

North Collier Water Reclamation Facility

Well Completion Report for IW-2

Volume 2

Appendices 1.1 to 2.2.10



PUED 73948

Prepared by:
Water Resource Solutions, Inc
428 Pine Island Road, S.W.
Cape Coral, FL 33991



APPENDIX 1.1

SITE SURVEY



COLLIER COUNTY GOVERNMENT

ADMINISTRATIVE SERVICES DIVISION
REAL ESTATE SERVICES

3301 E. TAMiami TRAIL
NAPLES, FL 34112
PHONE (941) 774-8991
FAX (941) 774-8876

May 6, 2004

Mr. Mark S. Pearce, Ph.D.
Senior Scientist
Water Resource Solutions
428 Pine Island Road SW
Cape Coral, Florida 33991

Re: NCWRF Deep Injection Wells

Dear Mark:

With respect to the above referenced project, please find enclosed the following items for your files:

1. Copy of Resolution No. 2004-156; and
2. Copy of executed Declaration of Easement

Whenever it is convenient, please complete and return the enclosed survey. Our department is using the information to serve the Public in a more efficient way.

I want to thank you for your valuable assistance with this project. You enabled us to process the item in a timely manner. If you have any questions, please feel free to contact me at (239) 774-8780.

Sincerely,

Toni A. Mott
Supervisor

Enclosures as stated

cc: Phil Gramatges, Senior Project Manager, PUED w/ attachments

RESOLUTION NO. 2004- 156

RESOLUTION OF THE BOARD OF COUNTY COMMISSIONERS OF COLLIER COUNTY, FLORIDA, AS THE GOVERNING BODY OF COLLIER COUNTY AND AS EX-OFFICIO THE GOVERNING BOARD OF THE COLLIER COUNTY WATER-SEWER DISTRICT (HEREINAFTER REFERRED TO AS DISTRICT) AUTHORIZING THE DECLARATION OF A UTILITY EASEMENT.

WHEREAS, District is desirous of encumbering property currently owned by the District with a utility easement described in Exhibit "A", attached hereto and made a part hereof; and

WHEREAS, the described easement is a necessary element required for installation and maintenance of a deep injection well and monitoring well facilities at the North County Regional Water Treatment Plant; and

WHEREAS, the easement is a requirement of the Underground Injection Control program; and

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF COUNTY COMMISSIONERS OF COLLIER COUNTY, FLORIDA, that:

1. The Board of County Commissioners of Collier County, Florida, hereby approves the Declaration of Easement described in Exhibit "A" and authorizes its execution and recording in the Public Records of Collier County, Florida.
2. This Resolution shall take effect immediately upon adoption.

ADOPTED this 27th day of April, 2004 after motion, second and majority vote favoring adoption.

ATTEST: BOARD
DWIGHT E. BROCK

by: Dwight E. Brock, D.C.
Attest as Dwight E. Brock's
signature only.

BOARD OF COUNTY COMMISSIONERS
COLLIER COUNTY, FLORIDA

By: Donna Fiala
DONNA FIALA, CHAIRMAN

Approved as to form and
legal sufficiency:

Ellen T. Chadwell
Ellen T. Chadwell
Assistant County Attorney

Item #	<u>1602</u>
Agenda Date	<u>4-27-04</u>
Date Rec'd	<u>4-28-04</u>
Deputy Clerk	<u>Dwight E. Brock</u>

SPECIFIC PURPOSE SURVEY

SECTION 27, TOWNSHIP 48 SOUTH, RANGE 25 EAST,
COLLIER COUNTY, FLORIDA



NOTES:

THIS PLAT PREPARED AS A SPECIFIC PURPOSE SURVEY FOR THE PURPOSE OF LOCATING THE INJECTION WELL AND MONITORING WELL IN STATE PLANE COORDINATES.

BEARINGS AND COORDINATES SHOWN HEREON ARE STATE PLANE FOR THE FLORIDA WEST ZONE NAD 83/1990 ADJUSTMENT AND BASED ON GPS REAL-TIME TIES TO NGS CONTROL STATION "K 416".

ELEVATIONS SHOWN HEREON ARE BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29), FROM TIES TO NGS CONTROL STATION "K 416". ELEVATION = +38.98' AND SITE BENCHMARKS PROVIDED BY THE CLIENT.

UNDERGROUND IMPROVEMENTS, UTILITIES AND/OR FOUNDATIONS WERE NOT LOCATED UNLESS OTHERWISE NOTED.

DATE OF LAST FIELD WORK: 2-6-2004

NGS CONTROL STATION "K 416"

NORTHING: 714437.095 (FT)
EASTING: 393430.440 (FT)

LATITUDE: N 26°17'49.036"
LONGITUDE: W 81°48'06.977"

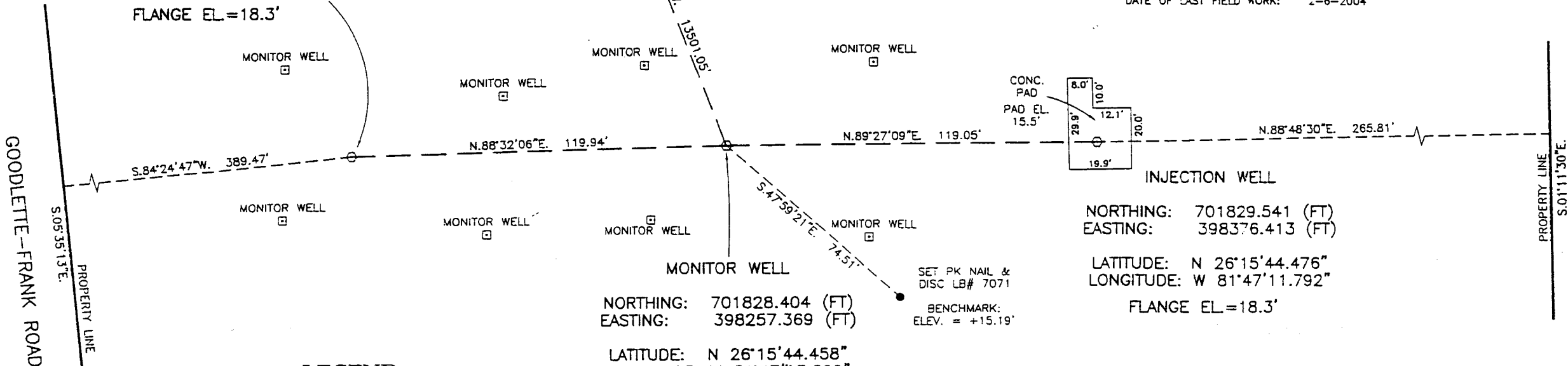
ELEVATION = +12.43'

INJECTION WELL

NORTHING: 701825.337 (FT)
EASTING: 398137.470 (FT)

LATITUDE: N 26°15'44.420"
LONGITUDE: W 81°47'14.416"

FLANGE EL.=18.3'

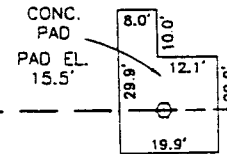


MONITOR WELL

MONITOR WELL

MONITOR WELL

MONITOR WELL



INJECTION WELL

NORTHING: 701829.541 (FT)
EASTING: 398376.413 (FT)

LATITUDE: N 26°15'44.476"
LONGITUDE: W 81°47'11.792"

FLANGE EL.=18.3'

NORTHING: 701828.404 (FT)
EASTING: 398257.369 (FT)

LATITUDE: N 26°15'44.458"
LONGITUDE: W 81°47'13.099"

FLANGE EL.=18.5'

SET PK NAIL &
DISC LB# 7071

BENCHMARK:
ELEV. = +15.19'

LEGEND:

- IR = IRON ROD
- C.M. = CONCRETE MONUMENT
- ID = IDENTIFICATION
- (M) = MEASURED
- M.W.=MONITOR WELL
- EL = ELEVATION
- ▣ = CATCH BASIN
- FT.= FEET
- MT.= METERS
- CONC.= CONCRETE

Page 1 of 1
EXHIBIT A

PREPARED FOR:

YOUNGQUIST BROTHERS, INC.

FOR THE FIRM:

SCOTT M. SHORE
PROFESSIONAL SURVEYOR AND MAPPER
FLORIDA CERTIFICATE NO. LS# 5743
DATE SIGNED: 2-12-2004

NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER.

TITLE: SPECIFIC PURPOSE SURVEY			
<p>METRON SURVEYING & MAPPING, LLC</p>		5245 RAMSEY WAY, SUITE #2 FORT MYERS, FLORIDA 33907 PHONE: (239) 275-8575 FAX: (239) 275-8457 www.metronfl.com	
FILE NAME: 3356SR.DWG	FIELD BOOK/PAGE: 168/08	PROJECT NO.: 3356	SHEET: 1 OF 1
SURVEY DATE:	DRAWN BY:	SCALE:	CHECKED BY:

*** OR: 3553 PG: 0407 ***

PROJECT: NCWRF Deep Injection Wells
FOLIO: 00167840006 & 00167880008

Retn:
REAL ESTATE SERVICES
INTEROFFICE
ATTN: TONI

DECLARATION OF EASEMENT

THIS DECLARATION is made this 27th day of April, 2004, by BOARD OF COUNTY COMMISSIONERS OF COLLIER COUNTY, FLORIDA, AS THE GOVERNING BODY OF COLLIER COUNTY AND AS EX-OFFICIO THE GOVERNING BOARD OF THE COLLIER COUNTY WATER-SEWER DISTRICT, having a mailing address of 3301 East Tamiami Trail, Naples, Florida 34112, hereinafter referred to as "Declarant."

Declarant is the owner of certain real property situated in Collier County, Florida, more fully described below, hereinafter referred to as the "Property."

See attached Exhibit "A" which is incorporated herein by reference.

Declarant hereby declares that the Property is and shall be held, used and occupied in accordance with and subject to a non-exclusive, perpetual easement and privilege to enter upon, construct and maintain deep injection well and monitoring well facilities on the Property as contained in this Declaration and described in Exhibit "A," attached hereto and made a part hereof, hereinafter referred to as the "Easement."

The Easement, as set forth in this Declaration, shall bind, and the benefits thereof shall inure to Declarant and its representatives, agents, successors and assigns.

IN WITNESS WHEREOF, Declarant has caused these presents to be executed the date and year first above written.

ATTEST: DWIGHT B. BROCK
CLERK

by: Ann [Signature] O.C.
Attest as to [Signature] Clerk's signature only.

BOARD OF COUNTY COMMISSIONERS OF COLLIER COUNTY, FLORIDA, AS THE GOVERNING BODY OF COLLIER COUNTY AND AS EX-OFFICIO THE GOVERNING BOARD OF THE COLLIER COUNTY WATER-SEWER DISTRICT

BY: Donna Fiala
DONNA FIALA, Chairman

Approved as to form and legal sufficiency:

Ellen T. Chadwell
Ellen T. Chadwell
Assistant County Attorney

THIS CONVEYANCE APPROVED BY THE BOARD OF COUNTY COMMISSIONERS, COLLIER COUNTY, FLORIDA, PURSUANT TO THE PROVISIONS OF RESOLUTION NO. 2004-156

4-27-04

1607-

Item # 1602
Agenda Date 4-27-04
Date Rec'd 4-28-04
[Signature]
Deputy Clerk

SPECIFIC PURPOSE SURVEY

SECTION 27, TOWNSHIP 48 SOUTH, RANGE 25 EAST,
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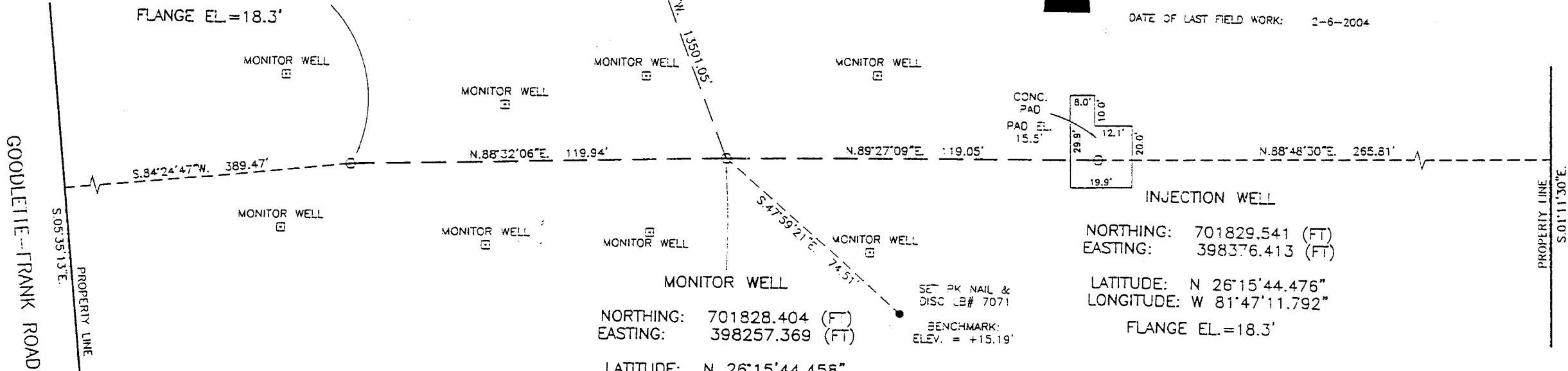
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FLANGE EL.=18.3'



GODLETTE--FRANK ROAD

PROPERTY LINE

LEGEND:

- IR = IRON ROD
- C.M. = CONCRETE MONUMENT
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PREPARED FOR:
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FOR THE FIRM:

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FLORIDA CERTIFICATE NO. LS# 5743

NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER.

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FILE NAME:	FIELD BOOK/PAGE:	PROJECT NO.:	SHEET:
3356SR.DWG	168/08	3356	1 OF 1

APPENDIX 2.1
GEOLOGIST'S LOG

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GEOLOGIST'S LOG

**North County Water Reclamation Facility
Lithologic Description of Drill Cuttings from Well IW-2**

Interval (feet bpl)	Thickness (feet)	Sample Description
0-10	10	ORGANICS - vegetative matter with minor fine quartz sand.
10-30	20	CLAY - yellowish gray (5Y 7/2), soft, abundant shell fragments, common quartz sand, fine-grained, poor apparent porosity and permeability.
30-40	10	CLAY AND LIMESTONE - greenish gray (5GY 6/1), soft, silty, minor fine quartz sand, minor fine phosphatic sand. Limestone - yellowish gray (5Y 7/2) to light greenish gray (5GY 8/1), packstone, fine-grained, friable, trace fine quartz sand, trace fine phosphatic sand, common shell fragments, poor apparent porosity and permeability.
40-50	10	LIMESTONE AND CLAY - yellowish gray (5Y 7/2) to light greenish gray (5GY 8/1), packstone, fine-grained, friable to moderately indurated, trace fine quartz sand, trace fine phosphatic sand, common shell fragments, poor apparent porosity and permeability. Clay - greenish gray (5GY 6/1), soft to stiff, silty, minor fine quartz sand, minor fine phosphatic sand.
50-60	10	LIMESTONE - yellowish gray (5Y 7/2) to medium light gray (N6), fossil packstone to grainstone, friable to well indurated, variably phosphatic, common shell fragments, common coral fragments, fair to good apparent porosity and permeability.
60-70	10	LIMESTONE - yellowish gray (5Y 7/2) to medium light gray (N6), fossil packstone to grainstone with crystalline calcite, fine to medium-grained, moderately to well indurated, variably phosphatic, common shell fragments, common coral fragments, fair to good apparent porosity and permeability.
70-80	10	LIMESTONE - yellowish gray (5Y 8/1) to medium light gray (N6), fossil packstone to grainstone, fine to medium-grained, moderately to well indurated, variably phosphatic, common shell fragments, common pelecypod molds, fair to good apparent porosity and permeability.
80-90	10	LIMESTONE - yellowish gray (5Y 8/1), grainstone to wackestone, medium-grained, friable to moderately indurated, fossiliferous, common coral fragments, common shell fragments, rare very fine-grained phosphate, rare fine-grained quartz, good apparent porosity and permeability.

APPENDIX 2.1
GEOLOGIST'S LOG

90-100	10	LIMESTONE - yellowish gray (5Y 8/1) to medium light gray (N6), fossil packstone to grainstone, fine to medium-grained, moderately indurated, variably phosphatic, common shell fragments, common coral fragments, common pelecypod molds, minor fine-grained phosphate, rare fine-grained quartz, fair to good apparent porosity and permeability.
100-110	10	LIMESTONE - yellowish gray (5Y 8/1) to medium light gray (N6), fossil packstone to grainstone, fine to medium-grained, moderately indurated, variably phosphatic, common shell fragments, common coral fragments, common pelecypod molds, minor fine-grained phosphate, rare fine-grained quartz, fair to good apparent porosity and permeability.
110-120	10	LIMESTONE - yellowish gray (5Y 8/1) to medium light gray (N6), fossil packstone to grainstone, fine to medium-grained, moderately indurated, variably phosphatic, common shell fragments, common bivalves, common pelecypod molds, minor fine-grained phosphate, rare fine-grained quartz, fair apparent porosity and permeability.
120-130	10	LIMESTONE - yellowish gray (5Y 8/1), grainstone, fine to medium-grained, friable, fine quartz sandy, minor fine-grained phosphate, slightly silty, common large shells, fair to good apparent porosity and permeability.
130-140	10	LIMESTONE - yellowish gray (5Y 8/1) to medium light gray (N6), grainstone to packstone, friable to moderately indurated, rare fine quartz sandy, minor finely phosphatic, occasional gastropods, rare pelecypod molds, rare coral fragments, abundant to common shell fragments, fair to good apparent porosity and permeability.
140-150	10	LIMESTONE - yellowish gray (5Y 7/2) to light olive gray (5Y 6/1), fossil packstone, fine to medium-grained, well indurated, moldic, common shell fragments, minor fine phosphate, fair to good apparent porosity and permeability.
150-190	40	CLAY AND LIMESTONE - medium light gray (N6) to greenish gray (5GY 6/1), soft to firm, silty, sticky, fine quartz sandy, finely phosphatic, common shell fragments. Limestone - yellowish gray (5Y 8/1), fossil packstone, moderately indurated, sparry, finely phosphatic, poor to fair apparent porosity and permeability.
190-200	10	CLAY AND LIMESTONE - greenish gray (5GY 6/1) to greenish gray (5G 6/1), firm, slightly silty, sticky, common very finely phosphatic, minor shell fragments. Limestone (minor) - very light gray (N8), packstone-grainstone, good apparent porosity and permeability.

APPENDIX 2.1
GEOLOGIST'S LOG

200-210	10	CLAY AND LIMESTONE - grayish yellow green (5GY 7/2), soft to firm, silty, sticky, fine quartz sandy, common finely phosphatic, common shell fragments. Limestone (common) - very light gray (N8), packstone-grainstone, good apparent porosity and permeability.
210-220	10	CLAY AND LIMESTONE - greenish gray (5GY 6/1) to dusky yellow green (5GY 5/2), soft, silty, sticky, fine quartz sandy, common finely phosphatic, abundant shell fragments. Limestone - very light gray (N8), packstone-grainstone, good apparent porosity and permeability.
220-230	10	CLAY - greenish gray (5GY 6/1) to light olive gray (5Y 6/1), soft, silty, sticky, fine quartz sandy, common finely phosphatic, some phosphate granules, trace shell fragments. Limestone (rare) - very light gray (N8), packstone-grainstone, good apparent porosity and permeability.
230-240	10	CLAY AND LIMESTONE - greenish gray (5GY 6/1) to light olive gray (5Y 6/1), soft, silty, sticky, fine quartz sandy, common finely phosphatic, some phosphate granules, some shell fragments. Limestone (occasional) - very light gray (N8), packstone-grainstone, good apparent porosity and permeability.
240-250	10	CLAY - greenish gray (5GY 6/1) to light olive gray (5Y 6/1), soft, silty, sticky, fine quartz sandy, common finely phosphatic, some phosphate granules, trace shell fragments. Limestone (rare) - very light gray (N8), packstone-grainstone, good apparent porosity and permeability.
250-260	10	LIMESTONE - yellowish gray (5Y 7/2), packstone-grainstone, moderately indurated, finely phosphatic, abundant fragments of shell and coral, good apparent porosity and permeability.
260-280	20	LIMESTONE - yellowish gray (5Y 8/1), packstone-grainstone, moderately indurated, finely phosphatic, abundant fragments of shell and coral, good apparent porosity and permeability.
280-290	10	LIMESTONE AND CLAY - yellowish gray (5Y 8/1), packstone-grainstone, moderately indurated, finely phosphatic, abundant fragments of shell and coral, good apparent porosity and permeability. Clay (minor)- light olive gray (5Y 6/1), soft, silty, sticky, fine quartz sandy, finely phosphatic.
290-310	20	LIMESTONE AND CLAY - yellowish gray (5Y 8/1), packstone-grainstone, moderately indurated, sparry, finely phosphatic, common fragments of shell and coral, good apparent porosity and permeability. Clay (minor) - light olive gray (5Y 6/1), soft, silty, sticky, fine quartz sandy, finely phosphatic.
310-320	10	LIMESTONE - yellowish gray (5Y 8/1), fossil packstone, highly indurated, finely phosphatic, common fragments of shell and coral, good apparent porosity and permeability.

