SUBMITTAL NO. 22

LETTER OF TRANSMITTAL

ENGINEERING

FROM:
The City of Conroe
P.O. Box 3066 (300 West Davis)
Conroe, TX 77305
(936) 522-3130

TO:
Alsay Incorporated
6615 Gant Road
Houston, TX 77066
(281) 444-6960

Date: 10/29/12 Job No.: 2009-22
ATTN: Joe Slavik
RE: Water Well No. 23

APPROVED

We are sending you:
☐ Attached ☐ Under Separate Cover VIA The Following Items:
☐ Shop Drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications
☐ Copy of Letter ☐ Change Order ☐ Hand Delivered

Copies	Date	Description
1	10/29/12	Test Hole Evaluation

These are transmitted as checked below:
☐ For Approval ☑ Approved as Submitted ☐ Resubmit ____ Copies for Approval
☐ For Your Use ☐ Approved as Noted ☐ Submit ____ Copies for Distribution
☐ As requested ☐ Returned for Corrections ☐ Return ____ Corrected Prints
☐ For Review & Comment ☐ _____
☐ For Bids Due ☐ Prints Returned After Loan to Us.

Remarks:

Copy to: PT, PM, TW

Signed:

11-5-12 SH 11-5-12

11/5/12

H:\PROJECTS-Contract Admin\Water Well No. 23\Submittals\submittal 22.doc

ALSAY INCORPORATED
6615 GANT ROAD
HOUSTON, TEXAS 77066

281-444-6960 PHONE

281-444-7081 FAX

LETTER OF TRANSMITTAL

DATE	City of Conroe Project
10/29/2012	Water Well No. 23
ATTENTION	
Stephen Troy Toland, P.E.	
RE:	
Water Well No. 23	
Submittal	

TO City of Conroe - Capital Projects

300 W. Davis

Conroe, Texas 77305

WE ARE SENDING YOU [X] Attached via messenger the following items:

[ ] Attached via U.S. Mail the following items:

[ ] Prints [ ] Plans [X] For Submittal

[ ] Change [ ] Invoice [ ] Video Disc

COPIES	DATE	Submittal #	DESCRIPTION
2	10/29/12	22	Test Hole Evaluation

THESE ARE TRANSMITTED as checked below:

[X] For approval [ ] Revised

[ ] For your use [ ] Approved as submitted

[X] As requested [X] Returned for corrections

[ ] For review and comment [ ] Other

RECEIVED
OCT 29 2012
ENGINEERING DEPARTMENT

REMARKS Corrected Drillers Log; added job name to pump test data; added Sample #1 designation and sampling depth to water analysis data.

ST
11-5-6

COPY TO: _____

SIGNED: Joe Slavik

Joe Slavik
Assistant Secretary
Alsay Incorporated

ALSAY INCORPORATED
6615 GANT ROAD
HOUSTON, TEXAS 77066

281-444-6960 PHONE

281-444-7081 FAX

LETTER OF TRANSMITTAL

DATE	City of Conroe Project
10/25/2012	Water Well No. 23
ATTENTION	
Stephen Troy Toland, P.E.	
RE:	
Water Well No. 23	
Submittal	

TO City of Conroe - Capital Projects

300 W. Davis

Conroe, Texas 77305

WE ARE SENDING YOU [X] Attached via messenger the following items:

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2	10/25/12	22	Test Hole Evaluation

THESE ARE TRANSMITTED as checked below:

[X] For approval [ ] Revised

[ ] For your use [ ] Approved as submitted

[ ] As requested [ ] Returned for corrections

[ ] For review and comment [ ] Other

RECEIVED
OCT 26 2012
ENGINEERING DEPARTMENT

REMARKS

COPY TO: LBG-Guyton

SIGNED:
Joe Slavik
Assistant Secretary
Alsay Incorporated

ALSAY INCORPORATED

ALSAYWATER.COM

October 24, 2012

City of Conroe
300 W. Davis
Conroe, Texas 77305

Attention: Troy Toland
Reference: Water Well No. 23

Mr. Toland:

This letter is confirming the results of the test hole exploration and our recommendations for the construction of the above referenced water well.

A test hole was drilled to a depth of approximately 3,245 feet and an electric log was run. The electric log had elevated "gamma" spikes and a Spectralog was run in order to help determine if any radioactive constituents were indicated. The interval at 1,966' had elevated readings of radioactive constituents (refer to Baker Atlas interpretation letter enclosed dated 08/16/12). The proposed well construction includes setting casing and cementing below that interval.

Baker Atlas concluded that the electric log had no "crossovers" that would indicate gas in the Catahoula sands that would be utilized for the final completion of the well.

The completion of the induction log indicated approximately 115' of sands in the Catahoula Aquifer that could be screened for construction in the well plus 18' of "development" screens.

Based on the information obtained from the test hole we would recommend the following construction guidelines:

- Material Settings (attached)
- Based on the attached sand sieve analysis we are recommending the utilization of Premier Silica's 16/30 filter pack material as manufactured in Brady, Texas
- With the use of the above filter pack material we would recommend Alloy Machine Works' Well Screen .025 slot wire wrapped pipe-base screen as manufactured in Houston, Texas
- Baker Atlas Letter of Interpretation (attached)
- Electric logs (attached)
- Core logs and core samples (attached)
- Test hole water sample pumping and analyses (attached)
- Drillers log (attached)
- Totco alignment surveys (attached)

HOUSTON | 6615 GANT ROAD | HOUSTON, TEXAS 77066 | 281.444.6960 | SAN ANTONIO | 3359 SE LOOP 410 | SAN ANTONIO, TEXAS 78222 | 210.628.1090

ALSAYWATER.COM

Alsay Incorporated appreciates the opportunity to work with the City on this project. Please let us know if we can provide any additional information that would help in making your decision.

Joe Slavik
Assistant Secretary
Alsay Incorporated

HOUSTON | 6615 GANT ROAD | HOUSTON, TEXAS 77066 | 281.444.6960 | SAN ANTONIO | 3359 SE LOOP 410 | SAN ANTONIO, TEXAS 78222 | 210.628.1090

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City of Conroe
Water Well No. 23

Test Hole Evaluation

Including:

Contractor's Evaluation
Hydrologist's Evaluation
Proposed Material Settings
Drillers Log
Inclination Survey
Sand Sieve Analysis
Geophysical Logs
Test Hole Water Sampling Results

Prepared By:
Alsay Incorporated
6615 Gant Road
Houston, TX 77066
281-444-6960

HOUSTON | 6615 GANT ROAD | HOUSTON, TEXAS 77066 | 281.444.6960 | SAN ANTONIO | 3359 SE LOOP 410 | SAN ANTONIO, TEXAS 78222 | 210.628.1090

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City of Conroe
Water Well No. 23

Test Hole Evaluation
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Test Boring

ALSAY
INCORPORATED
GROUNDWATER EXPLORATION & DEVELOPMENT

6615 GANT ROAD
HOUSTON, TEXAS 77066
PHONE: 281-444-6960
FAX: 281-444-7081
www.alsaywater.com

City of Conroe
Water Well No. 23

Drillers Log

8/17/2012

Depth (feet)			Description
0	–	6	Sub-structure
6	–	28	Brown Sandy Clay
28	–	42	Sand
42	–	110	Reddish Brown Clay
110	–	210	Sand & Gravel
210	–	380	Brown Clay
380	–	392	Sand
392	–	530	Clay (Gray)
530	–	560	Sand
560	–	585	Clay (Light Gray)
585	–	720	Sand
720	–	755	Clay (Gray)
755	–	790	Sandy Brown Clay
790	–	820	Clay (Light Gray)
820	–	920	Sand
920	–	940	Clay (Light Gray)
940	–	980	Sand
980	–	1020	Clay (Gray)
1020	–	1068	Sand
1068	–	1130	Clay (Gray)
1130	–	1200	Sand
1200	–	1300	Clay (Gray)
1300	–	1320	Sand
1320	–	1330	Clay (Whitish Gray)
1330	–	1342	Sand
1342	–	1355	Clay (Whitish Gray)
1355	–	1408	Sand
1408	–	1428	Clay (Gray)
1428	–	1448	Sand
1448	–	1928	Clay (Dark Gray)
1928	–	1968	Sand
1968	–	2018	Clay (Dark Gray)
2018	–	2063	Sand
2063	–	2088	Clay (Dark Gray)
2088	–	2110	Sand
2110	–	2210	Clay (Dark Gray)
2210	–	2238	Sand
2238	–	2272	Clay (Dark Gray)
2272	–	2310	Sand
2310	–	2390	Clay (Dark Gray)
2390	–	2448	Sand
2448	–	2460	Clay (Whitish Gray)
2460	–	2478	Sand
2478	–	2820	Clay (Dark Gray)
2820	–	2830	Sand
2830	–	3020	Clay (Dark Gray)
3020	–	3070	Sand
3070	–	3108	Clay (Dark Gray)
3108	–	3152	Sand
3152	–	3170	Clay (Dark Gray)
3170	–	3180	Sand
3180	–	3206	Clay (Dark Gray)
3206	–	3244	Sand

MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Jul-25
Tool Battery Level: 82%
Run Time: 00:09:20
Start Time: 05:58:05

Survey 1 Time 06:04:36
Tool Temp: 34°C / 93°F
INCLINE: 0.28° ± 0.21°
Depth: 65 ft.

Operator

JV
Signature

7/25/12
Date

MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Jul-25
Tool Battery Level: 82%
Run Time: 00:12:20
Start Time: 08:08:27

Survey 1 Time 08:17:28
Tool Temp: 33°C / 91°F
INCLINE: 0.38° ± 0.16°
Depth: 90'

Operator

JV
Signature

7/25/12
Date

MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Jul-25
Tool Battery Level: 82%
Run Time: 00:07:10
Start Time: 09:37:12

Survey 1 Time 09:40:43
Tool Temp: 31°C / 87°F
INCLINE: 0.25° ± 0.16°
Depth: 118'

Operator

JV
Signature

7-25-12
Date

MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Jul-25
Tool Battery Level: 82%
Run Time: 00:08:21
Start Time: 16:22:53

Survey 1 Time 16:27:24
Tool Temp: 29°C / 84°F
INCLINE: 0.11° ± 0.15°
Depth: 145'

Operator

JV
Signature

7-25-12
Date

MD Totco®

www.MDTotco.com

e-Totco S/N: 37926

Reader S/N: 35599

Run Date: 2012-Aug-08

Tool Battery Level: 77%

Run Time: 00:08:11
Start Time: 21:52:33

Survey 1 Time 21:55:04

Tool Temp: 33°C / 91°F

INCLINE: 0.23° ± 0.19°

Depth: 207

Louis Reed
Operator

Louis Reed
Signature

8-9-12
Date

NOV MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Jul-25
Tool Battery Level: 82%
Run Time: 00:07:30
Start Time: 17:31:24

Survey 1 Time 17:35:25
Tool Temp: 29°C / 84°F
INCLINE: 0.15° ± 0.17°
Depth: 170'

Operator

JV
Signature

7-25-12
Date

NOV MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Jul-25
Tool Battery Level: 82%
Run Time: 00:07:30
Start Time: 19:27:29

Survey 1 Time 19:31:00
Tool Temp: 30°C / 85°F
INCLINE: 0.13° ± 0.16°
Depth: 240

Louis Reed
Operator

Louis Reed
Signature

7-26-12
Date

NOV MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Jul-25
Tool Battery Level: 82%
Run Time: 00:07:30
Start Time: 23:12:28

Survey 1 Time 23:15:29
Tool Temp: 34°C / 93°F
INCLINE: 0.18° ± 0.17°
Depth: 272

Louis Reed
Operator

Louis Reed
Signature

7-26-12
Date

NOV MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Jul-26
Tool Battery Level: 82%
Run Time: 00:07:40
Start Time: 00:07:30

Survey 1 Time 00:11:01
Tool Temp: 34°C / 93°F
INCLINE: 0.25° ± 0.19°
Depth: 309

Louis Reed
Operator

Louis Reed
Signature

7-26-12
Date

MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Jul-26
Tool Battery Level: 82%
Run Time: 00:10:10
Start Time: 00:56:59

Survey 1 Time 01:02:30
Tool Temp: 33°C / 91°F
INCLINE: 0.22° ± 0.15°
Depth: 335

Louis Reed
Operator

Louis Reed
Signature

7-26-12
Date

MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Jul-26
Tool Battery Level: 82%
Run Time: 00:13:00
Start Time: 02:09:36

Survey 1 Time 02:13:07
Tool Temp: 33°C / 91°F
INCLINE: 0.19° ± 0.15°
Depth: 366

Louis Reed
Operator

Louis Reed
Signature

7-26-12
Date

MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Jul-26
Tool Battery Level: 82%
Run Time: 00:11:30
Start Time: 03:20:36

Survey 1 Time 03:28:07
Tool Temp: 33°C / 91°F
INCLINE: 0.33° ± 0.14°
Depth: 398

Louis Reed
Operator

Louis Reed
Signature

7-26-12
Date

MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Jul-26
Tool Battery Level: 82%
Run Time: 00:08:50
Start Time: 04:23:25

Survey 1 Time 04:27:26
Tool Temp: 35°C / 94°F
INCLINE: 0.35° ± 0.14°
Depth: 430

Louis Reed
Operator

Louis Reed
Signature

7-26-12
Date

NOV MD Totco®

www.MDTotco.com

e-Totco S/N: 37926

Reader S/N: 35599

Run Date: 2012-Jul-26

Tool Battery Level: 82%

Run Time: 00:07:30
Start Time: 05:25:34

Survey 1 Time 05:29:05

Tool Temp: 36°C / 96°F

INCLINE: 0.33° ± 0.14°

Depth: 461'

Louis Reed
Operator

Louis Reed
Signature

7-26-12
Date

NOV MD Totco®

www.MDTotco.com

e-Totco S/N: 37926

Reader S/N: 35599

Run Date: 2012-Jul-26

Tool Battery Level: 82%

Run Time: 00:10:10
Start Time: 07:11:38

Survey 1 Time 07:17:39

Tool Temp: 35°C / 94°F

INCLINE: 0.34° ± 0.14°

Depth: 470'

Operator

JV
Signature

7-26-12
Date

NOV MD Totco®

www.MDTotco.com

e-Totco S/N: 37926

Reader S/N: 35599

Run Date: 2012-Jul-26

Tool Battery Level: 82%

Run Time: 00:11:20
Start Time: 07:59:29

Survey 1 Time 08:05:30

Tool Temp: 35°C / 94°F

INCLINE: 0.17° ± 0.14°

Depth: 524'

Operator

JV
Signature

7-26-12
Date

NOV MD Totco®

www.MDTotco.com

e-Totco S/N: 37926

Reader S/N: 35599

Run Date: 2012-Jul-26

Tool Battery Level: 82%

Run Time: 00:09:41
Start Time: 09:01:28

Survey 1 Time 09:06:29

Tool Temp: 34°C / 93°F

INCLINE: 0.28° ± 0.14°

Depth: 555'

Operator

JV
Signature

7-26-12
Date

NOV MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Jul-26
Tool Battery Level: 82%
Run Time: 00:22:20
Start Time: 09:51:05

Survey 1 Time 09:58:36
Tool Temp: 34°C / 93°F
INCLINE: 0.15° ± 0.13°
Depth: 587'

Operator

J.V.
Signature

7.26.12
Date

NOV MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Jul-26
Tool Battery Level: 82%
Run Time: 00:11:20
Start Time: 13:34:25

Survey 1 Time 13:40:56
Tool Temp: 33°C / 91°F
INCLINE: 0.33° ± 0.14°
Depth: 617'

Operator

JV
Signature

7.26.12
Date

NOV MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Jul-26
Tool Battery Level: 82%
Run Time: 00:12:20
Start Time: 14:27:28

Survey 1 Time 14:34:29
Tool Temp: 34°C / 93°F
INCLINE: 0.44° ± 0.14°
Depth: 649'

Operator

J.V.
Signature

7.26.12
Date

NOV MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Jul-26
Tool Battery Level: 82%
Run Time: 00:21:30
Start Time: 15:24:23

Survey 1 Time 15:41:24
Tool Temp: 34°C / 93°F
INCLINE: 0.25° ± 0.14°
Depth: 681'

Operator

JV
Signature

7.26.12
Date

NOV MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Jul-28
Tool Battery Level: 81%
Run Time: 00:10:20
Start Time: 07:54:46

Survey 1 Time 08:00:47
Tool Temp: 34°C / 93°F
INCLINE: 0.12° ± 0.14°
Depth: 1086

Operator

JV
Signature

7-28-12
Date

NOV MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Jul-26
Tool Battery Level: 81%
Run Time: 01:45:50
Start Time: 17:29:05

Survey 1 Time 17:36:36
Tool Temp: 34°C / 93°F
INCLINE: 0.20° ± 0.15°
Depth: 712

Louis Reed
Operator

Louis Reed
Signature

7-27-12
Date

NOV MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Jul-26
Tool Battery Level: 81%
Run Time: 00:20:30
Start Time: 20:33:13

Survey 1 Time 20:39:44
Tool Temp: 34°C / 93°F
INCLINE: 0.29° ± 0.14°
Depth: 743

Louis Reed
Operator

Louis Reed
Signature

7-27-12
Date

NOV MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Jul-26
Tool Battery Level: 81%
Run Time: 00:10:00
Start Time: 21:55:43

Survey 1 Time 22:01:14
Tool Temp: 34°C / 93°F
INCLINE: 0.23° ± 0.13°
Depth: 773

Louis Reed
Operator

Louis Reed
Signature

7-27-12
Date

NDY MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Jul-26
Tool Battery Level: 81%
Run Time: 00:10:30
Start Time: 23:49:47

Survey 1 Time 23:54:18
Tool Temp: 35°C / 94°F
INCLINE: 0.44° ± 0.14°
Depth: 805

Louis Reed
Operator

Louis Reed
Signature

7-27-12
Date

NDY MD Totco®
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e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Jul-27
Tool Battery Level: 81%
Run Time: 00:18:51
Start Time: 03:02:09

Survey 1 Time 03:08:40
Tool Temp: 36°C / 96°F
INCLINE: 0.16° ± 0.14°
Depth: 836

Louis Reed
Operator

Louis Reed
Signature

7-27-12
Date

NDY MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Jul-27
Tool Battery Level: 81%
Run Time: 00:53:44
Start Time: 05:02:51

Survey 1 Time 05:11:22
Tool Temp: 37°C / 98°F
INCLINE: 0.24° ± 0.14°
Depth: 867

Louis Reed
Operator

Louis Reed
Signature

7-27-12
Date

NDY MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Jul-27
Tool Battery Level: 81%
Run Time: 00:13:21
Start Time: 23:34:10

Survey 1 Time 23:40:11
Tool Temp: 32°C / 89°F
INCLINE: 0.28° ± 0.14°
Depth: 898

Louis Reed
Operator

Louis Reed
Signature

7-28-12
Date

MD Totco®
www.MDTotco.com
e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Jul-27
Tool Battery Level: 81%
Run Time: 00:42:15
Start Time: 23:59:50
Survey 1 Time 00:09:21
Tool Temp: 31°C / 87°F
INCLINE: 0.38° ± 0.14°
Depth: 930
Louis Reed
Operator
Louis Reed
Signature
7-28-12
Date

MD Totco®
www.MDTotco.com
e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Jul-28
Tool Battery Level: 81%
Run Time: 00:11:50
Start Time: 01:36:28
Survey 1 Time 01:42:29
Tool Temp: 35°C / 94°F
INCLINE: 0.10° ± 0.14°
Depth: 962
Louis Reed
Operator
Louis Reed
Signature
7-28-12
Date

MD Totco®
www.MDTotco.com
e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Jul-28
Tool Battery Level: 81%
Run Time: 00:13:00
Start Time: 02:46:50
Survey 1 Time 02:52:21
Tool Temp: 34°C / 93°F
INCLINE: 0.16° ± 0.14°
Depth: 993
Louis Reed
Operator
Louis Reed
Signature
7-28-12
Date

MD Totco®
www.MDTotco.com
e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Jul-28
Tool Battery Level: 81%
Run Time: 00:11:50
Start Time: 03:42:12
Survey 1 Time 03:48:13
Tool Temp: 35°C / 94°F
INCLINE: 0.31° ± 0.15°
Depth: 1024
Louis Reed
Operator
Louis Reed
Signature
7-28-12
Date

MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Jul-28
Tool Battery Level: 81%
Run Time: 00:14:20
Start Time: 04:43:46

Survey 1 Time 04:49:47
Tool Temp: 35°C / 94°F
INCLINE: 0.38° ± 0.14°
Depth: 1055'

Louis Reed
Operator

Louis Reed
Signature

7-28-12
Date

MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Jul-28
Tool Battery Level: 81%
Run Time: 00:16:00
Start Time: 09:22:03

Survey 1 Time 09:31:04
Tool Temp: 35°C / 94°F
INCLINE: 0.20° ± 0.13°
Depth: 1117'

Operator

J.V
Signature

7-28-12
Date

MD
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Jul-28
Tool Battery Level: 81%
Run Time: 00:19:10
Start Time: 10:37:29

Survey 1 Time 10:45:00
Tool Temp: 35°C / 94°F
INCLINE: 0.18° ± 0.14°
Depth: 1148'

Operator

J.V.
Signature

7-28-12
Date

MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Jul-28
Tool Battery Level: 81%
Run Time: 00:13:40
Start Time: 13:41:16

Survey 1 Time 13:50:47
Tool Temp: 34°C / 93°F
INCLINE: 0.12° ± 0.14°
Depth: 1180'

Operator

J.V.
Signature

7-28-12
Date

MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Jul-28
Tool Battery Level: 81%
Run Time: 00:14:40
Start Time: 15:21:21

Survey 1 Time 15:30:22
Tool Temp: 35°C / 94°F
INCLINE: 0.23° ± 0.14°
Depth: 1210'

Operator

J.V.
Signature

7.28.12
Date

MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Jul-28
Tool Battery Level: 81%
Run Time: 00:14:51
Start Time: 19:21:41

Survey 1 Time 19:29:12
Tool Temp: 35°C / 94°F
INCLINE: 0.41° ± 0.14°
Depth: 1242

Louis Reed
Operator

Louis Reed
Signature

7-29-12
Date

MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Jul-28
Tool Battery Level: 81%
Run Time: 00:24:10
Start Time: 22:44:56

Survey 1 Time 22:52:57
Tool Temp: 36°C / 96°F
INCLINE: 0.46° ± 0.14°
Depth: 1273

Louis Reed
Operator

Louis Reed
Signature

7-29-12
Date

MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Jul-29
Tool Battery Level: 81%
Run Time: 00:20:40
Start Time: 16:55:13

Survey 1 Time 17:07:44
Tool Temp: 35°C / 94°F
INCLINE: 0.26° ± 0.13°
Depth: 1304

Kenneth
Operator

Signature

7-29-12
Date

NEW MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Jul-29
Tool Battery Level: 80%
Run Time: 00:14:00
Start Time: 21:42:21

Survey 1 Time 21:48:52
Tool Temp: 35°C / 94°F
INCLINE: 0.17° ± 0.14°
Depth: 1334

Louis Reed
Operator

Louis Reed
Signature

7-30-12
Date

NEW MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Jul-29
Tool Battery Level: 80%
Run Time: 00:17:10
Start Time: 23:26:58

Survey 1 Time 23:33:29
Tool Temp: 35°C / 94°F
INCLINE: 0.39° ± 0.14°
Depth: 1365

Louis Reed
Operator

Louis Reed
Signature

7-30-12
Date

NEW MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Jul-29
Tool Battery Level: 80%
Run Time: 00:17:10
Start Time: 23:26:58

Survey 1 Time 23:33:29
Tool Temp: 35°C / 94°F
INCLINE: 0.39° ± 0.14°
Depth: 1397

Louis Reed
Operator

Louis Reed
Signature

7-30-12
Date

NEW MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Jul-30
Tool Battery Level: 80%
Run Time: 00:10:50
Start Time: 09:34:35

Survey 1 Time 09:40:36
Tool Temp: 35°C / 94°F
INCLINE: 0.46° ± 0.15°
Depth: 1427

Kenneth McDonald
Operator

Kenneth McDonald
Signature

7-30-12
Date

NDY MD Totco®

www.MDTotco.com

e-Totco S/N: 37926

Reader S/N: 35599

Run Date: 2012-Jul-30

Tool Battery Level: 80%

Run Time: 00:19:20
Start Time: 13:57:32

Survey 1 Time 14:12:03

Tool Temp: 35°C / 94°F

INCLINE: 0.48° ± 0.14°

Depth: 1489

Kenneth McDaniel
Operator

Signature

7-30-12
Date

NDY MD Totco®

www.MDTotco.com

e-Totco S/N: 37926

Reader S/N: 35599

Run Date: 2012-Jul-30

Tool Battery Level: 79%

Run Time: 00:13:01
Start Time: 15:59:47

Survey 1 Time 16:06:48

Tool Temp: 36°C / 96°F

INCLINE: 0.39° ± 0.14°

Depth: 1520

Kenneth McDaniel
Operator

Signature

7-30-12
Date

NDY MD Totco®

www.MDTotco.com

e-Totco S/N: 37926

Reader S/N: 35599

Run Date: 2012-Jul-30

Tool Battery Level: 79%

Run Time: 00:13:10
Start Time: 21:04:03

Survey 1 Time 21:11:34

Tool Temp: 35°C / 94°F

INCLINE: 0.55° ± 0.17°

Depth: 1550

Louis Reed
Operator

Signature

7-31-12
Date

NDY MD Totco®

www.MDTotco.com

e-Totco S/N: 37926

Reader S/N: 35599

Run Date: 2012-Jul-30

Tool Battery Level: 79%

Run Time: 00:12:50
Start Time: 23:01:17

Survey 1 Time 23:06:48

Tool Temp: 36°C / 96°F

INCLINE: 0.51° ± 0.14°

Depth: 1581

Louis Reed
Operator

Signature

7-31-12
Date

NOV MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Jul-31
Tool Battery Level: 79%
Run Time: 00:16:30
Start Time: 03:34:30

Survey 1 Time 03:42:01
Tool Temp: 37°C / 98°F
INCLINE: 0.22° ± 0.14°

Depth: 1612

Lewis Reed
Operator

Lewis Reed
Signature

2-31-12
Date

NOV MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Aug-01
Tool Battery Level: 79%
Run Time: 00:14:10
Start Time: 01:56:48

Survey 1 Time 02:03:49
Tool Temp: 35°C / 94°F
INCLINE: 0.32° ± 0.14°

Depth: 1647

Lewis Reed
Operator

Lewis Reed
Signature

8-1-12
Date

NOV MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Aug-01
Tool Battery Level: 79%
Run Time: 00:11:50
Start Time: 06:46:58

Survey 1 Time 06:52:29
Tool Temp: 38°C / 100°F
INCLINE: 0.34° ± 0.14°

Depth: 1676

Kenneth McDaniel
Operator

Kenneth McDaniel
Signature

8-1-12
Date

NOV MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Aug-01
Tool Battery Level: 79%
Run Time: 00:15:00
Start Time: 16:17:12

Survey 1 Time 16:25:13
Tool Temp: 36°C / 96°F
INCLINE: 0.28° ± 0.14°

Depth: 1708

Kenneth McDaniel
Operator

Kenneth McDaniel
Signature

8-1-12
Date

NEW MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Aug-04
Tool Battery Level: 79%
Run Time: 00:11:30
Start Time: 09:27:30

Survey 1 Time 09:33:31
Tool Temp: 33°C / 91°F
INCLINE: 0.51° ± 0.14°

Depth: 1740

Kenneth McDaniel
Operator

Signature

8-4-12
Date

NEW MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Aug-04
Tool Battery Level: 79%
Run Time: 00:13:41
Start Time: 10:46:41

Survey 1 Time 10:54:12
Tool Temp: 34°C / 93°F
INCLINE: 0.54° ± 0.14°

Depth: 1792

Kenneth McDaniel
Operator

Signature

8-4-12
Date

NEW MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Aug-04
Tool Battery Level: 79%
Run Time: 00:16:11
Start Time: 14:06:50

Survey 1 Time 14:16:21
Tool Temp: 36°C / 96°F
INCLINE: 0.34° ± 0.14°

Depth: 1803

Kenneth McDaniel
Operator

Signature

8-4-12
Date

NEW MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Aug-05
Tool Battery Level: 78%
Run Time: 00:16:30
Start Time: 04:37:04

Survey 1 Time 04:44:05
Tool Temp: 35°C / 94°F
INCLINE: 0.43° ± 0.14°

Depth: 1835

Louis Reed
Operator

Louis Reed
Signature

Date

NEW MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Aug-05
Tool Battery Level: 78%
Run Time: 00:13:30
Start Time: 05:51:02

Survey 1 Time 05:57:33
Tool Temp: 36°C / 96°F
INCLINE: 0.24° ± 0.13°
Depth: 1867

Louis Reed
Operator

Louis Reed
Signature

8-5-12
Date

NEW MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Aug-05
Tool Battery Level: 78%
Run Time: 00:16:40
Start Time: 07:36:16

Survey 1 Time 07:45:17
Tool Temp: 37°C / 98°F
INCLINE: 0.17° ± 0.14°
Depth: 1898

Kenneth McDaniel
Operator

Kenneth McDaniel
Signature

8-5-12
Date

NEW MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Aug-05
Tool Battery Level: 78%
Run Time: 00:29:10
Start Time: 09:17:19

Survey 1 Time 09:32:50
Tool Temp: 37°C / 98°F
INCLINE: 0.09° ± 0.14°
Depth: 1930

Kenneth McDaniel
Operator

Kenneth McDaniel
Signature

8-5-12
Date

NEW MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Aug-05
Tool Battery Level: 78%
Run Time: 00:20:41
Start Time: 10:26:42

Survey 1 Time 10:40:43
Tool Temp: 37°C / 98°F
INCLINE: 0.14° ± 0.15°
Depth: 1961

Kenneth McDaniel
Operator

Kenneth McDaniel
Signature

8-5-12
Date

NOV MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Aug-05
Tool Battery Level: 78%
Run Time: 00:28:00
Start Time: 13:20:49

Survey 1 Time 13:41:20
Tool Temp: 38°C / 100°F
INCLINE: 0.39° ± 0.14°
Depth: 1992
Kenneth McDaniel
Operator
Signature
8-5-12
Date

NOV MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Aug-05
Tool Battery Level: 78%
Run Time: 00:24:50
Start Time: 17:07:31

Survey 1 Time 17:24:02
Tool Temp: 40°C / 103°F
INCLINE: 0.25° ± 0.14°
Depth: 2023
Kenneth McDaniel
Operator
Signature
8-5-12
Date

NOV MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Aug-05
Tool Battery Level: 78%
Run Time: 00:23:00
Start Time: 18:08:46

Survey 1 Time 18:20:47
Tool Temp: 39°C / 102°F
INCLINE: 0.32° ± 0.14°
Depth: 2053
Louis Reed
Operator
Signature
8-6-12
Date

NOV MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Aug-06
Tool Battery Level: 78%
Run Time: 00:24:00
Start Time: 07:52:38

Survey 1 Time 08:07:39
Tool Temp: 37°C / 98°F
INCLINE: 0.23° ± 0.15°
Depth: 2085
Kenneth McDaniel
Operator
Signature
8-6-12
Date

NOV MD Totco®

www.MDTotco.com

e-Totco S/N: 37926

Reader S/N: 35599

Run Date: 2012-Aug-06

Tool Battery Level: 78%

Run Time: 00:19:40
Start Time: 09:03:12

Survey 1 Time 09:15:13

Tool Temp: 37°C / 98°F

INCLINE: 0.46° ± 0.14°

Depth: 2116

Kenneth McDaniel
Operator

Signature

8-6-12
Date

NOV MD Totco®

www.MDTotco.com

e-Totco S/N: 37926

Reader S/N: 35599

Run Date: 2012-Aug-06

Tool Battery Level: 78%

Run Time: 00:23:21
Start Time: 14:07:16

Survey 1 Time 14:24:47

Tool Temp: 40°C / 103°F

INCLINE: 0.58° ± 0.14°

Depth: 2148

Kenneth McDaniel
Operator

Signature

8-6-12
Date

NOV MD Totco®

www.MDTotco.com

e-Totco S/N: 37926

Reader S/N: 35599

Run Date: 2012-Aug-06

Tool Battery Level: 78%

Run Time: 00:20:00
Start Time: 20:51:30

Survey 1 Time 21:00:01

Tool Temp: 40°C / 103°F

INCLINE: 0.08° ± 0.14°

Depth: 2174

Louis Reed
Operator

Signature

8-7-12
Date

www.MDTotco.com

e-Totco S/N: 37926

Reader S/N: 35599

Run Date: 2012-Aug-07

Tool Battery Level: 78%

Run Time: 00:22:10
Start Time: 05:26:36

Survey 1 Time 05:37:07

Tool Temp: 40°C / 103°F

INCLINE: 0.49° ± 0.14°

Depth: 2273

Louis Reed
Operator

Louis Reed
Signature

Date

www.MDTotco.com

e-Totco S/N: 37926

Reader S/N: 35599

Run Date: 2012-Aug-07

Tool Battery Level: 78%

Run Time: 00:21:00
Start Time: 03:15:52

Survey 1 Time 03:25:53

Tool Temp: 40°C / 103°F

INCLINE: 0.44° ± 0.15°

Depth: 2242

Louis Reed
Operator

Louis Reed
Signature

8-7-12
Date

NEW MD Totco®

www.MDTotco.com

e-Totco S/N: 37926

Reader S/N: 35599

Run Date: 2012-Aug-07

Tool Battery Level: 78%

Run Time: 00:20:00
Start Time: 01:45:41

Survey 1 Time 01:56:12

Tool Temp: 40°C / 103°F

INCLINE: 0.04° ± 0.14°

Depth: 2211

Louis Reed
Operator

Louis Reed
Signature

8-7-12
Date

NEW MD Totco®

www.MDTotco.com

e-Totco S/N: 37926

Reader S/N: 35599

Run Date: 2012-Aug-07

Tool Battery Level: 77%

Run Time: 01:25:10
Start Time: 15:21:37

Survey 1 Time 16:40:08

Tool Temp: 40°C / 103°F

INCLINE: 0.31° ± 0.14°

Depth: 2368

Kenneth McDaniel
Operator

Signature

8-7-12
Date

NEW MD Totco®

www.MDTotco.com

e-Totco S/N: 37926

Reader S/N: 35599

Run Date: 2012-Aug-07

Tool Battery Level: 77%

Run Time: 00:19:51
Start Time: 12:38:26

Survey 1 Time 12:49:27

Tool Temp: 40°C / 103°F

INCLINE: 0.35° ± 0.14°

Depth: 2336

Kenneth McDaniel
Operator

Signature

8-7-12

NEW MD Totco®

www.MDTotco.com

e-Totco S/N: 37926

Reader S/N: 35599

Run Date: 2012-Aug-07

Tool Battery Level: 78%

Run Time: 00:20:10
Start Time: 09:04:58

Survey 1 Time 09:15:59

Tool Temp: 40°C / 103°F

INCLINE: 0.18° ± 0.14°

Depth: 2304

Kenneth McDaniel
Operator

ww.MDTotco.com

:o S/N: 37926

· S/N: 35599

ate: 2012-Aug-08

Battery Level: 77%

ime: 00:28:10
Time: 00:58:01

y 1 Time 01:11:02

Temp: 41°C / 105°F

NE: 0.19° ± 0.14°

: 2493

uis Reed
Operator

Signature

8-12
Date

---

www.MDTotco.com

e-Totco S/N: 37926

Reader S/N: 35599

Run Date: 2012-Aug-07

Tool Battery Level: 77%

Run Time: 00:16:30
Start Time: 22:41:06

Survey 1 Time 22:47:37

Tool Temp: 40°C / 103°F

INCLINE: 0.22° ± 0.14°

Depth: 2462

Louis Reed
Operator

Signature

8-8-12
Date

---

www.MDTotco.com

e-Totco S/N: 37926

Reader S/N: 35599

Run Date: 2012-Aug-07

Tool Battery Level: 77%

Run Time: 00:22:00
Start Time: 21:09:12

Survey 1 Time 21:20:43

Tool Temp: 40°C / 103°F

INCLINE: 0.19° ± 0.14°

Depth: 2430

Louis Reed
Operator

Signature

8-8-12
Date

MD Totco®

www.MDTotco.com

e-Totco S/N: 37926

Reader S/N: 35599

Run Date: 2012-Aug-07

Tool Battery Level: 77%

Run Time: 00:22:01
Start Time: 18:00:22

Survey 1 Time 18:11:53

Tool Temp: 40°C / 103°F

INCLINE: 0.14° ± 0.14°

Depth: 2399

Louis Reed
Operator

Signature

8-8-12
Date

MD Totco®

www.MDTotco.com

Totco S/N: 37926

ader S/N: 35599

n Date: 2012-Aug-08

ol Battery Level: 77%

n Time: 00:18:10
art Time: 22:01:12

rvey 1 Time 22:08:13

ol Temp: 39°C / 102°F

LINE: 0.25° ± 0.15°

th: 2619

ouis Reed
Operator

Signature

8-9-12
Date

MD Totco®

www.MDTotco.com

e-Totco S/N: 37926

Reader S/N: 35599

Run Date: 2012-Aug-08

Tool Battery Level: 77%

Run Time: 00:37:30
Start Time: 17:37:59

Survey 1 Time 18:06:00

Tool Temp: 40°C / 103°F

INCLINE: 0.08° ± 0.14°

Depth: 2588

Louis Reed
Operator

Signature

MD Totco®

www.MDTotco.com

Totco S/N: 37926

eader S/N: 35599

un Date: 2012-Aug-08

ool Battery Level: 77%

un Time: 02:11:00
tart Time: 12:15:16

urvey 1 Time 14:11:47

ool Temp: 41°C / 105°F

NCLINE: 0.15° ± 0.14°

epth: 2556

Kenneth McDaniel
Operator

Signature

MD Totco®

www.MDTotco.com

e-Totco S/N: 37926

Reader S/N: 35599

Run Date: 2012-Aug-08

Tool Battery Level: 77%

Run Time: 00:36:00
Start Time: 04:22:09

Survey 1 Time 04:29:40

Tool Temp: 41°C / 105°F

INCLINE: 0.19° ± 0.15°

Depth: 2525

Louis Reed
Operator

Signature

.MDTotco.com

S/N: 37926

S/N: 35599

e: 2012-Aug-09

tery Level: 76%

e: 00:20:30
ime: 21:37:10

1 Time 21:45:41

mp: 39°C / 102°F

: 0.29° ± 0.14°

2745

is Reed
Operator

is Reed
Signature

- 10-12
Date

MD Totco®
www.MDTotco.com

e-Totco S/N: 37926

Reader S/N: 35599

Run Date: 2012-Aug-09

Tool Battery Level: 76%

Run Time: 00:22:10
Start Time: 05:20:32

Survey 1 Time 05:29:33

Tool Temp: 42°C / 107°F

INCLINE: 0.31° ± 0.15°

Depth: 2714

Lewis Reed
Operator

Lewis Reed
Signature

8-9-12
Date

MD Totco®
www.MDTotco.com

e-Totco S/N: 37926

Reader S/N: 35599

Run Date: 2012-Aug-09

Tool Battery Level: 76%

Run Time: 00:17:40
Start Time: 03:26:03

Survey 1 Time 03:35:04

Tool Temp: 41°C / 105°F

INCLINE: 0.07° ± 0.52°

Depth: 2683

Lewis Reed
Operator

Lewis Reed
Signature

8-9-12
Date

MD Totco®
www.MDTotco.com

e-Totco S/N: 37926

Reader S/N: 35599

Run Date: 2012-Aug-09

Tool Battery Level: 76%

Run Time: 00:40:10
Start Time: 00:26:29

Survey 1 Time 00:38:30

Tool Temp: 40°C / 103°F

INCLINE: 0.22° ± 0.14°

Depth: 2651

Lewis Reed
Operator

Lewis Reed
Signature

8-9-12
Date

---

co S/N: 37926

S/N: 35599

ate: 2012-Aug-10

Battery Level: 76%

me: 00:43:10
Time: 12:04:10

1 Time 12:35:41

emp: 43°C / 109°F

E: 0.27° ± 0.15°

8-10-12

2890

Operator

Signature

Date

Reader

Run Date: 2012-Aug-09

Tool Battery Level: 76%

Run Time: 00:22:30
Start Time: 23:55:22

Survey 1 Time 00:05:53

Tool Temp: 41°C / 105°F

INCLINE: 0.06° ± 0.14°

Depth: 2839

Lewis Reed
Operator

Lewis Reed
Signature

8-10-12
Date

Reader S/N: 35599

Run Date: 2012-Aug-09

Tool Battery Level: 76%

Run Time: 00:22:30
Start Time: 23:55:22

Survey 1 Time 00:05:53

Tool Temp: 41°C / 105°F

INCLINE: 0.06° ± 0.14°

Depth: 2808

Lewis Reed
Operator

Lewis Reed
Signature

8-10-12
Date

MD Totco®
www.MDTotco.com

e-Totco S/N: 37926

Reader S/N: 35599

Run Date: 2012-Aug-09

Tool Battery Level: 76%

Run Time: 00:22:30
Start Time: 23:55:22

Survey 1 Time 00:05:53

Tool Temp: 41°C / 105°F

INCLINE: 0.06° ± 0.14°

Depth: 2777

Lewis Reed
Operator

Lewis Reed
Signature

MD Totco®
www.MDTotco.com

Totco S/N: 37926
ader S/N: 35599
n Date: 2012-Aug-12
ol Battery Level: 76%
n Time: 00:23:10
art Time: 12:34:26

rvey 1 Time 12:47:57
ol Temp: 42°C / 107°F
CLINE: 0.24° ± 0.14°
pth: 2993.62

Kenneth McDaniel
Operator

Signature

8-12-12
Date

MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Aug-1
Tool Battery Level: 76%
Run Time: 00:19:30
Start Time: 19:53:47

Survey 1 Time 20:04:48
Tool Temp: 41°C / 105°
INCLINE: 0.63° ± 0.14
Depth: 2961

Louis Reed
Operator

Signature

8-12-12
Date

MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Aug-10
Tool Battery Level: 76%
Run Time: 00:19:30
Start Time: 19:53:47

Survey 1 Time 20:04:48
Tool Temp: 41°C / 105°F
INCLINE: 0.63° ± 0.14°
Depth: 2931

Louis Reed
Operator

Signature

8-12-12
Date

MD Totco®
www.MDTotco.com

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Aug-10
Tool Battery Level: 76%
Run Time: 00:19:30
Start Time: 19:53:47

Survey 1 Time 20:04:48
Tool Temp: 41°C / 105°F
INCLINE: 0.63° ± 0.14°
Depth: 2900

Louis Reed
Operator

Signature

8-11-12
Date

·Totco S/N: 37926
ader S/N: 35599
in Date: 2012-Aug-12
ol Battery Level: 75%
n Time: 00:09:30
art Time: 22:13:26

rvey 1 Time 22:16:57
ol Temp: 36°C / 96°F
CLINE: 0.31° ± 0.14°
pth: 3116

ouis Reed
Operator

Signature

8-12-12

---

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Aug-12
Tool Battery Level: 75%
Run Time: 00:10:11
Start Time: 21:05:11

Survey 1 Time 21:10:12
Tool Temp: 36°C / 96°F
INCLINE: 0.50° ± 0.14°
Depth: 3086

Louis Reed
Operator

Signature

8-12-12

---

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Aug-12
Tool Battery Level: 76%
Run Time: 01:04:00
Start Time: 16:34:43

Survey 1 Time 17:29:14
Tool Temp: 42°C / 107°F
INCLINE: 0.54° ± 0.14°
Depth: 3054

Kenneth McDaniel
Operator

Signature

8-12-12

WWW.MDTOTCO.COM

e-Totco S/N: 37926
Reader S/N: 35599
Run Date: 2012-Aug
Tool Battery Level: 7
Run Time: 00:21:
Start Time: 15:21:

Survey 1 Time 15:32:
Tool Temp: 42°C / 10
INCLINE: 0.60° ± 0.
Depth: 3023

Kenneth McDaniel
Operator

Signature

8-12-12

www.MDTotco.com

e-Totco S/N: 37926

Reader S/N: 35599

Run Date: 2012-Aug-13

Tool Battery Level: 75%

Run Time: 00:13:30
Start Time: 07:25:58

Survey 1 Time 07:34:29

Tool Temp: 40°C / 103°F

INCLINE: 0.16° ± 0.14°

Depth: 3207

Kenneth McDaniel
Operator

Signature

8-13-12
Date

MD Totco®

www.MDTotco.com

e-Totco S/N: 37926

Reader S/N: 35599

Run Date: 2012-Aug-10

Tool Battery Level: 76%

Run Time: 00:27:20
Start Time: 17:42:35

Survey 1 Time 17:56:06

Tool Temp: 42°C / 107°F

INCLINE: 0.67° ± 0.14°

Depth: 3177

Lucis Reed
Operator

Signature

Date

MD Totco®

www.MDTotco.com

e-Totco S/N: 37926

Reader S/N: 35599

Run Date: 2012-Aug-12

Tool Battery Level: 75%

Run Time: 00:18:10
Start Time: 23:08:51

Survey 1 Time 23:20:22

Tool Temp: 40°C / 103°F

INCLINE: 0.31° ± 0.14°

Depth: 3146

Lucis Reed
Operator

Lucis Reed
Signature

8-13-12
Date

Alloy Machine Works, Inc.
18102 E. Hardy Rd.
Houston, TX 77073

Date Run:
8/29/2012

Ph (800) 577-5068
Ph (281) 233-0214
Fax (281) 233-0487

Sold To: Alsay, Inc
Address: 6615 Gant Rd.
City, St Zip: Houston, TX

Ship To: Alsay, Inc
Address: 6615 Gant Rd.
CSZ: Houston, TX
Contact: Joe Slavik
Phone:
Fax:

Driller:
Engineer:
Well: Conroe 23

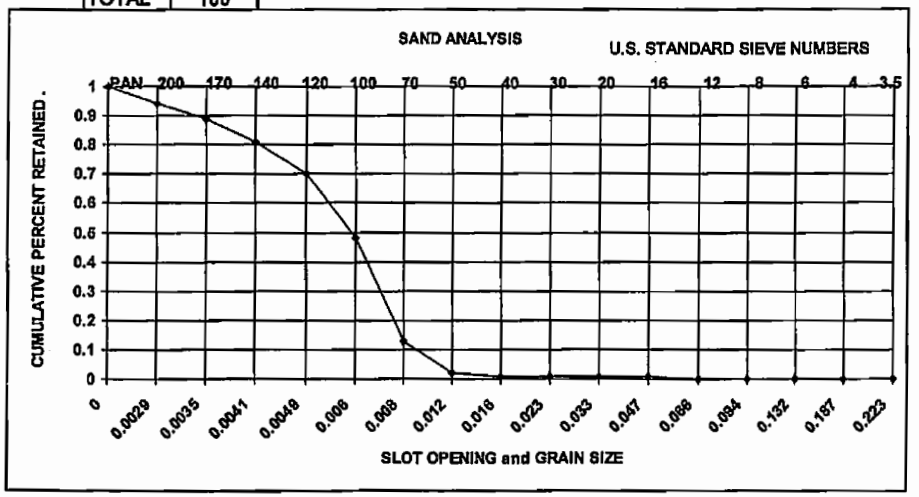
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	1	1%	1%
20	0.033	0	0%	1%
30	0.023	0	0%	1%
40	0.016	0	0%	1%
50	0.012	1	1%	2%
70	0.008	11	11%	13%
100	0.006	35	35%	48%
120	0.0049	22	22%	70%
140	0.0041	11	11%	81%
170	0.0035	8	8%	89%
200	0.0029	5	5%	94%
PAN	0	6	6%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 820 Depth (Ending) 830
Uniformity Coefficient D60/D10 = 1.9104
D60 = 0.0065 D10 = 0.0034
50% Point 0.0059 5*50% Pt 0.0295
Median Gravel Size 0.0295
Calculated Gravel Pack x6 0.035 x4 0.024

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0065



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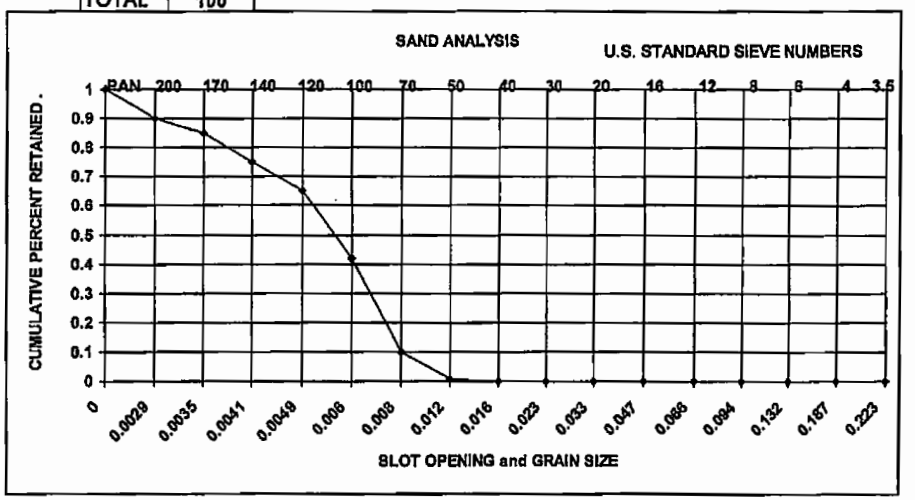
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	1	1%	1%
70	0.008	9	9%	10%
100	0.006	32	32%	42%
120	0.0049	23	23%	65%
140	0.0041	10	10%	75%
170	0.0035	10	10%	85%
200	0.0029	5	5%	90%
PAN	0	10	10%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 830 Depth (Ending) 840
Uniformity Coefficient D60/D10 = 2.1121
D60 = 0.0061 D10 = 0.0029
50% Point 0.0056 5*50% Pt 0.0281
Median Gravel Size 0.0281
Calculated Gravel Pack x6 0.034 x4 0.022

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0061



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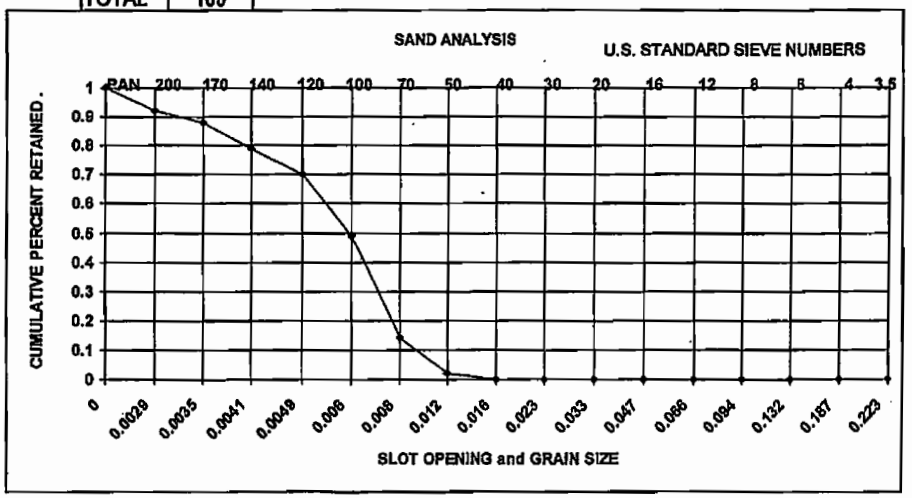
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	2	2%	2%
70	0.008	12	12%	14%
100	0.006	35	35%	49%
120	0.0049	21	21%	70%
140	0.0041	9	9%	79%
170	0.0035	9	9%	88%
200	0.0029	4	4%	92%
PAN	0	8	8%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 840 Depth (Ending) 850
Uniformity Coefficient D60/D10 = 2.2357
D60 = 0.0066 D10 = 0.0032
50% Point 0.0059 5*50% Pt 0.0297
Median Gravel Size 0.0297
Calculated Gravel Pack x6 0.036 x4 0.024

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0065



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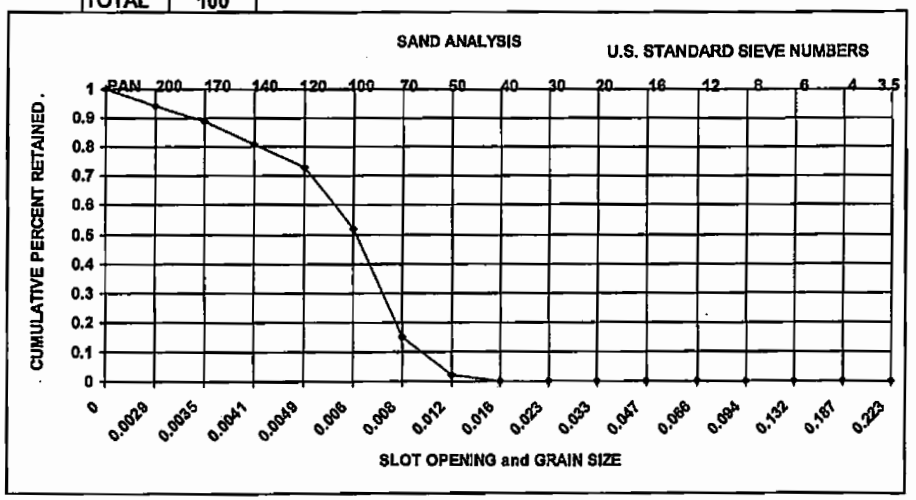
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	2	2%	2%
70	0.008	13	13%	15%
100	0.006	37	37%	52%
120	0.0049	21	21%	73%
140	0.0041	8	8%	81%
170	0.0035	8	8%	89%
200	0.0029	5	5%	94%
PAN	0	6	6%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 860 Depth (Ending) 880
Uniformity Coefficient D60/D10 = 1.9671
D60 = 0.0066 D10 = 0.0034
50% Point 0.0061 5*50% Pt 0.0305
Median Gravel Size 0.0305
Calculated Gravel Pack x6 0.037 x4 0.024

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0066



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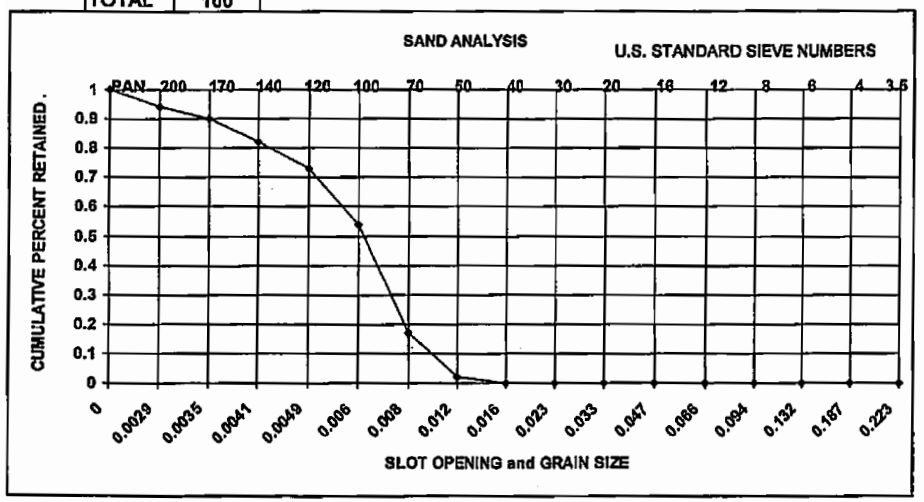
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	2	2%	2%
70	0.008	15	15%	17%
100	0.006	37	37%	54%
120	0.0049	19	19%	73%
140	0.0041	9	9%	82%
170	0.0035	8	8%	90%
200	0.0029	4	4%	94%
PAN	0	6	6%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 860 Depth (Ending) 870
Uniformity Coefficient D60/D10 = 1.9305
D60 = 0.0068 D10 = 0.0035
50% Point 0.0062 5*50% Pt 0.0311
Median Gravel Size 0.0311
Calculated Gravel Pack x6 0.037 x4 0.025

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0068



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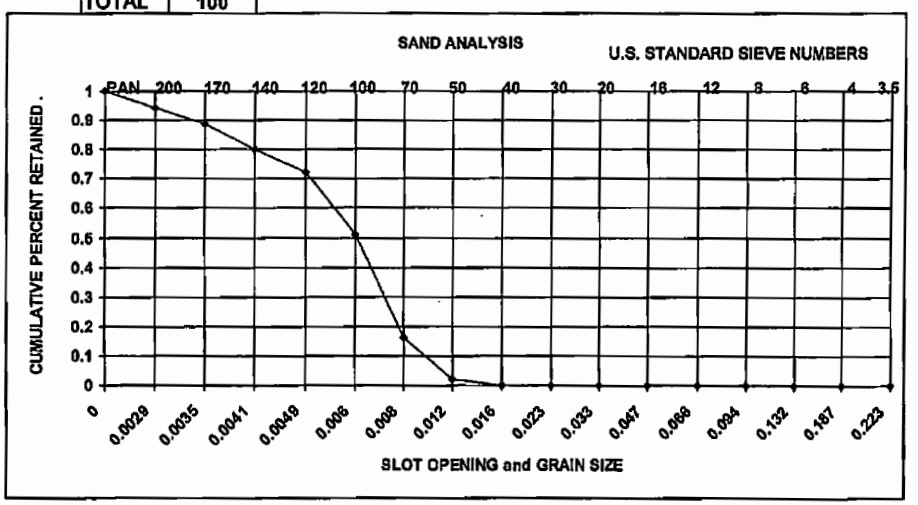
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	2	2%	2%
70	0.008	14	14%	16%
100	0.006	35	35%	51%
120	0.0049	21	21%	72%
140	0.0041	8	8%	80%
170	0.0035	9	9%	89%
200	0.0029	5	5%	94%
PAN	0	6	6%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 870 Depth (Ending) 880
Uniformity Coefficient D60/D10 = 1.9611
D60 = 0.0066 D10 = 0.0034
50% Point 0.0061 5*50% Pt 0.0303
Median Gravel Size 0.0303
Calculated Gravel Pack x6 0.036 x4 0.024

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0066



Alloy Machine Works, Inc.
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Houston, TX 77073

Date Run:
8/29/2012

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Fax:

Driller:
Engineer:
Well: Conroe 23

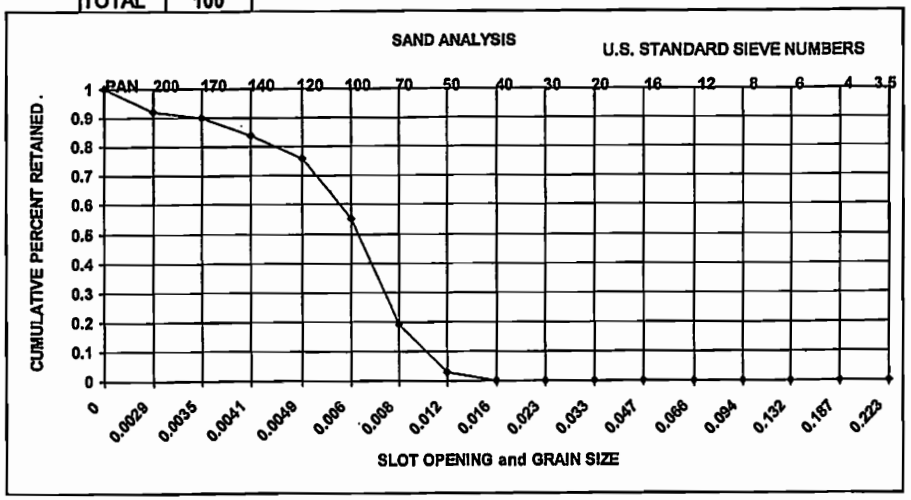
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	3	3%	3%
70	0.008	16	16%	19%
100	0.006	36	36%	55%
120	0.0049	21	21%	76%
140	0.0041	8	8%	84%
170	0.0035	6	6%	90%
200	0.0029	2	2%	92%
PAN	0	8	8%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 880 Depth (Ending) 890
Uniformity Coefficient D80/D10 = 1.9524
D60 = 0.0068 D10 = 0.0035
50% Point 0.0063 5*50% Pt 0.0314
Median Gravel Size 0.0314
Calculated Gravel Pack x6 0.038 x4 0.025

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0088



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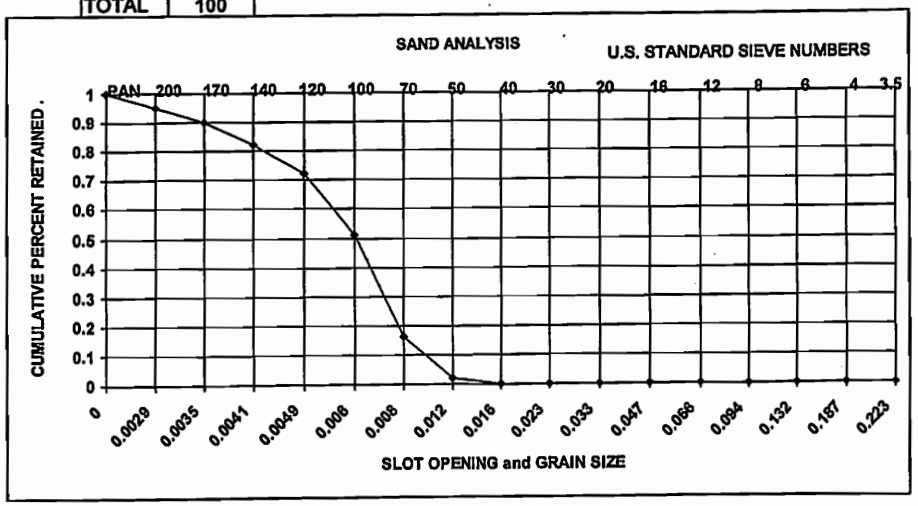
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	2	2%	2%
70	0.008	14	14%	16%
100	0.006	35	35%	51%
120	0.0049	21	21%	72%
140	0.0041	10	10%	82%
170	0.0035	8	8%	90%
200	0.0029	5	5%	95%
PAN	0	5	5%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 890 Depth (Ending) 900
Uniformity Coefficient D80/D10 = 1.8939
D60 = 0.0066 D10 = 0.0035
50% Point 0.0061 5*50% Pt 0.0303
Median Gravel Size 0.0303
Calculated Gravel Pack x6 0.036 x4 0.024

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0066



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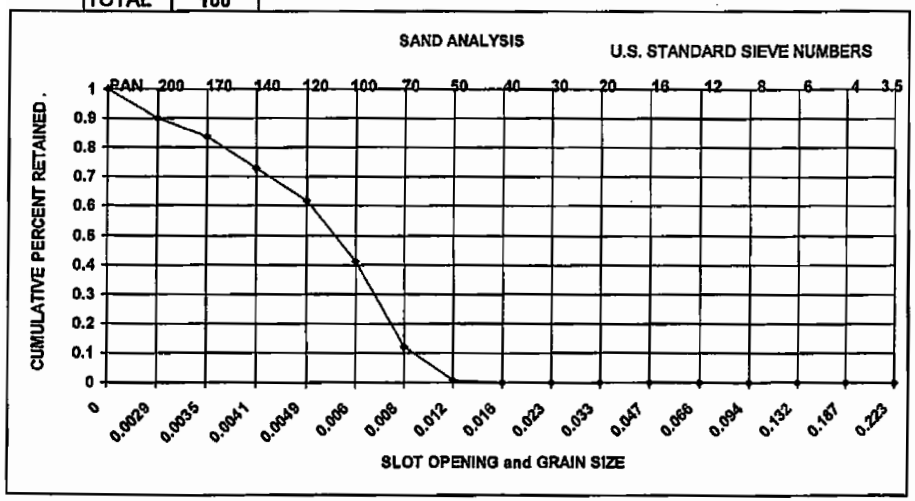
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	1	1%	1%
70	0.008	11	11%	12%
100	0.006	29	29%	41%
120	0.0049	21	21%	62%
140	0.0041	11	11%	73%
170	0.0035	11	11%	84%
200	0.0029	6	6%	90%
PAN	0	10	10%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 900 Depth (Ending) 910
Uniformity Coefficient D60/D10 = 2.0927
D60 = 0.0061 D10 = 0.0029
50% Point 0.0055 5*50% Pt 0.0276
Median Gravel Size 0.0276
Calculated Gravel Pack x6 0.033 x4 0.022

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0061



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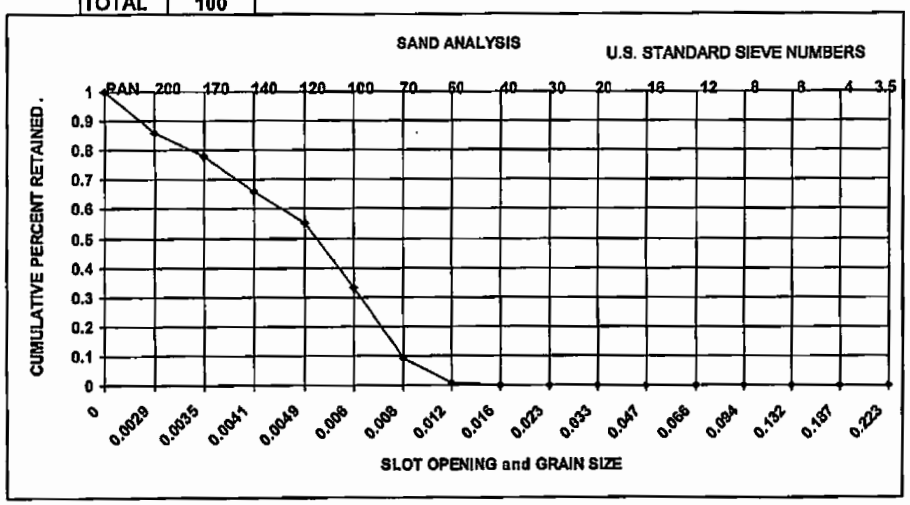
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	1	1%	1%
70	0.008	8	8%	9%
100	0.006	24	24%	33%
120	0.0049	22	22%	55%
140	0.0041	11	11%	66%
170	0.0035	12	12%	78%
200	0.0029	8	8%	86%
PAN	0	14	14%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 910 Depth (Ending) 920
Uniformity Coefficient D60/D10 = 2.7276
D60 = 0.0057 D10 = 0.0021
50% Point 0.0052 5*50% Pt 0.0268
Median Gravel Size 0.0258
Calculated Gravel Pack x6 0.031 x4 0.021

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0056



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Address: 6615 Gant Rd.
City, St Zip: Houston, TX

Ship To: Alsay, Inc
Address: 6615 Gant Rd.
CSZ: Houston, TX
Contact: Joe Slavik
Phone:
Fax:

Driller:
Engineer:
Well: Conroe 23

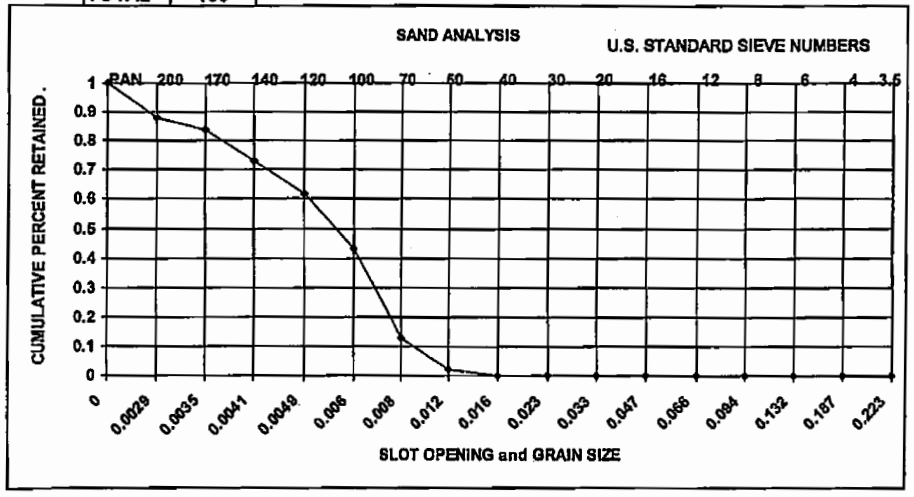
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	2	2%	2%
70	0.008	11	11%	13%
100	0.006	30	30%	43%
120	0.0049	19	19%	62%
140	0.0041	11	11%	73%
170	0.0035	11	11%	84%
200	0.0029	4	4%	88%
PAN	0	12	12%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 920 Depth (Ending) 930
Uniformity Coefficient D60/D10 = 2.5655
D60 = 0.0062 D10 = 0.0024
50% Point 0.0056 5*50% Pt 0.028
Median Gravel Size 0.028
Calculated Gravel Pack x6 0.034 x4 0.022

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0062



Alloy Machine Works, Inc.
18102 E. Hardy Rd.
Houston, TX 77073

Date Run:
8/29/2012

Ph (800) 577-5088
Ph (281) 233-0214
Fax (281) 233-0487

Sold To: Alsay, Inc
Address: 6615 Gant Rd.
City, St Zip: Houston, TX

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Address: 6615 Gant Rd.
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Contact: Joe Slavik
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Fax:

Driller:
Engineer:
Well: Conroe 23

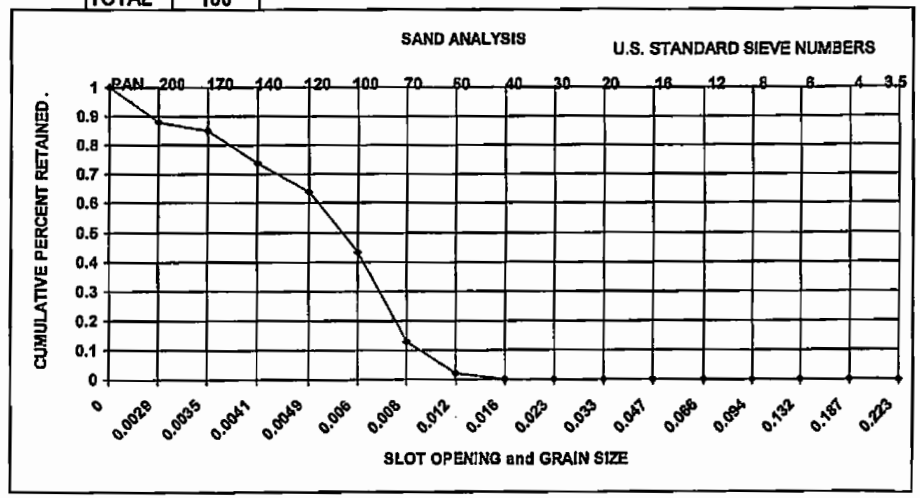
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	2	2%	2%
70	0.008	11	11%	13%
100	0.006	30	30%	43%
120	0.0049	21	21%	64%
140	0.0041	10	10%	74%
170	0.0035	11	11%	85%
200	0.0029	3	3%	88%
PAN	0	12	12%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 930 Depth (Ending) 940
Uniformity Coefficient D60/D10 = 2.5655
D60 = 0.0062 D10 = 0.0024
50% Point 0.0056 5*50% Pt 0.0282
Median Gravel Size 0.0282
Calculated Gravel Pack x6 0.034 x4 0.023

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0062



Alloy Machine Works, Inc.
18102 E. Hardy Rd.
Houston, TX 77073

Date Run:
8/29/2012

Ph (800) 577-6068
Ph (281) 233-0214
Fax (281) 233-0487

Sold To: Alsay, Inc
Address: 6615 Gant Rd.
City, St Zip: Houston, TX

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Address: 6615 Gant Rd.
CSZ: Houston, TX
Contact: Joe Slavik
Phone:
Fax:

Driller:
Engineer:
Well: Conroe 23

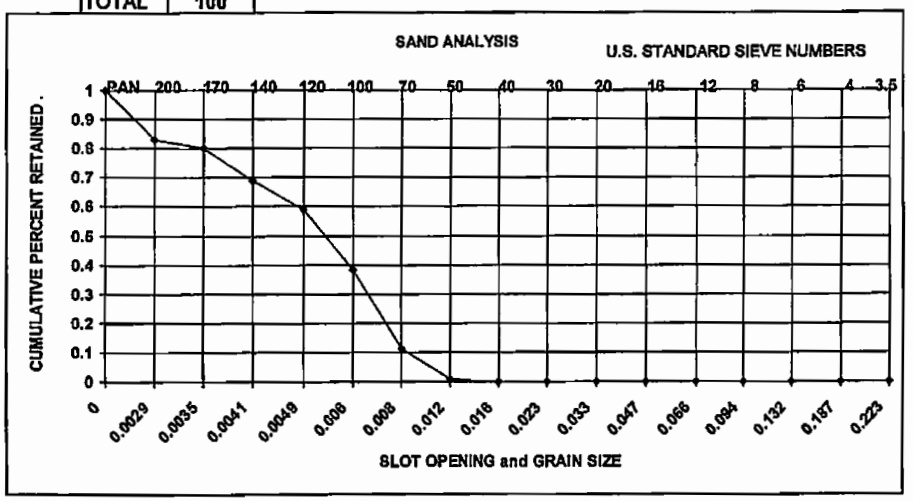
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	1	1%	1%
70	0.008	10	10%	11%
100	0.006	27	27%	38%
120	0.0049	21	21%	59%
140	0.0041	10	10%	69%
170	0.0035	11	11%	80%
200	0.0029	3	3%	83%
PAN	0	17	17%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 940 Depth (Ending) 950
Uniformity Coefficient D60/D10 = 3.4658
D60 = 0.0059 D10 = 0.0017
50% Point 0.0054 5*50% Pt 0.0269
Median Gravel Size 0.0269
Calculated Gravel Pack x6 0.032 x4 0.021

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0059



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Engineer:
Well: Conroe 23

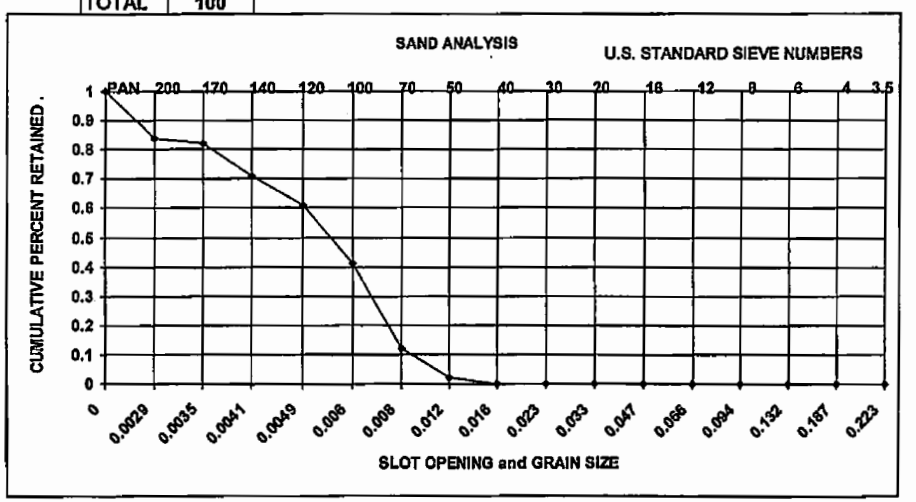
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	2	2%	2%
70	0.008	10	10%	12%
100	0.006	29	29%	41%
120	0.0049	20	20%	61%
140	0.0041	10	10%	71%
170	0.0035	11	11%	82%
200	0.0029	2	2%	84%
PAN	0	16	16%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 950 Depth (Ending) 960
Uniformity Coefficient D60/D10 = 3.3484
D60 = 0.0061 D10 = 0.0018
50% Point 0.0056 5*50% Pt 0.0275
Median Gravel Size 0.0275
Calculated Gravel Pack x6 0.033 x4 0.022

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0061



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Engineer:
Well: Conroe 23

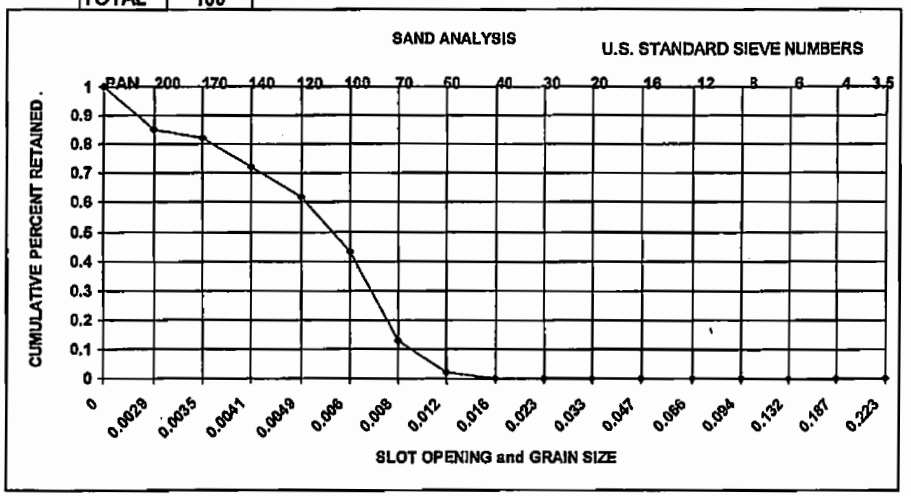
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	2	2%	2%
70	0.008	11	11%	13%
100	0.006	30	30%	43%
120	0.0049	19	19%	62%
140	0.0041	10	10%	72%
170	0.0035	10	10%	82%
200	0.0029	3	3%	85%
PAN	0	15	15%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 960 Depth (Ending) 970
Uniformity Coefficient D60/D10 = 3.2069
D60 = 0.0062 D10 = 0.0019
50% Point 0.0056 5*50% Pt 0.028
Median Gravel Size 0.028
Calculated Gravel Pack x6 0.034 x4 0.022

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0062



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Engineer:
Well: Conroe 23

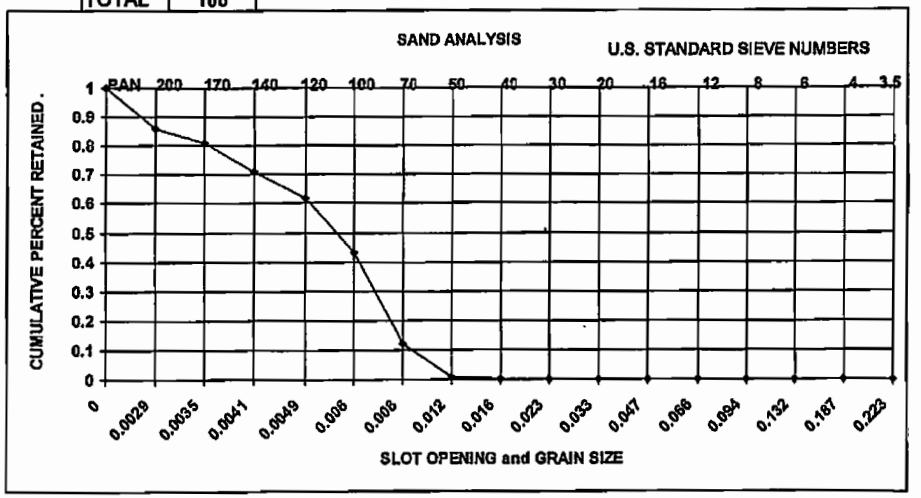
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	1	1%	1%
70	0.008	11	11%	12%
100	0.006	31	31%	43%
120	0.0049	19	19%	62%
140	0.0041	9	9%	71%
170	0.0035	10	10%	81%
200	0.0029	5	5%	86%
PAN	0	14	14%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 970 Depth (Ending) 980
Uniformity Coefficient D60/D10 = 2.99
D60 = 0.0062 D10 = 0.0021
50% Point 0.0056 5*50% Pt 0.028
Median Gravel Size 0.028
Calculated Gravel Pack x6 0.034 x4 0.022

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0062



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Engineer:
Well: Conroe 23

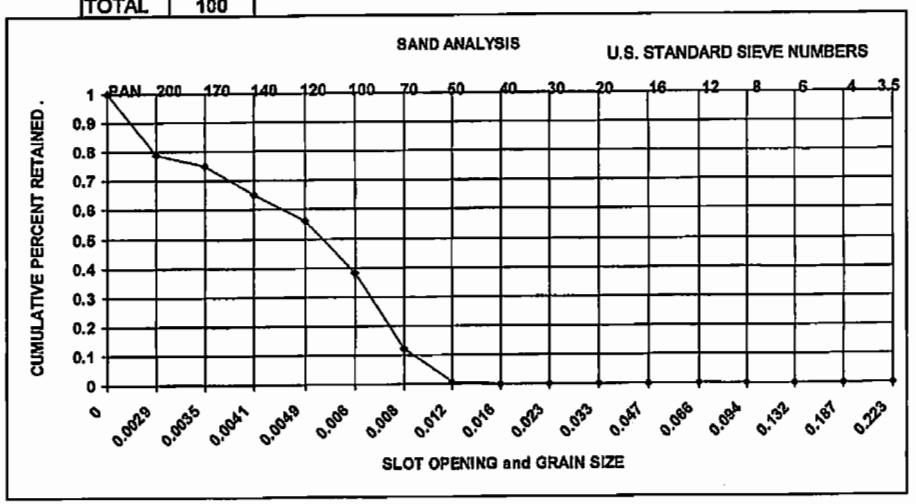
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	1	1%	1%
70	0.008	11	11%	12%
100	0.006	26	26%	38%
120	0.0049	18	18%	56%
140	0.0041	9	9%	65%
170	0.0035	10	10%	75%
200	0.0029	4	4%	79%
PAN	0	21	21%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 1020 Depth (Ending) 1030
Uniformity Coefficient D60/D10 = 4.2563
D60 = 0.0059 D10 = 0.0014
50% Point 0.0053 5*50% Pt 0.0263
Median Gravel Size 0.0263
Calculated Gravel Pack x6 0.032 x4 0.021

