[redacted]

Terrellgas, Inc. (Buckeye Gas Proc.)
NW/NW Sec. 8 T18N-R24E, Apache Cty. 647

COUNTY Apache AREA 16 mi. W. Hoolbrook LEASE NO. Williams Energy Co.

Buckeye Gas Products Adamana

WELL NAME ~~WILLIAMS ENERGY~~ COMPANY ~~[illegible]~~ NO. 8 fe (See Adamana Project File for plat)

LOCATION NE/NW SEC 8 TWP 18N RANGE 24E FOOTAGE 1137.70' S & 1710.53' E NW corner

ELEV 5310.70 OR 5316 KB SPUD DATE 8-23-75 STATUS COMP. DATE 9-9-75 TOTAL DEPTH 1132'

CONTRACTOR

CASING SIZE	DEPTH	CEMENT	LINER SIZE & DEPTH
13 3/8	164'	150 sx	NA
9 5/8	920'	325 sx	

DRILLED BY ROTARY X

DRILLED BY CABLE TOOL

PRODUCTIVE RESERVOIR LPG Storage Well

INITIAL PRODUCTION

FORMATION TOPS	DEPTHS	SOURCE L.L.	SOURCE E.L.	REMARKS
Coconino	341'		x	
Top Salt	859'		x	

ELECTRIC LOGS	PERFORATED INTERVALS	PROD. INTERVALS

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. ~~Federal Ins. Company~~ St. Paul Fire & Casualty Ins. Co. filed w/#776 BOND NO. ~~8047-02-65~~ S40-32083

DATE 1-15-80

BOND AMT. $ 25,000 CANCELLED ORGANIZATION REPORT 11-21-72

FILING RECEIPT 0376 LOC. PLAT x WELL BOOK X PLAT BOOK x

API NO. 02-001-20212 DATE ISSUED 6-3-75 DEDICATION NA (LPG Storage Well

PERMIT NUMBER 647

(over)

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: C8 / Field & Reservoir: ADAMANA, AZ.
Location: 1137.70 FSL - 1710.53 FWL	County: APACHE
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
8-23-75	9-3-75	9-9-75	5314 feet	5319 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.
1132	-	SALT SOLUTION	

Producing interval (s) for this completion	Rotary tools used (interval)	Cable tools used (interval)
920 TO 111.13	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): SONIC LOG WITH GAMMA RAY CALIPER, 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.	164	150	0
PROTECTION	12¼	9 5/8	32.3	920		0
INTERMEDIATE	12¼	7	20	950.97	HUNG-UNCEMENTED	
SOLUTION	12¼	4½	10.79	1111.13	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

Amanda Padilla
Signature

Permit No. 647

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	56	RED CLAY
	56	139	CLAY AND SAND SHELLS
	139	188	SAND SHELLS AND CLAY
	188	195	SAND
	195	221	SANDY SHALE
	221	289	SHALEY SAND
	289	334	SAND SHALE
COCONINO	334	796	COCONINO
	796	800	SHALE
	800	811	ANHYDRITE
	811	823	SHALE
	823	840	ANHYDRITE
	840	851	SHALE
	851	855	ANHYDRITE
	855	872	SAND
	872	879	SHALE
	879	889	POTASH
	889	893	SANDY SHALE
	893	1116	SALT
	1116	1132	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 ☐ 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 OK 74101
Federal, State or Indian Lease Number or name of lessor if fee lease: Williams Energy Company	Well Number: 8 / Field & Reservoir: Adamana
Location: 1137.70' SNL and 1710.53' EWL	County: Apache
Sec. TWP-Range or Block & Survey: NE NW Section 8, T 18N, R 24E G & SR B & M	

Date spudded	Date total depth reached	Date completed, ready to produce	Elevation (DF, RKB, RT or GL)	Elevation of casing hd. flange
8-23-75	9-3-75	10-21-76	5311 feet	KB 5316 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.
1132'	----	LPG Storage	

Producing interval (s) for this completion	Rotary tools used (interval)	Cable tools used (interval)
----	0 - 1132'	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	920'	325	0
Solution		7"	20.0	955	Hung	0
Solution		4½"	9.0	1120	Hung	0

TUBING RECORD

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

LINER RECORD

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
575 sx. Cement	855-920'

INITIAL PRODUCTION

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

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

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

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

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

December 7, 1976
Date

Signature Dan J Dougherty
Dan J Dougherty

RECEIVED
DEC 10 1976
D & G CONS. COMM.

Permit No. 647

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

(Complete Reverse Side)

WELL CO[illegible]ETION OR RECOMPLETION REPORT [illegible]D 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: 8 / Field & Reservoir: Adamana
Location: 1215' SNL and 1524' EWL	County: Apache
Sec. TWP-Range or Block & Survey: NE NW Section 8, T 18N, R 24E G & SR B & M	

Date spudded	Date total depth reached	Date completed, ready to produce	Elevation (DF, RKB, RT or Gr.) feet	Elevation of casing feet
8-23-75	9-3-75	11-6-75	5311	KB 5316

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.
1132'	----	LPG Storage	

Producing interval (s) for this completion	Rotary tools used (interval)	Cable tools used (interval)
------	0-1132'	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)	Date filed
Sonic-Gamma Ray	

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	920'	325	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
575 sx. Cement	855-920'

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 12/23/75

Signature Robert J. Wraith

Permit No. 647

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, Sand and Shells
	150	341	Shale with sand stringers
Coconino	341	776	Sand
	776	794	Shaley sand
	794	817	Sandy Shale
	817	828	Shaley anhydrite
	828	844	Anhydrite
	844	852	Shale
	852	857	Anhydrite
	857	859	Shale
Top Salt	859	1125	Salt with Shale stringer
	1125	1132	Shale
TD		1132	

1125
659

* 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 [illegible] days after completion.

WK

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 # 8

Location NE 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 REPORT			☐

(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 30 JTS 9 5/8" 32,30# 8RD ST&C H-40 CSG & SET AT 920.03 KB CEMENTED W/350 SX CEMENT. CEMENT CIRCULATED.

RAN BOND LOG — W.O.O.

RECEIVED
SEP 1 ...
O & G CONS. COMM.

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

Signed [signature] Title Engr. Date 9-10-75

Permit No. 647

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 # 8

Location NE NW

Sec. 8 Twp. 18 N Rge. 24 E 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 REPORT			☐

(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.)

T.D. 1132

RAN SONIC-GAMMA LOG

RECEIVED
SEP 15 1975
O & G CONS. COMM.

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

Signed [illegible] Title Supt. Date 9-3-75

Permit No. 647

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 #8

Location NE 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.)

SPUD DATE 8-23-75
RAN 164' 13 3/8 CSG CEMENTED W/ 150 SAX CLASS "B"
CEMENT 8-24-75 CEMENT CIRCULATED.

RECEIVED
AUG 29 1975
O & G CONS. COMM.

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

Signed [illegible] Title Supt Date 8-26-75

Permit No. 647

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: WILLIAMS ENERGY COMPANY	Well number: 8	Elevation (ground): 5310.70'
Nearest distance from proposed location to property or lease line: 150 feet	Distance from proposed location to nearest drilling, completed or applied—for well on the same lease: 400 feet	
Number of acres in lease: 114	Number of wells on lease, including this well, completed in or drilling to this reservoir: 8	
If lease, purchased with one or more wells drilled, from whom purchased: N/A	Name	Address
Well location (give footage from section lines): 1137.70' S & 1710.53' E NW	Section—township—range or block and survey: SEC. 8, T18N, 824E, G&S.R.B.&M.	Dedication (Comply with Rule 105)
Field and reservoir (if wildcat, so state): Unnamed	County: Apache	
Distance, in miles, and direction from nearest town or post office: 16 miles west to Holbrook, Arizona		
Proposed depth: 7110	Rotary or cable tools: Rotary	Approx. date work will start: 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
O & G CONS. COMM.

Signature R. J. Wiruth
Date 5/30/75

Permit Number: 647
Approval Date: 6-3-75
Approved By: W. E. Allen

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

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

Form No. 3

(Complete Reverse Side)

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

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

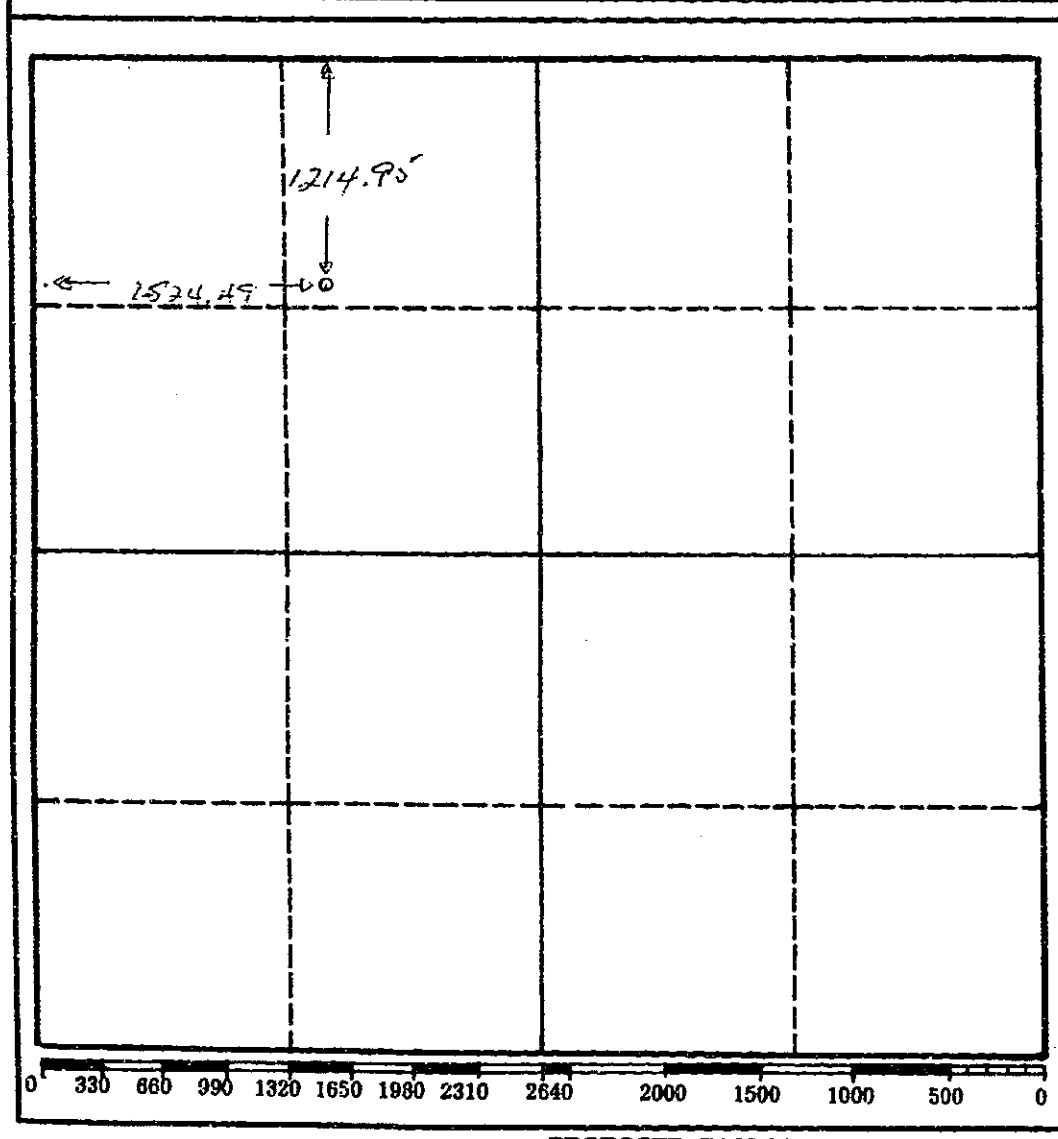
3. All distances shown on the plat must be from the outer boundaries of the Section.

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

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

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

WILLIAMS ENERGY COMPANY WELL NO. 8
(WELL NAME)

located ~~1214.95' So. & 1524.49' E of NW corner~~ 1137.70' So. & 1710.53' Ea. 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 647

RECEIPT NO. 0376
API NO. 02-001-20212

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

SAMPLES ARE REQUIRED

DIGITAL SURVEYS, INC.

SONAR SURVEY

Ferrellgas

WELL NO. 8

MARCH 19,1992

ADAMANA, ARIZONA

CUSTOMER REP.:	MR. THOMPSON
SONAR OPERATOR:	BOB POLLOCK
HOIST OPERATOR:	" "
JOB NO.:	254
PERMANENT DATUM:	B.H.F.
ZERO POINT:	B.H.F.
CASING DIA.:	N/A
CASING DEPTH:	
INTERMEDIATE DIA.:	4.5"
INTERMEDIATE DEPTH:	1067.7'
TUBING DIA.:	N/A
TUBING DEPTH:	OUT
TOTAL DEPTH:	1069.1'
GAGE T.D.:	N/A
SONAR T.D.:	1069.1'

REMARKS:
SURVEYED THRU 4.5" TUBING STRING

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

VOLUME REPORT

DEPTH feet	DEPTH meters	INCR ft³	TOTAL ft³	INCR m³	TOTAL m³	INCR bbls	TOTAL bbls
956	291.3	0	0	0.0	0	0.0	0
958	291.9	39	39	1.1	1	6.9	6
959	292.3	22	61	.6	1	3.9	10
960	292.6	25	86	.7	2	4.4	15
961	292.9	43	130	1.2	3	7.6	23
962	293.2	156	286	4.4	8	27.7	50
963	293.5	851	1138	24.1	32	151.5	202
964	293.8	3426	4564	97.0	129	610.1	812
965	294.1	5922	10487	167.7	296	1054.7	1867
966	294.4	3789	14277	107.3	404	674.8	2542
967	294.7	3152	17430	89.2	493	561.3	3104
968	295.0	5264	22695	149.0	642	937.5	4041
970	295.6	12157	34853	344.2	987	2165.1	6207
972	296.2	12353	47207	349.8	1336	2200.0	8407
974	296.8	12485	59692	353.5	1690	2223.5	10631
976	297.4	12132	71825	343.5	2034	2160.7	12792
978	298.0	12097	83923	342.5	2376	2154.4	14946
980	298.7	12311	96234	348.6	2725	2192.5	17139
982	299.3	11788	108023	333.8	3059	2099.4	19238
984	299.9	11041	119064	312.6	3371	1966.4	21205
986	300.5	10676	129740	302.3	3674	1901.3	23106
988	301.1	10115	139856	286.4	3960	1801.4	24908
990	301.7	9011	148868	255.1	4215	1604.8	26513
992	302.3	7687	156555	217.6	4433	1369.0	27882
994	302.9	7006	163562	198.4	4632	1247.7	29130
996	303.5	6690	170253	189.4	4821	1191.4	30322
998	304.1	6104	176357	172.8	4994	1087.1	31409
1000	304.8	5648	182005	159.9	5154	1005.9	32415
1002	305.4	5463	187468	154.7	5309	972.9	33388
1004	306.0	5375	192844	152.2	5461	957.2	34345
1008	307.2	10925	203770	309.3	5770	1945.7	36291
1010	307.8	5699	209469	161.3	5932	1014.9	37306
1014	309.0	22592	232061	639.8	6571	4023.6	41330
1015	309.3	8968	241029	253.9	6825	1597.2	42927
1016	309.6	8880	249910	251.4	7077	1581.5	44508
1018	310.2	17771	267682	503.2	7580	3165.0	47674
1020	310.8	18163	285845	514.3	8095	3234.8	50908
1022	311.5	18196	304042	515.3	8610	3240.7	54149
1024	312.1	18988	323031	537.7	9148	3381.7	57531
1026	312.7	20431	343462	578.6	9726	3638.7	61170
1028	313.3	20597	364059	583.3	10310	3668.3	64838
1030	313.9	20656	384715	584.9	10895	3678.8	68517
1032	314.5	21876	406592	619.5	11514	3896.1	72414
1034	315.1	23181	429773	656.4	12171	4128.5	76542
1036	315.7	22836	452610	646.7	12817	4067.0	80609
1038	316.3	21623	474234	612.3	13430	3851.0	84461
1040	316.9	20219	494453	572.6	14002	3601.0	88062
1042	317.6	19795	514249	560.5	14563	3525.4	91587
1044	318.2	20642	534891	584.5	15148	3676.3	95264
1046	318.8	21232	556124	601.2	15749	3781.4	99045
1048	319.4	20565	576690	582.4	16331	3662.6	102708
1050	320.0	19692	596382	557.6	16889	3507.1	106215
1052	320.6	20511	616894	580.8	17470	3653.0	109868
1054	321.2	23229	640124	657.8	18128	4137.0	114006

VOLUME REPORT

DEPTH feet	DEPTH meters	INCR ft^3	TOTAL ft^3	INCR m^3	TOTAL m^3	INCR bbls	TOTAL bbls
1056	321.8	25538	665663	723.2	18851	4548.3	118554
1058	322.4	25701	691364	727.8	19579	4577.3	123131
1060	323.0	25697	717062	727.7	20307	4576.6	127708
1062	323.6	26243	743305	743.2	21050	4673.8	132382
1064	324.3	26199	769505	741.9	21792	4666.0	137048
1065	324.6	12151	781656	344.1	22136	2164.0	139212
1066	324.9	7778	789435	220.2	22356	1385.2	140598
1067	325.2	1941	791377	54.9	22411	345.6	140944
1068	325.5	36	791414	1.0	22412	6.4	140950
1069	325.8	8	791422	.2	22413	1.4	140952

MAJOR COMPASS RADII

Depth & Radii in feet

DEPTH	TILT	N	NE	E	SE	S	SW	W	NW
956	90	2.7	2.4	2.2	2.2	2.0	1.8	2.5	2.8
958	90	2.5	2.5	2.5	2.7	2.8	3.0	2.7	2.6
959	90	3.1	3.1	3.0	2.8	2.6	2.4	2.6	2.9
960	90	2.9	2.5	2.9	3.1	3.7	3.2	2.6	2.6
961	90	5.0	4.3	4.4	4.3	4.0	4.4	4.7	5.0
962	90	10.1	10.3	9.0	9.2	9.9	9.0	7.5	9.2
963	90	16.7	22.6	19.6	16.5	19.4	15.6	25.4	35.8
964	90	45.8	46.1	46.5	44.8	32.7	49.0	22.0	44.8
965	90	43.3	44.4	45.9	46.1	42.2	41.4	44.2	44.2
966	90	15.2	15.4	44.2	15.2	34.6	15.2	14.8	15.8
967	90	18.0	42.4	44.4	45.0	43.9	17.7	41.6	43.5
968	90	43.9	43.7	45.9	42.2	45.9	44.2	42.0	43.3
970	90	45.6	44.1	44.6	42.6	43.3	43.3	43.1	44.2
972	90	45.4	44.4	44.2	43.7	43.5	45.6	44.6	45.9
974	90	44.8	43.5	43.9	43.5	44.6	46.3	45.8	44.8
976	90	43.5	44.6	43.3	41.4	41.8	43.1	44.1	43.3
978	90	43.9	43.7	43.9	44.8	43.7	44.8	46.1	45.4
980	90	45.4	43.9	42.9	42.9	43.9	44.6	43.7	46.3
982	90	42.2	40.5	41.4	47.8	42.2	42.4	41.8	42.6
984	90	41.6	48.4	40.7	39.7	39.7	40.5	42.2	42.0
986	90	42.0	42.4	42.4	39.2	39.3	38.8	40.9	40.9
988	90	39.9	39.9	39.9	38.0	37.1	37.7	39.9	40.5
990	90	38.2	38.2	35.4	36.3	38.0	36.0	35.2	37.8
992	90	35.4	33.7	32.0	31.6	32.6	36.5	33.9	34.6
994	90	37.5	30.5	30.7	32.0	35.6	33.3	33.3	32.0
996	90	32.7	30.9	30.3	30.1	33.3	35.2	32.7	32.7
998	90	30.7	25.0	24.8	28.4	32.7	36.7	29.2	32.9
1000	90	32.0	25.8	23.7	26.9	31.2	37.5	29.0	32.9
1002	90	31.8	25.4	25.4	27.8	24.3	30.9	34.1	31.8
1004	90	28.0	26.2	29.9	25.0	21.4	27.3	33.1	31.4
1008	90	39.2	28.4	28.0	18.0	16.7	21.8	29.9	38.6
1010	90	31.8	30.5	28.6	24.6	16.7	34.4	34.4	34.8
1014	90	52.9	54.6	53.9	52.4	52.7	53.3	54.4	54.8
1015	90	53.7	53.7	53.3	52.5	52.2	51.4	53.9	53.9
1016	90	55.4	52.5	52.0	51.8	51.6	53.5	53.5	54.4
1018	90	53.5	53.5	52.7	52.0	51.6	52.0	54.6	54.8
1020	90	52.4	52.7	51.0	52.9	50.5	54.2	54.2	53.5
1022	90	53.9	59.5	59.5	49.7	49.7	53.9	54.0	53.9
1024	90	57.6	56.1	56.3	54.2	51.8	55.0	59.1	57.1
1026	90	58.2	58.4	59.3	56.9	55.9	54.6	58.0	58.2
1028	90	57.1	57.1	58.0	56.5	54.8	57.6	58.0	58.8
1030	90	59.1	57.6	57.8	55.9	54.8	57.3	58.4	58.2
1032	90	59.9	59.3	58.8	57.4	60.3	60.6	61.8	63.5
1034	90	62.9	58.8	60.8	58.2	59.5	62.9	64.4	63.1
1036	90	57.1	59.7	58.6	58.8	59.5	58.0	63.3	63.1
1038	90	59.1	58.8	59.5	56.5	57.1	56.1	58.6	60.6
1040	90	59.3	53.9	54.8	58.6	54.6	54.6	53.1	58.6
1042	90	58.0	54.8	56.5	57.4	55.0	55.9	55.4	59.0
1044	90	57.4	55.7	58.6	58.6	58.2	57.6	60.1	58.6
1046	90	57.4	56.5	58.2	57.4	58.0	59.0	61.0	58.6

MAJOR COMPASS RADII

Depth & Radii in feet

DEPTH	TILT	N	NE	E	SE	S	SW	W	NW
1048	90	54.8	55.2	53.5	56.9	56.5	55.0	59.5	55.9
1050	90	53.9	55.2	54.0	55.9	55.6	56.3	58.6	55.6
1052	90	57.1	57.6	58.6	59.5	57.4	58.2	58.2	61.4
1054	90	71.0	58.6	60.6	61.0	59.9	62.0	64.0	66.7
1056	90	70.4	64.4	61.2	61.0	60.1	62.3	67.2	69.9
1058	90	62.5	66.3	70.1	61.6	63.5	58.0	62.3	62.9
1060	90	64.4	69.3	72.3	64.0	64.0	60.1	61.6	62.3
1062	90	67.4	67.8	60.5	61.4	61.4	64.4	66.1	68.9
1064	90	68.4	68.4	65.4	64.4	61.4	60.5	61.8	65.0
1065	90	65.0	9.0	61.4	62.7	58.8	66.3	69.1	66.1
1066	90	67.1	7.3	7.7	8.1	58.2	64.4	16.0	15.8
1067	90	5.8	5.9	4.1	3.3	3.3	3.2	3.3	3.6
1068	90	2.3	2.2	2.5	2.1	2.1	2.0	2.4	2.6
1069	90	.9	.9	1.3	.9	1.2	.8	1.0	.8

5 DEGREE RADII REPORT

Radii in feet

AZ DEPTH: 956 ft TILT: 90 degrees

0	2.7	2.6	2.6	2.6	2.7	2.5	2.5	2.4	2.3
45	2.4	2.3	2.4	2.4	2.3	2.3	2.3	2.3	2.2
90	2.2	2.2	2.3	2.3	2.3	2.3	2.2	2.1	2.2
135	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0
180	2.0	2.0	2.0	2.0	2.0	1.9	2.1	2.0	1.8
225	1.8	2.3	2.3	2.4	2.4	2.4	2.4	2.5	2.5
270	2.5	2.6	2.7	2.7	2.7	2.7	2.7	2.7	2.7
315	2.8	2.8	2.8	2.8	2.8	2.8	2.7	2.6	2.7

AZ DEPTH: 958 ft TILT: 90 degrees

0	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
45	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
90	2.5	2.5	2.5	2.5	2.6	2.5	2.6	2.6	2.6
135	2.7	2.6	2.6	2.6	2.6	2.7	2.8	2.8	2.8
180	2.8	2.8	2.8	2.9	2.9	2.9	3.1	3.0	3.1
225	3.0	2.8	2.8	2.9	2.8	2.8	2.8	2.8	2.7
270	2.7	2.7	2.7	2.7	2.6	2.6	2.6	2.6	2.6
315	2.6	2.6	2.6	2.6	2.6	2.6	2.5	2.6	2.5

AZ DEPTH: 959 ft TILT: 90 degrees

0	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.2	3.1
45	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.0	3.0
90	3.0	2.9	2.9	2.9	2.9	2.8	2.7	2.7	2.8
135	2.8	2.8	2.7	2.7	2.6	2.6	2.6	2.6	2.6
180	2.6	2.4	2.4	2.3	2.4	2.4	2.4	2.4	2.5
225	2.4	2.3	2.4	2.3	2.4	2.4	2.4	2.5	2.5
270	2.6	2.4	2.6	2.7	2.7	2.7	2.8	2.8	2.8
315	2.9	3.0	3.0	2.9	3.0	3.0	3.1	3.1	3.1

AZ DEPTH: 960 ft TILT: 90 degrees

0	2.9	2.6	2.8	2.8	2.8	2.5	2.5	2.5	2.5
45	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.7	2.7
90	2.9	2.9	2.9	3.1	3.1	2.7	2.7	3.1	3.1
135	3.1	3.2	3.1	3.3	3.2	3.2	3.2	3.3	3.4
180	3.7	3.4	3.5	3.3	3.4	3.3	3.1	3.1	3.1
225	3.2	3.3	3.1	3.0	3.0	3.1	3.1	2.9	2.8
270	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
315	2.6	2.6	2.6	2.7	2.7	2.8	2.8	2.7	2.9

AZ DEPTH: 961 ft TILT: 90 degrees

0	5.0	4.7	4.8	4.8	4.8	4.7	4.6	4.6	4.3
45	4.3	4.5	4.5	4.6	4.6	4.5	4.5	4.5	4.4
90	4.4	4.5	4.1	4.2	4.1	4.2	4.2	4.3	4.3
135	4.3	4.3	4.3	4.3	4.3	4.3	4.2	4.1	4.0
180	4.0	4.0	4.0	3.8	4.0	4.1	4.4	4.1	4.2
225	4.4	4.4	4.3	4.4	4.5	4.5	4.5	4.5	4.6
270	4.7	4.7	4.7	4.7	4.8	4.7	4.9	4.9	5.0
315	5.0	4.9	5.0	5.0	5.0	4.9	5.0	5.0	5.0

5 DEGREE RADII REPORT

Radii in feet

AZ DEPTH: 962 ft TILT: 90 degrees

0	10.1	10.5	10.3	10.3	11.3	10.7	10.3	10.3	10.5
45	10.3	10.3	10.3	10.3	10.9	10.5	9.9	9.0	9.2
90	9.0	9.0	9.0	9.4	9.6	9.4	9.0	9.4	9.8
135	9.2	9.0	9.6	9.6	9.2	9.6	8.6	8.4	8.4
180	9.9	8.4	8.2	8.8	8.2	8.4	8.2	9.0	8.8
225	9.0	9.6	8.8	8.2	8.4	8.4	8.2	8.1	7.9
270	7.5	7.5	7.5	7.5	7.5	7.5	8.1	8.1	8.4
315	9.2	10.1	9.9	10.5	9.9	9.9	10.1	9.9	9.9

AZ DEPTH: 963 ft TILT: 90 degrees

0	16.7	18.4	22.6	19.6	16.5	17.3	17.9	21.6	22.8
45	22.6	20.9	20.3	19.7	19.4	19.6	19.6	19.6	19.6
90	19.6	19.0	17.5	16.9	17.3	16.2	16.2	16.3	16.9
135	16.5	15.6	15.4	15.6	15.4	15.4	15.6	15.4	15.6
180	19.4	19.0	19.6	18.0	15.8	13.9	14.1	15.4	15.0
225	15.6	16.5	18.2	19.6	25.4	25.4	25.4	25.4	25.4
270	25.4	21.8	19.6	19.4	19.6	19.4	18.2	18.6	18.6
315	35.8	43.3	43.3	45.8	45.6	45.4	45.4	45.4	16.7

AZ DEPTH: 964 ft TILT: 90 degrees

0	45.8	43.1	43.3	45.8	44.6	45.2	45.6	46.1	46.1
45	46.1	45.4	45.4	45.4	43.5	43.5	43.5	44.2	46.1
90	46.5	45.9	45.9	44.6	44.2	45.4	46.3	45.6	45.9
135	44.8	45.8	45.0	45.6	45.4	46.7	46.7	46.7	46.9
180	32.7	26.0	27.3	27.7	29.0	32.4	45.8	48.4	49.0
225	49.0	49.0	49.0	49.0	49.0	45.0	44.2	36.5	22.8
270	22.0	23.9	26.5	26.9	27.5	34.8	35.8	39.5	43.9
315	44.8	44.6	44.6	45.2	45.2	45.2	45.2	46.1	45.8

AZ DEPTH: 965 ft TILT: 90 degrees

0	43.3	42.9	41.6	43.3	43.1	42.7	42.2	41.2	42.4
45	44.4	44.8	44.8	45.0	46.3	47.1	45.8	46.7	46.9
90	45.9	45.6	44.8	44.8	44.4	45.0	47.5	47.3	46.1
135	46.1	46.1	46.1	40.1	40.1	40.9	40.7	40.9	41.0
180	42.2	42.0	44.1	46.1	44.6	43.7	43.7	43.7	43.7
225	41.4	41.4	42.6	43.3	46.9	43.7	44.1	44.2	44.2
270	44.2	44.2	44.2	44.6	44.6	44.8	44.6	44.6	44.6
315	44.2	44.4	44.4	43.3	43.5	43.9	43.9	42.4	45.6

AZ DEPTH: 966 ft TILT: 90 degrees

0	15.2	15.4	14.8	14.8	14.8	14.8	14.8	15.0	14.8
45	15.4	14.3	14.8	46.7	45.8	45.2	45.4	46.1	43.9
90	44.2	45.9	44.6	46.3	17.1	15.4	15.0	14.8	15.2
135	15.2	15.4	29.0	37.7	35.6	34.6	32.6	33.1	32.6
180	34.6	39.5	41.4	41.2	15.2	15.2	15.6	15.8	16.0
225	15.2	15.2	15.2	15.2	14.8	14.7	14.7	14.1	14.7
270	14.8	14.8	14.1	14.3	14.3	14.7	14.7	14.5	15.8
315	15.8	15.8	16.3	16.9	15.6	15.6	15.8	16.2	15.8

5 DEGREE RADII REPORT

Radii in feet

AZ DEPTH: 967 ft TILT: 90 degrees

0	18.0	18.0	19.2	19.4	19.7	17.9	18.4	19.9	19.6
45	42.4	42.6	42.0	42.2	41.2	41.4	40.9	42.2	43.3
90	44.4	44.6	44.6	44.8	44.8	44.8	43.1	46.5	45.9
135	45.0	45.9	42.7	42.0	41.0	44.2	43.1	43.9	43.5
180	43.9	43.7	44.1	44.8	17.9	18.8	17.9	18.0	17.7
225	17.7	43.3	44.1	35.2	32.9	32.7	35.2	41.2	41.2
270	41.6	41.6	42.4	42.9	43.9	43.1	44.4	43.9	43.5
315	43.5	43.5	43.9	42.6	41.2	42.7	18.8	18.0	18.6

AZ DEPTH: 968 ft TILT: 90 degrees

0	43.9	42.9	41.8	42.7	43.3	42.6	44.1	45.0	43.5
45	43.7	42.7	44.4	42.4	42.6	42.2	43.1	44.1	44.8
90	45.9	45.9	45.9	45.9	44.4	45.4	44.1	43.9	42.2
135	42.2	44.8	44.1	44.1	45.0	45.9	45.0	45.2	45.2
180	45.9	45.9	45.9	45.9	45.9	45.9	44.4	45.0	45.0
225	44.2	44.1	45.9	44.4	44.2	44.1	43.1	42.4	41.2
270	42.0	41.8	42.0	41.2	41.0	40.9	40.5	42.6	42.9
315	43.3	44.1	44.4	44.2	44.4	45.4	44.4	44.6	45.8

AZ DEPTH: 970 ft TILT: 90 degrees

0	45.6	45.9	45.9	45.4	45.6	44.2	43.7	44.8	45.0
45	44.1	44.2	44.4	45.2	44.4	45.2	44.8	44.6	44.6
90	44.6	43.5	44.1	42.6	42.7	43.3	42.9	42.9	43.5
135	42.6	42.0	42.4	43.3	43.7	43.3	43.7	43.9	43.1
180	43.3	42.4	42.7	43.7	43.5	42.4	41.4	40.5	42.4
225	43.3	43.1	43.9	43.9	43.7	43.7	43.1	42.9	44.2
270	43.1	42.9	43.3	42.9	45.0	44.2	43.5	44.6	45.0
315	44.2	44.2	44.8	46.7	45.4	44.6	44.6	43.9	45.6

