ALPHA ANALYTICAL

World Class Chemistry

www.alphalab.com

Lab Number: L1638960

Client: Floyd Snider, Inc.

ATTN: Teri Floyd

Project Name: LDW ENR/AC PILOT STUDY

Project Number: LY15160310

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

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Sample Delivery Group Information

Sample Delivery Group Form

Laboratory Job number: L1638960
Project Manager: Elizabeth Porta **Review Date:** 12/01/2016
Project Number: LY15160310
Project Name: LDW ENR/AC PILOT STUDY **Received:** 12/01/2016 18:15
Client Account: Floyd Snider Inc **Received by:** KB

Samples Delivered by: FEDEX **Call Tracker #**
Bill Of Laden Yes **Trackingnum** 777829406754
Coc Present Present

Container Status Intact **Sample IDs**

All Containers Accounted For? Yes

Were Extra Samples Received? No

Do Sample Labels and COC agree? Yes

Are Samples in Appropriate Containers? Yes

Are Samples Received within Holding time? Yes

pH of Samples upon Receipt N/A **Are samples Properly Preserved?** Yes
Initial pH **preserved in house with** **Final pH**
Other Issues
Chlorine Check N/A

Are VOA/VPH Vials Present? No
Aqueous: Do Vials Contain Head Space? N/A
Soils: Is MeOHCovering the Soil? N/A
Reagent H2O Preserved vials Frozen on N/A
Frozen by Client N/A

Cooler	Seal	Ice Present	Blue Ice Present	Temp. (Celsius)	Frozen upon Receipt	Delivered Direct from Site
A	Absent	Yes	No	4.5 - IR Gun	No	No

LIMS Chain of Custody

ALPHA ANALYTICAL LABORATORIES, INC.
LOGIN CHAIN OF CUSTODY REPORT
Dec 22 2016, 05:32 pm

Login Number: L1638960
Account: FLOYDSNI Floyd Snider IncProject: LY15160310
Received: 01DEC16 Due Date: 22DEC16

Sample #	Client ID	Mat	PR	Collected	Container
L1638960-01	LDW-BA-SU-ENR-CA-CO	3	S0	26NOV16 17:15	2-Glass-A.5

L1638960-01 DUP L1638960-01 MS L1638960-01 MSD Grain Size: Use both #200 and #230 sieves. Soot report 2 reps. DPKG-FULL Package Due Date: 12/22/16

A2-DUP,A2-MS/MSD,A2-SIEVE-HYDROMETER,A2-HYDRO-CFINE,A2-HYDRO-CGRAVEL,A2-HYDRO-COBBLES,A2-HYDRO-CSAND,A2-HYDRO-FGRAVEL,A2-HYDRO-FSAND,A2-HYDRO-MSAND,A2-HYDRO-SFINE,A2-HYDRO-TFINE,A2-HYDRO-TGRAVEL,A2-HYDRO-TSAND,A2-SOOT,A2-TOC-9060-2REPS,DPKG-FULL

L1638960-02	LDW-BA-SU-ENR-CB-CO	3	S0	26NOV16 17:30	2-Glass-A.120,1-Glass-A.5

L1638960-02 DUP Used Container C as the sample volume for Grain Size for sample -07A Grain Size: Use both #200 and #230 sieves. Soot report 2 reps. Package Due Date: 12/22/16

A2-DUP,A2-SIEVE-HYDROMETER,A2-HYDRO-CFINE,A2-HYDRO-CGRAVEL,A2-HYDRO-COBBLES,A2-HYDRO-CSAND,A2-HYDRO-FGRAVEL,A2-HYDRO-FSAND,A2-HYDRO-MSAND,A2-HYDRO-SFINE,A2-HYDRO-TFINE,A2-HYDRO-TGRAVEL,A2-HYDRO-TSAND,A2-SOOT,A2-TOC-9060-2REPS

L1638960-03	LDW-BA-SU-ENR-CC-CO	3	S0	26NOV16 15:35	2-Glass-A.5

Grain Size: Use both #200 and #230 sieves. Soot report 2 reps. Package Due Date: 12/22/16

A2-SIEVE-HYDROMETER,A2-HYDRO-CFINE,A2-HYDRO-CGRAVEL,A2-HYDRO-COBBLES,A2-HYDRO-CSAND,A2-HYDRO-FGRAVEL,A2-HYDRO-FSAND,A2-HYDRO-MSAND,A2-HYDRO-SFINE,A2-HYDRO-TFINE,A2-HYDRO-TGRAVEL,A2-HYDRO-TSAND,A2-SOOT,A2-TOC-9060-2REPS

L1638960-04	LDW-BA-SU-ENR+AC-CA	3	S0	26NOV16 15:15	2-Glass-A.5

Grain Size: Use both #200 and #230 sieves. Soot report 2 reps. Package Due Date: 12/22/16

A2-SIEVE-HYDROMETER,A2-HYDRO-CFINE,A2-HYDRO-CGRAVEL,A2-HYDRO-COBBLES,A2-HYDRO-CSAND,A2-HYDRO-FGRAVEL,A2-HYDRO-FSAND,A2-HYDRO-MSAND,A2-HYDRO-SFINE,A2-HYDRO-TFINE,A2-HYDRO-TGRAVEL,A2-HYDRO-TSAND,A2-SOOT,A2-TOC-9060-2REPS

L1638960-05	LDW-BA-SU-ENR+AC-CB	3	S0	26NOV16 14:20	1-Glass-A.25,1-Glass-A.5

Grain Size: Use both #200 and #230 sieves. Soot report 2 reps. Package Due Date: 12/22/16

ALPHA ANALYTICAL LABORATORIES, INC.
LOGIN CHAIN OF CUSTODY REPORT
Dec 22 2016, 05:32 pm

Login Number: L1638960
Account: FLOYDSNI Floyd Snider IncProject: LY15160310
Received: 01DEC16 Due Date: 22DEC16

Sample #	Client ID	Mat	PR	Collected	Container

A2-SIEVE-HYDROMETER,A2-HYDRO-CFINE,A2-HYDRO-CGRAVEL,A2-HYDRO-COBBLES,A2-HYDRO-CSAND,A2-HYDRO-FGRAVEL,A2-HYDRO-FSAND,A2-HYDRO-MSAND,A2-HYDRO-SFINE,A2-HYDRO-TFINE,A2-HYDRO-TGRAVEL,A2-HYDRO-TSAND,A2-SOOT,A2-TOC-9060-2REPS

L1638960-06 LDW-BA-SU-ENR+AC-CC 3 S0 26NOV16 14:35 2-Glass-A.5
Grain Size: Use both #200 and #230 sieves. Soot report 2 reps. Package Due Date: 12/22/16

A2-SIEVE-HYDROMETER,A2-HYDRO-CFINE,A2-HYDRO-CGRAVEL,A2-HYDRO-COBBLES,A2-HYDRO-CSAND,A2-HYDRO-FGRAVEL,A2-HYDRO-FSAND,A2-HYDRO-MSAND,A2-HYDRO-SFINE,A2-HYDRO-TFINE,A2-HYDRO-TGRAVEL,A2-HYDRO-TSAND,A2-SOOT,A2-TOC-9060-2REPS

L1638960-07 LDW-BA-SU-ENR-CB-CO 3 S0 26NOV16 17:30 0-
Grain Size: Use both #200 and #230 sieves. Use container -02C as the container for -07 Package Due Date: 12/22/16

A2-SIEVE-HYDROMETER,A2-HYDRO-CFINE,A2-HYDRO-CGRAVEL,A2-HYDRO-COBBLES,A2-HYDRO-CSAND,A2-HYDRO-FGRAVEL,A2-HYDRO-FSAND,A2-HYDRO-MSAND,A2-HYDRO-SFINE,A2-HYDRO-TFINE,A2-HYDRO-TGRAVEL,A2-HYDRO-TSAND

Logged By: Kim L. Bailey

Container Tracking

ALPHA ANALYTICAL LABORATORIES
Container Tracking Report

Container ID	Type	Status	Transaction Date	From Response	From Location	From Operator	To Response	To Location	To Operator
L1638960-01A	Glass-A.5	INTACT	07-DEC-16	CUSTODY	A2-WET CHEMISTRY	Sonal Patel	A2-CUSTODY-FRZ1-U1	A2-CUSTODY-FRZ1-U1	Sonal Patel
L1638960-01A	Glass-A.5	INTACT	07-DEC-16	CUSTODY	A2-CUSTODY-FRZ1-U1	Sonal Patel	A2-WET CHEMISTRY	A2-WET CHEMISTRY	Sonal Patel
L1638960-01A	Glass-A.5	INTACT	01-DEC-16	A2-CUSTODY-REFRIDGE	A2-CUSTODY-REFRIDGE	Bethany Bedard	A2-CUSTODY-FRZ1-U1	A2-CUSTODY-FRZ1-U1	Bethany Bedard
L1638960-01A	Glass-A.5	INTACT	01-DEC-16	A2-LOGIN	A2-LOGIN	Kim L. Bailey	A2-CUSTODY-REFRIDGE	A2-CUSTODY-REFRIDGE	Kim L. Bailey
L1638960-01B	Glass-A.5	INTACT	01-DEC-16	A2-CUSTODY-REFRIDGE	A2-CUSTODY-REFRIDGE	Bethany Bedard	A2-CUSTODY-FRZ1-U1	A2-CUSTODY-FRZ1-U1	Bethany Bedard
L1638960-01B	Glass-A.5	INTACT	01-DEC-16	A2-LOGIN	A2-LOGIN	Kim L. Bailey	A2-CUSTODY-REFRIDGE	A2-CUSTODY-REFRIDGE	Kim L. Bailey
L1638960-02A	Glass-A.5	INTACT	07-DEC-16	CUSTODY	A2-WET CHEMISTRY	Sonal Patel	A2-CUSTODY-FRZ1-U1	A2-CUSTODY-FRZ1-U1	Sonal Patel
L1638960-02A	Glass-A.5	INTACT	07-DEC-16	CUSTODY	A2-CUSTODY-FRZ1-U1	Sonal Patel	A2-WET CHEMISTRY	A2-WET CHEMISTRY	Sonal Patel
L1638960-02A	Glass-A.5	INTACT	01-DEC-16	A2-CUSTODY-REFRIDGE	A2-CUSTODY-REFRIDGE	Bethany Bedard	A2-CUSTODY-FRZ1-U1	A2-CUSTODY-FRZ1-U1	Bethany Bedard
L1638960-02A	Glass-A.5	INTACT	01-DEC-16	A2-LOGIN	A2-LOGIN	Kim L. Bailey	A2-CUSTODY-REFRIDGE	A2-CUSTODY-REFRIDGE	Kim L. Bailey
L1638960-02B	Glass-A.120	INTACT	01-DEC-16	A2-CUSTODY-REFRIDGE	A2-CUSTODY-REFRIDGE	Bethany Bedard	A2-CUSTODY-FRZ1-U1	A2-CUSTODY-FRZ1-U1	Bethany Bedard
L1638960-02B	Glass-A.120	INTACT	01-DEC-16	A2-LOGIN	A2-LOGIN	Kim L. Bailey	A2-CUSTODY-REFRIDGE	A2-CUSTODY-REFRIDGE	Kim L. Bailey
L1638960-02C	Glass-A.120	EMPTY	13-DEC-16	CUSTODY	A2-WET CHEMISTRY	Sonal Patel	A2-CUSTODY-REFRIDGE	A2-CUSTODY	Sonal Patel
L1638960-02C	Glass-A.120	INTACT	13-DEC-16	CUSTODY	A2-CUSTODY-FRZ1-U1	Sonal Patel	A2-WET CHEMISTRY	A2-WET CHEMISTRY	Sonal Patel
L1638960-02C	Glass-A.120	INTACT	01-DEC-16	A2-CUSTODY-REFRIDGE	A2-CUSTODY-REFRIDGE	Bethany Bedard	A2-CUSTODY-FRZ1-U1	A2-CUSTODY-FRZ1-U1	Bethany Bedard
L1638960-02C	Glass-A.120	INTACT	01-DEC-16	A2-LOGIN	A2-LOGIN	Kim L. Bailey	A2-CUSTODY-REFRIDGE	A2-CUSTODY-REFRIDGE	Kim L. Bailey
L1638960-03A	Glass-A.5	INTACT	07-DEC-16	CUSTODY	A2-WET CHEMISTRY	Sonal Patel	A2-CUSTODY-FRZ1-U1	A2-CUSTODY-FRZ1-U1	Sonal Patel
L1638960-03A	Glass-A.5	INTACT	07-DEC-16	CUSTODY	A2-CUSTODY-FRZ1-U1	Sonal Patel	A2-WET CHEMISTRY	A2-WET CHEMISTRY	Sonal Patel
L1638960-03A	Glass-A.5	INTACT	01-DEC-16	A2-CUSTODY-REFRIDGE	A2-CUSTODY-REFRIDGE	Bethany Bedard	A2-CUSTODY-FRZ1-U1	A2-CUSTODY-FRZ1-U1	Bethany Bedard
L1638960-03A	Glass-A.5	INTACT	01-DEC-16	A2-LOGIN	A2-LOGIN	Kim L. Bailey	A2-CUSTODY-REFRIDGE	A2-CUSTODY-REFRIDGE	Kim L. Bailey
L1638960-03B	Glass-A.5	INTACT	01-DEC-16	A2-CUSTODY-REFRIDGE	A2-CUSTODY-REFRIDGE	Bethany Bedard	A2-CUSTODY-FRZ1-U1	A2-CUSTODY-FRZ1-U1	Bethany Bedard
L1638960-03B	Glass-A.5	INTACT	01-DEC-16	A2-LOGIN	A2-LOGIN	Kim L. Bailey	A2-CUSTODY-REFRIDGE	A2-CUSTODY-REFRIDGE	Kim L. Bailey
L1638960-04A	Glass-A.5	INTACT	01-DEC-16	A2-CUSTODY-REFRIDGE	A2-CUSTODY-REFRIDGE	Bethany Bedard	A2-CUSTODY-FRZ1-U1	A2-CUSTODY-FRZ1-U1	Bethany Bedard
L1638960-04A	Glass-A.5	INTACT	01-DEC-16	A2-LOGIN	A2-LOGIN	Kim L. Bailey	A2-CUSTODY-REFRIDGE	A2-CUSTODY-REFRIDGE	Kim L. Bailey
L1638960-04B	Glass-A.5	INTACT	07-DEC-16	CUSTODY	A2-WET CHEMISTRY	Sonal Patel	A2-CUSTODY-FRZ1-U1	A2-CUSTODY-FRZ1-U1	Sonal Patel

Container ID	Type	Status	Transaction Date	From Response	Location	Operator	To Response	Location	Operator
L1638960-04B	Glass-A.5	INTACT	07-DEC-16	CUSTODY	A2-CUSTODY-FRZ1-U1	Sonal Patel	A2-WET CHEMISTRY	A2-WET CHEMISTRY	Sonal Patel
L1638960-04B	Glass-A.5	INTACT	01-DEC-16	A2-CUSTODY-REFRIDGE	A2-CUSTODY-REFRIDGE	Bethany Bedard	A2-CUSTODY-FRZ1-U1	A2-CUSTODY-FRZ1-U1	Bethany Bedard
L1638960-04B	Glass-A.5	INTACT	01-DEC-16	A2-LOGIN	A2-LOGIN	Kim L. Bailey	A2-CUSTODY-REFRIDGE	A2-CUSTODY-REFRIDGE	Kim L. Bailey
L1638960-05A	Glass-A.5	INTACT	07-DEC-16	CUSTODY	A2-WET CHEMISTRY	Sonal Patel	A2-CUSTODY-FRZ1-U1	A2-CUSTODY-FRZ1-U1	Sonal Patel
L1638960-05A	Glass-A.5	INTACT	07-DEC-16	CUSTODY	A2-CUSTODY-FRZ1-U1	Sonal Patel	A2-WET CHEMISTRY	A2-WET CHEMISTRY	Sonal Patel
L1638960-05A	Glass-A.5	INTACT	01-DEC-16	A2-CUSTODY-REFRIDGE	A2-CUSTODY-REFRIDGE	Bethany Bedard	A2-CUSTODY-FRZ1-U1	A2-CUSTODY-FRZ1-U1	Bethany Bedard
L1638960-05A	Glass-A.5	INTACT	01-DEC-16	A2-LOGIN	A2-LOGIN	Kim L. Bailey	A2-CUSTODY-REFRIDGE	A2-CUSTODY-REFRIDGE	Kim L. Bailey
L1638960-05B	Glass-A.25	INTACT	01-DEC-16	A2-CUSTODY-REFRIDGE	A2-CUSTODY-REFRIDGE	Bethany Bedard	A2-CUSTODY-FRZ1-U1	A2-CUSTODY-FRZ1-U1	Bethany Bedard
L1638960-05B	Glass-A.25	INTACT	01-DEC-16	A2-LOGIN	A2-LOGIN	Kim L. Bailey	A2-CUSTODY-REFRIDGE	A2-CUSTODY-REFRIDGE	Kim L. Bailey
L1638960-06A	Glass-A.5	INTACT	01-DEC-16	A2-CUSTODY-REFRIDGE	A2-CUSTODY-REFRIDGE	Bethany Bedard	A2-CUSTODY-FRZ1-U1	A2-CUSTODY-FRZ1-U1	Bethany Bedard
L1638960-06A	Glass-A.5	INTACT	01-DEC-16	A2-LOGIN	A2-LOGIN	Kim L. Bailey	A2-CUSTODY-REFRIDGE	A2-CUSTODY-REFRIDGE	Kim L. Bailey
L1638960-06B	Glass-A.5	INTACT	07-DEC-16	CUSTODY	A2-WET CHEMISTRY	Sonal Patel	A2-CUSTODY-FRZ1-U1	A2-CUSTODY-FRZ1-U1	Sonal Patel
L1638960-06B	Glass-A.5	INTACT	07-DEC-16	CUSTODY	A2-CUSTODY-FRZ1-U1	Sonal Patel	A2-WET CHEMISTRY	A2-WET CHEMISTRY	Sonal Patel
L1638960-06B	Glass-A.5	INTACT	01-DEC-16	A2-CUSTODY-REFRIDGE	A2-CUSTODY-REFRIDGE	Bethany Bedard	A2-CUSTODY-FRZ1-U1	A2-CUSTODY-FRZ1-U1	Bethany Bedard
L1638960-06B	Glass-A.5	INTACT	01-DEC-16	A2-LOGIN	A2-LOGIN	Kim L. Bailey	A2-CUSTODY-REFRIDGE	A2-CUSTODY-REFRIDGE	Kim L. Bailey

Chain of Custody

CHAIN OF CUSTODY

PAGE 1 OF 2

Date Rec'd in Lab: 12/1/16

ALPHA Job #: L1638960

8 Walkup Drive, Westboro, MA 01581, Tel: 508-898-9220
320 Forbes Blvd, Mansfield, MA 02048, Tel: 508-822-9300

Project Information

Project Name: LDW ENR/AC Pilot Study
Project Location: LDW
Project #: LY15160310
Project Manager: Liz Porta
ALPHA Quote #:

Report Information - Data Deliverables

☐ ADEx ☒ EMAIL

Billing Information

☒ Same as Client info PO #:

Client Information

Client: Floyd Snider
Address: 601 union St., Suite 600, Seattle, WA 98101
Phone: 206-292-2078
Email: gretchen.heavner@floydsnider.com

Regulatory Requirements & Project Information Requirements

☐ Yes ☐ No MA MCP Analytical Methods
☐ Yes ☐ No CT RCP Analytical Methods
☐ Yes ☐ No Matrix Spike Required on this SDG? (Required for MCP Inorganics)
☐ Yes ☐ No GW1 Standards (Info Required for Metals & EPH with Targets)
☐ Yes ☐ No NPDES RGP
☐ Other State /Fed Program _____ Criteria _____

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due:

Additional Project Information:

ANALYSIS: VOC: ☐ 8260 ☐ 624 ☐ 524.2; SVOC: ☐ ABN ☐ PAH; METALS: ☐ MCP 13 ☐ MCP 14 ☐ RCP 15; METALS: ☐ RCRA5 ☐ RCRA8 ☐ PP13; EPH: ☐ Ranges & Targets ☐ Ranges Only; VPH: ☐ Ranges & Targets ☐ Ranges Only; ☐ PCB ☐ PEST; TPH: ☐ Quant Only ☐ Fingerprint; Black Carbon; TOC; Grain size

SAMPLE INFO: Filtration ☐ Field ☐ Lab to do; Preservation ☐ Lab to do

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler Initials	Black Carbon	TOC	Grain size	Sample Comments	Total # Bottles
38960.01	LDW-BA-SU-ENR-CA-CORE	11/26/16	1715	Sed	JL	✓	✓		1-16oz amber	1
.01	↓	↓	↓	↓	↓			✓	↓	1
.02	LDW-BA-SU-ENR-CB-CORE	11/26/16	1730			✓	✓		1-16oz amber	1
.02	↓	↓	↓					✓	2-4oz amber	2
.03	LDW-BA-SU-ENR-CC-CORE	11/26/16	1535			✓	✓		1-16oz amber	1
.03	↓	↓	↓					✓		1
.04	LDW-BA-SU-ENR+AC-CA-CORE	11/26/16	1515			✓	✓			1
.04	↓	↓	↓					✓		1
.05	LDW-BA-SU-ENR+AC-CB-CORE	11/26/16	1420			✓	✓			1
.05	↓	↓	↓					✓	1-8oz amber	1

Container Type									A →			
Preservative									A →			

Container Type: P= Plastic, A= Amber glass, V= Vial, G= Glass, B= Bacteria cup, C= Cube, O= Other, E= Encore, D= BOD Bottle

Preservative: A= None, B= HCl, C= HNO_3, D= H_2SO_4, E= NaOH, F= MeOH, G= $NaHSO_4$, H = $Na_2S_2O_3$, I= Ascorbic Acid, J = NH_4Cl, K= Zn Acetate, O= Other

Relinquished By:	Date/Time	Received By:	Date/Time
Julia Levengood Fed Ex	11/30/16 1300	Fed Ex Kim Ebach, ARL	12/1/16 10:27

All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 12-Mar-2012)