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0059



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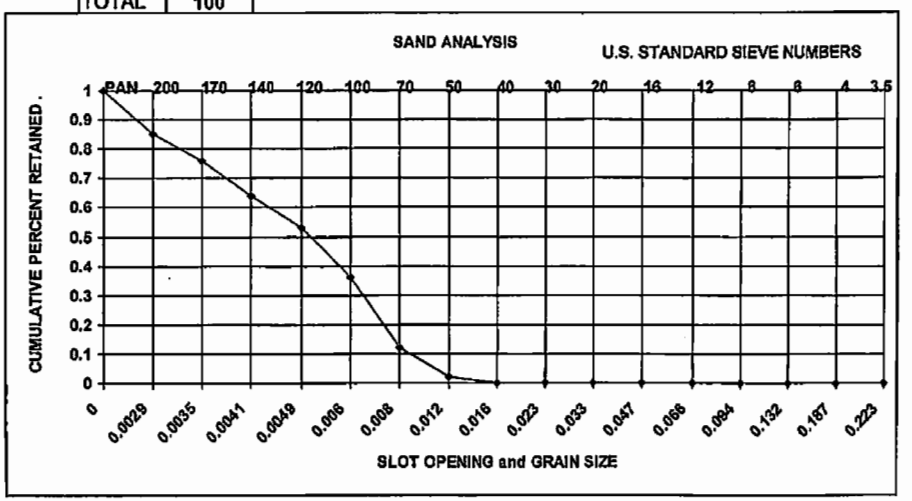
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	2	2%	2%
70	0.008	10	10%	12%
100	0.006	24	24%	36%
120	0.0049	17	17%	53%
140	0.0041	11	11%	64%
170	0.0035	12	12%	76%
200	0.0029	9	9%	85%
PAN	0	15	15%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 1030 Depth (Ending) 1040
Uniformity Coefficient D60/D10 = 2.9898
D60 = 0.0057 D10 = 0.0019
50% Point 0.0051 5*50% Pt 0.0255
Median Gravel Size 0.0255
Calculated Gravel Pack x8 0.031 x4 0.020

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0057



Alloy Machine Works, Inc.
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Fax:

Driller:
Engineer:
Well: Conroe 23

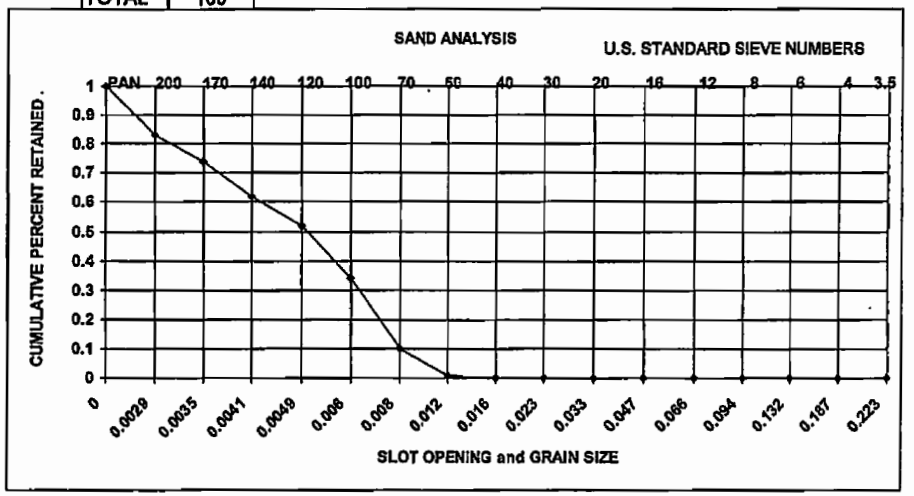
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	1	1%	1%
70	0.008	9	9%	10%
100	0.006	24	24%	34%
120	0.0049	18	18%	52%
140	0.0041	10	10%	62%
170	0.0035	12	12%	74%
200	0.0029	9	9%	83%
PAN	0	17	17%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 1040 Depth (Ending) 1050
Uniformity Coefficient D60/D10 = 3.3023
D60 = 0.0056 D10 = 0.0017
50% Point 0.0050 5*50% Pt 0.0251
Median Gravel Size 0.0251
Calculated Gravel Pack x6 0.030 x4 0.020

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0056



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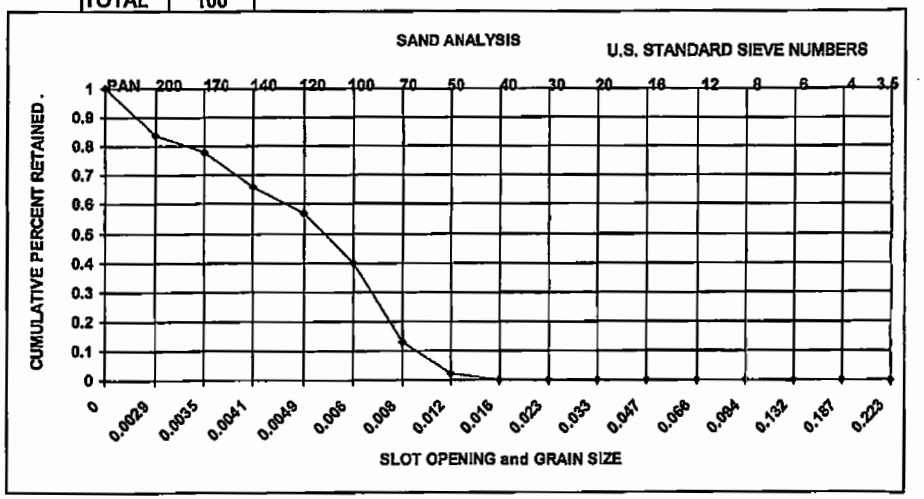
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	2	2%	2%
70	0.008	11	11%	13%
100	0.006	27	27%	40%
120	0.0049	17	17%	57%
140	0.0041	9	9%	66%
170	0.0035	12	12%	78%
200	0.0029	6	6%	84%
PAN	0	16	16%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 1050 Depth (Ending) 1060
Uniformity Coefficient D60/D10 = 3.3103
D60 = 0.008 D10 = 0.0018
50% Point 0.0054 5*50% Pt 0.0268
Median Gravel Size 0.0268
Calculated Gravel Pack x6 0.032 x4 0.021

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0060



Alloy Machine Works, Inc.
18102 E. Hardy Rd.
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Date Run:
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Contact: Joe Slavik
Phone:
Fax:

Driller:
Engineer:
Well: Conroe 23

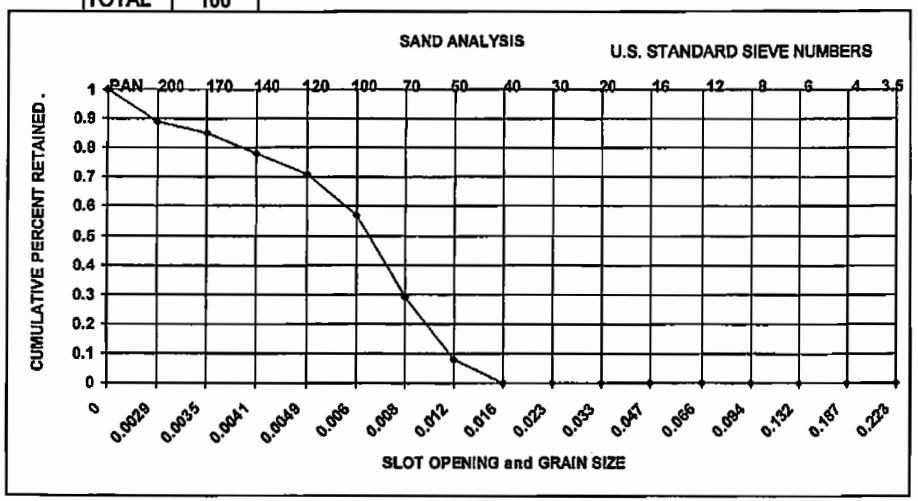
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	8	8%	8%
70	0.008	21	21%	29%
100	0.006	28	28%	57%
120	0.0049	14	14%	71%
140	0.0041	7	7%	78%
170	0.0035	7	7%	85%
200	0.0029	4	4%	89%
PAN	0	11	11%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 1060 Depth (Ending) 1070
Uniformity Coefficient D60/D10 = 2.7366
D60 = 0.0072 D10 = 0.0026
50% Point 0.0066 5*50% Pt 0.0326
Median Gravel Size 0.0325
Calculated Gravel Pack x6 0.039 x4 0.026

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0072



Alloy Machine Works, Inc.
18102 E. Hardy Rd.
Houston, TX 77073

Date Run:
8/29/2012

Ph (800) 677-5068
Ph (281) 233-0214
Fax (281) 233-0487

Sold To: Alsay, Inc
Address: 6615 Gant Rd.
City, St Zip: Houston, TX

Ship To: Alsay, Inc
Address: 6615 Gant Rd.
CSZ: Houston, TX
Contact: Joe Slavik
Phone:
Fax:

Driller:
Engineer:
Well: Conroe 23

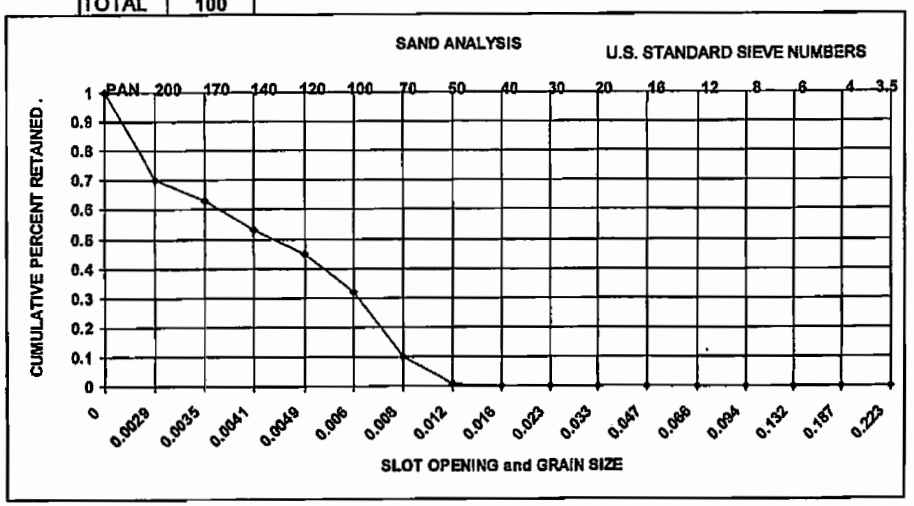
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	1	1%	1%
70	0.008	9	9%	10%
100	0.006	22	22%	32%
120	0.0049	13	13%	45%
140	0.0041	8	8%	53%
170	0.0035	10	10%	63%
200	0.0029	7	7%	70%
PAN	0	30	30%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 1130 Depth (Ending) 1140
Uniformity Coefficient D60/D10 = 5.5066
D60 = 0.0053 D10 = 0.001
50% Point 0.0044 5*50% Pt 0.022
Median Gravel Size 0.022
Calculated Gravel Pack x6 0.026 x4 0.018

	Slot	Gravel
Recommended	.012	20-40 (.0331-.0165)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0053



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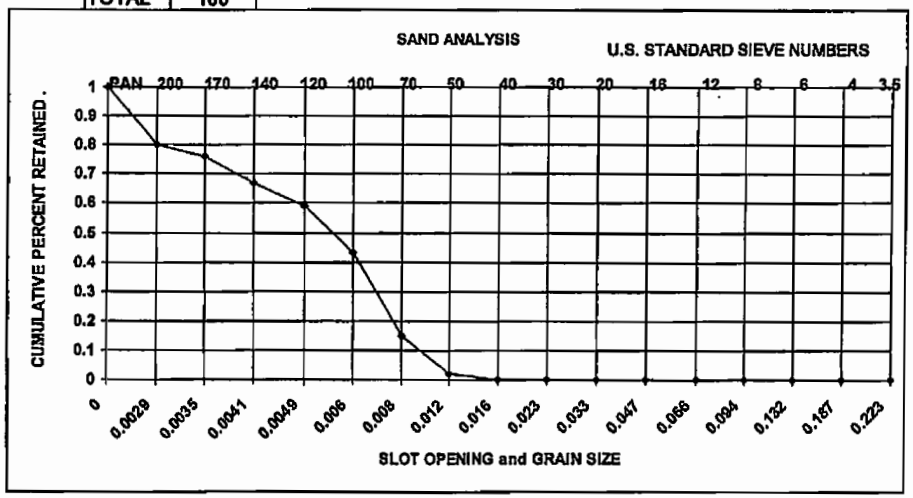
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	2	2%	2%
70	0.008	13	13%	15%
100	0.006	28	28%	43%
120	0.0049	16	16%	59%
140	0.0041	8	8%	67%
170	0.0035	9	9%	76%
200	0.0029	4	4%	80%
PAN	0	20	20%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 1140 Depth (Ending) 1150
Uniformity Coefficient D60/D10 = 4.2857
D60 = 0.0062 D10 = 0.0015
50% Point 0.0055 5*50% Pt 0.0276
Median Gravel Size 0.0276
Calculated Gravel Pack x6 0.033 x4 0.022

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0062



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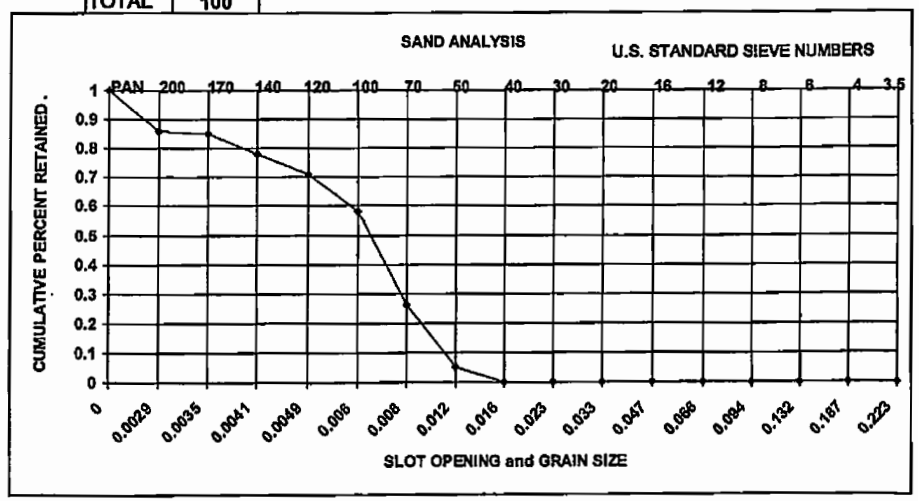
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	5	5%	5%
70	0.008	21	21%	26%
100	0.006	32	32%	58%
120	0.0049	13	13%	71%
140	0.0041	7	7%	78%
170	0.0035	7	7%	85%
200	0.0029	1	1%	86%
PAN	0	14	14%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 1150 Depth (Ending) 1160
Uniformity Coefficient D60/D10 = 3.4397
D60 = 0.0071 D10 = 0.0021
50% Point 0.0065 5*50% Pt 0.0325
Median Gravel Size 0.0325
Calculated Gravel Pack x6 0.039 x4 0.026

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0071



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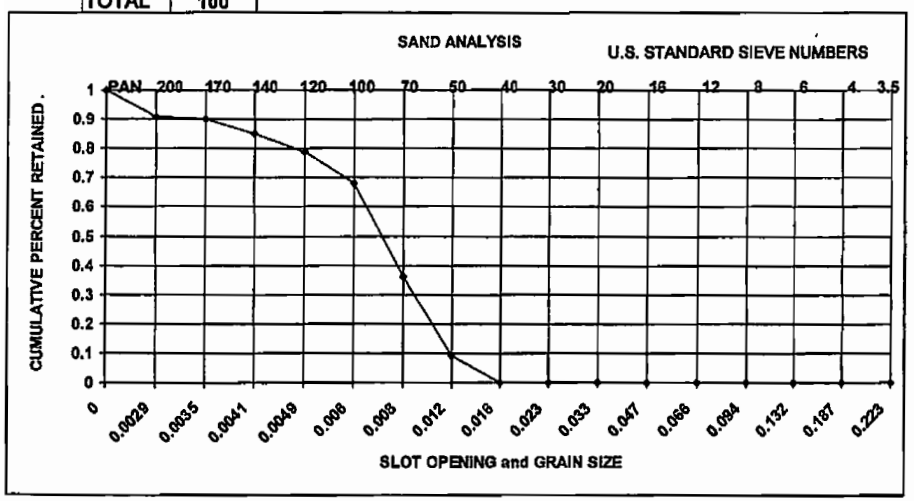
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	9	9%	9%
70	0.008	27	27%	36%
100	0.006	32	32%	68%
120	0.0049	11	11%	79%
140	0.0041	6	6%	85%
170	0.0035	5	5%	90%
200	0.0029	1	1%	91%
PAN	0	9	9%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 1160 Depth (Ending) 1170
Uniformity Coefficient D60/D10 = 2.2143
D60 = 0.0078 D10 = 0.0035
50% Point 0.0071 5*50% Pt 0.0356
Median Gravel Size 0.0356
Calculated Gravel Pack x6 0.043 x4 0.029

	Slot	Gravel
Recommended	.020	12-20 (.066-.0331)
Recommended	.016	16-30 (.047-.023)

Natural Development 40 % Retention
Slot Recommendation 0.0078



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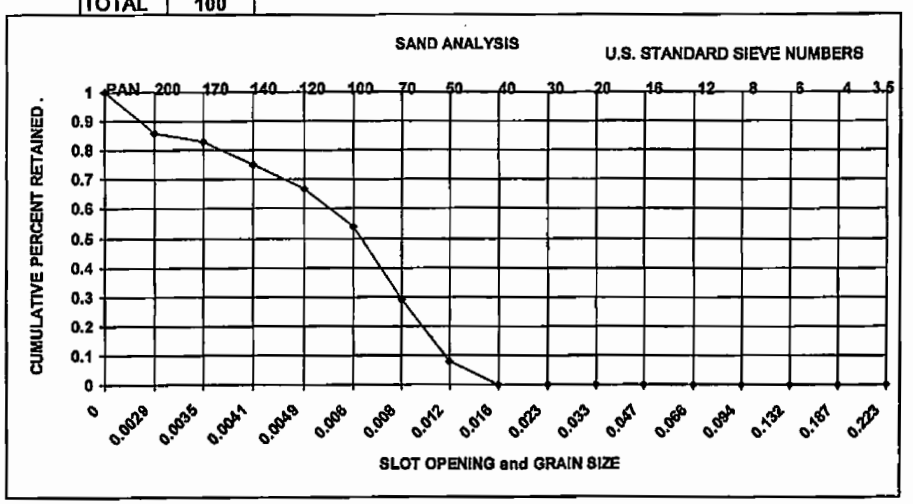
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	8	8%	8%
70	0.008	21	21%	29%
100	0.006	25	25%	54%
120	0.0049	13	13%	67%
140	0.0041	8	8%	75%
170	0.0035	8	8%	83%
200	0.0029	3	3%	86%
PAN	0	14	14%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 1170 Depth (Ending) 1180
Uniformity Coefficient D60/D10 = 3.4372
D60 = 0.0071 D10 = 0.0021
50% Point 0.0063 5*50% Pt 0.0316
Median Gravel Size 0.0316
Calculated Gravel Pack x6 0.038 x4 0.025

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0071



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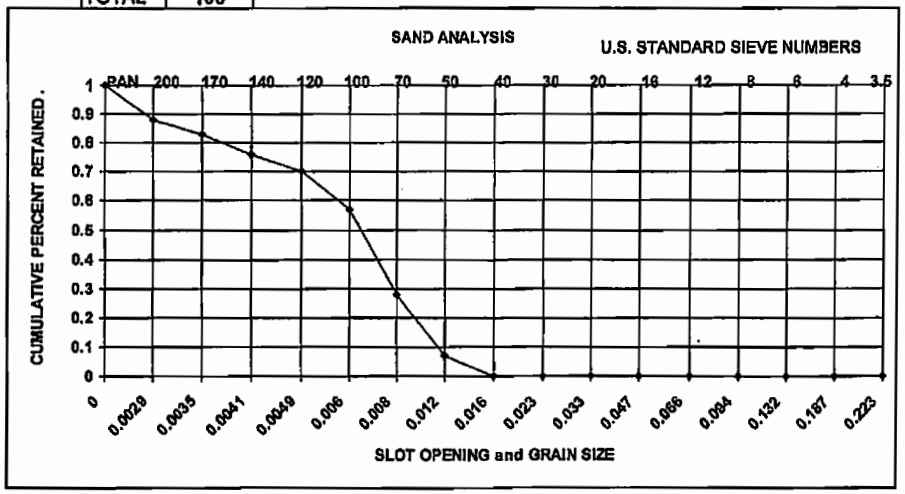
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	7	7%	7%
70	0.008	21	21%	28%
100	0.006	29	29%	57%
120	0.0049	13	13%	70%
140	0.0041	6	6%	76%
170	0.0035	7	7%	83%
200	0.0029	5	5%	88%
PAN	0	12	12%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 1180 Depth (Ending) 1190
Uniformity Coefficient D60/D10 = 2.9679
D60 = 0.0072 D10 = 0.0024
50% Point 0.0066 5*50% Pt 0.0324
Median Gravel Size 0.0324
Calculated Gravel Pack x6 0.039 x4 0.026

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0072



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Fax:

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Engineer:
Well: Conroe 23

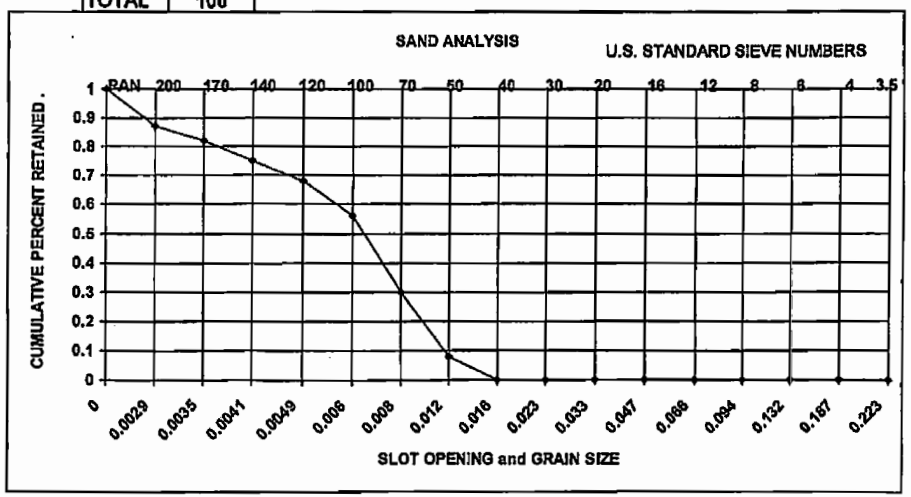
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	8	8%	8%
70	0.008	22	22%	30%
100	0.006	26	26%	56%
120	0.0049	12	12%	68%
140	0.0041	7	7%	75%
170	0.0035	7	7%	82%
200	0.0029	5	5%	87%
PAN	0	13	13%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 1190 Depth (Ending) 1200
Uniformity Coefficient D60/D10 = 3.2414
D60 = 0.0072 D10 = 0.0022
50% Point 0.0066 5*50% Pt 0.0323
Median Gravel Size 0.0323
Calculated Gravel Pack x6 0.039 x4 0.026

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0072



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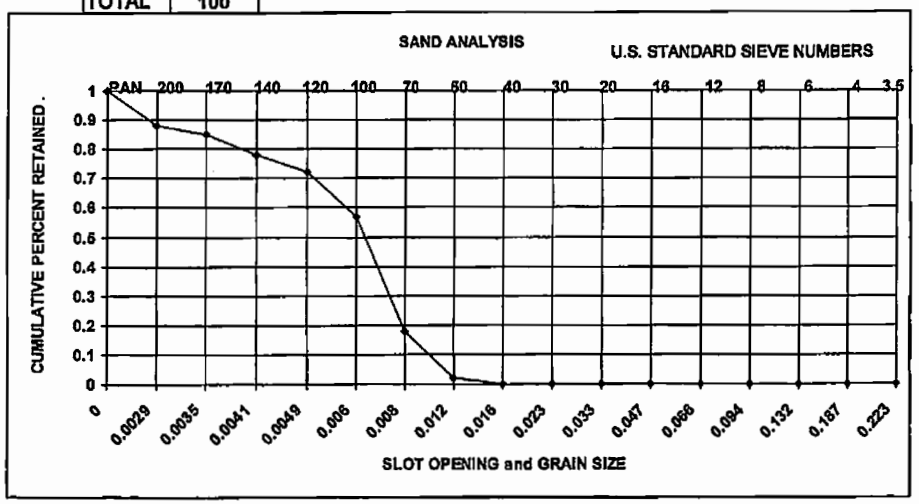
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	2	2%	2%
70	0.008	16	16%	18%
100	0.006	39	39%	57%
120	0.0049	15	15%	72%
140	0.0041	6	6%	78%
170	0.0035	7	7%	85%
200	0.0029	3	3%	88%
PAN	0	12	12%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 1300 Depth (Ending) 1310
Uniformity Coefficient D60/D10 = 2.8435
D60 = 0.0069 D10 = 0.0024
50% Point 0.0064 5*50% Pt 0.0318
Median Gravel Size 0.0318
Calculated Gravel Pack x6 0.038 x4 0.025

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0069



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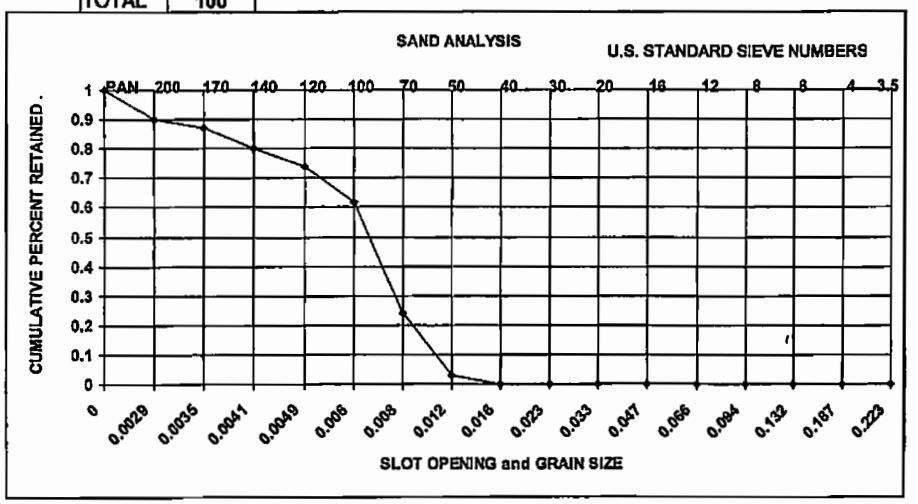
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	3	3%	3%
70	0.008	21	21%	24%
100	0.006	38	38%	62%
120	0.0049	12	12%	74%
140	0.0041	6	6%	80%
170	0.0035	7	7%	87%
200	0.0029	3	3%	90%
PAN	0	10	10%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 1310 Depth (Ending) 1320
Uniformity Coefficient D60/D10 = 2.4682
D60 = 0.0072 D10 = 0.0029
50% Point 0.0066 5*50% Pt 0.0332
Median Gravel Size 0.0332
Calculated Gravel Pack x6 0.040 x4 0.027

	Slot	Gravel
Recommended	.020	12-20 (.066-.0331)
Recommended	.016	16-30 (.047-.023)

Natural Development 40 % Retention
Slot Recommendation 0.0072



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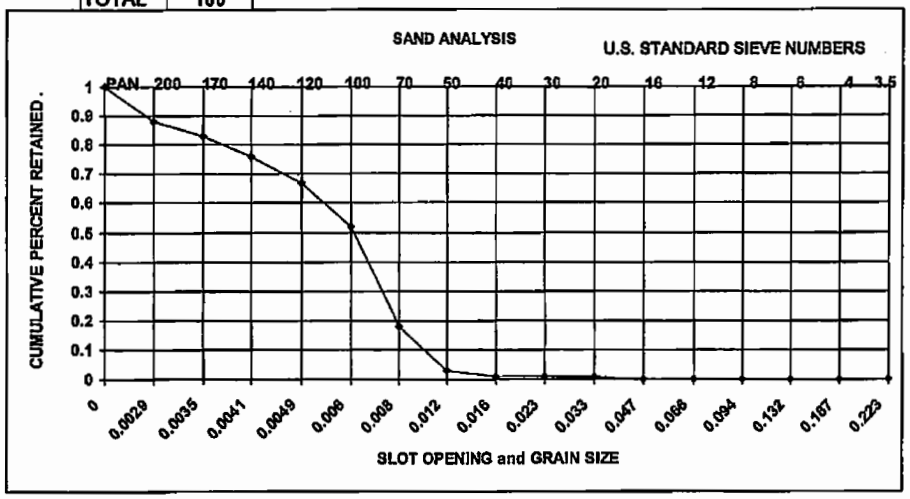
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	1	1%	1%
30	0.023	0	0%	1%
40	0.016	0	0%	1%
50	0.012	2	2%	3%
70	0.008	15	15%	18%
100	0.006	34	34%	52%
120	0.0049	15	15%	67%
140	0.0041	9	9%	76%
170	0.0035	7	7%	83%
200	0.0029	5	5%	88%
PAN	0	12	12%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 1320 Depth (Ending) 1330
Uniformity Coefficient D60/D10 = 2.7748
D60 = 0.0067 D10 = 0.0024
50% Point 0.0061 5*50% Pt 0.0306
Median Gravel Size 0.0306
Calculated Gravel Pack x6 0.037 x4 0.024

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0067



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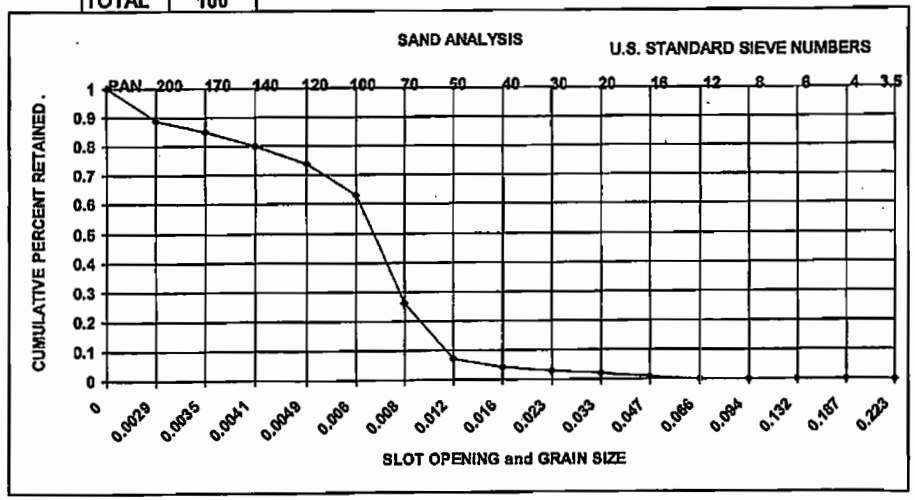
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	1	1%	1%
20	0.033	1	1%	2%
30	0.023	1	1%	3%
40	0.016	1	1%	4%
50	0.012	3	3%	7%
70	0.008	19	19%	26%
100	0.006	37	37%	63%
120	0.0049	11	11%	74%
140	0.0041	6	6%	80%
170	0.0035	5	5%	85%
200	0.0029	4	4%	89%
PAN	0	11	11%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 1330 Depth (Ending) 1340
Uniformity Coefficient D60/D10 = 2.7474
D60 = 0.0072 D10 = 0.0026
50% Point 0.0067 5*50% Pt 0.0335
Median Gravel Size 0.0335
Calculated Gravel Pack x6 0.040 x4 0.027

	Slot	Gravel
Recommended	.020	12-20 (.066-.0331)
Recommended	.016	16-30 (.047-.023)

Natural Development 40 % Retention
Slot Recommendation 0.0072



Alloy Machine Works, Inc.
18102 E. Hardy Rd.
Houston, TX 77073

Date Run:
8/29/2012

Ph (800) 677-5068
Ph (281) 233-0214
Fax (281) 233-0487

Sold To: Alsay, Inc
Address: 6615 Gant Rd.
City, St Zip: Houston, TX

Ship To: Alsay, Inc
Address: 6615 Gant Rd.
CSZ: Houston, TX
Contact: Joe Slavik
Phone:
Fax:

Driller:
Engineer:
Well: Conroe 23

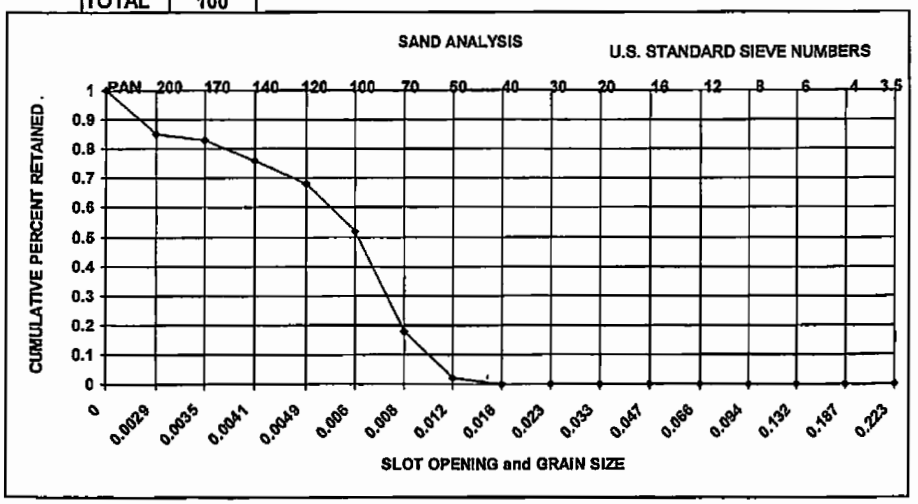
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	2	2%	2%
70	0.008	16	16%	18%
100	0.006	34	34%	52%
120	0.0049	16	16%	68%
140	0.0041	8	8%	76%
170	0.0035	7	7%	83%
200	0.0029	2	2%	85%
PAN	0	15	15%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 1340 Depth (Ending) 1360
Uniformity Coefficient D60/D10 = 3.4686
D60 = 0.0067 D10 = 0.0019
50% Point 0.0061 5*50% Pt 0.0306
Median Gravel Size 0.0306
Calculated Gravel Pack x6 0.037 x4 0.024

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0067



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Well: Conroe 23

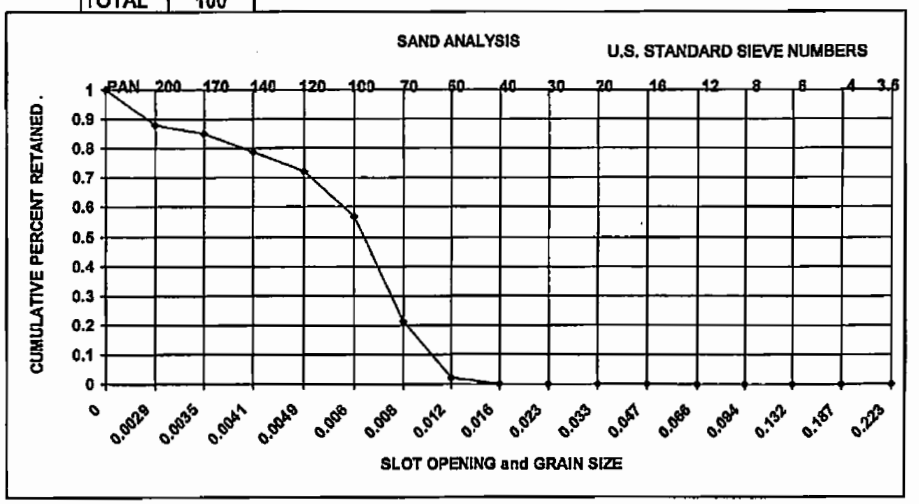
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	2	2%	2%
70	0.008	19	19%	21%
100	0.006	36	36%	57%
120	0.0049	15	15%	72%
140	0.0041	7	7%	79%
170	0.0035	6	6%	85%
200	0.0029	3	3%	88%
PAN	0	12	12%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 1350 Depth (Ending) 1360
Uniformity Coefficient D60/D10 = 2.8736
D60 = 0.0069 D10 = 0.0024
50% Point 0.0064 5*50% Pt 0.0319
Median Gravel Size 0.0319
Calculated Gravel Pack x6 0.038 x4 0.026

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0069



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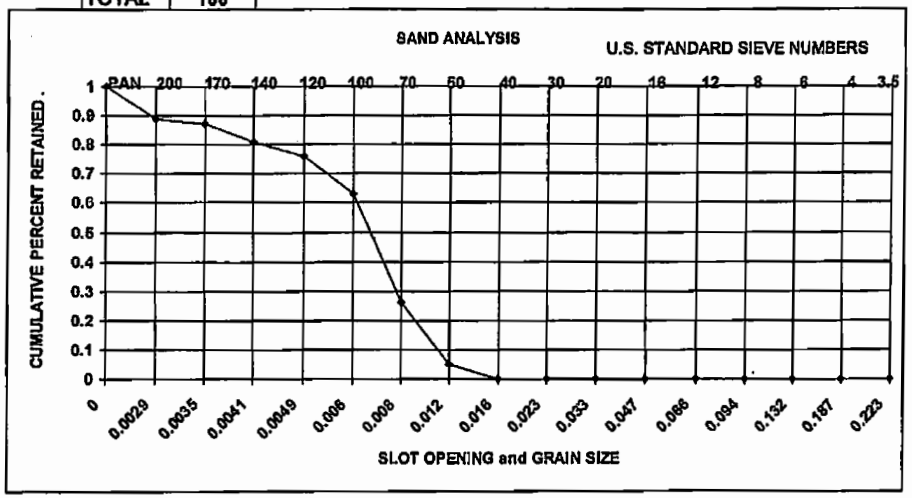
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	5	5%	5%
70	0.008	21	21%	26%
100	0.006	37	37%	63%
120	0.0049	13	13%	76%
140	0.0041	5	5%	81%
170	0.0035	6	6%	87%
200	0.0029	2	2%	89%
PAN	0	11	11%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 1360 Depth (Ending) 1370
Uniformity Coefficient D60/D10 = 2.7474
D60 = 0.0072 D10 = 0.0026
50% Point 0.0067 6*50% Pt 0.0336
Median Gravel Size 0.0336
Calculated Gravel Pack x6 0.040 x4 0.027

	Slot	Gravel
Recommended	.020	12-20 (.066-.0331)
Recommended	.016	16-30 (.047-.023)

Natural Development 40 % Retention
Slot Recommendation 0.0072



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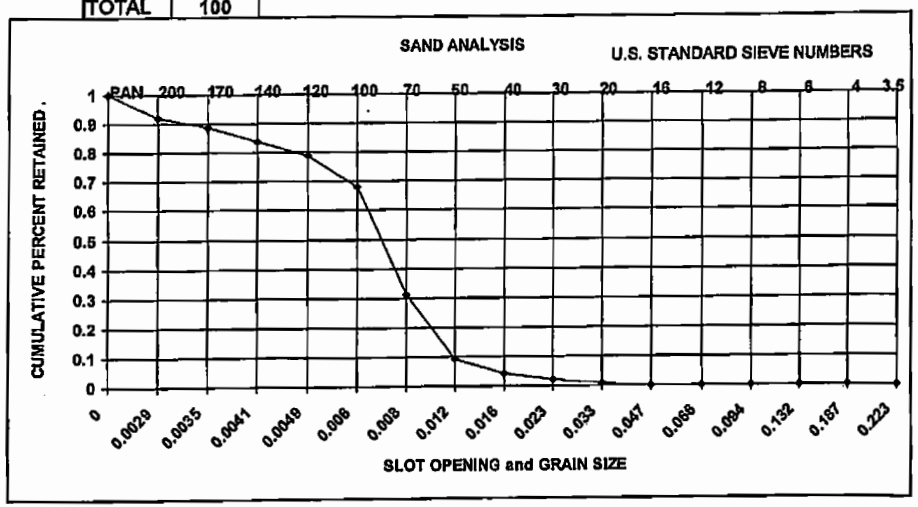
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	1	1%	1%
30	0.023	1	1%	2%
40	0.016	2	2%	4%
50	0.012	5	5%	9%
70	0.008	22	22%	31%
100	0.006	37	37%	68%
120	0.0049	11	11%	79%
140	0.0041	5	5%	84%
170	0.0035	5	5%	89%
200	0.0029	3	3%	92%
PAN	0	8	8%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 1370 Depth (Ending) 1380
Uniformity Coefficient D60/D10 = 2.2768
D60 = 0.0075 D10 = 0.0033
50% Point 0.007 6*50% Pt 0.0349
Median Gravel Size 0.0349
Calculated Gravel Pack x6 0.042 x4 0.028

	Slot	Gravel
Recommended	.020	12-20 (.066-.0331)
Recommended	.016	16-30 (.047-.023)

Natural Development 40 % Retention
Slot Recommendation 0.0075



Alloy Machine Works, Inc.
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Date Run:
8/28/2012

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Contact: Joe Slavik
Phone:
Fax:

Driller:
Engineer:
Well: Conroe 23

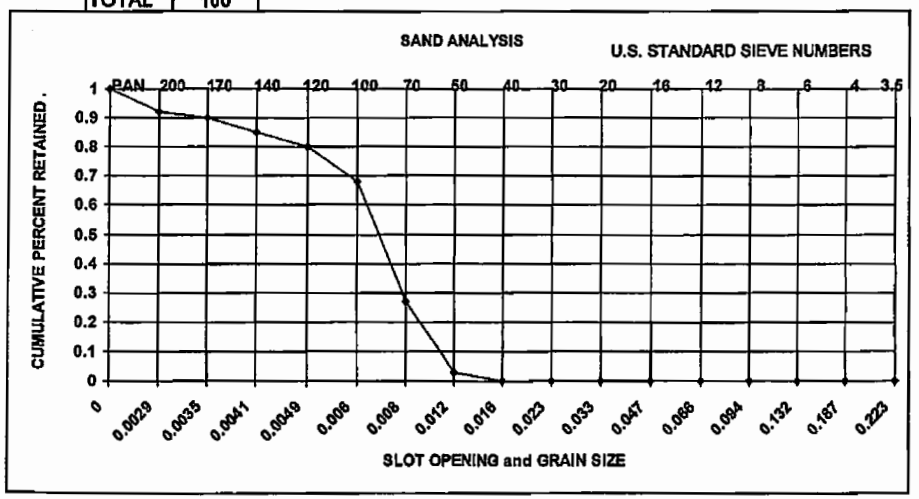
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	3	3%	3%
70	0.008	24	24%	27%
100	0.006	41	41%	68%
120	0.0049	12	12%	80%
140	0.0041	5	5%	85%
170	0.0035	5	5%	90%
200	0.0029	2	2%	92%
PAN	0	8	8%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 1380 Depth (Ending) 1390
Uniformity Coefficient D60/D10 = 2.1046
D60 = 0.0074 D10 = 0.0035
50% Point 0.0069 5*50% Pt 0.0344
Median Gravel Size 0.0344
Calculated Gravel Pack x6 0.041 x4 0.028

	Slot	Gravel
Recommended	.020	12-20 (.066-.0331)
Recommended	.016	16-30 (.047-.023)

Natural Development 40 % Retention
Slot Recommendation 0.0074



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Well: Conroe 23

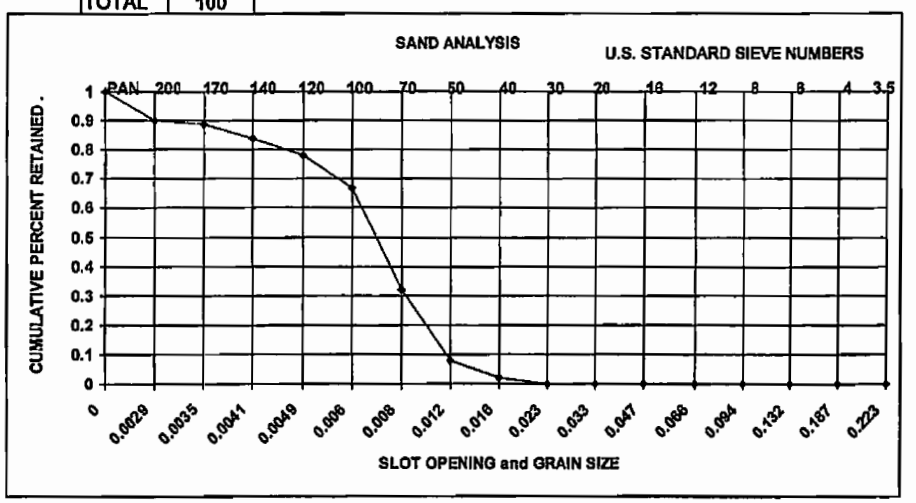
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	2	2%	2%
50	0.012	6	6%	8%
70	0.008	24	24%	32%
100	0.006	35	35%	67%
120	0.0049	11	11%	78%
140	0.0041	6	6%	84%
170	0.0035	5	5%	89%
200	0.0029	1	1%	90%
PAN	0	10	10%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 1390 Depth (Ending) 1400
Uniformity Coefficient D60/D10 = 2.601
D60 = 0.0076 D10 = 0.0029
50% Point 0.007 5*50% Pt 0.0349
Median Gravel Size 0.0349
Calculated Gravel Pack x6 0.042 x4 0.028

	Slot	Gravel
Recommended	.020	12-20 (.066-.0331)
Recommended	.016	16-30 (.047-.023)

Natural Development 40 % Retention
Slot Recommendation 0.0076



Alloy Machine Works, Inc.
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Date Run:
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Phone:
Fax:

Driller:
Engineer:
Well: Conroe 23

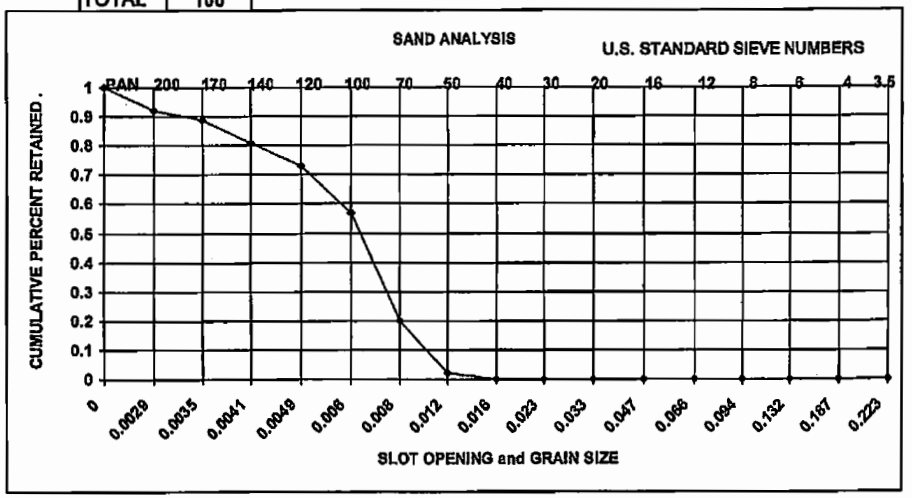
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	2	2%	2%
70	0.008	18	18%	20%
100	0.006	37	37%	57%
120	0.0049	16	16%	73%
140	0.0041	8	8%	81%
170	0.0035	8	8%	89%
200	0.0029	3	3%	92%
PAN	0	8	8%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 1400 Depth (Ending) 1410
Uniformity Coefficient D60/D10 = 2.0966
D60 = 0.0069 D10 = 0.0033
50% Point 0.0084 5*50% Pt 0.0319
Median Gravel Size 0.0319
Calculated Gravel Pack x6 0.038 x4 0.026

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0069



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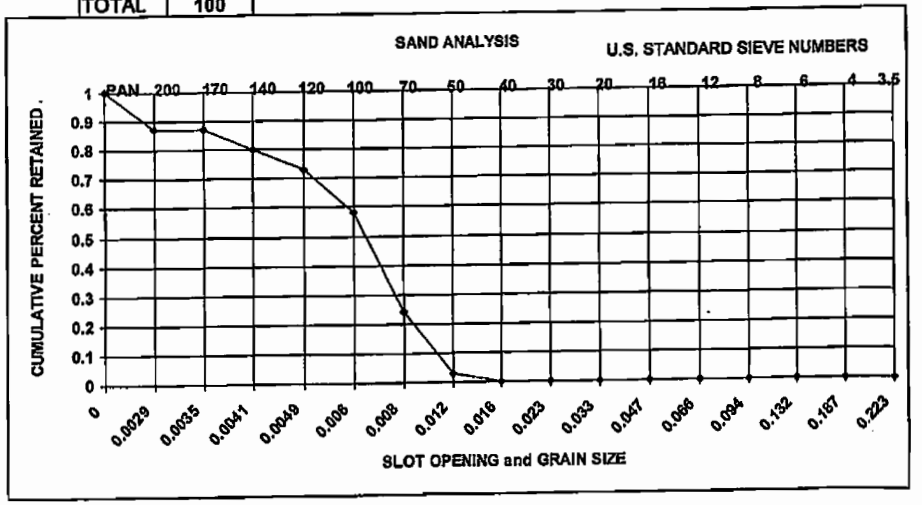
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	3	3%	3%
70	0.008	21	21%	24%
100	0.006	34	34%	58%
120	0.0049	15	15%	73%
140	0.0041	7	7%	80%
170	0.0035	7	7%	87%
200	0.0029	0	0%	87%
PAN	0	13	13%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 1420 Depth (Ending) 1430
Uniformity Coefficient D60/D10 = 3.1643
D60 = 0.0071 D10 = 0.0022
50% Point 0.0085 5*50% Pt 0.0324
Median Gravel Size 0.0324
Calculated Gravel Pack x6 0.039 x4 0.026

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0071



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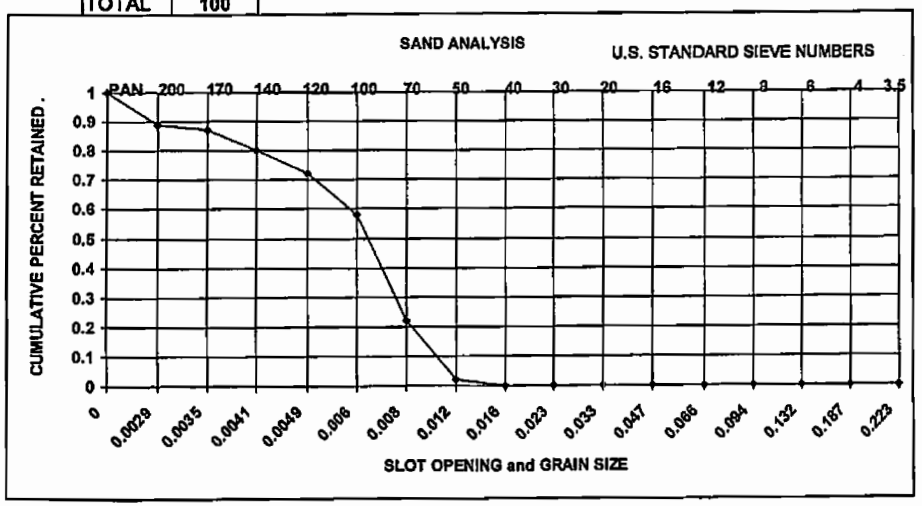
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	2	2%	2%
70	0.008	20	20%	22%
100	0.006	36	36%	58%
120	0.0049	14	14%	72%
140	0.0041	8	8%	80%
170	0.0035	7	7%	87%
200	0.0029	2	2%	89%
PAN	0	11	11%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 1430 Depth (Ending) 1440
Uniformity Coefficient D60/D10 = 2.6662
D60 = 0.007 D10 = 0.0026
50% Point 0.0064 5*50% Pt 0.0322
Median Gravel Size 0.0322
Calculated Gravel Pack x6 0.039 x4 0.026

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0070



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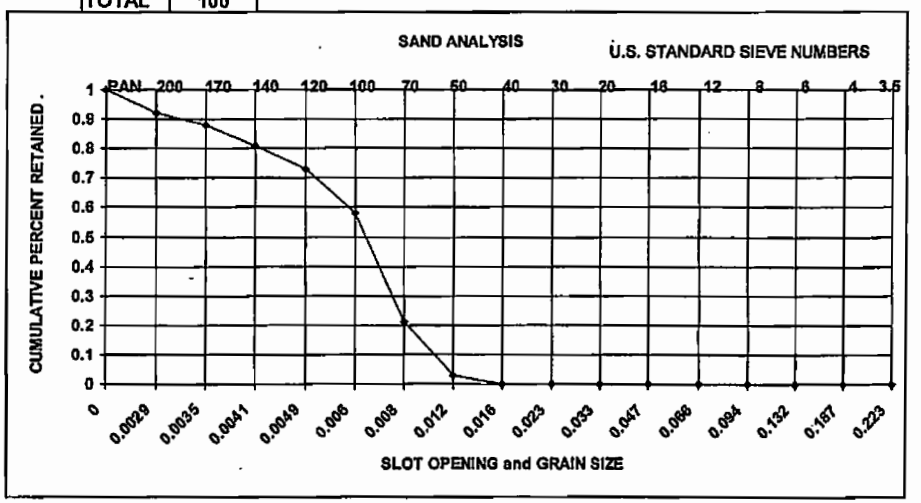
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	3	3%	3%
70	0.008	18	18%	21%
100	0.006	37	37%	58%
120	0.0049	15	15%	73%
140	0.0041	8	8%	81%
170	0.0035	7	7%	88%
200	0.0029	4	4%	92%
PAN	0	8	8%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 1440 Depth (Ending) 1450
Uniformity Coefficient D60/D10 = 2.1791
D60 = 0.007 D10 = 0.0032
50% Point 0.0064 5*50% Pt 0.0322
Median Gravel Size 0.0322
Calculated Gravel Pack x6 0.039 x4 0.026

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0070



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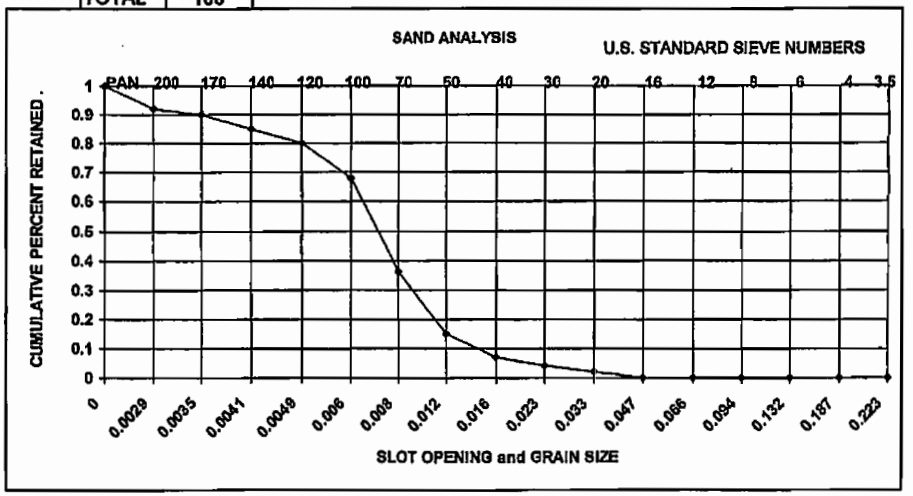
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	2	2%	2%
30	0.023	2	2%	4%
40	0.016	3	3%	7%
50	0.012	8	8%	15%
70	0.008	21	21%	36%
100	0.006	32	32%	68%
120	0.0049	12	12%	80%
140	0.0041	5	5%	85%
170	0.0035	5	5%	90%
200	0.0029	2	2%	92%
PAN	0	8	8%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 1460 Depth (Ending) 1480
Uniformity Coefficient D60/D10 = 2.2143
D60 = 0.0078 D10 = 0.0035
50% Point 0.0071 5*50% Pt 0.0356
Median Gravel Size 0.0356
Calculated Gravel Pack x6 0.043 x4 0.029

	Slot	Gravel
Recommended	.020	12-20 (.066-.0331)
Recommended	.016	16-30 (.047-.023)

Natural Development 40 % Retention
Slot Recommendation 0.0078



Alloy Machine Works, Inc.
18102 E. Hardy Rd.
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Date Run:
8/29/2012

Ph (800) 577-5088
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Fax (281) 233-0487

Sold To: Alsay, Inc
Address: 6615 Gant Rd.
City, St Zip: Houston, TX

Ship To: Alsay, Inc
Address: 6615 Gant Rd.
CSZ: Houston, TX
Contact: Joe Slavik
Phone:
Fax:

Driller:
Engineer:
Well: Conroe 23

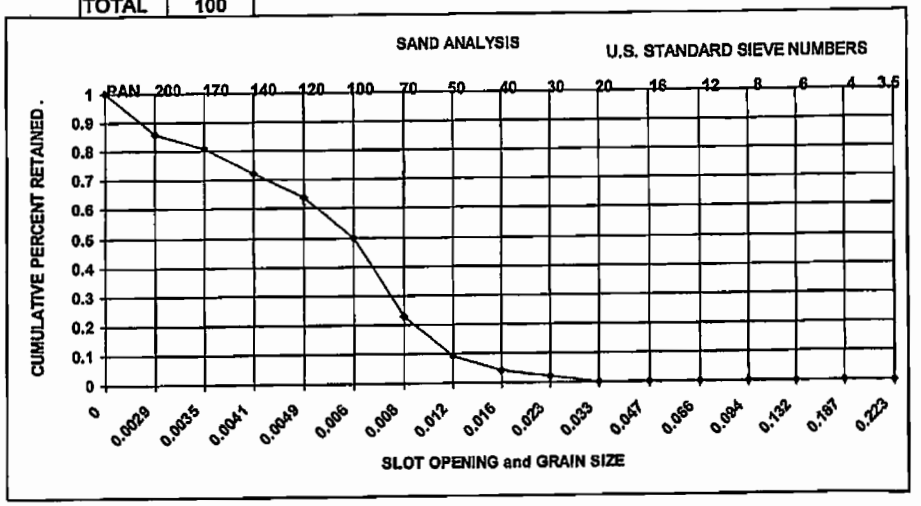
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	2	2%	2%
40	0.016	2	2%	4%
50	0.012	5	5%	9%
70	0.008	14	14%	23%
100	0.006	27	27%	50%
120	0.0049	14	14%	64%
140	0.0041	8	8%	72%
170	0.0035	9	9%	81%
200	0.0029	5	5%	86%
PAN	0	14	14%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 1920 Depth (Ending) 1930
Uniformity Coefficient D60/D10 = 3.2642
D60 = 0.0067 D10 = 0.0021
50% Point 0.008 5*50% Pt 0.0300
Median Gravel Size 0.0300
Calculated Gravel Pack x6 0.036 x4 0.024

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0067



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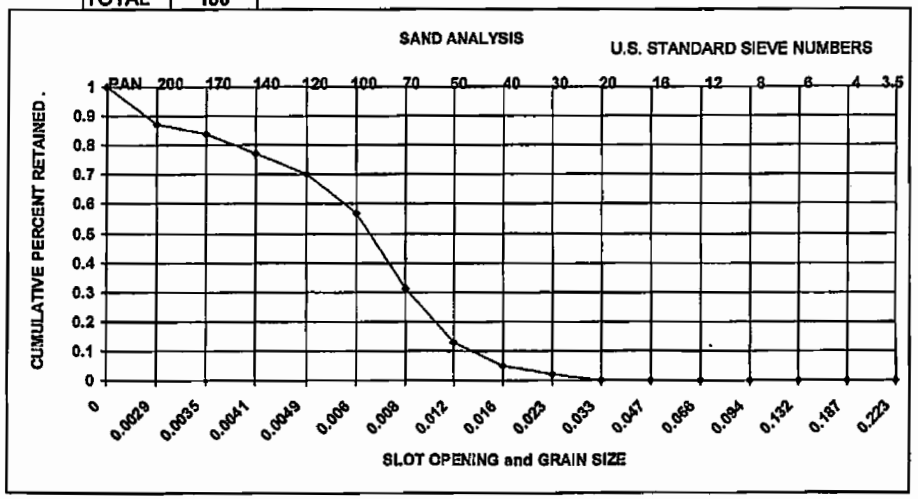
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	2	2%	2%
40	0.016	3	3%	5%
50	0.012	8	8%	13%
70	0.008	18	18%	31%
100	0.006	26	26%	57%
120	0.0049	13	13%	70%
140	0.0041	7	7%	77%
170	0.0035	7	7%	84%
200	0.0029	3	3%	87%
PAN	0	13	13%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 1930 Depth (Ending) 1940
Uniformity Coefficient D60/D10 = 3.2759
D60 = 0.0073 D10 = 0.0022
50% Point 0.0065 5*50% Pt 0.0327
Median Gravel Size 0.0327
Calculated Gravel Pack x6 0.039 x4 0.026

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0073



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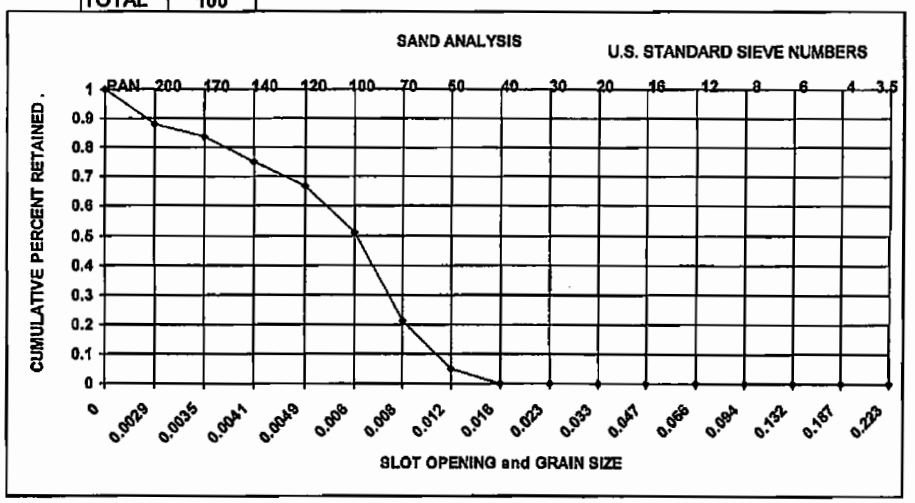
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	5	5%	5%
70	0.008	16	16%	21%
100	0.006	30	30%	51%
120	0.0049	16	16%	67%
140	0.0041	8	8%	75%
170	0.0035	9	9%	84%
200	0.0029	4	4%	88%
PAN	0	12	12%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 1940 Depth (Ending) 1950
Uniformity Coefficient D60/D10 = 2.7862
D60 = 0.0067 D10 = 0.0024
50% Point 0.0061 5*50% Pt 0.0303
Median Gravel Size 0.0303
Calculated Gravel Pack x6 0.036 x4 0.024

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0067



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3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	5	5%	5%
70	0.008	24	24%	29%
100	0.006	32	32%	61%
120	0.0049	11	11%	72%
140	0.0041	7	7%	79%
170	0.0035	6	6%	85%
200	0.0029	5	5%	90%
PAN	0	10	10%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 1950 Depth (Ending) 1960

Uniformity Coefficient D60/D10 = 2.5216

D60 = 0.0073 D10 = 0.0029

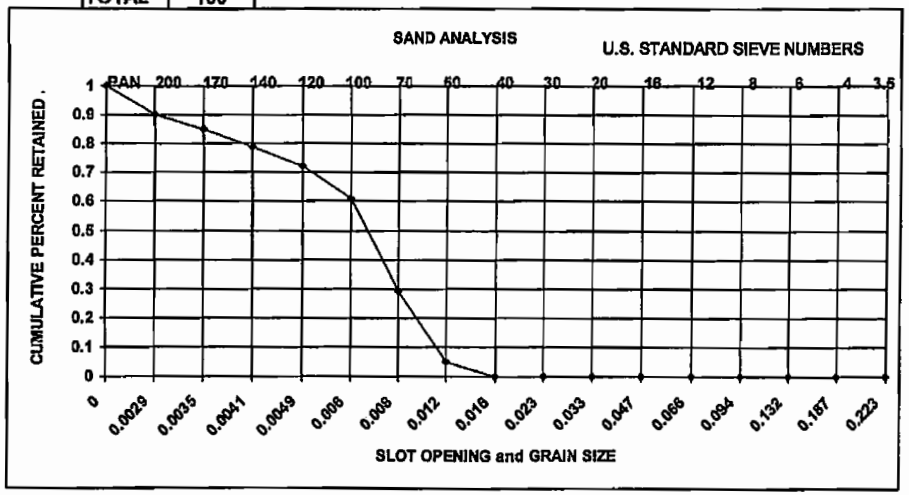
50% Point 0.0067 5*50% Pt 0.0334

Median Gravel Size 0.0334

Calculated Gravel Pack x6 0.040 x4 0.027

	Slot	Gravel
Recommended	.020	12-20 (.066-.0331)
Recommended	.016	16-30 (.047-.023)

Natural Development 40 % Retention
Slot Recommendation 0.0073



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3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	1	1%	1%
20	0.033	1	1%	2%
30	0.023	2	2%	4%
40	0.016	2	2%	6%
50	0.012	9	9%	15%
70	0.008	21	21%	36%
100	0.006	27	27%	63%
120	0.0049	11	11%	74%
140	0.0041	7	7%	81%
170	0.0035	7	7%	88%
200	0.0029	4	4%	92%
PAN	0	8	8%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 1960 Depth (Ending) 1970

Uniformity Coefficient D60/D10 = 2.4074

D60 = 0.0077 D10 = 0.0032

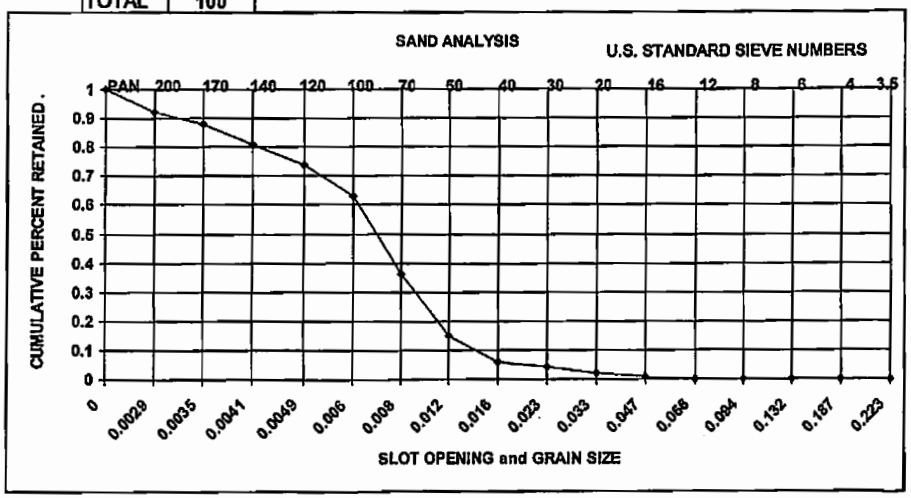
50% Point 0.007 5*50% Pt 0.0348

Median Gravel Size 0.0348

Calculated Gravel Pack x6 0.042 x4 0.028

	Slot	Gravel
Recommended	.020	12-20 (.066-.0331)
Recommended	.016	16-30 (.047-.023)

Natural Development 40 % Retention
Slot Recommendation 0.0077



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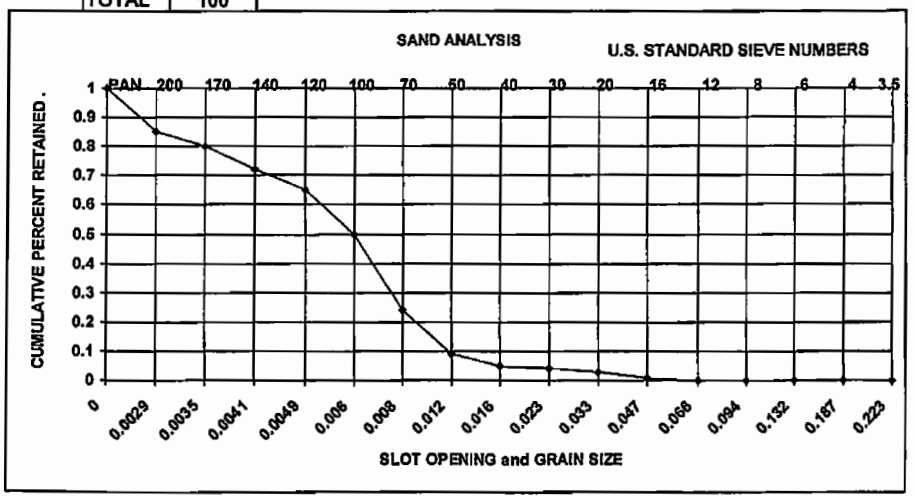
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	1	1%	1%
20	0.033	2	2%	3%
30	0.023	1	1%	4%
40	0.016	1	1%	5%
50	0.012	4	4%	9%
70	0.008	15	15%	24%
100	0.006	26	26%	50%
120	0.0049	15	15%	65%
140	0.0041	7	7%	72%
170	0.0035	8	8%	80%
200	0.0029	5	5%	85%
PAN	0	15	15%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 2010 Depth (Ending) 2020
Uniformity Coefficient D60/D10 = 3.5013
D60 = 0.0068 D10 = 0.0019
50% Point 0.006 5*50% Pt 0.0300
Median Gravel Size 0.0300
Calculated Gravel Pack x6 0.036 x4 0.024

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0068



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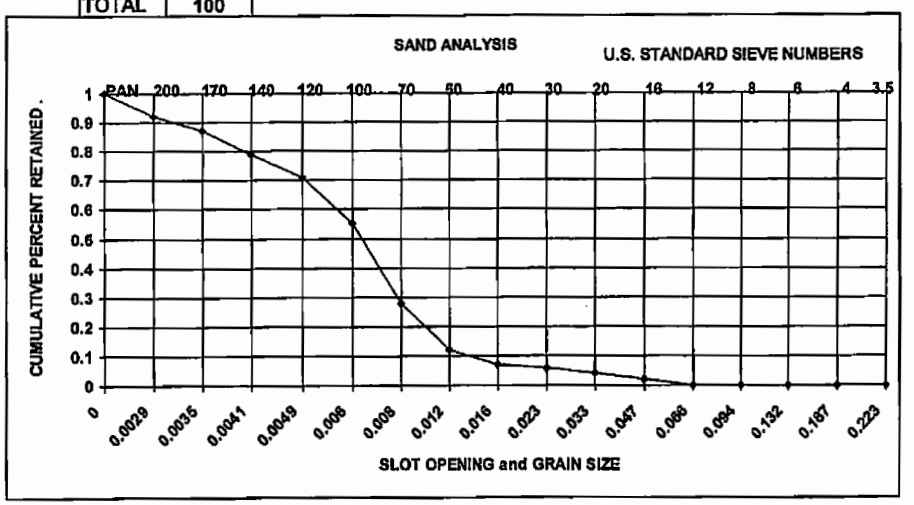
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	2	2%	2%
20	0.033	2	2%	4%
30	0.023	2	2%	6%
40	0.016	1	1%	7%
50	0.012	5	5%	12%
70	0.008	16	16%	28%
100	0.006	27	27%	55%
120	0.0049	16	16%	71%
140	0.0041	8	8%	79%
170	0.0035	8	8%	87%
200	0.0029	5	5%	92%
PAN	0	8	8%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 2020 Depth (Ending) 2030
Uniformity Coefficient D60/D10 = 2.2647
D60 = 0.0071 D10 = 0.0031
50% Point 0.0064 5*50% Pt 0.0319
Median Gravel Size 0.0319
Calculated Gravel Pack x6 0.038 x4 0.025

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0071



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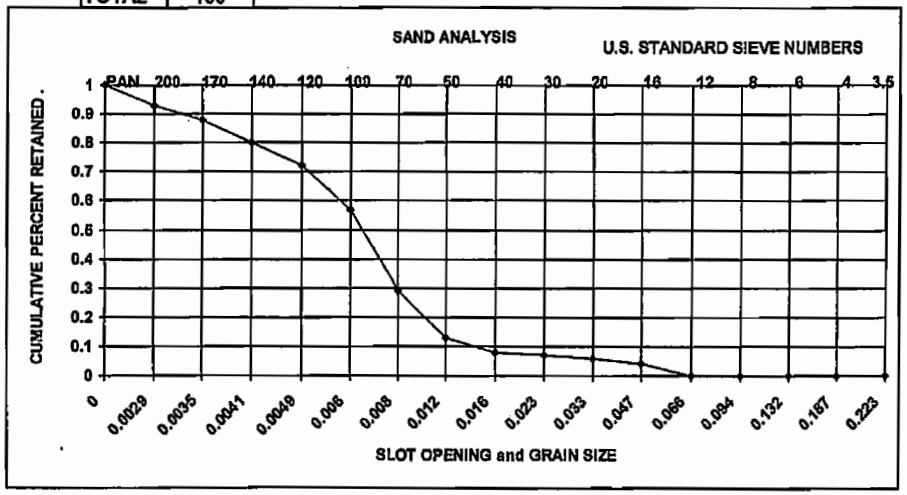
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	4	4%	4%
20	0.033	2	2%	6%
30	0.023	1	1%	7%
40	0.016	1	1%	8%
50	0.012	5	5%	13%
70	0.008	16	16%	29%
100	0.006	28	28%	57%
120	0.0049	15	15%	72%
140	0.0041	8	8%	80%
170	0.0035	8	8%	88%
200	0.0029	5	5%	93%
PAN	0	7	7%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 2030 Depth (Ending) 2040
Uniformity Coefficient D60/D10 = 2.213
D60 = 0.0072 D10 = 0.0033
50% Point 0.0085 5*50% Pt 0.0325
Median Gravel Size 0.0325
Calculated Gravel Pack x6 0.039 x4 0.026

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0072



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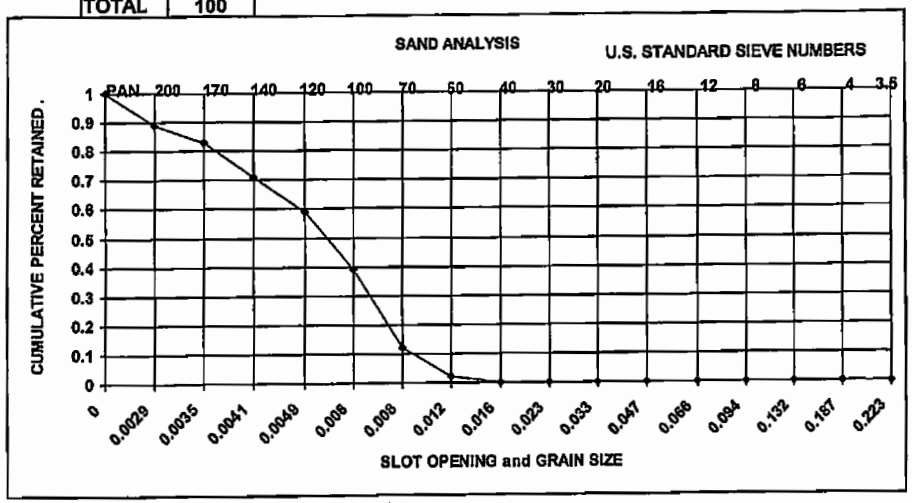
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	2	2%	2%
70	0.008	10	10%	12%
100	0.006	27	27%	39%
120	0.0049	20	20%	59%
140	0.0041	12	12%	71%
170	0.0035	12	12%	83%
200	0.0029	6	6%	89%
PAN	0	11	11%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 2040 Depth (Ending) 2050
Uniformity Coefficient D60/D10 = 2.255
D60 = 0.0059 D10 = 0.0026
50% Point 0.0064 5*50% Pt 0.027
Median Gravel Size 0.027
Calculated Gravel Pack x6 0.032 x4 0.022

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0059



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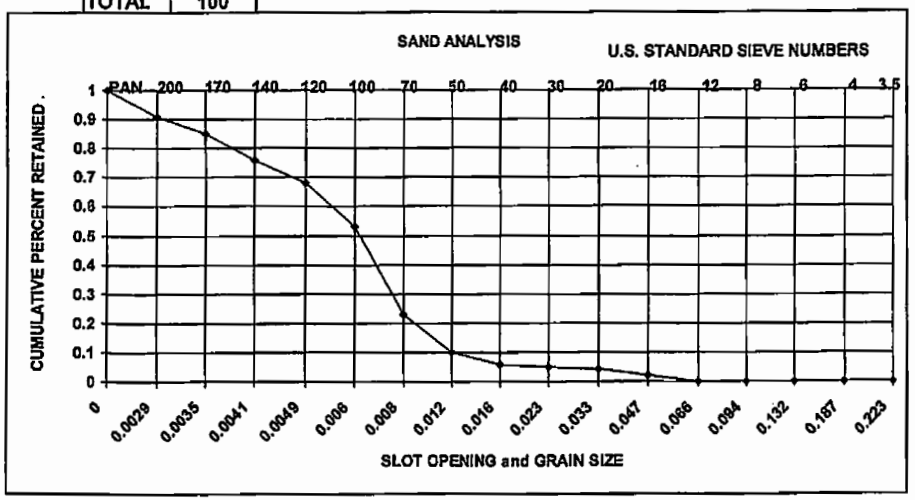
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	2	2%	2%
20	0.033	2	2%	4%
30	0.023	1	1%	5%
40	0.016	1	1%	6%
50	0.012	4	4%	10%
70	0.008	13	13%	23%
100	0.006	30	30%	53%
120	0.0049	15	15%	68%
140	0.0041	8	8%	76%
170	0.0035	9	9%	85%
200	0.0029	6	6%	91%
PAN	0	9	9%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 2050 Depth (Ending) 2060
Uniformity Coefficient D60/D10 = 2.2889
D60 = 0.0069 D10 = 0.003
50% Point 0.0062 5*50% Pt 0.031
Median Gravel Size 0.031
Calculated Gravel Pack x6 0.037 x4 0.025

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0069



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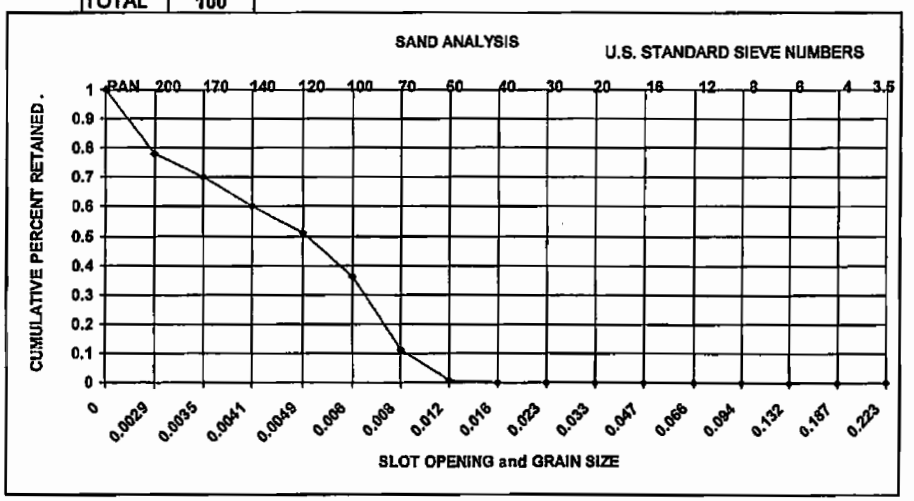
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	1	1%	1%
70	0.008	10	10%	11%
100	0.006	25	25%	36%
120	0.0049	15	15%	51%
140	0.0041	9	9%	60%
170	0.0035	10	10%	70%
200	0.0029	8	8%	78%
PAN	0	22	22%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 2090 Depth (Ending) 2100
Uniformity Coefficient D60/D10 = 4.3292
D60 = 0.0057 D10 = 0.0013
50% Point 0.005 5*50% Pt 0.0249
Median Gravel Size 0.0249
Calculated Gravel Pack x6 0.030 x4 0.020

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0057



Alloy Machine Works, Inc.
18102 E. Hardy Rd.
Houston, TX 77073

Date Run: 8/29/2012

Ph (800) 577-5068
Ph (281) 233-0214
Fax (281) 233-0487

Sold To: Alsay, Inc
Address: 6615 Gant Rd.
City, St Zip: Houston, TX

Ship To: Alsay, Inc
Address: 6615 Gant Rd.
CSZ: Houston, TX
Contact: Joe Slavik
Phone:
Fax:

Driller:
Engineer:
Well: Conroe 23

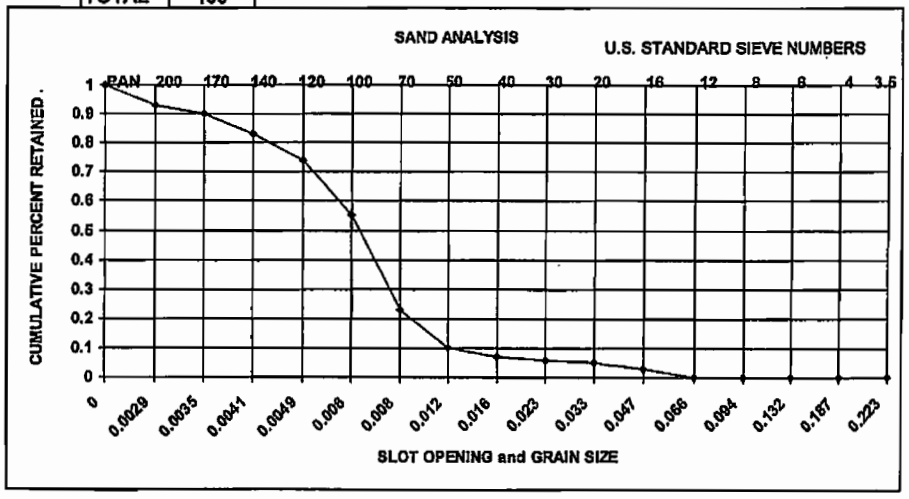
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	3	3%	3%
20	0.033	2	2%	5%
30	0.023	1	1%	6%
40	0.016	1	1%	7%
50	0.012	3	3%	10%
70	0.008	13	13%	23%
100	0.006	32	32%	55%
120	0.0049	19	19%	74%
140	0.0041	9	9%	83%
170	0.0035	7	7%	90%
200	0.0029	3	3%	93%
PAN	0	7	7%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 2100 Depth (Ending) 2110
Uniformity Coefficient D60/D10 = 1.9821
D60 = 0.0069 D10 = 0.0035
50% Point 0.0063 5*50% Pt 0.0316
Median Gravel Size 0.0316
Calculated Gravel Pack x6 0.038 x4 0.025