AZ DEPTH: 972 ft TILT: 90 degrees

0	45.4	45.4	45.2	45.6	44.6	45.2	44.1	44.6	45.2
45	44.4	45.4	45.4	45.6	46.5	44.2	43.9	44.2	44.2
90	44.2	44.2	44.1	44.2	44.4	43.3	44.1	44.2	43.7
135	43.7	42.4	43.3	42.4	42.6	43.1	42.7	42.9	43.7
180	43.5	43.7	45.0	45.4	45.2	45.4	44.8	45.4	44.8
225	45.6	44.4	44.2	44.1	44.1	44.2	45.4	45.6	45.4
270	44.6	45.9	47.1	45.6	45.8	45.9	45.9	45.6	45.8
315	45.9	45.6	45.8	45.6	45.4	45.6	44.4	45.2	44.1

AZ DEPTH: 974 ft TILT: 90 degrees

0	44.8	44.4	43.5	43.7	43.3	43.3	44.1	42.7	42.7
45	43.5	42.9	43.9	44.1	43.9	43.3	43.1	44.2	43.3
90	43.9	43.1	43.3	40.9	42.7	43.1	43.5	43.5	44.2
135	43.5	44.6	44.8	44.4	45.4	40.5	42.9	45.0	44.8
180	44.6	45.2	45.0	45.4	45.6	44.4	44.6	45.8	46.1
225	46.3	44.6	44.6	44.6	45.0	44.4	45.9	42.6	45.4
270	45.8	45.2	44.6	44.2	42.9	43.9	42.9	44.2	45.0
315	44.8	45.0	46.1	46.3	46.7	45.2	45.0	44.2	44.4

5 DEGREE RADII REPORT

Radii in feet

AZ DEPTH: 976 ft TILT: 90 degrees

0	43.5	42.4	41.4	41.2	43.9	41.8	44.1	44.4	43.7
45	44.6	44.6	43.5	43.5	44.4	43.5	43.5	44.8	43.3
90	43.3	44.8	43.3	42.9	45.8	41.4	41.4	41.4	41.4
135	41.4	41.6	44.1	41.4	41.6	42.2	41.4	41.6	41.0
180	41.8	40.5	41.2	41.4	42.2	43.1	42.7	42.9	43.1
225	43.1	43.9	44.2	43.7	45.0	44.8	44.8	44.8	44.8
270	44.1	44.6	45.2	44.4	43.9	45.4	46.5	44.4	43.3
315	43.3	45.9	46.1	45.2	45.6	44.6	44.4	44.8	44.2

AZ DEPTH: 978 ft TILT: 90 degrees

0	43.9	43.5	42.2	43.1	44.1	43.7	43.9	43.7	43.5
45	43.7	43.7	43.7	43.7	43.7	43.7	43.5	43.9	44.1
90	43.9	43.9	44.2	43.9	43.9	45.0	45.0	44.4	46.1
135	44.8	46.1	41.4	42.2	42.0	43.7	42.4	43.7	42.7
180	43.7	40.5	40.5	41.6	45.0	43.9	42.2	44.1	45.6
225	44.8	46.1	45.2	45.4	45.2	45.4	45.2	46.3	45.2
270	46.1	46.1	47.6	47.6	46.5	44.8	44.2	45.8	44.2
315	45.4	46.1	44.4	46.1	45.2	43.9	43.7	43.3	43.5

AZ DEPTH: 980 ft TILT: 90 degrees

0	45.4	45.9	45.9	43.9	43.1	42.4	42.9	42.4	41.8
45	43.9	43.1	43.1	43.3	43.3	43.7	44.2	43.3	42.9
90	42.9	43.1	42.7	44.1	42.7	42.2	45.0	44.2	42.7
135	42.9	43.3	44.2	44.6	43.7	42.6	42.4	42.0	42.2
180	43.9	43.3	43.7	44.8	45.2	45.4	45.4	44.1	44.1
225	44.6	45.0	44.8	44.2	44.6	46.7	45.6	43.5	44.4
270	43.7	44.6	45.8	46.1	45.6	44.8	45.2	45.2	45.8
315	46.3	45.8	47.1	45.9	45.9	45.4	45.6	45.9	45.9

AZ DEPTH: 982 ft TILT: 90 degrees

0	42.2	41.6	41.4	41.0	40.9	40.7	41.0	41.8	41.6
45	40.5	41.2	40.9	42.2	41.2	40.5	40.1	41.0	44.6
90	41.4	42.9	42.9	42.9	42.9	48.0	43.3	42.6	42.9
135	47.8	44.2	42.9	42.2	42.0	42.6	42.2	42.7	42.2
180	42.2	42.4	42.0	41.8	40.9	40.9	40.3	40.3	41.8
225	42.4	42.9	42.6	42.0	42.7	42.6	41.8	41.8	41.8
270	41.8	40.7	42.6	42.6	42.6	42.7	44.2	44.4	44.2
315	42.6	42.6	42.6	42.0	41.6	40.9	41.2	41.6	42.4

AZ DEPTH: 984 ft TILT: 90 degrees

0	41.6	42.4	42.4	42.0	42.4	42.4	42.4	42.4	48.4
45	48.4	48.4	45.8	41.8	40.9	40.9	41.0	40.3	40.5
90	40.7	39.2	42.7	40.7	40.7	41.4	40.7	40.7	40.1
135	39.7	39.2	39.7	39.5	39.5	39.5	39.3	39.5	39.5
180	39.7	39.7	39.7	41.0	42.2	40.9	40.9	40.9	41.0
225	40.5	40.5	40.5	40.5	42.2	42.2	42.2	42.2	42.2
270	42.2	42.4	42.6	42.2	41.0	41.2	40.9	41.6	41.4
315	42.0	41.6	41.4	42.4	41.2	41.6	41.8	41.8	41.4

5 DEGREE RADII REPORT

Radii in feet

AZ DEPTH: 986 ft TILT: 90 degrees

0	42.0	42.0	42.4	42.4	42.4	42.4	42.4	42.4	42.4
45	42.4	42.4	42.4	42.4	42.4	42.4	42.4	42.4	42.4
90	42.4	42.4	42.4	42.4	42.4	39.9	40.1	39.2	37.7
135	39.2	38.6	40.3	40.3	38.8	39.5	38.8	38.8	39.2
180	39.3	39.5	39.3	39.9	39.5	39.7	39.5	39.7	39.7
225	38.8	38.8	40.9	40.9	40.9	40.9	40.9	40.9	40.9
270	40.9	40.9	40.9	40.3	39.9	40.7	40.5	40.9	40.7
315	40.9	41.0	41.6	41.2	40.9	41.6	41.8	42.0	42.0

AZ DEPTH: 988 ft TILT: 90 degrees

0	39.9	39.9	39.9	39.9	39.9	39.9	39.9	39.9	39.9
45	39.9	39.9	39.9	39.9	39.9	39.9	39.9	39.9	39.9
90	39.9	39.9	39.9	39.9	39.9	39.9	39.9	40.7	37.7
135	38.0	37.8	37.5	37.7	37.3	37.8	37.1	37.3	38.4
180	37.1	37.7	37.7	37.7	37.7	37.7	37.7	37.7	37.7
225	37.7	37.7	37.7	37.7	37.7	37.7	39.9	40.5	39.3
270	39.9	40.5	40.9	39.3	40.3	40.5	42.4	42.0	40.5
315	40.5	40.7	39.5	39.9	39.9	39.9	39.9	39.9	39.9

AZ DEPTH: 990 ft TILT: 90 degrees

0	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2
45	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	37.7
90	35.4	34.6	32.0	32.0	32.0	33.5	35.6	37.3	36.7
135	36.3	35.6	36.0	35.4	35.6	35.4	35.4	35.2	33.5
180	38.0	36.9	36.9	36.7	36.7	36.5	36.0	36.0	36.0
225	36.0	35.2	35.2	35.2	35.2	35.2	35.2	35.2	35.2
270	35.2	35.2	35.2	35.2	35.2	35.2	35.2	36.3	36.7
315	37.8	36.5	37.3	36.0	37.7	38.4	37.5	38.2	38.2

AZ DEPTH: 992 ft TILT: 90 degrees

0	35.4	35.4	35.4	35.4	35.4	35.4	33.9	33.7	33.7
45	33.7	33.7	33.1	33.9	32.9	32.2	32.2	31.6	32.9
90	32.0	32.4	32.0	32.2	31.8	31.8	32.0	32.2	31.6
135	31.6	31.8	30.9	30.9	31.6	32.0	31.6	32.2	32.2
180	32.6	31.8	31.8	31.6	31.6	31.2	30.9	32.2	37.3
225	36.5	36.3	35.8	36.0	35.8	34.6	34.1	32.9	32.9
270	33.9	33.9	33.9	33.9	33.9	33.9	33.9	33.7	33.5
315	34.6	34.6	34.1	35.2	34.4	35.4	35.4	35.4	35.4

AZ DEPTH: 994 ft TILT: 90 degrees

0	37.5	36.3	33.9	33.1	33.5	31.4	32.4	31.2	32.6
45	30.5	30.1	30.7	31.1	31.2	31.8	30.5	29.9	30.1
90	30.7	31.1	31.6	31.1	31.6	31.6	31.8	31.4	32.2
135	32.0	31.8	31.2	31.1	31.4	32.4	33.1	34.8	36.3
180	35.6	36.1	36.3	34.4	35.0	34.4	34.4	34.1	33.3
225	33.3	33.3	35.8	35.8	35.8	34.8	33.3	32.9	32.7
270	33.3	31.4	32.0	32.0	31.2	31.4	32.0	32.6	32.0
315	32.0	33.3	33.9	37.1	37.3	36.9	37.3	37.1	37.1

5 DEGREE RADII REPORT

Radii in feet

AZ DEPTH: 996 ft TILT: 90 degrees

0	32.7	30.7	31.8	30.5	30.1	29.4	30.3	29.5	30.7
45	30.9	30.9	30.3	29.5	30.1	30.7	30.5	30.7	30.7
90	30.3	30.3	30.3	30.3	30.1	29.7	30.3	29.9	29.7
135	30.1	31.6	30.5	32.0	32.2	33.1	33.9	34.6	34.3
180	33.3	33.9	32.7	32.2	31.8	32.0	33.1	34.1	35.4
225	35.2	35.2	35.0	34.6	33.3	30.9	30.3	30.5	33.3
270	32.7	31.4	31.1	30.7	31.2	31.1	31.8	32.2	33.1
315	32.7	32.6	32.7	33.1	36.0	35.6	34.3	32.7	32.2

AZ DEPTH: 998 ft TILT: 90 degrees

0	30.7	28.2	27.3	27.3	26.7	26.7	25.4	25.2	25.0
45	25.0	25.0	25.4	25.2	25.6	25.6	25.4	25.4	23.9
90	24.8	25.8	25.6	26.9	27.1	28.2	28.4	28.2	28.4
135	28.4	29.0	29.0	30.5	30.9	31.8	32.4	34.1	32.7
180	32.7	31.2	32.9	31.6	32.7	34.3	35.6	36.3	37.5
225	36.7	38.0	36.3	34.8	34.3	35.6	31.2	27.7	29.2
270	29.2	28.8	27.5	28.6	28.8	32.2	32.4	32.7	32.4
315	32.9	33.3	33.3	33.1	32.9	32.9	32.9	32.9	31.6

AZ DEPTH: 1000 ft TILT: 90 degrees

0	32.0	29.5	28.6	26.9	26.5	26.0	26.0	25.6	25.4
45	25.8	25.6	25.8	25.8	24.6	24.5	24.3	24.5	23.9
90	23.7	24.8	25.2	25.6	25.6	26.5	26.5	26.5	26.7
135	26.9	26.7	28.0	28.4	29.0	30.3	30.7	30.1	31.2
180	31.2	30.9	29.9	30.7	29.5	30.1	33.9	36.1	35.8
225	37.5	35.4	34.4	32.7	33.7	34.4	32.9	32.9	31.2
270	29.0	27.8	27.1	27.7	28.0	27.7	27.8	28.8	33.1
315	32.9	32.2	32.7	32.9	33.1	33.3	33.5	33.5	33.7

AZ DEPTH: 1002 ft TILT: 90 degrees

0	31.8	29.9	28.2	28.4	27.8	26.7	26.3	26.3	25.2
45	25.4	25.2	25.2	25.0	25.6	25.6	26.9	28.2	25.0
90	25.4	26.5	28.2	26.9	29.5	28.4	26.7	27.7	27.8
135	27.8	27.8	27.3	27.3	26.9	26.5	25.2	26.0	25.0
180	24.3	29.0	29.0	28.8	28.4	29.0	28.6	29.2	31.2
225	30.9	31.4	32.2	37.3	36.0	32.9	33.1	34.1	34.1
270	34.1	32.4	32.7	32.9	33.9	31.1	29.5	31.4	31.2
315	31.8	32.0	32.0	31.8	31.6	31.8	32.2	31.8	32.0

AZ DEPTH: 1004 ft TILT: 90 degrees

0	28.0	26.5	26.3	25.8	25.8	24.5	25.6	25.4	25.0
45	26.2	26.3	29.2	29.2	30.9	30.5	30.7	30.7	29.2
90	29.9	29.9	29.2	29.7	30.3	30.1	25.4	25.4	26.2
135	25.0	26.0	26.2	25.6	25.4	25.6	22.9	22.0	21.8
180	21.4	21.6	22.0	23.3	26.2	26.7	27.5	26.9	27.5
225	27.3	28.2	34.6	34.6	36.5	36.5	36.5	35.2	33.3
270	33.1	33.3	33.3	34.4	33.1	32.4	30.5	30.5	32.0
315	31.4	32.2	30.3	31.2	31.2	31.2	30.3	30.3	28.0

5 DEGREE RADII REPORT

Radii in feet

AZ DEPTH: 1008 ft TILT: 90 degrees

0	39.2	39.2	39.2	39.2	39.2	39.2	39.2	38.8	38.6
45	28.4	27.7	29.7	27.1	28.0	29.0	28.0	26.9	28.8
90	28.0	27.3	27.1	26.9	26.0	19.9	17.7	18.2	17.7
135	18.0	18.6	17.7	18.4	17.3	16.9	17.5	16.7	16.9
180	16.7	16.9	18.4	21.4	24.8	24.5	24.3	22.4	21.3
225	21.8	26.5	30.1	32.0	33.7	33.7	32.7	30.3	29.9
270	29.9	29.5	28.6	35.2	35.2	35.4	35.6	37.3	38.4
315	38.6	39.0	38.8	38.2	39.2	39.2	39.2	39.2	39.2

AZ DEPTH: 1010 ft TILT: 90 degrees

0	31.8	32.9	33.1	33.1	33.1	32.7	30.1	30.1	30.5
45	30.5	30.5	30.3	29.5	29.5	29.5	29.5	31.2	29.9
90	28.6	31.2	32.4	32.4	25.0	25.2	24.8	24.6	24.5
135	24.6	22.4	21.4	21.1	20.1	20.9	18.2	16.7	17.3
180	16.7	17.9	17.7	19.0	19.4	29.2	30.7	30.7	34.1
225	34.4	33.7	33.7	35.0	34.4	35.4	35.4	35.4	34.3
270	34.4	33.1	34.4	33.9	34.3	35.0	36.9	35.6	34.4
315	34.8	36.1	35.0	34.8	33.7	34.8	33.3	32.6	32.6

AZ DEPTH: 1014 ft TILT: 90 degrees

0	52.9	53.9	53.5	53.9	54.4	53.9	54.2	54.0	54.0
45	54.6	55.2	53.7	54.2	54.2	54.4	55.0	55.2	54.8
90	53.9	53.9	53.3	53.9	54.2	53.1	52.4	52.5	52.4
135	52.4	52.4	52.5	52.7	52.5	52.5	52.5	52.4	52.7
180	52.7	52.7	52.5	51.8	51.8	52.9	53.3	53.3	53.3
225	53.3	53.3	53.3	53.3	53.3	53.3	53.3	53.3	53.3
270	54.4	54.4	54.4	54.2	54.2	54.8	54.2	54.4	54.0
315	54.8	54.6	54.6	54.6	54.4	54.4	53.7	54.6	53.7

AZ DEPTH: 1015 ft TILT: 90 degrees

0	53.7	53.7	53.7	53.7	53.7	53.7	53.3	53.7	53.7
45	53.7	53.7	53.7	53.7	53.7	53.7	53.3	53.1	54.8
90	53.3	53.9	53.5	54.0	53.3	53.3	52.7	52.4	52.5
135	52.5	52.0	52.2	52.4	52.4	52.7	52.7	52.0	52.5
180	52.2	51.4	51.0	51.2	52.0	52.0	52.9	51.4	51.4
225	51.4	51.4	51.4	51.4	51.4	51.6	53.5	53.5	53.1
270	53.9	53.9	53.9	52.9	52.9	54.0	54.0	54.2	53.7
315	53.9	54.4	54.0	56.1	53.1	52.7	55.0	56.3	53.7

AZ DEPTH: 1016 ft TILT: 90 degrees

0	55.4	53.7	53.7	54.0	53.3	53.5	52.7	52.9	52.7
45	52.5	52.2	52.2	52.5	52.2	52.4	52.4	52.7	53.1
90	52.0	52.4	52.5	52.0	52.4	51.6	51.4	51.8	51.8
135	51.8	52.7	52.7	52.4	52.4	51.6	51.6	51.6	51.6
180	51.6	53.3	53.5	53.5	56.7	55.4	54.2	54.2	53.9
225	53.5	53.9	54.4	54.6	53.9	53.9	53.9	53.5	52.9
270	53.5	52.7	53.1	55.0	54.2	53.3	53.5	53.7	53.7
315	54.4	53.9	53.9	53.9	53.9	53.9	53.9	53.9	54.2

5 DEGREE RADII REPORT

Radii in feet

AZ DEPTH: 1018 ft TILT: 90 degrees

0	53.5	53.5	53.5	53.5	53.5	53.5	53.5	53.5	53.5
45	53.5	53.5	53.7	54.4	54.2	54.6	52.7	52.7	53.1
90	52.7	51.6	52.9	52.5	52.2	52.4	50.8	52.5	52.4
135	52.0	52.5	52.4	52.4	52.7	52.9	52.4	51.6	52.0
180	51.6	53.3	53.5	53.5	51.6	52.0	52.0	52.0	52.0
225	52.0	52.0	52.0	52.0	52.0	52.0	52.0	54.4	53.7
270	54.6	54.8	54.8	54.8	55.0	54.4	55.2	54.2	54.8
315	54.8	54.8	54.6	53.7	52.7	52.5	53.7	53.9	53.7

AZ DEPTH: 1020 ft TILT: 90 degrees

0	52.4	52.4	52.0	52.0	51.6	51.4	51.2	51.6	52.7
45	52.7	52.7	51.8	52.7	52.9	53.1	51.8	53.1	51.6
90	51.0	50.3	51.4	51.6	51.2	52.0	51.8	51.8	52.9
135	52.9	52.9	52.9	52.9	52.9	52.9	52.4	50.8	50.7
180	50.5	54.8	52.4	51.2	52.7	54.2	53.9	54.0	54.6
225	54.2	54.6	54.4	54.2	53.7	53.9	122.9	54.2	54.2
270	54.2	54.2	54.2	54.2	52.7	53.5	53.5	53.5	53.5
315	53.5	53.5	53.5	53.5	53.5	53.5	53.5	53.5	52.2

AZ DEPTH: 1022 ft TILT: 90 degrees

0	53.9	53.9	53.9	53.9	53.9	53.9	58.0	55.0	56.1
45	59.5	59.5	55.2	52.0	51.0	51.6	51.6	54.0	56.9
90	59.5	59.5	59.5	57.6	53.1	52.9	53.7	51.8	51.6
135	49.7	49.3	49.1	48.6	49.1	49.9	49.9	50.7	50.1
180	49.7	50.8	49.5	49.7	49.7	50.7	50.7	50.7	50.7
225	53.9	54.0	52.0	52.5	53.1	54.2	53.5	53.9	54.0
270	54.0	53.9	53.3	52.7	52.4	53.1	53.9	54.6	53.9
315	53.9	53.9	53.9	53.9	53.9	53.9	53.9	53.9	53.9

AZ DEPTH: 1024 ft TILT: 90 degrees

0	57.6	57.4	57.8	57.6	58.0	57.6	56.7	56.7	56.1
45	56.1	58.2	58.4	58.8	58.4	58.8	57.6	56.9	57.6
90	56.3	56.5	55.6	55.7	56.3	56.3	55.4	56.1	55.4
135	54.2	53.3	52.9	53.9	52.5	52.7	54.2	53.9	54.4
180	51.8	54.6	54.8	51.4	54.4	57.1	56.7	57.3	56.9
225	55.0	55.4	55.2	56.1	56.5	56.3	58.2	57.4	59.3
270	59.1	60.1	59.3	59.0	58.0	58.0	57.8	58.6	57.6
315	57.1	57.1	56.7	57.1	57.1	58.0	57.3	57.3	57.4

AZ DEPTH: 1026 ft TILT: 90 degrees

0	58.2	58.2	58.2	58.2	58.2	58.2	58.2	58.2	58.4
45	58.4	58.6	58.2	57.3	57.1	56.7	57.1	57.8	58.8
90	59.3	58.6	59.1	58.2	58.2	58.8	57.8	56.9	56.9
135	56.9	56.9	57.1	56.7	56.7	56.3	56.3	57.3	55.9
180	55.9	55.7	56.5	55.2	55.2	55.4	55.0	54.8	54.2
225	54.6	55.0	54.4	55.7	56.7	57.1	57.1	57.1	57.1
270	58.0	58.4	58.2	58.8	58.2	58.2	58.2	58.2	58.2
315	58.2	58.2	58.2	58.2	58.2	58.2	58.2	58.2	58.2

5 DEGREE RADII REPORT

Radii in feet

AZ DEPTH: 1028 ft TILT: 90 degrees

0	57.1	57.4	56.9	57.6	58.4	58.4	58.4	57.1	57.1
45	57.1	54.8	54.8	54.8	54.8	54.8	54.8	58.0	58.0
90	58.0	58.0	58.0	56.5	56.3	55.6	55.9	55.9	57.1
135	56.5	56.9	57.1	57.8	56.9	55.6	55.4	55.4	55.0
180	54.8	54.8	54.8	55.4	55.7	55.9	57.3	57.3	56.5
225	57.6	58.0	58.0	58.0	58.0	58.0	58.0	58.0	58.0
270	58.0	58.0	58.0	58.0	58.0	58.0	58.0	58.4	58.4
315	58.8	58.4	58.2	58.2	58.0	58.4	57.3	57.4	57.1

AZ DEPTH: 1030 ft TILT: 90 degrees

0	59.1	59.1	57.6	57.6	57.6	57.1	57.1	57.6	57.6
45	57.6	57.8	59.3	59.1	58.6	56.9	57.4	57.4	57.1
90	57.8	59.0	56.9	57.3	56.9	57.3	57.3	56.1	56.3
135	55.9	55.6	56.7	56.1	55.7	55.9	56.9	55.0	55.7
180	54.8	54.8	54.8	54.4	54.8	55.0	55.7	55.6	55.6
225	57.3	59.3	59.3	59.3	59.3	58.2	58.4	58.8	59.3
270	58.4	58.4	59.0	59.0	59.0	59.0	59.0	59.0	57.1
315	58.2	59.3	59.0	57.3	57.8	58.8	58.8	58.8	59.0

AZ DEPTH: 1032 ft TILT: 90 degrees

0	59.9	60.1	59.3	59.3	59.3	58.8	59.0	58.6	59.3
45	59.3	60.3	59.9	59.9	59.9	59.9	59.5	58.6	58.8
90	58.8	58.4	57.8	58.4	58.8	58.0	57.8	58.4	58.6
135	57.4	58.0	57.6	58.2	58.6	58.2	59.3	58.6	58.6
180	60.3	57.4	57.1	58.8	59.5	58.0	62.9	60.5	61.8
225	60.6	61.0	62.0	61.6	62.5	63.5	62.3	63.3	61.0
270	61.8	63.9	64.0	64.4	62.0	64.2	63.5	63.3	63.7
315	63.5	63.1	62.7	62.3	62.0	62.2	62.2	62.2	60.1

AZ DEPTH: 1034 ft TILT: 90 degrees

0	62.9	62.9	59.1	58.4	59.0	57.3	58.4	56.9	58.6
45	58.8	60.1	61.4	61.4	60.5	60.3	58.2	59.0	59.7
90	60.8	60.5	60.3	60.6	60.5	59.5	59.0	58.6	58.6
135	58.2	57.6	58.4	59.1	59.0	59.5	59.1	59.3	59.3
180	59.5	58.8	59.1	59.0	58.0	59.7	60.6	60.6	63.1
225	62.9	62.3	62.3	63.3	63.9	62.3	64.6	64.6	63.9
270	64.4	63.9	63.9	64.8	64.6	64.0	64.4	64.4	64.0
315	63.1	62.3	63.1	62.7	63.3	63.1	62.5	62.5	60.8

AZ DEPTH: 1036 ft TILT: 90 degrees

0	57.1	57.6	58.6	58.4	59.7	60.1	60.3	59.9	59.3
45	59.7	56.7	57.3	60.3	59.9	60.8	60.3	61.0	59.3
90	58.6	58.6	58.0	57.3	57.3	57.6	58.8	58.2	59.0
135	58.8	59.9	58.4	58.6	58.6	58.0	58.0	56.9	59.1
180	59.5	58.8	58.4	57.8	60.5	58.0	58.0	58.0	58.0
225	58.0	58.0	58.0	58.0	60.1	62.2	61.2	62.9	62.2
270	63.3	63.1	62.5	63.9	63.5	63.5	63.7	63.3	62.9
315	63.1	63.1	58.2	57.6	56.9	57.3	57.8	57.6	57.3

5 DEGREE RADII REPORT

Radii in feet

AZ DEPTH: 1038 ft TILT: 90 degrees

0	59.1	59.1	57.1	57.1	53.5	53.5	53.5	53.9	54.2
45	58.8	59.1	58.4	58.6	57.1	57.1	57.1	56.9	58.6
90	59.5	58.8	59.5	59.9	58.2	57.6	57.4	56.9	55.9
135	56.5	56.7	57.4	56.7	57.3	55.7	56.9	57.4	58.0
180	57.1	56.9	55.9	56.1	55.7	55.6	55.7	55.4	56.3
225	56.1	56.3	56.1	58.8	56.1	56.1	56.1	55.9	56.9
270	58.6	60.3	60.5	59.5	60.3	61.4	61.4	61.8	60.6
315	60.6	61.6	59.5	59.1	59.1	59.1	59.1	59.1	59.1

AZ DEPTH: 1040 ft TILT: 90 degrees

0	59.3	59.5	58.8	59.0	56.1	55.4	52.4	54.2	54.2
45	53.9	53.9	53.5	53.7	54.2	54.0	54.0	55.2	54.6
90	54.8	53.7	53.1	52.2	51.4	55.4	54.8	57.1	58.0
135	58.6	57.8	57.8	57.4	56.1	56.7	56.3	55.2	56.1
180	54.6	55.0	54.0	55.4	54.6	56.3	54.4	52.9	54.2
225	54.6	54.8	52.5	52.5	51.4	53.1	55.0	54.4	53.7
270	53.1	55.0	55.4	55.0	54.8	54.8	54.4	58.8	58.8
315	58.6	59.1	59.3	58.8	58.8	59.3	58.8	59.0	59.0

AZ DEPTH: 1042 ft TILT: 90 degrees

0	58.0	58.4	58.0	54.4	54.2	52.9	53.7	55.0	54.4
45	54.8	54.6	54.0	54.0	54.2	54.6	55.6	54.2	56.3
90	56.5	56.9	57.8	57.6	55.9	56.3	57.4	57.6	58.0
135	57.4	57.1	56.5	55.6	55.2	54.6	55.9	54.2	55.2
180	55.0	55.4	52.9	55.4	56.7	55.4	56.3	56.9	58.2
225	55.9	55.7	57.4	57.8	54.8	55.4	56.5	53.9	59.5
270	55.4	55.4	60.3	60.5	60.3	59.7	60.3	59.1	59.5
315	59.0	58.8	59.3	58.8	58.6	57.8	58.6	58.6	58.2

AZ DEPTH: 1044 ft TILT: 90 degrees

0	57.4	58.0	56.9	57.8	57.1	57.4	57.1	56.9	56.1
45	55.7	55.9	55.9	56.3	56.9	57.1	56.7	58.2	58.2
90	58.6	58.0	58.0	58.4	57.8	58.2	58.4	58.4	58.6
135	58.6	59.1	56.1	55.2	56.3	56.1	55.4	58.6	59.0
180	58.2	59.1	59.0	59.0	59.3	60.1	59.9	57.6	57.6
225	57.6	58.0	57.8	58.0	58.6	59.0	59.3	57.8	58.4
270	60.1	60.5	60.5	58.2	57.6	59.1	58.8	58.4	58.8
315	58.6	58.8	58.6	58.2	58.4	58.6	58.4	58.8	57.4

AZ DEPTH: 1046 ft TILT: 90 degrees

0	57.4	57.4	57.4	59.9	59.9	55.4	56.1	56.3	55.0
45	56.5	56.5	55.9	55.6	55.0	56.3	57.3	56.7	57.4
90	58.2	58.0	57.3	57.3	57.6	57.8	57.8	57.4	57.4
135	57.4	57.8	58.6	58.6	58.4	58.0	57.4	57.6	58.6
180	58.0	57.8	58.2	58.6	59.1	59.1	59.5	58.6	59.1
225	59.0	58.8	59.1	59.7	60.1	59.5	59.9	60.1	60.3
270	61.0	59.9	60.1	59.7	59.9	59.9	58.4	58.4	58.4
315	58.6	58.0	58.4	58.2	58.0	57.3	58.6	59.3	58.2

5 DEGREE RADII REPORT

Radii in feet

AZ DEPTH: 1048 ft TILT: 90 degrees

0	54.8	55.0	54.6	54.2	54.4	54.4	53.7	55.0	54.2
45	55.2	54.2	54.2	52.7	52.7	52.7	53.5	52.7	53.5
90	53.5	56.3	56.5	54.4	55.2	55.9	56.1	55.7	55.9
135	56.9	57.1	57.1	57.3	57.6	57.1	56.3	56.5	56.1
180	56.5	57.1	58.0	57.1	57.1	57.1	59.5	58.4	55.2
225	55.0	55.4	55.4	59.1	59.1	57.8	59.1	60.3	60.1
270	59.5	59.1	55.9	55.9	55.9	56.5	58.0	58.0	54.6
315	55.9	55.6	57.1	56.1	55.7	54.4	54.4	56.1	54.8

AZ DEPTH: 1050 ft TILT: 90 degrees

0	53.9	52.5	53.9	53.9	53.9	54.6	54.6	55.2	55.2
45	55.2	53.1	53.1	53.1	53.1	52.5	52.4	55.4	52.5
90	54.0	54.0	55.2	56.7	55.6	55.6	54.2	55.2	55.0
135	55.9	55.4	56.5	55.6	55.7	57.1	56.1	56.1	55.4
180	55.6	55.6	55.4	55.7	55.7	56.7	57.1	56.7	56.3
225	56.3	54.8	55.9	55.2	55.2	55.2	58.6	58.6	58.6
270	58.6	58.6	58.6	58.6	58.6	58.6	58.6	58.6	58.6
315	55.6	55.6	55.6	57.1	56.9	54.2	55.2	54.8	53.5

AZ DEPTH: 1052 ft TILT: 90 degrees

0	57.1	57.1	59.3	58.2	58.6	57.6	58.2	57.3	57.3
45	57.6	57.3	57.6	57.4	58.4	55.6	58.6	58.2	59.0
90	58.6	58.6	58.6	59.1	56.7	58.2	58.2	59.5	61.4
135	59.5	58.8	59.0	56.7	58.8	59.0	57.8	57.6	57.6
180	57.4	56.1	55.4	56.3	57.1	57.1	58.2	58.2	58.2
225	58.2	58.2	58.2	58.2	58.2	58.2	58.2	58.2	58.2
270	58.2	58.2	58.2	58.2	58.2	58.2	58.2	58.2	58.0
315	61.4	61.8	68.9	60.5	60.5	61.8	58.8	58.0	58.0

AZ DEPTH: 1054 ft TILT: 90 degrees

0	71.0	71.0	71.0	61.6	61.2	61.2	61.2	59.1	58.0
45	58.6	58.6	58.0	58.0	59.1	60.3	60.1	60.1	60.3
90	60.6	60.8	59.5	58.8	60.5	58.8	58.6	59.3	60.1
135	61.0	60.5	60.3	60.8	60.8	60.6	60.5	61.6	60.3
180	59.9	59.7	59.0	62.3	63.1	61.0	60.8	62.7	62.7
225	62.0	61.0	61.6	61.8	61.4	64.0	64.0	64.0	64.0
270	64.0	64.0	64.0	64.0	64.0	64.0	70.4	66.7	66.7
315	66.7	71.0	70.3	71.0	72.3	72.3	70.8	71.0	71.0

