70.9	70.9	67.5
1056	0	70.9	79.0	70.9	66.8	70.9	70.2	68.8	68.2
1058	0	76.9	81.0	73.6	69.5	70.9	68.8	68.8	66.8

Depth	Tilt	N	NE	E	SE	S	SW	W	NW
1060	0	86.4	85.7	83.7	82.4	69.5	69.5	82.4	83.7
1062	0	85.1	87.1	85.1	85.1	71.6	70.9	81.7	82.4
1064	0	85.1	87.8	85.7	85.7	83.0	81.7	81.0	81.0
1066	0	83.7	89.1	86.4	85.7	81.7	81.7	81.7	80.3
1068	0	84.4	89.8	85.1	83.7	81.7	80.3	80.3	82.4
1070	0	83.0	89.8	89.1	83.7	83.0	78.3	78.3	79.7
1072	0	88.4	89.8	83.7	79.7	77.0	77.6	78.3	78.3
1074	0	78.2	87.7	87.7	80.9	78.2	77.6	74.2	76.2
1075	0	75.6	76.8	74.4	75.6	78.5	73.2	80.3	73.8
1077	0	22.4	24.5	4.6	4.9	4.4	10.5	15.6	16.7
1077	-90	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

FERRELLGAS
HOLBROOK, AZ

SONARWIRE, INC
Vertical Cross-Section

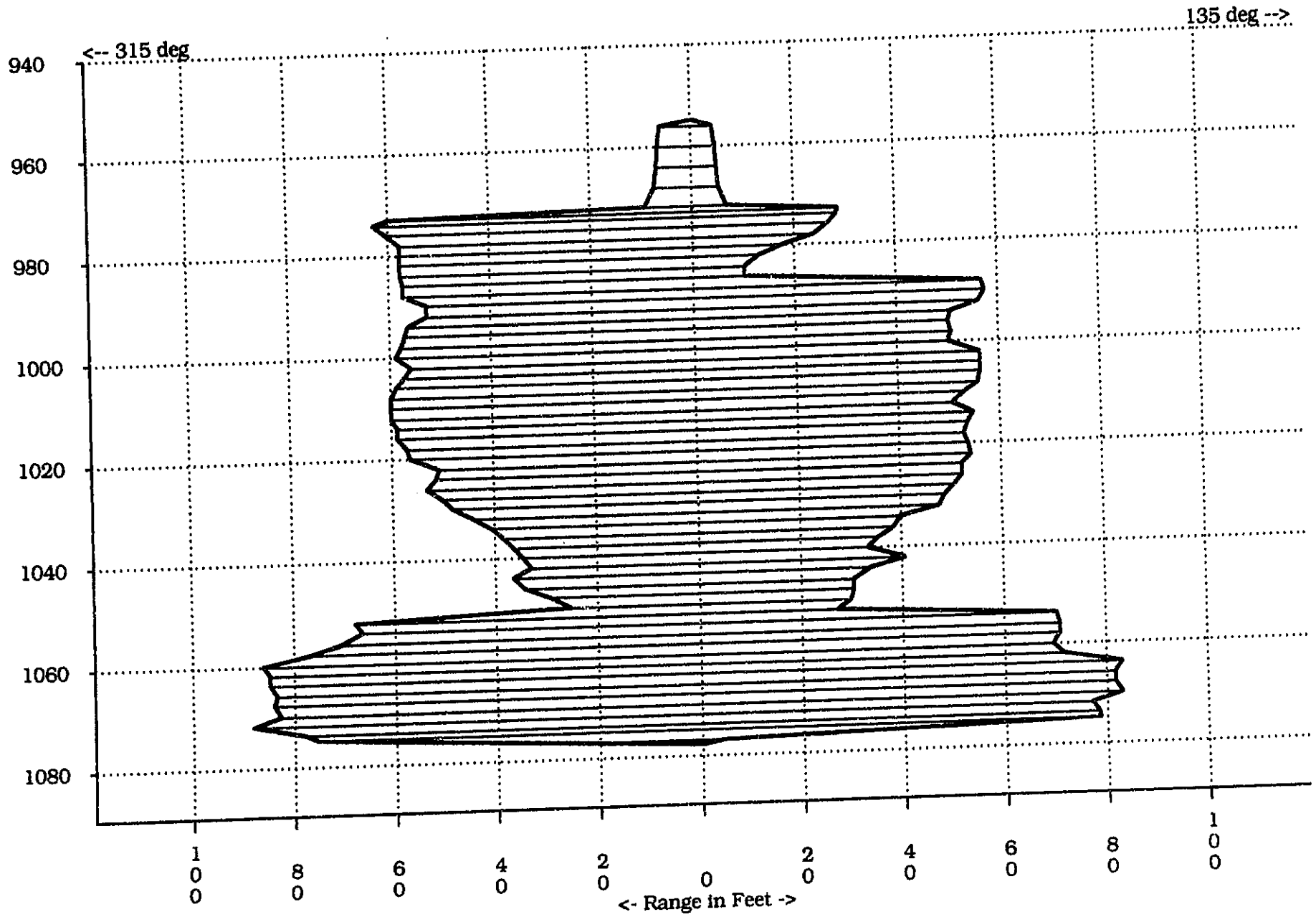
STORAGE WELL NO. 7
Mon, Mar 11, 1996



FERRELLGAS
HOLBROOK, AZ

SONARWIRE, INC
Vertical Cross-Section

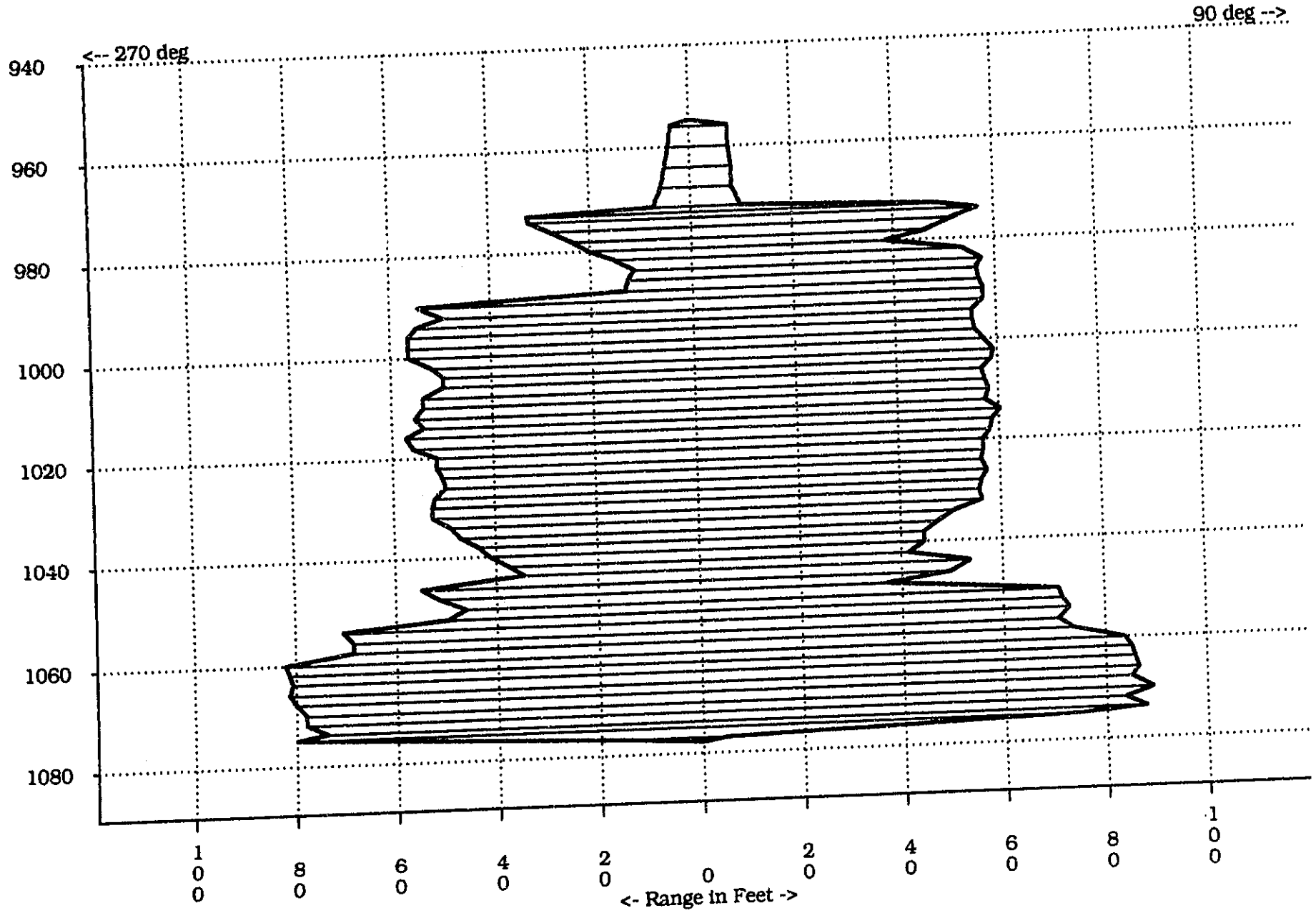
STORAGE WELL NO. 7
Mon, Mar 11, 1996



FERRELLGAS
HOLBROOK, AZ

SONARWIRE, INC
Vertical Cross-Section

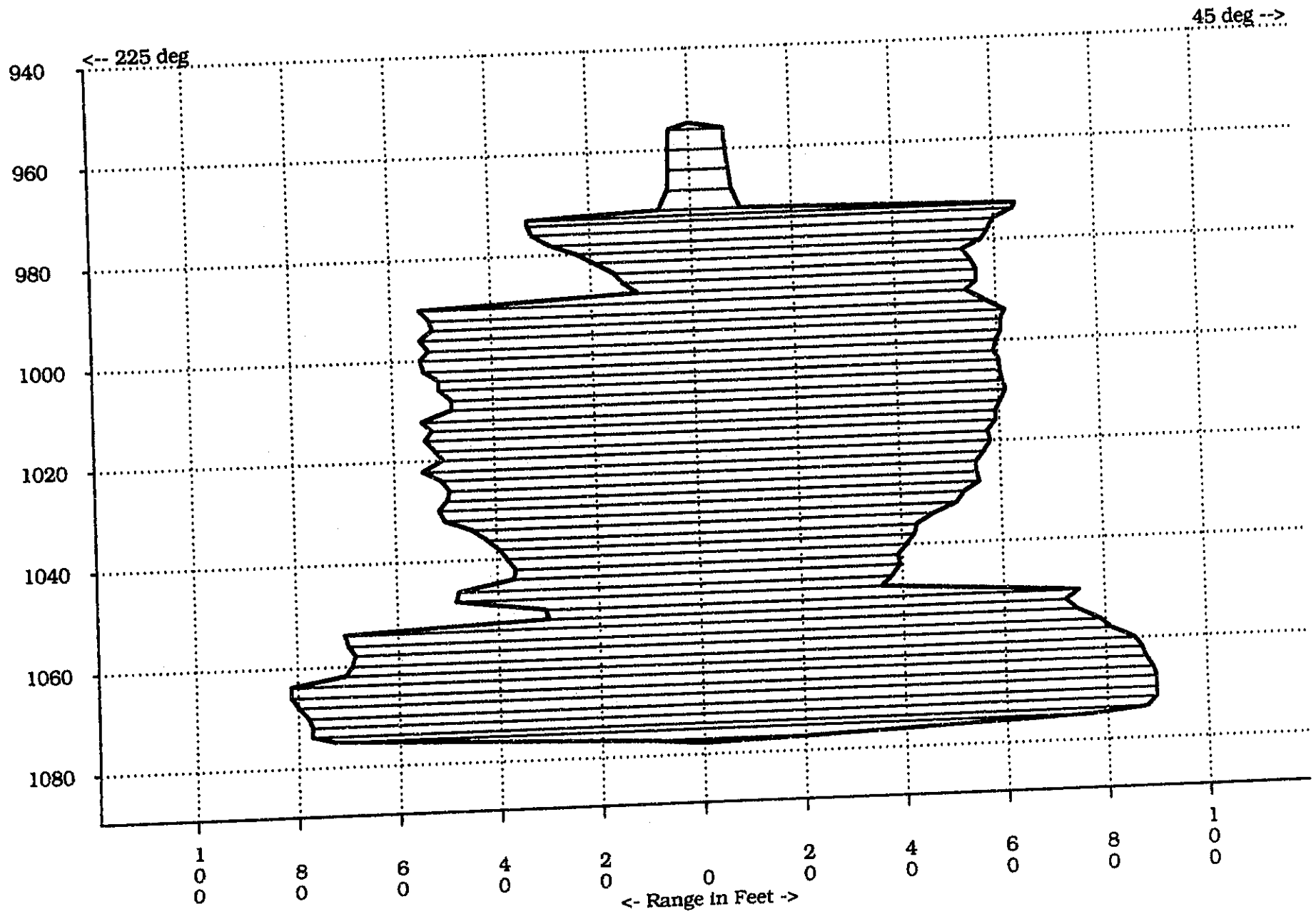
STORAGE WELL NO. 7
Mon, Mar 11, 1996



FERRELLGAS
HOLBROOK, AZ

SONARWIRE, INC
Vertical Cross-Section

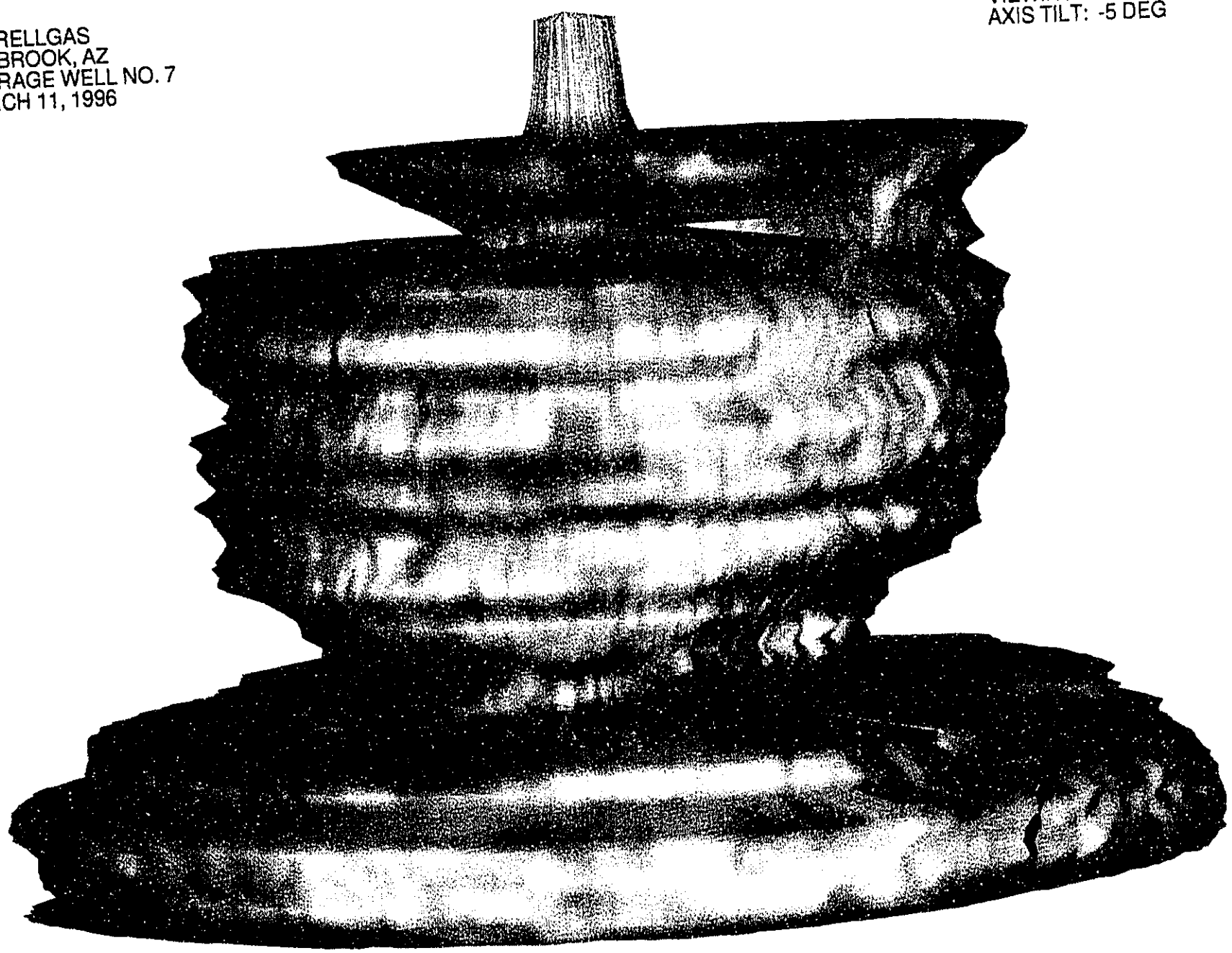
STORAGE WELL NO. 7
Mon, Mar 11, 1996



3D SHADE PLOT

FERRELLGAS
HOLBROOK, AZ
STORAGE WELL NO. 7
MARCH 11, 1996

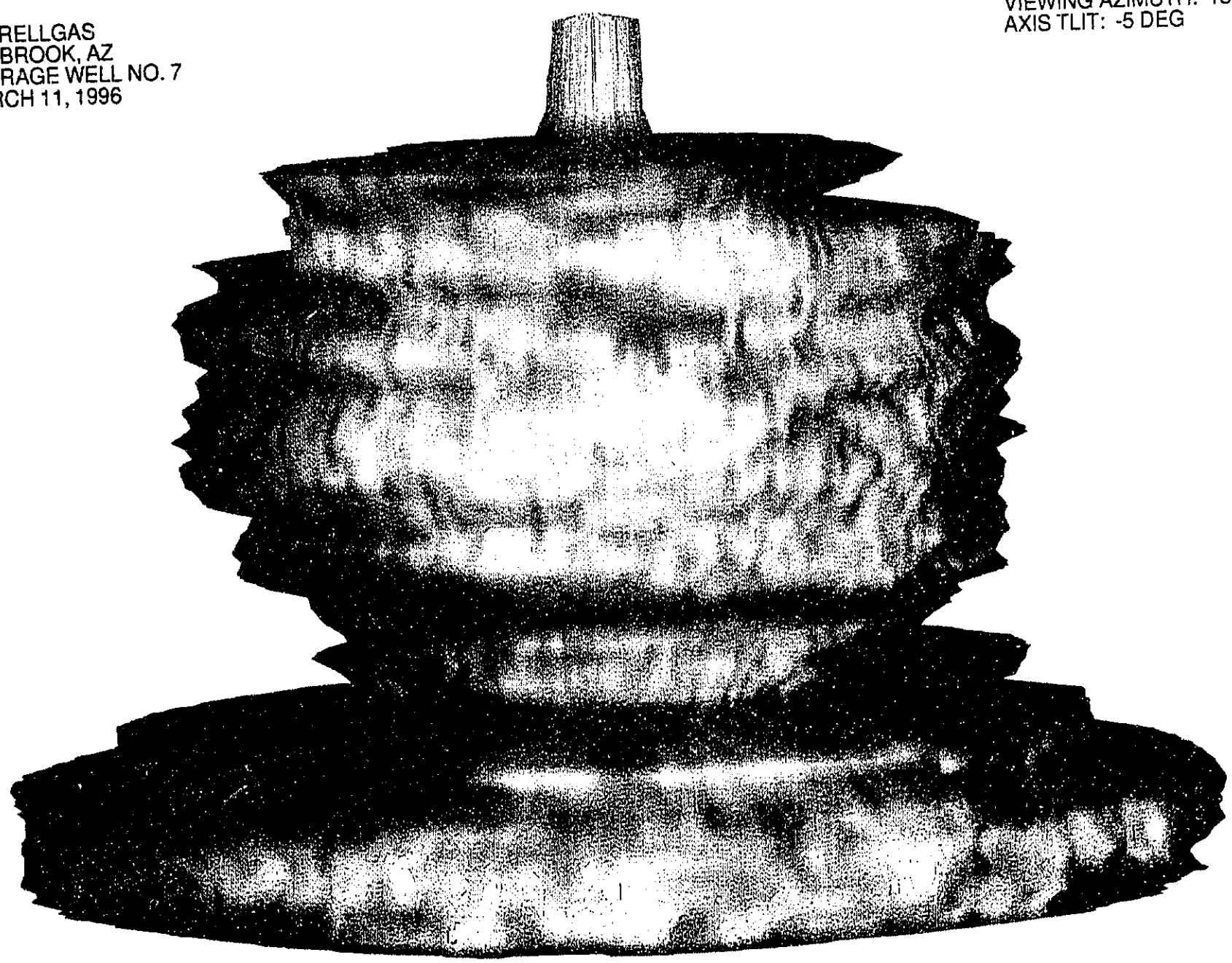
VIEWING AZIMUTH: 45
AXIS TILT: -5 DEG



3D SHADE PLOT

FERRELLGAS
HOLBROOK, AZ
STORAGE WELL NO. 7
MARCH 11, 1996

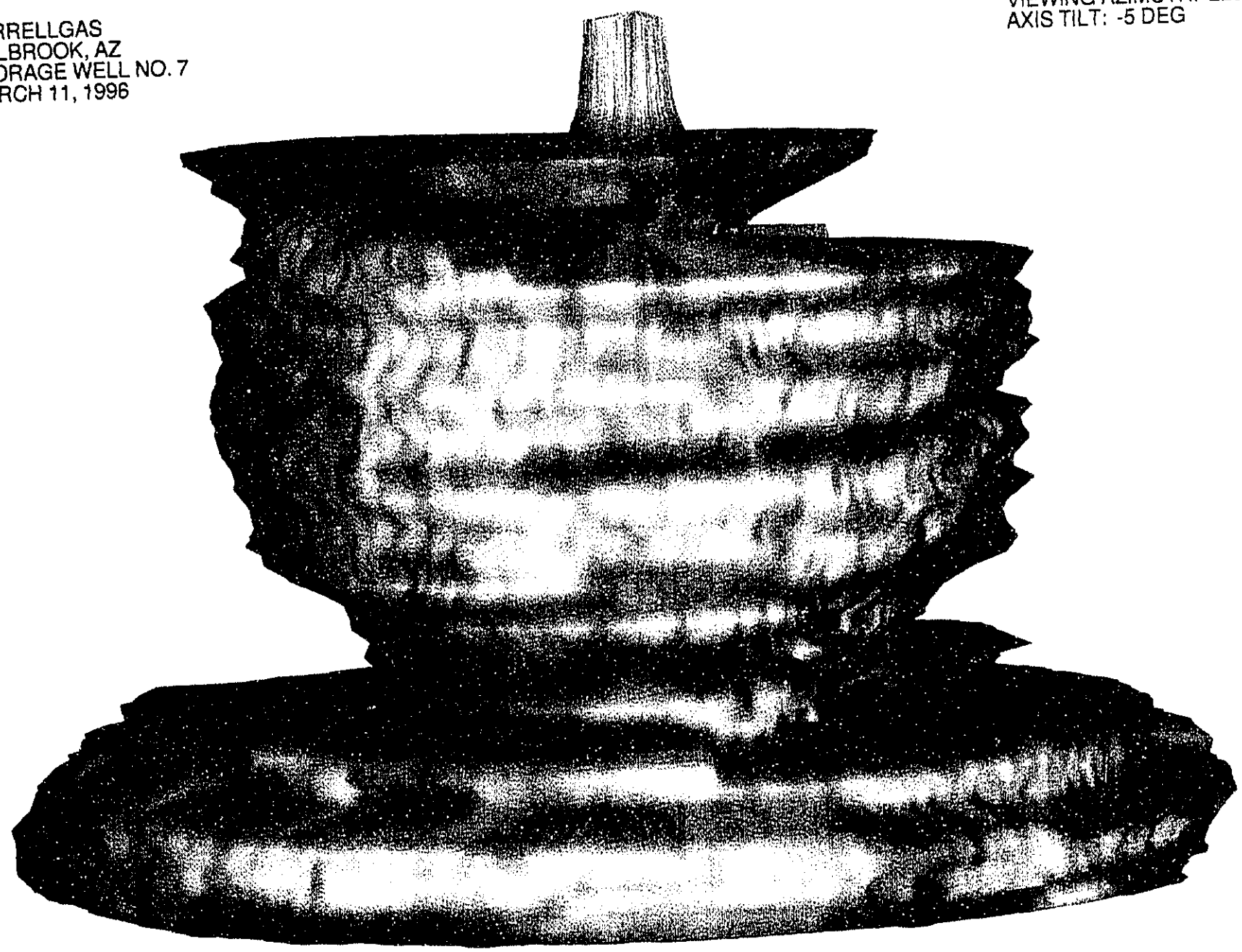
VIEWING AZIMUTH: 135
AXIS TLIT: -5 DEG



3D SHADE PLOT

FERRELLGAS
HOLBROOK, AZ
STORAGE WELL NO. 7
MARCH 11, 1996

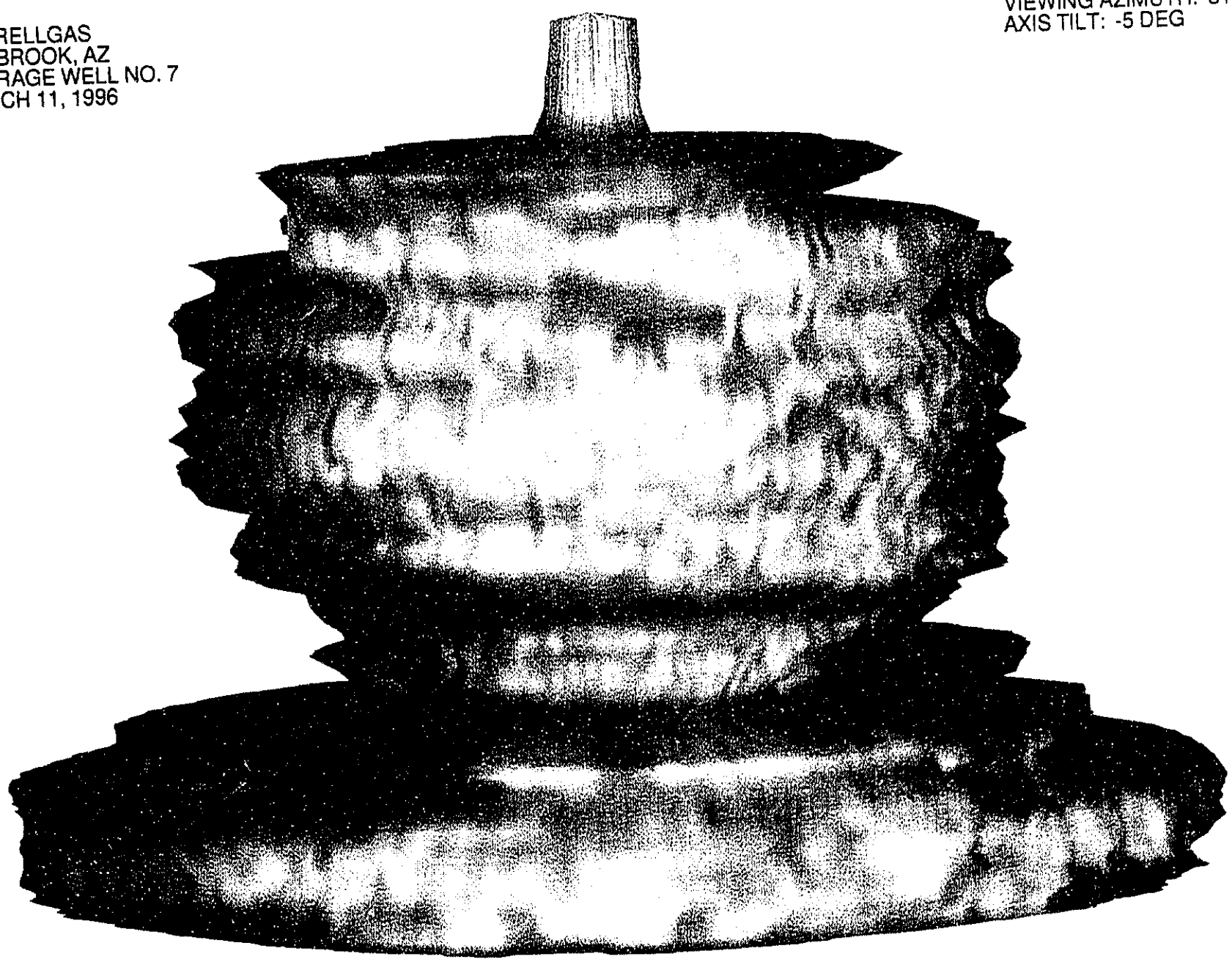
VIEWING AZIMUTH: 225
AXIS TILT: -5 DEG



3D SHADE PLOT

FERRELLGAS
HOLBROOK, AZ
STORAGE WELL NO. 7
MARCH 11, 1996

VIEWING AZIMUTH: 315
AXIS TILT: -5 DEG



SONARWIRE INC.
Wall Ranges versus Depth (ft.)

FERRELLGAS
HOLBROOK, AZ

STORAGE WELL NO. 7
Mon, Mar 11, 1996

Depth: 955 Tilt: 0 Range: 25.0 VOS: 5935

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
22.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
45.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
67.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
90.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
112.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
135.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
157.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
180.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
202.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
225.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
247.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
270.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
292.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
315.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
337.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

Depth: 956 Tilt: 0 Range: 50.0 VOS: 5937

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	6.3	6.3	6.5	6.5	6.5	6.5	6.5	6.8
22.5	6.8	6.8	6.5	6.5	6.3	6.3	6.5	6.5
45.0	6.8	7.0	7.0	7.2	7.2	7.4	7.4	7.6
67.5	7.8	7.6	7.6	7.6	7.8	7.8	7.8	7.6
90.0	7.6	7.4	7.4	7.2	7.2	7.0	7.0	7.0
112.5	6.8	6.8	6.5	6.3	5.9	5.7	5.5	5.3
135.0	5.1	5.1	5.3	5.3	5.1	5.1	5.1	4.9
157.5	4.6	4.6	4.6	4.6	4.4	4.6	4.4	4.2
180.0	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.6
202.5	4.2	4.0	3.8	4.0	4.2	3.8	4.0	4.0
225.0	4.2	4.2	4.2	4.2	4.2	4.2	3.8	4.2
247.5	3.8	4.0	4.0	4.0	4.0	4.0	4.0	4.0
270.0	4.0	4.0	4.2	4.2	4.2	4.4	4.4	4.6
292.5	4.6	4.6	4.9	5.1	5.1	5.1	5.1	5.3
315.0	5.5	5.5	5.5	5.5	5.3	5.5	5.7	5.7
337.5	5.5	5.7	5.7	5.9	5.9	6.1	6.1	6.1

Depth: 960 Tilt: 0 Range: 50.0 VOS: 5937

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	6.8	6.8	7.0	7.0	7.0	7.2	7.2	7.4
22.5	7.4	7.4	7.0	7.2	7.2	7.0	7.0	7.0
45.0	7.2	7.4	7.4	7.4	7.4	7.6	7.6	7.8
67.5	7.8	8.0	8.0	8.0	8.0	7.8	7.8	8.0
90.0	7.8	7.8	7.6	7.4	7.4	7.4	7.2	7.0
112.5	7.0	7.0	6.5	6.3	6.1	5.7	5.5	5.5
135.0	5.5	5.5	5.5	5.5	5.5	5.3	5.1	5.1
157.5	5.1	5.1	5.1	4.9	4.6	4.9	4.6	4.6
180.0	4.6	4.2	4.2	4.4	4.4	4.4	4.4	4.4
202.5	4.4	4.4	4.2	4.2	4.2	4.2	4.2	4.4
225.0	4.4	4.4	4.4	4.2	4.2	4.2	4.2	4.2
247.5	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.4
270.0	4.4	4.4	4.4	4.4	4.6	4.9	5.1	5.1
292.5	5.1	5.1	5.1	5.1	5.3	5.5	5.5	5.5
315.0	5.5	5.7	5.7	5.7	5.9	5.9	5.9	6.1
337.5	6.1	6.1	6.3	6.3	6.5	6.5	6.5	6.8

Depth: 964 Tilt: 0 Range: 50.0 VOS: 5937

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	7.2	7.4	7.4	7.4	7.6	7.6	7.6	7.6
22.5	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6
45.0	7.6	7.8	7.8	8.0	8.0	8.2	8.2	8.2
67.5	8.4	8.4	8.4	8.6	8.6	8.6	8.9	8.4
90.0	8.2	8.2	8.2	7.6	7.6	7.4	7.2	7.4
112.5	7.2	7.0	6.8	6.3	6.1	6.3	6.1	5.9
135.0	5.9	5.9	5.9	5.9	5.9	5.7	5.7	5.5
157.5	5.5	5.5	5.5	5.3	5.3	5.5	5.1	5.3
180.0	5.1	5.1	4.9	4.9	4.9	4.9	4.6	4.6
202.5	4.9	4.9	4.6	4.6	4.6	4.4	4.4	4.4
225.0	4.4	4.4	4.6	4.6	4.6	4.6	4.4	4.4
247.5	4.6	4.6	4.6	4.9	5.1	4.9	4.9	5.1
270.0	5.3	5.1	5.1	5.7	5.5	5.7	5.7	6.1
292.5	6.1	6.1	6.1	6.3	6.1	6.3	6.3	6.3
315.0	6.3	6.1	6.5	6.5	6.5	6.5	6.8	6.8
337.5	6.8	7.0	7.0	7.0	7.2	7.2	7.2	7.2

Depth: 968 Tilt: 0 Range: 50.0 VOS: 5937

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	7.6	7.6	7.8	7.8	7.8	7.8	7.8	7.6
22.5	7.6	7.8	7.8	7.8	7.8	8.0	8.0	8.0
45.0	8.2	8.2	8.2	8.4	8.4	8.6	8.6	8.4
67.5	8.2	8.6	8.9	8.9	8.9	8.9	8.9	8.9
90.0	8.2	8.0	7.8	7.6	7.6	7.4	7.4	7.0
112.5	6.8	6.8	6.8	6.8	6.5	6.3	6.3	6.3
135.0	6.3	6.3	6.1	6.1	6.1	6.1	6.1	5.9
157.5	5.9	5.9	5.7	5.7	5.7	5.5	5.5	5.5
180.0	5.3	5.3	5.3	5.3	5.1	4.9	4.6	5.1
202.5	5.3	5.3	5.3	5.3	5.3	5.1	5.1	5.1
225.0	4.9	4.6	5.1	5.1	5.3	5.3	5.1	5.1
247.5	5.1	5.1	5.3	5.5	5.7	5.5	5.7	5.9
270.0	6.1	6.1	6.1	6.1	6.3	6.3	6.3	6.8
292.5	6.8	6.8	6.8	6.5	6.8	6.8	6.8	6.8
315.0	6.5	6.3	6.3	6.3	6.8	7.0	7.0	7.2
337.5	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.6

Depth: 972 Tilt: 0 Range: 50.0 VOS: 5937

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	9.5	9.5	9.5	9.5	9.7	9.7	9.7	9.5
22.5	9.3	9.5	9.5	9.5	9.7	9.7	9.7	9.7
45.0	9.9	9.9	9.9	10.1	9.9	9.9	9.9	9.9
67.5	10.3	10.1	10.1	10.3	10.3	10.3	10.3	10.1
90.0	9.9	9.9	9.7	9.5	9.3	9.1	9.1	8.9
112.5	8.6	8.4	8.2	8.0	7.8	7.8	7.8	7.6
135.0	7.4	7.2	7.2	7.0	7.0	7.2	7.4	7.4
157.5	7.2	7.0	6.8	7.0	7.2	7.2	7.2	7.0
180.0	6.8	6.5	6.5	6.5	6.5	6.3	6.1	6.3
202.5	6.3	6.3	6.5	6.5	6.5	6.5	6.5	6.5
225.0	6.5	6.8	6.5	6.3	6.5	6.5	6.8	6.5
247.5	6.5	6.8	7.0	7.2	7.4	7.6	7.6	7.8
270.0	7.8	7.8	7.8	8.0	8.2	8.4	8.4	8.4
292.5	8.4	8.4	8.4	8.4	8.6	8.6	8.6	8.6
315.0	8.6	8.6	8.4	8.6	8.6	8.4	8.9	8.9
337.5	9.1	9.1	9.3	9.3	9.3	9.3	9.5	9.5

Depth: 973 Tilt: 0 Range: 120.0 VOS: 5936

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	60.2	63.3	63.3	63.3	63.3	64.3	63.8	64.8
22.5	64.3	63.8	63.8	62.8	63.8	64.3	64.8	63.8
45.0	64.3	64.3	63.8	63.3	62.8	62.3	61.8	60.2
67.5	59.2	59.7	58.7	57.2	55.7	53.7	52.1	50.6
90.0	48.6	48.1	47.6	46.1	44.0	43.0	40.0	38.0
112.5	35.9	34.4	33.9	33.4	32.9	32.4	32.4	31.9
135.0	31.9	31.9	31.9	31.4	31.4	31.4	30.9	30.9
157.5	30.9	30.4	30.4	29.9	29.4	28.9	29.9	29.9
180.0	28.9	29.4	28.9	28.9	29.4	29.4	29.9	29.9
202.5	29.9	30.4	30.4	31.4	31.9	32.4	31.4	32.4
225.0	32.9	32.9	33.4	33.9	34.4	34.9	34.9	35.4
247.5	35.4	32.9	32.9	32.9	32.4	32.9	31.9	31.9
270.0	32.9	32.4	31.9	32.4	32.4	31.4	30.9	30.9
292.5	30.9	30.9	30.4	29.9	29.4	28.9	28.3	27.8
315.0	27.3	28.3	28.9	29.4	31.4	31.4	30.9	31.9
337.5	32.4	32.9	37.0	43.0	46.6	48.1	54.7	57.7

Depth: 974 Tilt: 0 Range: 120.0 VOS: 5937

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	63.3	63.3	63.8	63.8	63.8	64.8	64.3	64.3
22.5	64.3	64.3	64.8	64.8	64.3	64.3	64.3	63.8
45.0	63.8	63.8	63.8	64.3	63.8	63.8	63.8	63.8
67.5	63.8	63.3	62.8	60.8	60.3	60.8	60.3	58.7
90.0	56.7	54.2	51.1	45.6	44.0	42.5	39.0	34.4
112.5	33.9	33.4	33.4	32.9	33.4	33.4	33.4	33.4
135.0	33.4	32.9	32.9	33.4	33.4	33.9	33.4	32.9
157.5	32.4	31.9	31.4	30.9	30.4	29.9	28.9	28.4
180.0	28.4	29.9	29.4	29.9	29.9	29.9	29.4	29.9
202.5	30.4	31.9	31.9	32.4	32.4	32.9	32.9	32.9
225.0	32.9	32.9	32.9	32.9	33.4	33.9	34.4	34.4
247.5	33.9	33.9	33.4	33.9	33.4	32.9	33.4	32.9
270.0	32.4	32.9	31.9	32.4	31.4	30.4	29.4	29.4
292.5	29.4	29.4	29.4	29.4	29.4	28.9	29.4	29.9
315.0	30.4	29.9	29.9	30.4	29.9	30.9	31.4	32.9
337.5	34.4	35.9	37.0	38.0	43.5	56.7	57.2	59.7

Depth: 976 Tilt: 0 Range: 120.0 VOS: 5937

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	60.8	61.3	62.3	62.8	62.8	62.8	62.8	62.8
22.5	61.8	62.3	62.3	62.3	61.3	60.8	60.3	59.7
45.0	59.7	59.2	59.7	59.7	60.8	59.2	59.2	59.2
67.5	58.7	58.2	57.7	57.2	56.2	55.7	55.7	55.2
90.0	51.6	48.6	46.1	43.5	40.5	38.5	37.5	35.4
112.5	33.9	32.4	31.4	31.4	31.4	31.4	30.4	30.4
135.0	30.4	30.4	29.9	29.9	29.9	29.4	29.4	28.9
157.5	28.9	28.4	27.8	27.3	26.8	26.3	26.3	26.3
180.0	26.8	27.3	27.8	28.4	28.4	27.8	28.4	28.4
202.5	28.9	28.9	29.4	29.9	29.9	30.4	30.4	30.9
225.0	31.9	31.9	32.4	32.4	32.4	31.9	31.4	31.9
247.5	30.9	30.4	30.4	30.9	30.4	29.4	28.9	28.4
270.0	28.4	28.9	27.8	28.4	27.8	27.3	26.8	26.8
292.5	26.8	26.3	26.3	25.8	25.8	25.8	25.8	25.8
315.0	26.3	25.8	26.3	26.3	26.3	26.8	29.9	30.9
337.5	31.4	35.4	35.9	39.5	42.0	47.6	50.6	54.7

Depth: 978 Tilt: 0 Range: 120.0 VOS: 5937

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	58.2	60.3	60.8	61.8	61.8	61.8	60.8	59.7
22.5	57.7	57.7	58.7	57.7	57.7	58.7	58.2	58.7
45.0	58.7	59.7	60.3	60.3	59.2	59.2	57.2	56.2
67.5	55.7	55.7	54.2	51.1	49.6	48.1	47.1	46.6
90.0	46.6	46.1	45.1	43.0	40.0	36.5	32.4	28.9
112.5	27.3	27.3	27.3	27.3	26.8	26.8	26.8	26.8
135.0	27.3	27.3	27.3	25.8	25.3	25.3	25.3	24.3
157.5	24.3	24.3	24.3	23.3	23.8	23.8	24.3	24.3
180.0	23.8	23.8	23.8	23.8	23.8	23.8	24.3	24.8
202.5	25.8	24.8	25.3	27.3	26.8	26.8	27.8	28.4
225.0	28.4	28.4	27.8	27.8	27.3	27.8	28.4	27.3
247.5	26.3	26.8	26.8	26.8	26.8	26.8	25.3	26.3
270.0	23.8	24.8	24.8	24.8	24.8	24.3	24.3	24.8
292.5	25.3	25.3	25.8	25.8	25.3	24.8	24.8	24.3
315.0	23.8	23.3	22.8	22.8	23.8	24.3	24.8	28.9
337.5	33.4	35.4	37.5	40.0	43.0	46.1	48.1	52.7

Depth: 980 Tilt: 0 Range: 120.0 VOS: 5937

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	58.2	59.7	58.7	58.2	58.7	57.7	57.7	58.7
22.5	58.7	58.7	57.7	56.7	56.7	56.7	57.2	57.2
45.0	57.2	56.7	56.7	56.7	55.7	55.2	54.7	54.7
67.5	53.7	52.7	50.6	48.6	45.6	43.5	42.0	41.5
90.0	38.5	37.0	37.0	37.0	33.9	32.9	32.4	29.9
112.5	29.4	27.3	27.3	26.8	26.3	25.8	25.3	23.3
135.0	22.8	22.3	21.3	18.7	18.7	18.7	18.7	18.7
157.5	18.2	18.2	18.2	18.2	18.2	17.7	17.7	17.7
180.0	17.7	18.2	18.2	18.2	18.2	18.2	19.2	20.3
202.5	20.8	21.3	21.3	22.3	23.3	23.3	23.3	23.3
225.0	23.3	24.3	24.3	23.8	23.8	23.3	23.8	25.3
247.5	24.8	24.3	24.3	23.3	22.8	23.8	23.3	23.3
270.0	20.8	17.7	18.2	17.2	17.2	17.2	17.7	17.7
292.5	17.7	17.2	17.2	17.2	17.2	17.7	17.7	17.7
315.0	17.7	17.7	17.7	18.2	18.2	18.7	18.7	18.7
337.5	18.7	18.7	18.2	18.2	20.3	21.8	21.8	57.2

Depth: 982 Tilt: 0 Range: 120.0 VOS: 5937

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	58.2	58.2	57.7	57.2	57.2	57.7	57.2	56.7
22.5	56.7	55.7	56.2	55.7	55.7	55.2	54.7	53.7
45.0	53.7	54.7	55.2	55.2	56.2	55.7	55.7	55.7
67.5	56.2	56.2	55.2	54.7	53.7	53.2	52.7	53.2
90.0	53.7	54.2	54.7	54.7	53.2	52.7	51.6	38.5
112.5	23.8	22.8	22.3	21.8	20.8	20.3	20.8	20.8
135.0	19.7	19.2	19.2	18.7	18.7	17.2	17.2	17.2
157.5	16.7	16.7	16.2	15.7	14.7	14.2	13.7	13.7
180.0	13.2	13.2	13.2	12.7	13.2	14.2	14.7	15.2
202.5	15.7	16.2	16.7	17.2	17.7	18.2	19.2	19.2
225.0	19.7	19.7	19.7	19.7	19.7	19.7	18.7	18.2
247.5	18.2	18.2	18.2	17.2	17.7	16.2	15.2	15.7
270.0	15.7	15.7	13.7	13.7	12.7	12.2	11.6	11.6
292.5	11.1	10.6	10.6	10.6	11.1	11.6	10.6	10.6
315.0	11.1	11.6	11.6	11.1	11.1	11.1	11.1	11.1
337.5	12.7	13.7	14.7	15.7	16.7	17.7	20.3	56.7

Depth: 984 Tilt: 0 Range: 120.0 VOS: 5937

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	58.2	58.2	57.7	56.7	56.7	56.7	56.2	56.7
22.5	56.7	56.7	55.2	54.7	54.7	54.7	55.7	55.2
45.0	55.2	55.2	55.7	55.2	56.7	56.7	56.2	56.7
67.5	56.7	56.2	56.2	55.2	54.2	55.2	55.2	56.2
90.0	57.2	56.2	56.2	57.2	57.7	58.2	58.2	13.2
112.5	12.7	12.2	12.2	11.6	11.6	11.6	11.6	11.6
135.0	10.6	10.1	10.1	10.1	10.1	10.1	10.1	10.1
157.5	10.1	10.1	10.1	10.1	9.6	9.6	10.1	10.1
180.0	10.1	10.1	10.6	11.1	11.1	11.1	11.6	11.6
202.5	12.2	11.6	12.2	12.7	12.7	14.7	15.2	15.7
225.0	15.7	15.7	16.2	16.2	15.7	16.2	15.7	15.2
247.5	14.7	14.2	13.7	13.2	12.7	12.7	12.7	12.2
270.0	11.6	12.2	11.6	10.1	8.6	9.1	10.1	10.1
292.5	9.1	9.6	9.6	9.6	9.1	9.1	9.1	9.1
315.0	9.1	9.1	9.1	9.6	9.1	9.1	9.6	9.6
337.5	10.1	10.6	11.6	12.2	12.7	13.2	14.2	16.7

Depth: 986 Tilt: 0 Range: 120.0 VOS: 5935

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	57.7	57.2	57.2	57.2	57.2	57.2	57.7	58.7
22.5	57.2	57.2	57.2	56.7	56.7	56.7	56.7	55.7
45.0	56.2	56.2	56.2	55.7	56.2	57.2	57.7	57.2
67.5	57.2	57.2	57.2	56.7	56.2	55.7	55.7	55.7
90.0	56.2	57.2	57.2	57.7	58.2	58.2	57.7	58.2
112.5	58.2	57.2	14.2	12.7	11.6	11.1	10.6	10.1
135.0	11.1	10.1	10.6	10.6	10.6	9.6	9.6	9.6
157.5	9.6	10.1	10.1	9.1	9.1	9.1	9.1	9.6
180.0	10.1	10.1	10.1	10.6	10.6	10.1	10.1	10.1
202.5	9.6	10.6	11.1	11.1	12.1	12.1	13.7	14.2
225.0	14.2	14.2	14.2	14.2	14.2	14.7	14.2	14.2
247.5	13.7	13.7	13.2	13.2	13.2	13.2	13.7	13.7
270.0	13.2	11.6	11.6	11.1	12.1	11.6	11.1	11.1
292.5	10.6	11.1	11.1	11.1	10.1	9.6	9.1	9.1
315.0	9.1	9.1	9.1	9.1	9.1	9.1	8.6	8.6
337.5	9.6	10.1	55.7	57.2	57.7	57.2	57.2	57.7