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0089



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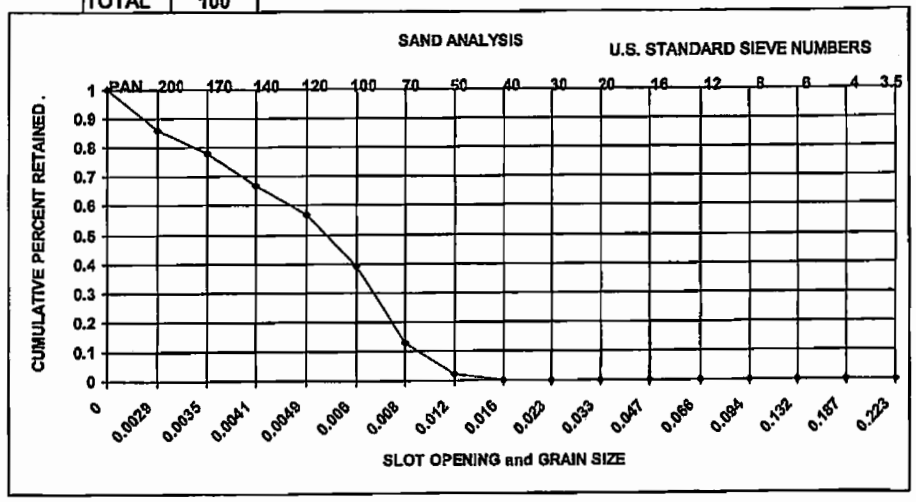
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	2	2%	2%
70	0.008	11	11%	13%
100	0.006	26	26%	39%
120	0.0049	18	18%	57%
140	0.0041	10	10%	67%
170	0.0035	11	11%	78%
200	0.0029	8	8%	86%
PAN	0	14	14%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 2210 Depth (Ending) 2220
Uniformity Coefficient D60/D10 = 2.8670
D60 = 0.0059 D10 = 0.0021
50% Point 0.0053 5*50% Pt 0.0266
Median Gravel Size 0.0266
Calculated Gravel Pack x6 0.032 x4 0.021

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0059



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Well: Conroe 23

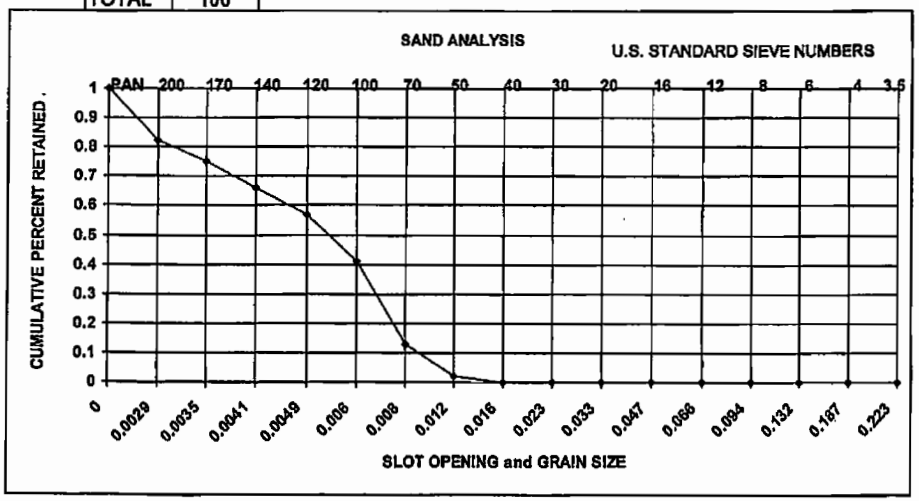
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	2	2%	2%
70	0.008	11	11%	13%
100	0.006	28	28%	41%
120	0.0049	16	16%	57%
140	0.0041	9	9%	66%
170	0.0035	9	9%	75%
200	0.0029	7	7%	82%
PAN	0	18	18%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 2220 Depth (Ending) 2230
Uniformity Coefficient D60/D10 = 3.7685
D60 = 0.0061 D10 = 0.0016
50% Point 0.0064 6*50% Pt 0.0269
Median Gravel Size 0.0269
Calculated Gravel Pack x6 0.032 x4 0.022

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0061



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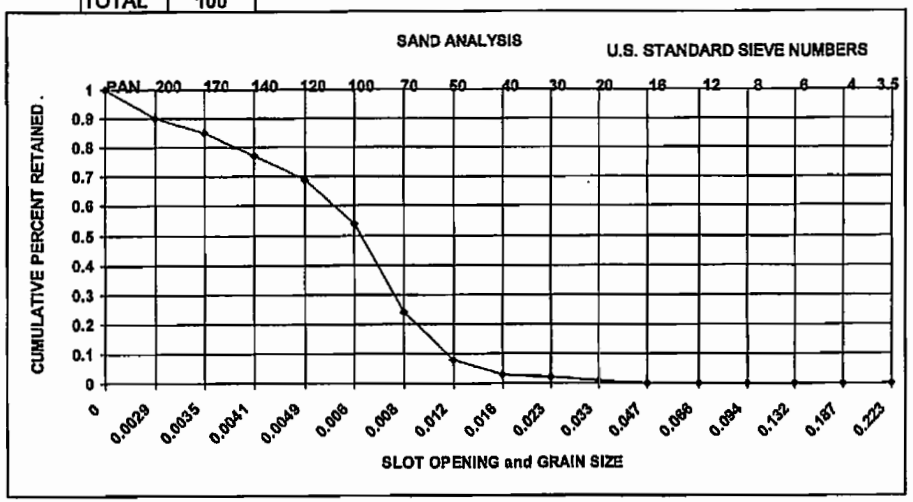
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	1	1%	1%
30	0.023	1	1%	2%
40	0.016	1	1%	3%
50	0.012	5	5%	8%
70	0.008	16	16%	24%
100	0.006	30	30%	54%
120	0.0049	15	15%	69%
140	0.0041	8	8%	77%
170	0.0035	8	8%	85%
200	0.0029	5	5%	90%
PAN	0	10	10%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 2230 Depth (Ending) 2240
Uniformity Coefficient D60/D10 = 2.3908
D60 = 0.0069 D10 = 0.0029
50% Point 0.0063 6*50% Pt 0.0313
Median Gravel Size 0.0313
Calculated Gravel Pack x6 0.038 x4 0.025

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0069



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Engineer:
Well: Conroe 23

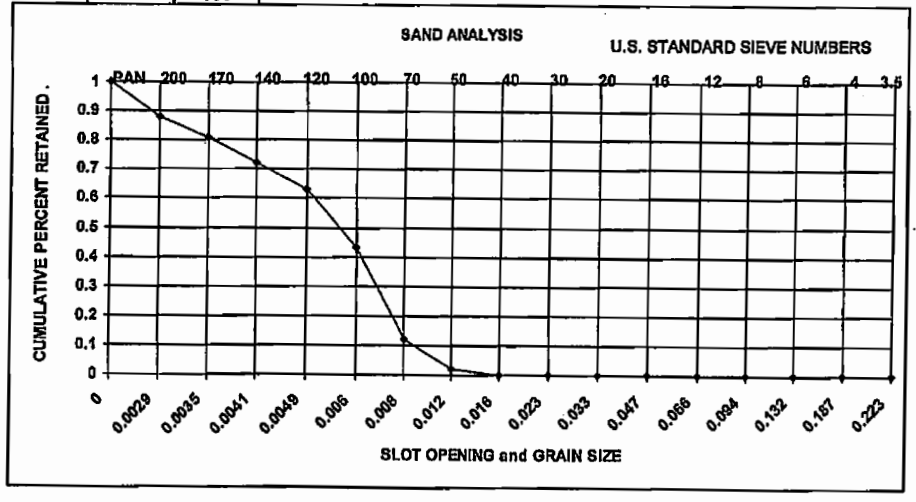
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	2	2%	2%
70	0.008	10	10%	12%
100	0.006	31	31%	43%
120	0.0049	20	20%	63%
140	0.0041	9	9%	72%
170	0.0035	9	9%	81%
200	0.0029	7	7%	88%
PAN	0	12	12%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 2270 Depth (Ending) 2280
Uniformity Coefficient D60/D10 = 2.5628
D60 = 0.0062 D10 = 0.0024
50% Point 0.0056 5*50% Pt 0.0281
Median Gravel Size 0.0281
Calculated Gravel Pack x6 0.034 x4 0.022

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0062



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Well: Conroe 23

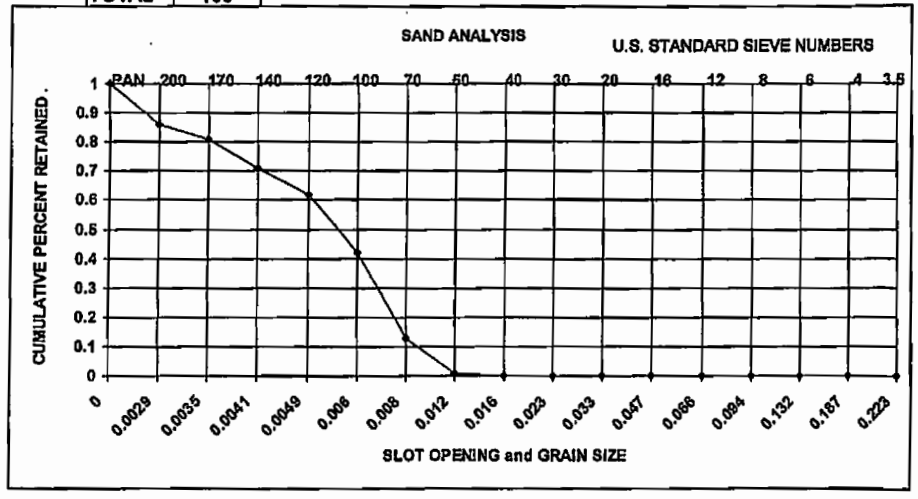
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	1	1%	1%
70	0.008	12	12%	13%
100	0.006	29	29%	42%
120	0.0049	20	20%	62%
140	0.0041	9	9%	71%
170	0.0035	10	10%	81%
200	0.0029	5	5%	86%
PAN	0	14	14%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 2260 Depth (Ending) 2290
Uniformity Coefficient D60/D10 = 2.9631
D60 = 0.0061 D10 = 0.0021
50% Point 0.0056 5*50% Pt 0.0278
Median Gravel Size 0.0278
Calculated Gravel Pack x6 0.033 x4 0.022

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0061



Alloy Machine Works, Inc.
18102 E. Hardy Rd.
Houston, TX 77073

Date Run:
8/29/2010

Ph (800) 577-5068
Ph (281) 233-0214
Fax (281) 233-0487

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Address: 6615 Gant Rd.
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Contact: Joe Slavik
Phone:
Fax:

Driller:
Engineer:
Well: Conroe 23

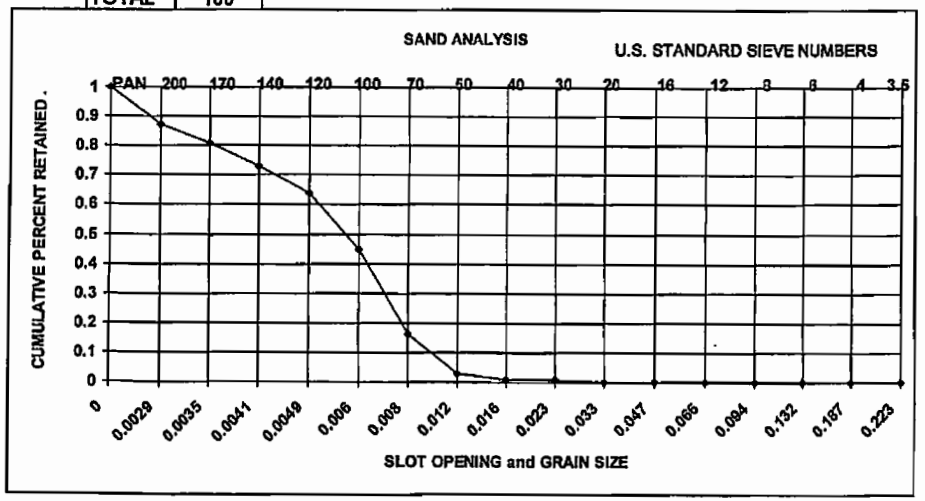
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	1	1%	1%
40	0.016	0	0%	1%
50	0.012	2	2%	3%
70	0.008	13	13%	16%
100	0.006	29	29%	45%
120	0.0049	19	19%	64%
140	0.0041	9	9%	73%
170	0.0035	8	8%	81%
200	0.0029	6	6%	87%
PAN	0	13	13%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 2290 Depth (Ending) 2300
Uniformity Coefficient D60/D10 = 2.8442
D60 = 0.0063 D10 = 0.0022
50% Point 0.0057 5*50% Pt 0.0286
Median Gravel Size 0.0286
Calculated Gravel Pack x6 0.034 x4 0.023

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0063



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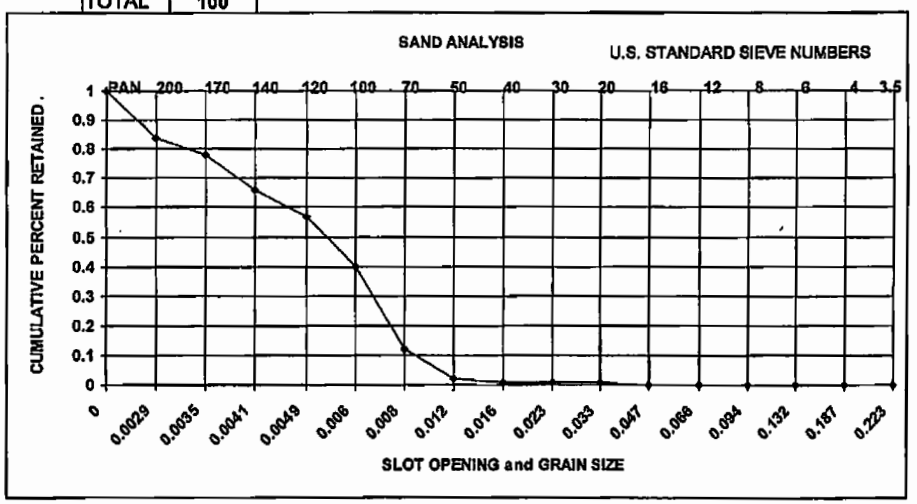
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	1	1%	1%
30	0.023	0	0%	1%
40	0.016	0	0%	1%
50	0.012	1	1%	2%
70	0.008	10	10%	12%
100	0.006	28	28%	40%
120	0.0049	17	17%	57%
140	0.0041	9	9%	66%
170	0.0035	12	12%	78%
200	0.0029	6	6%	84%
PAN	0	16	16%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 2300 Depth (Ending) 2310
Uniformity Coefficient D60/D10 = 3.3103
D60 = 0.006 D10 = 0.0018
50% Point 0.0054 5*50% Pt 0.0268
Median Gravel Size 0.0268
Calculated Gravel Pack x6 0.032 x4 0.021

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0060



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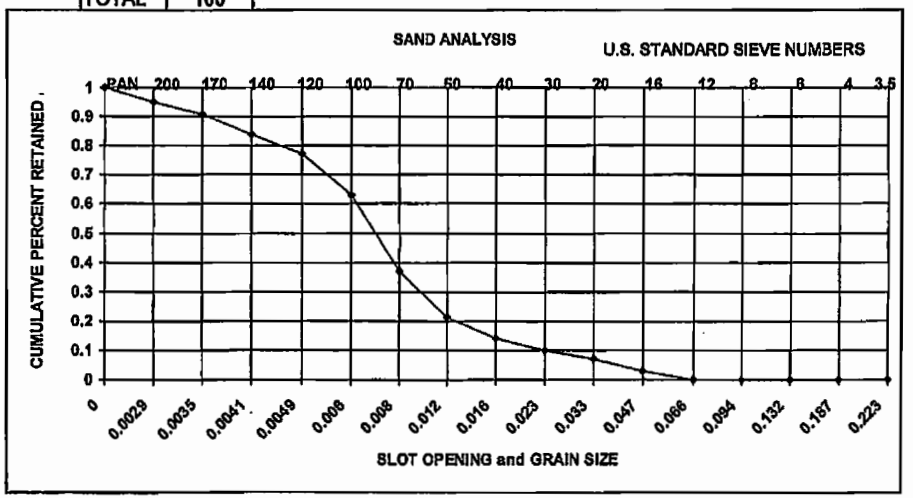
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	3	3%	3%
20	0.033	4	4%	7%
30	0.023	3	3%	10%
40	0.016	4	4%	14%
50	0.012	7	7%	21%
70	0.008	16	16%	37%
100	0.006	26	26%	63%
120	0.0049	14	14%	77%
140	0.0041	7	7%	84%
170	0.0035	7	7%	91%
200	0.0029	4	4%	95%
PAN	0	5	5%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 2390 Depth (Ending) 2400
Uniformity Coefficient D60/D10 = 2.1667
D60 = 0.0078 D10 = 0.0036
50% Point 0.007 5*50% Pt 0.0350
Median Gravel Size 0.0350
Calculated Gravel Pack x6 0.042 x4 0.028

	Slot	Gravel
Recommended	.020	12-20 (.066-.0331)
Recommended	.016	16-30 (.047-.023)

Natural Development 40 % Retention
Slot Recommendation 0.0078



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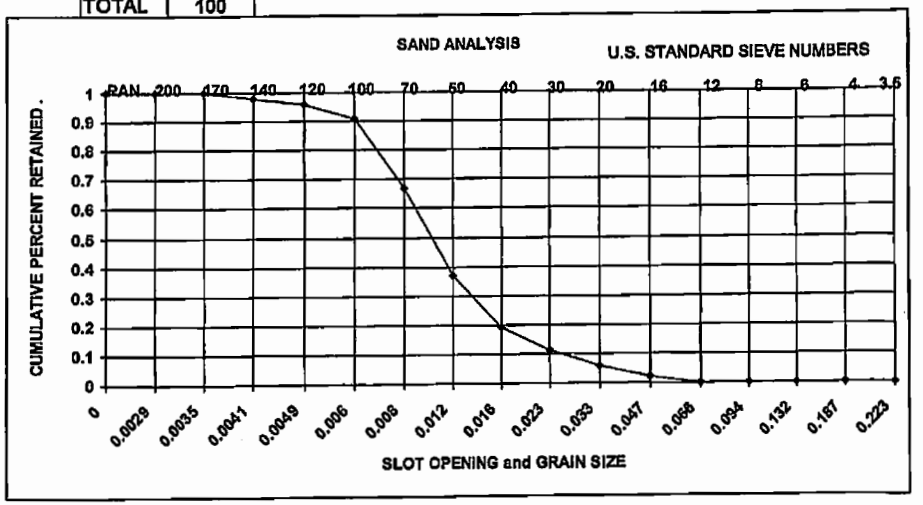
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	2	2%	2%
20	0.033	4	4%	6%
30	0.023	5	5%	11%
40	0.016	8	8%	19%
50	0.012	18	18%	37%
70	0.008	30	30%	67%
100	0.006	24	24%	91%
120	0.0049	5	5%	96%
140	0.0041	2	2%	98%
170	0.0035	2	2%	100%
200	0.0029	0	0%	100%
PAN	0	0	0%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 2400 Depth (Ending) 2410
Uniformity Coefficient D60/D10 = 1.9068
D60 = 0.0116 D10 = 0.0061
50% Point 0.0103 5*50% Pt 0.0513
Median Gravel Size 0.0513
Calculated Gravel Pack x6 0.082 x4 0.041

	Slot	Gravel
Recommended	.020	12-20 (.066-.0331)

Natural Development 40 % Retention
Slot Recommendation 0.0116



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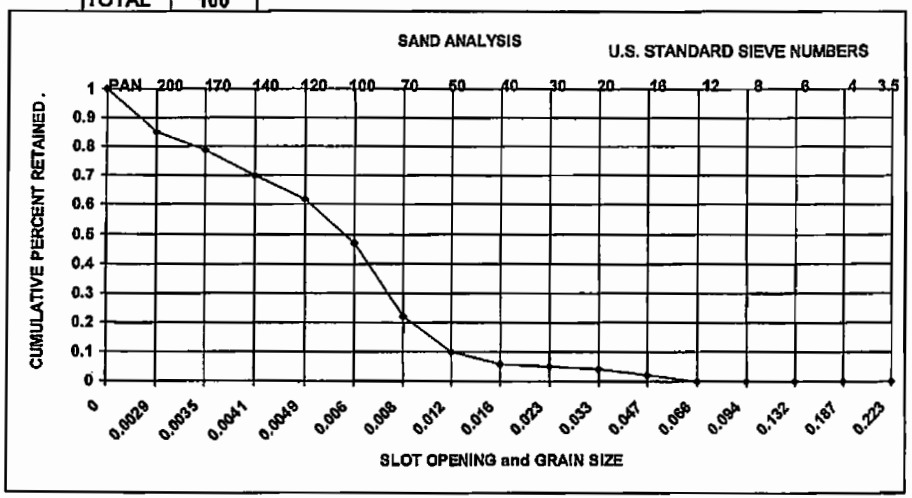
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	2	2%	2%
20	0.033	2	2%	4%
30	0.023	1	1%	5%
40	0.016	1	1%	6%
50	0.012	4	4%	10%
70	0.008	12	12%	22%
100	0.006	25	25%	47%
120	0.0049	15	15%	62%
140	0.0041	8	8%	70%
170	0.0035	9	9%	79%
200	0.0029	6	6%	85%
PAN	0	15	15%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 2410 Depth (Ending) 2420
Uniformity Coefficient D60/D10 = 3.3931
D60 = 0.0066 D10 = 0.0019
50% Point 0.0058 5*50% Pt 0.0289
Median Gravel Size 0.0289
Calculated Gravel Pack x6 0.035 x4 0.023

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0066



Alloy Machine Works, Inc.
18102 E. Hardy Rd.
Houston, TX 77073

Date Run:
8/29/2012

Ph (800) 677-5068
Ph (281) 233-0214
Fax (281) 233-0487

Sold To: Alsay, Inc
Address: 6615 Gant Rd.
City, St Zip: Houston, TX

Ship To: Alsay, Inc
Address: 6615 Gant Rd.
CSZ: Houston, TX
Contact: Joe Slavik
Phone:
Fax:

Driller:
Engineer:
Well: Conroe 23

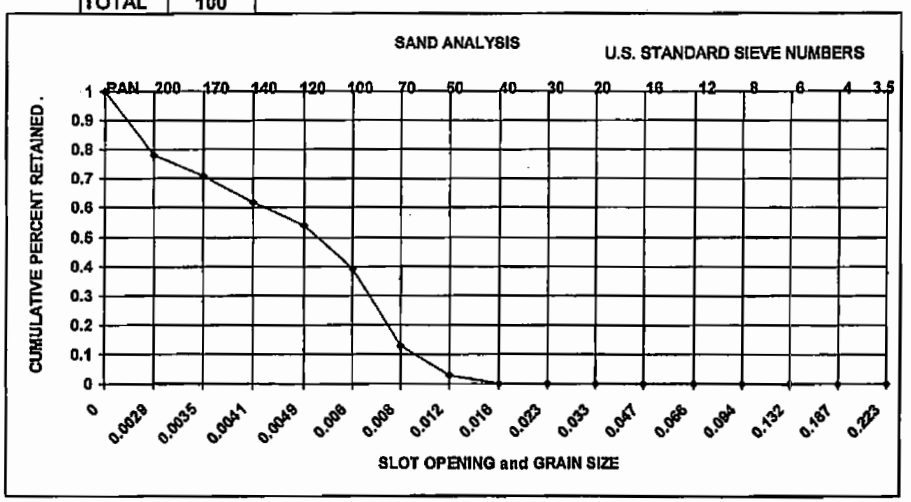
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	3	3%	3%
70	0.008	10	10%	13%
100	0.006	26	26%	39%
120	0.0049	15	15%	54%
140	0.0041	8	8%	62%
170	0.0035	9	9%	71%
200	0.0029	7	7%	78%
PAN	0	22	22%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 2420 Depth (Ending) 2430
Uniformity Coefficient D60/D10 = 4.4961
D60 = 0.0059 D10 = 0.0013
50% Point 0.0052 5*50% Pt 0.026
Median Gravel Size 0.026
Calculated Gravel Pack x6 0.031 x4 0.021

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0059



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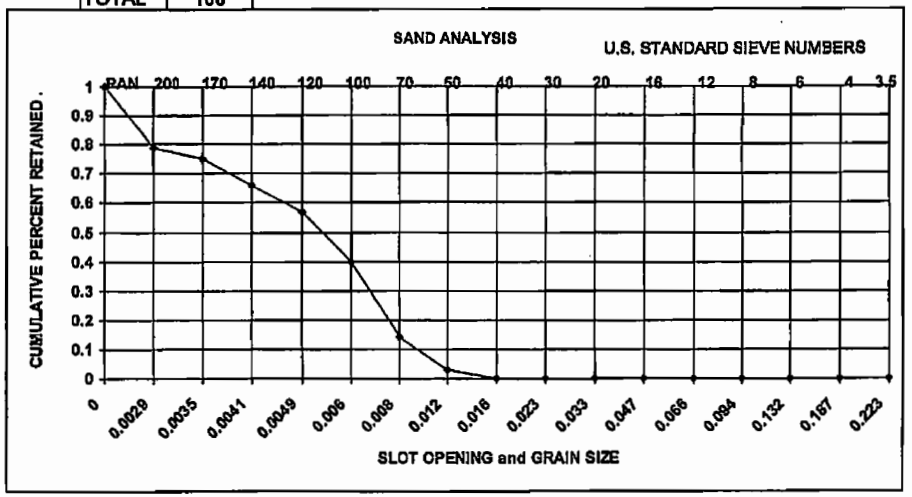
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	3	3%	3%
70	0.008	11	11%	14%
100	0.006	26	26%	40%
120	0.0049	17	17%	57%
140	0.0041	9	9%	66%
170	0.0035	9	9%	75%
200	0.0029	4	4%	79%
PAN	0	21	21%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 2430 Depth (Ending) 2440
Uniformity Coefficient D60/D10 = 4.3448
D60 = 0.006 D10 = 0.0014
50% Point 0.0064 5*50% Pt 0.0268
Median Gravel Size 0.0268
Calculated Gravel Pack x6 0.032 x4 0.021

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0080



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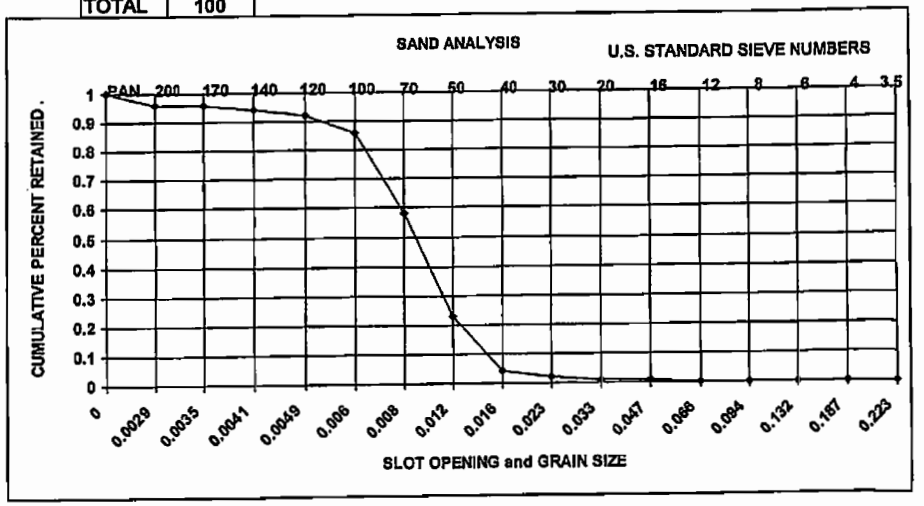
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	1	1%	1%
20	0.033	0	0%	1%
30	0.023	1	1%	2%
40	0.016	2	2%	4%
50	0.012	19	19%	23%
70	0.008	35	35%	58%
100	0.006	28	28%	86%
120	0.0049	6	6%	92%
140	0.0041	2	2%	94%
170	0.0035	2	2%	96%
200	0.0029	0	0%	96%
PAN	0	4	4%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 2440 Depth (Ending) 2450
Uniformity Coefficient D60/D10 = 1.9098
D60 = 0.0101 D10 = 0.0053
50% Point 0.0089 5*50% Pt 0.0446
Median Gravel Size 0.0446
Calculated Gravel Pack x6 0.053 x4 0.036

	Slot	Gravel
Recommended	.020	12-20 (.066-.0331)
Recommended	.016	16-30 (.047-.023)

Natural Development 40 % Retention
Slot Recommendation 0.0101



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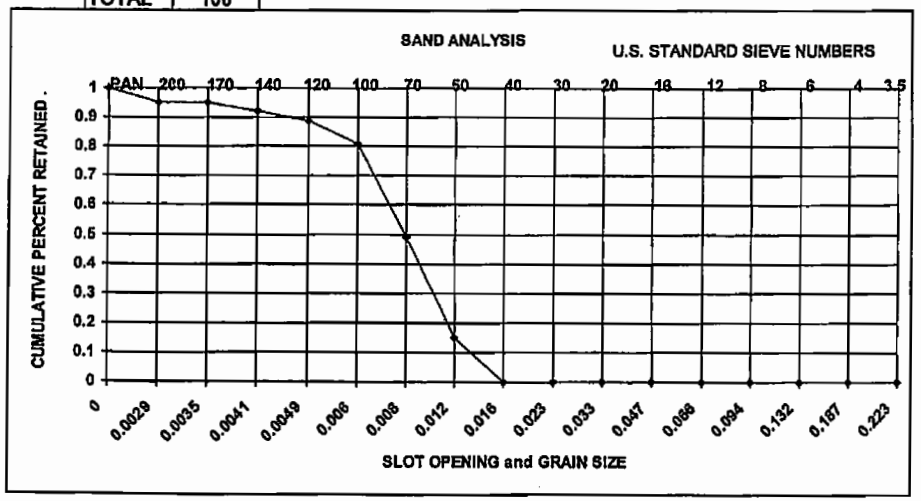
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	15	15%	15%
70	0.008	34	34%	49%
100	0.006	32	32%	81%
120	0.0049	8	8%	89%
140	0.0041	3	3%	92%
170	0.0035	3	3%	95%
200	0.0029	0	0%	95%
PAN	0	5	5%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 2460 Depth (Ending) 2460
Uniformity Coefficient D60/D10 = 1.9551
D60 = 0.0091 D10 = 0.0046
50% Point 0.0079 6*50% Pt 0.0397
Median Gravel Size 0.0397
Calculated Gravel Pack x6 0.048 x4 0.032

	Slot	Gravel
Recommended	.020	12-20 (.066-.0331)
Recommended	.016	16-30 (.047-.023)

Natural Development 40 % Retention
Slot Recommendation 0.0091



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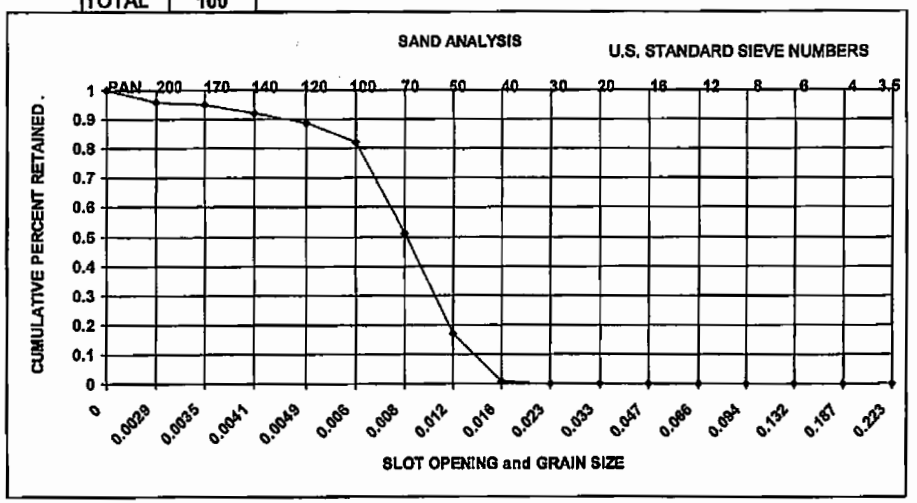
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	1	1%	1%
50	0.012	16	16%	17%
70	0.008	34	34%	51%
100	0.006	31	31%	82%
120	0.0049	7	7%	89%
140	0.0041	3	3%	92%
170	0.0035	3	3%	95%
200	0.0029	1	1%	96%
PAN	0	4	4%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 2460 Depth (Ending) 2470
Uniformity Coefficient D60/D10 = 2.0059
D60 = 0.0093 D10 = 0.0046
50% Point 0.0081 6*50% Pt 0.0406
Median Gravel Size 0.0406
Calculated Gravel Pack x6 0.049 x4 0.032

	Slot	Gravel
Recommended	.020	12-20 (.066-.0331)
Recommended	.016	16-30 (.047-.023)

Natural Development 40 % Retention
Slot Recommendation 0.0093



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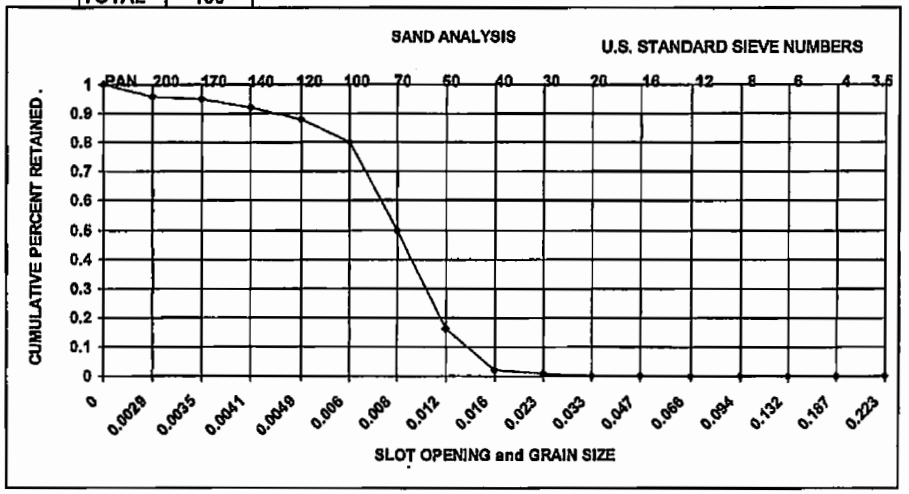
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	1	1%	1%
40	0.016	1	1%	2%
50	0.012	14	14%	16%
70	0.008	34	34%	50%
100	0.006	30	30%	80%
120	0.0049	8	8%	88%
140	0.0041	4	4%	92%
170	0.0035	3	3%	95%
200	0.0029	1	1%	96%
PAN	0	4	4%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 2470 Depth (Ending) 2480
Uniformity Coefficient D60/D10 = 2.0392
D60 = 0.0092 D10 = 0.0045
50% Point 0.008 5*50% Pt 0.0400
Median Gravel Size 0.0400
Calculated Gravel Pack x6 0.048 x4 0.032

	Slot	Gravel
Recommended	.020	12-20 (.066-.0331)
Recommended	.016	16-30 (.047-.023)

Natural Development 40 % Retention
Slot Recommendation 0.0092



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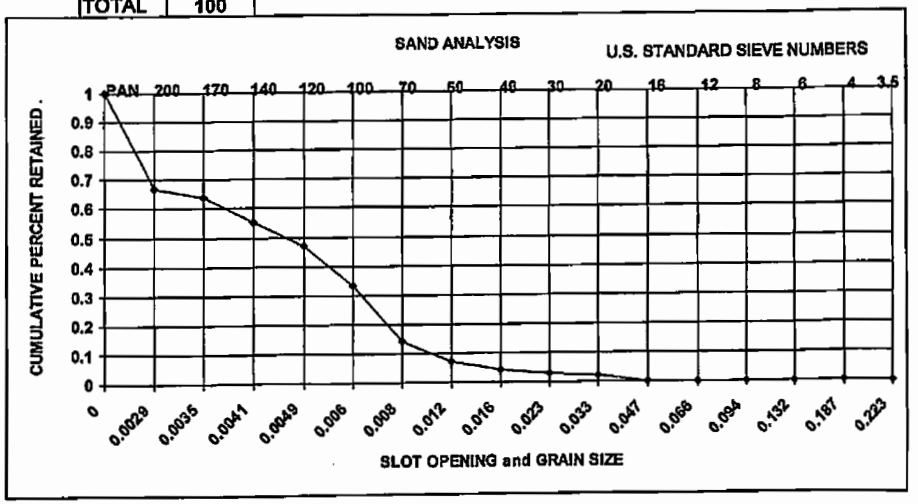
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	2	2%	2%
30	0.023	1	1%	3%
40	0.016	1	1%	4%
50	0.012	3	3%	7%
70	0.008	7	7%	14%
100	0.006	19	19%	33%
120	0.0049	14	14%	47%
140	0.0041	8	8%	55%
170	0.0035	9	9%	64%
200	0.0029	3	3%	67%
PAN	0	33	33%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 2500 Depth (Ending) 2510
Uniformity Coefficient D60/D10 = 6.2017
D60 = 0.0055 D10 = 0.0009
50% Point 0.0046 5*50% Pt 0.023
Median Gravel Size 0.023
Calculated Gravel Pack x6 0.028 x4 0.018

	Slot	Gravel
Recommended	.012	20-40 (.0331-.0165)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0054



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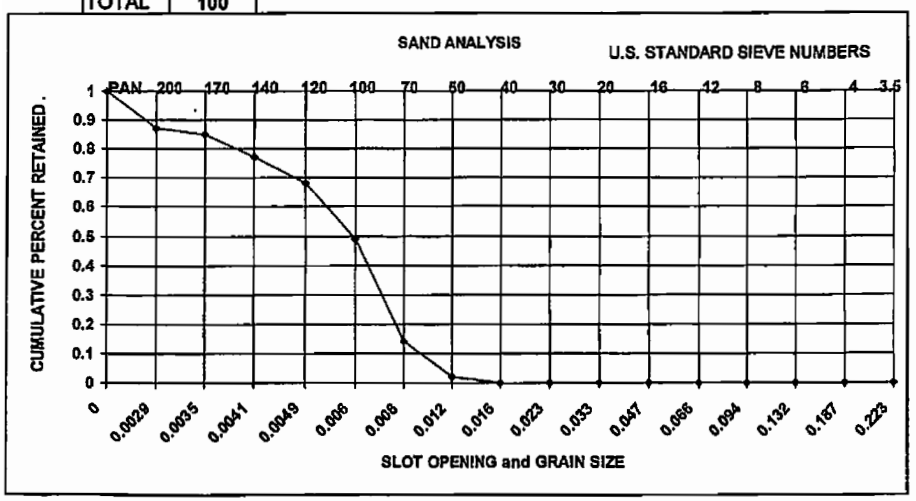
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	2	2%	2%
70	0.008	12	12%	14%
100	0.006	35	35%	49%
120	0.0049	19	19%	68%
140	0.0041	9	9%	77%
170	0.0035	8	8%	85%
200	0.0029	2	2%	87%
PAN	0	13	13%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 2630 Depth (Ending) 2640
Uniformity Coefficient D60/D10 = 2.9202
D60 = 0.0065 D10 = 0.0022
50% Point 0.0059 6*50% Pt 0.0297
Median Gravel Size 0.0297
Calculated Gravel Pack x6 0.036 x4 0.024

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0065



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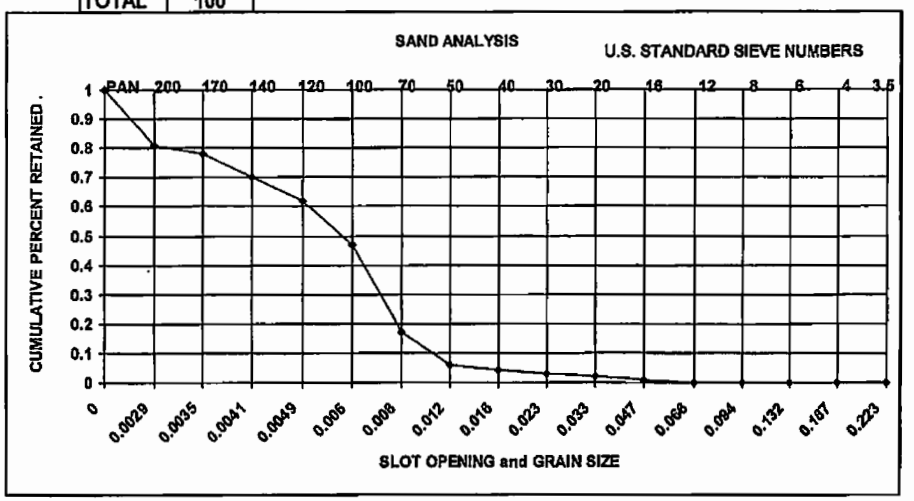
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	1	1%	1%
20	0.033	1	1%	2%
30	0.023	1	1%	3%
40	0.016	1	1%	4%
50	0.012	2	2%	6%
70	0.008	11	11%	17%
100	0.006	30	30%	47%
120	0.0049	15	15%	62%
140	0.0041	8	8%	70%
170	0.0035	8	8%	78%
200	0.0029	3	3%	81%
PAN	0	19	19%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 2780 Depth (Ending) 2790
Uniformity Coefficient D60/D10 = 4.2388
D60 = 0.0066 D10 = 0.0015
50% Point 0.0058 6*50% Pt 0.0289
Median Gravel Size 0.0289
Calculated Gravel Pack x6 0.035 x4 0.023

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0065



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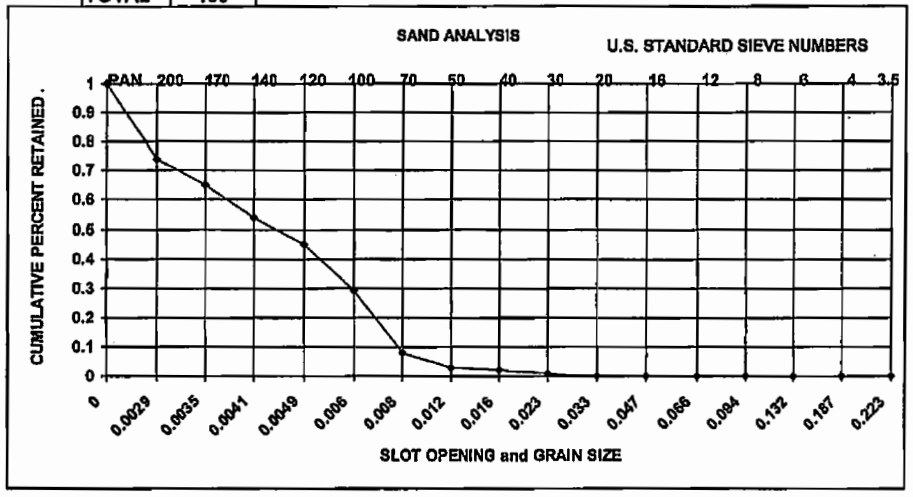
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	1	1%	1%
40	0.016	1	1%	2%
50	0.012	1	1%	3%
70	0.008	5	5%	8%
100	0.006	21	21%	29%
120	0.0049	16	16%	45%
140	0.0041	9	9%	54%
170	0.0035	11	11%	65%
200	0.0029	9	9%	74%
PAN	0	26	26%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 2820 Depth (Ending) 2830
Uniformity Coefficient D60/D10 = 4.7013
D60 = 0.0052 D10 = 0.0011
50% Point 0.0045 5*50% Pt 0.0223
Median Gravel Size 0.0223
Calculated Gravel Pack x6 0.027 x4 0.018

	Slot	Gravel
Recommended	.012	20-40 (.0331-.0165)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0052



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Contact: Joe Slavik
Phone:
Fax:

Driller:
Engineer:
Well: Conroe 23

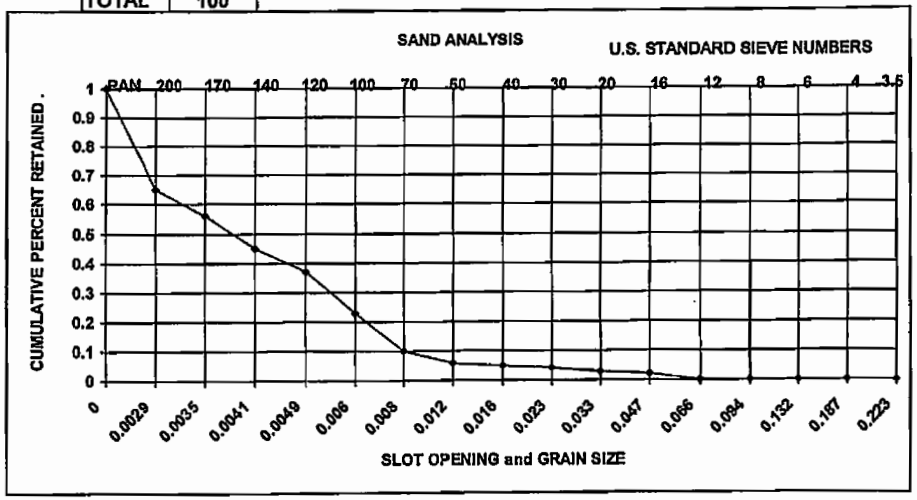
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	2	2%	2%
20	0.033	1	1%	3%
30	0.023	1	1%	4%
40	0.016	1	1%	5%
50	0.012	1	1%	6%
70	0.008	4	4%	10%
100	0.006	13	13%	23%
120	0.0049	14	14%	37%
140	0.0041	8	8%	45%
170	0.0035	11	11%	56%
200	0.0029	9	9%	65%
PAN	0	35	35%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 3010 Depth (Ending) 3020
Uniformity Coefficient D60/D10 = 5.5517
D60 = 0.0046 D10 = 0.0008
50% Point 0.0038 5*50% Pt 0.0191
Median Gravel Size 0.0191
Calculated Gravel Pack x6 0.023 x4 0.015

	Slot	Gravel
Recommended	.012	20-40 (.0331-.0165)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0046



Alloy Machine Works, Inc.
18102 E. Hardy Rd.
Houston, TX 77073

Date Run:
8/29/2012

Ph (800) 577-5068
Ph (281) 233-0214
Fax (281) 233-0487

Sold To: Alsay, Inc
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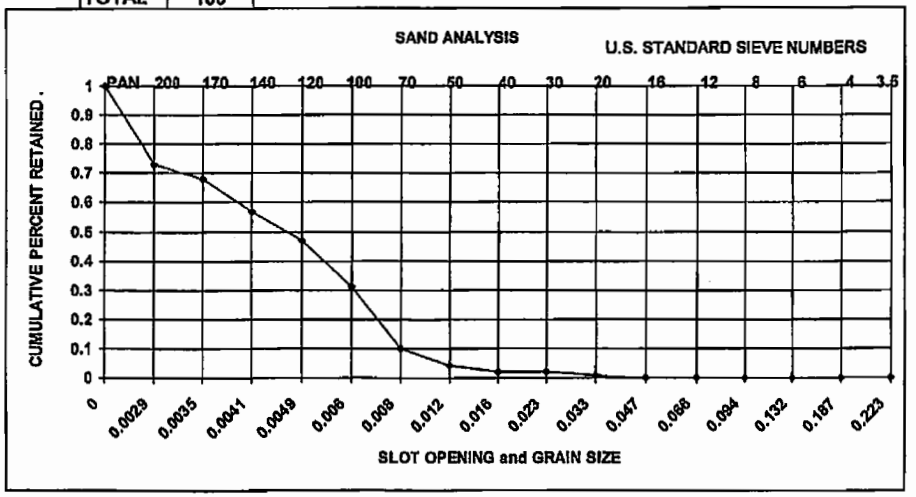
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	1	1%	1%
30	0.023	1	1%	2%
40	0.016	0	0%	2%
50	0.012	2	2%	4%
70	0.008	6	6%	10%
100	0.006	21	21%	31%
120	0.0049	16	16%	47%
140	0.0041	10	10%	57%
170	0.0035	11	11%	68%
200	0.0029	5	5%	73%
PAN	0	27	27%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 3020 Depth (Ending) 3030
Uniformity Coefficient D60/D10 = 5.0101
D60 = 0.0054 D10 = 0.0011
50% Point 0.0047 5*50% Pt 0.0233
Median Gravel Size 0.0233
Calculated Gravel Pack x6 0.028 x4 0.019

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0054



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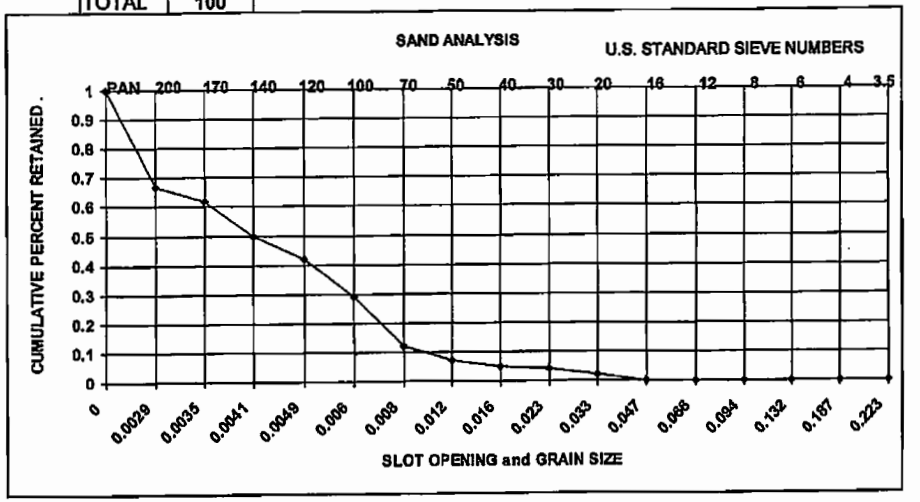
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	2	2%	2%
30	0.023	2	2%	4%
40	0.016	1	1%	5%
50	0.012	2	2%	7%
70	0.008	5	5%	12%
100	0.006	17	17%	29%
120	0.0049	13	13%	42%
140	0.0041	8	8%	50%
170	0.0035	12	12%	62%
200	0.0029	5	5%	67%
PAN	0	33	33%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 3030 Depth (Ending) 3040
Uniformity Coefficient D60/D10 = 5.7684
D60 = 0.0051 D10 = 0.0009
50% Point 0.0041 5*50% Pt 0.0205
Median Gravel Size 0.0205
Calculated Gravel Pack x6 0.025 x4 0.016

	Slot	Gravel
Recommended	.012	20-40 (.0331-.0165)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0051



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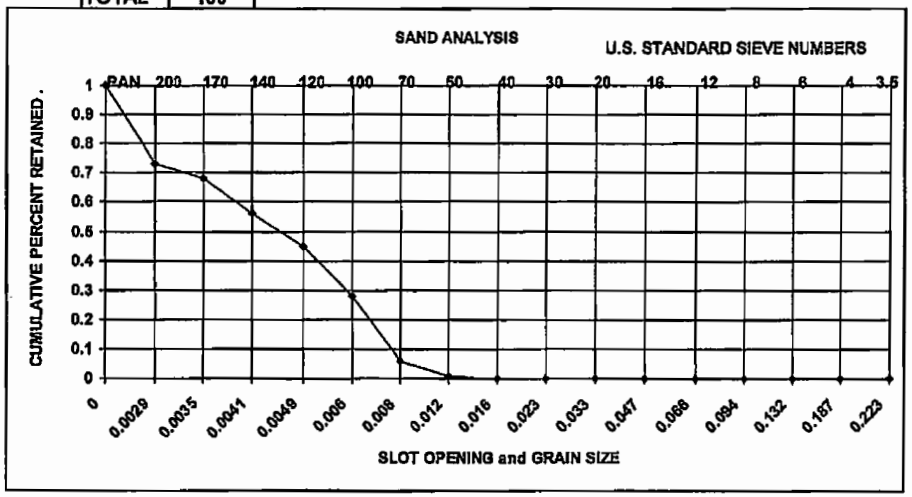
U.S. SIEVE NO.	SLOT OPENING INCHES	WEIGHT RETAINED	PERCENT RETAINED	CUMULATIVE RETENTION
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	1	1%	1%
70	0.008	5	5%	6%
100	0.006	22	22%	28%
120	0.0049	17	17%	45%
140	0.0041	11	11%	56%
170	0.0035	12	12%	68%
200	0.0029	5	5%	73%
PAN	0	27	27%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 3040 Depth (Ending) 3050
Uniformity Coefficient D60/D10 = 4.8633
D60 = 0.0052 D10 = 0.0011
50% Point 0.0045 5*50% Pt 0.0227
Median Gravel Size 0.0227
Calculated Gravel Pack x6 0.027 x4 0.018

	Slot	Gravel
Recommended	.012	20-40 (.0331-.0165)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0052



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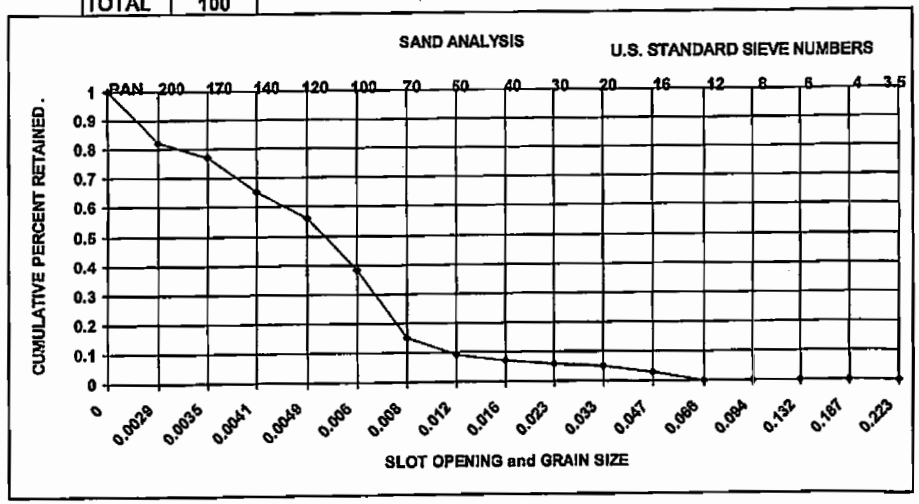
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	3	3%	3%
20	0.033	2	2%	5%
30	0.023	1	1%	6%
40	0.016	1	1%	7%
50	0.012	2	2%	9%
70	0.008	6	6%	15%
100	0.006	23	23%	38%
120	0.0049	18	18%	56%
140	0.0041	9	9%	65%
170	0.0035	12	12%	77%
200	0.0029	5	5%	82%
PAN	0	18	18%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 3050 Depth (Ending) 3080
Uniformity Coefficient D60/D10 = 3.8483
D60 = 0.0059 D10 = 0.0016
50% Point 0.0053 5*50% Pt 0.0263
Median Gravel Size 0.0263
Calculated Gravel Pack x6 0.032 x4 0.021

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0059



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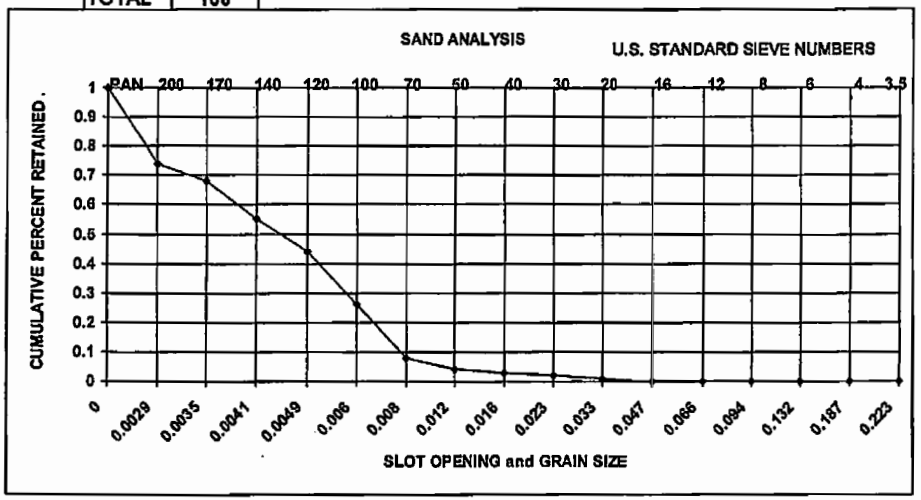
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	1	1%	1%
30	0.023	1	1%	2%
40	0.016	1	1%	3%
50	0.012	1	1%	4%
70	0.008	4	4%	8%
100	0.006	18	18%	26%
120	0.0049	18	18%	44%
140	0.0041	11	11%	55%
170	0.0035	13	13%	68%
200	0.0029	6	6%	74%
PAN	0	26	26%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 3060 Depth (Ending) 3070
Uniformity Coefficient D60/D10 = 4.6123
D60 = 0.0051 D10 = 0.0011
50% Point 0.0046 6*50% Pt 0.0223
Median Gravel Size 0.0223
Calculated Gravel Pack x6 0.027 x4 0.018

	Slot	Gravel
Recommended	.012	20-40 (.0331-.0165)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0051



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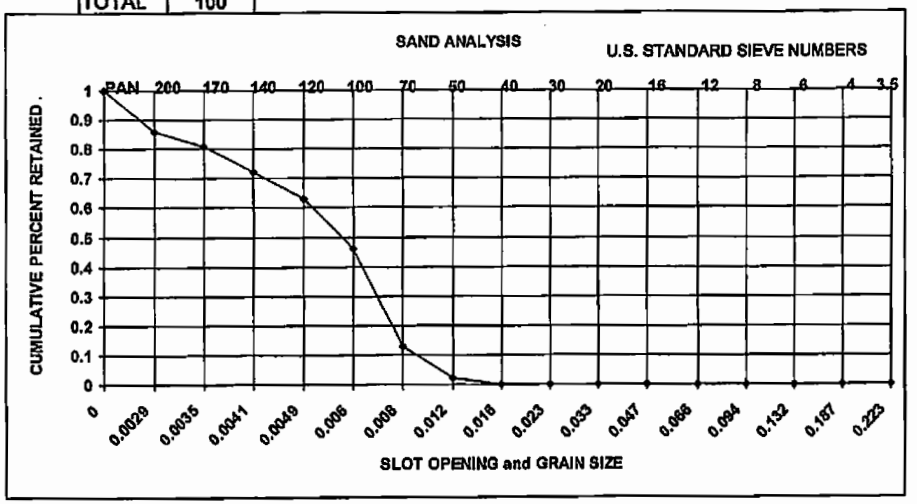
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	2	2%	2%
70	0.008	11	11%	13%
100	0.006	33	33%	46%
120	0.0049	17	17%	63%
140	0.0041	9	9%	72%
170	0.0035	9	9%	81%
200	0.0029	5	5%	86%
PAN	0	14	14%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 3110 Depth (Ending) 3120
Uniformity Coefficient D60/D10 = 3.0721
D60 = 0.0064 D10 = 0.0021
50% Point 0.0057 6*50% Pt 0.0287
Median Gravel Size 0.0287
Calculated Gravel Pack x6 0.034 x4 0.023

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0064



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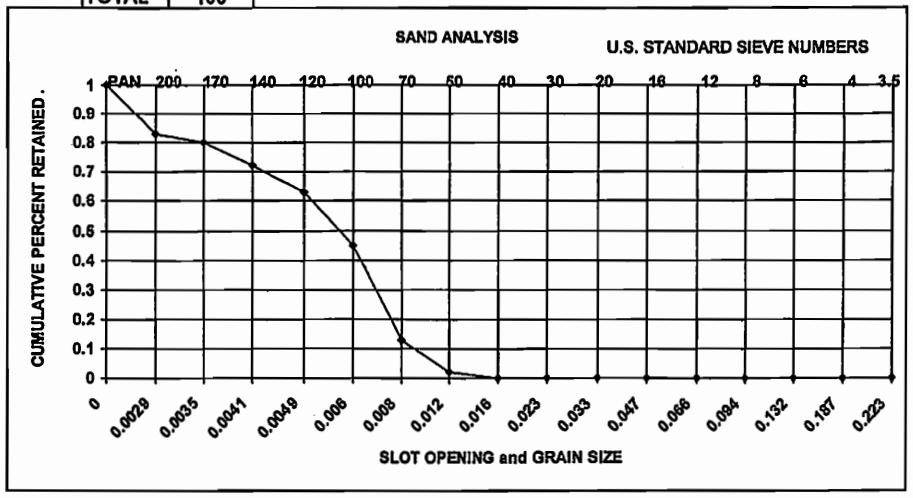
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	2	2%	2%
70	0.008	11	11%	13%
100	0.006	32	32%	45%
120	0.0049	18	18%	63%
140	0.0041	9	9%	72%
170	0.0035	8	8%	80%
200	0.0029	3	3%	83%
PAN	0	17	17%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 3120 Depth (Ending) 3130
Uniformity Coefficient D60/D10 = 3.7004
D60 = 0.0063 D10 = 0.0017
50% Point 0.0057 5*50% Pt 0.0285
Median Gravel Size 0.0285
Calculated Gravel Pack x6 0.034 x4 0.023

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0063



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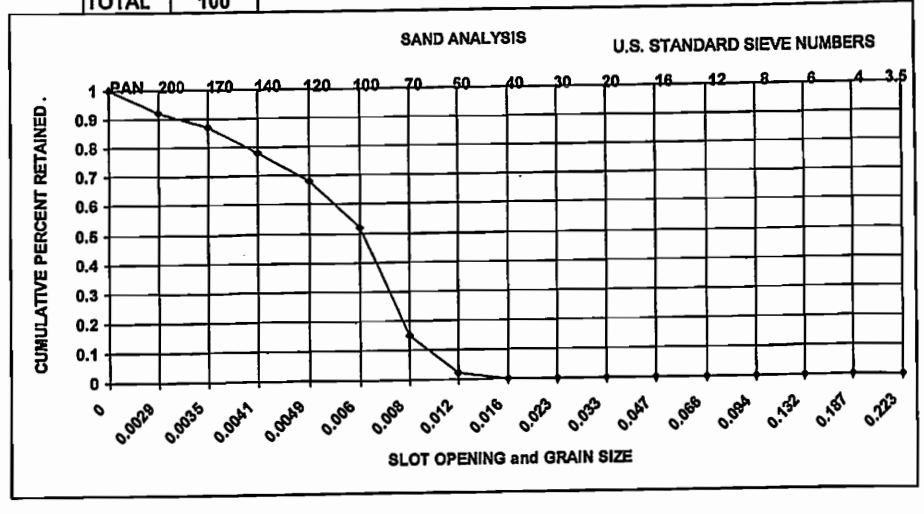
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	2	2%	2%
70	0.008	13	13%	15%
100	0.006	37	37%	52%
120	0.0049	16	16%	68%
140	0.0041	10	10%	78%
170	0.0035	9	9%	87%
200	0.0029	5	5%	92%
PAN	0	8	8%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 3130 Depth (Ending) 3140
Uniformity Coefficient D60/D10 = 2.1174
D60 = 0.0066 D10 = 0.0031
50% Point 0.0061 5*50% Pt 0.0305
Median Gravel Size 0.0305
Calculated Gravel Pack x6 0.037 x4 0.024

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0066



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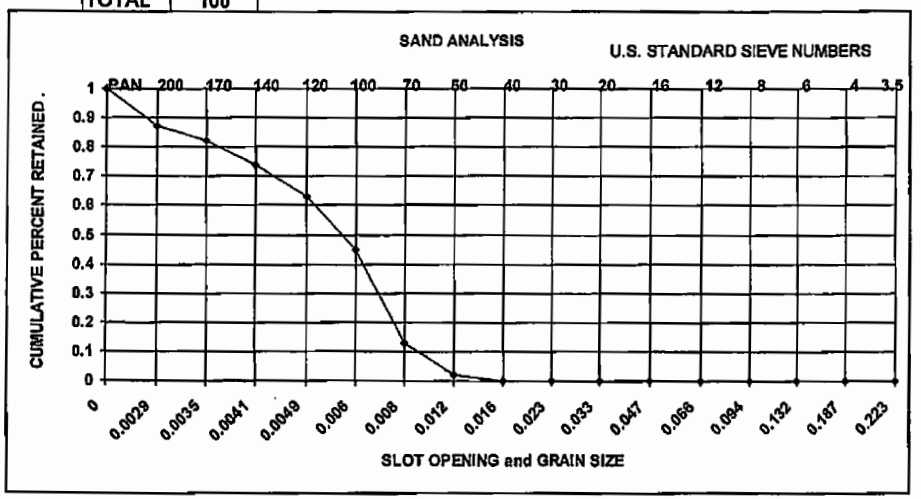
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	2	2%	2%
70	0.008	11	11%	13%
100	0.006	32	32%	45%
120	0.0049	18	18%	63%
140	0.0041	11	11%	74%
170	0.0035	8	8%	82%
200	0.0029	5	5%	87%
PAN	0	13	13%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 3140 Depth (Ending) 3150
Uniformity Coefficient D60/D10 = 2.8297
D60 = 0.0063 D10 = 0.0022
50% Point 0.0057 5*50% Pt 0.0285
Median Gravel Size 0.0285
Calculated Gravel Pack x6 0.034 x4 0.023

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0063



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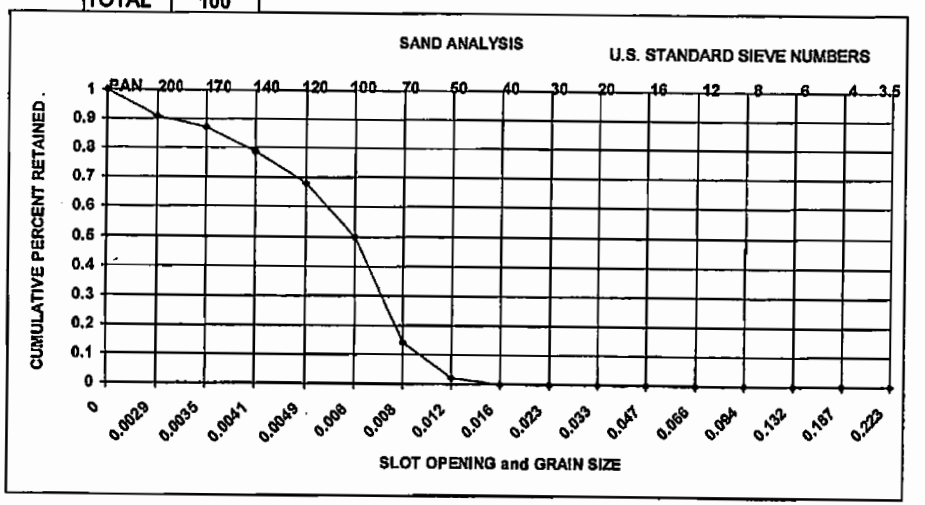
3.5	0.223	0	0%	0%
4	0.187	0	0%	0%
6	0.132	0	0%	0%
8	0.094	0	0%	0%
12	0.066	0	0%	0%
16	0.047	0	0%	0%
20	0.033	0	0%	0%
30	0.023	0	0%	0%
40	0.016	0	0%	0%
50	0.012	2	2%	2%
70	0.008	12	12%	14%
100	0.006	36	36%	50%
120	0.0049	18	18%	68%
140	0.0041	11	11%	79%
170	0.0035	8	8%	87%
200	0.0029	4	4%	91%
PAN	0	9	9%	100%
	TOTAL	100		

Remarks

Depth (Beginning) 3170 Depth (Ending) 3180
Uniformity Coefficient D60/D10 = 2.1494
D60 = 0.0066 D10 = 0.0031
50% Point 0.006 5*50% Pt 0.0300
Median Gravel Size 0.0300
Calculated Gravel Pack x6 0.036 x4 0.024

	Slot	Gravel
Recommended	.016	16-30 (.047-.023)
Recommended	.012	20-40 (.0331-.0165)

Natural Development 40 % Retention
Slot Recommendation 0.0066



Core Lab
PETROLEUM SERVICES

Alsay Incorporated

Conroe Well #23

Montgomery County, Texas

This report is based entirely upon the core samples, soils, solids, liquids, or gases, together with related observational data, provided solely by the client. The conclusions, inferences, deductions and opinions rendered herein reflect the examination, study, and testing of these items, and represent the best judgement of Core Laboratories. Any reliance on the information contained herein concerning the profitability or productivity of any well, sand, or drilling activity is at the sole risk of the client, and Core Laboratories, neither extends nor makes any warranty or representation whatsoever with respect to same. This report has been prepared for the exclusive and confidential use of the client and no other party.

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Conroe Well #23
Montgomery County, Texas

File No. : HOU-121130
Date: August 15, 2012
Drilling Fluid: Water Based Mud
Analyst(s): AC
Cores: Baker Hughes

SIDEWALL CORE ANALYSIS

SHOT NO.	REC (in)	CQI	DEPTH (ft)	Kair (mD)*	POR (%)	Sco (%)	Stw (%)	PROB PROD	Ob (%)	Gb (%)	GAS DET	Sciw (%)	°API	LITHOLOGY	FLU
12	1.4	A4	1850.0	9.5	19.0	0.0	74.2	(6)	0.0	4.9	0	63		Silt vshy vcalc	no
11	1.3	A4	1934.0	2550.0	32.8	0.0	77.1	Water	0.0	7.5	0	35		Sd f-mg sshy sslty	no
10	1.4	A4	1955.0	2000.0	32.3	0.0	77.3	Water	0.0	7.3	0	35		Sd fg sshy vsslty	no
9	1.4	A4	2026.0	1125.0	30.4	0.0	81.6	Water	0.0	5.6	0	35		Sd vfg vsshy sslty	no
8	1.2	A4	2230.0	2700.0	32.9	0.0	88.5	Water	0.0	3.8	0	35		Sd f-mg sslty	no
7	1.3	A4	2286.0	950.0	29.4	0.0	85.4	Water	0.0	4.3	0	35		Sd f-vfg sshy sslty	no
6	0.8	B3	2406.0	1750.0	31.6	0.0	84.5	Water	0.0	4.9	0	35		Sd vf-fg sslty	no
5	1.0	A3	2470.0	1900.0	31.4	0.0	83.0	Water	0.0	5.3	0	35		Sd fg vsshy sslty	no
4	1.2	A4	3050.0	2150.0	32.4	0.0	82.1	Water	0.0	5.8	0	35		Sd fg sslty	no
3	0.9	A3	3114.0	2825.0	33.3	0.0	84.2	Water	0.0	5.3	0	36		Sd f-mg sslty	no
2	1.0	A3	3145.0	1050.0	29.8	0.0	89.0	Water	0.0	3.3	0	34		Sd vfg sslty	no
1	1.4	A4	3207.0	1975.0	32.0	0.0	86.6	Water	0.0	4.3	0	36		Sd fg sslty	no

• (6) denotes low permeability.

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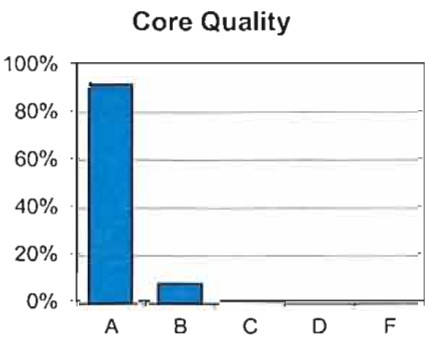
SIDEWALL CORE ANALYSIS - CORE QUALITY INDEX

RECOVERY EFFICIENCY

Total cores attempted =	12
Total cores recovered =	12
Recovery Efficiency =	100%

CORE QUALITY

A	Excellent	11	92%
B	Good	1	8%
C	Fair	0	0%
D	Poor	0	0%
F	Muddy/Insufficient	0	0%

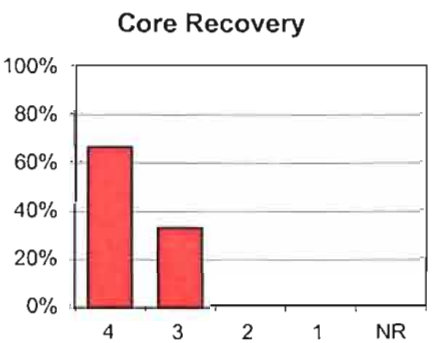


CORE BULLET INFO

Bullet diameter:
Bullet type:
Retaining wire length:
Retaining wire type:
Charge:

CORE RECOVERY SIZE

4	Full recovery (> 1")	8	67%
3	Good recovery (>0.5" - 1")	4	33%
2	Fair recovery (0.25" - .5")	0	0%
1	Poor recovery (<0.25")	0	0%
NR	No recovery	0	0%



Note: Core Quality Index (CQI) is a visual rescription of core grain recovery based upon two measures:
1) Core quality - Affected by mud invasion, shattering of grains, ability to use core for additional tests.
2) Core recovery size - Amount of core recovered.

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DESCRIPTION CODE KEY AND ABBREVIATIONS

LITHOLOGY		FLUORESCENCE		INTENSITY	
Anhy	Anhydrite	ev	even	bt	bright
Cgl	Conglomerate	stk	streaks(ed)	ft	faint
Dol	Dolomite	spt	spots(ed)	dl	dull
Glauc	Glauconite	mott	mottled	vft	very faint
H	Halite				
Lig	Lignite	**COLOR**		**MODIFIERS**	
Ls	Limestone	b	blue	u	unconsolidated
Pyr	Pyrite	b-w	blue-white	vs	very slightly
Sd	Sand	bz	bronze	s	slightly
Sh	Shale	gld	gold	m	moderately
Slt	Silt	w	white	mw	moderately well
Sf	Shell Fragments	y	yellow	v	very
				w	well
GRAIN SIZE		**OTHER**			
vfg	very fine grain	calc	calcareous	ha	high angle
fg	fine grain	cln	clean	hd	hard
mg	medium grain	carb	carbonaceous	lam	laminated(ion)
cg	coarse grain	cem	cementation	mic	micaceous
		con	consolidated	ms	mudshot
		dns	dense	shy	shaley
		flu	fluorescence	slty	silty
		foss	fossiliferous	tr	trace
		frc	fractured(s)	vug	vuggy
		fl	flushed	vt	vertical

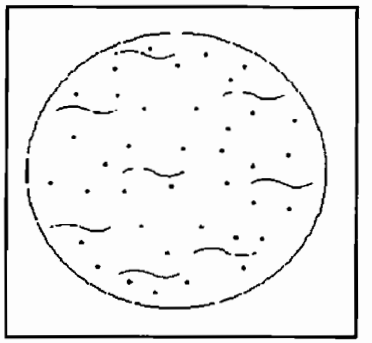
PRODUCTION CODES		OTHER ABBREVIATIONS	
Gas	gas	Por	porosity, %
Oil	oil	Gb	gas saturation, % bulk volume
Cond	condensate	Ob	oil saturation, % bulk volume
Water	water	Sco	core oil saturation, % pore volume
(1)	altered core	Stw	total water saturation, % pore volume
(2)	exposed core	Sciw	critical water saturation, % pore volume
(3)	insufficient sample	Vsh	volume of shale, % bulk volume
(4)	contaminated core	Cs	surface area (m^2/cc)
(5)		Mean	mean grain size, microns
(6)	low permeability		

FOOTNOTES

* permeability values determined empirically
** Sciw values after Granberry, R.J. and Keelan, D.K., 1977
*** samples interpreted without knowledge of depth or intervals

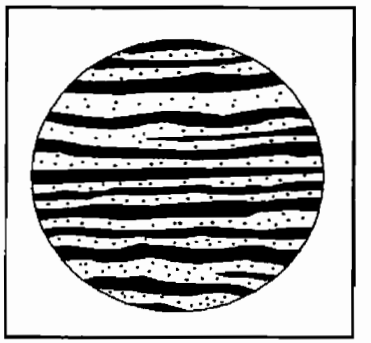
INTERLAM[sm] THIN BED SAMPLE DESCRIPTION

TYPE 1



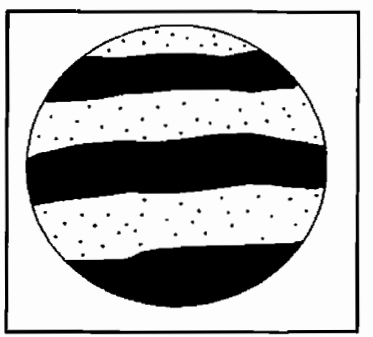
SHALE LAMINATIONS < 1 mm

TYPE 2



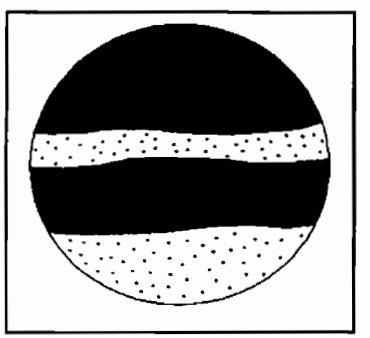
SHALE LAMINATIONS 1-5 mm

TYPE 3



SHALE LAMINATIONS 5-10 mm

TYPE 4



SHALE LAMINATIONS > 10 mm

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SIDEWALL CORE ANALYSIS

CORE ANALYSIS PROTOCOL

Samples are inventoried upon arrival at the laboratory.

A qualitative combustible gas reading is performed on each sample.

Samples are carefully cleaned of mud and a general description is made noting lithology, grain size, visible minerals, and reactivity to 10% hydrochloric acid. The length, quality, and fluorescence of each sample is also recorded.

Porosity is calculated using the Summation of Fluids technique. A portion of the sample is place into a calibrated mercury pump to measure the bulk volume of the sample via mercury displacement. The gas bulk is measured by injecting mercury into the sample at 750 psi. The sample is placed into a retort cup with a calibrated receiving tube. The samples are retorted to 400 deg F to remove pore water and determine the water bulk. The oven temperature is increased to 1200 deg F and the oil is retorted from the sample to determine the oil bulk. The sum of the gas bulk, water bulk, and oil bulk is equal to the porosity. All mercury is recovered.

Permeability is determined empirically based upon the lithological description of the sample.

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SIDEWALL CORE ANALYSIS

CORE ANALYSIS PROTOCOL

Geophysical Logs

BAKER HUGHES

Baker Atlas

Michael e. Byrd
Field Service Manager
3401 South Main Street
Pearland, Texas (77581-4732)

August 16, 2012

Joe Slavik
Alsay, Inc.
6615 Gant St.
Houston, Texas 77066

Re: Conroe Well #23

On August 14, 2012, Baker Hughes logging Services logged the above mentioned well in Montgomery County, Texas. The logging instruments run were a HDIL Resistivity, a Compensated Z-Density / Compensated Neutron gas indicator and a Spectral Gamma Ray for recording natural ground radiation, and a Minilog.

The well was drilled to a depth of 3245-ft using a native mud system. Following is an interpretation of the logs.

There is water in the zones of interest at 110-ft to 214 ft, 378-ft to 394-ft, 532-ft to 564-ft, 582-ft to 620-ft and 624-ft to 724-ft.

There is water in the Jasper sands from 822-ft to 856-ft, 862-ft to 897-ft, 905-ft to 978-ft, 1020-ft to 1067-ft, 1078-ft to 1086-ft, 1132-ft to 1200-ft, 1298-ft to 1320-ft, and 1355-ft to 1404-ft.

There is also water in the Catahoula sands from 1920-ft to 1967-ft, 2012-ft to 2064-ft, 2086-ft to 2109-ft, 2207-ft to 2236-ft, 2390-ft to 2411-ft, 2416-ft to 2437-ft, 2457-ft to 2475-ft, and 2822-ft to 2830-ft.

The Minilog shows positive separation thru all of the zones of interest. It should also be noted that at 1802-ft to 1819-ft the Gamma Ray has a maximum reading of 262.5 API with K=3.5%, U=200 PPM, and TH=14 PPM. In the interval from 1960-ft to 1975-ft the Gamma Ray has a maximum reading of 209 API, with K=2.75%, U=15 PPM, and TH=14 PPM.

There is no indication of gas in any of the zones of interest. Any cross over seen on the Density/Neutron responses is the result of borehole rugosity, as the tool passes into a larger sized borehole, as can be seen with the caliper.

If you have any additional questions, please feel free to call me at 281-485-8311.