AZ DEPTH: 1056 ft TILT: 90 degrees

0	70.4	70.6	70.8	63.7	62.5	61.0	61.8	62.3	64.2
45	64.4	63.3	63.5	59.1	59.1	59.1	60.3	60.3	61.2
90	61.2	60.3	60.3	60.3	60.3	59.7	57.3	60.3	60.1
135	61.0	60.8	61.4	61.8	61.0	61.6	61.0	61.8	60.1
180	60.1	60.3	59.9	59.9	65.7	63.5	63.1	64.0	64.2
225	62.3	62.3	62.3	62.0	62.5	62.5	69.1	68.8	65.9
270	67.2	67.2	68.4	69.3	70.4	70.6	70.8	69.3	69.9
315	69.9	69.9	69.5	69.3	70.1	69.9	70.8	70.8	70.6

5 DEGREE RADII REPORT

Radii in feet

AZ DEPTH: 1058 ft TILT: 90 degrees

0	62.5	70.3	68.2	64.2	66.3	66.3	66.3	66.3	66.3
45	66.3	66.3	66.3	66.3	69.5	68.8	68.8	68.8	68.8
90	70.1	66.1	66.1	66.1	66.1	65.2	65.9	61.8	61.8
135	61.6	61.4	61.6	64.2	64.2	64.2	63.5	62.7	63.3
180	63.5	62.3	62.2	61.8	62.7	61.8	61.8	58.0	58.0
225	58.0	58.4	58.4	58.4	60.3	60.3	60.8	61.6	61.8
270	62.3	62.2	62.3	61.4	60.5	61.0	60.1	60.3	60.3
315	62.9	63.1	63.1	63.5	64.4	63.9	62.7	62.5	62.5

AZ DEPTH: 1060 ft TILT: 90 degrees

0	64.4	66.5	67.6	67.6	66.1	66.1	65.7	67.6	69.3
45	69.3	69.3	69.3	69.1	69.1	69.1	69.1	69.1	70.6
90	72.3	70.4	64.0	64.0	64.0	64.0	64.0	64.0	64.0
135	64.0	64.0	64.0	64.0	64.0	64.0	64.0	64.0	64.0
180	64.0	64.0	64.0	64.0	62.5	62.7	59.1	62.5	60.5
225	60.1	59.7	59.7	60.3	60.1	59.0	59.7	60.8	61.4
270	61.6	62.0	61.8	61.6	60.6	60.5	60.3	61.4	61.0
315	62.3	63.5	62.5	63.7	64.8	62.7	63.3	63.7	63.9

AZ DEPTH: 1062 ft TILT: 90 degrees

0	67.4	67.4	66.5	67.4	65.9	66.5	67.6	66.5	68.9
45	67.8	67.6	66.9	65.9	65.7	64.6	66.3	66.3	64.0
90	60.5	63.5	63.5	61.2	60.5	61.0	61.0	60.8	60.8
135	61.4	60.6	60.5	60.1	60.6	61.2	60.8	61.8	61.4
180	61.4	61.8	61.8	62.0	61.8	61.8	62.2	63.1	64.0
225	64.4	64.2	64.2	64.6	64.0	64.0	65.2	65.7	65.5
270	66.1	66.9	67.1	67.2	68.9	67.2	69.3	68.8	68.8
315	68.9	68.6	68.8	69.3	69.3	67.4	69.1	68.6	67.8

AZ DEPTH: 1064 ft TILT: 90 degrees

0	68.4	68.8	69.1	69.1	69.1	69.1	68.4	68.4	68.4
45	68.4	68.0	67.4	66.9	66.3	66.3	65.9	65.7	65.7
90	65.4	65.4	64.6	64.6	64.4	63.7	63.3	63.5	62.2
135	64.4	62.2	61.4	64.0	62.2	62.3	61.8	61.8	62.9
180	61.4	61.6	61.0	61.0	60.1	60.6	61.0	60.1	59.7
225	60.5	61.4	60.6	61.8	61.0	62.2	62.2	61.4	62.0
270	61.8	62.2	62.0	62.2	62.2	62.2	62.2	62.2	65.0
315	65.0	63.7	63.7	63.7	64.4	65.2	68.2	68.2	68.4

AZ DEPTH: 1065 ft TILT: 90 degrees

0	65.0	66.7	66.3	65.9	65.9	65.4	65.7	8.8	8.8
45	9.0	8.8	9.0	8.8	61.2	61.0	61.0	60.5	61.0
90	61.4	61.4	60.6	58.6	59.1	57.4	61.8	61.2	62.7
135	62.7	62.2	61.4	61.4	61.2	60.6	58.0	58.2	58.4
180	58.8	58.0	58.0	58.0	58.0	58.0	58.0	65.0	65.7
225	66.3	66.3	66.9	67.8	65.9	67.8	66.3	68.8	68.0
270	69.1	67.6	65.0	64.6	63.5	64.6	64.4	65.7	66.1
315	66.1	65.7	65.7	66.1	67.6	68.4	67.6	68.0	67.4

5 DEGREE RADII REPORT

Radii in feet

AZ DEPTH: 1066 ft TILT: 90 degrees

0	67.1	66.3	65.9	65.9	65.9	65.9	7.7	7.7	7.7
45	7.3	7.9	7.5	7.5	7.5	7.5	7.7	7.7	7.5
90	7.7	7.7	7.9	7.9	7.9	7.7	7.7	7.5	8.1
135	8.1	8.1	8.2	8.2	8.4	60.8	60.3	59.0	58.2
180	58.2	59.3	58.4	58.8	56.3	58.0	61.8	62.2	59.0
225	64.4	66.5	66.3	66.1	15.6	15.2	15.2	15.0	15.4
270	16.0	15.8	15.6	15.8	16.0	16.2	15.8	16.0	16.5
315	15.8	16.5	39.5	63.3	66.5	63.1	66.7	66.3	67.1

AZ DEPTH: 1067 ft TILT: 90 degrees

0	5.8	5.7	5.9	5.8	5.9	6.0	6.0	6.2	6.3
45	5.9	6.0	6.2	5.7	5.9	6.2	5.9	5.7	5.8
90	4.1	3.9	3.7	3.5	3.7	3.6	3.5	3.4	3.4
135	3.3	3.4	3.3	3.4	3.3	3.4	3.2	3.3	3.3
180	3.3	3.4	3.3	3.3	3.4	3.3	3.3	3.3	3.2
225	3.2	3.1	3.0	2.8	2.8	2.8	3.1	3.4	3.4
270	3.3	3.2	3.4	3.2	2.9	3.0	3.0	3.5	3.5
315	3.6	5.7	5.7	5.7	5.7	5.7	5.8	5.9	5.9

AZ DEPTH: 1068 ft TILT: 90 degrees

0	2.3	2.3	2.4	2.4	2.4	2.3	2.3	1.9	2.0
45	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4
90	2.5	2.4	2.4	2.4	2.4	2.3	2.1	2.0	2.0
135	2.1	1.9	2.0	2.2	2.1	2.1	2.3	2.3	2.0
180	2.1	2.2	2.2	2.4	2.3	2.3	2.4	2.2	2.3
225	2.0	2.0	1.9	2.1	2.2	2.3	2.3	2.4	2.4
270	2.4	2.4	2.4	2.5	2.4	2.5	2.6	2.6	2.5
315	2.6	2.6	2.4	2.4	2.5	2.5	2.4	2.3	2.3

AZ DEPTH: 1069 ft TILT: 90 degrees

0	.9	.9	1.0	1.0	1.0	1.1	1.1	1.3	.9
45	.9	.9	.9	.9	.9	.9	.9	1.3	1.3
90	1.3	1.3	1.2	1.3	1.3	1.2	1.1	1.0	.9
135	.9	1.3	1.1	1.3	1.2	1.2	1.1	1.1	1.1
180	1.2	1.1	1.1	1.0	.9	.9	.9	.9	.8
225	.8	.8	.8	.9	.9	1.0	1.0	1.0	1.0
270	1.0	.9	1.0	1.0	1.0	1.0	1.1	1.2	1.2
315	.8	.8	.8	.8	.8	.9	1.0	1.1	.9

MAXIMUM HORIZONTAL RADII

AZM deg	RADIUS ft	DEPTH ft
0	71.0	1054
2	71.0	1054
4	71.6	1056
6	71.0	1054
8	70.4	1058
10	71.0	1054
12	71.0	1054
14	69.1	1064
16	69.1	1064
18	69.1	1064
20	69.1	1064
22	69.1	1064
24	69.1	1064
26	69.1	1064
28	68.4	1064
30	68.4	1064
32	68.4	1064
34	68.4	1064
36	68.4	1064
38	70.1	1060
40	69.3	1060
42	69.3	1060
44	69.3	1060
46	69.3	1060
48	69.3	1060
50	69.3	1060
52	69.3	1060
54	69.3	1060
56	69.3	1060
58	69.1	1060
60	69.1	1060
62	69.1	1060
64	69.1	1060
66	70.4	1058
68	69.1	1060
70	69.1	1060
72	69.1	1060
74	69.1	1060
76	69.1	1060
78	69.1	1060
80	69.1	1060
82	69.1	1060
84	69.1	1060
86	72.3	1060
88	72.3	1060
90	72.3	1060
92	72.3	1060
94	72.3	1060
96	68.8	1060
98	66.1	1058
100	66.1	1058
102	66.1	1058
104	66.1	1058
106	66.1	1058
108	66.1	1058
110	66.1	1058
112	64.4	1064
114	66.3	1058
116	64.2	1058
118	64.0	1060
120	65.9	1058
122	64.4	1058
124	64.0	1060
126	64.0	1060
128	64.0	1060
130	64.0	1060
132	65.5	1064
134	65.2	1064
136	64.0	1060
138	64.0	1060
140	64.0	1060
142	64.0	1060
144	64.0	1060
146	64.0	1060
148	64.0	1060
150	64.2	1058
152	64.2	1058
154	64.2	1058
156	64.2	1058
158	64.2	1058
160	64.2	1058
162	64.2	1058
164	64.2	1058
166	64.0	1060
168	64.0	1060
170	64.0	1060
172	64.0	1060
174	64.0	1060
176	64.0	1060
178	64.0	1060

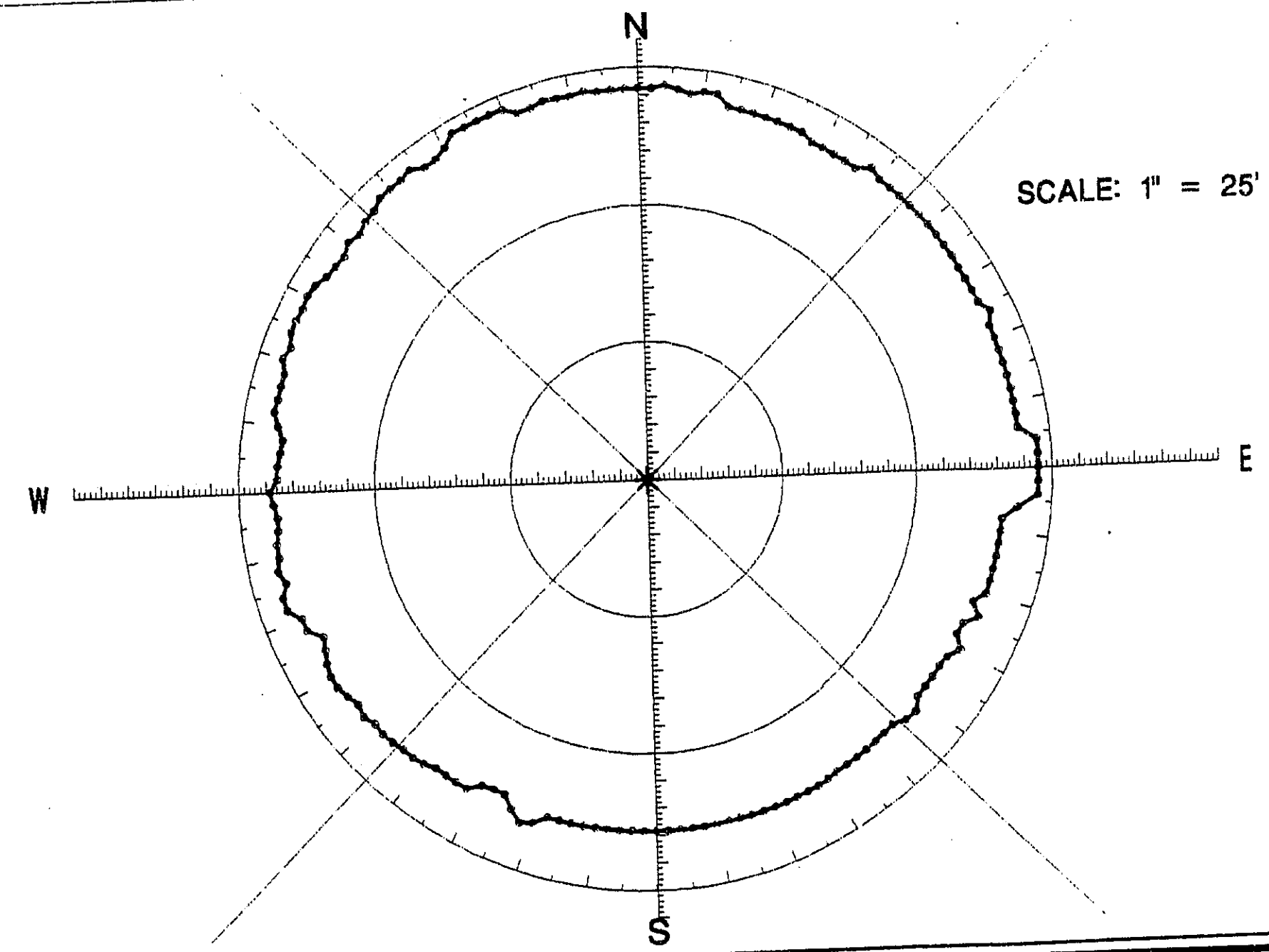
MAXIMUM HORIZONTAL RADII

AZM deg	RADIUS ft	DEPTH ft
180	64.0	1060
182	64.0	1060
184	64.0	1060
186	64.0	1060
188	64.0	1060
190	64.0	1060
192	64.0	1060
194	64.0	1060
196	64.0	1060
198	64.0	1060
200	65.7	1056
202	66.5	1056
204	64.8	1054
206	62.7	1060
208	62.7	1056
210	63.1	1056
212	65.0	1065
214	65.0	1065
216	65.0	1065
218	65.0	1065
220	65.7	1065
222	66.1	1065
224	66.1	1065
226	66.5	1065
228	66.7	1065
230	66.5	1066
232	67.2	1065
234	66.7	1065
236	67.2	1065
238	67.8	1065
240	67.8	1065
242	67.2	1065
244	66.3	1065
246	65.5	1065
248	67.8	1065
250	67.8	1065
252	69.9	1056
254	69.9	1056
256	68.6	1056
258	69.5	1065
260	68.8	1056
262	68.8	1056
264	68.2	1065
266	68.0	1065
268	68.6	1056
270	69.1	1065
272	67.8	1065
274	67.8	1065
276	67.4	1065
278	67.2	1056
280	68.4	1056
282	69.5	1056
284	69.3	1056
286	69.3	1056
288	69.3	1056
290	70.4	1056
292	69.7	1056
294	70.6	1056
296	70.6	1056
298	70.4	1056
300	70.8	1056
302	70.4	1054
304	69.5	1056
306	69.1	1056
308	68.9	1062
310	69.9	1056
312	69.1	1062
314	69.9	1056
316	70.1	1056
318	71.0	1054
320	71.0	1054
322	71.0	1054
324	71.4	1052
326	70.1	1054
328	70.1	1054
330	71.0	1054
332	72.5	1054
334	72.3	1054
336	72.3	1054
338	72.3	1054
340	72.3	1054
342	70.8	1054
344	70.8	1054
346	71.4	1056
348	71.2	1054
350	71.0	1054
352	71.4	1056
354	71.0	1054
356	71.0	1054
358	71.0	1054

Maximum radius : 72.5
On Azmuth deg : 332

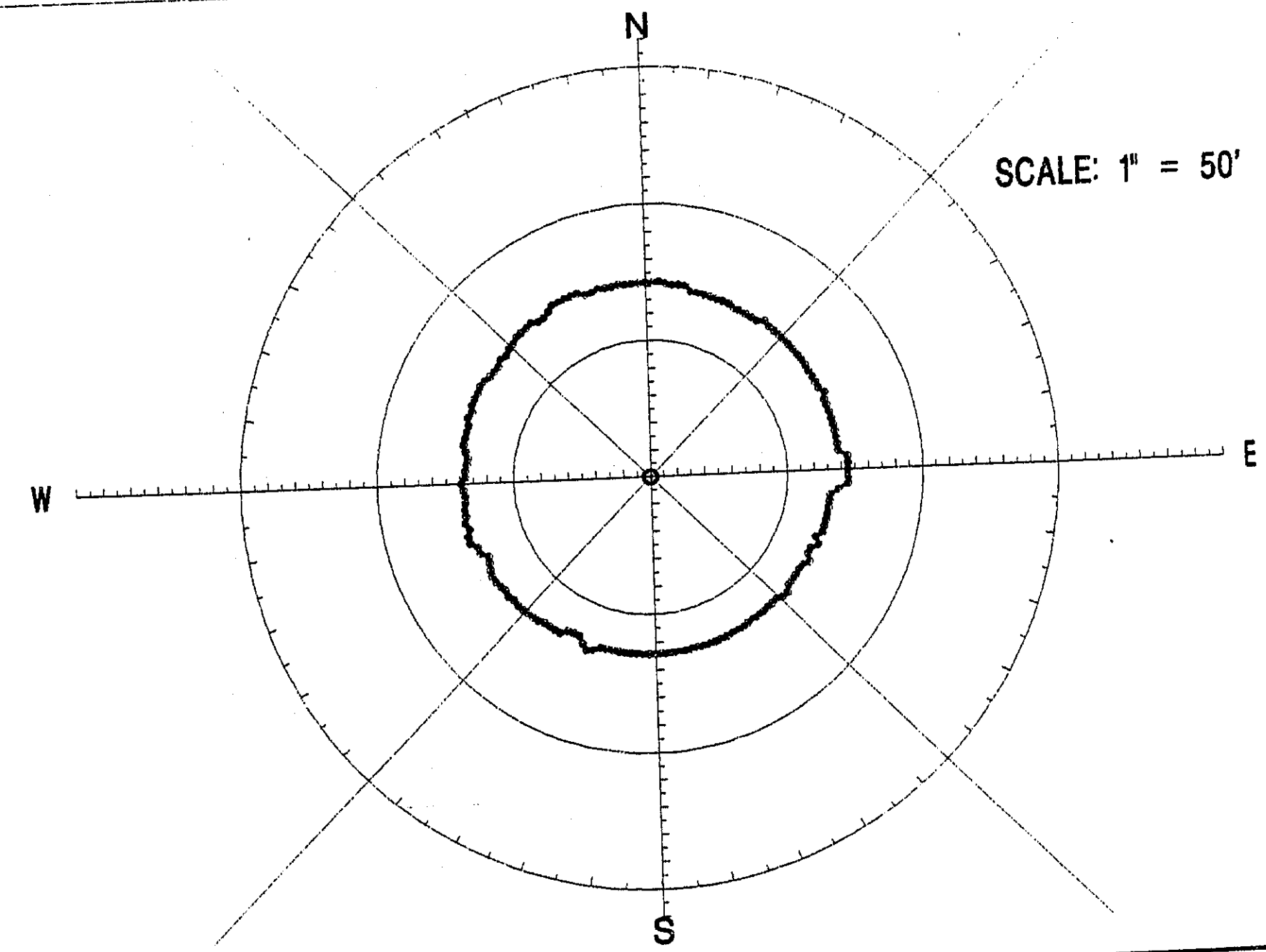
MAXIMUM RADIUS PLOT

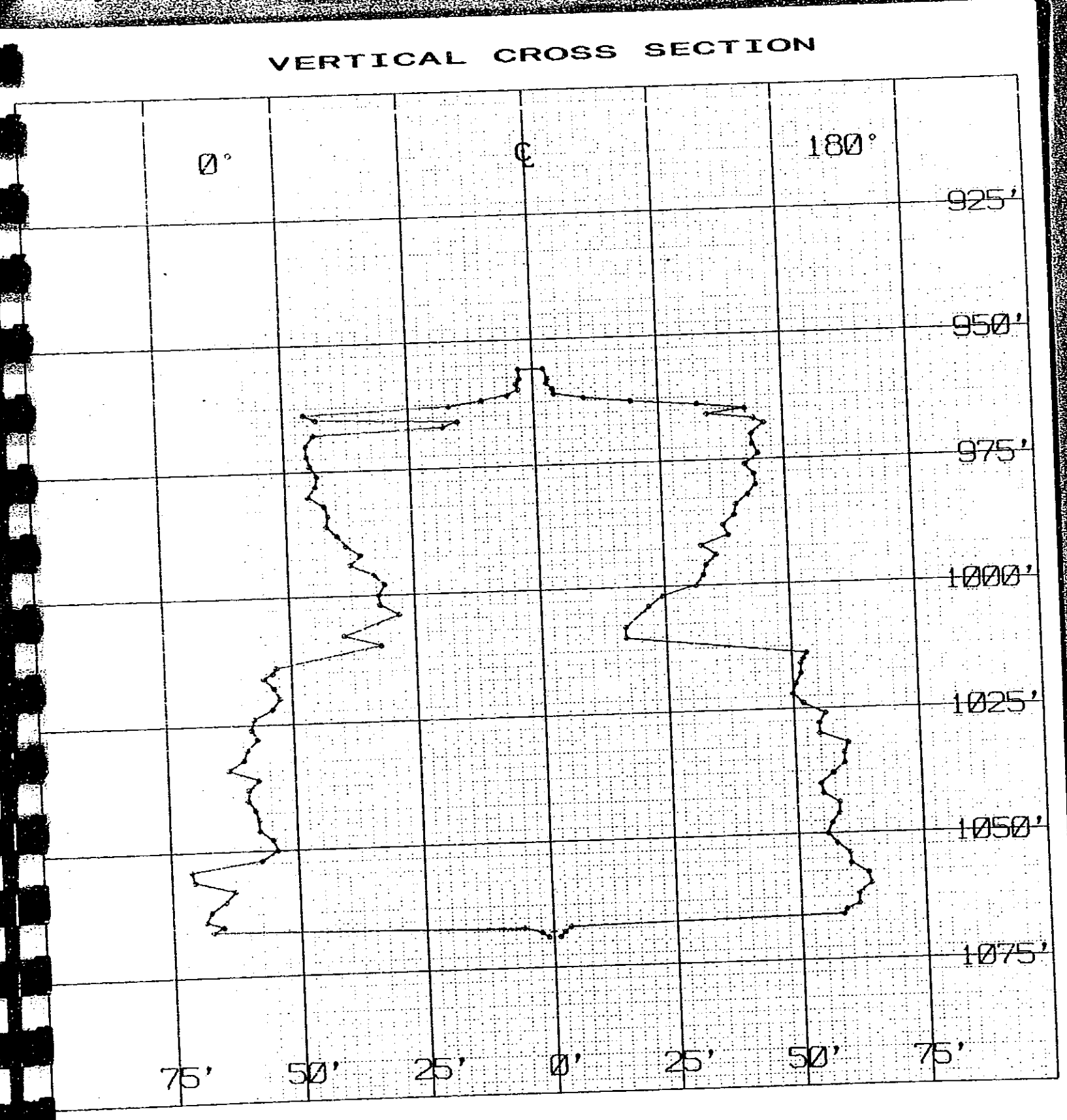
03/19/92 | Ferrellgas Inc. | No.: 8



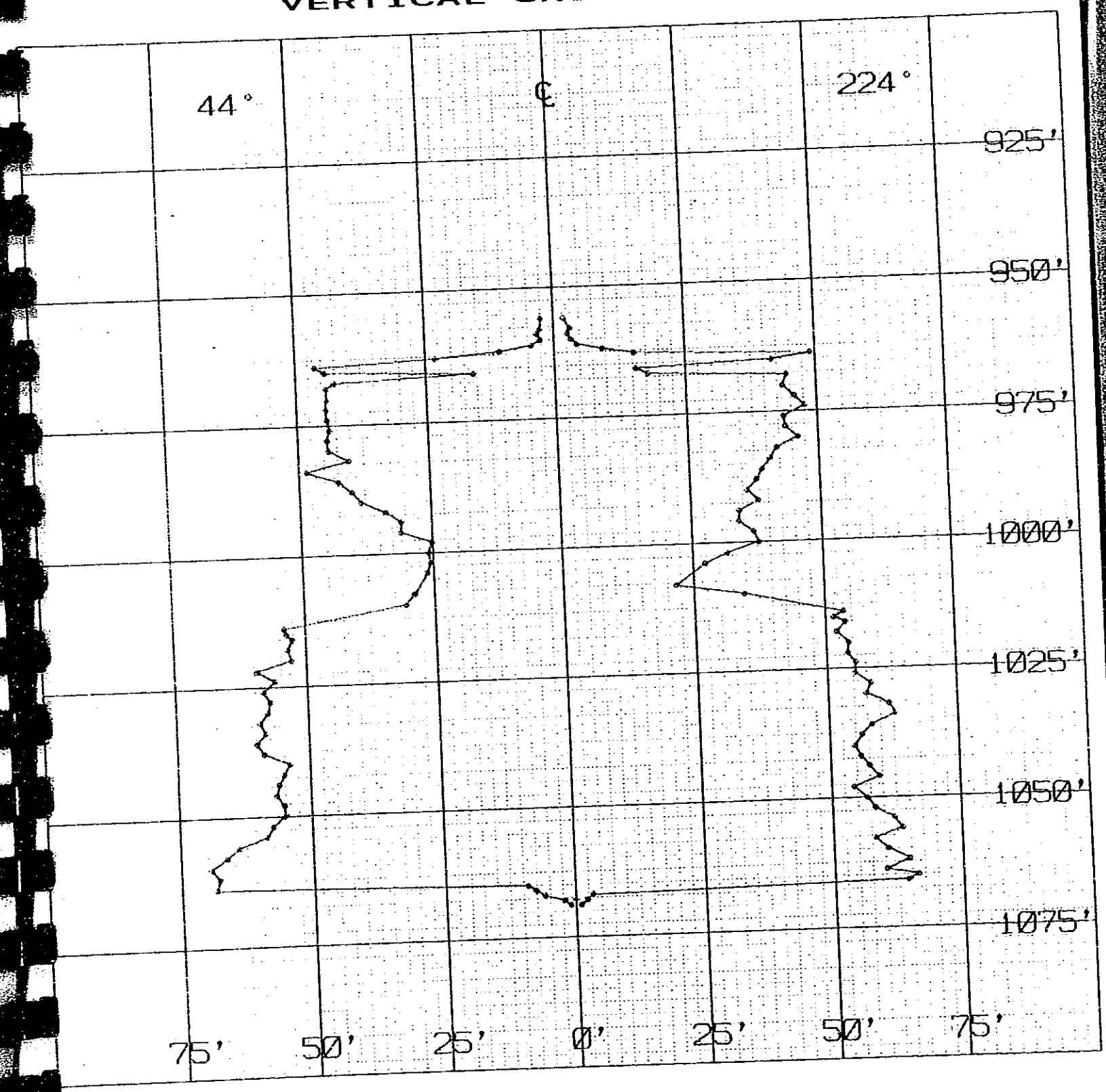
MAXIMUM RADIUS PLOT

03/19/92 | Ferrellgas Inc. | No.: 8




VERTICAL CROSS SECTION
0°
℄
180°
925'
950'
975'
1000'
1025'
1050'
1075'
75'
50'
25'
0'
25'
50'
75'

VERTICAL CROSS SECTION



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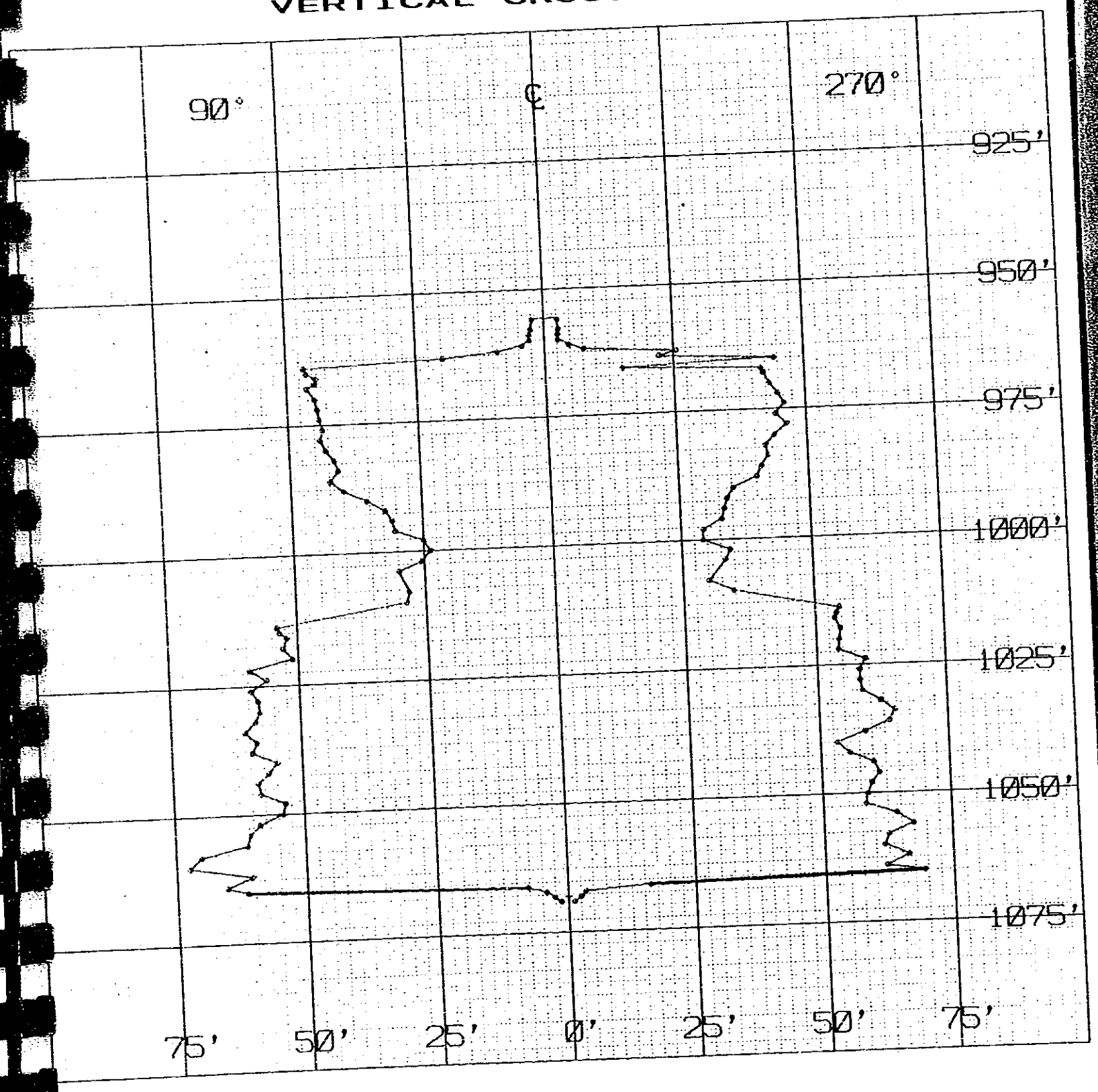

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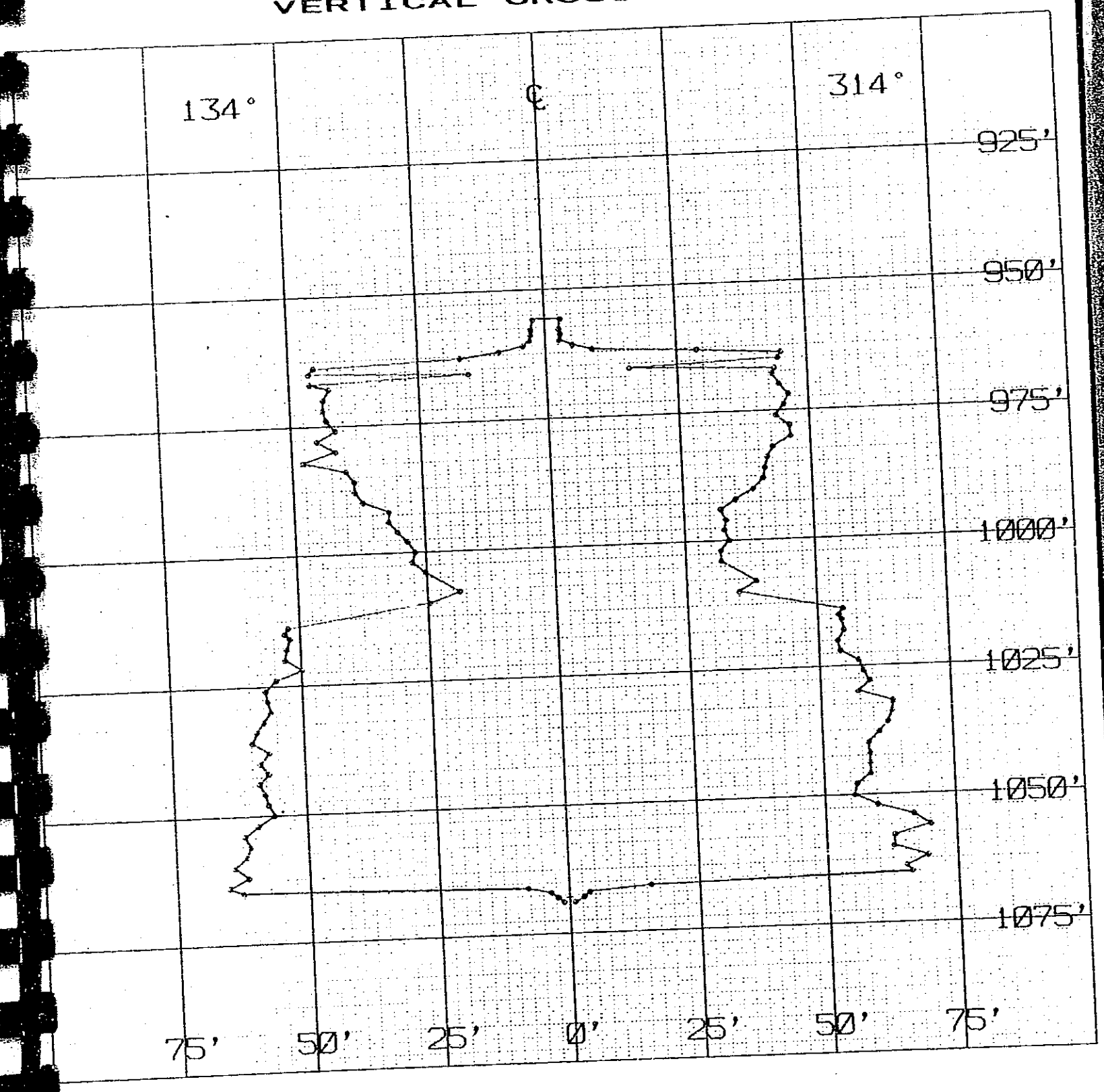

DIGITAL SURVEYS, INC.