Depth: 988 Tilt: 0 Range: 120.0 VOS: 5935

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	57.7	57.7	58.2	58.7	57.7	57.7	58.2	58.7
22.5	58.7	57.7	58.2	57.7	57.7	57.2	58.2	57.2
45.0	56.2	56.2	56.2	56.2	56.7	56.7	57.2	57.2
67.5	57.2	57.2	57.2	56.7	56.7	57.2	56.7	56.2
90.0	56.7	56.2	56.2	56.2	55.7	56.2	56.7	57.2
112.5	57.2	57.7	57.7	58.2	58.2	57.7	57.2	57.2
135.0	55.7	54.2	55.2	55.7	56.2	56.2	56.7	56.7
157.5	57.2	57.7	58.2	58.7	57.2	56.2	55.7	55.7
180.0	56.7	58.2	59.2	59.2	59.2	58.2	58.2	57.2
202.5	53.7	10.6	10.6	10.6	10.6	10.6	10.6	11.1
225.0	11.1	11.1	11.1	11.6	12.1	12.1	13.2	12.7
247.5	12.7	12.7	12.7	13.2	13.7	13.2	13.7	13.7
270.0	13.7	13.7	13.7	13.7	13.7	53.1	52.6	53.1
292.5	53.1	53.1	54.2	54.2	54.2	55.2	55.7	55.7
315.0	56.7	55.7	55.2	55.7	55.7	55.2	55.2	56.2
337.5	55.7	56.2	55.7	55.7	54.7	55.2	56.2	57.7

Depth: 990 Tilt: 0 Range: 120.0 VOS: 5935

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	53.1	52.6	53.1	53.7	55.2	55.7	55.7	55.7
22.5	54.7	55.2	54.7	55.2	55.2	55.2	54.7	54.7
45.0	54.2	54.7	54.7	55.7	56.2	56.7	56.7	56.7
67.5	56.7	57.2	56.7	57.7	57.7	57.2	57.2	57.7
90.0	57.7	58.2	58.2	58.2	57.7	56.7	56.7	56.7
112.5	57.2	57.2	57.2	56.7	56.2	56.7	56.7	56.7
135.0	56.2	56.7	56.7	57.2	56.7	56.2	56.2	56.7
157.5	56.7	56.7	56.7	56.7	56.7	57.2	56.7	56.7
180.0	57.2	57.7	57.7	58.2	58.2	58.2	58.2	56.7
202.5	55.7	55.7	55.2	55.2	55.2	55.2	55.2	55.2
225.0	54.7	54.7	55.2	54.7	54.7	55.2	54.7	54.7
247.5	55.2	55.2	54.2	53.7	53.7	54.2	54.2	54.2
270.0	54.7	54.7	55.2	53.7	53.1	53.1	54.2	52.6
292.5	52.6	53.1	53.1	53.1	52.1	52.1	52.1	52.1
315.0	51.6	53.1	53.1	52.6	52.6	52.1	51.1	51.6
337.5	51.1	51.6	51.1	51.6	51.6	51.6	51.6	53.1

Depth: 992 Tilt: 0 Range: 120.0 VOS: 5935

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	53.1	53.1	53.1	53.1	53.1	54.7	55.2	55.7
22.5	56.7	57.2	57.7	57.7	57.7	57.2	57.7	58.7
45.0	58.2	58.2	57.7	58.2	57.7	57.7	58.2	57.7
67.5	57.7	57.7	56.7	56.2	57.2	57.2	57.7	57.7
90.0	57.2	56.7	56.7	57.2	56.7	56.7	57.2	57.7
112.5	57.7	58.7	57.7	57.7	58.2	57.7	57.2	57.2
135.0	58.2	58.2	57.7	57.7	58.2	57.7	58.2	57.7
157.5	56.7	56.2	56.2	55.7	55.7	55.7	56.2	56.2
180.0	56.2	55.2	55.2	55.2	54.7	54.2	54.2	54.2
202.5	54.7	53.7	54.2	54.2	53.7	53.1	53.1	53.7
225.0	52.6	51.6	52.1	52.1	53.1	52.1	51.6	50.1
247.5	50.1	50.1	49.1	48.6	49.1	49.1	49.6	50.1
270.0	50.1	51.1	50.6	51.1	51.1	51.1	51.6	50.6
292.5	50.6	51.6	51.1	51.1	51.6	52.1	53.1	52.6
315.0	52.6	52.6	53.1	53.7	54.7	54.7	54.2	54.2
337.5	53.7	53.7	53.7	54.2	54.7	54.7	53.7	52.6

Depth: 994 Tilt: 0 Range: 120.0 VOS: 5935

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	56.7	56.7	56.7	56.7	56.7	56.7	57.2	56.7
22.5	56.7	56.7	58.2	58.2	58.7	59.2	60.7	61.2
45.0	61.7	61.2	60.7	60.7	60.7	60.2	57.2	55.7
67.5	56.2	56.2	56.2	55.7	55.2	54.7	54.2	55.2
90.0	55.2	56.2	56.2	55.7	55.7	55.2	55.2	55.2
112.5	54.7	54.7	55.2	55.2	54.7	54.7	54.7	54.2
135.0	53.1	53.1	52.6	51.6	50.6	50.6	50.6	49.6
157.5	50.1	50.6	50.1	51.1	51.1	51.1	50.6	50.6
180.0	50.6	51.1	51.6	51.6	51.6	51.1	51.1	51.1
202.5	51.1	51.6	52.1	52.1	52.1	52.1	51.6	52.1
225.0	52.1	52.1	52.6	52.6	53.1	53.1	52.1	52.6
247.5	53.1	53.7	54.2	55.2	55.2	54.7	55.2	55.2
270.0	55.2	55.2	55.2	55.7	56.7	56.2	56.7	57.2
292.5	57.7	58.2	58.2	58.2	58.2	58.7	58.2	58.2
315.0	57.7	58.2	58.7	59.2	58.7	58.7	58.2	57.7
337.5	58.2	58.7	57.7	57.7	57.2	57.2	57.7	57.2

Depth: 996 Tilt: 0 Range: 120.0 VOS: 5935

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	57.2	58.2	58.7	58.7	58.2	58.2	58.7	58.7
22.5	58.2	58.7	59.2	60.2	59.7	60.2	59.7	60.2
45.0	60.7	58.2	57.2	57.2	57.2	56.7	57.2	55.2
67.5	55.2	55.7	55.7	55.2	55.2	55.2	55.2	55.2
90.0	55.2	55.2	55.2	54.2	53.7	53.7	53.1	54.2
112.5	54.2	54.7	55.2	54.7	53.1	54.2	53.7	54.2
135.0	52.6	51.1	50.6	50.6	50.1	50.1	49.6	49.6
157.5	50.1	49.1	49.1	50.1	50.6	50.6	50.6	50.6
180.0	50.1	50.1	49.6	50.1	50.6	51.6	51.1	51.1
202.5	50.6	51.1	51.1	51.6	51.6	52.1	53.1	53.1
225.0	54.7	55.2	55.2	55.2	55.2	54.7	54.7	55.2
247.5	55.2	55.7	56.2	56.7	56.7	57.2	57.2	56.7
270.0	56.7	57.2	57.7	57.2	58.2	58.2	58.2	58.2
292.5	58.2	58.2	58.2	58.2	58.7	58.7	58.2	58.7
315.0	59.7	59.7	58.7	58.7	57.7	57.2	57.7	58.2
337.5	58.2	57.7	58.2	57.7	57.7	57.2	56.7	57.2

Depth: 998 Tilt: 0 Range: 120.0 VOS: 5935

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	58.2	58.7	58.7	59.2	59.2	59.2	59.2	59.2
22.5	59.2	59.2	59.2	59.7	59.2	60.7	60.7	60.7
45.0	60.7	60.2	59.7	57.7	57.2	57.7	56.7	56.2
67.5	56.7	56.2	54.7	55.2	55.2	55.2	55.2	55.7
90.0	55.7	56.2	55.2	55.2	54.2	54.7	54.7	55.7
112.5	55.7	54.7	55.2	55.2	54.2	54.2	53.1	53.1
135.0	53.7	53.7	53.7	53.7	53.7	52.6	50.6	50.1
157.5	49.1	49.6	49.6	50.1	50.1	50.1	50.6	50.6
180.0	50.6	49.6	50.1	50.1	50.1	50.1	50.6	51.6
202.5	51.6	51.6	51.1	51.1	51.1	52.1	52.6	52.6
225.0	53.1	54.7	54.7	55.2	55.7	55.7	55.7	55.7
247.5	55.2	55.2	55.2	55.2	55.7	56.7	56.7	56.7
270.0	56.7	57.2	57.2	57.2	58.2	58.7	58.2	58.2
292.5	58.2	58.7	58.2	58.7	58.7	58.2	58.2	57.7
315.0	58.2	57.7	58.2	58.7	58.7	58.7	58.2	58.2
337.5	58.2	57.7	57.2	57.7	57.7	57.7	58.2	58.2

Depth: 1000 Tilt: 0 Range: 120.0 VOS: 5935

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	59.2	59.2	58.7	58.7	59.2	58.2	59.2	58.7
22.5	58.7	58.2	57.7	57.7	58.2	58.7	58.7	59.2
45.0	59.7	59.7	58.7	59.2	59.2	58.7	58.7	58.7
67.5	58.7	58.2	58.2	57.7	57.2	56.7	57.2	57.2
90.0	57.2	57.2	56.2	56.7	55.7	55.7	55.7	56.2
112.5	56.7	56.2	56.2	56.2	56.7	56.2	56.7	55.7
135.0	54.7	53.7	53.7	53.1	52.6	52.1	51.6	51.6
157.5	51.1	51.1	50.6	50.6	50.6	51.1	51.1	50.1
180.0	50.1	49.6	50.6	49.6	50.1	50.1	50.1	50.6
202.5	52.6	53.7	53.1	52.6	52.6	52.1	53.1	53.7
225.0	54.7	54.7	55.7	55.7	55.2	54.2	55.2	54.7
247.5	55.2	55.7	55.2	55.2	55.7	55.7	56.2	56.7
270.0	56.7	56.7	57.2	57.2	57.7	57.2	57.2	57.2
292.5	57.2	57.7	57.7	58.2	57.7	57.2	58.2	58.2
315.0	57.7	57.2	57.7	58.2	58.7	59.2	58.7	58.2
337.5	57.2	56.7	57.2	57.2	57.7	58.2	58.7	59.2

Depth: 1002 Tilt: 0 Range: 120.0 VOS: 5937

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	56.2	55.7	56.7	56.7	56.7	57.2	56.7	56.7
22.5	56.2	56.2	57.2	56.7	56.7	57.2	57.7	58.7
45.0	59.2	59.2	58.7	58.7	58.7	57.7	56.7	56.7
67.5	56.7	57.2	57.2	58.7	58.7	58.2	58.7	59.2
90.0	59.2	58.2	58.2	57.7	57.7	58.2	58.2	58.2
112.5	58.2	58.2	57.7	57.7	58.2	58.2	58.7	58.2
135.0	57.7	57.7	57.7	57.2	57.7	58.2	58.2	58.7
157.5	58.2	58.2	58.7	58.7	58.7	58.7	57.7	56.7
180.0	56.2	56.7	56.7	56.7	56.7	56.7	55.7	55.7
202.5	56.2	55.7	56.2	55.7	56.2	55.7	54.7	53.7
225.0	54.2	54.2	54.7	53.2	53.2	53.2	52.2	52.2
247.5	51.1	51.1	50.6	51.6	52.2	51.1	51.6	51.6
270.0	52.2	51.6	52.2	52.2	52.7	52.7	52.7	52.2
292.5	53.2	52.7	52.2	52.2	51.6	52.2	53.7	54.2
315.0	54.2	54.2	53.7	54.7	54.7	55.2	55.2	55.2
337.5	55.7	56.2	56.2	56.2	56.2	56.7	57.2	56.2

Depth: 1004 Tilt: 0 Range: 120.0 VOS: 5937

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	57.7	57.7	57.7	58.7	58.2	58.7	58.2	58.7
22.5	58.7	59.2	58.7	59.2	59.2	59.2	59.7	59.7
45.0	60.3	59.7	59.7	59.7	59.7	59.7	59.7	59.2
67.5	58.2	58.2	58.7	58.7	59.2	58.7	57.7	58.2
90.0	58.7	58.7	58.2	58.7	59.2	58.2	58.2	57.2
112.5	57.2	57.7	57.7	58.7	59.2	58.7	58.2	57.7
135.0	58.7	58.2	58.2	58.7	58.2	57.7	57.7	56.7
157.5	57.2	56.7	56.7	57.2	56.7	56.7	56.2	56.2
180.0	56.2	55.7	55.2	55.2	54.7	55.7	55.7	55.2
202.5	54.7	54.7	54.7	54.2	53.7	52.7	52.7	51.1
225.0	51.1	52.2	53.2	53.2	53.2	52.7	52.2	52.2
247.5	52.2	52.2	52.2	51.1	50.1	50.6	49.6	49.6
270.0	50.1	50.1	50.1	51.1	51.6	52.7	53.2	53.7
292.5	54.7	55.2	54.2	54.2	54.7	55.2	54.7	55.7
315.0	56.2	56.7	55.2	55.2	55.2	55.2	55.7	55.7
337.5	55.2	55.7	55.7	56.2	56.2	56.2	56.2	56.7

Depth: 1006 Tilt: 0 Range: 120.0 VOS: 5937

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	59.2	58.2	58.7	59.7	59.7	59.7	59.7	59.7
22.5	59.2	58.7	59.7	60.3	59.7	60.3	60.3	60.3
45.0	60.3	60.8	60.3	59.7	59.7	60.3	59.2	59.7
67.5	59.7	59.7	59.2	54.7	56.2	56.2	55.7	55.2
90.0	56.7	57.7	57.2	57.7	57.7	58.2	58.7	57.7
112.5	57.7	58.7	58.7	58.2	58.2	57.7	58.2	57.7
135.0	58.2	58.2	56.2	56.2	56.2	56.7	57.2	56.2
157.5	56.7	56.7	55.7	55.7	56.2	56.7	56.2	56.2
180.0	56.2	53.2	53.7	53.2	52.7	52.2	51.6	51.1
202.5	50.6	50.6	51.1	51.1	51.1	51.6	51.1	51.6
225.0	51.1	50.1	49.6	49.1	49.1	48.6	48.6	48.6
247.5	49.1	49.6	49.6	50.6	50.6	51.6	51.1	49.6
270.0	50.1	53.2	52.7	52.2	54.2	53.7	53.2	52.2
292.5	52.7	52.7	53.2	53.2	54.2	54.7	54.7	54.7
315.0	55.2	55.7	56.2	55.7	55.7	56.7	56.2	56.7
337.5	56.7	57.2	58.7	58.7	58.7	58.2	58.2	59.2

Depth: 1008 Tilt: 0 Range: 120.0 VOS: 5937

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	60.3	60.3	60.3	60.8	60.8	60.3	60.8	60.8
22.5	60.8	60.8	60.8	60.3	60.8	60.3	59.7	60.8
45.0	60.8	61.3	60.8	60.8	60.3	59.7	59.7	60.8
67.5	59.7	56.7	57.2	57.7	57.7	57.7	57.7	58.2
90.0	57.2	57.7	58.2	57.7	57.2	56.7	56.7	56.7
112.5	56.7	56.7	56.7	56.2	56.2	56.2	55.7	55.7
135.0	55.7	55.7	56.7	56.7	56.2	56.2	56.2	56.2
157.5	56.2	56.2	56.2	55.2	54.7	55.2	55.2	55.7
180.0	55.7	55.2	54.7	53.7	50.6	50.6	49.6	49.1
202.5	49.6	51.1	51.1	51.1	50.6	48.6	48.1	48.1
225.0	48.6	47.6	48.1	48.6	50.1	50.6	50.6	52.7
247.5	52.7	52.2	52.7	51.6	51.1	52.7	52.7	53.2
270.0	54.2	55.2	55.2	55.7	55.2	55.7	55.7	55.2
292.5	55.7	56.2	56.2	56.2	56.2	56.2	56.2	58.2
315.0	58.7	58.2	58.7	58.2	58.2	58.2	59.2	60.3
337.5	60.8	59.7	60.3	59.7	59.7	59.7	60.3	60.8

Depth: 1010 Tilt: 0 Range: 120.0 VOS: 5937

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	60.2	60.2	60.2	61.2	60.7	60.2	60.2	60.7
22.5	60.2	60.2	60.7	60.2	60.2	59.7	60.2	59.7
45.0	61.2	60.7	60.2	59.7	59.7	60.2	60.2	60.7
67.5	60.7	60.2	60.2	60.2	58.7	57.7	57.7	57.2
90.0	58.2	58.7	57.7	56.2	56.7	57.2	57.2	56.7
112.5	57.2	56.7	56.7	56.2	56.7	57.2	57.2	56.7
135.0	56.7	55.7	55.7	56.2	55.2	54.7	56.2	56.2
157.5	55.7	56.2	56.2	53.6	54.2	54.7	54.7	52.6
180.0	53.1	52.6	52.6	51.6	50.6	50.1	50.1	48.6
202.5	46.1	46.6	48.1	47.6	47.6	47.1	47.6	48.6
225.0	48.6	49.1	49.6	48.6	48.6	49.1	50.6	50.1
247.5	51.1	52.6	53.1	53.6	54.7	54.2	54.7	53.6
270.0	54.2	53.6	55.2	54.7	55.2	55.7	56.2	56.2
292.5	56.7	56.2	56.2	56.2	56.2	56.7	56.2	56.2
315.0	56.2	56.7	57.2	57.7	57.7	58.2	58.2	58.7
337.5	59.2	59.7	60.2	60.2	60.2	60.7	60.7	60.7

Depth: 1012 Tilt: 0 Range: 120.0 VOS: 5938

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	60.2	59.7	59.7	59.7	60.2	60.2	60.2	60.2
22.5	60.7	60.2	60.2	60.2	60.2	60.7	59.7	59.7
45.0	60.2	59.7	60.7	60.7	60.2	60.2	59.7	58.7
67.5	58.7	59.2	59.2	58.2	57.2	57.2	57.2	57.7
90.0	57.2	58.2	57.7	57.7	56.7	57.2	56.7	56.7
112.5	56.7	57.2	55.2	54.7	55.7	55.2	53.7	54.2
135.0	54.2	53.7	53.2	53.2	53.7	53.7	52.1	51.1
157.5	51.1	52.1	52.1	50.6	49.1	49.1	50.6	50.6
180.0	50.6	51.1	51.1	51.6	51.1	51.6	51.1	52.1
202.5	52.6	52.6	52.6	52.6	53.7	53.2	53.7	54.2
225.0	54.7	54.7	54.7	55.2	55.7	55.2	55.2	55.7
247.5	56.2	55.7	55.7	55.7	55.7	56.2	55.7	55.7
270.0	55.7	56.2	56.7	56.7	57.2	57.2	57.2	58.2
292.5	58.2	59.2	59.7	58.7	59.2	59.2	59.2	59.2
315.0	59.2	59.2	60.2	59.2	59.2	59.7	59.7	59.2
337.5	59.7	60.2	60.7	60.2	60.2	60.7	59.7	59.7

Depth: 1014 Tilt: 0 Range: 120.0 VOS: 5938

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	59.2	59.2	60.2	59.7	60.2	59.7	61.3	60.7
22.5	61.3	60.7	60.2	59.7	60.2	60.2	60.2	60.2
45.0	59.2	59.7	60.2	60.2	60.7	60.7	59.7	59.7
67.5	58.7	58.2	59.2	59.2	58.7	59.7	58.7	59.2
90.0	60.2	59.7	59.2	59.7	60.2	59.2	59.2	59.2
112.5	58.7	58.7	59.2	59.2	59.7	59.2	59.2	59.2
135.0	58.7	58.2	58.7	58.2	57.7	56.7	57.2	57.2
157.5	56.7	56.7	56.7	56.7	55.7	55.2	55.2	54.7
180.0	54.7	55.2	55.7	54.7	53.7	52.6	53.2	53.2
202.5	53.7	53.7	53.2	52.6	52.6	52.6	52.1	52.1
225.0	52.6	53.2	52.6	53.2	52.1	53.2	54.2	55.2
247.5	54.7	53.7	54.2	54.2	54.7	53.7	54.2	54.2
270.0	54.2	54.2	54.7	54.7	54.7	54.2	54.2	54.7
292.5	55.2	55.7	55.2	55.2	54.7	54.7	55.2	55.2
315.0	55.2	55.7	56.2	56.7	57.2	58.2	58.2	57.7
337.5	57.7	57.7	57.7	58.2	58.2	57.7	59.2	59.2

Depth: 1016 Tilt: 0 Range: 120.0 VOS: 5938

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	59.2	59.2	59.7	59.7	59.7	59.7	58.7	58.2
22.5	58.7	59.2	59.7	58.7	58.7	59.7	60.2	59.2
45.0	59.2	59.2	58.7	59.2	59.2	59.2	59.2	59.7
67.5	59.2	59.2	59.2	58.2	58.7	58.7	58.7	58.2
90.0	58.7	58.7	57.7	57.2	56.7	57.2	56.2	56.2
112.5	56.2	55.7	55.7	54.7	54.7	54.2	54.2	54.2
135.0	54.2	54.2	54.2	54.2	54.2	54.2	54.2	54.2
157.5	54.2	54.7	53.7	53.7	53.7	53.7	53.7	53.7
180.0	53.7	53.2	53.2	53.2	53.2	53.2	53.2	52.6
202.5	52.6	52.6	52.6	52.6	53.2	54.2	53.7	54.2
225.0	54.2	53.7	54.2	53.7	54.2	54.7	54.7	54.7
247.5	54.7	55.7	55.2	56.7	56.2	57.2	57.2	57.7
270.0	57.7	57.2	56.7	57.7	57.2	57.2	57.2	57.2
292.5	57.7	58.7	58.2	58.2	58.2	59.2	59.2	58.7
315.0	59.2	59.2	59.2	59.2	59.7	59.2	59.2	58.7
337.5	58.7	58.7	59.7	59.2	58.7	59.2	59.2	59.2

Depth: 1018 Tilt: 0 Range: 120.0 VOS: 5938

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	57.2	56.2	56.2	56.2	56.7	56.7	57.2	57.2
22.5	58.2	58.7	58.7	58.7	58.7	59.2	58.7	57.7
45.0	57.7	57.7	57.7	57.7	58.7	58.7	58.7	58.2
67.5	59.2	58.2	58.7	58.7	59.2	57.7	58.2	58.2
90.0	58.2	59.2	58.7	58.2	58.2	58.2	57.7	57.2
112.5	56.7	56.7	56.2	56.7	56.7	55.2	55.2	55.2
135.0	55.7	54.7	54.7	54.7	54.7	54.7	54.7	55.2
157.5	54.7	55.2	54.7	53.7	53.2	53.7	53.7	52.6
180.0	52.6	52.1	51.6	52.1	52.1	52.6	52.1	51.6
202.5	51.6	52.1	51.6	51.1	51.1	52.1	51.6	52.6
225.0	52.1	52.6	52.6	52.1	51.6	52.6	53.2	52.1
247.5	53.2	53.7	54.2	54.7	55.2	56.2	55.7	56.2
270.0	56.2	55.7	56.7	56.2	56.7	56.7	57.2	56.7
292.5	56.2	56.2	56.2	56.2	56.2	56.7	56.7	56.7
315.0	58.2	58.2	58.2	58.7	58.2	58.2	57.7	57.2
337.5	57.7	58.2	58.2	58.7	57.7	58.2	58.7	58.7

Depth: 1020 Tilt: 0 Range: 120.0 VOS: 5938

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	56.7	56.2	56.7	57.2	56.7	57.2	56.7	56.2
22.5	55.7	56.2	55.7	55.7	55.7	56.7	56.7	57.2
45.0	58.2	57.7	57.7	56.7	56.7	56.7	56.7	56.7
67.5	56.2	56.7	56.2	56.7	57.7	56.7	57.2	57.2
90.0	56.7	57.2	57.2	57.7	57.2	56.7	57.2	57.2
112.5	57.2	57.2	57.2	56.7	56.2	56.2	55.7	54.7
135.0	54.7	54.2	54.2	54.7	54.2	54.2	54.7	54.7
157.5	54.2	54.7	54.7	54.2	53.7	54.2	53.7	54.2
180.0	53.7	53.2	54.2	53.7	52.6	51.6	52.1	51.6
202.5	51.1	51.1	52.1	52.1	52.1	51.6	50.6	50.1
225.0	50.6	50.1	50.1	50.1	51.1	51.1	51.1	50.6
247.5	50.6	50.1	50.6	51.1	51.6	51.1	51.6	51.6
270.0	51.6	52.6	53.7	54.2	54.2	55.2	54.7	55.2
292.5	55.2	54.7	55.2	54.7	55.2	55.7	54.7	54.7
315.0	55.2	55.2	55.2	54.7	56.7	56.7	57.2	57.2
337.5	56.7	57.2	57.7	56.7	56.2	56.2	56.2	56.7

Depth: 1022 Tilt: 0 Range: 120.0 VOS: 5938

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	51.1	51.6	51.6	53.2	54.2	53.7	54.2	54.7
22.5	55.2	54.7	55.2	55.2	55.2	56.2	55.7	56.2
45.0	56.7	55.7	55.7	55.7	55.7	55.7	55.2	56.7
67.5	56.2	56.2	56.2	55.7	55.7	55.7	56.2	56.2
90.0	56.7	56.2	55.2	55.7	54.7	55.2	55.2	55.2
112.5	55.7	55.7	56.2	55.7	54.7	54.2	54.2	54.2
135.0	53.7	53.7	53.2	53.2	52.6	53.2	51.6	52.1
157.5	52.6	55.2	55.7	55.7	55.7	55.2	54.2	54.2
180.0	54.2	54.7	54.2	54.7	54.2	54.2	54.2	54.2
202.5	54.2	54.2	54.2	54.2	54.2	54.2	54.2	54.7
225.0	54.7	53.2	53.7	53.2	53.7	53.2	53.7	53.7
247.5	53.2	52.1	52.6	53.2	52.1	52.1	52.1	52.1
270.0	51.6	52.1	51.6	52.1	52.1	51.1	50.6	50.6
292.5	50.1	49.6	50.1	50.1	50.1	49.1	48.6	49.1
315.0	49.1	48.6	48.1	49.1	49.6	49.1	49.6	49.1
337.5	49.6	49.1	49.1	49.6	50.1	50.6	50.6	51.1

Depth: 1024 Tilt: 0 Range: 120.0 VOS: 5936

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	51.6	53.2	53.7	54.7	55.7	55.7	56.2	55.2
22.5	55.7	55.7	56.2	55.7	55.7	55.7	55.7	55.2
45.0	55.2	55.2	55.2	55.2	55.7	55.7	55.2	56.2
67.5	56.2	56.2	55.2	54.7	55.2	56.2	56.2	55.7
90.0	56.2	56.2	56.7	56.7	57.2	57.7	57.2	58.2
112.5	58.2	57.7	57.2	57.2	56.7	54.7	52.6	52.1
135.0	52.1	52.1	51.6	52.1	52.6	52.1	51.1	50.1
157.5	50.6	52.1	52.1	52.6	52.6	52.6	52.6	53.2
180.0	52.1	51.1	52.6	52.6	52.1	52.1	52.1	51.6
202.5	52.1	52.1	52.1	51.6	51.6	51.1	51.1	51.1
225.0	51.1	51.6	51.6	51.6	51.6	51.1	50.6	50.6
247.5	51.1	51.6	52.1	51.6	51.6	51.6	51.1	51.1
270.0	50.6	50.6	50.1	50.6	51.1	50.6	49.6	48.1
292.5	49.1	49.1	49.1	48.6	48.1	47.6	48.1	48.1
315.0	48.6	49.1	49.6	50.1	49.1	49.6	49.6	49.1
337.5	49.1	49.1	50.1	50.1	50.6	50.6	51.1	51.6

Depth: 1026 Tilt: 0 Range: 120.0 VOS: 5936

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	53.7	54.2	54.7	55.2	55.7	55.7	56.2	56.2
22.5	56.2	56.7	56.7	56.7	56.2	55.7	56.2	55.2
45.0	55.2	55.2	55.7	55.7	56.2	56.2	56.7	56.2
67.5	55.7	55.7	56.2	56.2	56.7	56.7	56.7	57.2
90.0	57.2	56.7	57.2	58.2	58.7	59.2	59.2	58.7
112.5	58.7	58.7	58.2	56.7	55.2	53.7	53.7	54.7
135.0	53.7	53.2	52.6	52.6	52.6	53.2	53.2	53.2
157.5	52.6	52.1	52.1	52.1	51.6	51.6	51.6	51.6
180.0	52.1	51.6	51.6	51.6	51.6	51.6	51.6	51.1
202.5	50.6	50.1	50.1	49.6	49.6	49.6	50.1	49.6
225.0	49.6	50.1	50.1	50.6	50.6	50.1	50.1	50.1
247.5	49.6	50.1	50.1	50.6	50.6	50.6	50.6	50.6
270.0	50.1	50.6	51.1	51.1	50.6	51.1	51.6	53.2
292.5	52.6	52.6	52.1	51.6	50.6	50.6	50.6	51.1
315.0	50.6	50.6	50.1	50.1	49.6	50.1	50.1	50.1
337.5	50.6	50.6	51.1	51.1	51.1	51.6	52.1	53.2

Depth: 1028 Tilt: 0 Range: 120.0 VOS: 5936

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	50.6	50.6	50.6	50.6	51.1	52.1	53.2	53.7
22.5	54.2	55.2	55.7	55.7	56.2	56.7	56.2	55.2
45.0	55.7	56.7	55.7	55.2	55.2	54.7	54.7	55.2
67.5	55.2	54.7	55.2	55.2	55.7	55.7	56.2	56.2
90.0	56.2	56.7	56.7	55.7	55.2	55.2	55.2	55.7
112.5	57.2	57.2	56.7	56.7	55.7	56.2	56.7	56.7
135.0	56.2	55.2	54.7	54.2	53.7	53.7	53.2	51.6
157.5	51.6	51.6	51.6	52.1	52.1	51.6	51.1	51.1
180.0	50.6	50.6	50.6	50.1	49.1	49.1	49.1	48.6
202.5	48.6	48.6	48.6	48.6	49.1	49.6	50.1	50.6
225.0	50.1	50.1	49.1	49.1	49.6	49.6	49.6	50.1
247.5	50.1	50.1	49.6	50.1	50.1	50.6	50.6	51.1
270.0	52.1	51.6	51.6	52.1	51.6	51.1	51.1	51.6
292.5	51.6	51.6	51.6	52.1	53.2	52.1	52.1	52.1
315.0	52.1	52.1	52.1	51.6	50.6	50.6	50.1	49.1
337.5	49.6	50.1	50.6	50.6	51.1	50.6	50.1	50.1

Depth: 1030 Tilt: 0 Range: 120.0 VOS: 5937

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	48.6	49.1	49.1	49.1	49.6	50.1	50.1	50.6
22.5	50.6	51.6	52.2	52.7	52.2	52.7	52.7	52.2
45.0	52.7	53.2	53.2	54.2	54.7	53.2	53.7	53.2
67.5	54.7	54.2	54.2	54.7	55.2	55.2	55.7	55.7
90.0	55.7	55.7	55.2	55.2	56.2	57.2	57.2	56.7
112.5	56.7	56.2	55.7	55.7	54.7	53.7	52.7	51.6
135.0	50.6	51.1	51.1	50.6	50.1	50.1	50.6	51.1
157.5	50.6	50.6	50.6	51.1	51.1	50.6	50.1	49.6
180.0	48.6	48.1	48.1	48.6	48.6	48.6	48.6	49.1
202.5	48.6	49.1	49.6	50.1	51.6	51.6	52.2	52.2
225.0	51.6	51.6	52.2	51.6	51.1	52.2	52.7	52.2
247.5	52.7	52.7	52.2	53.2	53.7	52.2	52.7	53.2
270.0	52.7	52.7	52.7	52.7	53.2	53.2	53.2	53.2
292.5	53.2	52.2	52.7	52.2	52.2	51.1	51.1	51.1
315.0	49.6	49.1	50.1	49.1	49.1	48.6	48.6	48.1
337.5	49.1	48.6	48.1	48.6	48.6	49.1	49.1	48.6

Depth: 1032 Tilt: 0 Range: 120.0 VOS: 5937

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	44.5	45.0	45.6	46.6	46.6	47.1	48.1	48.1
22.5	48.6	49.1	49.6	50.6	51.1	52.1	50.6	50.1
45.0	51.1	51.1	51.1	51.1	51.1	51.6	51.6	51.6
67.5	52.1	52.1	52.1	52.1	52.6	55.2	54.7	55.7
90.0	56.2	57.2	56.2	57.7	58.2	58.2	57.7	57.7
112.5	57.7	57.7	56.7	56.7	56.7	56.2	55.2	52.1
135.0	50.6	49.6	49.6	49.1	49.1	48.6	48.6	48.1
157.5	49.1	49.6	49.6	49.1	48.6	48.6	48.1	47.6
180.0	47.6	47.1	47.1	47.6	47.6	48.1	47.6	47.1
202.5	47.1	47.6	48.1	48.6	48.6	49.1	50.1	50.6
225.0	50.6	50.6	51.1	51.1	52.1	52.6	52.6	52.6
247.5	53.1	52.6	52.1	52.6	52.6	53.1	52.6	53.1
270.0	52.6	52.1	53.1	52.6	52.6	53.1	52.6	53.1
292.5	52.6	52.6	53.1	52.6	52.6	52.6	51.6	50.6
315.0	50.6	50.1	48.6	49.1	48.6	48.6	48.6	46.6
337.5	46.1	45.6	46.1	46.6	45.6	45.6	46.6	45.6

Depth: 1034 Tilt: 0 Range: 160.0 VOS: 5938

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	41.2	41.2	41.9	41.9	42.5	42.5	43.2	43.2
22.5	43.9	44.6	45.2	45.2	45.2	45.9	45.9	45.9
45.0	46.6	46.6	46.6	46.6	47.3	47.3	47.3	46.6
67.5	46.6	47.3	47.3	47.9	48.6	50.0	50.0	50.6
90.0	50.6	51.3	52.0	52.0	52.0	51.3	51.3	51.3
112.5	50.6	50.6	50.0	49.3	49.3	48.6	48.6	47.9
135.0	46.6	44.6	43.9	43.2	43.2	43.2	43.2	43.2
157.5	42.5	42.5	41.9	40.5	39.2	39.8	39.2	39.2
180.0	39.8	39.8	39.8	40.5	41.9	42.5	43.2	43.2
202.5	43.2	43.9	43.2	43.9	44.6	44.6	45.2	45.2
225.0	45.2	45.2	45.2	45.9	46.6	47.3	47.3	46.6
247.5	46.6	47.9	48.6	48.6	49.3	49.3	49.3	50.0
270.0	49.3	49.3	48.6	47.9	47.3	46.6	45.9	44.6
292.5	43.9	43.2	43.2	42.5	41.9	42.5	41.9	41.9
315.0	41.9	41.9	41.9	41.2	40.5	40.5	40.5	40.5
337.5	39.8	39.8	39.8	39.2	39.8	39.2	40.5	40.5

Depth: 1036 Tilt: 0 Range: 100.0 VOS: 5938

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	38.8	38.8	39.6	39.6	39.6	40.1	40.9	40.9
22.5	41.3	41.3	41.8	41.8	42.2	42.2	42.6	43.0
45.0	43.0	43.4	43.4	43.0	43.0	43.4	43.9	43.9
67.5	44.3	44.3	44.7	45.1	45.1	45.6	46.0	46.8
90.0	47.2	48.1	48.5	49.3	50.2	50.2	49.3	49.8
112.5	49.3	49.3	49.8	49.3	49.3	50.2	47.7	46.8
135.0	46.4	46.0	45.1	44.3	44.3	44.3	43.4	43.0
157.5	42.2	42.2	41.8	41.8	40.9	39.2	38.8	38.4
180.0	38.4	38.0	38.4	38.4	38.0	38.0	38.8	39.6
202.5	39.6	40.1	40.9	41.3	41.8	41.8	41.3	41.3
225.0	42.2	42.2	42.6	42.6	43.0	43.0	43.4	44.3
247.5	44.3	44.7	45.1	45.1	44.7	45.1	46.4	46.4
270.0	47.2	47.2	47.2	46.8	46.4	46.8	46.4	46.4
292.5	45.6	43.9	43.4	42.6	41.8	41.3	40.9	40.5
315.0	40.1	40.5	41.3	40.9	40.9	40.5	39.6	39.6
337.5	40.1	40.9	40.5	39.6	39.2	38.8	38.8	38.8

Depth: 1038 Tilt: 0 Range: 100.0 VOS: 5939

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	36.7	36.3	36.3	36.3	36.7	37.5	38.0	38.0
22.5	38.8	39.7	40.5	40.5	41.3	41.8	42.6	43.0
45.0	42.6	42.6	42.6	42.6	42.2	42.2	42.6	42.6
67.5	43.0	43.0	42.6	42.6	43.0	43.5	43.5	43.9
90.0	44.7	46.0	47.2	47.2	48.5	48.5	48.1	47.7
112.5	48.1	47.7	47.7	47.7	47.2	46.8	46.4	47.2
135.0	46.8	45.6	43.9	43.9	43.5	44.3	43.0	43.5
157.5	42.6	41.3	40.9	40.5	38.8	37.5	36.7	36.3
180.0	35.4	34.6	34.6	35.0	35.0	35.9	36.7	37.1
202.5	38.0	38.0	38.0	38.8	38.4	38.0	38.8	39.7
225.0	40.1	40.5	40.9	40.9	40.9	40.5	40.9	40.9
247.5	41.3	42.2	42.6	42.6	42.6	42.6	42.6	43.5
270.0	43.9	44.7	44.7	45.1	44.3	44.3	43.5	43.9
292.5	43.5	43.0	42.2	41.3	40.5	40.1	39.7	40.1
315.0	39.2	38.8	39.7	39.2	39.2	38.8	38.4	38.4
337.5	38.4	38.0	38.0	38.0	37.5	37.5	37.1	36.7

Depth: 1040 Tilt: 0 Range: 100.0 VOS: 5939

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	35.0	35.4	36.7	37.1	36.7	40.5	39.7	39.7
22.5	40.9	41.3	40.9	41.3	41.3	40.5	39.7	40.9
45.0	40.9	41.3	42.2	40.9	40.9	40.1	40.5	40.1
67.5	40.5	41.8	42.6	42.6	43.0	43.9	44.7	45.1
90.0	44.7	44.7	44.7	44.7	45.1	45.1	43.9	43.9
112.5	43.5	45.6	44.3	43.9	43.9	43.5	42.6	42.2
135.0	41.8	40.9	40.9	40.5	39.7	39.2	38.0	37.1
157.5	36.3	35.4	34.6	34.2	33.3	33.3	33.3	33.3
180.0	33.3	34.2	34.2	35.4	35.9	35.9	36.3	36.7
202.5	36.7	37.1	37.5	37.5	38.4	38.8	38.4	38.8
225.0	38.4	38.8	39.2	40.1	40.1	40.5	40.1	40.1
247.5	40.1	40.1	40.9	41.3	41.3	42.2	42.6	41.8
270.0	41.8	43.0	42.2	42.2	41.3	40.9	39.7	39.7
292.5	39.7	38.8	38.8	38.8	38.0	37.5	37.1	37.1
315.0	36.7	36.7	36.7	35.4	35.9	35.9	35.9	35.4
337.5	34.6	33.3	33.3	32.9	33.3	33.7	33.7	34.6

Depth: 1042 Tilt: 0 Range: 100.0 VOS: 5938

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	33.3	33.7	34.6	35.9	35.9	37.1	37.5	38.0
22.5	39.2	39.2	38.8	38.4	38.8	38.4	38.8	38.8
45.0	39.2	39.2	39.2	39.2	39.6	39.2	39.2	39.2
67.5	39.6	40.9	40.9	40.9	41.8	42.6	42.2	42.2
90.0	41.3	41.3	41.8	41.8	41.8	41.8	41.8	42.6
112.5	41.8	42.2	42.2	40.9	40.9	40.1	39.6	39.6
135.0	39.2	38.4	37.1	37.1	37.1	36.7	36.3	36.3
157.5	36.3	36.7	34.6	35.4	34.6	34.6	39.6	40.5
180.0	40.5	40.1	33.3	33.7	33.7	34.2	34.6	34.2
202.5	34.2	34.6	34.2	34.6	35.0	35.4	35.4	35.9
225.0	36.7	37.1	37.1	37.1	37.1	36.7	36.7	37.1
247.5	37.1	37.1	37.5	37.5	38.0	38.0	38.0	38.4
270.0	38.0	38.0	37.5	37.1	37.1	37.1	36.7	36.3
292.5	36.3	35.9	35.9	35.9	35.9	36.3	36.3	36.3
315.0	35.0	34.6	34.2	34.6	34.6	33.7	33.7	33.7
337.5	32.5	32.5	30.8	30.8	31.6	31.6	31.6	32.1

Depth: 1044 Tilt: 0 Range: 100.0 VOS: 5938

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	36.7	36.7	37.1	37.1	38.0	39.2	39.2	39.2
22.5	38.8	38.4	38.8	38.8	38.8	38.8	39.2	39.6
45.0	39.6	40.5	40.1	40.1	40.5	40.5	40.5	40.1
67.5	40.5	40.1	40.1	41.8	41.8	41.8	46.8	53.6
90.0	53.6	54.8	55.7	57.8	58.2	58.2	58.6	59.5
112.5	59.5	59.5	59.9	59.5	59.5	59.5	58.6	58.6
135.0	58.2	57.4	57.4	56.1	54.4	53.6	52.7	52.3
157.5	51.5	49.8	49.8	42.6	32.1	33.3	33.7	34.6
180.0	33.7	34.2	33.7	34.6	34.6	35.4	35.9	35.4
202.5	35.4	35.0	35.9	36.3	36.3	36.3	36.7	37.1
225.0	37.1	36.7	37.1	38.0	38.0	38.4	38.0	38.0
247.5	37.1	36.7	36.7	36.3	37.1	37.1	36.7	35.9
270.0	35.0	34.6	34.2	33.3	34.2	34.2	33.7	32.9
292.5	32.5	32.5	32.9	32.1	31.6	29.9	29.9	29.1
315.0	27.8	27.8	27.8	27.4	27.8	29.5	30.8	31.6
337.5	32.9	35.0	36.3	35.9	35.9	35.9	36.3	36.3

Depth: 1046 Tilt: 0 Range: 100.0 VOS: 5938

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	34.6	34.2	34.2	34.6	35.4	35.9	36.7	37.1
22.5	37.1	37.1	37.1	36.7	36.7	36.7	37.1	37.5
45.0	38.0	38.0	38.4	38.4	38.4	38.4	38.8	38.4
67.5	38.4	38.0	38.8	39.2	39.6	38.4	38.8	46.0
90.0	49.8	51.9	54.8	55.3	55.3	54.4	54.8	55.3
112.5	56.5	58.6	58.6	57.8	57.8	58.2	58.6	58.6
135.0	58.6	56.5	55.3	54.8	56.9	54.0	52.3	51.0
157.5	50.6	49.3	48.9	34.6	33.7	31.2	30.4	30.8
180.0	30.4	30.8	30.4	30.8	31.6	31.6	31.6	32.9
202.5	33.7	34.6	33.7	33.7	35.0	34.6	34.6	34.2
225.0	48.1	48.5	48.9	49.3	49.3	49.8	49.8	54.0
247.5	54.8	55.3	56.5	56.9	58.2	57.4	57.8	56.5
270.0	55.3	54.0	52.7	51.5	50.2	48.9	48.1	43.9
292.5	42.6	38.8	35.4	31.2	28.3	26.2	25.3	24.5
315.0	24.9	24.5	25.7	24.9	26.2	27.8	27.8	28.3
337.5	28.7	29.9	30.4	32.5	33.7	33.7	34.2	34.6

Depth: 1048 Tilt: 0 Range: 160.0 VOS: 5938

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	29.7	30.4	30.4	30.4	32.4	33.1	32.4	32.4
22.5	33.8	33.8	33.8	34.4	35.1	35.1	35.1	35.8
45.0	35.8	36.5	36.5	36.5	36.5	37.1	37.1	37.1
67.5	37.1	37.1	36.5	37.1	37.1	39.2	37.8	37.8
90.0	37.1	38.5	41.2	44.6	47.3	49.3	50.6	52.0
112.5	52.7	54.7	55.4	55.4	55.4	56.7	56.7	56.0
135.0	56.7	57.4	56.0	54.0	53.3	52.7	52.0	51.3
157.5	48.6	47.3	45.2	37.1	35.1	32.4	32.4	31.1
180.0	30.4	30.4	29.0	29.0	29.0	29.0	28.4	28.4
202.5	29.0	32.4	37.1	45.2	44.6	44.6	45.9	46.6
225.0	48.6	48.6	48.6	50.0	50.6	51.3	53.3	57.4
247.5	59.4	59.4	58.7	57.4	56.0	54.0	53.3	52.7
270.0	52.0	50.0	48.6	46.6	45.9	45.2	43.2	41.2
292.5	39.8	37.8	35.1	35.1	29.7	26.3	25.7	24.3
315.0	24.3	24.3	23.6	24.3	24.3	24.3	24.3	25.0
337.5	25.0	26.3	27.7	29.0	29.0	29.0	29.0	29.7

Depth: 1050 Tilt: 0 Range: 160.0 VOS: 5937

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	25.6	25.6	26.3	26.3	27.0	27.0	27.0	27.0
22.5	26.3	27.0	72.2	73.6	73.6	73.6	73.6	73.6
45.0	74.9	74.2	74.2	73.6	73.6	72.9	72.9	72.9
67.5	72.2	71.5	70.9	70.9	72.9	74.2	74.9	73.6
90.0	70.9	68.8	66.8	64.8	63.4	59.4	43.9	46.6
112.5	46.6	47.2	48.6	49.3	49.9	50.6	51.3	52.0
135.0	52.0	52.6	53.3	53.3	53.3	51.3	50.6	49.9
157.5	48.6	46.6	45.9	45.9	33.7	32.4	31.0	30.4
180.0	29.7	29.0	28.3	27.7	27.0	26.3	26.3	25.6
202.5	25.6	25.6	27.0	28.3	28.3	29.7	29.0	31.0
225.0	31.0	32.4	46.6	47.9	48.6	47.9	47.2	46.6
247.5	45.2	45.2	45.2	46.6	49.9	49.9	49.9	47.9
270.0	46.6	45.9	44.5	43.2	42.5	41.2	40.5	38.5
292.5	36.4	34.4	33.7	31.7	29.7	27.0	25.6	22.9
315.0	22.3	22.3	22.3	21.6	21.6	22.3	22.3	21.6
337.5	21.6	22.3	22.3	22.3	22.9	24.3	25.6	25.0