CHAIN OF CUSTODY

PAGE 2 OF 2

Date Rec'd in Lab: 12/1/16

ALPHA Job #: L1638960

8 Walkup Drive
Westboro, MA 01581
Tel: 508-898-9220

320 Forbes Blvd
Mansfield, MA 02048
Tel: 508-822-9300

Project Information

Project Name: LDW ENR/AC Pilot Study
Project Location: LDW
Project #: L415160310
Project Manager: Liz Porta
ALPHA Quote #:

Report Information - Data Deliverables

☐ ADEx ☒ EMAIL

Billing Information

☒ Same as Client info PO #:

Client Information

Client: Floyd Snider
Address: 601 Union St., Suite 600
Seattle, WA 98101
Phone: 206-292-2078
Email: gretchen.heavener@floydsnider.com

Regulatory Requirements & Project Information Requirements

☐ Yes ☐ No MA MCP Analytical Methods ☐ Yes ☐ No CT RCP Analytical Methods
☐ Yes ☐ No Matrix Spike Required on this SDG? (Required for MCP Inorganics)
☐ Yes ☐ No GW1 Standards (Info Required for Metals & EPH with Targets)
☐ Yes ☐ No NPDES RGP
☐ Other State /Fed Program _____ Criteria _____

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due:

Additional Project Information:

ANALYSIS: VOC: ☐ 8260 ☐ 624 ☐ 524.2; SVOC: ☐ ABN ☐ PAH; METALS: ☐ MCP 13 ☐ MCP 14 ☐ RCP 15; METALS: ☐ RCRA5 ☐ RCRA8 ☐ PP13; EPH: ☐ Ranges & Targets ☐ Ranges Only; VPH: ☐ Ranges & Targets ☐ Ranges Only; ☐ PCB ☐ PEST; TPH: ☐ Quant Only ☐ Fingerprint; Black Carbon; TOC; Grain Size

SAMPLE INFO
Filtration
☐ Field
☐ Lab to do
Preservation
☐ Lab to do

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler Initials	Black Carbon	TOC	Grain Size	Sample Comments	TOTAL # BOTTLES
38960.06	LDW-BA-SU-ENR+AC-CC-CORE	11/26/16	1435	Sed	JL	✓	✓	✓	1-16 oz amber	1
06	↓	↓	↓	↓	↓			✓	↓	1

Container Type										A	→						
Preservative										A	→						

Container Type
P= Plastic
A= Amber glass
V= Vial
G= Glass
B= Bacteria cup
C= Cube
O= Other
E= Encore
D= BOD Bottle

Preservative
A= None
B= HCl
C= HNO_3
D= H_2SO_4
E= NaOH
F= MeOH
G= $NaHSO_4$
H = $Na_2S_2O_3$
I= Ascorbic Acid
J = NH_4Cl
K= Zn Acetate
O= Other

Relinquished By:	Date/Time	Received By:	Date/Time
Julie Evensgard FedEX	11/30/16 1300	FedEx [illegible] AAL	12/1/16 10:27

All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 12-Mar-2012)

Wet Chemistry

Organic Carbon Analysis

Sequence Logs

Date of report: 12/14/2016 2:00 PM
User ID: Alpha Analytical

Run Details				Results			Signals			
Run	Run #	Weight	Created on	Carbon	Hydroge	Nitrogen	ZR	CR	HR	NR
BLANK			12/13/2016 1:00:39 P	2466	-2	877	12795	16138	16136	13672
BLANK			12/13/2016 1:05:23 P	253	128	196	12658	13107	13235	12854
BLANK			12/13/2016 1:10:08 P	126	-11	85	12604	12815	12804	12689
COND	1	7.760	12/13/2016 1:21:27 P	4.364%	3.580%	1.395%	12680	20007	20006	12853
BLANK	2		12/13/2016 1:26:09 P	154	-3	41	12661	12856	12853	12702
K1	3	10.390	12/13/2016 1:30:52 P	20.164	0.013	-.021	12676	14948	14948	12713
BLANK	4		12/13/2016 1:38:22 P	101	-26	34	12724	12859	12833	12758
K1	5	10.110	12/13/2016 1:43:06 P	18.487	-.051	-.017	12721	14738	14695	12749
K1	6	10.050	12/13/2016 1:57:17 P	19.861	-.047	-.014	12807	14955	14914	12839
BLANK	7		12/13/2016 2:04:47 P	49	-38	45	12815	12909	12871	12860
0	8	10.160	12/13/2016 2:09:35 P	-.004%	-4.101%	-.012%	12797	12919	12876	12842
1000	9	10.100	12/13/2016 2:14:23 P	0.105%	-3.300%	-.024%	12780	13117	13077	12824
5000	10	10.310	12/13/2016 2:19:06 P	0.449%	1.617%	-.203%	12784	13808	13786	12813
10000	11	10.220	12/13/2016 2:23:49 P	0.960%	2.718%	-.241%	12772	14811	14793	12798
20000	12	10.160	12/13/2016 2:28:32 P	1.909%	5.468%	-.169%	12765	16696	16688	12797
40000	13	10.800	12/13/2016 2:33:15 P	3.688%	4.372%	-.194%	12777	20723	20712	12806
ICV	14	10.210	12/13/2016 2:43:32 P	0.959%	6.530%	-.193%	12807	14847	14843	12837
ICB	15	65.360	12/13/2016 2:48:15 P	0.0%	0.765%	-.023%	12795	12915	12905	12829
HICV	16	53.080	12/13/2016 2:53:00 P	3.880%	4.239%	-.042%	12795	53405	53458	12823
SRM1944	17	11.350	12/13/2016 2:57:43 P	4.110%	323.544	1.712%	12807	22270	23564	13011
MB	18	56.810	12/13/2016 3:02:26 P	0.009%	1.222%	-.032%	12735	12950	12947	12766
SRM1944	19	12.340	12/13/2016 3:07:09 P	4.398%	6.978%	1.874%	12735	23726	23729	12969
MB	20	62.750	12/13/2016 3:11:52 P	0.003%	1.284%	-.004%	12733	12903	12904	12777
163952201	21	15.430	12/13/2016 3:16:35 P	5.022%	7.561%	2.336%	12756	28418	28432	13095
163952201	22	8.360	12/13/2016 3:21:20 P	6.325%	13.291	2.678%	12759	23469	23481	12987
163952203	23	12.620	12/13/2016 3:26:06 P	2.676%	7.043%	1.033%	12758	19635	19639	12910

Reported on 12/14/2016 2:00 PM by Alpha Analytical

Run Details				Results			Signals			
Run	Run #	Weight	Created on	Carbon	Hydroge	Nitrogen	ZR	CR	HR	NR
163952203	24	16.600	12/13/2016 3:30:54 P	1.825%	0.0%	0.704%	12764	18946	18918	12905
163952205	25	12.250	12/13/2016 3:35:37 P	7.467%	9.751%	2.570%	12768	31143	31158	13070
163952205	26	10.980	12/13/2016 3:40:24 P	9.046%	8.854%	3.215%	12773	32724	32731	13106
CCV	27	10.260	12/13/2016 3:49:29 P	1.060%	5.144%	0.0%	12815	15083	15074	12861
CCB	28	61.480	12/13/2016 3:54:16 P	0.004%	-.271%	-.004%	12791	12970	12936	12835
163952203	29	21.620	12/13/2016 3:59:23 P	1.945%	1.413%	0.814%	12779	21323	21306	12968
163952203	30	14.550	12/13/2016 4:04:12 P	2.618%	4.009%	0.938%	12785	20516	20509	12942
163896001	31	16.260	12/13/2016 4:08:59 P	1.821%	0.683%	0.840%	12770	18833	18809	12927
163896001	32	8.910	12/13/2016 4:13:46 P	1.603%	0.624%	0.649%	12766	15751	15725	12859
163896002	33	9.530	12/13/2016 4:18:33 P	2.150%	1.749%	1.136%	12769	17017	16995	12903
163896002	34	7.300	12/13/2016 4:23:19 P	1.983%	5.327%	0.708%	12791	15810	15796	12879
163896003	35	6.700	12/13/2016 4:28:04 P	1.713%	5.804%	0.698%	12781	15206	15192	12865
163896003	36	15.360	12/13/2016 4:32:47 P	1.737%	4.340%	0.889%	12774	18263	18259	12931
163896004	37	11.490	12/13/2016 4:37:30 P	2.057%	4.835%	0.856%	12768	17625	17617	12894
163896004	38	12.120	12/13/2016 4:42:13 P	2.074%	5.959%	0.944%	12765	17931	17929	12904
CCV	39	10.180	12/13/2016 4:46:58 P	1.052%	3.274%	-.133%	12789	15015	14999	12824
CCB	40	59.780	12/13/2016 4:51:42 P	0.001%	0.465%	-.016%	12776	12912	12894	12814
163896005	41	9.780	12/13/2016 4:56:48 P	1.969%	7.669%	0.981%	12769	16764	16763	12893
163896005	42	16.530	12/13/2016 5:01:34 P	2.024%	5.041%	0.982%	12776	19619	19621	12954
163896006	43	16.680	12/13/2016 5:06:21 P	2.124%	1.332%	1.121%	12770	20019	19999	12968
163896006	44	10.150	12/13/2016 5:11:08 P	2.203%	1.368%	1.091%	12767	17384	17361	12903
163896001D	45	12.210	12/13/2016 5:15:54 P	1.246%	2.730%	0.756%	12772	15969	15953	12893
163896001D	46	12.820	12/13/2016 5:20:41 P	1.695%	3.900%	0.748%	12796	17278	17268	12920
163896001MS	47	13.090	12/13/2016 5:25:23 P	2.799%	4.032%	0.846%	12792	20218	20209	12928
163896001MS	48	10.520	12/13/2016 5:30:05 P	2.645%	3.961%	0.678%	12795	18456	18443	12899
163896001MS	49	13.240	12/13/2016 5:34:46 P	2.372%	3.986%	0.687%	12786	19167	19158	12906
163896001MS	50	13.690	12/13/2016 5:39:28 P	5.034%	6.087%	1.249%	12794	26615	26617	12979

Reported on 12/14/2016 2:00 PM by Alpha Analytical

Run Details				Results			Signals			
Run	Run #	Weight	Created on	Carbon	Hydroge	Nitrogen	ZR	CR	HR	NR
163896001MS	50	13.690	12/13/2016 5:39:28 P	5.034%	6.087%	1.249%	12794	26615	26617	12979
CCV	51	10.410	12/13/2016 5:44:10 P	1.029%	5.070%	-.236%	12805	15021	15012	12831
CCB	52	60.800	12/13/2016 5:48:51 P	-.002%	0.685%	-.040%	12806	12891	12878	12832
163960501	54	7.580	12/14/2016 9:11:03 A	4.736%	-13.193	4.527%	13530	20999	20935	13855
163960502	55	11.220	12/14/2016 9:15:53 A	4.854%	-2.971%	3.694%	13421	24598	24558	13804
163960502	56	11.220	12/14/2016 9:20:43 A	5.736%	0.0%	2.894%	13367	26417	26389	13677
163960501	57	6.190	12/14/2016 9:27:34 A	4.693%	-3.141%	3.020%	13327	19322	19287	13525
163992901	58	13.640	12/14/2016 9:45:29 A	6.922%	1.018%	3.823%	13321	32444	32421	13791
163992901	59	13.090	12/14/2016 9:50:19 A	7.120%	3.183%	3.834%	13270	32136	32123	13724
163992903	60	15.420	12/14/2016 9:55:09 A	4.657%	1.801%	2.138%	13235	27755	27737	13549
163992903	61	10.190	12/14/2016 9:59:59 A	4.468%	0.545%	2.004%	13219	22468	22442	13431
163992905	62	11.780	12/14/2016 10:04:49	4.973%	3.537%	2.558%	13191	25086	25073	13482
CCV	63	10.110	12/14/2016 10:09:39	1.039%	-.275%	-.328%	13190	15358	15329	13209
CCB	64	63.680	12/14/2016 10:14:29	-.002%	-.218%	-.058%	13180	13255	13222	13196
163992905	65	12.790	12/14/2016 10:55:40	5.754%	-1.303%	3.164%	13176	28109	28075	13551
SRM1650B	66	1.250	12/14/2016 11:07:21	85.720%	77.778	7.183%	13107	34382	34389	13226
MB	67	63.300	12/14/2016 11:12:12	-.002%	-.132%	-.045%	13061	13144	13113	13084
SRM1650B	68	.700	12/14/2016 11:17:02	71.109%	67.460	4.041%	13040	22982	22971	13109
MB	69	57.290	12/14/2016 11:21:52	-.003%	0.291%	-.045%	13023	13097	13075	13048
163896001	70	11.620	12/14/2016 11:45:54	0.104%	-4.303%	0.042%	13048	13419	13373	13098
163896001	71	9.290	12/14/2016 11:50:44	0.257%	-2.093%	0.013%	12986	13587	13552	13033
163896001D	72	15.720	12/14/2016 11:55:35	0.153%	-.353%	0.063%	12954	13564	13534	13008
163896001D	73	11.160	12/14/2016 12:00:25	0.098%	1.245%	0.033%	12932	13279	13256	12981
163896001MS	74	12.180	12/14/2016 12:05:16	0.974%	1.140%	0.101%	12923	15396	15373	12979
CCV	75	9.980	12/14/2016 12:10:07	1.031%	2.227%	-.173%	12913	15052	15032	12945
CCB	76	46.460	12/14/2016 12:14:58	0.001%	0.179%	-.050%	12907	13023	12998	12934
163896001MS	77	6.700	12/14/2016 12:25:08	1.666%	-4.975%	-.129%	12921	15239	15199	12960

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Run Details				Results			Signals			
Run	Run #	Weight	Created on	Carbon	Hydroge	Nitrogen	ZR	CR	HR	NR
163896001MS	77	6.700	12/14/2016 12:25:08	1.666%	-4.975%	-.129%	12921	15239	15199	12960
163896001MS	78	11.180	12/14/2016 12:29:59	1.029%	-1.242%	0.099%	12889	15290	15257	12944
163896001MS	79	11.860	12/14/2016 12:34:49	0.987%	-.234%	0.052%	12859	15295	15266	12910
163896001	80	9.530	12/14/2016 12:39:40	0.114%	0.0%	0.013%	12831	13175	13147	12878
163896001	81	18.040	12/14/2016 12:44:31	0.497%	1.694%	0.082%	12815	14721	14704	12873
163896001D	82	17.010	12/14/2016 12:49:21	0.102%	-.163%	0.123%	12800	13288	13259	12863
163896001D	83	9.920	12/14/2016 12:54:12	0.099%	0.560%	0.012%	12789	13114	13088	12836
163896002	84	12.540	12/14/2016 12:59:03	0.171%	1.551%	0.069%	12776	13335	13314	12829
163896002	85	13.690	12/14/2016 1:03:53 P	0.146%	1.623%	0.108%	12773	13307	13287	12831
163896003	86	12.550	12/14/2016 1:08:44 P	0.059%	1.328%	0.039%	12769	13049	13027	12819
CCV	87	10.0	12/14/2016 1:13:35 P	1.017%	2.500%	-.185%	12769	14884	14865	12800
CCB	88	69.330	12/14/2016 1:18:26 P	-.003%	0.200%	-.025%	12764	12844	12821	12796
163896003	89	17.540	12/14/2016 1:23:54 P	0.066%	0.475%	0.063%	12760	13127	13102	12815
163896004	90	11.810	12/14/2016 1:28:45 P	0.109%	1.646%	0.125%	12747	13141	13120	12805
163896004	91	15.050	12/14/2016 1:33:36 P	0.118%	1.661%	0.172%	12738	13238	13219	12805
163896005	92	5.950	12/14/2016 1:38:27 P	0.037%	5.135%	-.083%	12731	12900	12883	12773
163896005	93	17.680	12/14/2016 1:43:17 P	0.066%	1.257%	0.077%	12734	13104	13084	12791
163896006	94	13.010	12/14/2016 1:48:08 P	0.155%	1.495%	0.217%	12729	13278	13257	12798
163896006	95	8.670	12/14/2016 1:52:59 P	0.157%	3.845%	0.099%	12723	13128	13112	12776

Sample Raw Data

Date of report	12/14/2016 2:00:56PM
User ID	Alpha Analytical

DATE & TIME	12/13/2016 1:00:39 PM	P_ID	121316CLM
RUN TYPE	BLANK	USER ID	alpha
		MODE	CHN

		SIGNALS		AVERAGE RESULTS	
		ZR	12795		
CARBON	2466	NR	13672	CARBON	2466
HYDROGEN	-2	CR	16138	HYDROGEN	-2
NITROGEN	877	HR	16136	NITROGEN	877
FILL TIME	20 Seconds				

DATE & TIME	12/13/2016 1:05:23 PM	P_ID	121316CLM
RUN TYPE	BLANK	USER ID	alpha
		MODE	CHN

		SIGNALS		AVERAGE RESULTS	
		ZR	12658		
CARBON	253	NR	12854	CARBON	253
HYDROGEN	128	CR	13107	HYDROGEN	128
NITROGEN	196	HR	13235	NITROGEN	196
FILL TIME	20 Seconds				

DATE & TIME	12/13/2016 1:10:08 PM	P_ID	121316CLM
RUN TYPE	BLANK	USER ID	alpha
		MODE	CHN

		SIGNALS		AVERAGE RESULTS	
		ZR	12604		
CARBON	126	NR	12689	CARBON	126
HYDROGEN	-11	CR	12815	HYDROGEN	-11
NITROGEN	85	HR	12804	NITROGEN	85
FILL TIME	22 Seconds				

DATE & TIME	12/13/2016 1:21:27 PM	P_ID	121316CLM
SAMPLE ID	COND	USER ID	alpha
WEIGHT (mg)	7.760	MODE	CHN

				SIGNALS	
				ZR	12680
CARBON	4.364%			NR	12853
HYDROGEN	3.580%			CR	20007
NITROGEN	1.395%			HR	20006
BLANKS	126	-11	85		
K FACTORS	20.751	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	19 Seconds				

DATE & TIME	12/13/2016 1:26:09 PM	P_ID	121316CLM
RUN TYPE	BLANK	USER ID	alpha
		MODE	CHN

		SIGNALS			
		ZR	12661	AVERAGE RESULTS	
CARBON	154	NR	12702	CARBON	140
HYDROGEN	-3	CR	12856	HYDROGEN	-7
NITROGEN	41	HR	12853	NITROGEN	63
FILL TIME	19 Seconds				

DATE & TIME	12/13/2016 1:30:52 PM	P_ID	121316CLM
RUN TYPE	K1	USER ID	alpha
WEIGHT (mg)	10.390	MODE	CHN

				SIGNALS			
				ZR	12676	AVERAGE RESULTS	
KC	20.164			NR	12713	KC	20.457
KH	0.013			CR	14948	KH	0.036
KN	-.021			HR	14948	KN	0.813
BLANKS	140	-7	63				
K FACTORS	1.0%	5.03%	11.67%				
FILL TIME	19 Seconds						

NUMBER	MESSAGE
8	CHECK FOR SAMPLE DROP

DATE & TIME	12/13/2016 1:38:22 PM	P_ID	121316CLM
RUN TYPE	BLANK	USER ID	alpha
		MODE	CHN

				SIGNALS			
				ZR	12724	AVERAGE RESULTS	
CARBON	101			NR	12758	CARBON	120
HYDROGEN	-26			CR	12859	HYDROGEN	-17
NITROGEN	34			HR	12833	NITROGEN	48
FILL TIME	19 Seconds						

DATE & TIME	12/13/2016 1:43:06 PM	P_ID	121316CLM
RUN TYPE	K1	USER ID	alpha
WEIGHT (mg)	10.110	MODE	CHN

				SIGNALS			
				ZR	12721	AVERAGE RESULTS	
KC	18.487			NR	12749	KC	19.472
KH	-.051			CR	14738	KH	0.036
KN	-.017			HR	14695	KN	0.813
BLANKS	120	-17	48				
K FACTORS	1.0%	5.03%	11.67%				
FILL TIME	20 Seconds						

NUMBER	MESSAGE
8	CHECK FOR SAMPLE DROP

DATE & TIME	12/13/2016 1:57:17 PM	P_ID	121316CLM
RUN TYPE	K1	USER ID	alpha
WEIGHT (mg)	10.050	MODE	CHN

		SIGNALS			
		ZR	12807	AVERAGE RESULTS	

KC	19.861	NR	12839	KC	19.666
KH	-.047	CR	14955	KH	0.036
KN	-.014	HR	14914	KN	0.813

BLANKS	120	-17	48
K FACTORS	1.0%	5.03%	11.67%
FILL TIME	19 Seconds		

NUMBER	MESSAGE
8	CHECK FOR SAMPLE DROP

DATE & TIME	12/13/2016 2:04:47 PM	P_ID	121316CLM
RUN TYPE	BLANK	USER ID	alpha
		MODE	CHN

SIGNALS

		ZR	12815	AVERAGE RESULTS	
CARBON	49	NR	12860	CARBON	84
HYDROGEN	-38	CR	12909	HYDROGEN	-28
NITROGEN	45	HR	12871	NITROGEN	46
FILL TIME	24 Seconds				

DATE & TIME	12/13/2016 2:09:35 PM	P_ID	121316CLM
SAMPLE ID	0	USER ID	alpha
WEIGHT (mg)	10.160	MODE	CHN

SIGNALS

		ZR	12797
CARBON	-.004%	NR	12842
HYDROGEN	-4.101%	CR	12919
NITROGEN	-.012%	HR	12876

BLANKS	84	-28	46
K FACTORS	19.666	0.036	0.813

FILL	COMB	BOOST1	BOOST2
1	2	1	1

FILL TIME	25 Seconds

DATE & TIME	12/13/2016 2:14:23 PM	P_ID	121316CLM
SAMPLE ID	1000	USER ID	alpha
WEIGHT (mg)	10.100	MODE	CHN

SIGNALS

		ZR	12780
CARBON	0.105%	NR	12824
HYDROGEN	-3.300%	CR	13117
NITROGEN	-.024%	HR	13077

BLANKS	84	-28	46
K FACTORS	19.666	0.036	0.813

FILL	COMB	BOOST1	BOOST2
1	2	1	1

FILL TIME	24 Seconds

DATE & TIME	12/13/2016 2:19:06 PM	P_ID	121316CLM
SAMPLE ID	5000	USER ID	alpha
WEIGHT (mg)	10.310	MODE	CHN

				SIGNALS	
				ZR	12784
CARBON	0.449%			NR	12813
HYDROGEN	1.617%			CR	13808
NITROGEN	-.203%			HR	13786
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	19 Seconds				