03/19/92

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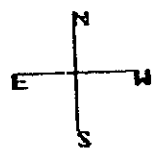

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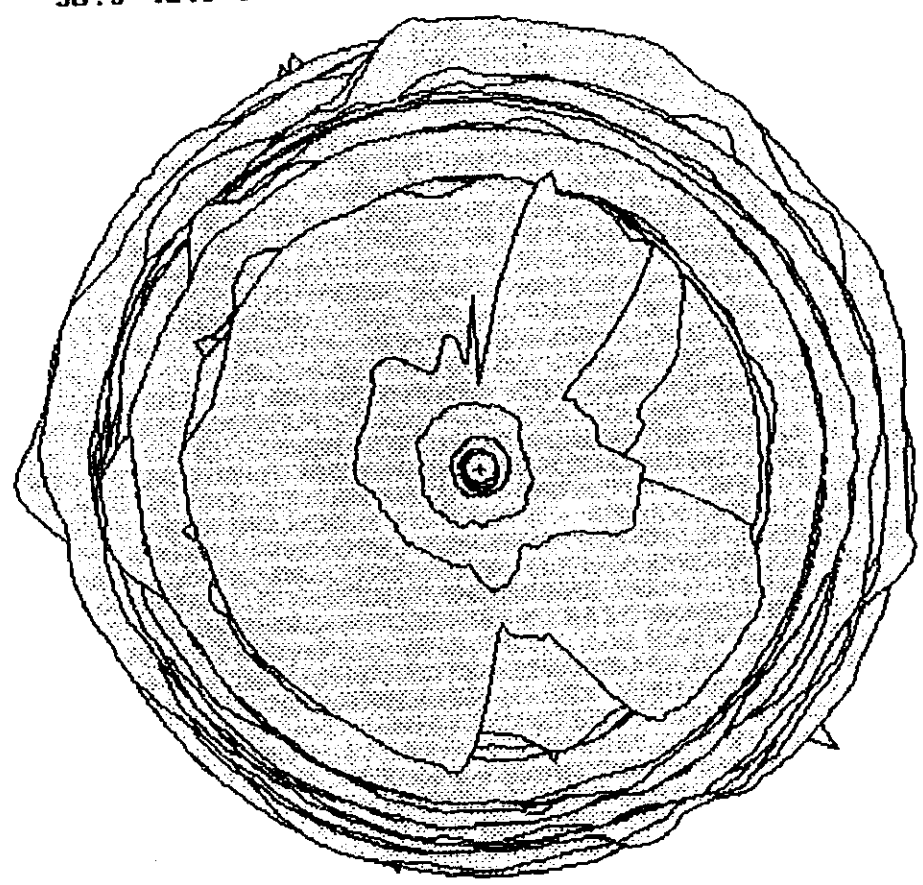

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DIGITAL SURVEYS, INC.

03/19/92

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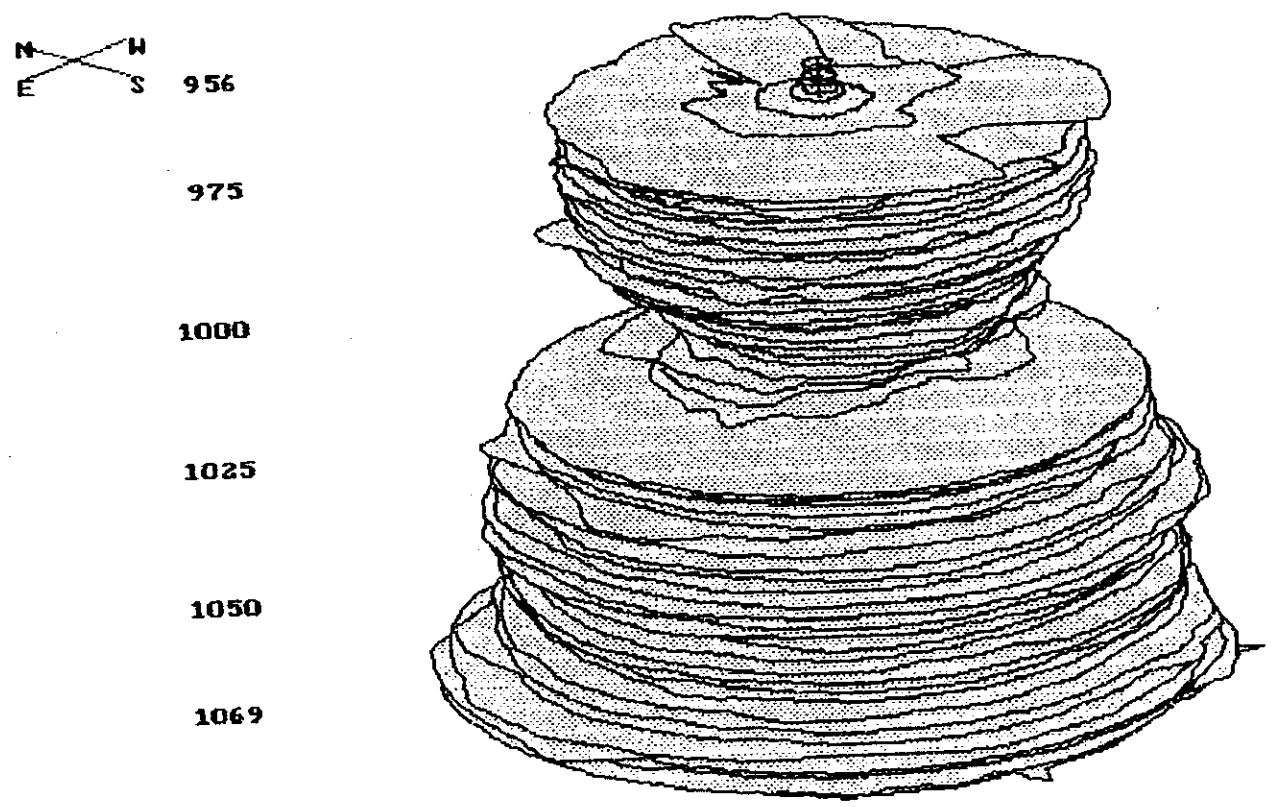

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DIGITAL SURVEYS, INC.

03/19/92

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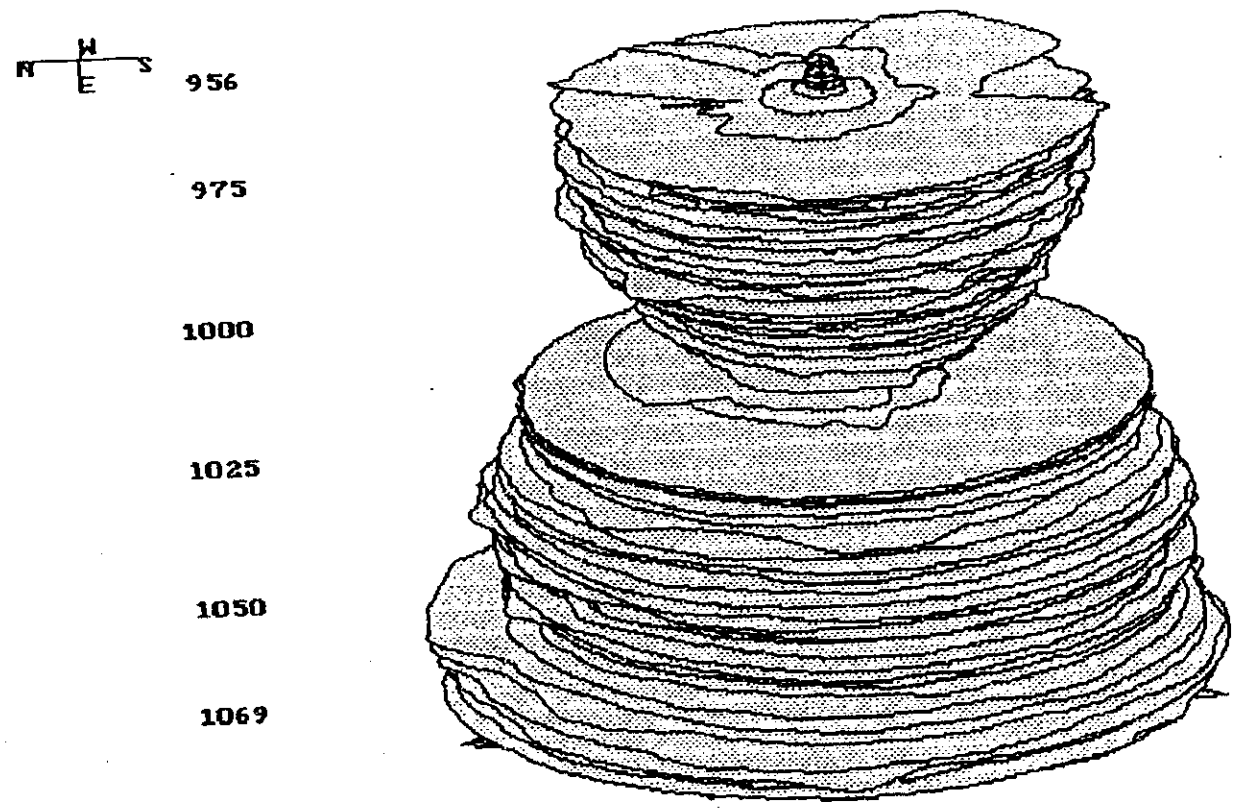

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DIGITAL SURVEYS, INC.

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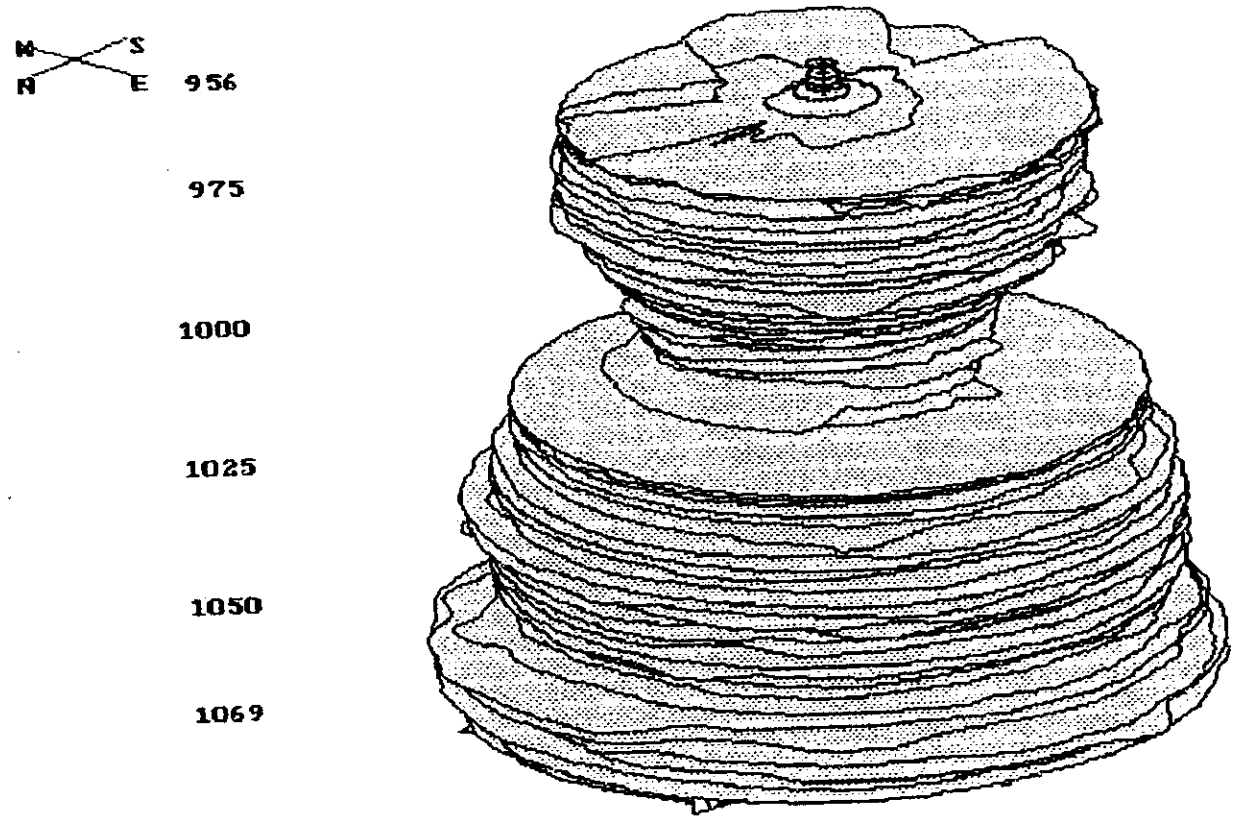

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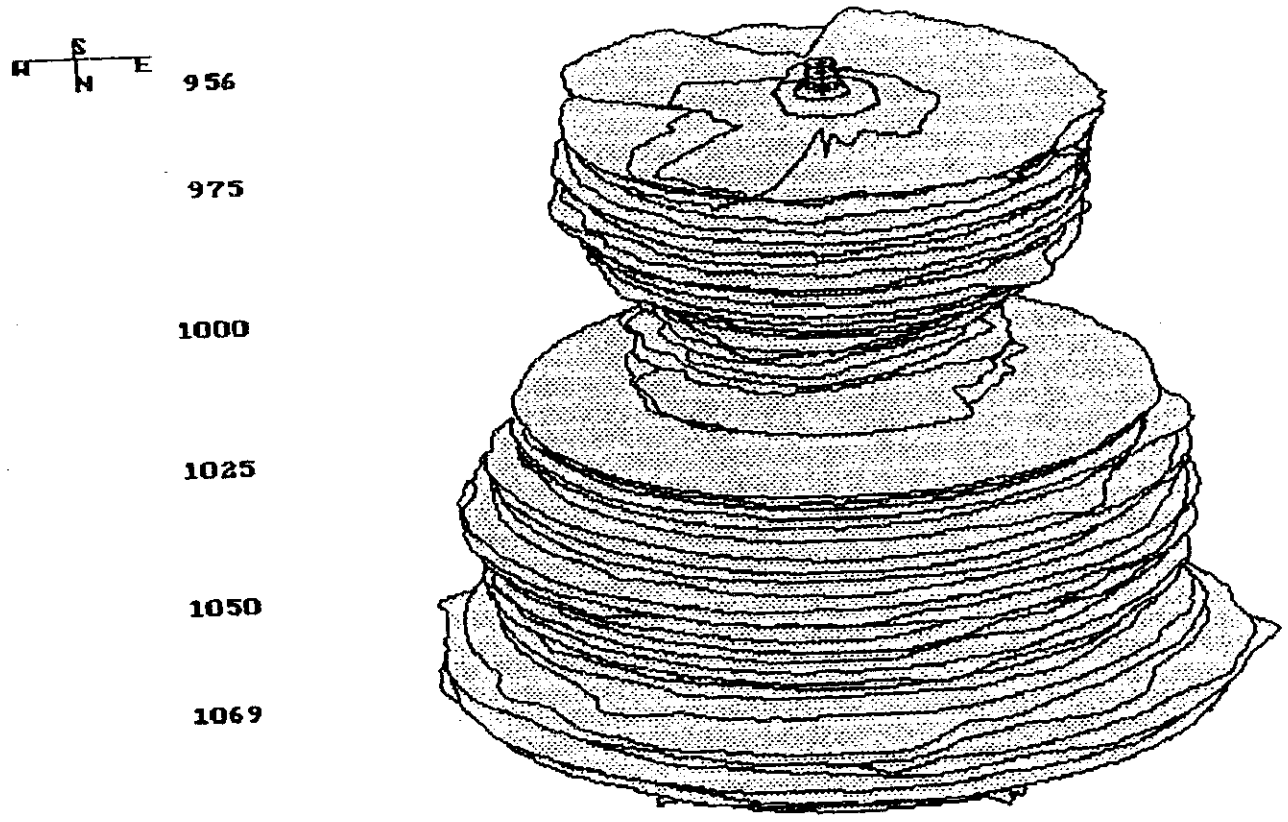

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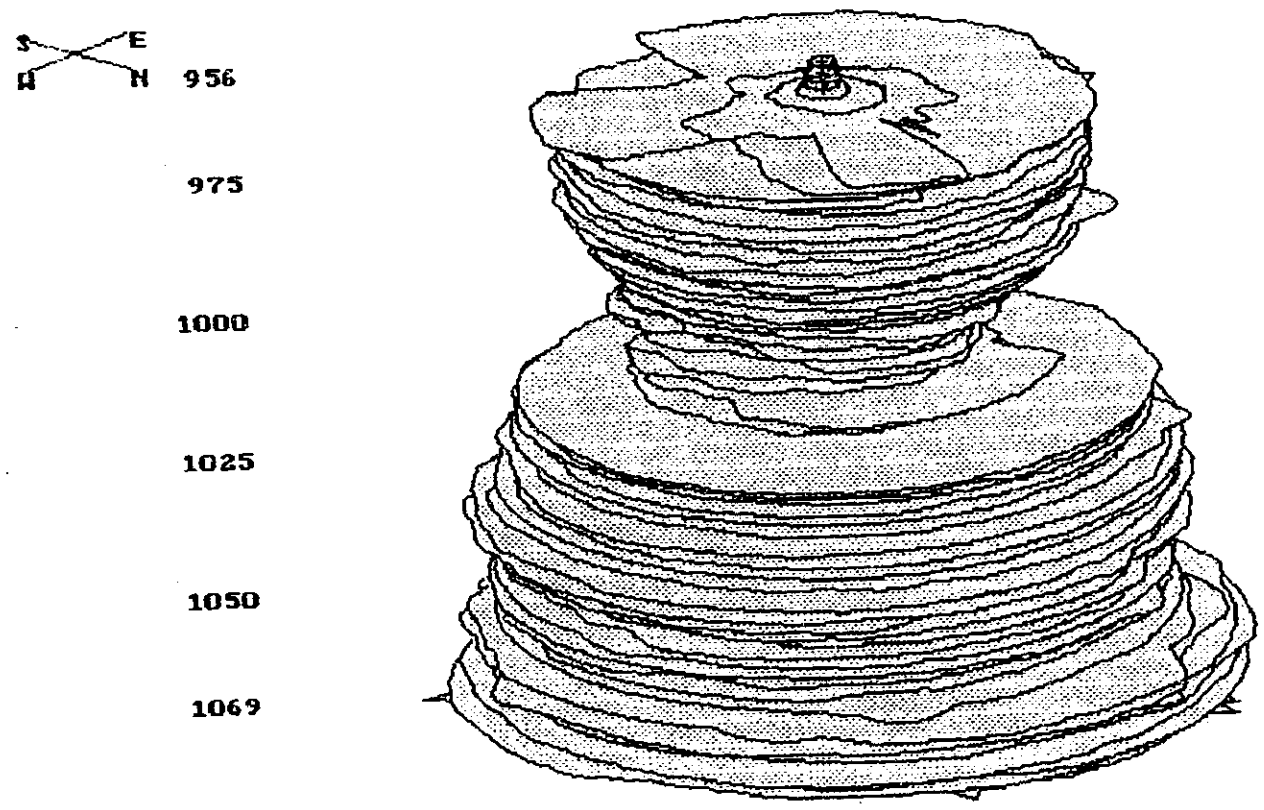

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DIGITAL SURVEYS, INC.

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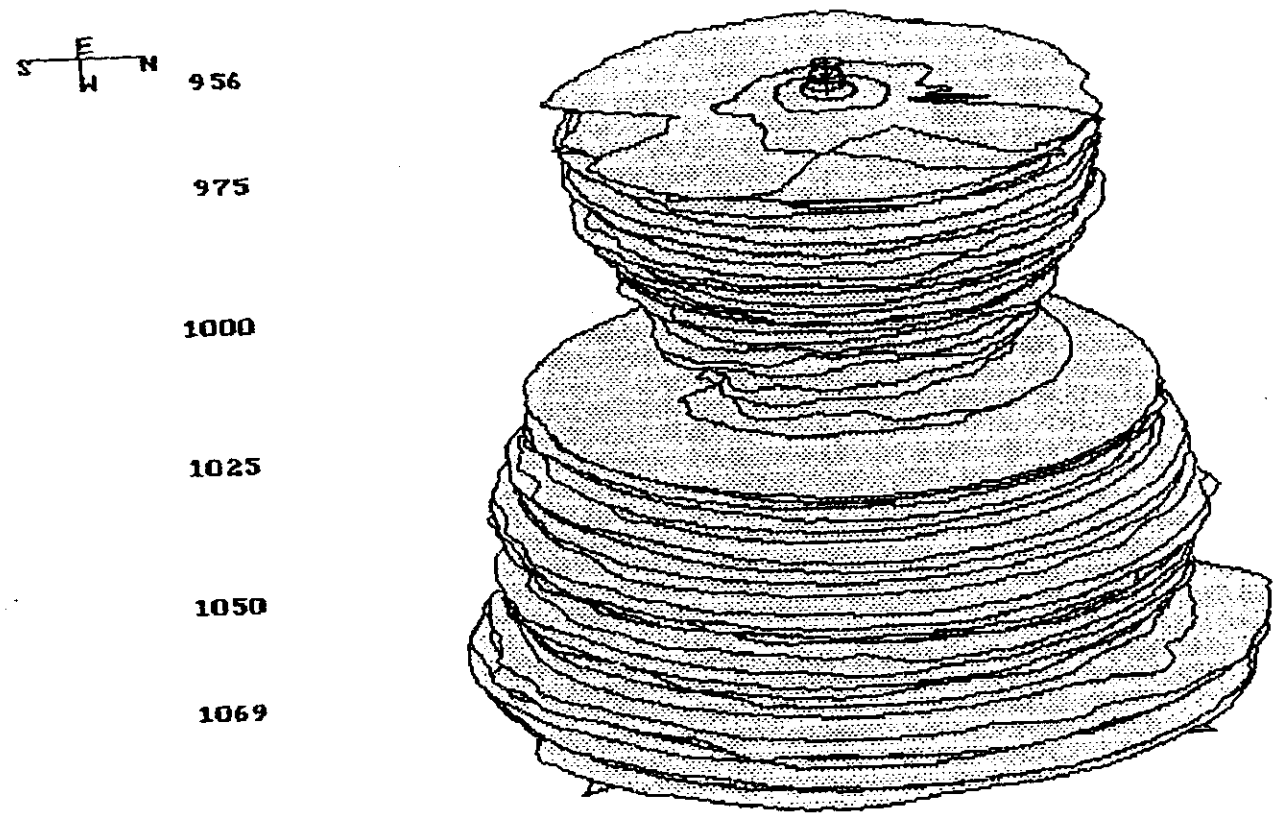

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DIGITAL SURVEYS, INC.

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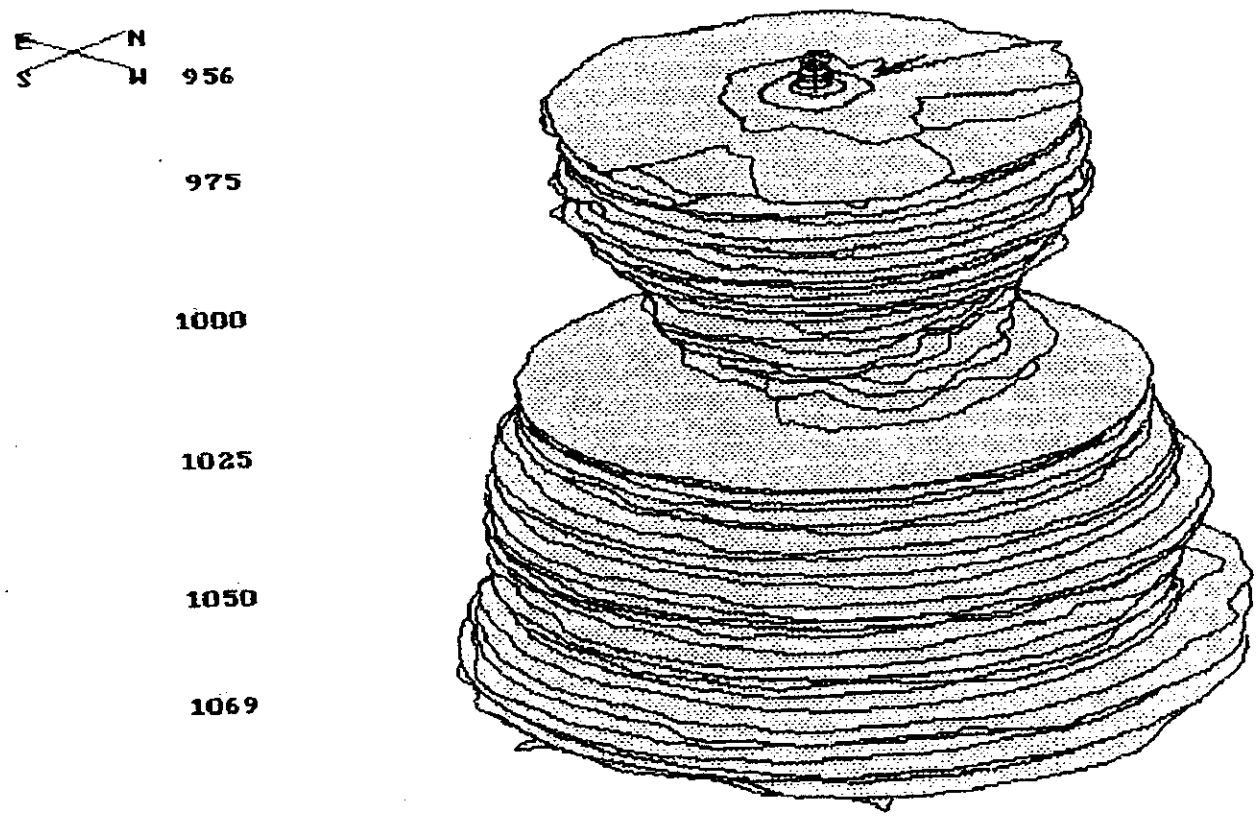

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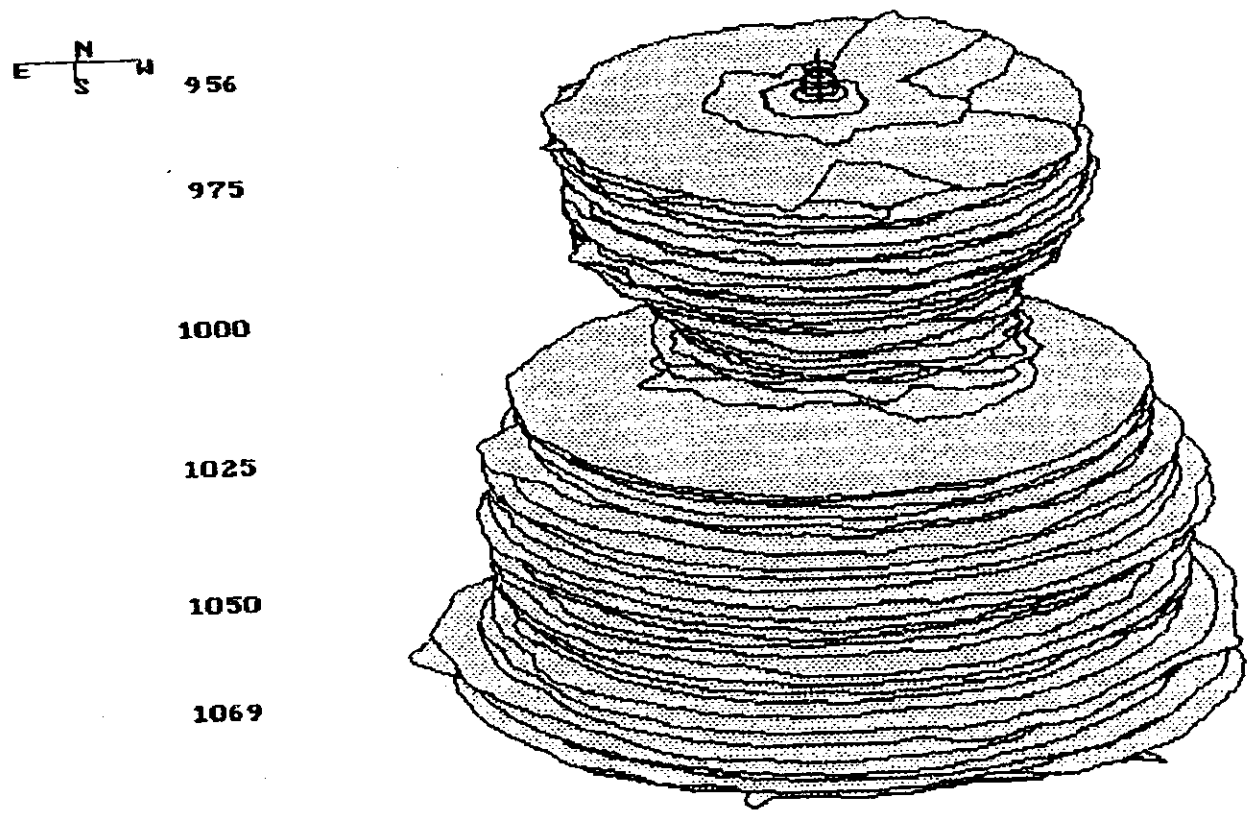

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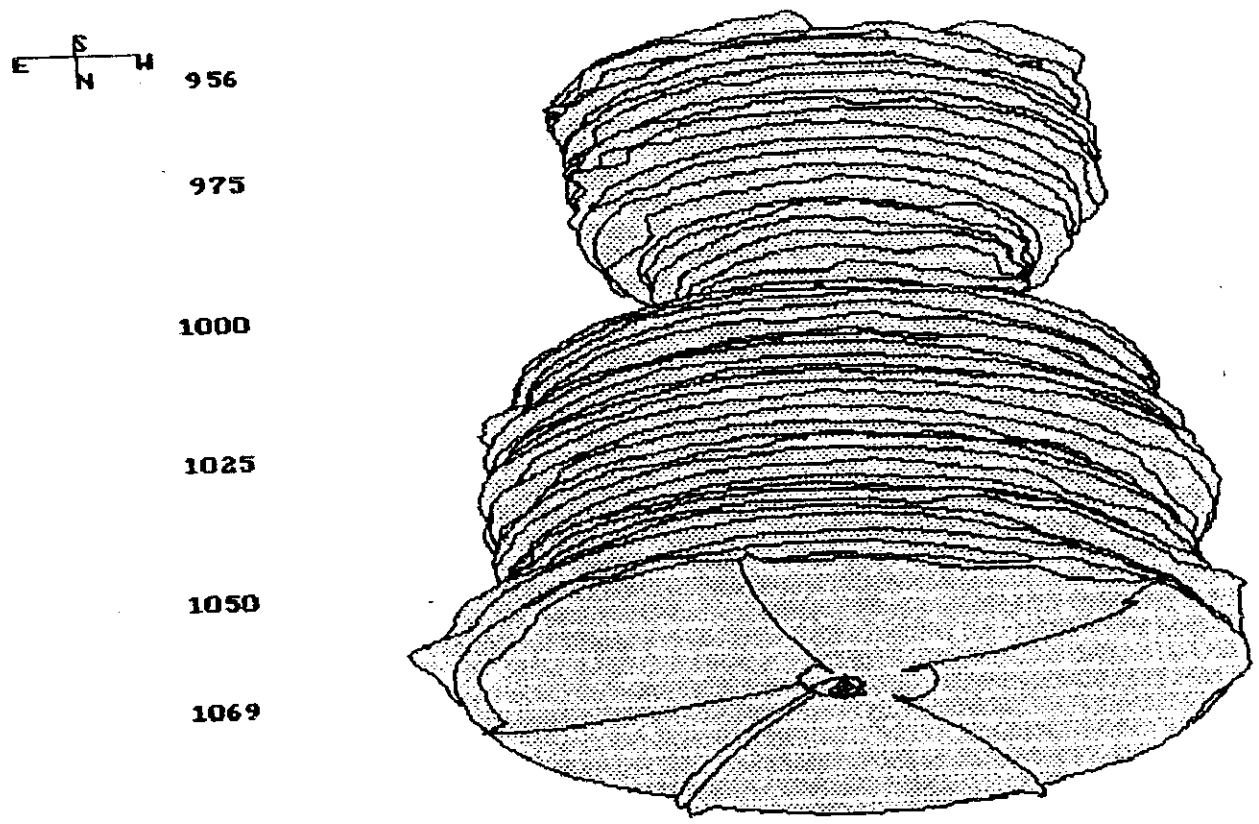