Depth: 1052 Tilt: 0 Range: 160.0 VOS: 5937

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	68.2	68.8	70.9	70.9	71.5	72.9	72.9	72.2
22.5	72.2	73.6	74.2	74.2	73.6	73.6	73.6	72.9
45.0	72.2	72.9	74.2	74.9	73.6	72.9	72.9	73.6
67.5	73.6	72.9	72.9	72.2	71.5	70.9	72.2	72.2
90.0	71.5	71.5	70.9	70.9	70.9	70.9	70.2	69.5
112.5	68.8	68.8	68.2	67.5	66.8	66.8	66.8	66.8
135.0	66.8	66.8	67.5	51.3	52.0	51.3	49.3	47.9
157.5	47.2	45.9	44.5	35.1	33.7	33.1	30.4	28.3
180.0	27.0	27.0	27.0	25.0	23.6	23.6	23.6	23.6
202.5	22.9	22.9	22.3	22.9	23.6	24.3	27.0	27.7
225.0	30.4	33.7	43.9	44.5	43.9	44.5	44.5	44.5
247.5	45.9	47.2	46.6	46.6	44.5	45.2	46.6	47.9
270.0	49.9	50.6	52.0	52.0	52.6	54.0	55.3	57.4
292.5	60.1	62.1	64.1	64.8	66.1	66.1	66.8	66.8
315.0	68.2	68.8	68.8	68.8	68.2	68.8	68.8	68.8
337.5	69.5	68.8	68.8	68.8	68.8	68.2	68.2	68.2

Depth: 1054 Tilt: 0 Range: 160.0 VOS: 5937

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	66.8	67.5	68.2	68.2	68.2	68.2	66.8	66.8
22.5	68.8	70.2	70.2	70.9	72.2	74.2	73.6	73.6
45.0	74.2	74.2	74.9	74.9	73.6	74.2	73.6	73.6
67.5	74.9	74.9	74.2	73.6	73.6	72.9	73.6	73.6
90.0	72.9	73.6	72.9	71.5	72.2	72.2	70.9	70.2
112.5	69.5	69.5	69.5	69.5	68.2	68.2	67.5	66.8
135.0	66.8	66.8	67.5	66.1	66.1	66.8	66.1	66.8
157.5	68.2	68.2	68.2	68.2	68.8	70.2	70.2	70.2
180.0	70.2	70.2	70.9	70.2	70.2	70.9	70.2	70.2
202.5	70.2	69.5	69.5	70.9	70.2	70.2	70.2	70.9
225.0	70.9	70.9	70.9	70.2	70.2	70.9	70.9	71.5
247.5	71.5	70.9	70.9	70.9	70.9	71.5	71.5	70.9
270.0	70.9	71.5	71.5	71.5	71.5	70.9	70.2	69.5
292.5	69.5	70.9	71.5	70.9	70.2	68.8	68.8	68.2
315.0	67.5	68.2	68.2	68.8	68.8	68.2	68.2	68.2
337.5	68.2	67.5	67.5	67.5	66.8	67.5	67.5	66.8

Depth: 1056 Tilt: 0 Range: 160.0 VOS: 5937

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	70.9	71.5	70.9	73.6	76.9	77.6	79.0	79.0
22.5	79.6	82.3	83.0	83.0	83.0	81.7	81.0	77.6
45.0	79.0	81.0	82.3	81.7	76.9	77.6	77.6	79.0
67.5	83.0	82.3	82.3	82.3	83.0	71.5	71.5	70.9
90.0	70.9	70.9	70.9	70.9	68.8	67.5	66.1	65.5
112.5	66.1	66.8	66.1	66.1	66.1	66.8	66.1	66.8
135.0	66.8	67.5	68.2	68.8	68.8	69.5	70.2	70.2
157.5	70.2	70.9	70.9	70.9	71.5	70.9	70.2	70.9
180.0	70.9	70.2	69.5	70.2	70.2	70.2	70.2	69.5
202.5	70.2	70.2	70.9	70.9	71.5	71.5	70.9	70.9
225.0	70.2	70.2	70.9	70.9	70.9	70.2	70.2	69.5
247.5	69.5	69.5	70.2	70.2	69.5	69.5	68.8	68.8
270.0	68.8	68.2	68.8	68.8	69.5	69.5	69.5	68.8
292.5	68.8	68.2	68.2	68.2	67.5	66.8	66.8	67.5
315.0	68.2	68.2	68.2	68.2	67.5	67.5	68.2	68.8
337.5	68.8	68.8	69.5	72.2	72.9	72.2	71.5	71.5

Depth: 1058 Tilt: 0 Range: 160.0 VOS: 5937

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	76.9	78.3	80.3	84.4	85.0	83.0	82.3	83.0
22.5	84.4	83.7	84.4	83.0	82.3	81.7	82.3	81.7
45.0	81.0	81.7	81.0	81.7	80.3	81.7	81.7	82.3
67.5	83.0	83.7	84.4	84.4	83.7	83.0	79.6	77.6
90.0	73.6	72.9	71.5	71.5	70.9	70.2	69.5	68.2
112.5	67.5	66.8	67.5	68.2	68.8	69.5	70.2	70.2
135.0	69.5	69.5	67.5	68.2	68.8	69.5	70.2	70.9
157.5	70.9	71.5	71.5	71.5	70.2	71.5	71.5	70.9
180.0	70.9	70.2	70.2	70.2	69.5	70.2	70.9	70.2
202.5	70.9	70.2	69.5	70.2	70.2	70.2	69.5	69.5
225.0	68.8	70.2	70.9	70.9	69.5	70.2	70.2	68.8
247.5	68.2	68.8	69.5	69.5	68.8	68.8	69.5	69.5
270.0	68.8	68.8	68.2	68.2	68.2	68.8	68.2	68.2
292.5	68.2	67.5	68.2	68.2	67.5	67.5	66.8	67.5
315.0	66.8	66.8	68.8	67.5	67.5	67.5	68.2	68.2
337.5	68.8	68.8	68.8	69.5	70.2	73.6	74.2	75.6

Depth: 1060 Tilt: 0 Range: 160.0 VOS: 5938

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	86.4	86.4	87.1	86.4	86.4	85.7	85.1	86.4
22.5	86.4	85.7	85.7	84.4	85.1	85.7	85.1	84.4
45.0	85.7	85.1	85.1	85.1	85.7	86.4	85.7	86.4
67.5	86.4	87.1	88.4	87.8	87.1	87.1	86.4	85.7
90.0	83.7	84.4	84.4	83.7	84.4	84.4	84.4	83.7
112.5	83.7	83.0	83.0	83.0	82.4	83.0	83.0	83.0
135.0	82.4	82.4	81.7	81.7	81.0	81.0	80.3	79.0
157.5	73.6	70.9	71.6	70.2	70.2	70.9	70.9	69.5
180.0	69.5	71.6	71.6	70.9	70.9	70.2	70.2	69.5
202.5	69.5	69.5	69.5	70.2	69.5	70.2	70.2	70.9
225.0	69.5	69.5	68.9	70.2	79.7	80.3	81.7	81.7
247.5	81.7	83.0	83.0	83.0	83.7	83.7	83.7	83.0
270.0	82.4	81.7	82.4	81.7	81.7	82.4	81.7	81.7
292.5	82.4	81.7	82.4	82.4	83.0	83.7	83.0	83.7
315.0	83.7	83.7	83.0	83.0	83.7	84.4	84.4	85.7
337.5	85.1	84.4	84.4	85.7	87.1	86.4	86.4	86.4

Depth: 1062 Tilt: 0 Range: 160.0 VOS: 5938

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	85.1	85.7	85.7	85.1	85.1	84.4	85.7	86.4
22.5	85.7	86.4	87.1	86.4	87.1	87.8	87.8	86.4
45.0	87.1	86.4	86.4	85.7	85.1	84.4	85.1	84.4
67.5	85.7	87.1	87.8	88.4	85.7	85.7	85.7	85.1
90.0	85.1	85.1	84.4	84.4	84.4	85.1	85.1	84.4
112.5	83.7	83.7	85.1	85.7	84.4	84.4	85.1	85.1
135.0	85.1	83.7	83.7	83.0	83.0	83.0	83.7	83.0
157.5	82.4	82.4	83.0	81.7	81.7	80.3	70.9	70.9
180.0	71.6	70.2	70.2	70.9	71.6	72.2	71.6	70.2
202.5	70.2	69.5	70.2	70.2	70.2	70.2	71.6	69.5
225.0	70.9	70.9	70.9	75.6	82.4	83.0	83.0	83.0
247.5	81.7	81.7	81.7	81.7	81.0	81.0	81.0	81.7
270.0	81.7	82.4	82.4	82.4	82.4	81.7	82.4	82.4
292.5	82.4	81.0	81.7	81.7	81.7	81.0	80.3	81.7
315.0	82.4	82.4	82.4	82.4	82.4	81.0	82.4	83.7
337.5	83.7	84.4	83.7	85.1	85.1	85.7	85.7	85.7

Depth: 1064 Tilt: 0 Range: 160.0 VOS: 5938

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	85.1	85.1	84.4	84.4	85.1	85.1	85.1	85.1
22.5	85.1	86.4	85.7	85.7	86.4	87.1	86.4	87.1
45.0	87.8	87.8	88.4	89.1	88.4	88.4	87.1	87.1
67.5	87.1	87.1	87.8	87.1	85.7	85.1	85.7	86.4
90.0	85.7	86.4	86.4	85.1	85.1	86.4	86.4	85.7
112.5	85.7	84.4	84.4	84.4	84.4	84.4	85.7	86.4
135.0	85.7	85.7	84.4	84.4	85.1	85.7	85.1	86.4
157.5	86.4	85.7	85.1	83.7	83.0	83.0	83.7	83.7
180.0	83.0	83.0	83.0	82.4	82.4	83.0	82.4	81.7
202.5	81.7	81.7	82.4	82.4	81.0	81.7	81.7	81.7
225.0	81.7	81.7	81.0	81.7	81.7	80.3	80.3	81.0
247.5	81.0	81.0	81.0	81.0	81.0	81.0	79.7	80.3
270.0	81.0	80.3	81.0	80.3	81.0	81.0	81.7	81.7
292.5	81.0	81.0	81.7	81.0	81.0	81.0	80.3	79.7
315.0	81.0	80.3	81.7	81.7	81.7	80.3	81.0	81.7
337.5	81.7	82.4	83.7	83.0	83.0	83.0	83.7	83.7

Depth: 1066 Tilt: 0 Range: 160.0 VOS: 5938

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	83.7	83.0	84.4	85.7	85.1	84.4	85.1	85.7
22.5	86.4	86.4	86.4	86.4	87.8	87.8	88.4	88.4
45.0	89.1	89.1	90.5	90.5	89.8	89.1	89.1	89.1
67.5	88.4	87.1	87.8	88.4	88.4	87.8	87.8	87.1
90.0	86.4	86.4	87.1	85.1	85.1	86.4	86.4	85.7
112.5	85.7	85.1	84.4	85.1	85.7	85.7	85.1	85.1
135.0	85.7	85.7	85.1	85.1	85.7	85.1	85.7	85.1
157.5	85.1	85.1	83.7	83.7	83.7	83.0	83.0	81.7
180.0	81.7	81.7	81.7	81.7	81.0	81.7	84.4	83.7
202.5	82.4	82.4	81.7	81.0	81.0	81.7	82.4	81.0
225.0	81.7	81.7	81.7	81.7	82.4	81.7	81.7	81.7
247.5	81.7	82.4	81.7	81.0	81.0	81.7	80.3	79.0
270.0	81.7	82.4	83.0	83.0	83.0	83.0	82.4	81.0
292.5	80.3	79.7	80.3	79.0	79.0	79.7	80.3	80.3
315.0	80.3	81.0	81.7	81.7	81.7	81.7	82.4	82.4
337.5	83.0	83.0	83.0	82.4	82.4	82.4	82.4	82.4

Depth: 1068 Tilt: 0 Range: 160.0 VOS: 5938

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	84.4	85.1	84.4	85.7	86.4	87.8	87.1	87.1
22.5	88.4	89.1	89.8	88.4	88.4	89.8	89.8	89.1
45.0	89.8	89.8	89.8	88.4	87.8	87.8	87.8	87.8
67.5	87.1	87.1	87.1	85.7	86.4	86.4	86.4	86.4
90.0	85.1	85.7	85.1	85.1	86.4	86.4	86.4	86.4
112.5	85.7	85.7	85.7	85.7	86.4	83.7	83.7	83.7
135.0	83.7	83.7	84.4	84.4	84.4	84.4	83.7	81.7
157.5	81.7	80.3	80.3	81.0	81.7	82.4	83.0	83.0
180.0	81.7	81.0	81.0	81.0	80.3	81.0	81.0	81.0
202.5	81.0	81.0	80.3	80.3	80.3	80.3	79.7	80.3
225.0	80.3	80.3	79.7	79.0	79.0	79.0	78.3	79.0
247.5	79.0	78.3	79.0	79.7	79.7	79.0	79.7	80.3
270.0	80.3	79.7	80.3	80.3	80.3	80.3	80.3	79.7
292.5	80.3	80.3	80.3	80.3	80.3	80.3	81.0	82.4
315.0	82.4	81.7	82.4	82.4	82.4	82.4	82.4	83.0
337.5	83.0	83.0	83.7	83.0	83.7	83.7	83.7	84.4

Depth: 1070 Tilt: 0 Range: 160.0 VOS: 5938

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	83.0	83.0	83.0	83.0	83.7	84.4	83.7	85.7
22.5	85.7	85.7	86.4	87.8	87.8	87.8	89.8	89.1
45.0	89.8	89.8	87.1	87.8	87.8	87.8	87.1	87.8
67.5	87.8	87.1	87.1	87.1	86.4	88.4	87.8	88.4
90.0	89.1	88.4	88.4	87.1	87.1	88.4	87.8	85.1
112.5	83.0	83.7	83.7	84.4	83.7	83.7	83.7	83.7
135.0	83.7	83.7	84.4	84.4	84.4	84.4	84.4	83.7
157.5	82.4	83.0	81.0	81.0	82.4	85.1	83.7	83.7
180.0	83.0	82.4	82.4	82.4	81.0	80.3	80.3	79.0
202.5	79.0	79.0	79.0	78.3	79.0	79.0	79.0	79.0
225.0	78.3	78.3	77.6	77.6	78.3	77.0	77.0	77.6
247.5	76.3	77.0	77.0	77.6	76.3	77.0	77.0	78.3
270.0	78.3	79.7	78.3	78.3	78.3	79.0	79.7	79.7
292.5	79.0	79.7	79.0	79.7	81.0	79.7	79.0	78.3
315.0	79.7	79.7	79.7	81.0	82.4	82.4	82.4	83.0
337.5	81.7	82.4	83.0	83.0	82.4	82.4	81.7	81.7

Depth: 1072 Tilt: 0 Range: 160.0 VOS: 5938

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	88.4	88.4	87.1	87.1	87.8	87.8	87.8	87.8
22.5	87.1	87.1	87.1	87.1	88.4	89.8	89.1	89.1
45.0	89.8	89.8	89.8	89.1	89.1	85.1	85.1	84.4
67.5	84.4	83.7	84.4	85.7	84.4	85.7	86.4	83.7
90.0	83.7	83.7	82.4	81.7	82.4	82.4	79.7	79.0
112.5	79.7	79.7	79.7	81.0	81.7	81.0	80.3	79.7
135.0	79.7	79.7	79.7	79.7	79.7	79.7	78.3	78.3
157.5	77.6	77.6	77.6	77.0	77.6	76.3	77.0	77.0
180.0	77.0	77.6	77.6	77.0	75.6	74.3	74.3	73.6
202.5	74.9	73.6	74.9	75.6	74.9	76.3	76.3	78.3
225.0	77.6	78.3	77.6	78.3	77.6	77.6	77.6	77.6
247.5	77.6	78.3	80.3	78.3	78.3	78.3	78.3	79.0
270.0	78.3	78.3	77.6	78.3	78.3	78.3	79.0	79.7
292.5	79.0	79.7	77.6	78.3	79.7	79.0	79.0	78.3
315.0	78.3	79.0	80.3	82.4	83.0	81.7	82.4	83.0
337.5	85.1	83.7	84.4	86.4	87.8	87.1	87.1	88.4

Depth: 1074 Tilt: 0 Range: 159.9 VOS: 5938

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	78.2	79.6	79.6	80.3	80.9	82.3	82.3	83.6
22.5	84.3	85.0	85.0	87.0	87.7	85.7	85.0	85.0
45.0	87.7	88.4	87.7	87.7	87.0	87.0	86.3	85.0
67.5	85.0	85.7	85.7	85.7	85.7	86.3	86.3	87.0
90.0	87.7	86.3	85.7	86.3	87.0	85.7	83.6	84.3
112.5	83.6	83.6	85.0	83.0	80.3	79.6	80.3	80.9
135.0	80.9	80.3	80.3	79.6	79.6	79.6	80.9	80.3
157.5	81.6	81.6	80.3	80.9	80.9	80.3	79.6	77.6
180.0	78.2	78.2	77.6	77.6	76.9	76.9	76.9	77.6
202.5	77.6	77.6	76.9	76.9	78.2	78.2	77.6	77.6
225.0	77.6	77.6	77.6	76.9	76.9	76.9	76.2	75.5
247.5	75.5	74.9	74.2	73.5	73.5	73.5	74.9	74.9
270.0	74.2	74.2	73.5	73.5	72.2	72.2	72.8	72.8
292.5	71.5	73.5	74.9	74.9	74.9	74.2	75.5	75.5
315.0	76.2	76.9	76.9	77.6	78.2	78.2	78.2	78.2
337.5	78.9	78.9	78.2	78.2	77.6	76.2	78.2	78.2

Depth: 1075 Tilt: 0 Range: 140.0 VOS: 5943

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	75.6	75.6	75.6	76.8	75.0	74.4	74.4	75.0
22.5	75.0	75.6	75.6	76.2	76.2	76.8	76.8	76.8
45.0	76.8	76.2	75.6	75.6	75.0	75.0	75.0	75.0
67.5	73.8	75.6	75.6	76.2	75.6	75.0	75.0	73.8
90.0	74.4	74.4	73.8	74.4	74.4	74.4	75.0	73.8
112.5	73.2	73.8	73.2	73.8	76.2	76.2	76.2	75.0
135.0	75.6	75.6	75.0	75.0	74.4	74.4	74.4	75.0
157.5	75.6	78.0	76.8	76.8	77.4	77.4	78.0	78.0
180.0	78.5	78.5	78.5	79.7	79.7	79.7	80.3	79.7
202.5	77.4	76.2	75.6	73.8	73.2	71.5	71.5	72.1
225.0	73.2	74.4	70.9	71.5	70.9	80.3	81.5	83.3
247.5	83.9	83.3	82.7	82.1	82.1	82.1	80.9	80.3
270.0	80.3	79.7	78.5	78.5	78.5	78.5	78.5	78.0
292.5	76.2	76.8	76.8	75.6	75.6	75.6	76.2	75.0
315.0	73.8	74.4	75.6	76.2	75.6	76.2	75.0	75.0
337.5	75.0	74.4	75.0	75.0	75.0	75.6	76.2	75.6

Depth: 1077 Tilt: 0 Range: 50.0 VOS: 5942

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	22.4	22.4	22.8	23.0	25.3	27.0	27.6	28.3
22.5	29.5	30.2	29.7	29.7	29.5	29.1	29.3	25.9
45.0	24.5	23.6	23.0	18.1	4.2	4.0	4.0	4.0
67.5	4.0	4.0	4.2	4.4	4.4	4.4	4.6	4.9
90.0	4.6	4.9	5.1	4.9	4.6	4.6	4.6	4.6
112.5	4.6	4.4	4.6	4.6	4.6	4.9	4.9	4.9
135.0	4.9	4.6	4.4	4.4	4.2	4.2	4.4	4.6
157.5	5.1	5.1	4.9	4.6	4.4	4.4	4.2	4.2
180.0	4.4	4.6	5.1	5.1	5.3	5.5	6.3	10.3
202.5	10.3	10.5	10.3	10.5	10.1	9.7	9.7	9.9
225.0	10.5	10.8	12.0	12.0	12.0	11.8	11.8	12.0
247.5	12.0	11.8	12.2	12.7	15.6	15.4	15.4	15.8
270.0	15.6	15.4	15.6	15.6	16.7	17.1	17.1	16.5
292.5	17.1	17.1	16.9	16.7	17.1	17.3	17.5	17.3
315.0	16.7	16.5	16.7	16.7	16.9	17.1	17.3	17.5
337.5	18.4	19.2	19.4	20.0	20.3	20.7	20.7	21.7

Depth: 1077 Tilt: -90 Range: 50.0 VOS: 5942

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
22.5	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
45.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
67.5	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
90.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
112.5	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
135.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
157.5	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
180.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
202.5	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
225.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
247.5	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
270.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
292.5	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
315.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
337.5	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

DIGITAL SURVEYS, INC. 10700 CORPORATE DR. STE.100 STAFFORD, TX 77477
TELEPHONE (713)240-6777 FAX (713)240-6129

DIGITAL SURVEYS, INC.

SONAR SURVEY

AZ OIL & GAS
CONSERVATION COMMISSION
JUL 3 1991

FERRELLGAS

WELL NO. 7

MAY 29,1991

ADAMANA ARIZONA

P/N 646

SONAR OPERATOR:	JEFF A. CHILDRESS
HOIST OPERATOR:	JEFF A. CHILDRESS
JOB NO.:	222
PERMANENT DATUM:	B.H.F.
ZERO POINT:	B.H.F.
CASING DIA.:	9.625"
CASING DEPTH:	951.0'
INTERMEDIATE DIA.:	7.00"
INTERMEDIATE DEPTH:	PULLED FOR SONAR
TUBING DIA.:	4.50"
TUBING DEPTH:	PULLED FOR SONAR
TOTAL DEPTH:	1079.0'
GAGE T.D.:	1079.0'
SONAR T.D.:	1079.0'
REMARKS:	

VOLUME REPORT

DEPTH feet	DEPTH meters	INCR ft³	TOTAL ft³	INCR m³	TOTAL m³	INCR bbls	TOTAL bbls
951	289.8	0	0	0.0	0	0.0	0
955	291.0	272	272	7.7	7	48.4	48
960	292.6	524	796	14.8	22	93.3	141
965	294.1	686	1483	19.4	41	122.1	264
970	295.6	962	2445	27.2	69	171.3	435
972	296.2	478	2924	13.5	82	85.1	520
973	296.5	787	3712	22.2	105	140.1	661
974	296.8	2409	6121	68.2	173	429.0	1090
976	297.4	9059	15180	256.5	429	1613.4	2703
978	298.0	10898	26079	308.6	738	1940.9	4644
980	298.7	9165	35244	259.5	998	1632.2	6276
982	299.3	7624	42869	215.9	1214	1357.8	7634
984	299.9	6516	49385	184.5	1398	1160.4	8795
986	300.5	6163	55548	174.5	1573	1097.6	9893
988	301.1	7661	63209	216.9	1790	1364.4	11257
990	301.7	11983	75192	339.3	2129	2134.1	13391
992	302.3	16121	91314	456.5	2586	2871.1	16263
994	302.9	17646	108960	499.7	3085	3142.7	19405
996	303.5	17473	126434	494.8	3580	3111.9	22517
998	304.1	17290	143724	489.6	4070	3079.3	25597
1000	304.8	17471	161195	494.7	4565	3111.5	28708
1002	305.4	17498	178693	495.5	5060	3116.3	31825
1004	306.0	17936	196630	507.9	5568	3194.4	35019
1006	306.6	18265	214896	517.2	6085	3252.9	38272
1008	307.2	17974	232871	509.0	6594	3201.1	41474
1010	307.8	18510	251382	524.2	7119	3296.6	44771
1012	308.4	19453	270836	550.9	7670	3464.5	48235
1014	309.0	20109	290945	569.4	8239	3581.4	51817
1016	309.6	20300	311246	574.8	8814	3615.4	55432
1018	310.2	20026	331272	567.1	9381	3566.6	58999
1020	310.8	19261	350533	545.4	9927	3430.3	62429
1022	311.5	18257	368790	517.0	10444	3251.5	65681
1024	312.1	17465	386256	494.6	10938	3110.5	68792
1026	312.7	16985	403241	481.0	11419	3025.0	71817
1028	313.3	16634	419876	471.0	11890	2962.5	74779
1030	313.9	16401	436277	464.4	12355	2921.0	77700
1032	314.5	16016	452294	453.5	12808	2852.4	80553
1034	315.1	15253	467548	431.9	13240	2716.5	83270
1036	315.7	14078	481626	398.6	13639	2507.2	85777
1038	316.3	12731	494357	360.5	14000	2267.3	88044
1040	316.9	11495	505853	325.5	14325	2047.2	90092
1042	317.6	10331	516184	292.5	14618	1839.9	91932
1044	318.2	9249	525434	261.9	14880	1647.2	93579
1046	318.8	8375	533810	237.1	15117	1491.5	95071
1048	319.4	8788	542599	248.8	15366	1565.1	96636
1050	320.0	9382	551982	265.6	15632	1670.9	98307
1052	320.6	11340	563322	321.1	15953	2019.6	100327
1054	321.2	18059	581382	511.4	16464	3216.3	103544
1056	321.8	25587	606969	724.6	17189	4557.0	108101
1058	322.4	28672	635642	811.9	18001	5106.4	113207
1060	323.0	29199	664842	826.9	18828	5200.3	118408
1062	323.6	31120	695963	881.3	19709	5542.4	123951
1064	324.3	35056	731020	992.7	20702	6243.4	130194
1066	324.9	38790	769810	1098.5	21801	6908.4	137103

VOLUME REPORT

DEPTH feet	DEPTH meters	INCR ft^3	TOTAL ft^3	INCR m^3	TOTAL m^3	INCR bbls	TOTAL bbls
1068	325.5	40615	810425	1150.2	22951	7233.5	144336
1070	326.1	41253	851678	1168.2	24119	7347.1	151683
1072	326.7	41600	893279	1178.1	25297	7408.9	159092
1074	327.3	42156	935436	1193.8	26491	7507.9	166601
1076	327.9	42040	977477	1190.5	27682	7487.3	174088
1078	328.5	24895	1002372	705.0	28387	4433.7	178522
1079	328.8	3370	1005743	95.4	28482	600.1	179122

MAJOR COMPASS RADII

Depth & Radii in feet

DEPTH	TILT	N	NE	E	SE	S	SW	W	NW
951	90	5.1	4.1	3.9	3.9	3.0	3.6	3.6	4.0
955	90	7.1	5.7	5.5	5.4	4.2	5.0	5.0	5.6
960	90	8.1	6.5	6.2	6.1	4.8	5.7	5.7	6.4
965	90	9.3	7.5	7.2	7.0	5.5	6.6	6.6	7.3
970	90	11.2	9.1	8.7	8.5	6.7	8.0	8.0	8.9
972	90	11.6	9.4	9.0	8.8	6.9	8.2	8.2	9.2
973	90	18.2	17.7	22.0	23.1	25.2	24.6	24.1	22.8
974	90	41.2	29.7	25.8	32.0	32.0	34.3	34.1	33.7
976	90	63.3	63.1	49.5	31.6	26.5	32.0	32.2	30.7
978	90	59.5	59.0	45.8	27.8	22.2	27.5	26.7	27.8
980	90	52.5	54.2	44.2	25.4	18.0	23.9	23.5	22.6
982	90	53.1	56.3	42.0	21.4	14.7	20.7	12.8	14.8
984	90	53.9	54.0	49.0	17.7	10.9	11.6	6.5	10.7
986	90	56.5	53.7	52.0	12.4	6.7	3.7	3.9	9.2
988	90	56.1	56.3	56.7	20.1	13.9	14.1	16.3	55.2
990	90	56.9	53.7	56.5	52.5	36.5	27.8	39.2	55.2
992	90	57.1	47.1	55.9	55.2	49.5	42.9	53.3	54.0
994	90	57.1	44.1	56.5	55.2	50.3	50.1	52.2	51.8
996	90	58.0	40.3	57.4	55.2	49.1	50.3	51.2	51.4
998	90	58.0	38.8	60.1	55.6	49.9	49.1	51.8	51.8
1000	90	58.6	35.6	60.1	56.7	48.8	48.8	51.2	55.6
1002	90	57.1	34.4	58.8	53.7	53.7	49.3	52.2	54.8
1004	90	55.7	56.9	58.0	52.7	55.4	45.8	50.3	54.2
1006	90	54.4	58.0	56.7	52.9	53.5	41.4	50.8	53.9
1008	90	54.6	59.0	59.1	54.6	52.5	39.5	45.9	53.7
1010	90	57.1	60.5	60.5	59.1	52.9	43.7	47.8	55.7
1012	90	58.2	60.1	59.7	58.4	55.4	48.4	49.9	56.3
1014	90	58.6	61.0	61.0	58.6	55.9	52.7	52.5	55.7
1016	90	58.2	61.0	61.6	57.3	56.7	53.1	53.9	54.4
1018	90	57.6	59.9	61.6	57.1	56.7	53.7	53.3	52.7
1020	90	56.7	58.6	59.3	56.5	55.6	52.2	52.0	51.2
1022	90	54.6	57.6	57.8	54.0	53.1	51.0	49.9	49.0
1024	90	54.8	56.5	57.1	52.5	51.0	49.5	48.8	49.0
1026	90	55.2	55.4	56.7	52.0	49.1	48.2	46.5	49.3
1028	90	54.2	52.9	55.9	50.5	48.8	47.8	48.8	50.5
1030	90	51.6	53.3	55.7	49.1	49.0	49.1	50.3	49.1
1032	90	49.1	50.8	57.1	47.6	47.5	49.7	50.5	47.3
1034	90	48.2	49.3	56.5	45.9	44.2	46.9	49.3	45.4
1036	90	45.4	45.9	54.4	44.8	42.4	44.2	47.8	43.5
1038	90	42.9	43.5	51.4	42.0	39.7	42.6	45.6	39.9
1040	90	41.2	42.9	49.9	41.4	37.8	40.1	42.7	39.2
1042	90	38.6	39.9	45.8	36.0	34.4	38.4	39.9	36.7
1044	90	36.1	38.8	44.2	34.8	32.9	36.5	38.2	31.6
1046	90	32.6	37.8	40.3	36.9	32.0	34.3	35.4	28.8
1048	90	29.7	36.1	37.5	58.4	38.0	36.0	40.3	25.6
1050	90	27.8	35.8	34.6	55.7	39.7	35.0	40.7	25.0
1052	90	24.3	69.7	72.1	55.2	40.3	31.8	50.7	22.8
1054	90	65.5	69.7	70.4	64.2	37.5	27.7	66.9	65.4
1056	90	65.5	69.7	70.1	64.4	68.2	65.9	67.1	65.0
1058	90	66.5	70.3	69.1	64.2	67.8	66.1	66.1	65.4

MAJOR COMPASS RADII

Depth & Radii in feet

DEPTH	TILT	N	NE	E	SE	S	SW	W	NW
1060	90	69.1	74.2	73.5	65.0	66.9	65.9	64.8	64.8
1062	90	71.0	79.1	77.2	80.3	63.5	63.9	63.7	77.0
1064	90	80.8	79.9	81.4	80.4	79.3	63.3	74.4	76.5
1066	90	83.3	77.0	79.5	82.5	79.1	77.6	78.4	78.7
1068	90	84.2	87.4	85.9	82.7	78.6	78.4	79.3	79.5
1070	90	85.7	86.1	86.5	81.9	77.8	77.0	78.7	79.3
1072	90	84.6	87.6	85.3	82.3	78.0	76.1	78.0	80.4
1074	90	85.2	89.5	88.2	85.2	77.0	75.0	77.4	81.0
1076	90	82.3	88.2	85.9	83.3	76.9	75.4	77.6	81.8
1078	90	2.0	87.2	84.2	79.1	2.2	2.4	5.6	3.5
1079	90	3.3	13.3	8.8	44.1	3.3	3.5	6.7	5.0

5 DEGREE RADII REPORT

Radii in feet

AZ	DEPTH: 951 ft		TILT: 90 degrees						
0	5.1	5.2	5.2	4.7	4.5	4.3	4.2	4.0	4.1
45	4.1	4.1	4.0	3.9	3.7	3.5	3.6	3.9	3.9
90	3.9	3.8	3.7	3.5	3.7	3.7	3.6	3.4	3.7
135	3.9	3.9	3.7	3.5	3.5	3.7	3.5	3.4	3.2
180	3.0	3.1	3.2	3.1	3.3	3.3	3.4	3.4	3.4
225	3.6	3.8	3.8	3.6	3.4	3.4	3.5	3.7	3.8
270	3.6	3.4	3.3	3.1	3.2	3.4	3.6	3.7	3.9
315	4.0	4.2	4.3	4.5	4.7	4.8	4.7	4.8	5.0

AZ	DEPTH: 955 ft		TILT: 90 degrees						
0	7.1	7.2	7.2	6.5	6.3	6.0	5.8	5.6	5.7
45	5.7	5.7	5.6	5.4	5.1	4.9	5.0	5.4	5.5
90	5.5	5.2	5.1	4.9	5.1	5.1	5.0	4.8	5.1
135	5.4	5.4	5.1	4.9	4.9	5.1	4.9	4.7	4.4
180	4.2	4.3	4.4	4.3	4.6	4.6	4.8	4.7	4.8
225	5.0	5.2	5.2	5.0	4.8	4.8	4.9	5.1	5.2
270	5.0	4.8	4.6	4.3	4.4	4.7	5.0	5.1	5.5
315	5.6	5.8	6.0	6.3	6.5	6.7	6.5	6.7	7.0

AZ	DEPTH: 960 ft		TILT: 90 degrees						
0	8.1	8.2	8.2	7.4	7.2	6.9	6.6	6.4	6.5
45	6.5	6.5	6.4	6.1	5.8	5.6	5.7	6.1	6.2
90	6.2	6.0	5.8	5.6	5.8	5.8	5.7	5.5	5.8
135	6.1	6.1	5.8	5.6	5.6	5.8	5.6	5.3	5.1
180	4.8	4.9	5.1	4.9	5.2	5.2	5.5	5.3	5.5
225	5.7	6.0	6.0	5.7	5.5	5.5	5.6	5.8	6.0
270	5.7	5.5	5.2	4.9	5.1	5.3	5.7	5.8	6.2
315	6.4	6.6	6.9	7.2	7.4	7.7	7.4	7.7	7.9

AZ	DEPTH: 965 ft		TILT: 90 degrees						
0	9.3	9.4	9.4	8.5	8.2	7.9	7.6	7.3	7.5
45	7.5	7.5	7.3	7.0	6.7	6.4	6.6	7.0	7.2
90	7.2	6.9	6.7	6.4	6.7	6.7	6.6	6.3	6.7
135	7.0	7.0	6.7	6.4	6.4	6.7	6.4	6.1	5.8
180	5.5	5.7	5.8	5.7	6.0	6.0	6.3	6.1	6.3
225	6.6	6.9	6.9	6.6	6.3	6.3	6.4	6.7	6.9
270	6.6	6.3	6.0	5.7	5.8	6.1	6.6	6.7	7.2
315	7.3	7.6	7.9	8.2	8.5	8.8	8.5	8.8	9.1

AZ	DEPTH: 970 ft		TILT: 90 degrees						
0	11.2	11.4	11.4	10.3	10.0	9.6	9.2	8.9	9.1
45	9.1	9.1	8.9	8.5	8.1	7.8	8.0	8.5	8.7
90	8.7	8.3	8.1	7.8	8.1	8.1	8.0	7.6	8.1
135	8.5	8.5	8.1	7.8	7.8	8.1	7.8	7.4	7.0
180	6.7	6.9	7.0	6.9	7.2	7.2	7.6	7.4	7.6
225	8.0	8.3	8.3	8.0	7.6	7.6	7.8	8.1	8.3
270	8.0	7.6	7.2	6.9	7.0	7.4	8.0	8.1	8.7
315	8.9	9.2	9.6	10.0	10.3	10.7	10.3	10.7	11.1

5 DEGREE RADII REPORT

Radii in feet

AZ	DEPTH: 972 ft		TILT: 90 degrees						
0	11.6	11.8	11.8	10.7	10.3	9.9	9.6	9.2	9.4
45	9.4	9.4	9.2	8.8	8.4	8.1	8.2	8.8	9.0
90	9.0	8.6	8.4	8.1	8.4	8.4	8.2	7.9	8.4
135	8.8	8.8	8.4	8.1	8.1	8.4	8.1	7.7	7.3
180	6.9	7.1	7.3	7.1	7.5	7.5	7.9	7.7	7.9
225	8.2	8.6	8.6	8.2	7.9	7.9	8.1	8.4	8.6
270	8.2	7.9	7.5	7.1	7.3	7.7	8.2	8.4	9.0
315	9.2	9.6	9.9	10.3	10.7	11.1	10.7	11.1	11.4

AZ	DEPTH: 973 ft		TILT: 90 degrees						
0	18.2	16.0	20.5	17.5	17.3	16.9	20.3	15.8	13.3
45	17.7	18.6	15.6	16.2	15.2	16.7	19.4	21.3	20.3
90	22.0	18.2	19.9	22.2	19.0	20.1	24.3	22.9	22.8
135	23.1	24.5	22.2	20.5	21.3	23.3	24.1	24.5	22.8
180	25.2	24.3	26.0	25.2	25.4	25.2	25.0	23.3	23.9
225	24.6	24.8	24.3	25.8	24.3	23.7	21.4	26.2	23.3
270	24.1	24.6	24.8	26.3	25.6	26.2	24.3	25.8	23.7
315	22.8	22.6	23.1	23.7	22.6	20.9	19.9	18.8	18.6

AZ	DEPTH: 974 ft		TILT: 90 degrees						
0	41.2	36.5	34.1	30.9	29.2	30.7	31.2	29.9	29.0
45	29.7	30.5	31.4	32.4	30.1	28.0	20.7	21.1	23.9
90	25.8	27.3	25.8	26.7	27.1	26.9	29.9	32.2	34.4
135	32.0	33.1	29.9	30.3	28.8	29.2	28.2	29.4	30.9
180	32.0	30.9	33.5	32.0	33.1	35.4	35.6	34.3	35.0
225	34.3	34.3	35.8	34.3	34.3	33.9	34.3	34.6	33.3
270	34.1	32.9	34.3	31.8	30.9	31.2	33.1	35.4	35.4
315	33.7	33.7	34.6	35.8	43.1	49.0	54.8	51.2	45.0

AZ	DEPTH: 976 ft		TILT: 90 degrees						
0	63.3	63.1	64.4	64.2	64.6	64.2	62.5	62.7	64.0
45	63.1	65.5	65.7	65.0	62.3	61.4	60.5	58.8	53.1
90	49.5	47.8	47.5	46.9	45.4	42.0	40.9	36.9	34.4
135	31.6	29.9	29.4	28.8	28.0	26.9	26.5	26.7	26.3
180	26.5	27.3	27.8	28.4	28.6	29.0	29.7	30.7	32.2
225	32.0	30.9	30.9	29.4	29.4	29.0	30.5	30.9	31.1
270	32.2	31.4	29.5	27.1	25.6	26.7	28.4	29.2	29.5
315	30.7	31.4	31.6	34.3	39.0	43.5	49.1	56.3	61.2

AZ	DEPTH: 978 ft		TILT: 90 degrees						
0	59.5	63.3	64.6	62.7	62.9	59.9	57.4	59.9	59.3
45	59.0	59.9	61.6	60.8	59.3	58.6	56.7	51.2	47.5
90	45.8	43.9	43.3	41.6	38.2	34.8	33.1	31.2	28.8
135	27.8	26.9	26.3	25.6	25.0	23.3	22.8	22.8	22.0
180	22.2	22.9	24.1	24.5	25.2	25.8	26.2	26.5	27.7
225	27.5	26.9	26.7	26.2	25.8	26.7	27.5	28.6	28.0
270	26.7	24.6	21.8	21.1	22.0	23.3	25.0	26.5	27.5
315	27.8	27.7	28.8	31.8	35.8	40.5	43.5	50.7	58.0

5 DEGREE RADII REPORT

Radii in feet

AZ	DEPTH: 980 ft		TILT: 90 degrees						
0	52.5	59.5	63.3	62.3	62.0	60.5	57.4	56.9	55.0
45	54.2	56.3	59.0	57.8	57.1	54.8	52.7	50.3	46.9
90	44.2	41.6	40.7	39.5	36.5	33.1	31.1	29.4	26.3
135	25.4	24.5	23.7	23.5	22.4	21.6	19.7	19.6	19.0
180	18.0	18.8	19.4	19.9	20.9	21.8	22.0	22.9	23.5
225	23.9	24.5	24.5	24.3	23.5	24.5	24.6	24.5	23.7
270	23.5	21.4	19.0	17.3	17.1	18.0	19.0	20.1	21.6
315	22.6	24.5	24.8	24.8	25.6	28.2	30.5	28.4	50.3

AZ	DEPTH: 982 ft		TILT: 90 degrees						
0	53.1	58.6	59.7	59.7	61.2	60.1	57.8	58.6	55.7
45	56.3	58.4	56.7	55.4	53.3	51.2	49.0	45.6	43.5
90	42.0	38.4	38.8	34.8	30.5	28.0	27.1	24.3	22.8
135	21.4	19.9	19.2	18.4	17.9	17.7	16.0	16.2	15.0
180	14.7	15.6	15.6	16.0	17.5	17.5	19.2	19.9	20.3
225	20.7	21.1	20.5	20.1	18.4	18.2	15.8	15.0	14.8
270	12.8	12.2	11.6	11.8	11.4	11.8	12.2	13.0	13.1
315	14.8	15.6	16.0	17.5	18.6	20.1	20.9	22.9	36.7

AZ	DEPTH: 984 ft		TILT: 90 degrees						
0	53.9	55.2	58.6	58.4	58.0	57.6	55.0	55.7	55.0
45	54.0	54.8	55.9	56.9	56.5	55.4	53.5	52.9	50.3
90	49.0	44.1	38.0	34.3	27.7	25.0	22.4	21.6	18.8
135	17.7	16.3	15.4	14.7	12.8	12.6	11.8	11.1	11.1
180	10.9	10.5	10.7	9.8	9.9	10.3	10.5	10.9	11.1
225	11.6	7.9	5.4	5.4	5.4	5.4	5.8	6.2	6.4
270	6.5	7.3	7.5	7.5	8.2	8.1	8.8	9.0	9.9
315	10.7	11.3	11.3	11.6	13.0	13.9	16.3	18.6	20.5

AZ	DEPTH: 986 ft		TILT: 90 degrees						
0	56.5	56.3	57.3	55.7	56.9	55.0	53.7	53.1	52.7
45	53.7	55.2	56.3	56.7	55.0	53.7	53.9	53.7	53.5
90	52.0	40.1	34.6	28.0	25.2	23.7	21.4	17.5	14.3
135	12.4	11.8	10.5	9.8	9.4	8.8	8.2	8.2	7.7
180	6.7	5.8	5.8	5.2	4.7	4.5	4.1	3.3	3.5
225	3.7	3.0	3.3	3.0	3.0	3.5	3.2	3.3	3.7
270	3.9	4.1	4.9	5.0	5.4	6.2	6.7	7.7	9.2
315	9.2	9.8	12.0	12.4	12.6	13.7	14.8	13.0	56.9

AZ	DEPTH: 988 ft		TILT: 90 degrees						
0	56.1	55.7	55.9	55.0	53.1	53.9	53.9	53.1	54.8
45	56.3	56.9	56.9	56.1	54.2	54.6	54.8	56.3	55.9
90	56.7	58.2	56.5	28.8	26.7	29.4	25.6	23.9	19.9
135	20.1	20.3	18.2	18.4	17.3	16.0	14.8	12.6	13.9
180	13.9	13.9	13.9	13.1	13.1	13.5	14.5	13.9	13.1
225	14.1	12.8	13.7	14.5	15.4	14.8	13.5	14.5	15.0
270	16.3	17.9	20.7	19.0	37.8	35.8	39.7	39.7	45.4
315	55.2	55.0	55.4	56.3	56.1	56.7	57.1	57.3	55.7

5 DEGREE RADII REPORT

Radii in feet

AZ	DEPTH: 990 ft		TILT: 90 degrees						
0	56.9	57.1	56.9	56.1	55.6	54.8	54.2	54.8	54.4
45	53.7	54.2	52.5	51.8	52.7	54.8	56.1	55.4	54.4
90	56.5	56.9	58.2	58.2	58.4	56.7	55.9	54.0	53.7
135	52.5	51.2	48.2	44.2	37.8	36.3	39.3	31.4	31.2
180	36.5	27.7	28.6	29.2	28.0	27.7	27.5	28.0	26.2
225	27.8	28.6	29.4	29.7	30.5	30.7	34.6	37.3	39.0
270	39.2	45.8	55.6	55.0	55.6	54.8	56.3	55.9	54.8
315	55.2	56.3	56.7	56.9	56.7	57.1	57.3	57.8	57.1

AZ	DEPTH: 992 ft		TILT: 90 degrees						
0	57.1	57.4	57.3	55.9	55.7	55.2	55.4	54.2	51.4
45	47.1	45.9	51.6	55.0	55.4	54.0	54.4	55.9	55.7
90	55.9	57.1	57.8	57.1	57.4	56.7	56.1	55.9	54.6
135	55.2	54.8	53.5	53.9	53.1	51.6	51.4	52.5	52.2
180	49.5	46.3	43.1	45.9	42.9	45.9	45.4	40.9	42.6
225	42.9	44.6	44.8	46.9	46.5	47.6	49.0	52.0	52.2
270	53.3	55.9	57.3	55.2	55.4	54.4	55.4	53.5	52.9
315	54.0	55.6	56.1	57.3	56.7	57.3	57.8	58.0	57.3

AZ	DEPTH: 994 ft		TILT: 90 degrees						
0	57.1	56.7	57.3	55.7	55.9	54.4	54.6	53.1	47.3
45	44.1	42.9	47.5	51.0	53.3	56.1	55.0	55.6	56.1
90	56.5	56.3	57.1	56.3	55.6	55.0	55.0	53.1	54.0
135	55.2	54.8	54.0	54.0	53.7	53.1	52.0	52.9	52.7
180	50.3	49.0	46.3	46.7	47.1	49.7	49.9	50.3	51.4
225	50.1	49.5	49.5	49.5	49.3	50.8	50.3	52.4	52.4
270	52.2	54.6	56.7	54.6	54.0	53.1	53.7	53.7	50.7
315	51.8	52.2	53.9	55.7	55.9	55.4	56.9	57.6	57.6

AZ	DEPTH: 996 ft		TILT: 90 degrees						
0	58.0	56.9	57.1	56.9	55.7	54.6	53.5	48.2	42.2
45	40.3	41.0	45.6	49.0	50.8	54.0	55.0	55.7	58.0
90	57.4	57.6	58.2	57.6	56.5	56.1	55.7	53.7	52.5
135	55.2	55.2	53.9	54.2	53.9	52.4	52.5	52.5	52.5
180	49.1	47.5	46.3	45.0	45.6	47.1	48.4	50.5	51.0
225	50.3	49.0	50.5	49.5	48.6	49.5	49.9	50.8	52.0
270	51.2	52.9	54.4	52.2	51.2	49.7	51.6	50.5	50.5
315	51.4	51.0	53.7	54.0	54.4	55.2	56.5	56.9	57.8