APPENDIX 2.1
GEOLOGIST'S LOG

320-330	10	LIMESTONE - yellowish gray (5Y 8/1), fossil packstone, highly indurated, finely phosphatic, common fragments of shell, good apparent porosity and permeability.
330-340	10	LIMESTONE - yellowish gray (5Y 7/2), fossil packstone, moderately to well indurated, variably moldic, very finely phosphatic, variably sparry, abundant to common shell fragments, fair apparent porosity and permeability.
340-350	10	LIMESTONE - yellowish gray (5Y 7/2), fossil packstone, moderately indurated, variably moldic, sparsely very finely phosphatic, abundant to common shell fragments, good apparent porosity and permeability.
350-360	10	LIMESTONE - yellowish gray (5Y 7/2), fossil packstone, moderately indurated to friable, variably moldic, finely phosphatic, common shell fragments, fair to good apparent porosity and permeability.
360-370	10	LIMESTONE - yellowish gray (5Y 7/2), fossil packstone, moderately indurated, moldic, very finely phosphatic, abundant to common shell fragments, fair to good apparent porosity and permeability.
370-387	17	LIMESTONE AND CLAY - yellowish gray (5Y 7/2), fossil packstone, moderately to well indurated, moldic, very finely phosphatic, abundant shell fragments, fair apparent porosity and permeability. Clay - light greenish gray (5GY 8/1), soft, sticky, silty, very finely phosphatic, trace of very fine quartz sand.
387-390	3	CLAY - greenish gray (5GY 6/1) to light greenish gray (5GY 8/1), soft, silty, sticky, very finely phosphatic, common shell fragments, poor apparent porosity and permeability.
390-403	13	CLAY AND LIMESTONE - greenish gray (5GY 6/1), soft to firm, sticky, silty, sparsely very finely phosphatic, abundant to common shell fragments. Limestone (minor) - yellowish gray (5Y 7/2), grainstone, poorly indurated to friable, arenitic, very finely phosphatic, good to fair apparent porosity and permeability.
403-413	10	LIMESTONE AND CLAY - yellowish gray (5Y 7/2), fossil packstone, well indurated, coralline, variably moldic w/ evidence of some recrystallization, finely phosphatic, common fragments of shell and coral, good to fair apparent porosity and permeability. Clay (minor) - greenish gray (5GY 6/1), soft to firm, sticky, silty, sparsely very finely phosphatic.
413-420	7	LIMESTONE - yellowish gray (5Y 7/2), grainstone to wackestone, friable to moderately indurated, fossiliferous, rare fine-grained phosphate, common shell fragments, common molds, good apparent porosity and permeability.

APPENDIX 2.1
GEOLOGIST'S LOG

420-430	10	LIMESTONE - yellowish gray (5Y 7/2) to light gray (N7), grainstone to wackestone, friable to moderately indurated, fossiliferous, common shell fragments, common molds, rare to common fine-grained phosphate, rare to minor fine-grained quartz, good apparent porosity and permeability.
430-440	10	LIMESTONE AND MARL - yellowish gray (5Y 7/2) to light gray (N7), grainstone to wackestone, friable to moderately indurated, fossiliferous, common shell fragments, common molds, rare to common fine-grained phosphate, rare to minor fine-grained quartz, good apparent porosity and permeability. Mudstone - moderate yellowish brown (10YR 5/4), well indurated, minor molds, poor to fair apparent porosity and permeability. Marl - yellowish gray (5Y 7/2), soft.
440-450	10	LIMESTONE - yellowish gray (5Y 7/2) to yellowish gray (5Y 8/1), wackestone, moderately indurated, fossiliferous, common shell fragments, common molds, common spar, rare to common fine-grained phosphate, rare fine-grained quartz, good apparent porosity and permeability.
450-460	10	LIMESTONE - yellowish gray (5Y 7/2) to yellowish gray (5Y 8/1) packstone, moderately indurated, fossiliferous, minor shell fragments, minor molds, rare to abundant fine-grained phosphate, rare fine-grained quartz, good apparent porosity and permeability.
460-470	10	LIMESTONE AND CLAY - yellowish gray (5Y 7/2) to yellowish gray (5Y 8/1) to light gray (N7), packstone to wackestone, moderately to well indurated, fossiliferous, common shell fragments, common molds, common spar, rare to common fine-grained phosphate, good apparent porosity and permeability. Clay (minor) - yellowish gray (5Y 8/1), soft, sticky, common fine-grained phosphate.
470-480	10	CLAY AND LIMESTONE - yellowish gray (5Y 8/1), soft, sticky, rare to common fine-grained phosphate, common shell fragments. Limestone (minor) - yellowish gray (5Y 7/2) to yellowish gray (5Y 8/1), packstone, moderately indurated, fossiliferous, rare fine-grained phosphate, fair apparent porosity and permeability.
480-490	10	CLAY - yellowish gray (5Y 8/1), soft, sticky, silty, common to abundant fine-grained phosphate. Limestone (rare) - yellowish gray (5Y 7/2) to yellowish gray (5Y 8/1), packstone, moderately indurated, fossiliferous, rare fine-grained phosphate.
490-500	10	CLAY - light olive gray (5Y 5/2), soft, sticky, silty, abundant fine-grained phosphate. Limestone (rare) - yellowish gray (5Y 7/2) to yellowish gray (5Y 8/1), packstone, moderately indurated, fossiliferous, rare fine-grained phosphate.

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GEOLOGIST'S LOG

500-510	10	CLAY AND LIMESTONE - yellowish gray (5Y 8/1) to light olive gray (5Y 5/2), soft, sticky to poorly cohesive, gritty, common fine grained phosphate. Limestone (minor) - yellowish gray (5Y 7/2) to yellowish gray (5Y 8/1), packstone, moderately indurated, fossiliferous, rare fine-grained phosphate, fair apparent porosity and permeability.
510-520	10	CLAY - light olive gray (5Y 5/2) to dark greenish gray (5GY 4/1), sticky, cohesive, smooth, minor fine- to medium-grained phosphate.
520-530	10	CLAY AND LIMESTONE - yellowish gray (5Y 7/2), soft, sticky, cohesive, gritty, common medium- to coarse-grained, angular phosphate. Limestone (occasional) - yellowish gray (5Y 7/2) to yellowish gray (5Y 8/1) packstone, fine- to medium-grained, moderately to well indurated, variably phosphatic (fine- to medium-grained), minor spar, poor apparent porosity and permeability.
530-540	10	CLAY - yellowish gray (5Y 7/2), stiff, sticky to moderately cohesive, gritty, rare fine-grained phosphate, rare Limestone.
540-550	10	CLAY - yellowish gray (5Y 7/2), stiff, poorly to moderately cohesive, gritty, minor fine-grained phosphate.
550-560	10	CLAY - yellowish gray (5Y 7/2), soft, poorly cohesive, gritty, rare fine fragments of Limestone.
560-570	10	CLAY - yellowish gray (5Y 7/2), stiff, moderately to well cohesive, smooth, rare fine fragments of Limestone.
570-580	10	CLAY - light olive gray (5Y 6/1), soft, poorly cohesive, rare fine fragments of Limestone.
580-590	10	CLAY - light olive gray (5Y 5/2), soft, poorly to moderately cohesive, rare fragments of Limestone and shell, minor fine-grained phosphate.
590-600	10	CLAY AND DOLOMITIZED LIMESTONE - light olive gray (5Y 6/1) to dark greenish gray (5GY 4/1), moderately to well cohesive, occasional fine to coarse-grained phosphate. Dolomitized Limestone - yellowish gray (5Y 7/2), well indurated, slightly moldic, minor pinpoint vugs, minor fine-grained phosphate, fair to good apparent porosity and permeability.
600-610	10	CLAY AND LIMESTONE - light olive gray (5Y 6/1) to dark greenish gray (5GY 4/1), moderately to well cohesive, occasional fine to coarse-grained phosphate. Limestone - yellowish gray (5Y 7/2), wackestone, well indurated, slightly moldic, minor fine-grained phosphate, fair apparent porosity and permeability. Clay - yellowish gray (5Y 8/1), moderately to well cohesive, silty, calcareous, fine-grained phosphate.
610-620	10	CLAY AND DOLOSILT - medium light gray (N6) to light olive gray (5Y 6/1), stiff, cohesive, gritty, silty.

APPENDIX 2.1
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620-630	10	LIMESTONE - yellowish gray (5Y 8/1), packstone, well indurated, fossiliferous, moldic, abundant fine-grained phosphate, fair apparent porosity and permeability.
630-640	10	LIMESTONE AND CLAY - yellowish gray (5Y 8/1), wackestone to packstone, well indurated, fossiliferous, moldic, common fine grained phosphate, fair apparent porosity and permeability. Clay - yellowish gray (5Y 8/1), calcareous, soft, silty, cohesive.
640-650	10	LIMESTONE - yellowish gray (5Y 8/1), wackestone, well indurated, fossiliferous, moldic, minor fine-grained phosphate, sparry, fair apparent porosity and permeability.
650-660	10	LIMESTONE AND RECRYSTALLIZED LIMESTONE - yellowish gray (5Y 8/1) to very pale orange (10YR 8/2), packstone, well indurated, moldic, fossiliferous, common fine-grained phosphate, fair to poor porosity and permeability. Recrystallized Limestone - very pale orange (10YR 8/2) to grayish orange (10YR 7/4), very well indurated, poor apparent porosity and permeability.
660-670	10	LIMESTONE - yellowish gray (5Y 8/1) to very pale orange (10YR 8/2), wackestone to packstone, fossiliferous, moldic, minor casts, rare very fine-grained phosphate, poor to fair apparent porosity and permeability.
670-690	20	LIMESTONE - yellowish gray (5Y 8/1), packstone to wackestone, fossiliferous, moldic, minor casts, rare very fine-grained phosphate, poor to fair apparent porosity and permeability.
690-700	10	LIMESTONE AND DOLOSTONE - yellowish gray (5Y 8/1), packstone to wackestone, well indurated, moldic, minor phosphate, fair apparent porosity and permeability. Dolostone - olive gray (5Y 4/1), microcrystalline, well indurated, poor apparent porosity and permeability.
700-720	20	DOLOSTONE AND LIMESTONE - pale yellowish brown (10YR 6/2) to light olive gray (5Y 6/1), microcrystalline, well indurated, minor pinpoint vugs, poor apparent porosity and permeability. Limestone - yellowish gray (5Y 8/1), packstone, well indurated, fossiliferous, moldic, minor fine-grained phosphate, poor apparent porosity and permeability. Limestone - medium light gray (N6), grainstone, poor to moderately indurated, rare spar, poor apparent porosity and permeability.
720-730	10	DOLOSTONE AND DOLOMITIZED LIMESTONE - Pale yellowish brown (10YR 6/2), microcrystalline, well indurated, poor apparent porosity and permeability. Dolomitized Limestone - yellowish gray (5Y 8/1) to light olive gray (5Y 6/1), well indurated, moldic, fossiliferous, rare pinpoint vugs, poor to fair apparent porosity and permeability.

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730-740	10	DOLOSTONE AND DOLOMITIZED LIMESTONE - Olive gray (5Y 4/1), microcrystalline, well indurated, poor apparent porosity and permeability. Dolomitized Limestone - yellowish gray (5Y 8/1) to light olive gray (5Y 6/1), well indurated, moldic, fossiliferous, sparry, rare casts, poor apparent porosity and permeability.
740-750	10	DOLOSTONE AND MARL - light olive gray (5Y 6/1), microcrystalline, very well indurated, poor apparent porosity and permeability. Marl - yellowish gray (5Y 8/1) to white (N9), soft, sticky, gritty. Dolosilt/Marl - pale yellowish brown (10YR 6/2) to moderate yellowish brown (10YR 5/4), soft, sticky, gritty.
750-770	20	DOLOSTONE AND DOLOMITIZED LIMESTONE - Olive gray (5Y 4/1), microcrystalline, well indurated, poor apparent porosity and permeability. Dolomitized Limestone - yellowish gray (5Y 8/1) to light olive gray (5Y 6/1), well indurated, moldic, fossiliferous, sparry, rare casts, poor to fair apparent porosity and permeability.
770-780	10	MARL - yellowish gray (5Y 8/1) to white (N9), soft, sticky.
780-790	10	MARL AND LIMESTONE - yellowish gray (5Y 8/1) to white (N9), gritty, sticky. Limestone - yellowish gray (5Y 8/1), grainstone, medium-grained, poor to moderately indurated, fossiliferous, fair apparent porosity and permeability.
790-810	20	LIMESTONE - very pale orange (10YR 8/2), grainstone, medium to coarse-grained, poorly indurated, fossiliferous, rare fine-grained phosphate, fair apparent porosity and permeability.
810-820	10	LIMESTONE - very pale orange (10YR 8/2), grainstone, medium to coarse-grained, poorly indurated, fossiliferous, rare fine-grained phosphate, rare marl, fair apparent porosity and permeability.
820-830	10	LIMESTONE - very pale orange (10YR 8/2), grainstone, medium to coarse-grained, poorly indurated, fossiliferous, slightly moldic, occasional casts, rare fine-grained phosphate, rare marl, fair apparent porosity and permeability.
830-840	10	LIMESTONE - very pale orange (10YR 8/2) to grayish orange (10YR 7/4), grainstone, medium to coarse-grained, poorly indurated, fossiliferous, occasional casts, rare fine-grained phosphate, rare marl, fair to good apparent porosity and permeability.
840-850	10	LIMESTONE - yellowish gray (5Y 7/2), grainstone, moderately to well indurated, highly fossiliferous, moldic, minor shell fragments, good to fair moldic porosity, fair apparent permeability

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850-860	10	LIMESTONE - yellowish gray (5Y 7/2), grainstone, moderately to well indurated, highly fossiliferous, moldic, minor shell fragments, rare lime mud, fair to good apparent porosity and permeability.
860-870	10	LIMESTONE - yellowish gray (5Y 7/2), grainstone, moderately to poorly indurated, highly fossiliferous, variably moldic, minor shell fragments, minor thin seams of lime mud, fair to poor apparent porosity and permeability.
870-880	10	LIMESTONE - yellowish gray (5Y 8/1), packstone, moderately to poorly indurated, fossiliferous, chalky, poor apparent porosity and permeability.
880-900	20	LIMESTONE AND CLAY - yellowish gray (5Y 7/2), wackestone, well indurated, moldic, fossiliferous, common shell fragments, fair apparent porosity and permeability. Clay - light gray (N7) to yellowish gray (5Y 8/1), soft to firm, silty, sticky.
900-910	10	LIMESTONE - yellowish gray (5Y 7/2), fossil packstone, moderately to poorly indurated, moldic, common shell fragments, fair to good apparent porosity and permeability.
910-920	10	LIMESTONE - yellowish gray (5Y 7/2), fossil packstone, moderately to well indurated, moldic, common shell fragments, very good to good apparent moldic porosity and permeability.
920-930	10	LIMESTONE - yellowish gray (5Y 7/2), wackestone, well indurated, moldic, fossiliferous, common shell fragments, fair to good apparent porosity and permeability.
930-950	20	LIMESTONE - yellowish gray (5Y 7/2), fossil packstone, moderately indurated to friable, moldic, common shell fragments, fair apparent porosity and permeability.
950-970	20	LIMESTONE - yellowish gray (5Y 7/2), grainstone, poorly indurated, arenitic, common shell fragments, fair to good apparent porosity and permeability.
970-980	10	LIMESTONE - yellowish gray (5Y 8/1), fossil packstone, moderately to well indurated, moldic, common shell fragments, good to fair apparent porosity and permeability.
980-990	10	LIMESTONE AND CLAY - yellowish gray (5Y 7/2), grainstone, poorly indurated to friable, arenitic, highly fossiliferous, common shell fragments, very good to good apparent porosity and permeability. Clay (minor) - pale yellowish brown (10YR 6/2), firm, sticky, silty, sparsely very fine quartz sandy.
990-1000	10	LIMESTONE - white (N9) to yellowish gray (5Y 8/1), wackestone, well indurated, variably moldic, common shell fragments, fair to good apparent porosity and permeability.

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1000-1010	10	LIMESTONE AND CLAY - yellowish gray (5Y 8/1), fossil packstone, well indurated, moldic, common shell fragments, good to fair apparent porosity and permeability. Clay (minor) - pale yellowish brown (10YR 6/2), firm, sticky, silty, sparsely very fine quartz sandy.
1010-1020	10	CLAY AND LIMESTONE - yellowish gray (5Y 8/1), firm, sticky, silty, rare very fine quartz sand. Limestone - yellowish gray (5Y 8/1), fossil packstone, fine to medium-grained, well indurated, fair apparent porosity and permeability.
1020-1030	10	LIMESTONE AND CLAY - yellowish gray (5Y 8/1) to yellowish gray (5Y 7/2), packstone to wackestone, fossiliferous, medium to coarse-grained, friable to moderately indurated, common molds and castes, fair to good apparent porosity and permeability. Clay (minor) - yellowish gray (5Y 8/1), firm, sticky, gritty.
1030-1040	10	LIMESTONE AND CLAY - yellowish gray (5Y 8/1) to yellowish gray (5Y 7/2), packstone to wackestone, fossiliferous, medium to coarse-grained, moderately to well indurated, common molds and castes, minor fine-grained phosphate, fair to good apparent porosity and permeability. Clay (occasional) - yellowish gray (5Y 8/1), moderately cohesive, gritty.
1040-1050	10	CLAY AND LIMESTONE - yellowish gray (5Y 7/2) to light gray (N7), poorly to moderately cohesive, common fine-grained phosphate, gritty. Limestone (minor) - yellowish gray (5Y 8/1) to yellowish gray (5Y 7/2), packstone, fine- to medium-grained, moderately to well indurated, occasional fine-grained phosphate, fair apparent porosity and permeability.
1050-1060	10	CLAY AND LIMESTONE - yellowish gray (5Y 7/2) to greenish gray (5GY 6/1), cohesive, smooth, common fine-grained phosphate. Limestone (occasional) - yellowish gray (5Y 7/2), packstone, fine to medium-grained, moderately to well indurated, occasional fine-grained phosphate, variably dolomitized, poor apparent porosity and permeability.
1060-1070	10	LIMESTONE - yellowish gray (5Y 7/2) to light gray (N7), packstone, fine to medium-grained, fossiliferous, poorly to moderately indurated, abundant medium-grained quartz sand, minor fine-grained phosphate, poor to fair apparent porosity and permeability.
1070-1080	10	LIMESTONE AND DOLOSTONE - yellowish gray (5Y 7/2) to medium light gray (N6), packstone to wackestone, fine to coarse-grained, fossiliferous, moderately to well indurated, fair apparent porosity and permeability. Dolostone - moderate yellowish brown (10YR 5/4) to dark yellowish brown (10 YR 4/2), calcareous, crystalline, well indurated, poor apparent porosity and permeability.