Regards,

Michael E. Byrd

BAKER HUGHES

COMPENSATED Z-DENSILOG SM
COMPENSATED NEUTRON LOG
GAMMA RAY LOG
TTRM SUB SM

FILE NO:	COMPANY	ALSAY INC	
API NO:	WELL	CONROE WELL 23	
	FIELD	WATER WELL	
	COUNTY	MONTGOMERY	STATE TX

Ver. 3.87

LOCATION:

LAT _____ LONG _____

OTHER SERVICES
SWC
HDIL-ML

PERMANENT DATUM	GL	ELEVATION	NA
LOG MEASURED FROM	KB	6 FT	ABOVE P.D.
DRILL. MEAS. FROM	KB		

ELEVATIONS:

KB	NA
DF	NA
GL	NA

DATE		14-AUG-2012			
RUN	TRIP	1	1		
SERVICE ORDER		US613557			
DEPTH DRILLER		3245 FT			
DEPTH LOGGER		3244 FT			
BOTTOM LOGGED INTERVAL		3244 FT			
TOP LOGGED INTERVAL		64 FT			
CASING DRILLER		36 IN	@60 FT	@	
CASING LOGGER		64 FT			
BIT SIZE		9.875 IN			
TYPE OF FLUID IN HOLE		WATER BASED MUD			
DENSITY	VISCOSITY	9.8 LB/G	34 S		
PH	FLUID LOSS	7.5			
SOURCE OF SAMPLE		MUD LINE			
RM AT MEAS. TEMP.		8.50 OHMM	@75 DEGF	@	
RMF AT MEAS. TEMP.		6.37 OHMM	@75 DEGF	@	
RMC AT MEAS. TEMP.		10.63 OHMM	@75 DEGF	@	
SOURCE OF RMF	RMC	CALCULATED	CALCULATED		
RM AT BHT		6.00 OHMM	@109 DEGF	@	
TIME SINCE CIRCULATION		10			
MAX. RECORDED TEMP.		109 DEGF			
EQUIP. NO.	LOCATION	HL6649	PEARLAND		
RECORDED BY		YC CONG			
WITNESSED BY		DALE SHOCKLEY			

IN MAKING INTERPRETATIONS OF LOGS OUR EMPLOYEES WILL GIVE CUSTOMER THE BENEFIT OF THEIR BEST JUDGEMENT. BUT SINCE ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS, WE CANNOT, AND WE DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATION. WE SHALL NOT BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COST, DAMAGES, OR EXPENSES WHATSOEVER INCURRED OR SUSTAINED BY THE CUSTOMER RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR EMPLOYEES.

BOREHOLE RECORD

BIT SIZE	FROM	TO
9.875 IN	64 FT	3244 FT

CASING RECORD

SIZE	WEIGHT	GRADE	FROM	TO
36 IN			0 FT	64 FT

REMARKS

RUN 1 TRIP 1 :

BVOL IS BOREHOLE VOLUME IN CU FT.
CVOL IS NOT CALULTED BECAUSE OF NO NEXT CASGING SIZE AVILBLE

DENSITY POROSITY RECORDED AND PRESENTED ON A SANDSTONE MATRIX = 2.65 G/CC
NEUTRON POROSITY RECORDED AND PRESENTED ON A SANDSTONE MATRIX

CASING ID IS 35 IN AS PER CUSTOMER

SCALES PRESENTED AS PER CUSTOMER REQUEST
SCALES PRESENTED AS PER CUSTOMER REQUEST

CREW: YC CONG, E GONZALEZ, J KAY, R SIOK
RIG: ALSAY 1

THANK YOU FOR CHOOSING BAKER HUGHES, INC.

EQUIPMENT DATA					
RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	1	WTS	3514XB	153396	FREE
1	1	DGR	1329XA	152301	FREE
1	1	CN	2446XA	179984	DE-CENT
1	1	ZDL	2234XA	153006	PAD DEVIE
1	1	KNJT	3939XA	1667760	FREE
1	1	HDIL-E	1515EA	179482	FREE
1	1	HDIL-M	1515M	10042094	FREE
1	1	ML	1243X	10597384	PD DEVICE
1	1	TTRM	3981XB	10080044	FREE

ZDL/CN MAIN 5IN

ECLIPS 6.1i Aug 06, 2010
Updates: 1,2

Wed Aug 15 00:22:06 2012

Pcrplt /main/62 Cplot Pdf_Cpp /main/16 Fileview 5.61

PARAMETER AND FILTER SUMMARY REPORT

File: /data/pass/ALSAY-613557a/m778wR01.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 63.500 ft BOTTOM DEPTH: 3248.000 ft

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft) TOP	BOTTOM
CHT	FILTER ()	medium (1)		TOP	BOTTOM
Y AXIS CALIPER	FILTER ()	medium (1)		''	''
TENSION	FILTER ()	medium (1)		''	''
GR	FILTER ()	medium (1)		''	''
CN	FILTER ()	medium (1)		''	''
CALIPER	FILTER ()	medium (1)		''	''
	FILTER (.h)	medium (1)		''	''
	FILTER (.i)	medium (1)		''	''
ZDL MED RES	FILTER (hrd1*)	medium		''	''
	FILTER (hrd1s*)	medium		''	''
	FILTER (hrd2*)	medium		''	''
	FILTER (hrd2s*)	medium		''	''

BOREHOLE & CEMENT

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft) TOP	BOTTOM
CASING - BOREHOLE & CEMENT VOLUME	CASING O.D.	0.000	in	TOP	BOTTOM
	CASING THICKNESS	0.000	in	''	''
BIT SIZE	BIT SIZE	9.875	in	''	''
BOREHOLE CORR DIAMETER SOURCE	CALIPER/FIXED DIA. (cnbh*)	USE CALIPER		''	''
BOREHOLE CORR DIAMETER	FIXED DIAMETER (cnbh*)	9.875	in	''	''

CN PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft) TOP	BOTTOM
2446 CN MATRIX	2446 MATRIX	SANDSTONE		TOP	BOTTOM
CN SALINITY CORRECTION	SALINITY	0	ppm	''	''
CN CASING & CEMENT CORRECTION	CORRECTION	OFF		''	''
	BIT SIZE BEHIND CSNG	7.875	in	''	''

ZDL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)

DENSITY POROSITY	RHOmatrix	2.650	g/cm3	TOP	BOTTOM
	RHOfluid	1.000	g/cm3	''	''
ZDL	DENX TRACKING	ON		''	''

CURVE DESCRIPTION REPORT

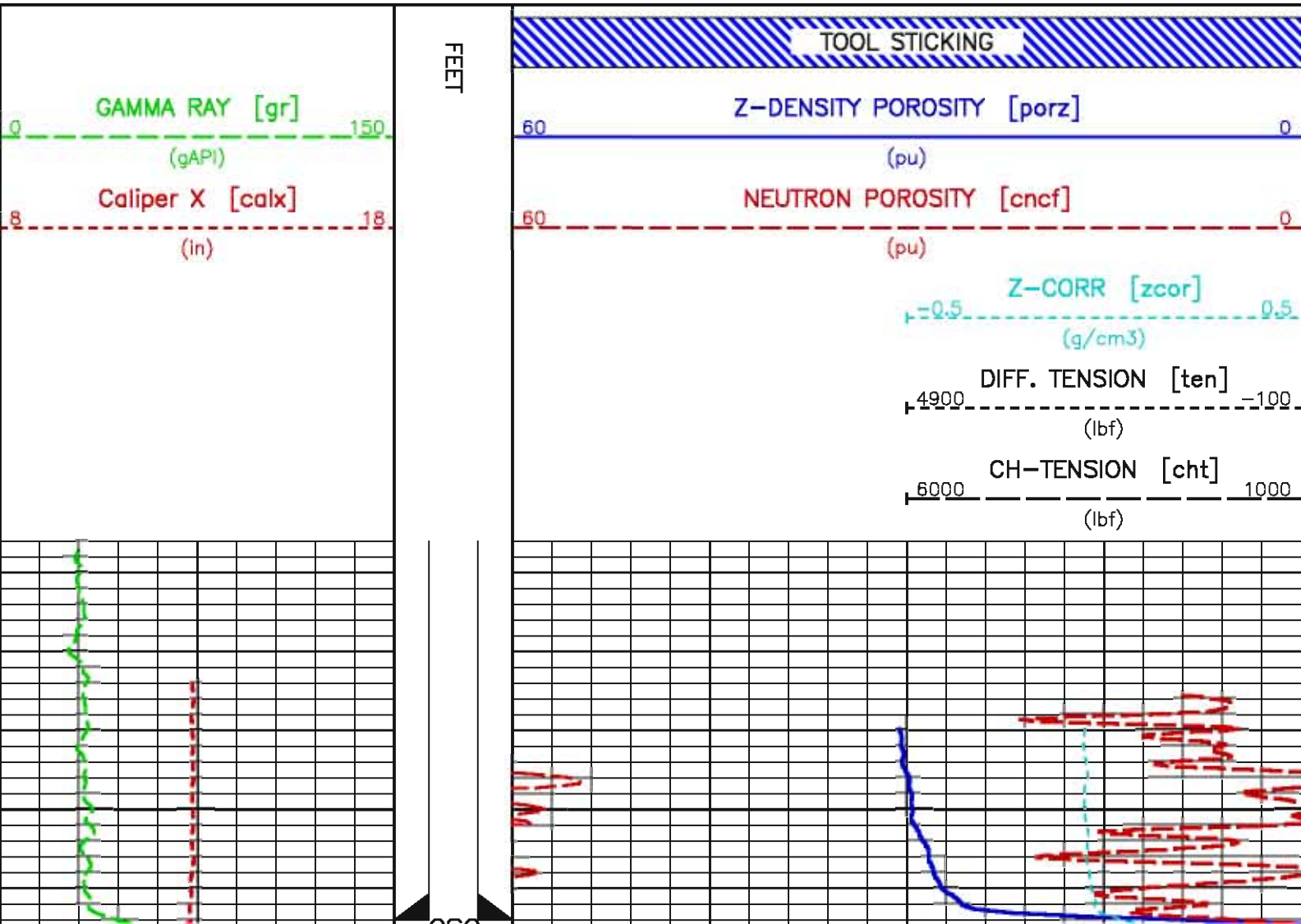
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:CALX	Aug 14 22:47:59 2012	CALIPER FROM X-AXIS OF XY CALIPER(S)
F1:CHT	Aug 14 22:47:59 2012	CABLE HEAD TENSION
F1:CNCF	Aug 14 22:47:59 2012	FIELD NORMALIZED COMPENSATED NEUTRON POROSITY
F1:GR	Aug 14 22:47:59 2012	GAMMA RAY
F1:PORZ	Aug 14 22:47:59 2012	POROSITY FOR SELECTABLE MATRIX
F1:TEN	Aug 14 22:47:59 2012	DIFFERENTIAL TENSION
F1:ZCOR	Aug 14 22:47:59 2012	DENSITY CORRECTION

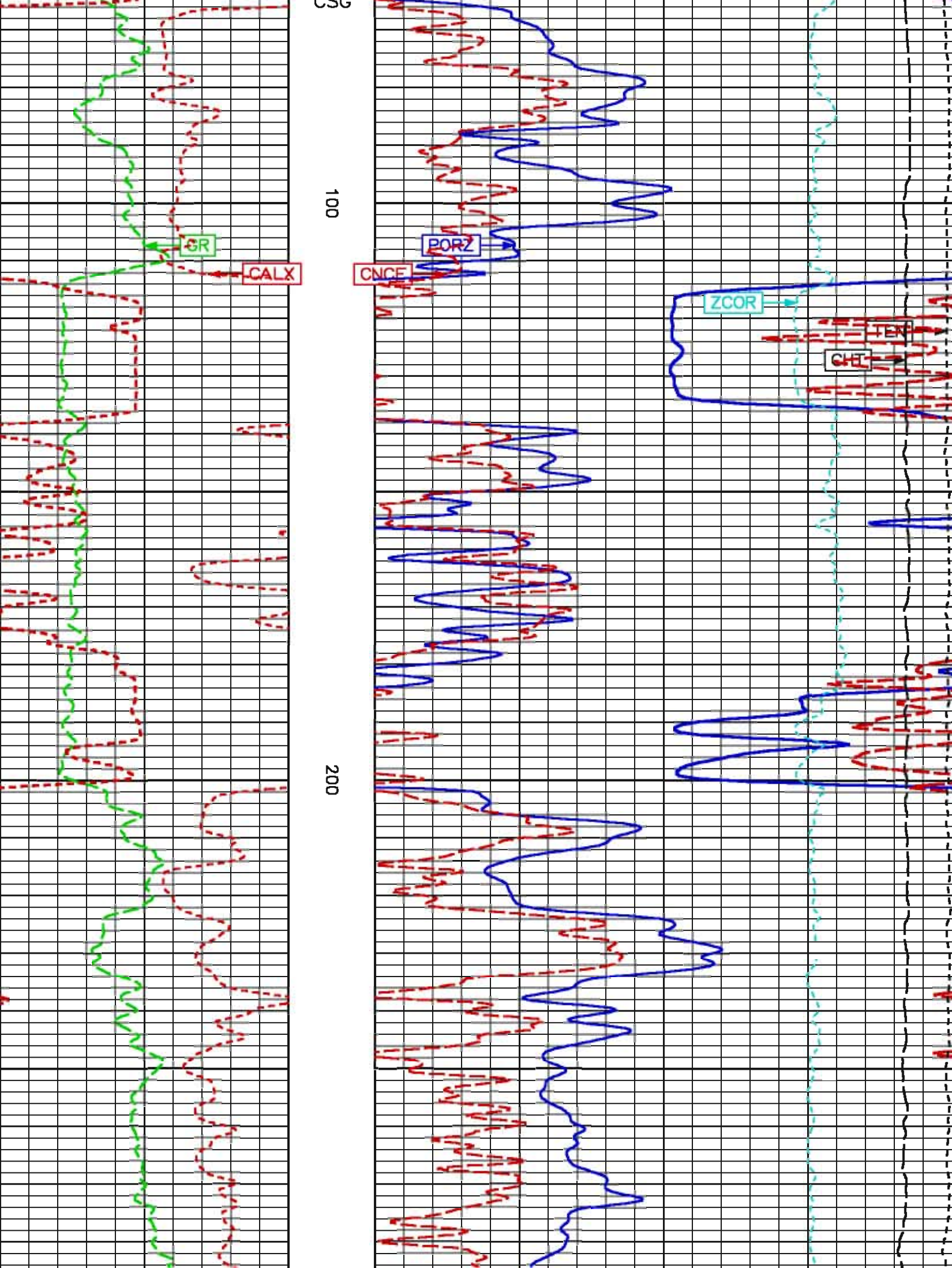
CURVE MEASURE POINT OFFSET

CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
CALX	30.38	CNCF	40.50	PORZ	29.62	ZCOR	29.62
CHT	0.00	GR	47.50	TEN	0.00		

Presentation : pld1:/dat1a/pass/ALSAY-613557/ZDL-CN-MAIN.pdf [5"/100' Scale]
Plot Interval : 17.25 - 3246.75 Feet

Data File 1 : F1 : pld1:/dat1a/pass/ALSAY-613557a/m778wR01.aff
Created On : Aug 14 22:47:59 2012
Company : ALSAY INC
Well : CONROE WELL 23
Field : WATER WELL
File Interval : 2.5 - 3248 Feet
Oct : m778w

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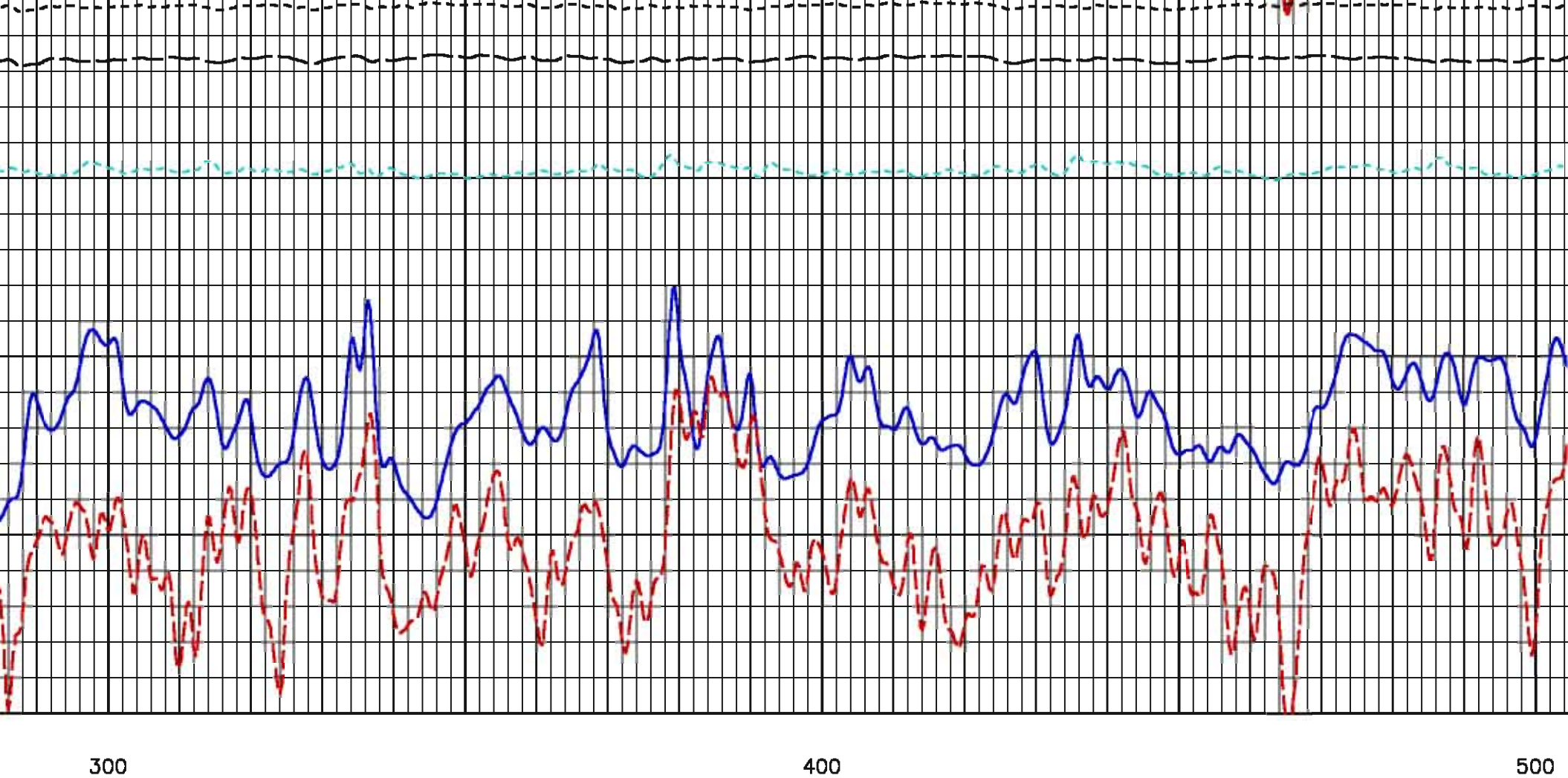
CHT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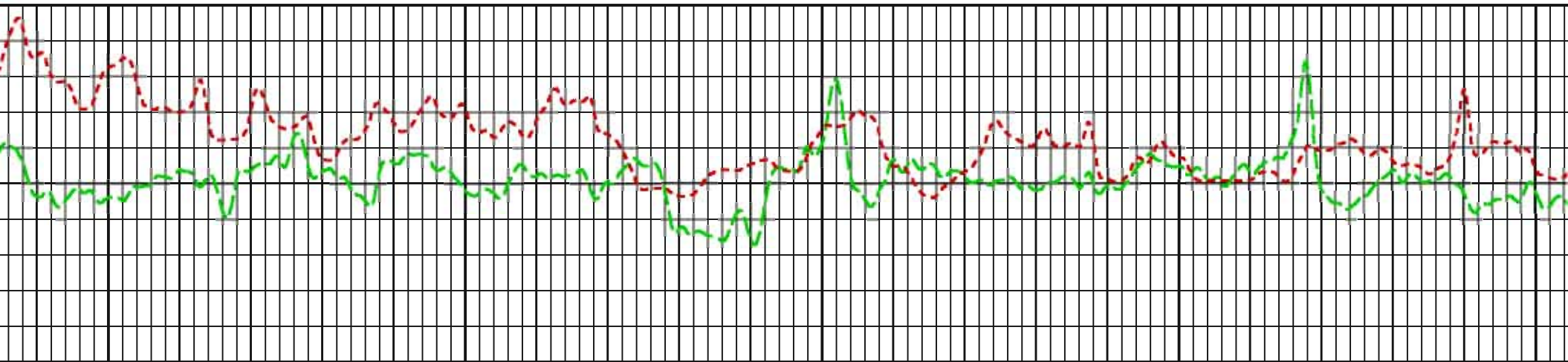

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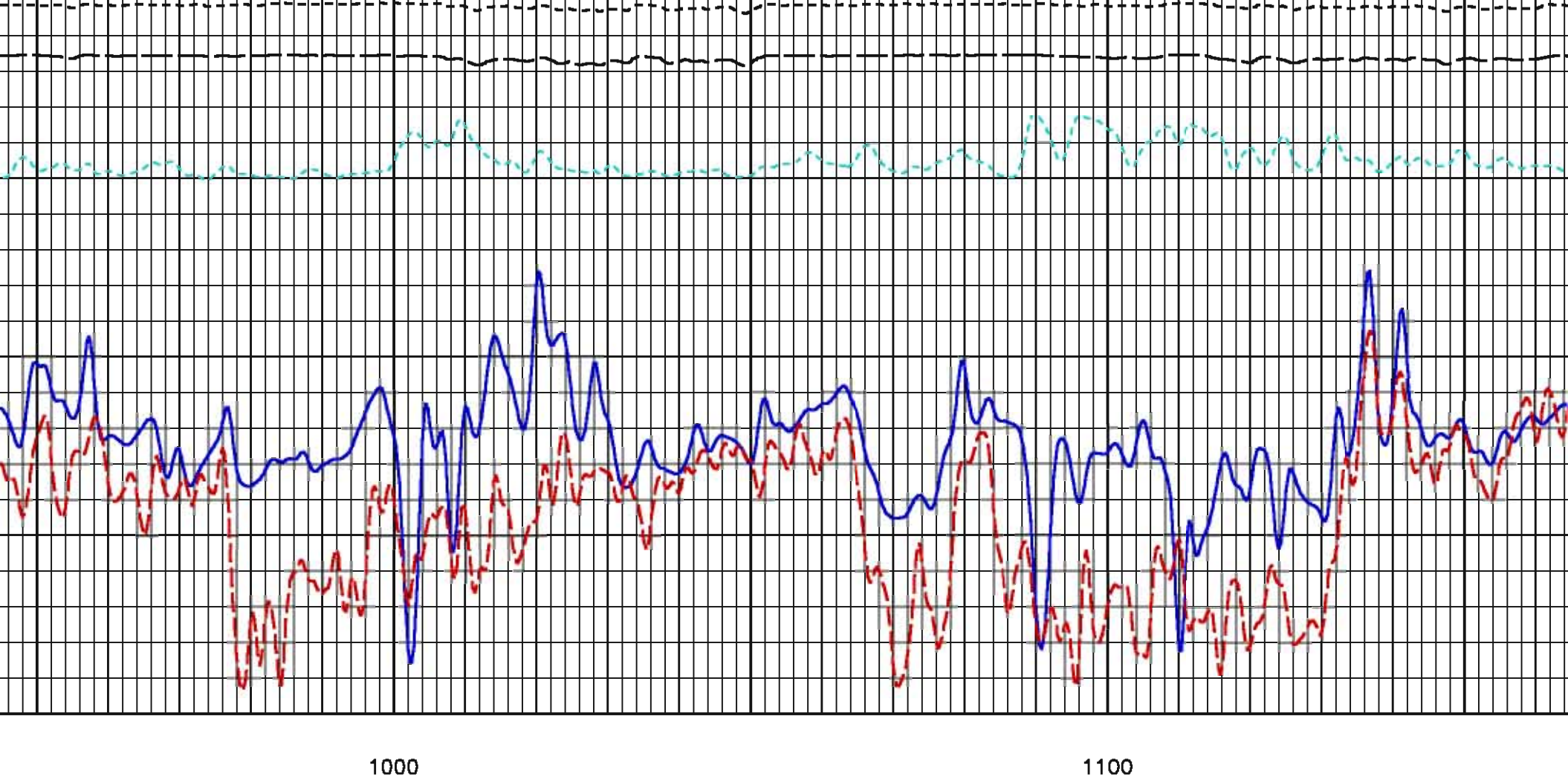
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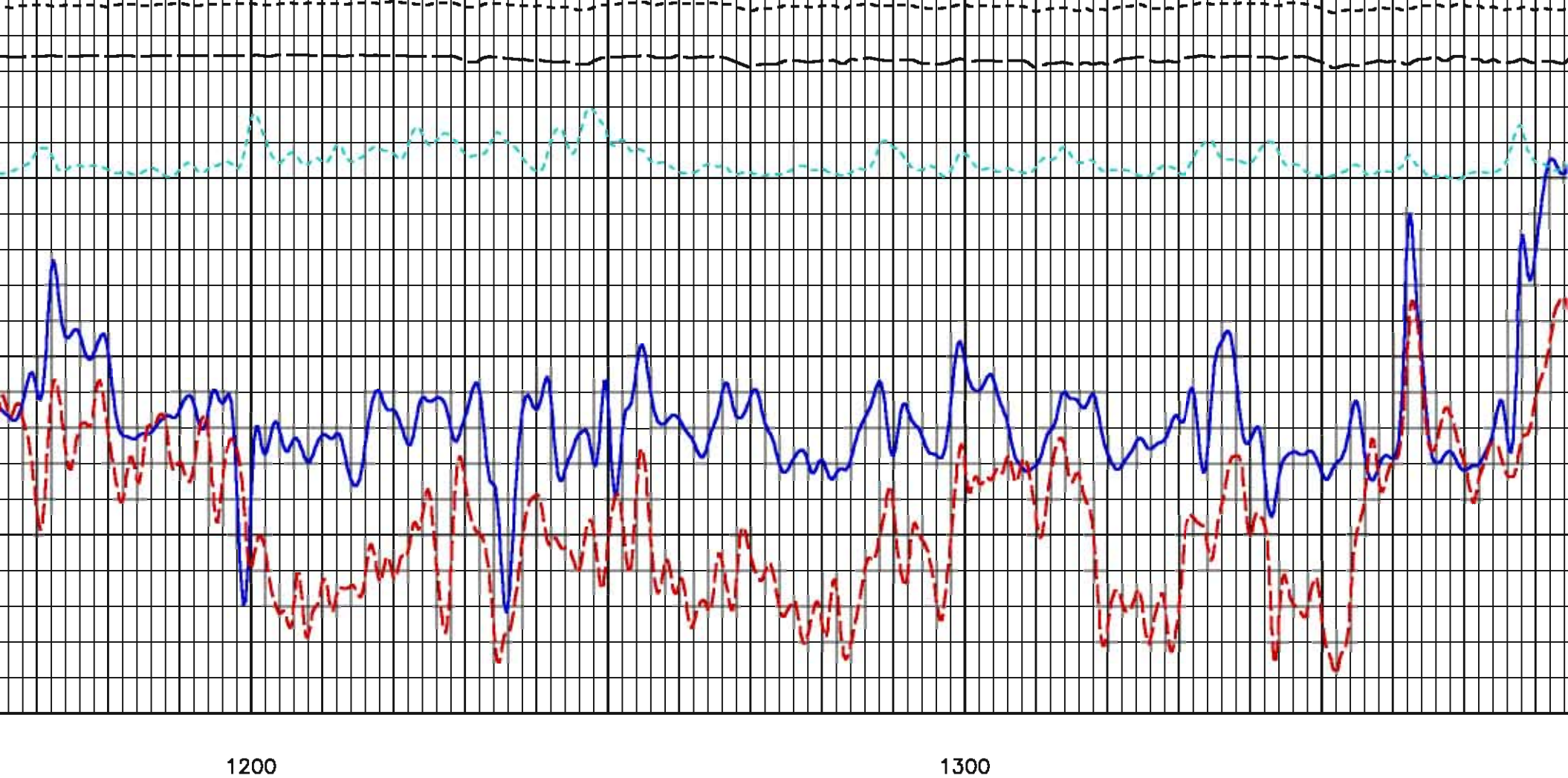
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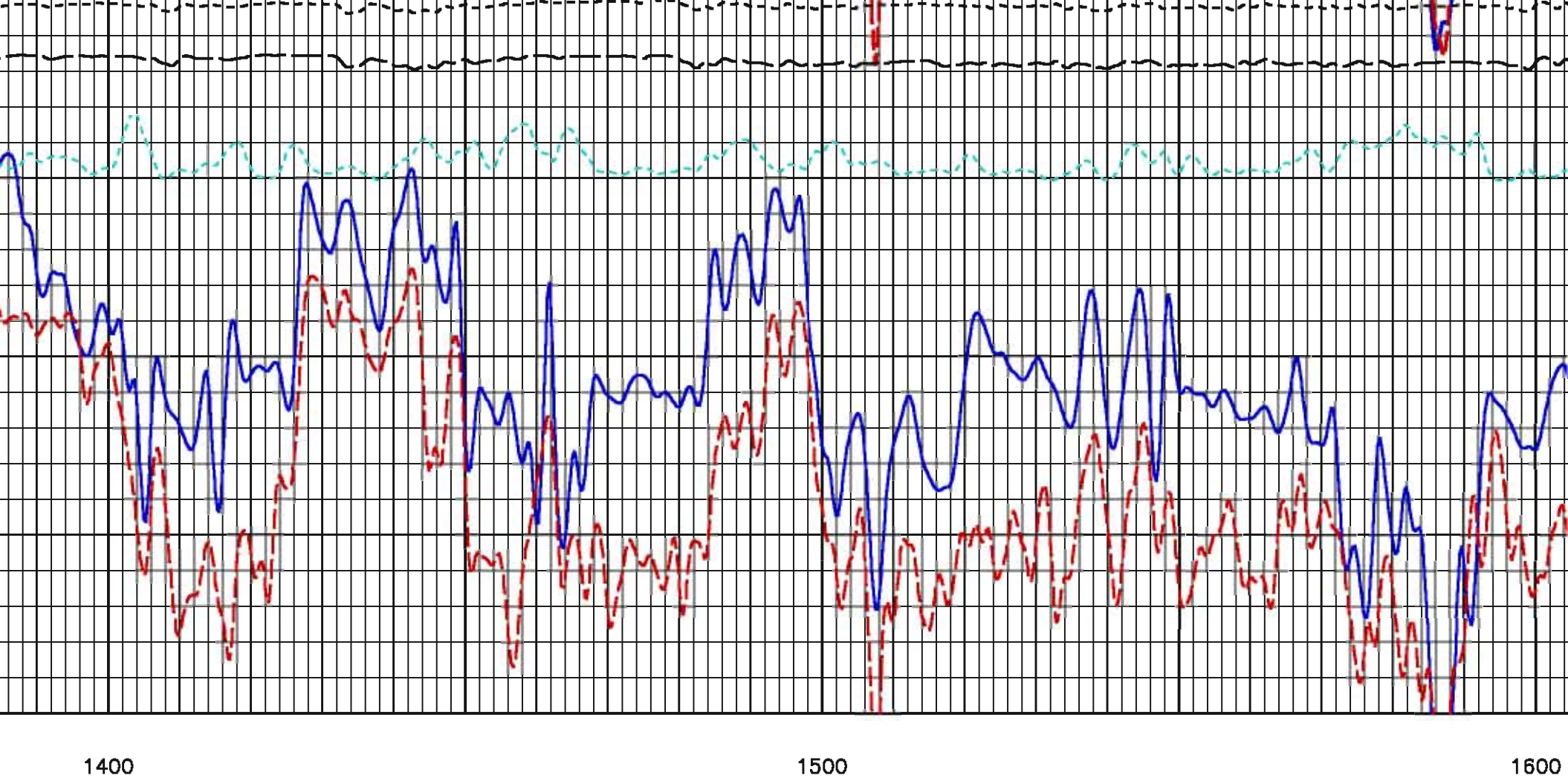
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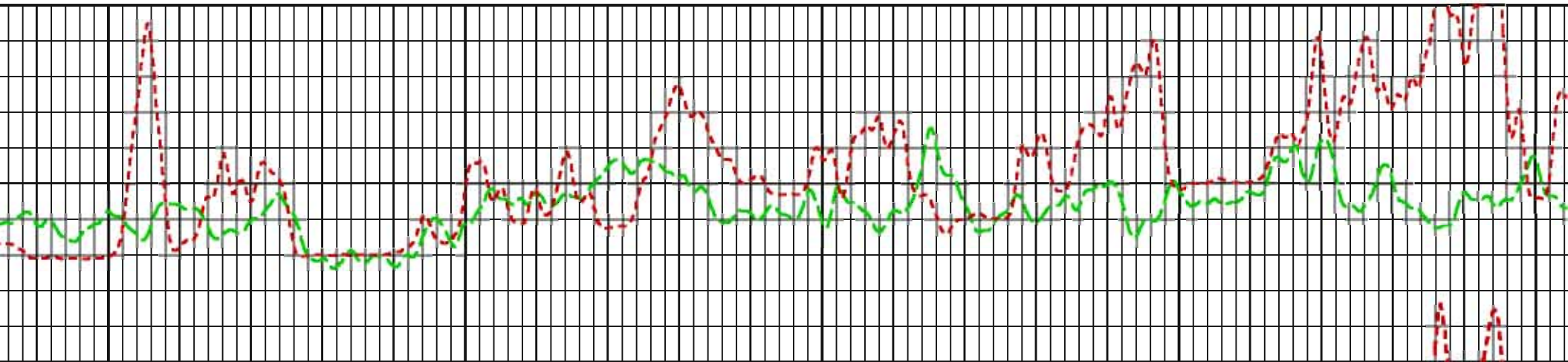

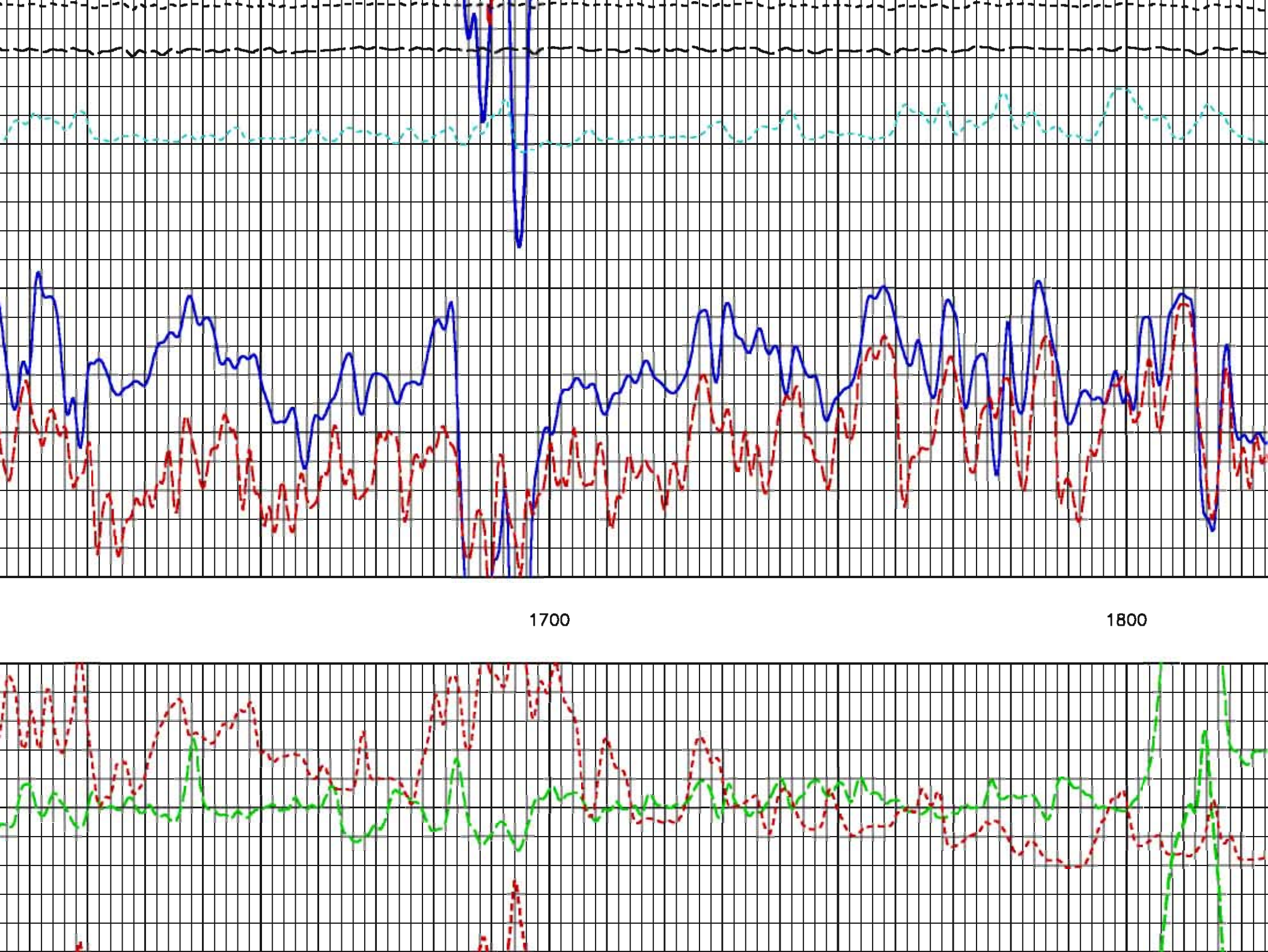
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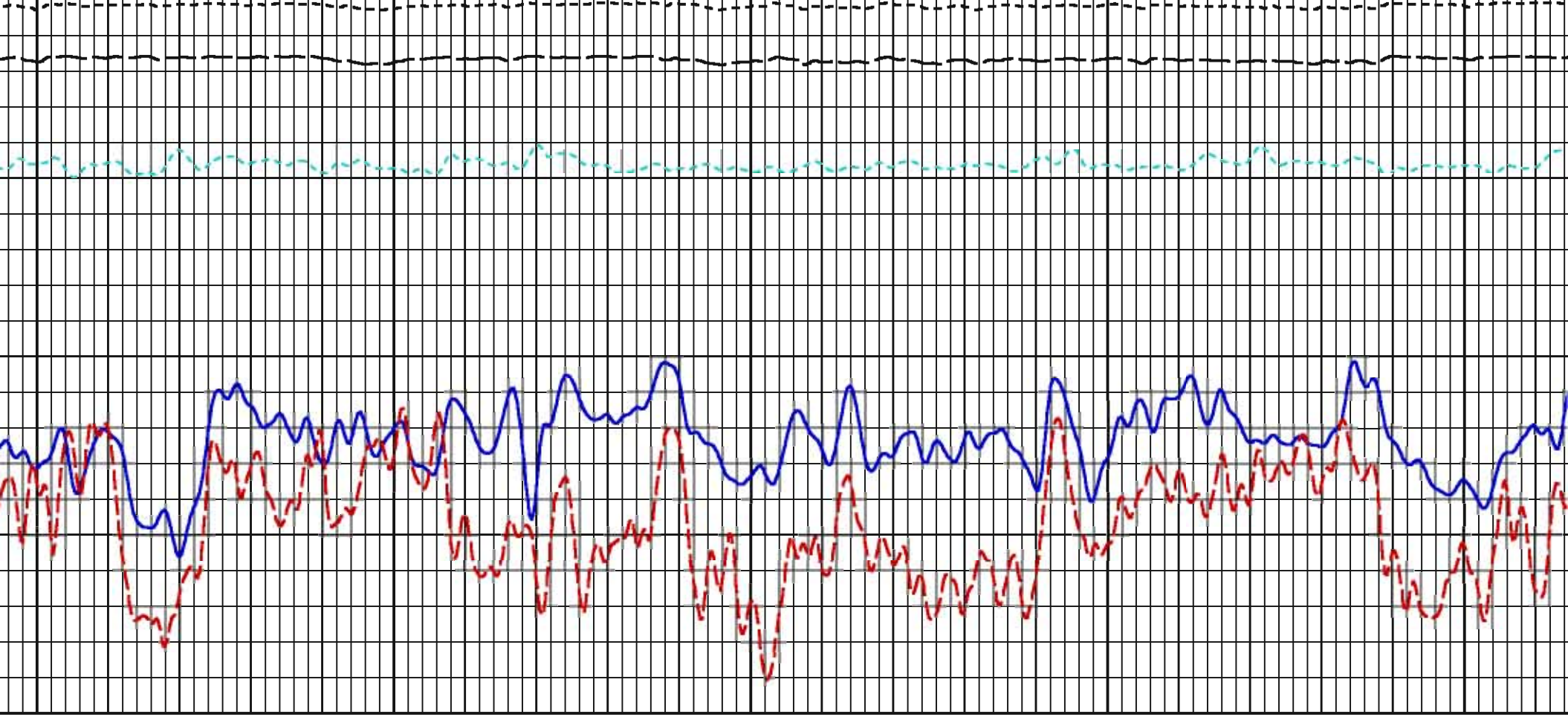

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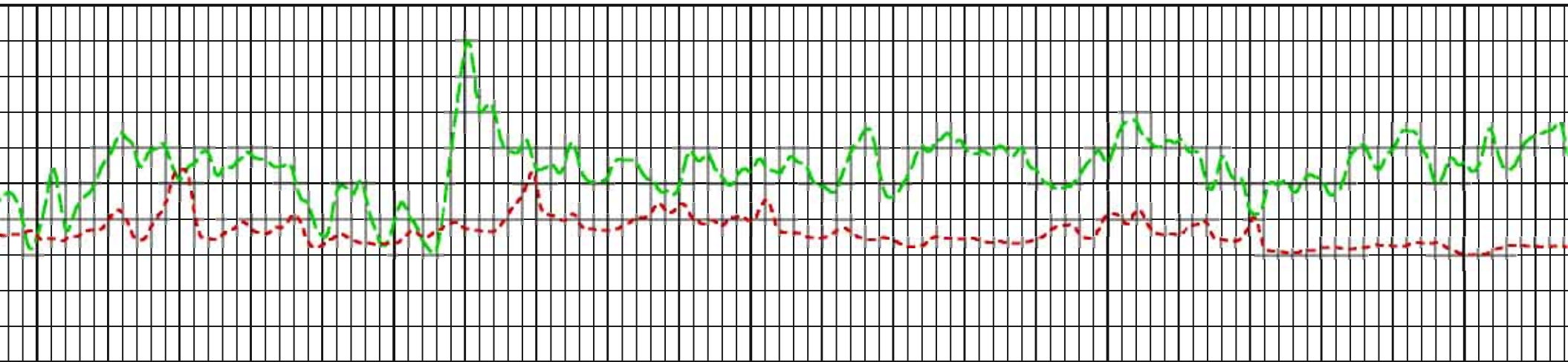
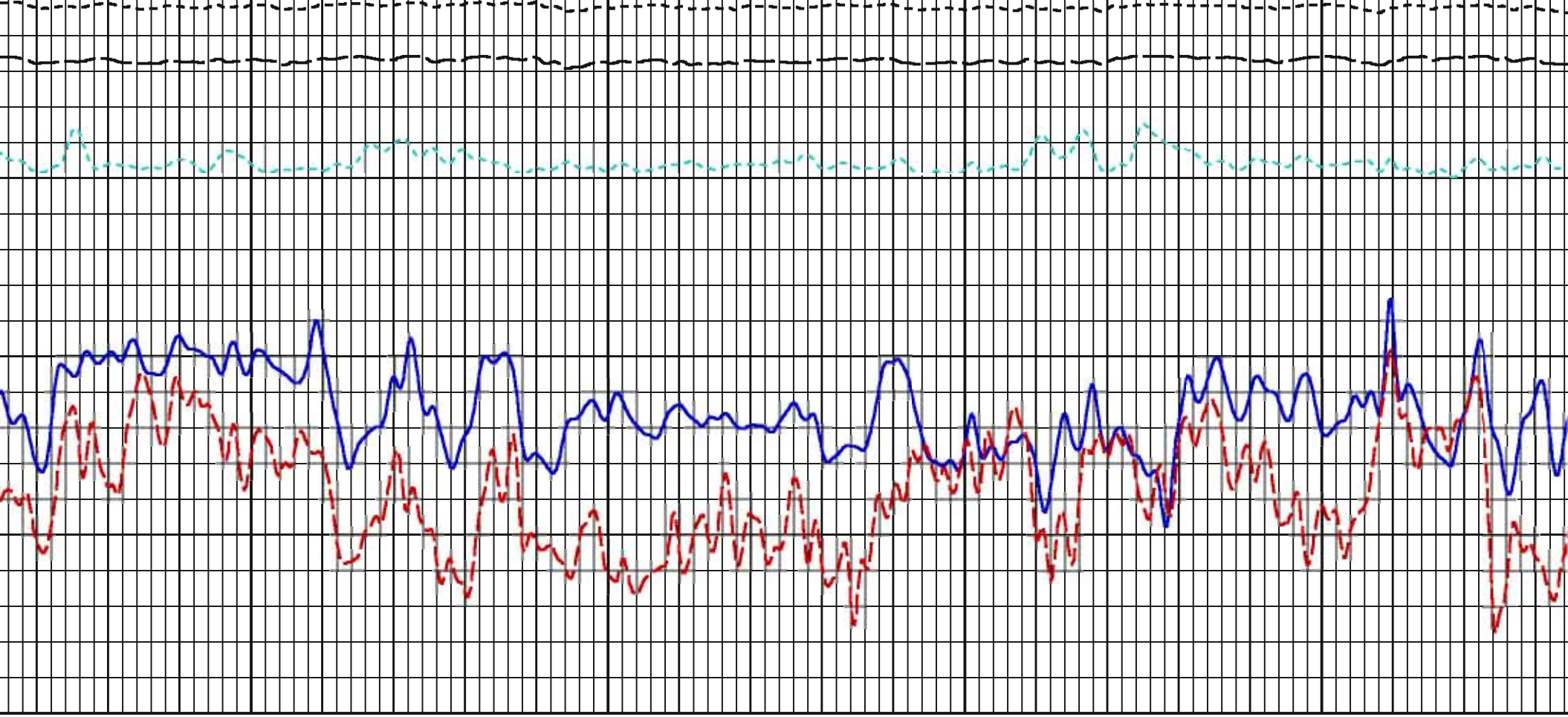
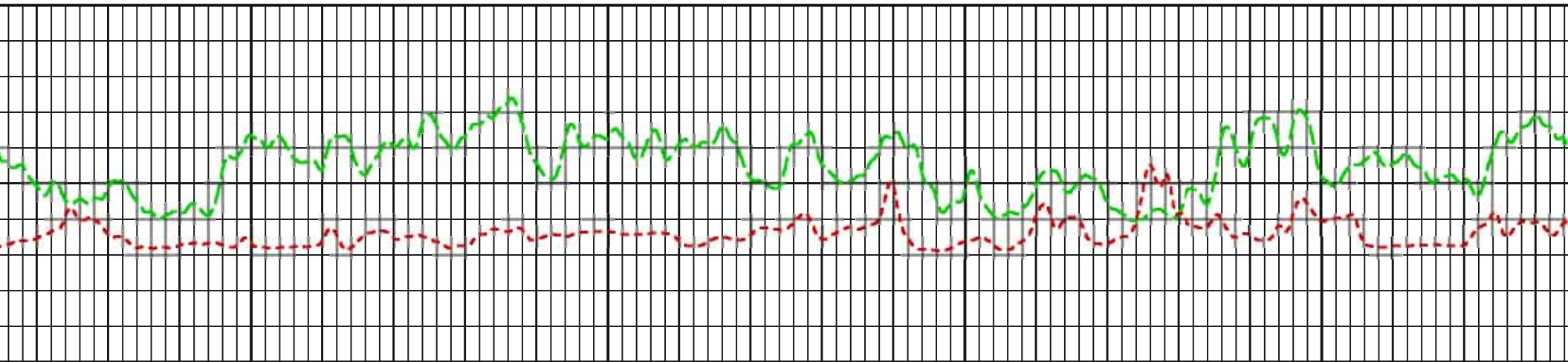
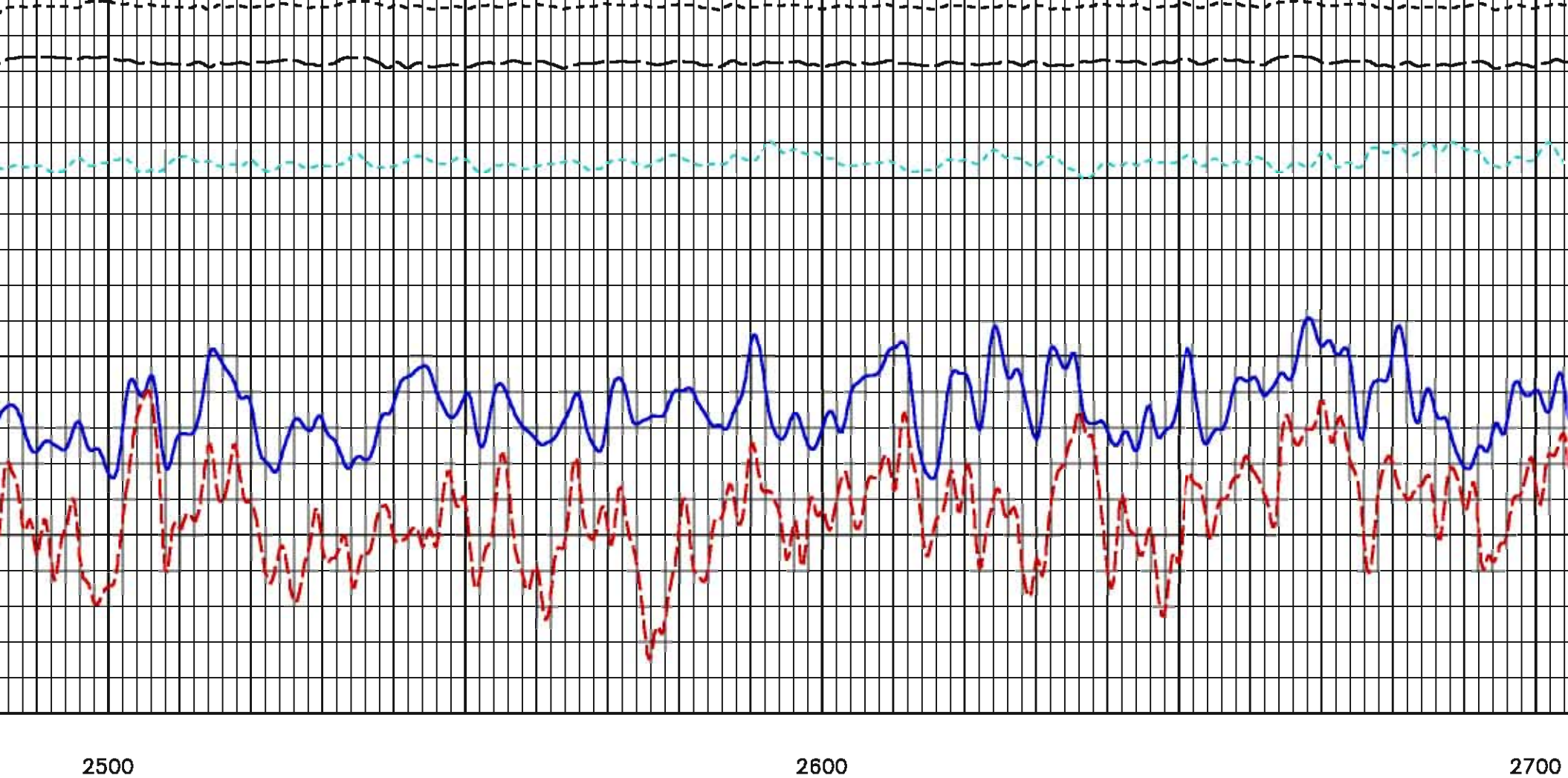




2300 2400

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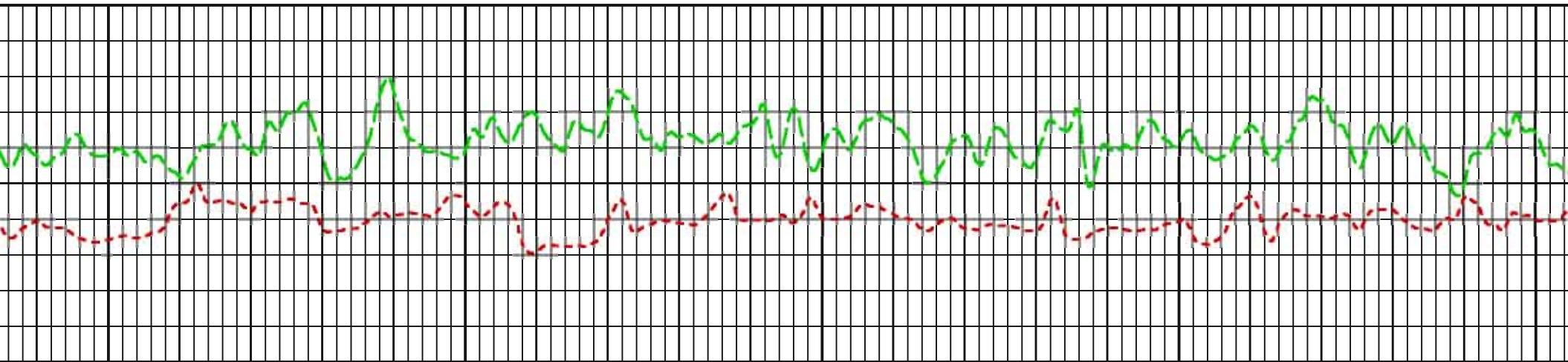
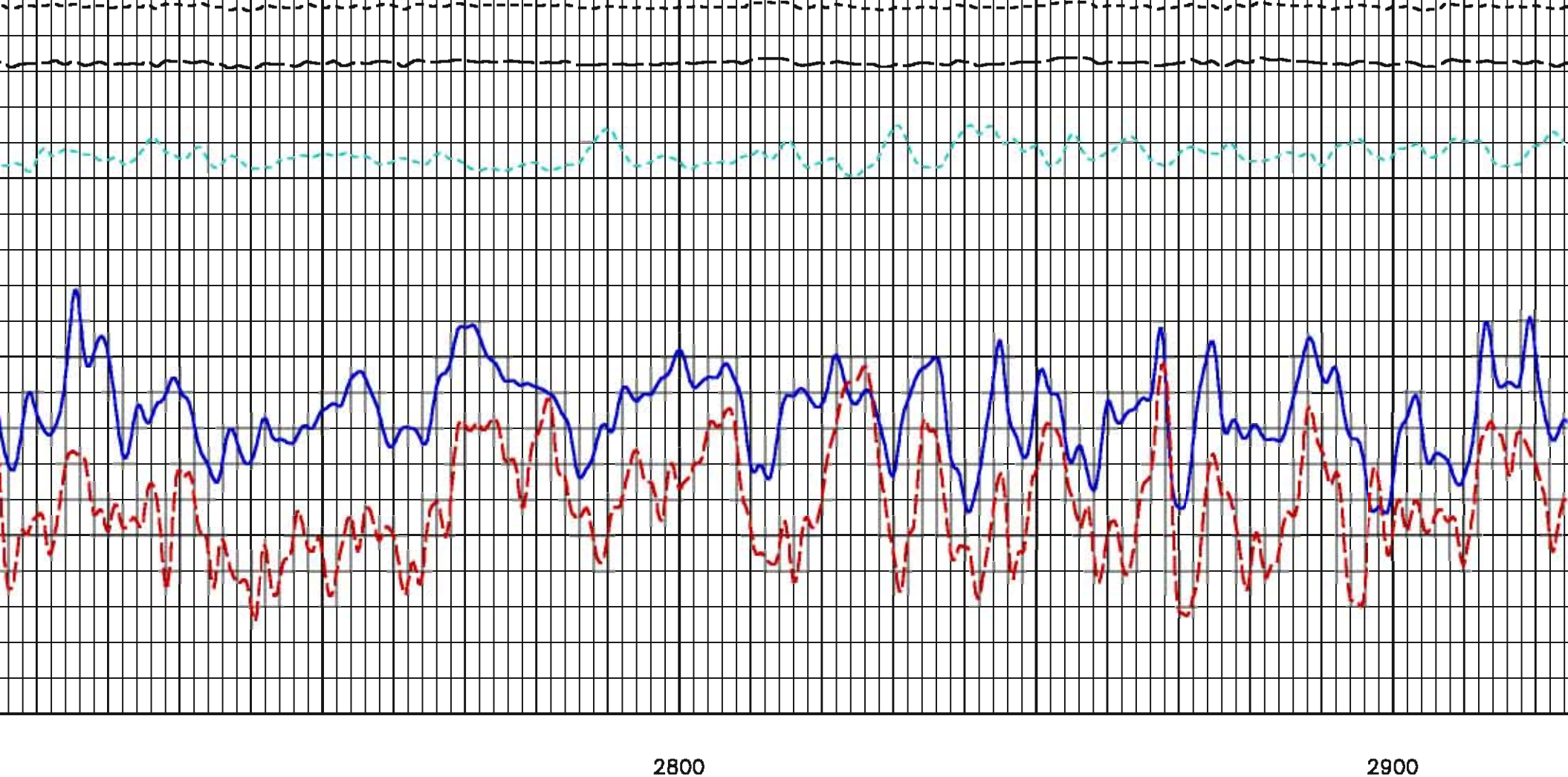
2700

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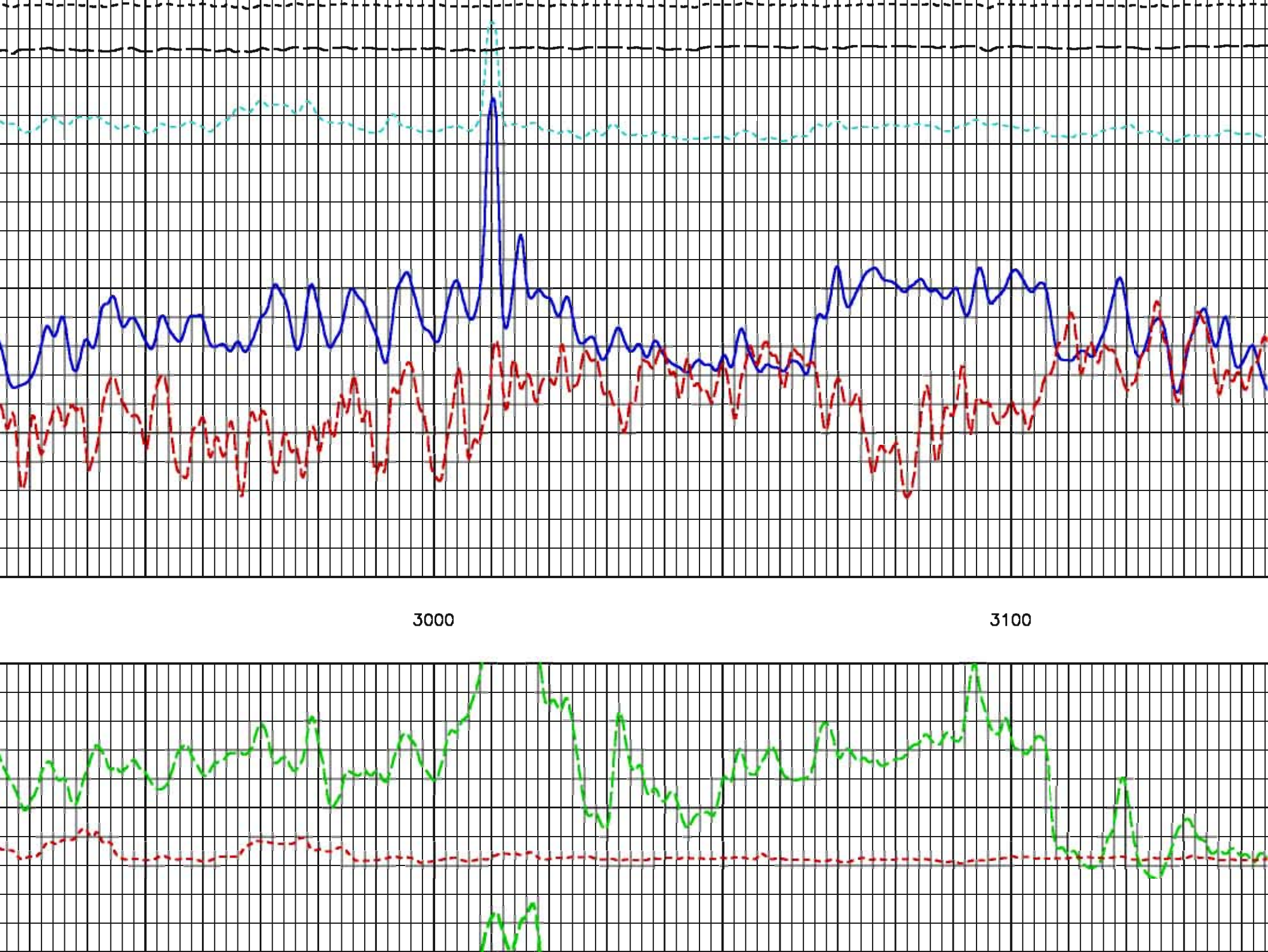
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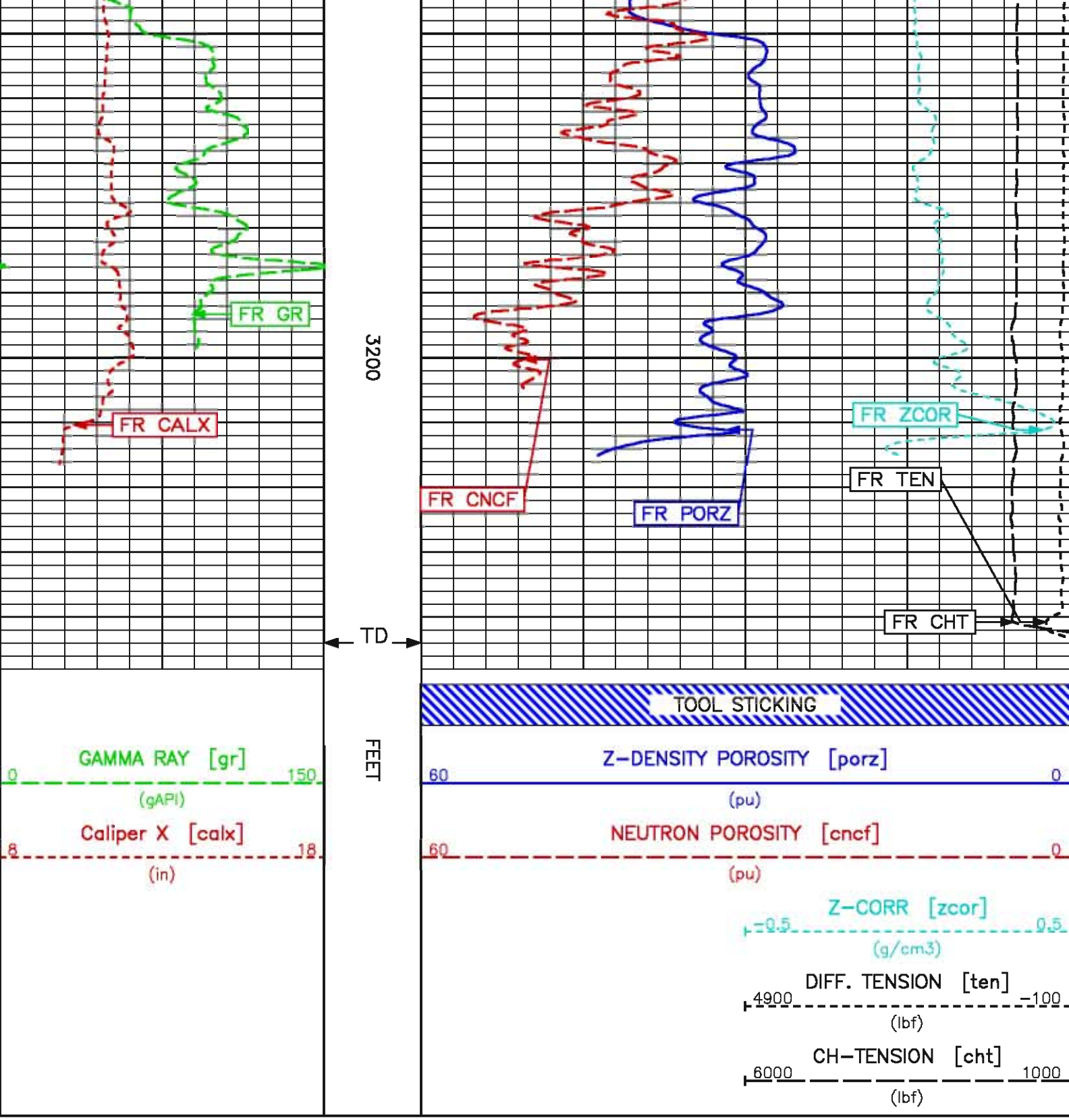


CALIBRATION / VERIFICATION SUMMARY

Source File: /data/pass/ALSAY-613557/ZDLCN.tp1

GR PRIMARY CALIBRATION SUMMARY

TOOL #:	1329XA 152301	DATE/TIME PERFORMED:	Tue Aug 7 14:41:53 2012
UNIT #:	3885TA 006679	CALB JIG #:	4702NK VDA-389

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	CR DIFF (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	CALBRTR (gAPI)
GR	224.29	1114.29	890.0 (830.0 – 960.0)	0.169	37.80	187.80	150

GR PRIMARY VERIFICATION SUMMARY

TOOL #: 1329XA 152301 DATE/TIME PERFORMED: Tue Aug 7 14:45:23 2012

UNIT #: 3885TA 006679 VERI JIG #: 4702NK VDA-389

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	DIFF. (gAPI)
GR	226.44	1111.42	0.169	38.16	187.32	149.15 (140.00 – 160.00)

GR BEFORE LOG VERIFICATION SUMMARY

TOOL #: 1329XA 152301 DATE/TIME PERFORMED: Tue Aug 14 09:19:10 2012 DAYS SINCE CAL: 6

UNIT #: 3885TA 006679 VERI JIG #: 4702NK VDA-389

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	DIFF. (gAPI)
GR	186.69	1075.16	0.169	31.46	181.21	149.74 (139.15 – 159.15)

GR AFTER LOG VERIFICATION SUMMARY

NOT DONE

CN PRIMARY CALIBRATION SUMMARY

TOOL #: 2446XA 179984 DATE/TIME PERFORMED: Mon Jul 23 11:10:11 2012

UNIT #: 3885TA 006679 CALIBRATOR #: 2437XB 113987 SOURCE #: 4717XS 54868x

	MEASURED CPS	DEADTM CORR CPS	DTC SSN/LSN	NOMINAL SSN/LSN	CORRECTION FACTOR	POROSITY (pu)
LSN	730.78	743.83				
SSN	1874.10	1947.08				
RATIO			2.61764	2.75100	1.05095 (0.97000 – 1.07000)	
CN						21.358

CN PRIMARY VERIFICATION SUMMARY

TOOL #: 2446XA 179984 DATE/TIME PERFORMED: Mon Jul 23 11:17:26 2012

UNIT #: 3885TA 006679 ICE BLOCK #: 4717ND VD-375

	MEASURED CPS	DEADTM CORR CPS	DTC SSN/LSN	CORRECTION FACTOR	DTC CORR SSN/LSN	POROSITY (pu)
LSN	1886.91	1976.46				
SSN	4237.28	4629.72				
RATIO			2.34243	1.05095	2.46304	
CN						17.362

CN BEFORE LOG VERIFICATION SUMMARY

TOOL #: 2446XA 179984 DATE/TIME PERFORMED: Tue Aug 14 09:27:46 2012 DAYS SINCE CAL: 21

UNIT #: 3885TA 006679 ICE BLOCK #: 4717ND VD-375

	MEASURED CPS	DEADTM CORR CPS	DTC SSN/LSN	CORRECTION FACTOR	DTC CORR SSN/LSN	POROSITY (pu)
LSN	1907.18	1998.71				
SSN	4241.12	4634.30				
RATIO			2.31865	1.05095	2.43794	
CN						17.026 (15.362 – 19.362)

CN AFTER LOG VERIFICATION SUMMARY

TOOL #: 2446XA 179984 DATE/TIME PERFORMED: Tue Aug 14 22:45:35 2012 DAYS SINCE CAL: 22

UNIT #: 3885TA 006679 ICE BLOCK #: 4717ND VD-375

	MEASURED CPS	DEADTM CORR CPS	DTC SSN/LSN	CORRECTION FACTOR	DTC CORR SSN/LSN	POROSITY (pu)
LSN	1917.78	2010.34				
SSN	4236.18	4628.37				
RATIO			2.30229	1.05095	2.42042	
CN						16.792 (15.362 – 19.362)

CAL PRIMARY CALIBRATION SUMMARY

TOOL #: 2234XA 153006 DATE/TIME PERFORMED: Mon Jul 23 09:24:25 2012

UNIT #: 3885TA 006679

	SMALL RING	LARGE RING	MULT	ADD	SMALL RING (In)	LARGE RING (In)
CALIPER	1640.8	2683.2	0.00767	-5.59248	7.000	15.000

CAL BEFORE LOG VERIFICATION SUMMARY

NOT DONE

CAL AFTER LOG VERIFICATION SUMMARY

NOT DONE

ZDL PRIMARY CALIBRATION SUMMARY

TOOL: 2234XA 153006 DATE/TIME PERFORMED: Mon Jul 23 09:55:29 2012

UNIT: 3885TA 006679 CALB BLKS: 2225XA 094051 CS SRC: 4703NT 16055B

SS CS PK (Channel)	LS CS PK (Channel)	SS_BKGD (cps)	LS BKGD (cps)
224.3 (220.0 – 230.0)	223.9 (220.0 – 230.0)	1284.9	1570.1

	SS (cps)	LS (cps)	SHR	DEN (g/cm3)	CORR (g/cm3)	PE (b/e)
MG (LO PE)	22271.5	11301.7	0.598 (0.586 – 0.606)	1.697	0.003	2.170
AL	12950.2	1133.7		2.706	-0.007	
AL + SHIM	17816.2	1962.9		2.598	0.132	
MG + SHIM (HI PE)	10811.2	5361.0	0.240 (0.210 – 0.270)			8.500
RATIO AL + SHIM/AL	1.38 (1.32 – 1.42)	1.73 (1.64 – 1.84)				
RATIO MG/AL	1.72 (1.66 – 1.78)	9.97 (9.40 – 10.20)				

ZDL BEFORE LOG VERIFICATION SUMMARY

TOOL #: 2234XA 153006 DATE/TIME PERFORMED: Tue Aug 14 09:07:50 2012 DAYS SINCE CAL: 21

UNIT #: 3885TA 006679

	TOTAL (cps)	CSPK (Channel)	HV (V)
LS	1566.0 (1470.1 – 1670.1)	224.1 (220.0 – 230.0)	1305.9 (1100.0 – 1550.0)
SS	1279.5 (1184.9 – 1384.9)	223.6 (220.0 – 230.0)	1251.2 (1100.0 – 1550.0)

LV (V)	PAD CURRENT (mA)
5.0 (4.8 – 5.2)	77.2 (50.0 – 120.0)

ZDL AFTER LOG VERIFICATION SUMMARY

TOOL #: 2234XA 153006 DATE/TIME PERFORMED: Tue Aug 14 22:41:37 2012 DAYS SINCE CAL: 22

UNIT #: 3885TA 006679

	TOTAL (cps)	CSPK (Channel)	HV (V)
LS	1584.2 (1470.1 – 1670.1)	223.5 (220.0 – 230.0)	1316.2 (1100.0 – 1550.0)
SS	1287.0 (1184.0 – 1384.0)	226.2 (220.0 – 280.0)	1259.3 (1100.0 – 1550.0)

LV (V)	PAD CURRENT (mA)
5.0 (4.8 – 5.2)	75.4 (50.0 – 120.0)

INSTRUMENT CONFIGURATION

Source File: /data/pass/ALSAY-613557/m87cb_ZDLCN-tdg

CABLEHEAD
- Diameter : 3.38"
- Length : 5.50'
- Weight : 24 lbs
- Series : CABL336
- Mnemonic : CBLH
- Measure Point: 2.75': CABLEHEAD TOP

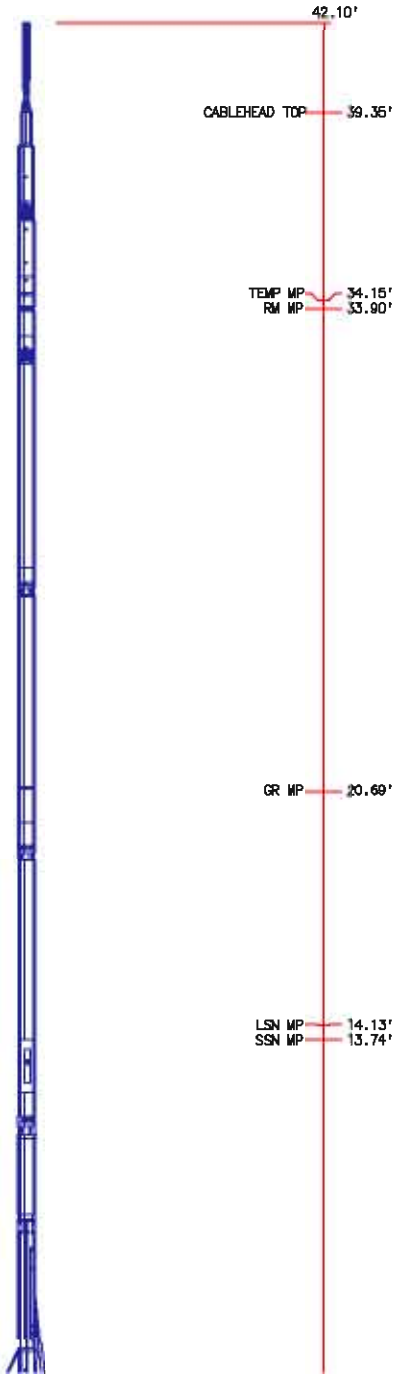
TTRM SUB
- Diameter : 3.63"
- Length : 3.83'
- Weight : 62 lbs
- Series : 3981XA
- Mnemonic : TTRM
- Measure Point: 1.38': TEMP MP
- Measure Point: 1.13': RM MP

WTS COMMON REMOTE
- Diameter : 3.63"
- Length : 6.36'
- Weight : 126 lbs
- Series : 3514XB
- Mnemonic : WTS
- Temp Rating : 400 deg. F
- Press Rating : 20000 psi
- Tensile Str. : 78000 lbs
- Compressive : 114000 lbs

DIGITAL SPECTRALOG
- Diameter : 3.63"
- Length : 7.31'
- Weight : 130 lbs
- Series : 1329XA
- Mnemonic : DSL
- Measure Point: 1.60': GR MP
- Temp Rating : 400 deg. F
- Press Rating : 20000 psi
- Tensile Str. : 78000 lbs
- Compressive : 85000 lbs

COMPENSATED NEUTRON
- Diameter : 3.63"
- Length : 7.59'
- Weight : 150 lbs
- Series : 2446XA
- Mnemonic : CN
- Strength : 16 curies
- Measure Point: 2.63': LSN MP
- Measure Point: 2.24': SSN MP
- Temp Rating : 400 deg. F
- Press Rating : 20000 psi
- Tensile Str. : 78000 lbs
- Compressive : 78000 lbs

Z-DENSILOG
- Diameter : 4.88"
- Length : 11.22'
- Weight : 360 lbs
- Series : 2234XA
- Mnemonic : ZDL
- Strength : 2.0 curies
- Measure Point: 3.19': CAL MP
- Measure Point: 2.47': LSD MP



Measure Point: 2.07': SSD MP
Temp Rating : 350 deg. F
Press Rating : 20000 psi
Tensile Str. : 78000 lbs
Compressive : 74500 lbs

BULL PLUG 3 3/8

TOTAL LENGTH: 42.10'
TOTAL WEIGHT: 854 lbs
MAX DIAMETER: 0'4.88"

BAKER HUGHES	COMPANY	ALSAY INC	FILE NO:
	WELL	CONROE WELL 23	
	FIELD	WATER WELL	API NO:
	COUNTY	MONTGOMERY STATE TX	
ECLIPS	LOCATION:	ELEVATIONS: KB DF GL	
	LAT LONG	DATE 14-AUG-2012	

PFC GAMMA RAY LOG
SIDEWALL CORGUN SM

BAKER HUGHES

FILE NO:	
API NO:	
COMPANY	ALSAY INC
WELL	CONROE WELL 23
FIELD	WATER WELL
COUNTY	MONTGOMERY
STATE	TX
Ver. 3.87	
LOCATION:	
LAT	
LONG	

OTHER SERVICES
ZDL-CN
HDIL-ML

PERMANENT DATUM	GL	ELEVATION	NA
LOG MEASURED FROM	KB	6 FT	ABOVE P.D.
DRILL. MEAS. FROM	KB		

ELEVATIONS:

KB	NA
DF	NA
GL	NA

DATE		15-AUG-2012			
RUN	TRIP	1	1		
SERVICE ORDER		US613557			
DEPTH DRILLER		3245 FT			
DEPTH LOGGER		3244 FT			
BOTTOM LOGGED INTERVAL		3244 FT			
TOP LOGGED INTERVAL		64 FT			
CASING DRILLER		36 IN	@64 FT	@	
CASING LOGGER		64 FT			
BIT SIZE		9.875 IN			
TYPE OF FLUID IN HOLE		WATER BASED MUD			
DENSITY	VISCOSITY	9.8 LB/G	34 S		
PH	FLUID LOSS	7.5	NA		
SOURCE OF SAMPLE		MUD LINE			
RM AT MEAS. TEMP.		8.50 OHMM	@75 DEGF	@	
RMF AT MEAS. TEMP.		6.37 OHMM	@75 DEGF	@	
RMC AT MEAS. TEMP.		10.63 OHMM	@75 DEGF	@	
SOURCE OF RMF	RMC	CALCULATED	CALCULATED		
RM AT BHT		6.00 OHMM	@109 DEGF	@	
TIME SINCE CIRCULATION		13			
MAX. RECORDED TEMP.		109 DEGF			
EQUIP. NO.	LOCATION	HL6649	PEARLAND		
RECORDED BY		YC CONG			
WITNESSED BY		DALE SHOCKLEY			

IN MAKING INTERPRETATIONS OF LOGS OUR EMPLOYEES WILL GIVE CUSTOMER THE BENEFIT OF THEIR BEST JUDGEMENT. BUT SINCE ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS, WE CANNOT, AND WE DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATION. WE SHALL NOT BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COST, DAMAGES, OR EXPENSES WHATSOEVER INCURRED OR SUSTAINED BY THE CUSTOMER RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR EMPLOYEES.

BOREHOLE RECORD

BIT SIZE	FROM	TO
9.875 IN	64 FT	3244 FT

CASING RECORD

SIZE	WEIGHT	GRADE	FROM	TO
36 IN			0 FT	64 FT

REMARKS

RUN 1 TRIP 1 :

BVOL IS BOREHOLE VOLUME IN CU FT.
CVOL IS NOT CALULTED BECAUSE OF NO NEXT CASGING SIZE AVILBLE

DENSITY POROSITY RECORDED AND PRESENTED ON A SANDSTONE MATRIX = 2.65 G/CC
NEUTRON POROSITY RECORDED AND PRESENTED ON A SANDSTONE MATRIX

CASING ID IS 35 IN AS PER CUSTOMER

SCALES PRESENTED AS PER CUSTOMER REQUEST
SCALES PRESENTED AS PER CUSTOMER REQUEST

CREW: YC CONG, E GONZALEZ, J KAY, R SIOK
RIG: ALSAY 1

THANK YOU FOR CHOOSING BAKER HUGHES, INC.