AZ	DEPTH: 998 ft		TILT: 90 degrees						
0	58.0	58.2	57.6	59.1	57.6	56.1	55.4	51.4	46.1
45	38.8	38.0	39.3	45.6	48.6	49.7	52.0	54.2	56.3
90	60.1	59.9	59.7	60.6	60.8	59.0	57.3	56.1	54.8
135	55.6	56.1	55.7	55.4	54.6	54.2	52.7	52.9	52.7
180	49.9	45.4	43.5	46.1	45.4	45.9	47.1	47.5	49.0
225	49.1	49.5	48.2	49.1	48.2	46.1	48.8	48.4	49.3
270	51.8	51.4	51.4	52.5	52.5	52.0	51.0	51.2	51.6
315	51.8	52.7	53.1	55.0	55.7	56.3	56.9	57.1	58.2

5 DEGREE RADII REPORT

Radii in feet

AZ	DEPTH: 1000 ft			TILT: 90 degrees					
0	58.6	58.6	58.4	58.8	58.8	55.9	51.2	45.0	38.0
45	35.6	35.2	36.1	42.0	46.3	47.6	49.5	56.5	60.3
90	60.1	59.0	60.6	59.9	59.1	58.0	56.9	55.2	55.7
135	56.7	57.4	57.3	57.1	56.1	55.4	54.4	54.0	52.0
180	48.8	47.1	48.8	49.1	48.8	49.5	49.0	49.5	49.3
225	48.8	47.5	47.1	49.1	48.6	49.0	49.7	49.3	49.7
270	51.2	52.2	52.7	53.3	53.1	52.4	53.1	53.3	53.7
315	55.6	56.5	55.6	56.1	56.7	57.4	58.2	58.0	58.4

AZ	DEPTH: 1002 ft			TILT: 90 degrees					
0	57.1	56.9	57.3	58.0	56.5	53.7	45.9	39.7	36.3
45	34.4	32.7	33.5	35.2	39.9	44.2	45.4	49.0	52.2
90	58.8	58.8	57.3	58.4	58.4	57.4	56.1	54.8	52.4
135	53.7	58.2	58.6	57.6	56.7	56.1	55.2	55.4	55.2
180	53.7	52.7	51.2	52.4	52.4	51.4	50.7	49.9	49.5
225	49.3	48.8	48.2	48.8	50.5	50.3	51.0	50.3	49.9
270	52.2	53.3	54.8	54.6	54.4	54.8	54.8	55.0	54.8
315	54.8	55.2	56.7	56.9	56.5	56.5	56.9	57.8	57.3

AZ	DEPTH: 1004 ft			TILT: 90 degrees					
0	55.7	55.0	55.0	56.1	55.0	54.4	57.8	59.1	57.1
45	56.9	58.6	57.4	59.1	58.4	59.9	56.7	58.2	58.2
90	58.0	56.1	56.9	56.5	55.0	52.5	50.3	48.4	47.3
135	52.7	56.9	57.6	58.4	58.2	58.0	56.1	55.7	55.9
180	55.4	55.0	54.8	54.6	54.8	53.7	51.8	49.9	48.0
225	45.8	45.4	46.5	49.9	50.8	52.4	50.3	49.5	48.6
270	50.3	51.8	53.1	52.5	54.2	54.2	54.0	52.0	52.4
315	54.2	55.9	53.9	54.2	54.8	55.4	55.7	56.5	55.7

AZ	DEPTH: 1006 ft			TILT: 90 degrees					
0	54.4	54.0	54.8	55.9	55.7	56.1	59.3	58.4	57.3
45	58.0	58.2	58.4	58.6	60.5	58.2	59.0	59.9	58.0
90	56.7	57.6	56.9	54.0	53.3	52.5	50.8	49.7	49.5
135	52.9	55.9	57.4	57.3	54.6	52.9	53.9	54.0	53.7
180	53.5	52.5	52.9	53.7	52.2	51.0	49.0	47.3	44.4
225	41.4	43.7	46.5	49.7	49.7	49.0	47.3	47.3	47.6
270	50.8	50.8	50.3	51.6	52.9	52.4	51.0	50.7	50.8
315	53.9	53.5	52.5	52.2	52.7	55.0	53.7	55.0	54.4

AZ	DEPTH: 1008 ft			TILT: 90 degrees					
0	54.6	55.4	55.7	57.3	58.6	58.6	59.0	59.7	60.1
45	59.0	59.1	59.5	59.3	60.8	61.2	60.3	60.3	59.5
90	59.1	59.3	57.8	56.7	55.7	56.1	57.4	55.2	55.9
135	54.6	54.8	54.2	55.7	55.0	52.7	51.6	52.7	53.1
180	52.5	51.0	51.2	50.7	51.0	50.3	47.6	45.4	42.2
225	39.5	41.2	42.4	45.6	47.5	47.8	47.6	47.6	46.1
270	45.9	47.1	48.4	48.8	49.7	51.6	52.5	52.2	53.1
315	53.7	53.9	53.1	52.5	53.5	54.0	53.7	55.6	56.1

5 DEGREE RADII REPORT

Radii in feet

AZ	DEPTH: 1010 ft			TILT: 90 degrees					
0	57.1	58.6	59.9	60.1	58.6	59.5	60.3	60.6	60.3
45	60.5	60.3	59.9	60.3	59.9	61.0	60.3	60.1	60.5
90	60.5	60.1	60.3	60.8	60.8	59.1	58.2	58.6	59.1
135	59.1	57.4	55.2	55.7	54.6	53.7	53.5	53.3	52.5
180	52.9	51.4	50.3	50.3	50.7	49.7	49.3	46.9	45.6
225	43.7	44.2	43.9	44.4	45.9	48.6	48.6	48.4	48.0
270	47.8	47.6	49.5	49.7	51.2	52.7	53.7	55.0	56.3
315	55.7	55.6	55.0	53.9	54.0	55.2	55.7	56.5	57.4

AZ	DEPTH: 1012 ft			TILT: 90 degrees					
0	58.2	59.3	61.0	61.0	60.6	60.5	60.6	60.8	60.3
45	60.1	60.1	60.1	60.3	59.7	59.7	60.5	59.0	59.0
90	59.7	60.8	61.4	60.8	61.6	59.9	59.5	59.0	59.1
135	58.4	58.0	57.8	57.3	56.9	55.9	56.1	55.7	55.6
180	55.4	55.0	52.9	51.6	51.8	51.0	49.5	49.9	48.4
225	48.4	49.3	49.7	50.5	49.5	50.5	50.1	49.5	49.9
270	49.9	51.0	51.4	52.4	53.7	54.8	55.9	56.7	56.9
315	56.3	55.7	55.4	55.9	56.3	57.1	57.3	57.8	58.6

AZ	DEPTH: 1014 ft			TILT: 90 degrees					
0	58.6	59.9	59.9	59.5	58.8	59.1	59.5	60.3	60.3
45	61.0	60.6	60.6	60.1	59.5	58.4	59.1	59.3	60.1
90	61.0	60.3	61.0	59.9	60.5	61.2	60.3	59.5	58.8
135	58.6	58.0	57.8	59.1	59.0	58.0	57.4	57.3	56.3
180	55.9	54.6	53.9	53.3	52.7	52.2	51.8	51.2	52.7
225	52.7	52.0	51.8	52.7	52.9	52.7	52.2	52.5	52.9
270	52.5	51.8	52.2	53.1	52.9	54.8	55.0	55.7	55.6
315	55.7	55.7	55.2	54.8	54.8	56.7	57.1	57.8	59.3

AZ	DEPTH: 1016 ft			TILT: 90 degrees					
0	58.2	59.0	58.4	58.2	58.0	58.2	58.0	60.5	60.8
45	61.0	60.3	59.9	59.9	59.3	58.8	58.8	59.3	60.5
90	61.6	60.5	58.8	59.3	59.0	59.0	59.0	58.2	57.6
135	57.3	56.7	58.0	59.3	59.5	59.5	59.1	58.0	56.9
180	56.7	57.1	55.9	55.2	54.2	54.0	53.5	53.5	52.9
225	53.1	53.3	53.5	53.5	53.3	53.7	53.3	52.7	53.3
270	53.9	53.3	53.1	54.2	53.5	55.7	55.6	55.2	54.4
315	54.4	54.6	54.4	54.0	53.5	55.4	55.6	57.1	58.2

AZ	DEPTH: 1018 ft			TILT: 90 degrees					
0	57.6	57.8	57.3	57.6	57.6	56.9	56.5	57.1	58.2
45	59.9	59.9	58.0	58.4	57.4	56.9	56.9	59.1	59.7
90	61.6	60.5	58.2	57.8	57.3	56.3	55.9	56.3	56.1
135	57.1	57.6	58.0	58.0	58.2	58.0	58.2	58.4	57.8
180	56.7	56.9	53.9	55.4	54.0	54.4	54.0	53.1	54.4
225	53.7	53.7	53.1	53.5	53.3	51.8	52.9	53.1	53.3
270	53.3	53.3	53.3	53.5	53.5	54.2	53.7	53.9	53.3
315	52.7	53.3	53.1	53.7	54.0	54.2	55.6	56.5	57.8

5 DEGREE RADII REPORT

Radii in feet

AZ	DEPTH: 1020 ft			TILT: 90 degrees					
0	56.7	55.7	55.9	56.5	55.4	54.8	56.3	56.5	58.6
45	58.6	55.9	56.5	55.9	55.2	55.6	56.9	58.4	58.8
90	59.3	57.3	55.9	55.4	54.6	54.2	55.2	55.4	56.3
135	56.5	56.3	55.9	56.5	56.7	56.5	56.5	55.6	55.7
180	55.6	55.0	52.9	54.2	52.9	53.1	53.7	52.5	53.1
225	52.2	51.6	52.7	51.0	51.4	50.7	52.2	52.2	51.8
270	52.0	52.2	52.4	52.5	52.2	52.2	51.6	51.6	51.8
315	51.2	51.2	51.8	53.3	53.7	54.2	55.2	55.7	56.1

AZ	DEPTH: 1022 ft			TILT: 90 degrees					
0	54.6	53.5	54.0	55.0	53.5	53.3	55.0	56.5	58.0
45	57.6	56.1	55.0	56.1	55.6	55.6	56.1	56.7	58.4
90	57.8	56.3	55.4	54.6	53.5	52.4	52.9	52.5	53.1
135	54.0	54.4	54.4	55.2	53.9	54.0	55.2	54.6	53.9
180	53.1	52.5	52.9	52.2	51.8	51.8	51.4	51.8	52.0
225	51.0	50.8	50.1	50.7	50.5	50.7	50.7	52.2	50.3
270	49.9	50.3	50.5	51.0	50.1	50.1	49.3	49.9	49.7
315	49.0	49.5	49.3	50.8	51.6	51.6	53.5	53.7	54.0

AZ	DEPTH: 1024 ft			TILT: 90 degrees					
0	54.8	54.8	55.0	55.2	54.4	53.9	54.8	56.7	57.3
45	56.5	54.8	55.7	56.1	55.4	55.4	56.5	57.6	58.4
90	57.1	56.7	55.4	53.7	52.5	51.6	52.2	51.8	52.9
135	52.5	52.5	52.7	52.9	52.4	52.9	53.1	52.7	51.6
180	51.0	51.8	50.5	51.6	50.7	50.7	49.1	50.5	49.5
225	49.5	49.5	47.8	49.7	49.1	49.9	50.1	49.3	47.6
270	48.8	47.8	48.8	48.6	47.3	47.5	48.0	48.4	48.2
315	49.0	49.3	49.7	51.4	50.8	52.4	53.5	54.4	54.6

AZ	DEPTH: 1026 ft			TILT: 90 degrees					
0	55.2	55.7	55.9	55.6	55.4	54.2	54.0	55.6	56.3
45	55.4	54.8	55.4	55.6	54.4	53.3	56.3	57.6	58.0
90	56.7	56.7	56.5	54.2	53.1	52.2	52.0	52.0	52.2
135	52.0	51.6	51.2	50.7	50.5	50.7	50.7	50.7	49.7
180	49.1	49.0	49.7	49.7	49.1	47.8	49.1	49.0	49.5
225	48.2	47.8	47.1	46.9	48.4	47.6	48.8	48.4	46.7
270	46.5	47.6	47.8	47.8	48.2	47.6	47.6	47.6	48.8
315	49.3	49.7	49.9	50.3	50.8	52.5	54.0	54.8	55.2

AZ	DEPTH: 1028 ft			TILT: 90 degrees					
0	54.2	55.9	55.6	55.0	54.2	52.2	53.3	54.2	54.2
45	52.9	53.7	53.7	52.5	51.0	53.7	56.9	57.6	55.9
90	55.9	55.0	54.0	52.2	51.6	50.5	50.7	51.2	52.0
135	50.5	50.3	49.7	49.0	48.4	48.8	48.0	49.0	48.4
180	48.8	49.0	49.0	49.3	50.1	48.4	49.9	49.9	50.5
225	47.8	48.4	49.0	49.0	49.3	48.8	49.3	49.3	49.1
270	48.8	48.2	49.5	48.2	48.4	49.9	49.0	48.0	49.0
315	50.5	50.8	49.9	49.5	49.0	52.2	53.5	54.4	54.8

5 DEGREE RADII REPORT

Radii in feet

AZ	DEPTH: 1030 ft			TILT: 90 degrees					
0	51.6	53.5	53.7	53.3	52.0	50.3	53.5	52.7	51.6
45	53.3	53.9	55.0	53.3	53.3	56.1	57.4	56.9	56.3
90	55.7	54.2	52.4	49.9	49.3	47.6	49.3	49.3	49.3
135	49.1	47.8	46.7	46.7	46.3	47.5	47.5	48.6	49.0
180	49.0	49.7	50.1	50.5	51.0	49.7	50.8	51.0	50.3
225	49.1	51.8	51.8	51.0	51.0	50.5	51.0	50.8	49.7
270	50.3	49.0	49.0	50.3	49.7	48.6	48.8	49.1	49.7
315	49.1	49.0	46.9	48.8	51.4	51.2	52.0	52.4	52.5

AZ	DEPTH: 1032 ft			TILT: 90 degrees					
0	49.1	50.7	51.0	51.2	51.4	50.5	50.8	51.2	51.0
45	50.8	51.2	51.2	53.1	55.0	55.6	54.6	57.1	57.4
90	57.1	56.9	54.8	52.7	50.1	49.3	47.5	47.8	47.8
135	47.6	47.5	46.7	45.6	44.4	44.1	44.8	45.9	46.3
180	47.5	47.3	48.2	48.6	49.7	49.9	49.7	50.3	49.7
225	49.7	50.7	52.0	52.0	51.8	52.9	51.6	52.9	52.0
270	50.5	49.9	49.0	48.4	49.0	48.0	47.6	47.1	46.9
315	47.3	47.1	46.9	45.2	45.8	47.8	49.0	49.5	49.3

AZ	DEPTH: 1034 ft			TILT: 90 degrees					
0	48.2	48.8	49.3	49.7	50.1	49.3	49.1	48.4	48.8
45	49.3	49.9	52.5	53.1	55.0	55.7	55.9	56.5	56.3
90	56.5	55.9	53.7	52.5	50.1	49.0	48.0	47.6	46.9
135	45.9	45.4	44.4	43.1	42.7	43.3	44.1	45.6	45.4
180	44.2	45.9	45.9	45.8	47.3	46.5	46.3	46.7	46.9
225	46.9	48.6	48.2	49.7	50.7	50.7	50.8	51.8	50.7
270	49.3	47.8	46.9	46.3	46.5	45.8	45.9	45.4	45.2
315	45.4	44.6	44.6	43.9	45.4	46.3	46.3	46.9	46.9

AZ	DEPTH: 1036 ft			TILT: 90 degrees					
0	45.4	45.8	45.9	46.1	48.2	46.7	46.7	46.1	46.9
45	45.9	46.5	47.6	49.3	50.3	52.4	52.9	53.9	53.7
90	54.4	53.1	51.6	49.9	47.8	47.1	47.3	46.7	46.3
135	44.8	43.5	42.6	41.4	39.5	40.9	41.2	40.9	41.4
180	42.4	41.4	42.2	42.9	44.1	44.4	44.4	44.4	43.9
225	44.2	45.9	48.2	48.4	48.4	49.3	49.3	49.5	49.0
270	47.8	47.1	45.9	45.0	44.6	43.5	43.9	44.2	43.5
315	43.5	43.5	42.4	41.8	42.0	42.9	43.7	45.6	45.0

AZ	DEPTH: 1038 ft			TILT: 90 degrees					
0	42.9	44.1	44.4	44.4	45.6	44.8	44.6	44.6	44.4
45	43.5	44.2	45.9	46.9	49.1	51.0	51.4	51.6	51.8
90	51.4	49.5	48.0	46.5	44.8	45.2	45.2	43.9	42.9
135	42.0	39.3	38.8	37.8	38.0	39.0	38.8	39.5	40.5
180	39.7	39.3	41.0	41.8	42.4	41.4	41.8	42.2	42.6
225	42.6	44.6	45.8	46.1	46.9	47.5	47.1	47.5	45.9
270	45.6	44.8	43.7	42.6	41.8	40.3	41.4	40.7	41.0
315	39.9	39.3	39.0	39.7	40.9	42.0	42.2	42.9	43.1

[redacted]

5 DEGREE RADII REPORT

Radii in feet

AZ	DEPTH: 1040 ft			TILT: 90 degrees					
0	41.2	42.2	42.9	42.6	43.3	42.7	42.6	42.4	43.7
45	42.9	41.8	42.6	43.7	45.4	47.5	48.4	49.3	49.7
90	49.9	48.6	45.9	45.2	44.4	43.1	42.9	43.1	41.8
135	41.4	38.6	36.1	36.0	35.4	36.3	36.5	37.3	37.8
180	37.8	37.1	37.3	38.4	39.7	39.9	40.3	39.7	40.1
225	40.1	40.7	41.8	43.9	44.1	45.2	45.0	43.1	42.4
270	42.7	42.0	42.6	40.1	39.9	38.2	38.4	38.8	39.2
315	39.2	38.8	37.3	37.3	37.3	38.4	40.5	41.0	41.0

AZ	DEPTH: 1042 ft			TILT: 90 degrees					
0	38.6	40.7	40.7	41.4	40.5	40.1	41.2	41.2	40.1
45	39.9	41.6	42.0	42.7	44.8	46.3	47.5	47.5	47.3
90	45.8	43.9	42.4	42.6	41.6	41.4	42.0	40.5	39.2
135	36.0	34.6	33.7	34.1	34.1	35.2	35.2	35.6	34.6
180	34.4	35.4	36.7	37.1	37.1	38.0	37.3	37.8	37.3
225	38.4	40.1	41.6	42.4	43.5	43.1	42.0	40.3	39.9
270	39.9	39.0	38.8	37.7	40.3	36.1	36.7	37.1	37.3
315	36.7	35.8	34.4	33.5	33.7	35.2	37.3	38.2	38.4

AZ	DEPTH: 1044 ft			TILT: 90 degrees					
0	36.1	38.2	39.3	39.2	39.0	38.6	39.0	40.1	39.7
45	38.8	38.8	39.9	40.1	40.7	42.7	44.1	44.4	45.2
90	44.2	40.7	39.7	40.1	39.9	42.0	40.5	38.2	37.1
135	34.8	34.1	32.4	31.4	32.2	31.8	32.4	33.1	33.3
180	32.9	32.0	33.1	34.8	34.3	35.2	35.6	35.6	36.1
225	36.5	37.3	38.0	39.2	40.5	45.0	43.3	38.8	38.2
270	38.2	37.7	37.3	36.3	35.6	34.6	35.8	35.0	33.7
315	31.6	31.2	30.9	31.2	31.4	33.5	34.6	35.4	35.8

AZ	DEPTH: 1046 ft			TILT: 90 degrees					
0	32.6	35.2	36.7	37.3	36.9	36.9	36.1	38.0	38.4
45	37.8	36.5	38.2	38.6	38.4	39.7	41.4	41.6	42.0
90	40.3	37.3	36.9	43.3	46.5	44.4	39.2	37.7	36.3
135	36.9	35.4	32.6	32.2	32.2	35.6	33.9	32.2	31.4
180	32.0	31.1	30.7	31.2	32.6	32.0	33.7	32.6	32.7
225	34.3	35.4	35.6	36.9	38.4	43.3	45.6	40.7	36.7
270	35.4	35.2	36.1	33.9	32.9	33.1	32.6	31.1	30.5
315	28.8	28.0	28.0	28.2	27.8	28.4	30.1	31.8	32.4

AZ	DEPTH: 1048 ft			TILT: 90 degrees					
0	29.7	32.6	33.9	34.6	34.8	33.3	33.9	36.0	37.1
45	36.1	36.0	36.7	36.5	35.6	36.9	39.3	39.5	38.8
90	37.5	35.0	33.7	43.1	50.5	54.0	54.4	56.9	57.6
135	58.4	59.0	59.3	58.4	56.3	55.4	53.9	47.6	41.0
180	38.0	32.7	29.7	29.7	30.3	30.7	29.9	29.5	33.1
225	36.0	40.1	40.1	41.8	43.1	45.8	47.5	42.6	39.9
270	40.3	39.5	36.9	31.2	30.1	29.9	27.7	25.0	25.0
315	25.6	26.2	25.0	23.9	24.6	25.4	27.1	28.6	29.2

5 DEGREE RADII REPORT

Radii in feet

AZ	DEPTH: 1050 ft		TILT: 90 degrees						
0	27.8	30.1	31.8	32.0	32.7	30.1	29.7	33.9	35.8
45	35.8	35.0	35.6	35.4	34.4	36.3	37.1	36.7	36.1
90	34.6	31.4	31.2	37.3	47.6	50.1	51.6	53.5	55.6
135	55.7	58.0	57.4	55.7	53.5	53.9	48.6	47.1	44.4
180	39.7	32.7	29.9	28.2	28.6	29.0	27.3	27.5	29.5
225	35.0	39.0	40.5	42.2	47.1	47.5	50.8	46.5	46.1
270	40.7	38.2	29.4	29.9	30.1	28.4	21.3	23.7	24.6
315	25.0	24.5	22.0	21.6	21.3	22.2	23.7	26.2	26.3

AZ	DEPTH: 1052 ft		TILT: 90 degrees						
0	24.3	26.9	28.8	29.0	28.8	27.7	27.3	49.0	69.9
45	69.7	72.3	71.8	71.0	70.3	70.6	70.3	69.9	71.8
90	72.1	71.4	71.2	70.6	69.1	69.5	65.2	65.2	54.4
135	55.2	54.2	55.4	55.4	55.7	54.0	51.4	49.7	45.9
180	40.3	31.8	30.3	28.0	25.4	25.4	24.5	23.9	28.4
225	31.8	32.4	43.5	46.7	46.3	46.1	49.3	51.8	53.1
270	50.7	34.3	26.5	26.2	28.0	22.2	20.1	21.3	22.4
315	22.8	22.4	20.5	18.4	18.4	18.6	19.4	21.6	22.9

AZ	DEPTH: 1054 ft		TILT: 90 degrees						
0	65.5	66.3	67.2	69.3	69.9	69.5	70.3	69.1	70.3
45	69.7	71.2	72.1	71.6	70.4	69.7	69.7	69.3	69.1
90	70.4	70.6	70.8	67.4	68.2	68.9	66.3	65.4	64.4
135	64.2	64.6	64.2	66.7	68.9	68.4	67.4	40.9	45.2
180	37.5	26.2	26.2	24.3	23.3	21.8	21.8	21.3	24.1
225	27.7	34.1	42.7	44.2	43.9	44.1	51.4	54.4	56.3
270	66.9	66.3	66.1	65.7	65.9	66.3	67.1	65.9	65.4
315	65.4	64.6	65.0	65.0	66.3	67.4	67.1	66.1	65.0

AZ	DEPTH: 1056 ft		TILT: 90 degrees						
0	65.5	66.9	67.6	70.1	70.3	70.8	71.2	71.2	70.1
45	69.7	71.6	72.5	70.3	70.8	70.6	69.5	69.7	71.4
90	70.1	70.3	68.4	67.6	67.4	66.1	64.2	64.6	64.2
135	64.4	65.4	65.7	66.7	67.4	67.4	67.2	66.9	67.1
180	68.2	67.1	66.5	67.6	67.8	67.8	67.2	67.4	65.9
225	65.9	66.7	66.9	67.6	67.2	67.2	66.1	65.7	64.6
270	67.1	66.3	66.5	65.5	65.4	65.4	64.8	64.6	64.6
315	65.0	65.5	64.8	65.0	65.5	66.5	67.2	66.3	65.5

AZ	DEPTH: 1058 ft		TILT: 90 degrees						
0	66.5	67.4	68.9	69.9	70.1	72.9	73.1	73.3	72.7
45	70.3	74.6	72.9	71.0	70.3	71.2	70.6	70.8	69.9
90	69.1	68.6	68.4	67.4	65.9	65.2	64.0	64.2	64.6
135	64.2	65.2	66.1	67.8	68.4	67.6	67.1	67.8	67.8
180	67.8	67.4	67.2	66.9	68.0	68.0	67.2	67.6	66.7
225	66.1	67.8	67.8	67.8	67.2	66.9	65.4	65.5	67.1
270	66.1	65.7	65.5	64.8	65.5	65.7	64.4	64.4	65.4
315	65.4	65.0	64.8	65.2	65.9	67.2	66.9	66.7	66.5

5 DEGREE RADII REPORT

Radii in feet

AZ	DEPTH: 1060 ft				TILT: 90 degrees				
0	69.1	70.1	72.5	72.7	75.0	75.7	76.3	76.3	77.4
45	74.2	75.5	76.3	72.5	73.3	73.1	73.5	73.7	74.6
90	73.5	72.1	70.6	68.2	69.5	65.7	64.4	65.5	65.5
135	65.0	65.7	66.5	66.5	67.8	68.0	67.4	67.2	67.8
180	66.9	67.2	66.1	67.4	67.4	66.3	65.4	65.7	65.2
225	65.9	68.0	66.5	66.3	66.5	65.0	65.0	65.5	67.1
270	64.8	64.6	64.0	64.4	65.2	65.7	65.0	64.6	64.8
315	64.8	65.4	64.6	66.1	67.6	68.0	69.3	70.1	71.0

AZ	DEPTH: 1062 ft				TILT: 90 degrees				
0	71.0	69.7	70.4	70.6	78.7	80.1	80.6	77.4	76.7
45	79.1	79.7	76.1	76.1	76.1	75.5	76.1	77.0	78.0
90	77.2	79.9	76.9	75.7	78.2	78.4	80.3	81.4	75.9
135	80.3	75.5	76.7	78.2	66.9	65.9	67.4	64.0	66.1
180	63.5	66.5	63.1	64.0	65.4	65.2	64.4	64.4	63.9
225	63.9	66.3	65.7	63.7	64.8	64.4	63.1	62.7	65.9
270	63.7	63.7	63.3	65.0	65.2	72.7	75.4	76.5	73.3
315	77.0	79.1	76.1	78.7	75.4	72.1	69.7	70.6	70.4

AZ	DEPTH: 1064 ft				TILT: 90 degrees				
0	80.8	80.3	80.8	79.9	80.3	80.4	80.1	80.6	80.1
45	79.9	79.9	80.6	80.1	80.1	79.9	80.4	79.9	81.4
90	81.4	79.9	80.1	79.7	79.5	79.9	80.1	81.4	81.6
135	80.4	79.7	79.5	78.7	79.1	79.1	79.1	79.7	78.9
180	79.3	72.9	65.9	65.0	63.9	65.4	65.9	64.6	64.0
225	63.3	63.3	78.4	78.2	79.3	79.3	78.0	78.9	77.0
270	74.4	73.3	76.7	73.3	73.8	75.7	74.2	75.4	76.5
315	76.5	76.3	79.9	77.4	79.5	78.2	77.4	79.7	81.9

AZ	DEPTH: 1066 ft				TILT: 90 degrees				
0	83.3	85.0	83.6	82.5	82.5	82.3	83.5	82.7	80.3
45	77.0	78.2	81.4	79.9	79.9	82.5	81.0	82.7	77.6
90	79.5	82.3	79.5	78.9	79.7	79.7	79.9	79.9	82.1
135	82.5	80.6	80.1	80.1	79.7	80.6	79.9	79.1	78.9
180	79.1	78.4	78.2	76.9	76.9	77.2	78.4	77.4	78.7
225	77.6	78.7	78.9	78.0	77.0	78.6	78.0	77.4	77.8
270	78.4	78.9	79.3	78.7	77.8	77.2	77.8	78.2	79.9
315	78.7	79.5	80.3	81.2	80.1	79.9	81.8	82.5	82.3

AZ	DEPTH: 1068 ft				TILT: 90 degrees				
0	84.2	86.5	84.8	82.1	82.9	84.8	85.3	85.7	88.7
45	87.4	85.7	82.3	83.1	80.3	81.9	82.7	82.5	81.8
90	85.9	83.8	81.8	80.6	80.4	80.8	82.3	81.8	81.4
135	82.7	81.6	80.8	80.1	80.6	80.6	80.1	79.1	78.7
180	78.6	78.2	78.2	78.0	78.6	78.0	78.0	77.8	78.4
225	78.4	78.4	78.6	78.6	78.4	78.2	78.2	78.4	78.7
270	79.3	79.1	78.9	78.7	78.9	77.6	78.6	78.9	80.1
315	79.5	79.1	79.1	81.4	79.7	80.3	80.8	82.3	82.7

5 DEGREE RADII REPORT

Radii in feet

AZ	DEPTH: 1070 ft			TILT: 90 degrees					
0	85.7	86.3	84.2	83.3	85.7	86.3	86.8	88.7	86.1
45	86.1	83.6	84.4	83.3	84.4	84.0	84.2	85.0	84.8
90	86.5	86.1	85.2	81.6	83.5	83.1	81.8	83.1	83.3
135	81.9	80.8	81.4	80.3	79.9	79.7	79.3	76.7	78.4
180	77.8	77.6	77.8	77.8	78.4	77.4	77.6	77.2	77.4
225	77.0	78.6	77.8	77.6	77.0	76.9	77.4	76.9	78.4
270	78.7	77.6	78.2	77.6	76.7	77.4	78.0	79.9	80.3
315	79.3	78.7	79.7	80.3	80.4	80.3	81.4	83.1	83.8

AZ	DEPTH: 1072 ft			TILT: 90 degrees					
0	84.6	84.8	84.4	84.8	86.5	87.8	87.4	89.3	89.3
45	87.6	86.3	86.1	85.0	84.2	85.3	85.0	85.3	85.7
90	85.3	87.2	88.0	87.2	86.3	85.3	84.8	83.8	83.8
135	82.3	81.8	81.8	81.6	80.4	79.1	79.3	77.4	76.5
180	78.0	77.6	77.0	77.2	76.5	77.0	76.5	76.3	76.3
225	76.1	75.7	76.1	77.0	76.3	76.7	77.0	75.7	77.4
270	78.0	77.0	77.6	77.4	78.4	77.8	77.2	79.1	79.9
315	80.4	81.2	80.6	81.6	81.6	81.4	82.3	82.9	84.4

AZ	DEPTH: 1074 ft			TILT: 90 degrees					
0	85.2	83.5	83.1	85.5	86.3	87.2	87.4	87.6	89.5
45	89.5	88.0	86.1	86.3	85.5	85.0	85.2	86.3	86.7
90	88.2	88.4	88.7	88.7	87.2	86.8	85.9	85.2	85.5
135	85.2	83.5	83.1	82.3	82.1	82.1	80.8	79.3	79.3
180	77.0	76.7	76.7	77.0	76.3	76.3	76.7	75.2	75.5
225	75.0	75.2	75.9	76.9	76.7	76.1	77.0	76.7	77.8
270	77.4	78.6	78.2	78.7	79.3	78.6	79.7	80.3	80.1
315	81.0	82.3	82.1	82.5	82.3	82.3	83.5	83.3	84.8

AZ	DEPTH: 1076 ft			TILT: 90 degrees					
0	82.3	80.6	81.0	82.3	85.5	85.3	85.9	86.5	87.8
45	88.2	89.1	87.4	85.3	85.5	85.5	83.8	84.2	85.0
90	85.9	87.0	88.4	88.4	87.6	86.8	86.8	84.0	83.8
135	83.3	84.0	82.1	82.7	81.0	82.1	78.2	78.2	77.6
180	76.9	76.3	75.5	75.2	75.7	75.5	75.2	74.8	75.0
225	75.4	74.2	75.5	76.9	76.5	76.9	76.9	76.5	77.6
270	77.6	77.6	77.4	78.6	78.0	79.3	79.1	79.1	80.1
315	81.8	81.9	81.6	81.6	81.6	82.1	82.5	81.2	82.7

AZ	DEPTH: 1078 ft			TILT: 90 degrees					
0	2.0	8.1	8.6	11.6	12.8	12.4	12.4	81.6	85.5
45	87.2	86.5	85.7	85.5	85.3	85.9	85.5	83.5	82.1
90	84.2	86.5	86.5	85.9	85.7	84.2	80.3	79.1	78.6
135	79.1	78.6	79.7	80.3	81.9	2.8	2.6	2.6	2.4
180	2.2	2.4	.7	2.2	2.4	2.2	2.4	2.6	3.2
225	2.4	4.1	4.3	3.3	4.7	5.2	6.9	6.4	6.5
270	5.6	6.0	6.4	6.0	4.7	.7	.9	3.0	3.5
315	3.5	3.2	3.3	3.2	2.8	3.9	3.0	4.1	1.3

5 DEGREE RADII REPORT

Radii in feet

AZ	DEPTH: 1079 ft		TILT: 90 degrees						
0	3.3	3.3	3.3	17.3	17.7	16.2	15.2	13.7	13.7
45	13.3	14.1	14.3	14.5	14.5	17.7	15.0	12.2	9.2
90	8.8	8.4	8.1	7.9	9.0	8.6	8.6	43.9	8.8
135	44.1	3.5	3.7	3.7	3.7	3.7	3.7	3.5	3.3
180	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.7	4.1
225	3.5	5.2	5.6	4.3	5.8	6.4	7.7	7.5	7.7
270	6.7	7.1	7.5	7.7	6.9	75.5	76.5	5.6	5.4
315	5.0	5.0	5.0	4.3	4.9	4.7	3.3	3.3	3.3

MAXIMUM HORIZONTAL RADII

AZM deg	RADIUS ft	DEPTH ft
0	85.7	1070
2	86.5	1070
4	86.7	1068
6	86.3	1068
8	85.7	1068
10	84.8	1068
12	85.0	1072
14	85.5	1074
16	85.5	1074
18	85.7	1074
20	86.5	1072
22	86.8	1074
24	88.2	1072
26	87.6	1072
28	87.2	1074
30	87.4	1072
32	88.5	1072
34	89.1	1072
36	89.5	1072
38	89.5	1072
40	89.5	1074
42	89.5	1074
44	89.7	1074
46	89.3	1074
48	88.7	1074
50	89.1	1076
52	88.5	1076
54	88.0	1076
56	86.8	1076
58	86.1	1072
60	86.3	1074
62	85.7	1078
64	85.7	1076
66	85.7	1074
68	85.9	1074
70	85.9	1078
72	86.3	1078
74	86.1	1078
76	85.2	1074
78	85.3	1076
80	86.3	1074
82	86.5	1074
84	86.8	1074
86	86.5	1074
88	86.8	1074
90	88.2	1074
92	88.9	1074
94	88.4	1074
96	88.4	1074
98	88.7	1074
100	88.7	1074
102	88.4	1074
104	88.9	1074
106	88.7	1074
108	88.5	1074
110	87.6	1076
112	87.0	1076
114	87.0	1076
116	87.0	1074
118	86.7	1074
120	86.8	1076
122	85.9	1074
124	85.3	1074
126	85.2	1074
128	85.2	1072
130	85.5	1074
132	84.8	1074
134	85.3	1074
136	85.0	1074
138	84.4	1074
140	84.0	1076
142	82.3	1074
144	82.3	1074
146	83.8	1074
148	83.3	1074
150	82.7	1076
152	82.1	1074
154	82.1	1074
156	82.1	1074
158	82.1	1074
160	82.1	1074
162	82.1	1074
164	80.8	1074
166	80.8	1074
168	80.4	1074
170	79.7	1064
172	79.7	1064
174	79.5	1074
176	79.1	1074
178	79.1	1066

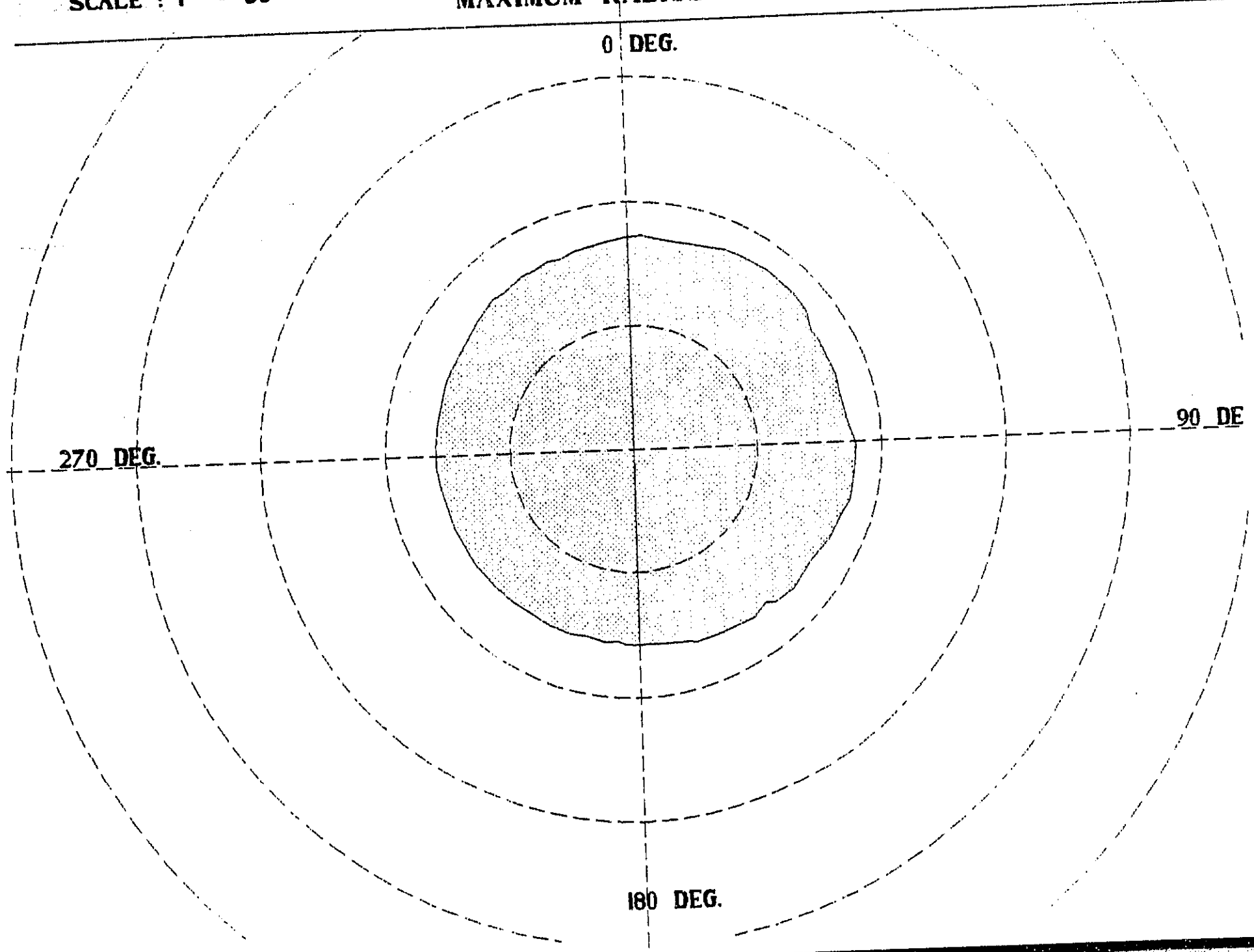
MAXIMUM HORIZONTAL RADII

AZM deg	RADIUS ft	DEPTH ft
180	79.3	1064
182	79.5	1064
184	79.5	1064
186	78.2	1068
188	78.0	1068
190	78.2	1066
192	78.2	1068
194	78.0	1068
196	78.0	1068
198	78.6	1068
200	78.6	1068
202	78.4	1068
204	78.2	1068
206	78.0	1068
208	78.2	1066
210	78.4	1066
212	78.0	1066
214	77.8	1068
216	77.8	1066
218	78.4	1068
220	78.7	1066
222	78.0	1066
224	78.4	1068
226	78.6	1068
228	78.9	1066
230	78.7	1066
232	78.6	1068
234	78.9	1066
236	78.9	1066
238	78.9	1070
240	78.6	1068
242	79.3	1064
244	79.3	1064
246	79.3	1064
248	79.3	1064
250	79.3	1064
252	79.3	1064
254	78.7	1066
256	78.4	1068
258	78.7	1064
260	78.9	1064
262	78.7	1066
264	78.7	1068
266	78.9	1068
268	79.3	1064
270	79.3	1068
272	78.9	1068
274	79.1	1066
276	79.3	1068
278	79.3	1068
280	79.3	1066
282	79.3	1064
284	79.1	1066
286	78.9	1074
288	80.3	1074
290	79.3	1074
292	79.5	1076
294	79.7	1076
296	79.1	1076
298	80.1	1076
300	79.7	1074
302	79.7	1074
304	80.1	1074
306	80.4	1074
308	80.8	1076
310	80.3	1070
312	80.8	1074
314	81.4	1076
316	82.1	1076
318	82.9	1076
320	82.3	1074
322	82.1	1076
324	82.3	1074
326	82.1	1074
328	82.7	1074
330	82.5	1074
332	82.5	1074
334	82.1	1074
336	82.7	1074
338	82.5	1074
340	82.3	1074
342	82.9	1074
344	83.5	1074
346	83.5	1074
348	82.9	1074
350	83.3	1074
352	84.4	1074
354	84.4	1074
356	85.2	1074
358	85.7	1070

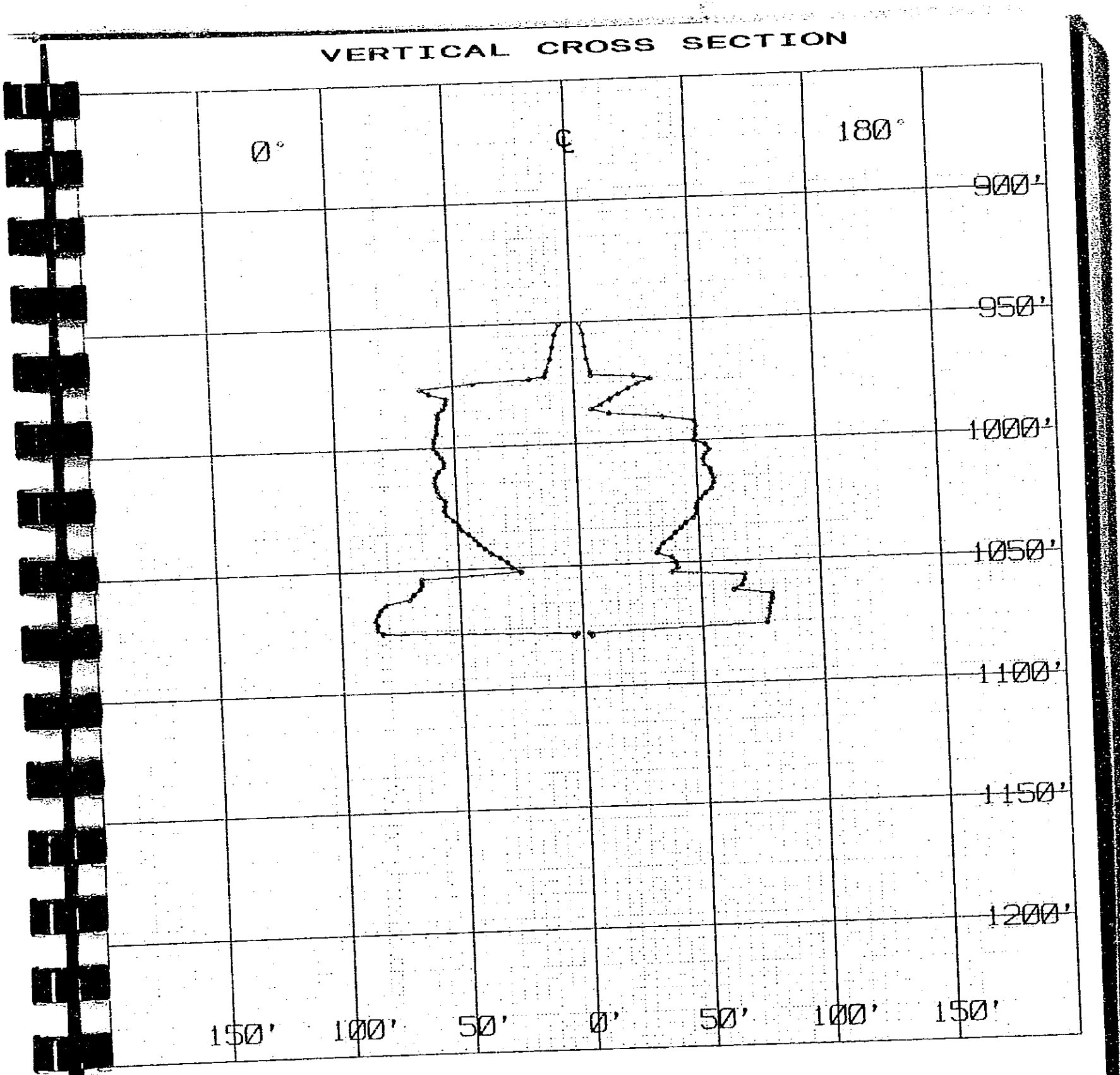
Maximum radius : 89.7
On Azmuth deg : 44

SCALE : 1" = 50'