DATE & TIME	12/13/2016 2:23:49 PM	P_ID	121316CLM
SAMPLE ID	10000	USER ID	alpha
WEIGHT (mg)	10.220	MODE	CHN

				SIGNALS	
				ZR	12772
CARBON	0.960%			NR	12798
HYDROGEN	2.718%			CR	14811
NITROGEN	-.241%			HR	14793
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	19 Seconds				

DATE & TIME	12/13/2016 2:28:32 PM	P_ID	121316CLM
SAMPLE ID	20000	USER ID	alpha
WEIGHT (mg)	10.160	MODE	CHN

				SIGNALS	
				ZR	12765
CARBON	1.909%			NR	12797
HYDROGEN	5.468%			CR	16696
NITROGEN	-.169%			HR	16688
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	19 Seconds				

DATE & TIME	12/13/2016 2:33:15 PM	P_ID	121316CLM
SAMPLE ID	40000	USER ID	alpha
WEIGHT (mg)	10.800	MODE	CHN

				SIGNALS	
				ZR	12777
CARBON	3.688%			NR	12806
HYDROGEN	4.372%			CR	20723
NITROGEN	-.194%			HR	20712
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	20 Seconds				

DATE & TIME	12/13/2016 2:43:32 PM	P_ID	121316CLM
SAMPLE ID	ICV	USER ID	alpha
WEIGHT (mg)	10.210	MODE	CHN

				SIGNALS	
				ZR	12807
CARBON	0.959%			NR	12837
HYDROGEN	6.530%			CR	14847
NITROGEN	-.193%			HR	14843
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	19 Seconds				

DATE & TIME	12/13/2016 2:48:15 PM	P_ID	121316CLM
SAMPLE ID	ICB	USER ID	alpha
WEIGHT (mg)	65.360	MODE	CHN

				SIGNALS	
				ZR	12795
CARBON	0.0%			NR	12829
HYDROGEN	0.765%			CR	12915
NITROGEN	-.023%			HR	12905
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	19 Seconds				

DATE & TIME	12/13/2016 2:53:00 PM	P_ID	121316CLM
SAMPLE ID	HICV	USER ID	alpha
WEIGHT (mg)	53.080	MODE	CHN

				SIGNALS	
				ZR	12795
CARBON	3.880%			NR	12823
HYDROGEN	4.239%			CR	53405
NITROGEN	-.042%			HR	53458
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	21 Seconds				

DATE & TIME	12/13/2016 2:57:43 PM	P_ID	121316CLM
SAMPLE ID	SRM1944	USER ID	alpha
WEIGHT (mg)	11.350	MODE	CHN

		SIGNALS	
		ZR	12807
CARBON	4.110%	NR	13011
HYDROGEN	323.544%	CR	22270
NITROGEN	1.712%	HR	23564

BLANKS	84	-28	46
K FACTORS	19.666	0.036	0.813

FILL	COMB	BOOST1	BOOST2
1	2	1	1

FILL TIME	19 Seconds

DATE & TIME	12/13/2016 3:02:26 PM	P_ID	121316CLM
SAMPLE ID	MB	USER ID	alpha
WEIGHT (mg)	56.810	MODE	CHN

		SIGNALS	
		ZR	12735
CARBON	0.009%	NR	12766
HYDROGEN	1.222%	CR	12950
NITROGEN	-.032%	HR	12947

BLANKS	84	-28	46
K FACTORS	19.666	0.036	0.813

FILL	COMB	BOOST1	BOOST2
1	2	1	1

FILL TIME	19 Seconds

DATE & TIME	12/13/2016 3:07:09 PM	P_ID	121316CLM
SAMPLE ID	SRM1944	USER ID	alpha
WEIGHT (mg)	12.340	MODE	CHN

		SIGNALS	
		ZR	12735
CARBON	4.398%	NR	12969
HYDROGEN	6.978%	CR	23726
NITROGEN	1.874%	HR	23729

BLANKS	84	-28	46
K FACTORS	19.666	0.036	0.813

FILL	COMB	BOOST1	BOOST2
1	2	1	1

FILL TIME	19 Seconds

DATE & TIME	12/13/2016 3:11:52 PM	P_ID	121316CLM
SAMPLE ID	MB	USER ID	alpha
WEIGHT (mg)	62.750	MODE	CHN

		SIGNALS	
		ZR	12733
CARBON	0.003%	NR	12777
HYDROGEN	1.284%	CR	12903
NITROGEN	-.004%	HR	12904

BLANKS	84	-28	46
K FACTORS	19.666	0.036	0.813

FILL	COMB	BOOST1	BOOST2
1	2	1	1

FILL TIME	19 Seconds

DATE & TIME	12/13/2016 3:16:35 PM	P_ID	121316CLM
SAMPLE ID	163952201	USER ID	alpha
WEIGHT (mg)	15.430	MODE	CHN

				SIGNALS	
				ZR	12756
CARBON	5.022%			NR	13095
HYDROGEN	7.561%			CR	28418
NITROGEN	2.336%			HR	28432
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	20 Seconds				

DATE & TIME	12/13/2016 3:21:20 PM	P_ID	121316CLM
SAMPLE ID	163952201	USER ID	alpha
WEIGHT (mg)	8.360	MODE	CHN

				SIGNALS	
				ZR	12759
CARBON	6.325%			NR	12987
HYDROGEN	13.291%			CR	23469
NITROGEN	2.678%			HR	23481
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	21 Seconds				

DATE & TIME	12/13/2016 3:26:06 PM	P_ID	121316CLM
SAMPLE ID	163952203	USER ID	alpha
WEIGHT (mg)	12.620	MODE	CHN

				SIGNALS	
				ZR	12758
CARBON	2.676%			NR	12910
HYDROGEN	7.043%			CR	19635
NITROGEN	1.033%			HR	19639
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	23 Seconds				

DATE & TIME	12/13/2016 3:30:54 PM	P_ID	121316CLM
SAMPLE ID	163952203	USER ID	alpha
WEIGHT (mg)	16.600	MODE	CHN

				SIGNALS	
				ZR	12764
CARBON	1.825%			NR	12905
HYDROGEN	0.0%			CR	18946
NITROGEN	0.704%			HR	18918
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	24 Seconds				

DATE & TIME	12/13/2016 3:35:37 PM	P_ID	121316CLM
SAMPLE ID	163952205	USER ID	alpha
WEIGHT (mg)	12.250	MODE	CHN

				SIGNALS	
				ZR	12768
CARBON	7.467%			NR	13070
HYDROGEN	9.751%			CR	31143
NITROGEN	2.570%			HR	31158
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	19 Seconds				

DATE & TIME	12/13/2016 3:40:24 PM	P_ID	121316CLM
SAMPLE ID	163952205	USER ID	alpha
WEIGHT (mg)	10.980	MODE	CHN

				SIGNALS	
				ZR	12773
CARBON	9.046%			NR	13106
HYDROGEN	8.854%			CR	32724
NITROGEN	3.215%			HR	32731
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	24 Seconds				

DATE & TIME	12/13/2016 3:49:29 PM	P_ID	121316CLM
SAMPLE ID	CCV	USER ID	alpha
WEIGHT (mg)	10.260	MODE	CHN

				SIGNALS	
				ZR	12815
CARBON	1.060%			NR	12861
HYDROGEN	5.144%			CR	15083
NITROGEN	0.0%			HR	15074
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	22 Seconds				

DATE & TIME	12/13/2016 3:54:16 PM	P_ID	121316CLM
SAMPLE ID	CCB	USER ID	alpha
WEIGHT (mg)	61.480	MODE	CHN

		SIGNALS	
		ZR	12791
CARBON	0.004%	NR	12835
HYDROGEN	-.271%	CR	12970
NITROGEN	-.004%	HR	12936

BLANKS	84	-28	46
K FACTORS	19.666	0.036	0.813

FILL	COMB	BOOST1	BOOST2
1	2	1	1

FILL TIME 23 Seconds

DATE & TIME	12/13/2016 3:59:23 PM	P_ID	121316CLM
SAMPLE ID	163952203	USER ID	alpha
WEIGHT (mg)	21.620	MODE	CHN

		SIGNALS	
		ZR	12779
CARBON	1.945%	NR	12968
HYDROGEN	1.413%	CR	21323
NITROGEN	0.814%	HR	21306

BLANKS	84	-28	46
K FACTORS	19.666	0.036	0.813

FILL	COMB	BOOST1	BOOST2
1	2	1	1

FILL TIME 24 Seconds

DATE & TIME	12/13/2016 4:04:12 PM	P_ID	121316CLM
SAMPLE ID	163952203	USER ID	alpha
WEIGHT (mg)	14.550	MODE	CHN

		SIGNALS	
		ZR	12785
CARBON	2.618%	NR	12942
HYDROGEN	4.009%	CR	20516
NITROGEN	0.938%	HR	20509

BLANKS	84	-28	46
K FACTORS	19.666	0.036	0.813

FILL	COMB	BOOST1	BOOST2
1	2	1	1

FILL TIME 25 Seconds

DATE & TIME	12/13/2016 4:08:59 PM	P_ID	121316CLM
SAMPLE ID	163896001	USER ID	alpha
WEIGHT (mg)	16.260	MODE	CHN

		SIGNALS	
		ZR	12770
CARBON	1.821%	NR	12927
HYDROGEN	0.683%	CR	18833
NITROGEN	0.840%	HR	18809

BLANKS	84	-28	46
K FACTORS	19.666	0.036	0.813

FILL	COMB	BOOST1	BOOST2
1	2	1	1

FILL TIME 24 Seconds

DATE & TIME	12/13/2016 4:13:46 PM	P_ID	121316CLM
SAMPLE ID	163896001	USER ID	alpha
WEIGHT (mg)	8.910	MODE	CHN

				SIGNALS	
				ZR	12766
CARBON	1.603%			NR	12859
HYDROGEN	0.624%			CR	15751
NITROGEN	0.649%			HR	15725
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	23 Seconds				

DATE & TIME	12/13/2016 4:18:33 PM	P_ID	121316CLM
SAMPLE ID	163896002	USER ID	alpha
WEIGHT (mg)	9.530	MODE	CHN

				SIGNALS	
				ZR	12769
CARBON	2.150%			NR	12903
HYDROGEN	1.749%			CR	17017
NITROGEN	1.136%			HR	16995
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	24 Seconds				

DATE & TIME	12/13/2016 4:23:19 PM	P_ID	121316CLM
SAMPLE ID	163896002	USER ID	alpha
WEIGHT (mg)	7.300	MODE	CHN

				SIGNALS	
				ZR	12791
CARBON	1.983%			NR	12879
HYDROGEN	5.327%			CR	15810
NITROGEN	0.708%			HR	15796
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	22 Seconds				

DATE & TIME	12/13/2016 4:28:04 PM	P_ID	121316CLM
SAMPLE ID	163896003	USER ID	alpha
WEIGHT (mg)	6.700	MODE	CHN

				SIGNALS	
				ZR	12781
CARBON	1.713%			NR	12865
HYDROGEN	5.804%			CR	15206
NITROGEN	0.698%			HR	15192
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	21 Seconds				

DATE & TIME	12/13/2016 4:32:47 PM	P_ID	121316CLM
SAMPLE ID	163896003	USER ID	alpha
WEIGHT (mg)	15.360	MODE	CHN

				SIGNALS	
				ZR	12774
CARBON	1.737%			NR	12931
HYDROGEN	4.340%			CR	18263
NITROGEN	0.889%			HR	18259
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	20 Seconds				

DATE & TIME	12/13/2016 4:37:30 PM	P_ID	121316CLM
SAMPLE ID	163896004	USER ID	alpha
WEIGHT (mg)	11.490	MODE	CHN

				SIGNALS	
				ZR	12768
CARBON	2.057%			NR	12894
HYDROGEN	4.835%			CR	17625
NITROGEN	0.856%			HR	17617
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	19 Seconds				

DATE & TIME	12/13/2016 4:42:13 PM	P_ID	121316CLM
SAMPLE ID	163896004	USER ID	alpha
WEIGHT (mg)	12.120	MODE	CHN

				SIGNALS	
				ZR	12765
CARBON	2.074%			NR	12904
HYDROGEN	5.959%			CR	17931
NITROGEN	0.944%			HR	17929
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	19 Seconds				

DATE & TIME	12/13/2016 4:46:58 PM	P_ID	121316CLM
SAMPLE ID	CCV	USER ID	alpha
WEIGHT (mg)	10.180	MODE	CHN

		SIGNALS	
		ZR	12789
CARBON	1.052%	NR	12824
HYDROGEN	3.274%	CR	15015
NITROGEN	-.133%	HR	14999

BLANKS	84	-28	46
K FACTORS	19.666	0.036	0.813

FILL	COMB	BOOST1	BOOST2
1	2	1	1

FILL TIME	21 Seconds

DATE & TIME	12/13/2016 4:51:42 PM	P_ID	121316CLM
SAMPLE ID	CCB	USER ID	alpha
WEIGHT (mg)	59.780	MODE	CHN

		SIGNALS	
		ZR	12776
CARBON	0.001%	NR	12814
HYDROGEN	0.465%	CR	12912
NITROGEN	-.016%	HR	12894
BLANKS	84	-28	46
K FACTORS	19.666	0.036	0.813

FILL	COMB	BOOST1	BOOST2
1	2	1	1

FILL TIME	20 Seconds

DATE & TIME	12/13/2016 4:56:48 PM	P_ID	121316CLM
SAMPLE ID	163896005	USER ID	alpha
WEIGHT (mg)	9.780	MODE	CHN

		SIGNALS	
		ZR	12769
CARBON	1.969%	NR	12893
HYDROGEN	7.669%	CR	16764
NITROGEN	0.981%	HR	16763
BLANKS	84	-28	46
K FACTORS	19.666	0.036	0.813

FILL	COMB	BOOST1	BOOST2
1	2	1	1

FILL TIME	21 Seconds

DATE & TIME	12/13/2016 5:01:34 PM	P_ID	121316CLM
SAMPLE ID	163896005	USER ID	alpha
WEIGHT (mg)	16.530	MODE	CHN

		SIGNALS	
		ZR	12776
CARBON	2.024%	NR	12954
HYDROGEN	5.041%	CR	19619
NITROGEN	0.982%	HR	19621
BLANKS	84	-28	46
K FACTORS	19.666	0.036	0.813

FILL	COMB	BOOST1	BOOST2
1	2	1	1

FILL TIME	22 Seconds

DATE & TIME	12/13/2016 5:06:21 PM	P_ID	121316CLM
SAMPLE ID	163896006	USER ID	alpha
WEIGHT (mg)	16.680	MODE	CHN

				SIGNALS	
				ZR	12770
CARBON	2.124%			NR	12968
HYDROGEN	1.332%			CR	20019
NITROGEN	1.121%			HR	19999
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	23 Seconds				

DATE & TIME	12/13/2016 5:11:08 PM	P_ID	121316CLM
SAMPLE ID	163896006	USER ID	alpha
WEIGHT (mg)	10.150	MODE	CHN

				SIGNALS	
				ZR	12767
CARBON	2.203%			NR	12903
HYDROGEN	1.368%			CR	17384
NITROGEN	1.091%			HR	17361
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	23 Seconds				

DATE & TIME	12/13/2016 5:15:54 PM	P_ID	121316CLM
SAMPLE ID	163896001D	USER ID	alpha
WEIGHT (mg)	12.210	MODE	CHN

				SIGNALS	
				ZR	12772
CARBON	1.246%			NR	12893
HYDROGEN	2.730%			CR	15969
NITROGEN	0.756%			HR	15953
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	23 Seconds				

DATE & TIME	12/13/2016 5:20:41 PM	P_ID	121316CLM
SAMPLE ID	163896001D	USER ID	alpha
WEIGHT (mg)	12.820	MODE	CHN

				SIGNALS	
				ZR	12796
CARBON	1.695%			NR	12920
HYDROGEN	3.900%			CR	17278
NITROGEN	0.748%			HR	17268
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	23 Seconds				

DATE & TIME	12/13/2016 5:25:23 PM	P_ID	121316CLM
SAMPLE ID	163896001MS	USER ID	alpha
WEIGHT (mg)	13.090	MODE	CHN

				SIGNALS	
				ZR	12792
CARBON	2.799%			NR	12928
HYDROGEN	4.032%			CR	20218
NITROGEN	0.846%			HR	20209
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	18 Seconds				

DATE & TIME	12/13/2016 5:30:05 PM	P_ID	121316CLM
SAMPLE ID	163896001MS	USER ID	alpha
WEIGHT (mg)	10.520	MODE	CHN

				SIGNALS	
				ZR	12795
CARBON	2.645%			NR	12899
HYDROGEN	3.961%			CR	18456
NITROGEN	0.678%			HR	18443
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	18 Seconds				

DATE & TIME	12/13/2016 5:34:46 PM	P_ID	121316CLM
SAMPLE ID	163896001MSD	USER ID	alpha
WEIGHT (mg)	13.240	MODE	CHN

				SIGNALS	
				ZR	12786
CARBON	2.372%			NR	12906
HYDROGEN	3.986%			CR	19167
NITROGEN	0.687%			HR	19158
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	18 Seconds				

DATE & TIME	12/13/2016 5:39:28 PM	P_ID	121316CLM
SAMPLE ID	163896001MSD	USER ID	alpha
WEIGHT (mg)	13.690	MODE	CHN

		SIGNALS	
		ZR	12794
CARBON	5.034%	NR	12979
HYDROGEN	6.087%	CR	26615
NITROGEN	1.249%	HR	26617

BLANKS	84	-28	46
K FACTORS	19.666	0.036	0.813
FILL	COMB	BOOST1	BOOST2
1	2	1	1
FILL TIME	18 Seconds		

DATE & TIME	12/13/2016 5:44:10 PM	P_ID	121316CLM
SAMPLE ID	CCV	USER ID	alpha
WEIGHT (mg)	10.410	MODE	CHN

				SIGNALS	
				ZR	12805
CARBON	1.029%			NR	12831
HYDROGEN	5.070%			CR	15021
NITROGEN	-.236%			HR	15012
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	18 Seconds				

DATE & TIME	12/13/2016 5:48:51 PM	P_ID	121316CLM
SAMPLE ID	CCB	USER ID	alpha
WEIGHT (mg)	60.800	MODE	CHN

				SIGNALS	
				ZR	12806
CARBON	-.002%			NR	12832
HYDROGEN	0.685%			CR	12891
NITROGEN	-.040%			HR	12878
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	18 Seconds				

DATE & TIME	12/14/2016 9:11:03 AM	P_ID	121316CLM
SAMPLE ID	163960501	USER ID	alpha
WEIGHT (mg)	7.580	MODE	CHN

				SIGNALS	
				ZR	13530
CARBON	4.736%			NR	13855
HYDROGEN	-13.193%			CR	20999
NITROGEN	4.527%			HR	20935
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	27 Seconds				

DATE & TIME	12/14/2016 9:15:53 AM	P_ID	121316CLM
SAMPLE ID	163960502	USER ID	alpha
WEIGHT (mg)	11.220	MODE	CHN

				SIGNALS	
				ZR	13421
CARBON	4.854%			NR	13804
HYDROGEN	-2.971%			CR	24598
NITROGEN	3.694%			HR	24558
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	27 Seconds				

DATE & TIME	12/14/2016 9:20:43 AM	P_ID	121316CLM
SAMPLE ID	163960502	USER ID	alpha
WEIGHT (mg)	11.220	MODE	CHN

				SIGNALS	
				ZR	13367
CARBON	5.736%			NR	13677
HYDROGEN	0.0%			CR	26417
NITROGEN	2.894%			HR	26389
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	26 Seconds				

DATE & TIME	12/14/2016 9:27:34 AM	P_ID	121316CLM
SAMPLE ID	163960501	USER ID	alpha
WEIGHT (mg)	6.190	MODE	CHN

				SIGNALS	
				ZR	13327
CARBON	4.693%			NR	13525
HYDROGEN	-3.141%			CR	19322
NITROGEN	3.020%			HR	19287
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	26 Seconds				

DATE & TIME	12/14/2016 9:45:29 AM	P_ID	121316CLM
SAMPLE ID	163992901	USER ID	alpha
WEIGHT (mg)	13.640	MODE	CHN

				SIGNALS	
				ZR	13321
CARBON	6.922%			NR	13791
HYDROGEN	1.018%			CR	32444
NITROGEN	3.823%			HR	32421
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	26 Seconds				

DATE & TIME	12/14/2016 9:50:19 AM	P_ID	121316CLM
SAMPLE ID	163992901	USER ID	alpha
WEIGHT (mg)	13.090	MODE	CHN

				SIGNALS	
				ZR	13270
CARBON	7.120%			NR	13724
HYDROGEN	3.183%			CR	32136
NITROGEN	3.834%			HR	32123
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	26 Seconds				

DATE & TIME	12/14/2016 9:55:09 AM	P_ID	121316CLM
SAMPLE ID	163992903	USER ID	alpha
WEIGHT (mg)	15.420	MODE	CHN

				SIGNALS	
				ZR	13235
CARBON	4.657%			NR	13549
HYDROGEN	1.801%			CR	27755
NITROGEN	2.138%			HR	27737
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	26 Seconds				

DATE & TIME	12/14/2016 9:59:59 AM	P_ID	121316CLM
SAMPLE ID	163992903	USER ID	alpha
WEIGHT (mg)	10.190	MODE	CHN

				SIGNALS	
				ZR	13219
CARBON	4.468%			NR	13431
HYDROGEN	0.545%			CR	22468
NITROGEN	2.004%			HR	22442
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	26 Seconds				