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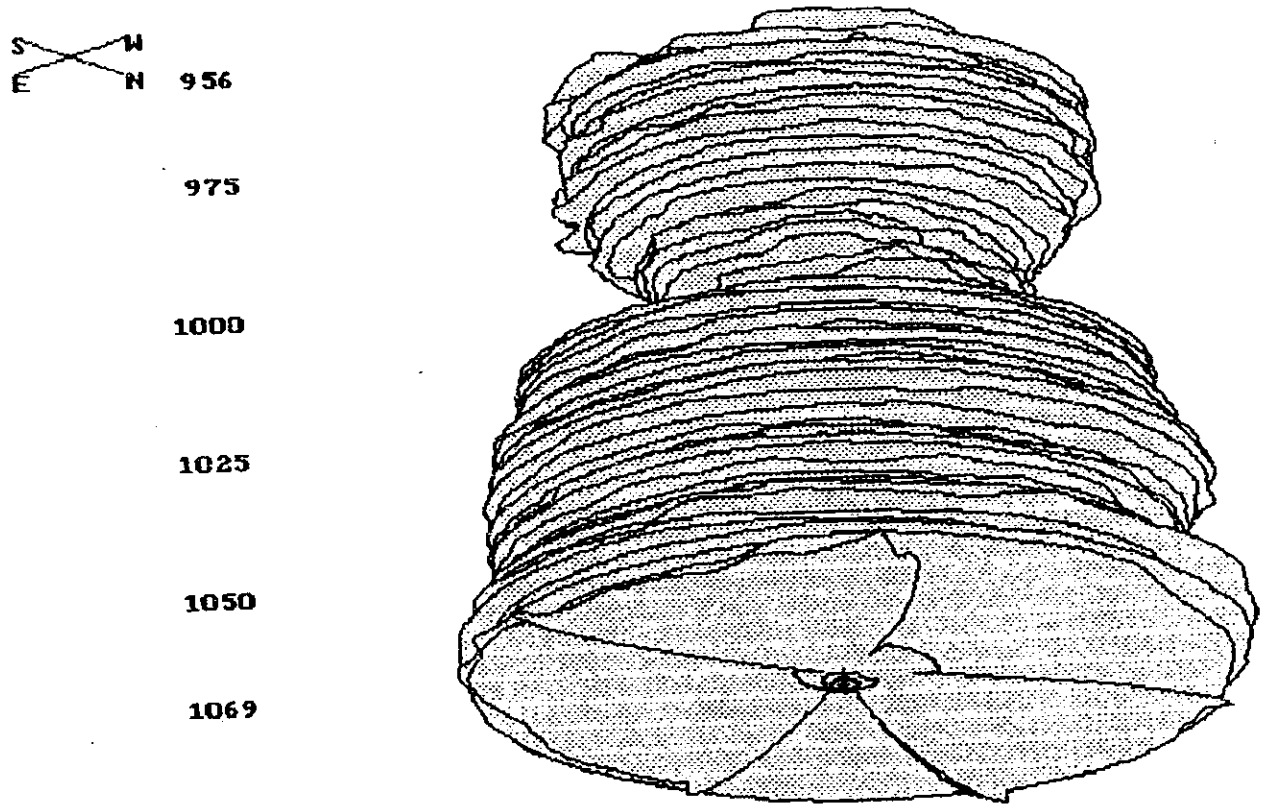

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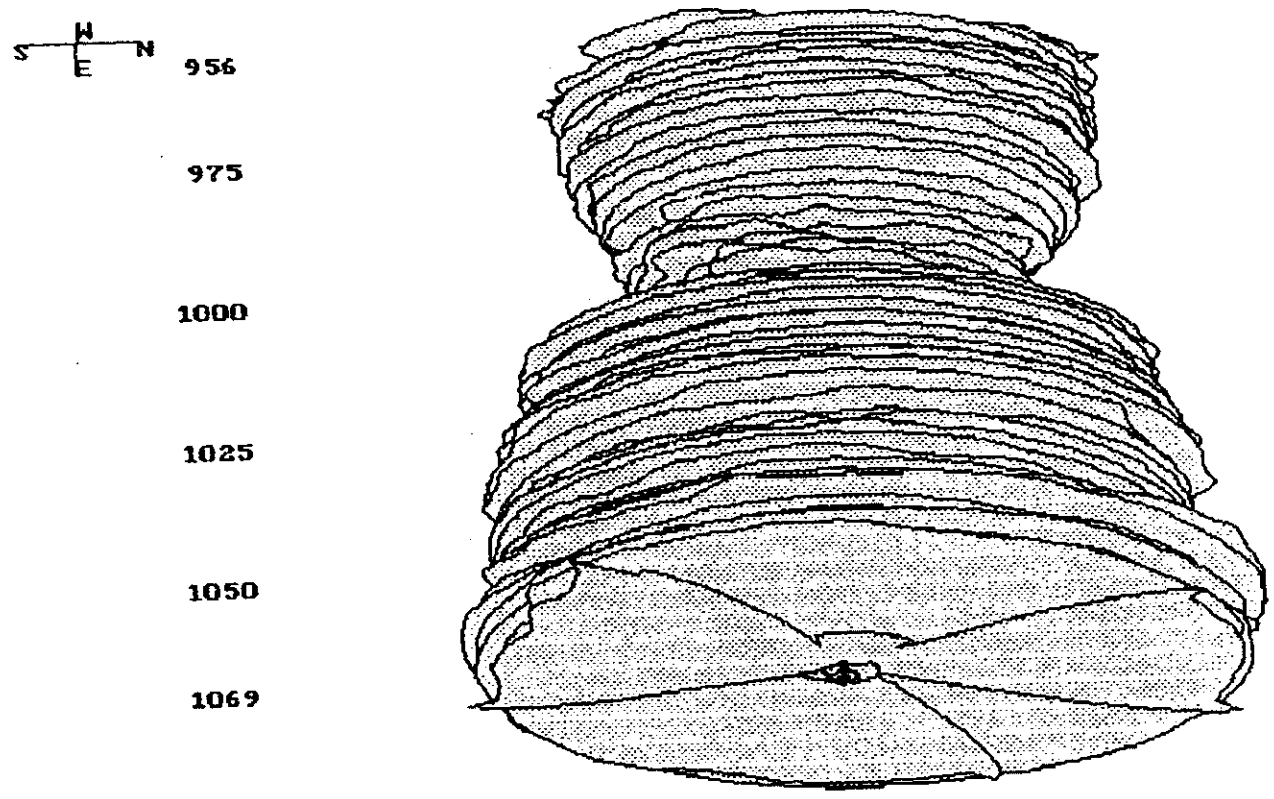

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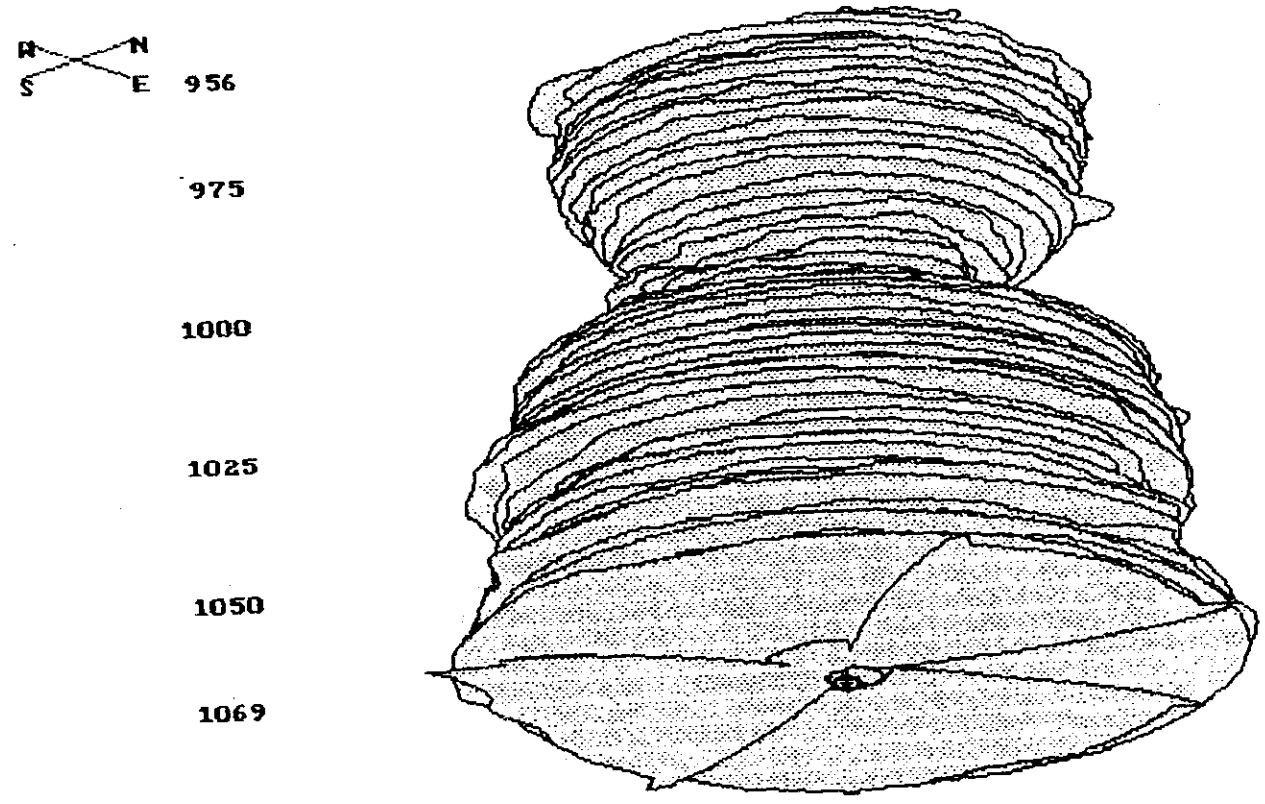

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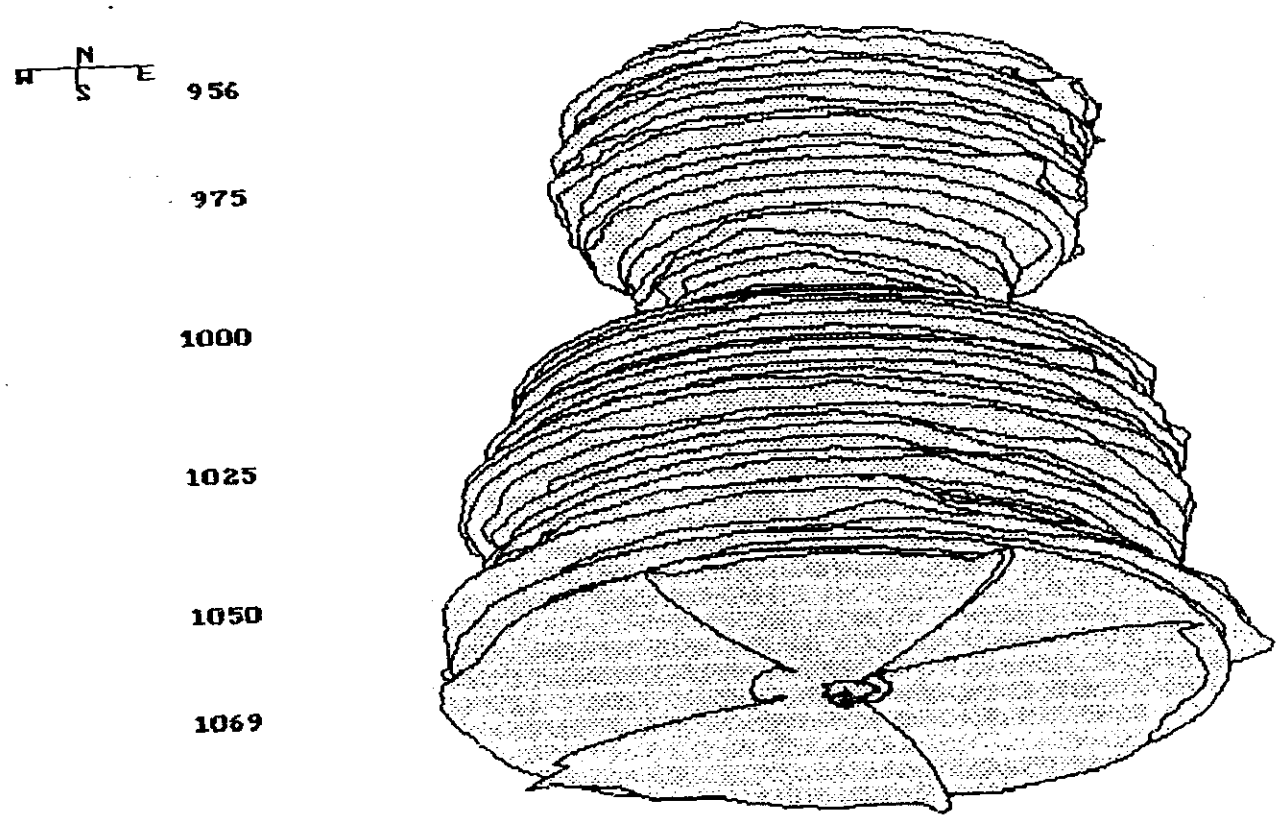

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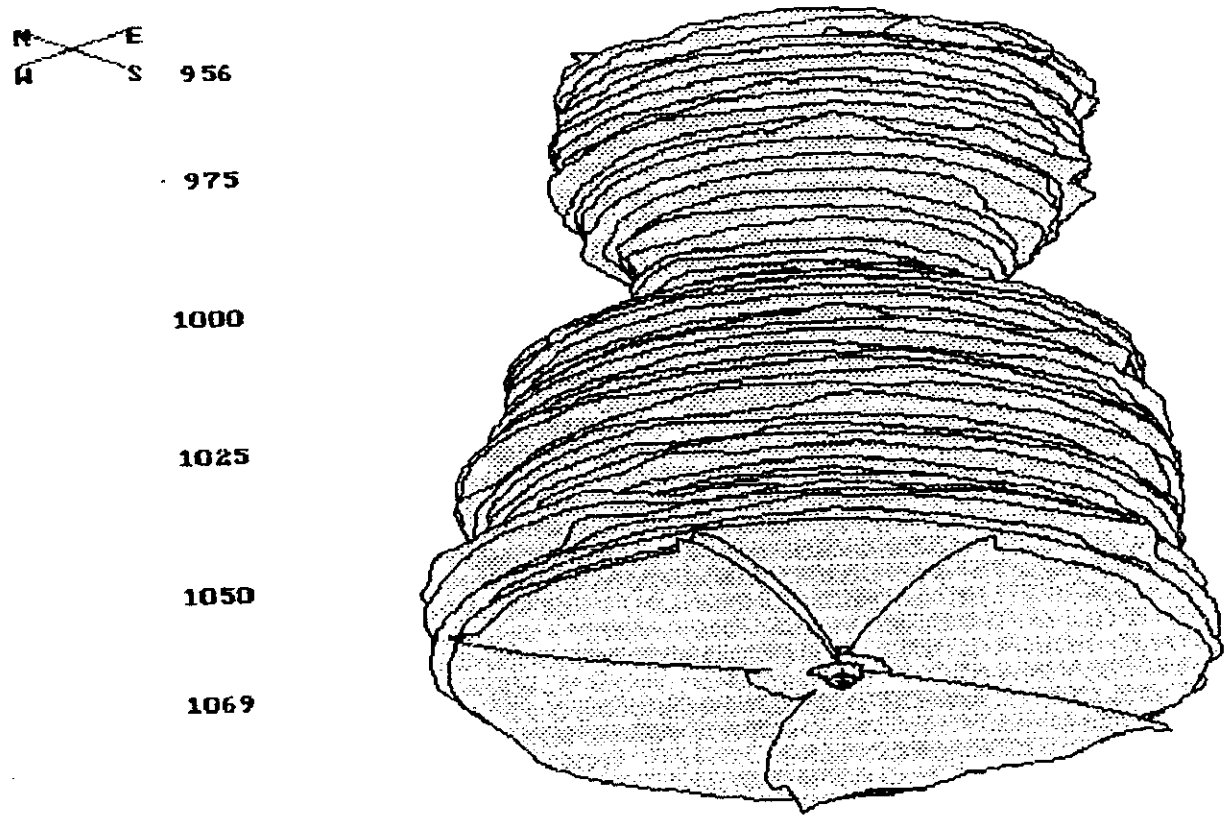

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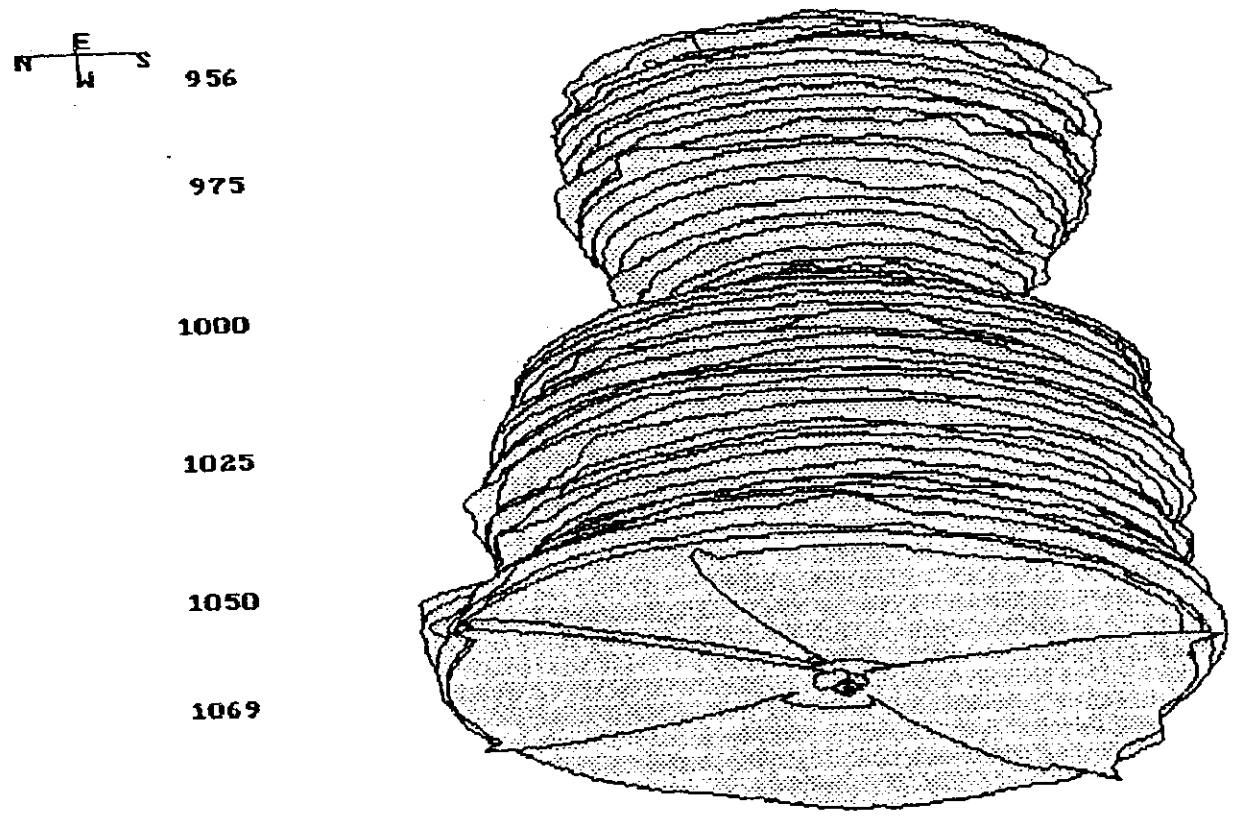

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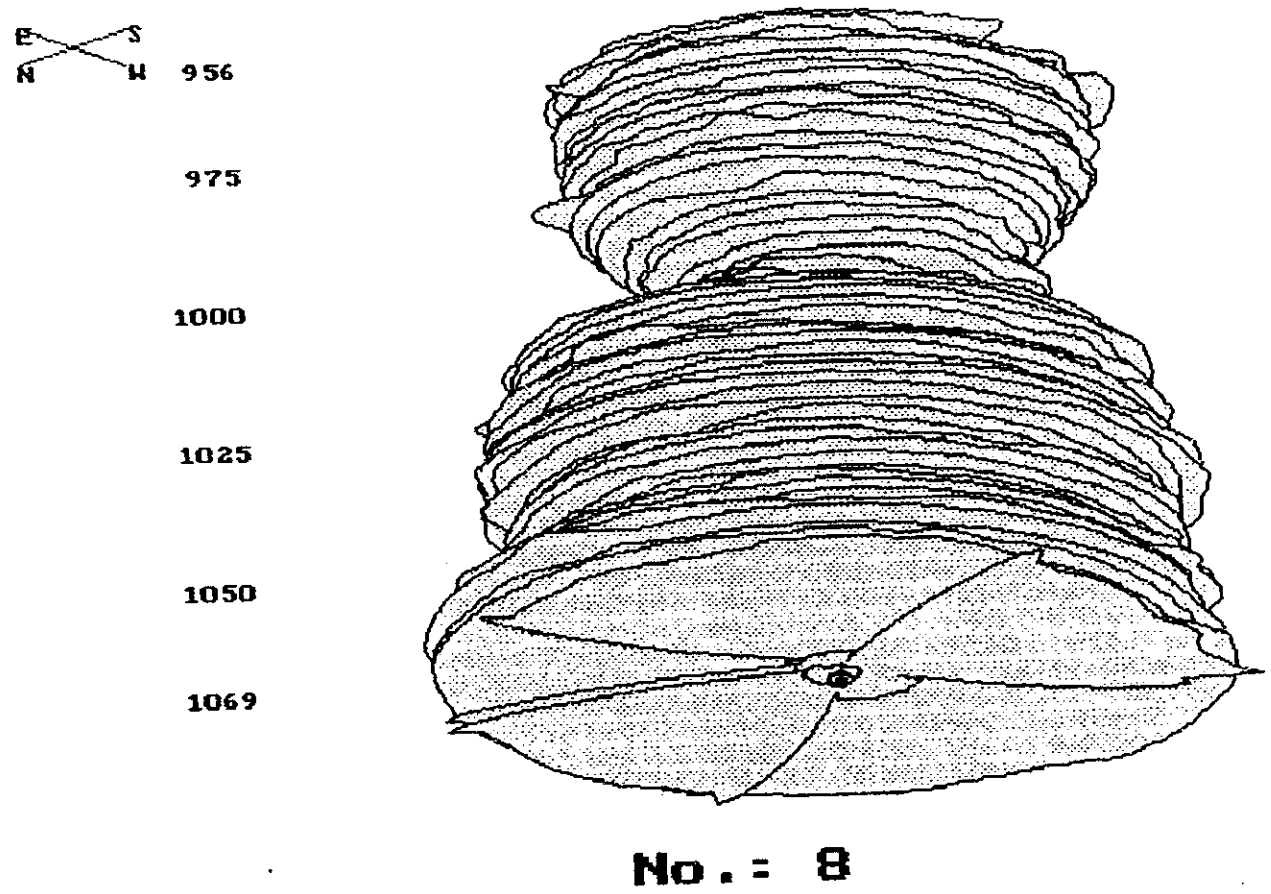

DIGITAL SURVEYS, INC.

03/19/92

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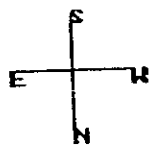

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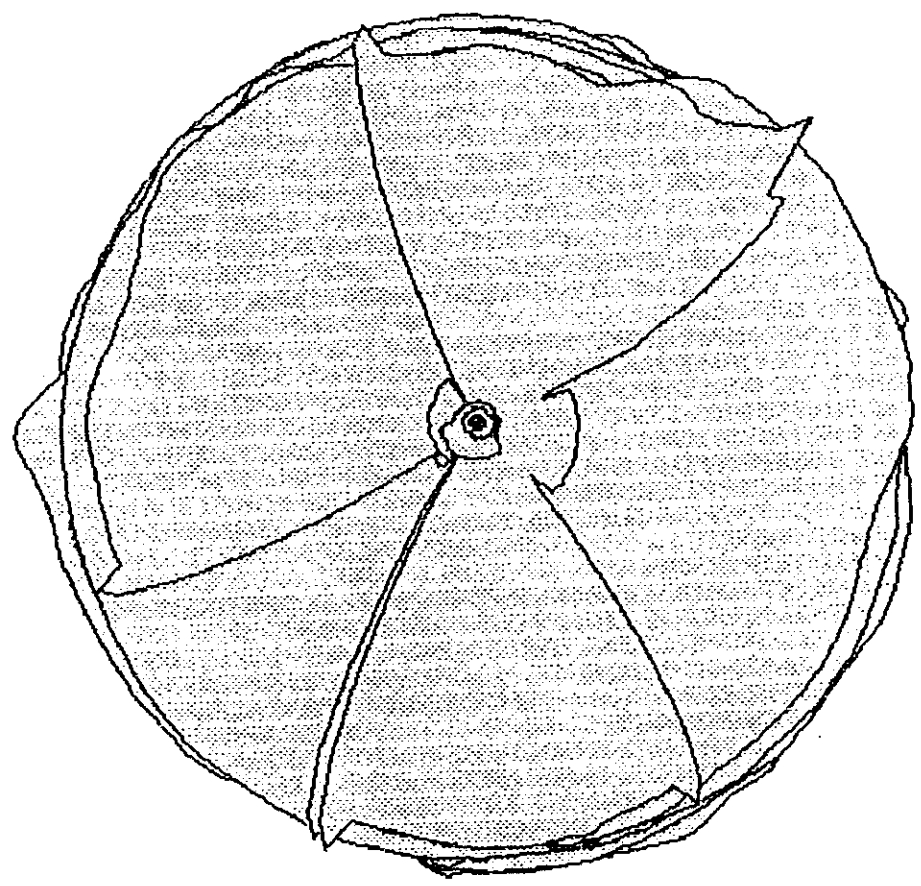

No.: 8

DOWELL

ROCKY MTN OIL PRODUCTS COMPA
WELL NO. 8
GRAND COUNTY COLORADO
APRIL 13, 1960

SONAR CALIPER REPORT

DOWELL SONAR CALIPER SURVEY

TREATMENT NO: 11-42-499 JOB NO: 383

WELL DATA

T.D. DOWELL:	1061 FT	T.D. OPERATOR:	1064 FT
CASING SIZE:	9-5/8 IN	CASING DEPTH:	924 FT
INTERMEDIATE SIZE:	7 IN	INTER. DEPTH:	918 IN
TUBING SIZE:	4-1/2 IN	TUBING DEPTH:	OUT

BUCKEYE GAS PRODUCTS COMPANY
WELL NO. 8
ADAMANA UGS TERMINAL
APRIL 13,1980

647

GENERAL COMMENTS:

7 INCH PIPE PULLED FROM 953 FEET TO 918 FEET FOR SONAR SURVEY.

MAILING ADDRESS:

PO BOX 849
HOLBROOK, ARIZONA
86025
ATTENTION: MR. ARMANDO PADILLA

CUSTOMER REP:

MR. GREG GREER

DOWELL ENGINEER:

HL VAN METRE

DOWELL SONAR CALIPER SURVEY

TREATMENT NO: 11-42-499 JOB NO: 383

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ADAMANA UGS TERMINAL
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MR. GREG GREER

DOWELL ENGINEER:

HL VAN METRE

DOWELL SONAR CALIPER SURVEY

BUCKEYE GAS PRODUCTS COMPANY — APRIL 13,1980

WELL NO. 8 — ADAMANA UGS TERMINAL — JOB NO: 383

VOLUME CALCULATIONS

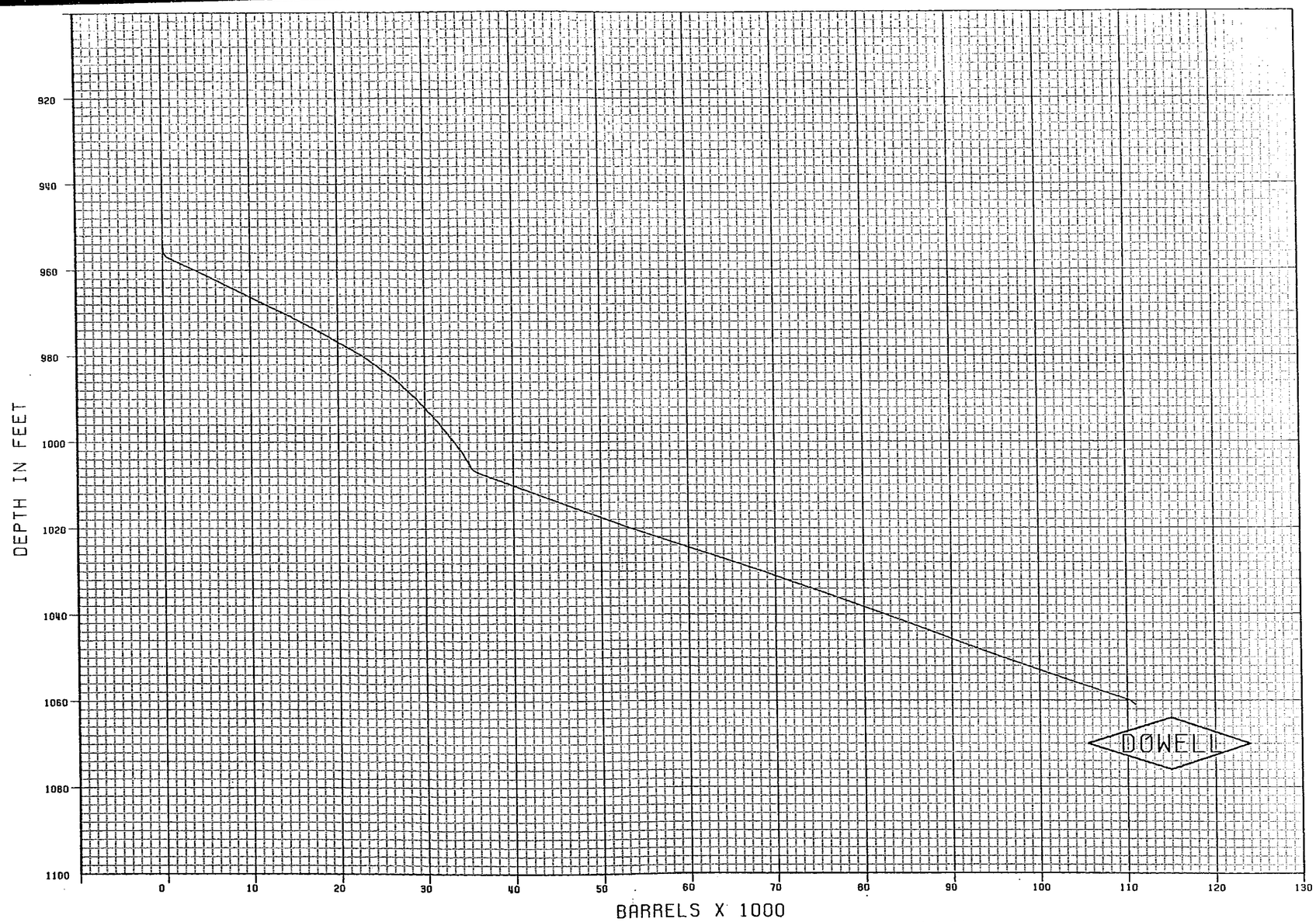
DEPTH	INCR CU FT	TOTAL CU FT	INCR BBLS	BBLS
926	0.	0.	0.	0.
929	4.	4.	1.	1.
930	4.	8.	1.	1.
932	11.	19.	2.	3.
934	9.	29.	2.	5.
936	12.	41.	2.	7.
938	6.	47.	1.	8.
940	2.	48.	0.	9.
942	3.	51.	0.	9.
944	9.	60.	2.	11.
946	10.	69.	2.	12.
948	4.	73.	1.	13.
950	9.	82.	2.	15.
952	23.	105.	4.	19.
954	33.	139.	6.	25.
955	22.	161.	4.	29.
956	127.	287.	23.	51.
957	2601.	2888.	463.	514.
960	17476.	20365.	3113.	3627.
965	28359.	48723.	5051.	8678.
970	28562.	77286.	5087.	13765.
975	26675.	103960.	4751.	18516.
980	24288.	128249.	4326.	22842.
985	19503.	147751.	3474.	26316.
990	15269.	163020.	2720.	29035.
995	13144.	176165.	2341.	31376.
1000	11445.	187610.	2038.	33415.
1002	4254.	191864.	758.	34172.
1005	4924.	196788.	877.	35050.
1006	1216.	198004.	216.	35266.
1007	3892.	201896.	693.	35959.
1008	7375.	209270.	1314.	37273.
1010	14682.	223952.	2615.	39888.