MAXIMUM RADIUS PLOT



VERTICAL CROSS SECTION



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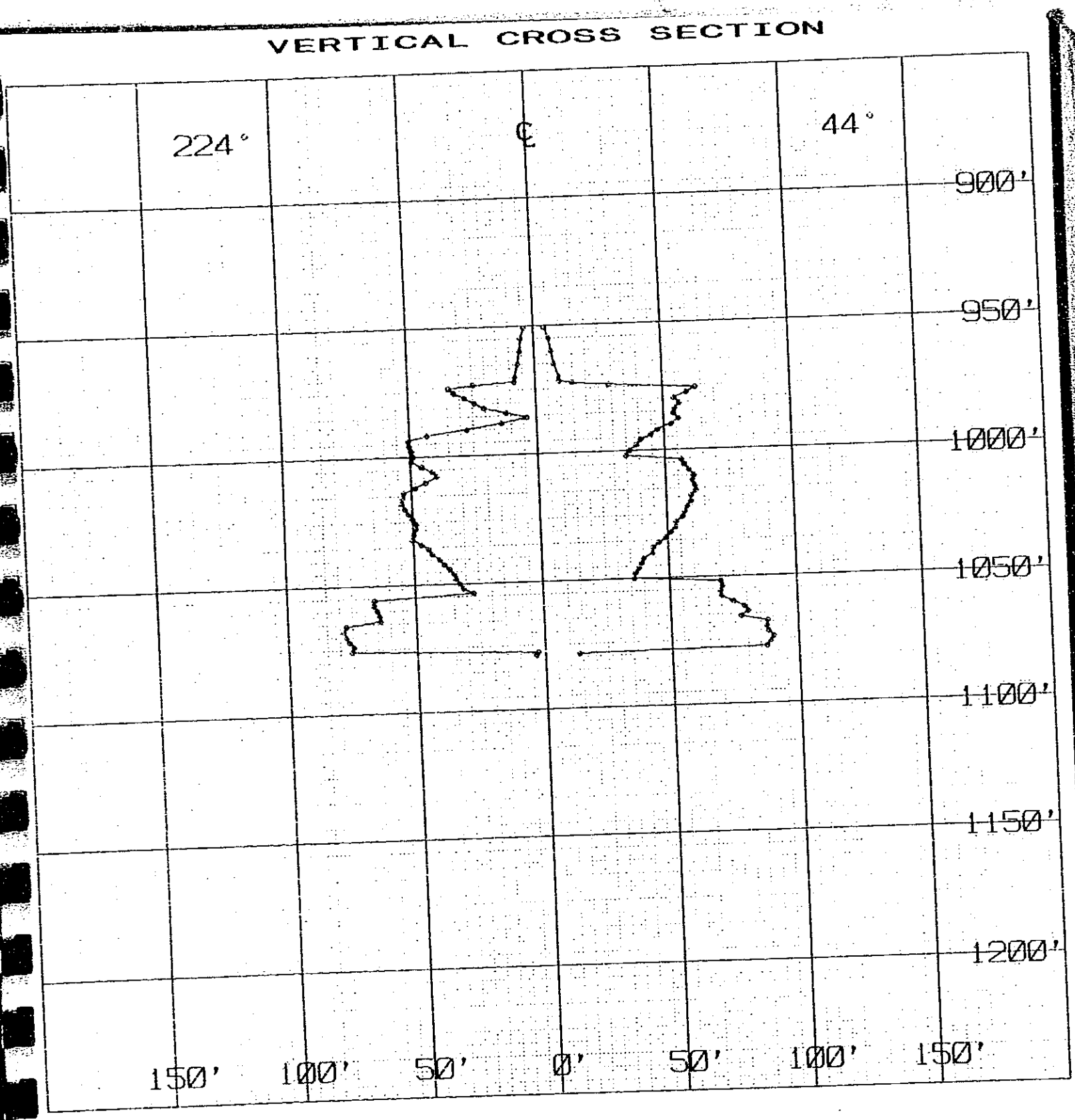

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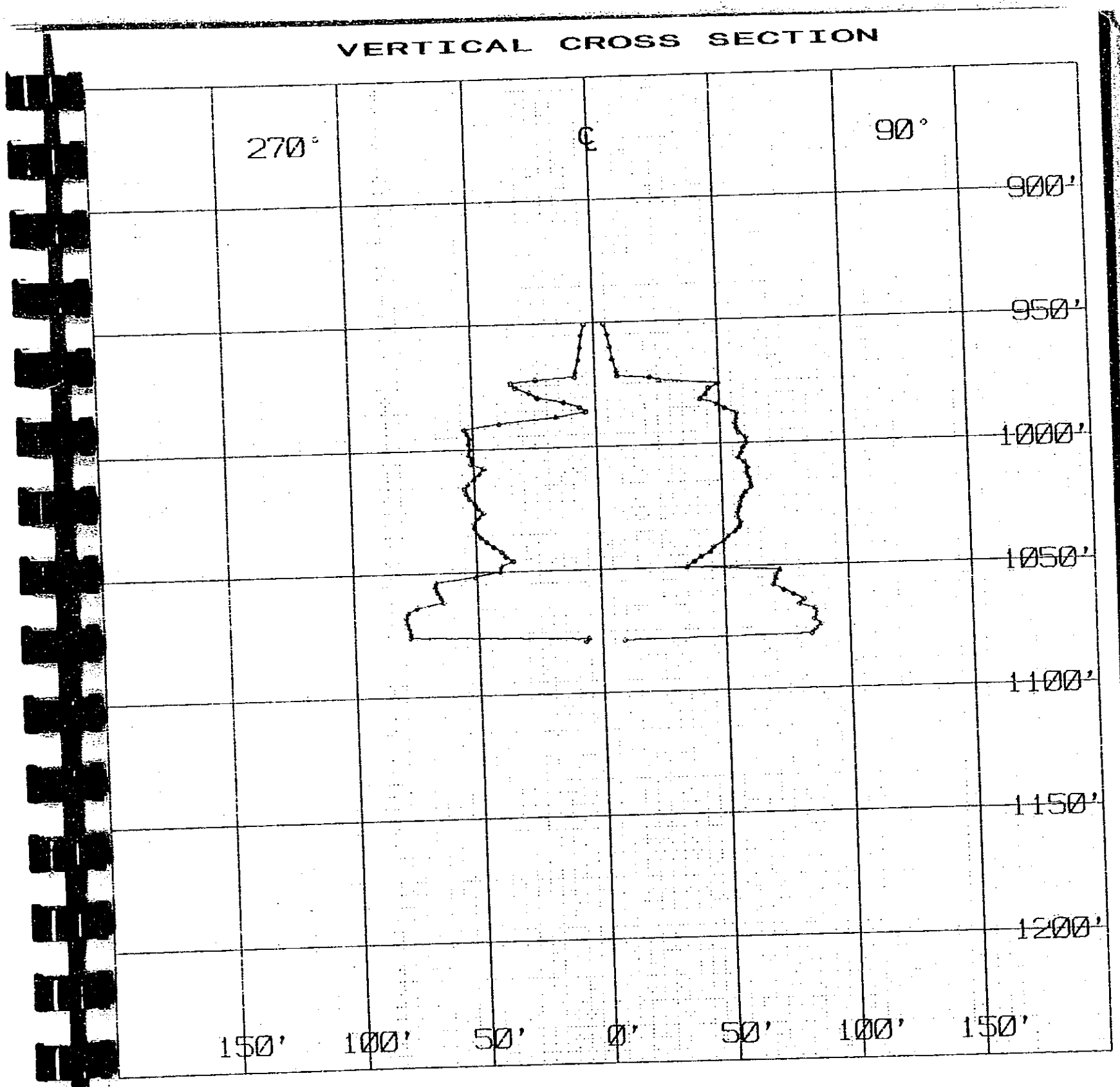

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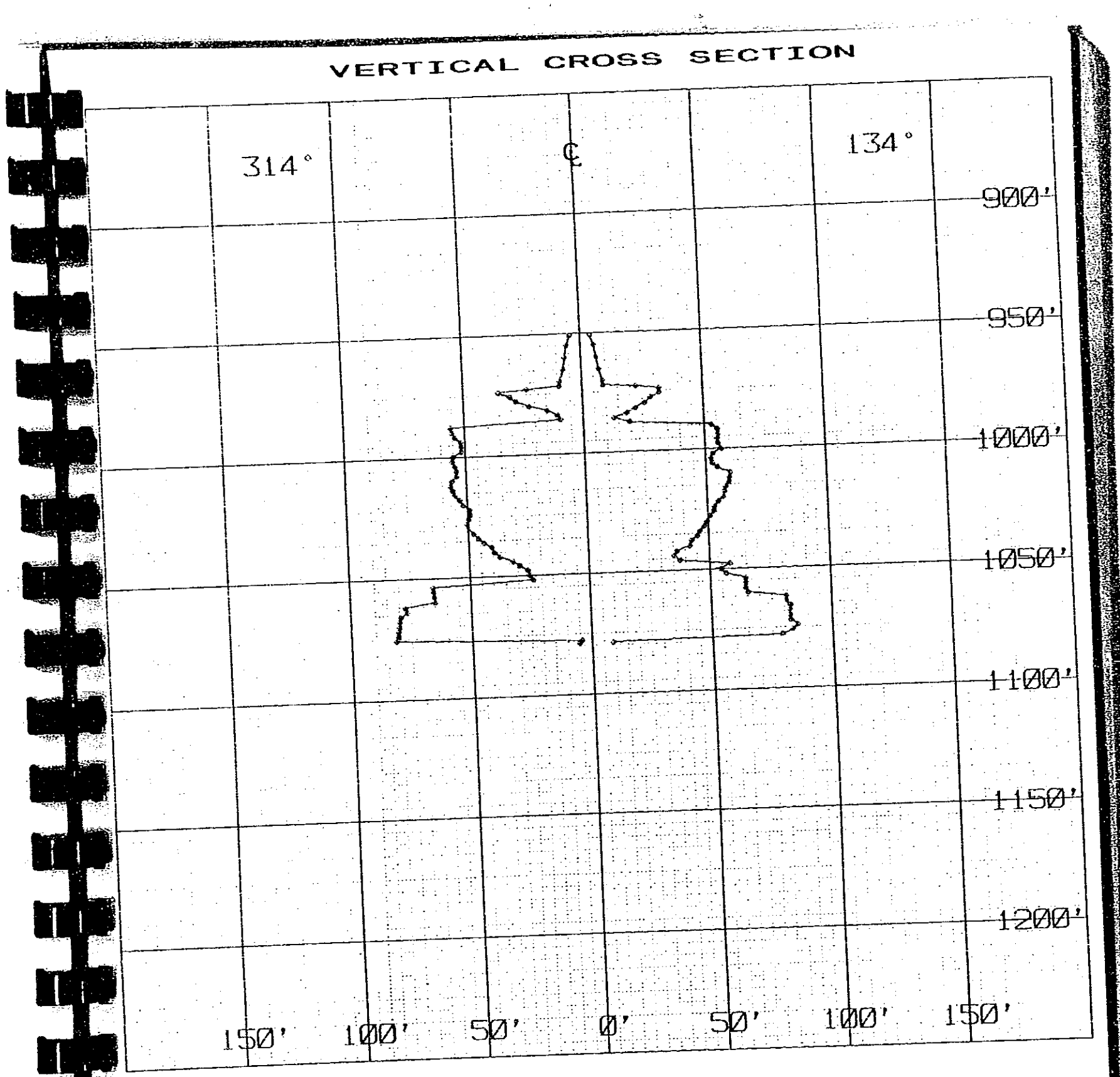

DIGITAL SURVEYS, INC.

05/29/91

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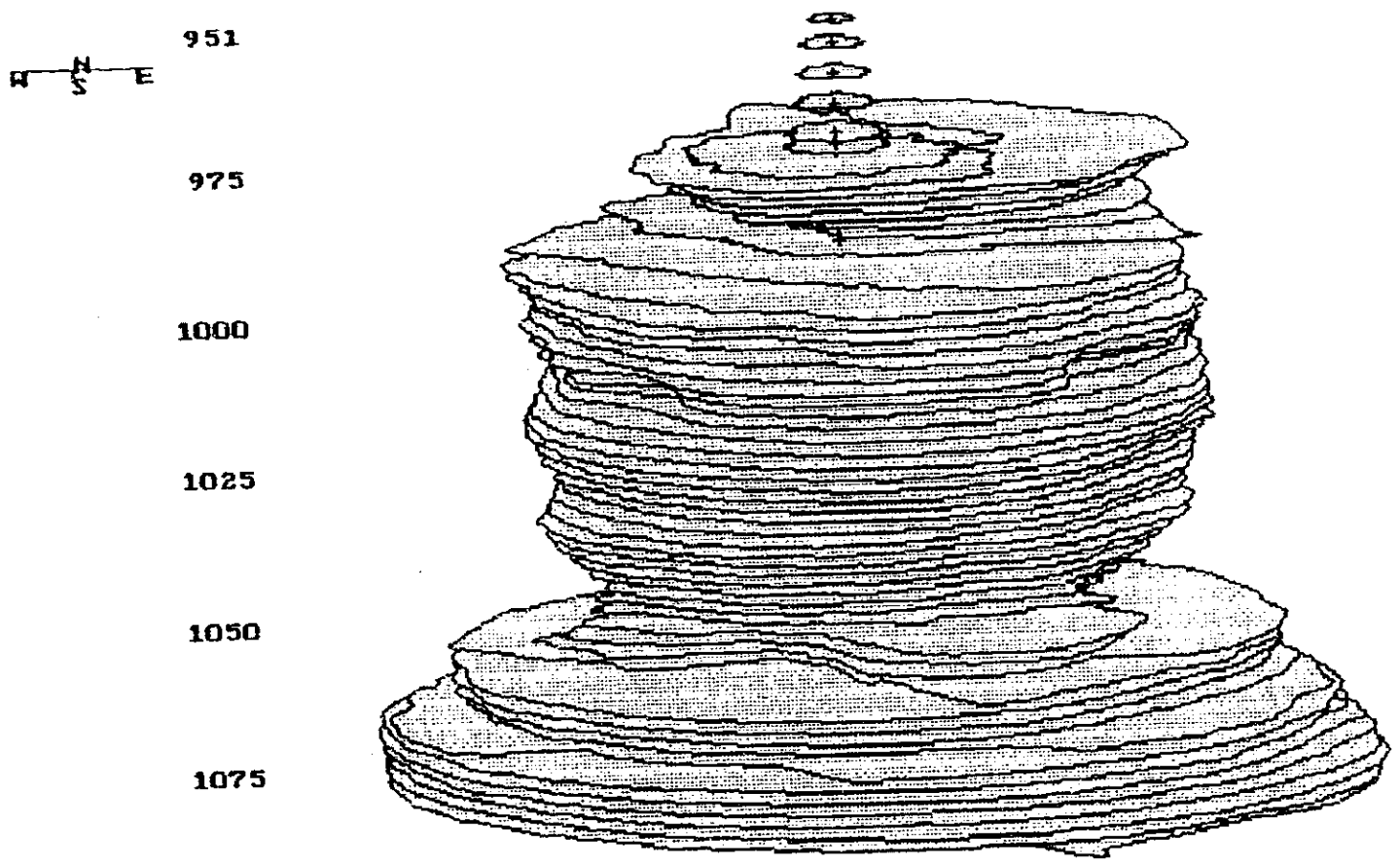

FERRELLGAS WELL 7

DIGITAL SURVEYS, INC.

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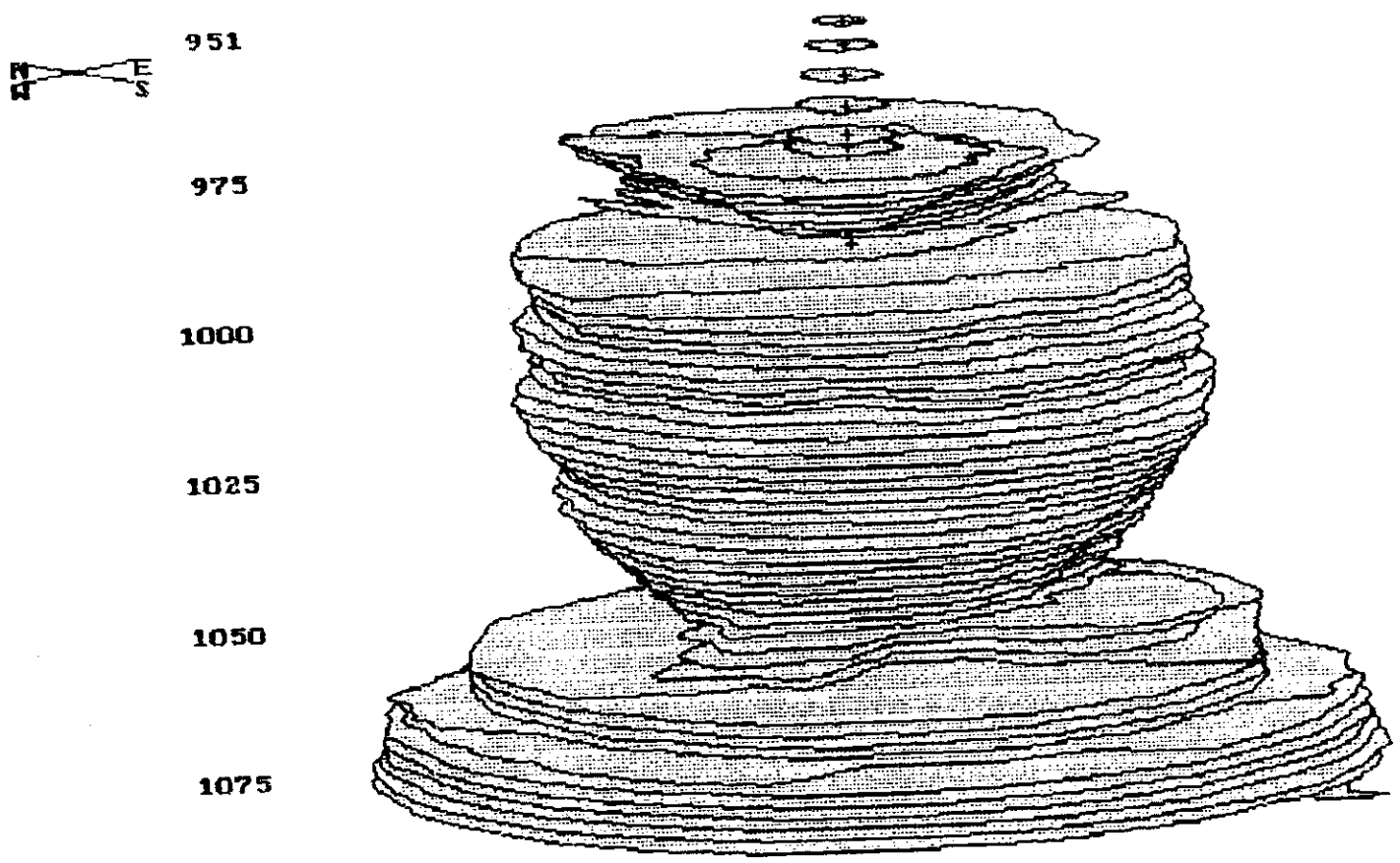
05/29/91



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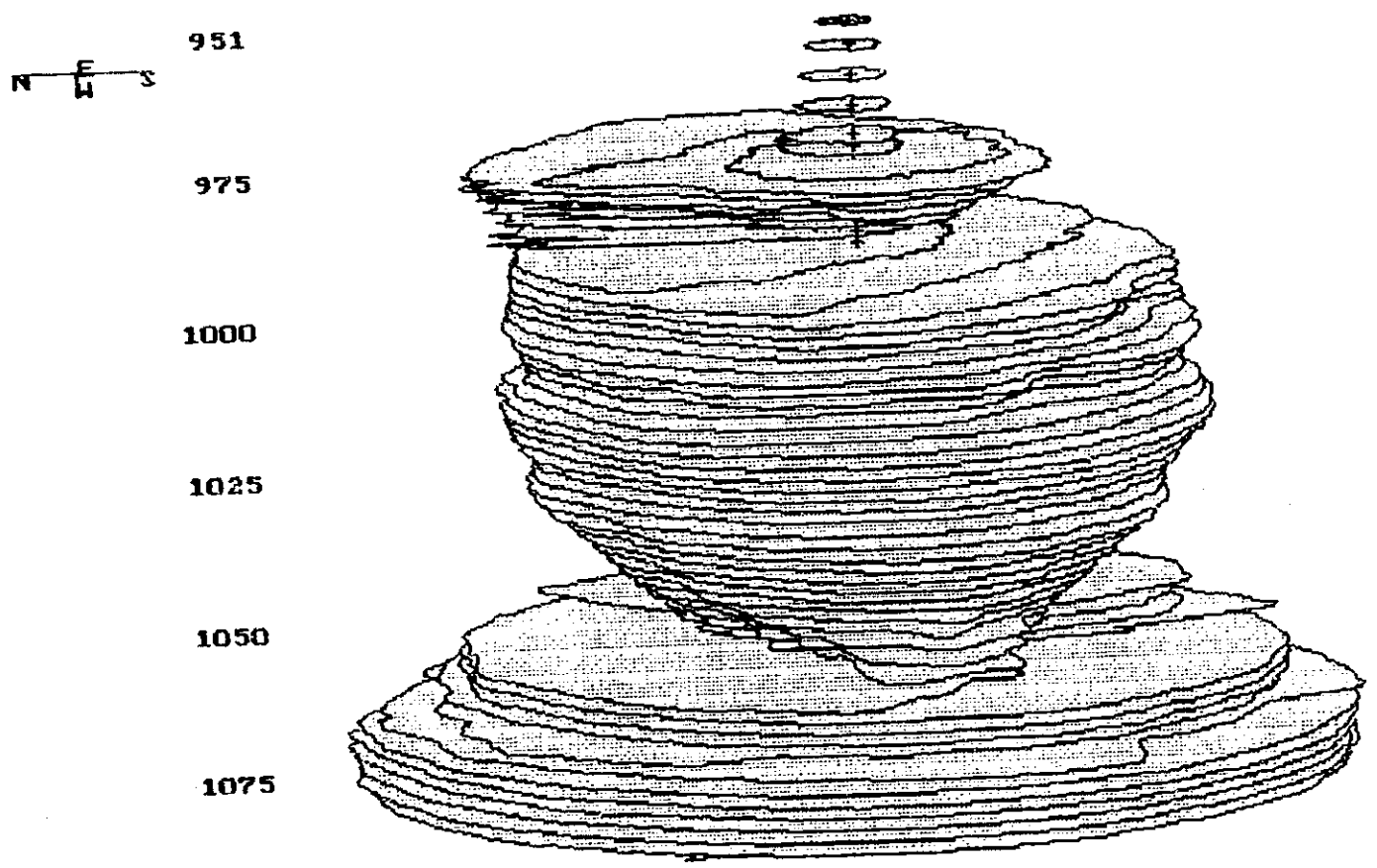

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DIGITAL SURVEYS, INC.

05/29/91

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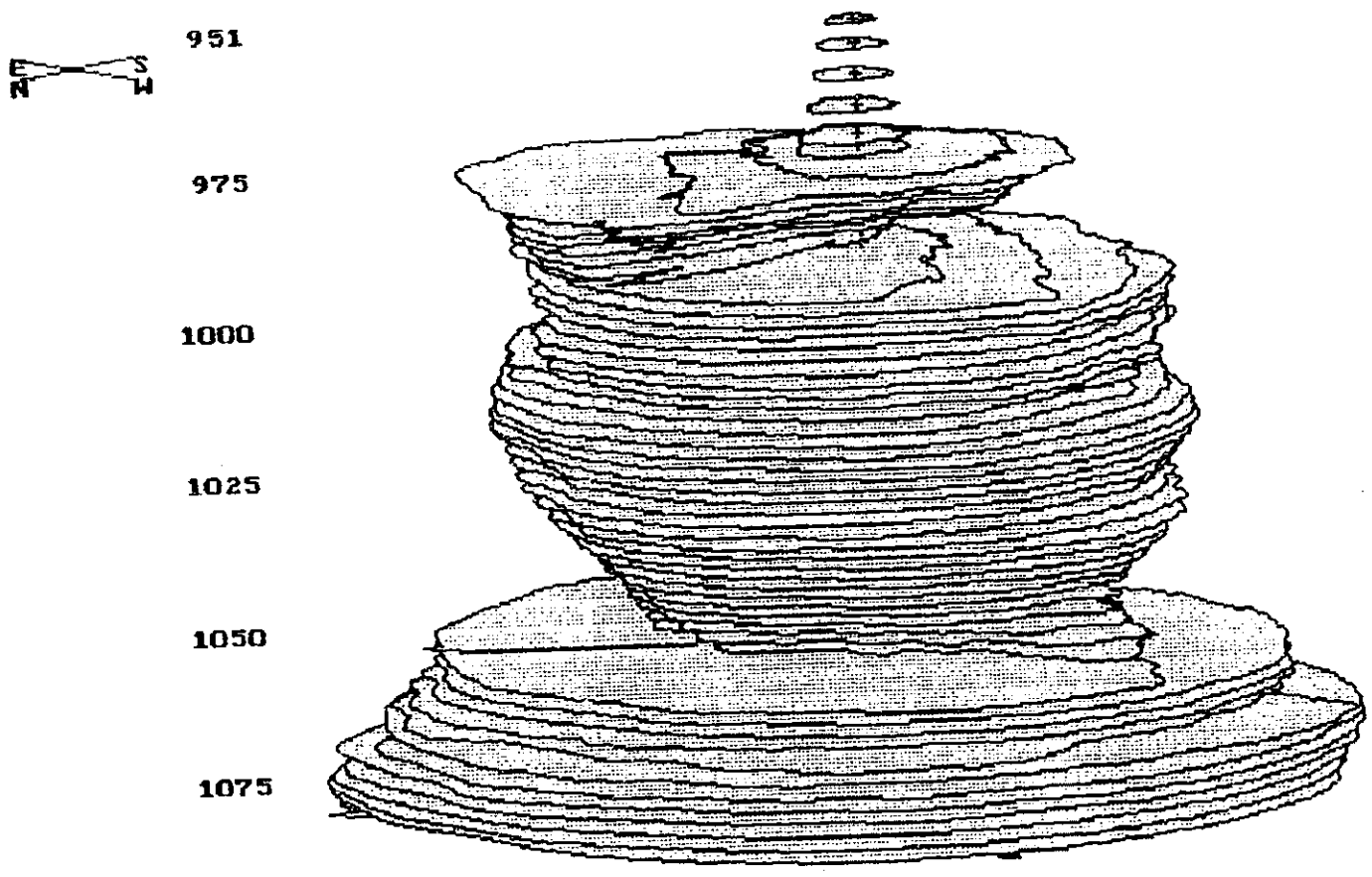

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DIGITAL SURVEYS, INC.

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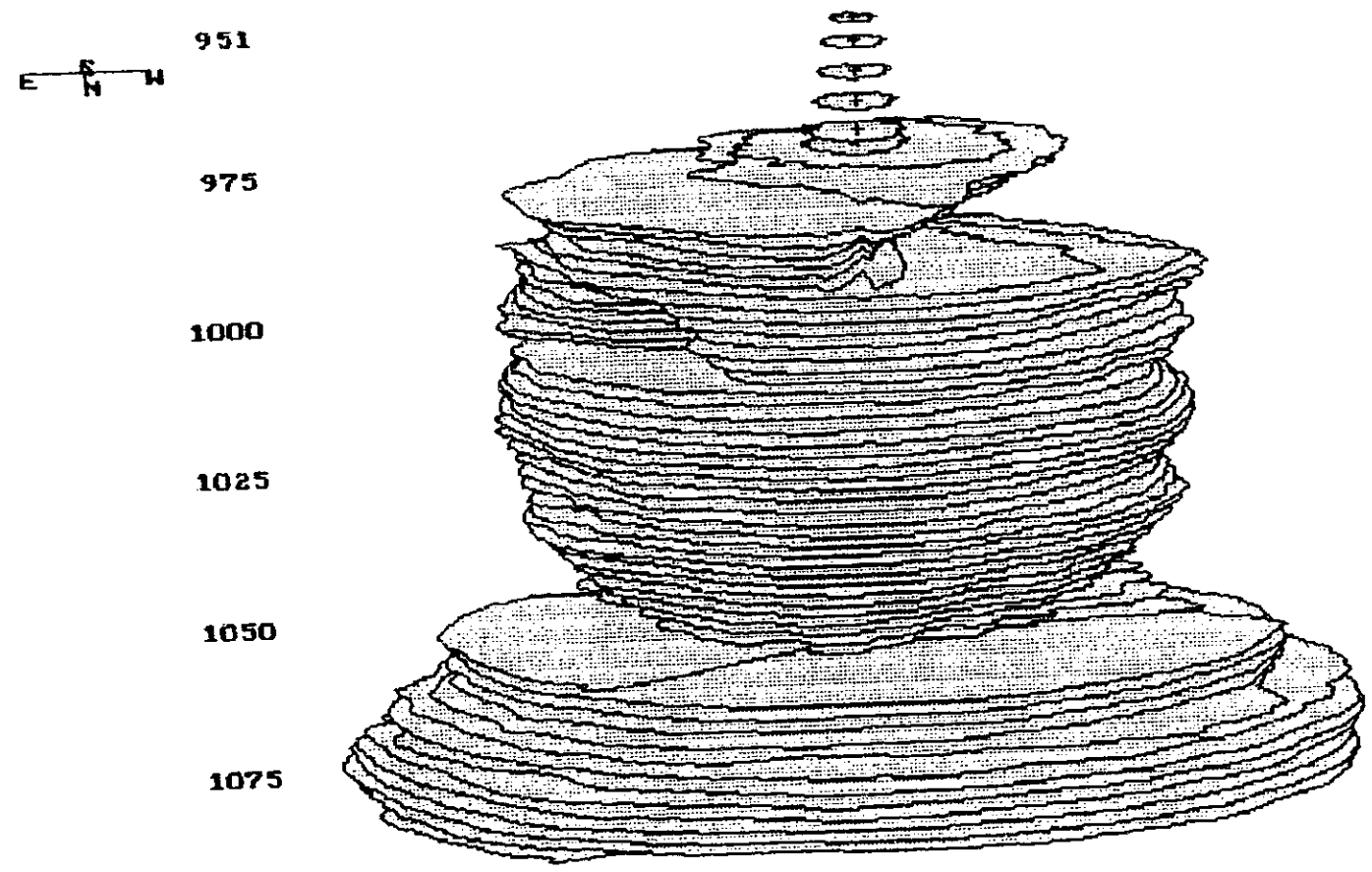

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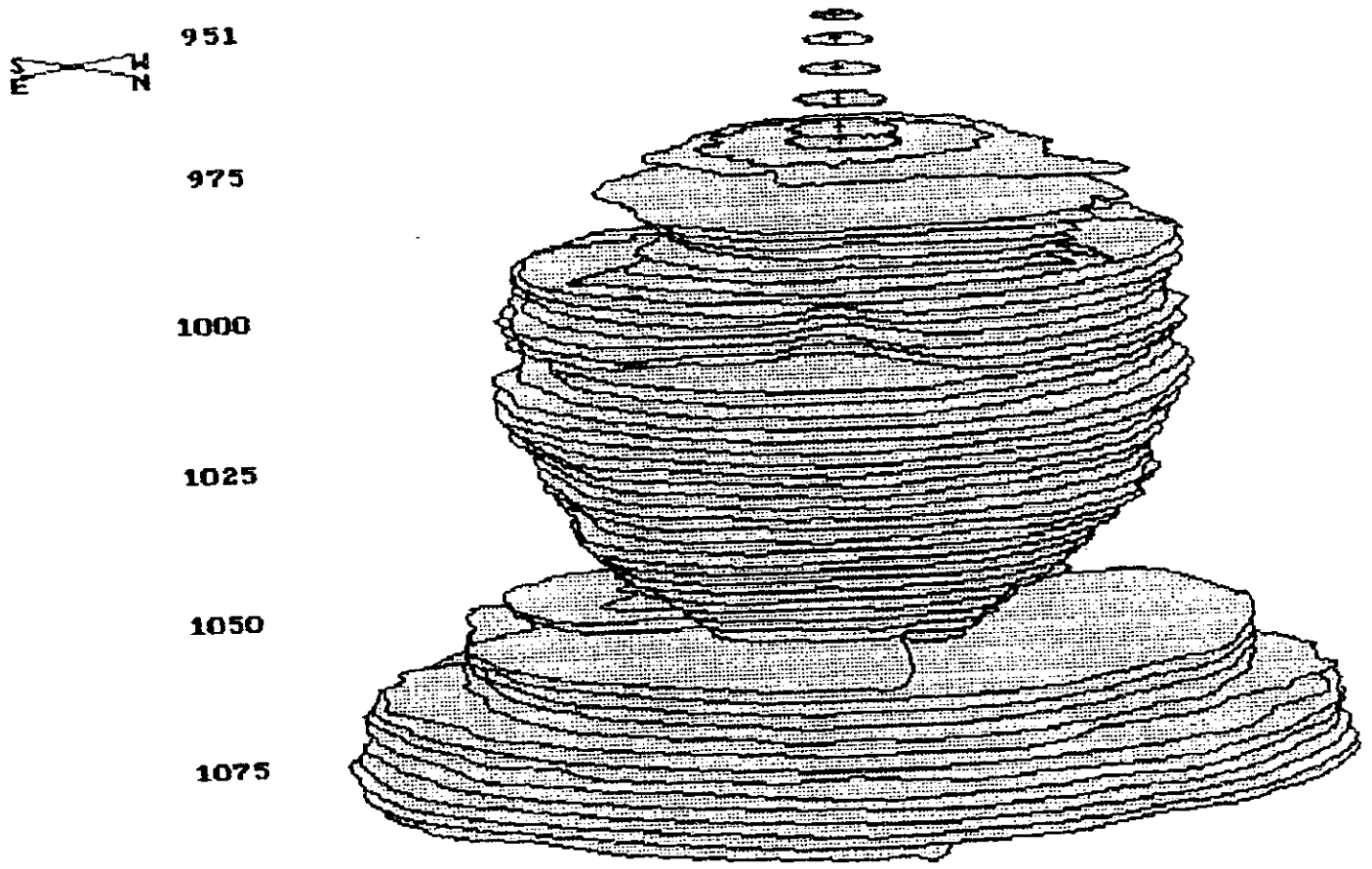

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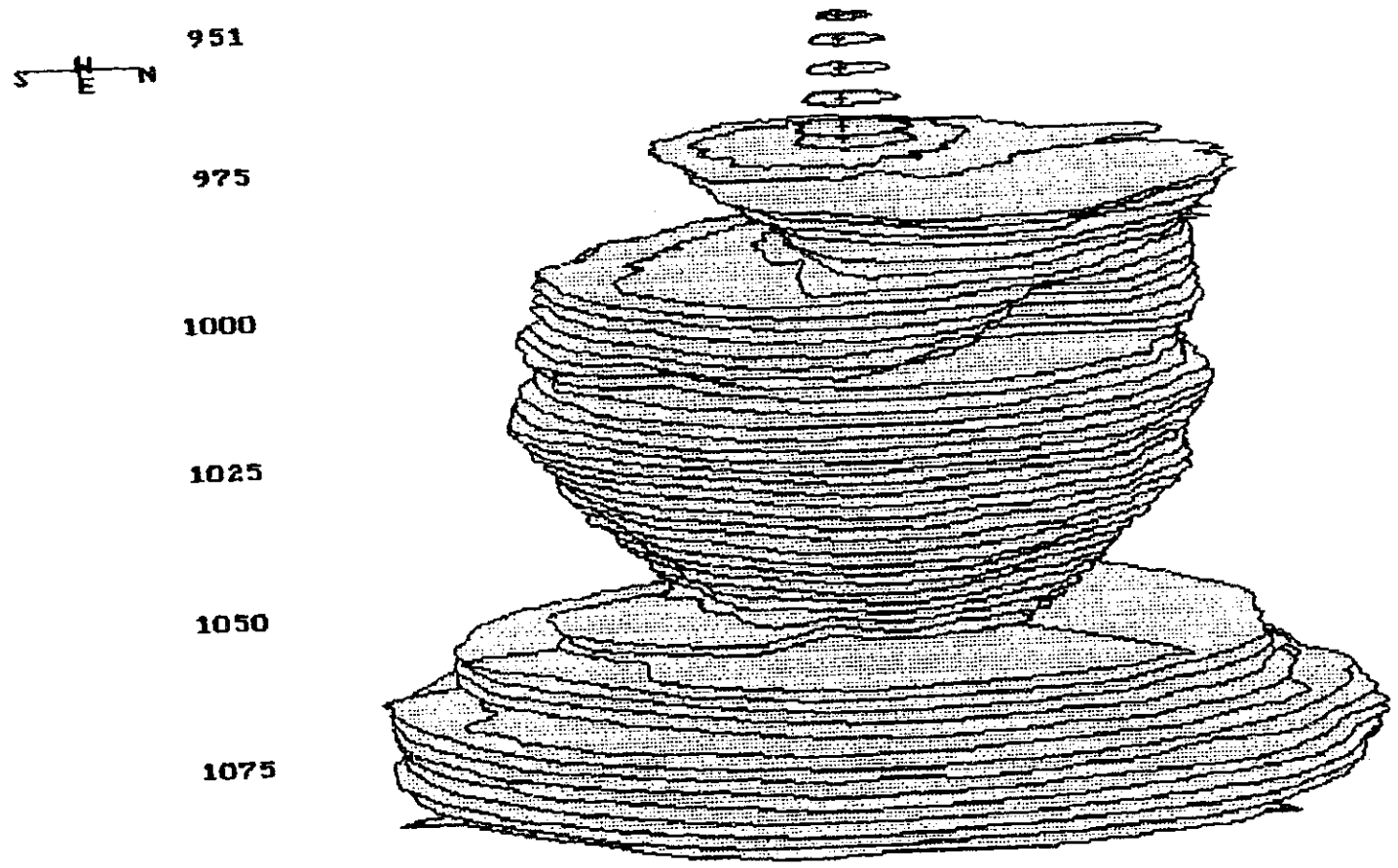

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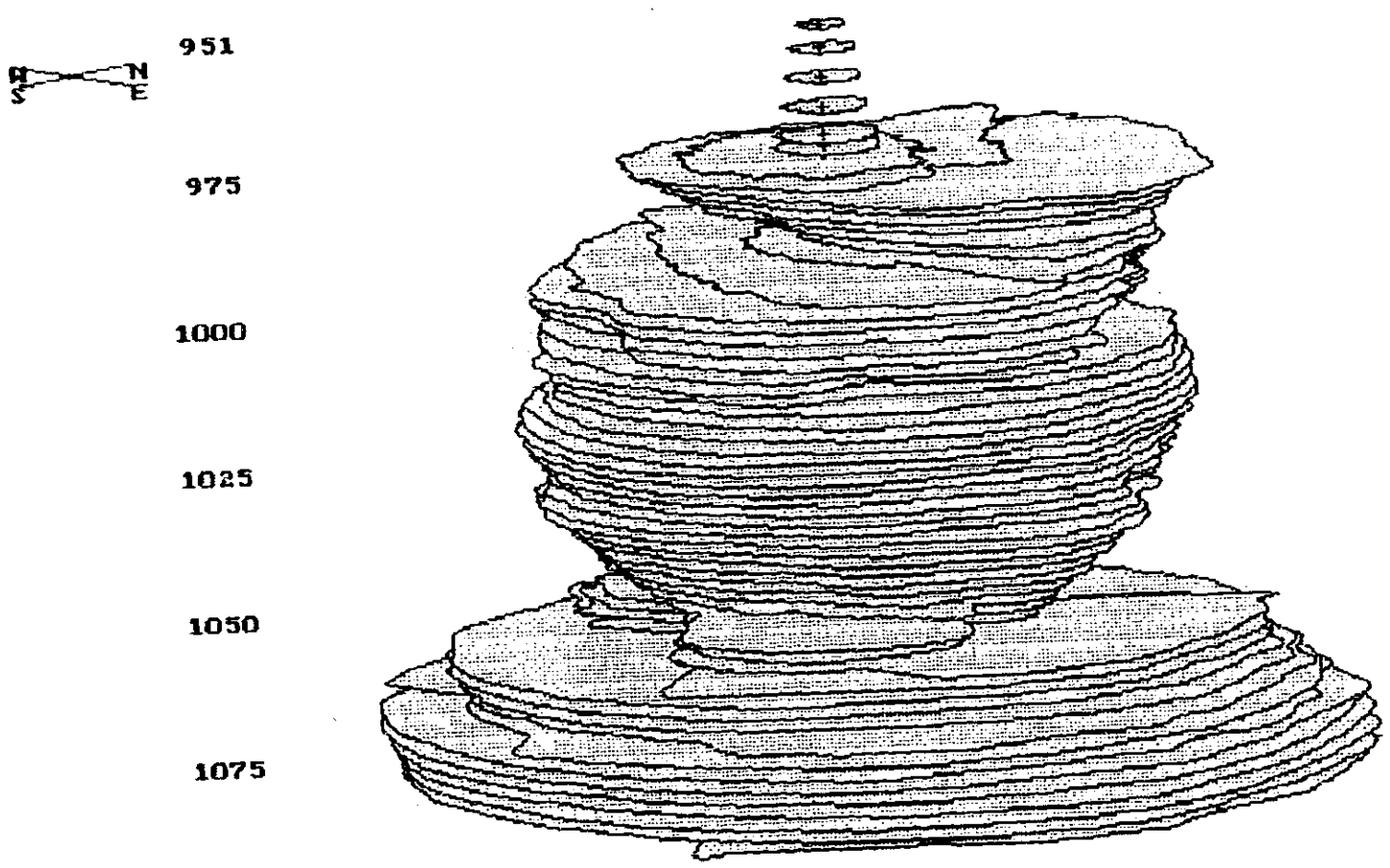

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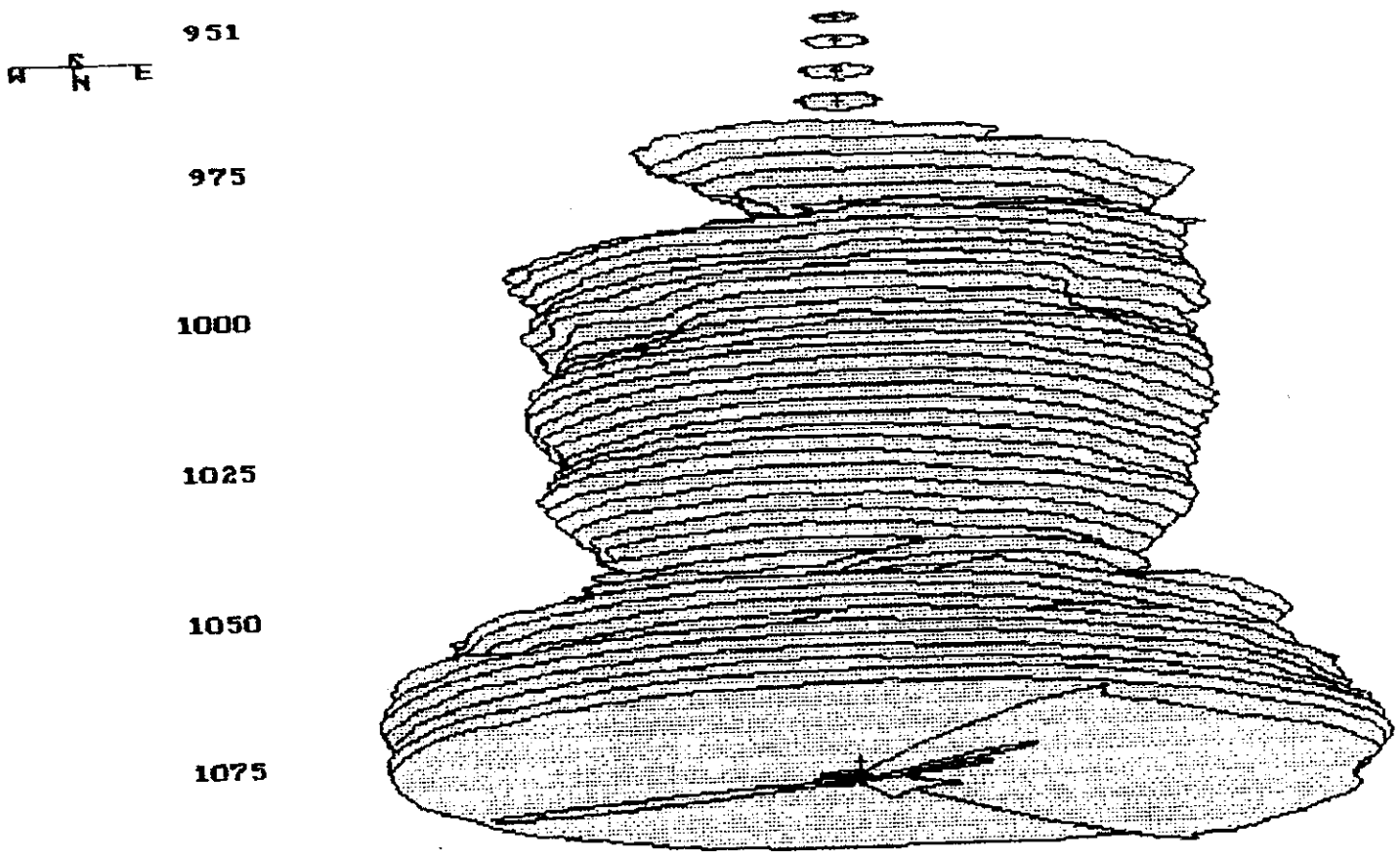

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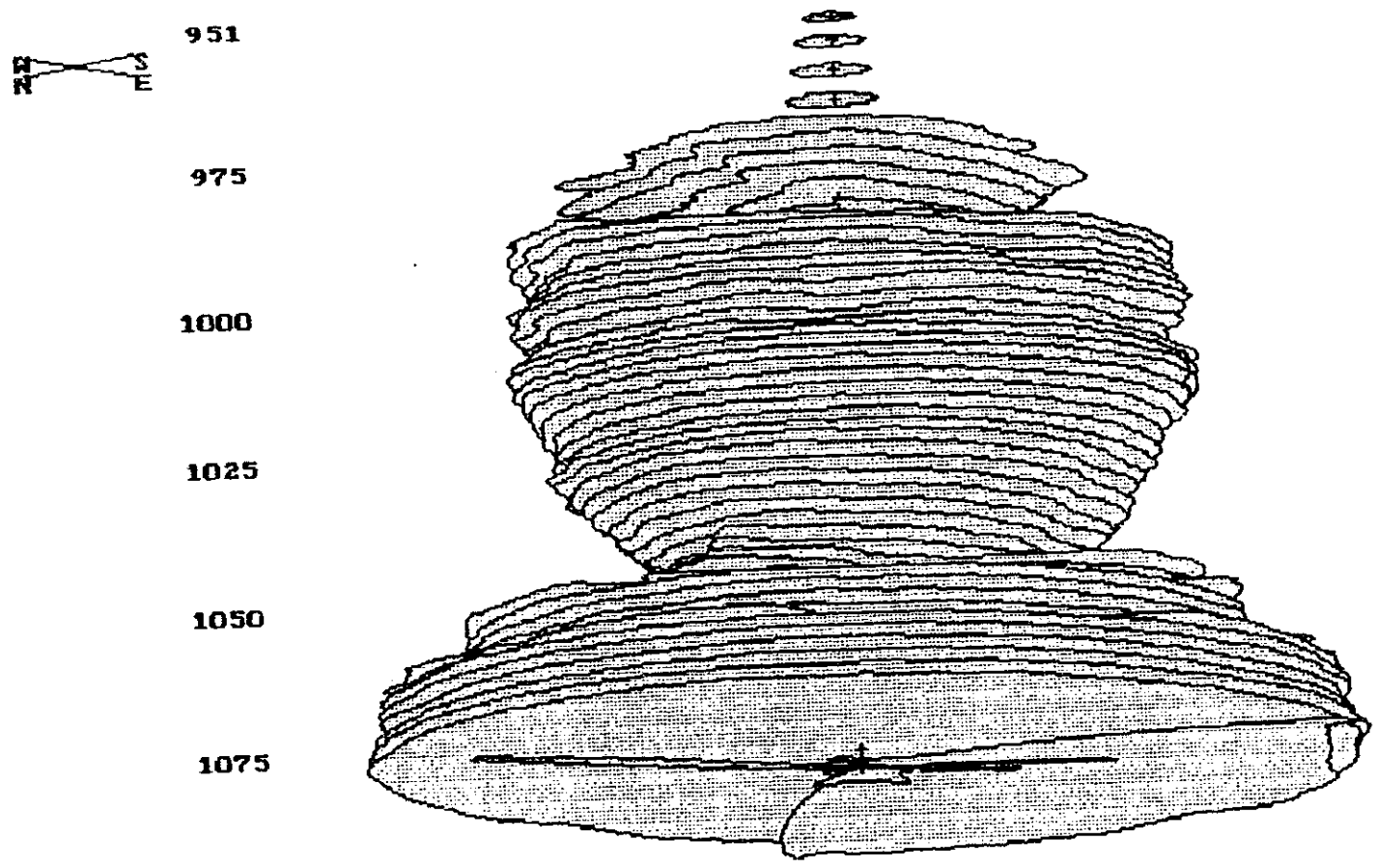

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DIGITAL SURVEYS, INC.