DATE & TIME	12/14/2016 10:04:49 AM	P_ID	121316CLM
SAMPLE ID	163992905	USER ID	alpha
WEIGHT (mg)	11.780	MODE	CHN

		SIGNALS	
		ZR	13191
CARBON	4.973%	NR	13482
HYDROGEN	3.537%	CR	25086
NITROGEN	2.558%	HR	25073

BLANKS	84	-28	46
K FACTORS	19.666	0.036	0.813

FILL	COMB	BOOST1	BOOST2
1	2	1	1
FILL TIME	26 Seconds		

DATE & TIME	12/14/2016 10:09:39 AM	P_ID	121316CLM
SAMPLE ID	CCV	USER ID	alpha
WEIGHT (mg)	10.110	MODE	CHN

		SIGNALS	
		ZR	13190
CARBON	1.039%	NR	13209
HYDROGEN	-.275%	CR	15358
NITROGEN	-.328%	HR	15329
BLANKS	84 -28 46		
K FACTORS	19.666 0.036 0.813		

FILL	COMB	BOOST1	BOOST2
1	2	1	1
FILL TIME	27 Seconds		

DATE & TIME	12/14/2016 10:14:29 AM	P_ID	121316CLM
SAMPLE ID	CCB	USER ID	alpha
WEIGHT (mg)	63.680	MODE	CHN

		SIGNALS	
		ZR	13180
CARBON	-.002%	NR	13196
HYDROGEN	-.218%	CR	13255
NITROGEN	-.058%	HR	13222
BLANKS	84 -28 46		
K FACTORS	19.666 0.036 0.813		

FILL	COMB	BOOST1	BOOST2
1	2	1	1
FILL TIME	27 Seconds		

DATE & TIME	12/14/2016 10:55:40 AM	P_ID	121316CLM
SAMPLE ID	163992905	USER ID	alpha
WEIGHT (mg)	12.790	MODE	CHN

		SIGNALS	
		ZR	13176
CARBON	5.754%	NR	13551
HYDROGEN	-1.303%	CR	28109
NITROGEN	3.164%	HR	28075
BLANKS	84 -28 46		
K FACTORS	19.666 0.036 0.813		

FILL	COMB	BOOST1	BOOST2
1	2	1	1
FILL TIME	26 Seconds		

DATE & TIME	12/14/2016 11:07:21 AM	P_ID	121316CLM
SAMPLE ID	SRM1650B	USER ID	alpha
WEIGHT (mg)	1.250	MODE	CHN

				SIGNALS	
				ZR	13107
CARBON	85.720%			NR	13226
HYDROGEN	77.778%			CR	34382
NITROGEN	7.183%			HR	34389
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	27 Seconds				

DATE & TIME	12/14/2016 11:12:12 AM	P_ID	121316CLM
SAMPLE ID	MB	USER ID	alpha
WEIGHT (mg)	63.300	MODE	CHN

				SIGNALS	
				ZR	13061
CARBON	-.002%			NR	13084
HYDROGEN	-.132%			CR	13144
NITROGEN	-.045%			HR	13113
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	27 Seconds				

DATE & TIME	12/14/2016 11:17:02 AM	P_ID	121316CLM
SAMPLE ID	SRM1650B	USER ID	alpha
WEIGHT (mg)	.700	MODE	CHN

				SIGNALS	
				ZR	13040
CARBON	71.109%			NR	13109
HYDROGEN	67.460%			CR	22982
NITROGEN	4.041%			HR	22971
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	27 Seconds				

DATE & TIME	12/14/2016 11:21:52 AM	P_ID	121316CLM
SAMPLE ID	MB	USER ID	alpha
WEIGHT (mg)	57.290	MODE	CHN

				SIGNALS	
				ZR	13023
CARBON	-.003%			NR	13048
HYDROGEN	0.291%			CR	13097
NITROGEN	-.045%			HR	13075
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	27 Seconds				

DATE & TIME	12/14/2016 11:45:54 AM	P_ID	121316CLM
SAMPLE ID	163896001	USER ID	alpha
WEIGHT (mg)	11.620	MODE	CHN

				SIGNALS	
				ZR	13048
CARBON	0.104%			NR	13098
HYDROGEN	-4.303%			CR	13419
NITROGEN	0.042%			HR	13373
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	27 Seconds				

DATE & TIME	12/14/2016 11:50:44 AM	P_ID	121316CLM
SAMPLE ID	163896001	USER ID	alpha
WEIGHT (mg)	9.290	MODE	CHN

				SIGNALS	
				ZR	12986
CARBON	0.257%			NR	13033
HYDROGEN	-2.093%			CR	13587
NITROGEN	0.013%			HR	13552
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	27 Seconds				

DATE & TIME	12/14/2016 11:55:35 AM	P_ID	121316CLM
SAMPLE ID	163896001D	USER ID	alpha
WEIGHT (mg)	15.720	MODE	CHN

				SIGNALS	
				ZR	12954
CARBON	0.153%			NR	13008
HYDROGEN	-.353%			CR	13564
NITROGEN	0.063%			HR	13534
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	27 Seconds				

DATE & TIME	12/14/2016 12:00:25 PM	P_ID	121316CLM
SAMPLE ID	163896001D	USER ID	alpha
WEIGHT (mg)	11.160	MODE	CHN

		SIGNALS	
		ZR	12932
CARBON	0.098%	NR	12981
HYDROGEN	1.245%	CR	13279
NITROGEN	0.033%	HR	13256

BLANKS	84	-28	46
K FACTORS	19.666	0.036	0.813

FILL	COMB	BOOST1	BOOST2
1	2	1	1

FILL TIME 27 Seconds

DATE & TIME	12/14/2016 12:05:16 PM	P_ID	121316CLM
SAMPLE ID	163896001MS	USER ID	alpha
WEIGHT (mg)	12.180	MODE	CHN

				SIGNALS	
				ZR	12923
CARBON	0.974%			NR	12979
HYDROGEN	1.140%			CR	15396
NITROGEN	0.101%			HR	15373
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		

FILL	COMB	BOOST1	BOOST2
1	2	1	1

FILL TIME 27 Seconds

DATE & TIME	12/14/2016 12:10:07 PM	P_ID	121316CLM
SAMPLE ID	CCV	USER ID	alpha
WEIGHT (mg)	9.980	MODE	CHN

				SIGNALS	
				ZR	12913
CARBON	1.031%			NR	12945
HYDROGEN	2.227%			CR	15052
NITROGEN	-.173%			HR	15032
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		

FILL	COMB	BOOST1	BOOST2
1	2	1	1

FILL TIME 27 Seconds

DATE & TIME	12/14/2016 12:14:58 PM	P_ID	121316CLM
SAMPLE ID	CCB	USER ID	alpha
WEIGHT (mg)	46.460	MODE	CHN

				SIGNALS	
				ZR	12907
CARBON	0.001%			NR	12934
HYDROGEN	0.179%			CR	13023
NITROGEN	-.050%			HR	12998
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		

FILL	COMB	BOOST1	BOOST2
1	2	1	1

FILL TIME 27 Seconds

DATE & TIME	12/14/2016 12:25:08 PM	P_ID	121316CLM
SAMPLE ID	163896001MS	USER ID	alpha
WEIGHT (mg)	6.700	MODE	CHN

				SIGNALS	
				ZR	12921
CARBON	1.666%			NR	12960
HYDROGEN	-4.975%			CR	15239
NITROGEN	-.129%			HR	15199
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	27 Seconds				

DATE & TIME	12/14/2016 12:29:59 PM	P_ID	121316CLM
SAMPLE ID	163896001MSD	USER ID	alpha
WEIGHT (mg)	11.180	MODE	CHN

				SIGNALS	
				ZR	12889
CARBON	1.029%			NR	12944
HYDROGEN	-1.242%			CR	15290
NITROGEN	0.099%			HR	15257
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	27 Seconds				

DATE & TIME	12/14/2016 12:34:49 PM	P_ID	121316CLM
SAMPLE ID	163896001MSD	USER ID	alpha
WEIGHT (mg)	11.860	MODE	CHN

				SIGNALS	
				ZR	12859
CARBON	0.987%			NR	12910
HYDROGEN	-.234%			CR	15295
NITROGEN	0.052%			HR	15266
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	27 Seconds				

DATE & TIME	12/14/2016 12:39:40 PM	P_ID	121316CLM
SAMPLE ID	163896001	USER ID	alpha
WEIGHT (mg)	9.530	MODE	CHN

				SIGNALS	
				ZR	12831
CARBON	0.114%			NR	12878
HYDROGEN	0.0%			CR	13175
NITROGEN	0.013%			HR	13147
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	27 Seconds				

DATE & TIME	12/14/2016 12:44:31 PM	P_ID	121316CLM
SAMPLE ID	163896001	USER ID	alpha
WEIGHT (mg)	18.040	MODE	CHN

				SIGNALS	
				ZR	12815
CARBON	0.497%			NR	12873
HYDROGEN	1.694%			CR	14721
NITROGEN	0.082%			HR	14704
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	27 Seconds				

DATE & TIME	12/14/2016 12:49:21 PM	P_ID	121316CLM
SAMPLE ID	163896001D	USER ID	alpha
WEIGHT (mg)	17.010	MODE	CHN

				SIGNALS	
				ZR	12800
CARBON	0.102%			NR	12863
HYDROGEN	-.163%			CR	13288
NITROGEN	0.123%			HR	13259
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	27 Seconds				

DATE & TIME	12/14/2016 12:54:12 PM	P_ID	121316CLM
SAMPLE ID	163896001D	USER ID	alpha
WEIGHT (mg)	9.920	MODE	CHN

				SIGNALS	
				ZR	12789
CARBON	0.099%			NR	12836
HYDROGEN	0.560%			CR	13114
NITROGEN	0.012%			HR	13088
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	27 Seconds				

DATE & TIME	12/14/2016 12:59:03 PM	P_ID	121316CLM
SAMPLE ID	163896002	USER ID	alpha
WEIGHT (mg)	12.540	MODE	CHN

		SIGNALS	
		ZR	12776
CARBON	0.171%	NR	12829
HYDROGEN	1.551%	CR	13335
NITROGEN	0.069%	HR	13314

BLANKS	84	-28	46
K FACTORS	19.666	0.036	0.813
FILL	COMB	BOOST1	BOOST2
1	2	1	1
FILL TIME	27 Seconds		

DATE & TIME	12/14/2016 1:03:53 PM	P_ID	121316CLM
SAMPLE ID	163896002	USER ID	alpha
WEIGHT (mg)	13.690	MODE	CHN

				SIGNALS	
				ZR	12773
CARBON	0.146%			NR	12831
HYDROGEN	1.623%			CR	13307
NITROGEN	0.108%			HR	13287
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	27 Seconds				

DATE & TIME	12/14/2016 1:08:44 PM	P_ID	121316CLM
SAMPLE ID	163896003	USER ID	alpha
WEIGHT (mg)	12.550	MODE	CHN

				SIGNALS	
				ZR	12769
CARBON	0.059%			NR	12819
HYDROGEN	1.328%			CR	13049
NITROGEN	0.039%			HR	13027
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	27 Seconds				

DATE & TIME	12/14/2016 1:13:35 PM	P_ID	121316CLM
SAMPLE ID	CCV	USER ID	alpha
WEIGHT (mg)	10.0	MODE	CHN

				SIGNALS	
				ZR	12769
CARBON	1.017%			NR	12800
HYDROGEN	2.500%			CR	14884
NITROGEN	-.185%			HR	14865
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	27 Seconds				

DATE & TIME	12/14/2016 1:18:26 PM	P_ID	121316CLM
SAMPLE ID	CCB	USER ID	alpha
WEIGHT (mg)	69.330	MODE	CHN

				SIGNALS	
				ZR	12764
CARBON	-.003%			NR	12796
HYDROGEN	0.200%			CR	12844
NITROGEN	-.025%			HR	12821
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	27 Seconds				

DATE & TIME	12/14/2016 1:23:54 PM	P_ID	121316CLM
SAMPLE ID	163896003	USER ID	alpha
WEIGHT (mg)	17.540	MODE	CHN

				SIGNALS	
				ZR	12760
CARBON	0.066%			NR	12815
HYDROGEN	0.475%			CR	13127
NITROGEN	0.063%			HR	13102
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	27 Seconds				

DATE & TIME	12/14/2016 1:28:45 PM	P_ID	121316CLM
SAMPLE ID	163896004	USER ID	alpha
WEIGHT (mg)	11.810	MODE	CHN

				SIGNALS	
				ZR	12747
CARBON	0.109%			NR	12805
HYDROGEN	1.646%			CR	13141
NITROGEN	0.125%			HR	13120
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	27 Seconds				

DATE & TIME	12/14/2016 1:33:36 PM	P_ID	121316CLM
SAMPLE ID	163896004	USER ID	alpha
WEIGHT (mg)	15.050	MODE	CHN

				SIGNALS	
				ZR	12738
CARBON	0.118%			NR	12805
HYDROGEN	1.661%			CR	13238
NITROGEN	0.172%			HR	13219
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	27 Seconds				

DATE & TIME	12/14/2016 1:38:27 PM	P_ID	121316CLM
SAMPLE ID	163896005	USER ID	alpha
WEIGHT (mg)	5.950	MODE	CHN

				SIGNALS	
				ZR	12731
CARBON	0.037%			NR	12773
HYDROGEN	5.135%			CR	12900
NITROGEN	-.083%			HR	12883
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	27 Seconds				

DATE & TIME	12/14/2016 1:43:17 PM	P_ID	121316CLM
SAMPLE ID	163896005	USER ID	alpha
WEIGHT (mg)	17.680	MODE	CHN

				SIGNALS	
				ZR	12734
CARBON	0.066%			NR	12791
HYDROGEN	1.257%			CR	13104
NITROGEN	0.077%			HR	13084
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	27 Seconds				

DATE & TIME	12/14/2016 1:48:08 PM	P_ID	121316CLM
SAMPLE ID	163896006	USER ID	alpha
WEIGHT (mg)	13.010	MODE	CHN

				SIGNALS	
				ZR	12729
CARBON	0.155%			NR	12798
HYDROGEN	1.495%			CR	13278
NITROGEN	0.217%			HR	13257
BLANKS	84	-28	46		
K FACTORS	19.666	0.036	0.813		
FILL	COMB	BOOST1	BOOST2		
1	2	1	1		
FILL TIME	27 Seconds				

DATE & TIME	12/14/2016 1:52:59 PM	P_ID	121316CLM
SAMPLE ID	163896006	USER ID	alpha
WEIGHT (mg)	8.670	MODE	CHN

		SIGNALS	
		ZR	12723
CARBON	0.157%	NR	12776
HYDROGEN	3.845%	CR	13128
NITROGEN	0.099%	HR	13112

BLANKS	84	-28	46
K FACTORS	19.666	0.036	0.813

FILL	COMB	BOOST1	BOOST2
1	2	1	1
FILL TIME	27 Seconds		

Work Group

ALPHA ANALYTICAL LABORATORIES, INC.

Alpha WORK GROUP REPORT (wk02)

Dec 22 2016, 04:49 pm

Work Group: WG961577 for Department: 7 Wet Chemistry

Created: 15-DEC-16 Due: Operator:

Sample	Client ID	C	Product	Matrix	Stat	UA	HOLD	DUE	PR	Location
L1638960-01	LDW-BA-SU-ENR-CA-COR	S	A2-TOC-9060-2REPS	SOIL	DONE	U	1224	1222	S0	Glass-A.25
L1638960-02	LDW-BA-SU-ENR-CB-COR	S	A2-TOC-9060-2REPS	SOIL	DONE	U	1224	1222	S0	Glass-A.25
L1638960-03	LDW-BA-SU-ENR-CC-COR	S	A2-TOC-9060-2REPS	SOIL	DONE	U	1224	1222	S0	Glass-A.25
L1638960-04	LDW-BA-SU-ENR+AC-CA-	S	A2-TOC-9060-2REPS	SOIL	DONE	U	1224	1222	S0	Glass-A.25
L1638960-05	LDW-BA-SU-ENR+AC-CB-	S	A2-TOC-9060-2REPS	SOIL	DONE	U	1224	1222	S0	Glass-A.25
L1638960-06	LDW-BA-SU-ENR+AC-CC-	S	A2-TOC-9060-2REPS	SOIL	DONE	U	1224	1222	S0	Glass-A.25
L1639522-01	S-5/S-4 0-4.5'	S	A2-TOC-9060-2REPS	SOIL	DONE	U	0102	1220	S0	Glass-A.120
L1639522-03	S-3 0-3'	S	A2-TOC-9060-2REPS	SOIL	DONE	U	0102	1220	S0	Glass-A.120
L1639522-05	S-2/S-1 0-3.5'	S	A2-TOC-9060-2REPS	SOIL	DONE	U	0102	1220	S0	Glass-A.120
L1639929-01	S-6, 0-3.5'	S	A2-TOC-9060-2REPS	SOIL	DONE	U	0105	1222	S0	Glass-A.120
L1639929-03	S-10, 0-5'	S	A2-TOC-9060-2REPS	SOIL	DONE	U	0105	1222	S0	Glass-A.120
L1639929-05	S-7/S-8/S-9, 0-1.5'	S	A2-TOC-9060-2REPS	SOIL	DONE	U	0105	1222	S0	Glass-A.120
WG961577-1	Laboratory Method Bl	S	A2-TOC-9060-2REPS	SOIL	DONE	U				
WG961577-2	Standard Reference M	S	A2-TOC-9060-2REPS	SOIL	DONE	U				
WG961577-3	Duplicate Sample	S	A2-TOC-9060-2REPS	SOIL	DONE	U				
WG961577-4	Matrix Spike	S	A2-TOC-9060-2REPS	SOIL	DONE	U				
WG961577-5	Matrix Spike Duplica	S	A2-TOC-9060-2REPS	SOIL	DONE	U				

Comments:

WG961577-3	L1638960-01
WG961577-4	L1638960-01
WG961577-5	L1638960-01

ALPHA ANALYTICAL LABORATORIES, INC.

Alpha WORK GROUP REPORT (wk02)

Dec 22 2016, 04:49 pm

Work Group: WG961579 for Department: 7 Wet Chemistry

Created: 15-DEC-16 Due: Operator:

Sample	Client ID	C	Product	Matrix	Stat	UA	HOLD	DUE	PR	Location
L1638960-01	LDW-BA-SU-ENR-CA-COR	S	A2-SOOT	SOIL	DONE	U	1224	1222	S0	Glass-A.25
L1638960-02	LDW-BA-SU-ENR-CB-COR	S	A2-SOOT	SOIL	DONE	U	1224	1222	S0	Glass-A.25
L1638960-03	LDW-BA-SU-ENR-CC-COR	S	A2-SOOT	SOIL	DONE	U	1224	1222	S0	Glass-A.25
L1638960-04	LDW-BA-SU-ENR+AC-CA-	S	A2-SOOT	SOIL	DONE	U	1224	1222	S0	Glass-A.25
L1638960-05	LDW-BA-SU-ENR+AC-CB-	S	A2-SOOT	SOIL	DONE	U	1224	1222	S0	Glass-A.25
L1638960-06	LDW-BA-SU-ENR+AC-CC-	S	A2-SOOT	SOIL	DONE	U	1224	1222	S0	Glass-A.25
WG961579-1	Laboratory Method Bl	S	A2-SOOT	SOIL	DONE	U				
WG961579-2	Standard Reference M	S	A2-SOOT	SOIL	DONE	U				
WG961579-3	Duplicate Sample	S	A2-SOOT	SOIL	DONE	U				
WG961579-4	Matrix Spike	S	A2-SOOT	SOIL	DONE	U				
WG961579-5	Matrix Spike Duplica	S	A2-SOOT	SOIL	DONE	U				

Comments:

WG961579-3	L1638960-01
WG961579-4	L1638960-01
WG961579-5	L1638960-01

Sample Preparation

TOC Instrument: #1 - SN: 241N8102003 #3 - SN: 241L1308211
(Circle one) #2 - SN: 241N9041221

Date: 12/13/16
Analyst: CW
2° Review:

CCV ID: WW102116A→E
SRM 1944 ID: WS08814A
Filter Aid ID: WS12041SA

ICV ID: WW102116F
Balance ID: C02288/C01712
Other SRM ID:

Login	SAMPLE	QC D/MS	TRAY LOCATION	AUTO SLOT	WEIGHT (mg)
Conditioning Std				1	7.76
Blank				2	70.01
K Factor				3	10.39
Blank				4	8.19
K Factor				5	10.11
K Factor				6	10.05
ICV Blank				7	61.41
ICB 0				8	10.16
LCS 1000				9	10.10
Blank 5000				10	10.31
10000				11	10.22
20000				12	10.16
40000				13	10.80
ICV				14	10.21
ICB				15	65.36
HCV				16	53.08
SRM1944				17	11.35
MB				18	56.81
CCV SRM1944				19	12.34
CCB MB				20	62.75
L1639522	01			21	15.43
	01			22	8.36

Login	SAMPLE	QC D/MS	TRAY LOCATION	AUTO SLOT	WEIGHT (mg)
L1639522	03			23	12.62
	03			24	16.60
	05			25	12.25
	05			26	10.98
CCV				27	10.26
CCB				28	61.48
L1639522	03RR			29	21.62
L	03RR			30	14.55
CCV L1638960	01			31	16.26
CCB	01			32	8.91
	02			33	9.53
	02			34	7.30
	03			35	6.70
	03			36	15.36
	04			37	11.49
	04			38	12.12
CCV				39	10.18
CCB				40	59.78
L1638960	05			41	9.78
	05			42	16.53
CCV	06			43	16.68
CCB	06			44	10.15

Department: Wet Chemistry
Title: Total Organic Carbon – Lloyd Kahn Log

TOC Instrument: #1 - SN: 241N8102003 #3 - SN: 241L1308211
(Circle one) #2 - SN: 241N9041221

Date: _____ CCV ID: _____ ICV ID: _____
Analyst: _____ 2° Review: _____ SRM 1944 ID: _____ Balance ID: _____
Filter Aid ID: _____ Other SRM ID: _____

Login	SAMPLE	QC D/MS	TRAY LOCATION	AUTO SLOT	WEIGHT (mg)
Conditioning Std					
Blank					
K Factor					
Blank					
K Factor					
K Factor					
ICV					
ICB					
LCS					
Blank					
L1638960	01D			45	12.21
	01D			46	12.82
	01MS	10.07		47	13.09
	01MS	10.24		48	10.52
	01MSD	10.57		49	13.24
	01MSD	10.63		50	13.69
CCV				51	10.41
CCB				52	60.80
* ~~ccv~~ L1639605	01			53	11.41
CCB	01			54	7.58
	02			55	11.22
	02			56	11.22