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1080-1090	10	LIMESTONE - yellowish gray (5Y 7/2) to light gray (N7), packstone, fine to medium-grained, poorly to moderately indurated, common fine-grained quartz sand, minor fine-grained phosphate, poor to fair apparent porosity and permeability.
1090-1100	10	LIMESTONE AND CLAY - yellowish gray (5Y 7/2) to light gray (N7), packstone, fine to medium-grained, poorly indurated, minor fine-grained quartz sand, minor fine-grained phosphate, poor to fair apparent porosity and permeability. Clay (minor) - yellowish gray (5Y 7/2), moderately cohesive, gritty.
1100-1110	10	DOLOSTONE - pale yellowish brown (10YR 6/2) to dark yellowish brown (10YR 4/2), crystalline, fine to coarse-grained, well indurated, mottled appearance, poor apparent porosity and permeability.
1110-1120	10	DOLOSTONE, LIMESTONE AND CLAY - pale yellowish brown (10YR 6/2) to dark yellowish brown (10YR 4/2), crystalline, fine to coarse-grained, well indurated, mottled appearance, poor apparent porosity and permeability. Limestone (minor) - yellowish gray (5Y 8/1), packstone, fine to medium-grained, poorly indurated, rare fine-grained quartz sand, rare fine-grained phosphate, poor apparent porosity and permeability. Clay (minor) - yellowish gray (5Y 8/1), moderately cohesive, gritty.
1120-1130	10	DOLOSTONE AND LIMESTONE - pale yellowish brown (10YR 6/2) to dark yellowish brown (10YR 4/2), crystalline, fine to coarse-grained, well indurated, mottled appearance, poor apparent porosity and permeability. Limestone (minor) - yellowish gray (5Y 8/1), packstone, fine to medium-grained, poorly indurated. rare fine-grained quartz sand, poor apparent porosity and permeability.
1130-1140	10	LIMESTONE AND DOLOSTONE - yellowish gray (5Y 7/2) to light gray (N7), packstone, fine- to medium-grained, poorly to moderately indurated, abundant medium-grained quartz sand, rare medium-grained phosphate, rare molds/castes, poor to fair apparent porosity and permeability. Dolostone (minor) - dark yellowish brown (10YR 4/2) to olive black (5Y 2/1) crystalline, medium to coarse-grained, well indurated, common vugs, mottled appearance, fair to good apparent porosity and permeability.
1140-1150	10	LIMESTONE - yellowish gray (5Y 7/2) to light gray (N7), packstone, fine to medium-grained, poorly to moderately indurated, common spar, rare medium-grained phosphate, poor to fair apparent porosity and permeability.

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1150-1160	10	LIMESTONE - yellowish gray (5Y 7/2) to light gray (N7), packstone, fine to medium-grained, poorly to moderately indurated, common spar, common shell, rare medium-grained phosphate, fair apparent porosity and permeability. Dolostone (rare), dusky yellowish brown (10YR 2/2), crystalline, medium-grained, well indurated, rare pinpoint vugs, poor apparent porosity and permeability
1160-1170	10	LIMESTONE - yellowish gray (5Y 7/2) to light gray (N7), packstone, fine to medium-grained, poorly to moderately indurated, common spar, common shell, rare medium-grained phosphate, fair apparent porosity and permeability.
1170-1180	10	LIMESTONE - yellowish gray (5Y 7/2) to yellowish gray (5Y 8/1) to light gray (N7), packstone, fine to medium-grained, poorly to well indurated, common spar, common shell, common molds/castes (mollusk), minor fine-grained quartz sand, minor medium-grained phosphate, fair to good apparent porosity and permeability.
1180-1190	10	LIMESTONE - light olive gray (5Y 6/1), packstone, fine to medium-grained, poorly to moderately indurated, occasional shell, common fine to medium-grained phosphate, minor fine-grained quartz sand, fair apparent porosity and permeability Limestone - yellowish gray (5Y 8/1), wackestone, fine to coarse-grained, moderately to well indurated, occasional shell, occasional molds/castes, fair to good apparent porosity and permeability.
1190-1200	10	LIMESTONE - yellowish gray (5Y 7/2) to light gray (N7), packstone to wackestone, fine to medium-grained, moderately to well indurated, minor to abundant fine-grained phosphate, occasional shell, occasional molds/castes, fair to good apparent porosity and permeability. Mudstone - yellowish gray (5Y 7/2), poorly to moderately indurated, poor apparent porosity and permeability.
1200-1240	40	LIMESTONE - light olive gray (5Y 6/1) to very pale orange (10YR 8/2), grainstone, fine to medium-grained, friable to moderately indurated, common fine-grained quartz, occasional molds/casts, occasional shell, common very-fine-grained phosphate, poor to fair apparent porosity and permeability.
1240-1260	20	LIMESTONE - pale yellowish brown (10YR 6/2) to very pale orange (10YR 8/2), grainstone, fine to medium-grained, friable to moderately indurated, common fine-grained quartz, occasional molds/casts, occasional shell, common very-fine-grained phosphate, poor to fair apparent porosity and permeability.

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1260-1270	10	LIMESTONE - very pale orange (10YR 8/2) to pale yellowish brown (10YR 6/2), grainstone, fine to medium-grained, friable to poorly indurated, common fine-grained quartz, occasional molds/casts, occasional shell, common very-fine-grained phosphate, fair apparent porosity and permeability.
1270-1280	10	LIMESTONE - very pale orange (10YR 8/2), wackestone to packstone, fine to medium-grained, friable to moderately indurated, minor fine-grained quartz, occasional shell, minor very-fine-grained phosphate, fair apparent porosity and permeability.
1280-1290	10	LIMESTONE - very pale orange (10YR 8/2) to pale yellowish brown (10YR 6/2), grainstone, fine to medium-grained, friable to poorly indurated, minor fine-grained quartz, occasional molds/casts, occasional shell and coral, pelloidal, common very-fine-grained phosphate, fair to good apparent porosity and permeability.
1290-1300	10	LIMESTONE - very pale orange (10YR 8/2) to pale yellowish brown (10YR 6/2), grainstone, fine to medium-grained, friable to moderately indurated, occasional molds/casts, occasional shell and coral, pelloidal, common very-fine-grained phosphate, minor marl, fair to good apparent porosity and permeability.
1300-1340	40	LIMESTONE - very pale orange (10YR 8/2), grainstone, fine to coarse-grained, friable to moderately indurated, occasional shell, rare fine-grained phosphate, fair to good apparent porosity and permeability.
1340-1360	20	LIMESTONE - very pale orange (10YR 8/2), grainstone, fine to coarse-grained, friable to moderately indurated, occasional shell, echinoids, rare fine-grained phosphate, fair to good apparent porosity and permeability.
1360-1370	10	LIMESTONE - very pale orange (10YR 8/2), grainstone, fine to coarse-grained, friable to moderately indurated, occasional shell, rare casts, echinoids, rare fine-grained phosphate, fair to good apparent porosity and permeability.
1370-1380	10	LIMESTONE - very pale orange (10YR 8/2), grainstone, fine to coarse-grained, friable to moderately indurated, occasional shell, rare fine-grained phosphate, fair to good apparent porosity and permeability.
1380-1390	10	LIMESTONE - very pale orange (10YR 8/2), grainstone, fine to coarse-grained, friable to moderately indurated, occasional shell, rare casts, rare fine-grained phosphate, fair apparent porosity and permeability.

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1390-1400	10	LIMESTONE - very pale orange (10YR 8/2) to yellowish gray (5Y 8/1), grainstone to packstone, fine to coarse-grained, friable to moderately indurated, occasional shell, occasional casts/molds, rare fine-grained phosphate, fair to good apparent porosity and permeability.
1400-1410	10	LIMESTONE - very pale orange (10YR 8/2), grainstone, fine to coarse-grained, friable to moderately indurated, occasional shell, rare casts, rare fine-grained phosphate, fair apparent porosity and permeability.
1410-1430	20	LIMESTONE - very pale orange (10YR 8/2), grainstone, moderately indurated, fine to very coarse-grained, variably moldic, slightly dolomitized, common shell fragments, fair apparent porosity and permeability.
1430-1440	10	DOLOSTONE - moderate yellowish brown (10YR 5/4), moderate to well indurated, fine to medium-grained, vuggy, good apparent porosity and permeability.
1440-1450	10	DOLOSTONE - dark yellowish brown (10YR 4/2), moderate to well indurated, fine to medium-grained, vuggy, good to fair apparent porosity and permeability.
1450-1470	20	LIMESTONE AND DOLOSTONE - yellowish gray (5Y 7/2), packstone, fine to coarse-grained, poorly to moderately indurated, fine to medium-grained, slightly dolomitized, occasional shell, fair apparent porosity and permeability. Dolostone - dark yellowish brown (10YR 4/2), moderately to well indurated, medium to coarse-grained, abundant vugs and small cavities, good apparent porosity and permeability.
1470-1480	10	LIMESTONE AND DOLOSTONE - yellowish gray (5Y 7/2) to yellowish gray (5Y 8/1), packstone, fine to coarse-grained, poorly to moderately indurated, variably dolomitized, occasional shell, fair to good apparent porosity and permeability. Dolostone - moderate yellowish brown (10YR 5/4) to dark yellowish brown (10YR 4/2), moderately to well indurated, medium to coarse-grained, abundant vugs, good apparent porosity and permeability.
1480-1490	10	LIMESTONE AND DOLOSTONE - yellowish gray (5Y 8/1), packstone, fine-grained, poorly to moderately indurated, occasional molds/castes (gastropod, echinoderm), fair apparent porosity and permeability. Dolostone - moderate yellowish brown (10YR 5/4) to olive gray (5Y 4/1), moderately to well indurated, fine to coarse-grained, abundant vugs, good apparent porosity and permeability.

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1490-1500	10	LIMESTONE AND DOLOSTONE - light gray (N7), packstone, fine to medium-grained, poorly to moderately indurated, fossiliferous (gastropod, echinoid spines), fair apparent porosity and permeability. Dolostone (minor) - moderate yellowish brown (10YR 5/4) to olive gray (5Y 4/1), moderately to well indurated, fine to coarse-grained, abundant vugs, good apparent porosity and permeability.
1500-1510	10	LIMESTONE - yellowish gray (5Y 8/1) to yellowish gray (5Y 7/2), packstone, fine to medium-grained, poorly to moderately indurated, minor dolomitization, fair apparent porosity and permeability.
1510-1520	10	LIMESTONE AND DOLOSTONE - yellowish gray (5Y 8/1) to light gray (N7), packstone, fine to medium-grained, poorly to moderately indurated, fair apparent porosity and permeability. Dolostone - moderate yellowish brown (10YR 5/4) to dark yellowish brown (10YR 4/2), moderately to well indurated, medium to coarse-grained, abundant vugs, good apparent porosity and permeability.
1520-1530	10	LIMESTONE - yellowish gray (5Y 8/1) to light gray (N7), packstone, fine to medium-grained, poorly to moderately indurated, common molds/castes (small mollusks), fair apparent porosity and permeability. Dolostone (rare) - moderate yellowish brown (10YR 5/4) to dark yellowish brown (10YR 4/2), moderately to well indurated, medium to coarse-grained, abundant vugs, good apparent porosity and permeability.
1530-1550	20	LIMESTONE AND DOLOSTONE - very pale orange (10YR 8/2) to grayish orange (10YR 7/4), grainstone to packstone, fine to medium-grained, poorly to moderately indurated, silty, sandy, occasional molds/casts, occasional shell fragments, occasional fine-grained quartz, fair apparent porosity and permeability. Dolostone - (rare), pale yellowish brown (10YR 6/2) to dark yellowish brown (10YR 4/2), well indurated, microcrystalline to crystalline, fair apparent porosity and permeability.
1550-1560	10	LIMESTONE, RECRYSTALLIZED LIMESTONE AND DOLOSTONE - yellowish gray (5Y 8/1), grainstone to packstone, fine to medium-grained, poorly to moderately indurated, occasional fine-grained quartz, fair apparent porosity and permeability. Recrystallized Limestone - poorly to well indurated, common fossils, fair to good apparent porosity and permeability. Dolostone - pale yellowish brown (10YR 6/2) to dark yellowish brown (10YR 4/2), well indurated, fine to medium-grained, microcrystalline, poor apparent porosity and permeability.

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1560-1570	10	DOLOSTONE - moderate olive brown (5Y 4/4), microcrystalline, well indurated, vuggy (pinpoint), fair to poor apparent porosity and permeability. Minor fragments of Limestone (friable grainstone).
1570-1600	30	DOLOSTONE - moderate yellowish brown (10YR 5/4), microcrystalline, moderate to well indurated, vuggy (pinpoint), rare fragments of Limestone (friable arenitic grainstone), fair to poor apparent permeability.
1600-1610	10	DOLOSTONE - moderate yellowish brown (10YR 5/4), microcrystalline, well indurated, vuggy (pinpoint), fair to poor apparent porosity and permeability.
1610-1620	10	DOLOSTONE - moderate yellowish brown (10YR 5/4), microcrystalline, well indurated, vuggy (pinpoint), rare fragments of variably dolomitized grainstone, fair to poor apparent porosity and permeability.
1620-1640	20	DOLOSTONE - moderate yellowish brown (10YR 5/4), microcrystalline, moderate to well indurated, vuggy (pinpoint), rare fragments of friable arenitic grainstone, fair to poor apparent porosity and permeability. Calcareous Clay (rare), yellowish gray (5Y 7/2), soft, sticky, silty, poor apparent porosity and permeability.
1640-1650	10	DOLOSTONE - moderate yellowish brown (10YR 5/4), fine-grained to microcrystalline, moderate to well indurated, vuggy (pinpoint), fair apparent porosity and permeability.
1650-1660	10	CALCAREOUS CLAY AND DOLOSTONE - yellowish gray (5Y 8/1) to light greenish gray (5GY 8/1), soft to firm, sticky, silty. Dolostone - moderate yellowish brown (10YR 5/4), fine-grained to microcrystalline, moderate to well indurated, vuggy (pinpoint), fair to poor apparent porosity and permeability.
1660-1670	10	DOLOSTONE - moderate yellowish brown (10YR 5/4), fine-grained to microcrystalline, moderate to well indurated, vuggy (pinpoint), rare fragments of coralline fossil packstone, fair apparent porosity and permeability.
1670-1680	10	DOLOSTONE - moderate olive brown (5Y 4/4), fine-grained to microcrystalline, moderate to well indurated, vuggy (pinpoint), rare fragments of coralline fossil packstone, fair apparent porosity and permeability.
1680-1690	10	DOLOMITIC LIMESTONE - moderate yellowish brown (5YR 5/4), fine-grained, poorly indurated to friable, minor pinpoint vugs, fair apparent porosity and permeability.
1690-1730	40	DOLOSTONE - moderate olive brown (5Y 4/4), finely crystalline to very fine, sucrosic, well indurated, fair apparent porosity and permeability.

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1730-1740	10	DOLOSTONE - moderate olive brown (5Y 4/4) to light olive brown (5Y 5/6), microcrystalline, very well indurated, poor apparent porosity and permeability.
1740-1750	10	DOLOSTONE - moderate olive brown (5Y 4/4), microcrystalline, very well to poorly indurated, poor apparent porosity and permeability.
1750-1760	10	DOLOSTONE AND LIMESTONE - moderate olive brown (5Y 4/4), microcrystalline to fine-grained, very well to moderately indurated, poor apparent porosity and permeability. Limestone - yellowish gray (5Y 7/2), wackestone to packstone, fine-grained, moderately indurated, fair to good apparent porosity and permeability.
1760-1770	10	DOLOSTONE - moderate olive brown (5Y 4/4), microcrystalline to fine-grained, fairly to very well indurated, poor apparent porosity and permeability. Limestone (rare) - yellowish gray (5Y 7/2), fossiliferous wackestone, medium to coarse-grained, moderately indurated, poor to fair apparent porosity and permeability.
1770-1790	20	DOLOSTONE AND LIMESTONE - light olive gray (5Y 5/2), to moderate olive brown (5Y 6/4), microcrystalline to fine-grained, poor to fair induration, fair apparent porosity and permeability. Limestone - yellowish gray (5Y 7/2), wackestone, fine-grained, poor induration, friable, poor apparent porosity and permeability.
1790-1800	10	DOLOSTONE - moderate olive brown (5Y 4/4), microcrystalline, well indurated, moderately hard, vuggy (pinpoint), variable coarse crystal growth in vugs, fair to poor apparent porosity and permeability.
1800-1820	20	DOLOSTONE - moderate olive brown (5Y 4/4), microcrystalline, well indurated, hard, variably vuggy (pinpoint), poor apparent porosity and permeability.
1820-1830	10	DOLOSTONE - moderate olive brown (5Y 4/4), coarsely crystalline to microcrystalline, well indurated, hard, variably vuggy (pinpoint), poor apparent porosity and permeability.
1830-1840	10	DOLOMITIC LIMESTONE AND DOLOSTONE - yellowish gray (5Y 8/1), packstone, moderately to well indurated, poor apparent porosity and permeability. Dolostone - moderate olive brown (5Y 4/4), coarsely crystalline, well indurated, sparsely vuggy, poor apparent porosity and permeability.
1840-1850	10	DOLOSTONE - moderate olive brown (5Y 4/4), microcrystalline, well indurated, hard, variably vuggy (pinpoint), poor apparent porosity and permeability.
1850-1870	20	DOLOSTONE - moderate olive brown (5Y 4/4) to olive gray (5Y 3/2), microcrystalline, well indurated, hard, variably vuggy (pinpoint), poor apparent porosity and permeability.

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1870-1890	20	DOLOSTONE AND LIMESTONE - moderate olive brown (5Y 4/4) to olive gray (5Y 3/2), microcrystalline, well indurated, hard, variably vuggy (pinpoint), poor apparent porosity and permeability. Limestone - yellowish gray (5Y 8/1), mudstone, silty to very fine-grained, poorly indurated, friable, poor apparent porosity and permeability.
1890-1900	10	DOLOSTONE - moderate yellowish brown (10YR 5/4) to moderate olive brown (5Y 4/4), microcrystalline, fair to well indurated, occasional vugs, good to fair apparent porosity and permeability.
1900-1910	10	DOLOSTONE - dark yellowish brown (10YR 4/2) to moderate olive brown (5Y 4/4), microcrystalline, well indurated, hard, variably vuggy (pinpoint), poor apparent porosity and permeability.
1910-1930	20	DOLOSTONE - moderate olive brown (5Y 4/4), microcrystalline, saccharoidal texture, well indurated, hard, minor pinpoint vugs, poor apparent porosity and permeability.
1930-1940	10	DOLOSTONE - moderate olive brown (5Y 4/4), finely crystalline, arenitic texture, well indurated, moderately hard, variably vuggy (pinpoint vugs), poor apparent porosity and permeability.
1940-1950	10	DOLOSTONE AND DOLOMITIZED LIMESTONE - moderate olive brown (5Y 4/4) to olive gray (5Y 3/2), finely crystalline, arenitic texture, well indurated, moderately hard, vuggy (pinpoint vugs), good to fair apparent porosity and permeability. Dolomitized Limestone(minor) -yellowish gray (5Y 7/2), moderately well indurated, arenitic texture, chalky, poor apparent porosity and permeability.
1950-1960	10	DOLOSTONE - moderate olive brown (5Y 4/4) to olive gray (5Y 3/2), finely crystalline, arenitic texture, poor to well indurated, vuggy, fair to poor apparent porosity and permeability. Dolomitized Limestone (rare) - yellowish gray (5Y 7/2), Lignite (rare) -black (N1).
1960-1970	10	DOLOSTONE - moderate olive brown (5Y 4/4) to olive gray (5Y 3/2), microcrystalline to finely crystalline, arenitic texture, poor to well indurated, vuggy, poor apparent porosity and permeability.
1970-1980	10	DOLOMITIZED LIMESTONE AND DOLOSTONE - yellowish gray (5Y 7/2), friable to moderately indurated, arenitic texture, chalky, poor porosity, poor apparent permeability. Dolostone - moderate olive brown (5Y 4/4), finely crystalline, arenitic texture, poorly indurated, vuggy, poor apparent porosity and permeability.

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1980-1990	10	DOLOSTONE - moderate olive brown (5Y 4/4) to olive gray (5Y 3/2), finely crystalline, arenitic texture, poor to well indurated, vuggy, poor apparent porosity and permeability.
1990-2000	10	DOLOSTONE AND DOLOMITIZED LIMESTONE - moderate olive brown (5Y 4/4), finely crystalline, arenitic texture, moderately to well indurated, vuggy, poor apparent porosity and permeability. Dolomitized Limestone (minor) - yellowish gray (5Y 7/2), moderately well indurated, arenitic texture, chalky, poor apparent porosity and permeability.
2000-2010	10	DOLOSTONE AND DOLOMITIZED LIMESTONE - moderate olive brown (5Y 4/4) to olive gray (5Y 3/2), finely crystalline, arenitic texture, moderately to well indurated, vuggy, poor apparent porosity and permeability. Dolomitized Limestone (minor) - yellowish gray (5Y 7/2), moderately well indurated, arenitic texture, chalky, poor apparent porosity and permeability.
2010-2030	20	DOLOSTONE AND DOLOMITIZED LIMESTONE - moderate olive brown (5Y 4/4) to olive gray (5Y 3/2), microcrystalline to finely crystalline, arenitic texture, moderately to well indurated, vuggy, poor apparent porosity and permeability. Dolomitized Limestone (minor) - yellowish gray (5Y 7/2), moderately well indurated, arenitic texture, chalky, poor apparent porosity and permeability.
2030-2040	10	DOLOSTONE AND DOLOMITIZED LIMESTONE - moderate olive brown (5Y 4/4) to olive gray (5Y 3/2), microcrystalline to finely crystalline, arenitic texture, moderately to well indurated, vuggy, poor apparent porosity and permeability. Dolomitized Limestone (minor) - yellowish gray (5Y 7/2), moderately well indurated, arenitic texture, chalky, poor apparent porosity and permeability.
2040-2050	10	DOLOSTONE AND LIMESTONE - moderate olive brown (5Y 4/4) to olive gray (5Y 3/2), microcrystalline to finely crystalline, poorly to moderately indurated, vuggy, poor apparent porosity and permeability. Limestone - grayish orange (10YR 7/4), mudstone, poorly indurated, poor apparent porosity and permeability.
2050-2070	20	DOLOSTONE AND LIMESTONE - moderate olive brown (5Y 4/4) to olive gray (5Y 3/2), microcrystalline to finely crystalline, poorly to moderately indurated, vuggy, poor apparent porosity and permeability. Limestone - grayish orange (10YR 7/4), mudstone, poorly indurated, poor apparent porosity and permeability. Limestone (rare) - medium light gray (N6), mudstone, poorly indurated, poor apparent porosity and permeability.