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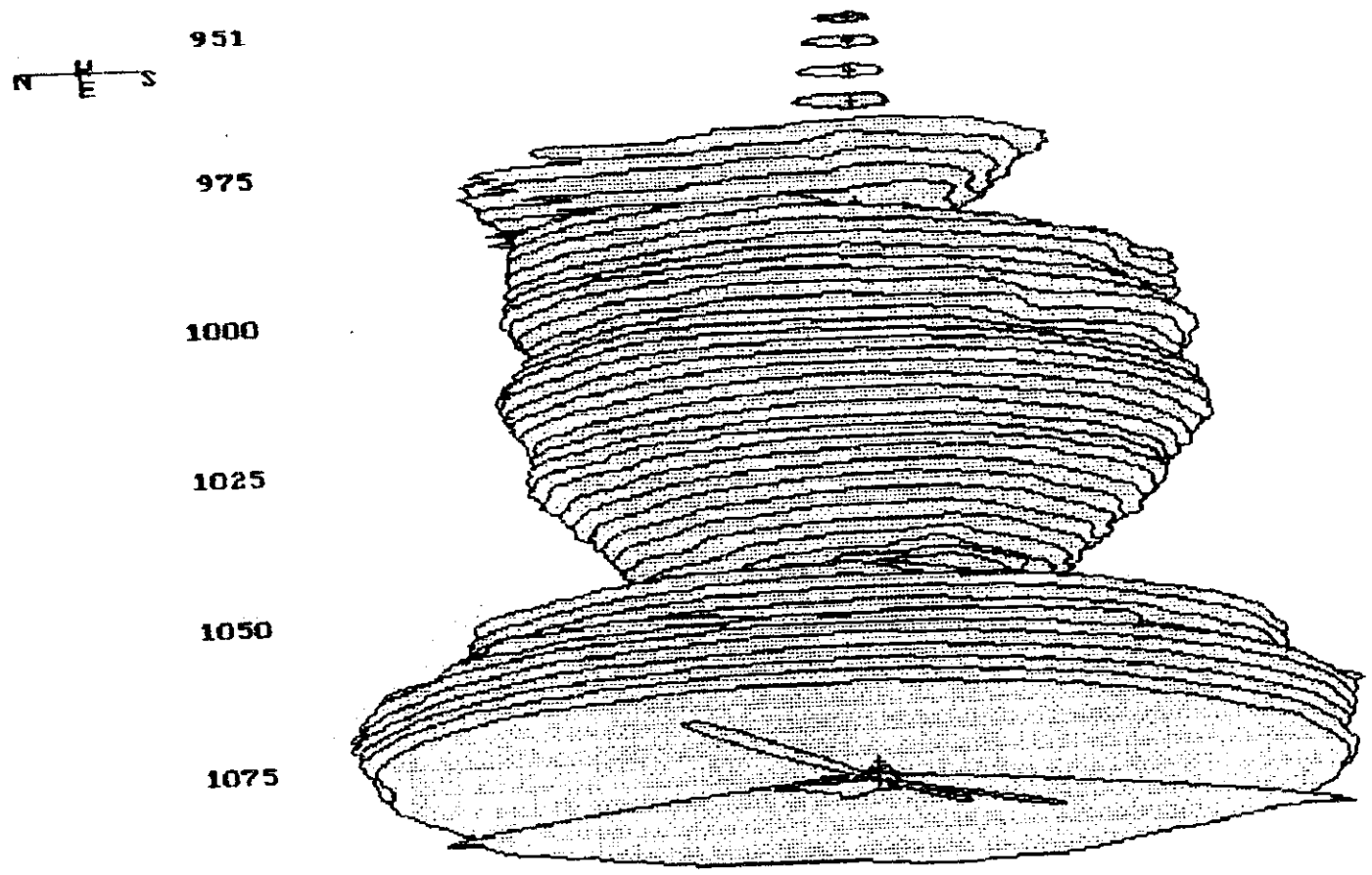

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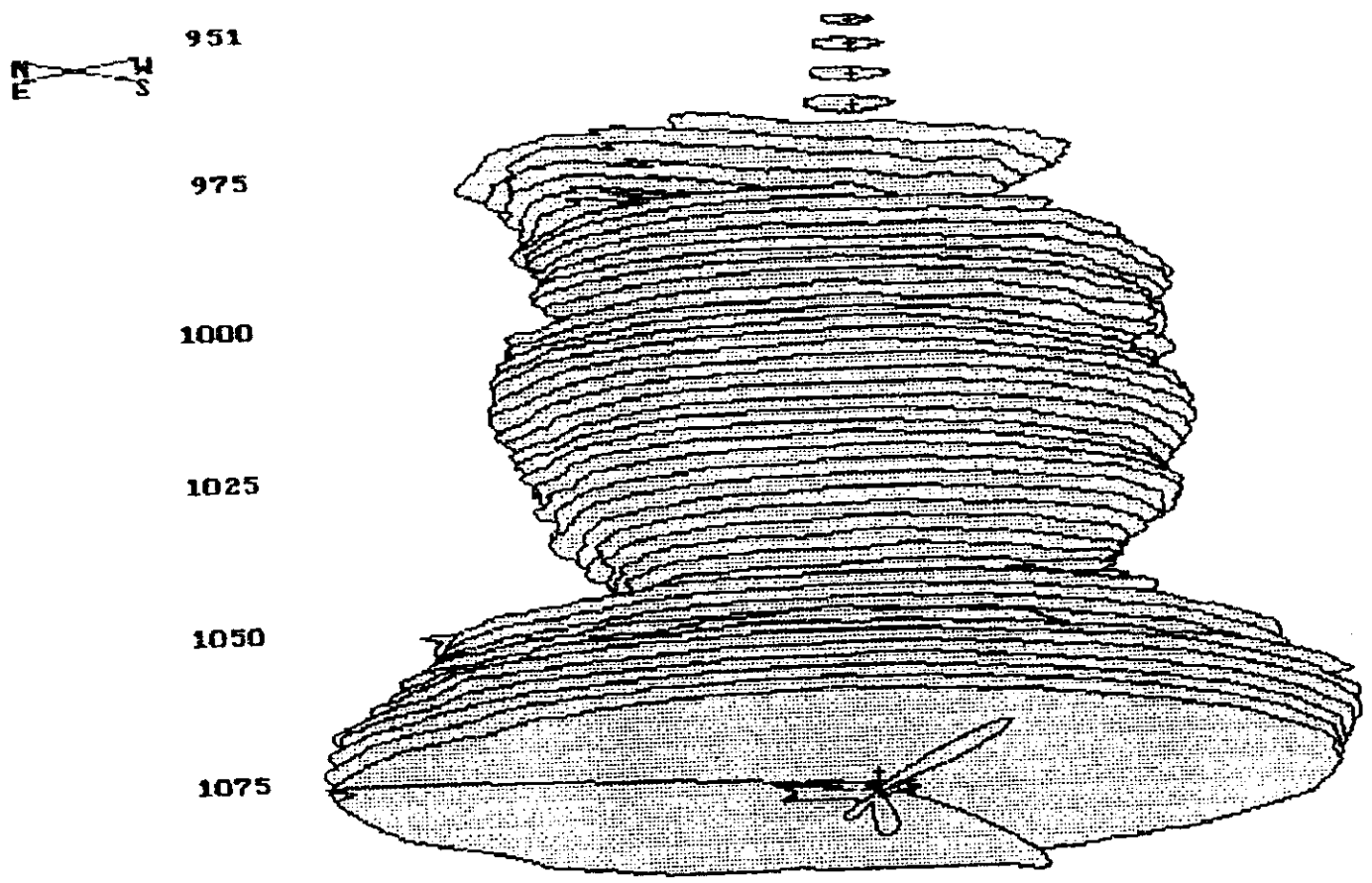

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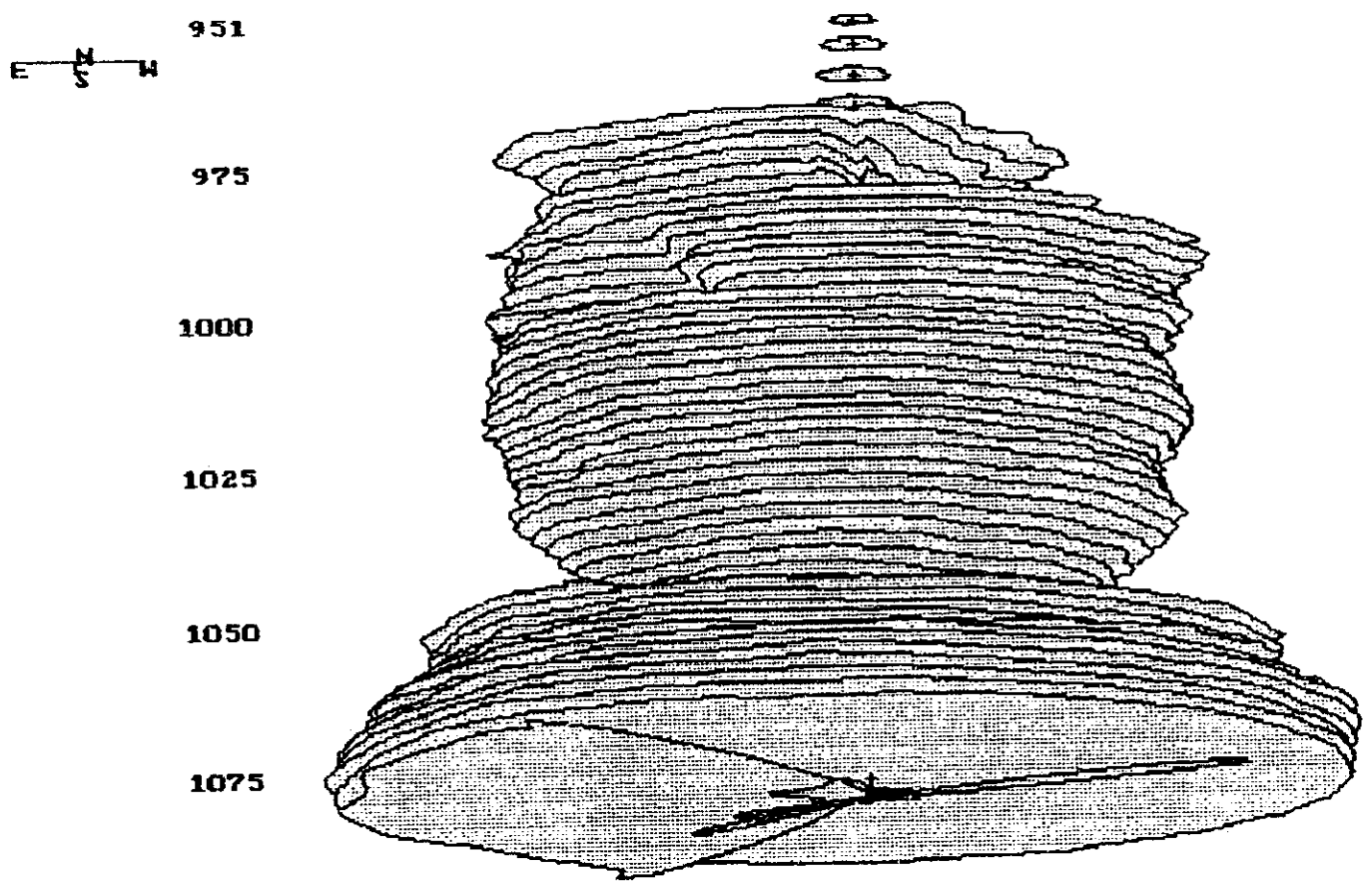

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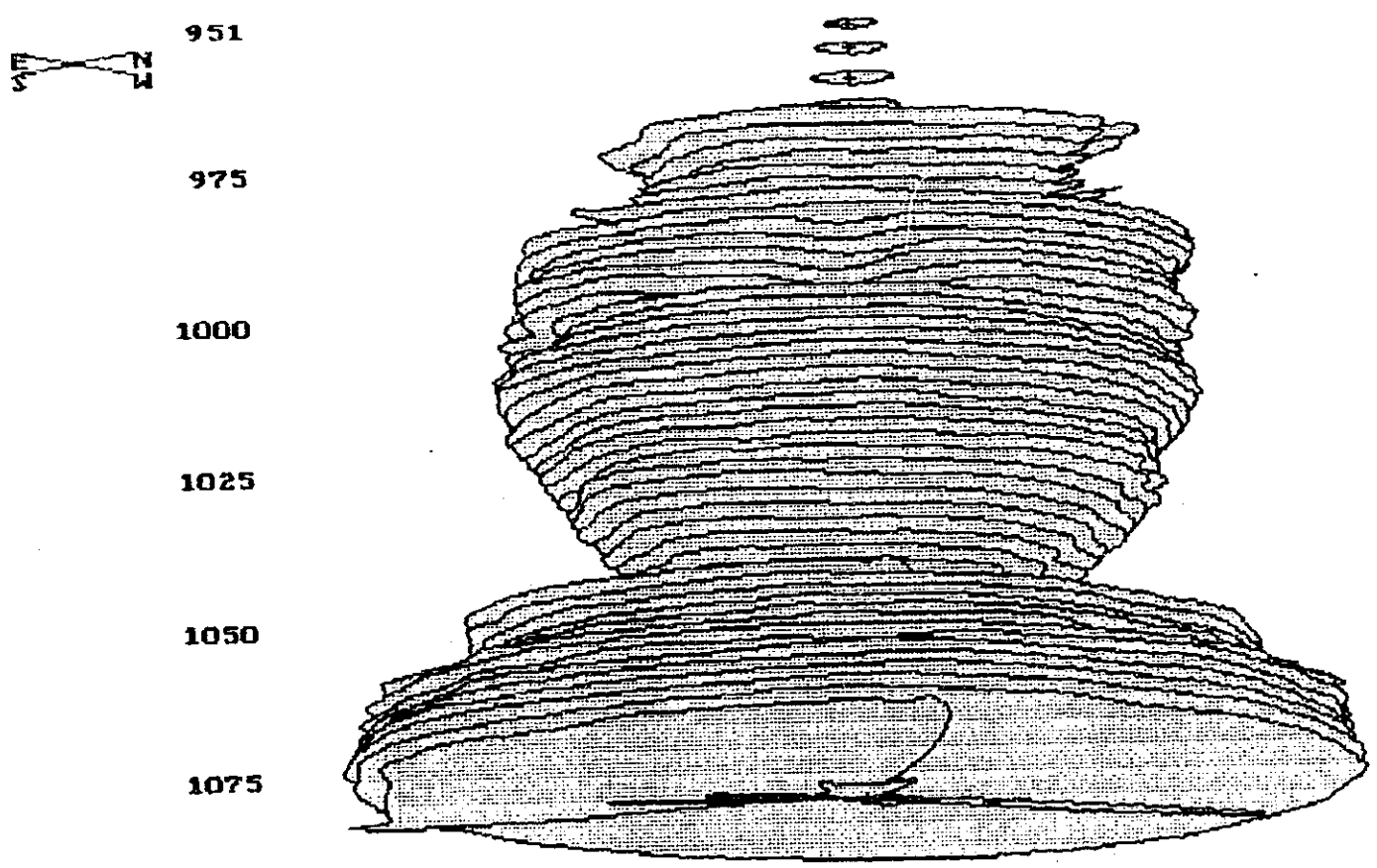

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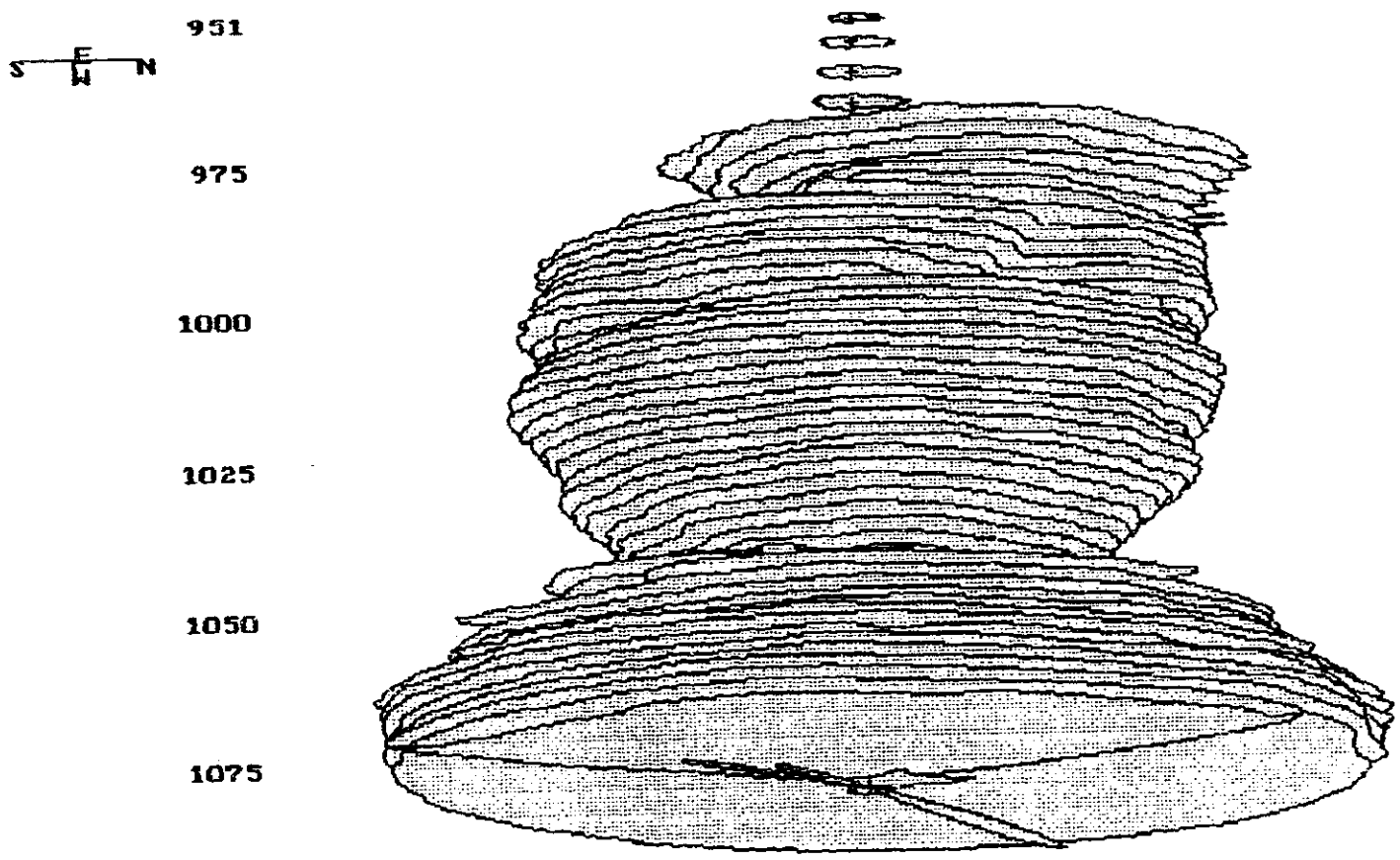

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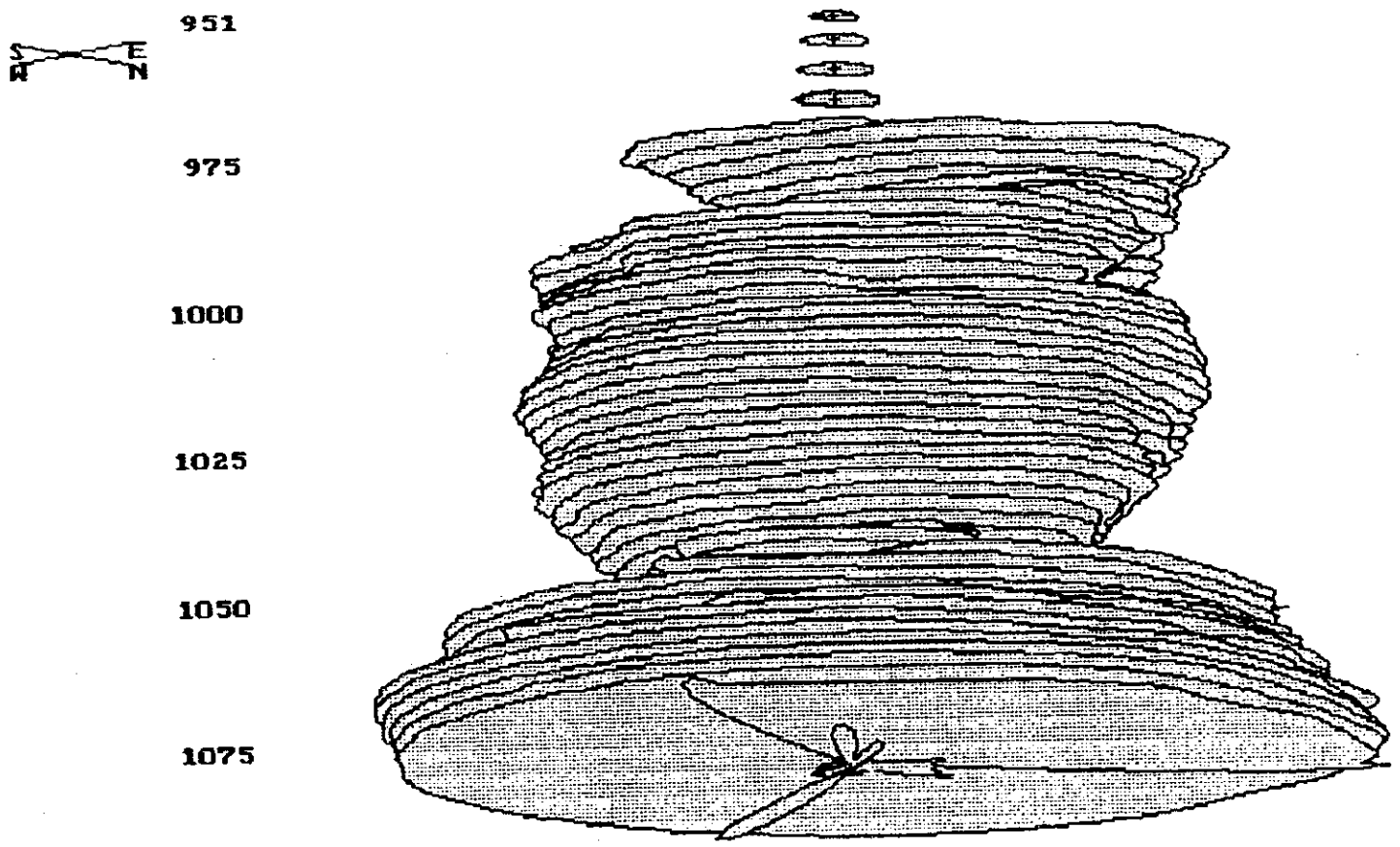


FERRELLGAS WELL 7

DOWELL

BUCKEYE GAS PRODUCTS COMPANY
WELL NO. 1
ADAMANT OCS TERMINAL
APRIL 12, 1980

SONAR CALIPER REPORT

DØWELL SØNAR CALIPER SURVEY

TREATMENT NØ: 11-42-499 JØB NØ: 381

WELL DATA

T.D. DØWELL:	1072 FT	T.D. ØPERATØR:	1076 FT
CASING SIZE:	9-5/8 IN	CASING DEPTH:	951 FT
INTERMEDIATE SIZE:	7 IN	INTER. DEPTH:	836 FT
TUBING SIZE:	4-1/2 IN	TUBING DEPTH:	ØUT

BUCKEYE GAS PRØDUCTS CØMPANY
WELL NØ. 7
ADAMANA UGS TERMINAL
APRIL 12,1980 646

GENERAL CØMMENTS:

ZERØ AT THE BHF.

7 INCH PIPE PULLED INTØ THE 9-5/8 INCH PIPE FØR SURVEY.

MAILING ADDRESS:

PØ BØX 849
HØLBRØØK, ARIZØNA
86025
ATTENTION: MR. ARMANDØ PADILLA

CUSTØMER REP:

MR. GREG GREER

DØWELL ENGINEER:

HL VAN METRE

DOWELL SONAR CALIPER SURVEY

APRIL 12,1980

BUCKEYE GAS PRODUCTS COMPANY

JOB NO: 381

WELL NO. 7 ADAMANA UGS TERMINAL

VOLUME CALCULATIONS

DEPTH	INCR CU FT	TOTAL CU FT	INCR BBLS	BBLS
951	0.	0.	0.	0.
954	7.	7.	1.	1.
958	6.	13.	1.	2.
960	6.	19.	1.	3.
964	23.	42.	4.	8.
966	31.	73.	6.	13.
967	293.	366.	52.	65.
968	1769.	2136.	315.	380.
970	8807.	10943.	1569.	1949.
972	10786.	21729.	1921.	3870.
975	11150.	32879.	1986.	5856.
978	7224.	40104.	1287.	7143.
980	4454.	44557.	793.	7936.
982	5967.	50524.	1063.	8999.
985	15982.	66506.	2847.	11845.
987	15753.	82260.	2806.	14651.
990	24865.	107125.	4429.	19080.
992	15309.	122434.	2727.	21806.
995	22572.	145006.	4020.	25827.
998	21506.	166513.	3830.	29657.
1000	14692.	181205.	2617.	32274.
1002	16051.	197256.	2859.	35133.
1005	25496.	222752.	4541.	39674.
1008	26536.	249288.	4726.	44400.
1010	17718.	267007.	3156.	47556.
1015	43088.	310095.	7674.	55230.
1020	39432.	349527.	7023.	62253.
1025	36116.	385643.	6433.	68686.
1030	33502.	419145.	5967.	74653.
1035	27404.	446549.	4881.	79534.
1040	19267.	465816.	3432.	82965.
1045	12254.	478070.	2183.	85148.
1048	4974.	483044.	886.	86034.

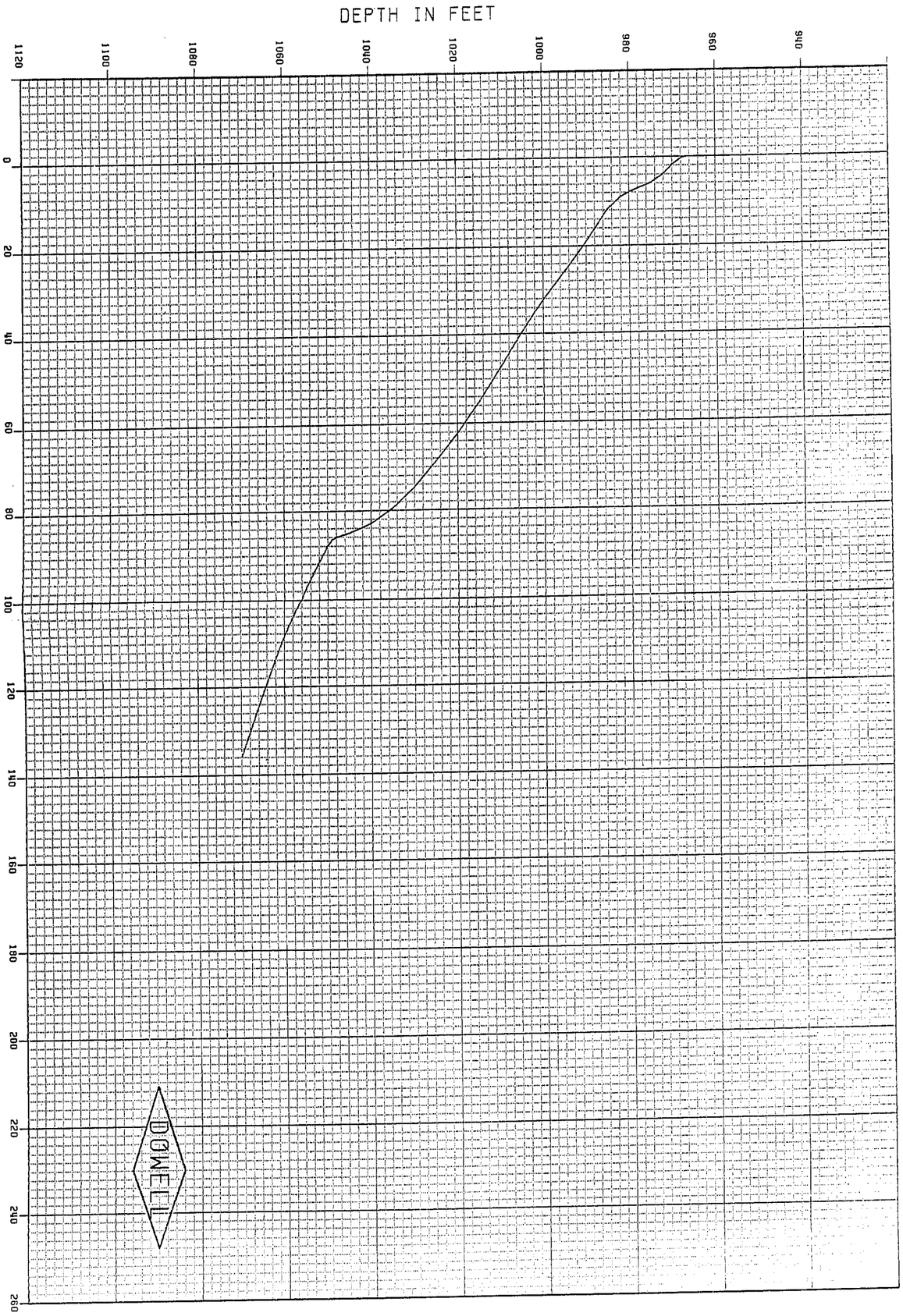
VOLUME CALCULATIONS

DEPTH	INCR CU FT	TOTAL CU FT	INCR BBLS	BBLS
1049	3070.	486115.	547.	86581.
1050	7412.	493526.	1320.	87901.
1055	53521.	547047.	9532.	97433.
1060	62924.	609971.	11207.	108640.
1065	74057.	684027.	13190.	121830.
1070	79762.	763789.	1420G.	136037.
		961771		171283

INCLUDES VOLUME
BELOW 1070

DEPTH VS. VOLUME

SOHIO PRODUCTS COMPANY
ADAMANA UGS TERMINAL
WELL NO. 7
APRIL 12,1980



DOWELL SONAR CALIPER SURVEY

BUCKEYE GAS PRODUCTS COMPANY

APRIL 12,198Ø

WELL NO. 7

JOB NO: 381

RADII IN FEET

DEPTH	ANGLE	N	S	E	W	NE	SW	SE	NW
951	9Ø	Ø.8	1.3	Ø.9	1.2	1.Ø	1.3	1.1	Ø.9
954	9Ø	Ø.7	Ø.5	Ø.8	Ø.4	1.Ø	Ø.5	Ø.7	Ø.6
958	9Ø	Ø.7	Ø.5	Ø.8	Ø.4	Ø.9	Ø.5	Ø.7	Ø.6
96Ø	9Ø	1.6	1.Ø	1.2	1.1	1.7	Ø.8	1.2	1.3
964	9Ø	1.7	Ø.9	1.7	1.Ø	1.8	Ø.9	1.4	1.3
966	9Ø	3.3	2.6	3.5	2.6	3.5	2.3	3.Ø	2.9
967	9Ø	15.2	15.1	15.7	14.6	14.1	15.1	15.3	15.1
968	9Ø	28.8	29.5	47.7	3Ø.3	23.4	28.6	31.6	31.5
97Ø	9Ø	61.8	28.1	46.9	29.8	63.6	29.5	29.6	31.1
972	9Ø	61.9	21.4	43.6	26.Ø	62.9	25.4	27.8	27.7
975	9Ø	31.5	15.1	34.9	17.1	45.8	2Ø.4	2Ø.2	14.5
978	9Ø	58.3	1Ø.4	3Ø.1	7.5	44.3	5.2	17.Ø	1Ø.7
98Ø	9Ø	57.2	4.1	29.9	3.6	44.9	2.1	9.1	7.9
982	9Ø	49.8	6.Ø	49.4	9.4	44.6	6.Ø	11.2	52.5
985	9Ø	56.7	25.9	56.4	48.9	56.2	28.9	48.9	5Ø.5
987	9Ø	57.9	47.6	56.Ø	51.7	57.4	44.8	52.7	55.Ø
99Ø	9Ø	57.1	47.8	55.6	44.2	46.9	45.3	52.Ø	41.3
992	9Ø	56.2	47.4	54.6	43.4	41.2	42.9	53.Ø	51.8
995	9Ø	56.8	47.8	55.2	49.9	34.3	44.9	51.6	52.Ø
998	9Ø	53.7	47.6	49.8	49.3	32.Ø	4Ø.5	52.5	51.8
1ØØØ	9Ø	52.1	48.4	55.Ø	44.8	56.6	38.5	49.Ø	52.6
1ØØ2	9Ø	51.6	51.2	57.1	43.5	56.3	35.5	55.5	51.4
1ØØ5	9Ø	55.8	5Ø.9	57.4	47.8	55.3	47.8	54.8	51.8
1ØØ8	9Ø	55.5	5Ø.6	57.2	47.8	55.4	48.Ø	55.9	5Ø.3
1Ø1Ø	9Ø	56.8	51.4	58.3	48.2	57.3	5Ø.1	55.4	49.8
1Ø15	9Ø	53.5	52.4	53.4	48.6	52.6	48.7	54.3	51.1
1Ø2Ø	9Ø	5Ø.6	47.2	53.4	44.3	5Ø.6	45.3	49.3	48.3
1Ø25	9Ø	49.5	45.Ø	51.1	43.9	47.8	47.2	46.9	44.5
1Ø3Ø	9Ø	44.8	41.8	53.5	42.1	45.9	46.7	42.8	41.3
1Ø35	9Ø	38.4	34.7	47.9	35.3	39.6	37.5	35.3	36.1
1Ø4Ø	9Ø	3Ø.6	28.1	39.3	29.6	31.7	31.6	29.7	29.8
1Ø45	9Ø	22.3	17.3	32.7	23.7	26.7	24.6	21.1	22.2

RADII IN FEET

DEPTH	ANGLE	N	S	E	W	NE	SW	SE	NW
1Ø48	9Ø	21.8	14.9	3Ø.3	21.1	25.6	21.1	16.4	19.4
1Ø49	9Ø	6Ø.5	14.7	61.4	21.Ø	6Ø.9	21.2	16.5	19.4
1Ø5Ø	9Ø	59.4	55.7	6Ø.Ø	53.5	59.5	52.8	58.Ø	54.7
1Ø55	9Ø	65.2	56.8	68.7	53.9	69.3	53.4	56.6	54.8
1Ø6Ø	9Ø	69.5	62.9	7Ø.3	61.7	71.4	62.1	68.3	65.4
1Ø65	9Ø	75.3	66.4	77.3	65.5	75.Ø	64.7	71.2	68.7
1Ø7Ø	9Ø	74.4	67.2	78.1	67.6	76.Ø	66.7	74.7	71.4

RADII IN FEET

DEPTH	ANGLE	N	S	E	W	NE	SW	SE	NW
1Ø55	1Ø5	78.3	73.8	81.6	75.3	84.Ø	73.3	79.4	78.5
1Ø55	11Ø	69.Ø	71.9	7Ø.2	74.9	71.4	73.8	7Ø.1	68.8
1Ø55	115	63.4	59.7	63.9	61.4	63.8	59.1	63.7	62.6
1Ø55	12Ø	66.7	58.3	6Ø.7	58.5	6Ø.9	56.8	59.8	59.9
1Ø55	125	59.7	53.5	49.4	56.1	56.4	54.1	56.Ø	56.5
1Ø55	13Ø	54.3	49.9	38.2	43.9	38.9	44.9	52.9	43.1
1Ø55	135	42.9	42.6	35.2	35.7	34.6	34.1	48.8	43.9
1Ø55	14Ø	34.Ø	32.5	29.4	29.9	3Ø.9	26.7	37.Ø	33.9
1Ø55	145	31.5	29.8	28.7	26.1	3Ø.1	24.7	29.7	31.5
1Ø55	15Ø	28.Ø	26.1	28.2	26.7	28.7	24.Ø	26.8	28.1
1Ø55	155	27.4	24.1	26.6	22.3	27.3	23.6	25.5	26.7
1Ø55	16Ø	25.9	23.1	25.2	21.3	24.9	22.5	24.9	22.9
1Ø55	165	24.3	23.1	23.1	2Ø.4	23.3	22.5	22.5	22.4
1Ø55	17Ø	21.8	21.6	2Ø.9	2Ø.3	21.5	22.3	21.3	2Ø.6
1Ø55	175	2Ø.5	21.2	2Ø.7	2Ø.8	2Ø.4	2Ø.9	21.Ø	2Ø.5
1Ø55	179	17.Ø	17.Ø	17.Ø	17.Ø	17.Ø	17.Ø	17.Ø	17.Ø

✓ max radius

DOWELL SONAR CALIPER SURVEY

BUCKEYE GAS PRODUCTS COMPANY

APRIL 12,1980

WELL NO. 7

JOB NO: 381

RADII IN FEET

DEPTH	ANGLE	N	S	E	W	NE	SW	SE	NW
951	90	0.8	1.3	0.9	1.2	1.0	1.3	1.1	0.9
954	90	0.7	0.5	0.8	0.4	1.0	0.5	0.7	0.6
958	90	0.7	0.5	0.8	0.4	0.9	0.5	0.7	0.6
960	90	1.6	1.0	1.2	1.1	1.7	0.8	1.2	1.3
964	90	1.7	0.9	1.7	1.0	1.8	0.9	1.4	1.3
966	90	3.3	2.6	3.5	2.6	3.5	2.3	3.0	2.9
967	90	15.2	15.1	15.7	14.6	14.1	15.1	15.3	15.1
968	90	28.8	29.5	47.7	30.3	23.4	28.6	31.6	31.5
970	90	61.8	28.1	46.9	29.8	63.6	29.5	29.6	31.1
972	90	61.9	21.4	43.6	26.0	62.9	25.4	27.8	27.7
975	90	31.5	15.1	34.9	17.1	45.8	20.4	20.2	14.5
978	90	58.3	10.4	30.1	7.5	44.3	5.2	17.0	10.7
980	90	57.2	4.1	29.9	3.6	44.9	2.1	9.1	7.9
982	90	49.8	6.0	49.4	9.4	44.6	6.0	11.2	52.5
985	90	56.7	25.9	56.4	48.9	56.2	28.9	48.9	50.5
987	90	57.9	47.6	56.0	51.7	57.4	44.8	52.7	55.0
990	90	57.1	47.8	55.6	44.2	46.9	45.3	52.0	41.3
992	90	56.2	47.4	54.6	43.4	41.2	42.9	53.0	51.8
995	90	56.8	47.8	55.2	49.9	34.3	44.9	51.6	52.0
998	90	53.7	47.6	49.8	49.3	32.0	40.5	52.5	51.8
1000	90	52.1	48.4	55.0	44.8	56.6	38.5	49.0	52.6
1002	90	51.6	51.2	57.1	43.5	56.3	35.5	55.5	51.4
1005	90	55.8	50.9	57.4	47.8	55.3	47.8	54.8	51.8
1008	90	55.5	50.6	57.2	47.8	55.4	48.0	55.9	50.3
1010	90	56.8	51.4	58.3	48.2	57.3	50.1	55.4	49.8
1015	90	53.5	52.4	53.4	48.6	52.6	48.7	54.3	51.1
1020	90	50.6	47.2	53.4	44.3	50.6	45.3	49.3	48.3
1025	90	49.5	45.0	51.1	43.9	47.8	47.2	46.9	44.5
1030	90	44.8	41.8	53.5	42.1	45.9	46.7	42.8	41.3
1035	90	38.4	34.7	47.9	35.3	39.6	37.5	35.3	36.1
1040	90	30.6	28.1	39.3	29.6	31.7	31.6	29.7	29.8
1045	90	22.3	17.3	32.7	23.7	26.7	24.6	21.1	22.2

RADII IN FEET

DEPTH	ANGLE	N	S	E	W	NE	SW	SE	NW
1Ø48	9Ø	21.8	14.9	3Ø.3	21.1	25.6	21.1	16.4	19.4
1Ø49	9Ø	6Ø.6	14.7	61.4	21.Ø	6Ø.9	21.2	16.5	19.4
1Ø5Ø	9Ø	59.4	55.7	6Ø.Ø	53.5	59.5	52.8	58.Ø	54.7
1Ø55	9Ø	65.2	56.8	68.7	53.9	69.3	53.4	56.6	54.8
1Ø6Ø	9Ø	69.5	62.9	7Ø.3	61.7	71.4	62.1	68.3	65.4
1Ø65	9Ø	75.3	66.4	77.3	65.5	75.Ø	64.7	71.2	68.7
1Ø7Ø	9Ø	74.4	67.2	78.1	67.6	76.Ø	66.7	74.7	71.4

RADII IN FEET

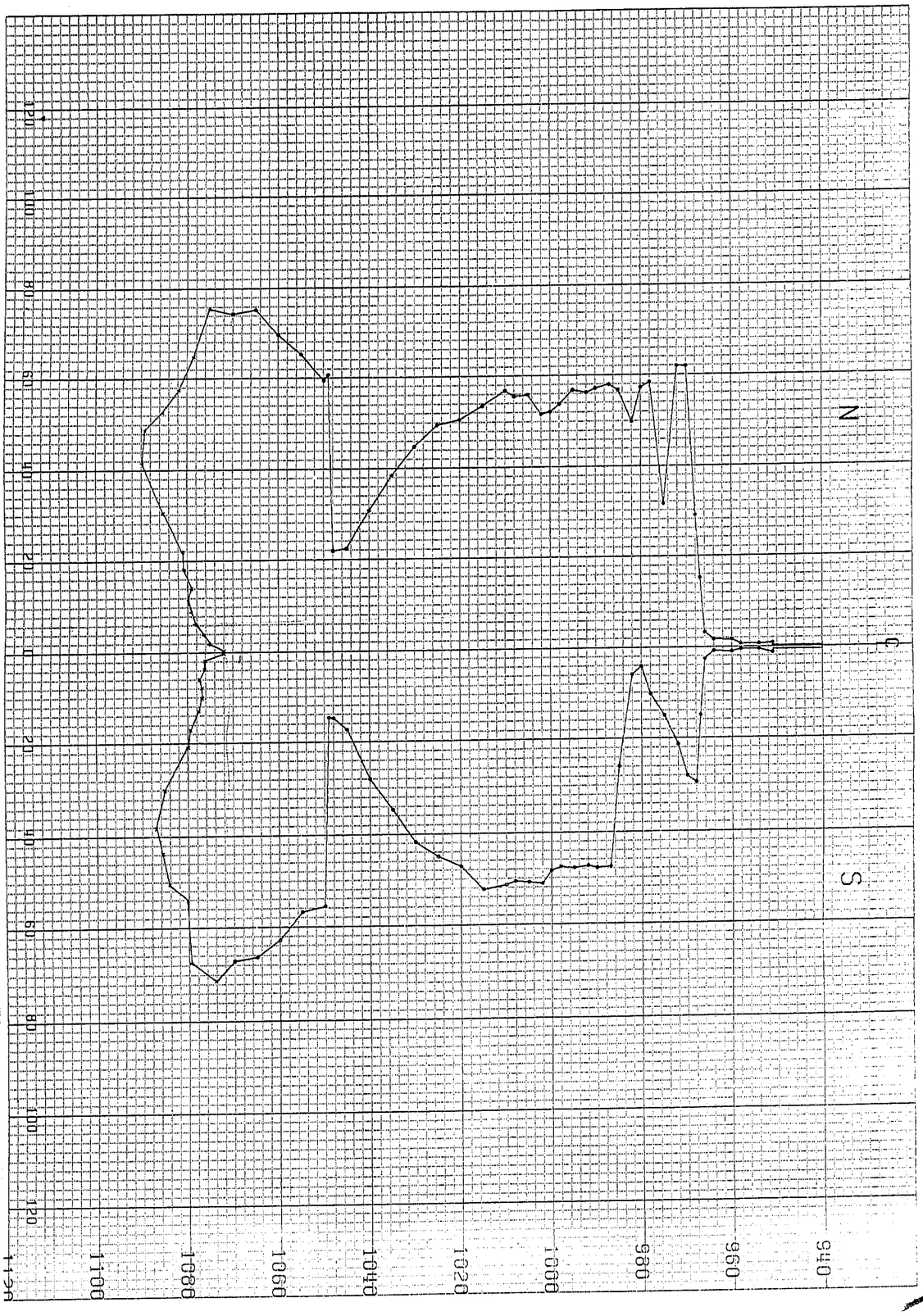
DEPTH	ANGLE	N	S	E	W	NE	SW	SE	NW
1Ø55	1Ø5	78.3	73.8	81.6	75.3	84.Ø	73.3	79.4	78.5
1Ø55	11Ø	69.Ø	71.9	7Ø.2	74.9	71.4	73.8	7Ø.1	68.8
1Ø55	115	63.4	59.7	63.9	61.4	63.8	59.1	63.7	62.6
1Ø55	12Ø	6Ø.7	58.3	6Ø.7	58.5	6Ø.9	56.8	59.8	59.9
1Ø55	125	59.7	53.5	49.4	56.1	56.4	54.1	56.Ø	56.5
1Ø55	13Ø	54.3	49.9	38.2	43.9	38.9	44.9	52.9	43.1
1Ø55	135	42.9	42.6	35.2	35.7	34.6	34.1	48.8	43.9
1Ø55	14Ø	34.Ø	32.5	29.4	29.9	3Ø.9	26.7	37.Ø	33.9
1Ø55	145	31.5	29.8	28.7	26.1	3Ø.1	24.7	29.7	31.5
1Ø55	15Ø	28.Ø	26.1	28.2	26.7	28.7	24.Ø	26.8	28.1
1Ø55	155	27.4	24.1	26.6	22.3	27.3	23.6	25.5	26.7
1Ø55	16Ø	25.9	23.1	25.2	21.3	24.9	22.5	24.9	22.9
1Ø55	165	24.3	23.1	23.1	2Ø.4	23.3	22.5	22.5	22.4
1Ø55	17Ø	21.8	21.6	2Ø.9	2Ø.3	21.5	22.3	21.3	2Ø.6
1Ø55	175	2Ø.5	21.2	2Ø.7	2Ø.8	2Ø.4	2Ø.9	21.Ø	2Ø.5
1Ø55	179	17.Ø	17.Ø	17.Ø	17.Ø	17.Ø	17.Ø	17.Ø	17.Ø