Login	SAMPLE	QC D/MS	TRAY LOCATION	AUTO SLOT	WEIGHT (mg)
L1639605	01			57	6.19
L1639929	01			58	13.64
	01			59	13.09
	~~02~~ 03	LC 12/14		60	15.42
	~~02~~ 03	LC 12/14		61	10.19
	05			62	11.78
CCV				63	10.11
CCB				64	63.68
~~ccv~~ L1639929	05			65	12.79
~~ccb~~ SRM1650b				66	1.25
MB				67	63.30
SRM1650b				68	0.70
MB				69	57.29
L1638960	01			70	11.62
	01			71	9.29
	01D			72	15.72
	01D			73	11.16
	01MS	10.05		74	12.18
CCV				75	9.98
CCB				76	46.46
~~ccv~~ L1638960	01MS	9.83		77	6.70
~~ccb~~	01MSD	10.00		78	11.18

no gas

Document Type: Form

Pre-Qualtrax Document ID: 107-02

Department: Wet Chemistry
Title: Total Organic Carbon – Lloyd Kahn Log

TOC Instrument: #1 - SN: 241N8102003 #3 - SN: 241L1308211
(Circle one) #2 - SN: 241N9041221

Date: _____ 2° Review: _____
Analyst: _____

CCV ID: _____
SRM 1944 ID: _____
Filter Aid ID: _____

ICV ID: _____
Balance ID: _____
Other SRM ID: _____

Login	SAMPLE	QC D/MS	TRAY LOCATION	AUTO SLOT	WEIGHT (mg)
Conditioning Std					
Blank					
K Factor					
Blank					
K Factor					
K Factor					
ICV					
ICB					
LCS					
Blank					
L1638960	01MSD	9.92		79	11.86
	01DRR			80	9.53
LC12/4/16	01DRR			81	18.04
	D01RR			82	17.01
	D01RR			83	9.92
	02			84	12.51
	02			85	13.69
	03			86	12.55
CCV				87	10.00
CCB				88	69.33
L1638960	03			89	17.51
	04			90	11.81

Login	SAMPLE	QC D/MS	TRAY LOCATION	AUTO SLOT	WEIGHT (mg)
L1638960	04			91	15.05
	05			92	5.95
	05			93	17.68
	06			94	13.01
	06			95	8.67
L1638727	01			96	~~10.22~~
	01			97	11.49
CCV				98	9.86
~~CCV~~ CCB				99	58.85
CCB					
CCV					
CCB					

LC12/4/16 15.60

Pre-Qualtrax Document ID: 107-02

Document Type: Form

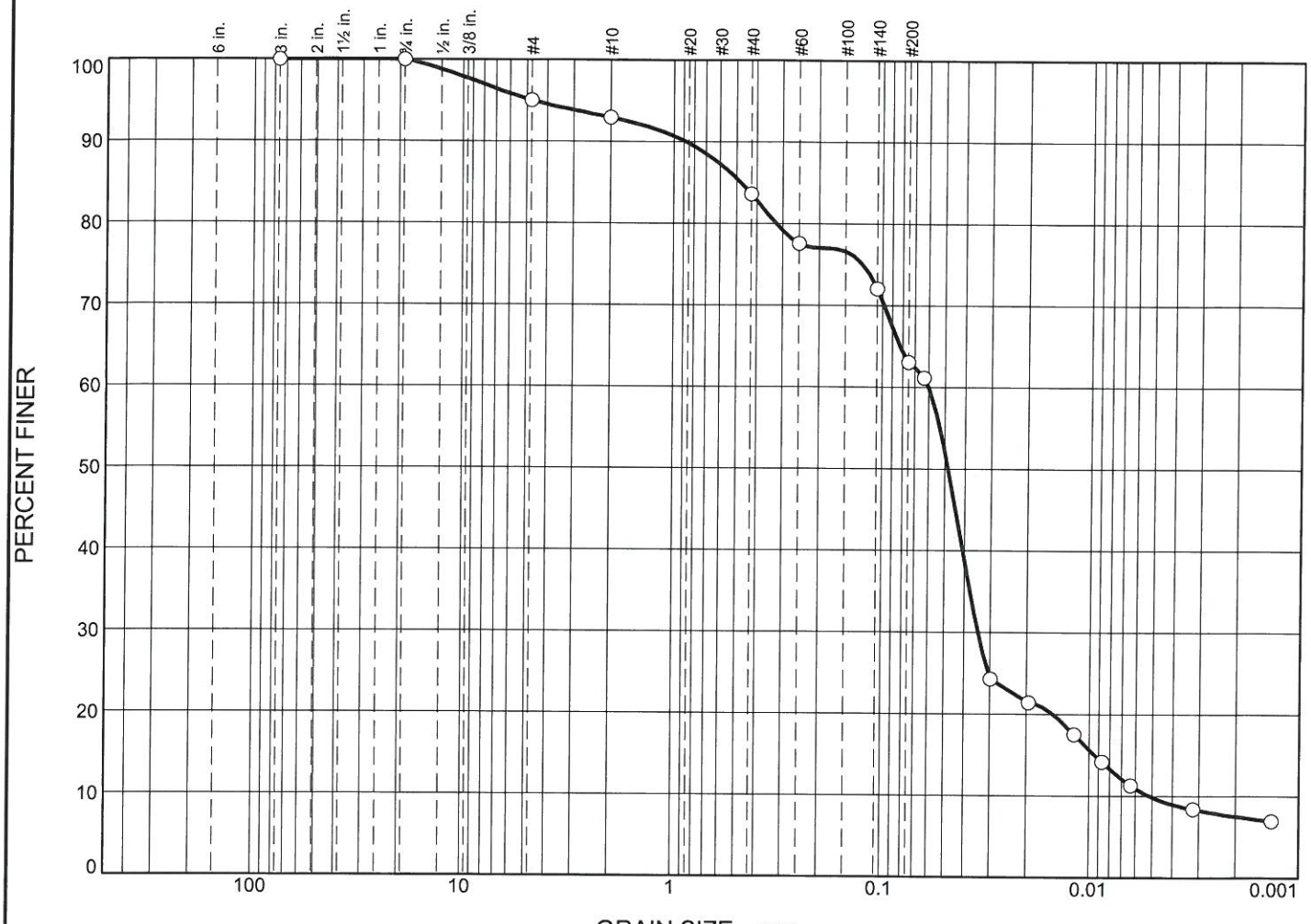
Grainsize Analysis

Sample Raw Data

ASTM D422-63

GRAIN SIZE ANALYSIS

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	5.0	2.1	9.3	20.5	53.3	9.8

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.4774	0.0601	0.0481	0.0342	0.0094	0.0052	3.79	11.66

Material Description	USCS	AASHTO
○		

Project No. **Client:**
Project:

○ **Source:** LDW-BA-SU-ENR-CA-CORE **Sample No.:** L1638960-01

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

12/22/2016

Location: LDW-BA-SU-ENR-CA-CORE
Sample Number: L1638960-01

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
102.00	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	5.05	0.00	95.0
		#10	2.16	0.00	92.9
		#40	9.51	0.00	83.6
		#60	6.17	0.00	77.6
		#140	5.63	0.00	72.0
		#200	9.16	0.00	63.1
		#230	1.97	0.00	61.1

Hydrometer Test Data

Hydrometer test uses material passing #230
Percent passing #230 based upon complete sample = 61.1
Weight of hydrometer sample =102.00
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 1
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.8	1.0240	1.0252	0.0133	24.0	9.9	0.0298	24.3
5.00	21.8	1.0210	1.0222	0.0133	21.0	10.7	0.0196	21.4
15.00	21.8	1.0170	1.0182	0.0133	17.0	11.8	0.0118	17.5
30.00	21.8	1.0135	1.0147	0.0133	13.5	12.7	0.0087	14.2
60.00	21.8	1.0105	1.0117	0.0133	10.5	13.5	0.0063	11.3
250.00	21.8	1.0075	1.0087	0.0133	7.5	14.3	0.0032	8.4
1440.00	21.8	1.0060	1.0072	0.0133	6.0	14.7	0.0013	7.0

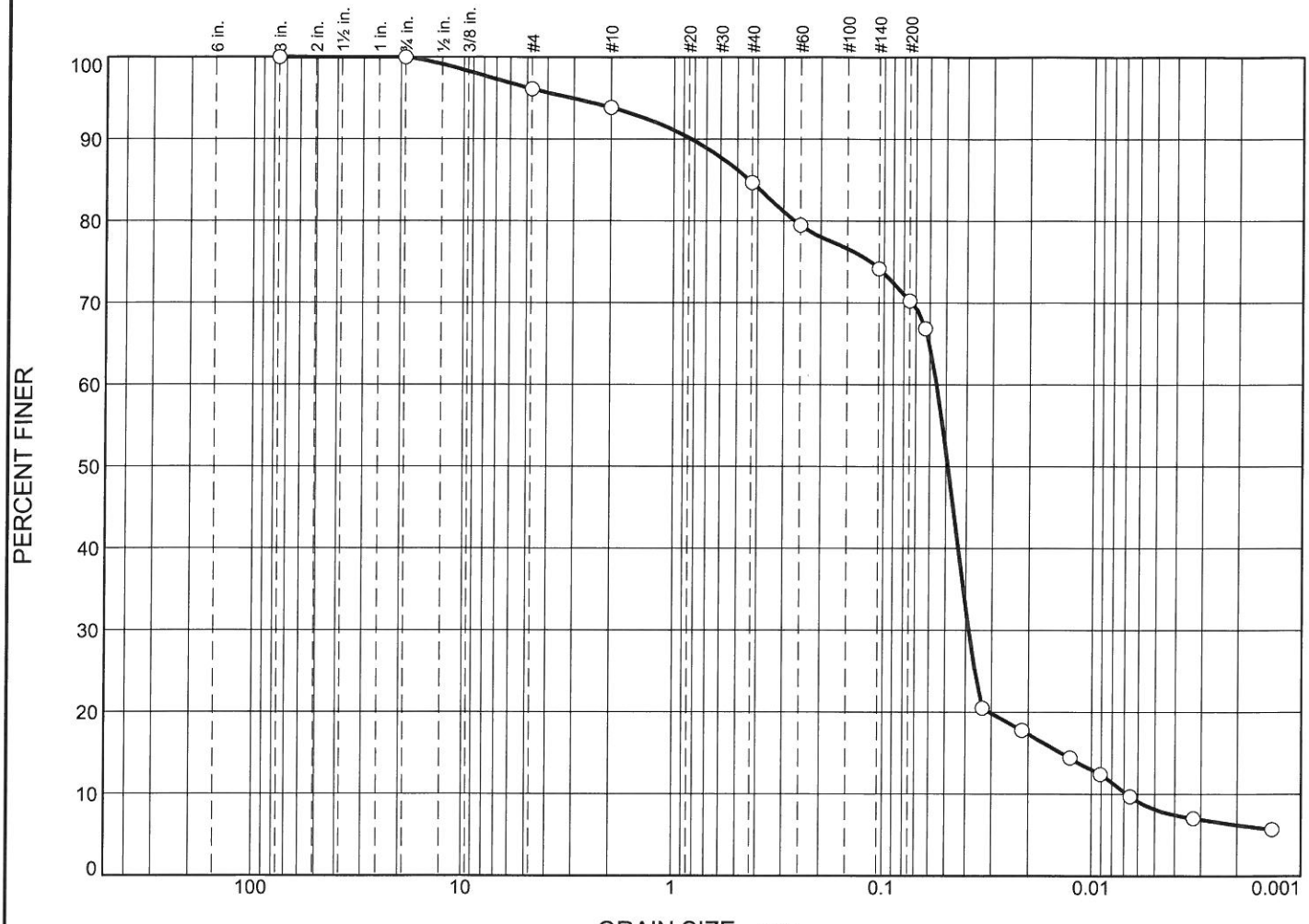
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	5.0	5.0	2.1	9.3	20.5	31.9	53.3	9.8	63.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0052	0.0094	0.0149	0.0342	0.0481	0.0601	0.3230	0.4774	0.8763	4.6772

Fineness Modulus	C_u	C_c
0.80	11.66	3.79

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	3.9	2.3	9.1	14.4	62.1	8.2

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.4384	0.0555	0.0489	0.0387	0.0139	0.0068	3.97	8.18

Material Description	USCS	AASHTO
○		

Project No. **Client:**
Project:

○ **Source:** LDW-BA-SU-ENR-CB-CORE **Sample No.:** L1638960-02

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

12/22/2016

Location: LDW-BA-SU-ENR-CB-CORE
Sample Number: L1638960-02

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
79.77	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	3.08	0.00	96.1
		#10	1.83	0.00	93.8
		#40	7.30	0.00	84.7
		#60	4.17	0.00	79.5
		#140	4.21	0.00	74.2
		#200	3.14	0.00	70.3
		#230	2.72	0.00	66.8

Hydrometer Test Data

Hydrometer test uses material passing #230
Percent passing #230 based upon complete sample = 66.8
Weight of hydrometer sample =79.77
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 0
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.8	1.0150	1.0152	0.0133	15.0	12.3	0.0331	20.5
5.00	21.8	1.0130	1.0132	0.0133	13.0	12.9	0.0214	17.8
15.00	21.8	1.0105	1.0107	0.0133	10.5	13.5	0.0127	14.4
30.00	21.8	1.0090	1.0092	0.0133	9.0	13.9	0.0091	12.4
60.00	21.8	1.0070	1.0072	0.0133	7.0	14.4	0.0065	9.7
250.00	21.8	1.0050	1.0052	0.0133	5.0	15.0	0.0033	7.0
1440.00	21.8	1.0040	1.0042	0.0133	4.0	15.2	0.0014	5.7

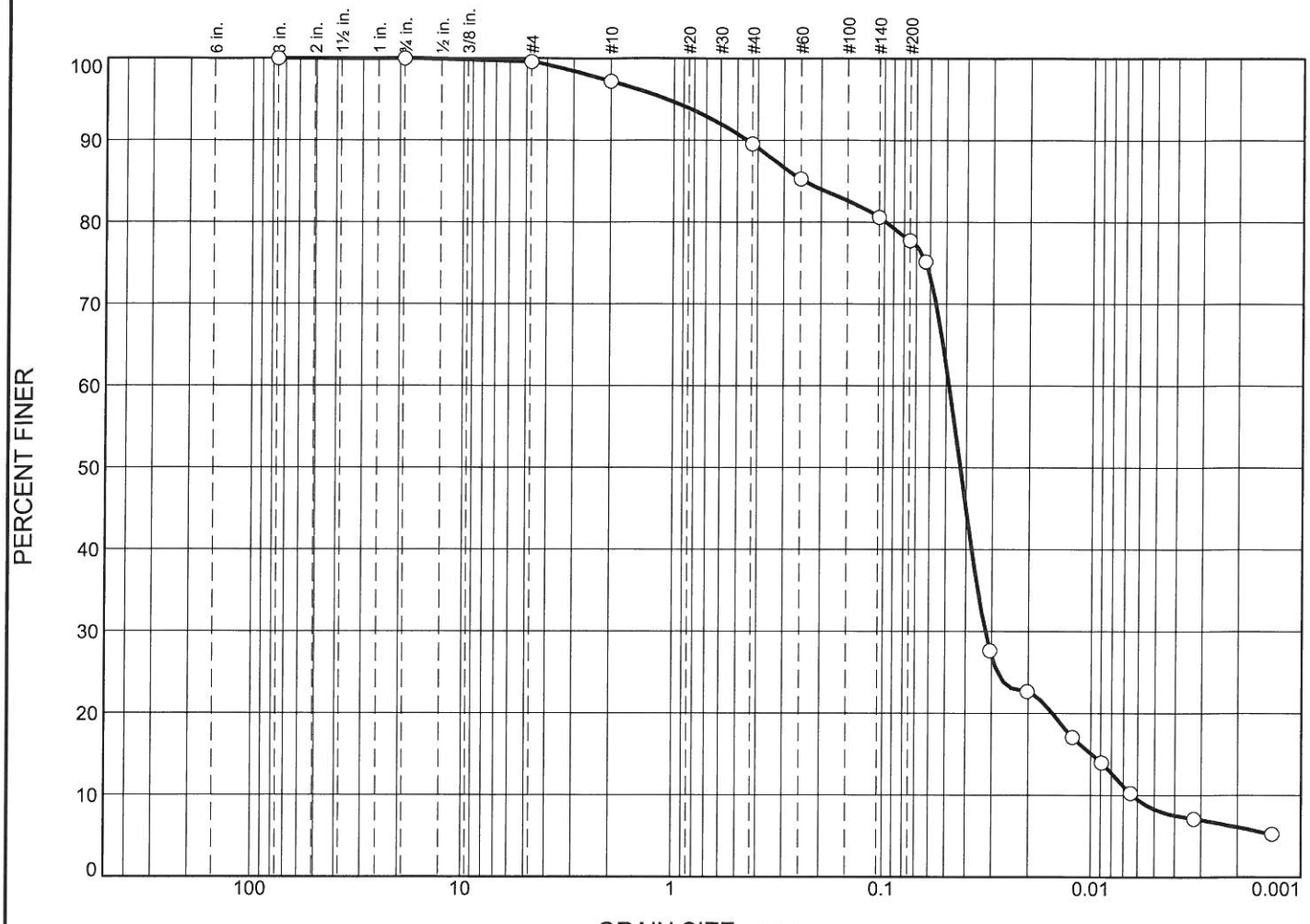
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	3.9	3.9	2.3	9.1	14.4	25.8	62.1	8.2	70.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0068	0.0139	0.0306	0.0387	0.0489	0.0555	0.2668	0.4384	0.8292	3.0635

Fineness Modulus	C_u	C_c
0.74	8.18	3.97

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.5	2.3	7.6	11.9	69.4	8.3

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.2401	0.0483	0.0426	0.0321	0.0099	0.0063	3.37	7.63

Material Description	USCS	AASHTO
○		

Project No. **Client:**
Project:

○ **Source:** LDW-BA-SU-ENR-CB-CORE **Sample No.:** WG963967-1

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

12/22/2016

Location: LDW-BA-SU-ENR-CB-CORE
Sample Number: WG963967-1

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
96.97	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	0.45	0.00	99.5
		#10	2.25	0.00	97.2
		#40	7.43	0.00	89.6
		#60	4.16	0.00	85.3
		#140	4.53	0.00	80.6
		#200	2.77	0.00	77.7
		#230	2.52	0.00	75.1

Hydrometer Test Data

Hydrometer test uses material passing #230
Percent passing #230 based upon complete sample = 75.1
Weight of hydrometer sample =96.97
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 0
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.8	1.0220	1.0222	0.0133	22.0	10.5	0.0305	27.7
5.00	21.8	1.0180	1.0182	0.0133	18.0	11.5	0.0203	22.7
15.00	21.8	1.0135	1.0137	0.0133	13.5	12.7	0.0123	17.1
30.00	21.8	1.0110	1.0112	0.0133	11.0	13.4	0.0089	14.0
60.00	21.8	1.0080	1.0082	0.0133	8.0	14.2	0.0065	10.2
250.00	21.8	1.0055	1.0057	0.0133	5.5	14.8	0.0033	7.1
1440.00	21.8	1.0040	1.0042	0.0133	4.0	15.2	0.0014	5.3

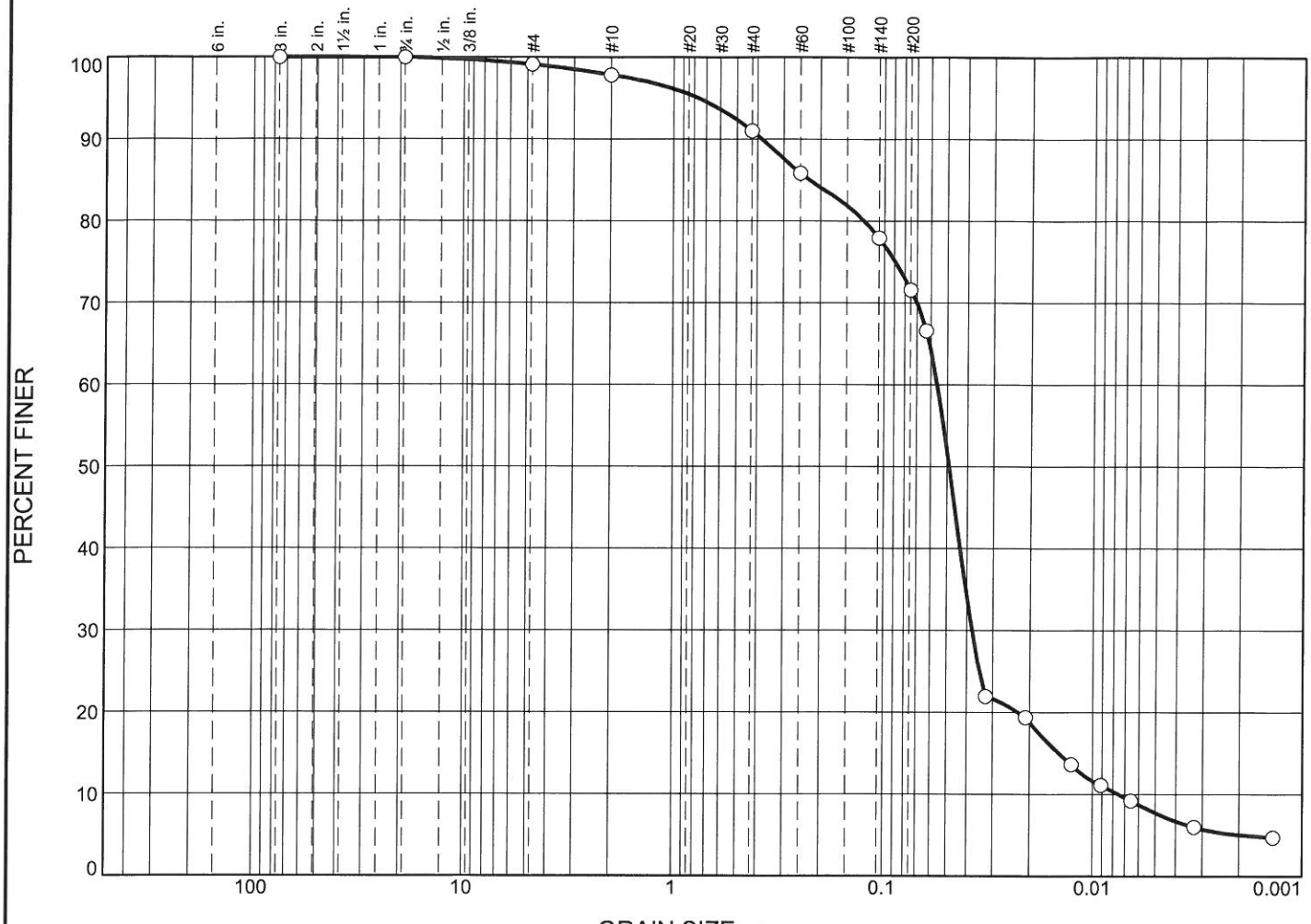
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.5	0.5	2.3	7.6	11.9	21.8	69.4	8.3	77.7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0063	0.0099	0.0154	0.0321	0.0426	0.0483	0.0983	0.2401	0.4499	1.0809