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2070-2080	10	DOLOSTONE - mottled, olive black (5Y 2/1) to moderate yellowish brown (10YR 5/4), microcrystalline, well indurated, poor apparent porosity and permeability.
2080-2090	10	DOLOSTONE - mottled, olive gray (5Y 3/2) to moderate yellowish brown (10YR 5/4), microcrystalline, well indurated, poor apparent porosity and permeability.
2090-2100	10	DOLOSTONE - olive gray (5Y 3/2), microcrystalline, well indurated, hard, poor apparent porosity and permeability.
2100-2130	30	LIMESTONE - yellowish gray (5Y 7/2), wackestone, fine-grained, moderately to poorly indurated, poor apparent porosity and permeability.
2130-2140	10	LIMESTONE - yellowish gray (5Y 7/2) to medium gray (N5), grainstone, fine-grained, moderately indurated, fossiliferous, fair to poor apparent porosity and permeability.
2140-2150	10	LIMESTONE - yellowish gray (5Y 7/2), fossil packstone, fine-grained, moderately to poorly indurated, variably dolomitized, fair to poor apparent porosity and permeability.
2150-2160	10	LIMESTONE AND DOLOSTONE - yellowish gray (5Y 7/2), fossil packstone, fine-grained, moderately to poorly indurated, variably dolomitized, fair to poor apparent porosity and permeability. Dolostone - moderate olive brown (5Y 4/4) to olive gray (5Y 3/2), microcrystalline to finely crystalline, minor secondary crystals, poorly to well indurated, vuggy, poor apparent porosity and permeability.
2160-2170	10	DOLOSTONE - moderate olive brown (5Y 4/4) to olive gray (5Y 3/2), microcrystalline to finely crystalline, poorly to well indurated, poor apparent porosity and permeability. Limestone (rare) - yellowish gray (5Y 7/2), poor apparent porosity and permeability.
2170-2180	10	LIMESTONE AND DOLOSTONE - yellowish gray (5Y 7/2), packstone, fine-grained, moderately to poorly indurated, variably dolomitized, poor apparent porosity and permeability. Dolostone (occasional) - moderate olive brown (5Y 4/4) to olive gray (5Y 3/2), microcrystalline to finely crystalline, minor secondary crystals, poorly to well indurated, vuggy, poor apparent porosity and permeability.
2180-2190	10	DOLOSTONE - moderate olive brown (5Y 4/4) to olive gray (5Y 3/2), finely crystalline, poorly to well indurated, poor apparent porosity and permeability. Limestone (rare) - yellowish gray (5Y 7/2).
2190-2200	10	DOLOSTONE - olive gray (5Y 3/2), microcrystalline to finely crystalline, poorly to well indurated, minor secondary crystals, vuggy, poor apparent porosity and permeability.

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2200-2210	10	LIMESTONE - yellowish gray (5Y 7/2- 5Y 8/1), fossil packstone, fine-grained, moderately to poorly indurated, variably dolomitized, fair apparent porosity and permeability. Dolostone (rare) - moderate olive brown (5Y 4/4).
2210-2220	10	LIMESTONE - yellowish gray (5Y 7/2), grainstone, fine-grained, moderately to poorly indurated, variably dolomitized, fair apparent porosity and permeability.
2220-2230	10	LIMESTONE -yellowish gray (5Y 7/2), grainstone/packstone, fine-grained, poorly indurated, variably dolomitized, fair apparent porosity and permeability.
2230-2240	10	LIMESTONE - yellowish gray (5Y 7/2), grainstone/packstone, fine-grained, moderately indurated, variably dolomitized, fair apparent porosity and permeability.
2240-2250	10	LIMESTONE - yellowish gray (5Y 7/2), grainstone/packstone, fine-grained, moderately indurated, fair apparent porosity and permeability.
2250-2260	10	LIMESTONE - yellowish gray (5Y 7/2), grainstone/packstone, fine-grained, moderately indurated, variably dolomitized, fair apparent porosity and permeability.
2260-2270	10	DOLOSTONE AND LIMESTONE - dark yellowish brown (10YR 4/2) microcrystalline to finely crystalline, common secondary crystals, well indurated, poor apparent porosity and permeability. Limestone - very pale orange (10YR 8/2), packstone, fine grained, very well indurated, good apparent porosity and permeability.
2270-2290	20	LIMESTONE AND DOLOSTONE - yellowish gray (5Y 7/2) packstone, fine grained, moderately to well indurated, fair apparent intergranular porosity and permeability. Dolostone - moderate olive brown (5Y 4/4), finely to medium crystalline, good apparent intergranular porosity and permeability.
2290-2300	10	LIMESTONE AND DOLOSTONE - yellowish gray (5Y 7/2) packstone, fine to medium grained, poor to fair induration, fair apparent intergranular porosity and permeability. Dolostone - moderate olive brown (5Y 4/4) to olive gray (5Y 3/2), finely to medium crystalline, fair vuggy porosity, fair apparent porosity and permeability. Common variably dolomitized Limestone, medium dark gray (N4).
2300-2320	20	DOLOSTONE - greenish black (5G 2/1) to olive gray (5Y 3/2), microcrystalline, well indurated, hard, variably vuggy (pinpoint vugs), secondary crystal growth common in and around vug openings, poor apparent porosity and permeability.

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2320-2330	10	DOLOSTONE AND LIMESTONE - greenish black (5G 2/1) to olive gray (5Y 3/2), microcrystalline, well indurated, hard, variably vuggy (pinpoint vugs), secondary crystal growth common in and around vug openings, poor apparent porosity and permeability. Limestone - yellowish gray (5Y 7/2), fossil packstone, fine-grained, moderately indurated to friable, poor apparent porosity and permeability.
2330-2340	10	DOLOSTONE - greenish black (5G 2/1) to olive gray (5Y 3/2), microcrystalline, well indurated, hard, variably vuggy (pinpoint vugs), secondary crystal growth common in and around vug openings, poor apparent porosity and permeability.
2340-2350	10	DOLOSTONE - greenish black (5G 2/1) to olive gray (5Y 3/2), microcrystalline, well indurated, hard, variably vuggy (pinpoint vugs), secondary crystal growth common in and around vug openings, poor apparent porosity and permeability. Dolostone - pale yellowish brown (10YR 6/2), cryptocrystalline, well indurated, hard, poor apparent porosity and permeability.
2350-2360	10	DOLOSTONE - greenish black (5G 2/1) to olive gray (5Y 3/2), microcrystalline, well indurated, hard, variably vuggy, secondary crystal growth common in and around vug openings, poor apparent porosity and permeability.
2360-2370	10	DOLOSTONE AND LIMESTONE - greenish black (5G 2/1) to olive gray (5Y 3/2), microcrystalline, well indurated, hard, variably vuggy, secondary crystal growth common in and around vug openings, poor apparent porosity and permeability. Limestone (minor) - yellowish gray (5Y 7/2), fossil packstone, fine-grained, moderately indurated to friable, poor apparent porosity and permeability.
2370-2380	10	DOLOSTONE - moderate olive brown (5Y 4/4) to olive gray (5Y 3/2), microcrystalline to finely crystalline, well indurated, hard, variably vuggy, secondary crystal growth common in and around vug openings, poor apparent porosity and permeability.
2380-2390	10	DOLOSTONE - moderate olive brown (5Y 4/4) to olive gray (5Y 3/2), microcrystalline to finely crystalline, well indurated, hard, variably vuggy, secondary crystal growth common in and around vug openings, poor apparent porosity and permeability.
2390-2400	10	DOLOSTONE AND LIMESTONE - moderate olive brown (5Y 4/4) to olive gray (5Y 3/2), microcrystalline to finely crystalline, well indurated, hard, variably vuggy, secondary crystal growth common in and around vug openings, poor apparent porosity and permeability. Limestone (minor) - yellowish gray (5Y 7/2), grainstone.

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2400-2410	10	DOLOSTONE - moderate olive brown (5Y 4/4) to olive gray (5Y 3/2), microcrystalline to finely crystalline, well indurated, hard, variably vuggy, secondary crystal growth common in and around vug openings, poor apparent porosity and permeability. Limestone (rare) - yellowish gray (5Y 7/2), grainstone, variably dolomitized.
2410-2420	10	DOLOSTONE - moderate olive brown (5Y 4/4) to olive gray (5Y 3/2), finely crystalline, well indurated, hard, variably vuggy, secondary crystal growth common in and around vug openings, poor apparent porosity and permeability. Limestone (rare) - yellowish gray (5Y 7/2), grainstone, variably dolomitized.
2420-2430	10	DOLOSTONE - moderate olive brown (5Y 4/4) to olive gray (5Y 3/2), finely to medium crystalline, poor to fair induration, variably vuggy, secondary crystal growth common in and around vug openings, poor apparent porosity and permeability. Limestone (rare) - yellowish gray (5Y 7/2), grainstone, variably dolomitized.
2430-2440	10	DOLOSTONE - brownish black (5YR 2/1) to dark yellowish brown (10YR 4/2) microcrystalline to coarsely crystalline, good induration, secondary coarse crystal growth along fracture planes and vugs, good apparent porosity and permeability.
2440-2460	20	DOLOSTONE - dusky yellowish brown (10YR 2/2) to pale yellowish brown (10YR 6/2), mottled, microcrystalline to medium crystalline, fair to good induration, fair apparent porosity and permeability.
2460-2470	10	DOLOSTONE - dark yellowish brown (10YR 2/2) to moderate yellowish brown (10YR 5/4), fine to medium-crystalline, well indurated, hard, good apparent porosity and permeability.
2470-2480	10	DOLOSTONE - olive gray (5Y 3/2) to moderate olive brown (5Y 4/4), microcrystalline, very well indurated, hard, poor apparent porosity and permeability.
2480-2490	10	DOLOSTONE - moderate yellowish brown (10YR 5/4), cryptocrystalline, well indurated, very hard, minor pinpoint vugs, poor apparent porosity and permeability.
2490-2500	10	DOLOSTONE - moderate yellowish brown (10YR 5/4), cryptocrystalline, well indurated, very hard, minor pinpoint vugs, poor apparent porosity and permeability.
2500-2510	10	DOLOSTONE - moderate yellowish brown (10YR 5/4) to olive gray (5Y 3/2), microcrystalline to finely crystalline, well indurated, hard, variably vuggy, poor apparent porosity and permeability.
2510-2530	20	DOLOSTONE - dark yellowish brown (10YR 4/2) to dusky yellowish brown (10YR 2/2), microcrystalline, well indurated, poor apparent porosity and permeability.

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2530-2550	20	DOLOSTONE - moderate yellowish brown (10YR 5/2) to dusky yellowish brown (10YR 2/2), crystalline, fine to medium-grained, well indurated, poor apparent porosity and permeability.
2550-2560	10	DOLOSTONE - dark yellowish brown (10YR 4/2) to dusky yellowish brown (10YR 2/2), crystalline, fine-grained, very well indurated, poor apparent porosity and permeability.
2560-2570	10	DOLOSTONE AND CLAY - dark yellowish brown (10YR 4/2) to moderate yellowish brown (10YR 5/2), microcrystalline, well indurated, poor apparent porosity and permeability. Dolostone - light olive gray (5Y 6/1) to olive black (5Y2/1), crystalline, fine to coarse-grained, banded appearance, poor porosity and permeability. Clay, medium gray (N5) to medium dark gray (N4), soft, gritty.
2570-2580	10	DOLOSTONE - dark yellowish brown (10YR 4/2) to olive black (5Y 2/1), crystalline, fine to medium-grained, common cavities and vugs, secondary coarse crystal growth along fracture planes and vugs, good apparent porosity and permeability. Dolostone - pale yellowish brown (10YR 6/2) to dark yellowish brown (10YR 4/2), microcrystalline, well indurated, poor apparent porosity and permeability.
2580-2590	10	DOLOSTONE - moderate yellowish brown (10YR 5/4) to dark yellowish brown (10YR 4/2), crystalline, fine to medium-grained, minor pinpoint vugs, well indurated, abundant secondary crystals, poor apparent porosity and permeability.
2590-2600	10	DOLOSTONE - pale yellowish brown (10YR 6/2) to dark yellowish brown (10YR 4/2), crystalline, fine to medium-grained, minor pinpoint vugs, well indurated, poor apparent porosity and permeability.
2600-2610	10	DOLOSTONE - pale yellowish brown (10YR 6/2), crystalline, fine to medium-grained, well indurated, poor apparent porosity and permeability. Dolostone, olive gray (5Y 4/1) to olive black (5Y 2/1), crystalline, fine to medium-grained, well indurated, poor apparent porosity and permeability.
2610-2620	10	DOLOSTONE - dark yellowish brown (10YR 4/2) to moderate yellowish brown (10YR 5/4), crystalline, fine-grained, well indurated, poor apparent porosity and permeability. Dolostone - light olive gray (5Y 6/1) to olive gray (5Y 4/1), crystalline, fine-grained, mottled appearance, poor apparent porosity and permeability. Dolostone - pale yellowish brown (10YR 6/2), microcrystalline, well indurated, poor apparent porosity and permeability. Dolostone - dark yellowish orange (10YR 6/6) to moderate yellowish brown (10YR 5/4), microcrystalline, very well indurated, very poor apparent porosity and permeability.

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2620-2630	10	DOLOSTONE AND MUDSTONE - moderate yellowish brown (10YR 5/4) to dark yellowish brown (10YR 4/2), crystalline, fine to medium-grained, well indurated, common small vugs partially filled with secondary crystal growth (Dolomite), fair to good apparent porosity and permeability. Dolostone - light olive gray (5Y 6/1) with olive gray (5Y 4/1) inclusions, crystalline, fine-grained, mottled appearance, poor apparent porosity and permeability. Mudstone - dark yellowish brown (10YR 4/2), finely laminated, friable, poor apparent porosity and permeability
2630-2640	10	DOLOSTONE AND DOLOSTONE CRYSTALS - dark yellowish orange (10YR 6/6) to dark yellowish brown (10YR 4/2) to olive gray (5Y 4/1), crystalline, fine to medium-grained, sucrosic texture, well indurated, poor apparent porosity and permeability. Dolomite Crystals (common) - moderate yellowish brown (10YR 5/4), coarse-grained.
2640-2650	10	DOLOSTONE - moderate yellowish brown (10YR 5/4) to dark yellowish brown (10YR 4/2), medium to coarse-grained, moderately indurated, abundant vugs, good apparent porosity and permeability. Dolostone - pale yellowish brown (10YR 6/2) to light olive gray (5Y 6/1) to olive black (5Y 2/1), fine to medium-grained, well indurated, sucrosic texture, occasional rock faces with euhedral crystal growth, poor apparent porosity and permeability.
2650-2660	10	DOLOSTONE - pale yellowish brown (10YR 6/2) to dusky yellowish brown (10YR 2/2), fine to medium-grained, well indurated, poor apparent porosity and permeability.
2660-2670	10	DOLOSTONE - moderate yellowish brown (10YR 5/4) to dark yellowish brown (10YR 4/2) to dusky yellowish brown (10YR 2/2), microcrystalline to fine-grained, well indurated, poor apparent porosity and permeability.
2670-2690	20	DOLOSTONE - dark yellowish brown (10YR 4/2) to dusky yellowish brown (10YR 2/2), microcrystalline to fine-grained, occasional pinpoint vugs, well indurated, secondary coarse crystal growth in and around vug openings, poor apparent porosity and permeability. Dolostone - black (N1) to olive black (5Y 2/1), crystalline, fine to coarse-grained, saccharoidal texture, occasional small vugs, well indurated, fair apparent porosity and permeability.
2690-2700	10	DOLOSTONE - dark yellowish brown (10YR 4/2) to dusky yellowish brown (10YR 2/2) to olive black (5Y 2/1), microcrystalline to fine-grained, occasional pinpoint vugs, well indurated, poor apparent porosity and permeability.

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2700-2710	10	DOLOSTONE AND DOLOSTONE CRYSTALS- dark yellowish brown (10YR 4/2) to dusky yellowish brown (10YR 2/2), crystalline fine to coarse-grained, well indurated, common pinpoint vugs, fair to good apparent porosity and permeability. Dolomite crystals (abundant) - moderate yellowish brown (10YR 5/4), coarse-grained.
2710-2720	10	DOLOMITE CRYSTALS - moderate yellowish brown (10YR 5/4).
2720-2730	10	DOLOSTONE - dark yellowish brown (10YR 4/2) to dusky yellowish brown (10YR 2/2) to olive black (5Y 2/1), microcrystalline to fine-grained, occasional pinpoint vugs, well indurated, poor apparent porosity and permeability.
2730-2750	20	DOLOSTONE - olive black (5Y 2/1) to dark yellowish brown (10YR 4/2), microcrystalline, saccharoidal texture, well indurated, hard, variably vuggy (pinpoint vugs), secondary crystal growth common in and around vug openings, fair apparent porosity and permeability.
2750-2760	10	DOLOSTONE - moderate yellowish brown (10YR 5/4) to dark yellowish brown (10YR 4/2) to dusky yellowish brown (10YR 2/2), microcrystalline to fine-grained, occasional pinpoint vugs, well indurated, secondary coarse crystal growth in and around vug openings, poor apparent porosity and permeability. Dolostone - light olive gray (5Y 6/1) , microcrystalline, well indurated, poor apparent porosity and permeability.
2760-2770	10	DOLOSTONE - olive black (5Y 2/1) to dark yellowish brown (10YR 4/2), microcrystalline, saccharoidal texture, well indurated, hard, variably vuggy (pinpoint vugs), secondary crystal growth common in and around vug openings, fair apparent porosity and permeability.
2770-2780	10	DOLOMITIC CLAY - olive black (5Y 2/1), sticky, silty.
2780-2790	10	DOLOSTONE AND CLAY - olive black (5Y 2/1) to dark yellowish brown (10YR 4/2), microcrystalline to fine-grained, variably saccharoidal in texture, well indurated, hard, variably vuggy (pinpoint vugs), poor apparent porosity and permeability. Carbonate Clay - greenish black (5GY 2/1), firm, sticky, silty, very- fine-sandy.
2790-2800	10	DOLOSTONE - olive black (5Y 2/1), microcrystalline to fine-grained, well indurated, hard, minor pinpoint vugs, secondary crystal growth and cobble-sized blocky cuttings indicate evidence of fractures, poor apparent porosity and permeability.
2800-2810	10	DOLOSTONE - olive black (5Y 2/1) to dark yellowish brown (10YR 4/2), crystalline, fine-grained, moderately well indurated, vuggy, secondary crystal growth common in and around vug openings, good to fair apparent porosity and permeability.