EQUIPMENT DATA					
RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	1	PFC	D736XA	1-597384	FREE
1	1	SWC	1812XA	342565	FREE

ECLIPS 6.1i Aug 06, 2010
Updates: 1,2

Wed Aug 15 01:28:14 2012

Pcrplt /main/62 Cplot Pdf_Cpp /main/16 Fileview 5.61

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/pass/ALSAY-613557/m113b01.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 3082.000 ft BOTTOM DEPTH: 3199.988 ft

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft) TOP	BOTTOM
GR	FILTER ()	medium (1)		TOP	BOTTOM
	FILTER (.h)	medium (1)		''	''
	FILTER (.k)	medium (1)		''	''
SPEED	FILTER ()	medium (1)		''	''
	FILTER (.h)	medium (1)		''	''
	FILTER (.k)	medium (1)		''	''
TENSION	FILTER ()	medium (1)		''	''

CURVE DESCRIPTION REPORT

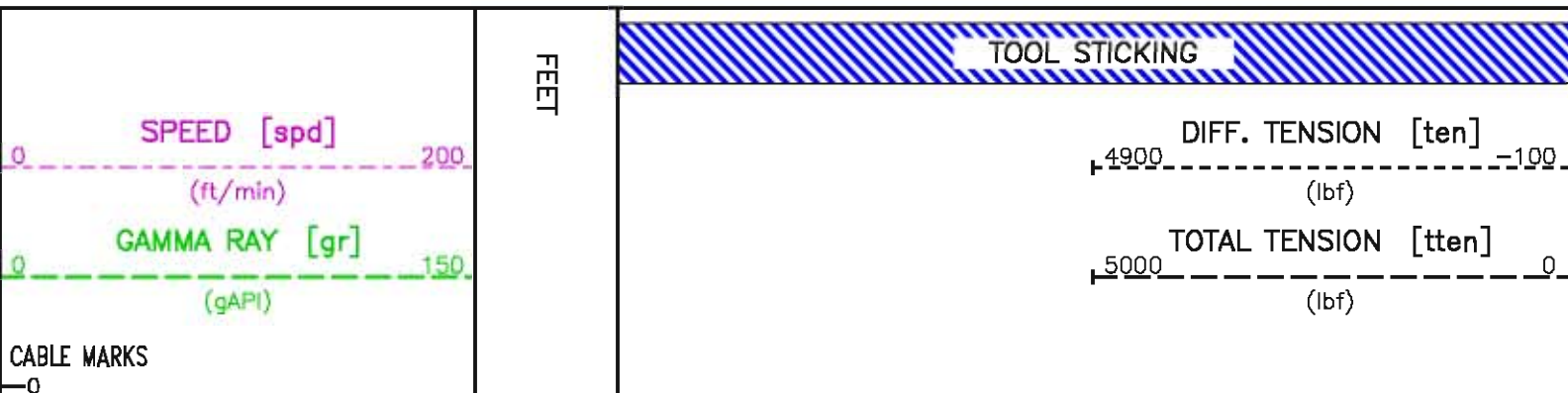
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:GR	Aug 15 00:24:23 2012	GAMMA RAY
F1:MMDCNT	Aug 15 00:24:23 2012	NUMBER OF MAGNETIC MARKS DETECTED
F1:SPD	Aug 15 00:24:23 2012	SPEED
F1:TEN	Aug 15 00:24:23 2012	DIFFERENTIAL TENSION
F1:TTEN	Aug 15 00:24:23 2012	TOTAL TENSION

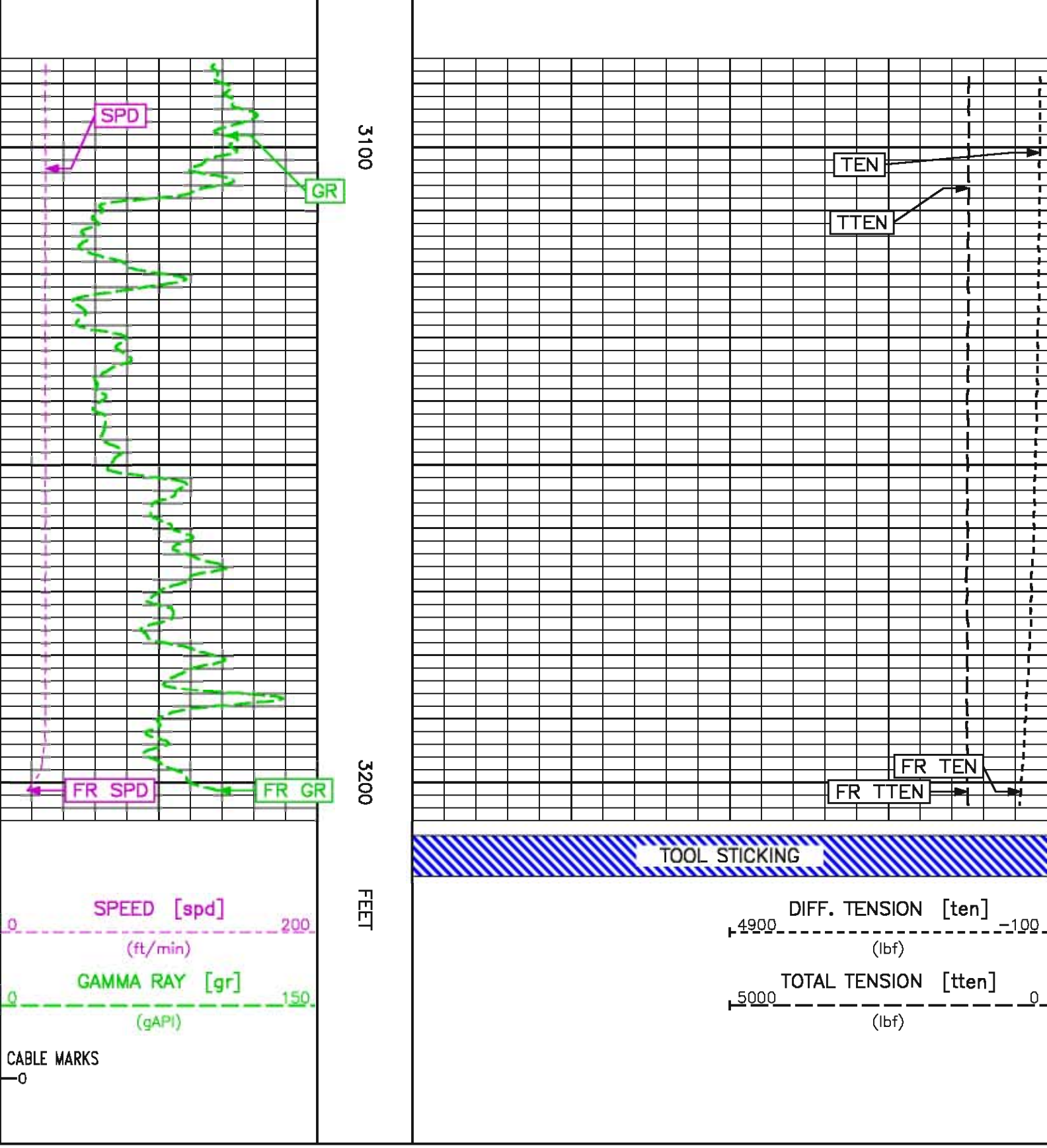
CURVE MEASURE POINT OFFSET

CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
GR	0.00	SPD	0.00	TEN	-2.00	TTEN	-2.00

Presentation : pld1:/dat1a/pass/ALSAY-613557/CORE1.pdf [5"/100' Scale]
Plot Interval : 3087 - 3204.75 Feet

Data File 1 : F1 : pld1:/dat1a/pass/ALSAY-613557/CORR-1.xtf
Created On : Aug 15 00:24:23 2012
Company : ALSAY INC
Well : CONROE WELL 23
Field : WATER WELL
File Interval : 3081.75 - 3204.75 Feet
Oct : m113b





Source File: /data/pass/ALSAY-613557/corgun.cgn.sk.pdf

COREGUN RECOVERY DATA

Customer Name: ALSAY INC
Well Name: CONROE WELL 23
Field:
Date: 15-AUG-2012

Formation: SAND/SHALE
Casing Size: 36
Casing Depth: 64
Bit Size: 9.875
Fluid Type:
Fluid Weight: 9.8
Bot. Hole Temp.: 109
Max. Deviation:
Remarks:

Total Cores Attempted = 12 Total Cores Recovered = 12

SHOT #	CORE DEPTH	RECOVERY STATUS	RECOVERED CORE LENGTH	COMMENTS
25				
24				
23				
22				
21				
20				
19				
18				
17				
16				
15				
14				
13				
12	1850.00	Core Recovered	1.00	
11	1934.00	Core Recovered	1.25	
10	1955.00	Core Recovered	1.25	
9	2026.00	Core Recovered	1.25	
8	2230.00	Core Recovered	1.25	
7	2286.00	Core Recovered	1.25	
6	2406.00	Core Recovered	1.00	
5	2470.00	Core Recovered	1.00	
4	3050.00	Core Recovered	1.00	
3	3114.00	Core Recovered	1.00	
2	3145.00	Core Recovered	1.00	
1	3207.00	Core Recovered	1.25	

CALIBRATION / VERIFICATION SUMMARY

Source File: /data/pass/ALSAY-613557/m113b.tp1

GR PRIMARY CALIBRATION SUMMARY

TOOL #: 0736XA 10197779 DATE/TIME PERFORMED: Tue Aug 14 23:36:44 2012

UNIT #: 3885TA 006679 CALB JIG #: 4702NK DA-389

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	CR DIFF (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	CALBRTR (gAPI)
GR	58.22	193.91	135.7	1.105	64.36	214.36	150

GR PRIMARY VERIFICATION SUMMARY

NOT DONE

GR BEFORE LOG VERIFICATION SUMMARY

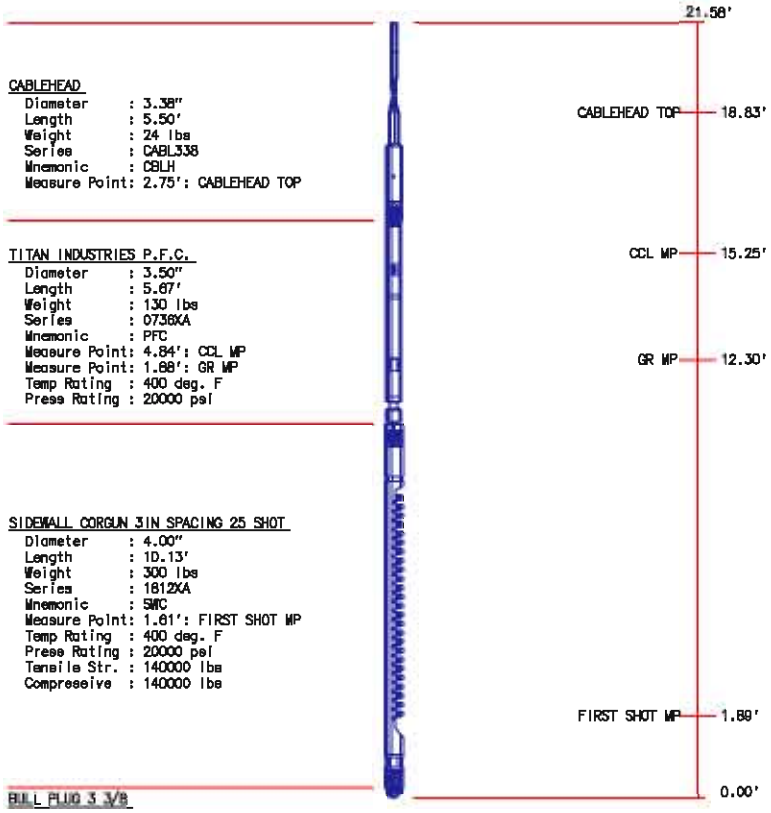
NOT DONE

GR AFTER LOG VERIFICATION SUMMARY

NOT DONE

INSTRUMENT CONFIGURATION

Source File: /data/pass/ALSAY-613557/m113b-tdg



BAKER HUGHES	COMPANY: ALSAY INC WELL: CONROE WELL 23 FIELD: WATER WELL COUNTY: MONTGOMERY STATE: TX	FILE NO: API NO:
ECLIPS	LOCATION: LAT LONG	ELEVATIONS: KB NA DF NA GL NA DATE 15-AUG-2012

BAKER HUGHES

HIGH DEFINITION INDUCTION LOG SM
GAMMA RAY LOG
MINILOG ®
TTRM SUB SM

FILE NO:	COMPANY	ALSAY INC	
API NO:	WELL	CONROE WELL 23	
	FIELD	WATER WELL	
	COUNTY	MONTGOMERY	STATE TX
Version	LOCATION:		OTHER SERVICES: SWC, ZDL/CN/GR
	LAT	LONG	

PERMANENT DATUM	GL	ELEVATION	NA
LOG MEASURED FROM	KB	6 FT	ABOVE P.D.
DRILL. MEAS. FROM	KB		

ELEVATIONS:

KB	NA
DF	NA
GL	NA

DATE		14-AUG-2012			
RUN	TRIP	1	1		
SERVICE ORDER		US613557			
DEPTH DRILLER		3245 FT			
DEPTH LOGGER		3244 FT			
BOTTOM LOGGED INTERVAL		3244 FT			
TOP LOGGED INTERVAL		64 FT			
CASING DRILLER		36 IN	@60 FT	@	
CASING LOGGER		64 FT			
BIT SIZE		9.875 IN			
TYPE OF FLUID IN HOLE		WATER BASED MUD			
DENSITY	VISCOSITY	9.8 LB/G	34 S		
PH	FLUID LOSS	7.5			
SOURCE OF SAMPLE		MUD LINE			
RM AT MEAS. TEMP.		8.50 OHMM	@75 DEGF	@	
RMF AT MEAS. TEMP.		6.37 OHMM	@75 DEGF	@	
RMC AT MEAS. TEMP.		10.63 OHMM	@75 DEGF	@	
SOURCE OF RMF	RMC	CALCULATED	CALCULATED		
RM AT BHT		6.00 OHMM	@109 DEGF	@	
TIME SINCE CIRCULATION		7			
MAX. RECORDED TEMP.		109 DEGF			
EQUIP. NO.	LOCATION	HL6649	PEARLAND		
RECORDED BY		CONG			
WITNESSED BY		SHOCKLEY			

IN MAKING INTERPRETATIONS OF LOGS OUR EMPLOYEES WILL GIVE CUSTOMER THE BENEFIT OF THEIR BEST JUDGEMENT. BUT SINCE ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS, WE CANNOT, AND WE DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATION. WE SHALL NOT BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COST, DAMAGES, OR EXPENSES WHATSOEVER INCURRED OR SUSTAINED BY THE CUSTOMER RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR EMPLOYEES.

BOREHOLE RECORD

BIT SIZE	FROM	TO
9.875 IN	64 FT	3244 FT

CASING RECORD

SIZE	WEIGHT	GRADE	FROM	TO
36 IN			0 FT	64 FT

REMARKS

RUN 1 TRIP 1 :

BVOL IS BOREHOLE VOLUME IN CU FT.
CVOL IS NOT CALULTED BECAUSE OF NO NEXT CASGING SIZE AVILBLE

DENSITY POROSITY RECORDED AND PRESENTED ON A SANDSTONE MATRIX = 2.65 G/CC
NEUTRON POROSITY RECORDED AND PRESENTED ON A SANDSTONE MATRIX

CASING ID IS 35 IN AS PER CUSTOMER

SCALES PRESENTED AS PER CUSTOMER REQUEST
SCALES PRESENTED AS PER CUSTOMER REQUEST

CREW: YC CONG, E GONZALEZ, J KAY, R SIOK
RIG: ALSAY 1

THANK YOU FOR CHOOSING BAKER HUGHES, INC.

EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	1	WTS	3514XB	153396	FREE
1	1	DGR	1329XA	152301	FREE
1	1	CN	2446XA	179984	DE-CENT
1	1	ZDL	2234XA	153006	PAD DEVIE
1	1	KNJT	3939XA	1667760	FREE
1	1	HDIL-E	1515EA	179482	FREE
1	1	HDIL-M	1515M	10042094	FREE
1	1	ML	1243X	10597384	PD DEVICE
1	1	TTRM	3981XB	10080044	FREE

1" 2" 5" all in Linear Scale
Caliper only printed on 5"

MAIN LOG 1"/100FT SCALE

ECLIPS 6.1wu2 PC-ECLIPS Rel 6.1w Update 2 Feb 15, 2012 Thu Aug 16 19:08:45 2012

Pcrplt Cplot Pdf_Cpp /main/16 Fileview 2.02

PARAMETER AND FILTER SUMMARY REPORT

FILE: C:\Users\congyua\Documents\Logging-Data\ALSAY613557\ALSAY-613557\m87cb_MSLAM_1243ML02.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 57.500 ft BOTTOM DEPTH: 3251.500 ft

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft) TOP	BOTTOM
TENSION	FILTER ()	medium (1)			
GR	FILTER ()	medium (1)		"	"
	FILTER (.h)	medium (1)		"	"
	FILTER (.l)	medium (1)		"	"
CALA (3rd CALIPER)	FILTER ()	medium(1)		"	"
	FILTER (.l)	medium(1)		"	"
	FILTER (.j)	medium(1)		"	"
ML	FILTER ()	light (2a)		"	"
SP-SPDH	FILTER ()	medium (1)		"	"
	FILTER (.l)	medium (1)		"	"

BOREHOLE & CEMENT

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft) TOP	BOTTOM
BIT SIZE	BIT SIZE	9.875	in		
MUD SAMPLE RESISTIVITY	MUD SAMPLE TEMP	77.0	degF	"	"
	MUD SAMPLE RES	1.000	ohm.m	"	"
BOREHOLE TEMP from GRADIENT	Known BH REF TEMP	77.0	degF	"	"
	at BH REF DEPTH	0.0	ft	"	"
	with TEMP GRADIENT	1.200	0.01 degF/ft	"	"
BOREHOLE CORR DIAMETER SOURCE	CALIPER/FIXED DIA. (calml*)	USE CALIPER		"	"

	CALIPER/FIXED DIA. (mbh*)	USE CALIPER		''	''
BOREHOLE CORR DIAMETER	FIXED DIAMETER (mbh*)	9.875	in	''	''
BH MUD RESISTIVITY SOURCE	RMUD SOURCE	BH TEMP DERIVED		''	''
	RMUD SOURCE (HDIL)	BH TEMP DERIVED		''	''

ML PARMS

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
ML BOREHOLE CORRECTION	BOREHOLE CORR	ON		TOP	BOTTOM

HDIL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
HDIL TEMPERATURE CORRECTION	TEMP CORR SOURCE	USE RXTEMP		TOP	BOTTOM
ADAPTIVE BOREHOLE CORRECTION	ABC PROCESSING	ON		''	''
	ABC to CALCULATE	STANDOFF		''	''
	STANDOFF	1.50	in	''	''
	TOOL POSITION	ECCENTERED		''	''
	Rmud MULTIPLIER	1.000		''	''

CURVE DESCRIPTION REPORT

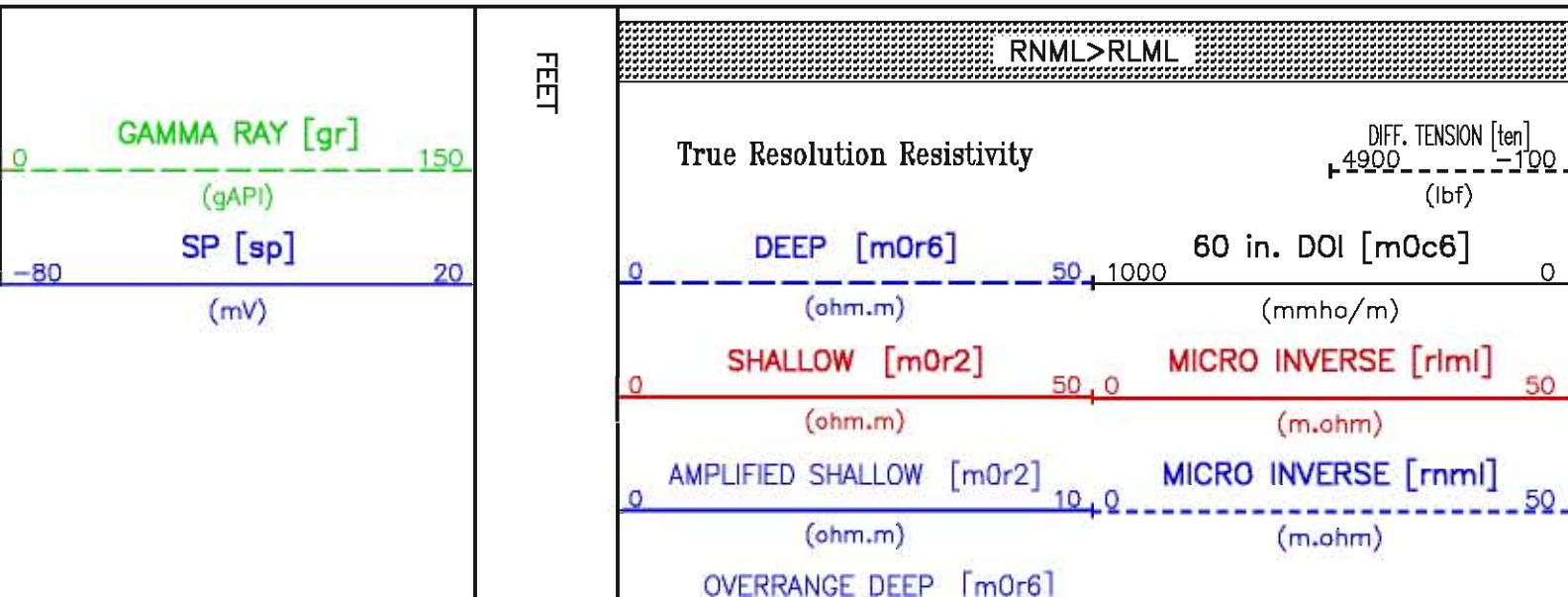
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:GR	Aug 14 16:11:23 2012	GAMMA RAY
F1:MOC6	Aug 14 16:11:23 2012	FOCUSED CONDUCTIVITY, 60-INCH DOI
F1:MOR2	Aug 14 16:11:23 2012	TRUE FOCUSED RESISTIVITY FOR HDIL, 20-INCH DOI
F1:MOR6	Aug 14 16:11:23 2012	TRUE FOCUSED RESISTIVITY FOR HDIL, 60-INCH DOI
F1:RLML	Aug 14 16:11:23 2012	1-INCH LATERAL RESISTIVITY
F1:RNML	Aug 14 16:11:23 2012	2-INCH NORMAL RESISTIVITY
F1:SP	Aug 14 16:11:23 2012	SPONTANEOUS POTENTIAL
F1:TEN	Aug 14 16:11:23 2012	DIFFERENTIAL TENSION

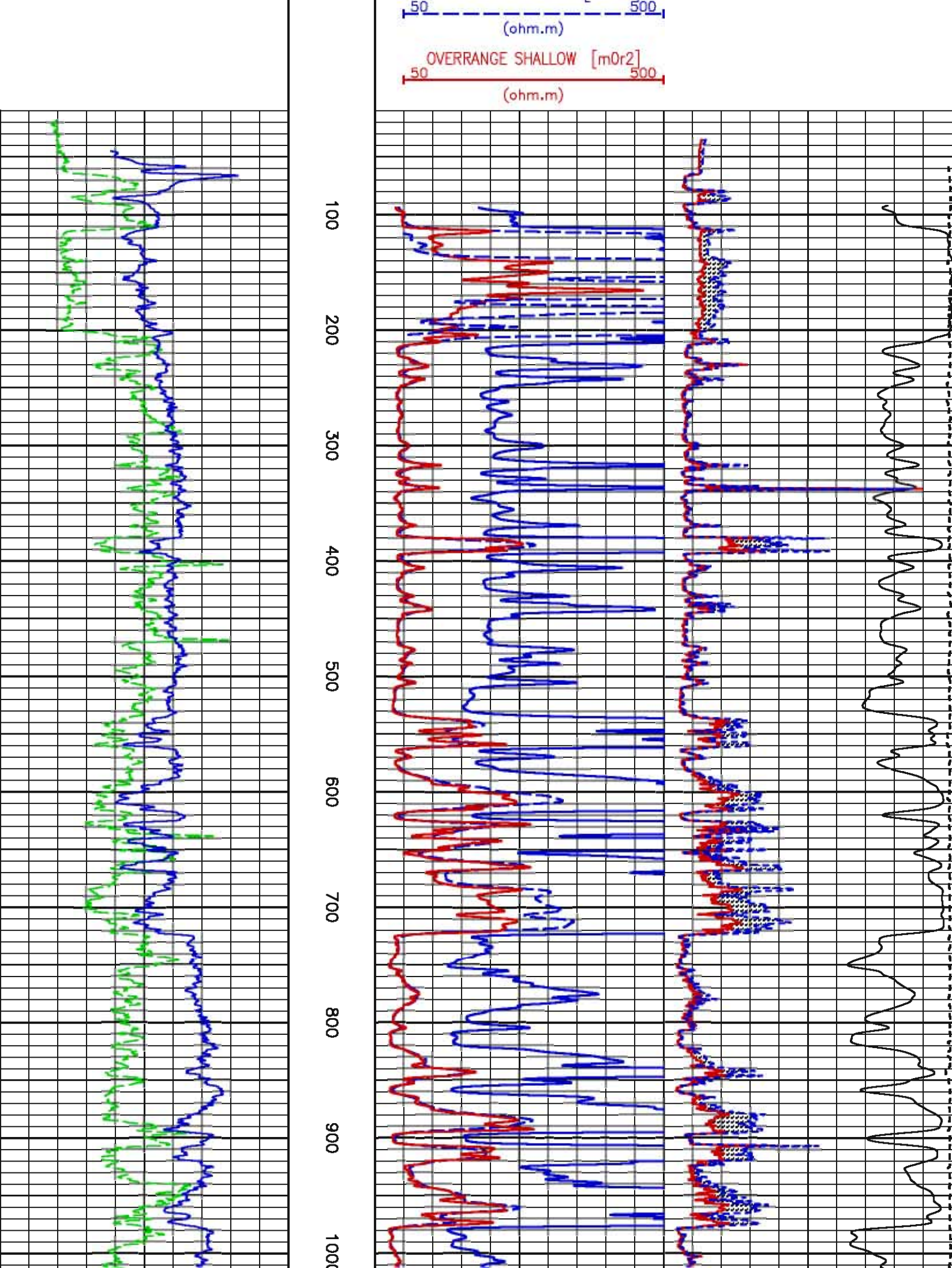
CURVE MEASURE POINT OFFSET

CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
GR	40.00	MOR2	8.00	RLML	28.75	SP	14.00
MOC6	8.00	MOR6	8.00	RNML	28.75	TEN	0.00

Project : NA
User : congyua
Presentation : BHIFQFQCS1:C:\Users\congyua\Documents\Logging-Data\ALSAY613557\ALSAY-613557\WL-HDILML_1IN+R2.pdf [1"/100' Scale]
Plot Interval : 18.75 - 3251.5 Feet

Data File 1 : F1 : BHIFQFQCS1:C:\Users\congyua\Documents\Logging-Data\ALSAY613557\ALSAY-613557\WL-HDILML-MAIN.xtf
Created On : Aug 14 16:11:23 2012
Company : ALSAY INC
Well : CONROE WELL 23
Field : WATER WELL
File Interval : 5.25 - 3251.5 Feet
Oct : m87cb_MS




50
500
(ohm.m)
OVERRANGE SHALLOW [m0r2]
50
500
(ohm.m)
100
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300
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700
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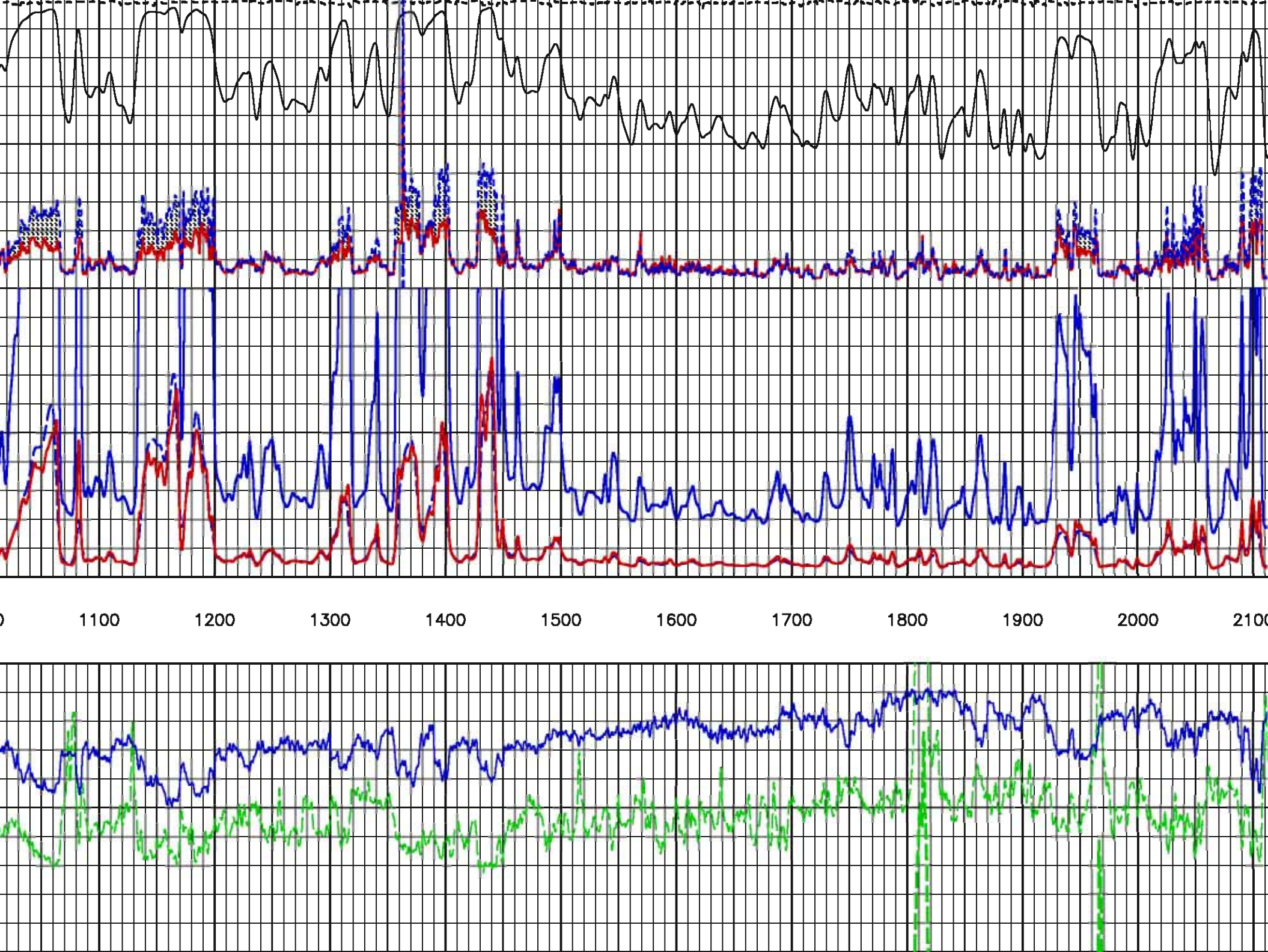
900
1000


1100
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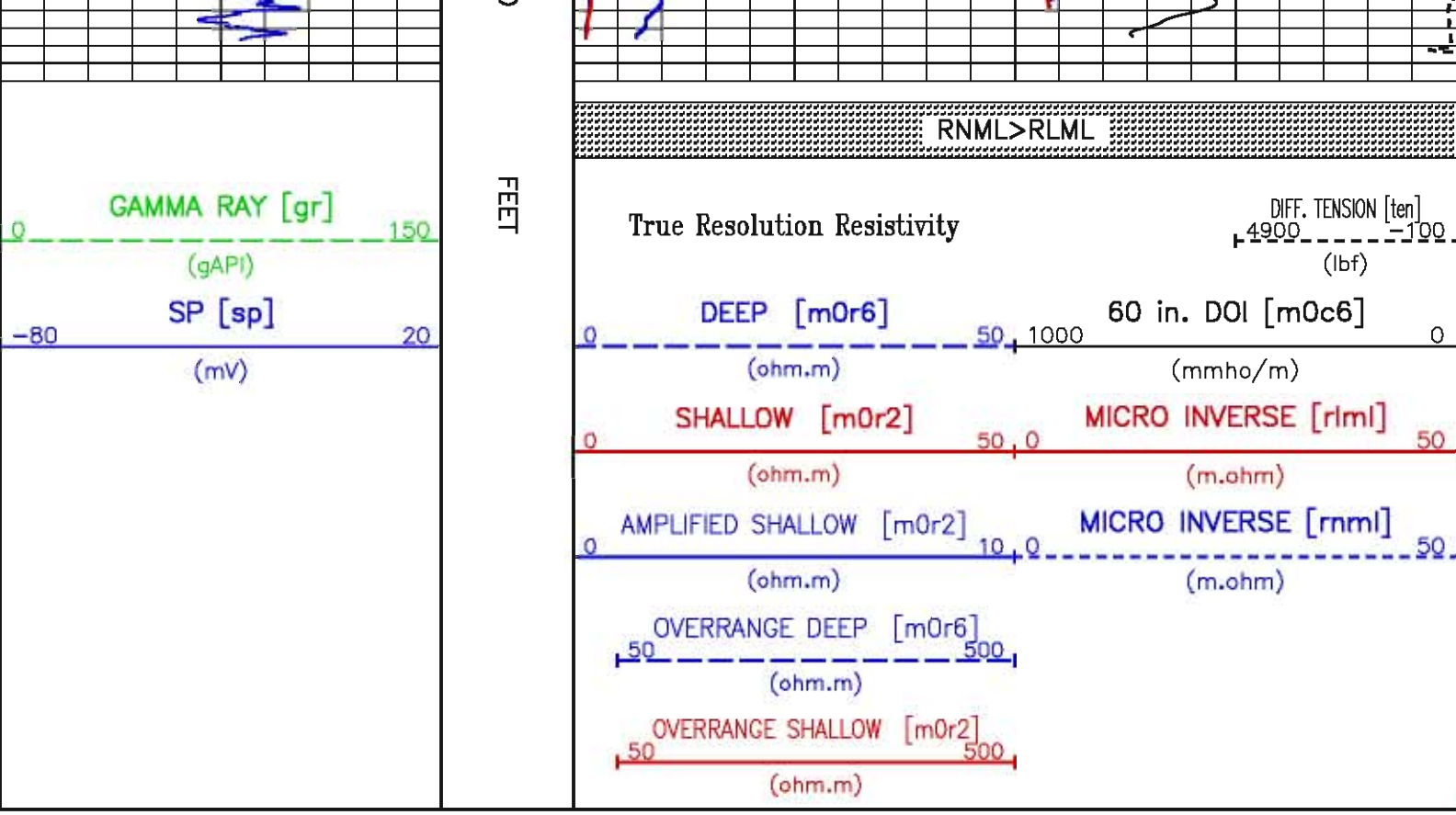


MAIN LOG 2"/100FT SCALE

ECLIPS 6.1wu2 PC-ECLIPS Rel 6.1w Update 2 Feb 15, 2012 Thu Aug 16 19:08:04 2012

Pcrplt Cplot Pdf_Cpp /main/16 Fileview 2.02

PARAMETER AND FILTER SUMMARY REPORT

FILE: C:\Users\congyua\Documents\Logging-Data\ALSAY613557\ALSAY-613557\m87cb_MSLAM_1243ML02.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 57.500 ft BOTTOM DEPTH: 3251.500 ft

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft) TOP	BOTTOM
TENSION	FILTER ()	medium (1)		TOP	BOTTOM
GR	FILTER ()	medium (1)		"	"
	FILTER (.h)	medium (1)		"	"
	FILTER (.i)	medium (1)		"	"
CALA (3rd CALIPER)	FILTER ()	medium(1)		"	"
	FILTER (.i)	medium(1)		"	"
	FILTER (.j)	medium(1)		"	"
ML	FILTER ()	light (2a)		"	"
SP-SPDH	FILTER ()	medium (1)		"	"
	FILTER (.i)	medium (1)		"	"

BOREHOLE & CEMENT

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft) TOP	BOTTOM
BIT SIZE	BIT SIZE	9.875	in	TOP	BOTTOM
MUD SAMPLE RESISTIVITY	MUD SAMPLE TEMP	77.0	degF	"	"

	MUD SAMPLE RES	1.000	ohm.m	''	''
BOREHOLE TEMP from GRADIENT	Known BH REF TEMP	77.0	degF	''	''
	at BH REF DEPTH	0.0	ft	''	''
	with TEMP GRADIENT	1.200	0.01 degF/ft	''	''
BOREHOLE CORR DIAMETER SOURCE	CALIPER/FIXED DIA. (calml*)	USE CALIPER		''	''
	CALIPER/FIXED DIA. (mbh*)	USE CALIPER		''	''
BOREHOLE CORR DIAMETER	FIXED DIAMETER (mbh*)	9.875	in	''	''
BH MUD RESISTIVITY SOURCE	RMUD SOURCE	BH TEMP DERIVED		''	''
	RMUD SOURCE (HDIL)	BH TEMP DERIVED		''	''

ML PARMS

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
ML BOREHOLE CORRECTION	BOREHOLE CORR	ON		TOP	BOTTOM

HDIL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
HDIL TEMPERATURE CORRECTION	TEMP CORR SOURCE	USE RXTEMP		TOP	BOTTOM
ADAPTIVE BOREHOLE CORRECTION	ABC PROCESSING	ON		''	''
	ABC to CALCULATE	STANDOFF		''	''
	STANDOFF	1.50	in	''	''
	TOOL POSITION	ECCENTERED		''	''
	Rmud MULTIPLIER	1.000		''	''

CURVE DESCRIPTION REPORT

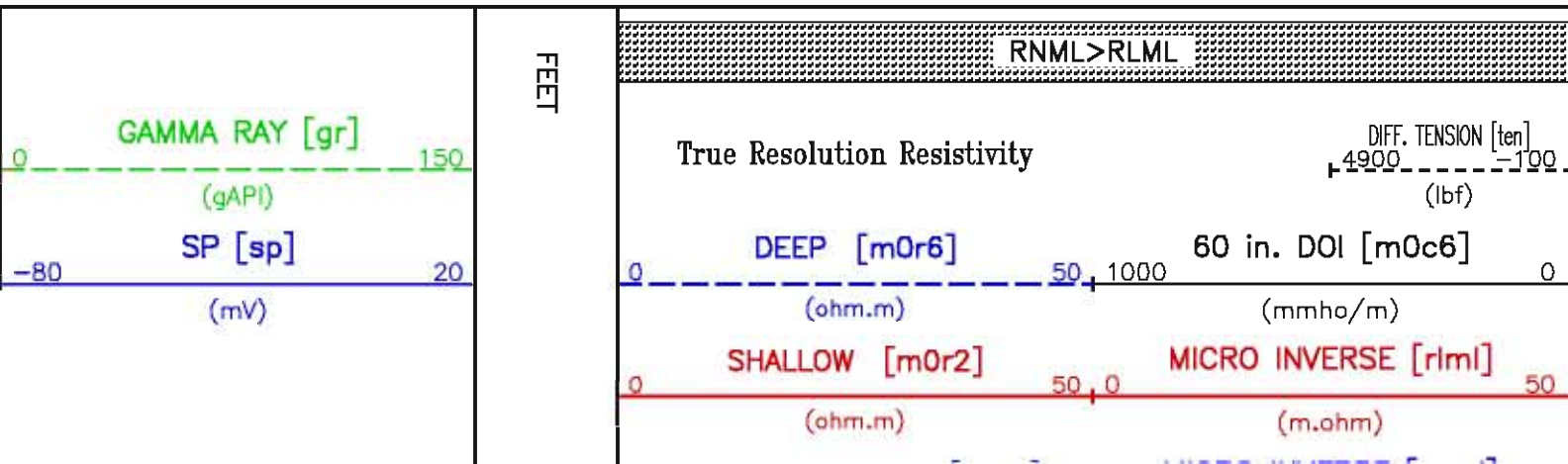
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:GR	Aug 14 16:11:23 2012	GAMMA RAY
F1:MOC6	Aug 14 16:11:23 2012	FOCUSED CONDUCTIVITY, 60-INCH DOI
F1:MOR2	Aug 14 16:11:23 2012	TRUE FOCUSED RESISTIVITY FOR HDIL, 20-INCH DOI
F1:MOR6	Aug 14 16:11:23 2012	TRUE FOCUSED RESISTIVITY FOR HDIL, 60-INCH DOI
F1:RLML	Aug 14 16:11:23 2012	1-INCH LATERAL RESISTIVITY
F1:RNML	Aug 14 16:11:23 2012	2-INCH NORMAL RESISTIVITY
F1:SP	Aug 14 16:11:23 2012	SPONTANEOUS POTENTIAL
F1:TEN	Aug 14 16:11:23 2012	DIFFERENTIAL TENSION

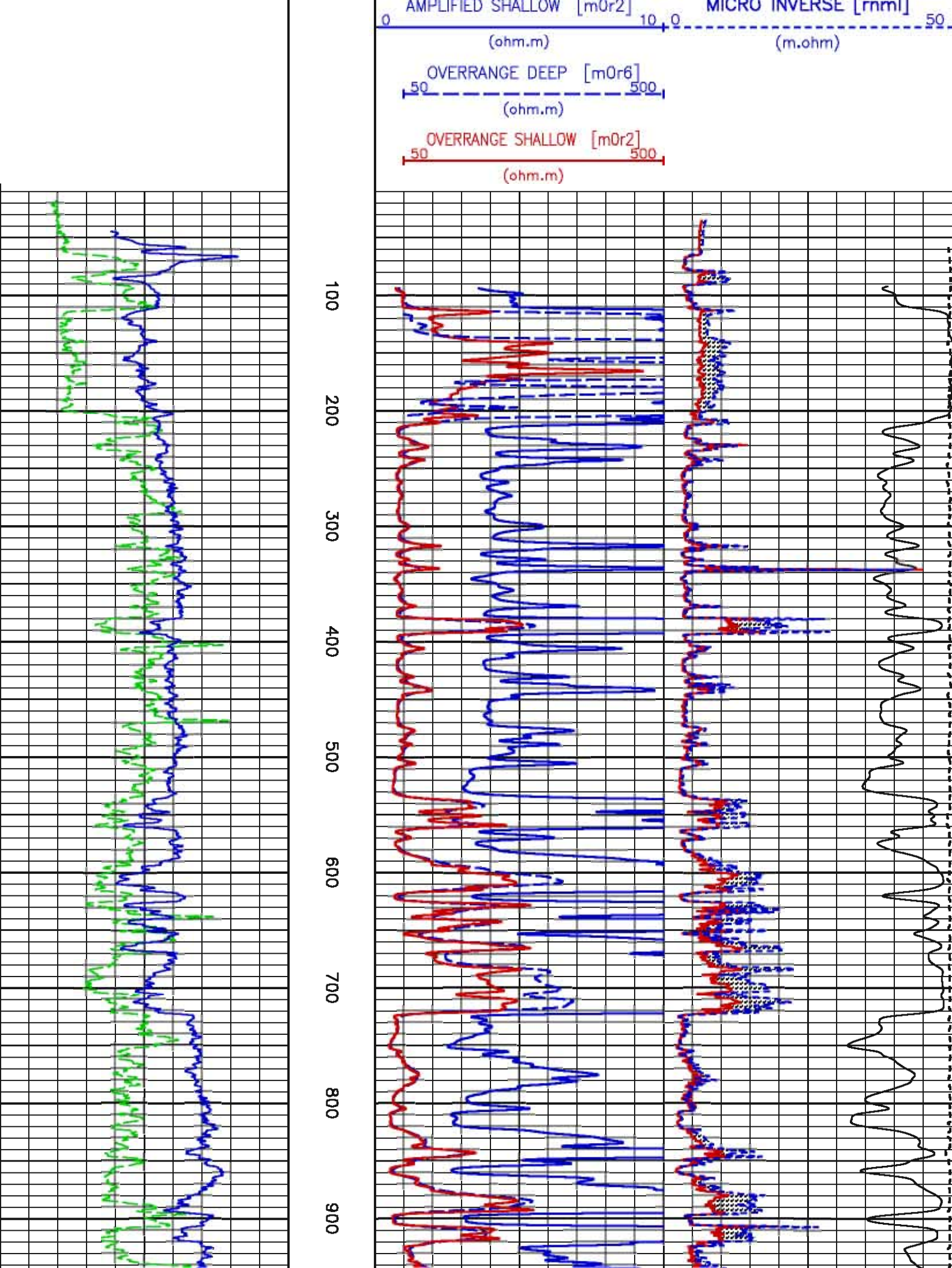
CURVE MEASURE POINT OFFSET

CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
GR	40.00	MOR2	8.00	RLML	28.75	SP	14.00
MOC6	8.00	MOR6	8.00	RNML	28.75	TEN	0.00

Project : NA
User : congyua
Presentation : BHIFQFQCS1:C:\Users\congyua\Documents\Logging-Data\ALSAY613557\ALSAY-613557\WL-HDILML_2IN+R2.pdf [1"/100' Scale]
Plot Interval : 18.75 - 3251.5 Feet

Data File 1 : F1 : BHIFQFQCS1:C:\Users\congyua\Documents\Logging-Data\ALSAY613557\ALSAY-613557\WL-HDILML-MAIN.xtf
Created On : Aug 14 16:11:23 2012
Company : ALSAY INC
Well : CONROE WELL 23
Field : WATER WELL
File Interval : 5.25 - 3251.5 Feet
Oct : m87cb_MS




AMPLIFIED SHALLOW [m0r2]
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(ohm.m)
MICRO INVERSE [rnml]
0
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(m.ohm)
OVERRANGE DEEP [m0r6]
50
500
(ohm.m)
OVERRANGE SHALLOW [m0r2]
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(ohm.m)
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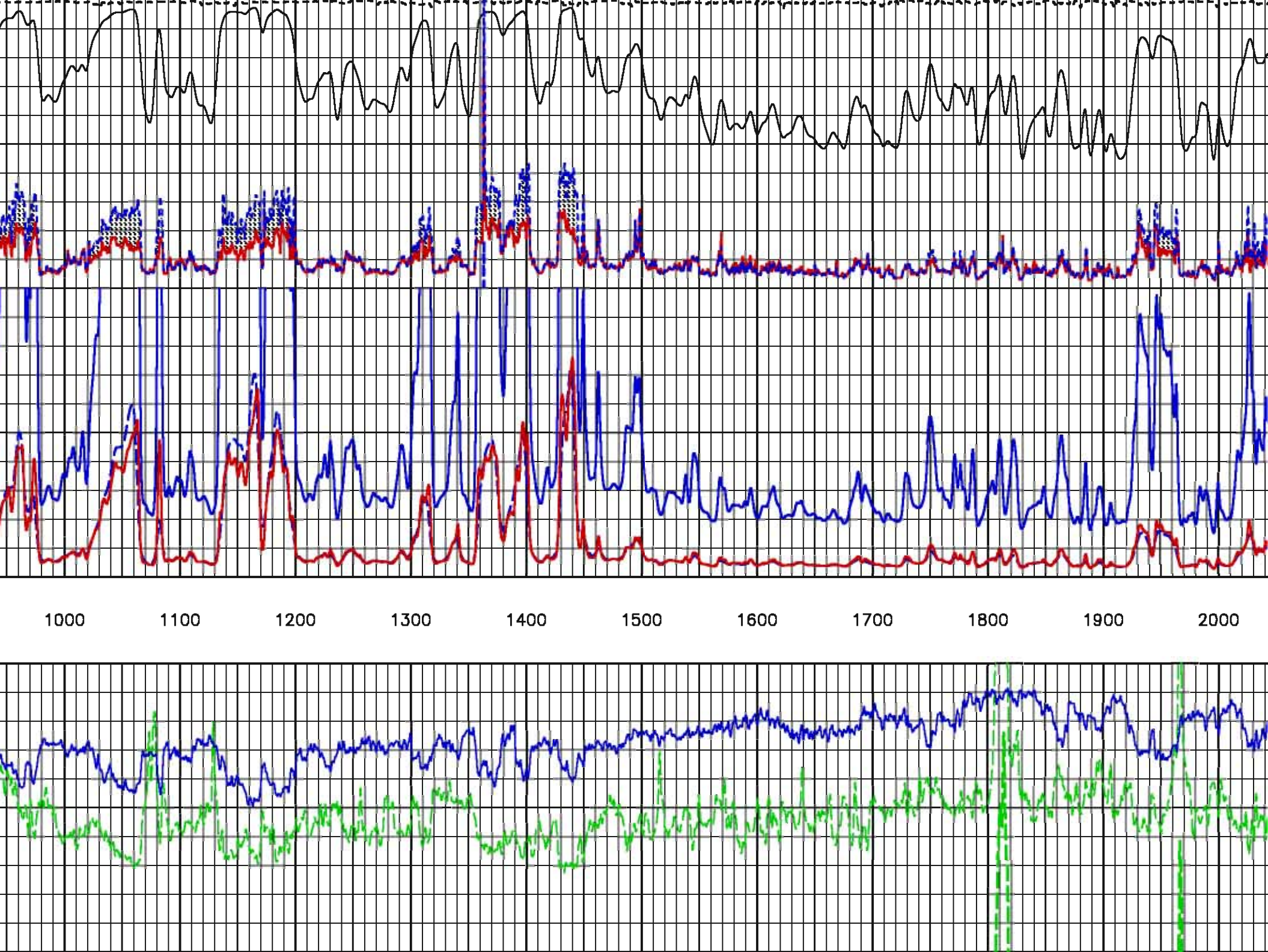
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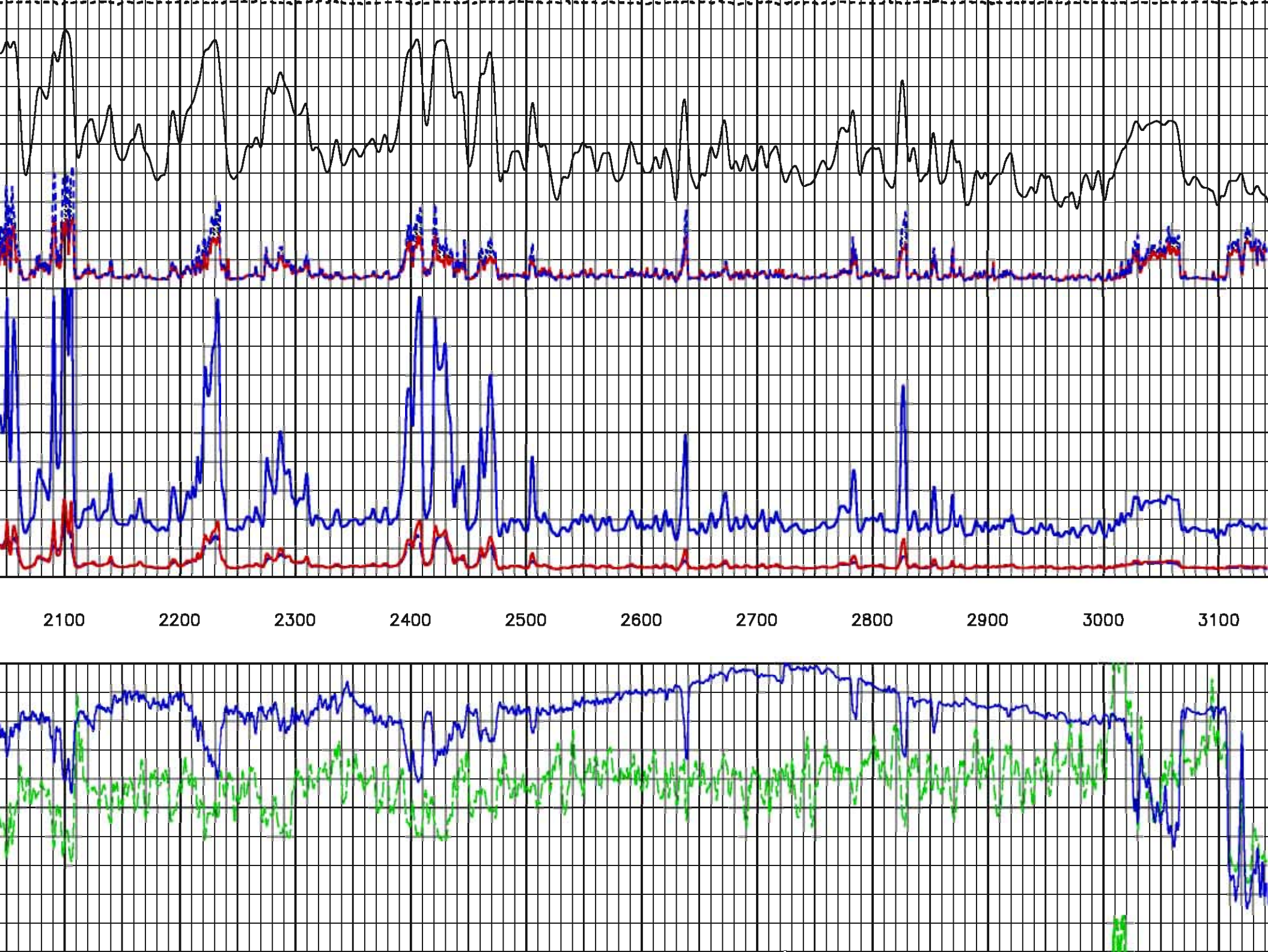
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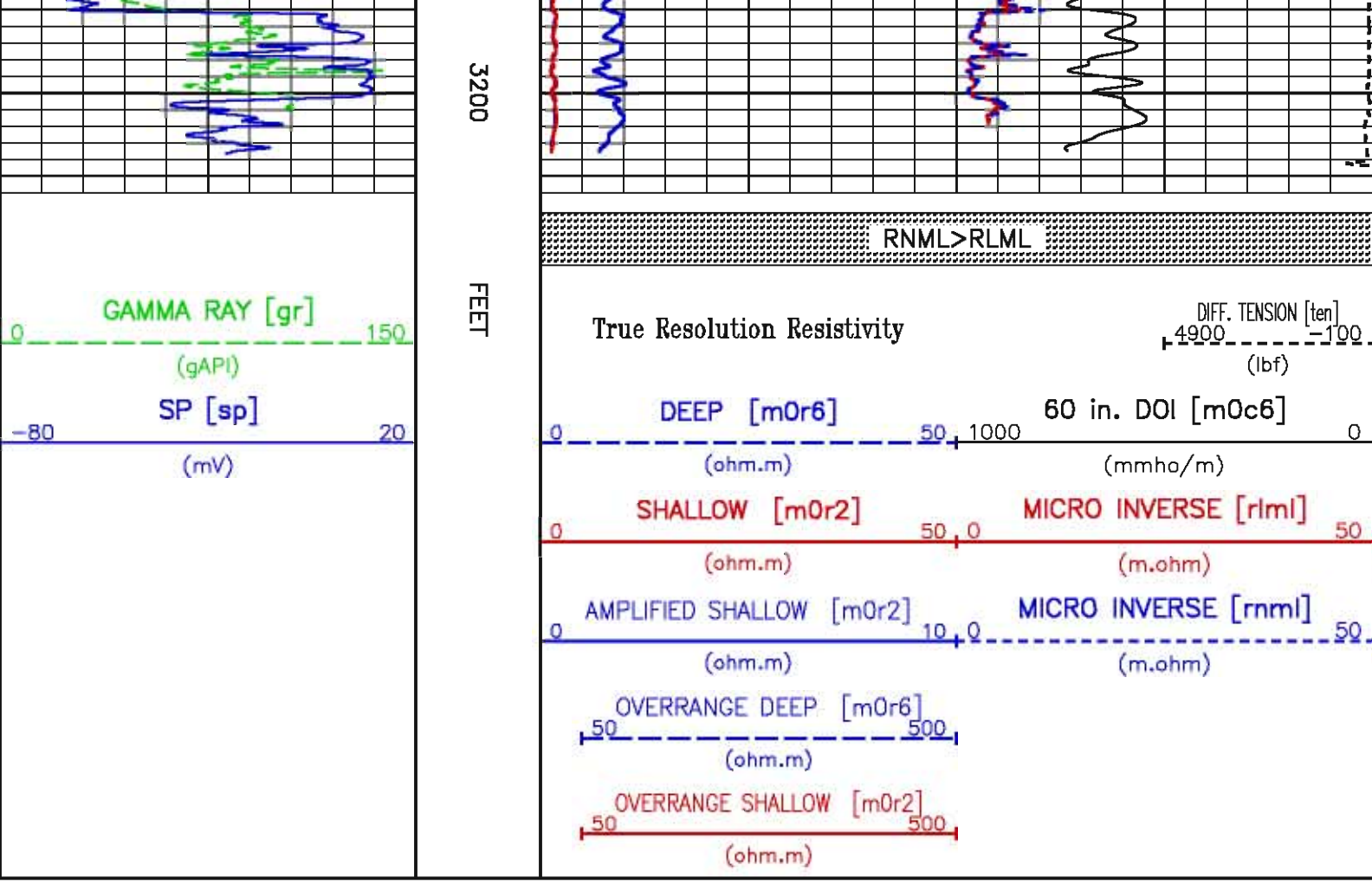


MAIN LOG 5"/100FT SCALE

ECLIPS 6.1wu2 PC-ECLIPS Rel 6.1w Update 2 Feb 15, 2012 Thu Aug 16 19:07:32 2012

Pcrplt Cplot Pdf_Cpp /main/16 Fileview 2.02

PARAMETER AND FILTER SUMMARY REPORT

FILE: C:\Users\congyua\Documents\Logging-Data\ALSAY613557\ALSAY-613557\m87cb_MSLAM_1243ML02.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 57.500 ft BOTTOM DEPTH: 3251.500 ft

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft) TOP	BOTTOM
TENSION	FILTER ()	medium (1)		TOP	BOTTOM
GR	FILTER ()	medium (1)		"	"
	FILTER (.h)	medium (1)		"	"
	FILTER (.i)	medium (1)		"	"
CALA (3rd CALIPER)	FILTER ()	medium(1)		"	"
	FILTER (.i)	medium(1)		"	"
	FILTER (.j)	medium(1)		"	"
ML	FILTER ()	light (2a)		"	"
SP-SPDH	FILTER ()	medium (1)		"	"
	FILTER (.i)	medium (1)		"	"

BOREHOLE & CEMENT

BOREHOLE & CEMENT

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft) TOP	BOTTOM
BIT SIZE	BIT SIZE	9.875	in	TOP	BOTTOM
MUD SAMPLE RESISTIVITY	MUD SAMPLE TEMP	77.0	degF	''	''
	MUD SAMPLE RES	1.000	ohm.m	''	''
BOREHOLE TEMP from GRADIENT	Known BH REF TEMP	77.0	degF	''	''
	at BH REF DEPTH	0.0	ft	''	''
	with TEMP GRADIENT	1.200	0.01 degF/ft	''	''
BOREHOLE CORR DIAMETER SOURCE	CALIPER/FIXED DIA. (calml*)	USE CALIPER		''	''
	CALIPER/FIXED DIA. (mbh*)	USE CALIPER		''	''
BOREHOLE CORR DIAMETER	FIXED DIAMETER (mbh*)	9.875	in	''	''
BH MUD RESISTIVITY SOURCE	RMUD SOURCE	BH TEMP DERIVED		''	''
	RMUD SOURCE (HDIL)	BH TEMP DERIVED		''	''

ML PARMS

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft) TOP	BOTTOM
ML BOREHOLE CORRECTION	BOREHOLE CORR	ON		TOP	BOTTOM

HDIL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft) TOP	BOTTOM
HDIL TEMPERATURE CORRECTION	TEMP CORR SOURCE	USE RXTEMP		TOP	BOTTOM
ADAPTIVE BOREHOLE CORRECTION	ABC PROCESSING	ON		''	''
	ABC to CALCULATE	STANDOFF		''	''
	STANDOFF	1.50	in	''	''
	TOOL POSITION	ECCENTERED		''	''
	Rmud MULTIPLIER	1.000		''	''

CURVE DESCRIPTION REPORT

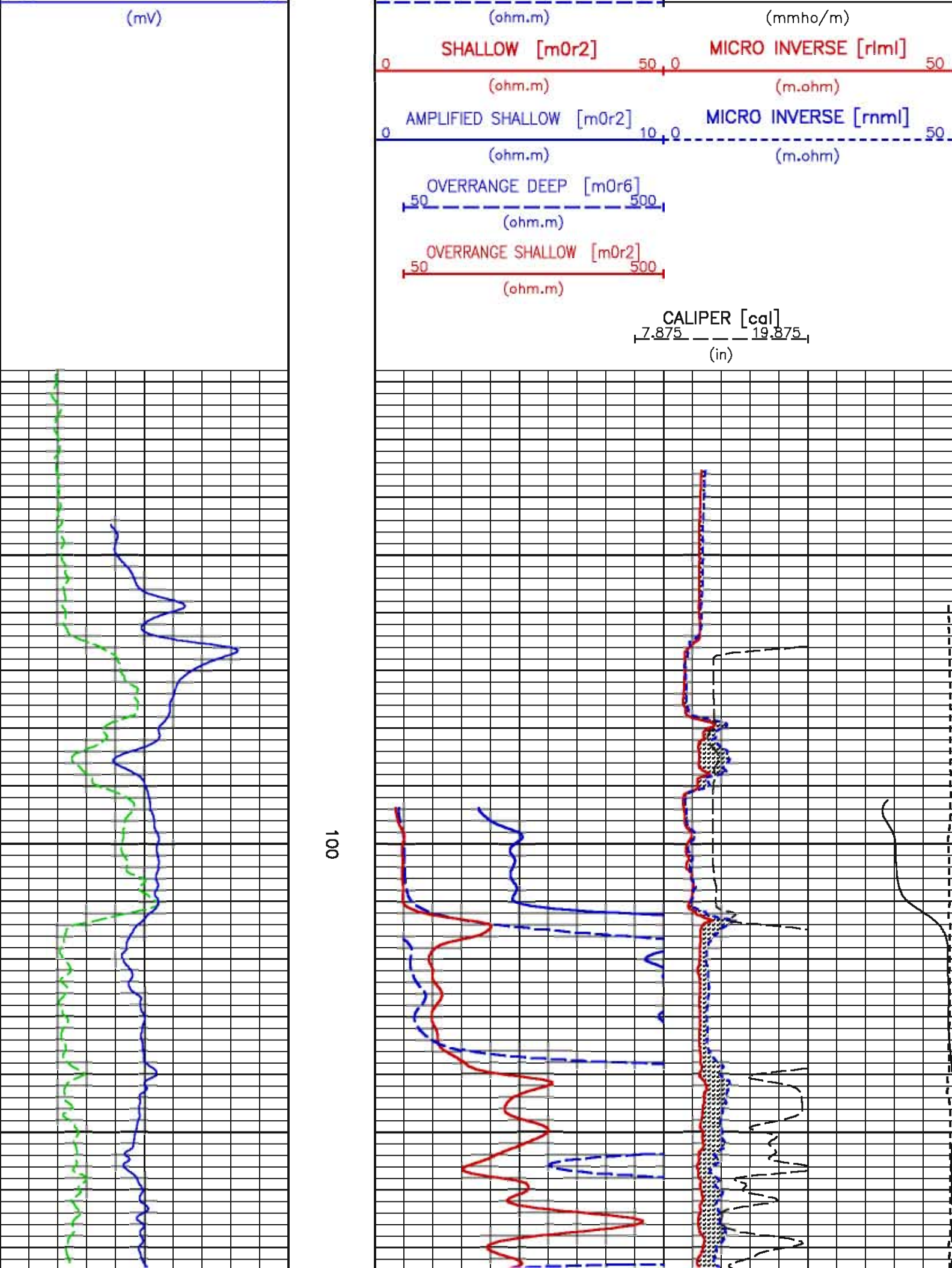
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:CAL	Aug 14 16:11:23 2012	CALIPER
F1:GR	Aug 14 16:11:23 2012	GAMMA RAY
F1:MOC6	Aug 14 16:11:23 2012	FOCUSED CONDUCTIVITY, 60-INCH DOI
F1:MOR2	Aug 14 16:11:23 2012	TRUE FOCUSED RESISTIVITY FOR HDIL, 20-INCH DOI
F1:MOR6	Aug 14 16:11:23 2012	TRUE FOCUSED RESISTIVITY FOR HDIL, 60-INCH DOI
F1:RLML	Aug 14 16:11:23 2012	1-INCH LATERAL RESISTIVITY
F1:RNML	Aug 14 16:11:23 2012	2-INCH NORMAL RESISTIVITY
F1:SP	Aug 14 16:11:23 2012	SPONTANEOUS POTENTIAL
F1:TEN	Aug 14 16:11:23 2012	DIFFERENTIAL TENSION

CURVE MEASURE POINT OFFSET

CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
CAL	28.50	MOR2	8.00	RNML	28.75		
GR	40.00	MOR6	8.00	SP	14.00		
MOC6	8.00	RLML	28.75	TEN	0.00		

Project : NA
User : congyua
Presentation : BHIFQFQCS1:C:\Users\congyua\Documents\Logging-Data\ALSAY613557\ALSAY-613557\WL-HDILML_5IN+R2.pdf [5"/100' Scale]
Plot Interval : 18.75 - 3251.5 Feet

Data File 1 : F1 : BHIFQFQCS1:C:\Users\congyua\Documents\Logging-Data\ALSAY613557\ALSAY-613557\WL-HDILML-MAIN.xtf
Created On : Aug 14 16:11:23 2012
Company : ALSAY INC
Well : CONROE WELL 23
Field : WATER WELL
File Interval : 5.25 - 3251.5 Feet
Oct : m87cb_MS


(mV)
(ohm.m)
(mmho/m)
SHALLOW [m0r2]
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(ohm.m)
MICRO INVERSE [rlml]
0
50
(m.ohm)
AMPLIFIED SHALLOW [m0r2]
0
10
(ohm.m)
MICRO INVERSE [rnml]
0
50
(m.ohm)
OVERRANGE DEEP [m0r6]
50
500
(ohm.m)
OVERRANGE SHALLOW [m0r2]
50
500
(ohm.m)
CALIPER [cal]
7.875
19.875
(in)

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300

400
500
600

700
800

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1600
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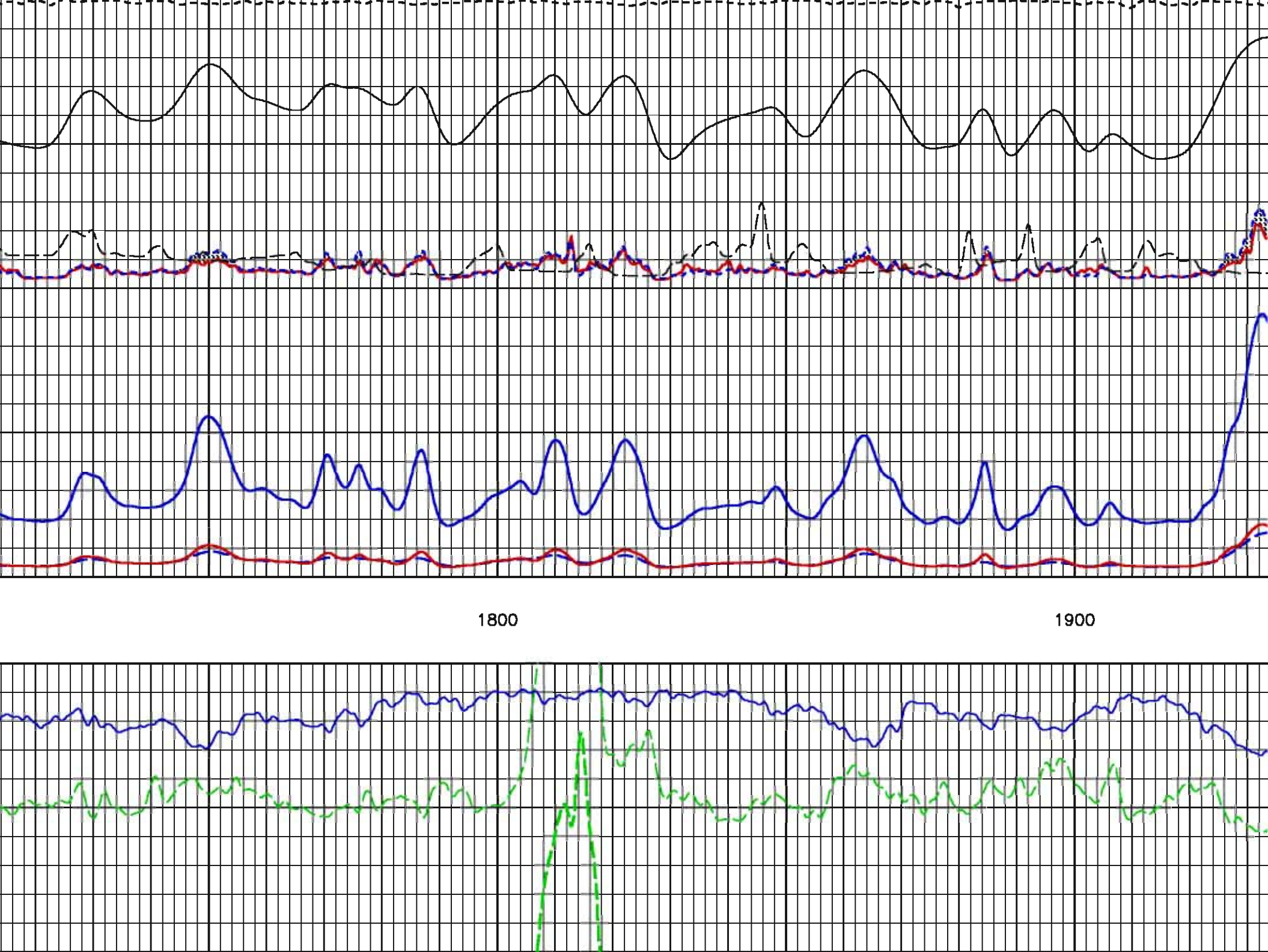
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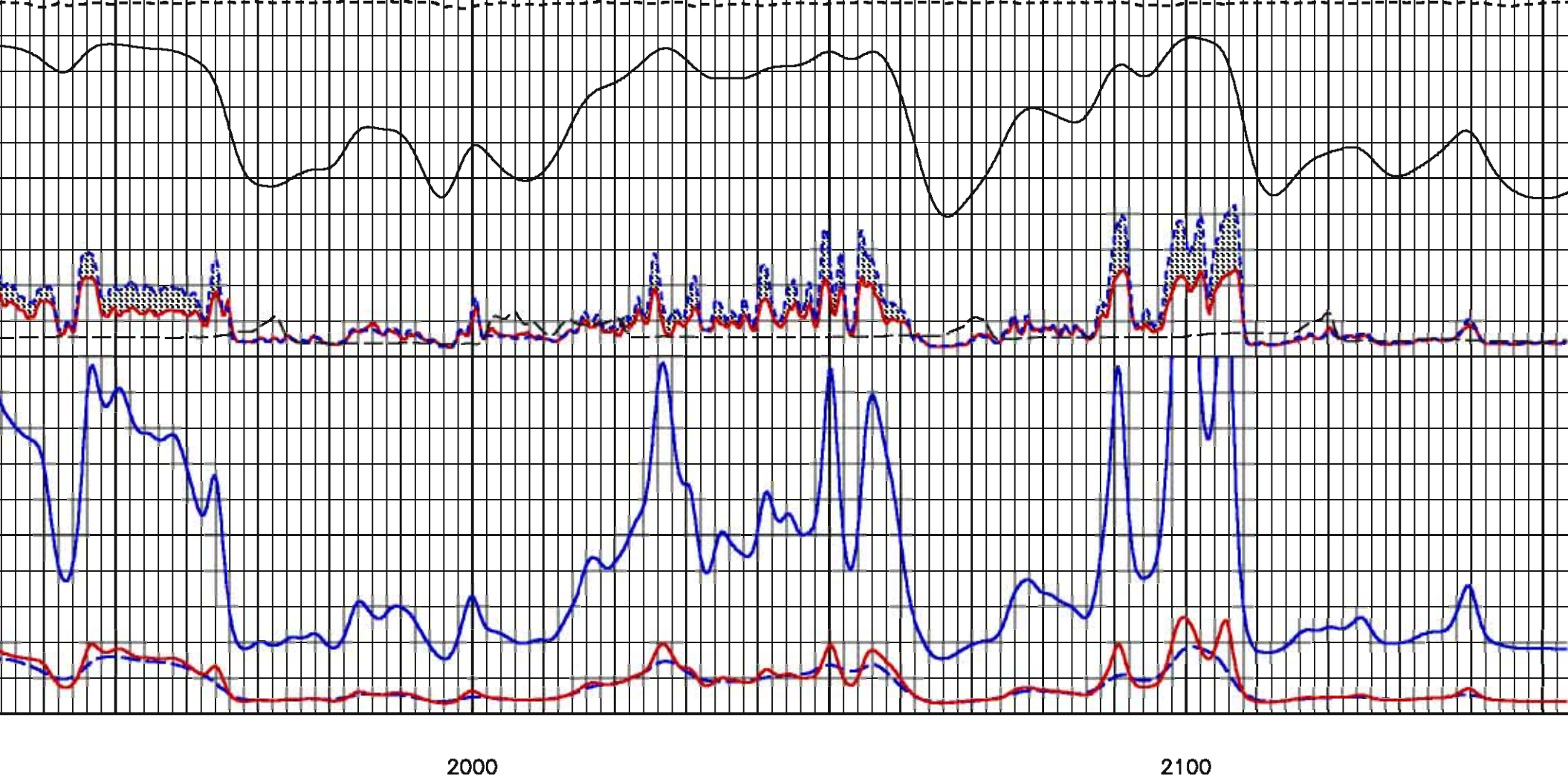
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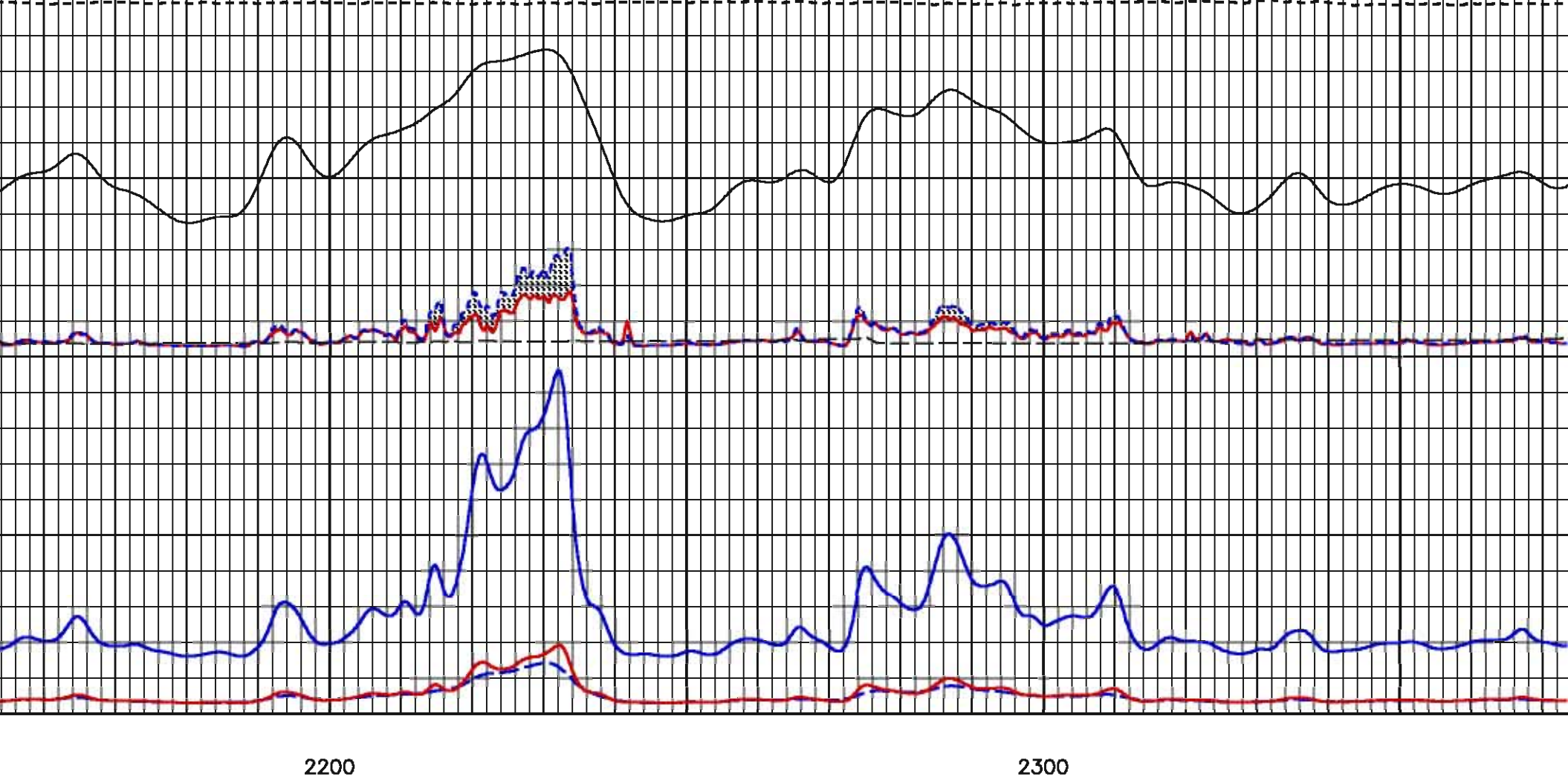
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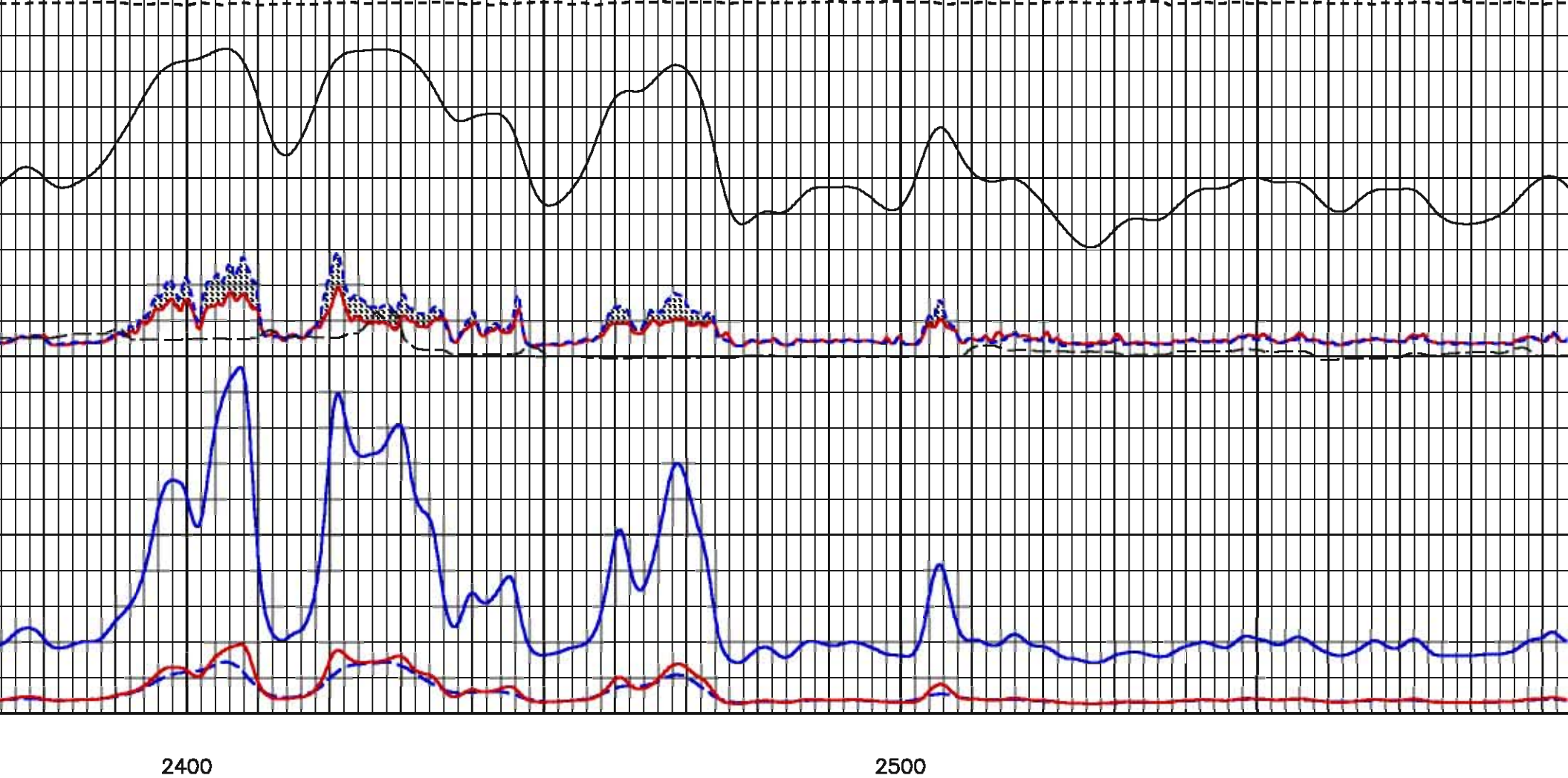
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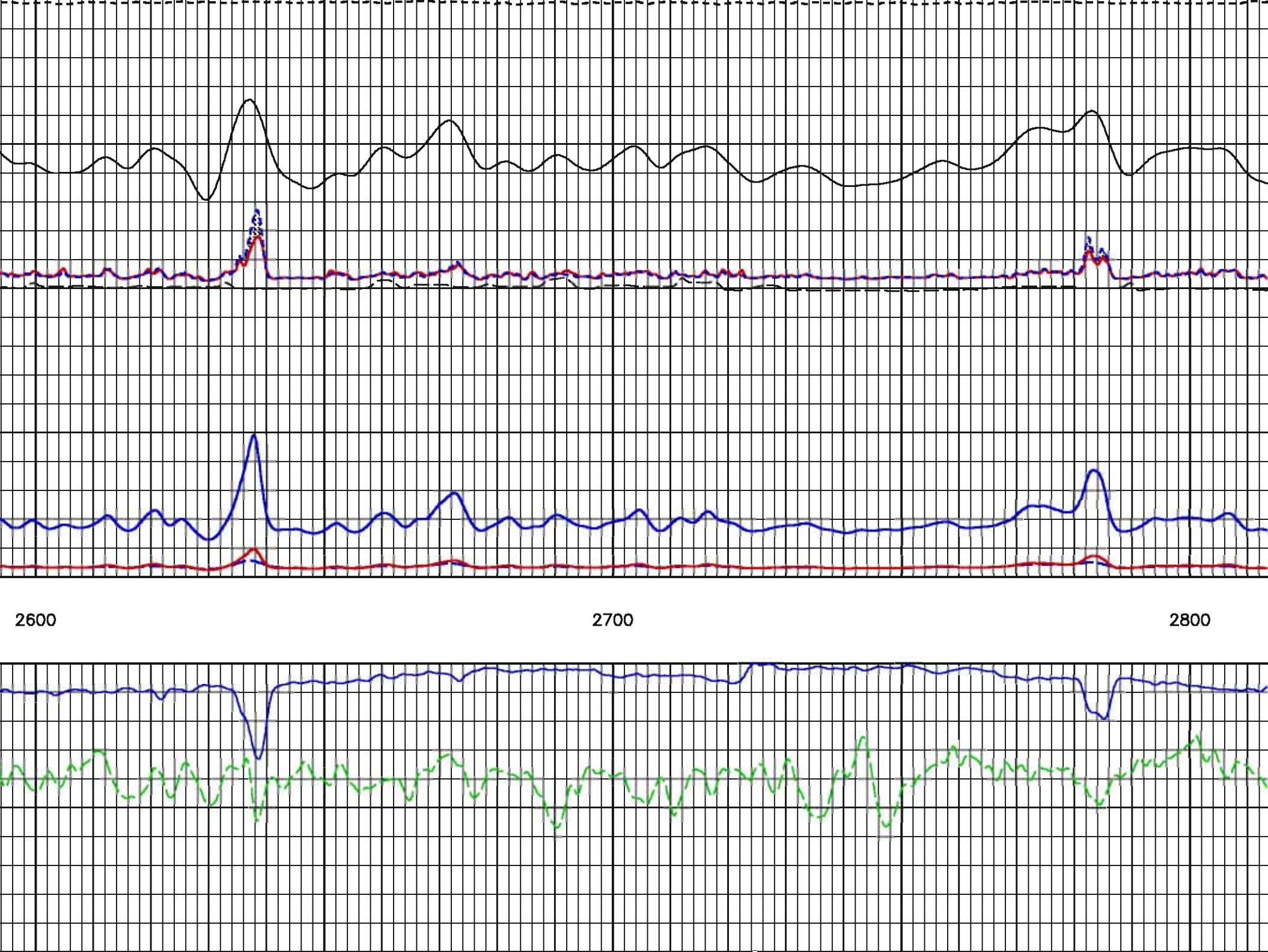
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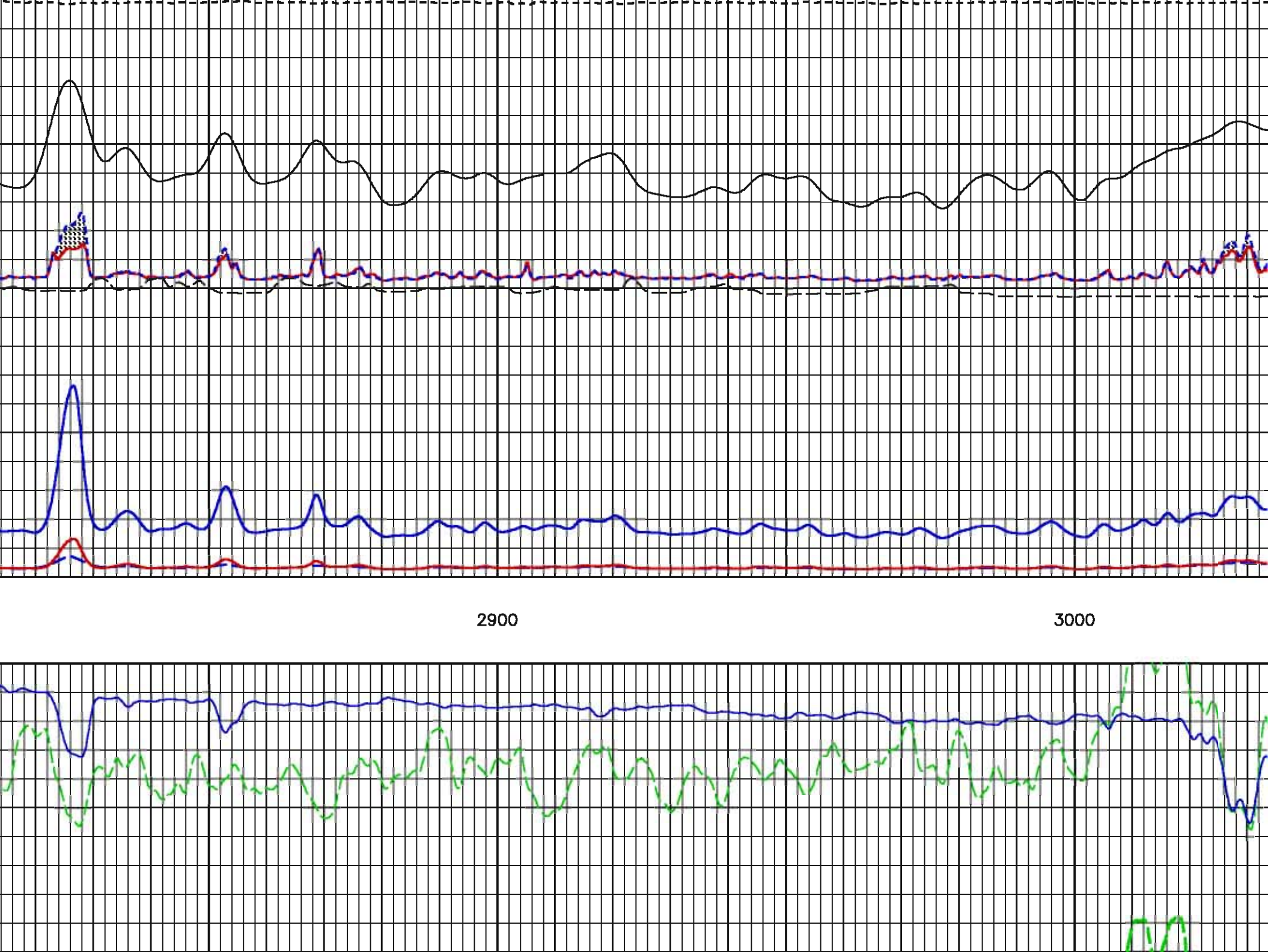
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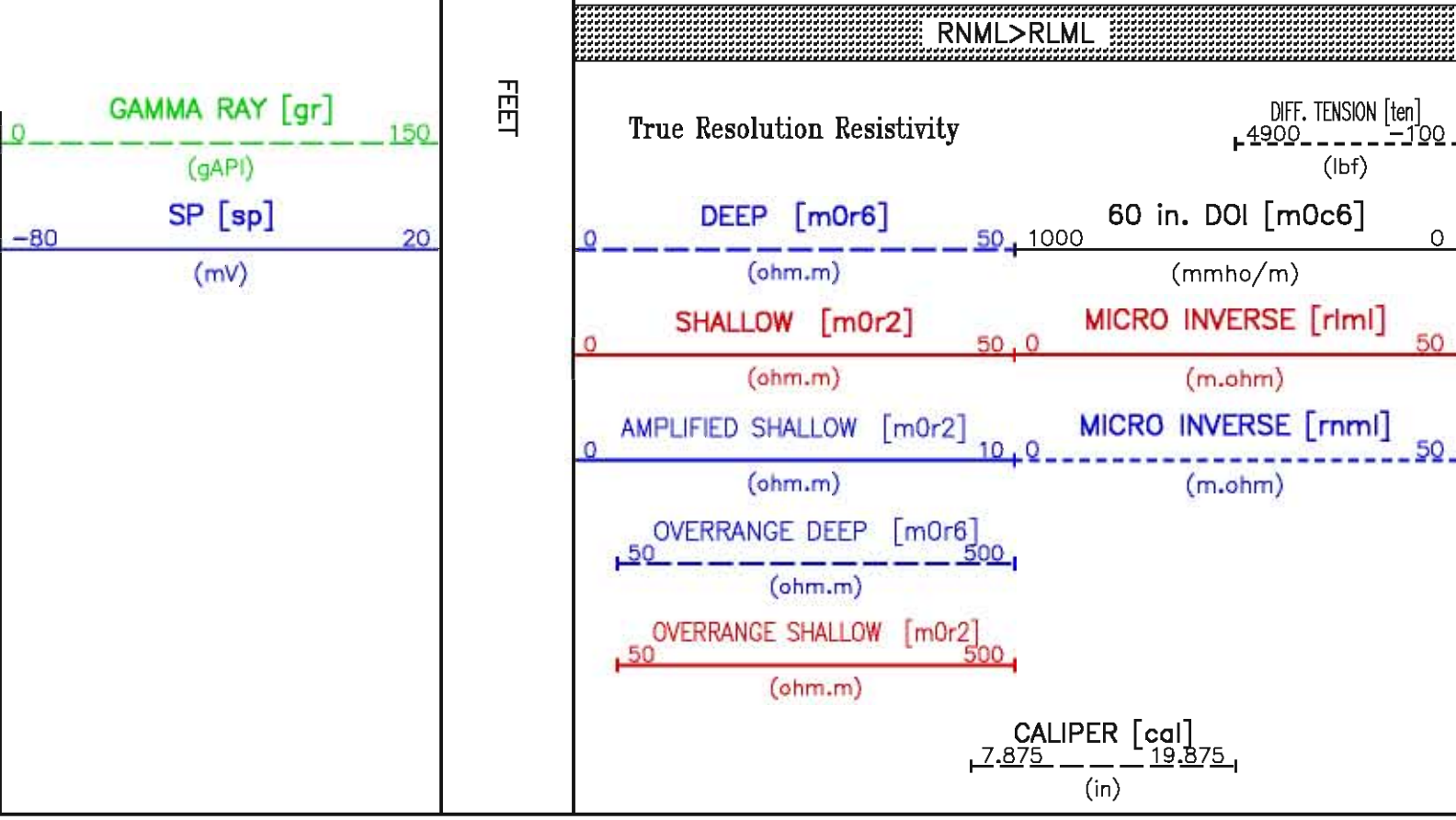