Fineness Modulus	C_u	C_c
0.46	7.63	3.37

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.9	1.3	6.8	19.4	63.8	7.8

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.2255	0.0559	0.0488	0.0377	0.0145	0.0075	3.37	7.42

	Material Description	USCS	AASHTO
○			

Project No. **Client:**

Project:

○ **Source:** LDW-BA-SU-ENR-CC-CORE **Sample No.:** L1638960-03

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

12/22/2016

Location: LDW-BA-SU-ENR-CC-CORE
Sample Number: L1638960-03

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
84.00	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	0.75	0.00	99.1
		#10	1.07	0.00	97.8
		#40	5.74	0.00	91.0
		#60	4.33	0.00	85.8
		#140	6.65	0.00	77.9
		#200	5.33	0.00	71.6
		#230	4.18	0.00	66.6

Hydrometer Test Data

Hydrometer test uses material passing #230
Percent passing #230 based upon complete sample = 66.6
Weight of hydrometer sample =84
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 0
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.8	1.0170	1.0172	0.0133	17.0	11.8	0.0324	21.9
5.00	21.8	1.0150	1.0152	0.0133	15.0	12.3	0.0210	19.4
15.00	21.8	1.0105	1.0107	0.0133	10.5	13.5	0.0127	13.7
30.00	21.8	1.0085	1.0087	0.0133	8.5	14.0	0.0091	11.1
60.00	21.8	1.0070	1.0072	0.0133	7.0	14.4	0.0065	9.2
250.00	21.8	1.0045	1.0047	0.0133	4.5	15.1	0.0033	6.0
1440.00	21.8	1.0035	1.0037	0.0133	3.5	15.4	0.0014	4.7

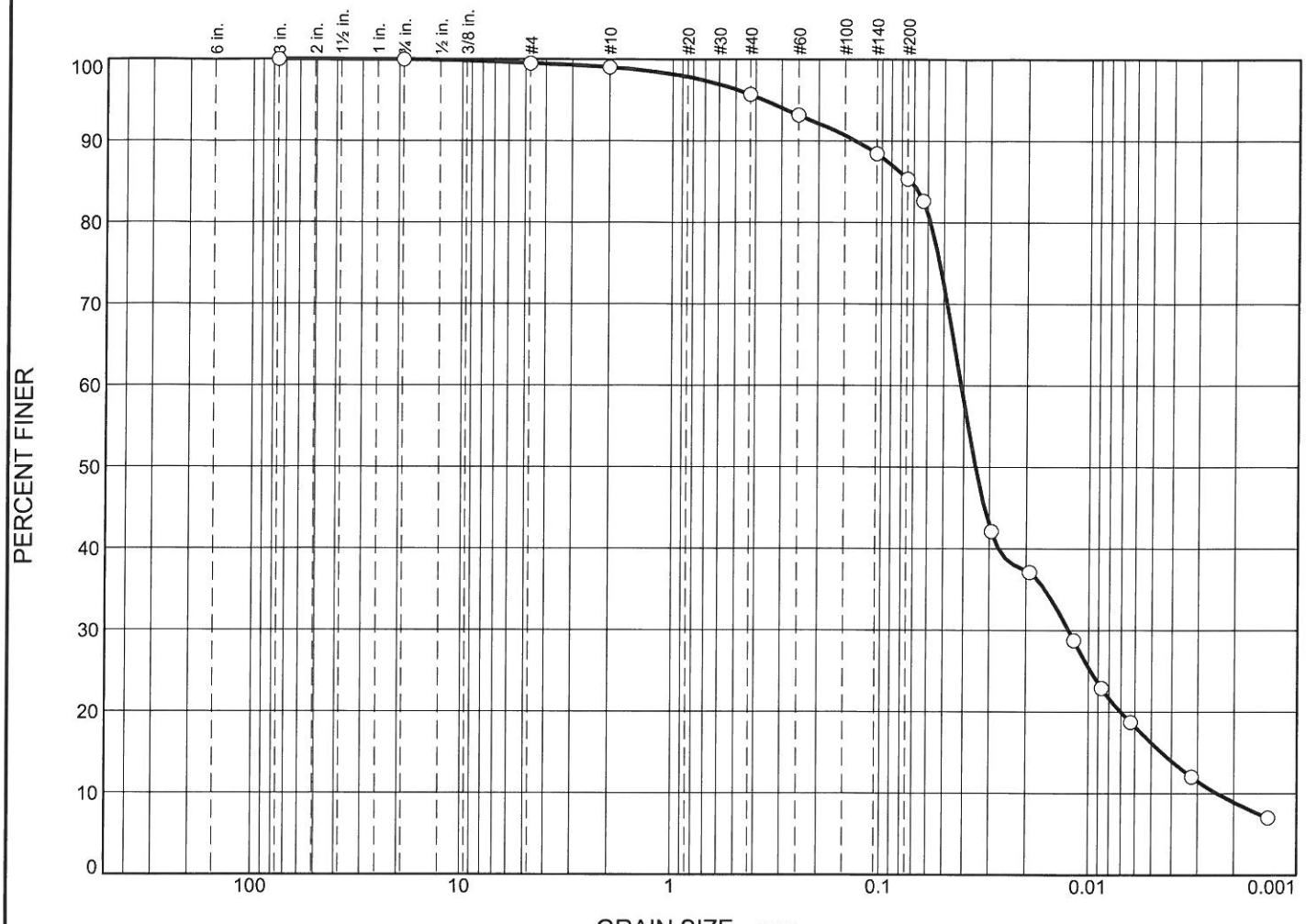
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.9	0.9	1.3	6.8	19.4	27.5	63.8	7.8	71.6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0075	0.0145	0.0226	0.0377	0.0488	0.0559	0.1242	0.2255	0.3825	0.7626

Fineness Modulus	C_u	C_c
0.43	7.42	3.37

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.5	0.5	3.3	10.4	69.1	16.2

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.0727	0.0411	0.0349	0.0126	0.0044	0.0024	1.60	17.19

	Material Description	USCS	AASHTO
○			

Project No. **Client:**

Project:

○ **Source:** LDW-BA-SU-ENR-AC-CA-CORE **Sample No.:** L1638960-04

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

12/22/2016

Location: LDW-BA-SU-ENR-AC-CA-CORE
Sample Number: L1638960-04

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
79.48	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	0.40	0.00	99.5
		#10	0.39	0.00	99.0
		#40	2.65	0.00	95.7
		#60	2.00	0.00	93.2
		#140	3.76	0.00	88.4
		#200	2.47	0.00	85.3
		#230	2.15	0.00	82.6

Hydrometer Test Data

Hydrometer test uses material passing #230
Percent passing #230 based upon complete sample = 82.6
Weight of hydrometer sample =79.48
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 0
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.8	1.0250	1.0252	0.0133	25.0	9.7	0.0294	42.1
5.00	21.8	1.0220	1.0222	0.0133	22.0	10.5	0.0193	37.1
15.00	21.8	1.0170	1.0172	0.0133	17.0	11.8	0.0118	28.7
30.00	21.8	1.0135	1.0137	0.0133	13.5	12.7	0.0087	22.9
60.00	21.8	1.0110	1.0112	0.0133	11.0	13.4	0.0063	18.7
250.00	21.8	1.0070	1.0072	0.0133	7.0	14.4	0.0032	12.1
1440.00	21.8	1.0040	1.0042	0.0133	4.0	15.2	0.0014	7.0

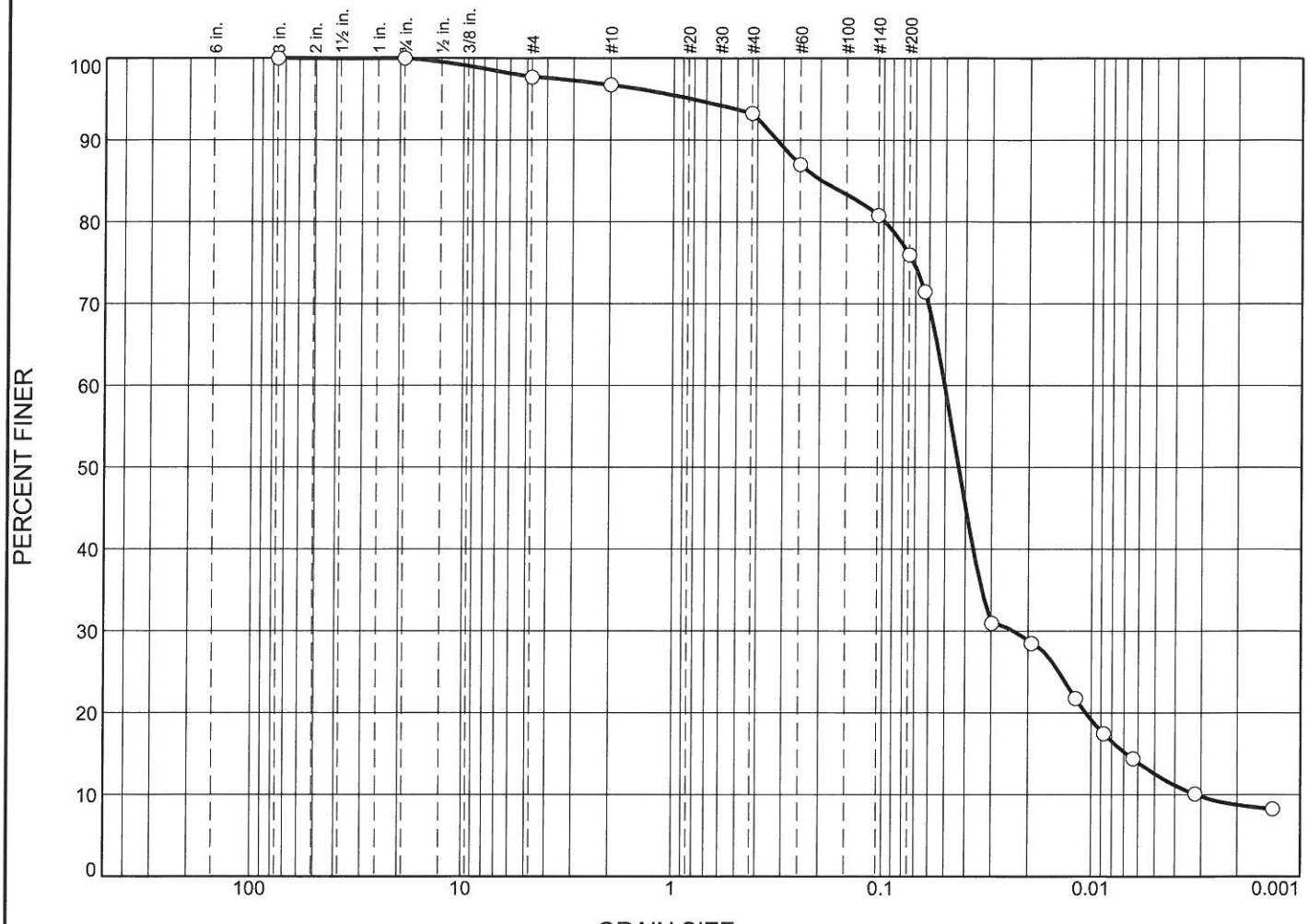
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.5	0.5	0.5	3.3	10.4	14.2	69.1	16.2	85.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0024	0.0044	0.0070	0.0126	0.0349	0.0411	0.0583	0.0727	0.1332	0.3659

Fineness Modulus	C_u	C_c
0.21	17.19	1.60

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	2.3	1.0	3.4	17.3	63.4	12.6

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.1961	0.0503	0.0431	0.0234	0.0068	0.0031	3.47	16.03

	Material Description	USCS	AASHTO
○			

Project No. **Client:**

Project:

○ **Source:** LDW-BA-SU-ENR-AC-CB-CORE **Sample No.:** L1638960-05

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

12/22/2016

Location: LDW-BA-SU-ENR-AC-CB-CORE
Sample Number: L1638960-05

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
93.55	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	2.16	0.00	97.7
		#10	0.91	0.00	96.7
		#40	3.22	0.00	93.3
		#60	5.88	0.00	87.0
		#140	5.82	0.00	80.8
		#200	4.49	0.00	76.0
		#230	4.21	0.00	71.5

Hydrometer Test Data

Hydrometer test uses material passing #230
Percent passing #230 based upon complete sample = 71.5
Weight of hydrometer sample =93.55
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 1
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.8	1.0240	1.0252	0.0133	24.0	9.9	0.0298	30.9
5.00	21.8	1.0220	1.0232	0.0133	22.0	10.5	0.0193	28.5
15.00	21.8	1.0165	1.0177	0.0133	16.5	11.9	0.0119	21.7
30.00	21.8	1.0130	1.0142	0.0133	13.0	12.9	0.0087	17.5
60.00	21.8	1.0105	1.0117	0.0133	10.5	13.5	0.0063	14.4
250.00	21.8	1.0070	1.0082	0.0133	7.0	14.4	0.0032	10.1
1440.00	21.8	1.0055	1.0067	0.0133	5.5	14.8	0.0014	8.2

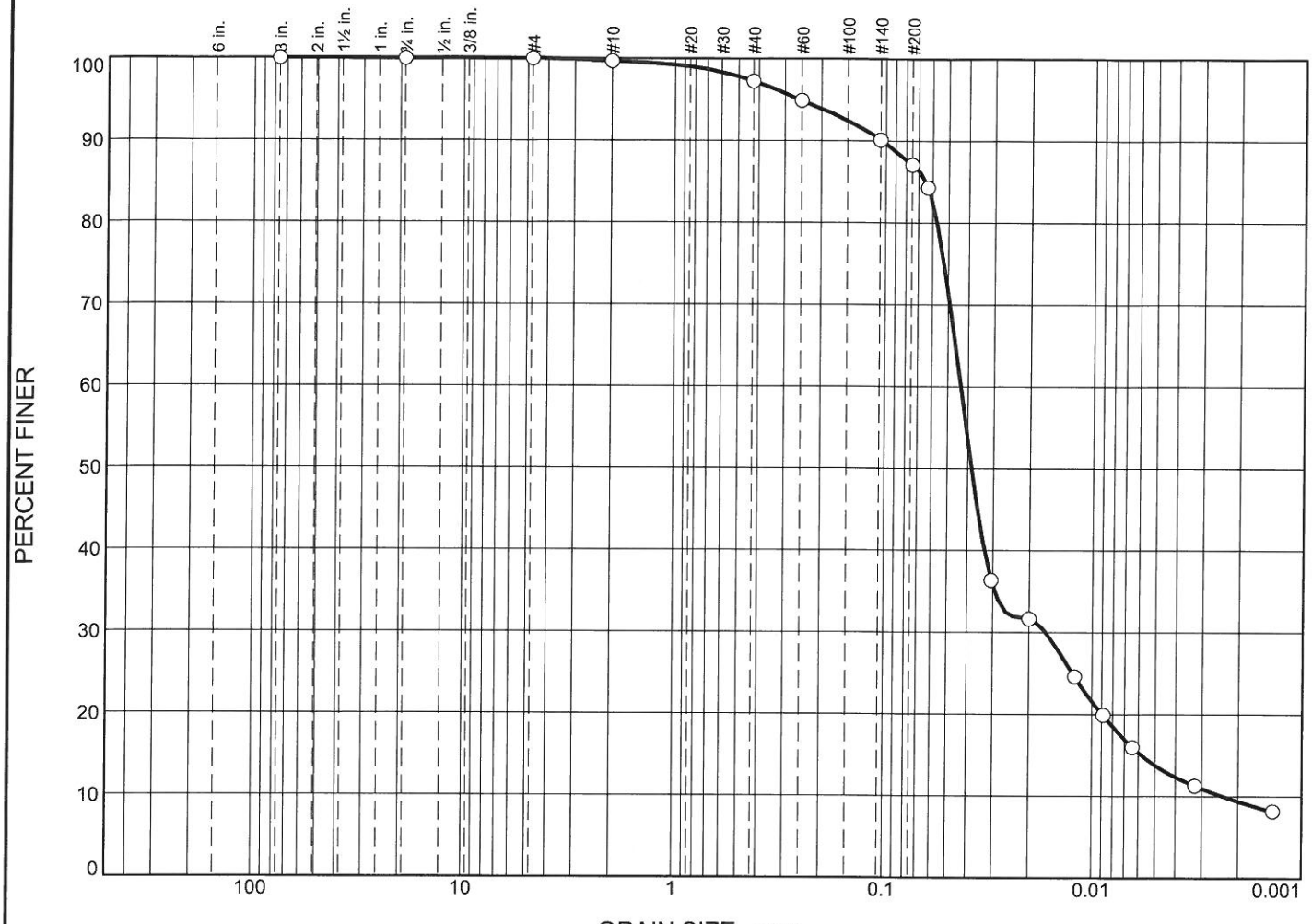
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	2.3	2.3	1.0	3.4	17.3	21.7	63.4	12.6	76.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0031	0.0068	0.0106	0.0234	0.0431	0.0503	0.0985	0.1961	0.3230	0.8188

Fineness Modulus	C_u	C_c
0.44	16.03	3.47

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.3	2.5	10.1	73.3	13.8

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.0647	0.0433	0.0382	0.0168	0.0058	0.0024	2.76	18.35

	Material Description	USCS	AASHTO
○			

Project No. **Client:**

Project:

○ **Source:** LDW-BA-SU-ENR-AC-CC-CORE **Sample No.:** L1638960-06

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

12/22/2016

Location: LDW-BA-SU-ENR-AC-CC-CORE
Sample Number: L1638960-06

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
86.49	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	0.00	0.00	100.0
		#10	0.29	0.00	99.7
		#40	2.09	0.00	97.2
		#60	2.03	0.00	94.9
		#140	4.15	0.00	90.1
		#200	2.64	0.00	87.1
		#230	2.40	0.00	84.3

Hydrometer Test Data

Hydrometer test uses material passing #230
Percent passing #230 based upon complete sample = 84.3
Weight of hydrometer sample =86.49
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 1
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.8	1.0220	1.0232	0.0133	22.0	10.5	0.0305	36.3
5.00	21.8	1.0190	1.0202	0.0133	19.0	11.3	0.0200	31.6
15.00	21.8	1.0145	1.0157	0.0133	14.5	12.5	0.0122	24.6
30.00	21.8	1.0115	1.0127	0.0133	11.5	13.3	0.0089	19.9
60.00	21.8	1.0090	1.0102	0.0133	9.0	13.9	0.0064	16.0
250.00	21.8	1.0060	1.0072	0.0133	6.0	14.7	0.0032	11.3
1440.00	21.8	1.0040	1.0052	0.0133	4.0	15.2	0.0014	8.2

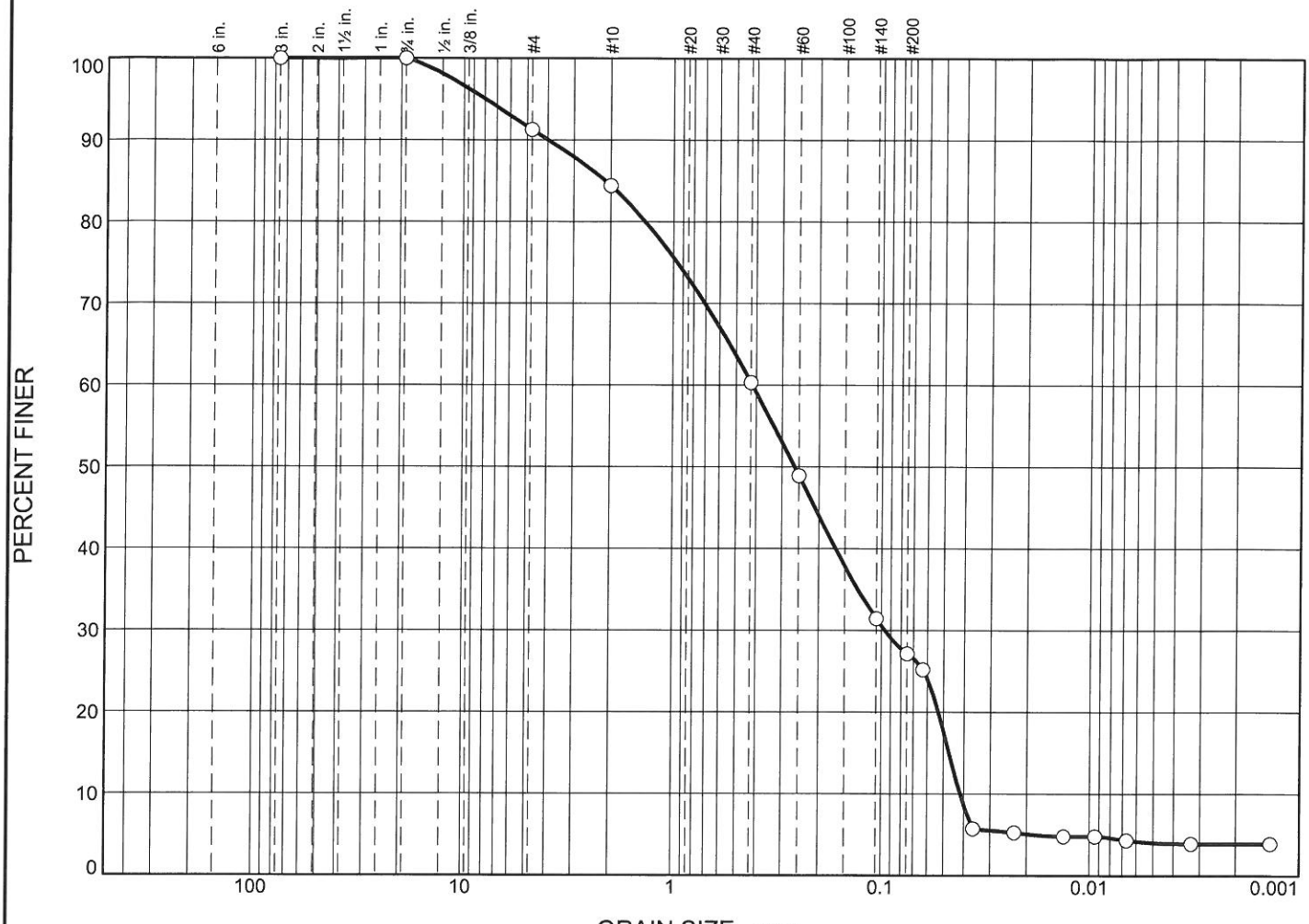
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.3	2.5	10.1	12.9	73.3	13.8	87.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0024	0.0058	0.0089	0.0168	0.0382	0.0433	0.0571	0.0647	0.1047	0.2554