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2810-2820	10	DOLOSTONE - olive black (5Y 2/1) to dark yellowish brown (10YR 4/2), microcrystalline, well indurated, hard, variably vuggy (pinpoint vugs), poor apparent porosity and permeability.
2820-2830	10	DOLOSTONE - moderate yellowish brown (10YR 5/4) to dark yellowish brown (10YR 4/2), crystalline, very-fine grained, very well indurated, rare pinpoint vugs, rare secondary crystal growth on rock faces (Dolomite), poor apparent porosity and permeability
2830-2840	10	DOLOSTONE - moderate yellowish brown (10YR 5/4) to dark yellowish brown (10YR 4/2), crystalline, fine to medium-grained, well indurated, variably vuggy, occasional secondary crystal growth on rock faces (Dolomite), poor to fair apparent porosity and permeability
2840-2880	40	DOLOSTONE - moderate yellowish brown (10YR 5/4) to dusky yellowish brown (10YR 2/2), crystalline, very-fine grained, very well indurated, rare pinpoint vugs, poor apparent porosity and permeability
2880-2890	10	DOLOSTONE - olive gray (5Y 3/2) to dark yellowish brown (10YR 4/2), microcrystalline to finely crystalline, well indurated, hard, variably vuggy (pinpoint vugs), secondary crystal growth common in and around vug openings, poor apparent porosity and permeability
2890-2900	10	DOLOSTONE - dark yellowish brown (10YR 4/2) to olive black (5Y 2/1) to black (N1), crystalline, fine to medium-grained, well indurated, rare vugs, rare secondary crystal growth in and around vug openings, poor apparent porosity and permeability. Limestone (very rare) - yellowish gray (5Y 7/2), packstone, fine-to medium-grained, moderately indurated, occasional fossils, fair apparent porosity and permeability.
2900-2910	10	DOLOSTONE - dusky yellowish brown (10YR 2/2) to olive black (5Y 2/1) to black (N1), crystalline, fine- to medium-grained, well indurated, occasional vugs and small cavities, common secondary crystal growth in and around vugs/cavities, poor to fair apparent porosity and permeability. Limestone (very rare) - yellowish gray (5Y 7/2), packstone, fine to medium-grained, moderately indurated, fair apparent porosity and permeability.
2910-2920	10	DOLOSTONE - dusky yellowish brown (10YR 2/2) to olive black (5Y 2/1), crystalline, fine to medium-grained, well indurated, rare pinpoint vugs, poor apparent porosity and permeability. Limestone (very rare), yellowish gray (5Y 7/2), packstone, fine to medium-grained, moderately indurated, occasional fossils (echinoid), fair apparent porosity and permeability.

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2920-2939	19	DOLOSTONE - pale yellowish brown (10YR 6/2) to moderate yellowish brown (10YR 5/4), microcrystalline, well indurated, hard, variably vuggy (pinpoint vugs), poor apparent porosity and permeability. Dolostone - dark yellowish brown (10YR 4/2) to dusky yellowish brown (10YR 2/2), crystalline, fine to coarse-grained, well indurated, hard, poor apparent porosity and permeability.
2939-2940	1	DOLOSTONE - pale yellowish brown (10YR 6/2) to moderate yellowish brown (10YR 5/4), microcrystalline, well indurated, variably vuggy (pinpoint vugs), poor apparent porosity and permeability. Dolostone, dark yellowish brown (10YR 4/2) to dusky yellowish brown (10YR 2/2), crystalline, fine to medium-grained, well indurated, poor apparent porosity and permeability.
2940-2960	20	DOLOSTONE AND LIGNITE - pale yellowish brown (10YR 6/2) to moderate yellowish brown (10YR 5/4), microcrystalline, well indurated, variably vuggy (pinpoint vugs), poor apparent porosity and permeability. Dolostone - dark yellowish brown (10YR 4/2) to dusky yellowish brown (10YR 2/2), crystalline, fine to medium grained, well indurated, poor apparent porosity and permeability. Lignite - black (N1), soft to friable.
2960-2970	10	DOLOSTONE AND LIGNITE - pale yellowish brown (10YR 6/2) to moderate yellowish brown (10YR 5/4), microcrystalline, well indurated, variably vuggy (pinpoint vugs), poor apparent porosity and permeability. Dolostone - dark yellowish brown (10YR 4/2) to dusky yellowish brown (10YR 2/2), crystalline, fine to medium grained, well indurated, poor apparent porosity and permeability. Lignite (occasional) - black (N1), soft to friable.
2970-2980	10	DOLOSTONE - moderate yellowish brown (10YR 5/4) to dusky yellowish brown (10YR 2/2), crystalline, fine to medium-grained, well indurated, occasional pinpoint vugs and euhedral crystal growth (dolomite) on some rock faces, poor apparent porosity and permeability.
2980-2990	10	DOLOSTONE AND LIGNITE - light olive gray (5Y 5/2) to olive gray (5Y 3/2) to pale yellowish brown (10YR 6/2), crystalline, fine to coarse-grained, well indurated, rare pinpoint vugs, poor porosity, poor apparent permeability. Lignite (occasional) - black (N1), soft to friable.
2990-3000	10	DOLOSTONE AND LIGNITE - dark yellowish brown (10YR 4/2) to dusky yellowish brown (10YR 2/2), crystalline, fine to medium-grained, well indurated, occasional pinpoint vugs, poor apparent porosity and permeability. Rare Marl - white (N9), soft, sticky, gritty. Lignite - black (N1), soft to friable.

APPENDIX 2.1
GEOLOGIST'S LOG

3000-3010	10	DOLOSTONE AND LIGNITE - dark yellowish brown (10YR 4/2) to dusky yellowish brown (10YR 2/2), crystalline, fine to medium-grained, well indurated, occasional pinpoint vugs, poor apparent porosity and permeability. Lignite (occasional) - black (N1), soft to friable.
3010-3020	10	DOLOSTONE AND LIGNITE - dark yellowish brown (10YR 4/2) to pale yellowish brown (10YR 6/2), crystalline, fine to medium-grained, well indurated, occasional pinpoint vugs, poor apparent porosity and permeability. Lignite (occasional) - black (N1), soft to friable.
3020-3030	10	DOLOSTONE - pale yellowish brown (10YR 6/2) to dark yellowish brown (10YR 4/2), crystalline, fine-grained, variably saccharoidal, well indurated, very hard, poor apparent porosity and permeability.
3030-3040	10	DOLOSTONE - pale yellowish brown (10YR 6/2) to olive gray (5Y 3/2), crystalline, fine-grained, variably saccharoidal, well indurated, very hard, common lignite, poor porosity, poor apparent permeability
3040-3050	10	DOLOSTONE - pale yellowish brown (10YR 6/2) to dusky yellowish brown (10YR 2/2), crystalline, fine to medium-grained, saccharoidal, well indurated, occasional vugs, euhedral crystal growth (dolomite) on some rock faces, poor apparent porosity and permeability.
3050-3060	10	DOLOSTONE - pale yellowish brown (10YR 6/2) to dark yellowish brown (10YR 2/2), crystalline, fine to medium-grained, saccharoidal, well indurated, rare vugs, euhedral crystal growth (dolomite) on rare rock faces, poor apparent porosity and permeability. Rare lignite - black (N1), soft to friable.
3060-3080	20	DOLOSTONE - pale yellowish brown (10YR 6/2) to dark yellowish brown (10YR 2/2), crystalline, medium-grained, moderately indurated, common vugs, common euhedral crystal growth (dolomite), fair to good apparent porosity and permeability.
3080-3090	10	DOLOSTONE - pale yellowish brown (10YR 6/2) to dark yellowish brown (10YR 2/2), crystalline, medium-grained, moderately indurated, occasional vugs, common euhedral crystal growth (dolomite), fair to good apparent porosity and permeability. Dolostone - dusky yellowish brown (10YR 2/2) to olive black (5Y 2/1), crystalline, fine to medium-grained, well indurated, poor apparent porosity and permeability.
3090-3100	10	DOLOSTONE - pale yellowish brown (10YR 6/2) to dark yellowish brown (10YR 2/2), crystalline, medium-grained, moderately indurated, occasional vugs, common euhedral crystal growth (dolomite), fair to good apparent porosity and permeability.

APPENDIX 2.1
GEOLOGIST'S LOG

3100-3120	20	DOLOSTONE - pale yellowish brown (10YR 6/2) to dark yellowish brown (10YR 2/2), crystalline, medium-grained, moderately indurated, occasional vugs, occasional euhedral crystal growth (dolomite), fair apparent porosity and permeability. Dolostone - dusky yellowish brown (10YR 2/2) to olive black (5Y 2/1), crystalline, fine to medium-grained, well indurated, poor apparent porosity and permeability.
3120-3150	30	DOLOSTONE - pale yellowish brown (10YR 6/2) to dark yellowish brown (10YR 2/2), crystalline, fine to medium-grained, moderately indurated, occasional vugs, fair apparent porosity and permeability. Dolostone - dusky yellowish brown (10YR 2/2) to olive black (5Y 2/1), crystalline, fine to medium-grained, well indurated, poor apparent porosity and permeability. Rare Lignite - black (N1), soft to friable.
3150-3160	10	DOLOSTONE - moderate yellowish brown (10YR 5/4) to olive gray (5Y 3/2), crystalline, fine-grained, variably saccharoidal, well indurated, very hard, poor apparent porosity and permeability.
3160-3170	10	DOLOSTONE - light olive gray (5Y 5/2) to olive gray (5Y 3/2), crystalline, fine-grained, variably saccharoidal, common banding, well indurated, very hard, occasional pinpoint vugs, poor apparent porosity and permeability.
3170-3180	10	DOLOSTONE - light olive gray (5Y 5/2) to olive gray (5Y 3/2), crystalline, fine-grained, variably saccharoidal, well indurated, very hard, occasional pinpoint vugs, poor apparent porosity and permeability.
3180-3190	10	DOLOSTONE - dark yellowish brown (10YR 4/2) to olive black (5Y 2/1), crystalline, fine-grained, well indurated, very hard, rare pinpoint vugs, rare euhedral crystal growth on rock faces, poor apparent porosity and permeability.
3190-3220	30	DOLOSTONE - dark yellowish brown (10YR 4/2) to olive black (5Y 2/1), crystalline, fine to medium-grained, well indurated, very hard, common euhedral crystal growth, poor to fair apparent porosity and permeability. Lignite (rare) - black (N1), friable.
3220-3230	10	DOLOSTONE - dark yellowish brown (10YR 4/2) to olive black (5Y 2/1), crystalline, fine-grained, well indurated, very hard, rare pinpoint vugs, rare euhedral crystal growth on rock faces, poor apparent porosity and permeability.
3230-3240	10	DOLOSTONE - greenish black (5GY 2/1) and olive gray (5Y 4/1), microcrystalline with medium-grained cement, well indurated, very hard, occasional pinpoint vugs, poor apparent porosity and permeability. Lignite (rare) - black (N1), friable.

APPENDIX 2.1
GEOLOGIST'S LOG

3240-3250	10	DOLOSTONE - dark yellowish brown (10YR 4/2) to olive black (5Y 2/1), microcrystalline to finely-crystalline, well indurated, very hard, rare vugs, iron staining, poor apparent porosity and permeability.
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APPENDIX 2.2

GEOPHYSICAL LOGS AND VIDEO SURVEY FOR IW-2

APPENDIX 2.2.1

**CALIPER/NATURAL GAMMA, 58.5-INCH
BOREHOLE TO 413 FEET BPL**

YOUNGQUIST BROTHERS, Inc GEOPHYSICAL LOGGING DIVISION

X-Y CALIPER GAMMA RAY LOG

Company: WATER RESOURCE SOLUTIONS, INC.
 Well: IW #2
 Field: NCWRF
 County: COLLIER
 State: FLORIDA
 Location: SE 1/4 S27 T48S R25E
 Permanent Datum: PAD
 Elevation: 15'
 Log Measured from: GROUND LEVEL
 Log Measured from: SEP 7, 2003
 Run Number: OIE
 Depth (feet): 415'
 Depth (meters): 126.5m
 Log Log Interval: SURFACE
 Open Hole Size: 58.5"

Run Number: 587
 Date: 09/07/03
 Log Type: SURFACE
 Log Interval: 10'

Well Name: N/A
 Estimated Cement Top: 1300'
 Time Well from Bottom: N/A
 Equipment Number: FT 1035
 Location: FT WENERS
 Well: FT WENERS
 Well: F. PROCCO
 Well: F. PROCCO

Logged by: [Blank]
 Witnessed by: [Blank]
 Run Number: 587
 Date: 09/07/03
 Log Type: SURFACE
 Log Interval: 10'

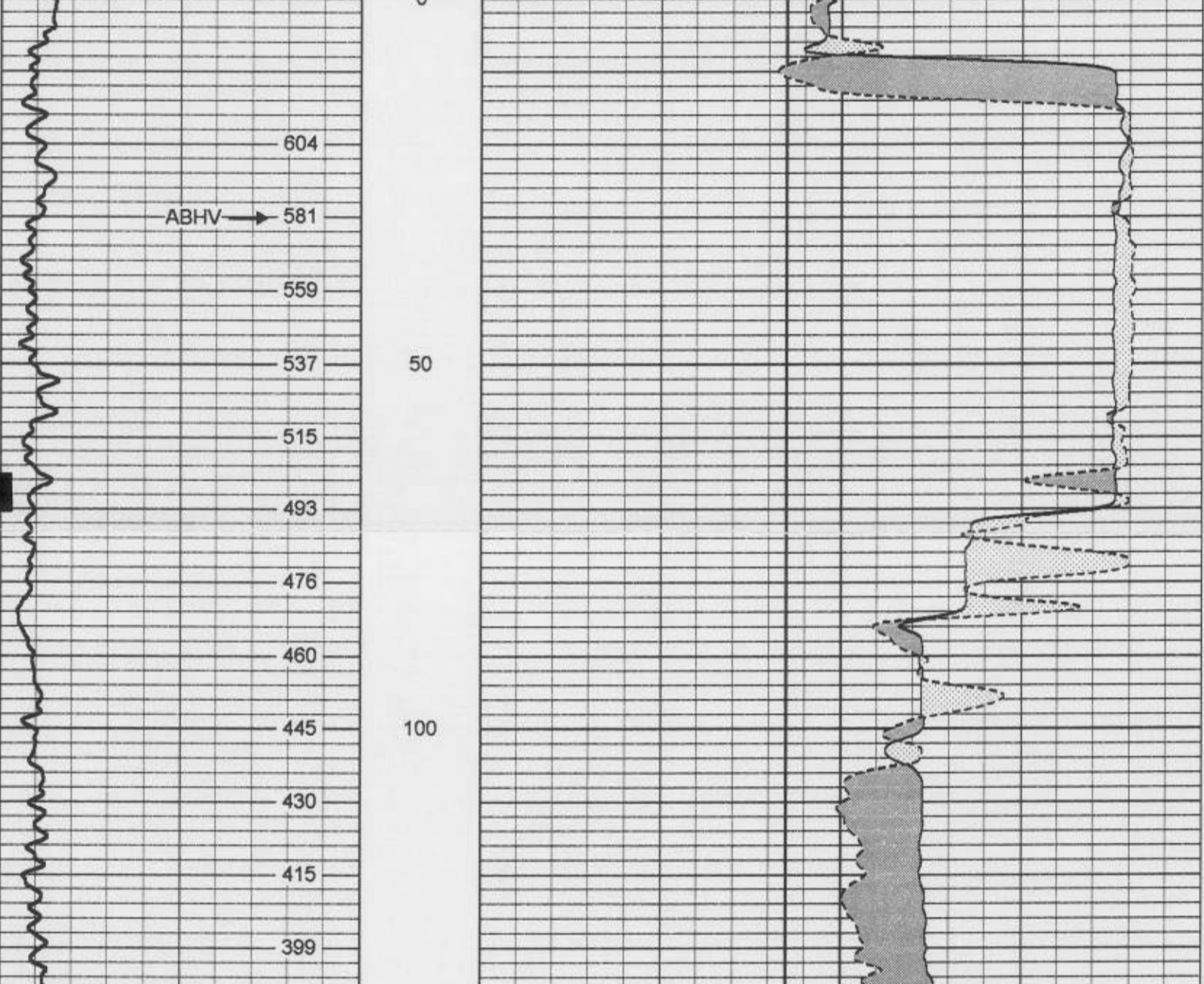
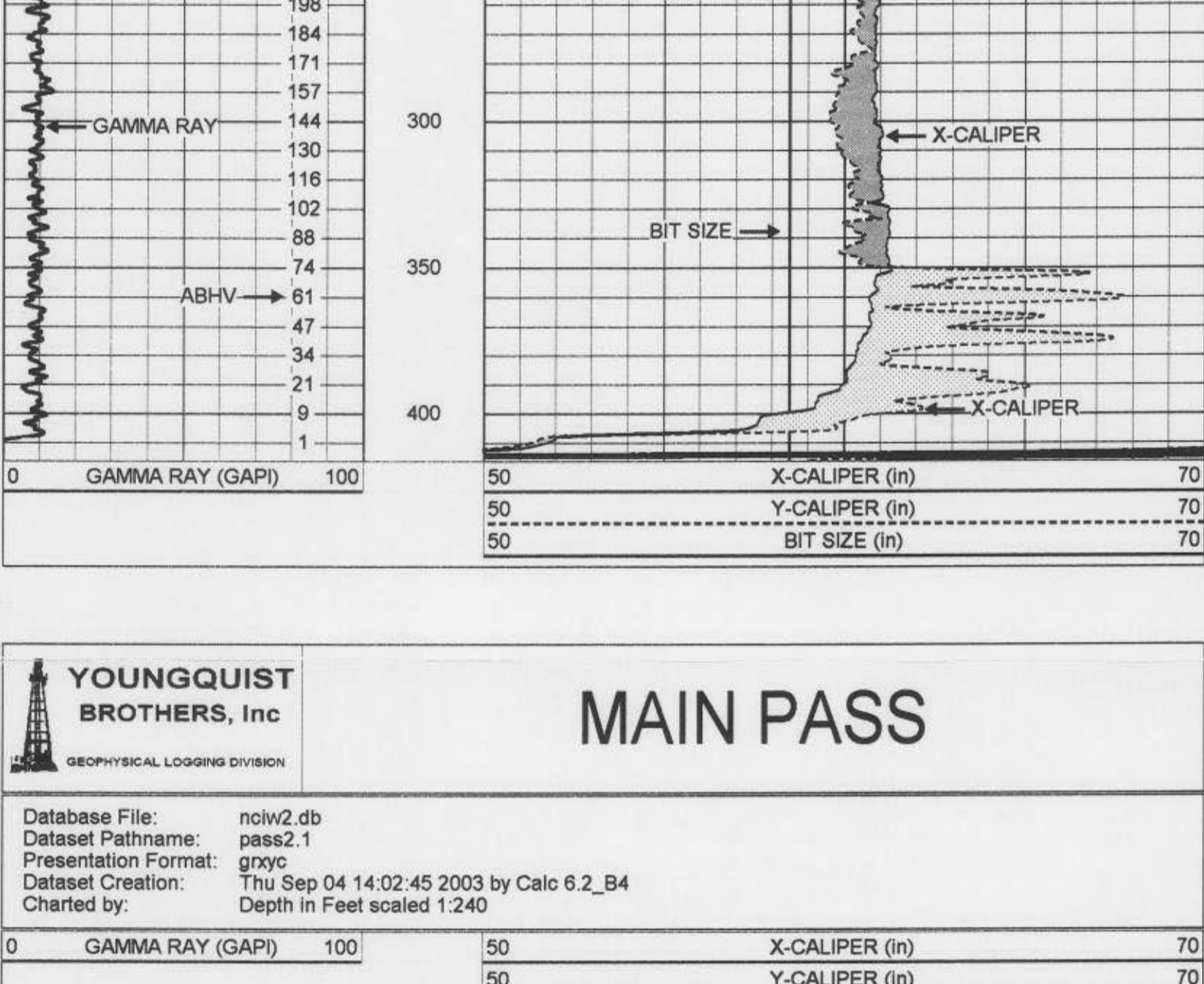
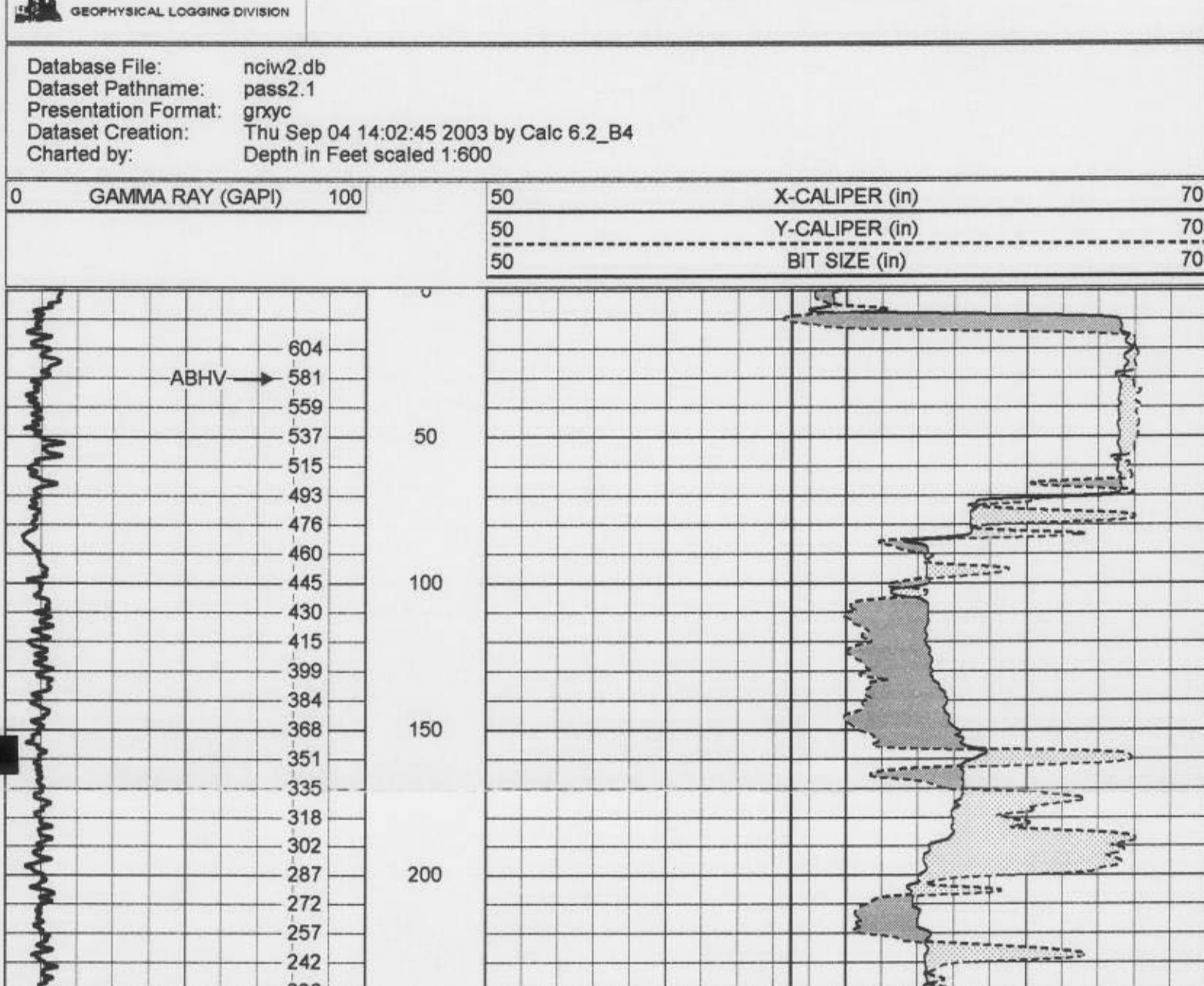
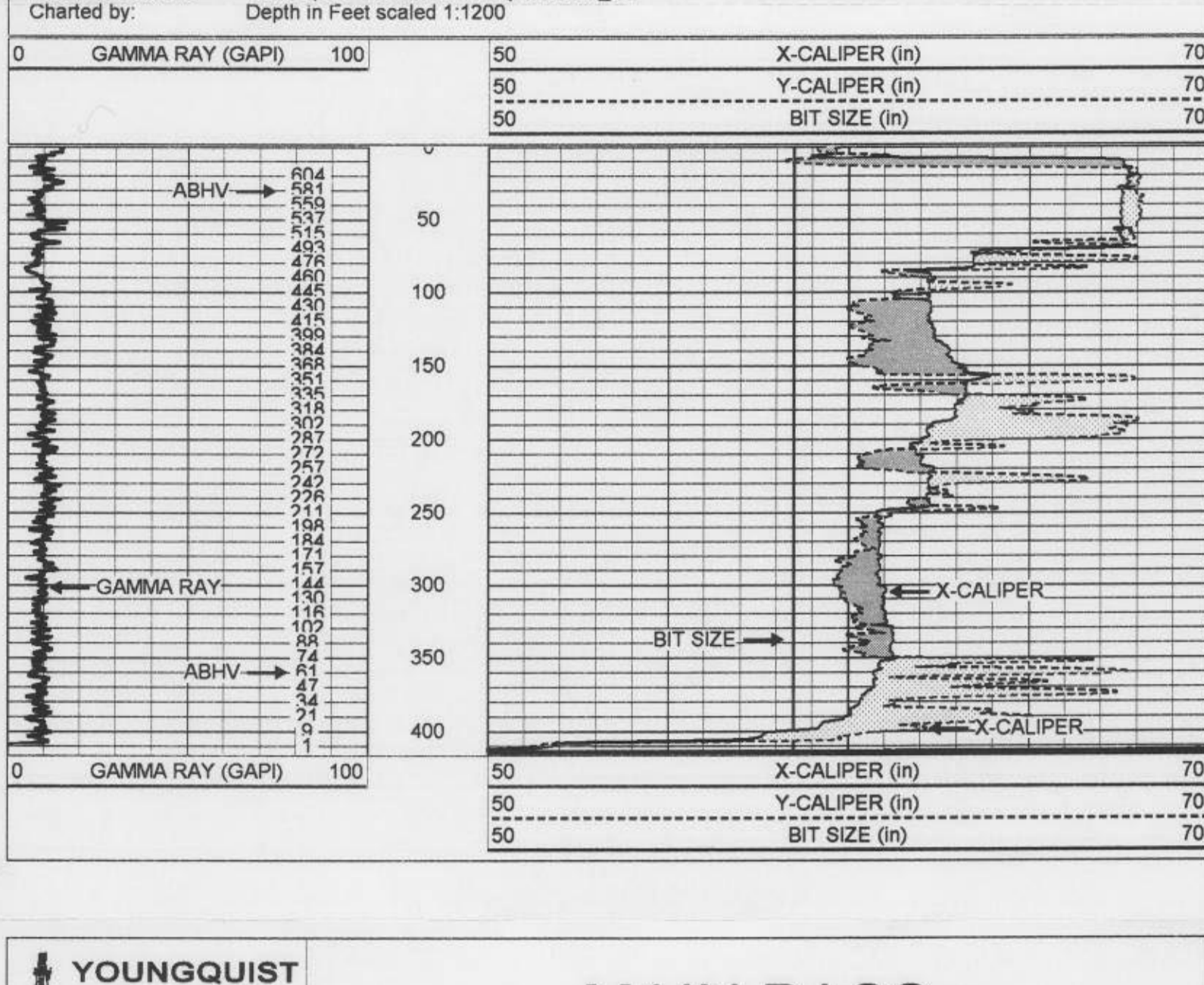
Caliper Record: Size 90' WMF
 Surface String: 3 1/2" W.I.
 Log Type: SURFACE
 Bottom: 6'