✓ max radius

22-APR-80 18:08:10

VERTICAL CROSS SECTION

BUCKEYE GAS PRODUCTS COMPANY
ADAMANA UGS TERMINAL
WELL NO. 7
APRIL 12,1980
SCALE: 1 IN. = 20 FEET



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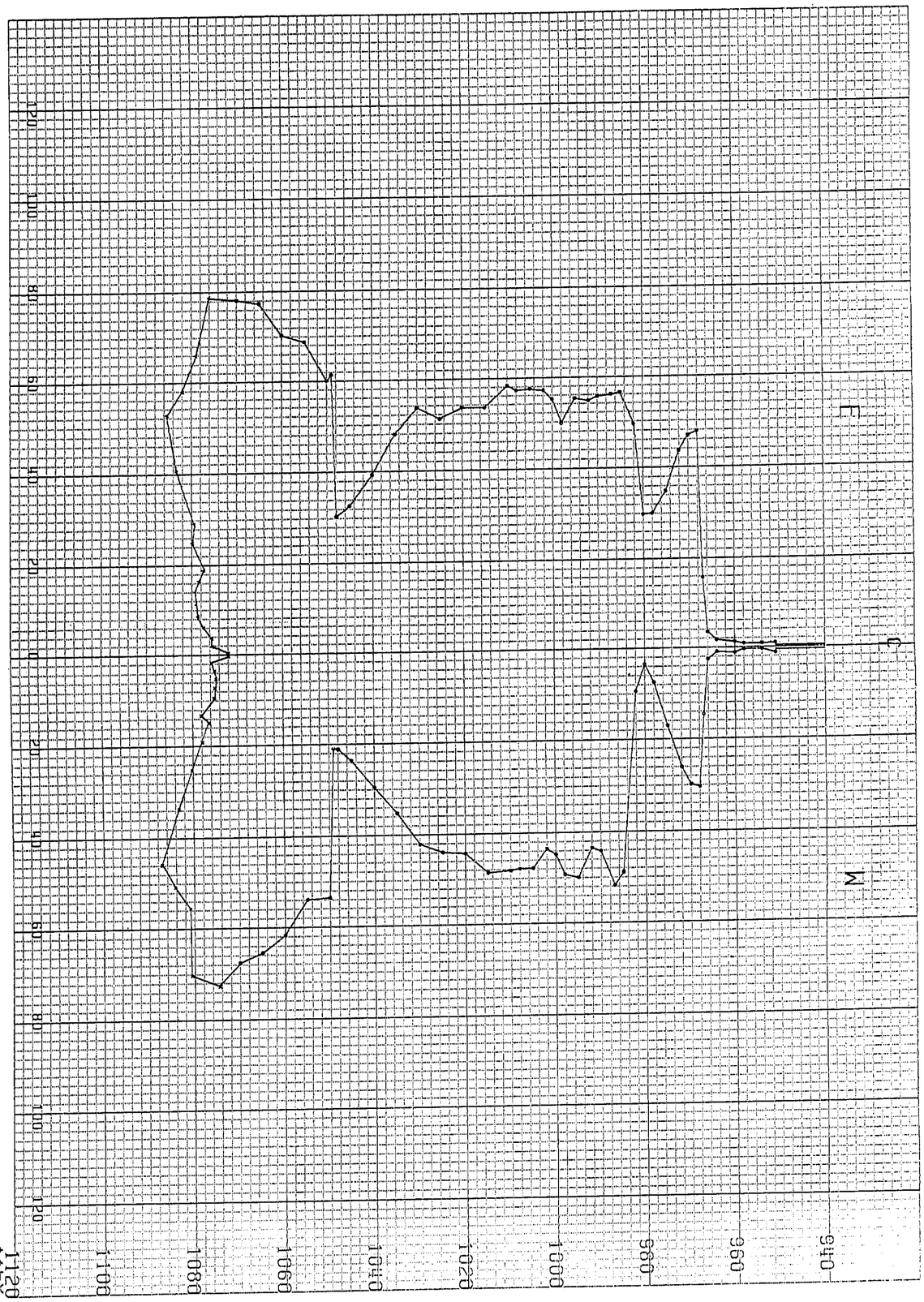
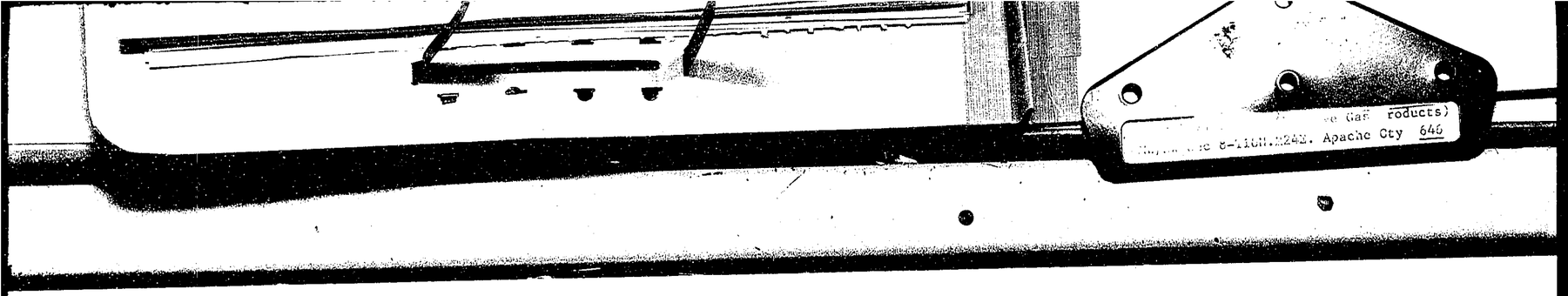
VERTICAL CROSS SECTION

BUCKEYE GAS PRODUCTS COMPANY
ADAMANA UGS TERMINAL
WELL NO. 7
APRIL 12,1980
SCALE: 1 IN. = 20 FEET

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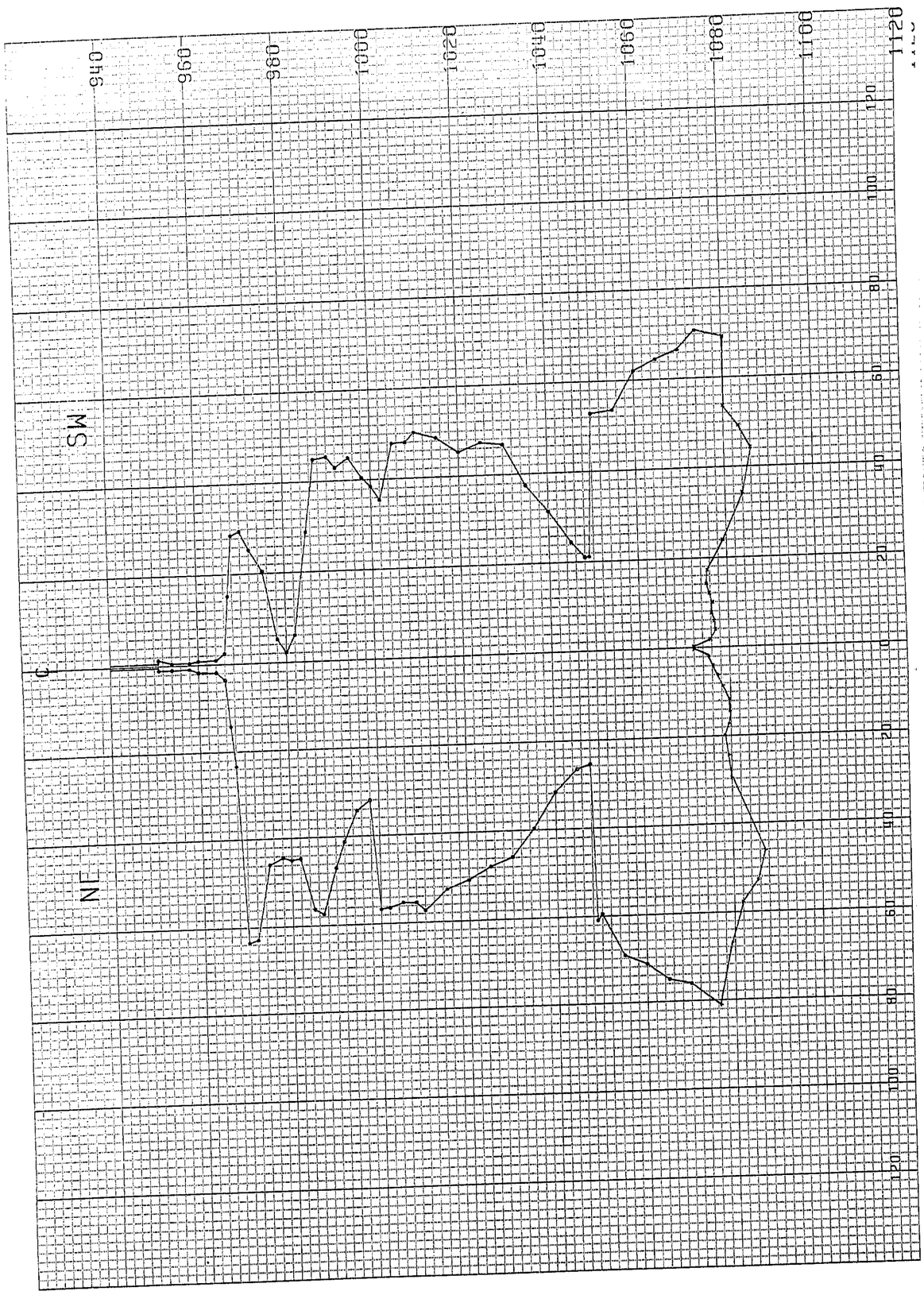
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ADAMANA UGS TERMINAL
WELL NO. 7
APRIL 12,1980
SCALE: 1 IN. = 20 FEET
S
N
0
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60
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120
940
960
980
1000
1020
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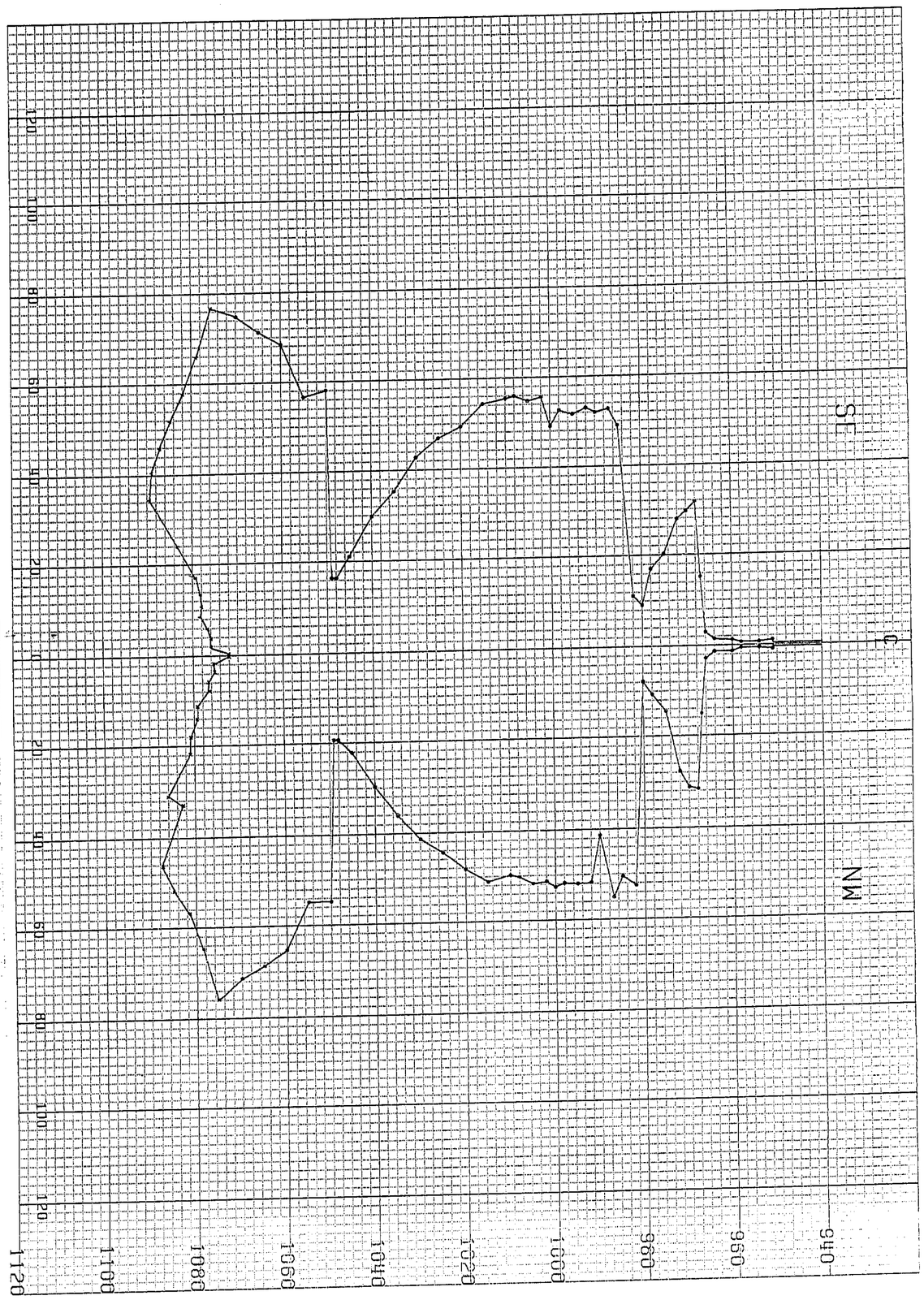
1080
1100
1120

22-APR-80 16:16:48

VERTICAL CROSS SECTION

BUCKEYE GAS PRODUCTS COMPANY
ADAMANA UGS TERMINAL
WELL NO. 7
APRIL 12,1980
SCALE: 1 IN. = 20 FEET



ADAMANA UGS TERMINAL
WELL NO. 7
APRIL 12,1980

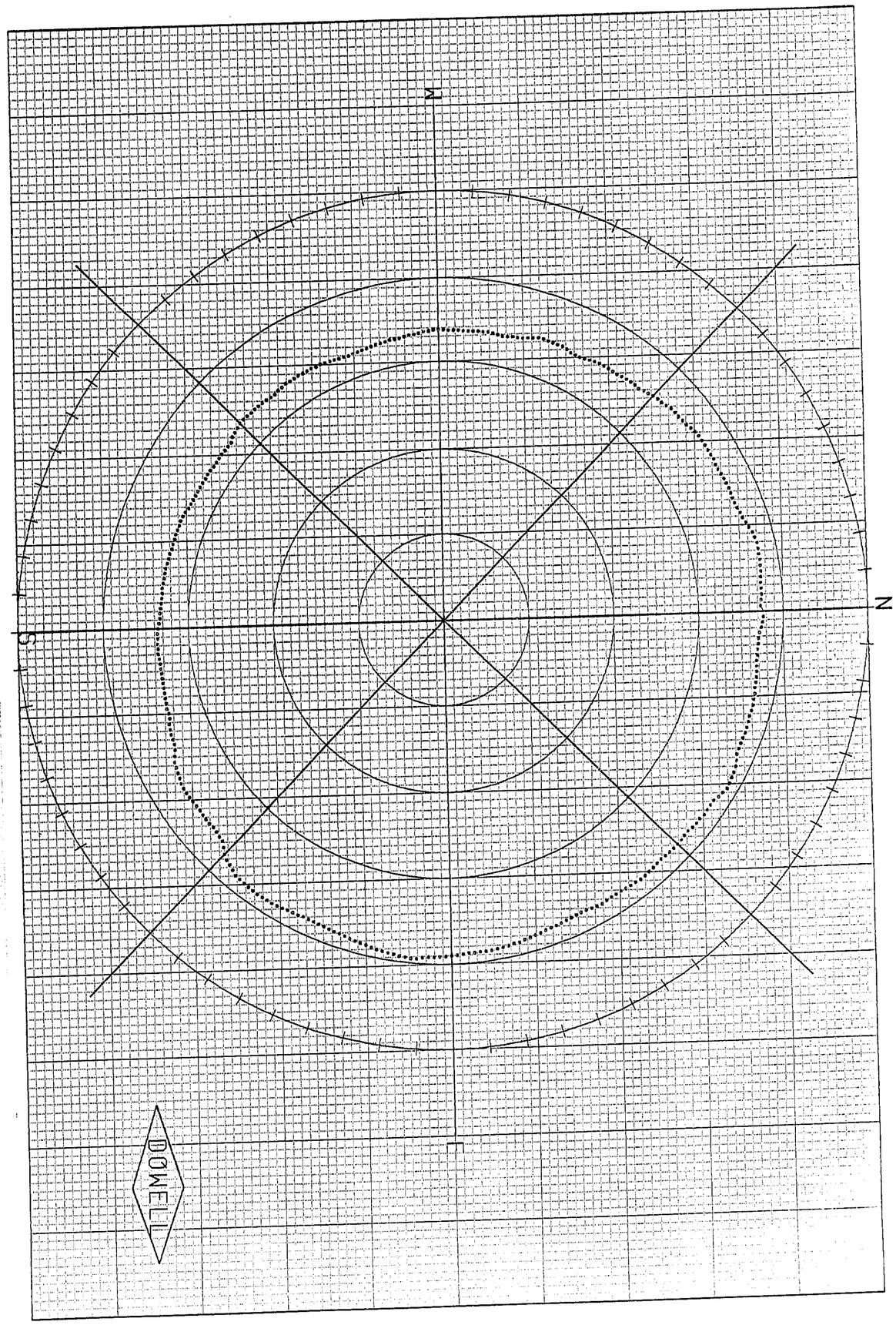
MAX RADII REPORT

FROM DEPTH= 950
THRU DEPTH= 1100

AZM	RANGE	DEPTH	AZM	RANGE	DEPTH	AZM	RANGE	DEPTH	AZM	RANGE	DEPTH	AZM	RANGE	DEPTH	AZM	RANGE	DEPTH	AZM	RANGE	DEPTH	AZM	RANGE	DEPTH
0	75.3	1065	45	76.0	1070	90	78.1	1070	135	74.7	1070	180	67.2	1070	225	66.7	1070	270	67.6	1070	315	71.4	1070
1	75.3	1065	46	76.0	1070	91	78.2	1070	136	73.7	1070	181	66.9	1070	226	66.6	1070	271	67.5	1070	316	71.6	1070
2	75.2	1065	47	76.1	1070	92	78.3	1070	137	72.8	1070	182	66.7	1070	227	66.5	1070	272	67.4	1070	317	71.7	1070
3	74.9	1065	48	76.0	1070	93	78.4	1070	138	72.6	1070	183	66.7	1070	228	66.4	1070	273	67.4	1070	318	71.9	1070
4	74.6	1065	49	75.8	1070	94	78.4	1070	139	72.3	1070	184	66.6	1070	229	66.5	1070	274	67.4	1070	319	72.4	1070
5	74.4	1070	50	76.0	1070	95	78.6	1070	140	72.2	1070	185	66.6	1070	230	66.4	1070	275	67.3	1070	320	72.4	1070
6	74.4	1070	51	76.1	1070	96	78.9	1070	141	72.3	1070	186	66.5	1070	231	66.4	1070	276	67.3	1070	321	72.4	1070
7	74.3	1070	52	76.1	1070	97	79.0	1070	142	72.3	1070	187	66.5	1070	232	66.2	1070	277	67.4	1070	322	72.6	1070
8	74.4	1070	53	76.3	1070	98	78.8	1070	143	72.2	1070	188	66.6	1070	233	66.1	1070	278	67.5	1070	323	72.8	1070
9	74.4	1070	54	76.3	1070	99	78.7	1070	144	72.1	1070	189	66.5	1070	234	66.0	1070	279	67.6	1070	324	73.2	1070
10	74.5	1070	55	76.1	1070	100	78.5	1070	145	72.2	1070	190	66.5	1070	235	66.3	1065	280	67.7	1070	325	73.4	1070
11	74.8	1070	56	76.0	1070	101	78.4	1070	146	72.3	1070	191	66.5	1070	236	66.3	1065	281	67.5	1070	326	73.6	1070
12	75.0	1070	57	75.9	1070	102	78.3	1070	147	72.4	1070	192	66.5	1070	237	66.5	1065	282	67.4	1070	327	73.6	1070
13	75.0	1070	58	75.8	1070	103	78.1	1070	148	72.4	1070	193	66.4	1065	238	66.5	1065	283	67.2	1070	328	73.6	1070
14	75.0	1070	59	75.8	1070	104	77.9	1070	149	72.4	1070	194	66.3	1065	239	66.5	1065	284	67.4	1070	329	73.6	1070
15	75.3	1070	60	75.7	1070	105	77.7	1070	150	72.3	1070	195	66.3	1065	240	66.5	1065	285	67.6	1070	330	73.6	1070
16	75.4	1070	61	75.8	1070	106	77.6	1065	151	72.0	1070	196	66.1	1065	241	66.4	1065	286	67.7	1070	331	73.7	1070
17	75.6	1070	62	76.0	1070	107	77.4	1065	152	71.8	1070	197	66.1	1070	242	66.4	1065	287	67.9	1070	332	73.4	1070
18	75.6	1070	63	75.9	1070	108	77.2	1070	153	71.5	1070	198	66.1	1070	243	66.4	1065	288	68.3	1070	333	73.3	1070
19	75.5	1070	64	75.7	1070	109	77.0	1070	154	71.3	1070	199	66.2	1070	244	66.2	1065	289	68.6	1070	334	73.5	1070
20	75.6	1070	65	75.5	1070	110	76.8	1070	155	70.6	1070	200	66.1	1070	245	66.3	1065	290	69.0	1070	335	73.6	1070
21	75.8	1070	66	75.4	1070	111	76.8	1070	156	70.0	1070	201	66.2	1070	246	66.1	1065	291	69.2	1070	336	73.6	1070
22	75.8	1070	67	75.4	1070	112	76.6	1070	157	69.5	1070	202	66.3	1070	247	65.9	1065	292	69.1	1070	337	73.6	1070
23	75.7	1070	68	75.6	1070	113	76.5	1070	158	69.4	1070	203	66.1	1070	248	65.9	1065	293	69.1	1070	338	73.6	1070
24	75.8	1070	69	75.7	1070	114	76.5	1070	159	69.3	1065	204	66.0	1070	249	65.7	1065	294	69.1	1070	339	73.5	1070
25	75.8	1070	70	75.9	1070	115	76.4	1070	160	69.1	1065	205	65.6	1070	250	65.6	1065	295	69.2	1070	340	73.5	1070
26	75.9	1070	71	76.0	1070	116	76.3	1070	161	68.8	1065	206	65.6	1070	251	65.4	1070	296	69.0	1070	341	73.7	1070
27	76.5	1065	72	76.1	1070	117	76.3	1070	162	68.3	1065	207	65.5	1070	252	65.5	1070	297	68.6	1070	342	74.0	1065
28	76.9	1065	73	76.2	1070	118	76.5	1070	163	68.1	1070	208	65.4	1070	253	65.6	1070	298	68.6	1070	343	74.2	1065
29	77.1	1065	74	76.4	1070	119	76.5	1070	164	68.2	1070	209	65.4	1070	254	65.7	1070	299	68.6	1070	344	74.5	1065
30	77.2	1065	75	76.5	1070	120	76.6	1070	165	68.0	1070	210	65.5	1070	255	65.8	1070	300	68.8	1070	345	74.8	1065
31	77.5	1065	76	76.8	1070	121	76.8	1070	166	67.9	1070	211	65.4	1070	256	66.0	1070	301	69.1	1070	346	75.4	1065
32	77.6	1065	77	76.8	1070	122	77.0	1070	167	67.8	1070	212	65.3	1070	257	66.1	1070	302	69.3	1070	347	75.5	1065
33	77.2	1065	78	77.2	1070	123	77.1	1070	168	67.7	1070	213	65.5	1070	258	66.1	1070	303	69.5	1070	348	75.8	1065
34	76.9	1065	79	77.1	1070	124	77.0	1070	169	67.6	1070	214	65.3	1070	259	66.2	1070	304	69.7	1070	349	75.7	1065
35	76.4	1065	80	77.4	1070	125	77.1	1070	170	67.5	1070	215	65.2	1070	260	66.4	1070	305	69.7	1070	350	75.6	1065
36	76.3	1070	81	77.5	1070	126	77.2	1070	171	67.4	1070	216	65.2	1070	261	66.3	1070	306	69.7	1070	351	75.7	1065
37	76.3	1070	82	77.6	1070	127	77.1	1070	172	67.4	1070	217	65.3	1070	262	66.4	1070	307	69.8	1070	352	75.5	1065
38	76.4	1070	83	77.7	1070	128	77.0	1070	173	67.4	1070	218	65.3	1070	263	66.6	1070	308	70.0	1070	353	75.5	1065
39	76.1	1070	84	77.7	1070	129	77.0	1070	174	67.4	1070	219	65.3	1070	264	66.8	1070	309	70.2	1070	354	75.3	1065
40	76.2	1070	85	77.6	1070	130	76.8	1070	175	67.5	1070	220	65.2	1070	265	66.8	1070	310	70.3	1070	355	75.1	1065
41	76.0	1070	86	77.7	1070	131	76.8	1070	176	67.4	1070	221	65.2	1070	266	67.0	1070	311	70.4	1070	356	75.1	1065
42	75.7	1070	87	77.7	1070	132	76.3	1070	177	67.4	1070	222	65.9	1070	267	67.2	1070	312	70.3	1070	357	75.1	1065
43	75.8	1070	88	77.8	1070	133	75.8	1070	178	67.3	1070	223	66.1	1070	268	67.4	1070	313	70.8	1070	358	74.9	1065
44	76.0	1070	89	78.0	1070	134	75.4	1070	179	67.4	1070	224	66.4	1070	269	67.5	1070	314	70.9	1070	359	74.7	1065

MAXIMUM RADII

ADAMANA UGS TERMINAL
WELL NO. 7
APRIL 12,1980
SCALE: 1 IN. = 20 FEET

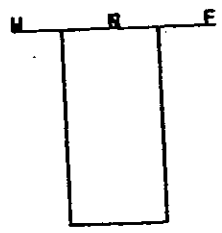


CUSTOMER INFORMATION
ISOMETRIC VIEW

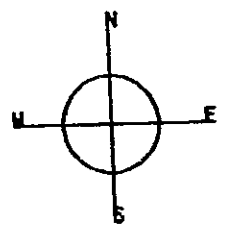
THE FOLLOWING PLOTS, WHICH WE CALL "ISOMETRIC VIEWS", ARE A METHOD OF SHOWING A 3-DIMENSIONAL OBJECT ON 2-DIMENSIONAL PAPER. OUR GOAL IS TO ILLUSTRATE ON PAPER THE SAME SURVEY INFORMATION AND PERSPECTIVE THAT YOU WOULD GET FROM VIEWING ONE OF OUR PLASTIC MODELS.

TO DEMONSTRATE WHAT THE ISOMETRIC VIEW IS SHOWING, IMAGINE HOW YOU COULD PLOT A CYLINDER:

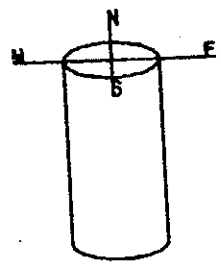
A VERTICAL CROSS SECTION (VIEWED FROM THE SOUTH) WOULD LOOK LIKE:



A TOP VIEW (WE CALL THEM "PLAN VIEWS") WOULD LOOK LIKE:



IF YOU STOOD BACK AND VIEWED THE CYLINDER FROM ABOVE AND DOWNWARD, (FROM THE SOUTH), IT WOULD LOOK LIKE:



THIS IS AN "ISOMETRIC VIEW"

THE ISOMETRIC VIEW OF THE CAVITY IS COMPUTER GENERATED FROM INTERPRETED SONAR SURVEY DATA. DOWELL USES AN INTERACTIVE GRAPHICS SYSTEM TO REVIEW AND PROCESS THE ISOMETRIC IMAGES, WHICH ARE THEN PLOTTED. THE DETAILS ABOUT THIS PRESENTATION THAT YOU SHOULD BE AWARE OF:

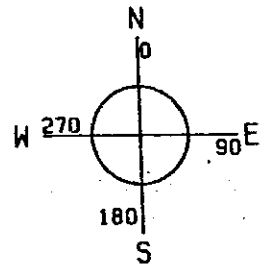
VIEW SELECTION - THE SONAR ENGINEER THAT PERFORMED THE SURVEY, WILL SELECT THE "VIEWING ANGLE" TO BEST ILLUSTRATE THE FEATURES OF THE CAVITY. THE IMAGE CAN BE ROTATED AROUND THE CAVITY CENTER LINE, AS WELL AS VIEWED FROM NUMEROUS ANGLES.

DATA PRESENTED - TYPICALLY ALL OF THE "HORIZONTAL" SURVEY DATA ARE INCLUDED IN THE ISOMETRIC. THEY WILL APPEAR AS HORIZONTAL SLICES LIKE THE CYLINDER'S TOP OR BOTTOM.

SCALE - YOU CAN'T EASILY MEASURE THE ISOMETRIC VIEW FOR REAL DIMENSIONS, HOWEVER, THE RELATIVE SCALES USED ARE PRINTED IN THE UPPER LEFT HAND CORNER. ALSO, YOU MAY REFERENCE THE COMPASS CYLINDER WHICH APPEARS IN THE UPPER LEFT HAND CORNER. THIS CYLINDER IS 1 INCH LONG BY 1/2 INCH DIAMETER, SO YOU CAN GET A SENSE FOR REAL DIMENSION. IN SOME CASES WE WILL EXPAND OR COMPRESS THE SCALE (FOR EXAMPLE: HORZION EQUAL 150 FEET/INCH, VERTICAL EQUAL 50 FEET/INCH) TO BETTER ILLUSTRATE CAVITY FEATURES.

ORIENTATION - THE ORIENTATION OF THE ISOMETRIC VIEW (WITH REFERENCE TO MAGNETIC NORTH) IS SHOWN BY THE COMPASS CYLINDER AND THE VALUE OF "VIEWING AZIMUTH" IN THE UPPER LEFT-HAND CORNER.

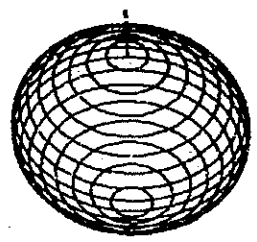
THE AZIMUTH VALUE IS THE COMPASS DEGREE AT THE FRONT OF THE ISOMETRIC IMAGE. THIS IS A TOP-VIEW REFERENCE FOR OUR NUMBERING SYSTEM:



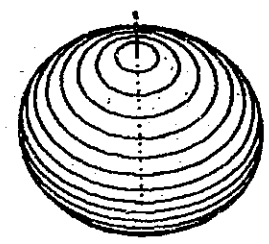
CENTER LINE - WE WILL SHOW THE PLUMB LINE OF THE SURVEY AS A SOLID CENTERLINE ABOVE THE CAVITY ISOMETRIC. INSIDE THE CAVITY, WE WILL MARK THE CENTERLINE OF EACH "HORIZONTAL" SECTION WITH A DOT.

HIDDEN LINES - WE HAVE REMOVED THE LINES OF THE ISOMETRIC THAT YOU COULD NOT SEE IF THE SECTIONS WERE MADE OF OPAQUE PLASTIC.

IF THE HIDDEN LINES OF A SPHERE WERE NOT REMOVED, IT WOULD BE CONFUSING:



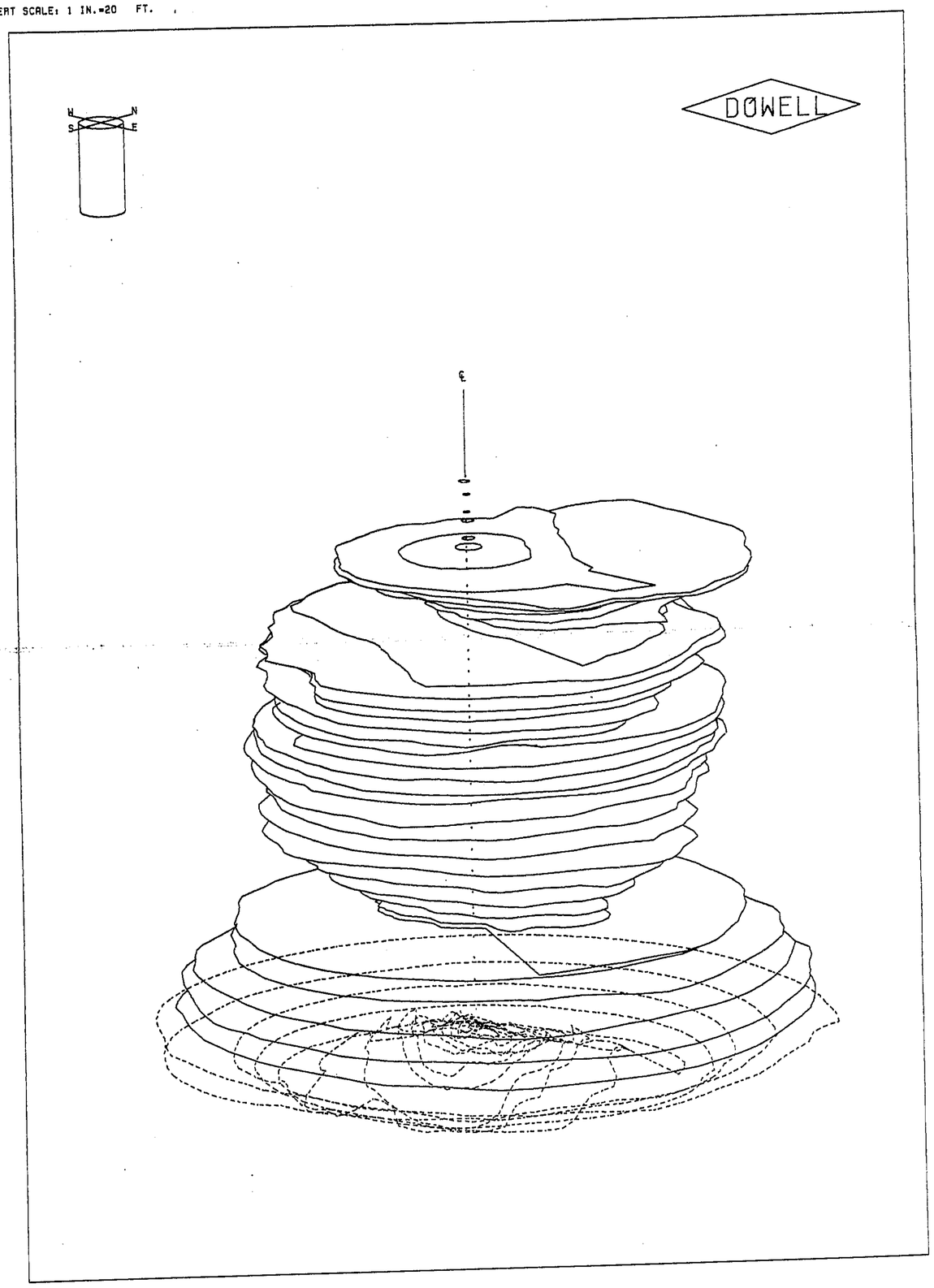
BUT WITH THE HIDDEN LINES REMOVED, IT BECOMES VISIBLE:



22-APR-80 17:51
FROM DEPTH: 950
THRU DEPTH: 1100
VIEWING AZIMUTH: 135
HORZ SCALE: 1 IN.=20 FT.
VERT SCALE: 1 IN.=20 FT.

ISOMETRIC VIEW

BUCKEYE GAS PRODUCTS COMPANY
ADAMANA UGS TERMINAL
WELL NO. 7
APRIL 12,1980

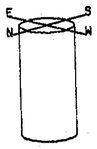


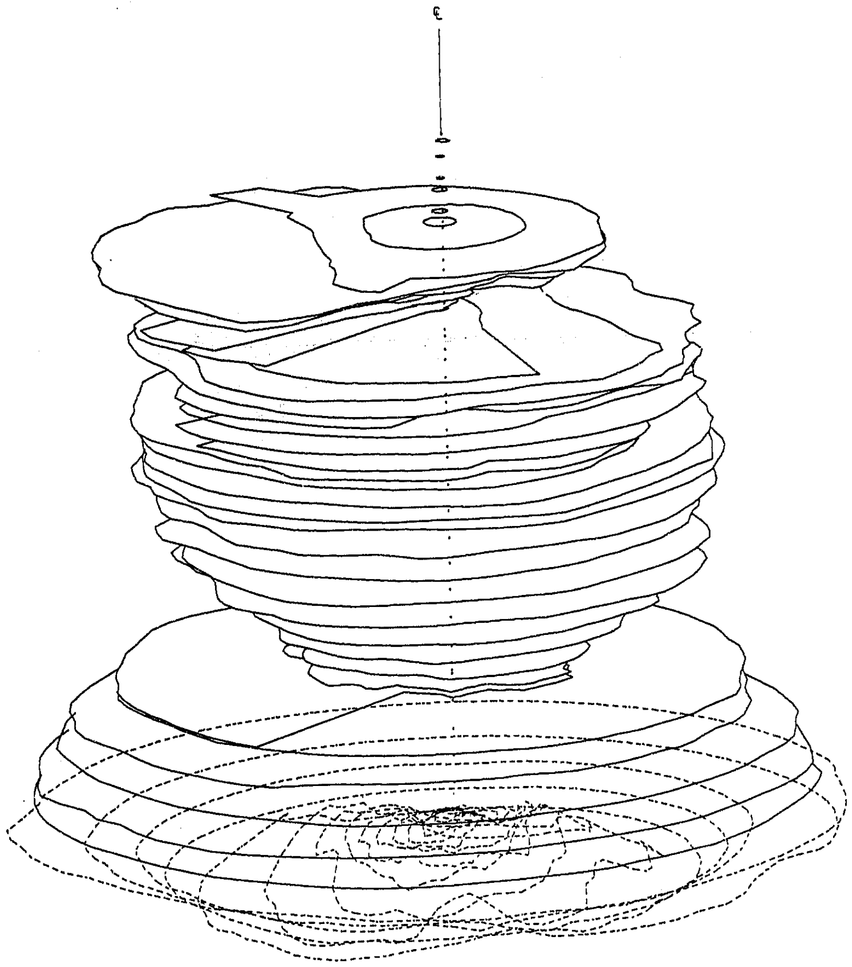
22-APR-80 17:56
FROM DEPTH: 950
THRU DEPTH: 1100
VIEWING AZIMUTH:315
HORZ SCALE: 1 IN.=20 FT.
VERT SCALE: 1 IN.=20 FT.

ISOMETRIC VIEW

BUCKEYE GAS PRODUCTS COMPANY
ADAMANA UGS TERMINAL
WELL NO. 7
APRIL 12,1980

DOWELL



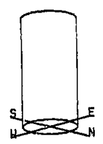


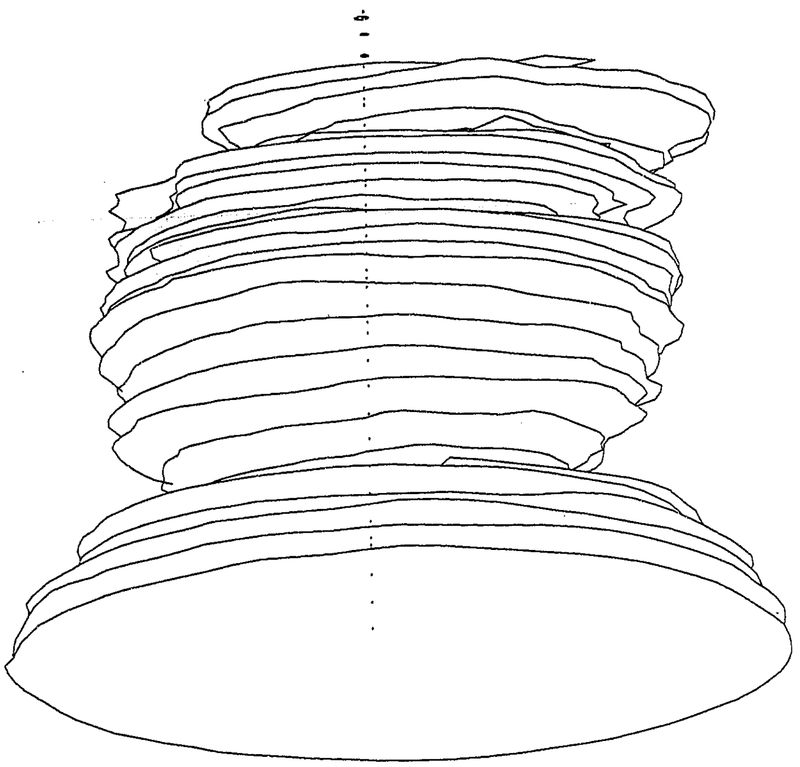
22-APR-80 10:00
FROM DEPTH: 950
THRU DEPTH: 1100
VIEWING AZIMUTH: 135
HORZ SCALE: 1 IN.=20 FT.
VERT SCALE: 1 IN.=20 FT.

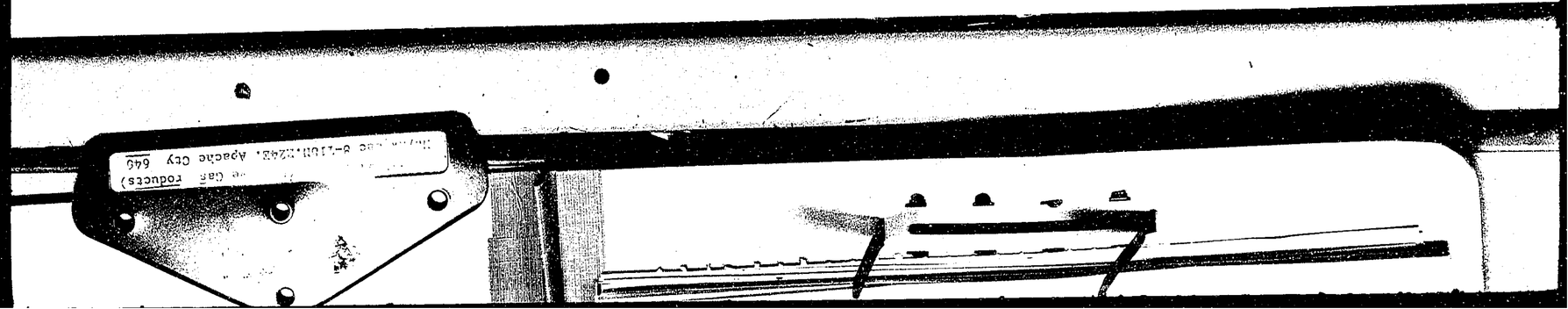
ISOMETRIC VIEW

BUCKEYE GAS PRODUCTS COMPANY
ROAMANA UGS TERMINAL
WELL NO. 7
APRIL 12,1980

DOWELL





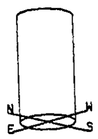


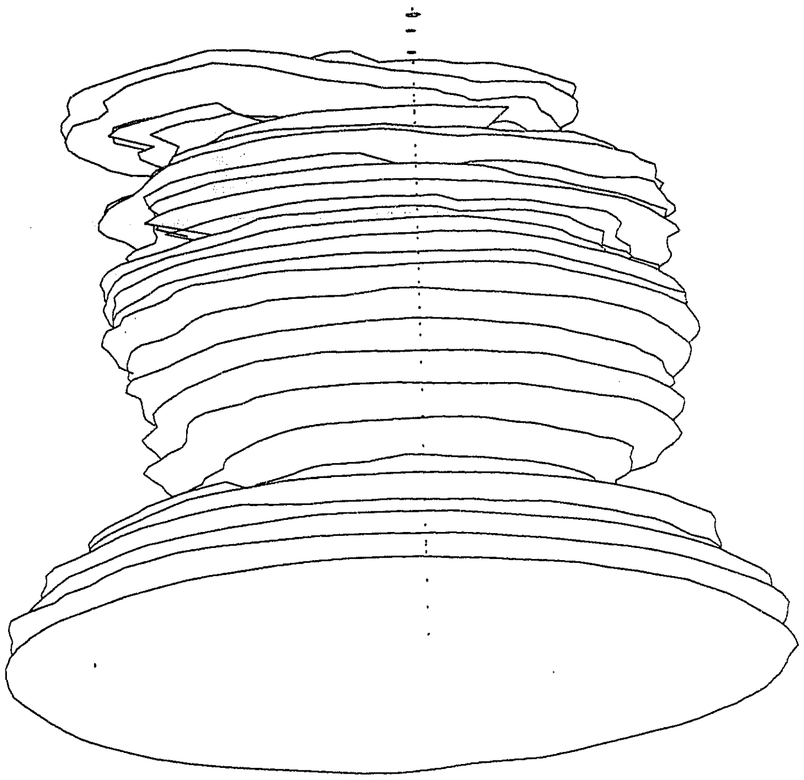
22-APR-80 18:04
FROM DEPTH: 950
THRU DEPTH: 1100
VIEWING AZIMUTH: 315
HORZ SCALE: 1 IN.=20 FT.
VERT SCALE: 1 IN.=20 FT.

ISOMETRIC VIEW

BUCKEYE GAS PRODUCTS COMPANY
ADAMANA UGS TERMINAL
WELL NO. 7
APRIL 12,1980

DOWELL





FERRELLGAS LPG FACILITY

Operator: Ferrellgas Inc.

Bond Company: Travelers Casualty and Surety Co. of America

Bond No.: 030 S 103626358 BCM

Amount: $25,000.00

Date approved: 8/01/96

Permits covered by this bond:

556 (Cavern 01)
557 (Cavern 02)
562 (Water well)
602 (Cavern 03)
603 (Cavern 04)
606 (Cavern 05)
607 (Cavern 06)
✓ 646 (Cavern 07)
647 (Cavern 08)
648 (Cavern 09)
671 (Cavern 10)
672 (Cavern 11)
776 (Cavern 12 -- not developed)
777 (Expired)
778* (Expired)

* Bond in Permit #778

May 20, 1996

Memo to Ferrellgas files
From: Steve Rauzi SR
Re: Discussion of volume verification in May 17, 1996 Commission meeting

All of the Commissioners present agreed that the sonar method was the best available technology to determine cavity shapes. They agreed that accepting volumetric measurements would be appropriate as long as sonar measurements continued to be used. Dr. Nations noted that sonar determinations could be waived in individual cases in appropriate situations.

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

May 1, 1996

Memo: Dale Thompson, Ferrellgas, Adamana — 9 pages total
Fax #: 524-2635
From: SR Steve Rauzi, Oil & Gas Administrator
Re: Volume verification surveys pursuant to A.A.C. R12-7-182(D)

I examined the sonar surveys on several of your storage wells after receiving the three sonar surveys run in March 1996. My analysis indicates that sonar surveys do not provide an exact picture of the shape and change of shape from survey to survey. On the other hand, sonar surveys, even when run by different companies and tools, do provide a good picture of the general shape and change in shape of a cavity as shown on the attached Exhibits 3 through 8.

The increase then decrease in sonar-determined volume for cavities 3 and 6 on Exhibit 1 is of special concern to me. I'm not sure if the discrepancy is due to running sonar in open hole versus through-pipe, different companies and tools, differences in tool design or calculation parameters, or improved technology through time. One way to verify sonar-determined volumes would be to complement them with volumetric measurements. The generally consistent cavity shape, change in shape, and rate of maximum radius increase over the last 16 years shown by the sonar survey results on the attached Exhibits 2 through 8 confirms the general integrity of the shape your caverns.

However, in light of the increase then decrease in sonar-determined volume in cavities 3 and 6 shown on Exhibit 1, it would be beneficial and appropriate to complement the sonar-determined volume verifications with volumetric measurements. As a result, I plan to recommend that the Oil and Gas Conservation Commission accept volumetric measurements and sonar surveys run on alternate five year cycles to provide a more accurate tracking and verification of cavity volumes; alternatively, to accept volumetric measurements annually complemented with sonar surveys at least every ten years or whenever a cavity is reentered and worked over, starting a new ten-year cycle.

Please feel free to comment on any aspect my analysis or reasoning. Also, I look forward to receiving your latest volumetric measurements pursuant to our discussion before the Commission's next meeting on May 17.