Fineness Modulus	C_u	C_c
0.14	18.35	2.76

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	8.7	6.9	24.1	33.2	23.1	4.0

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			2.1266	0.4182	0.2626	0.0964	0.0471	0.0417	0.53	10.04

	Material Description	USCS	AASHTO
○			

Project No. **Client:**

Project:

○ **Source:** LDW-BA-SU-ENR-CB-CORE **Sample No.:** L1638960-07

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

12/22/2016

Location: LDW-BA-SU-ENR-CB-CORE
Sample Number: L1638960-07

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
44.04	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	3.85	0.00	91.3
		#10	3.02	0.00	84.4
		#40	10.60	0.00	60.3
		#60	5.03	0.00	48.9
		#140	7.69	0.00	31.4
		#200	1.90	0.00	27.1
		#230	0.85	0.00	25.2

Hydrometer Test Data

Hydrometer test uses material passing #230
Percent passing #230 based upon complete sample = 25.2
Weight of hydrometer sample =44.04
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 0
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.8	1.0060	1.0062	0.0133	6.0	14.7	0.0362	5.7
5.00	21.8	1.0055	1.0057	0.0133	5.5	14.8	0.0230	5.3
15.00	21.8	1.0050	1.0052	0.0133	5.0	15.0	0.0133	4.8
30.00	21.8	1.0050	1.0052	0.0133	5.0	15.0	0.0094	4.8
60.00	21.8	1.0045	1.0047	0.0133	4.5	15.1	0.0067	4.3
250.00	21.8	1.0040	1.0042	0.0133	4.0	15.2	0.0033	3.9
1440.00	21.8	1.0040	1.0042	0.0133	4.0	15.2	0.0014	3.9

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	8.7	8.7	6.9	24.1	33.2	64.2	23.1	4.0	27.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0417	0.0471	0.0531	0.0964	0.2626	0.4182	1.3637	2.1266	3.9837	7.8980

Fineness Modulus	C_u	C_c
1.91	10.04	0.53

Work Group

ALPHA ANALYTICAL LABORATORIES, INC.

Alpha WORK GROUP REPORT (wk02)

Dec 22 2016, 04:45 pm

Work Group: WG963967 for Department: 7 Wet Chemistry

Created: 22-DEC-16 Due: Operator:

Sample	Client ID	C	Product	Matrix	Stat	UA	HOLD	DUE	PR	Location
L1638960-01	LDW-BA-SU-ENR-CA-COR	C	A2-HYDRO-TGRAVEL	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-01	LDW-BA-SU-ENR-CA-COR	C	A2-HYDRO-TFINE	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-01	LDW-BA-SU-ENR-CA-COR	C	A2-HYDRO-SFINE	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-01	LDW-BA-SU-ENR-CA-COR	C	A2-HYDRO-MSAND	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-01	LDW-BA-SU-ENR-CA-COR	C	A2-HYDRO-FSAND	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-01	LDW-BA-SU-ENR-CA-COR	C	A2-HYDRO-TSAND	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-01	LDW-BA-SU-ENR-CA-COR	C	A2-HYDRO-CSAND	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-01	LDW-BA-SU-ENR-CA-COR	C	A2-HYDRO-COBBLES	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-01	LDW-BA-SU-ENR-CA-COR	C	A2-HYDRO-CGRAVEL	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-01	LDW-BA-SU-ENR-CA-COR	C	A2-HYDRO-CFINE	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-01	LDW-BA-SU-ENR-CA-COR	C	A2-HYDRO-FGRAVEL	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-02	LDW-BA-SU-ENR-CB-COR	C	A2-HYDRO-TGRAVEL	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-02	LDW-BA-SU-ENR-CB-COR	C	A2-HYDRO-TFINE	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-02	LDW-BA-SU-ENR-CB-COR	C	A2-HYDRO-SFINE	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-02	LDW-BA-SU-ENR-CB-COR	C	A2-HYDRO-MSAND	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-02	LDW-BA-SU-ENR-CB-COR	C	A2-HYDRO-FSAND	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-02	LDW-BA-SU-ENR-CB-COR	C	A2-HYDRO-FGRAVEL	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-02	LDW-BA-SU-ENR-CB-COR	C	A2-HYDRO-CSAND	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-02	LDW-BA-SU-ENR-CB-COR	C	A2-HYDRO-COBBLES	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-02	LDW-BA-SU-ENR-CB-COR	C	A2-HYDRO-CGRAVEL	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-02	LDW-BA-SU-ENR-CB-COR	C	A2-HYDRO-CFINE	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-02	LDW-BA-SU-ENR-CB-COR	C	A2-HYDRO-TSAND	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-03	LDW-BA-SU-ENR-CC-COR	C	A2-HYDRO-CFINE	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-03	LDW-BA-SU-ENR-CC-COR	C	A2-HYDRO-CGRAVEL	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-03	LDW-BA-SU-ENR-CC-COR	C	A2-HYDRO-TSAND	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-03	LDW-BA-SU-ENR-CC-COR	C	A2-HYDRO-TGRAVEL	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-03	LDW-BA-SU-ENR-CC-COR	C	A2-HYDRO-TFINE	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-03	LDW-BA-SU-ENR-CC-COR	C	A2-HYDRO-SFINE	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-03	LDW-BA-SU-ENR-CC-COR	C	A2-HYDRO-MSAND	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-03	LDW-BA-SU-ENR-CC-COR	C	A2-HYDRO-FSAND	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-03	LDW-BA-SU-ENR-CC-COR	C	A2-HYDRO-FGRAVEL	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-03	LDW-BA-SU-ENR-CC-COR	C	A2-HYDRO-CSAND	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-03	LDW-BA-SU-ENR-CC-COR	C	A2-HYDRO-COBBLES	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-04	LDW-BA-SU-ENR+AC-CA-	C	A2-HYDRO-CFINE	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-04	LDW-BA-SU-ENR+AC-CA-	C	A2-HYDRO-TGRAVEL	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-04	LDW-BA-SU-ENR+AC-CA-	C	A2-HYDRO-TFINE	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-04	LDW-BA-SU-ENR+AC-CA-	C	A2-HYDRO-SFINE	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-04	LDW-BA-SU-ENR+AC-CA-	C	A2-HYDRO-MSAND	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-04	LDW-BA-SU-ENR+AC-CA-	C	A2-HYDRO-TSAND	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-04	LDW-BA-SU-ENR+AC-CA-	C	A2-HYDRO-FGRAVEL	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-04	LDW-BA-SU-ENR+AC-CA-	C	A2-HYDRO-CSAND	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-04	LDW-BA-SU-ENR+AC-CA-	C	A2-HYDRO-COBBLES	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-04	LDW-BA-SU-ENR+AC-CA-	C	A2-HYDRO-CGRAVEL	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-04	LDW-BA-SU-ENR+AC-CA-	C	A2-HYDRO-FSAND	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-05	LDW-BA-SU-ENR+AC-CB-	C	A2-HYDRO-CFINE	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-05	LDW-BA-SU-ENR+AC-CB-	C	A2-HYDRO-CGRAVEL	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-05	LDW-BA-SU-ENR+AC-CB-	C	A2-HYDRO-COBBLES	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-05	LDW-BA-SU-ENR+AC-CB-	C	A2-HYDRO-CSAND	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-05	LDW-BA-SU-ENR+AC-CB-	C	A2-HYDRO-FGRAVEL	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-05	LDW-BA-SU-ENR+AC-CB-	C	A2-HYDRO-FSAND	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-05	LDW-BA-SU-ENR+AC-CB-	C	A2-HYDRO-MSAND	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-05	LDW-BA-SU-ENR+AC-CB-	C	A2-HYDRO-SFINE	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-05	LDW-BA-SU-ENR+AC-CB-	C	A2-HYDRO-TFINE	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-05	LDW-BA-SU-ENR+AC-CB-	C	A2-HYDRO-TGRAVEL	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-05	LDW-BA-SU-ENR+AC-CB-	C	A2-HYDRO-TSAND	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-06	LDW-BA-SU-ENR+AC-CC-	C	A2-HYDRO-FGRAVEL	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-06	LDW-BA-SU-ENR+AC-CC-	C	A2-HYDRO-CSAND	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-06	LDW-BA-SU-ENR+AC-CC-	C	A2-HYDRO-COBBLES	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-06	LDW-BA-SU-ENR+AC-CC-	C	A2-HYDRO-CGRAVEL	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-06	LDW-BA-SU-ENR+AC-CC-	C	A2-HYDRO-CFINE	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-06	LDW-BA-SU-ENR+AC-CC-	C	A2-HYDRO-TSAND	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-06	LDW-BA-SU-ENR+AC-CC-	C	A2-HYDRO-MSAND	SOIL	DONE	U		1222	S0	Glass-A.25

ALPHA ANALYTICAL LABORATORIES, INC.

Alpha WORK GROUP REPORT (wk02)

Dec 22 2016, 04:45 pm

Work Group: WG963967 for Department: 7 Wet Chemistry

Created: 22-DEC-16 Due: Operator:

Sample	Client ID	C	Product	Matrix	Stat	UA	HOLD	DUE	PR	Location
L1638960-06	LDW-BA-SU-ENR+AC-CC-	C	A2-HYDRO-SFINE	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-06	LDW-BA-SU-ENR+AC-CC-	C	A2-HYDRO-TFINE	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-06	LDW-BA-SU-ENR+AC-CC-	C	A2-HYDRO-TGRAVEL	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-06	LDW-BA-SU-ENR+AC-CC-	C	A2-HYDRO-FSAND	SOIL	DONE	U		1222	S0	Glass-A.25
L1638960-07	LDW-BA-SU-ENR-CB-COR	C	A2-HYDRO-FGRAVEL	SOIL	DONE	U		1222	S0	
L1638960-07	LDW-BA-SU-ENR-CB-COR	C	A2-HYDRO-CSAND	SOIL	DONE	U		1222	S0	
L1638960-07	LDW-BA-SU-ENR-CB-COR	C	A2-HYDRO-COBBLES	SOIL	DONE	U		1222	S0	
L1638960-07	LDW-BA-SU-ENR-CB-COR	C	A2-HYDRO-CGRAVEL	SOIL	DONE	U		1222	S0	
L1638960-07	LDW-BA-SU-ENR-CB-COR	C	A2-HYDRO-CFINE	SOIL	DONE	U		1222	S0	
L1638960-07	LDW-BA-SU-ENR-CB-COR	C	A2-HYDRO-FSAND	SOIL	DONE	U		1222	S0	
L1638960-07	LDW-BA-SU-ENR-CB-COR	C	A2-HYDRO-TSAND	SOIL	DONE	U		1222	S0	
L1638960-07	LDW-BA-SU-ENR-CB-COR	C	A2-HYDRO-TGRAVEL	SOIL	DONE	U		1222	S0	
L1638960-07	LDW-BA-SU-ENR-CB-COR	C	A2-HYDRO-TFINE	SOIL	DONE	U		1222	S0	
L1638960-07	LDW-BA-SU-ENR-CB-COR	C	A2-HYDRO-SFINE	SOIL	DONE	U		1222	S0	
L1638960-07	LDW-BA-SU-ENR-CB-COR	C	A2-HYDRO-MSAND	SOIL	DONE	U		1222	S0	
WG963967-1	Duplicate Sample	S	A2-HYDRO-CSAND	SOIL	DONE	U				
WG963967-1	Duplicate Sample	S	A2-HYDRO-FGRAVEL	SOIL	DONE	U				
WG963967-1	Duplicate Sample	S	A2-HYDRO-MSAND	SOIL	DONE	U				
WG963967-1	Duplicate Sample	S	A2-HYDRO-FSAND	SOIL	DONE	U				
WG963967-1	Duplicate Sample	S	A2-HYDRO-CGRAVEL	SOIL	DONE	U				
WG963967-1	Duplicate Sample	S	A2-HYDRO-TSAND	SOIL	DONE	U				
WG963967-1	Duplicate Sample	S	A2-HYDRO-COBBLES	SOIL	DONE	U				
WG963967-1	Duplicate Sample	S	A2-HYDRO-CFINE	SOIL	DONE	U				
WG963967-1	Duplicate Sample	S	A2-HYDRO-TGRAVEL	SOIL	DONE	U				
WG963967-1	Duplicate Sample	S	A2-HYDRO-TFINE	SOIL	DONE	U				
WG963967-1	Duplicate Sample	S	A2-HYDRO-SFINE	SOIL	DONE	U				

Comments:

WG963967-1 L1638960-02

Alpha Report

ANALYTICAL REPORT

Lab Number:	L1638960
Client:	Floyd Snider Inc 601 Union Street Suite 600 Seattle, WA 98101
ATTN:	Teri Floyd
Phone:	(206) 292-2078
Project Name:	LDW ENR/AC PILOT STUDY
Project Number:	LY15160310
Report Date:	12/22/16

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Certifications & Approvals: NY (11627), CT (PH-0141), NH (2206), NJ NELAP (MA015), RI (LAO00299), ME (MA00030), PA (68-02089), VA (460194), LA NELAP (03090), FL (E87814), TX (T104704419), WA (C954), USFWS (Permit #LE2069641), USDA (Permit #P330-11-00109), US Army Corps of Engineers.

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com

Project Name: LDW ENR/AC PILOT STUDY
Project Number: LY15160310

Lab Number: L1638960
Report Date: 12/22/16

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1638960-01	LDW-BA-SU-ENR-CA-CORE	SEDIMENT	LDW	11/26/16 17:15	12/01/16
L1638960-02	LDW-BA-SU-ENR-CB-CORE	SEDIMENT	LDW	11/26/16 17:30	12/01/16
L1638960-03	LDW-BA-SU-ENR-CC-CORE	SEDIMENT	LDW	11/26/16 15:35	12/01/16
L1638960-04	LDW-BA-SU-ENR+AC-CA-CORE	SEDIMENT	LDW	11/26/16 15:15	12/01/16
L1638960-05	LDW-BA-SU-ENR+AC-CB-CORE	SEDIMENT	LDW	11/26/16 14:20	12/01/16
L1638960-06	LDW-BA-SU-ENR+AC-CC-CORE	SEDIMENT	LDW	11/26/16 14:35	12/01/16
L1638960-07	LDW-BA-SU-ENR-CB-CORE	SEDIMENT	LDW	11/26/16 17:30	12/01/16

Project Name: LDW ENR/AC PILOT STUDY **Lab Number:** L1638960
Project Number: LY15160310 **Report Date:** 12/22/16

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name:	LDW ENR/AC PILOT STUDY	**Lab Number:**	L1638960
Project Number:	LY15160310	**Report Date:**	12/22/16

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

% SOOT

L1638960-01: The Sample Replicate RPD is outside the acceptance criteria of 30%. A double-burn re-analysis was performed with confirming results. The results of the original analysis are reported. The elevated RPD has been attributed to the non-homogeneous nature of the native sample.

The WG961579-3 Laboratory Duplicate RPD, performed on L1638960-01, is outside the acceptance criteria for % Soot (Rep 2) (89%). The elevated RPD has been attributed to the non-homogeneous nature of the native sample.

The WG961579-4/-5 MS/MSD RPD for % Soot (Rep 2) (51%), performed on L1638960-01, is above the acceptance criteria.

Total Organic Carbon

The WG961577-3 Laboratory Duplicate RPD, performed on L1638960-01, is outside the acceptance criteria for Total Organic Carbon (Rep1) (37%). The elevated RPD has been attributed to the non-homogeneous nature of the native sample.

The WG961577-4/-5 MS/MSD recoveries for Total Organic Carbon (Rep1) (127%/69%) and Total Organic Carbon (Rep2) (468% MSD only), performed on L1638960-01, are outside the 75-125% acceptance criteria, possibly due to sample matrix. The associated SRM recoveries are within criteria indicating the sample batch was in control, and all sample results were accepted.

The WG961577-4/-5 MS/MSD RPD for Total Organic Carbon (Rep2) (62%), performed on L1638960-01, is above the acceptance criteria.

Grain Size Analysis

The WG963967-1 Laboratory Duplicate RPDs, performed on L1638960-02, are outside the acceptance criteria for % Fine Gravel (155%), and % Total Gravel (155%). The elevated RPDs have been attributed to the

Project Name:	LDW ENR/AC PILOT STUDY	**Lab Number:**	L1638960
Project Number:	LY15160310	**Report Date:**	12/22/16

Case Narrative (continued)

non-homogeneous nature of the native sample.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Susan E O'Neil Susan O' Neil

Title: Technical Director/Representative Date: 12/22/16

INORGANICS
&
MISCELLANEOUS

Project Name: LDW ENR/AC PILOT STUDY
Project Number: LY15160310

Lab Number: L1638960
Report Date: 12/22/16

SAMPLE RESULTS

Lab ID: L1638960-01
Client ID: LDW-BA-SU-ENR-CA-CORE
Sample Location: LDW
Matrix: Sediment

Date Collected: 11/26/16 17:15
Date Received: 12/01/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	1.82		%	0.010	0.010	1	-	12/13/16 16:13	1,9060A	CM
Total Organic Carbon (Rep2)	1.60		%	0.010	0.010	1	-	12/13/16 16:13	1,9060A	CM
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Coarse Gravel	ND		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Fine Gravel	5.00		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Total Gravel	5.00		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Coarse Sand	2.10		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Medium Sand	9.30		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Fine Sand	20.5		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Total Sand	31.9		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Silt Fine	53.3		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Clay Fine	9.80		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Total Fines	63.1		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
General Chemistry - Mansfield Lab										
% Soot (Rep 1)	0.104		%	0.010	NA	1	-	12/14/16 11:45	91,-	LC
% Soot (Rep 2)	0.257		%	0.010	NA	1	-	12/14/16 11:45	91,-	LC

Project Name: LDW ENR/AC PILOT STUDY
Project Number: LY15160310

Lab Number: L1638960
Report Date: 12/22/16

SAMPLE RESULTS

Lab ID: L1638960-02
Client ID: LDW-BA-SU-ENR-CB-CORE
Sample Location: LDW
Matrix: Sediment

Date Collected: 11/26/16 17:30
Date Received: 12/01/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	2.15		%	0.010	0.010	1	-	12/13/16 16:23	1,9060A	CM
Total Organic Carbon (Rep2)	1.98		%	0.010	0.010	1	-	12/13/16 16:23	1,9060A	CM
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Coarse Gravel	ND		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Fine Gravel	3.90		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Total Gravel	3.90		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Coarse Sand	2.30		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Medium Sand	9.10		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Fine Sand	14.4		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Total Sand	25.8		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Silt Fine	62.1		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Clay Fine	8.20		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Total Fines	70.3		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
General Chemistry - Mansfield Lab										
% Soot (Rep 1)	0.171		%	0.010	NA	1	-	12/14/16 12:59	91,-	LC
% Soot (Rep 2)	0.146		%	0.010	NA	1	-	12/14/16 12:59	91,-	LC

Project Name: LDW ENR/AC PILOT STUDY
Project Number: LY15160310

Lab Number: L1638960
Report Date: 12/22/16

SAMPLE RESULTS

Lab ID: L1638960-03
Client ID: LDW-BA-SU-ENR-CC-CORE
Sample Location: LDW
Matrix: Sediment

Date Collected: 11/26/16 15:35
Date Received: 12/01/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	1.71		%	0.010	0.010	1	-	12/13/16 16:32	1,9060A	CM
Total Organic Carbon (Rep2)	1.74		%	0.010	0.010	1	-	12/13/16 16:32	1,9060A	CM
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Coarse Gravel	ND		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Fine Gravel	0.900		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Total Gravel	0.900		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Coarse Sand	1.30		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Medium Sand	6.80		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Fine Sand	19.4		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Total Sand	27.5		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Silt Fine	63.8		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Clay Fine	7.80		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Total Fines	71.6		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
General Chemistry - Mansfield Lab										
% Soot (Rep 1)	0.059		%	0.010	NA	1	-	12/14/16 13:08	91,-	LC
% Soot (Rep 2)	0.066		%	0.010	NA	1	-	12/14/16 13:08	91,-	LC

Project Name: LDW ENR/AC PILOT STUDY
Project Number: LY15160310

Lab Number: L1638960
Report Date: 12/22/16

SAMPLE RESULTS

Lab ID: L1638960-04
Client ID: LDW-BA-SU-ENR+AC-CA-CORE
Sample Location: LDW
Matrix: Sediment