*** Fold Here ***

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Comments

ABHV COMPUTED WITH 48" CASING (BBS)



XY Caliper Calibration Report

Serial Number/Model: 06XL-Xyclm
 Performed: Thu Sep 04 13:12:50 2003

Ring	X Caliper	Y Caliper
1: 39.25 in	635.936 cps	648.148 cps
2: 49 in	741.842 cps	753.053 cps
3: 59 in	819.62 cps	838.138 cps
4: 67 in	896.697 cps	905.505 cps
5: in	cps	cps
6: in	cps	cps

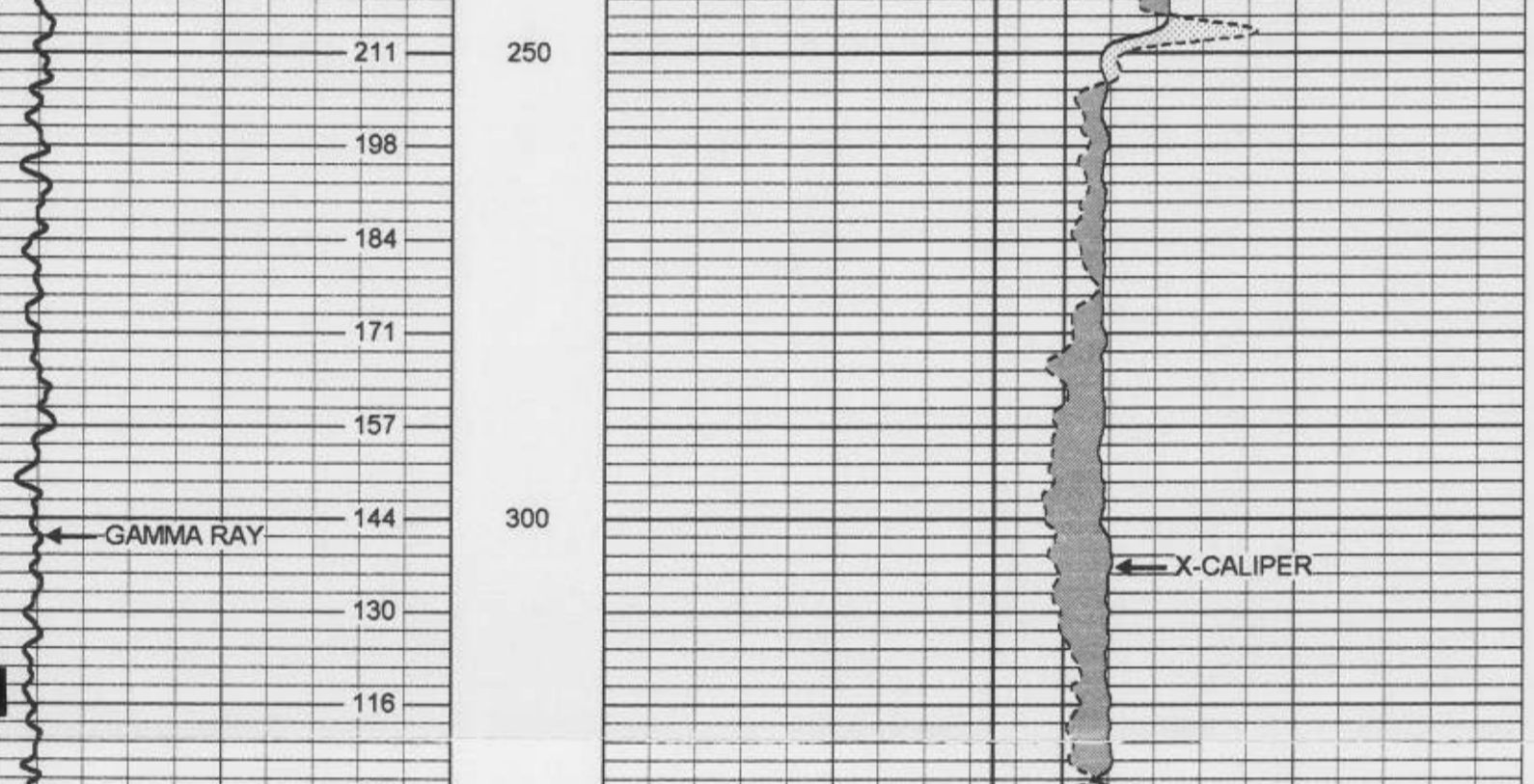
Gamma Ray Calibration Report

Serial Number: 14
 Tool Model: GROH
 Performed: Tue Mar 04 13:02:11 2003

Calibrator Value: 120 GAPI

Background Reading: 37.711 cps
 Calibrator Reading: 162.563 cps

Sensitivity: 0.961604 GAPI/cps



APPENDIX 2.2.2

TEMPERATURE, CEMENTING OF 48-INCH CONDUCTOR CASING



TEMPERATURE LOG

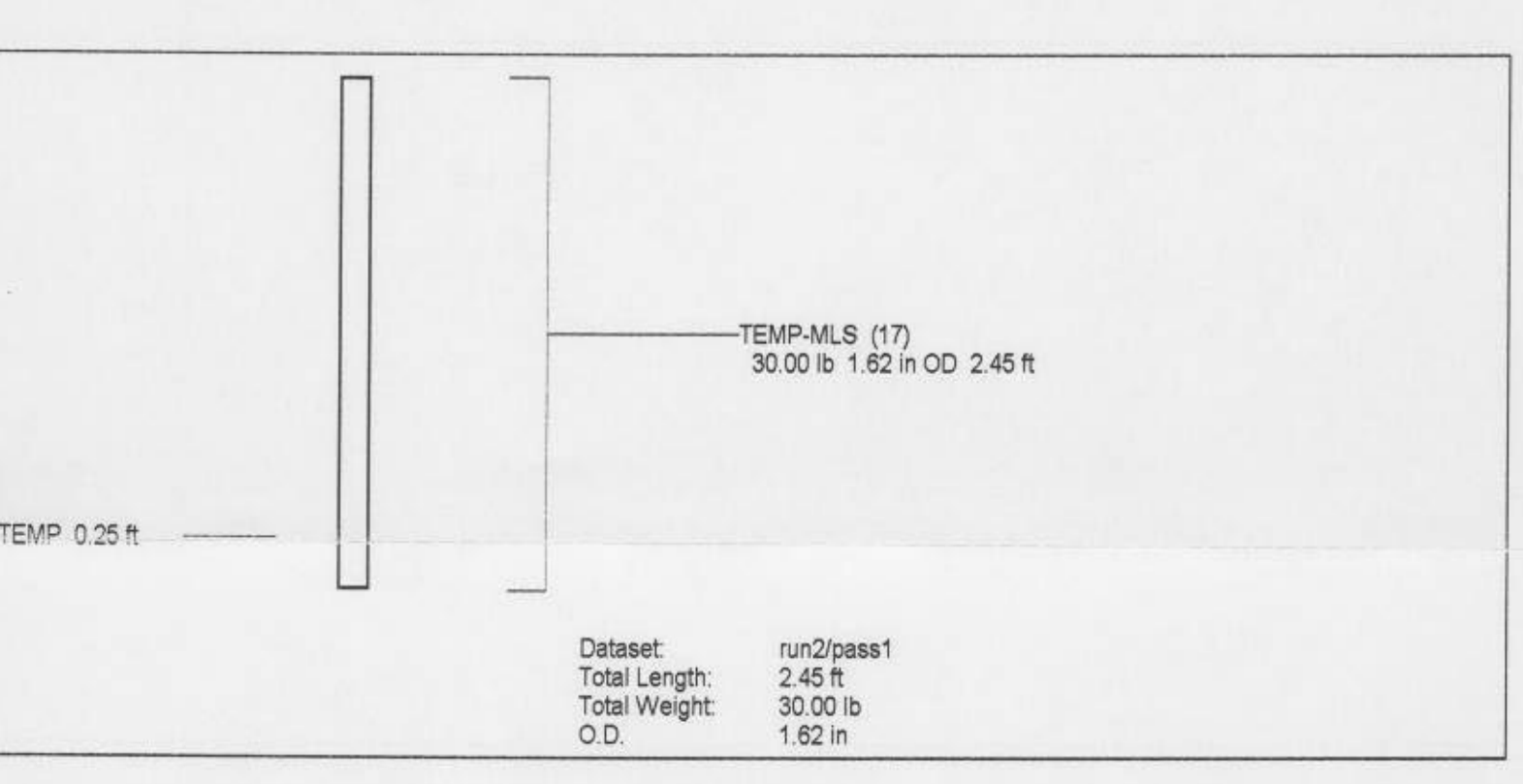
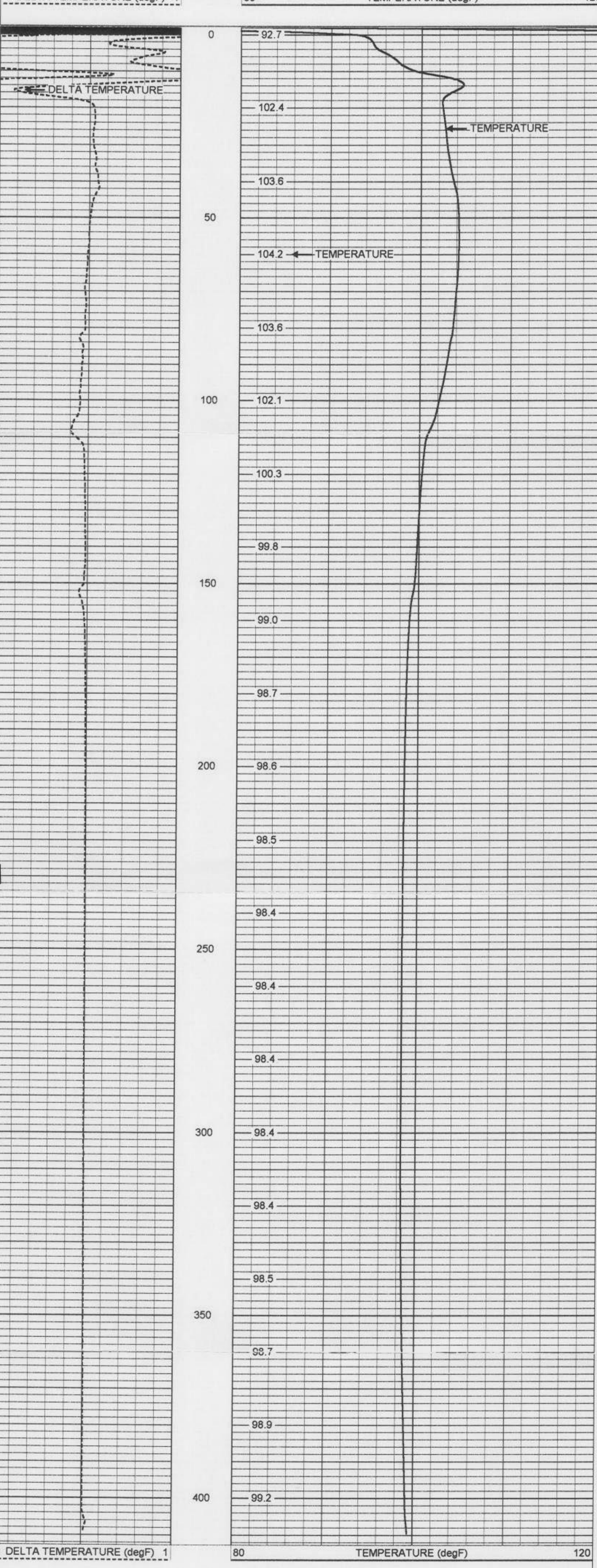
Company		WATER RESOURCE SLTS.	
Well	IW #2		
Field	NCWRF		
County	COLLIER		
State	FLORIDA		
Company	WATER RESOURCE SOLUTIONS, INC.		
Well	IW #2		
Field	NCWRF		
County	COLLIER		
State	FLORIDA		
Location	SE 1/4 S27 T48S R25E		
Other Services	NONE		
Permanent Datum	PAD	Elevation	15'
Log Measured From	GROUND LEVEL		
Drilling Measured From			
Date	SEPT. 5, 2003		
Run Number	TWO		
Depth Diller	413'		
Depth Logger	413'		
Bottom Logged Interval	SURFACE		
Top Log Interval	SURFACE		
Open Hole Size	58.5"		
Type Fluid	WATER		
Density/Viscosity	N/A		
Max. Recorded Temp.	N/A		
Estimated Cement Top	N/A		
Time Well Ready	07:00		
Time Logger on Bottom	07:10		
Equipment Number	103		
Location	FT. MYERS		
Recorded By	F. CATHRY		
Witnessed By	F. PROCTIA		
Run Number	ONE		
Borehole Record			
Bit From	SURFACE		
Bit To	413'		
Tubing Record			
Size			
Weight			
From			
To			
Casing Record			
Surface String	60"	Wd/Dr	375 W.T.
Production String	48"	Wd/Dr	375 W.T.
Production String Liner			

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Comments

TEMPERATURE

Database File: nciw2.db
 Dataset Pathname: run2/pass1
 Presentation Format: temp
 Dataset Creation: Fri Sep 05 07:02:06 2003 by Log 6.2_B4
 Charted by: Depth in Feet scaled 1:240



Temperature Calibration Report

Serial Number: 17
 Tool Model: MLS
 Performed: Fri Apr 04 14:49:15 2003

Point #	Reading	Reference
1	320 cps	32 degF
2	700 cps	70 degF
3	2000 cps	200 degF