VOLUME CALCULATIONS

DEPTH	INCR CU FT	TOTAL CU FT	INCR BBLS	BBLS
1015	37231.	261183.	6631.	46519.
1020	38855.	300038.	6920.	53439.
1025	41413.	341451.	7376.	60815.
1030	43081.	384532.	7673.	68488.
1035	39900.	424432.	7106.	75595.
1040	37892.	462324.	6749.	82343.
1045	37412.	499735.	6663.	89007.
1050	37871.	537606.	6745.	95752.
1055	40178.	577785.	7156.	102908.
1060	41761.	619545.	7438.	110346.
1061	3069.	622614.	547.	110892.

DEPTH VS. VOLUME

ADAMANA UGS TERMINAL
WELL NO. 8
APRIL 13,1980



DOWELL SONAR CALIPER SURVEY

BUCKEYE GAS PRODUCTS COMPANY

APRIL 13,1980

WELL NO. 8

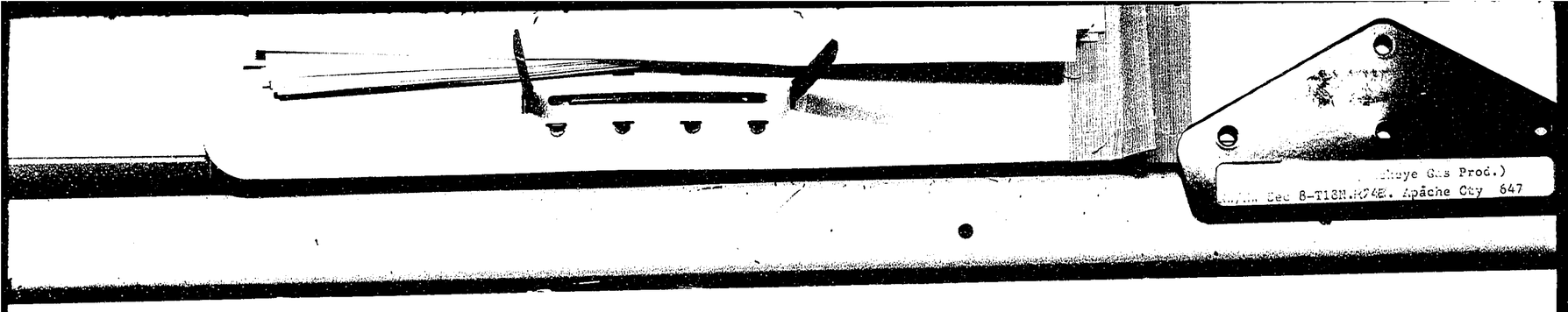
JOB NO: 383

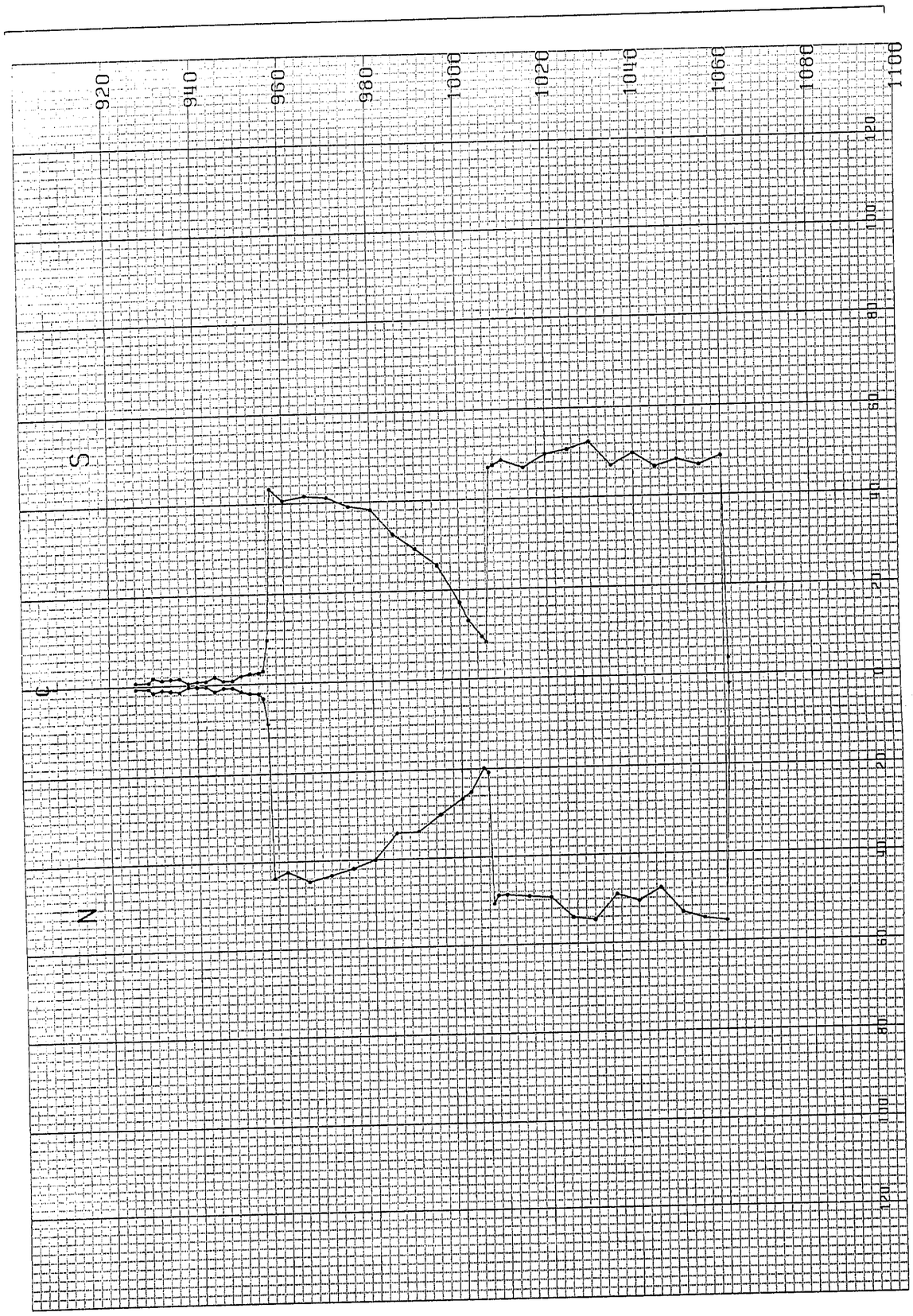
RADII IN FEET

DEPTH	ANGLE	N	S	E	W	NE	SW	SE	NW
926	90	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
929	90	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
930	90	1.5	1.7	1.4	1.9	1.3	1.8	1.3	1.6
932	90	1.0	1.2	0.9	1.3	0.9	1.3	0.9	1.3
934	90	1.2	1.4	1.1	1.5	1.1	1.5	1.3	1.3
936	90	1.4	1.5	0.8	1.7	1.2	1.7	1.0	1.7
938	90	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
940	90	0.4	0.7	0.5	0.8	0.5	0.9	0.5	0.5
942	90	0.4	0.8	0.5	0.8	0.5	0.9	0.6	0.5
944	90	1.5	1.8	1.4	1.9	1.5	1.9	1.6	1.7
946	90	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
948	90	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
950	90	1.6	1.9	0.9	1.9	1.0	2.0	1.4	1.6
952	90	2.1	2.3	1.8	2.7	1.9	2.6	2.0	2.4
954	90	2.2	2.4	2.0	2.8	2.0	2.7	2.2	2.6
955	90	3.3	2.9	2.3	3.3	2.8	3.1	3.0	2.8
956	90	9.0	9.7	8.6	9.7	8.8	9.4	9.2	9.4
957	90	43.8	43.3	45.3	47.3	46.1	44.1	44.2	43.2
960	90	42.4	40.6	41.9	41.7	43.8	40.5	40.5	43.4
965	90	44.7	41.5	43.1	44.5	45.7	41.9	42.5	44.9
970	90	43.4	41.1	41.3	39.7	43.3	40.3	39.8	43.1
975	90	41.9	39.0	41.1	42.5	40.7	39.2	40.0	41.5
980	90	40.0	38.2	37.1	37.0	37.9	38.1	38.1	39.4
985	90	34.0	32.6	30.7	31.9	31.4	33.5	31.8	32.6
990	90	33.8	29.2	26.6	30.3	28.1	33.3	29.6	28.9
995	90	30.0	25.5	24.0	34.9	23.7	30.2	28.6	27.3
1000	90	26.5	17.2	22.9	27.2	31.8	23.9	22.4	28.7
1002	90	25.2	13.2	28.2	26.4	33.6	22.2	20.5	26.2
1005	90	19.8	9.6	17.8	22.6	28.2	17.0	16.1	21.0
1006	90	20.8	8.3	18.4	24.0	31.2	16.8	10.6	20.4
1007	90	50.7	47.1	50.5	49.1	48.9	46.3	49.1	50.3
1008	90	48.8	47.6	48.4	50.0	45.8	47.9	48.4	49.4

RADII IN FEET

DEPTH	ANGLE	N	S	E	W	NE	SW	SE	NW
1Ø1Ø	9Ø	48.7	48.7	48.8	49.3	46.1	48.6	48.Ø	49.7
1Ø15	9Ø	49.1	46.9	48.1	47.3	49.Ø	47.3	5Ø.1	53.5
1Ø2Ø	9Ø	49.4	49.9	48.3	5Ø.5	5Ø.Ø	48.9	52.3	53.Ø
1Ø25	9Ø	54.Ø	5Ø.9	49.7	5Ø.7	51.5	49.5	51.8	55.4
1Ø3Ø	9Ø	54.6	52.5	48.1	53.2	51.7	51.9	51.7	55.4 ✓
1Ø35	9Ø	49.Ø	47.Ø	46.2	52.8	47.1	47.1	44.5	49.6
1Ø4Ø	9Ø	5Ø.6	49.8	47.7	52.4	48.2	51.2	47.8	52.7
1Ø45	9Ø	47.7	46.6	45.8	51.8	45.9	47.7	43.8	5Ø.2
1Ø5Ø	9Ø	53.3	48.1	48.9	51.3	5Ø.9	48.9	49.4	54.4
1Ø55	9Ø	54.7	46.8	48.9	49.4	51.5	47.9	49.8	55.3
1Ø6Ø	9Ø	55.4	48.8	51.6	53.1	52.9	5Ø.2	51.7	56.8 ✓ max radius
1Ø61	9Ø	2.1	3.7	3.1	2.5	2.1	3.6	3.1	2.3





VERTICAL CROSS SECTION

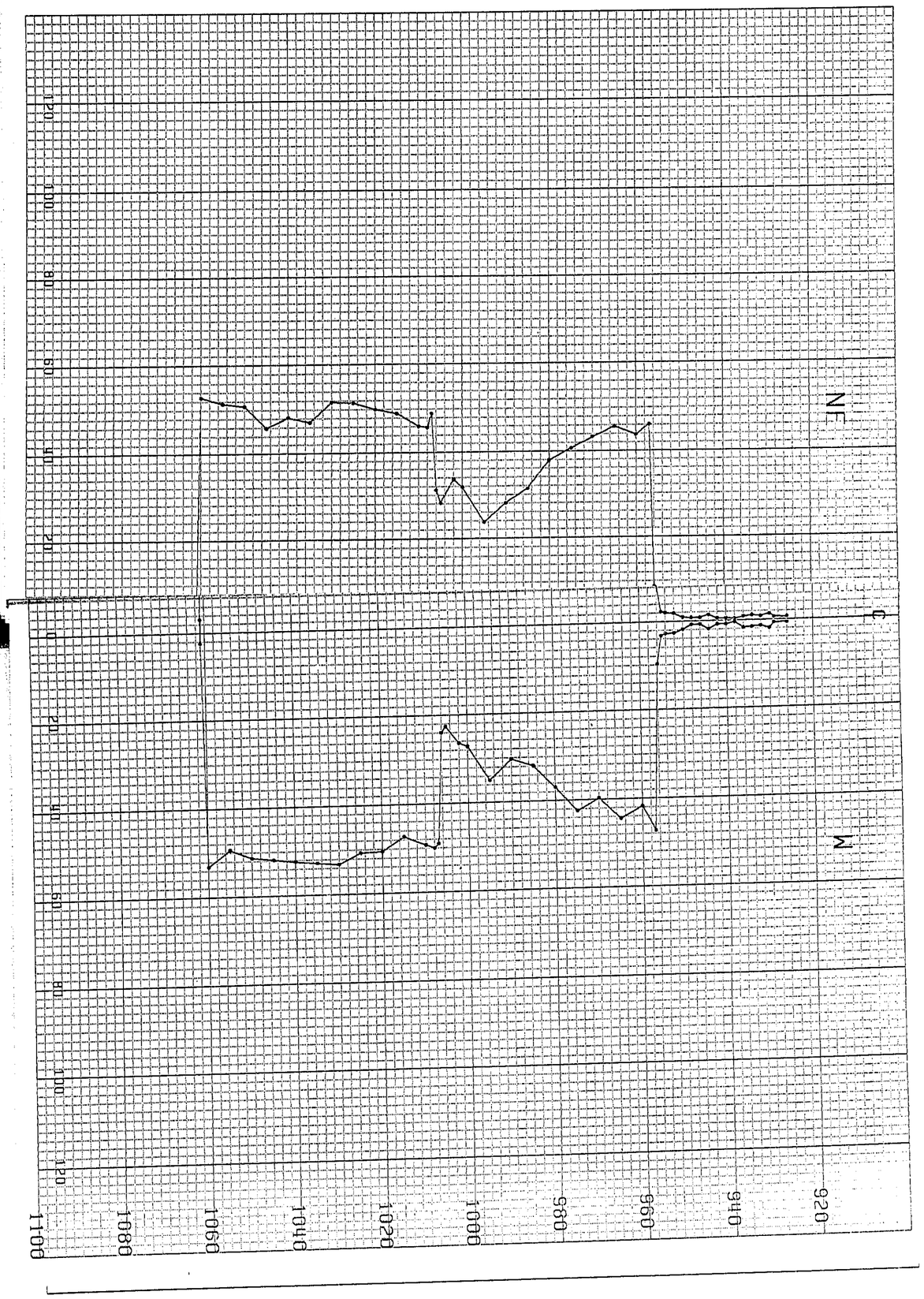
BUCKEYE GAS PRODUCTS COMPANY
ADAMANA UGS TERMINAL
WELL NO. 8
APRIL 13,1980
SCALE: 1 IN. = 20 FEET

21-APR-80 09:08:15

21-APR-80 09:15:32

BUCKEYE GAS PRODUCTS COMPANY
ADAMANA UGS TERMINAL
WELL NO. 8
APRIL 13,1980
SCALE: 1 IN. = 20 FEET

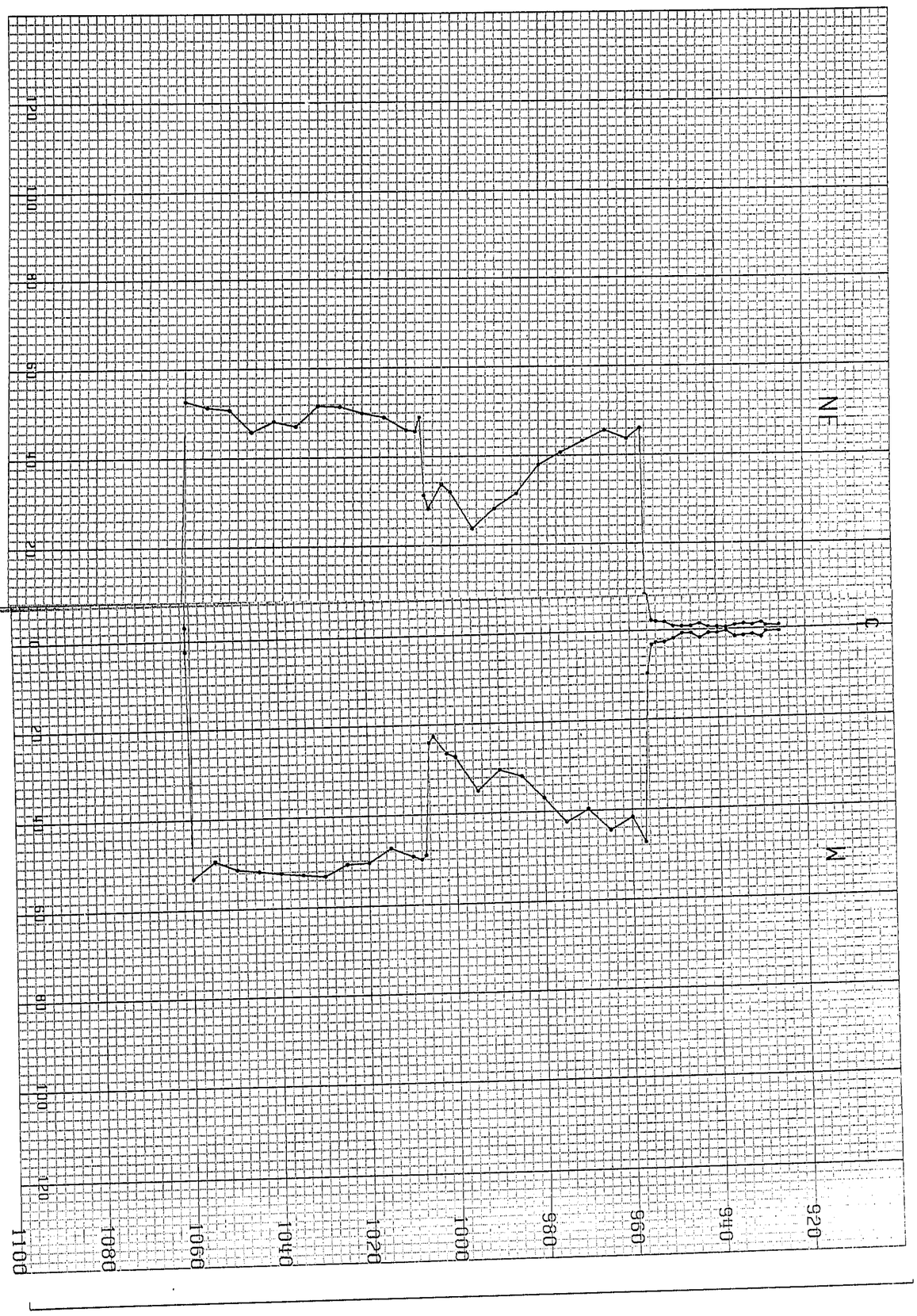
VERTICAL CROSS SECTION



21-APR-80 09:15:32

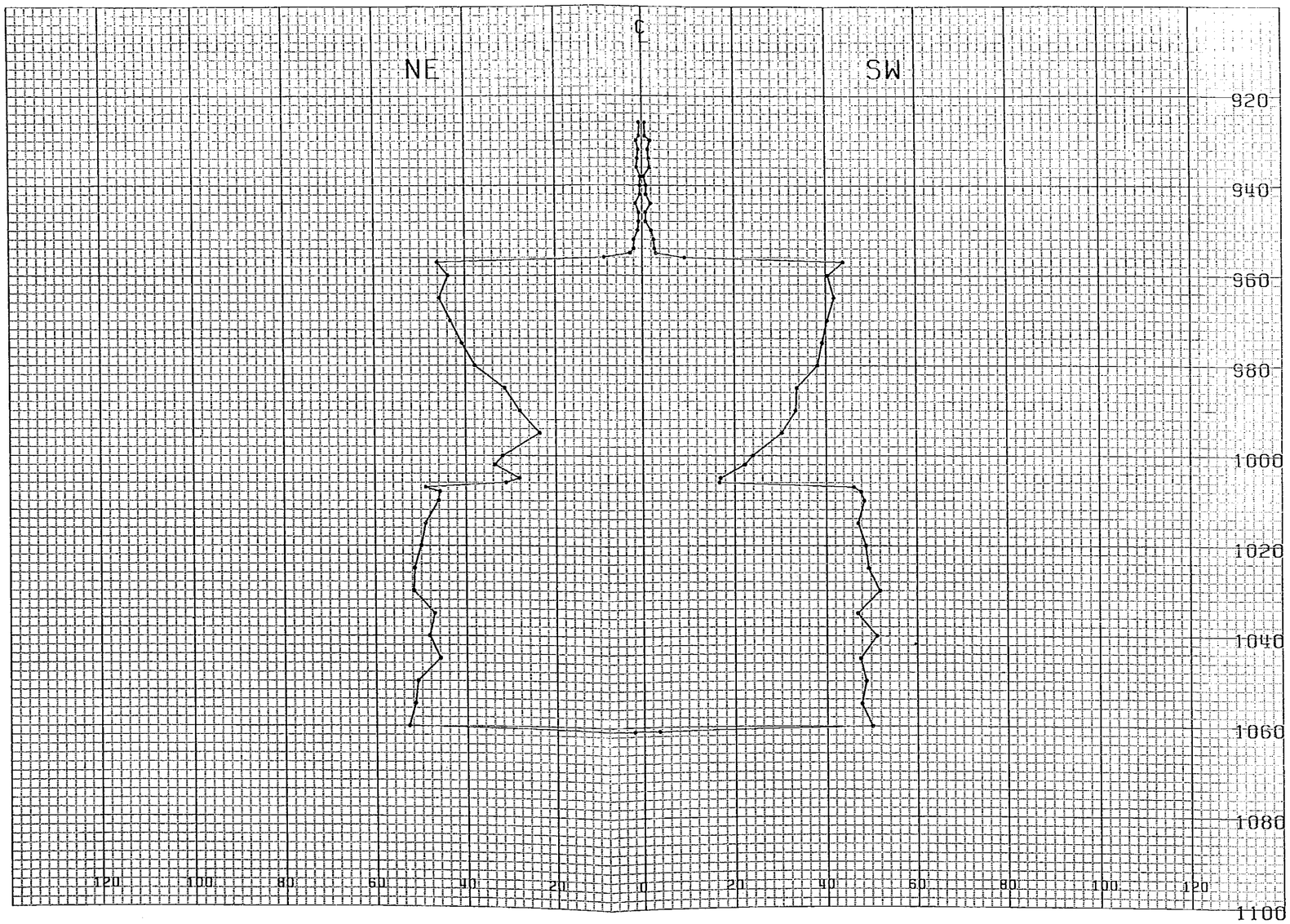
VERTICAL CROSS SECTION

BUCKEYE GAS PRODUCTS COMPANY
ADAMANA UGS TERMINAL
WELL NO. 8
APRIL 13,1980
SCALE: 1 IN. = 20 FEET



BUCKEYE GAS PRODUCTS COMPANY
ADAMANA UGS TERMINAL
WELL NO. 8
APRIL 13,1980
SCALE: 1 IN. = 20 FEET

VERTICAL CROSS SECTION



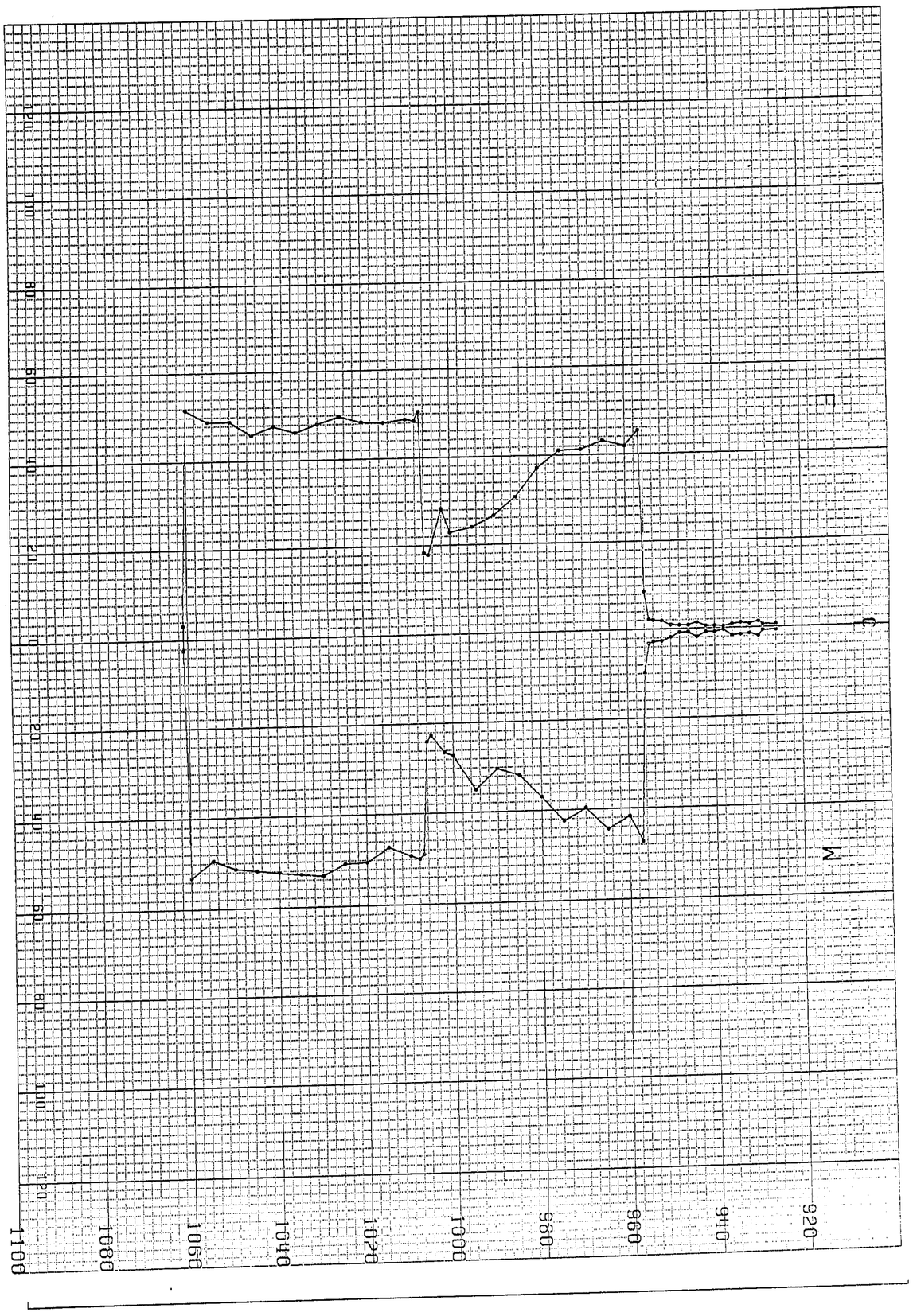
21-APR-80 09:15:32

Buckeye Gas Prod.)
Sec 8-T13N-R24E, Apache Cty 647

21-APR-80 09:12:46

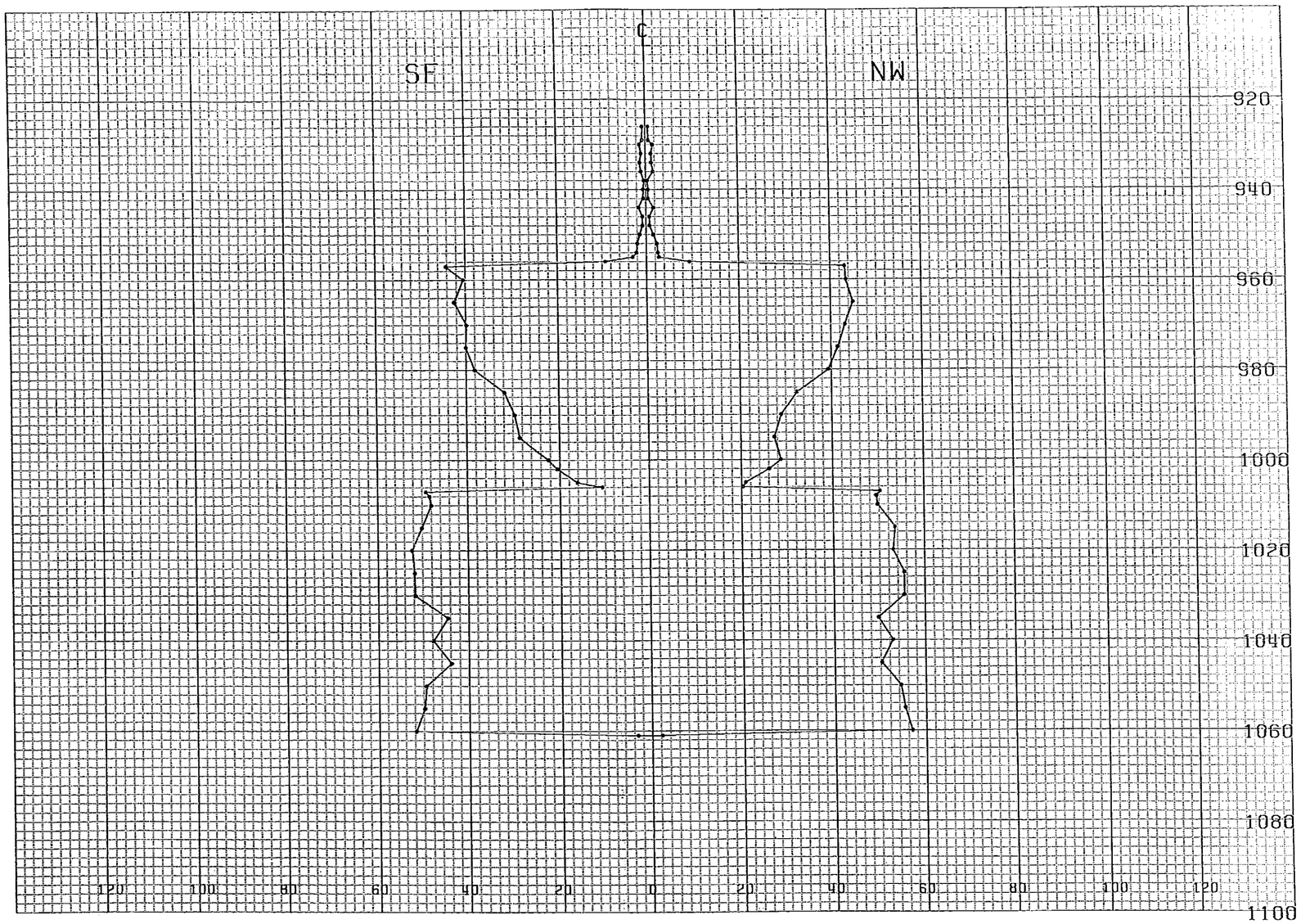
BUCKEYE GAS PRODUCTS COMPANY
ADAMANA UGS TERMINAL
WELL NO. 8
APRIL 13,1980
SCALE: 1 IN. = 20 FEET