CALIBRATION / VERIFICATION SUMMARY

Source File: /dcl1s/pass/ALSAY_813557/HDILML.tp1

GR PRIMARY CALIBRATION SUMMARY

TOOL #: 1329XA 152301 DATE/TIME PERFORMED: Tue Aug 7 14:41:53 2012

UNIT #: 3885TA 006679 CALB JIG #: 4702NK VDA-389

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	CR DIFF (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	CALBRTR (gAPI)
GR	224.29	1114.29	890.0 (880.0 – 900.0)	0.169	37.80	187.80	150

GR PRIMARY VERIFICATION SUMMARY

TOOL #: 1329XA 152301 DATE/TIME PERFORMED: Tue Aug 7 14:45:23 2012

UNIT #: 3885TA 006679 VERI JIG #: 4702NK VDA-389

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	DIFF. (gAPI)
GR	226.44	1111.42	0.169	38.16	187.32	149.15 (140.00 – 160.00)

GR BEFORE LOG VERIFICATION SUMMARY

TOOL #: 1329XA 152301 DATE/TIME PERFORMED: Tue Aug 14 09:19:10 2012 DAYS SINCE CAL: 6

UNIT #: 3885TA 006679 VERI JIG #: 4702NK VDA-389

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	DIFF. (gAPI)
GR	186.69	1075.16	0.169	31.46	181.21	149.74 (139.15 – 159.15)

ML PRIMARY CALIBRATION SUMMARY

TOOL #: 1243XA 10597384 DATE/TIME PERFORMED: Tue Aug 14 15:22:28 2012

UNIT #: 3885TA 006679

	Raw Low (mV/mA)	Raw High (mV/mA)	Mult	Add	K-factor	Eng Low (ohm.m)	Eng High (ohm.m)
NORMAL	0.50 (0.45 – 0.55)	148.9 (135.0 – 165.0)	1.008	-0.007	0.417	0.21 (0.19 – 0.23)	62.5 (56.2 – 68.8)
LATERAL	0.51 (0.46 – 0.56)	149.4 (136.0 – 166.0)	1.004	-0.010	0.333	0.17 (0.15 – 0.18)	50.0 (45.0 – 55.0)

ML AFTER LOG VERIFICATION SUMMARY

TOOL #: 1243XA 10597384 DATE/TIME PERFORMED: Tue Aug 14 18:01:22 2012 DAYS SINCE CAL: 0

UNIT #: 3885TA 006679

	Raw Low (mV/mA)	Raw High (mV/mA)	Mult	Add	Eng Low (ohm.m)	Eng High (ohm.m)
NORMAL	0.50 (0.45 – 0.55)	148.9 (135.0 – 165.0)	1.008	-0.007	0.21 (0.19 – 0.23)	62.5 (56.2 – 68.8)
LATERAL	0.51 (0.45 – 0.53)	149.4 (135.0 – 165.0)	1.004	-0.010	0.17 (0.15 – 0.18)	50.0 (45.0 – 55.0)

HDIL PRIMARY CALIBRATION SUMMARY

TOOL #: 1515MA 10042094 DATE/TIME PERFORMED: Thu Jul 19 10:50:55 2012

UNIT #: 3885TA 006679 GRCOND ID & DATE: 51_PEA 083096

ZERO DATA(mv)	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil 0 R	0.033 (-0.200 – 0.200)	0.039 (-0.100 – 0.100)	0.045 (-0.100 – 0.100)	0.045 (-0.100 – 0.100)	0.046 (-0.100 – 0.100)	0.048 (-0.100 – 0.100)	0.050 (-0.100 – 0.100)	0.049 (-0.100 – 0.100)
Coil 0 Q	0.001 (-1.000 – 1.000)	-0.002 (-0.200 – 0.200)	-0.006 (-0.100 – 0.100)	-0.004 (-0.100 – 0.100)	-0.003 (-0.100 – 0.100)	-0.003 (-0.100 – 0.100)	-0.001 (-0.100 – 0.100)	0.003 (-0.100 – 0.100)
Coil 1 R	0.036 (-0.200 – 0.200)	0.044 (-0.100 – 0.100)	0.047 (-0.100 – 0.100)	0.045 (-0.100 – 0.100)	0.041 (-0.100 – 0.100)	0.040 (-0.100 – 0.100)	0.040 (-0.100 – 0.100)	0.038 (-0.100 – 0.100)
Coil 1 Q	-0.002 (-1.000 – 1.000)	-0.001 (-0.200 – 0.200)	-0.002 (-0.100 – 0.100)	0.001 (-0.100 – 0.100)	0.004 (-0.100 – 0.100)	0.002 (-0.100 – 0.100)	0.002 (-0.100 – 0.100)	0.000 (-0.100 – 0.100)
Coil 2 R	0.030 (-0.200 – 0.200)	0.034 (-0.100 – 0.100)	0.037 (-0.100 – 0.100)	0.037 (-0.100 – 0.100)	0.042 (-0.100 – 0.100)	0.046 (-0.100 – 0.100)	0.051 (-0.100 – 0.100)	0.052 (-0.100 – 0.100)
Coil 2 Q	-0.008 (-1.000 – 1.000)	-0.012 (-0.200 – 0.200)	-0.006 (-0.100 – 0.100)	-0.009 (-0.100 – 0.100)	-0.011 (-0.100 – 0.100)	-0.010 (-0.100 – 0.100)	-0.007 (-0.100 – 0.100)	-0.002 (-0.100 – 0.100)
Coil 3 R	0.025 (-0.100 – 0.100)	0.034 (-0.100 – 0.100)	0.040 (-0.100 – 0.100)	0.041 (-0.100 – 0.100)	0.047 (-0.100 – 0.100)	0.053 (-0.100 – 0.100)	0.052 (-0.100 – 0.100)	0.053 (-0.100 – 0.100)
Coil 3 Q	-0.016 (-0.900 – 0.900)	-0.022 (-0.200 – 0.200)	-0.015 (-0.100 – 0.100)	-0.013 (-0.100 – 0.100)	-0.008 (-0.100 – 0.100)	-0.006 (-0.100 – 0.100)	-0.002 (-0.100 – 0.100)	0.002 (-0.100 – 0.100)
Coil 4 R	0.026 (-0.200 – 0.200)	0.033 (-0.200 – 0.200)	0.033 (-0.200 – 0.200)	0.034 (-0.200 – 0.200)	0.033 (-0.200 – 0.200)	0.032 (-0.200 – 0.200)	0.038 (-0.200 – 0.200)	0.035 (-0.200 – 0.200)
Coil 4 Q	-0.006 (-1.000 – 1.000)	0.005 (-0.400 – 0.400)	-0.003 (-0.200 – 0.200)	-0.005 (-0.200 – 0.200)	-0.000 (-0.200 – 0.200)	-0.005 (-0.200 – 0.200)	0.002 (-0.200 – 0.200)	0.003 (-0.200 – 0.200)
Coil 5 R	0.005 (-0.400 – 0.400)	0.012 (-0.400 – 0.400)	0.030 (-0.400 – 0.400)	0.036 (-0.400 – 0.400)	0.048 (-0.400 – 0.400)	0.045 (-0.400 – 0.400)	0.036 (-0.400 – 0.400)	0.037 (-0.400 – 0.400)
Coil 5 Q	-0.015 (-2.000 – 2.000)	-0.016 (-0.800 – 0.800)	-0.021 (-0.400 – 0.400)	-0.014 (-0.400 – 0.400)	-0.003 (-0.400 – 0.400)	0.002 (-0.400 – 0.400)	0.003 (-0.400 – 0.400)	0.012 (-0.400 – 0.400)
Coil 6 R	0.000 (-1.000 – 1.000)	0.017 (-1.000 – 1.000)	0.007 (-1.000 – 1.000)	0.032 (-1.000 – 1.000)	0.033 (-1.000 – 1.000)	0.042 (-1.000 – 1.000)	0.047 (-1.000 – 1.000)	0.063 (-1.000 – 1.000)
Coil 6 Q	-0.013 (-6.000 – 6.000)	-0.030 (-2.000 – 2.000)	-0.014 (-1.000 – 1.000)	-0.031 (-1.000 – 1.000)	-0.031 (-1.000 – 1.000)	-0.021 (-1.000 – 1.000)	-0.004 (-1.000 – 1.000)	0.009 (-1.000 – 1.000)

ELEC. GAINS	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil 0 M	125.36 (100.00 – 130.00)	123.87 (100.00 – 150.00)	121.10 (98.00 – 150.00)	116.88 (96.00 – 140.00)	111.73 (92.00 – 140.00)	105.27 (87.00 – 130.00)	98.15 (82.00 – 130.00)	90.05 (76.00 – 110.00)
Coil 0 P	7.451 (6.000 – 9.000)	23.467 (19.000 – 28.000)	39.191 (32.000 – 47.000)	54.790 (44.000 – 66.000)	70.262 (57.000 – 85.000)	85.692 (70.000 – 100.000)	100.795 (82.000 – 120.000)	115.898 (85.000 – 140.000)
Coil 1 M	214.23 (160.00 – 270.00)	211.81 (160.00 – 270.00)	207.19 (170.00 – 280.00)	200.31 (170.00 – 250.00)	191.86 (160.00 – 250.00)	181.37 (150.00 – 230.00)	169.69 (150.00 – 230.00)	156.37 (140.00 – 200.00)
Coil 1 P	7.466 (6.000 – 9.000)	23.471 (19.000 – 28.000)	39.207 (32.000 – 48.000)	54.820 (46.000 – 67.000)	70.296 (57.000 – 86.000)	85.727 (70.000 – 110.000)	100.939 (83.000 – 120.000)	116.162 (95.000 – 140.000)
Coil 2 M	439.56 (360.00 – 540.00)	434.68 (360.00 – 540.00)	425.60 (350.00 – 530.00)	412.08 (340.00 – 510.00)	395.33 (330.00 – 500.00)	374.45 (310.00 – 470.00)	351.44 (300.00 – 440.00)	324.49 (270.00 – 410.00)
Coil 2 P	7.457 (6.000 – 9.000)	23.458 (19.000 – 29.000)	39.191 (32.000 – 48.000)	54.807 (45.000 – 67.000)	70.275 (58.000 – 87.000)	85.745 (71.000 – 110.000)	100.985 (84.000 – 130.000)	116.325 (96.000 – 140.000)
Coil 3 M	710.11 (590.00 – 850.00)	703.46 (580.00 – 870.00)	690.88 (570.00 – 850.00)	671.43 (550.00 – 830.00)	646.57 (530.00 – 800.00)	614.23 (500.00 – 760.00)	576.77 (470.00 – 710.00)	532.35 (440.00 – 650.00)
Coil 3 P	7.491 (6.000 – 10.000)	23.594 (20.000 – 29.000)	39.479 (33.000 – 49.000)	55.346 (46.000 – 69.000)	71.199 (58.000 – 89.000)	87.121 (73.000 – 110.000)	102.899 (85.000 – 130.000)	118.732 (95.000 – 150.000)
Coil 4 M	1141.3 (900.0 – 1400.0)	1131.7 (900.0 – 1300.0)	1113.7 (900.0 – 1300.0)	1085.4 (860.0 – 1300.0)	1048.9 (800.0 – 1200.0)	1001.0 (800.0 – 1200.0)	944.9 (750.0 – 1100.0)	877.0 (700.0 – 1000.0)
Coil 4 P	7.343 (6.000 – 10.000)	23.455 (20.000 – 30.000)	39.305 (33.000 – 50.000)	55.157 (46.000 – 70.000)	71.034 (60.000 – 90.000)	87.035 (73.000 – 110.000)	102.963 (86.000 – 130.000)	119.069 (99.000 – 150.000)
Coil 5 M	2315.7 (1900.0 – 2800.0)	2285.6 (1800.0 – 2800.0)	2230.2 (1800.0 – 2700.0)	2148.4 (1800.0 – 2600.0)	2049.3 (1700.0 – 2500.0)	1928.7 (1600.0 – 2400.0)	1796.6 (1500.0 – 2300.0)	1647.6 (1400.0 – 2100.0)
Coil 5 P	8.167 (6.000 – 10.000)	25.650 (20.000 – 31.000)	42.793 (34.000 – 51.000)	59.763 (48.000 – 72.000)	76.561 (62.000 – 93.000)	93.273 (76.000 – 110.000)	109.748 (89.000 – 130.000)	126.217 (100.000 – 150.000)

Coil 6 M	5968.0 (4700.0 – 7100.0)	5900.3 (4700.0 – 7000.0)	5776.5 (4600.0 – 6900.0)	5590.3 (4400.0 – 6900.0)	5357.3 (4200.0 – 6400.0)	5065.2 (4000.0 – 6000.0)	4736.3 (3700.0 – 5800.0)	4351.4 (3400.0 – 5100.0)
Coil 6 P	7.899 (7.000 – 10.000)	25.070 (22.000 – 32.000)	41.912 (38.000 – 54.000)	58.675 (51.000 – 75.000)	75.346 (65.000 – 98.000)	92.031 (80.000 – 120.000)	108.544 (94.000 – 140.000)	125.121 (110.000 – 160.000)

AM Factor	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil 0 R	499 (-200 – 800)	-44 (-500 – 200)	-107 (-800 – 100)	-125 (-800 – 50)	-134 (-500 – 20)	-138 (-500 – 20)	-141 (-500 – 20)	-143 (-500 – 20)
Coil 0 Q	3328 (-3000 – 6000)	1168 (-1000 – 3000)	677 (-1000 – 1200)	452 (-500 – 900)	317 (-400 – 700)	225 (-400 – 500)	153 (-400 – 500)	96 (-400 – 400)
Coil 1 R	537 (450 – 650)	75 (20 – 130)	18 (-30 – 50)	-1 (-50 – 40)	-10 (-35 – 30)	-16 (-40 – 20)	-19 (-40 – 10)	-22 (-40 – 10)
Coil 1 Q	964 (0 – 3500)	394 (0 – 900)	244 (0 – 600)	173 (0 – 450)	131 (0 – 350)	103 (0 – 300)	81 (0 – 250)	65 (0 – 250)
Coil 2 R	181.5 (140.0 – 250.0)	27.6 (0.0 – 61.0)	8.7 (-10.0 – 28.0)	2.3 (-15.0 – 18.0)	-0.7 (-15.0 – 10.0)	-2.2 (-15.0 – 7.0)	-3.3 (-15.0 – 5.0)	-3.9 (-15.0 – 3.0)
Coil 2 Q	207.7 (-200.0 – 1000.0)	94.6 (0.0 – 350.0)	60.8 (0.0 – 220.0)	44.9 (0.0 – 160.0)	35.5 (0.0 – 130.0)	29.5 (0.0 – 110.0)	25.1 (0.0 – 100.0)	22.2 (0.0 – 90.0)
Coil 3 R	43.2 (37.0 – 52.0)	4.3 (0.0 – 12.0)	-0.1 (-3.0 – 6.0)	-1.5 (-4.0 – 4.0)	-1.9 (-3.0 – 3.0)	-2.1 (-3.0 – 1.0)	-2.6 (-4.0 – 1.0)	-2.8 (-4.0 – 1.0)
Coil 3 Q	31.1 (-140.0 – 250.0)	19.2 (-40.0 – 100.0)	15.4 (-20.0 – 70.0)	14.7 (-10.0 – 50.0)	15.4 (-10.0 – 50.0)	16.6 (-10.0 – 50.0)	18.0 (-10.0 – 50.0)	18.8 (-10.0 – 50.0)
Coil 4 R	5.15 (2.00 – 10.00)	-0.63 (-3.00 – 0.00)	-1.16 (-3.50 – 3.00)	-1.24 (-3.90 – 3.00)	-1.43 (-4.20 – 2.00)	-1.46 (-4.50 – 2.00)	-1.34 (-4.70 – 2.00)	-1.55 (-5.00 – 2.00)
Coil 4 Q	-37.85 (-100.00 – 100.00)	-8.75 (-50.00 – 50.00)	-1.34 (-20.00 – 40.00)	3.10 (-10.00 – 40.00)	6.73 (-10.00 – 40.00)	9.71 (-10.00 – 40.00)	12.68 (-10.00 – 50.00)	15.40 (-10.00 – 50.00)
Coil 5 R	-1.37 (-2.00 – 5.50)	-1.24 (-3.20 – 2.40)	-1.22 (-4.50 – 3.10)	-1.25 (-4.70 – 3.30)	-1.04 (-4.80 – 3.20)	-1.04 (-5.00 – 3.30)	-1.18 (-5.20 – 3.40)	-1.15 (-5.40 – 3.60)
Coil 5 Q	-8.71 (-50.00 – 70.00)	0.05 (-20.00 – 30.00)	3.73 (-20.00 – 30.00)	6.51 (-20.00 – 35.00)	9.22 (-20.00 – 45.00)	11.66 (-20.00 – 50.00)	14.16 (-20.00 – 60.00)	16.55 (-20.00 – 70.00)
Coil 6 R	-2.12 (-4.80 – 1.00)	-1.36 (-5.70 – 3.80)	-1.07 (-6.50 – 4.90)	-1.08 (-6.90 – 5.40)	-0.93 (-7.50 – 5.80)	-0.92 (-7.50 – 6.00)	-0.85 (-7.70 – 6.10)	-0.76 (-7.90 – 6.30)
Coil 6 Q	-9.55 (-30.00 – 30.00)	-0.59 (-20.00 – 25.00)	2.99 (-20.00 – 33.00)	5.73 (-30.00 – 30.00)	8.13 (-35.00 – 60.00)	10.59 (-40.00 – 70.00)	12.90 (-50.00 – 60.00)	15.23 (-60.00 – 100.00)

MM Factor	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil 0 M	0.997 (0.900 – 1.100)	0.993 (0.900 – 1.100)	0.989 (0.900 – 1.100)	0.988 (0.900 – 1.100)	0.988 (0.900 – 1.100)	0.986 (0.900 – 1.100)	0.986 (0.900 – 1.100)	0.987 (0.900 – 1.100)
Coil 0 P	0.161 (-2.000 – 2.000)	0.281 (-2.000 – 2.000)	0.334 (-2.000 – 2.000)	0.272 (-2.000 – 2.000)	0.236 (-2.000 – 2.000)	0.180 (-2.000 – 2.000)	0.072 (-2.000 – 2.000)	0.081 (-2.000 – 2.000)
Coil 1 M	0.979 (0.900 – 1.100)	0.977 (0.900 – 1.100)	0.972 (0.900 – 1.100)	0.970 (0.900 – 1.100)	0.969 (0.900 – 1.100)	0.968 (0.900 – 1.100)	0.967 (0.900 – 1.100)	0.967 (0.900 – 1.100)
Coil 1 P	0.187 (-2.000 – 2.000)	0.347 (-2.000 – 2.000)	0.430 (-2.000 – 2.000)	0.422 (-2.000 – 2.000)	0.404 (-2.000 – 2.000)	0.355 (-2.000 – 2.000)	0.314 (-2.000 – 2.000)	0.288 (-2.000 – 2.000)
Coil 2 M	0.993 (0.900 – 1.100)	0.991 (0.900 – 1.100)	0.990 (0.900 – 1.100)	0.989 (0.900 – 1.100)	0.989 (0.900 – 1.100)	0.987 (0.900 – 1.100)	0.987 (0.900 – 1.100)	0.985 (0.900 – 1.100)
Coil 2 P	0.294 (-2.000 – 2.000)	0.136 (-2.000 – 2.000)	0.136 (-2.000 – 2.000)	0.141 (-2.000 – 2.000)	0.121 (-2.000 – 2.000)	0.102 (-2.000 – 2.000)	0.051 (-2.000 – 2.000)	0.074 (-2.000 – 2.000)
Coil 3 M	0.997 (0.900 – 1.100)	0.996 (0.900 – 1.100)	0.995 (0.900 – 1.100)	0.994 (0.900 – 1.100)	0.994 (0.900 – 1.100)	0.993 (0.900 – 1.100)	0.994 (0.900 – 1.100)	0.994 (0.900 – 1.100)
Coil 3 P	0.470 (-2.000 – 2.000)	0.235 (-2.000 – 2.000)	0.241 (-2.000 – 2.000)	0.234 (-2.000 – 2.000)	0.212 (-2.000 – 2.000)	0.170 (-2.000 – 2.000)	0.152 (-2.000 – 2.000)	0.225 (-2.000 – 2.000)
Coil 4 M	1.016 (0.900 – 1.100)	1.015 (0.900 – 1.100)	1.014 (0.900 – 1.100)	1.013 (0.900 – 1.100)	1.013 (0.900 – 1.100)	1.012 (0.900 – 1.100)	1.011 (0.900 – 1.100)	1.010 (0.900 – 1.100)
Coil 4 P	0.739 (-2.000 – 2.000)	0.317 (-2.000 – 2.000)	0.247 (-2.000 – 2.000)	0.243 (-2.000 – 2.000)	0.215 (-2.000 – 2.000)	0.200 (-2.000 – 2.000)	0.162 (-2.000 – 2.000)	0.138 (-2.000 – 2.000)
Coil 5 M	1.020 (0.900 – 1.100)	1.018 (0.900 – 1.100)	1.018 (0.900 – 1.100)	1.017 (0.900 – 1.100)	1.016 (0.900 – 1.100)	1.017 (0.900 – 1.100)	1.016 (0.900 – 1.100)	1.015 (0.900 – 1.100)
Coil 5 P	1.039 (-2.000 – 2.000)	0.337 (-2.000 – 2.000)	0.263 (-2.000 – 2.000)	0.191 (-2.000 – 2.000)	0.122 (-2.000 – 2.000)	0.026 (-2.000 – 2.000)	0.036 (-2.000 – 2.000)	-0.014 (-2.000 – 2.000)
Coil 6 M	1.013 (0.900 – 1.100)	1.014 (0.900 – 1.100)	1.013 (0.900 – 1.100)	1.011 (0.900 – 1.100)	1.011 (0.900 – 1.100)	1.017 (0.900 – 1.100)	1.017 (0.900 – 1.100)	1.015 (0.900 – 1.100)
Coil 6 P	1.465 (-2.000 – 2.000)	0.608 (-2.000 – 2.000)	0.343 (-2.000 – 2.000)	0.324 (-2.000 – 2.000)	0.153 (-2.000 – 2.000)	0.017 (-2.000 – 2.000)	0.015 (-2.000 – 2.000)	-0.112 (-2.000 – 2.000)

PARMS	TCID 0	TCID 1	Cal Temp (degF)	T Factor
IDs	1.703	0.809	101.3	1.04

HDIL BEFORE LOG VERIFICATION SUMMARY

TOOL #: 1515MA 10042094 DATE/TIME PERFORMED: Tue Aug 14 15:21:08 2012 DAYS SINCE CAL: 26

UNIT #: 3885TA 006679

ZERO DATA(mv)	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil 0 R	-0.004 (-0.200 – 0.200)	-0.001 (-0.100 – 0.100)	0.002 (-0.100 – 0.100)	0.001 (-0.100 – 0.100)	-0.001 (-0.100 – 0.100)	0.001 (-0.100 – 0.100)	0.001 (-0.100 – 0.100)	-0.000 (-0.100 – 0.100)
Coil 0 Q	0.005 (-1.000 – 1.000)	0.006 (-0.200 – 0.200)	-0.000 (-0.100 – 0.100)	-0.001 (-0.100 – 0.100)	0.001 (-0.100 – 0.100)	0.001 (-0.100 – 0.100)	0.000 (-0.100 – 0.100)	0.001 (-0.100 – 0.100)
Coil 1 R	0.006 (-0.300 – 0.300)	0.005 (-0.100 – 0.100)	0.006 (-0.100 – 0.100)	0.008 (-0.100 – 0.100)	0.008 (-0.100 – 0.100)	0.006 (-0.100 – 0.100)	0.006 (-0.100 – 0.100)	0.003 (-0.100 – 0.100)
Coil 1 Q	-0.003 (-1.000 – 1.000)	-0.001 (-0.200 – 0.200)	-0.002 (-0.100 – 0.100)	-0.001 (-0.100 – 0.100)	0.001 (-0.100 – 0.100)	0.002 (-0.100 – 0.100)	0.002 (-0.100 – 0.100)	0.002 (-0.100 – 0.100)
Coil 2 R	0.003 (-0.300 – 0.300)	0.003 (-0.100 – 0.100)	0.000 (-0.100 – 0.100)	0.000 (-0.100 – 0.100)	0.003 (-0.100 – 0.100)	0.003 (-0.100 – 0.100)	0.007 (-0.100 – 0.100)	0.008 (-0.100 – 0.100)
Coil 2 Q	-0.006 (-1.000 – 1.000)	-0.006 (-0.200 – 0.200)	-0.003 (-0.100 – 0.100)	-0.002 (-0.100 – 0.100)	-0.004 (-0.100 – 0.100)	-0.006 (-0.100 – 0.100)	-0.005 (-0.100 – 0.100)	-0.001 (-0.100 – 0.100)

Coil 3 R	0.002	0.004	0.003	0.004	0.005	0.002	0.003	0.005
	-0.100 0.100	-0.100 0.100	-0.100 0.100	-0.100 0.100	-0.100 0.100	-0.100 0.100	-0.100 0.100	-0.100 0.100
Coil 3 Q	-0.008	-0.006	-0.004	-0.001	-0.001	0.001	0.002	-0.001
	-0.300 0.300	-0.200 0.200	-0.100 0.100	-0.100 0.100	-0.100 0.100	-0.100 0.100	-0.100 0.100	-0.100 0.100
Coil 4 R	0.000	0.004	-0.000	0.001	-0.003	0.003	0.007	-0.001
	-0.200 0.200	-0.200 0.200	-0.200 0.200	-0.200 0.200	-0.200 0.200	-0.200 0.200	-0.200 0.200	-0.200 0.200
Coil 4 Q	-0.014	-0.000	-0.002	-0.005	-0.006	-0.006	-0.002	0.002
	-1.000 1.000	-0.400 0.400	-0.200 0.200	-0.200 0.200	-0.200 0.200	-0.200 0.200	-0.200 0.200	-0.200 0.200
Coil 5 R	0.001	0.006	0.006	0.003	0.005	-0.002	-0.001	-0.005
	-0.400 0.400	-0.400 0.400	-0.400 0.400	-0.400 0.400	-0.400 0.400	-0.400 0.400	-0.400 0.400	-0.400 0.400
Coil 5 Q	-0.013	-0.010	-0.012	0.004	0.006	0.002	0.000	0.004
	-2.000 2.000	-0.800 0.800	-0.400 0.400	-0.400 0.400	-0.400 0.400	-0.400 0.400	-0.400 0.400	-0.400 0.400
Coil 6 R	0.015	-0.020	-0.027	-0.013	-0.019	0.008	0.019	0.004
	-1.000 1.000	-1.000 1.000	-1.000 1.000	-1.000 1.000	-1.000 1.000	-1.000 1.000	-1.000 1.000	-1.000 1.000
Coil 6 Q	0.007	0.003	0.002	-0.017	-0.001	-0.032	-0.013	0.016
	-5.000 5.000	-2.000 2.000	-1.000 1.000	-1.000 1.000	-1.000 1.000	-1.000 1.000	-1.000 1.000	-1.000 1.000

ELEC. GAINS	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil 0 M	125.65	124.11	121.15	116.66	111.19	104.41	97.05	88.57
	100.00 150.00	100.00 150.00	98.00 150.00	96.00 140.00	92.00 140.00	87.00 130.00	82.00 120.00	76.00 110.00
Coil 0 P	7.797	24.506	40.902	57.192	73.300	89.315	104.983	120.592
	5.000 9.000	19.000 29.000	32.000 47.000	44.000 69.000	57.000 88.000	70.000 100.000	82.000 120.000	95.000 140.000
Coil 1 M	216.75	214.17	209.20	201.77	192.74	181.45	169.28	155.20
	180.00 270.00	180.00 270.00	170.00 250.00	170.00 230.00	160.00 230.00	150.00 230.00	150.00 230.00	140.00 200.00
Coil 1 P	7.812	24.537	40.955	57.276	73.389	89.437	105.221	120.973
	5.000 9.000	19.000 29.000	33.000 48.000	45.000 67.000	57.000 88.000	70.000 110.000	83.000 130.000	96.000 140.000
Coil 2 M	443.68	438.50	428.70	414.00	396.15	373.69	349.57	321.38
	360.00 540.00	360.00 540.00	350.00 530.00	340.00 510.00	330.00 500.00	310.00 470.00	300.00 440.00	270.00 410.00
Coil 2 P	7.791	24.491	40.889	57.172	73.278	89.324	105.112	120.908
	5.000 9.000	19.000 29.000	32.000 48.000	45.000 67.000	56.000 87.000	71.000 110.000	84.000 130.000	98.000 140.000
Coil 3 M	713.25	706.03	692.51	671.19	644.55	609.65	570.72	524.17
	590.00 860.00	580.00 870.00	570.00 850.00	560.00 830.00	550.00 800.00	500.00 750.00	470.00 710.00	440.00 660.00
Coil 3 P	7.822	24.579	41.104	57.620	74.068	90.554	106.813	123.109
	5.000 10.000	20.000 29.000	33.000 49.000	46.000 69.000	59.000 89.000	72.000 110.000	85.000 130.000	98.000 150.000
Coil 4 M	1143.1	1132.7	1113.0	1081.8	1042.7	991.1	932.7	861.3
	900.0 1400.0	900.0 1300.0	900.0 1300.0	850.0 1300.0	800.0 1200.0	800.0 1200.0	750.0 1100.0	700.0 1000.0
Coil 4 P	7.656	24.447	40.942	57.437	73.912	90.481	106.913	123.489
	5.000 10.000	20.000 30.000	35.000 50.000	46.000 70.000	60.000 90.000	73.000 110.000	86.000 130.000	99.000 150.000
Coil 5 M	2311.6	2280.3	2221.5	2134.5	2030.8	1903.8	1767.8	1613.1
	1900.0 2800.0	1800.0 2800.0	1800.0 2700.0	1800.0 2600.0	1700.0 2500.0	1600.0 2400.0	1500.0 2200.0	1400.0 2100.0
Coil 5 P	8.499	26.633	44.399	62.024	79.414	96.688	113.881	130.623
	5.000 10.000	20.000 31.000	34.000 51.000	48.000 72.000	62.000 93.000	76.000 110.000	90.000 130.000	100.000 150.000
Coil 6 M	5935.7	5864.9	5733.8	5535.1	5292.0	4981.7	4643.3	4249.2
	4700.0 7100.0	4700.0 7000.0	4800.0 6900.0	4400.0 6800.0	4200.0 6400.0	4000.0 6000.0	3700.0 5800.0	3400.0 5100.0
Coil 6 P	8.244	26.097	43.632	61.060	78.375	95.646	112.709	129.761
	7.000 10.000	23.000 32.000	36.000 54.000	51.000 76.000	65.000 98.000	80.000 120.000	94.000 140.000	110.000 160.000

HDIL AFTER LOG VERIFICATION SUMMARY

TOOL #: 1515MA 10042094 DATE/TIME PERFORMED: Tue Aug 14 18:02:23 2012 DAYS SINCE CAL: 26

UNIT #: 3885TA 006679

ZERO DATA(mv)	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil 0 R	-0.002	0.001	0.002	0.002	-0.000	0.003	0.002	0.000
	-0.064 0.078	-0.061 0.066	-0.028 0.032	-0.029 0.031	-0.031 0.029	-0.029 0.031	-0.029 0.031	-0.030 0.030
Coil 0 Q	0.004	0.005	-0.001	-0.000	0.001	0.001	0.001	0.002
	-0.035 0.045	-0.114 0.126	-0.030 0.030	-0.031 0.029	-0.029 0.031	-0.029 0.031	-0.030 0.030	-0.029 0.031
Coil 1 R	0.004	0.005	0.006	0.007	0.005	0.006	0.006	0.004
	-0.074 0.088	-0.048 0.066	-0.024 0.036	-0.022 0.036	-0.022 0.036	-0.024 0.036	-0.024 0.036	-0.027 0.035
Coil 1 Q	-0.003	-0.004	-0.004	-0.001	0.001	0.002	0.002	0.002
	-0.403 0.397	-0.101 0.089	-0.032 0.028	-0.031 0.029	-0.029 0.031	-0.028 0.032	-0.028 0.032	-0.028 0.032
Coil 2 R	0.001	0.004	0.003	0.001	0.003	0.003	0.007	0.009
	-0.067 0.073	-0.027 0.033	-0.030 0.030	-0.030 0.030	-0.027 0.033	-0.027 0.033	-0.025 0.037	-0.022 0.038
Coil 2 Q	-0.006	-0.005	-0.003	-0.003	-0.005	-0.004	-0.004	-0.001
	-0.386 0.344	-0.106 0.084	-0.033 0.027	-0.032 0.028	-0.034 0.026	-0.036 0.024	-0.035 0.025	-0.031 0.029
Coil 3 R	0.002	0.000	0.005	0.007	0.008	0.006	0.005	0.004
	-0.038 0.042	-0.036 0.044	-0.037 0.043	-0.036 0.044	-0.035 0.045	-0.039 0.042	-0.035 0.045	-0.035 0.045
Coil 3 Q	-0.009	-0.009	-0.007	-0.002	-0.000	0.001	0.002	0.002
	-0.208 0.192	-0.086 0.074	-0.044 0.038	-0.041 0.039	-0.041 0.039	-0.039 0.041	-0.038 0.042	-0.041 0.039
Coil 4 R	-0.008	0.000	-0.005	-0.006	0.000	0.003	0.004	0.005
	-0.060 0.080	-0.058 0.064	-0.060 0.060	-0.059 0.061	-0.063 0.057	-0.057 0.063	-0.053 0.067	-0.061 0.059
Coil 4 Q	-0.024	-0.002	-0.005	-0.003	0.001	-0.001	-0.007	0.004
	-0.314 0.266	-0.100 0.100	-0.062 0.058	-0.063 0.055	-0.066 0.054	-0.066 0.054	-0.063 0.058	-0.058 0.062
Coil 5 R	-0.007	0.005	-0.001	0.003	0.005	0.002	-0.001	-0.008
	-0.119 0.121	-0.114 0.126	-0.114 0.126	-0.117 0.123	-0.115 0.125	-0.122 0.118	-0.121 0.119	-0.125 0.115
Coil 5 Q	-0.005	-0.003	-0.008	0.002	0.003	0.011	-0.003	-0.002
	-0.513 0.587	-0.260 0.240	-0.132 0.108	-0.118 0.124	-0.114 0.126	-0.118 0.122	-0.120 0.120	-0.118 0.124
Coil 6 R	0.018	-0.008	-0.001	-0.030	-0.007	0.014	0.009	0.012
	-0.288 0.318	-0.320 0.280	-0.327 0.273	-0.318 0.287	-0.319 0.281	-0.292 0.308	-0.281 0.319	-0.296 0.304
Coil 6 Q	-0.003	-0.008	-0.007	-0.019	-0.003	0.001	0.001	0.005
	-1.493 1.507	-0.597 0.603	-0.298 0.302	-0.317 0.283	-0.301 0.299	-0.332 0.268	-0.313 0.287	-0.284 0.316

ELEC. GAINS	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil 0 M	125.69	124.17	121.23	116.73	111.28	104.48	97.09	88.62
	123.14 128.16	121.63 126.58	118.73 123.58	114.33 119.00	108.97 113.42	102.32 106.50	95.11 98.99	86.80 90.34
Coil 0 P	7.784	24.463	40.844	57.104	73.208	89.173	104.884	120.428
	4.797 10.797	21.506 27.506	37.902 43.902	54.102 60.102	70.300 76.300	86.315 92.315	101.953 107.953	117.592 123.592
Coil 1 M	216.88	214.34	209.41	201.92	192.92	181.75	169.35	155.38
	212.41 221.08	209.89 218.45	205.02 213.38	197.74 205.81	188.89 196.60	177.92 185.06	165.89 172.66	152.09 158.30

Coil 1 P	7.798	24.505	40.899	57.207	73.312	89.317	105.099	120.866
	4.812 10.812	21.557 27.557	37.956 43.956	54.276 60.276	70.389 76.389	86.437 92.437	102.221 108.221	117.973 123.973
Coil 2 M	443.75	438.63	428.91	414.25	396.40	373.98	349.83	321.88
	434.81 452.68	429.73 447.27	420.12 437.27	405.72 422.28	388.23 404.37	365.22 381.17	342.66 358.66	314.95 327.81
Coil 2 P	7.776	24.450	40.828	57.109	73.198	89.196	105.006	120.762
	4.791 10.791	21.491 27.491	37.869 43.869	54.172 60.172	70.278 76.278	86.324 92.324	102.112 108.112	117.906 123.906
Coil 3 M	713.98	706.87	693.41	672.14	645.45	610.52	571.34	524.91
	696.89 727.52	691.01 720.15	675.68 706.36	657.77 684.61	631.66 657.45	597.46 621.85	559.31 582.14	513.69 534.68
Coil 3 P	7.810	24.538	41.049	57.545	73.984	90.448	106.700	122.965
	4.822 10.822	21.579 27.579	38.104 44.104	54.620 60.620	71.068 77.068	87.554 93.554	103.813 109.813	120.109 126.109
Coil 4 M	1143.3	1133.0	1113.4	1082.3	1043.4	991.7	932.8	861.9
	1129.2 1166.0	1119.0 1156.8	1090.7 1136.2	1060.1 1103.4	1021.8 1065.0	971.3 1011.0	914.1 951.4	844.1 878.8
Coil 4 P	7.645	24.414	40.890	57.373	73.831	90.387	106.815	123.354
	4.658 10.658	21.447 27.447	37.942 43.942	54.437 60.437	70.912 76.912	87.451 93.451	103.913 109.913	120.489 126.489
Coil 5 M	2312.0	2280.9	2222.5	2135.7	2031.6	1905.3	1768.5	1614.7
	2263.4 2357.9	2234.7 2328.9	2177.0 2268.9	2091.8 2177.2	1990.2 2071.4	1865.7 1941.9	1732.4 1803.1	1580.8 1645.4
Coil 5 P	8.487	26.597	44.342	61.946	79.324	96.579	113.551	130.485
	5.499 11.499	25.635 29.653	41.390 47.399	58.024 65.024	76.414 82.414	93.688 99.688	110.651 116.651	127.425 135.425
Coil 6 M	5936.6	5866.5	5736.9	5536.9	5294.7	4987.4	4646.7	4251.7
	5817.0 6054.4	5747.6 5982.2	5619.1 5848.3	5424.4 5643.8	5190.1 5397.8	4882.0 5081.3	4550.4 4738.2	4164.2 4334.2
Coil 6 P	8.232	26.059	43.565	60.977	78.275	95.540	112.570	129.622
	5.244 11.244	23.097 29.097	40.632 46.632	56.960 64.060	70.375 81.375	92.646 98.646	109.709 115.709	126.761 132.761

INSTRUMENT CONFIGURATION

Source File: C:\Users\congyuo\Documents\Logging-Data\ALSAY613557\ALSAY--613557\m87cb_hdilmlonly-tdg.meta

INSTRUMENT CONFIGURATION

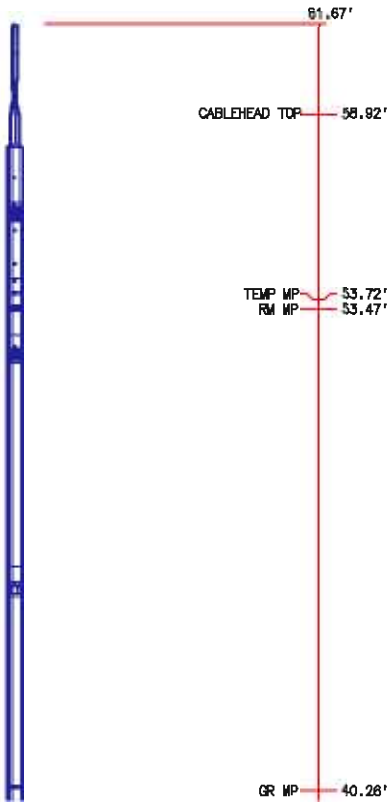
Source File: /data/pass/ALSAY-613557/m87cb_hdilmlonly-tdg

CABLEHEAD
- Diameter : 3.38"
- Length : 5.50'
- Weight : 24 lbs
- Series : CABL338
- Mnemonic : CBLH
- Measure Point: 2.75': CABLEHEAD TOP

TTRM SUB
- Diameter : 3.63"
- Length : 3.83'
- Weight : 82 lbs
- Series : 3981XA
- Mnemonic : TTRM
- Measure Point: 1.38': TEMP MP
- Measure Point: 1.13': RM MP

WTS COMMON REMOTE
- Diameter : 3.63"
- Length : 6.38'
- Weight : 126 lbs
- Series : 3514XB
- Mnemonic : WTS
- Temp Rating : 400 deg. F
- Press Rating : 20000 psi
- Tensile Str. : 78000 lbs
- Compressive : 114000 lbs

DIGITAL SPECTRALOG
- Diameter : 3.63"
- Length : 7.31'
- Weight : 130 lbs
- Series : 1329XA
- Mnemonic : DSL
- Measure Point: 1.60': GR MP
- Temp Rating : 400 deg. F
- Press Rating : 20000 psi
- Tensile Str. : 78000 lbs
- Compressive : 85000 lbs



NTS MICROLATEROLOG

Diameter : 4.00"
Length : 11.25'
Weight : 258 lbs
Series : 1243XA
Mnemonic : MLL
Measure Point: 1.55': MP
Temp Rating : 350 deg. F
Press Rating : 20000 psi
Tensile Str. : 78000 lbs
Compressive : 36000 lbs

MP — 28.97'

HIGH DEFINITION INDUCTION TOOL

Diameter : 3.62"
Length : 27.13'
Weight : 415 lbs
Series : 1515XA
Mnemonic : HDIL
Measure Point: 13.91': SP MP
Measure Point: 7.44': XMTR MP
Temp Rating : 400 deg. F
Press Rating : 20000 psi
Tensile Str. : 36000 lbs
Compressive : 1900 lbs

SP MP — 14.19'

XMTR MP — 7.72'

BULL PLUG 3 3/8

0.00'

TOTAL LENGTH: 61.67'
TOTAL WEIGHT: 1017 lbs
MAX DIAMETER: D'4.00"

BAKER HUGHES	COMPANY	ALSAY INC	FILE NO:
	WELL	CONROE WELL 23	
	FIELD	WATER WELL	API NO:
	COUNTY	MONTGOMERY STATE TX	
ECLIPS	LOCATION:	ELEVATIONS: KB NA, DF NA, GL NA	
	LAT LONG	DATE 14-AUG-2012	

BAKER HUGHES

DIGITAL SPECTRALOG ® GAMMA RAY LOG TTRM SUB SM

FILE NO:	COMPANY	ALSAY INC	
API NO:	WELL	CONROE WELL 23	
	FIELD	WATER WELL	
	COUNTY	MONTGOMERY	STATE TX

Ver. 3.87

LOCATION:

LAT _____ LONG _____

OTHER SERVICES
SWC
ZDL/CN/GR
HDIL/ML

PERMANENT DATUM	GL	ELEVATION	NA
LOG MEASURED FROM	KB	6 FT	ABOVE P.D.
DRILL. MEAS. FROM	KB		

ELEVATIONS:
KB NA
DF NA
GL NA

DATE		14-AUG-2012			
RUN	TRIP	1	1		
SERVICE ORDER		US613557			
DEPTH DRILLER		3245 FT			
DEPTH LOGGER		3244 FT			
BOTTOM LOGGED INTERVAL		3244 FT			
TOP LOGGED INTERVAL		64 FT			
CASING DRILLER		36 IN @60 FT		@	
CASING LOGGER		64 FT			
BIT SIZE		9.875 IN			
TYPE OF FLUID IN HOLE		WATER BASED MUD			
DENSITY	VISCOSITY	9.8 LB/G	34 S		
PH	FLUID LOSS	7.5			
SOURCE OF SAMPLE		MUD LINE			
RM AT MEAS. TEMP.		8.50 OHMM @75 DEGF		@	
RMF AT MEAS. TEMP.		6.37 OHMM @75 DEGF		@	
RMC AT MEAS. TEMP.		10.63 OHMM @75 DEGF		@	
SOURCE OF RMF	RMC	CALCULATED	CALCULATED		
RM AT BHT		6.00 OHMM @109 DEGF		@	
TIME SINCE CIRCULATION		7			
MAX. RECORDED TEMP.		109 DEGF			
EQUIP. NO.	LOCATION	HL6649	PEARLAND		
RECORDED BY		YC CONG			
WITNESSED BY		DALE SHOCKLEY			

IN MAKING INTERPRETATIONS OF LOGS OUR EMPLOYEES WILL GIVE CUSTOMER THE BENEFIT OF THEIR BEST JUDGEMENT. BUT SINCE ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS, WE CANNOT, AND WE DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATION. WE SHALL NOT BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COST, DAMAGES, OR EXPENSES WHATSOEVER INCURRED OR SUSTAINED BY THE CUSTOMER RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR EMPLOYEES.

CASING RECORD

SIZE	WEIGHT	GRADE	FROM	TO
36 IN			0 FT	64 FT

BOREHOLE RECORD

BIT SIZE	FROM	TO
9.875 IN	64 FT	3244 FT

REMARKS

RUN 1 TRIP 1 :

BVOL IS BOREHOLE VOLUME IN CU FT.
CVOL IS NOT CALULTED BECAUSE OF NO NEXT CASGING SIZE AVILBLE

DENSITY POROSITY RECORDED AND PRESENTED ON A SANDSTONE MATRIX = 2.65 G/CC
NEUTRON POROSITY RECORDED AND PRESENTED ON A SANDSTONE MATRIX

CASING ID IS 35 IN AS PER CUSTOMER

SCALES PRESENTED AS PER CUSTOMER REQUEST
SCALES PRESENTED AS PER CUSTOMER REQUEST

CREW: YC CONG, E GONZALEZ, J KAY, R SIOK
RIG: ALSAY 1

THANK YOU FOR CHOOSING BAKER HUGHES, INC.

EQUIPMENT DATA					
RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	1	WTS	3514XB	153396	FREE
1	1	DGR	1329XA	152301	FREE
1	1	CN	2446XA	179984	DE-CENT
1	1	ZDL	2234XA	153006	PAD DEVIE
1	1	KNJT	3939XA	1667760	FREE
1	1	HDIL-E	1515EA	179482	FREE
1	1	HDIL-M	1515M	10042094	FREE
1	1	ML	1243X	10597384	PD DEVICE
1	1	TTRM	3981XB	10080044	FREE

MAIN DSL 5IN

ECLIPS 6.1i Aug 06, 2010
Updates: 1,2

Wed Aug 15 02:53:53 2012

Pcrplt /main/62 Cplot Pdf_Cpp /main/16 Fileview 5.61

PARAMETER AND FILTER SUMMARY REPORT

FILE: /data/pass/ALSAY-613557/m87cb_MSLAM_1243ML02.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 57.500 ft BOTTOM DEPTH: 3251.500 ft

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft) TOP	BOTTOM
CHT	FILTER ()	medium (1)		TOP	BOTTOM
	FILTER (.h)	medium (1)		''	''
	FILTER (.i)	medium (1)		''	''
SPEED	FILTER ()	medium (1)		''	''
	FILTER (.h)	medium (1)		''	''
	FILTER (.i)	medium (1)		''	''
TENSION	FILTER ()	medium (1)		''	''
GR	FILTER ()	medium (1)		''	''
	FILTER (.h)	medium (1)		''	''
	FILTER (.i)	medium (1)		''	''
SL	FILTER	medium (1)		''	''
CALA (3rd CALIPER)	FILTER ()	medium(1)		''	''
	FILTER (.i)	medium(1)		''	''
	FILTER (.j)	medium(1)		''	''

BOREHOLE & CEMENT

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft) TOP	BOTTOM
CASING - BOREHOLE & CEMENT VOLUME	CASING O.D.	0.000	in	TOP	BOTTOM
BIT SIZE	BIT SIZE	9.875	in	''	''
MUD DENSITY	MUD DENSITY	8.35	lbm/gal	''	''
BOREHOLE CORR DIAMETER SOURCE	CALIPER/FIXED DIA. (slbh*)	USE CALIPER		''	''
BOREHOLE CORR DIAMETER	FIXED DIAMETER (slbh*)	9.875	in	''	''

SL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft) TOP	BOTTOM
SL BOREHOLE	OPEN/CASED HOLE	OPEN HOLE		TOP	BOTTOM
	K MUD CONTENT	0.00	pct	''	''
	K MUD TYPE	KCL		''	''
SL AUTOGAIN	AUTO GAIN (1329XA 1)	ON		''	''
SL SPECTRUM CALIBRATION	MODE	AUTOMATIC		''	''

CURVE DESCRIPTION REPORT

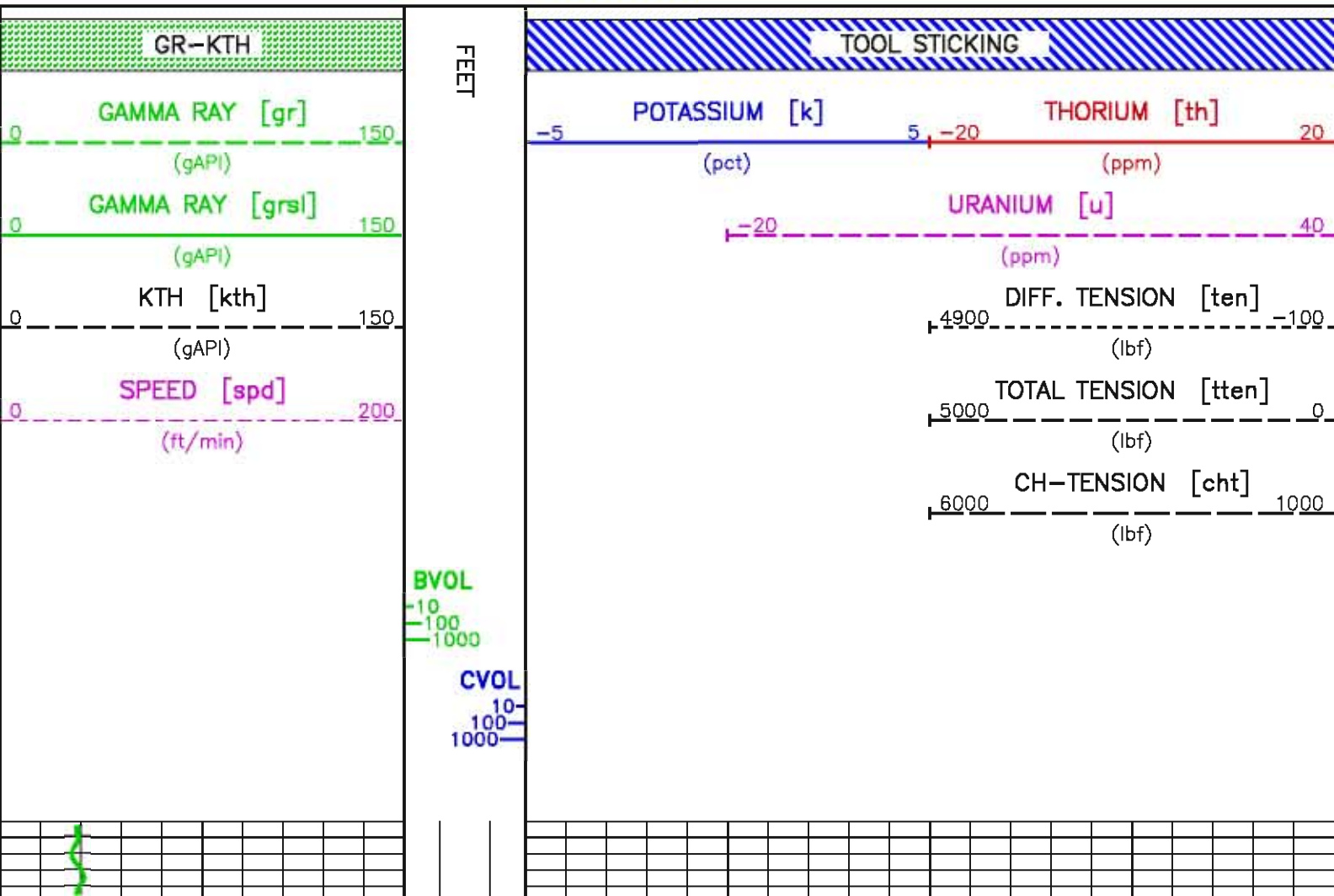
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:BVOL	Aug 14 16:11:23 2012	BOREHOLE VOLUME
F1:CHT	Aug 14 16:11:23 2012	CABLE HEAD TENSION
F1:CVOL	Aug 14 16:11:23 2012	CEMENT VOLUME
F1:GR	Aug 14 16:11:23 2012	GAMMA RAY
F1:GRSL	Aug 14 16:11:23 2012	GAMMA RAY FROM 1329 SPECTRUM
F1:K	Aug 14 16:11:23 2012	POTASSIUM CONTENT
F1:KTH	Aug 14 16:11:23 2012	STRIPPED POTASSIUM-THORIUM
F1:SPD	Aug 14 16:11:23 2012	SPEED
F1:TEN	Aug 14 16:11:23 2012	DIFFERENTIAL TENSION
F1:TH	Aug 14 16:11:23 2012	THORIUM CONCENTRATION
F1:TTEN	Aug 14 16:11:23 2012	TOTAL TENSION
F1:U	Aug 14 16:11:23 2012	URANIUM CONTENT

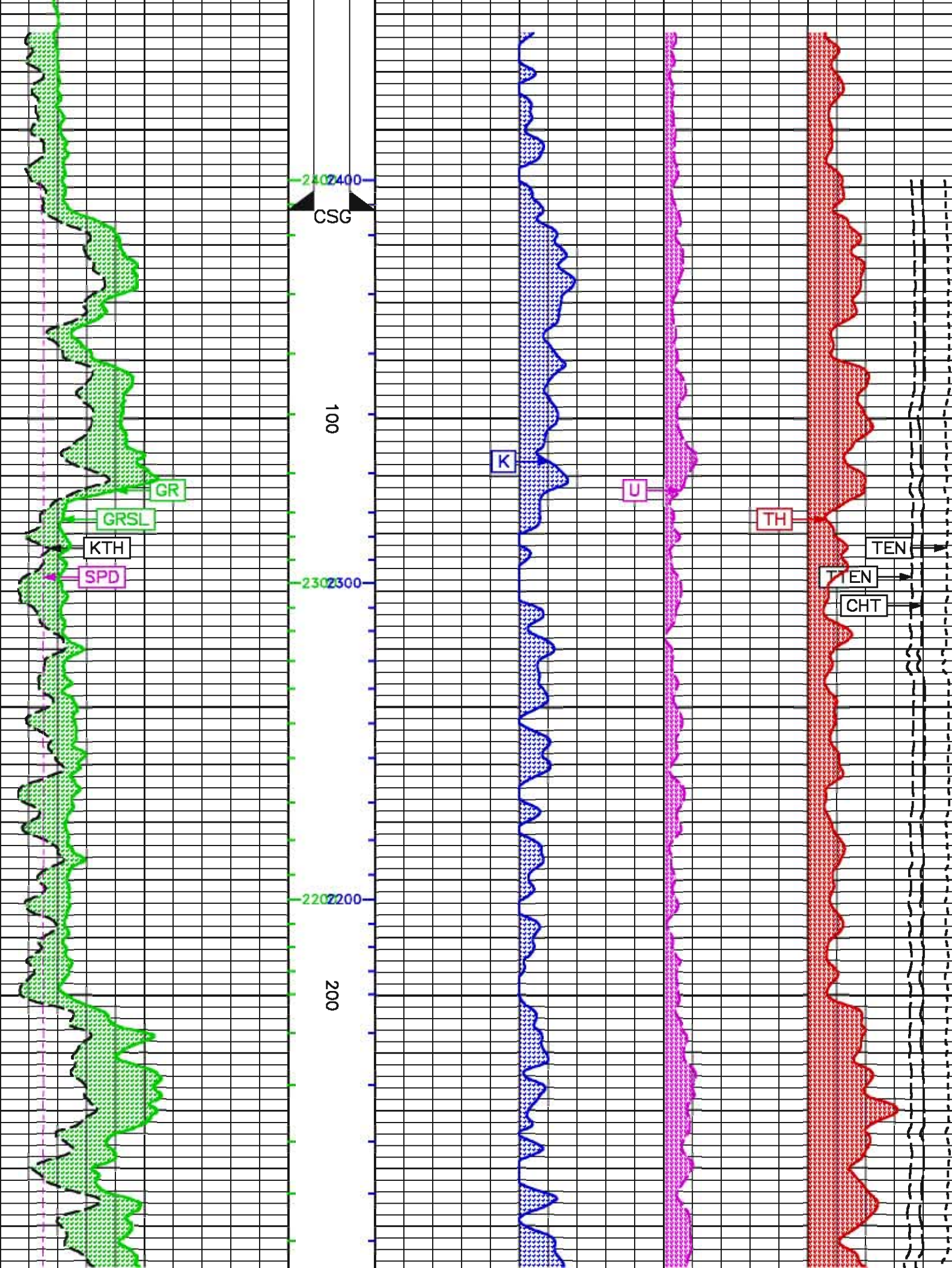
CURVE MEASURE POINT OFFSET

CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
CHT	0.00	K	40.00	TEN	0.00	U	40.00
GR	40.00	KTH	40.00	TH	40.00		
GRSL	40.00	SPD	0.00	TTEN	0.00		

Presentation : pld1:/dat1a/pass/ALSAY-613557/MAIN-SL.pdf [5"/100' Scale]
Plot Interval : 17.5 - 3250.25 Feet

Data File 1 : F1 : pld1:/dat1a/pass/ALSAY-613557/HDILML-MAIN.xtf
Created On : Aug 14 16:11:23 2012
Company : ALSAY INC
Well : CONROE WELL 23
Field : WATER WELL
File Interval : 5.25 - 3251.5 Feet
Oct : m87cb_MS

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300
2000
2000
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500
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1700
1700

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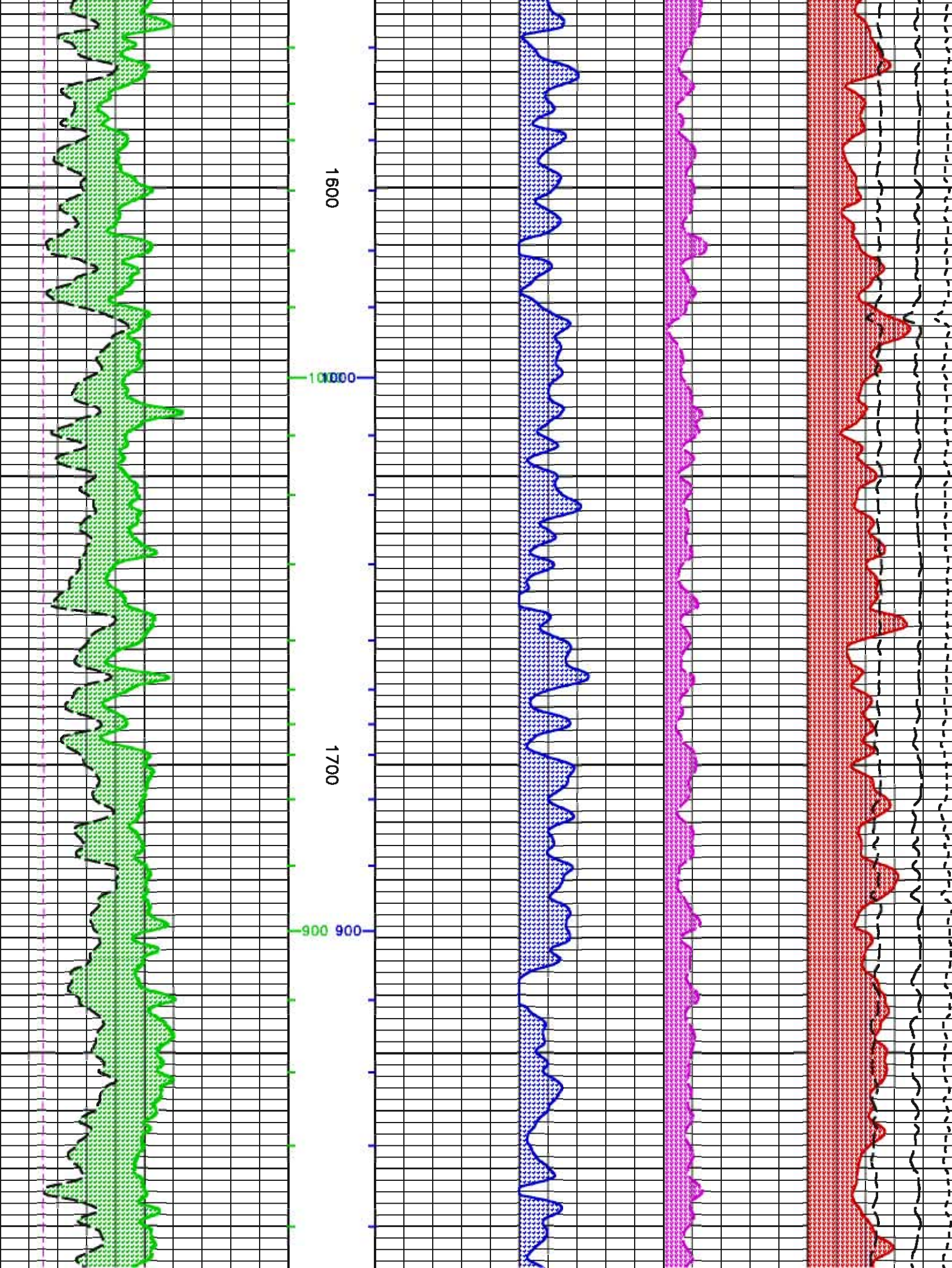
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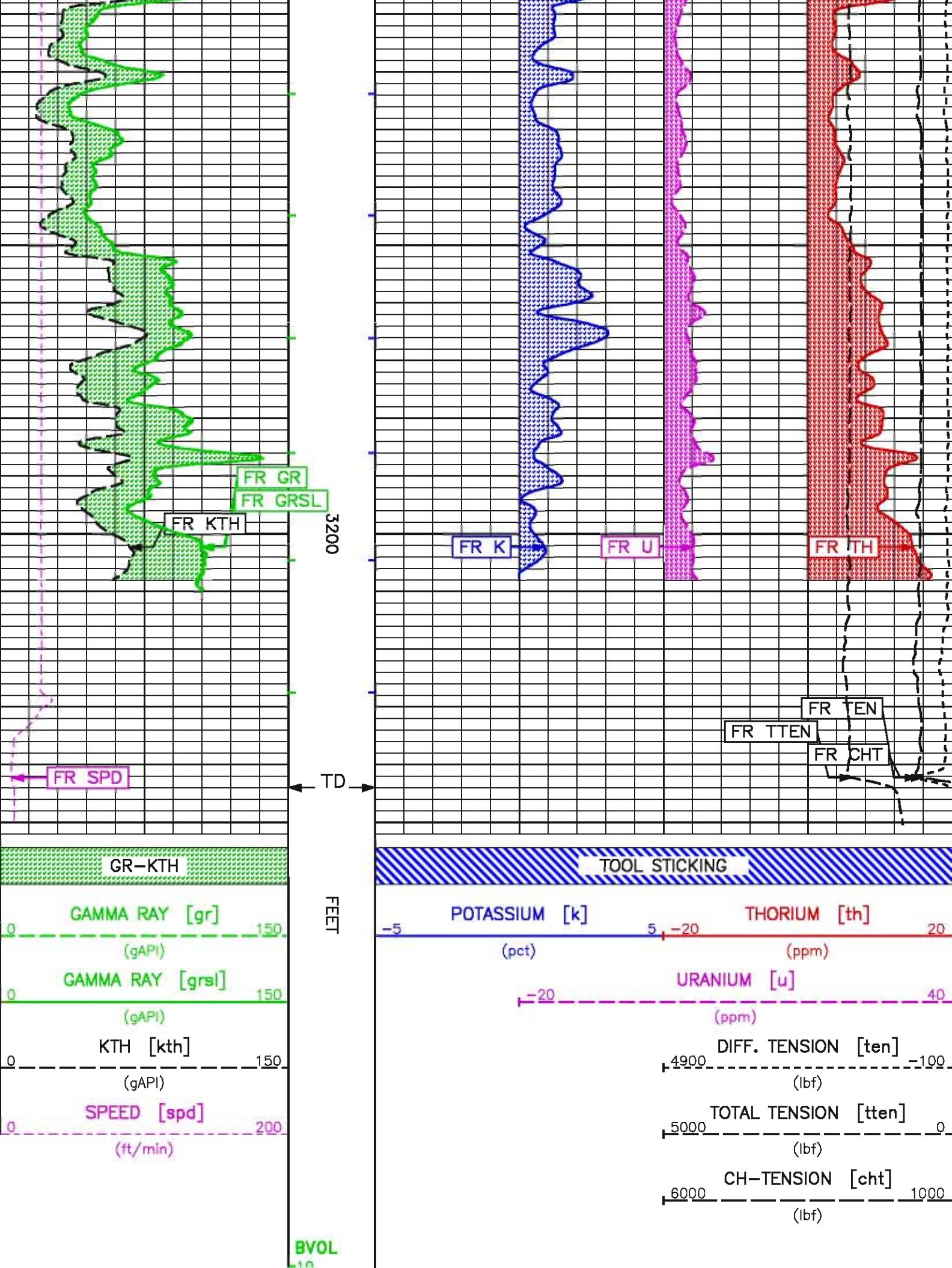
200

2900
3000
3100
-100 100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(gAPI)
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(gAPI)
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(ft/min)
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(pct)
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(ppm)
URANIUM [u]
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(ppm)
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(lbf)
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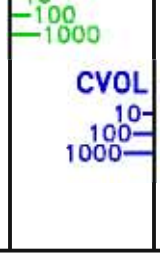

REPEAT DSL 5IN

ECLIPS 6.1i Aug 06, 2010
Updates: 1,2

Tue Aug 14 22:11:08 2012

Pcrplt /main/62 Cplot Pdf_Cpp /main/16 Fileview 5.61

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/pass/ALSAY-613557/m87cb_MSLAM_1243ML01.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 1658.750 ft BOTTOM DEPTH: 1981.500 ft

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft) TOP	BOTTOM
CHT	FILTER ()	medium (1)		TOP	BOTTOM
	FILTER (.h)	medium (1)		''	''
	FILTER (.i)	medium (1)		''	''
SPEED	FILTER ()	medium (1)		''	''
	FILTER (.h)	medium (1)		''	''
	FILTER (.i)	medium (1)		''	''
TENSION	FILTER ()	medium (1)		''	''
GR	FILTER ()	medium (1)		''	''
	FILTER (.h)	medium (1)		''	''
	FILTER (.i)	medium (1)		''	''
SL	FILTER	medium (1)		''	''
CALA (3rd CALIPER)	FILTER ()	medium(1)		''	''
	FILTER (.i)	medium(1)		''	''
	FILTER (.j)	medium(1)		''	''

BOREHOLE & CEMENT

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft) TOP	BOTTOM
CASING - BOREHOLE & CEMENT VOLUME	CASING O.D.	0.000	in	TOP	BOTTOM
BIT SIZE	BIT SIZE	9.875	in	''	''
MUD DENSITY	MUD DENSITY	8.35	lbm/gal	''	''
BOREHOLE CORR DIAMETER SOURCE	CALIPER/FIXED DIA. (slbh*)	USE CALIPER		''	''
BOREHOLE CORR DIAMETER	FIXED DIAMETER (slbh*)	9.875	in	''	''

SL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft) TOP	BOTTOM
SL BOREHOLE	OPEN/CASED HOLE	OPEN HOLE		TOP	BOTTOM
	K MUD CONTENT	0.00	pct	''	''
	K MUD TYPE	KCL		''	''
SL AUTOGAIN	AUTO GAIN (1329XA 1)	ON		''	''
SL SPECTRUM CALIBRATION	MODE	AUTOMATIC		''	''

CURVE DESCRIPTION REPORT

CURVE NAME	CREATION DATE	CURVE DESCRIPTION

F1:BVOL	Aug 14 15:44:51 2012	BOREHOLE VOLUME
F1:CHT	Aug 14 15:44:51 2012	CABLE HEAD TENSION
F1:CVOL	Aug 14 15:44:51 2012	CEMENT VOLUME
F1:GR	Aug 14 15:44:51 2012	GAMMA RAY
F1:GRSL	Aug 14 15:44:51 2012	GAMMA RAY FROM 1329 SPECTRUM
F1:K	Aug 14 15:44:51 2012	POTASSIUM CONTENT
F1:KTH	Aug 14 15:44:51 2012	STRIPPED POTASSIUM-THORIUM
F1:SPD	Aug 14 15:44:51 2012	SPEED
F1:TEN	Aug 14 15:44:51 2012	DIFFERENTIAL TENSION
F1:TH	Aug 14 15:44:51 2012	THORIUM CONCENTRATION
F1:TTEN	Aug 14 15:44:51 2012	TOTAL TENSION
F1:U	Aug 14 15:44:51 2012	URANIUM CONTENT

CURVE MEASURE POINT OFFSET

CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
CHT	0.00	K	40.00	TEN	0.00	U	40.00
GR	40.00	KTH	40.00	TH	40.00		
GRSL	40.00	SPD	0.00	TTEN	0.00		

Presentation : pld1:/dat1a/pass/ALSAY-613557/REPEAT-SL.pdf [5"/100' Scale]
Plot Interval : 1618.75 - 1980.25 Feet

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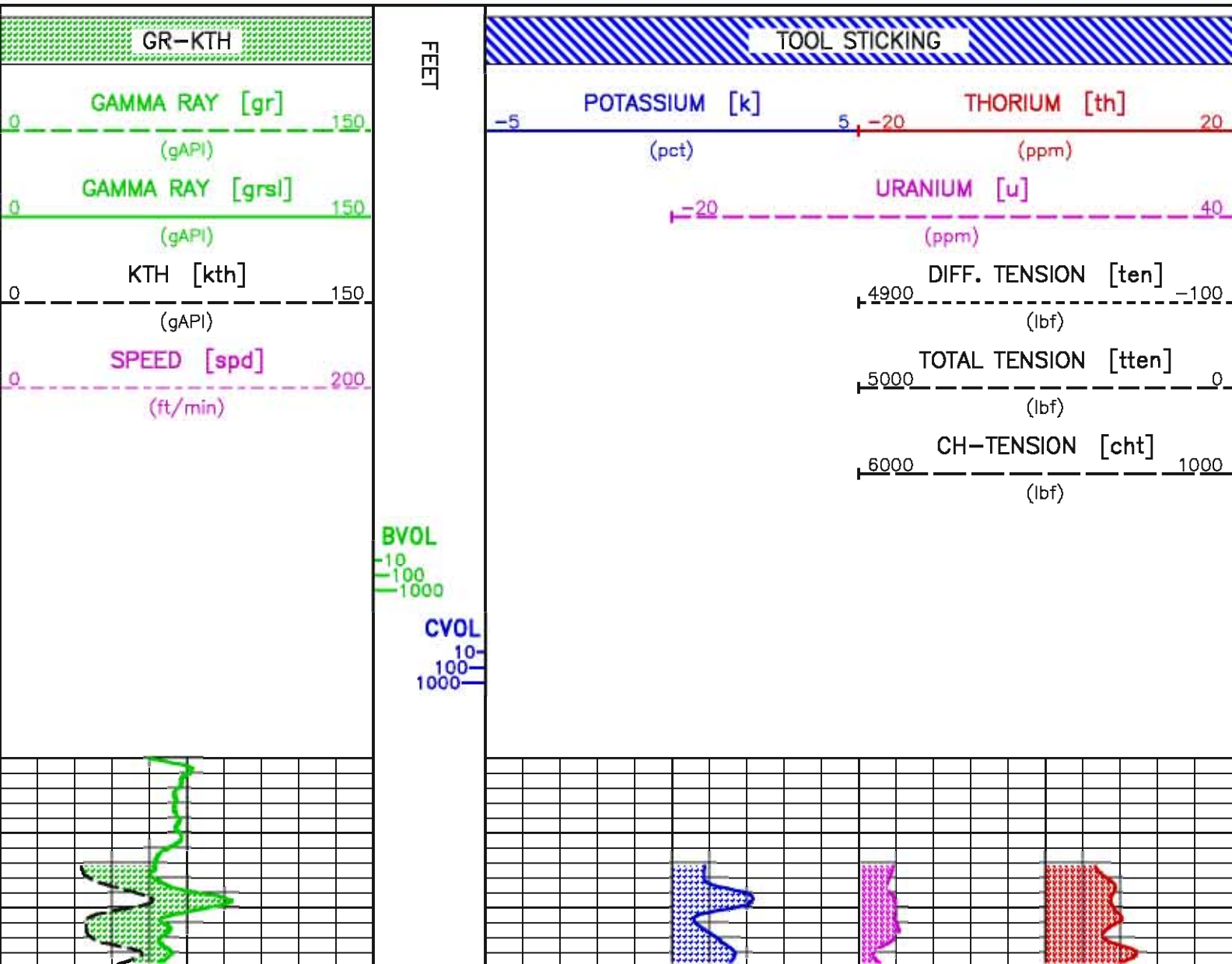
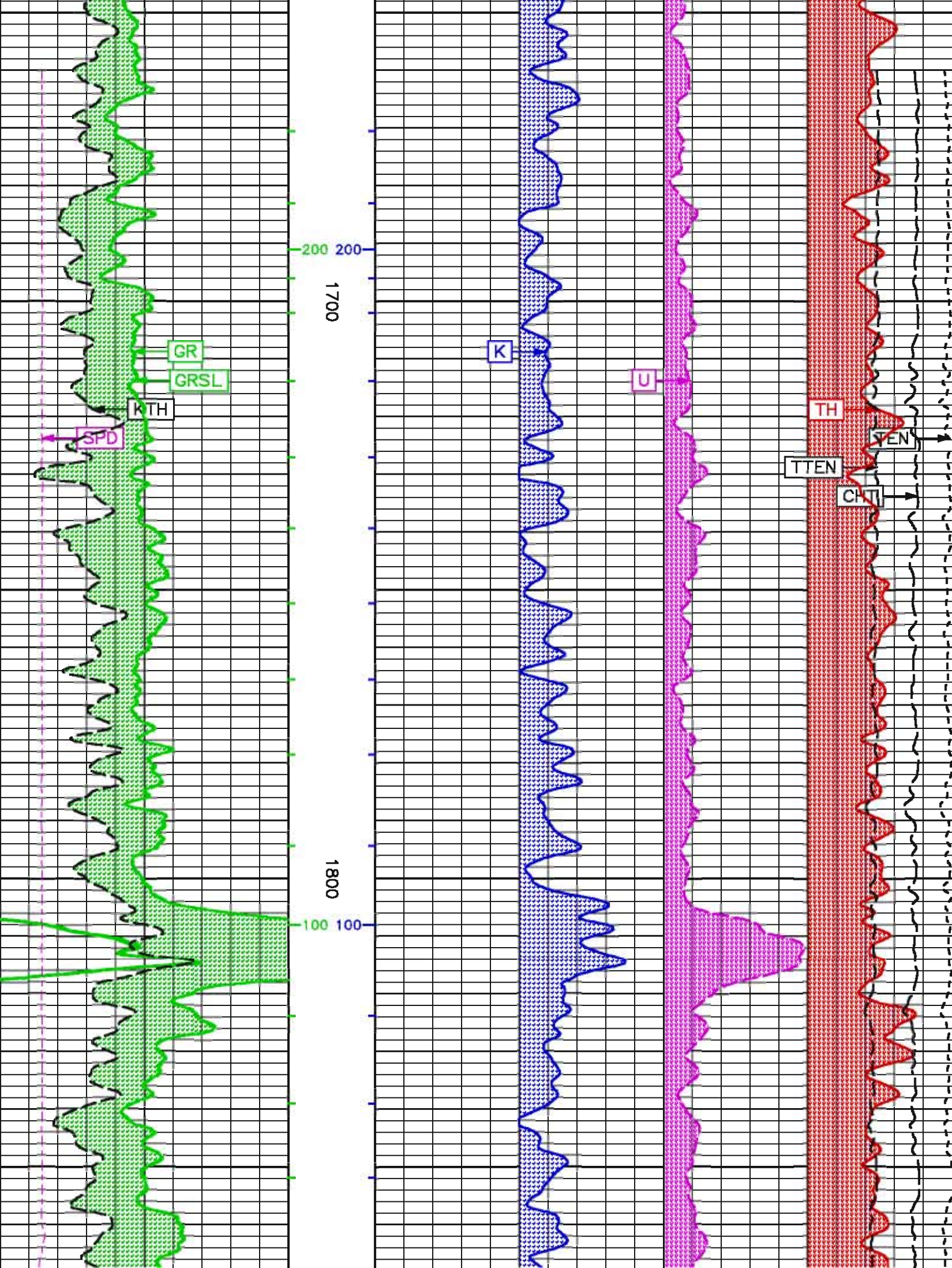
Created On : Aug 14 15:44:51 2012
Company : ALSAY INC
Well : CONROE WELL 23
Field : WATER WELL
File Interval : 1606.5 - 1981.5 Feet
Oct : m87cb_MS