APPENDIX 2.2.3

**CALIPER/NATURAL GAMMA, 12.25-INCH
PILOT HOLE TO 1,677 FEET BPL**

APPENDIX 2.2.4

DUAL INDUCTION, 12.25-INCH PILOT HOLE TO 1,676 FEET BPL

APPENDIX 2.2.5

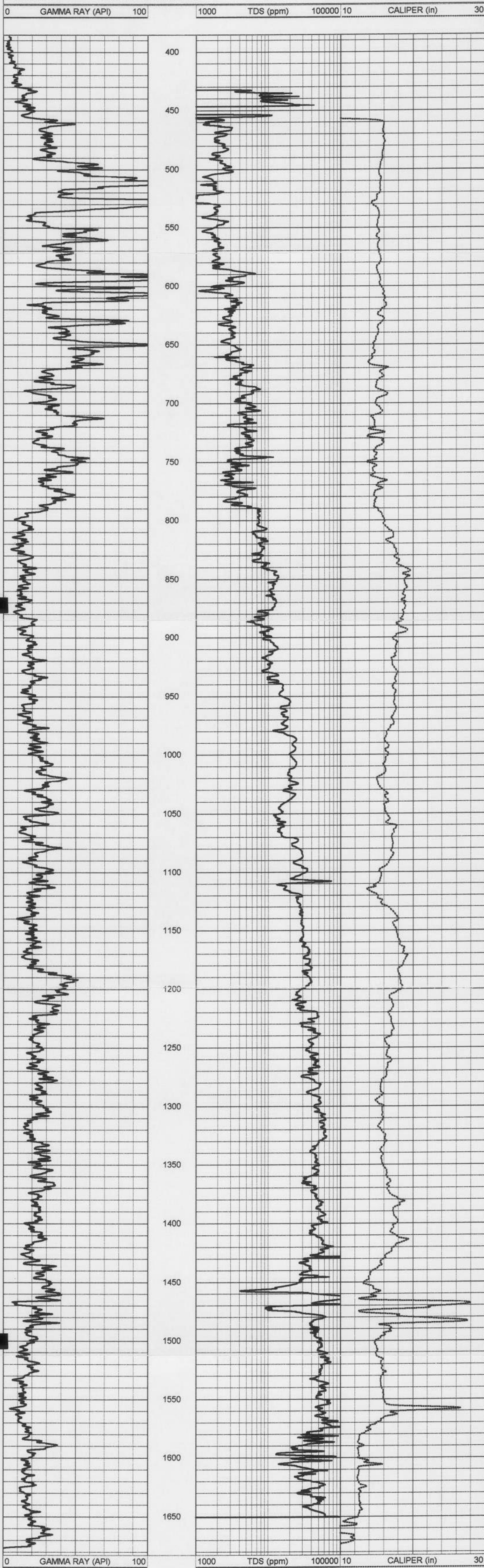
BHC SONIC-VDL, 12.25-INCH PILOT HOLE TO 1,677 FEET BPL

APPENDIX 2.2.6

LOG-DERIVED TDS, 12.25-INCH PILOT HOLE TO 1,677 FEET BPL

LOG DERIVED TDS

Database File: nciw2.db
 Dataset Pathname: run/_mpk1_
 Presentation Format: tds
 Dataset Creation: Sun Sep 14 08:15:23 2003
 Charted by: Depth in Feet scaled 1:600



APPENDIX 2.2.7

TEMPERATURE, 12.25-INCH PILOT HOLE TO 1,677 FEET BPL

APPENDIX 2.2.8

**CALIPER/NATURAL GAMMA, 47-INCH REAMED
BOREHOLE TO 1,500 FEET BPL**

Company: WATER RESOURCE SLTS.
 Well: IW #2
 County: COLLIER
 State: FLORIDA
 Location: SE 1/4 S27 T48S R28E
 Ground Level: (Elevation) 15
 Client: WATER RESOURCE SOLUTIONS, INC

Well: IW #2
 County: COLLIER
 State: FLORIDA
 Client: WATER RESOURCE SOLUTIONS, INC

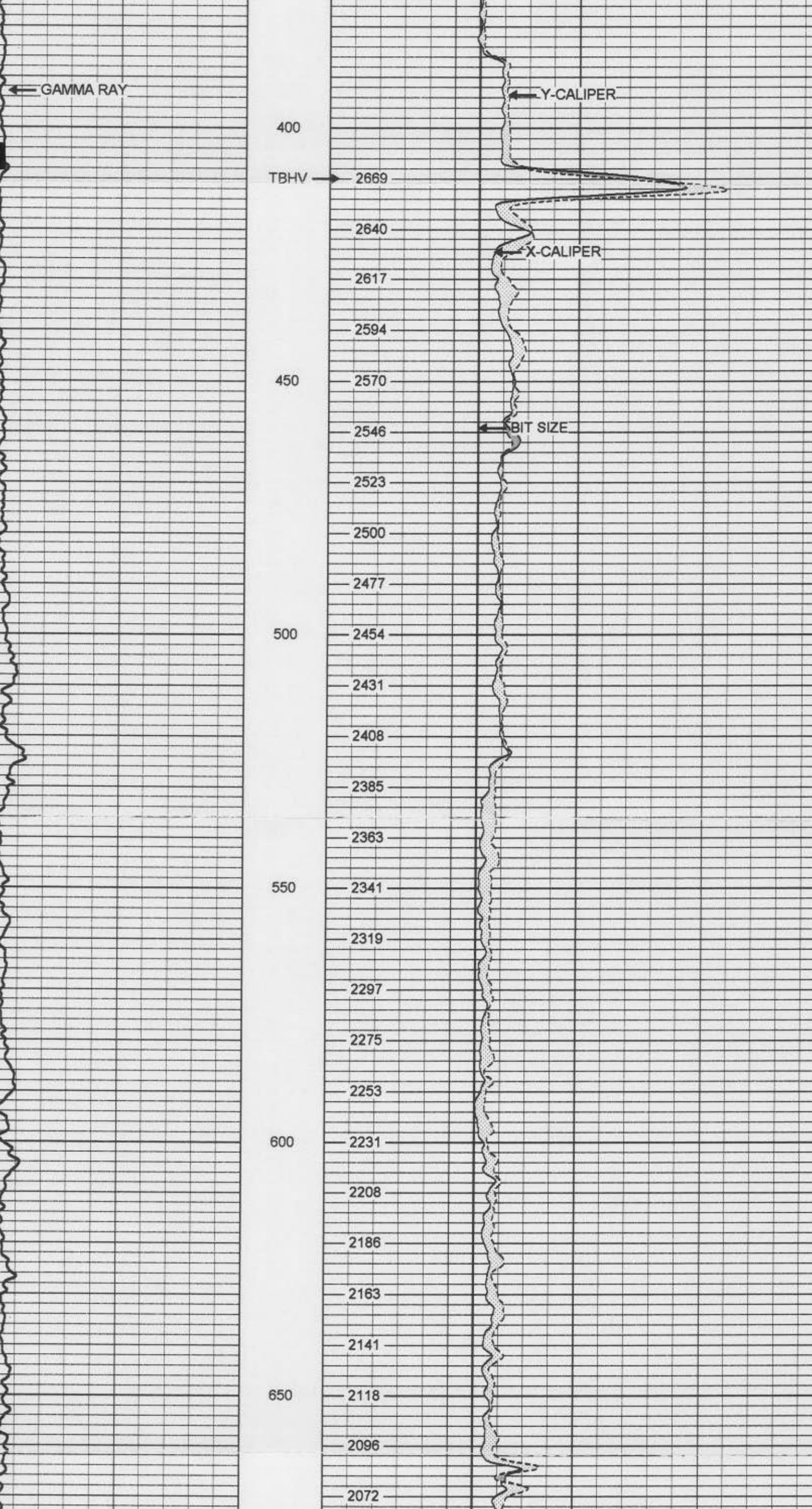
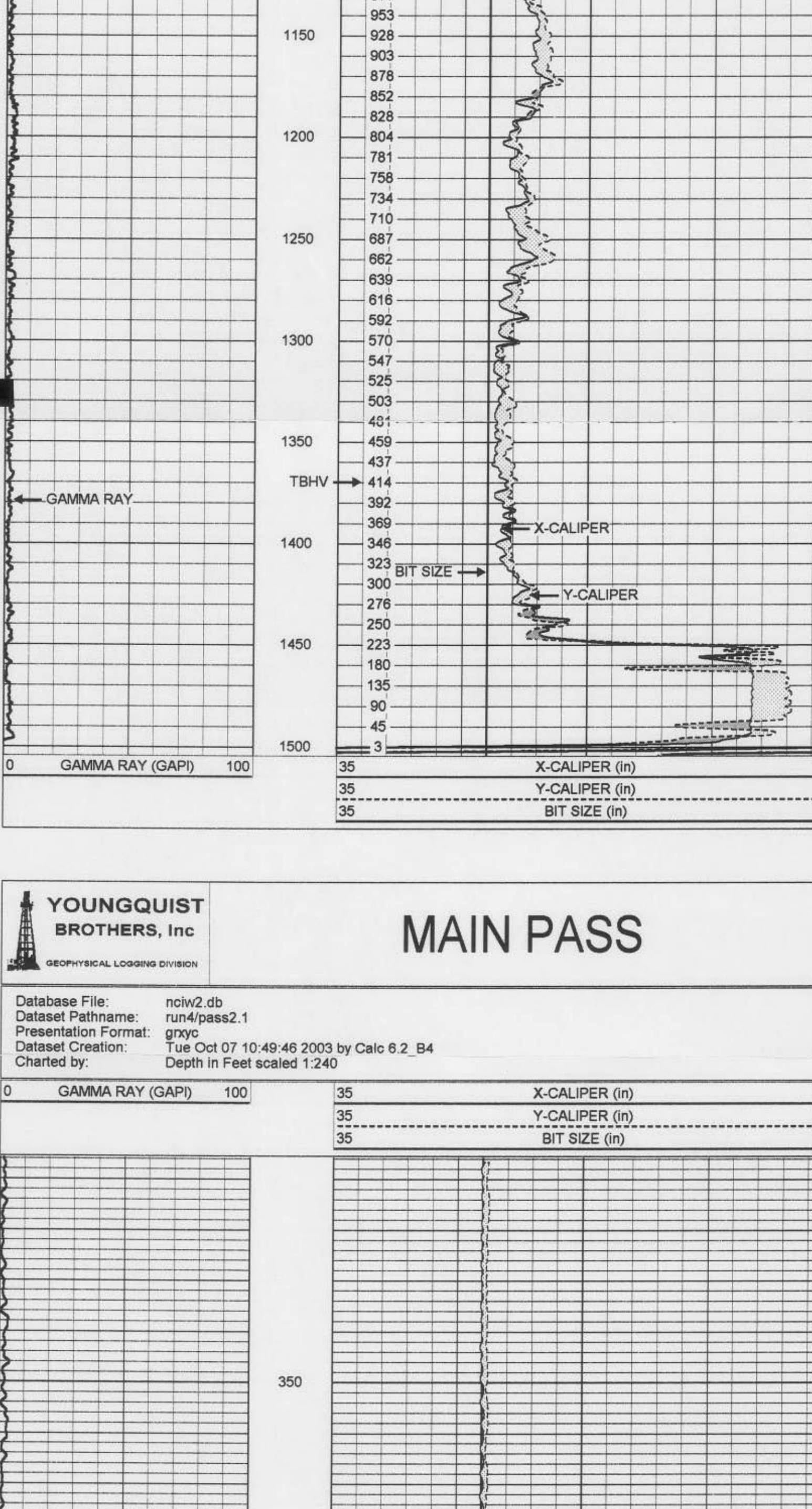
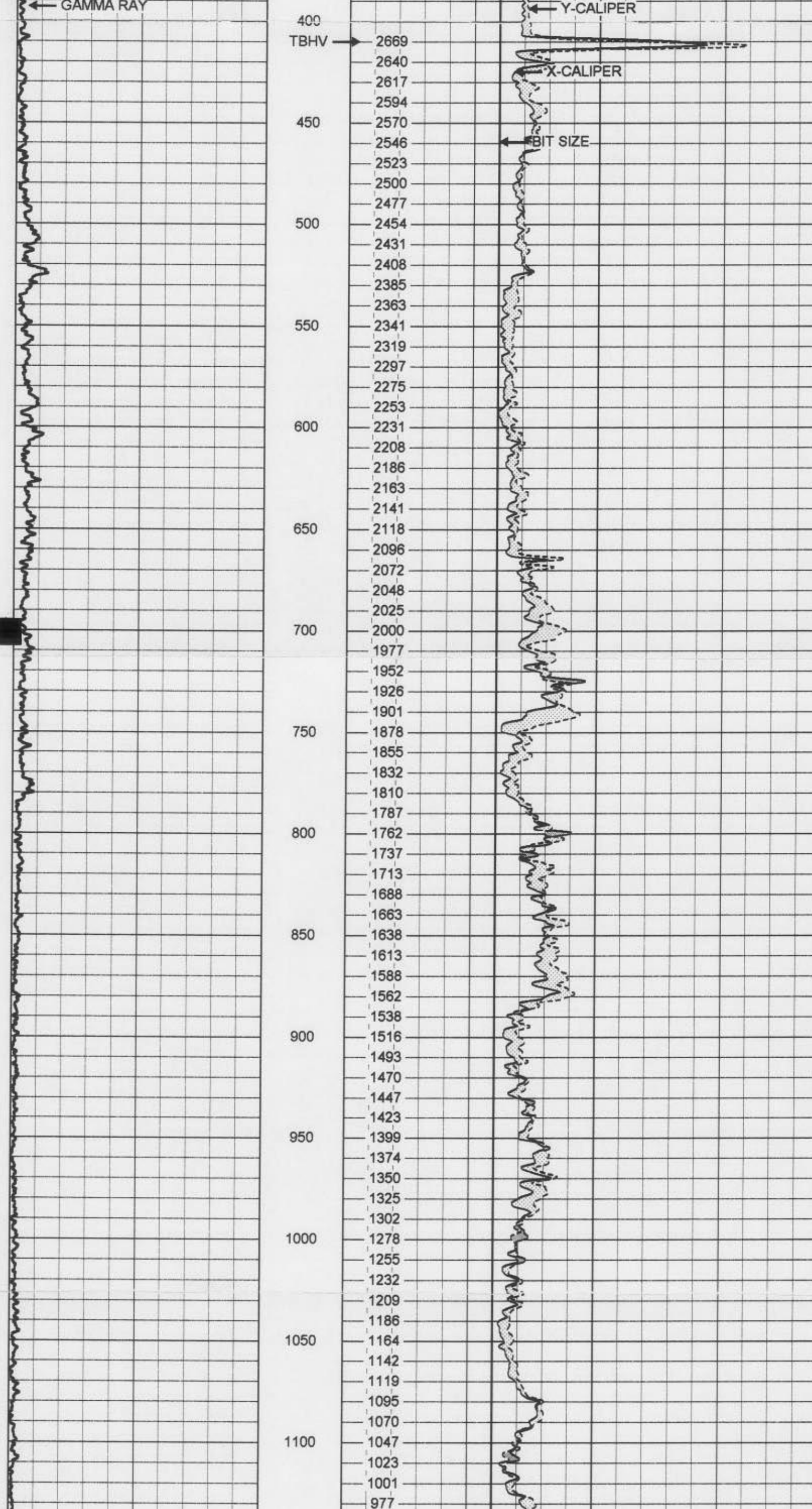
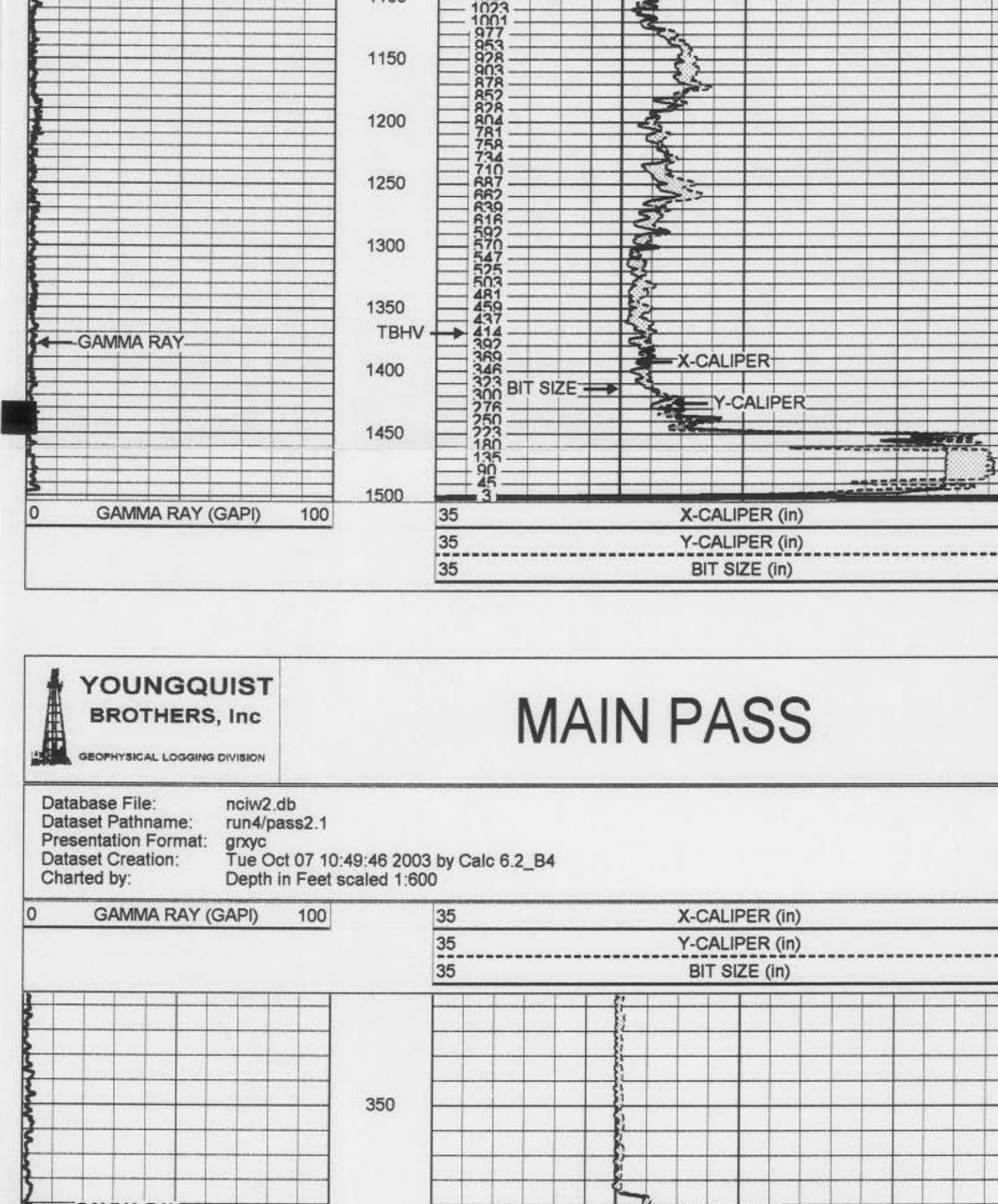
Log Date: 10/05/03
 Log Time: 08:30
 Log Depth: 1500
 Log Interval: 10
 Log Type: X-CALIPER, Y-CALIPER, BIT SIZE, GAMMA RAY

Log Interval: 10
 Log Type: X-CALIPER, Y-CALIPER, BIT SIZE, GAMMA RAY

Log Interval: 10
 Log Type: X-CALIPER, Y-CALIPER, BIT SIZE, GAMMA RAY

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Comments: TBHV CALCULATED IN BARRELS



XY Caliper Calibration Report

Serial Number/Model: 06XLYCALM
 Performed: Mon Oct 06 10:14:34 2003

Ring	X Caliper	Y Caliper
1: 38.25 in	598.589 cps	600 cps
2: 47.25 in	785.485 cps	781.892 cps
3: 59 in	825.926 cps	824.024 cps
4: 65 in		
5:		
6:		