VERTICAL CROSS SECTION



BUCKEYE GAS PRODUCTS COMPANY
ADAMANA UGS TERMINAL
WELL NO. 8
APRIL 13,1980
SCALE: 1 IN. = 20 FEET

VERTICAL CROSS SECTION



Buckeye Gas Prod.)
Sec 8-21SN-24E, Apache Cty 647

ADAMANA UGS TERMINAL
WELL NO. 8
APRIL 13,1980

MAX RADII REPORT

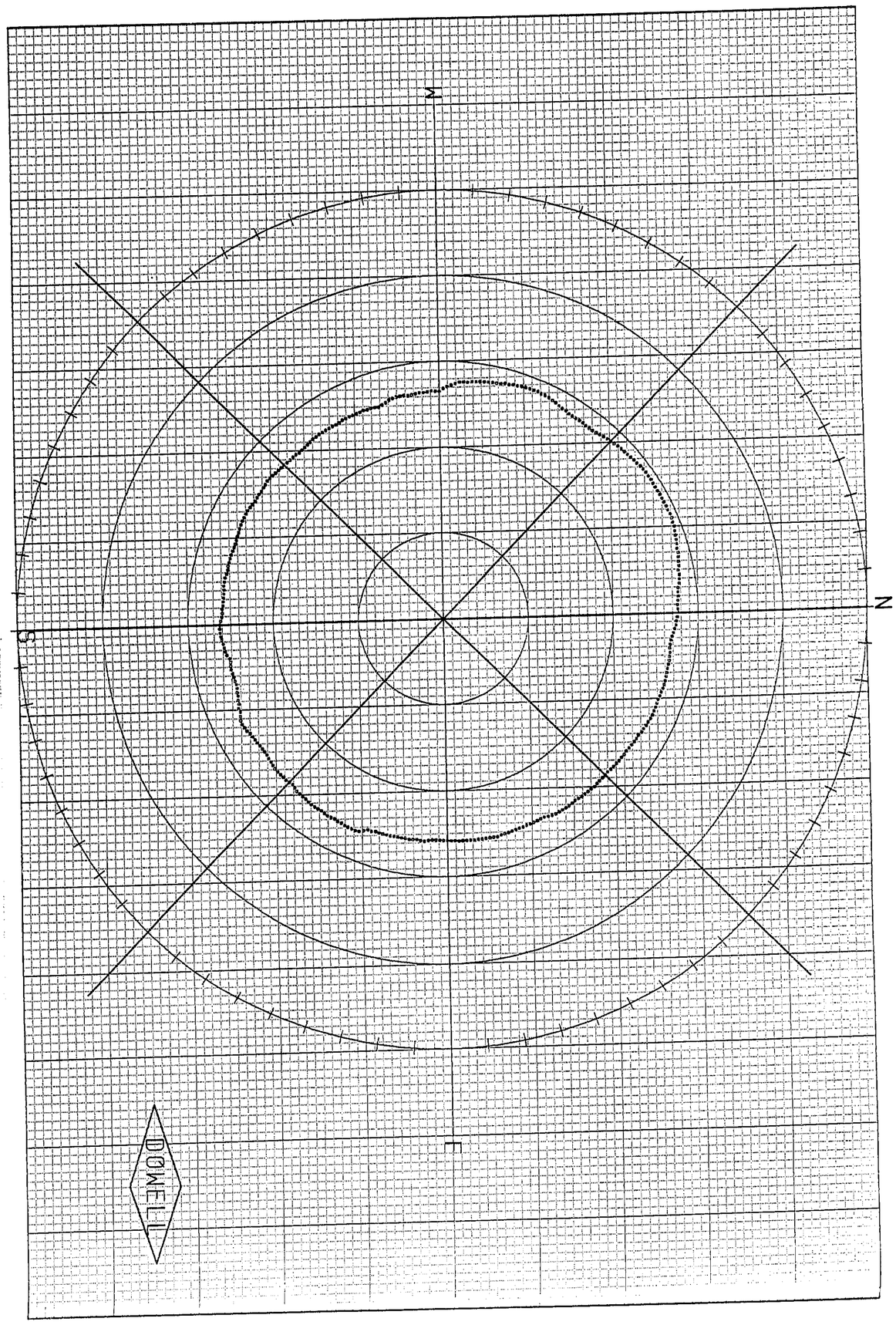
FROM DEPTH-926
THRU DEPTH-1080

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	55.4	1060	45	52.9	1060	90	51.6	1060	135	52.3	1020	180	52.5	1030	225	51.9	1030	270	53.2	1030	315	56.8	1060
1	55.1	1060	46	52.9	1060	91	51.6	1060	136	52.6	1020	181	52.4	1030	226	51.9	1030	271	53.8	1030	316	57.0	1060
2	54.9	1060	47	52.8	1060	92	51.6	1060	137	52.5	1020	182	52.1	1030	227	51.8	1030	272	54.2	1030	317	57.3	1060
3	54.8	1060	48	52.9	1060	93	51.6	1060	138	52.6	1025	183	52.0	1030	228	51.8	1030	273	54.6	1030	318	57.4	1060
4	54.6	1060	49	53.1	1060	94	51.5	1060	139	52.6	1025	184	52.1	1030	229	51.8	1030	274	55.0	1030	319	57.5	1060
5	54.4	1060	50	52.9	1060	95	51.7	1060	140	52.6	1025	185	52.0	1030	230	51.6	1030	275	55.3	1030	320	57.7	1060
6	54.1	1060	51	52.9	1060	96	52.0	1060	141	52.5	1025	186	52.0	1030	231	51.7	1030	276	55.5	1030	321	57.8	1060
7	53.9	1060	52	52.9	1060	97	51.9	1060	142	52.4	1025	187	52.0	1030	232	51.7	1030	277	55.4	1030	322	57.9	1060
8	53.8	1060	53	52.8	1060	98	51.8	1060	143	52.3	1025	188	52.0	1030	233	51.8	1030	278	55.7	1030	323	58.0	1060
9	53.9	1060	54	52.7	1060	99	51.8	1060	144	52.1	1025	189	52.1	1030	234	52.0	1040	279	55.8	1030	324	58.2	1060
10	54.1	1060	55	52.6	1060	100	51.9	1060	145	52.1	1025	190	52.2	1030	235	52.1	1040	280	56.0	1030	325	58.3	1060
11	54.1	1060	56	52.8	1060	101	51.8	1060	146	52.2	1025	191	52.2	1030	236	52.1	1040	281	56.1	1030	326	58.4	1060
12	54.2	1060	57	52.8	1060	102	51.9	1060	147	52.3	1025	192	52.2	1030	237	52.2	1040	282	56.2	1030	327	58.4	1060
13	54.2	1060	58	52.8	1060	103	51.9	1060	148	52.4	1025	193	52.1	1030	238	52.2	1040	283	56.2	1030	328	58.4	1060
14	54.2	1060	59	52.8	1060	104	51.9	1060	149	52.4	1025	194	52.0	1030	239	52.1	1040	284	56.3	1030	329	58.3	1060
15	54.2	1060	60	52.8	1060	105	51.9	1060	150	52.5	1025	195	52.1	1030	240	52.1	1040	285	56.4	1030	330	58.3	1060
16	54.3	1060	61	52.8	1060	106	52.0	1060	151	52.6	1025	196	52.1	1030	241	52.1	1040	286	56.7	1030	331	58.3	1060
17	54.3	1060	62	52.7	1060	107	52.0	1060	152	53.0	1025	197	52.1	1030	242	52.0	1040	287	56.7	1030	332	58.4	1060
18	54.3	1060	63	52.4	1060	108	52.0	1060	153	53.1	1025	198	52.0	1030	243	52.1	1030	288	56.9	1030	333	58.4	1060
19	54.4	1060	64	52.1	1060	109	51.9	1060	154	53.3	1025	199	52.0	1030	244	52.3	1030	289	57.0	1030	334	58.4	1060
20	54.2	1060	65	52.1	1060	110	52.2	1060	155	53.2	1025	200	52.0	1030	245	52.3	1030	290	57.1	1030	335	58.5	1060
21	54.2	1060	66	52.1	1060	111	52.1	1060	156	52.8	1025	201	52.0	1030	246	52.3	1030	291	57.2	1030	336	58.4	1060
22	54.1	1060	67	52.1	1060	112	52.6	1030	157	52.4	1030	202	52.1	1030	247	52.3	1030	292	57.2	1030	337	58.5	1060
23	54.2	1060	68	52.1	1060	113	53.2	1030	158	52.5	1030	203	52.1	1030	248	52.2	1030	293	57.3	1030	338	58.5	1060
24	54.3	1060	69	52.1	1060	114	53.4	1030	159	52.0	1030	204	52.2	1030	249	52.2	1030	294	57.4	1030	339	58.3	1060
25	54.3	1060	70	52.2	1060	115	53.3	1030	160	51.8	1030	205	52.3	1030	250	52.3	1030	295	57.2	1030	340	58.3	1060
26	54.3	1060	71	52.1	1060	116	53.3	1030	161	51.5	1030	206	52.4	1030	251	52.1	1030	296	57.2	1030	341	58.1	1060
27	54.2	1060	72	52.1	1060	117	53.2	1030	162	51.4	1030	207	52.5	1030	252	52.1	1030	297	57.1	1025	342	57.9	1060
28	54.1	1060	73	52.1	1060	118	53.1	1030	163	51.1	1030	208	52.5	1030	253	52.0	1030	298	56.9	1025	343	57.7	1060
29	54.0	1060	74	52.2	1060	119	53.2	1030	164	51.0	1025	209	52.5	1030	254	51.8	1040	299	56.8	1030	344	57.6	1060
30	53.9	1060	75	52.3	1060	120	53.0	1030	165	51.1	1025	210	52.5	1030	255	52.1	1040	300	56.5	1030	345	57.3	1060
31	53.9	1060	76	52.3	1060	121	53.1	1030	166	51.1	1025	211	52.4	1030	256	52.3	1040	301	56.3	1030	346	57.3	1060
32	53.5	1060	77	52.4	1060	122	53.2	1030	167	51.2	1025	212	52.2	1030	257	52.8	1040	302	56.4	1030	347	57.0	1060
33	53.6	1060	78	52.3	1060	123	53.0	1030	168	51.3	1025	213	52.1	1030	258	53.0	1040	303	56.1	1030	348	56.8	1060
34	53.5	1060	79	52.3	1060	124	52.9	1030	169	51.2	1025	214	52.2	1030	259	53.1	1040	304	56.1	1030	349	56.7	1060
35	53.5	1060	80	52.2	1060	125	53.0	1030	170	51.1	1025	215	52.2	1030	260	53.0	1040	305	56.0	1025	350	56.4	1060
36	53.3	1060	81	52.1	1060	126	53.0	1030	171	51.1	1030	216	52.1	1030	261	53.0	1040	306	56.1	1025	351	56.4	1060
37	53.2	1060	82	52.1	1060	127	53.0	1030	172	51.7	1030	217	52.2	1030	262	52.8	1040	307	56.1	1025	352	56.3	1060
38	53.3	1060	83	52.1	1060	128	53.0	1030	173	51.9	1030	218	52.3	1030	263	52.9	1040	308	56.0	1060	353	56.1	1060
39	53.1	1060	84	52.0	1060	129	52.8	1030	174	52.0	1030	219	52.5	1030	264	53.0	1035	309	56.0	1060	354	55.7	1060
40	53.2	1060	85	51.9	1060	130	52.8	1030	175	52.2	1030	220	52.4	1030	265	53.2	1035	310	56.0	1060	355	55.6	1060
41	53.1	1060	86	51.9	1060	131	52.7	1030	176	52.4	1030	221	52.3	1030	266	53.1	1035	311	56.2	1060	356	55.6	1060
42	53.0	1060	87	51.9	1060	132	52.7	1030	177	52.5	1030	222	52.2	1030	267	53.2	1060	312	56.4	1060	357	55.4	1060
43	52.9	1060	88	51.8	1060	133	52.4	1030	178	52.6	1030	223	52.1	1030	268	53.4	1060	313	56.6	1060	358	55.2	1060
44	52.8	1060	89	51.8	1060	134	52.2	1030	179	52.6	1030	224	52.0	1030	269	53.2	1030	314	56.8	1060	359	55.3	1060

Sec 8-T13N-R26E, Apache Cty 647

MAXIMUM RADII

ROAMANA-UGS TERMINAL
WELL NO. 8
APRIL 13,1980
SCALE: 1 IN. = 20 FEET

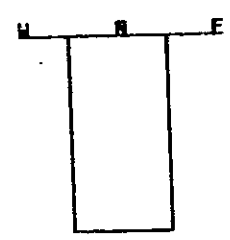


CUSTOMER INFORMATION
ISOMETRIC VIEW

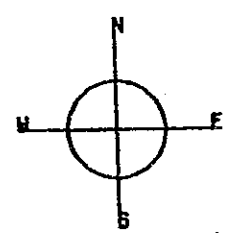
THE FOLLOWING PLOTS, WHICH WE CALL "ISOMETRIC VIEWS", ARE A METHOD OF SHOWING A 3-DIMENSIONAL OBJECT ON 2-DIMENSIONAL PAPER. OUR GOAL IS TO ILLUSTRATE ON PAPER THE SAME SURVEY INFORMATION AND PERSPECTIVE THAT YOU WOULD GET FROM VIEWING ONE OF OUR PLASTIC MODELS.

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

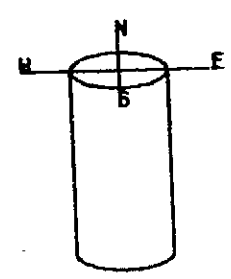
A VERTICAL CROSS SECTION (VIEWED FROM THE SOUTH) WOULD LOOK LIKE:



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:

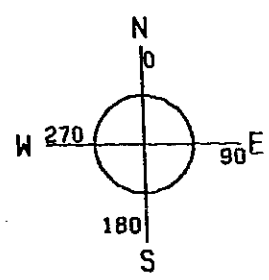
VIEW SELECTION - THE SONAR ENGINEER THAT PERFORMED THE SURVEY, WILL SELECT THE "VIEWING ANGLE" TO BEST ILLUSTRATE THE FEATURES OF THE CAVITY. THE IMAGE CAN BE ROTATED AROUND THE CAVITY CENTER LINE, AS WELL AS VIEWED FROM NUMEROUS ANGLES.

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.

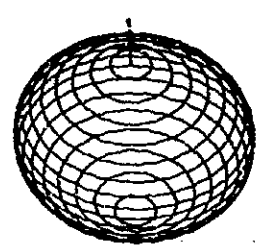
THE AZIMUTH VALUE IS THE COMPASS DEGREE AT THE FRONT OF THE ISOMETRIC IMAGE. THIS IS A TOP-VIEW REFERENCE FOR OUR NUMBERING SYSTEM:



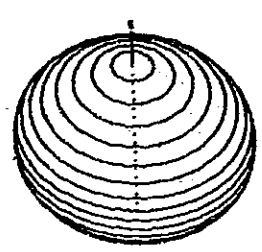
CENTER LINE - WE WILL SHOW THE PLUMB LINE OF THE SURVEY AS A SOLID CENTERLINE ABOVE THE CAVITY ISOMETRIC. INSIDE THE CAVITY, WE WILL MARK THE CENTERLINE OF EACH 'HORIZONTAL' SECTION WITH A DOT.

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:



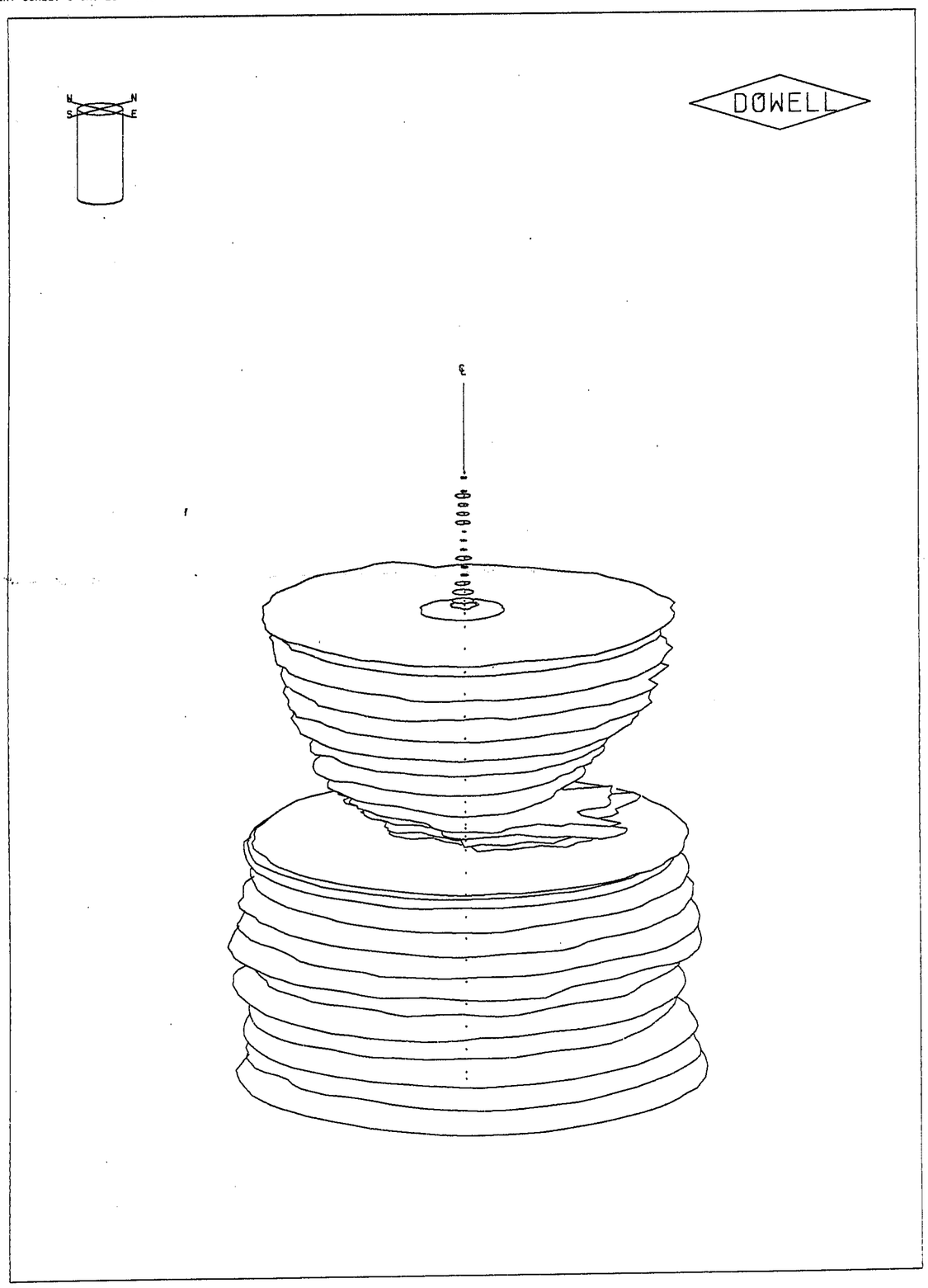
BUT WITH THE HIDDEN LINES REMOVED, IT BECOMES VISIBLE:



21-APR-80 09:51
FROM DEPTH: 925
THRU DEPTH: 1080
VIEWING AZIMUTH: 135
HORZ SCALE: 1 IN.=20 FT.
VERT SCALE: 1 IN.=20 FT.

ISOMETRIC VIEW

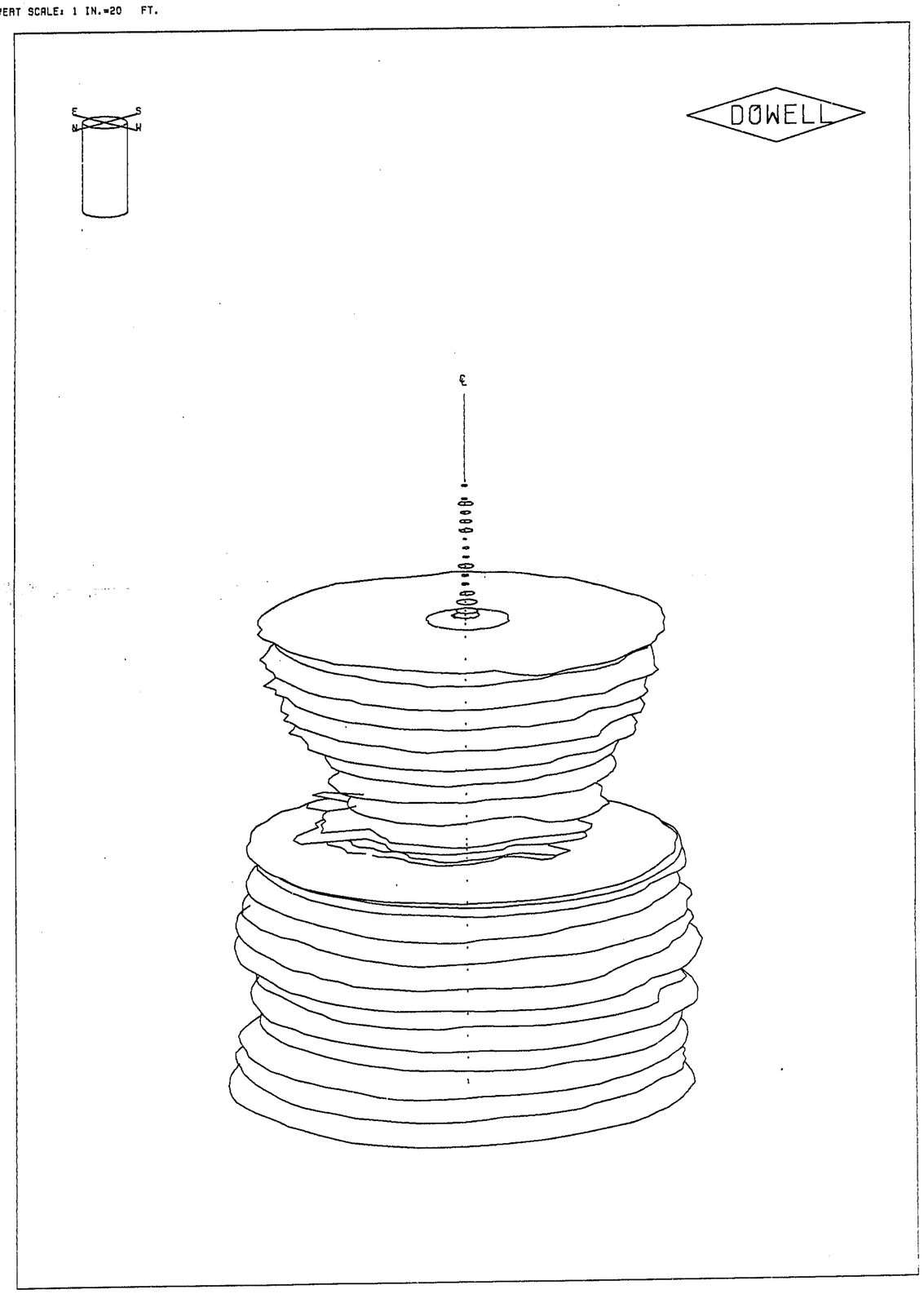
BUCKEYE GAS PRODUCTS COMPANY
ADAMANA UGS TERMINAL
WELL NO. 8
APRIL 13,1980



21-APR-80 09:55
FROM DEPTH: 925
THRU DEPTH: 1080
VIEWING AZIMUTH: 315
HORZ SCALE: 1 IN.=20 FT.
VERT SCALE: 1 IN.=20 FT.

ISOMETRIC VIEW

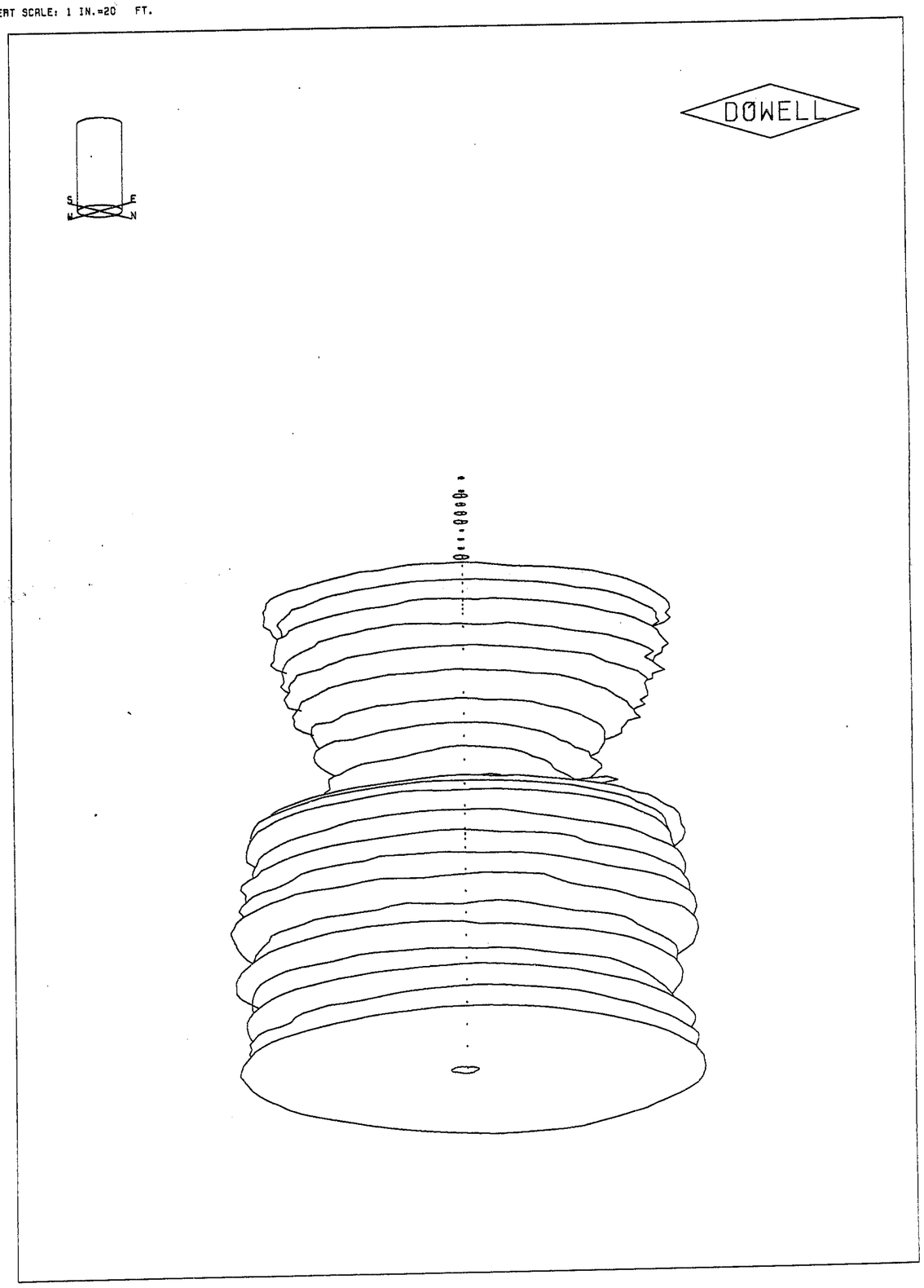
BUCKEYE GAS PRODUCTS COMPANY
ADAMANA UGS TERMINAL
WELL NO. 8
APRIL 13,1980



21-APR-80 09:30
FROM DEPTH: 926
THRU DEPTH: 1080
VIEWING AZIMUTH: 135
HORZ SCALE: 1 IN.=20 FT.
VERT SCALE: 1 IN.=20 FT.

ISOMETRIC VIEW

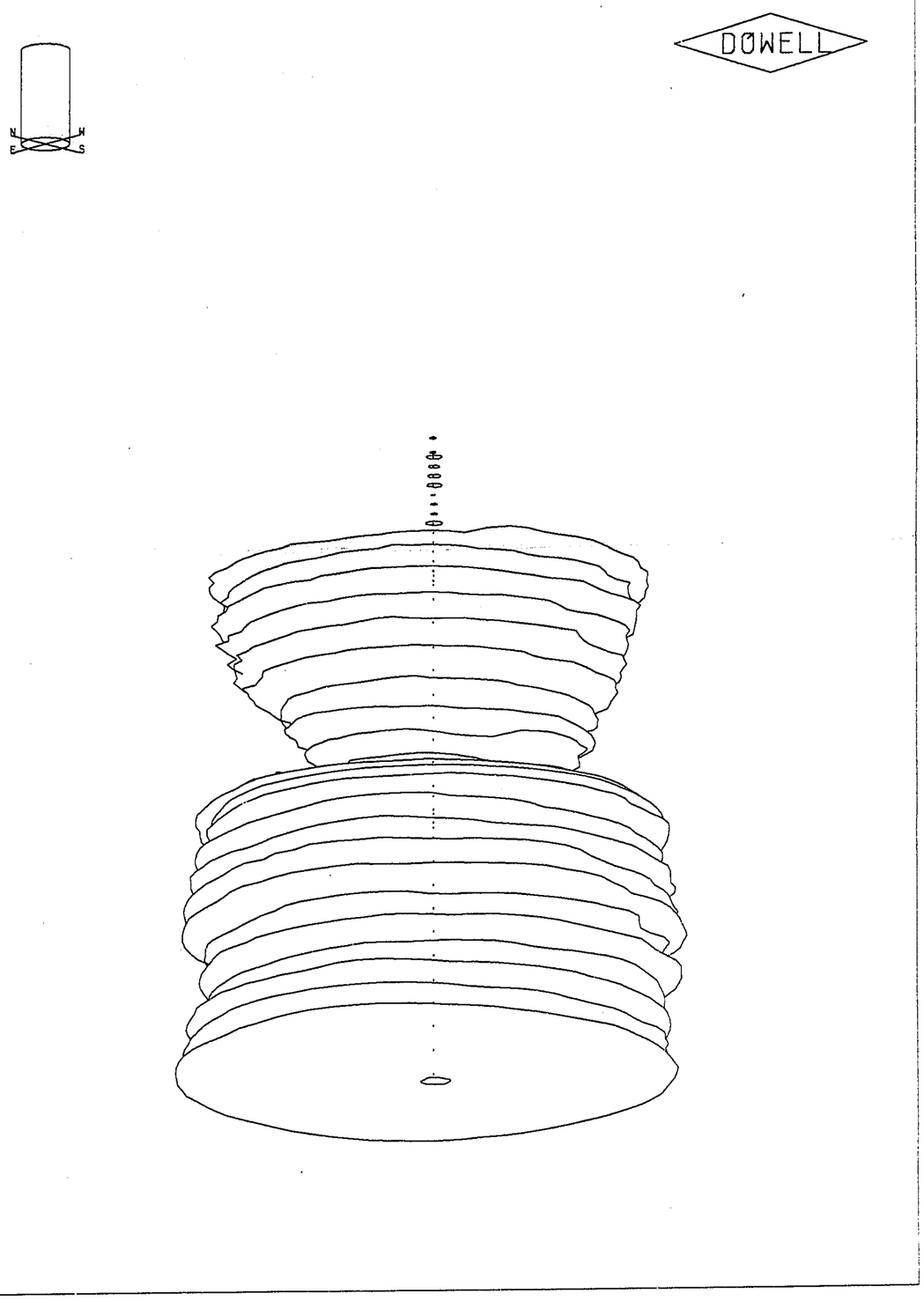
BUCKEYE GAS PRODUCTS COMPANY
ADAMANA UGS TERMINAL
WELL NO. 8
APRIL 13,1980

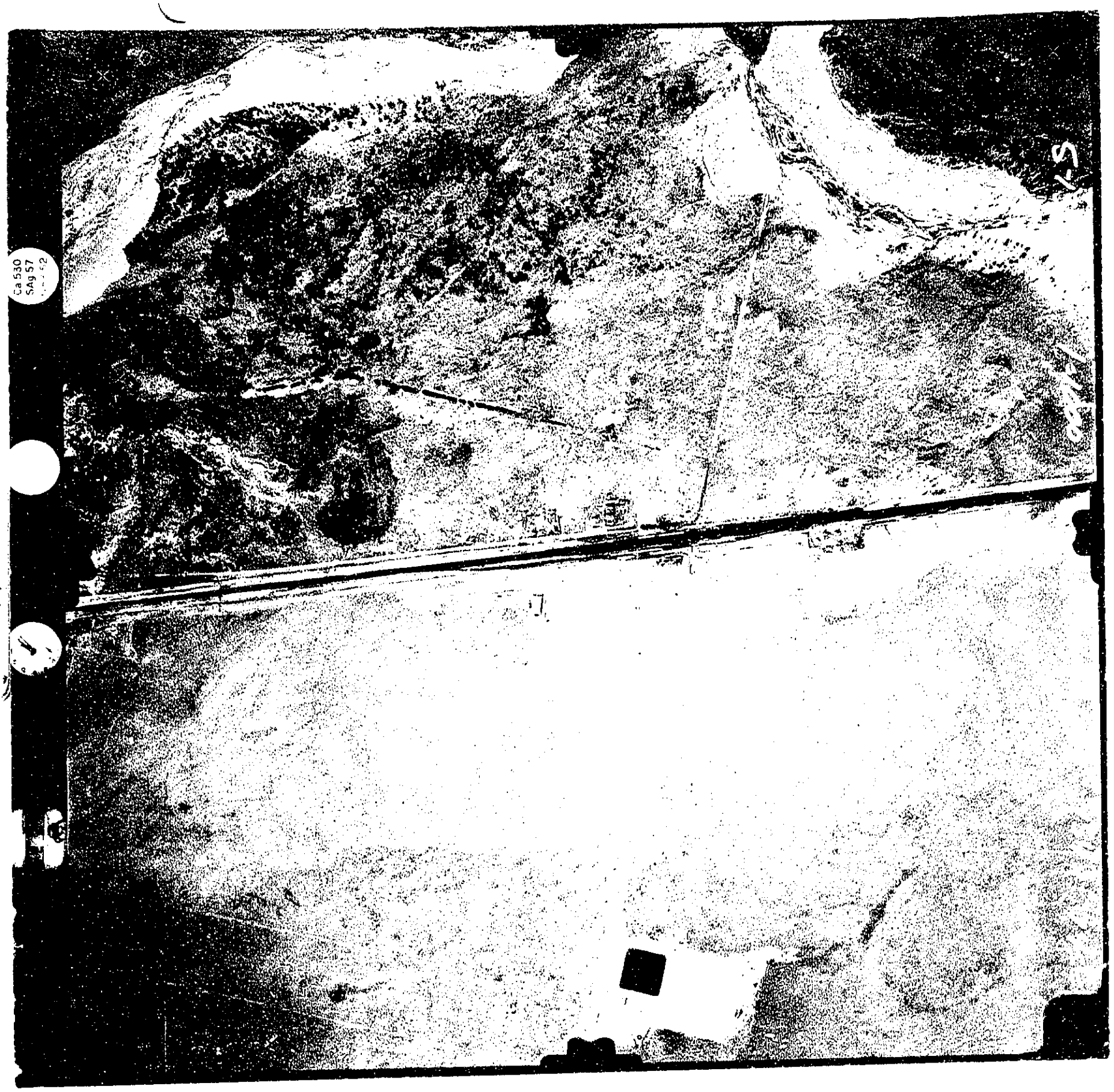


21-APR-80 09:35
FROM DEPTH: 926
THRU DEPTH: 1080
VIEWING AZIMUTH: 315
HORZ SCALE: 1 IN.=20 FT.
VERT SCALE: 1 IN.=20 FT.