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TH
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CHT
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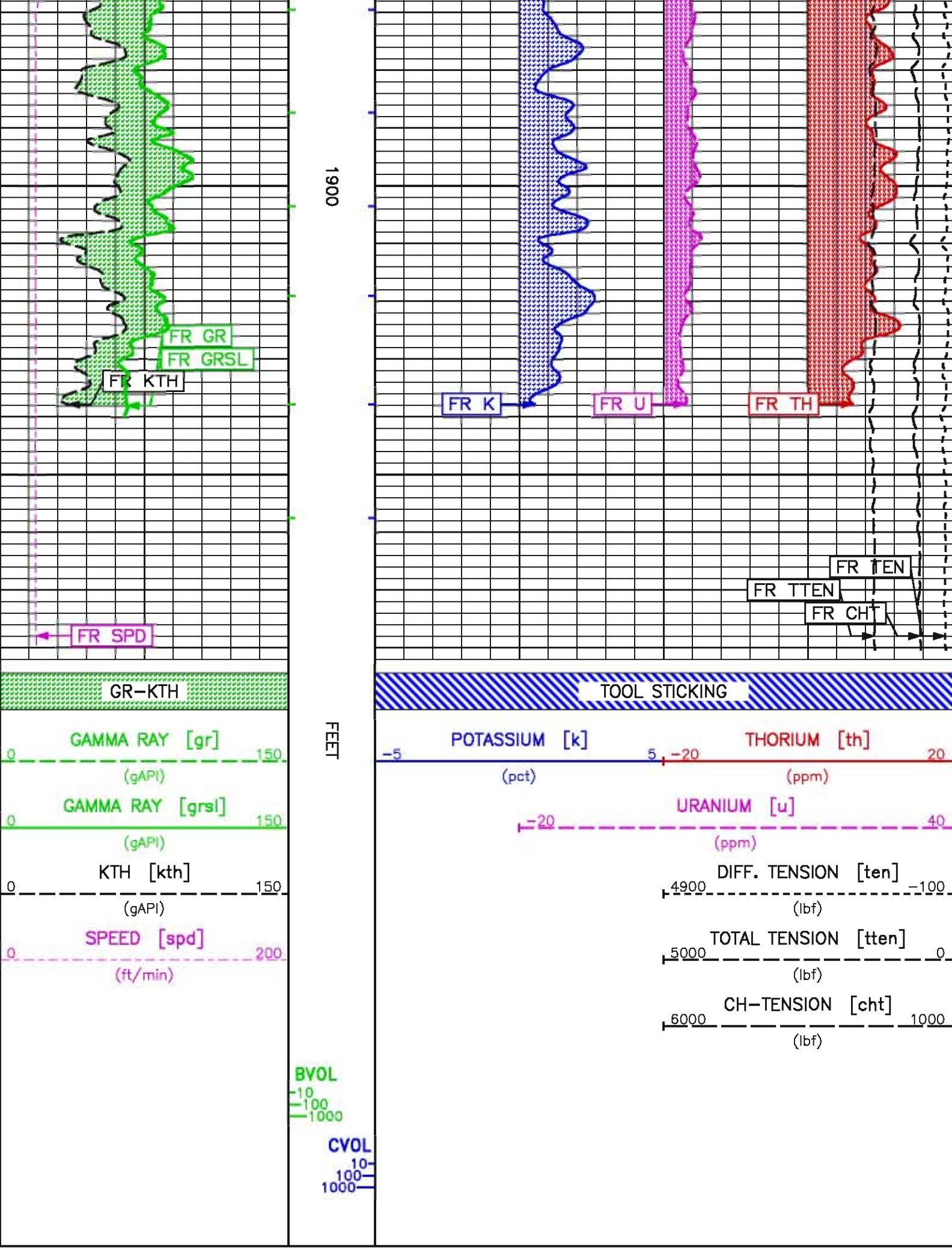
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(gAPI)
GAMMA RAY [grsl]
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(gAPI)
KTH [kth]
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150
(gAPI)
SPEED [spd]
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(ppm)
URANIUM [u]
-20
40
(ppm)
DIFF. TENSION [ten]
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(lbf)
TOTAL TENSION [tten]
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0
(lbf)
CH-TENSION [cht]
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1000
(lbf)
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10
100
1000
CVOL
10
100
1000

CALIBRATION / VERIFICATION SUMMARY

Source File: /data/pass/ALSAY-613557/HDILML.tp1

GR PRIMARY CALIBRATION SUMMARY

TOOL #: 1329XA 152301 DATE/TIME PERFORMED: Tue Aug 7 14:41:53 2012

UNIT #: 3885TA 006679 CALB JIG #: 4702NK VDA-389

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	CR DIFF (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	CALBRTR (gAPI)
GR	224.29	1114.29	890.0 (830.0 960.0)	0.169	37.80	187.80	150

GR PRIMARY VERIFICATION SUMMARY

TOOL #: 1329XA 152301 DATE/TIME PERFORMED: Tue Aug 7 14:45:23 2012

UNIT #: 3885TA 006679 VERI JIG #: 4702NK VDA-389

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	DIFF. (gAPI)
GR	226.44	1111.42	0.169	38.16	187.32	149.15 (140.00 160.00)

GR BEFORE LOG VERIFICATION SUMMARY

TOOL #: 1329XA 152301 DATE/TIME PERFORMED: Tue Aug 14 09:19:10 2012 DAYS SINCE CAL: 6

UNIT #: 3885TA 006679 VERI JIG #: 4702NK VDA-389

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	DIFF. (gAPI)
GR	186.69	1075.16	0.169	31.46	181.21	149.74 (139.15 159.15)

SL PRIMARY CALIBRATION SUMMARY

TOOL #: 1329XA 152301 DATE/TIME PERFORMED: Tue Aug 7 15:05:49 2012

UNIT #: 3885TA 006679 CALIBRATOR ID: 4702NA VDA-389

	Bkgnd (cts/s)	Cal ON (cts/s)	Mult (gAPI/(cts/s))	Bkgnd (gAPI)	Cal ON (gAPI)	Cal Value (gAPI)
GR-SL (.06-3.5)	217.03	1117.08	0.167	36.17	186.17	150

	Std Rate (cts/s)	Meas Rate (cts/s)	Tool Norm	Std Mult	Log Mult	App Con (pct ppm)
E (.25-3.0)	554	579.4	0.956 (0.900 – 1.100)			
K				0.01602	0.01532	8.900
U				0.03851	0.03682	21.300
TH				0.10135	0.09691	56.100

	Mult chnl/MeV	Add chnls	QSA	QCAL	GAIN	U Pk Res %
SPECTRUM	72.358	-0.288	0.345 (0.000 – 1.000)	1.000 (0.980 – 1.020)	3020 (2950 – 3050)	9.77 (10.00)

	P1 .352 MeV	P2 .609 MeV	P3 1.120 MeV	P4 1.765 MeV	P5 2.204 MeV
Std Pk	25.80	44.20	81.00	127.40	159.00
Meas Pk	24.70 (22.80 – 26.80)	43.86 (40.20 – 48.20)	81.49 (76.00 – 86.00)	127.32 (121.40 – 133.40)	158.95 (152.00 – 166.00)
Fit Pk	25.18	43.78	80.75	127.42	159.19

SL PRIMARY VERIFICATION SUMMARY

TOOL #: 1329XA 152301 DATE/TIME PERFORMED: Tue Aug 7 15:09:16 2012

UNIT #: 3885TA 006679 CALIBRATOR ID: 4702NA VDA-389

	Bkgnd (cts/s)	Cal ON (cts/s)	Mult (gAPI/(cts/s))	Bkgnd (gAPI)	Cal ON (gAPI)	Cal Value (gAPI)
GR-SL (.06-3.5)	219.05	1117.95	0.167	36.50	186.31	150 (135 – 165)

	Std rate	Meas rate	Tool norm	Std Mult	Log Mult	App Con (pct ppm)
E (.25-3.0)	554	578.8	0.956			
K				0.01602	0.01532	8.866 (8.010 – 9.790)
U				0.03851	0.03682	21.313 (19.170 – 23.430)
TH				0.01602	0.09691	56.092 (50.490 – 61.710)

	Mult chnl/MeV	Add chnls	QSA	QCAL	GAIN	U Pk Res %

SPECTRUM	72.315	-0.335	0.776	0.999 (0.980 1.020)	3020	13.15

	P1 .352 MeV	P2 .609 MeV	P3 1.120 MeV	P4 1.765 MeV	P5 2.204 MeV
Std Pk	25.80	44.20	81.00	127.40	159.00
Meas Pk	24.54 (22.80 26.80)	43.99 (40.20 48.20)	81.55 (76.00 86.00)	126.50 (121.40 133.40)	159.25 (152.00 166.00)
Fit Pk	25.12	43.71	80.66	127.30	159.05

SL BEFORE LOG VERIFICATION SUMMARY

TOOL #: 1329XA 152301 DATE/TIME PERFORMED: Tue Aug 14 09:19:19 2012 DAYS SINCE CAL: 6

UNIT #: 3885TA 006679 CALIBRATOR ID: 4702NA VDA-389

	Bkgnd (cts/s)	Cal ON (cts/s)	Mult (gAPI/(cts/s))	Bkgnd (gAPI)	Cal ON (gAPI)	Cal Value (gAPI)
GR-SL (.06-3.5)	182.42	1073.75	0.167	30.40	178.94	149 (135 165)

	Std rate	Meas rate	Tool norm	Std Mult	Log Mult	App Con (pct ppm)
E (.25-3.0)	554	557.1	0.956			
K				0.01602	0.01532	8.534 (8.010 9.790)
U				0.03851	0.03682	20.515 (19.170 23.430)
TH				0.01602	0.09691	53.992 (50.490 61.710)

	Mult chnl/MeV	Add chnls	QSA	QCAL	GAIN	U Pk Res %
SPECTRUM	72.053	0.039	0.154	0.998 (0.980 1.020)	3025	14.00

	P1 .352 MeV	P2 .609 MeV	P3 1.120 MeV	P4 1.765 MeV	P5 2.204 MeV
Std Pk	25.80	44.20	81.00	127.40	159.00
Meas Pk	25.04 (22.80 26.80)	44.05 (40.20 48.20)	81.17 (76.00 86.00)	127.22 (121.40 133.40)	158.64 (152.00 166.00)
Fit Pk	25.40	43.92	80.74	127.21	158.85

INSTRUMENT CONFIGURATION

Source File: /data/pass/ALSAY-613557/m87cb_hdilmlonly-tdg

CABLEHEAD
Diameter : 3.38"
Length : 5.50'
Weight : 24 lbs
Series : CABL338
Mnemonic : CBLH
Measure Point: 2.75': CABLEHEAD TOP

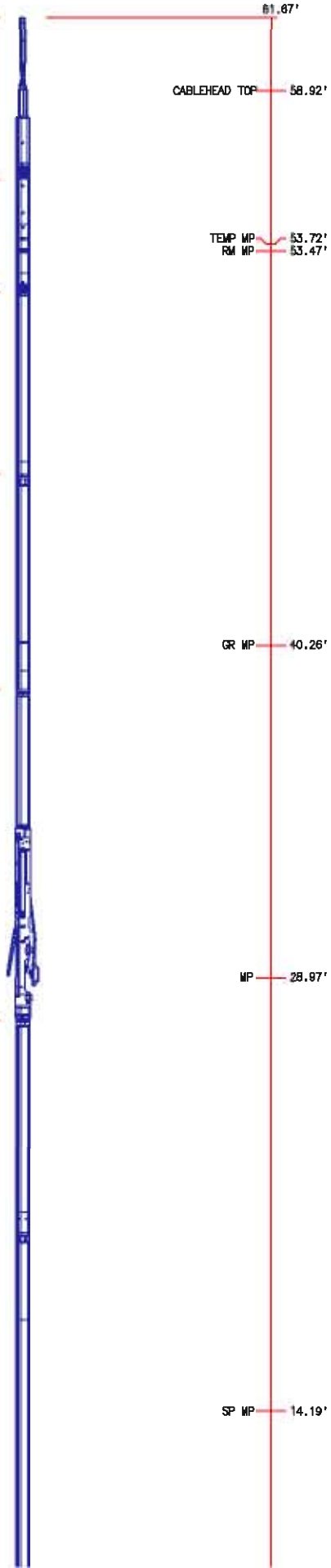
TTRM SUB
Diameter : 3.63"
Length : 3.83'
Weight : 62 lbs
Series : 3981XA
Mnemonic : TTRM
Measure Point: 1.38': TEMP MP
Measure Point: 1.13': RM MP

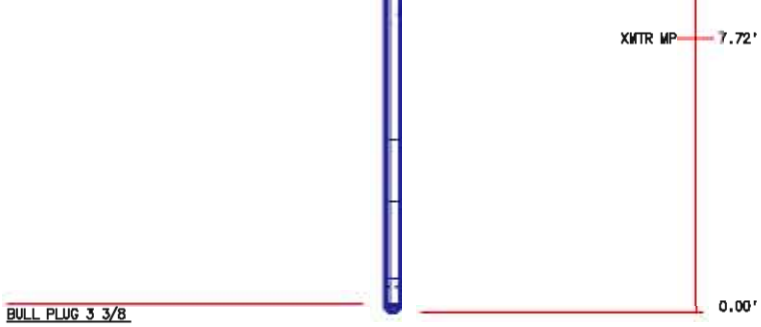
WTS COMMON REMOTE
Diameter : 3.63"
Length : 6.36'
Weight : 126 lbs
Series : 3514XB
Mnemonic : WTS
Temp Rating : 400 deg. F
Press Rating : 20000 psi
Tensile Str. : 78000 lbs
Compressive : 114000 lbs

DIGITAL SPECTRALOG
Diameter : 3.63"
Length : 7.31'
Weight : 130 lbs
Series : 1329XA
Mnemonic : DSL
Measure Point: 1.60': GR MP
Temp Rating : 400 deg. F
Press Rating : 20000 psi
Tensile Str. : 78000 lbs
Compressive : 85000 lbs

WTS MICROLATEROLOG
Diameter : 4.00"
Length : 11.25'
Weight : 258 lbs
Series : 1243XA
Mnemonic : MLL
Measure Point: 1.55': MP
Temp Rating : 350 deg. F
Press Rating : 20000 psi
Tensile Str. : 78000 lbs
Compressive : 36000 lbs

HIGH DEFINITION INDUCTION TOOL
Diameter : 3.62"
Length : 27.13'
Weight : 415 lbs
Series : 1515XA
Mnemonic : HDIL
Measure Point: 13.91': SP MP
Measure Point: 7.44': XMTR MP
Temp Rating : 400 deg. F
Press Rating : 20000 psi
Tensile Str. : 36000 lbs
Compressive : 1900 lbs





TOTAL LENGTH: 61.67'
TOTAL WEIGHT: 1017 lbs
MAX DIAMETER: D'4.00"

BAKER HUGHES	COMPANY	ALSAY INC	FILE NO:
	WELL	CONROE WELL 23	
	FIELD	WATER WELL	API NO:
	COUNTY	MONTGOMERY STATE TX	
EOLIPS	LOCATION:	ELEVATIONS: KB NA, DF NA, GL NA	
	LAT LONG	DATE 14-AUG-2012	

Well Construction

ALSAYWATER.COM

October 24, 2012

City of Conroe
300 W. Davis
Conroe, Texas 77305

Attention: Troy Toland
Reference: Water Well No. 23

Mr. Toland:

This letter is confirming the results of the test hole exploration and our recommendations for the construction of the above referenced water well.

A test hole was drilled to a depth of approximately 3,245 feet and an electric log was run. The electric log had elevated "gamma" spikes and a Spectralog was run in order to help determine if any radioactive constituents were indicated. The interval at 1,966' had elevated readings of radioactive constituents (refer to Baker Atlas interpretation letter enclosed dated 08/16/12). The proposed well construction includes setting casing and cementing below that interval.

Baker Atlas concluded that the electric log had no "crossovers" that would indicate gas in the Catahoula sands that would be utilized for the final completion of the well.

The completion of the induction log indicated approximately 115' of sands in the Catahoula Aquifer that could be screened for construction in the well plus 18' of "development" screens.

Based on the information obtained from the test hole we would recommend the following construction guidelines:

- Material Settings (attached)
- Based on the attached sand sieve analysis we are recommending the utilization of Premier Silica's 16/30 filter pack material as manufactured in Brady, Texas
- With the use of the above filter pack material we would recommend Alloy Machine Works' Well Screen .025 slot wire wrapped pipe-base screen as manufactured in Houston, Texas
- Baker Atlas Letter of Interpretation (attached)
- Electric logs (attached)
- Core logs and core samples (attached)
- Test hole water sample pumping and analyses (attached)
- Drillers log (attached)
- Totco alignment surveys (attached)

HOUSTON | 6615 GANT ROAD | HOUSTON, TEXAS 77066 | 281.444.6960 | SAN ANTONIO | 3359 SE LOOP 410 | SAN ANTONIO, TEXAS 78222 | 210.628.1090

ALSAYWATER.COM

Alsay Incorporated appreciates the opportunity to work with the City on this project. Please let us know if we can provide any additional information that would help in making your decision.

Joe Slavik
Assistant Secretary
Alsay Incorporated

HOUSTON | 6615 GANT ROAD | HOUSTON, TEXAS 77066 | 281.444.6960 | SAN ANTONIO | 3359 SE LOOP 410 | SAN ANTONIO, TEXAS 78222 | 210.628.1090

LBG-GUYTON ASSOCIATES

PROFESSIONAL GROUND-WATER AND ENVIRONMENTAL ENGINEERING SERVICES

11111 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
713-468-8600
FAX No.: 713-468-4956

MEMORANDUM

TO: Joe Slavik, Alsay Inc.

FROM: Christopher Drabek, P.G.

SUBJECT: City of Conroe Well 23 Pilot Hole

DATE: August 16, 2012

We have reviewed the electric logs for the pilot and suggest the following intervals for water sampling. In the Catahoula depth interval samples could be taken from depths of 1940 to 1970 feet and 2390 to 2410 feet. If a third sample is desired it could be taken from a depth interval from 2220 to 2240 feet. Assuming that the deepest sample will be collected first, suggest that the specific conductance of the produced water be checked in the field and depending on the results, the shallower samples may not be needed if the City is desiring a well that will produce water with less than 1000 mg/l TDS.

If a sample is to be taken from the Jasper depth interval a depth of 1350 to 1380 feet is suggested. There is a slight density-porosity curve cross over at 1357 feet.

If you need any other information that we can provide, please contact us.

LBG-GUYTON ASSOCIATES

PROFESSIONAL GROUNDWATER AND ENVIRONMENTAL ENGINEERING SERVICES

11111 KATY FREEWAY
SUITE 850
HOUSTON, TX 77079
713-468-8600
FAX No.: 713-468-4956

MEMORANDUM

TO: Mr. Joe Slavik, Alsay Incorporated

FROM: W. John Seifert, Jr., P.E.

SUBJECT: City of Conroe Well 23 Pilot Hole Review

DATE: October 23, 2012

We previously reviewed in August the induction log and other geophysical logs for the Well 23 pilot hole and within the last few days have reviewed the water quality analytical results obtained from water samples collected from the depth intervals of 2,030 - 2,050, 2,214 - 2,234, 2,390 - 2,410 and at a depth of about 3,040 - 3,060 feet. Results of the water samples collected from the shallower three intervals show total dissolved solids 1,227, 1,562, and 1,636 mg/l. A potential depth interval that might be screened in a well opposite sands of the Catahoula extends from about 1,925 to about 2,435 feet with about 140 feet of sand that potentially could be screened. The well would have the 20-inch diameter surface casing set to a depth of about 1,920 feet with the alternating intervals of screen within the total screen and blank liner, which is to be 14 inches in diameter.

If a well is constructed screening sands of the Catahoula aquifer, it appears that based on the sieve analyses, the screen slot opening could be about 0.025 inches and that the gravel size would most likely be 16 x 30.

If a well is constructed screening the above referenced depth interval it is estimated that the produced water would have total dissolved solids (TDS) in the range of 1,300 to 1,550 mg/l. If the City desires a well that would produce water of the above referenced quality, a well could be constructed. To reduce the TDS content in the water to less than 1,000 mg/l would require water treatment and there are limited options for TDS reduction. A most likely treatment method is reverse osmosis. By comparison, the TDS of water produced by City of Conroe Well 22 is about 396 mg/l.

As an alternative, a well could be constructed that has a higher likelihood of producing water of significantly better quality and greater quantity from the shallower Jasper aquifer. A well could be constructed screening sands in the depth interval from about 870 to 1,440 feet. There is about 170 to 200 feet of sand that might be screened in a large-capacity production well. Surface casing 20 inches in diameter could be set to a depth of about 870 or 940 feet with blank liner extending upward in the lap section inside the 20-inch casing for about 100 feet and then the same 14-inch diameter screen and blank liner extending through the screened interval to a depth of about 1,460 feet.

The total dissolved solids of the content of the water should be similar of that to the water that is produced by other City of Conroe wells that are located within a few miles of the Well 23 site. If this option is pursued, our recommendation would be to collect a water sample in the depth interval from 1,350 to 1,380 feet as there is a slight density/neutron curve cross-over at 1,357 feet. Cross overs of the density and neutron curves can indicate a sand that contains water with methane gas.

Our firm has reviewed the geophysical logs and they appear to be of good quality. The sand sieve analyses also appear to be reasonable and similar to analyses that we have seen for other sand samples that were collected from various large-capacity production well pilot holes drilled in the Montgomery County area. The proper screen size and gravel pack size can be selected, if it is decided that a well will be constructed screening sands of the Jasper aquifer.

If you have questions concerning any of the above, please do not hesitate to contact us.

Houston, Texas 77079
713-468-8600
Texas PE Firm Reg. # F-4432

Joe Slavik

From: John Seifert [jseifert@lbgguyton.com]
Sent: Wednesday, October 24, 2012 3:30 PM
To: Joe Slavik (joe.slavik@alsaywater.com)
Cc: Jim Caldwell (jim.caldwell@alsaywater.com)
Subject: FW: City of Conroe Well 23 Pilot Hole Data Review
Attachments: Conroe #23 revised Catahoula material settings (27.8 KB)

W. John Seifert, Jr., P.E.
LBG-Guyton Associates
713-468-8600

From: Lisa Schuchert
Sent: Wednesday, October 24, 2012 3:21 PM
To: John Seifert
Subject: City of Conroe Well 23 Pilot Hole Data Review

Joe,

As requested, we are providing the following information regarding the review of the pilot hole data for Well 23. Review of the water quality data shows that for each of the water samples collected from the depth intervals of 2,030-2,050 feet, 2,214-2,234 feet and 2,390-2,410 feet that the total dissolved solids levels were above the Secondary limit recommended by the TCEQ for water to be used for public supply. That limit is 1,000 mg/l. The Secondary Standard for chloride for water to be used for public supply is 300 mg/l. The chloride levels in the three samples from shallowest to deepest were 264.9, 407.9 and 359.9. The data show that it is likely that the chloride content of the water from a production well also would be above the Secondary limit of 300 mg/l. The sodium content in the water produced by at least two of the City of Conroe wells is in the range of 110 to 130 mg/l. The sodium content in the water from the three sampled intervals from shallowest to deepest was 467, 599 and 689 mg/l. Though not a regulated chemical constituent, public water supplies take note of the sodium content of the water that is provided to the system.

The chemical analyses showed elevated levels of iron and aluminum from each of the three zone samples. Sometimes during water sampling operations the levels of these two constituents can be elevated and after a well is constructed and the screens thoroughly developed, the levels of these constituents are not above the recommended limits. If the level of iron were to remain elevated, even with the construction of a high-capacity construction well, then some type of treatment to sequester the iron or remove the iron would be necessary.

Review of the electric log and of the water sampling data indicate that the pumping rate of a well could be in the range of about 600 to 1,000 gpm. This assumes that the screened interval extends from about 2,020 to 2,436 feet. If additional sand above a depth of 2,020 feet is screened in the well and the water quality from that depth interval is acceptable, then the estimated pumping rate for the well could be from 700 to 1,200 gpm.

Our firm has reviewed the proposed material settings provided as an attachment, and do not take exception to them.

If you have questions concerning any of the above, please do not hesitate to contact us.

Sincerely,

W. John Seifert, Jr.
LBG-Guyton Associates
11111 Katy Freeway, Suite 850

ALSAY
INCORPORATED
GROUNDWATER EXPLORATION & DEVELOPMENT

6615 GANT ROAD
HOUSTON, TEXAS 77066
PHONE: 281-444-6960
FAX: 281-444-7081
www.alsaywater.com

City of Conroe Water Well No. 23
Catahoula Option

Proposed Recommended Material Settings 10/24/12
Screen: .025 slot
Gravel: 16/30

Depth (ft.)		20 " 0.500 wall Casing	14 " 0.500 wall Blank	*14 " 0.500 wall Screen*	
0 - 2015		2015 ft.			
1915 - 2020			105 ft.		
2020 - 2060				***40***	
2060 - 2088			28		
2088 - 2108				***20***	
2108 - 2158			50		
2158 - 2164				***6***	***Development Screen***
2164 - 2219			55		
2219 - 2236				***17***	
2236 - 2290			54		
2290 - 2296				***6***	***Development Screen***
2296 - 2340			44		
2340 - 2346				***6***	***Development Screen***
2346 - 2392			46		
2392 - 2411				***19***	
2411 - 2417			6		
2417 - 2436				***19***	
2436 - 2456	**TD**		20		
		0 ft.	303 ft.	***133 ft.***	

Note: Measurements are from Kelly Bushing (6 ft. above ground level)

TOTAL MATERIALS:

20 inch Casing.....	0 ft.
14 inch Blank Liner.....	303 ft.
14 inch Screen.....	***133 ft.***
Total Depth.....	2,456 ft.

Pump Test

Conroe Well No. 23

Test:	1	Pump On:	9/26/2012 15:25
Top of Screen:	3040	Pump Off:	9/27/2012 6:18
Bottom of Screen:	3060	Depth of Transducer:	523.28
M.P. (ft AGL)	9.38	Elevation:	225

Date	Time	Pumping Rate (gpm)	DTW (ft. BMP)
9/26/2012	13:54		40.31
9/26/2012	14:02		40.43
9/26/2012	14:06		40.5
9/26/2012	14:11		40.46
9/26/2012	14:15		40.55
9/26/2012	14:20		51.04
9/26/2012	14:21:30		49.7
9/26/2012	14:58		64
9/26/2012	14:59:30		60
9/26/2012	15:04:45		50
9/26/2012	15:14:30		43
9/26/2012	15:22:45		41.5
9/26/2012	15:25		41
9/26/2012	15:30		
9/26/2012	15:40	50	369
9/26/2012	15:55	35	426
9/26/2012	16:10	78	424
9/26/2012	16:25	55	455
9/26/2012	16:40	50	456
9/26/2012	16:55	44	446
9/26/2012	17:10	44	438
9/26/2012	17:25	50	435
9/26/2012	17:40	44	429
9/26/2012	17:55	44	419
9/26/2012	18:10	44	419.4
9/26/2012	18:25	52	406
9/26/2012	18:40	55	403.6
9/26/2012	18:55	55	405.6
9/26/2012	19:10	53	404.41
9/26/2012	19:25	53	410.18
9/26/2012	19:40	53	409
9/26/2012	19:55	53	409.28
9/26/2012	20:10	53	407.89
9/26/2012	20:25	53	407.1
9/26/2012	20:40	53	408.21
9/26/2012	20:55	53	412.15
9/26/2012	21:10	53	408
9/26/2012	21:25	53	405.52
9/26/2012	21:40	53	404.43
9/26/2012	21:55	53	404.92
9/26/2012	22:10	53	405.3
9/26/2012	22:28	53	404
9/26/2012	22:40	53	402.45
9/26/2012	22:57	53	402.57

Conroe Well No. 23

9/26/2012	23:44	53	401.1
9/26/2012	23:55	53	400.9
9/27/2012	0:10	53	400.95
9/27/2012	0:16	53	400.6
9/27/2012	0:25	53	399.85
9/27/2012	0:40	53	399.94
9/27/2012	0:55	53	401.2
9/27/2012	1:10	53	401.23
9/27/2012	1:25	53	402.8
9/27/2012	1:40	53	403.16
9/27/2012	1:55	53	403.85
9/27/2012	2:14	53	402.65
9/27/2012	2:27	53	402.36
9/27/2012	2:40	53	403.93
9/27/2012	2:55	53	403.63
9/27/2012	3:16	53	400.46
9/27/2012	3:26	53	400.85
9/27/2012	3:35	53	400.7
9/27/2012	3:50	53	398.95
9/27/2012	4:11	53	398.41
9/27/2012	4:27	53	399.23
9/27/2012	4:40	53	400.57
9/27/2012	5:10	53	396.25
9/27/2012	5:26	53	395
9/27/2012	5:40	53	393.88
9/27/2012	5:55	53	394.95
9/27/2012	6:15	53	394.32
9/27/2012	6:18	53	394.88
9/27/2012	6:20		322.6
9/27/2012	6:24		353.61
9/27/2012	6:25:20		171.85
9/27/2012	6:26		160.83
9/27/2012	6:28		124.69
9/27/2012	6:30		102
9/27/2012	6:32:14		80.47
9/27/2012	6:34		66.55
9/27/2012	6:36:20		54.65
9/27/2012	6:38		46.08
9/27/2012	6:40		42
9/27/2012	6:42		38.08
9/27/2012	6:44		33.99
9/27/2012	6:46		35.6
9/27/2012	6:48		35

Conroe Well No. 23

Test:	2	Pump On:	10/1/2012 10:35
Top of Screen:	2410	Pump Off:	10/2/2012 0:22
Bottom of Screen:	2390	Depth of Transducer:	487.43
M.P. (ft AGL)	9.1	Elevation:	225

Date	Time	Pumping Rate (gpm)	DTW (ft. BMP)
10/1/2012	10:26		56.8
10/1/2012	10:29		56.8
10/1/2012	10:35		56.8
10/1/2012	10:37	125	179.75
10/1/2012	10:40	125	217.8
10/1/2012	10:43	125	226.86
10/1/2012	10:46	125	230.31
10/1/2012	10:48	115	231.28
10/1/2012	10:51	118	233.5
10/1/2012	10:54	118	234.42
10/1/2012	10:58	118	235.45
10/1/2012	11:01	118	236.35
10/1/2012	11:05	118	237.1
10/1/2012	11:12	118	238.55
10/1/2012	11:15	118	239
10/1/2012	11:19:30	118	239.5
10/1/2012	11:25	118	240.4
10/1/2012	11:31	118	241.82
10/1/2012	11:34	118	241.75
10/1/2012	11:45	118	242.7
10/1/2012	11:55	118	243.62
10/1/2012	12:05	118	244.05
10/1/2012	12:15	118	244.71
10/1/2012	12:25	118	245.58
10/1/2012	12:35	118	246.45
10/1/2012	12:50	118	246.7
10/1/2012	13:05	115	247.3
10/1/2012	13:20	115	247.78
10/1/2012	13:33	118	248.62
10/1/2012	14:05	118	249.5
10/1/2012	14:20	118	250
10/1/2012	14:35	118	250.63
10/1/2012	15:05	118	251.2
10/1/2012	15:35	118	252
10/1/2012	16:05	118	252.57
10/1/2012	16:35	118	253.25
10/1/2012	17:05	118	254
10/1/2012	17:35	118	254.69
10/1/2012	18:05	118	255.15
10/1/2012	18:35	118	255.88
10/1/2012	19:05	118	256.45
10/1/2012	19:35	118	257.4
10/1/2012	20:05	118	257.83
10/1/2012	20:35	118	258

Conroe Well No. 23

10/1/2012	21:05	118	258.59
10/1/2012	21:35	118	259.1
10/1/2012	22:05	118	259.55
10/1/2012	22:35	118	259.67
10/1/2012	23:05	118	259.93
10/1/2012	23:35	118	260.25
10/2/2012	0:07	118	261.58
10/2/2012	0:22	118	261.7
10/2/2012	0:23		182.4
10/2/2012	0:24		137.48
10/2/2012	0:25:05		111.73
10/2/2012	0:27		93.43
10/2/2012	0:29		87.04
10/2/2012	0:31		84
10/2/2012	0:33		82.3
10/2/2012	0:35		80.99
10/2/2012	0:37		79.87
10/2/2012	0:39		78.95
10/2/2012	0:41		78.15
10/2/2012	0:42		77.91
10/2/2012	0:47:20		76.19
10/2/2012	0:52		75.34
10/2/2012	0:57		74.12
10/2/2012	1:02		73.45
10/2/2012	1:07		72.78
10/2/2012	1:12		71.93
10/2/2012	1:17		71.37
10/2/2012	1:22		70.75
10/2/2012	1:32		70.04
10/2/2012	1:42		69.13
10/2/2012	1:52		68.61
10/2/2012	2:02		68
10/2/2012	2:12		67.53
10/2/2012	2:22		66.98

Conroe Well No. 23

Test:	3	Pump On:	10/9/2012 3:38
Top of Screen:	2214	Pump Off:	10/9/2012 15:41
Bottom of Screen:	2234	Depth of Transducer:	380.88
M.P. (ft AGL)	9.2	Elevation:	225

Date	Time	Pumping Rate (gpm)	DTW (ft. BMP)
10/9/2012	3:08		56.8
10/9/2012	3:38		123.1
10/9/2012	3:39		181
10/9/2012	3:40		185.3
10/9/2012	3:41		201
10/9/2012	3:42		202.5
10/9/2012	3:43	125	205.3
10/9/2012	3:44		207.1
10/9/2012	3:45		208.7
10/9/2012	3:46		209.9
10/9/2012	3:47		210.3
10/9/2012	3:48		210.6
10/9/2012	3:58		211
10/9/2012	4:08		211.8
10/9/2012	4:18		211
10/9/2012	4:28		210.5
10/9/2012	4:38		210.9
10/9/2012	4:48		210.9
10/9/2012	4:58	125	211
10/9/2012	5:08	125	211
10/9/2012	5:18	125	211.1
10/9/2012	5:28	125	211.1
10/9/2012	5:48	125	211.6
10/9/2012	6:08	125	211.9
10/9/2012	6:28	125	211.5
10/9/2012	6:48	125	211.9
10/9/2012	6:58	125	211.9
10/9/2012	7:18	125	212.3
10/9/2012	7:38	125	212.2
10/9/2012	8:38	125	213.26
10/9/2012	9:18	125	212.9
10/9/2012	10:18	125	213.82
10/9/2012	10:58	125	213.85
10/9/2012	11:58	125	214.95
10/9/2012	12:38	125	214.4
10/9/2012	13:38	125	214.81
10/9/2012	14:18	125	214.7
10/9/2012	15:18	125	214.6
10/9/2012	15:38		
10/9/2012	15:42		200
10/9/2012	15:43		160
10/9/2012	15:43		123
10/9/2012	15:44		107.9
10/9/2012	15:44		93.2

Conroe Well No. 23

10/9/2012	15:45	85.7
10/9/2012	15:45	76.8
10/9/2012	15:46	73.9
10/9/2012	15:46	71.6
10/9/2012	15:47	68.5
10/9/2012	15:47	68.4
10/9/2012	15:48	67.4
10/9/2012	15:48	66.8
10/9/2012	15:49	66.4
10/9/2012	15:49	66.2
10/9/2012	15:50	65.9
10/9/2012	15:50	65.9
10/9/2012	15:51	65.5
10/9/2012	15:51:30	65.4
10/9/2012	15:52	65.2
10/9/2012	15:57	64.7
10/9/2012	16:02	64.4
10/9/2012	16:07	64.4
10/9/2012	16:12	64.2
10/9/2012	16:17	64
10/9/2012	16:22	63.9
10/9/2012	16:27	63.7
10/9/2012	16:42	63.7
10/9/2012	16:57	63.5
10/9/2012	17:12	63.5
10/9/2012	17:27	62.8
10/9/2012	17:42	62.4

Conroe Well No. 23

Test:	4	Pump On:	10/12/2012 15:45
Top of Screen:	2032	Pump Off:	10/13/2012 4:19
Bottom of Screen:	2052	Depth of Transducer:	451.33
M.P. (ft AGL)	9.4	Elevation:	225

Date	Time	Pumping Rate (gpm)	DTW (ft. BMP)
10/12/2012	15:39		52.74
10/12/2012	15:43		52.75
10/12/2012	15:45		52.75
10/12/2012	15:47	132	
10/12/2012	15:48		262.55
10/12/2012	15:50	130	287.35
10/12/2012	15:51	125	297.9
10/12/2012	15:52		307.45
10/12/2012	15:54		315.74
10/12/2012	15:55	115	321.05
10/12/2012	15:57	110	324.29
10/12/2012	15:58	115	327.24
10/12/2012	15:59	115	328.75
10/12/2012	16:00		331.65
10/12/2012	16:02	115	333.35
10/12/2012	16:03	115	334.6
10/12/2012	16:04	115	336.2
10/12/2012	16:05		336.61
10/12/2012	16:10	115	340.1
10/12/2012	16:15	115	341.8
10/12/2012	16:20		342.52
10/12/2012	16:25	115	341.95
10/12/2012	16:30	112	343.1
10/12/2012	16:35		345.3
10/12/2012	16:40	115	346.23
10/12/2012	16:45		347.2
10/12/2012	16:55	115	348.31
10/12/2012	17:05	115	349.96
10/12/2012	17:15	115	351.07
10/12/2012	17:24	115	351.94
10/12/2012	17:35	115	352
10/12/2012	17:45	115	353.01
10/12/2012	18:00	115	353.65
10/12/2012	18:15	115	354.16
10/12/2012	18:30	115	354
10/12/2012	18:45	115	353.84
10/12/2012	19:00	115	354.7
10/12/2012	19:20	115	356.6
10/12/2012	19:45	115	357.5
10/12/2012	20:15	115	357
10/12/2012	20:45	115	357
10/12/2012	21:15	115	357
10/12/2012	21:45	115	357.17
10/12/2012	22:15	115	356.38

Conroe Well No. 23

10/12/2012	22:45	115	357.83
10/12/2012	23:15	115	358.1
10/12/2012	23:45	115	356.83
10/13/2012	0:15	115	358.25
10/13/2012	0:45	115	357.78
10/13/2012	1:15	115	357.4
10/13/2012	1:45	115	357.45
10/13/2012	2:15	115	356.75
10/13/2012	2:49	115	356.41
10/13/2012	3:15	115	356.05
10/13/2012	3:46	115	356.1
10/13/2012	4:19	115	356
10/13/2012	4:22		169.3
10/13/2012	4:23		134.47
10/13/2012	4:24		118.8
10/13/2012	4:25		107.15
10/13/2012	4:27		93.85
10/13/2012	4:28		89.6
10/13/2012	4:29		86.6
10/13/2012	4:31		82.69
10/13/2012	4:33		79.85
10/13/2012	4:35		77.62
10/13/2012	4:37		75.78
10/13/2012	4:39		74.35
10/13/2012	4:44		71.58
10/13/2012	4:49		69.75
10/13/2012	4:54		68.05
10/13/2012	4:59		67.5
10/13/2012	5:04		65.9
10/13/2012	5:09		65
10/13/2012	5:14		64.2
10/13/2012	5:24		63.05
10/13/2012	5:29		62.5
10/13/2012	5:34		61.95

Water Analysis

01

ENVIRODYNE LABORATORIES, INC. 11011 Brooklet Dr. #230 Houston, Texas 77099

October 25, 2012

Alsay, Inc.
Joe Slavik
6615 Gant
Houston, Texas 77066

Re: **CONROE WELL 23** **SAMPLE 1 3040'-3060'** COC#: **EA040992**

Dear Joe Slavik :

Envirodyne Laboratories, Inc. (ELI) received sample(s) on September 27, 2012at 08:35 for the analysis enclosed.

The analytical data provided relates only to the sample(s) as received in this laboratory report. ELI certifies that all results are NELAC compliant and performed in accordance with the referenced method. Any exceptions are listed below and/or noted with a qualifier. Any reproductions of this laboratory report should be in full and only with the written authorization from the client.

This report contains a total of 20 pages not including the Chain of Custody.

Thank you for selecting ELI for your analytical needs. If you have questions regarding these results, please contact us at 281-568-7880.

Sincerely,

Laura Bonjonia

Laura Bonjonia
Lab Manager

ACCREDITED IN ACCORDANCE WITH nelac

Certificate No. T104704265-11

ENVIRODYNE LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT:	Conroe (ALSAY, INC.)	LAB NUMBER:	AD43548A
DATE COLLECTED:	27-Sep-12	DATE RECEIVED:	27-Sep-12
DATE COMPLETED:	05-Oct-12	SAMPLED BY:	DS

LOCATION: WELL 23 @ 0800 SAMPLE T 3040'-3060'

PARAMETERS:		EPA METHOD #	LIMITS (mg/l)
pH (Units)	7.31	SM 4500-H B	6.50 - 8.50
TOTAL HARDNESS as CaCO3(mg/l)	2467.0	SM 2340 C	N/A
TOTAL ALKALINITY as CaCO3 (mg/l)	532.0	SM 2320 B	N/A
P. ALKALINITY as CaCO3 (mg/l)	<20.0	SM 2320 B	N/A
BICARBONATE (mg/l)	649.0	N/A	N/A
CARBONATE (mg/l)	<1.0	N/A	N/A
TOTAL DISSOLVED SOLIDS (mg/l)	8618.0	SM 2540 C	1,000.0
CONDUCTANCE (umhos/cm)	13900.0	SM 2510 B	N/A
FREE CO2 (mg/l)	>10	N/A	N/A
CORROSIVITY as Caco3 (mg/l)	< 1.0	305.1	Non-corrosive
SILICA (mg/l)	42.50	SM 4500-SIO2 D	N/A
CALCIUM (mg/l)	89.3	200.7	N/A
MAGNESIUM (mg/l)	5.8	200.7	N/A
FOAMING AGENTS (mg/l)	<0.020	N/A	0.5*
COLOR (Units)	192.0	SM 2120 C	15.0
TURBIDITY (Units)	45.0	SM 2130 B	1.0
CYANIDE (as Free mg/l)	< 0.02	SM 4500-CN E	0.2
SODIUM (mg/l)	2419.0	200.7	N/A
POTASSIUM (mg/l)	52.8	200.7	N/A
TOTAL IRON (mg/l)	8.580	200.7	0.30 *
TOTAL MANGANESE (mg/l)	0.386	200.7	0.05 *
TOTAL ZINC (mg/l)	0.023	200.7	5.0 *
TOTAL ANTIMONY (mg/l)	<0.003	200.7	0.006
TOTAL ALUMINUM (mg/l)	1.344	200.7	0.05 - 0.20*
TOTAL ARSENIC (mg/l)	0.008	200.7	0.01
TOTAL BARIUM (mg/l)	0.944	200.7	1.0
TOTAL BERYLLIUM (mg/l)	<0.001	200.7	0.004
TOTAL COPPER (mg/l)	0.028	200.7	1.00
TOTAL SILVER (mg/l)	<0.001	200.7	0.05
TOTAL NICKEL (mg/l)	0.006	200.7	0.10
TOTAL CADMIUM (mg/l)	0.001	200.7	0.010
TOTAL CHROMIUM (mg/l)	0.003	200.7	0.05
TOTAL LEAD (mg/l)	<0.003	200.7	0.015
TOTAL MERCURY (mg/l)	< 0.0002	245.1	0.002
TOTAL SELENIUM (mg/l)	<0.003	200.7	0.01
TOTAL THALLIUM (mg/l)	<0.002	200.7	0.002
SULFATE (mg/l)	<2.0	ASTM D516-90	300.0 *
CHLORIDE (mg/l)	4198.7	SM 4500-Cl B	300.0 *
NITRATE (mg/l)	13.90	SM 4500-NO3 E	10.0
NITRITE (mg/l)	<0.05	SM 4500-NO2 B	1.00
FLUORIDE (mg/l)	0.88	SM 4500-F C	2.00
ODOR (THRESHOLD #)	< 1.0	N/A	3.0
TEMPERATURE (C/F)	25/77	N/A	N/A
LANGELIER INDEX	+0.37	N/A	N/A

M Smith
CERTIFIED BY

* DENOTES: Secondary Standards (Recommended)

281 568 7880 TEL • 281 568 8004 FAX • 11011 BROOKLET DR. #230 • HOUSTON, TX 77099-3543 • ELI@ENVIRODYNE.COM • WWW.ENVIRODYNE.COM

ENVIRODYNE ELI LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT:	Conroe (Alsay, Inc.)	LAB NUMBER:	AD43548B
DATE COLLECTED:	27-Sep-12	DATE RECEIVED:	27-Sep-12
DATE COMPLETED:	05-Oct-12	SAMPLED BY:	DS

LOCATION: / PARAMETERS:	WATER WELL @ 0630 SAMPLE 1 3040'-3060'	DETECTION LIMITS (ug/l)
CHLOROMETHANE (ug/l)	1.0 U	1.0
VINYL CHLORIDE (ug/l)	2.0 U	2.0
BROMOMETHANE (ug/l)	1.0 U	1.0
CHLOROETHANE (ug/l)	1.0 U	1.0
TRICHLOROFUOROMETHANE (ug/l)	1.0 U	1.0
1,1-DICHLOROETHENE (ug/l)	1.0 U	1.0
METHYLENE CHLORIDE (ug/l)	1.0 U	1.0
trans-1,2-DICHLOROETHENE (ug/l)	1.0 U	1.0
cis-1,2-DICHLOROETHENE (ug/l)	1.0 U	1.0
1,1-DICHLOROETHANE (ug/l)	1.0 U	1.0
1,1,1-TRICHLOROETHANE (ug/l)	1.0 U	1.0
CHLOROFORM (ug/l)	1.0 U	1.0
CARBON TETRACHLORIDE (ug/l)	1.0 U	1.0
1,2-DICHLOROETHANE (ug/l)	1.0 U	1.0
BENZENE (ug/l)	1.0 U	1.0
TRICHLOROETHENE (ug/l)	1.0 U	1.0
1,2-DICHLOROPROPANE (ug/l)	1.0 U	1.0
BROMODICHLOROMETHANE (ug/l)	1.0 U	1.0
cis-1,3 DICHLOROPROPENE (ug/l)	1.0 U	1.0
TOLUENE (ug/l)	1.0 U	1.0
trans-1,3-DICHLOROPROPENE (ug/l)	1.0 U	1.0
1,1,2-TRICHLOROETHANE (ug/l)	1.0 U	1.0
TETRACHLOROETHENE (ug/l) - (PERC)	1.0 U	1.0
DIBROMOCHLOROMETHANE (ug/l)	1.0 U	1.0
CHLOROBENZENE (ug/l)	1.0 U	1.0
2-CHLOROETHYLVINYL ETHER (ug/l)	5.0 U	5.0
ETHYLBENZENE (ug/l)	1.0 U	1.0
BROMOFORM (ug/l)	1.0 U	1.0
1,1,2,2-TETRACHLOROETHANE (ug/l)	1.0 U	1.0
1,2-DIBROMOETHANE (ug/l)	1.0 U	1.0
XYLENE (ug/l)	1.0 U	1.0
TOTAL TRIHALOMETHANES (ug/l)	1.0 U	1.0
1,2,4-TRICHLOROBENZENE (ug/l)	1.0 U	1.0
DICHLOROMETHANE (ug/l)	1.0 U	1.0
o-DICHLOROBENZENE (ug/l)	1.0 U	1.0
p-DICHLOROBENZENE (ug/l)	1.0 U	1.0

LAB REPRESENTATIVE

Ref. EPA-524 (VOLATILES)
U - Analyte Not Detected at the Listed Detection Limit
J - Analyte Present but Below Detection Limit
Qual: Analyzed by NELAC certified lab T104704231-11

(281) 568-7880 11011 Brooklet Dr. #230, Houston, TX 77099

ENVIRODYNE LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT: Conroe (ALSAY, INC.)

LAB NUMBER: AD43548C

DATE COLLECTED: 27-Sep-12

DATE RECEIVED: 27-Sep-12

DATE COMPLETED: 05-Oct-12

SAMPLED BY: DS

LOCATION: Well #23
SAMPLE 1 3040'-3060'

PARAMETERS:
BNA/Pest.

		Maximum Contaminant Levels (MCLs) in ug/l			Maximum Contaminant Levels (MCLs) in ug/l
ATRAZINE (ug/l)	< 1.0	3.0	Alachlor (ug/l)	< 0.02	2
HEXACHLOROBENZENE (ug/l)	< 1.0	1.0	Heptachlor (ug/l)	< 0.03	0.4
HEXACHLOROCYCLOPENTADIENE (ug/l)	< 10.0	50.0	Heptaclor Epoxide (ug/l)	< 0.20	0.2
BENZO (a) PYRENE (ug/l)	< 0.1	0.2	Gamma-BHC (Lindane) (ug/l)	< 0.03	0.2
PENTACHLOROPHENOL (ug/l)	< 1.0	1.0	Chlordane (ug/l)	< 0.14	2
Di (2-ETHYLHEXYL) PHTHALATE (ug/l)	< 5.0	6.0	Toxaphene (ug/l)	< 2.40	3
Di (2-ETHYLHEXYL) ADIPATE (ug/l)	< 100.0	400.0	Methoxychlor (ug/l)	< 0.50	40
Simazine (ug/l)	< 1.0	4.0	Ethylene dibromide (ug/l)	< 0.01	0.05
Endrin (ug/l)	< 0.06	2.0	Glyphosate (ug/l)	< 0.100	700.0
Carbofuran (ug/l)	< 0.04	40.0	Oxamyl (ug/l)	< 100.0	200.0
Dalapon (ug/l)	< 0.20	200.0	Styrene (ug/l)	< 50.0	100.0
Dibromochloropropane (ug/l)	< 0.1	0.2	Picloram (ug/l)	< 100.0	500.0
Dinoseb (ug/l)	< 1.0	7.0	*2,4,5-TP (SILVEX) (ug/l)	< 4.0	50
Diquat (ug/l)	< 10.0	20.0	*2,4-D (ug/l)	< 10.0	70
Endothall (ug/l)	< 50.0	100.0	Total PCBs (mg/l)	< 0.5	0.5

M Smith
LAB REPRESENTATIVE

Analyzed by NELAP accredited lab T104704218
Ref. EPA-525.2 (Base/Neutrals & Acids)
U - Analyte Not Detected at the listed Detection Limit
J - Analyte Present but below Detection Limit

(281) 568-7880 11011 Brooklet Dr. #230, Houston, TX 77099

CERTIFICATE OF ANALYSIS

CLIENT:	**Conroe** (ALSAY, INC.)	LAB NUMBER:	AD43549
DATE COLLECTED:	27-Sep-12	DATE RECEIVED:	27-Sep-12
DATE COMPLETED:	05-Oct-12	SAMPLED BY:	DS

LOCATION:	**WELL #23 Dissolved @0600** SAMPLE T 3040'-3060'	EPA METHOD #	LIMITS (mg/l)
PARAMETERS:			
TURBIDITY (mg/l)	0.12	SM 2130 B	
TOTAL IRON (mg/l)	0.013	200.7	0.30 *
TOTAL MANGANESE (mg/l)	0.320	200.7	0.05 *
TOTAL ALUMINUM (mg/l)	0.007	200.7	0.05 - 0.20*
TOTAL ARSENIC (mg/l)	0.005	200.7	0.01

* DENOTES: Secondary Standards (Recommended)

CERTIFIED BY

QA/QC Report for Sample AD43548

SAMPLE 1 3040'-3060'

Envirodyne Laboratories, Inc.
User: Smith, Monica
Date: 10/25/2012 Time: 09:41:51

Batch: PH_F-122668	QA Sample: AD45231	PH_F - pH, Field
Unspiked	8.71 SU	
Batch: ALK-122488	QA Sample: AD43498	ALK - Alkalinity as CaCO3
Unspiked	180.5 mg/L	
Blank	<20.0 mg/L	
Duplicate	190.0 mg/L	
Lab Control	105.5 mg/L	
Precision	5.1 %	
Batch: CL-122487	QA Sample: AD43850	CL - Chloride
Unspiked	94.0 mg/l	
Blank	<1.5 mg/l	
Lab Control	110.0 mg/l	
Precision	0.0 %	
Recovery	83.1 %	
Batch: COLOR-122385	QA Sample: AD43548	COLOR - Color
Unspiked	192 Units	
Blank	<1.0	
Duplicate	201.0	
Lab Control	38.41	
Precision	4.580	
Batch: TURB-122374	QA Sample: AD43548	TURB - Turbidity, NTU
Unspiked	45.0 NTU	
Blank	<0.1	
Duplicate	42.0	
Lab Control	19.2	
Precision	6.897	
Batch: SO4-122372	QA Sample: AD42302	SO4 - Sulfate
Unspiked	< 2.0 mg/l	
Blank	< 2.0	
Amt Spiked	20.0	
Duplicate	20.86 mg/l	
Lab Control	106.0	
Precision	6.0 %	
Recovery	106 %	
Batch: TDS-122208	QA Sample: AD43358	TDS - Total Dissolved Solid
Unspiked	300 mg/l	
Blank	<10	
Duplicate	332	
Precision	10.127 %	
Batch: F-122206	QA Sample: AD42924	F - Fluoride
Unspiked	<0.1 mg/L	
Blank	<0.1 mg/l	
Amt Spiked	0.5	
Lab Control	94	
Precision	7.018 %	
Recovery	98	
Batch: ZN_I-122093	QA Sample: AD42924	ZN_I - Zinc
Unspiked	237 ug/L	
Blank	< 1.0	
Precision	1.2	

QA/QC Report for Sample AD43548 (page 2)

SAMPLE 1 3040'-3060'

Batch: ZN_I-122093	QA Sample: AD42924	ZN_I - Zinc
Recovery	96.3	
.ch: TL_I-122092	QA Sample: AD42924	TL_I - Thallium
Unspiked	< 3.8 ug/L	
Blank	< 3.8	
Precision	1.3	
Recovery	92.9	
Batch: SE_I-122091	QA Sample: AD42924	SE_I - Selenium
Unspiked	< 3.1 ug/L	
Blank	< 3.1 ug/l	
Precision	0.5 %	
Recovery	106.2 %	
Batch: SB_I-122090	QA Sample: AD42924	SB_I - Antimony
Unspiked	< 2.46 ug/L	
Blank	< 2.46 ug/l	
Precision	0.1 %	
Recovery	101.5 %	
Batch: PB_I-122089	QA Sample: AD42924	PB_I - Lead
Unspiked	< 3.3 ug/L	
Blank	< 3.3	
Precision	0.1	
Recovery	96.0	
Batch: NI_I-122088	QA Sample: AD42924	NI_I - Nickel
Unspiked	1.50 ug/L	
Blank	< 0.57	
Precision	1.4	
Recovery	94.8	
Batch: NA_I-122087	QA Sample: AD42924	NA_I - Sodium
Unspiked	27.97 mg/L	
Blank	< 1.0	
Precision	2.2	
Recovery	96.9	
Batch: MN_I-122086	QA Sample: AD42924	MN_I - Manganese
Unspiked	4.67 ug/L	
Blank	< 1.0	
Precision	1.3	
Recovery	96.6	
Batch: MG_IHARD-122085	QA Sample: AD42924	MG_IHARD - Magnesium (as CaCO3)
Unspiked	35.59 mg/l	
Batch: MG_I-122084	QA Sample: AD42924	MG_I - Magnesium
Unspiked	8.642 mg/l	
Blank	< 1.0	
Precision	2.5	
Recovery	105.6	
Batch: K_I-122083	QA Sample: AD42924	K_I - Potassium
Unspiked	6.622 mg/L	
Blank	< 1.0	
Precision	5.0	
Recovery	112.7	
Batch: FE_I-122082	QA Sample: AD42924	FE_I - Iron
Unspiked	6.18 ug/L	

QA/QC Report for Sample AD43548 (page 3)

SAMPLE 1 3040'-3060'

Batch: FE_I-122082	QA Sample: AD42924	FE_I - Iron
Blank	< 1.4	
Precision	0.6	
Recovery	98.2	
Batch: CU_I-122081	QA Sample: AD42924	CU_I - Copper
Unspiked	6.51 ug/L	
Blank	< 1.5 ug/L	
Precision	1.0 %	
Recovery	95.9 %	
Batch: CR_I-122080	QA Sample: AD42924	CR_I - Chromium
Unspiked	1.24 ug/L	
Blank	< 1.0	
Precision	1.3	
Recovery	95.8	
Batch: CD_I-122079	QA Sample: AD42924	CD_I - Cadmium
Unspiked	1.05 ug/L	
Blank	< 1.0	
Precision	0.5	
Recovery	98.9	
Batch: CA_IHARD-122078	QA Sample: AD42924	CA_IHARD - Calcium (as CaCO3
Unspiked	236.62 mg/L	
Batch: CA_I-122077	QA Sample: AD42924	CA_I - Calcium
Unspiked	94.76 mg/L	
Blank	< 1.0	
Precision	1.8	
Recovery	93.2	
Batch: BE_I-122076	QA Sample: AD42924	BE_I - Beryllium
Unspiked	< 1.0 ug/L	
Blank	< 1.0	
Precision	1.2	
Recovery	102.8	
Batch: BA_I-122075	QA Sample: AD42924	BA_I - Barium
Unspiked	450 ug/L	
Blank	< 1.0	
Precision	0.9	
Recovery	94.6	
Batch: AS_I-122074	QA Sample: AD42924	AS_I - Arsenic
Unspiked	< 3.6 ug/L	
Blank	< 3.6	
Precision	0.8	
Recovery	107.9	
Batch: AL_I-122073	QA Sample: AD42924	AL_I - Aluminum
Unspiked	< 2.44 ug/l	
Blank	< 2.44	
Precision	1.2	
Recovery	80.8	
Batch: AG_I-122072	QA Sample: AD42924	AG_I - Silver
Unspiked	1.53 ug/L	
Blank	< 1.0	
Precision	9.2	
Recovery	102.3	

QA/QC Report for Sample AD43548 (page 4) SAMPLE 1 3040'-3060'

Batch: SI-122063	QA Sample: AD41984	SI - Silica
Unspiked	24 mg/l	
.ch: NO2N-121973	QA Sample: AD43305	NO2N - Nitrite nitrogen
Unspiked	<0.05 mg/l	
Blank	<0.05	
Precision	2.15	
Recovery	92	
Batch: COND-121971	QA Sample: AD42729	COND - Conductivity
Unspiked	1430 umhos/cm	
Blank	<10	
Duplicate	1430	
Lab Control	180	
Precision	0.000	
Batch: NO3N-121959	QA Sample: AD43464	NO3N - Nitrate-N
Unspiked	37.7 mg/l	
Blank	NA	
Amt Spiked	NA	
Lab Control	NA mg/l	
Precision	NA	
Recovery	NA	

EMSL Analytical, Inc.
8700 Jameel Road, Suite 190 Houston, TX 77040
Phone/Fax: (713) 686-3635 / (713) 686-3645
http://www.emsl.com / houstonlab@emsl.com

EMSL Order ID: 151205064
Customer ID: ENDY62
Customer PO:
Project ID:

Attn: Sherry Walker
Envirodyne Laboratories, Inc.
11011 Brooklet
Suite 230
Houston, TX 77099

Phone: (281) 568-7880
Fax: (281) 568-8004
Collected:
Received: 09/28/2012
Analyzed: 10/05/2012

Proj: CONROE 23 SAMPLE 1 3040'-3060'

Test Report: Determination of Asbestos Structures >10µm in Drinking Water Performed by the 100.2 Method (EPA 600/R-94/134)

Sample ID Client / EMSL	Sample Filtration Date/Time	Original Sample Vol. Filtered (ml)	Effective Filter Area (mm^2)	Area Analyzed (mm^2)	ASBESTOS Asbestos Types	Fibers Detected	Analytical Sensitivity	Concentration	Confidence Limits
							MFL (million fibers per liter)		
12-031893 Well #23 151205064-0001	9/28/2012 05:38 PM	5	1298	0.2500	None Detected	ND	1.00	<1.00	0.00 - 3.80

Due to excessive particulate the analytical sensitivity of 0.2 MFL as required by the method was not reached.

Analyst(s)
Jason Mote (1)

Michelle Leggett, Laboratory Manager
or Other Approved Signatory

Any questions please contact Michelle Leggett.

Initial report from: 10/05/2012 17:57:58

Sample collection and containers provided by the client, acceptable bottle blank level is defined as ≤0.01MFL>10um. ND=None Detected. This report relates only to those items tested.Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical, Inc. Houston, TX NELAC TX T104704379-11-4

Envirodyne Laboratories, Inc.
11011 Brooklet, Ste. 230
Houston, Texas 77099-3543
Phone (281)568-7880 - Fax (281)568-8004

E 042012

Page _____ Of _____

151205084

Analysis Request and Chain of Custody Record

Name: Alsay
Address: 6615 Gant St
City: Houston, TX 77066
Contact: Joe Slavik
Phone: 281-444-6960 Fax: 281444-6960

Project No.
Client/Project CONROE 23

Lab ID No.	Field Sample No./ Indentification	Date & Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, etc.)	Preservative	ANALYSIS REQUESTED	pH	D.O.	Temp.	Analysis Time
12-03893	WELL #23	9/27/12 600	/		1 Lt/amb	Liquid	ICE	Asbestos				
	SAMPLE 1 3040'-3060'											

Samplers: (Signature)	Relinquished by: (Signature)	Date: 9/27/12 Time: 1600	Received by: (Signature)	Date: Time: 9/28/12 3:13	Seal Intact?
Affiliation	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Seal Intact?
	Relinquished by: (Signature)	Date: Time:	Received by Lab: (Signature)	Date: Time:	Seal Intact?
Remarks: Sub to: EMSL Direct Bill Client	FLOW: _____ Meter Reading: _____ Cl_2 Residual: _____ Mn Correction: _____ Cl_2 Corrected	Arrival Temp.	Data Results To:		Laboratory No.
			Site Representative:	Date: Time:	

20°C

CC: ELI with report - 7 Day Rescult -

SUMMIT
ENVIRONMENTAL TECHNOLOGIES, INC.
Analytical Laboratories

LABORATORY REPORT

Client
Envirodyne Laboratories, Inc.
11011 Brooklet, Ste. 230
Houston, TX 77099

Order Number
1223455

Project Number
Conroe 23
SAMPLE 1 3040'-3060'

Issued
Thursday, October 04, 2012

Total Number of Pages
4 (excluding C.O.C. and cooler receipt form)

Approved By :
QA Manager

Certifications: A2LA/DOD 0724.01, Alabama 41600, Arkansas 88-0735, California 07256CA, Colorado, Connecticut PH-0105, Delaware, Florida NELAC E87688, Georgia E87688 and 943, Idaho OH00923, Illinois 200061 and Reg.5, Indiana C-OH-13, Kansas E-10347, Kentucky (underground Storage Tank) 3, Kentucky 90146, Louisiana 04061 and LA12004, Maine 2012015, Maryland 339, Massachusetts M-OPH923, Michigan (Reg.5), Minnesota 409711, Montana CERT0099, New Hampshire 2996, New Jersey OH006, New York 11777, North Carolina 39705 and 631, Ohio 4170, Ohio VAP CL0052, Oklahoma 9940, Oregon OH200001, Pennsylvania 68-01335, Rhode Island LA000317, South Carolina 92016001, Tennessee TN04018, Texas T104704466-11-5, Region 5 WG-15J, Region 8 8TMS-L, USDA/APHIS P330-11-00244, Utah OH009232011-1, Vermont VT-87688, Virginia 00440 and 1581, Washington C891, West Virginia 248 and 9957C and E87688, Wisconsin 399013010

SAMPLE 1 3040'-3060'

Sample Summary

Client: Envirodyne Laboratories, Inc.
Order Number: 1223455

Laboratory ID	Client ID	Matrix	Sampling Date
1223455-01	12-031893	Liquid	9/27/2012

SAMPLE 1 3040'-3060'

Report Narrative

Client: Envirodyne Laboratories, Inc.
Order Number: 1223455

No problems were encountered during analysis of this order number, except as noted.

Data Qualifiers:
B = Analyte found in the method blank
J = Estimated concentration of analyte between MDL (LOD) and Reporting Limit (LOQ)
C = Analyte has been confirmed by another instrument or method
E = Analyte exceeds the upper limit of the calibration curve.
D = Sample or extract was analyzed at a higher dilution
X = User defined data qualifier.
S = Surrogate out of control limits
U = Undetected
a = Not Accredited by NELAC

ND = Non Detected at LOQ
DF = Dilution Factor

Limit Of Quantitation (LOQ) = Laboratory Reporting Limit (not adjusted for dilution factor)
Limit Of Detection (LOD) = Laboratory Detection Limit

Matrices:
A = Air
C = Cream
DW = Drinking Water
L = Liquid
O = Oil
SL = Sludge
SO = Soil
S = Solid
T = Tablet
TC = TCLP Extract
WW = Waste Water
W = Wipe

Estimated uncertainty values are available upon request.

The test results meet the requirements of the NELAC standard, except where noted. The information contained in this analytical report is the sole property of Summit Environmental Technologies, Inc. and that of the client. It cannot be reproduced in any form without the consent of Summit Environmental Technologies, Inc. or the client for which this report was issued. The results contained in this report are only representative of the samples received. Conditions can vary at different times and at different sampling conditions. Summit Environmental Technologies, Inc. is not responsible for use or interpretation of the data included herein.

SUMMIT
ENVIRONMENTAL TECHNOLOGIES, INC.
Analytical Laboratories

October 04, 2012

Client: Envirodyne Laboratories, Inc.
Address: 11011 Brooklet, Ste. 230
Houston, TX 77099

Received: 9/28/2012
Project #: Conroe 23
SAMPLE 1 3040'-3060'

Client ID#	Lab ID#	Collected	Analyte	Result	Units	Matrix	Method	DF	LOQ	Run	Analyst
12-031893	1223455-01	27-Sep-12	2,3,7,8-TCDD	ND	pg/l	L	1613B	2	1	04-Oct-12	CM

"Analytical Integrity" · EPA Certified · NELAP Certified
3310 Win Street · Cuyahoga Falls, Ohio 44223 • Phone: 330-253-8211 · Fax: 330-253-4489
Web Site: www.settek.com

Summit Environmental Technologies, Inc.
Method 1613
QC Report

Batch ID: 886 **ICAL Date :** 3/22/2011 **Extraction Date:** 10/2/2012

Blank Results: 2,3,7,8-TCDD <1.0pg/l

SAMPLE 1 3040'-3060'

Parameter	Labeled Compound % Recovery 13C-2,3,7,8-TCDD	Unlabeled Compound % Recovery 2,3,7,8-TCDD	Analysis Date
LCS	73.5	76.5	10/4/2012
LCSD	56.2	74.1	10/4/2012
Acceptance Limits	20 - 175	67 - 158	
CCV	101.2	100.1	10/4/2012
Acceptance Limits	82 - 121	78 - 129	
Blank	90		10/4/2012
Acceptance Limits	25 - 164		
Sample			
1223455-01	95.8		10/4/2012
Acceptance Limits	25 - 164		

Summit Environmental Technologies, Inc.
Cooler Receipt Form

Order ID: 1223455

COOLER

Client Envirodyne

Orde

SAMPLE 1 3040'-3060'

Log in Initials:

Date Received: 9/28/12 Time Received: 1000 Date opened: 9/28/12

Number of Coolers/Boxes: N/A Unpacked by:

Shipper: FED EX UPS DHL Airborne US Postal Walk-In Pickup Other:

Packaging: Peanuts Bubble Wrap Paper Foam None Other:

Tape on cooler/box:	Y	N	N/A
Custody Seals intact	Y	N	N/A
C-O-C in plastic	Y	N	N/A

Coolant: Ice___ Blue Ice___ Water___ None ✓ Sample Temperature 6.9 °C

C-O-C filled out properly	Y	N	N/A
Samples in separate bags	Y	N	N/A
Sample containers intact	Y	N	N/A

*If no, list broken sample(s):

Sample label(s) complete (ID, date, etc.)	Y	N	N/A
Label(s) agree with C-O-C	Y	N	N/A
Correct containers used	Y	N	N/A
Sufficient sample received	Y	N	N/A
Samples at correct pH? (list below)	Y	N	NA
Bubbles absent from 40 mL vials**	Y	N	N/A

** Samples with bubbles less than the size of a pea are acceptable.

Client contact: Date/Time:

Comments:

Sample ID	pH	Sample ID	pH

Envirodyne Laboratories, Inc.
11011 Brooklet, Ste. 230
Houston, Texas 77099-3543
Phone (281)568-7880 - Fax (281)568-8004

014

COC

Order ID: 1223455

Analysis Request and Chain of Custody Record

Name: Alsay
Address: 6615 Gant St
City: Houston, TX 77066
Contact: Joe Slavik
Phone: 281-444-6960
Fax: 281444-6960

Joe.slavik@alsaywater.com
Laurab.@envirodyne.com
sherry@envirodyne.com

Project No.
Client/Project: CONROE 23

Lab ID No.	Field Sample No./ Indentification	Date & Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, etc.)	Preservative	ANALYSIS REQUESTED	pH	D.O.	Temp.	Analysis Time
2-03 1893	WELL #23	9/27/12 600	✓		1 Lt/amb	Liquid	ICE	2,3,7,8-TCDD (Dioxin)				
	SAMPLE 1 3040'-3060'											

1223455-01

Samplers: (Signature)	Relinquished by: (Signature)	Date: 9/27/12 Time: 600	Received by: (Signature)	Date: Time:	Seal Intact?
Affiliation	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: 9/28/12 Time: 1000	Seal Intact?
	Relinquished by: (Signature)	Date: Time:	Received by Lab: (Signature)	Date: Time:	Seal Intact?
Remarks: Sub to: Summit CW Direct Bill Client	FLOW: Meter Reading: Cl2 Residual: Mn Correction: Cl2 Corrected	Arrival Temp.	Data Results To: 1		Laboratory No.
			Site Representative:	Date: Time:	

CC: ELI with report

—7 DAY RUSH—

DOH Certification #E84025
DEP COMPQAP # 870251

KNL LABORATORY SERVICES
2742 N. Florida Ave.
P.O. Box 1833
Tampa, Florida 33601
(813) 229-2879
Fax (813) 229-0002

Report Date: October 5, 2012

Envirodyne Laboratories, Inc.
11011 Brooklet, Ste 230
Houston, TX 77099-3543

Field Custody: Client
Client/Field ID: Alsay Conroe-23 SAMPLE 1 3040'-3060' 12-031893 Well #23
Sample Collection: 09-27-12/0600
Lab ID No: 12.7958
Lab Custody Date: 09-28-12/1200
Sample description: Water

CERTIFICATE OF ANALYSIS

Parameter	Units	Results	Analysis Date	Method	Detection Limit
Gross Alpha	pCi/l	47 ± 2	10-03-12/0800	EPA 00-02	0.4
Gross Beta	pCi/l	51 ± 8	10-01-12/0800	EPA 900.0	13
Radium-226	pCi/l	33 ± 3	10-01-12/1155	EPA 903.0	0.5
Radium-228	pCi/l	10.3 ± 1.4	10-05-12/0930	EPA Ra-05	1.0
Uranium	pCi/l	1.4 ± 0.4	09-29-12/1525	EPA 908.0	0.5
Uranium	ug/l	2.1 ± 0.6	Calc.	EPA 908.0	0.7
Radon-222	pCi/l	661 ± 20	09-28-12/1342	*	4.5

Alpha Standard: Th-230
Beta Standard: Cs-137

*EPA/600/2-87/082 appendix D

James W Hayes

James W. Hayes
Laboratory Manager

Test results meet all requirements of the NELAC standards.
Contact person: Jim Hayes (813) 229-2879.

Envirodyne Laboratories, Inc.
11011 Brooklet, Ste. 230
Houston, Texas 77099-3543
Phone (281)568-7880 - Fax (281)568-8004

E A042010

Page _____ Of _____

Name: Alsay
Address: 6615 Gant St
City: Houston, TX 77066
Contact: Joe Slavik

Analysis Request and Chain of Custody Record

Phone: 281-444-6960 Fax: 281444-6960

Project No. Client/Project CONROE 23

Lab ID No.	Field Sample No./ Indentification	Date & Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, etc.)	Preservative	ANALYSIS REQUESTED	pH	D.O.	Temp.	Analysis Time
31893	WELL #23	9/27/12 1600	/		1 gal/P	Liquid	HNO3	Gross alpa,Gross beta,T.U, Ra 226-228				
	WELL #23		/		2-40ml/vials	Liquid		Radon				
	SAMPLE 1 3040'-3060'											
								12 7958				
								EPA 00-02				

Samplers: (Signature)	Relinquished by: (Signature)	Date/Time: 9/27/12 1600	Received by: (Signature)	Date: 9-28-12 Time: 1200	Seal Intact?
Affiliation	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Seal Intact?
	Relinquished by: (Signature)	Date: Time:	[redacted]	Date: Time:	Seal Intact?
Remarks: Sub to: KM Direct Bill Client	FLOW: Meter Reading: Cl2 Residual: Mtr Correction: Cl2 Corrected	Arrival Temp.	[redacted]		[redacted]
			Site Representative:	Date: Time:	

Rush Report — 10-5-12

E A040992

Envirodyne Laboratories, Inc.
11011 Brooklet, Ste. 230
Houston, Texas 77099-3543
Phone (281)568-7880 - Fax (281)568-8004

Page _____ Of _____

Name: Alsay
Address: 6615 Gant St
City: Houston, TX 77066
Contact: Joe Slavik

Analysis Request and Chain of Custody Record

Phone: 281-444-6960 Fax: 281444-6960

Project No.

Client/Project Conroe 23 SAMPLE 1 3040'-3060'

Lab ID No.	Field Sample No./ Indentification	Date & Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, etc.)	Preservative	ANALYSIS REQUESTED	pH	D.O.	Temp.	Analysis Time
	WELL #23	9-27-12 6:00 AM			1 gal/P	Liquid	ICE	TCEQ Water Pkg,Si, H2S N435548				
	WELL #23	9-27-12 6:00 AM			500 ml/P	Liquid	ICE,HNO3	Metals				
	WELL #23	9-27-12 6 AM			1 gal/P	Liquid	HNO3	Gross alpa,Gross beta,T.U, Ra 226-228				
	WELL #23	9-27-12 6 AM			2-40ml/vials	Liquid		Radon				
	WELL #23	9-27-12 6 AM			2-40ml/vials	Liquid	ICE	VOC				
	WELL #23	9-27-12 6 AM			2-1 lt/amb	Liquid	ICE	SOCs				
	WELL #23	9-27-12 6 AM			1 Lt/amb	Liquid	ICE	Asbestos				
	WELL #23	9-27-12 6 AM			1 Lt/amb		ICE	2,3,7,8-TCDD (Dioxin)				
								N435549 Dissolved				
								Mg Fe As Al Turbidity				

12-031893

Samplers: (Signature)	Relinquished by: (Signature)	Date: 9-27-12 Time: 8:35 AM	Received by: (Signature)	Date: Time:	Seal Intact?
Affiliation	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Seal Intact?
	Relinquished by: (Signature)	Date: Time:	Received by Lab: (Signature)	Date: 9-27-12 Time: 0835	Seal Intact?
Remarks:	FLOW: Meter Reading: Cl2 Residual: Mn Correction: Cl2 Corrected	Arrival Temp. AMB	Data Results To: 1. Site Representative:	Date: Time:	Laboratory No.

02

ENVIRODYNE LABORATORIES, INC. 11011 Brooklet Dr. #230 Houston, Texas 77099

October 25, 2012

Alsay, Inc.
Joe Slavik
6615 Gant
Houston, Texas 77066

Re: **CONROE 23 SAMPLE 2 2410-2390** COC#: **EA040999**

Dear Joe Slavik :

Envirodyne Laboratories, Inc. (ELI) received sample(s) on October 02, 2012 at 08:10 for the analysis enclosed.

The analytical data provided relates only to the sample(s) as received in this laboratory report. ELI certifies that all results are NELAC compliant and performed in accordance with the referenced method. Any exceptions are listed below and/or noted with a qualifier. Any reproductions of this laboratory report should be in full and only with the written authorization from the client.

This report contains a total of 18 pages not including the Chain of Custody.

Thank you for selecting ELI for your analytical needs. If you have questions regarding these results, please contact us at 281-568-7880.