Gamma Ray Calibration Report

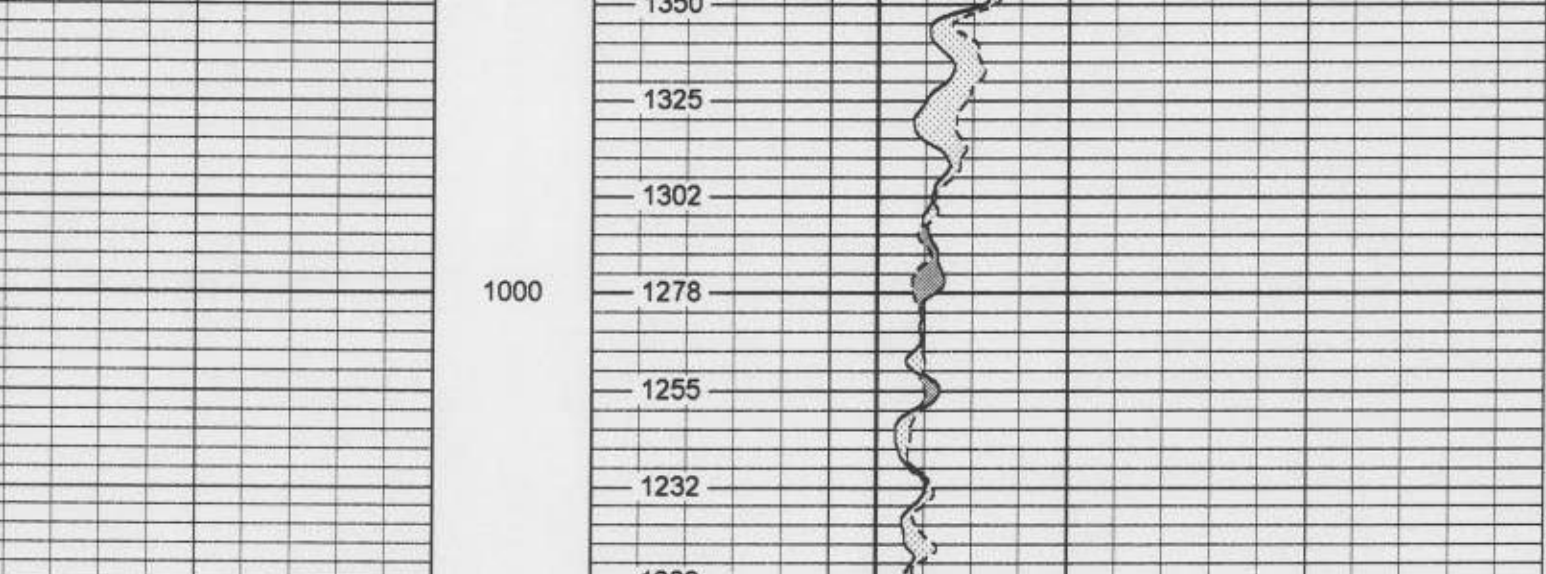
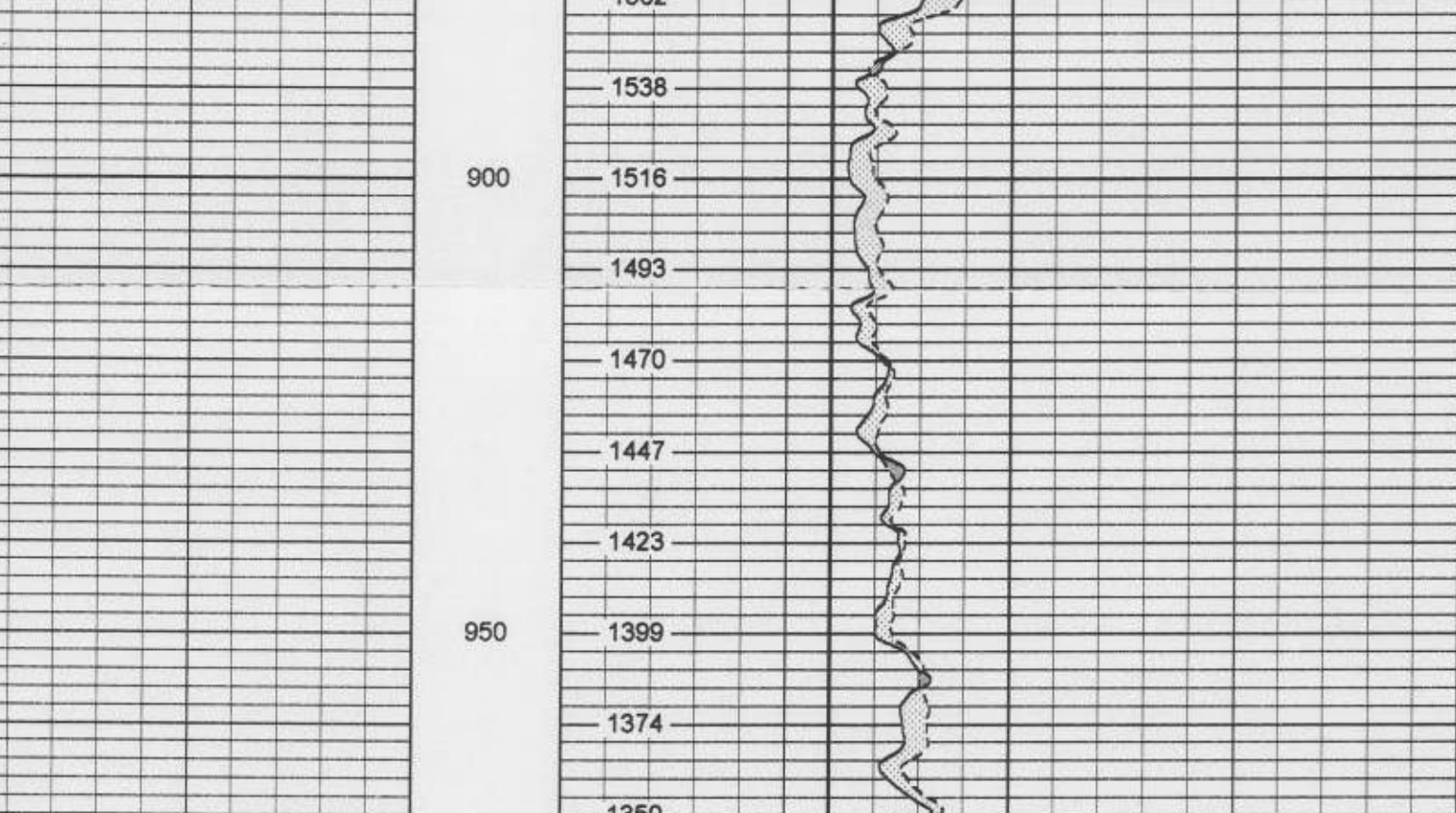
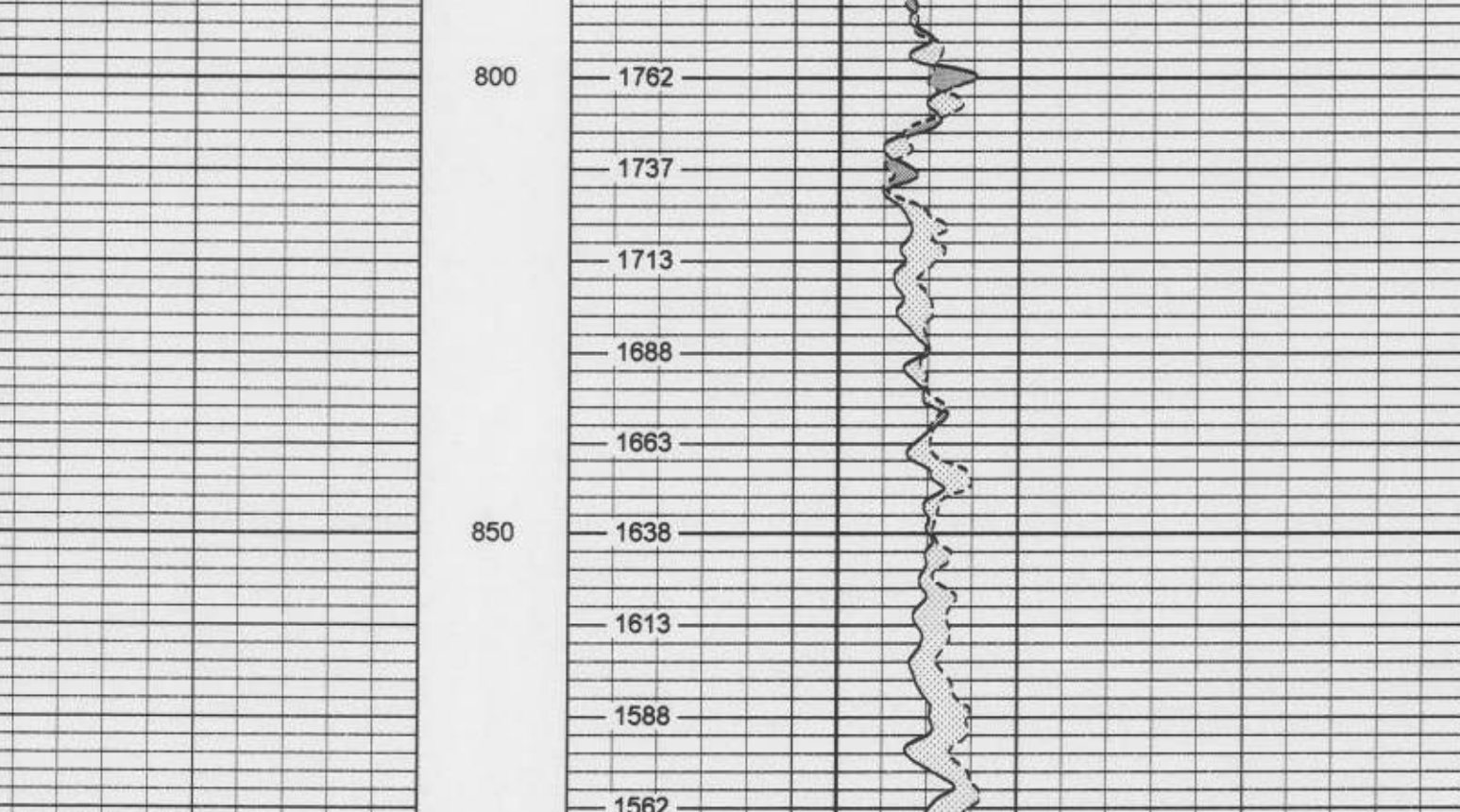
Serial Number: 14
 Tool Model: GRCH
 Performed: Tue Sep 09 16:41:31 2003

Calibrator Value: 120 GAPI

Background Reading: 32.8083 cps

Calibrator Reading: 217.19 cps

Sensitivity: 0.650625 GAPI/cps



Dataset: run4pass1
 Total Length: 9.35 ft
 Total Weight: 127.00 lb
 O.D.: 1.50 in

APPENDIX 2.2.9

TEMPERATURE, CEMENTING OF 42-INCH SURFACE CASING

Company WATER RESOURCE SOLUTIONS, INC
 Well IW #2
 Field NCWRF
 County COLLIER
 State FLORIDA

Location SE 1/4 S27 T48S R25E
 Other Services NONE
 Permanent Datum PAD
 Log Measured From GROUND LEVEL
 Drilling Measured From
 Date OCT 14, 2003
 Run Number FIVE
 Depth Diller 1435
 Depth Logger 1425
 Bottom Logged Interval SURFACE
 Open Hole Size 47"
 Type Fluid WATER
 Density / Viscosity N/A
 Max Recorded Temp 103
 Estimated Cement Top SURFACE
 Time Well Ready 0730
 Time Logger on Bottom 101
 Equipment Number FT. MYERS
 Location FERGUSON
 Witnessed By F. PROCCIA
 CATHIEY

Run Number	58.5"	413	1500'	1500'	1500'
TIME	12:25	4:13	4:07	4:07	4:07
THREE	4:07	4:07	4:07	4:07	4:07
Casing Record	60"	48"	42"	42"	42"
Surface String	375 W.T.	375 W.T.	375 W.T.	375 W.T.	375 W.T.
Production String	407"	407"	407"	407"	407"
Liner	1425'	1425'	1425'	1425'	1425'

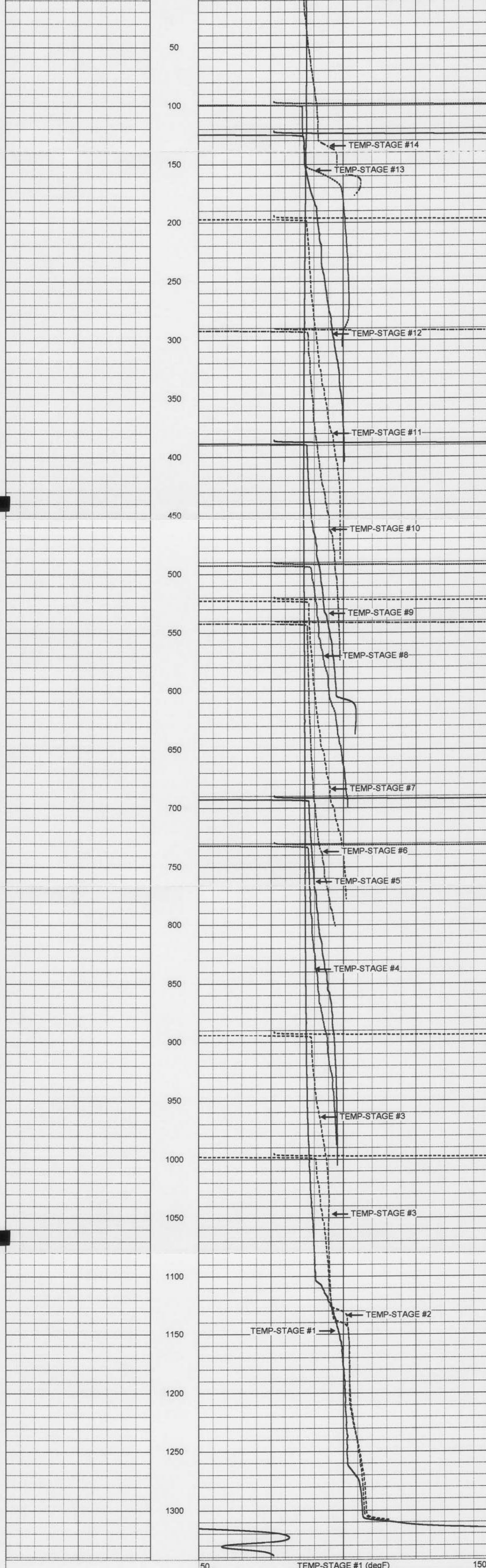
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- STAGE 1 LOGGED @ 0700 10/14/03
- STAGE 2 LOGGED @ 0630 10/15/03
- STAGE 3 LOGGED @ 1400 10/15/03
- STAGE 4 LOGGED @ 0600 10/16/03
- STAGE 5 LOGGED @ 1700 10/16/03
- STAGE 6 LOGGED @ 0500 10/17/03
- STAGE 7 LOGGED @ 1700 10/17/03
- STAGE 8 LOGGED @ 0500 10/18/03
- STAGE 9 LOGGED @ 1700 10/18/03
- STAGE 10 LOGGED @ 0500 10/19/03
- STAGE 11 LOGGED @ 1700 10/19/03
- STAGE 12 LOGGED @ 0500 10/20/03
- STAGE 13 LOGGED @ 1700 10/20/03
- STAGE 14 LOGGED @ 0500 10/21/03

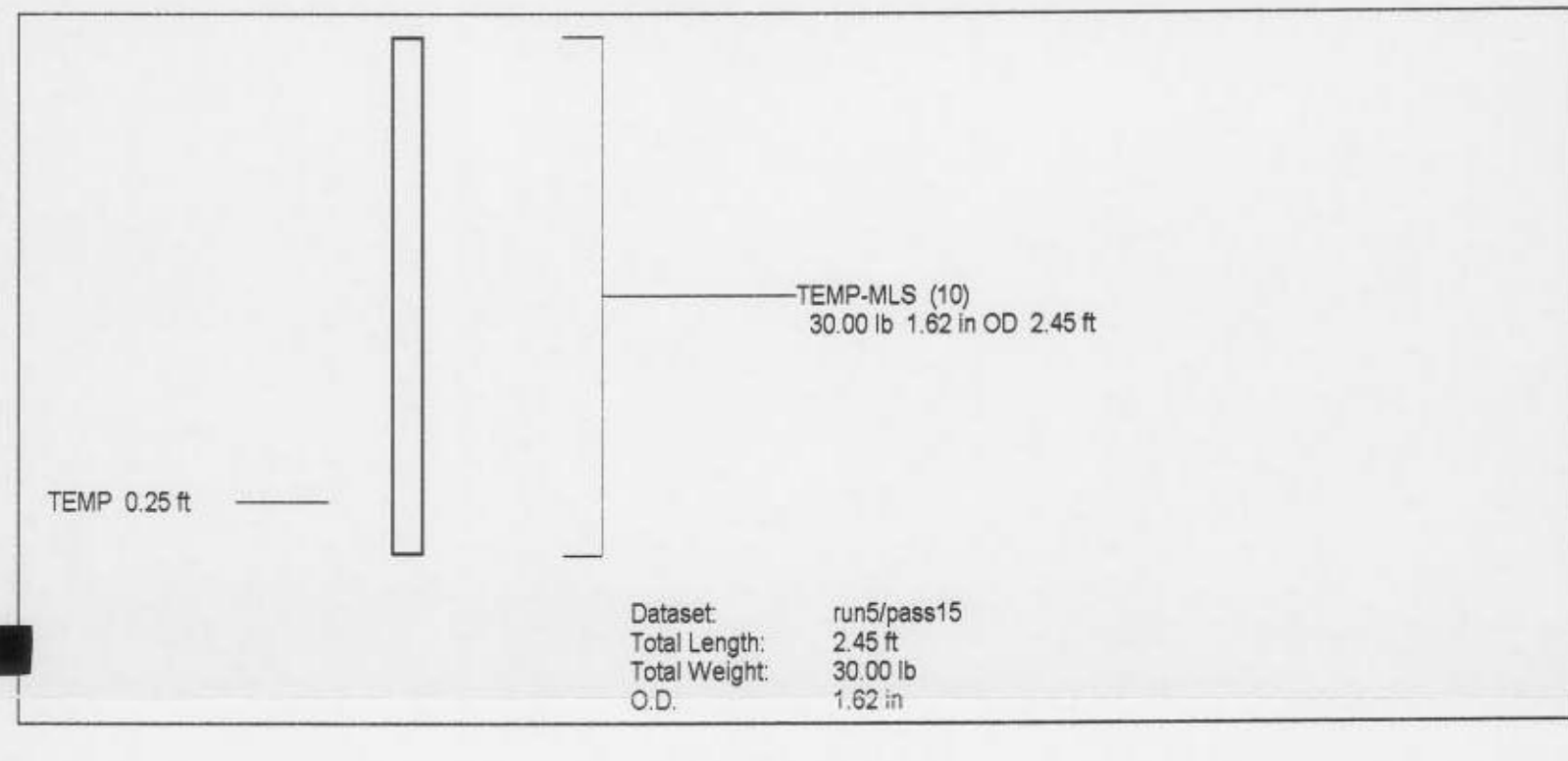
STAGE 1

Database File: nciw2.db
 Dataset Pathname: run5/pass1
 Presentation Format: cti_mg
 Dataset Creation: Tue Oct 14 07:32:33 2003 by Log 6.2_B4
 Charted by: Depth in Feet scaled 1:600

50	TEMP-STAGE #1 (degF)	150
50	TEMP-STAGE #3 (degF)	150
50	TEMP-STAGE #4 (degF)	150
50	TEMP-STAGE #5 (degF)	150
50	TEMP-STAGE #6 (degF)	150
50	TEMP-STAGE #7 (degF)	150
50	TEMP-STAGE #8 (degF)	150
50	TEMP-STAGE #9 (degF)	150
50	TEMP-STAGE #10 (degF)	150
50	TEMP-STAGE #11 (degF)	150
50	TEMP-STAGE #2 (degF)	150
50	TEMP-STAGE #12 (degF)	150
50	TEMP-STAGE #13 (degF)	150
50	TEMP-STAGE #14 (degF)	150



50	TEMP-STAGE #1 (degF)	150
50	TEMP-STAGE #3 (degF)	150
50	TEMP-STAGE #4 (degF)	150
50	TEMP-STAGE #5 (degF)	150
50	TEMP-STAGE #6 (degF)	150
50	TEMP-STAGE #7 (degF)	150
50	TEMP-STAGE #8 (degF)	150
50	TEMP-STAGE #9 (degF)	150
50	TEMP-STAGE #10 (degF)	150
50	TEMP-STAGE #11 (degF)	150
50	TEMP-STAGE #2 (degF)	150
50	TEMP-STAGE #12 (degF)	150
50	TEMP-STAGE #13 (degF)	150
50	TEMP-STAGE #14 (degF)	150



Dataset: run5/pass15
 Total Length: 2.45 ft
 Total Weight: 30.00 lb
 O.D.: 1.62 in

Serial Number:	10		
Tool Model:	MLS		
Performed:	Fri Apr 04 14:18:23 2003		
Point #	Reading		Reference
1	280.02	cps	35 degF
2	517.63	cps	85 degF
3	1212.37	cps	205 degF

APPENDIX 2.2.10

VIDEO SURVEY, 12.25-INCH PILOT HOLE TO 2,737 FEET BPL