ISOMETRIC VIEW

BUCKEYE GAS PRODUCTS COMPANY
ADAMANA UGS TERMINAL
WELL NO. 8
APRIL 13,1980





Ca 530
SAg 57

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

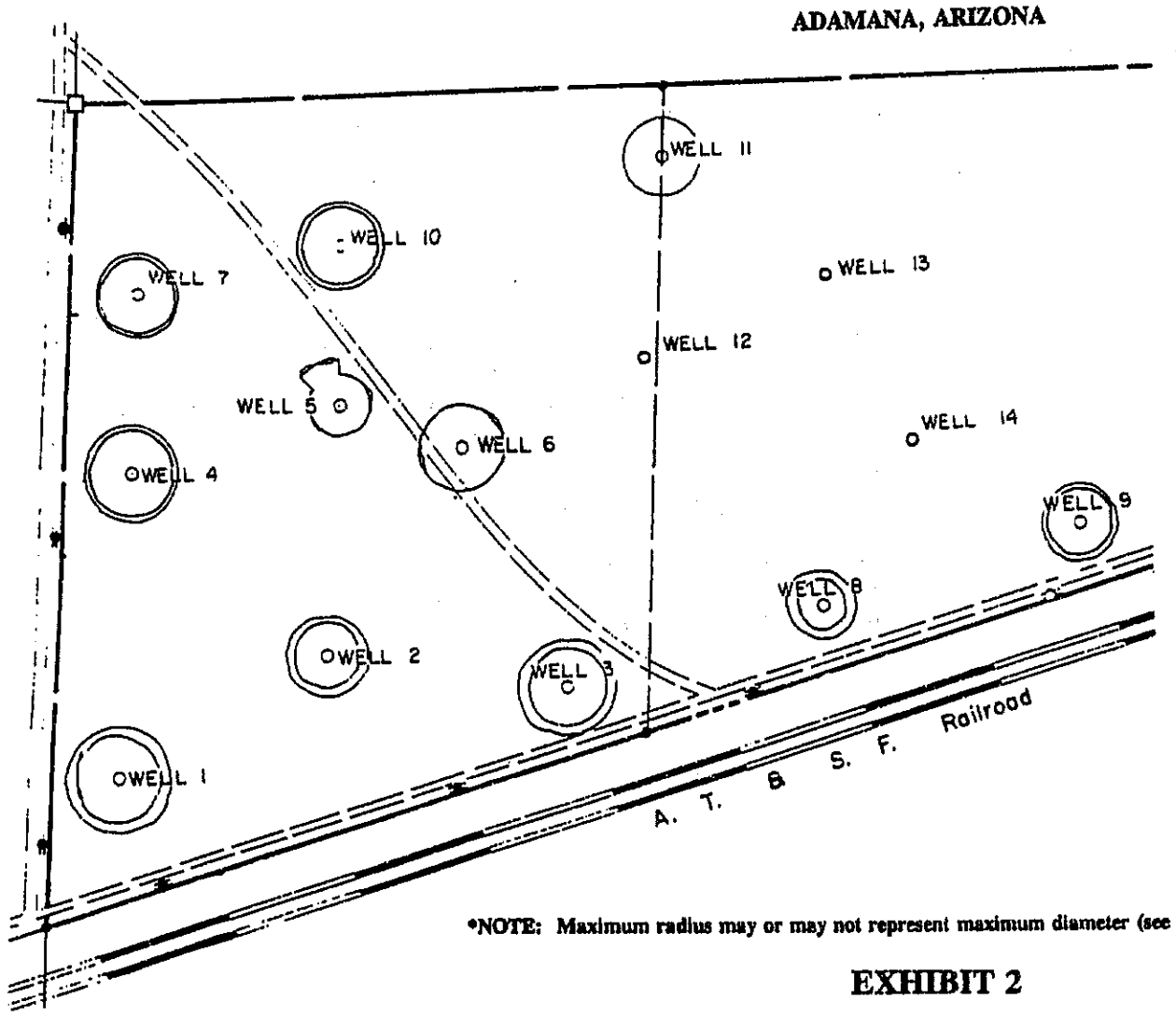
Permit	Well No.	TD	Cavern	Initial Sonar	Max Radius	Sonar Volume	Second Sonar	Max Radius	Sonar Volume	Third Sonar	Max Radius	Sonar Volume
556	1	1101'	900-985'	4/79 Dowell	99'@942'	150,532 bbls	3/92 Digital*	118'@944'	176,119 bbls			
557	2	1112'	906-995'	4/79 Dowell	74'@958'	149,008 bbls	2/89 MicroGage	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	118'@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'@1016'	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

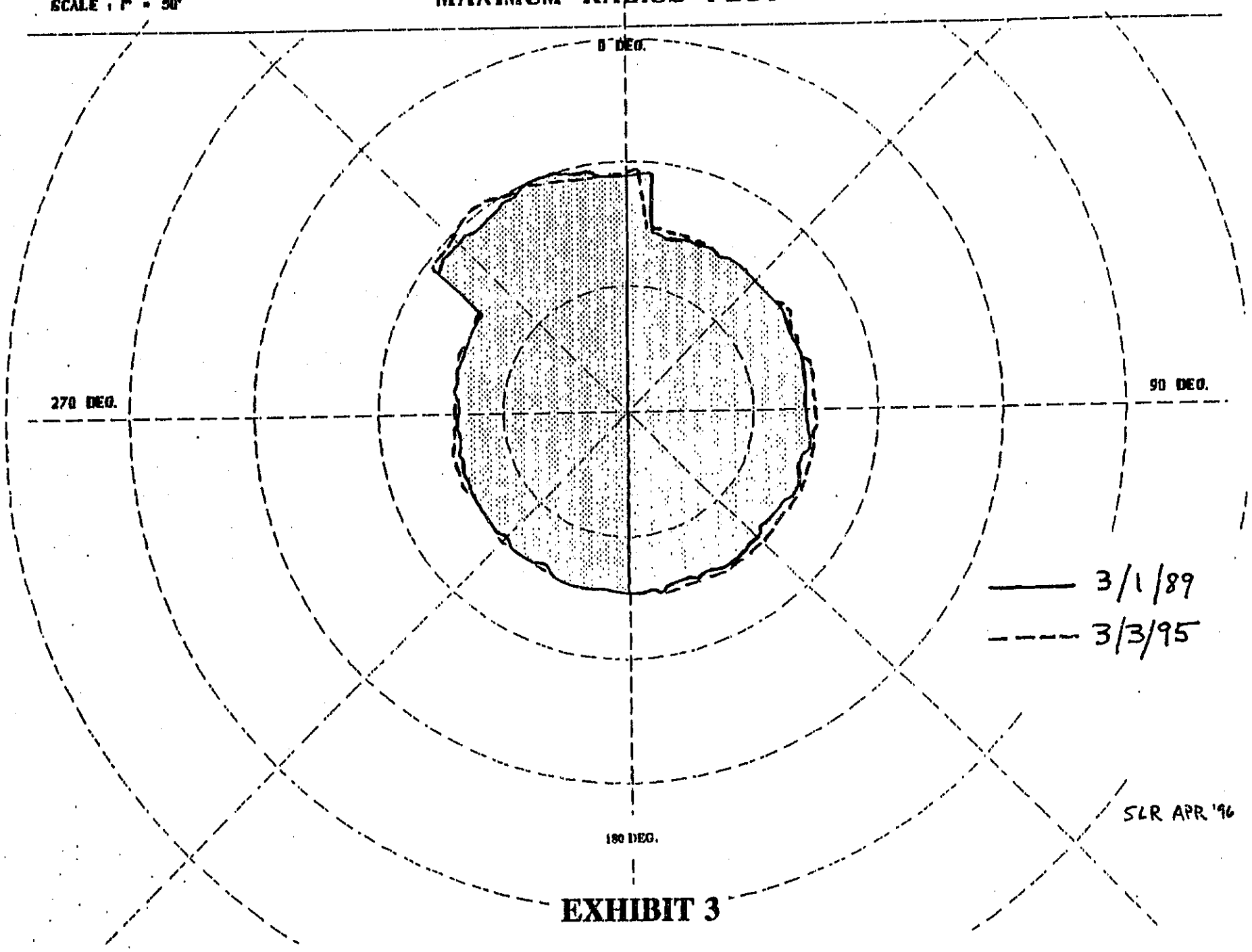


EXHIBIT 3

VERTICAL CROSSECTION

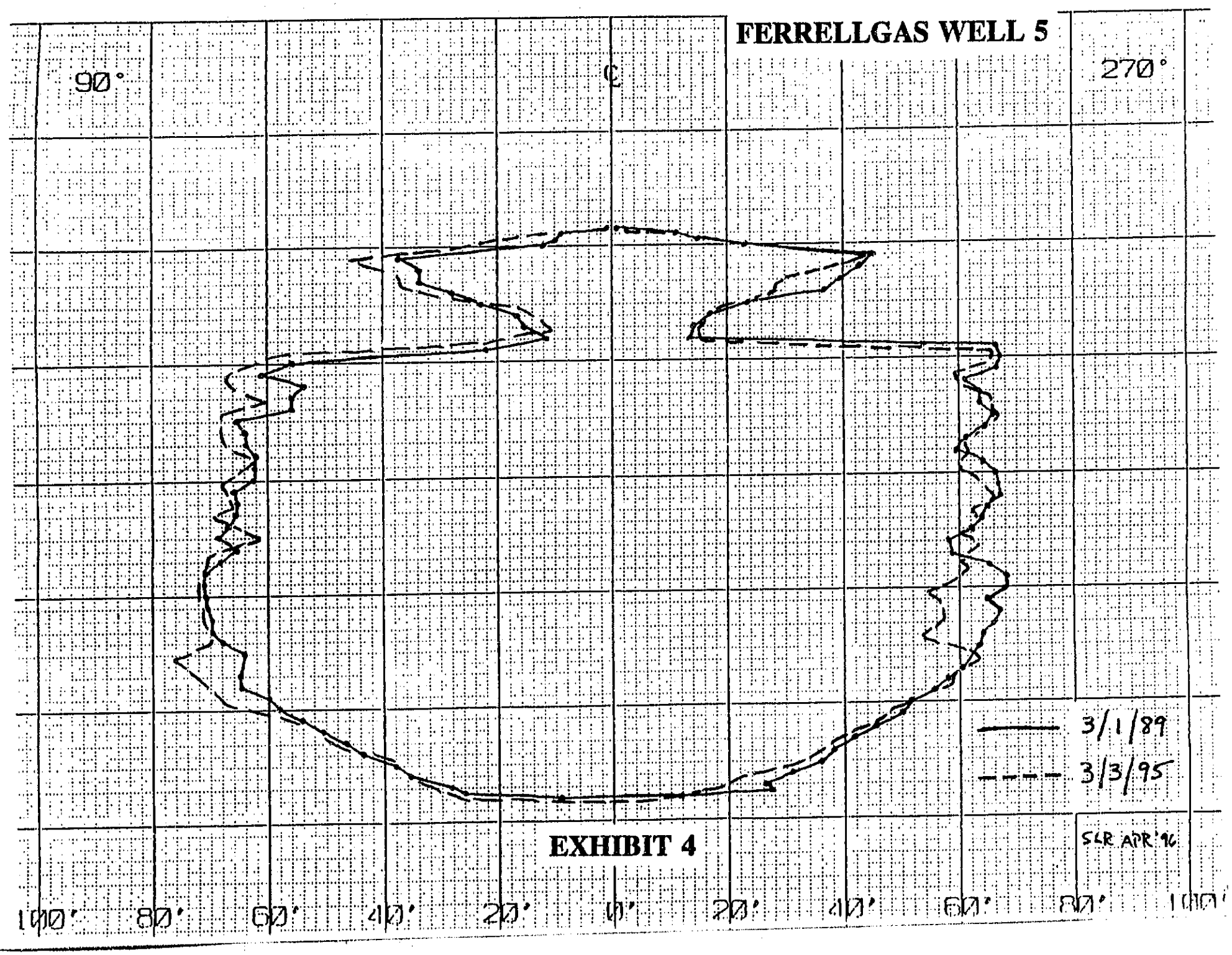
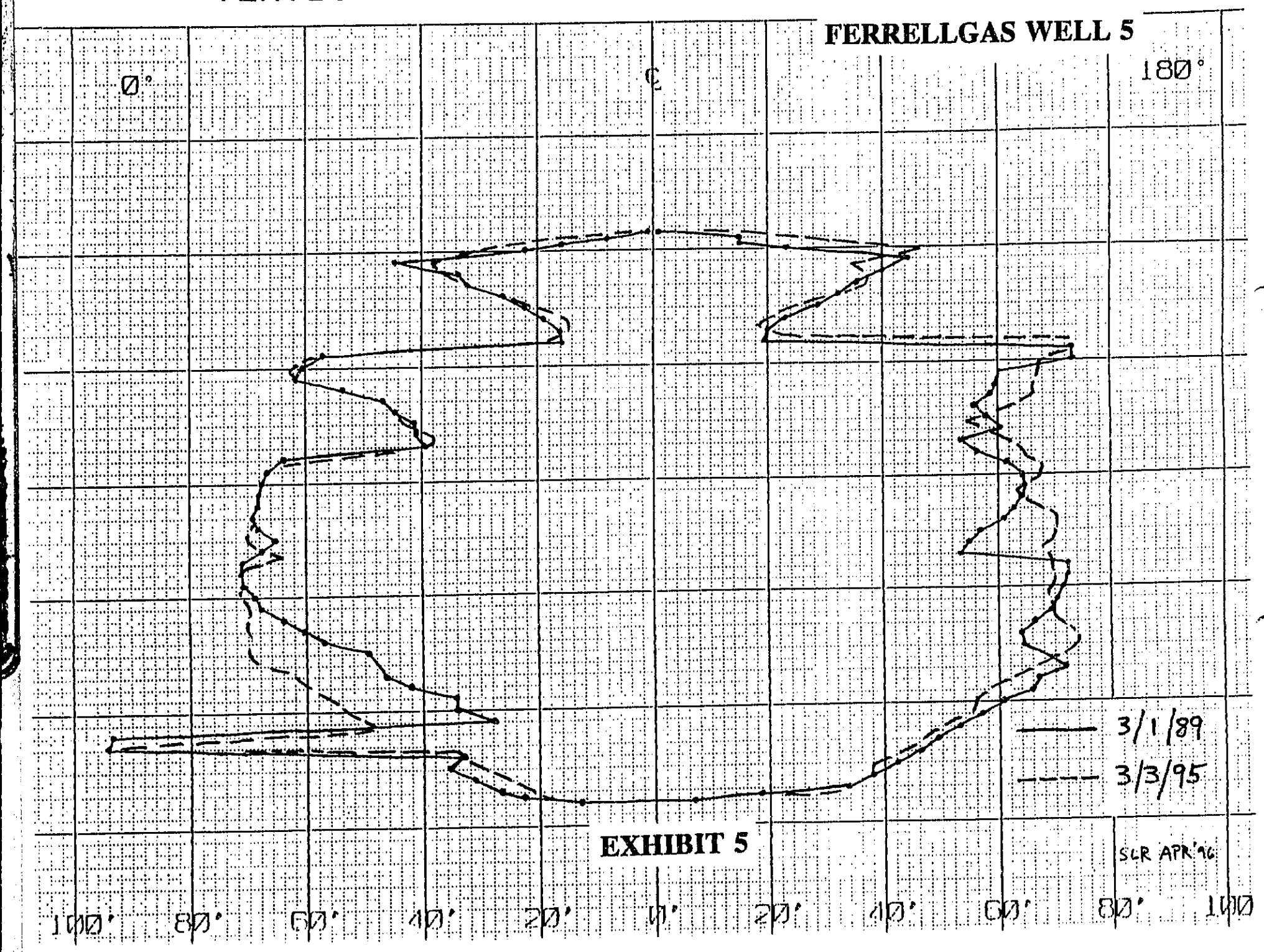


EXHIBIT 4

VERTICAL CROSSECTION



SCALE : 1" = 50'

MAXIMUM RADIUS PLOT

FERRELLGAS WELL 6

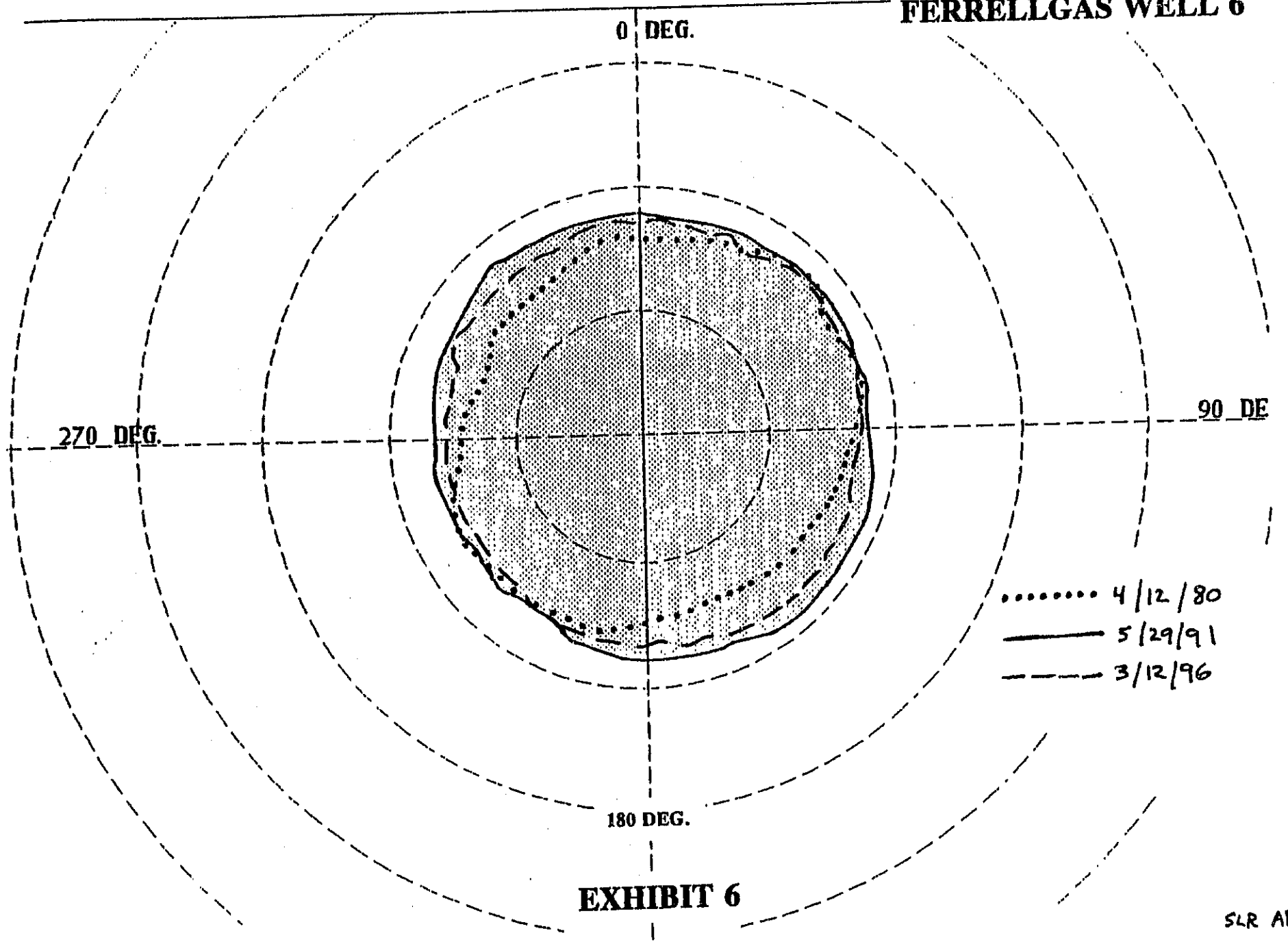


EXHIBIT 6

SLR APR '96

FERRELLGAS WELL 6

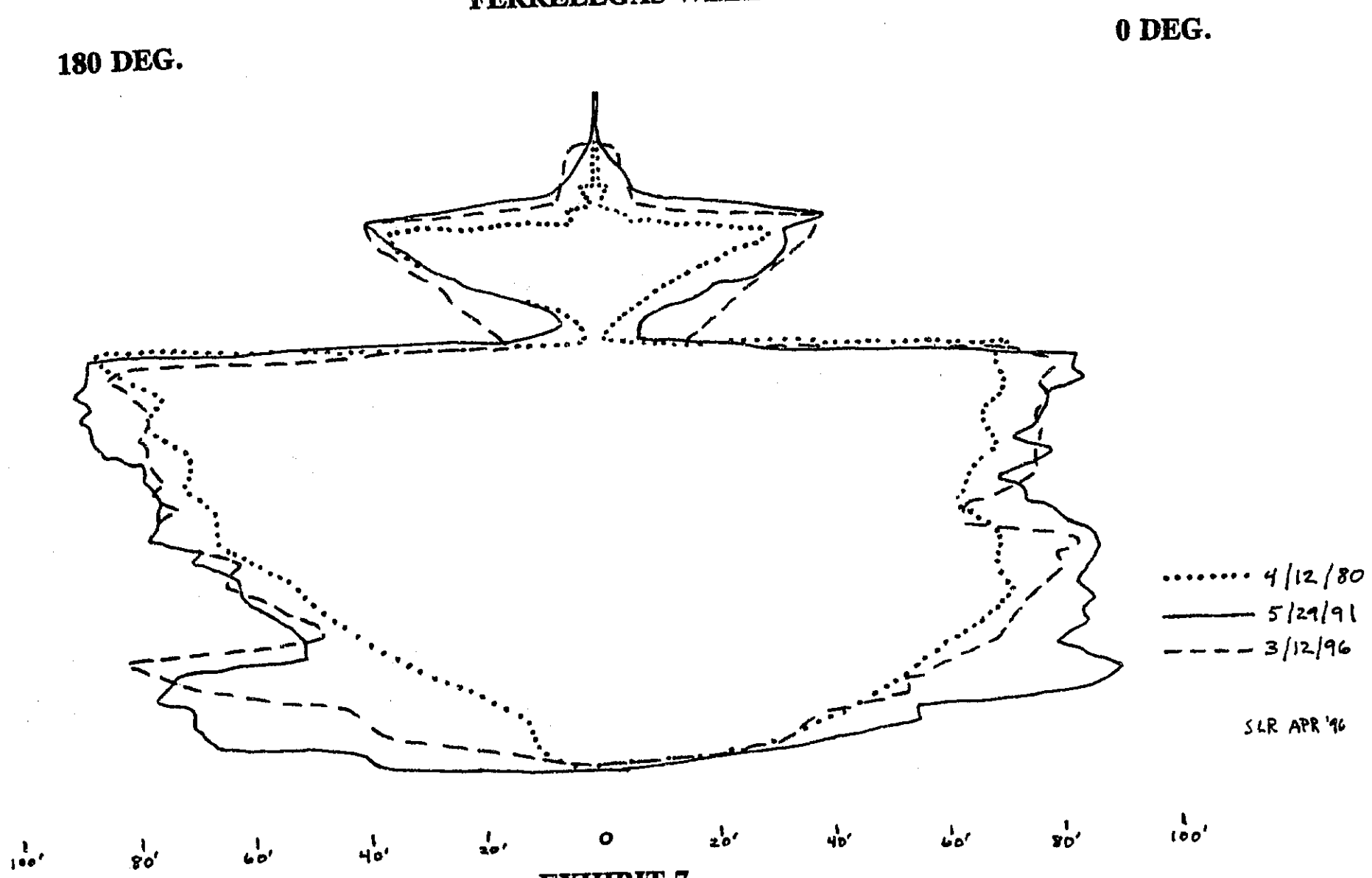


EXHIBIT 7

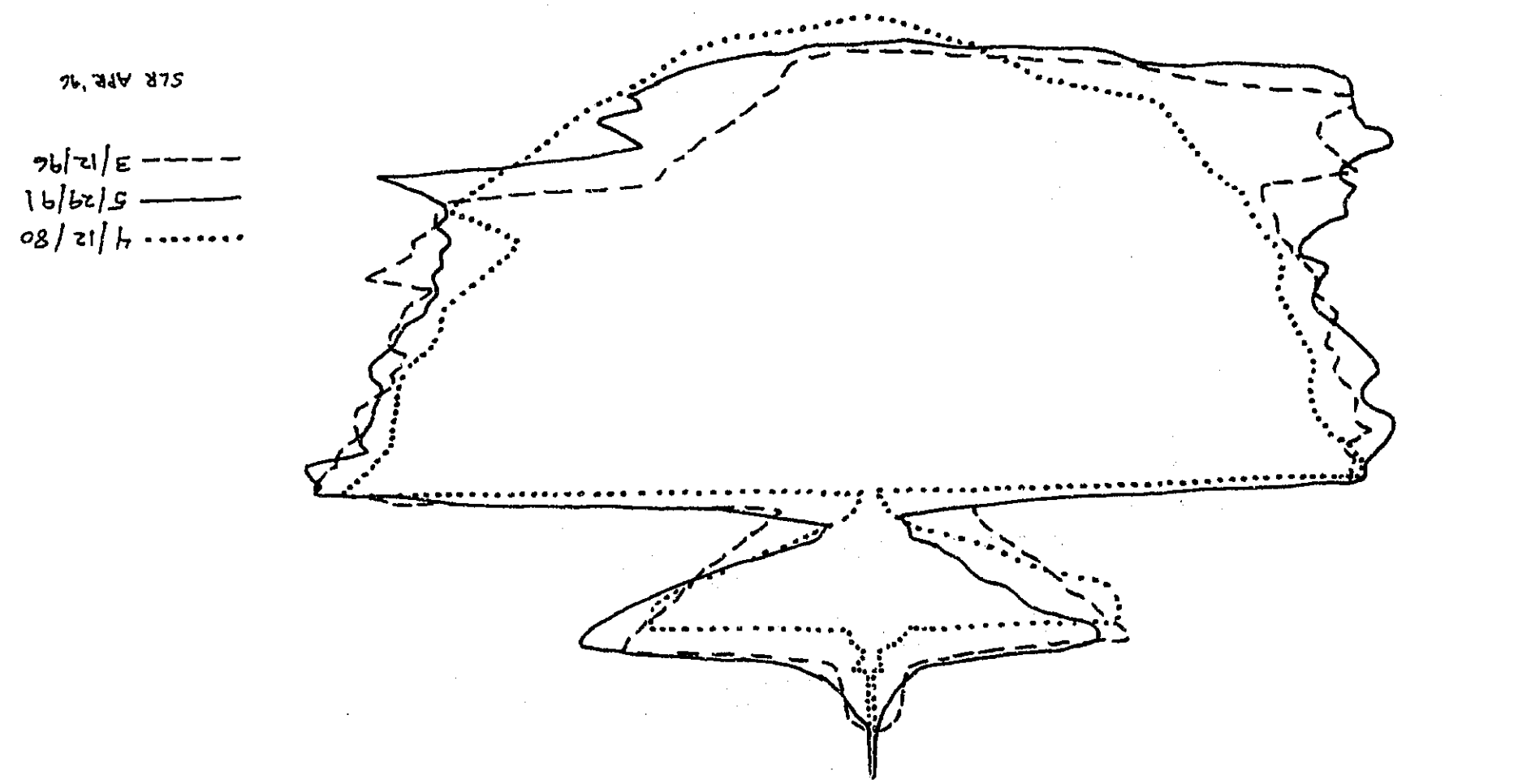

FERRELLGAS WELL 6
90 DEG.
270 DEG.
4/12/80
5/29/91
3/12/96
SLR APR.'96
100'
80'
60'
40'
20'
0
20'
40'
60'
80'
100'

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

647

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

Sincerely,

Dale Thompson

Adamana Road • P.O. Box 1624 • Holbrook, Arizona 86025 • 602-524-3778

Ferrellgas

April 9, 1996

file 647

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

APR 1996
ARIZONA GEOLOGICAL SURVEY

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

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

647

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

FAX 913-676-9145 one copy of bond form 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

647

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

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 11, 1992

PW 647

Mr. Dale Thompson
Terminal Manager
Ferrellgas
P.O. Box 1024
Holbrook, Arizona 86025

Re: **Sonar surveys of Ferrellgas Storage wells #1, #4, #8, and #9**

Dear Dale,

This letter will acknowledge our receipt of the sonar surveys on the referenced wells.

The attached listing shows that all wells are now in compliance with the capacity verifications required in A.A.C. R12-7-181.1.i.iv.

Sincerely,

Steven L. Rauzi

Steven L. Rauzi
Oil and Gas Program Administrator

Enclosure

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

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

February 26, 1992

#647

Mr. Dale Thompson
Terminal Manager
Ferrellgas
P.O. Box 1024
Holbrook, Arizona 86025

Re: **Sonaring of Ferrellgas Storage wells #1, #4, #8, and #9**

Dear Dale,

This letter is a reminder that the referenced wells are not in compliance with A.A.C. 12-7-181(i)(iv) which requires that capacity determinations on storage wells shall be verified every five years. The enclosed table summarizes our records on these determinations for your wells.

As we have previously discussed, and as Mr. R. M. Gehring has indicated in his letter of May 21, 1991, I anticipate that you will be scheduling these determinations as soon as possible after the winter outhaul season.

I would appreciate learning of your plans in regards to this matter at your earliest convenience.

Sincerely,

Steven L. Rauzi

Steven L. Rauzi
Oil and Gas Program Administrator

Enclosure

ADAMANA VOLUME VERIFICATION SURVEYS
(all by the sonar method)

Permit	Well	Survey Date	Survey Date	Current Status
556	1	4/79		NOT IN COMPLIANCE
557	2	4/79	2/89	In compliance
602	3	4/79	5/91	In compliance
603	4	4/80		NOT 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		NOT IN COMPLIANCE
648	9	4/80		NOT 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

647

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

STOR. TERM.
DEC - 7 1976
TRANSP.

OIL & GAS PROPERTY MANAGEMENT
1400 FOURTH NATIONAL BUILDING · 15 WEST SIXTH ST. · TULSA, OKLA. 74119 · AREA 918 / 587-5175

RECEIVED
DEC 10 1976
O & G CONS. COMM.

December 6, 1976

Mr. Dan Dougherty
Williams Energy Company
P. O. Box 3478
Tulsa, Oklahoma 74101

Re: Adamana Project
Apache County, Arizona

Dear Dan:

Enclosed are the well completion forms for the State of Arizona on Well Nos. 8, 10 and 11, which are ready for your signature.

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

Very truly yours,

K & A, INC.

Alan

Alan B. Erwin
Vice President

ABE:pw
Enclosure

647

HOUSTON OFFICE 3430 UNITED GAS BUILDING • 1200 MILAM • HOUSTON, TEXAS 77002 • AREA 713/227-1537

xxxxxxxxxxxxxxxx 8686 N. Central
xxxx Suite 106, 85020

January 5, 1976

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

RE: December Current File Material

Dear Kay:

Enclosed you will find the following current material for December:

DATA: Completion report and miscellaneous reports for Williams Energy Wells #8 & #9. This is our Files #647, 648.

LOGS: Borehole Compensated Sonic Log for Files #647 & 648.

Thank you.

Saralee Lorenzo
Secretary

Encls.

OFFICE OF

Oil and Gas Conservation Commission

STATE OF ARIZONA

~~XXXXXXXXXXXXXXX~~ 8686 N. Central
~~4515 NORTH 7TH AVE.~~
PHOENIX, ARIZONA ~~85013~~ Suite 106, 85020
PHONE: (602) 271-5161

January 5, 1976

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

Dear Mr. Webster:

Enclosed are the copies of the Application to Drill for Williams Energy Company's Well #8 & #9.

Please note that Well #8 was spudded August 23, 1975 and Well #9 was spudded September 17, 1975.

Very truly yours,

Saralee Lorenzo
Secretary

sl

Encls.

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

WR

December 24, 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 reports (Form Nos. 8, 9) and copies of the open hole logs for wells #8 and 9 at Adamana, Arizona. These wells were drilled in accordance with permits Nos (647 and 648).

Sincerely,

Dan Dougherty

Dan. J. Dougherty
Operations Department

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

RECEIV
JAN
O & G CONS. COMM.

DOXOL UREGAS
Names in propane you can count on

William E. Allen
Activity Report
October 8, 1975
Page 2

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.

647

August 14, 1975

Williams Energy Company
P. O. Box 3478
Tulsa, Oklahoma 74101

RE: Well No. 8
NE/NW Sec 8-T18N-R24E
Apache County, Permit #647

Well No. 9
NE/NW Sec 8-T18N-R24E
Apache County, Permit #648

Gentlemen:

This is to advise you that the above two permits will expire September 3, 1975 if not spudded.

Should you desire an extension, please advise prior to the expiration date.

Very truly yours,

Saralee Lorenzo
Secretary to W. E. Allen
Enforcement Section

SL/

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

July 1, 1975
DJD:52:75
PRJ 1

Mr. W. E. Allen, Director
Enforcement Section
Oil and Gas Conservation Commission
State of Arizona
8686 North Central Avenue
Suite 106
Phoenix, Arizona 85020

RECEIVED
JUL 0 7 1975
O & G CONS. COMM.

Dear Mr. Allen:

In accordance with our telephone conversation regarding location changes for drilling permits on wells number 8 and 9 at Adamana, Arizona I am forwarding the following per your request.

- Permit No. 647 (Well No. 8)
- Permit No. 648 (Well No. 9)
- Copy of revised plat showing new location and elevation of wells 8 and 9.

The proposed new location of well No. 8 will be 1137.70' South and 1710.53' East of Northwest corner.

The proposed new location of well No. 9 will be 939.06' South and 2276.50' East of Northwest corner.

Your cooperation in processing these revisions is greatly appreciated.

Sincerely,

D. J. Dougherty
Operations Department

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

647

xxxxxxxxxxxxxx 8686 N. Central, Suite 106
xxx Phoenix, Arizona 85020

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

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

Dan J. Dougherty
Operations Department

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

RECEIVED
JUN 3 1975
D & G CONS. COMM.