Sincerely,

Laura Bonjonla

Laura Bonjonla
Lab Manager

ACCREDITED IN ACCORDANCE WITH nelac

Certificate No. T104704265-11

ENVIRODYNE LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT:	Conroe (ALSAY, INC.)	LAB NUMBER:	AD44295A Revised
DATE COLLECTED:	02-Oct-12	DATE RECEIVED:	02-Oct-12
DATE COMPLETED:	09-Oct-12	SAMPLED BY:	DS

LOCATION:	WELL 23 2410'-2390' @1200	EPA METHOD #	LIMITS (mg/l)
PARAMETERS:			
pH (Units)	7.93	SM 4500-H B	6.50 - 8.50
TOTAL HARDNESS as CaCO3(mg/l)	34.1	SM 2340 C	N/A
TOTAL ALKALINITY as CaCO3 (mg/l)	708.0	SM 2320 B	N/A
P. ALKALINITY as CaCO3 (mg/l)	<20.0	SM 2320 B	N/A
BICARBONATE (mg/l)	863.0	N/A	N/A
CARBONATE (mg/l)	<1.0	N/A	N/A
TOTAL DISSOLVED SOLIDS (mg/l)	1636.8	SM 2540 C	1,000.0
CONDUCTANCE (umhos/cm)	2640.0	SM 2510 B	N/A
FREE CO2 (mg/l)	>10	N/A	N/A
CORROSIVITY as Caco3 (mg/l)	< 1.0	305.1	Non-corrosive
SILICA (mg/l)	86.00	SM 4500-SiO2 D	N/A
CALCIUM (mg/l)	12.0	200.7	N/A
MAGNESIUM (mg/l)	1.0	200.7	N/A
FOAMING AGENTS (mg/l)	<0.020	N/A	0.5*
COLOR (Units)	<1.0	SM 2120 C	15.0
TURBIDITY (Units)	13.7	SM 2130 B	1.0
CYANIDE (as Free mg/l)	< 0.02	SM 4500-CN E	0.2
SODIUM (mg/l)	689.0	200.7	N/A
POTASSIUM (mg/l)	15.0	200.7	N/A
TOTAL IRON (mg/l)	1.130	200.7	0.30 *
TOTAL MANGANESE (mg/l)	0.049	200.7	0.05 *
TOTAL ZINC (mg/l)	0.009	200.7	5.0 *
TOTAL ANTIMONY (mg/l)	<0.003	200.7	0.006
TOTAL ALUMINUM (mg/l)	0.422	200.7	0.05 - 0.20*
TOTAL ARSENIC (mg/l)	0.007	200.7	0.01
TOTAL BARIUM (mg/l)	0.130	200.7	1.0
TOTAL BERYLLIUM (mg/l)	0.001	200.7	0.004
TOTAL COPPER (mg/l)	0.010	200.7	1.00
TOTAL SILVER (mg/l)	0.001	200.7	0.05
TOTAL NICKEL (mg/l)	0.003	200.7	0.10
TOTAL CADMIUM (mg/l)	0.001	200.7	0.010
TOTAL CHROMIUM (mg/l)	0.005	200.7	0.05
TOTAL LEAD (mg/l)	<0.003	200.7	0.015
TOTAL MERCURY (mg/l)	< 0.0002	245.1	0.002
TOTAL SELENIUM (mg/l)	<0.003	200.7	0.01
TOTAL THALLIUM (mg/l)	<0.002	200.7	0.002
SULFATE (mg/l)	<2.0	ASTM D516-90	300.0 *
CHLORIDE (mg/l)	359.9	SM 4500-Cl B	300.0 *
NITRATE (mg/l)	<0.5	SM 4500-NO3 E	10.0
NITRITE (mg/l)	<0.05	SM 4500-NO2 B	1.00
FLUORIDE (mg/l)	2.36	SM 4500-F C	2.00
ODOR (THRESHOLD #)	< 1.0	N/A	3.0
TEMPERATURE (C/F)	25/77	N/A	N/A
LANGELIER INDEX	+0.17	N/A	N/A

* DENOTES: Secondary Standards (Recommended)

CERTIFIED BY

281 568 7880 TEL • 281 568 8004 FAX • 11011 BROOKLET DR. #230 • HOUSTON, TX 77099-3543 • EU@ENVIRODYNE.COM • WWW.ENVIRODYNE.COM

ENVIRODYNE ELP LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT:	Conroe (Alsay, Inc.)	LAB NUMBER:	AD44295B
DATE COLLECTED:	02-Oct-12	DATE RECEIVED:	02-Oct-12
DATE COMPLETED:	09-Oct-12	SAMPLED BY:	DS

LOCATION: PARAMETERS:	WELL 23 2410'-2390' @ 1200	DETECTION LIMITS (ug/l)
CHLOROMETHANE (ug/l)	1.0 U	1.0
VINYL CHLORIDE (ug/l)	2.0 U	2.0
BROMOMETHANE (ug/l)	1.0 U	1.0
CHLOROETHANE (ug/l)	1.0 U	1.0
TRICHLOROFUOROMETHANE (ug/l)	1.0 U	1.0
1,1-DICHLOROETHENE (ug/l)	1.0 U	1.0
METHYLENE CHLORIDE (ug/l)	1.0 U	1.0
trans-1,2-DICHLOROETHENE (ug/l)	1.0 U	1.0
cis-1,2-DICHLOROETHENE (ug/l)	1.0 U	1.0
1,1-DICHLOROETHANE (ug/l)	1.0 U	1.0
1,1,1-TRICHLOROETHANE (ug/l)	1.0 U	1.0
CHLOROFORM (ug/l)	1.0 U	1.0
CARBON TETRACHLORIDE (ug/l)	1.0 U	1.0
1,2-DICHLOROETHANE (ug/l)	1.0 U	1.0
BENZENE (ug/l)	1.0 U	1.0
TRICHLOROETHENE (ug/l)	1.0 U	1.0
1,2-DICHLOROPROPANE (ug/l)	1.0 U	1.0
BROMODICHLOROMETHANE (ug/l)	1.0 U	1.0
cis-1,3 DICHLOROPROPENE (ug/l)	1.0 U	1.0
TOLUENE (ug/l)	1.0 U	1.0
trans-1,3-DICHLOROPROPENE (ug/l)	1.0 U	1.0
1,1,2-TRICHLOROETHANE (ug/l)	1.0 U	1.0
TETRACHLOROETHENE (ug/l) - (PERC)	1.0 U	1.0
DIBROMOCHLOROMETHANE (ug/l)	1.0 U	1.0
CHLOROBENZENE (ug/l)	1.0 U	1.0
2-CHLOROETHYLVINYL ETHER (ug/l)	5.0 U	5.0
ETHYLBENZENE (ug/l)	1.0 U	1.0
BROMOFORM (ug/l)	1.0 U	1.0
1,1,2,2-TETRACHLOROETHANE (ug/l)	1.0 U	1.0
1,2-DIBROMOETHANE (ug/l)	1.0 U	1.0
XYLENE (ug/l)	1.0 U	1.0
TOTAL TRIHALOMETHANES (ug/l)	1.0 U	1.0
1,2,4-TRICHLOROBENZENE (ug/l)	1.0 U	1.0
DICHLOROMETHANE (ug/l)	1.0 U	1.0
o-DICHLOROBENZENE (ug/l)	1.0 U	1.0
p-DICHLOROBENZENE (ug/l)	1.0 U	1.0

LAB REPRESENTATIVE

Ref. EPA-524 (VOLATILES)
U - Analyte Not Detected at the Listed Detection Limit
J - Analyte Present but Below Detection Limit
Qual: Analyzed by NELAC certified lab T104704231-11

(281) 568-7880 11011 Brooklet Dr. #230, Houston, TX 77099

ENVIRODYNE ELP LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT: Conroe (ALSAY, INC.)

LAB NUMBER: AD44295C

DATE COLLECTED: 02-Oct-12

DATE RECEIVED: 02-Oct-12

DATE COMPLETED: 09-Oct-12

SAMPLED BY: DS

LOCATION: Well #23- 2410'-2390'

PARAMETERS: BNA/Pest.

		Maximum Contaminant Levels (MCLs) in ug/l			Maximum Contaminant Levels (MCLs) in ug/l
ATRAZINE (ug/l)	< 1.0	3.0	Alachlor (ug/l)	< 0.02	2
HEXACHLOROBENZENE (ug/l)	< 1.0	1.0	Heptachlor (ug/l)	< 0.03	0.4
HEXACHLOROCYCLOPENTADIENE (ug/l)	< 10.0	50.0	Heptaclor Epoxide (ug/l)	< 0.20	0.2
BENZO (a) PYRENE (ug/l)	< 0.1	0.2	Gamma-BHC (Lindane) (ug/l)	< 0.03	0.2
PENTACHLOROPHENOL (ug/l)	< 1.0	1.0	Chlordane (ug/l)	< 0.14	2
Di (2-ETHYLHEXYL) PHTHALATE (ug/l)	< 5.0	6.0	Toxaphene (ug/l)	< 2.40	3
Di (2-ETHYLHEXYL) ADIPATE (ug/l)	< 100.0	400.0	Methoxychlor (ug/l)	< 0.50	40
Simazine (ug/l)	< 1.0	4.0	Ethylene dibromide (ug/l)	< 0.01	0.05
Endrin (ug/l)	< 0.06	2.0	Glyphosate (ug/l)	< 0.100	700.0
Carbofuran (ug/l)	< 0.04	40.0	Oxamyl (ug/l)	< 100.0	200.0
Dalapon (ug/l)	< 0.20	200.0	Styrene (ug/l)	< 50.0	100.0
Dibromochloropropane (ug/l)	< 0.1	0.2	Picloram (ug/l)	< 100.0	500.0
Dinoseb (ug/l)	< 1.0	7.0	*2,4,5-TP (SILVEX) (ug/l)	< 4.0	50
Diquat (ug/l)	< 10.0	20.0	*2,4-D (ug/l)	< 10.0	70
Endothall (ug/l)	< 50.0	100.0	Total PCBs (mg/l)	< 0.5	0.5

LAB REPRESENTATIVE

Analyzed by NELAP accredited lab T104704218

Ref. EPA-525.2 (Base/Neutrals & Acids)

U - Analyte Not Detected at the listed Detection Limit

J - Analyte Present but below Detection Limit

(281) 568-7880

11011 Brooklet Dr. #230, Houston, TX 77099

CERTIFICATE OF ANALYSIS

CLIENT:	**Conroe** (ALSAY, INC.)	LAB NUMBER:	AD44296
DATE COLLECTED:	02-Oct-12	DATE RECEIVED:	02-Oct-12
DATE COMPLETED:	11-Oct-12	SAMPLED BY:	DS

LOCATION:	**WELL #23- Dissolved 2410'-2390' @ 1200**	EPA METHOD #	LIMITS (mg/l)
PARAMETERS:			
TURBIDITY (mg/l)	0.28	SM 2130 B	
TOTAL IRON (mg/l)	0.096	200.7	0.30 *
TOTAL MANGANESE (mg/l)	0.037	200.7	0.05 *
TOTAL ALUMINUM (mg/l)	0.025	200.7	0.05 - 0.20*
TOTAL ARSENIC (mg/l)	0.004	200.7	0.01

* DENOTES: Secondary Standards (Recommended)

M Smith
CERTIFIED BY

QA/QC Report for Sample AD44295

Envirodyne Laboratories, Inc.
User: Smith, Monica
Date: 10/25/2012 Time: 09:28:10

Batch: SI-122737	QA Sample: AD44293	SI - Silica
Unspiked	31.5 mg/l	
Batch: TDS-122698	QA Sample: AD44053	TDS - Total Dissolved Solid
Unspiked	200 mg/l	
Blank	<10	
Duplicate	240	
Precision	18.182 %	
Batch: PH_F-122668	QA Sample: AD45231	PH_F - pH, Field
Unspiked	8.71 SU	
Batch: NO2N-122643	QA Sample: AD44295	NO2N - Nitrite nitrogen
Unspiked	<0.05 mg/l	
Blank	<0.05	
Precision	0.00	
Recovery	83	
Batch: ALK-122489	QA Sample: AD44184	ALK - Alkalinity as CaCO3
Unspiked	351.5 mg/L	
Blank	<20.0 mg/L	
Duplicate	364.8 mg/L	
Lab Control	107.3 mg/L	
Precision	3.7 %	
Batch: CL-122487	QA Sample: AD43850	CL - Chloride
Unspiked	94.0 mg/l	
Blank	<1.5 mg/l	
Lab Control	110.0 mg/l	
Precision	0.0 %	
Recovery	83.1 %	
Batch: ZN_I-122457	QA Sample: AD43498	ZN_I - Zinc
Unspiked	3.49 ug/L	
Blank	< 1.0	
Precision	2.5	
Recovery	98.4	
Batch: TL_I-122456	QA Sample: AD43498	TL_I - Thallium
Unspiked	< 3.8 ug/L	
Blank	< 3.8	
Precision	1.5	
Recovery	92.5	
Batch: SE_I-122455	QA Sample: AD43498	SE_I - Selenium
Unspiked	< 3.1 ug/L	
Blank	< 3.1 ug/l	
Precision	2.4 %	
Recovery	102.6 %	
Batch: SB_I-122454	QA Sample: AD43498	SB_I - Antimony
Unspiked	< 2.46 ug/L	
Blank	< 2.46 ug/l	
Precision	2.2 %	
Recovery	102.5 %	
Batch: PB_I-122453	QA Sample: AD43498	PB_I - Lead
Unspiked	< 3.3 ug/L	

QA/QC Report for Sample AD44295 (page 2)

Batch: PB_I-122453	QA Sample: AD43498	PB_I - Lead
Blank	< 3.3	
Precision	2.2	
Recovery	93.1	
Batch: NI_I-122452	QA Sample: AD43498	NI_I - Nickel
Unspiked	2.41 ug/L	
Blank	< 0.57	
Precision	2.3	
Recovery	94.4	
Batch: NA_I-122451	QA Sample: AD43498	NA_I - Sodium
Unspiked	38.37 mg/L	
Blank	< 1.0	
Precision	0.8	
Recovery	112	
Batch: MN_I-122450	QA Sample: AD43498	MN_I - Manganese
Unspiked	27.6 ug/L	
Blank	< 1.0	
Precision	2.3	
Recovery	95.7	
Batch: MG_IHARD-122449	QA Sample: AD43498	MG_IHARD - Magnesium (as CaCO3)
Unspiked	33.41 mg/l	
Batch: MG_I-122448	QA Sample: AD43498	MG_I - Magnesium
Unspiked	8.112 mg/l	
Blank	< 1.0	
Precision	0.4	
Recovery	103.2	
Batch: K_I-122447	QA Sample: AD43498	K_I - Potassium
Unspiked	1.457 mg/L	
Blank	< 1.0	
Precision	0.5	
Recovery	99.6	
Batch: FE_I-122445	QA Sample: AD43498	FE_I - Iron
Unspiked	26.9 ug/L	
Blank	< 1.4	
Precision	3.3	
Recovery	102.5	
Batch: CU_I-122444	QA Sample: AD43498	CU_I - Copper
Unspiked	5.68 ug/L	
Blank	< 1.5 ug/L	
Precision	2.3 %	
Recovery	93.6 %	
Batch: CR_I-122443	QA Sample: AD43498	CR_I - Chromium
Unspiked	1.85 ug/L	
Blank	< 1.0	
Precision	2.5	
Recovery	94.5	
Batch: CD_I-122442	QA Sample: AD43498	CD_I - Cadmium
Unspiked	1.82 ug/L	
Blank	< 1.0	
Precision	2.0	
Recovery	97.7	

QA/QC Report for Sample AD44295 (page 3)

Batch: CA_IHARD-122441	QA Sample: AD43498	CA_IHARD - Calcium (as CaCO3
Unspiked	108.44 mg/L	
Batch: CA_I-122440	QA Sample: AD43498	CA_I - Calcium
Unspiked	43.43 mg/L	
Blank	< 1.0	
Precision	1.0	
Recovery	101.1	
Batch: BE_I-122439	QA Sample: AD43498	BE_I - Beryllium
Unspiked	1.43 ug/L	
Blank	< 1.0	
Precision	1.0	
Recovery	103.0	
Batch: BA_I-122438	QA Sample: AD43498	BA_I - Barium
Unspiked	191 ug/L	
Blank	< 1.0	
Precision	1.7	
Recovery	94.0	
Batch: AS_I-122437	QA Sample: AD43498	AS_I - Arsenic
Unspiked	7.84 ug/L	
Blank	< 3.6	
Precision	2.1	
Recovery	103.4	
Batch: AL_I-122436	QA Sample: AD43498	AL_I - Aluminum
Unspiked	2.45 ug/l	
Blank	< 2.40	
Precision	2.3	
Recovery	77.5	
Batch: AG_I-122435	QA Sample: AD43498	AG_I - Silver
Unspiked	1.84 ug/L	
Blank	< 1.0	
Precision	0.9	
Recovery	100	
Batch: SO4-122433	QA Sample: AD44295	SO4 - Sulfate
Unspiked	<2.0 mg/l	
Blank	<2.0	
Amt Spiked	20.0	
Duplicate	na mg/l	
Lab Control	17.26	
Precision	1.15 %	
Recovery	90.95 %	
Batch: COND-122427	QA Sample: AD43775	COND - Conductivity
Unspiked	860 umhos/cm	
Blank	<10	
Duplicate	860	
Lab Control	180	
Precision	0.000	
Batch: COLOR-122386	QA Sample: AD44293	COLOR - Color
Unspiked	22.24 Units	
Blank	<1.0	
Duplicate	20.72	
Lab Control	38.57	
Precision	7.076	

QA/QC Report for Sample AD44295 (page 4)

Batch: TURB-122381	QA Sample: AD43852	TURB - Turbidity, NTU
Unspiked	0.49 NTU	
Blank	<0.1	
Duplicate	0.46	
Lab Control	20.8	
Precision	6.316	
Batch: NO3N-122287	QA Sample: AD44065	NO3N - Nitrate-N
Unspiked	10.1 mg/l	
Batch: F-122206	QA Sample: AD42924	F - Fluoride
Unspiked	<0.1 mg/L	
Blank	<0.1 mg/l	
Amt Spiked	0.5	
Lab Control	94	
Precision	7.018 %	
Recovery	98	

SUMMIT
ENVIRONMENTAL TECHNOLOGIES, INC.
Analytical Laboratories

October 09, 2012

Client: Envirodyne Laboratories, Inc.
Address: 11011 Brooklet, Ste. 230
Houston, TX 77099

Received: 10/3/2012
Project #: Conroe 23

Client ID#	Lab ID#	Collected	Analyte	Result	Units	Matrix	Method	DF	LOQ	Run	Analyst
12-031901	1223890-01	02-Oct-12	2,3,7,8-TCDD	ND	pg/l	L	1613B	2	1	08-Oct-12	CM

"Analytical Integrity" · EPA Certified · NELAP Certified
3310 Win Street · Cuyahoga Falls, Ohio 44223 • Phone: 330-253-8211 · Fax: 330-253-4489
Web Site: www.settek.com

Summit Environmental Technologies, Inc.
Method 1613
QC Report

Batch ID: 890 **ICAL Date :** 3/22/2011 **Extraction Date:** 10/5/2012

Blank Results: 2,3,7,8-TCDD <1.0pg/l

Parameter	Labeled Compound % Recovery 13C-2,3,7,8-TCDD	Unlabeled Compound % Recovery 2,3,7,8-TCDD	Analysis Date
LCS	48.5	95.2	10/8/2012
LCSD	35.2	125.5	10/8/2012
Acceptance Limits	20 - 175	67 - 158	
CCV	86.2	100.0	10/8/2012
Acceptance Limits	82 - 121	78 - 129	
Blank	72.6		10/8/2012
Acceptance Limits	25 - 164		
Sample			
1223890-01	25.2		10/8/2012
Acceptance Limits	25 - 164		

Summit Environmental Technologies, Inc.
Cooler Receipt Form

Order ID: 1223890 **COOLER**

Client: EnvironDyne

Order ID:

Log in Initials:

Date Received: 10/3/12 Time Received: 1000 Date opened: 10/3/12

Number of Coolers/Boxes: 1 N/A Unpacked by: ACL

Shipper: FED EX UPS DHL Airborne US Postal Walk-in Pickup Other:

Packaging: Peanuts Bubble Wrap Paper Foam None Other:

Tape on cooler/box:	Y	N	N/A
Custody Seals intact	Y	N	N/A
C-O-C in plastic	Y	N	N/A

Coolant: Ice ✓ Blue ice___ Water___ None___ Sample Temperature 1.0 °C

C-O-C filled out properly	Y	N	N/A
Samples in separate bags	Y	N	N/A
Sample containers intact	Y	N	N/A

*If no, list broken sample(s):

Sample label(s) complete (ID, date, etc.)	Y	N	N/A
Label(s) agree with C-O-C	Y	N	N/A
Correct containers used	Y	N	N/A
Sufficient sample received	Y	N	N/A
Samples at correct pH? (list below)	Y	N	NA
Bubbles absent from 40 mL vials**	Y	N	N/A

** Samples with bubbles less than the size of a pea are acceptable.

Client contact: Date/Time:

Comments:

Sample ID	pH	Sample ID	pH

Envirodyne Labo[illegible]ries, Inc.
11011 Brooklet, Ste. 230
Houston, Texas 77099-3543
Phone (281)568-7880 - Fax (281)568-8004

Order ID: 1223890

Analysis Request and Chain of Custody

COC

Name: Alsay
Address: 6615 Gant St
City: Houston, TX 77066
Contact: Joe Slavik
Phone: 281-444-6960 Fax: 281444-6960

Project No.

Client/Project Conroe #23 (Sample #2)

Lab ID No.	Field Sample No./ Indentification	Date & Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, etc.)	Preservative	ANALYSIS REQUESTED	pH	D.O.	Temp.	Analysis Time
1	031901 24/0/2390	10/2/12 1200 Am	✓		1L/Amb	Liquid	Ice	2,3,7,8-TCDD (Dioxin)				

1223890-01

Samplers: (Signature)	Relinquished by: (Signature)	Date: 10/2/12 Time: 1600	Received by: (Signature)	Date: Time:	Seal Intact?
Affiliation	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Seal Intact?
	Relinquished by: (Signature)	Date: Time:	Received by Lab: (Signature)	Date: Time:	Seal Intact?
Remarks: Rush to. Direct Bill Client CC: EDI with Report	FLOW: Meter Reading: Cl2 Residual: Mn Correction: Cl2 Corrected	Arrival Temp.	Date Received: Site Representative:	Date: Time:	Laboratory No.

— 7 Day Rush —

From:

10/10/2012 12:43 #844 P.001/007

SUMMIT
ENVIRONMENTAL TECHNOLOGIES, INC.
Analytical Laboratories

2

Sample Summary

Client: Envirodyne Laboratories, Inc.
Order Number: 1223890

Laboratory ID	Client ID	Matrix	Sampling Date
1223890-01	12-031901	Liquid	10/2/2012

SUMMIT
ENVIRONMENTAL TECHNOLOGIES, INC.
Analytical Laboratories

Report Narrative

Client: Envirodyne Laboratories, Inc.
Order Number: 1223890

No problems were encountered during analysis of this order number, except as noted.

Data Qualifiers:
B = Analyte found in the method blank
J = Estimated concentration of analyte between MDL (LOD) and Reporting Limit (LOQ)
C = Analyte has been confirmed by another instrument or method
E = Analyte exceeds the upper limit of the calibration curve.
D = Sample or extract was analyzed at a higher dilution
X = User defined data qualifier.
S = Surrogate out of control limits
U = Undetected
a = Not Accredited by NELAC

ND = Non Detected at LOQ
DF = Dilution Factor

Limit Of Quantitation (LOQ) = Laboratory Reporting Limit (not adjusted for dilution factor)
Limit Of Detection (LOD) = Laboratory Detection Limit

Matrices:
A = Air
C = Cream
DW = Drinking Water
L = Liquid
O = Oil
SL = Sludge
SO = Soil
S = Solid
T = Tablet
TC = TCLP Extract
WW = Waste Water
W = Wipe

Estimated uncertainty values are available upon request.

The test results meet the requirements of the NELAC standard, except where noted. The information contained in this analytical report is the sole property of Summit Environmental Technologies, Inc. and that of the client. It cannot be reproduced in any form without the consent of Summit Environmental Technologies, Inc. or the client for which this report was issued. The results contained in this report are only representative of the samples received. Conditions can vary at different times and at different sampling conditions. Summit Environmental Technologies, Inc. is not responsible for use or interpretation of the data included herein.

SUMMIT
ENVIRONMENTAL TECHNOLOGIES, INC.
Analytical Laboratories

LABORATORY REPORT

Client
Envirodyne Laboratories, Inc.
11011 Brooklet, Ste. 230
Houston, TX 77099

Order Number
1223890

Project Number
Conroe 23

Issued
Tuesday, October 09, 2012

Total Number of Pages
4 (excluding C.O.C. and cooler receipt form)

Approved By : _____
QA Manager

Certifications: A2LA/DOD 0724.01, Alabama 41600, Arkansas 88-0735, California 07256CA, Colorado, Connecticut PH-0105, Delaware, Florida NELAC E87688, Georgia E87688 and 943, Idaho OH00923, Illinois 200061 and Reg.5, Indiana C-OH-13, Kansas E-10347, Kentucky (underground Storage Tank) 3, Kentucky 90146, Louisiana 04061 and LA12004, Maine 2012015, Maryland 339, Massachusetts M-OPH923, Michigan (Reg.5), Minnesota 409711, Montana CERT0099, New Hampshire 2996, New Jersey OH006, New York 11777, North Carolina 39705 and 631, Ohio 4170, Ohio VAP CL0052, Oklahoma 9940, Oregon OH200001, Pennsylvania 68-01335, Rhode Island LA000317, South Carolina 92016001, Tennessee TN04018, Texas T104704466-11-5, Region 5 WG-15J, Region 8 8TMS-L, USDA/APHIS P330-11-00244, Utah OH009232011-1, Vermont VT-87688, Virginia 00440 and 1581, Washington C891, West Virginia 248 and 9957C and E87688, Wisconsin 399013010

DOH Certification #E84025
DEP COMPQAP # 870251

KNL LABORATORY SERVICES
2742 N. Florida Ave.
P.O. Box 1833
Tampa, Florida 33601
(813) 229-2879
Fax (813) 229-0002

Report Date: October 8, 2012

Envirodyne Laboratories, Inc.
11011 Brooklet, Ste 230
Houston, TX 77099-3543

Field Custody: Client
Client/Field ID: Alsay
Conroe #23(sample#2)
12-031901
Sample Collection: 10-2-12/1200
Lab ID No: 12.8045
Lab Custody Date: 10-3-12/1005
Sample description: Water

CERTIFICATE OF ANALYSIS

Parameter	Units	Results	Analysis Date	Method	Detection Limit
Gross Alpha	pCi/l	5.2 ± 0.8	10-08-12/0800	EPA 00-02	0.4
Gross Beta	pCi/l	13.4 ± 1.6	10-04-12/0800	EPA 900.0	2.3
Radium-226	pCi/l	1.9 ± 0.7	10-05-12/1110	EPA 903.0	0.5
Radium-228	pCi/l	0.4 ± 0.7	10-07-12/1010	EPA Ra-05	1.0
Uranium	pCi/l	0.0 ± 0.3	10-06-12/1510	EPA 908.0	0.5
Uranium	ug/l	0.0 ± 0.4	Calc.	EPA 908.0	0.7
Radon-222	pCi/l	189 ± 10	10-03-12/1418	*	5.0

Alpha Standard: Th-230
Beta Standard: Cs-137

*EPA/600/2-87/082 appendix D

James W Hayes

James W. Hayes
Laboratory Manager

Test results meet all requirements of the NELAC standards.
Contact person: Jim Hayes (813) 229-2879.

11011 Brooklet, Ste. 230
Houston, Texas 77099-3543
Phone (281)568-7880 - Fax (281)568-8004

Page _____ Of _____

Analysis Request and Chain of Custody Record

Name: Alsay
Address: 6615 Gant St
City: Houston, TX 77066
Contact: Joe Slavik
Phone: 281-444-6960 Fax: 281444-6960

Project No.
Client/Project: JONROE #23 (Sample #2)

Lab ID No.	Field Sample No./ Indentification	Date & Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, etc.)	Preservative	ANALYSIS REQUESTED	pH	D.O.	Temp.	Analysis Time
1	03190 / 2410 / 2390	10/2/12 1200	X		1Gal/P	Liquid	HNO3	Gross alpa,Gross beta,T.U, Ra 226-228				
								Radon				
								EPA 903 + BETA				

12.8045

Samplers: (Signature)	Relinquished by: (Signature)	Date/Time: 10/2/12 1600	Received by: (Signature) S Fowler	Date: 10-3-12 Time: 1005	Seal Intact?
Affiliation	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Seal Intact?
	Relinquished by: (Signature)	Date: Time:	Received by Lab (Signature)	Date: Time:	Seal Intact?
Remarks: JOB TO: KM DIRECT BILL CLIENT	FLOW: Meter Reading: Cl2 Residual: Mn Correction: Cl2 Corrected	Arrival Temp.	Date Results to		Laboratory No.
			Site Representative:	Date: Time:	

CC: ERI with REPORT — 7 DAY RUSH —

Envirodyne La. ratories, Inc.
11011 Brooklet, Ste. 230
Houston, Texas 77099-3543
Phone (281)568-7880 - Fax (281)568-8004

E A040999

Page _____ Of _____

Analysis Request and Chain of Custody Record

Name:
Address:
City:
Contact: Alsay Inc

Phone: 281-444-6960 Fax: 281-444-7081

Project No.

Client/Project Cowroe #23

Lab ID No.	Field Sample No./ Indentification	Date & Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, etc.)	Preservative	ANALYSIS REQUESTED	pH	D.O.	Temp.	Analysis Time
12-031901	Sample #2 2410-2390	10-2-12 12:00AM	X		1 Gal	LIQ		AD44295 TCEQ WATER PACKAGE				
					1 Gal			Radio Chem				
					40 ml vial			RADON				
					40 ml vial			VOC				
					1 L AMBER			DIOXIN				
					1 L AMBER			ASBESTOS				
					250 ml			metals				
12-231901	Dissolved metals	10-2-12 12:00AM	X		250 ml	LIQ		AD44296 metals				

Samplers: (Signature)	Relinquished by: (Signature) Del Shockley	Date: 10-2-12 Time: 8:05 AM	Received by: (Signature)	Date: Time:	Seal Intact?
Affiliation	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Seal Intact?
	Relinquished by: (Signature)	Date: Time:	Received by Lab: (Signature)	Date: 10-2-12 Time: 8:10	Seal Intact?
Remarks: *RUSH*	FLOW: _____ Meter Reading: _____ Cl_2 Residual: _____ Mn Correction: _____ Cl_2 Corrected _____	Arrival Temp. 10°	Data Results To: 1. Site Representative:	Date: Time:	Laboratory No.

03

ENVIRODYNE LABORATORIES, INC. 11011 Brooklet Dr. #230 Houston, Texas 77099

October 25, 2012

Alsay, Inc.
Joe Slavik
6615 Gant
Houston, Texas 77066

Re: **CONROE 23- 2234'-2214** COC#: **EA042492**

Dear Joe Slavik :

Envirodyne Laboratories, Inc. (ELI) received sample(s) on October 09, 2012 at 16:45 for the analysis enclosed.

The analytical data provided relates only to the sample(s) as received in this laboratory report. ELI certifies that all results are NELAC compliant and performed in accordance with the referenced method. Any exceptions are listed below and/or noted with a qualifier. Any reproductions of this laboratory report should be in full and only with the written authorization from the client.

This report contains a total of 13 pages not including the Chain of Custody.

Thank you for selecting ELI for your analytical needs. If you have questions regarding these results, please contact us at 281-568-7880.

Sincerely,

Laura Bonjonia

Laura Bonjonia
Lab Manager

ACCREDITED IN ACCORDANCE WITH nelac

Certificate No. T104704265-11

ifiers:ND - Not Detected at the Reporting Limit
L - Analzyed by third party laboratory
Q - QC did not meet ELI acceptance criteria
J - Analyte detected below quantitation limits
A - Analyte not available for NELAC accreditation
N - Not accredited for this analyte
E - Result above quantitation range
H - Hold time exceeded
* - Refer to sample comments

ENVIRODYNE LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT:	Conroe (ALSAY, INC.)	LAB NUMBER:	AD45623
DATE COLLECTED:	09-Oct-12	DATE RECEIVED:	09-Oct-12
DATE COMPLETED:	18-Oct-12	SAMPLED BY:	DS

LOCATION:	WELL 23 2234'-2214' @1538		
PARAMETERS:		EPA METHOD #	LIMITS (mg/l)
pH (Units)	7.62	SM 4500-H B	6.50 - 8.50
TOTAL HARDNESS as CaCO3(mg/l)	40.1	SM 2340 C	N/A
TOTAL ALKALINITY as CaCO3 (mg/l)	712.5	SM 2320 B	N/A
P. ALKALINITY as CaCO3 (mg/l)	<20.0	SM 2320 B	N/A
BICARBONATE (mg/l)	868.8	N/A	N/A
CARBONATE (mg/l)	<1.0	N/A	N/A
TOTAL DISSOLVED SOLIDS (mg/l)	1562.1	SM 2540 C	1,000.0
CONDUCTANCE (umhos/cm)	2520.0	SM 2510 B	N/A
FREE CO2 (mg/l)	>10	N/A	N/A
CORROSIVITY as Caco3 (mg/l)	< 1.0	305.1	Non-corrosive
SILICA (mg/l)	68.50	SM 4500-SIO2 D	N/A
CALCIUM (mg/l)	14.5	200.7	N/A
MAGNESIUM (mg/l)	<1.0	200.7	N/A
FOAMING AGENTS (mg/l)	<0.020	N/A	0.5*
COLOR (Units)	4.8	SM 2120 C	15.0
TURBIDITY (Units)	14.5	SM 2130 B	1.0
CYANIDE (as Free mg/l)	< 0.02	SM 4500-CN E	0.2
SODIUM (mg/l)	599.5	200.7	N/A
POTASSIUM (mg/l)	14.1	200.7	N/A
TOTAL IRON (mg/l)	1.090	200.7	0.30 *
TOTAL MANGANESE (mg/l)	0.057	200.7	0.05 *
TOTAL ZINC (mg/l)	0.001	200.7	5.0 *
TOTAL ANTIMONY (mg/l)	<0.003	200.7	0.006
TOTAL ALUMINUM (mg/l)	0.756	200.7	0.05 - 0.20*
TOTAL ARSENIC (mg/l)	0.004	200.7	0.01
TOTAL BARIUM (mg/l)	0.177	200.7	1.0
TOTAL BERYLLIUM (mg/l)	<0.001	200.7	0.004
TOTAL COPPER (mg/l)	0.005	200.7	1.00
TOTAL SILVER (mg/l)	<0.001	200.7	0.05
TOTAL NICKEL (mg/l)	0.002	200.7	0.10
TOTAL CADMIUM (mg/l)	<0.001	200.7	0.010
TOTAL CHROMIUM (mg/l)	0.005	200.7	0.05
TOTAL LEAD (mg/l)	<0.003	200.7	0.015
TOTAL MERCURY (mg/l)	< 0.0002	245.1	0.002
TOTAL SELENIUM (mg/l)	<0.003	200.7	0.01
TOTAL THALLIUM (mg/l)	<0.002	200.7	0.002
SULFATE (mg/l)	<2.0	ASTM D516-90	300.0 *
CHLORIDE (mg/l)	407.9	SM 4500-Cl B	300.0 *
NITRATE (mg/l)	<0.5	SM 4500-NO3 E	10.0
NITRITE (mg/l)	<0.05	SM 4500-NO2 B	1.00
FLUORIDE (mg/l)	1.15	SM 4500-F C	2.00
ODOR (THRESHOLD #)	< 1.0	N/A	3.0
TEMPERATURE (C/F)	25/77	N/A	N/A
LANGELIER INDEX	+0.06	N/A	N/A

* DENOTES: Secondary Standards (Recommended)

CERTIFIED BY

281 568 7880 TEL • 281 568 8004 FAX • 11011 BROOKLET DR. #230 • HOUSTON, TX 77099-3543 • EL@ENVIRODYNE.COM • WWW.ENVIRODYNE.COM

CERTIFICATE OF ANALYSIS

CLIENT:	**Conroe** (ALSAY, INC.)	LAB NUMBER:	AD45624
DATE COLLECTED:	09-Oct-12	DATE RECEIVED:	09-Oct-12
DATE COMPLETED:	18-Oct-12	SAMPLED BY:	DS

LOCATION:	**WELL #23- Dissolved 2234'-2214 @ 1538**	EPA METHOD #	LIMITS (mg/l)
PARAMETERS:			
TURBIDITY (mg/l)	0.32	SM 2130 B	
TOTAL IRON (mg/l)	0.084	200.7	0.30 *
TOTAL MANGANESE (mg/l)	0.046	200.7	0.05 *
TOTAL ALUMINUM (mg/l)	0.013	200.7	0.05 - 0.20*
TOTAL ARSENIC (mg/l)	0.003	200.7	0.01

* DENOTES: Secondary Standards (Recommended)

M Smith
CERTIFIED BY

ENVIRODYNE ELP LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT:	Conroe (Alsay, Inc.)	LAB NUMBER:	AD45623B
DATE COLLECTED:	09-Oct-12	DATE RECEIVED:	09-Oct-12
DATE COMPLETED:	18-Oct-12	SAMPLED BY:	DS

LOCATION: PARAMETERS:	WELL 23 2234'-2214' @ 1538	DETECTION LIMITS (ug/l)
CHLOROMETHANE (ug/l)	1.0 U	1.0
VINYL CHLORIDE (ug/l)	2.0 U	2.0
BROMOMETHANE (ug/l)	1.0 U	1.0
CHLOROETHANE (ug/l)	1.0 U	1.0
TRICHLOROFUOROMETHANE (ug/l)	1.0 U	1.0
1,1-DICHLOROETHENE (ug/l)	1.0 U	1.0
METHYLENE CHLORIDE (ug/l)	1.0 U	1.0
trans-1,2-DICHLOROETHENE (ug/l)	1.0 U	1.0
cis-1,2-DICHLOROETHENE (ug/l)	1.0 U	1.0
1,1-DICHLOROETHANE (ug/l)	1.0 U	1.0
1,1,1-TRICHLOROETHANE (ug/l)	1.0 U	1.0
CHLOROFORM (ug/l)	1.0 U	1.0
CARBON TETRACHLORIDE (ug/l)	1.0 U	1.0
1,2-DICHLOROETHANE (ug/l)	1.0 U	1.0
BENZENE (ug/l)	1.0 U	1.0
TRICHLOROETHENE (ug/l)	1.0 U	1.0
1,2-DICHLOROPROPANE (ug/l)	1.0 U	1.0
BROMODICHLOROMETHANE (ug/l)	1.0 U	1.0
cis-1,3 DICHLOROPROPENE (ug/l)	1.0 U	1.0
TOLUENE (ug/l)	1.0 U	1.0
trans-1,3-DICHLOROPROPENE (ug/l)	1.0 U	1.0
1,1,2-TRICHLOROETHANE (ug/l)	1.0 U	1.0
TETRACHLOROETHENE (ug/l) - (PERC)	1.0 U	1.0
DIBROMOCHLOROMETHANE (ug/l)	1.0 U	1.0
CHLOROBENZENE (ug/l)	1.0 U	1.0
2-CHLOROETHYLVINYL ETHER (ug/l)	5.0 U	5.0
ETHYLBENZENE (ug/l)	1.0 U	1.0
BROMOFORM (ug/l)	1.0 U	1.0
1,1,2,2-TETRACHLOROETHANE (ug/l)	1.0 U	1.0
1,2-DIBROMOETHANE (ug/l)	1.0 U	1.0
XYLENE (ug/l)	1.0 U	1.0
TOTAL TRIHALOMETHANES (ug/l)	1.0 U	1.0
1,2,4-TRICHLOROBENZENE (ug/l)	1.0 U	1.0
DICHLOROMETHANE (ug/l)	1.0 U	1.0
o-DICHLOROBENZENE (ug/l)	1.0 U	1.0
p-DICHLOROBENZENE (ug/l)	1.0 U	1.0

LAB REPRESENTATIVE

Ref. EPA-524 (VOLATILES)
U - Analyte Not Detected at the Listed Detection Limit
J - Analyte Present but Below Detection Limit
Qual: Analyzed by NELAC certified lab T104704231-11

(281) 568-7880 11011 Brooklet Dr. #230, Houston, TX 77099

ENVIRODYNE LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT: Conroe (ALSAY, INC.)

LAB NUMBER: A045623C

DATE COLLECTED: 09-Oct-12

DATE RECEIVED: 09-Oct-12

DATE COMPLETED: 18-Oct-12

SAMPLED BY: DS

LOCATION: Well #23- 2234'-2214'

PARAMETERS: BNA/Pest.		Maximum Contaminant Levels (MCLs) in ug/l			Maximum Contaminant Levels (MCLs) in ug/l
ATRAZINE (ug/l)	< 1.0	3.0	Alachlor (ug/l)	< 0.02	2
HEXACHLOROBENZENE (ug/l)	< 1.0	1.0	Heptachlor (ug/l)	< 0.03	0.4
HEXACHLOROCYCLOPENTADIENE (ug/l)	< 10.0	50.0	Heptacior Epoxide (ug/l)	< 0.20	0.2
BENZO (a) PYRENE (ug/l)	< 0.1	0.2	Gamma-BHC (Lindane) (ug/l)	< 0.03	0.2
PENTACHLOROPHENOL (ug/l)	< 1.0	1.0	Chlordane (ug/l)	< 0.14	2
Di (2-ETHYLHEXYL) PHTHALATE (ug/l)	< 5.0	6.0	Toxaphene (ug/l)	< 2.40	3
Di (2-ETHYLHEXYL) ADIPATE (ug/l)	< 100.0	400.0	Methoxychlor (ug/l)	< 0.50	40
Simazine (ug/l)	< 1.0	4.0	Ethylene dibromide (ug/l)	< 0.01	0.05
Endrin (ug/l)	< 0.06	2.0	Glyphosate (ug/l)	< 0.100	700.0
Carbofuran (ug/l)	< 0.04	40.0	Oxamyl (ug/l)	< 100.0	200.0
Dalapon (ug/l)	< 0.20	200.0	Styrene (ug/l)	< 50.0	100.0
Dibromochloropropane (ug/l)	< 0.1	0.2	Picloram (ug/l)	< 100.0	500.0
Dinoseb (ug/l)	< 1.0	7.0	*2,4,5-TP (SILVEX) (ug/l)	< 4.0	50
Diquat (ug/l)	< 10.0	20.0	*2,4-D (ug/l)	< 10.0	70
Endothell (ug/l)	< 50.0	100.0	Total PCBs (mg/l)	< 0.5	0.5

M Smith

LAB REPRESENTATIVE

Analyzed by NELAP accredited lab T104704218

Ref. EPA-525.2 (Base/Neutrals & Acids)

U - Analyte Not Detected at the listed Detection Limit

J - Analyte Present but below Detection Limit

(281) 588-7880

11011 Brooklet Dr. #230, Houston, TX 77099

QA/QC Report for Sample AD45623

Envirodyne Laboratories, Inc.
User: Smith, Monica
Date: 10/25/2012 Time: 09:35:44

Batch: NO2N-123178	QA Sample: AD45623	NO2N - Nitrite nitrogen
Unspiked	<0.05 mg/l	
Blank	<0.05	
Precision	2.27	
Recovery	87	
Batch: COLOR-123104	QA Sample: AD45585	COLOR - Color
Unspiked	<1.0 Units	
Blank	<1.0	
Duplicate	<1.0	
Lab Control	36.79	
Precision	0.0	
Batch: TURB-123101	QA Sample: AD45623	TURB - Turbidity, NTU
Unspiked	14.5 NTU	
Blank	<0.1	
Duplicate	13.0	
Lab Control	21.6	
Precision	10.909	
Batch: COND-123076	QA Sample: AD45231	COND - Conductivity
Unspiked	330 umhos/cm	
Blank	<10	
Duplicate	330	
Lab Control	190	
Precision	0.000	
Batch: CL-122905	QA Sample: AD45300	CL - Chloride
Unspiked	116.0 mg/l	
Blank	<1.5 mg/l	
Lab Control	110.0 mg/l	
Precision	0.9 %	
Recovery	83.0 %	
Batch: ALK-122902	QA Sample: AD45744	ALK - Alkalinity as CaCO3
Unspiked	134.9 mg/L	
Blank	<20.0 mg/L	
Duplicate	137.8 mg/L	
Lab Control	103.5 mg/L	
Precision	2.1 %	
Recovery	n/a %	
Batch: F-122891	QA Sample: AD45585	F - Fluoride
Unspiked	0.31 mg/L	
Blank	<0.1 mg/l	
Amt Spiked	0.5	
Lab Control	92	
Precision	2.439 %	
Recovery	104.000	
Batch: ZN_I-122832	QA Sample: AD45585	ZN_I - Zinc
Unspiked	2.50 ug/L	
Blank	< 1.5	
Precision	2.4	
Recovery	100.5	
Batch: TL_I-122831	QA Sample: AD45585	TL_I - Thallium
Unspiked	< 3.8 ug/L	

QA/QC Report for Sample AD45623 (page 2)

Batch: TL_I-122831	QA Sample: AD45585	TL_I - Thallium
Blank	< 3.8	
Precision	0.0	
Recovery	95.9	
Batch: SE_I-122830	QA Sample: AD45585	SE_I - Selenium
Unspiked	< 3.1 ug/L	
Blank	< 3.1 ug/l	
Precision	0.0 %	
Recovery	106.1 %	
Batch: SB_I-122829	QA Sample: AD45585	SB_I - Antimony
Unspiked	< 2.46 ug/L	
Blank	< 2.46 ug/l	
Precision	0.7 %	
Recovery	103.6 %	
Batch: PB_I-122828	QA Sample: AD45585	PB_I - Lead
Unspiked	< 3.3 ug/L	
Blank	< 3.3	
Precision	0.3	
Recovery	98.6	
Batch: NI_I-122827	QA Sample: AD45585	NI_I - Nickel
Unspiked	1.52 ug/L	
Blank	< 0.57	
Precision	0.7	
Recovery	97.1	
Batch: NA_I-122826	QA Sample: AD45585	NA_I - Sodium
Unspiked	38.25 mg/L	
Blank	< 1.0	
Precision	0.1	
Recovery	96.8	
Batch: MN_I-122825	QA Sample: AD45585	MN_I - Manganese
Unspiked	52.1 ug/L	
Blank	< 1.0	
Precision	0.9	
Recovery	95.8	
Batch: MG_IHARD-122824	QA Sample: AD45585	MG_IHARD - Magnesium (as CaCO3)
Unspiked	51.31 mg/l	
Batch: MG_I-122823	QA Sample: AD45585	MG_I - Magnesium
Unspiked	12.46 mg/l	
Blank	< 1.0	
Precision	0.3	
Recovery	101.3	
Batch: K_I-122822	QA Sample: AD45585	K_I - Potassium
Unspiked	1.31 mg/L	
Blank	< 1.0	
Precision	0.1	
Recovery	106.6	
Batch: FE_I-122821	QA Sample: AD45585	FE_I - Iron
Unspiked	101 ug/L	
Blank	< 1.4	
Precision	1.7	
Recovery	95.8	

QA/QC Report for Sample AD45623 (page 3)

Batch: CR_I-122819	QA Sample: AD45585	CR_I - Chromium
Unspiked	< 1.0 ug/L	
Blank	< 1.0	
Precision	1.4	
Recovery	94.5	
Batch: CD_I-122818	QA Sample: AD45585	CD_I - Cadmium
Unspiked	< 1.0 ug/L	
Blank	< 1.0	
Precision	0.3	
Recovery	100.1	
Batch: CA_IHARD-122817	QA Sample: AD45585	CA_IHARD - Calcium (as CaCO3
Unspiked	143.68 mg/L	
Batch: CA_I-122816	QA Sample: AD45585	CA_I - Calcium
Unspiked	57.54 mg/L	
Blank	< 1.0	
Precision	0.4	
Recovery	96.0	
Batch: BE_I-122815	QA Sample: AD45585	BE_I - Beryllium
Unspiked	< 1.0 ug/L	
Blank	< 1.0	
Precision	1.5	
Recovery	100.9	
Batch: BA_I-122814	QA Sample: AD45585	BA_I - Barium
Unspiked	173 ug/L	
Blank	< 1.0	
Precision	1.9	
Recovery	92.9	
Batch: AS_I-122813	QA Sample: AD45585	AS_I - Arsenic
Unspiked	< 3.6 ug/L	
Blank	< 3.6	
Precision	1.0	
Recovery	104.9	
Batch: AL_I-122812	QA Sample: AD45585	AL_I - Aluminum
Unspiked	< 2.44 ug/l	
Blank	< 2.44	
Precision	2.6	
Recovery	84.8	
Batch: AG_I-122811	QA Sample: AD45585	AG_I - Silver
Unspiked	< 1.0 ug/L	
Blank	< 1.0	
Precision	1.1	
Recovery	101.0	
Batch: SO4-122800	QA Sample: AD45231	SO4 - Sulfate
Unspiked	21.8 mg/l	
Blank	<2.0	
Amt Spiked	20.0	
Duplicate	na mg/l	
Lab Control	19.20	
Precision	4.57 %	
Recovery	83.400 %	
Batch: TDS-122798	QA Sample: AD44896	TDS - Total Dissolved Solid
Unspiked	704 mg/l	

QA/QC Report for Sample AD45623 (page 4)

Batch: TDS-122798	QA Sample: AD44896	TDS - Total Dissolved Solid
Blank	<10	
Duplicate	712	
Precision	1.130 %	
Batch: NO3N-122776	QA Sample: AD45707	NO3N - Nitrate-N
Unspiked	3.96 mg/l	
Blank	<0.5	
Amt Spiked	25	
Lab Control	104.8 mg/l	
Precision	1.15	
Recovery	100.8	
Batch: SI-122737	QA Sample: AD44293	SI - Silica
Unspiked	31.5 mg/l	

DOH Certification #E84025
DEP COMPQAP # 870251

KNL LABORATORY SERVICES
2742 N. Florida Ave.
P.O. Box 1833
Tampa, Florida 33601
(813) 229-2879
Fax (813) 229-0002

Report Date: October 15, 2012

Envirodyne Laboratories, Inc.
11011 Brooklet, Ste 230
Houston, TX 77099-3543

Field Custody:	Client
Client/Field ID:	Alsay Conroe 23 12-032468
Sample Collection:	10-07-12/1538
Lab ID No:	12.8221
Lab Custody Date:	10-10-12/1045
Sample description:	Water

CERTIFICATE OF ANALYSIS

Parameter	Units	Results	Analysis Date	Method	Detection Limit
Gross Alpha	pCi/l	3.3 ± 0.3	10-15-12/1000	EPA 00-02	0.4
Gross Beta	pCi/l	16.8 ± 2.8	10-11-12/0800	EPA 900.0	4.6
Radium-226	pCi/l	2.8 ± 0.7	10-12-12/1355	EPA 903.0	0.5
Radium-228	pCi/l	0.6 ± 0.7	10-14-12/1030	EPA Ra-05	1.0
Uranium	pCi/l	3.1 ± 1.3	10-14-12/1050	EPA 908.0	1.1
Uranium	ug/l	4.6 ± 1.9	Calc.	EPA 908.0	1.6
Radon-222	pCi/l	980 ± 29	10-10-12/1512	*	3.6

Alpha Standard: Th-230
Beta Standard: Cs-137

*EPA/600/2-87/082 appendix D

James W Hayes

James W. Hayes
Laboratory Manager

Test results meet all requirements of the NELAC standards.
Contact person: Jim Hayes (813) 229-2879.

Envirodyne Laboratories, Inc.
11011 Brooklet, Ste. 230
Houston, Texas 77099-3543
Phone (281)568-7880 - Fax (281)568-8004

E A042544

Page _____ Of _____

Name: Alsay
Address: 6615 Gant St
City: Houston, TX 77066
Contact: Joe Slavik

Analysis Request and Chain of Custody Record

Phone: 281-444-6960 Fax: 281444-6960

Project No.

Client/Project CONRUE 23

Lab ID No.	Field Sample No./ Indentification	Date & Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, etc)	Preservative	ANALYSIS REQUESTED	pH	D.O.	Temp.	Analysis Time
	Del Shockley WELL 2-032468	10/9/12 1530	/		1 gal/P	Liquid	HNO3	Gross alpa,Gross beta,T.U, Ra 226-228				
	WELL	/	/		-40ml/vials	Liquid		Radon				

12.8221

EPA CU-02

Samplers: (Signature)	Relinquished by: (Signature)	Date: 10/9/12 Time: 1600	Received by: (Signature)	Date: Time:	Seal Intact?
Affiliation	Relinquished by: (Signature)	Date: Time:	Received by: (Signature) S Fowler	Date: 10-10-12 Time: 1045	Seal Intact?
	Relinquished by: (Signature)	Date: Time:	Received by Lab (Signature)	Date: Time:	Seal Intact?
Remarks: Sub to: KM Direct Bill Client	FLOW: _____ Meter Reading: _____ Cl_2 Residual: _____ Mn Correction: _____ O_2 Corrected	Arrival Temp.	Data Results To:		Laboratory No.
			Site Representative:	Date: Time:	

EMSL Analytical, Inc.
8700 Jameel Road, Suite 190 Houston, TX 77040
Phone/Fax: (713) 686-3635 / (713) 686-3645
http://www.emsl.com / houstonlab@emsl.com

EMSL Order ID: 151205263
Customer ID: ENDY62
Customer PO:
Project ID:

Attn: Joe Slavik
Envirodyne Laboratories, Inc.
11011 Brooklet
Suite 230
Houston, TX 77099

Phone: (281) 568-7880
Fax: (281) 568-8004
Collected: 10/09/2012
Received: 10/10/2012
Analyzed: 10/17/2012

Proj: Conroe-23

Test Report: Determination of Asbestos Structures >10µm in Drinking Water Performed by the 100.2 Method (EPA 600/R-94/134)

Sample ID Client / EMSL	Sample Filtration Date/Time	Original Sample Vol. Filtered (ml)	Effective Filter Area (mm²)	Area Analyzed (mm²)	ASBESTOS Asbestos Types	Fibers Detected	Analytical Sensitivity	Concentration	Confidence Limits
							MFL (million fibers per liter)		
Dell Shockley Well 12-03; 151205263-0001	10/10/2012 02:45 PM	50	1298	0.1375	None Detected	ND	0.19	<0.19	0.00 - 0.70

Analyst(s)
Jason Mote (1)

Michelle Leggett, Laboratory Manager
or Other Approved Signatory

Any questions please contact Michelle Leggett.

Initial report from: 10/17/2012 17:51:59

Sample collection and containers provided by the client, acceptable bottle blank level is defined as ≤0.01MFL>10um. ND=None Detected. This report relates only to those items tested.Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical, Inc. Houston, TX NELAC TX T104704379-11-4

151205263

E A042545

Envirodyne Laboratories, Inc.
11011 Brooklet, Ste. 230
Houston, Texas 77099-3543
Phone (281)568-7880 - Fax (281)568-8004

Page _____ Of _____

Analysis Request and Chain of Custody Record

Name: Alsay
Address: 6615 Gant St
City: Houston, TX 77066
Contact: Joe Slavik
Phone: 281-444-6960 Fax: 281444-6960

Project No.
Client/Project CONROE 23

Lab ID No.	Field Sample No./ Indentification	Date & Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, etc.)	Preservative	ANALYSIS REQUESTED	pH	D.O.	Temp.	Analysis Time
	Del Shackley WELL 12-032468	10/9/12 1538	/		1 Lt/amb	Liquid	Ice	Asbestos			9.8°C	

Samplers: (Signature)	Relinquished by: (Signature)	Date: 10/9/12 Time: 1600	Received by (Signature)	Date: 10/10/12 Time: 1209	Seal Intact?
Affiliation	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Seal Intact?
	Relinquished by: (Signature)	Date: Time:	Received by Lab: (Signature)	Date: Time:	Seal Intact?
Remarks: Sub to: EMSL DIRECT BILL Client CC: ELI WITH REPORT	FLOW: Meter Reading: Cl₂ Residual: Mn Correction: Cr Corrected	Arrival Temp.	Data Results To: Site Representative:	Date: Time:	Laboratory No.

— 7 DAY RUSH —

151205263

Envirodyne Laboratories, Inc.
11011 Brooklet, Ste. 230
Houston, Texas 77099-3543
Phone (281)568-7880 - Fax (281)568-8004

E A042492

Page _____ Of _____

Analysis Request and Chain of Custody Record

Name:
Address:
City:
Contact: Alsay Inc
Phone: 281-444-6960 Fax: 281-444-7081
Project No.
Client/Project Conroe 23 2234-2214

Lab ID No.	Field Sample No./ Indentification	Date & Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, etc.)	Preservative	ANALYSIS REQUESTED	pH	D.O.	Temp.	Analysis Time
2-032468	DEL Shockley	3:38 PM 10-9-12			1/2 g	liquid		Tceq Water Pkg AD45623				
					1/2 g			Radio Chem				
					40ml			Radon				
					Amber			SOC				
					Amber			Dioxin				
					Amber			Asbestos				
					40ml			VOC				
								Dissolved AD45624				

Samplers: (Signature)	Relinquished by: (Signature)	Date: 10-9-12 Time: 4:45	Received by: (Signature)	Date: Time:	Seal Intact?
Affiliation	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Seal Intact?
	Relinquished by: (Signature)	Date: Time:	[redacted]	Date 10-9-12 Time 16:45	Seal Intact?
Remarks:	FLOW: _____ Meter Reading: _____ Cl_2 Residual: _____ Mn Correction: _____ Cl_2 Corrected	Arrival Temp. 13.1	[redacted] Site Representative:	Date: Time:	[redacted]

04

ENVIRODYNE LABORATORIES, INC. 11011 Brooklet Dr. #230 Houston, Texas 77099

October 22, 2012

Alsay, Inc.
Joe Slavik
6615 Gant
Houston, Texas 77066

Re: **CONROE 23 2030'-2050'** COC#: **BA000844**

Dear Joe Slavik :

Envirodyne Laboratories, Inc. (ELI) received sample(s) on October 13, 2012 at 12:00 for the analysis enclosed.

The analytical data provided relates only to the sample(s) as received in this laboratory report. ELI certifies that all results are NELAC compliant and performed in accordance with the referenced method. Any exceptions are listed below and/or noted with a qualifier. Any reproductions of this laboratory report should be in full and only with the written authorization from the client.

This report contains a total of 13 pages not including the Chain of Custody.

Thank you for selecting ELI for your analytical needs. If you have questions regarding these results, please contact us at 281-568-7880.

Sincerely,

Laura Bonjonia

Laura Bonjonia
Lab Manager

ACCREDITED IN ACCORDANCE WITH nelac

Certificate No. T104704265-11

ENVIRODYNE LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT:	Conroe (ALSAY, INC.)	LAB NUMBER:	AD46609A
DATE COLLECTED:	13-Oct-12	DATE RECEIVED:	13-Oct-12
DATE COMPLETED:	22-Oct-12	SAMPLED BY:	DS

LOCATION:	WELL 23 2030'-2050' @0400	EPA METHOD #	LIMITS (mg/l)
PARAMETERS:			
pH (Units)	7.99	SM 4500-H B	6.50 - 8.50
TOTAL HARDNESS as CaCO3(mg/l)	35.5	SM 2340 C	N/A
TOTAL ALKALINITY as CaCO3 (mg/l)	691.6	SM 2320 B	N/A
P. ALKALINITY as CaCO3 (mg/l)	<20.0	SM 2320 B	N/A
BICARBONATE (mg/l)	843.7	N/A	N/A
CARBONATE (mg/l)	<1.0	N/A	N/A
TOTAL DISSOLVED SOLIDS (mg/l)	1227.6	SM 2540 C	1,000.0
CONDUCTANCE (umhos/cm)	1980.0	SM 2510 B	N/A
FREE CO2 (mg/l)	>10	N/A	N/A
CORROSIVITY as Caco3 (mg/l)	< 1.0	305.1	Non-corrosive
SILICA (mg/l)	74.50	SM 4500-SiO2 D	N/A
CALCIUM (mg/l)	12.6	200.7	N/A
MAGNESIUM (mg/l)	1.0	200.7	N/A
FOAMING AGENTS (mg/l)	<0.020	N/A	0.5*
COLOR (Units)	1.7	SM 2120 C	15.0
TURBIDITY (Units)	27.1	SM 2130 B	1.0
CYANIDE (as Free mg/l)	< 0.02	SM 4500-CN E	0.2
SODIUM (mg/l)	467.3	200.7	N/A
POTASSIUM (mg/l)	11.7	200.7	N/A
TOTAL IRON (mg/l)	1.440	200.7	0.30 *
TOTAL MANGANESE (mg/l)	0.050	200.7	0.05 *
TOTAL ZINC (mg/l)	0.001	200.7	5.0 *
TOTAL ANTIMONY (mg/l)	<0.003	200.7	0.006
TOTAL ALUMINUM (mg/l)	1.570	200.7	0.05 - 0.20*
TOTAL ARSENIC (mg/l)	0.004	200.7	0.01
TOTAL BARIUM (mg/l)	0.142	200.7	1.0
TOTAL BERYLLIUM (mg/l)	<0.001	200.7	0.004
TOTAL COPPER (mg/l)	0.002	200.7	1.00
TOTAL SILVER (mg/l)	<0.001	200.7	0.05
TOTAL NICKEL (mg/l)	0.002	200.7	0.10
TOTAL CADMIUM (mg/l)	<0.001	200.7	0.010
TOTAL CHROMIUM (mg/l)	0.003	200.7	0.05
TOTAL LEAD (mg/l)	<0.003	200.7	0.015
TOTAL MERCURY (mg/l)	< 0.0002	245.1	0.002
TOTAL SELENIUM (mg/l)	<0.003	200.7	0.01
TOTAL THALLIUM (mg/l)	<0.002	200.7	0.002
SULFATE (mg/l)	<2.0	ASTM D516-90	300.0 *
CHLORIDE (mg/l)	264.9	SM 4500-Cl B	300.0 *
NITRATE (mg/l)	<0.5	SM 4500-NO3 E	10.0
NITRITE (mg/l)	<0.05	SM 4500-NO2 B	1.00
FLUORIDE (mg/l)	0.64	SM 4500-F C	2.00
ODOR (THRESHOLD #)	< 1.0	N/A	3.0
TEMPERATURE (C/F)	25/77	N/A	N/A
LANGELIER INDEX	+0.37	N/A	N/A

* DENOTES: Secondary Standards (Recommended)

CERTIFIED BY

281 568 7880 TEL • 281 568 8004 FAX • 11011 BROOKLET DR. #230 • HOUSTON, TX 77099-3543 • ELI@ENVIRODYNE.COM • WWW.ENVIRODYNE.COM

CERTIFICATE OF ANALYSIS

CLIENT:	**Conroe** (ALSAY, INC.)	LAB NUMBER:	AD44296
DATE COLLECTED:	13-Oct-12	DATE RECEIVED:	13-Oct-12
DATE COMPLETED:	22-Oct-12	SAMPLED BY:	DS

LOCATION:	**WELL #23- Dissolved 2030'-2050' @ 0400**	EPA METHOD #	LIMITS (mg/l)
PARAMETERS:			
TURBIDITY (mg/l)	0.21	SM 2130 B	
TOTAL IRON (mg/l)	0.030	200.7	0.30 *
TOTAL MANGANESE (mg/l)	0.041	200.7	0.05 *
TOTAL ALUMINUM (mg/l)	0.014	200.7	0.05 - 0.20*
TOTAL ARSENIC (mg/l)	0.003	200.7	0.01

* DENOTES: Secondary Standards (Recommended)

M Smith
CERTIFIED BY

ENVIRODYNE LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT:	**Conroe** (Alsay, Inc.)	LAB NUMBER:	AD46609B
DATE COLLECTED:	13-Oct-12	DATE RECEIVED:	13-Oct-12
DATE COMPLETED:	22-Oct-12	SAMPLED BY:	DS

LOCATION: PARAMETERS:	**WELL 23 2030'-2050' @ 0400**	DETECTION LIMITS (ug/l)
CHLOROMETHANE (ug/l)	1.0 U	1.0
VINYL CHLORIDE (ug/l)	2.0 U	2.0
BROMOMETHANE (ug/l)	1.0 U	1.0
CHLOROETHANE (ug/l)	1.0 U	1.0
TRICHLOROFUOROMETHANE (ug/l)	1.0 U	1.0
1,1-DICHLOROETHENE (ug/l)	1.0 U	1.0
METHYLENE CHLORIDE (ug/l)	1.0 U	1.0
trans-1,2-DICHLOROETHENE (ug/l)	1.0 U	1.0
cis-1,2-DICHLOROETHENE (ug/l)	1.0 U	1.0
1,1-DICHLOROETHANE (ug/l)	1.0 U	1.0
1,1,1-TRICHLOROETHANE (ug/l)	1.0 U	1.0
CHLOROFORM (ug/l)	1.0 U	1.0
CARBON TETRACHLORIDE (ug/l)	1.0 U	1.0
1,2-DICHLOROETHANE (ug/l)	1.0 U	1.0
BENZENE (ug/l)	1.0 U	1.0
TRICHLOROETHENE (ug/l)	1.0 U	1.0
1,2-DICHLOROPROPANE (ug/l)	1.0 U	1.0
BROMODICHLOROMETHANE (ug/l)	1.0 U	1.0
cis-1,3 DICHLOROPROPENE (ug/l)	1.0 U	1.0
TOLUENE (ug/l)	1.0 U	1.0
trans-1,3-DICHLOROPROPENE (ug/l)	1.0 U	1.0
1,1,2-TRICHLOROETHANE (ug/l)	1.0 U	1.0
TETRACHLOROETHENE (ug/l) - (PERC)	1.0 U	1.0
DIBROMOCHLOROMETHANE (ug/l)	1.0 U	1.0
CHLOROBENZENE (ug/l)	1.0 U	1.0
2-CHLOROETHYLVINYL ETHER (ug/l)	5.0 U	5.0
ETHYLBENZENE (ug/l)	1.0 U	1.0
BROMOFORM (ug/l)	1.0 U	1.0
1,1,2,2-TETRACHLOROETHANE (ug/l)	1.0 U	1.0
1,2-DIBROMOETHANE (ug/l)	1.0 U	1.0
XYLENE (ug/l)	1.0 U	1.0
TOTAL TRIHALOMETHANES (ug/l)	1.0 U	1.0
1,2,4-TRICHLOROBENZENE (ug/l)	1.0 U	1.0
DICHLOROMETHANE (ug/l)	1.0 U	1.0
o-DICHLOROBENZENE (ug/l)	1.0 U	1.0
p-DICHLOROBENZENE (ug/l)	1.0 U	1.0

LAB REPRESENTATIVE

Ref. EPA-524 (VOLATILES)
U - Analyte Not Detected at the Listed Detection Limit
J - Analyte Present but Below Detection Limit
Qual: Analyzed by NELAC certified lab T104704231-11

(281) 568-7880 11011 Brooklet Dr. #230, Houston, TX 77099

ENVIRODYNE ELI LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT: **Conroe** (ALSAY, INC.)

LAB NUMBER: AD46609C

DATE COLLECTED: 13-Oct-12

DATE RECEIVED: 13-Oct-12

DATE COMPLETED: 22-Oct-12

SAMPLED BY: DS

LOCATION: **Well #23- 2030'-2050'**

PARAMETERS: BNA/Pest.		Maximum Contaminant Levels (MCLs) In ug/l			Maximum Contaminant Levels (MCLs) In ug/l
ATRAZINE (ug/l)	< 1.0	3.0	Alachlor (ug/l)	< 0.02	2
HEXACHLOROBENZENE (ug/l)	< 1.0	1.0	Heptachlor (ug/l)	< 0.03	0.4
HEXACHLOROCYCLOPENTADIENE (ug/l)	< 10.0	50.0	Heptaclor Epoxide (ug/l)	< 0.20	0.2
BENZO (a) PYRENE (ug/l)	< 0.1	0.2	Gamma-BHC (Lindane) (ug/l)	< 0.03	0.2
PENTACHLOROPHENOL (ug/l)	< 1.0	1.0	Chlordane (ug/l)	< 0.14	2
Di (2-ETHYLHEXYL) PHTHALATE (ug/l)	< 5.0	6.0	Toxaphene (ug/l)	< 2.40	3
Di (2-ETHYLHEXYL) ADIPATE (ug/l)	< 100.0	400.0	Methoxychlor (ug/l)	< 0.50	40
Simazine (ug/l)	< 1.0	4.0	Ethylene dibromide (ug/l)	< 0.01	0.05
Endrin (ug/l)	< 0.06	2.0	Glyphosate (ug/l)	< 0.100	700.0
Carbofuran (ug/l)	< 0.04	40.0	Oxamyl (ug/l)	< 100.0	200.0
Dalapon (ug/l)	< 0.20	200.0	Styrene (ug/l)	< 50.0	100.0
Dibromochloropropane (ug/l)	< 0.1	0.2	Picloram (ug/l)	< 100.0	500.0
Dinoseb (ug/l)	< 1.0	7.0	*2,4,5-TP (SILVEX) (ug/l)	< 4.0	50
Diquat (ug/l)	< 10.0	20.0	*2,4-D (ug/l)	< 10.0	70
Endothall (ug/l)	< 50.0	100.0	Total PCBs (mg/l)	< 0.5	0.5

Analyzed by NELAP accredited lab T104704218

Ref. EPA-525.2 (Base/Neutrals & Acids)

U - Analyte Not Detected at the listed Detection Limit

I - Analyte Present but below Detection Limit

M Smith

LAB REPRESENTATIVE

(281) 568-7880 11011 Brooklet Dr. #230, Houston, TX 77099

QA/QC Report for Sample AD46609

Envirodyne Laboratories, Inc.
User: Smith, Monica
Date: 10/25/2012 Time: 09:28:44

Batch: ZN_I-123464	QA Sample: AD46728	ZN_I - Zinc
Unspiked	537 ug/L	
Blank	< 1.0	
Precision	0.4	
Recovery	95.7	
Batch: TL_I-123463	QA Sample: AD46728	TL_I - Thallium
Unspiked	< 3.8 ug/L	
Blank	< 3.8	
Precision	2.9	
Recovery	80.3	
Batch: SE_I-123462	QA Sample: AD46728	SE_I - Selenium
Unspiked	< 3.1 ug/L	
Blank	< 3.1 ug/l	
Precision	3.1 %	
Recovery	104.4 %	
Batch: SB_I-123461	QA Sample: AD46728	SB_I - Antimony
Unspiked	< 2.46 ug/L	
Blank	< 2.46 ug/l	
Precision	0.1 %	
Recovery	98.9 %	
Batch: PB_I-123460	QA Sample: AD46728	PB_I - Lead
Unspiked	< 3.3 ug/L	
Blank	< 3.3	
Precision	3.5	
Recovery	96.5	
Batch: NI_I-123459	QA Sample: AD46728	NI_I - Nickel
Unspiked	2.91 ug/L	
Blank	0.89	
Precision	3.6	
Recovery	103.0	
Batch: NA_I-123458	QA Sample: AD46728	NA_I - Sodium
Unspiked	149.4 mg/L	
Blank	< 1.0	
Precision	3.1	
Recovery	110.8	
Batch: MN_I-123457	QA Sample: AD46728	MN_I - Manganese
Unspiked	70.3 ug/L	
Blank	< 1.0	
Precision	0.6	
Recovery	99.6	
Batch: MG_IHARD-123456	QA Sample: AD46728	MG_IHARD - Magnesium (as CaCO3)
Unspiked	20.62 mg/l	
Batch: MG_I-123455	QA Sample: AD46728	MG_I - Magnesium
Unspiked	5.008 mg/l	
Blank	< 1.0	
Precision	0.3	
Recovery	101.2	

QA/QC Report for Sample AD46609 (page 2)

Batch: K_I-123454	QA Sample: AD46728	K_I - Potassium
Unspiked	0.654 mg/L	
Blank	< 1.0	
Precision	1.0	
Recovery	105.3	
Batch: FE_I-123453	QA Sample: AD46728	FE_I - Iron
Unspiked	24.3 ug/L	
Blank	< 1.4	
Precision	0.6	
Recovery	98.1	
Batch: CU_I-123452	QA Sample: AD46728	CU_I - Copper
Unspiked	73.0 ug/L	
Blank	< 1.0 ug/L	
Precision	0.2 %	
Recovery	95.3 %	
Batch: CR_I-123451	QA Sample: AD46728	CR_I - Chromium
Unspiked	< 1.0 ug/L	
Blank	< 1.0	
Precision	0.6	
Recovery	100.3	
Batch: CD_I-123450	QA Sample: AD46728	CD_I - Cadmium
Unspiked	1.0 ug/L	
Blank	< 1.0	
Precision	3.8	
Recovery	98.8	
Batch: CA_IHARD-123449	QA Sample: AD46728	CA_IHARD - Calcium (as CaCO3
Unspiked	40.80 mg/L	
Batch: CA_I-123448	QA Sample: AD46728	CA_I - Calcium
Unspiked	16.34 mg/L	
Blank	< 1.0	
Precision	0.2	
Recovery	94.6	
Batch: BE_I-123447	QA Sample: AD46728	BE_I - Beryllium
Unspiked	< 1.0 ug/L	
Blank	< 1.0	
Precision	0.8	
Recovery	100.4	
Batch: BA_I-123446	QA Sample: AD46728	BA_I - Barium
Unspiked	101 ug/L	
Blank	< 1.0	
Precision	0.8	
Recovery	99.6	
Batch: AS_I-123445	QA Sample: AD46728	AS_I - Arsenic
Unspiked	4.21 ug/L	
Blank	< 3.6	
Precision	4.4	
Recovery	104.5	
Batch: AL_I-123444	QA Sample: AD46728	AL_I - Aluminum
Unspiked	3.89 ug/l	
Blank	2.48	
Precision	0.0	
Recovery	95.1	

QA/QC Report for Sample AD46609 (page 3)

Batch: AG_I-123443	QA Sample: AD46728	AG_I - Silver
Unspiked	< 1.0 ug/L	
Blank	< 1.0	
Precision	1.2	
Recovery	101.2	
Batch: CL-123366	QA Sample: AD46347	CL - Chloride
Unspiked	5.0 mg/l	
Blank	<1.5 mg/l	
Lab Control	119.9 mg/l	
Precision	8.5 %	
Recovery	85.0 %	
Batch: ALK-123363	QA Sample: AD47023	ALK - Alkalinity as CaCO3
Unspiked	271.7 mg/L	
Blank	<20.0 mg/L	
Duplicate	275.5 mg/L	
Lab Control	109.3 mg/L	
Precision	1.4 %	
Batch: NO2N-123286	QA Sample: AD46779	NO2N - Nitrite nitrogen
Unspiked	<0.05 mg/l	
Blank	<0.05	
Precision	0.00	
Recovery	102	
Batch: SO4-123247	QA Sample: AD46728	SO4 - Sulfate
Unspiked	22.38 mg/l	
Blank	<2.0	
Amt Spiked	20.0	
Duplicate	na mg/l	
Lab Control	16.48	
Precision	1.014 %	
Recovery	106.100 %	
Batch: SI-123246	QA Sample: AD46609	SI - Silica
Unspiked	74.5 mg/l	
Batch: TDS-123194	QA Sample: AD46172	TDS - Total Dissolved Solid
Unspiked	888 mg/l	
Blank	<10.0	
Duplicate	900	
Precision	1.342 %	
Batch: COLOR-123175	QA Sample: AD46609	COLOR - Color
Unspiked	1.66 Units	
Blank	<1.0	
Duplicate	1.74	
Lab Control	40.54	
Precision	4.706	
Batch: TURB-123173	QA Sample: AD46733	TURB - Turbidity, NTU
Unspiked	0.59 NTU	
Blank	<0.1	
Duplicate	0.61	
Lab Control	22.2	
Precision	3.333	
Batch: COND-123076	QA Sample: AD45231	COND - Conductivity
Unspiked	330 umhos/cm	
Blank	<10	
Duplicate	330	

QA/QC Report for Sample AD46609 (page 4)

Batch: COND-123076	QA Sample: AD45231	COND - Conductivity
Lab Control	190	
Precision	0.000	
Batch: F-123075	QA Sample: AD46609	F - Fluoride
Unspiked	0.64 mg/L	
Blank	<0.1 mg/l	
Amt Spiked	0.5	
Lab Control	80	
Precision	0.778 %	
Recovery	130.000	
Batch: NO3N-122976	QA Sample: AD46609	NO3N - Nitrate-N
Unspiked	<0.5 mg/l	
Blank	<0.5	
Amt Spiked	25	
Lab Control	96.8 mg/l	
Precision	2.885	
Recovery	114	

EMSL Analytical, Inc.
8700 Jameel Road, Suite 190 Houston, TX 77040
Phone/Fax: (713) 686-3635 / (713) 686-3645
http://www.emsl.com / houstonlab@emsl.com

EMSL Order ID: 151205379
Customer ID: ENDY62
Customer PO:
Project ID:

Attn: Joe Slavik
Envirodyne Laboratories, Inc.
11011 Brooklet
Suite 230
Houston, TX 77099

Phone: (281) 568-7880
Fax: (281) 568-8004
Collected: 10/13/2012
Received: 10/16/2012
Analyzed: 10/23/2012

Proj: Conroe #23 - 2030-2050

Test Report: Determination of Asbestos Structures >10µm in Drinking Water Performed by the 100.2 Method (EPA 600/R-94/134)

Sample ID Client / EMSL	Sample Filtration Date/Time	Original Sample Vol. Filtered (ml)	Effective Filter Area (mm²)	Area Analyzed (mm²)	ASBESTOS Asbestos Types	Fibers Detected	Analytical Sensitivity	Concentration	Confidence Limits
							MFL (million fibers per liter)		
Sample #4 (12-032981) 151205379-0001	10/17/2012 10:17 AM	25	1298	0.2625	None Detected	ND	0.20	<0.20	0.00 - 0.73

Analyst(s)
Jason Mote (1)

Michelle Leggett, Laboratory Manager
or Other Approved Signatory

Any questions please contact Michelle Leggett.

Initial report from: 10/23/2012 12:27:32

Sample collection and containers provided by the client, acceptable bottle blank level is defined as ≤0.01MFL>10um. ND=None Detected. This report relates only to those items tested.Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical, Inc. Houston, TX NELAC TX T104704379-11-4

E A042784

151205379

Envirodyne Laboratories, Inc.
11011 Brooklet, Ste. 230
Houston, Texas 77099-3543
Phone (281)568-7880 - Fax (281)568-8004

Page _____ Of _____

Name: Alsay
Address: 6615 Gant St
City: Houston, TX 77066
Contact: Joe Slavik

Analysis Request and Chain of Custody Record

Phone: 281-444-6960 Fax: 281444-6960

Project No.

Client/Project CONROE #23 '2030 - 2050'

Lab ID No.	Field Sample No./ Indentification	Date & Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, etc.)	Preservative	ANALYSIS REQUESTED	pH	D.O.	Temp.	Analysis Time
	Sample #4	10/13/12 400			1LT/Amb	Liquid	Ice	Asbestos				
	12032981											

Samplers: (Signature)	Relinquished by: (Signature)	Date: 10/15/12 Time: 1600	Received by: (Signature) WI	Date: 10-16-12 Time: 1242pm	Seal Intact? yes 6°C
Affiliation	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Seal Intact?
	Relinquished by: (Signature)	Date: Time:	Received by Lab: (Signature)	Date: Time:	Seal Intact?
Remarks: Sub to: EMSL Direct Bill Client	FLOW: Meter Reading: Cl, Residual: Mn Correction: Cl Corrected	Arrival Temp.	Data Results To: 1. Site Representative:	Date: Time:	Laboratory No.

CC: ELI with Report - 7 DAY RUSH -

151205379

DOH Certification #E84025
DEP COMPQAP # 870251

KNL LABORATORY SERVICES
2742 N. Florida Ave.
P.O. Box 1833
Tampa, Florida 33601
(813) 229-2879
Fax (813) 229-0002

Report Date: October 22, 2012

Envirodyne Laboratories, Inc.
11011 Brooklet, Ste 230
Houston, TX 77099-3543

Field Custody: Client
Client/Field ID: Alsay
Conroe #23 '2030-2050'
12-032981 Sample #4
Sample Collection: 10-13-12/1600
Lab ID No: 12.8352
Lab Custody Date: 10-16-12/1025
Sample description: Water

CERTIFICATE OF ANALYSIS

Parameter	Units	Results	Analysis Date	Method	Detection Limit
Gross Alpha	pCi/l	5.4 ± 0.8	10-22-12/0800	EPA 00-02	0.5
Gross Beta	pCi/l	11.9 ± 1.6	10-18-12/0800	EPA 900.0	2.5
Radium-226	pCi/l	1.8 ± 0.7	10-22-12/0955	EPA 903.0	0.6
Radium-228	pCi/l	0.6 ± 0.7	10-22-12/0905	EPA Ra-05	1.0
Uranium	pCi/l	0.5 ± 0.3	10-20-12/1520	EPA 908.0	0.7
Uranium	ug/l	0.7 ± 0.5	Calc.	EPA 908.0	1.0
Radon-222	pCi/l	332 ± 16	10-17-12/1546	*	4.1

Alpha Standard: Th-230
Beta Standard: Cs-137

*EPA/600/2-87/082 appendix D

James W Hayes

James W. Hayes
Laboratory Manager

Test results meet all requirements of the NELAC standards.
Contact person: Jim Hayes (813) 229-2879.

Envirodyne Laboratories, Inc.
11011 Brooklet, Ste. 230
Houston, Texas 77099-3543
Phone (281)568-7880 - Fax (281)568-8004

E A042783

Page _____ Of _____

Analysis Request and Chain of Custody Record

Name: Alsay
Address: 6615 Gant St
City: Houston, TX 77066
Contact: Joe Slavik
Phone: 281-444-6960
Fax: 281444-~~6960~~ 7081

Project No.
Client/Project CONOCO #23 '2030 - 2050'

Lab ID No.	Field Sample No./ Indentification	Date & Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, etc.)	Preservative	ANALYSIS REQUESTED	pH	D.O.	Temp.	Analysis Time
	Sample #4	10/13/12 1600	✓		1GAL/P	Liquid	HNO3	Gross alpa,Gross beta,T.U, Ra 226-228				
	12-D32981		✓		2-40ml vial	Liquid		Radon				

128352

EPA CU-02

Samplers: (Signature)	Relinquished by: (Signature)	Date: 10/15/12 Time: 1600	Received by: (Signature)	Date: 10-16-12 Time: 1025	Seal Intact?
Affiliation	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Seal Intact?
	Relinquished by: (Signature)	Date: Time:	Received by Lab: (Signature)	Date: Time:	Seal Intact?
Remarks: Sub to: KMR Direct Bill Client	FLOW: Meter Reading: Cl_2 Residual: Mn Correction: Cl_2 Corrected	Arrival Temp.	Data Results to: Site Representative: Due:	Date: Time:	Laboratory No.

CC: [illegible] 10-23-12

Envirodyne Laboratories, Inc.
11011 Brooklet, Ste. 230
Houston, Texas 77099-3543
Phone (281)568-7880 - Fax (281)568-8004

Analysis Request and Chain of Custody Record

Name: Alsay Incorporated
Address: 6615 Gant Road
City: Houston, TX 77066
Contact: Joe Slavik joe.slavik@alsaywater.com Phone: 281-444-6960 Fax: 281-444-7081

Project No.

Client/Project Conroe #23

Lab ID No.	Field Sample No./ Indentification	Date & Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, etc.)	Preservative	ANALYSIS REQUESTED	pH	D.O.	Temp.	Analysis Time
12-032981	Sample #4	10-13-12 4:00 AM						TCEQ Water Package				
								metals AD 46660				
								SOC				
								VOC				
								Dioxin				
								Asbestos				
								RADIOCHEM				
								RADON				
								Dissolved AD 46660				

Samplers (Signature)	Relinquished by: (Signature) Del Shockley	Date: Time:	Received by: (Signature)	Date: 10/13/12 Time: 1200	Seal Intact?
Affiliation	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Seal Intact?
	Relinquished by: (Signature)	Date: Time:	Received by Lab: (Signature)	Date: Time:	Seal Intact?
Remarks:	FLOW: Meter Reading: Cl₂ Residual: Mn Correction: Cl₂ Corrected	Arrival Temp. 3.9	Data Results To: 1. Site Representative:	Date: Time:	Laboratory No.