ADAMANA SONAR METHOD VOLUME VERIFICATION HISTORY

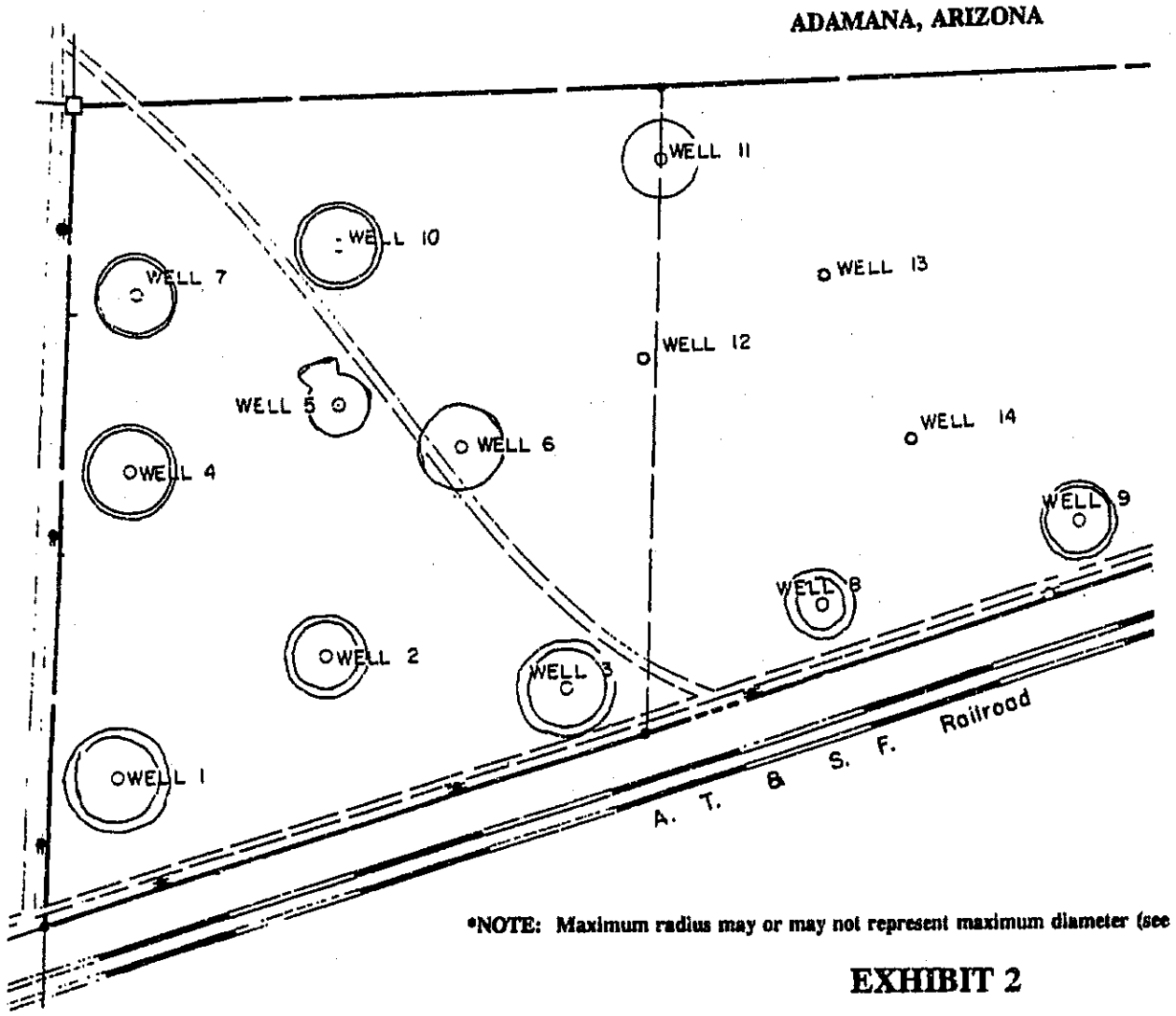
Permit	Well No.	TD	Cavern	Initial Sonar	Max Radius	Sonar Volume	Second Sonar	Max Radius	Sonar Volume	Third Sonar	Max Radius	Sonar Volume
556	1	1101'	900-985'	4/79 Dowell	99'@942'	150,532 bbls	3/92 Digital*	118'@944'	176,119 bbls			
557	2	1112'	906-995'	4/79 Dowell	74'@958'	149,008 bbls	2/89 MicroGage	90'@970'	193,563 bbls	2/95 Sonarwire**	89'@938'	197,559 bbls
602	3	1140'	944-1008'	4/79 Dowell	87'@995'	145,550 bbls	5/91 Digital*	104'@986'	195,355 bbls	3/96 Sonarwire*	104'@982'	185,607 bbls
603	4	1120'	950-1007'	4/80 Dowell	97'@945'	158,244 bbls	3/92 Digital	102'@978'	189,616 bbls			
606	5	1119'	938-1035'	---		---	3/89 MicroGage	100'@1026'	165,922 bbls	3/95 Sonarwire**	101'@1026'	169,615 bbls
607	6	1120'	924-1027'	4/80 Dowell	93'@952'	146,458 bbls	5/91 Digital*	94'@964'	200,659 bbls	3/96 Sonarwire*	90'@1006'	176,893 bbls
646	7	1152'	951-1079'	4/80 Dowell	84'@1055'	171,283 bbls	5/91 Digital	90'@1074'	179,122 bbls	3/96 Sonarwire**	90'@1066'	199,654 bbls
647	8	1132'	956-1069'	4/80 Dowell	57'@1060'	110,892 bbls	3/92 Digital*	72'@1054'	140,952 bbls			
648	9	1125'	973-1065'	4/80 Dowell	71'@1030'	108,222 bbls	3/92 Digital*	81'@1015'	168,797 bbls			
671	10	1150'	978-1042'	4/79 Dowell	85'@988'	128,541 bbls	3/89 MicroGage	99'@990'	164,567 bbls	2/95 Sonarwire**	98'@988'	168,792 bbls
672	11	1176'	960-1101'	---		---	3/89 MicroGage	84'@1070'	227,718 bbls	3/95 Sonarwire**	84'@1070'	244,537 bbls
776	12	1200'	Cavern not developed									
TOTAL CAPACITY									2,031,123 bbls 85,307,166 gallons			

* Sonar through one string of pipe
** Sonar through two strings of pipe

EXHIBIT 1

CAVERN MAXIMUM RADIUS* PLOT, FERRELLGAS LPG-STORAGE FACILITY

ADAMANA, ARIZONA



INDICATED RADIUS INCREASE THROUGH TIME BY SONAR MEASUREMENT

Well No.	TD	Cavern	Initial Sonar	Max Radius	Latest Sonar	Max Radius	Sonar Volume	Indicated net Increase
1	1101'	900-985'	4/79	99'@942'	3/92	119'@944'	176,119 bbls	19'/13yr (1.5'/yr)
2	1112'	906-995'	4/79	74'@958'	2/95	89'@938'	197,559 bbls	15'/16yr (1'/yr)
3	1140'	944-1008'	4/79	87'@995'	3/96	104'@982'	185,607 bbls	17'/17yr (1'/yr)
4	1120'	950-1007'	4/80	97'@945'	3/92	102'@978'	189,616 bbls	5'/12yr (.5'/yr)
5	1119'	938-1035'	3/89	100'@1026'	3/95	101'@1026'	169,615 bbls	1'/6yr (.2'/yr)
6	1120'	924-1027'	4/80	93'@952'	3/96	94'@1006'	176,893 bbls	1'/16yr (.06'/yr)
7	1152'	951-1079'	4/80	84'@1055'	3/96	90'@1066'	199,654 bbls	6'/16yr (.4'/yr)
8	1132'	956-1069'	4/80	57'@1060'	3/92	72'@1054'	140,952 bbls	39'/12yr (3'/yr)
9	1125'	973-1065'	4/80	71'@1030'	3/92	81'@1015'	168,797 bbls	10'/12yr (.8'/yr)
10	1150'	978-1042'	4/79	85'@988'	2/95	98'@988'	168,792 bbls	13'/16yr (.8'/yr)
11	1176'	960-1101'	3/89	84'@1070'	3/95	84'@1070'	244,537 bbls	0'/6yr (--/yr)
12	1200'	Cavern not developed						

*NOTE: Maximum radius may or may not represent maximum diameter (see Well 5 above & Exhibits 3-5)

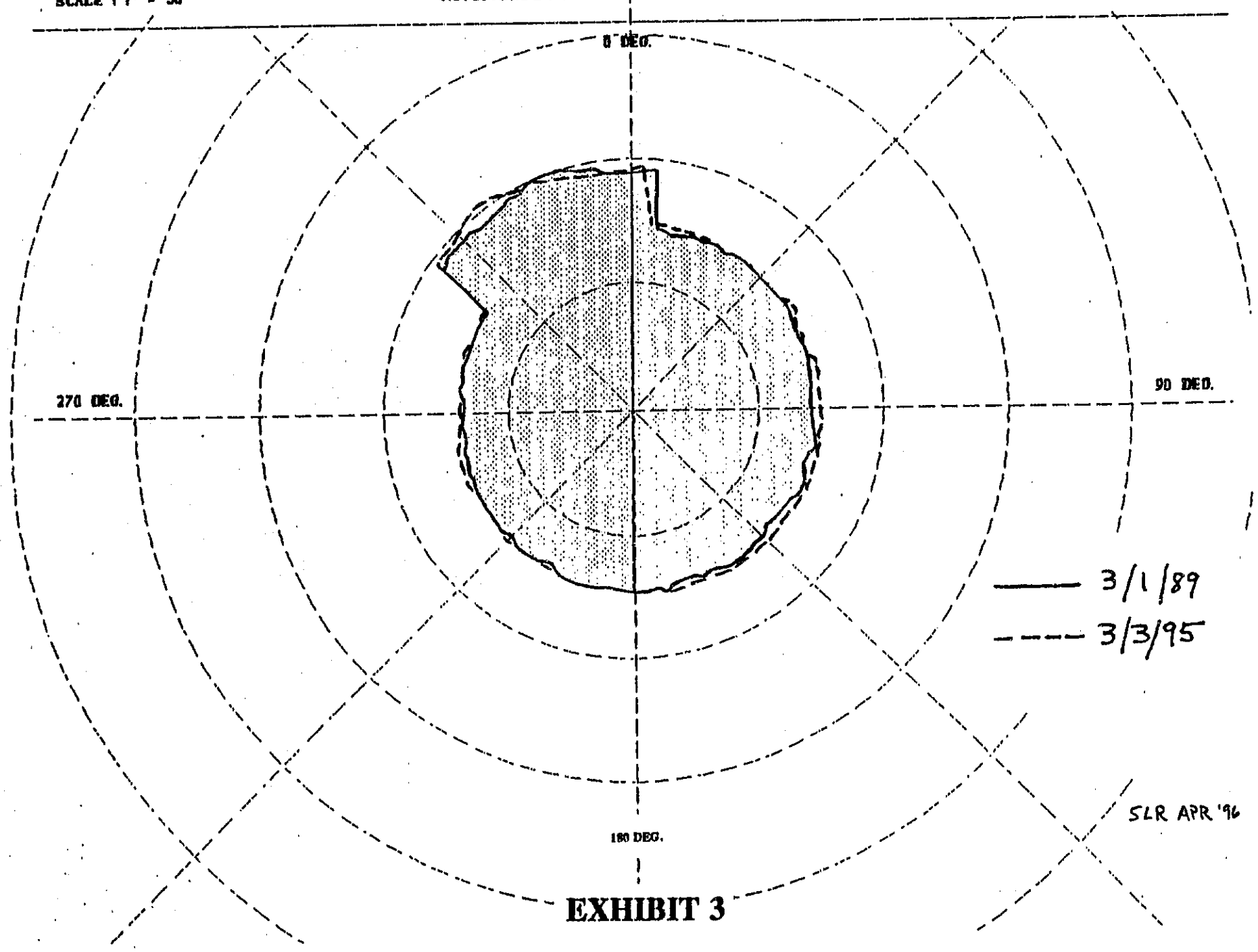
EXHIBIT 2

SLR APR '96

SCALE : 1" = 50'

MAXIMUM RADIUS PLOT

FERRELLGAS WELL 5



—— 3/1/89

---- 3/3/95

SLR APR '96

EXHIBIT 3

VERTICAL CROSSECTION

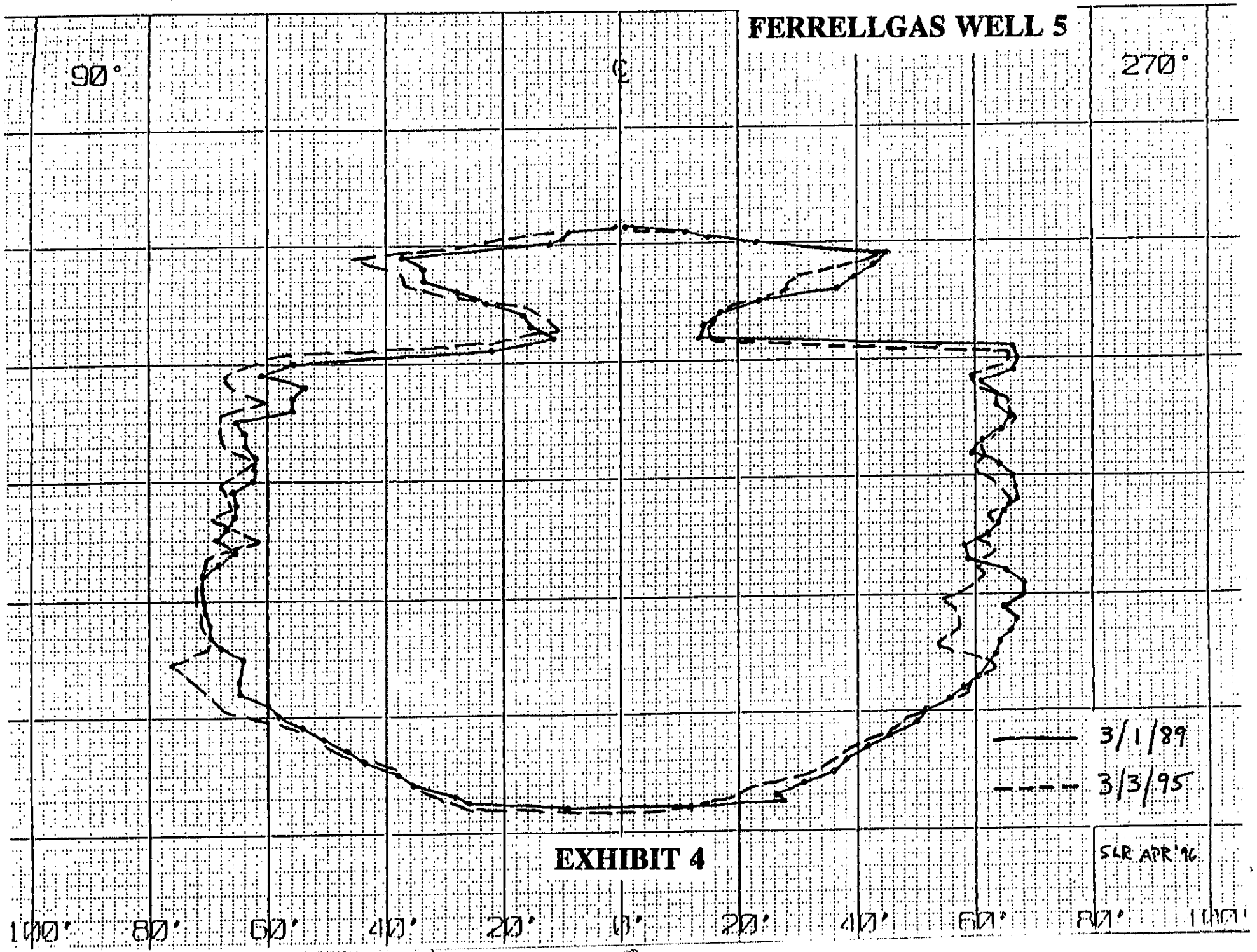
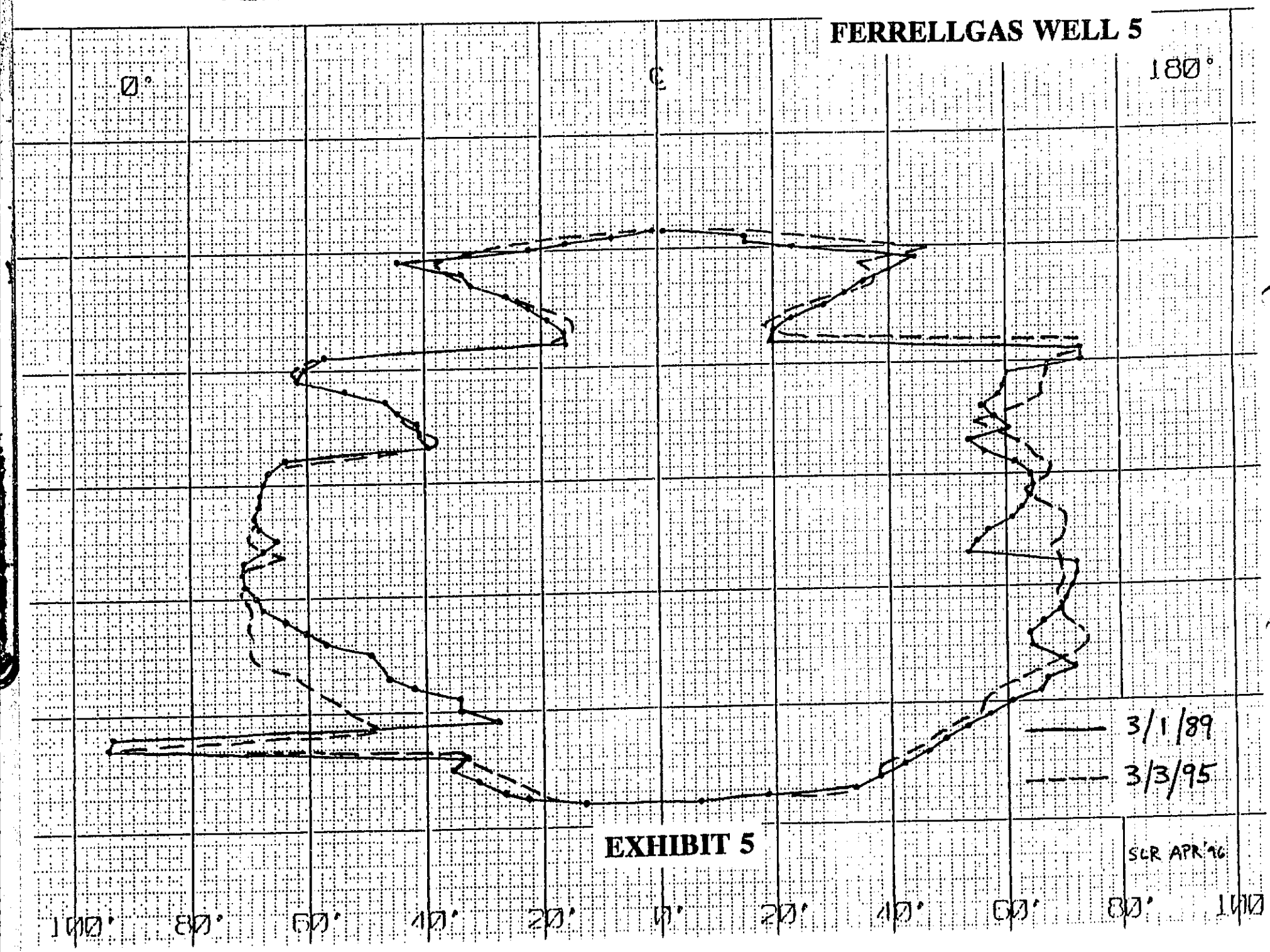


EXHIBIT 4

VERTICAL CROSSECTION



SCALE : 1" = 50'

MAXIMUM RADIUS PLOT

FERRELLGAS WELL 6

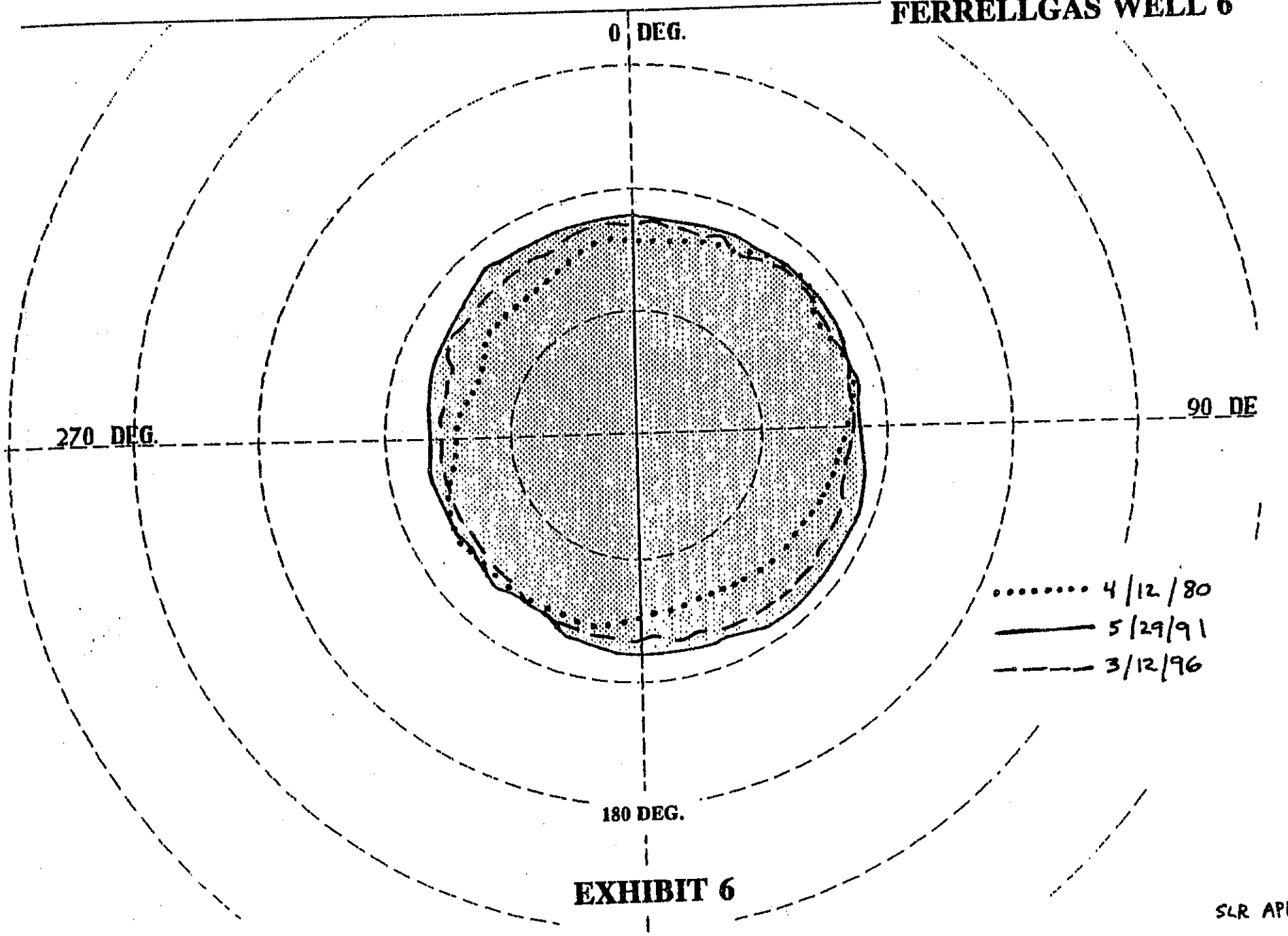


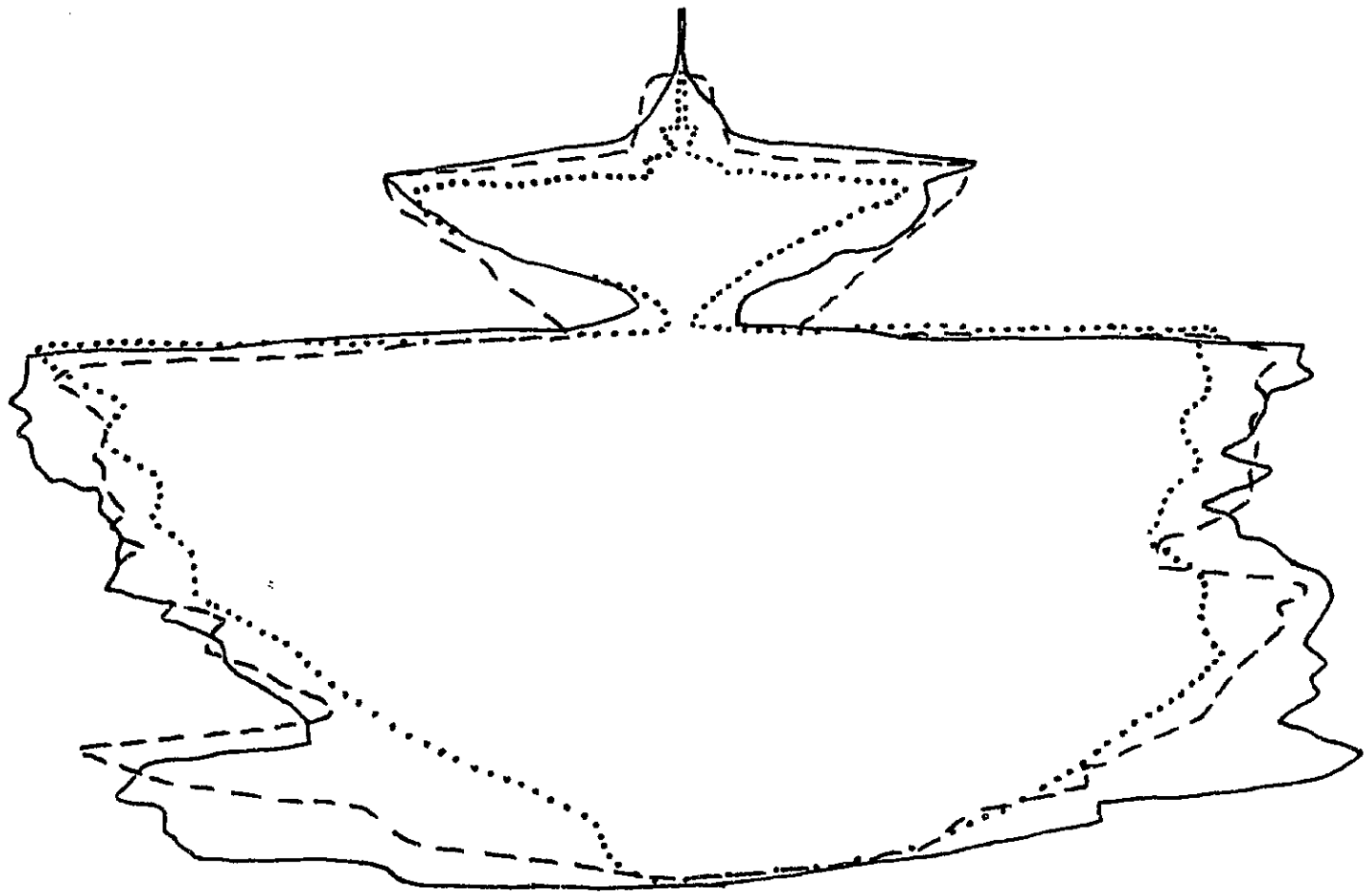
EXHIBIT 6

SLR APR'96

FERRELLGAS WELL 6

180 DEG.

0 DEG.



..... 4/12/80
——— 5/29/91
– – – – 3/12/96

SLR APR '96

1/100' 1/80' 1/60' 1/40' 1/20' 0 1/20' 1/40' 1/60' 1/80' 1/100'

EXHIBIT 7

FERRELLGAS WELL 6

270 DEG.

90 DEG.

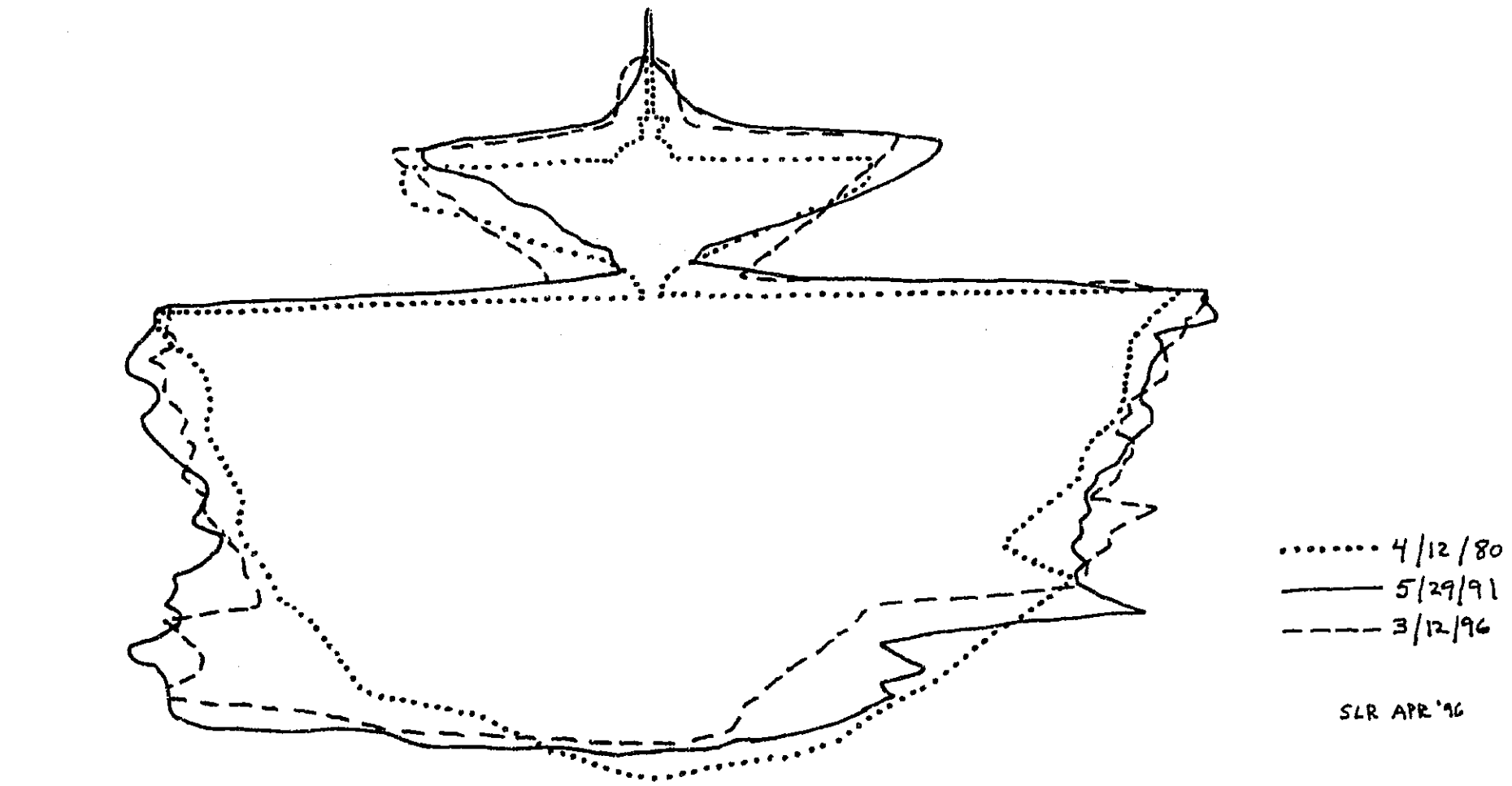


EXHIBIT 8

Ferrellgas

April 24, 1996

To: Steve Rauzi
Arizona Geological Survey

From: Dale Thompson
Ferrell North America

Subject: Cavern Capacities

Steve, as of October 30, 1996 these are the last known capacities on all the Caverns at the Adamana Storage Facility. (Capacities are in gallons).

Cavern #1	8,496,730
Cavern #2	6,900,978
Cavern #3	7,368,738
Cavern #4	8,676,071
Cavern #5	6,884,626
Cavern #6	7,886,657
Cavern #7	8,068,158
Cavern #8	6,349,044
Cavern #9	6,969,816
Cavern #10	7,792,578
Cavern #11	10,601,992

646

If we can be of further assistance please contact us at (520) 524-3229.

Sincerely,

Dale Thompson

Ferrellgas

April 9, 1996

file 646

Steve L. Rauzi, Administrator
Oil and Gas Program
5150 N. 16th St., Ste. B141
Phoenix, Arizona 85016

Dear Steve,

After our discussion on March 11, 1996 about "volumetric measurement" of our storage caverns I did some research.

Our past records on last known capacities indicate a more exact method of yearly cavern measurement. Due to the fact that almost all of our caverns are filled and emptied on a yearly basis, I feel this would be more accurate and more often a "yearly" measurement program.

Considering the reasons stated above, I would like to request the Adamana Facility perform the volumetric measurement program on a yearly basis and sonar measurement method every "ten years".

Steve, as you can see by our past sonar reports any increase in size has been very minute over the years. With the acceptance of the commission, my plan would be to sonar any cavern that had to be worked over; otherwise, all caverns would receive the sonar method on a "ten year" basis. All "volumetric measurement" information on our Adamana caverns can be submitted to your office on a yearly or five and/or ten year basis whichever you and the commission would prefer.

Steve, please let me know what you think and how to resolve this matter. Thank you for your time and consideration.

Sincerely,

Dale Thompson
Terminal Manager

Adamana Road • P.O. Box 1024 • Holbrook, Arizona 86025 • 602-524-3229

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

July 13, 1993

Ms. Brenda Davis, Mail Drop 5
Ferrellgas
One Liberty Plaza
Liberty, Missouri 64068

Re: Ferrellgas wells in Arizona
Approval of blanket bond #U1665522, United Pacific Insurance Company
Release of blanket bond #400 GV 7009, St. Paul Fire and Marine Insurance Company

Dear Ms. Davis:

I have enclosed an approved copy of the referenced blanket bond #U1665522 effective July 16, 1993, for all wells operated by Ferrellgas in Arizona.

This letter represents the Oil and Gas Conservation Commission's approval to release the referenced blanket bond #400 GV 7009 effective July 16, 1993.

Sincerely,

Steven L. Rauzi
Oil & Gas Program Administrator

Enclosure

c Ms. Mary T. Flanigan, St. Paul Seaboard, Overland Park, Kansas

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

June 29, 1993

646

Ms. Kathy Cordera
Martin Insurance
P. O. Box 8418
Prairie Village, Kansas 66208-0418

FAX 913-676-9145 one copy of bond from No 2 6/29 @ 7:20 am SLR

Dear Ms. Cordera:

In response to your telephone call this morning, I have enclosed two blank copies of the Oil and Gas Conservation Commission's Performance Bond. File two copies of the completed bond form to my attention at the letterhead address.

Our records show that Ferrellgas currently has twelve storage wells and one freshwater well under bond.

Let me know if I can be of further assistance.

Sincerely,

Steven L. Rauzi

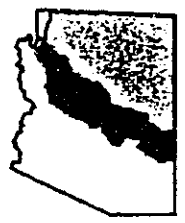
Steven L. Rauzi
Oil & Gas Program Administrator

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

May 20, 1993

646

Ms. Mary T. Flanigan
Attorney-in-Fact
St. Paul Seaboard
P. O. Box 935
Overland Park, Kansas 66201-0935

Re: Ferrellgas, Inc. blanket performance Bond No. 400 GV 7009

Dear Ms. Flanigan:

I received your certified letter No. P 105-228-862 requesting the St. Paul Fire and Marine Insurance Company's release from obligation under the captioned bond because the captioned bond is being replaced by United Pacific Insurance Company Bond #U1665502 effective June 25, 1993.

A.A.C. R12-7-103 requires a performance bond to remain in effect until (1) the wells under the bond have been plugged and abandoned as approved by the Oil and Gas Conservation Commission, or (2) the a new blanket bond is posted for the wells. I have not received or approved a replacement bond for the captioned bond.

As a result, I cannot release St. Paul Fire and Marine Insurance Company's obligation under the captioned bond until the United Pacific Insurance Company Bond #U1665502 is received by this office and approved.

Please let me know if I can be of further assistance in this matter.

Sincerely,

Steven L. Rauzi

Steven L. Rauzi
Oil & Gas Program Administrator

c Mr. Greg Greer, Ferrellgas, P.O. Box 4644, Houston, Texas 77216
Mr. Dale Thompson, Ferrellgas, P.O. Box 1024, Holbrook, Arizona 86025

ADAMANA VOLUME VERIFICATION SURVEYS
(all by the sonar method)

Permit	Well	Survey Date	Survey Date	Current Status
556	1	4/79	3/92	In compliance
557	2	4/79	2/89	In compliance
602	3	4/79	5/91	In compliance
603	4	4/80	3/92	In compliance
606	5	---	3/89	In compliance
607	6	4/80	5/91	In compliance
646	7	4/80	5/91	In compliance
647	8	4/80	3/92	In compliance
648	9	4/80	3/92	In compliance
671	10	4/79	3/89	In compliance
672	11	---	3/89	In compliance
776	12			CAVERN NOT DEVELOPED

Ferrellgas

May 21, 1991

AZ OIL & GAS
CONSERVATION COMMISSION
MAY 24 1991

Mr. Dan Brennan
Executive Director
Oil & Gas Commission
State of Arizona
5150 N. 16TH ST.
Phoenix, Az 85016

Re: Sonaring of Ferrellgas Adamana, Arizona LPG Underground Storage Wells #3, #6 & #7

Dear Mr. Brennan:

Pursuant to our conversation of May 21, I have ordered the sonaring of Adamana Wells #3, #6 & #7 to commence as soon as possible. This work will be scheduled in the next 30 to 60 days. We will inform your office in advance of the exact date so that you can witness, if you so desire.

As discussed, wells #1, #4, #8 and #9 will be sonared at the earliest possible time. As you know these wells are currently active and we must wait for the winter outhaul season before the product can be removed. This should be done by next February 28 and we will schedule the sonar activity for these wells at that time.

If you have any questions please feel free to call me at (713)876-5515.

Best Regards,

Richard M. Gehring
Manager
Storage Operations

	Permit #
# 1	556
3	602
4	603
6	607
7	646
8	647
9	648

xc: Brad Mallory - Moab
Dale Thompson - Adamana

P.O. Box 4644, Houston, Texas 77210
16800 Greenspoint Park Drive • Suite 225 - South Atrium • Houston, Texas 77060 • Telephone: 713/874-9494

646

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

January 11, 1989

Mr. Glenn Mace
Ferrellgas
Granada Building, Suite 216
3316 East 32nd Street
Tulsa, OK 74135

Dear Mr. Mace:

As we discussed during your visit yesterday, Oil and Gas Conservation Commission Rule 12-7-181.1.i requires that "...a flare or other safety system shall be installed at or near each brine pit..." As you know, the Ferrellgas facility at Adamana does not have a flare installed at present since the dismantling of the rusted-out older system.

Thus it appears that your operation is not in compliance with this rule. Therefore, it is necessary for Ferrellgas to install such a device to come into compliance. Failure to comply would cause the Commission to invoke R12-7-181.1.i which involves shutting down the operation.

You indicated that it will take some time to design, fabricate, and install the flare system. We would hope that this can be completed before the next scheduled inspection of the facility which will be around the end of May 1989.

Although we did not specifically discuss this issue, Rule 12-7-181.1.i.v requires verification of the capacity of each storage cavern every five years. This has not been accomplished since 1979 and 1980. Thus your operation is not in compliance with this rule. It will be necessary for Ferrellgas to begin to verify these capacities very soon. I realize this is the busy season, but as soon as activity declines and caverns are shut in for a few days, the logs can be run.

I was thinking about the possible problem with liquid propane in extremely cold weather. One way to solve the problem is to include an oil-water separator in the flow line from the caverns to the pits. A simple "drip" system might work, or an actual oil-water separator such as is used at gas-condensate wells. We sure don't want to burn up any pit liners.

We will expect to hear from you regularly concerning your progress in the matter of the flare and the sonar.

Very truly yours,

Daniel J. Brennan
Executive Director

June 2, 1978

Mr. Bob Larsen
Williams Energy Company
P.O. Box 3478
Mail Drop #33-1
Tulsa, Oklahoma 74101

Dear Mr. Larsen:

During a visit yesterday to your LPG storage area at Adamana, Mr. Sam Snyder informed me that you have replaced Dan Dougherty as Manager of Storage Terminals.

The purpose of my visit to this terminal was to discuss our Rule 706. This rule was recently adopted by the Arizona Oil and Gas Conservation Commission at a public hearing. Mr. Dougherty attended this hearing.

Rule 706, as adopted, doesn't affect your storage terminal as it now exists, except Sections C and D. These sections primarily pertain to safety features. The safety feature of immediate concern to this commission is the installation of a flare system.

This Commission does not intend to dictate or even recommend a particular design for this system. We do retain the right to approve the system that you select. The system that Mr. Snyder has discussed with you is not acceptable to the Commission.

We are enclosing a copy of Rule 706, together with a copy of the general rules and regulations of the Commission. You will note that some of these general rules also pertain to your operation.

This Commission has enjoyed a very pleasant working relationship with Williams Energy and be assured that we want to cooperate with you and your staff to the fullest extent.

Your prompt attention to the installation of the flare system will be much appreciated.

Let us know if we can be of any help whatsoever.

Very truly yours,

W. E. Allen
Director
Enforcement Section

WEA/vb

Enc.

March 28, 1978

Mr. Dan J. Dougherty
Manager of Storage Terminal
Williams Energy Company
P.O. Box 3478
Tulsa, Oklahoma 74101

Dear Dan:

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

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

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

Very truly yours,

W. E. Allen
Director
Enforcement Section

WEA/vb

OFFICE OF

Oil and Gas Conservation Commission

STATE OF ARIZONA

4515 NORTH 7TH AVE.
PHOENIX, ARIZONA 85013
[redacted]

8695 N. CENTRAL, SUITE 106
PHOENIX, ARIZONA 85020

November 20, 1975

Ms. Kay Waller
Petro-Well Libraries, Inc.
150 Security Life Building
1616 Glenarm Place
Denver, Co 80202

RE: NOVEMBER CURRENT FILE MATERIAL

Dear Kay:

Enclosed you will find the following current material for November:

DATA: Completion report and miscellaneous reports on Beta Exploration #2-X, File #651; Duval Corporation, Well No. 49, File #626; Williams Energy Company,Well No. 7, File #646.

LOGS: Borehole Compensated Sonic Log, File #651, Beta Exploration
Radioactivity Log, Duval Corporation, File #626

Thank you.

Saralee Lorenzo
Secretary

Williams Energy has completed their 9th well for LPG storage at Adamana. Williams Energy had a bad primary cement job on their No. 8 well. I plan to check on the repair of this cementing job tomorrow and then go on to the Dineh-Bi-Keyah and check Kerr-McGee's progress on their waterflood installations.

646

WILLIAMS ENERGY COMPANY

321 SOUTH BOSTON
P. O. BOX 3478
TULSA, OKLAHOMA 74101
PHONE: (918) 583-1711

September 18, 1975
DJD:68:75
PRJ 1/Desk

Mr. W. E. Allen
Oil & Gas Conservation Comm.
State of Arizona
8686 N. Central, Suite 106
Phoenix, Arizona 85020

Dear Bill:

Enclosed we are forwarding the well completion report (Form No. 4) and a copy of the open hole log for well #7 at Adamana, Arizona. This well was drilled in accordance with permit No. 646.

Sincerely,

Dan J. Dougherty
Operations Department

DJD/jh
encls.
cc: R. J. Wiruth
A. B. Erwin, K&A Inc.

RECEIVED
SEP 22 1975
O & G CONS. COMM.

DOXOL UREGAS
Names in propane you can count on

July 18, 1975

Mr. Jim Webster
Photogrammetry & Mapping Services
Highway Division
Department of Transportation
1739 W. Jackson, Room 61
Phx., AZ 85007

RE: Williams Energy Company #7
Sec 8, T18N, R24E
Permit #646

Dear Mr. Webster:

Enclosed please find a copy of the Application to Drill for the above mentioned well.

This letter is to advise you that this well was spudded today, July 18, 1975.

If we can be of further service, please advise.

Sincerely yours,

Saralee Lorenzo (Mrs)
Secretary

SL/sl

Encl.

OFFICE OF

Oil and Gas Conservation Commission

STATE OF ARIZONA

~~4515 NORTH 7TH AVE.~~ 8686 N. Central, Suite 106

~~PHOENIX, ARIZONA 85013~~ Phoenix, Arizona 85020

PHONE: (602) 271-5161

June 3, 1975

Mrs. Jo Ratcliff
Four Corners Sample Cut Association
P. O. Box 899
Farmington, New Mexico 87401

Dear Mrs. Ratcliff:

The following permits were issued this date:

Williams Energy No. 7	Williams Energy No. 8	Williams Energy No. 9
NW/NW Sec 8-T18N-R24E	NE/NW Sec 8-T18N-R24E	NE/NW Sec 8-T18N-R24E
Apache County	Apache County	Apache County
Permit No. 646	Permit No. 647	Permit No. 648

Very truly yours,

Mrs. Rhema Brandt
Secretary to W. E. Allen
Director, Enforcement Section

/rlb

[redacted]

[redacted] 8686 N. Central, Suite 106
Phoenix, Arizona 85020

June 3, 1975

Mr. Dan J. Dougherty
Operations Department
Williams Energy Company
Box 3478
Tulsa, Oklahoma 74101

Re:	Williams Energy No. 7	Williams Energy No. 8	Williams Energy No. 9
	NW/NW Sec 8-T18N-R24E	NE/NW Sec 8-T18N-R24E	NE/NW Sec 8-T18N-R24E
	Apache County	Apache County	Apache County
	Permit No. 646	Permit No. 647	Permit No. 648

Dear Mr. Dougherty:

Enclosed please find Receipt No. 0376 covering your $75 filing fee. Also enclosed are your approved applications for permit to drill and Permit to Drill Nos. 646, 647 and 648.

Please note our new address of 8686 North Central, Suite 106, Phoenix, Arizona 85020.

Very truly yours,

W. E. Allen, Director
Enforcement Section

WEA/rlb

Encs.

WILLIAMS ENERGY COMPANY
9 EAST FOURTH STREET
P. O. BOX 3478
TULSA, OKLAHOMA 74101
PHONE: (918) 583-1711

May 28, 1975
DJD:33:75
PRJ 1

Mr. W. E. Allen, Director
Enforcement Section
Oil and Gas Conservation Commission
State of Arizona
4515 North 7th Avenue
Phoenix, Arizona 85013

Dear Mr. Allen:

Enclosed are duplicate Applications to drill the #7, #8 and #9 storage wells at our Adamana LPG Terminal. Also enclosed is a check for $75.00 covering the application fee and a certified plat print showing the location of the wells in relation to the existing facilities.

I trust the enclosed provide the necessary data to allow you to proceed with processing the application.

Thank you for your cooperation.

Very truly yours,

Dan J. Dougherty
Operations Department

DJD/jh
cc: R. J. Wiruth
encls.

RECEIVED
JUN 3 1975
O & G CONS. COMM.

Dave Lindsey

WILLIAMS ENERGY COMPANY No. 070189

Uregas

DOXOL

permits
646, 647, 764P

Batch 72

VOUCHER		INVOICE			INVOICE AMOUNT	DISCOUNT AMOUNT	NET AMOUNT
MO.	NUMBER	MO.	DAY	NUMBER			
		5	8	050875	75.00		75.00

RECEIVED
JUN 3 1975
O & G CONS. COMM.

REMITTANCE STATEMENT - PLEASE DETACH CHECK BEFORE DEPOSITING