Date Collected: 11/26/16 15:15
Date Received: 12/01/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	2.06		%	0.010	0.010	1	-	12/13/16 16:42	1,9060A	CM
Total Organic Carbon (Rep2)	2.07		%	0.010	0.010	1	-	12/13/16 16:42	1,9060A	CM
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Coarse Gravel	ND		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Fine Gravel	0.500		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Total Gravel	0.500		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Coarse Sand	0.500		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Medium Sand	3.30		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Fine Sand	10.4		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Total Sand	14.2		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Silt Fine	69.1		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Clay Fine	16.2		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Total Fines	85.3		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
General Chemistry - Mansfield Lab										
% Soot (Rep 1)	0.109		%	0.010	NA	1	-	12/14/16 13:28	91,-	LC
% Soot (Rep 2)	0.118		%	0.010	NA	1	-	12/14/16 13:28	91,-	LC

Project Name: LDW ENR/AC PILOT STUDY
Project Number: LY15160310
Lab Number: L1638960
Report Date: 12/22/16

SAMPLE RESULTS

Lab ID: L1638960-05
Client ID: LDW-BA-SU-ENR+AC-CB-CORE
Sample Location: LDW
Matrix: Sediment

Date Collected: 11/26/16 14:20
Date Received: 12/01/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	1.97		%	0.010	0.010	1	-	12/13/16 17:01	1,9060A	CM
Total Organic Carbon (Rep2)	2.02		%	0.010	0.010	1	-	12/13/16 17:01	1,9060A	CM
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Coarse Gravel	ND		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Fine Gravel	2.30		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Total Gravel	2.30		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Coarse Sand	1.00		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Medium Sand	3.40		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Fine Sand	17.3		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Total Sand	21.7		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Silt Fine	63.4		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Clay Fine	12.6		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Total Fines	76.0		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
General Chemistry - Mansfield Lab										
% Soot (Rep 1)	0.040		%	0.010	NA	1	-	12/14/16 14:42	91,-	LC
% Soot (Rep 2)	0.051		%	0.010	NA	1	-	12/14/16 14:42	91,-	LC

Project Name: LDW ENR/AC PILOT STUDY
Project Number: LY15160310
Lab Number: L1638960
Report Date: 12/22/16

SAMPLE RESULTS

Lab ID: L1638960-06
Client ID: LDW-BA-SU-ENR+AC-CC-CORE
Sample Location: LDW
Matrix: Sediment

Date Collected: 11/26/16 14:35
Date Received: 12/01/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	2.12		%	0.010	0.010	1	-	12/13/16 17:11	1,9060A	CM
Total Organic Carbon (Rep2)	2.20		%	0.010	0.010	1	-	12/13/16 17:11	1,9060A	CM
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Coarse Gravel	ND		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Fine Gravel	ND		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Total Gravel	ND		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Coarse Sand	0.300		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Medium Sand	2.50		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Fine Sand	10.1		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Total Sand	12.9		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Silt Fine	73.3		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Clay Fine	13.8		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Total Fines	87.1		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
General Chemistry - Mansfield Lab										
% Soot (Rep 1)	0.155		%	0.010	NA	1	-	12/14/16 13:48	91,-	LC
% Soot (Rep 2)	0.157		%	0.010	NA	1	-	12/14/16 13:48	91,-	LC

Project Name: LDW ENR/AC PILOT STUDY
Project Number: LY15160310

Lab Number: L1638960
Report Date: 12/22/16

SAMPLE RESULTS

Lab ID: L1638960-07
Client ID: LDW-BA-SU-ENR-CB-CORE
Sample Location: LDW
Matrix: Sediment

Date Collected: 11/26/16 17:30
Date Received: 12/01/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Coarse Gravel	ND		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Fine Gravel	8.70		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Total Gravel	8.70		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Coarse Sand	6.90		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Medium Sand	24.1		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Fine Sand	33.2		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Total Sand	64.2		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Silt Fine	23.1		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Clay Fine	4.00		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Total Fines	27.1		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP

Project Name: LDW ENR/AC PILOT STUDY **Lab Number:** L1638960

Project Number: LY15160310 **Report Date:** 12/22/16

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab for sample(s): 01-06 Batch: WG961577-1										
Total Organic Carbon (Rep1)	ND		%	0.010	0.010	1	-	12/13/16 15:11	1,9060A	CM
Total Organic Carbon (Rep2)	ND		%	0.010	0.010	1	-	12/13/16 15:11	1,9060A	CM
General Chemistry - Mansfield Lab for sample(s): 01-06 Batch: WG961579-1										
% Soot (Rep 1)	ND		%	0.010	NA	1	-	12/14/16 11:12	91,-	LC
% Soot (Rep 2)	ND		%	0.010	NA	1	-	12/14/16 11:12	91,-	LC

Matrix Spike Analysis
Batch Quality Control

Project Name: LDW ENR/AC PILOT STUDY
Project Number: LY15160310

Lab Number: L1638960
Report Date: 12/22/16

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Organic Carbon - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG961577-4 WG961577-5 QC Sample: L1638960-01 Client ID: LDW-BA-SU-ENR-CA-CORE												
Total Organic Carbon (Rep1)	1.82	0.769	2.80	**127**	Q	2.37	**69**	Q	75-125	17		25
Total Organic Carbon (Rep2)	1.60	0.973	2.64	107		5.03	**468**	Q	75-125	**62**	Q	25
General Chemistry - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG961579-4 WG961579-5 QC Sample: L1638960-01 Client ID: LDW-BA-SU-ENR-CA-CORE												
% Soot (Rep 1)	0.104	0.825	0.974	105		1.03	104		75-125	6		25
% Soot (Rep 2)	0.257	1.47	1.67	96		0.987	87		75-125	**51**	Q	25

Lab Duplicate Analysis
Batch Quality Control

Project Name: LDW ENR/AC PILOT STUDY
Project Number: LY15160310

Lab Number: L1638960
Report Date: 12/22/16

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Organic Carbon - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG961577-3 QC Sample: L1638960-01 Client ID: LDW-BA-SU-ENR-CA-CORE						
Total Organic Carbon (Rep1)	1.82	1.25	%	**37**	Q	25
Total Organic Carbon (Rep2)	1.60	1.70	%	6		25
General Chemistry - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG961579-3 QC Sample: L1638960-01 Client ID: LDW-BA-SU-ENR-CA-CORE						
% Soot (Rep 1)	0.104	0.102	%	2		25
% Soot (Rep 2)	0.257	0.099	%	**89**	Q	25
Grain Size Analysis - Mansfield Lab Associated sample(s): 01-07 QC Batch ID: WG963967-1 QC Sample: L1638960-02 Client ID: LDW-BA-SU-ENR-CB-CORE						
Cobbles	ND	ND	%	NC		20
% Coarse Gravel	ND	ND	%	NC		20
% Fine Gravel	3.90	0.500	%	**155**	Q	20
% Total Gravel	3.90	0.500	%	**155**	Q	20
% Coarse Sand	2.30	2.30	%	0		20
% Medium Sand	9.10	7.60	%	18		20
% Fine Sand	14.4	11.9	%	19		20
% Total Sand	25.8	21.8	%	17		20
% Silt Fine	62.1	69.4	%	11		20
% Clay Fine	8.20	8.30	%	1		20
% Total Fines	70.3	77.7	%	10		20

Project Name: LDW ENR/AC PILOT STUDY **Lab Number:** L1638960

Project Number: LY15160310 **Report Date:** 12/22/16

S.R.M. Standard Quality Control

Standard Reference Material (SRM): WG961577-2

Parameter	% Recovery	Qual	QC Criteria
Total Organic Carbon (Rep1)	93		75-125
Total Organic Carbon (Rep2)	100		75-125

Project Name: LDW ENR/AC PILOT STUDY **Lab Number:** L1638960

Project Number: LY15160310 **Report Date:** 12/22/16

S.R.M. Standard Quality Control

Standard Reference Material (SRM): WG961579-2

Parameter	% Recovery	Qual	QC Criteria
% Soot (Rep 1)	110		75-125
% Soot (Rep 2)	91		75-125

Project Name: LDW ENR/AC PILOT STUDY
Project Number: LY15160310

Lab Number: L1638960
Report Date: 12/22/16

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information Custody Seal

Cooler	
A	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1638960-01A	Glass 500ml/16oz unpreserved	A	N/A	4.5	Y	Absent	A2-SOOT(28),A2-TOC-9060-2REPS(28)
L1638960-01B	Glass 500ml/16oz unpreserved	A	N/A	4.5	Y	Absent	A2-HYDRO-TFINE(),A2-HYDRO-CFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-SFINE(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1638960-02A	Glass 500ml/16oz unpreserved	A	N/A	4.5	Y	Absent	A2-SOOT(28),A2-TOC-9060-2REPS(28)
L1638960-02B	Glass 120ml/4oz unpreserved	A	N/A	4.5	Y	Absent	A2-HYDRO-TFINE(),A2-HYDRO-CFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-SFINE(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1638960-02C	Glass 120ml/4oz unpreserved	A	N/A	4.5	Y	Absent	A2-HYDRO-TFINE(),A2-HYDRO-CFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-SFINE(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1638960-03A	Glass 500ml/16oz unpreserved	A	N/A	4.5	Y	Absent	A2-SOOT(28),A2-TOC-9060-2REPS(28)

*Values in parentheses indicate holding time in days

Project Name: LDW ENR/AC PILOT STUDY
Project Number: LY15160310

Lab Number: L1638960
Report Date: 12/22/16

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1638960-03B	Glass 500ml/16oz unpreserved	A	N/A	4.5	Y	Absent	A2-HYDRO-TFINE(),A2-HYDRO-CFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-SFINE(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1638960-04A	Glass 500ml/16oz unpreserved	A	N/A	4.5	Y	Absent	A2-SOOT(28),A2-TOC-9060-2REPS(28)
L1638960-04B	Glass 500ml/16oz unpreserved	A	N/A	4.5	Y	Absent	A2-HYDRO-TFINE(),A2-HYDRO-CFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-SFINE(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1638960-05A	Glass 500ml/16oz unpreserved	A	N/A	4.5	Y	Absent	A2-SOOT(28),A2-TOC-9060-2REPS(28)
L1638960-05B	Glass 250ml/8oz unpreserved	A	N/A	4.5	Y	Absent	A2-HYDRO-TFINE(),A2-HYDRO-CFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-SFINE(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1638960-06A	Glass 500ml/16oz unpreserved	A	N/A	4.5	Y	Absent	A2-SOOT(28),A2-TOC-9060-2REPS(28)
L1638960-06B	Glass 500ml/16oz unpreserved	A	N/A	4.5	Y	Absent	A2-HYDRO-TFINE(),A2-HYDRO-CFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-SFINE(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()

*Values in parentheses indicate holding time in days

Project Name:	LDW ENR/AC PILOT STUDY	**Lab Number:**	L1638960
Project Number:	LY15160310	**Report Date:**	12/22/16

GLOSSARY

Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

1	- The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

A	- Spectra identified as "Aldol Condensation Product".
B	- The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the

Report Format: DU Report with 'J' Qualifiers

Project Name: LDW ENR/AC PILOT STUDY **Lab Number:** L1638960

Project Number: LY15160310 **Report Date:** 12/22/16

Data Qualifiers

reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

12 Annual Book of ASTM Standards. (American Society for Testing and Materials) ASTM International.

91 Analysis of Soot following ES&T publications by Accardi-Dey and Gschwend, 2003; and Gustafsson (et. al.), 1997.

LIMITATION OF LIABILITIES

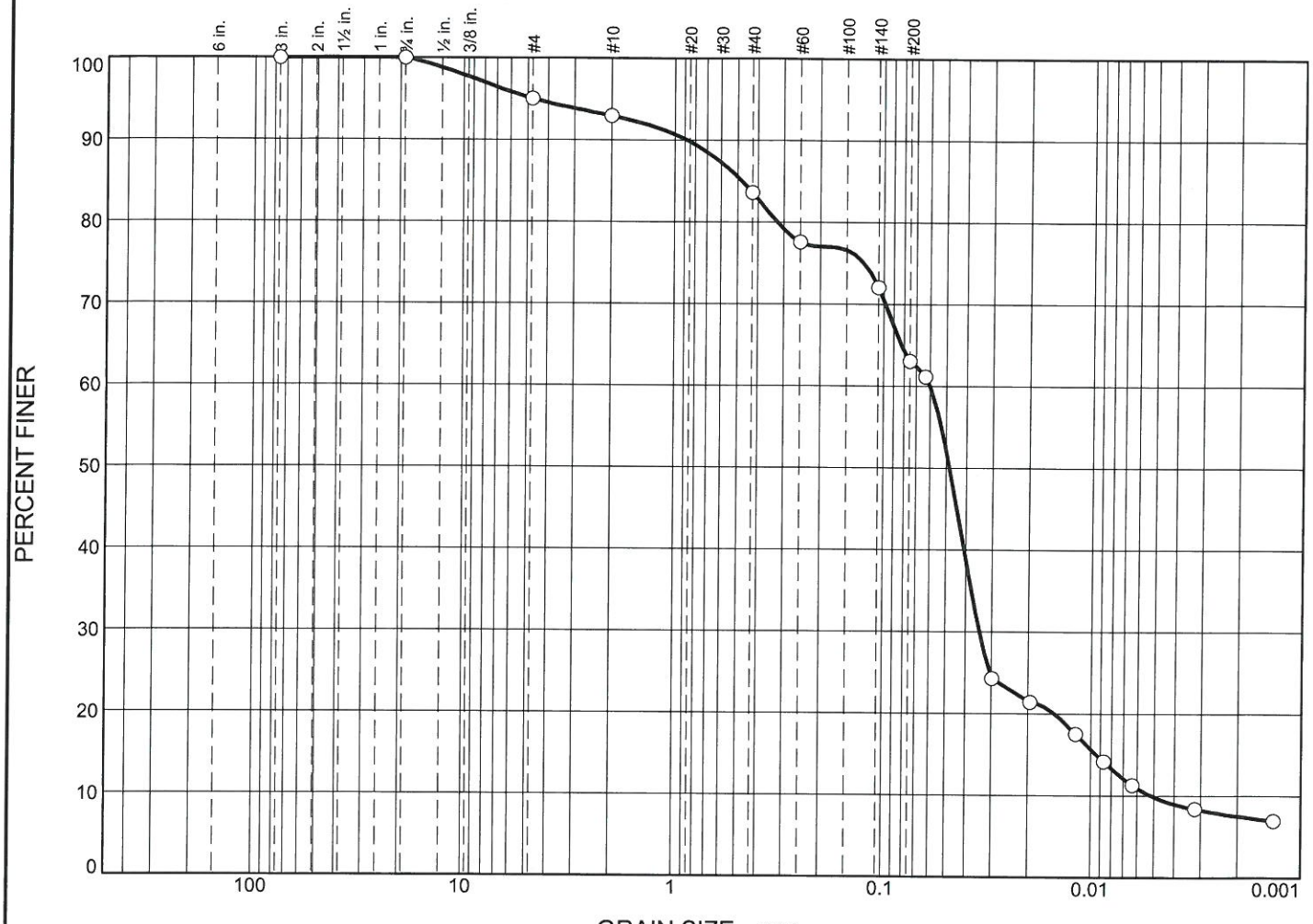
Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

ASTM D422-63

GRAIN SIZE ANALYSIS

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	5.0	2.1	9.3	20.5	53.3	9.8

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.4774	0.0601	0.0481	0.0342	0.0094	0.0052	3.79	11.66

Material Description	USCS	AASHTO
○		

Project No. **Client:**
Project:

○ **Source:** LDW-BA-SU-ENR-CA-CORE **Sample No.:** L1638960-01

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

12/22/2016

Location: LDW-BA-SU-ENR-CA-CORE
Sample Number: L1638960-01

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
102.00	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	5.05	0.00	95.0
		#10	2.16	0.00	92.9
		#40	9.51	0.00	83.6
		#60	6.17	0.00	77.6
		#140	5.63	0.00	72.0
		#200	9.16	0.00	63.1
		#230	1.97	0.00	61.1

Hydrometer Test Data

Hydrometer test uses material passing #230
Percent passing #230 based upon complete sample = 61.1
Weight of hydrometer sample =102.00
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 1
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.8	1.0240	1.0252	0.0133	24.0	9.9	0.0298	24.3
5.00	21.8	1.0210	1.0222	0.0133	21.0	10.7	0.0196	21.4
15.00	21.8	1.0170	1.0182	0.0133	17.0	11.8	0.0118	17.5
30.00	21.8	1.0135	1.0147	0.0133	13.5	12.7	0.0087	14.2
60.00	21.8	1.0105	1.0117	0.0133	10.5	13.5	0.0063	11.3
250.00	21.8	1.0075	1.0087	0.0133	7.5	14.3	0.0032	8.4
1440.00	21.8	1.0060	1.0072	0.0133	6.0	14.7	0.0013	7.0

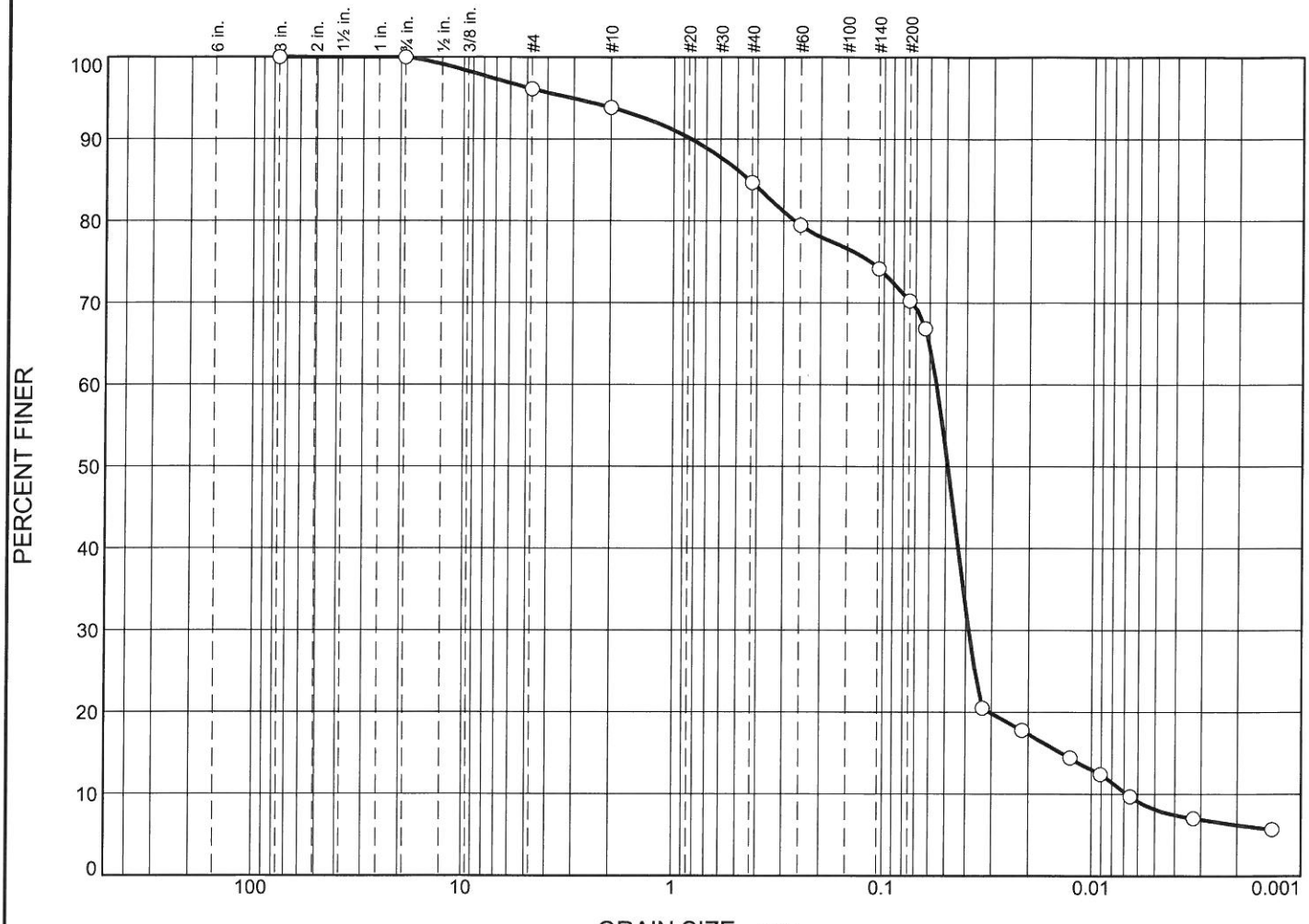
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	5.0	5.0	2.1	9.3	20.5	31.9	53.3	9.8	63.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0052	0.0094	0.0149	0.0342	0.0481	0.0601	0.3230	0.4774	0.8763	4.6772

Fineness Modulus	C_u	C_c
0.80	11.66	3.79

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	3.9	2.3	9.1	14.4	62.1	8.2

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.4384	0.0555	0.0489	0.0387	0.0139	0.0068	3.97	8.18

	Material Description	USCS	AASHTO
○			

Project No. **Client:**
Project:

○ **Source:** LDW-BA-SU-ENR-CB-CORE **Sample No.:** L1638960-02

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

12/22/2016

Location: LDW-BA-SU-ENR-CB-CORE
Sample Number: L1638960-02

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
79.77	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	3.08	0.00	96.1
		#10	1.83	0.00	93.8
		#40	7.30	0.00	84.7
		#60	4.17	0.00	79.5
		#140	4.21	0.00	74.2
		#200	3.14	0.00	70.3
		#230	2.72	0.00	66.8

Hydrometer Test Data

Hydrometer test uses material passing #230
Percent passing #230 based upon complete sample = 66.8
Weight of hydrometer sample =79.77
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 0
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.8	1.0150	1.0152	0.0133	15.0	12.3	0.0331	20.5
5.00	21.8	1.0130	1.0132	0.0133	13.0	12.9	0.0214	17.8
15.00	21.8	1.0105	1.0107	0.0133	10.5	13.5	0.0127	14.4
30.00	21.8	1.0090	1.0092	0.0133	9.0	13.9	0.0091	12.4
60.00	21.8	1.0070	1.0072	0.0133	7.0	14.4	0.0065	9.7
250.00	21.8	1.0050	1.0052	0.0133	5.0	15.0	0.0033	7.0
1440.00	21.8	1.0040	1.0042	0.0133	4.0	15.2	0.0014	5.7

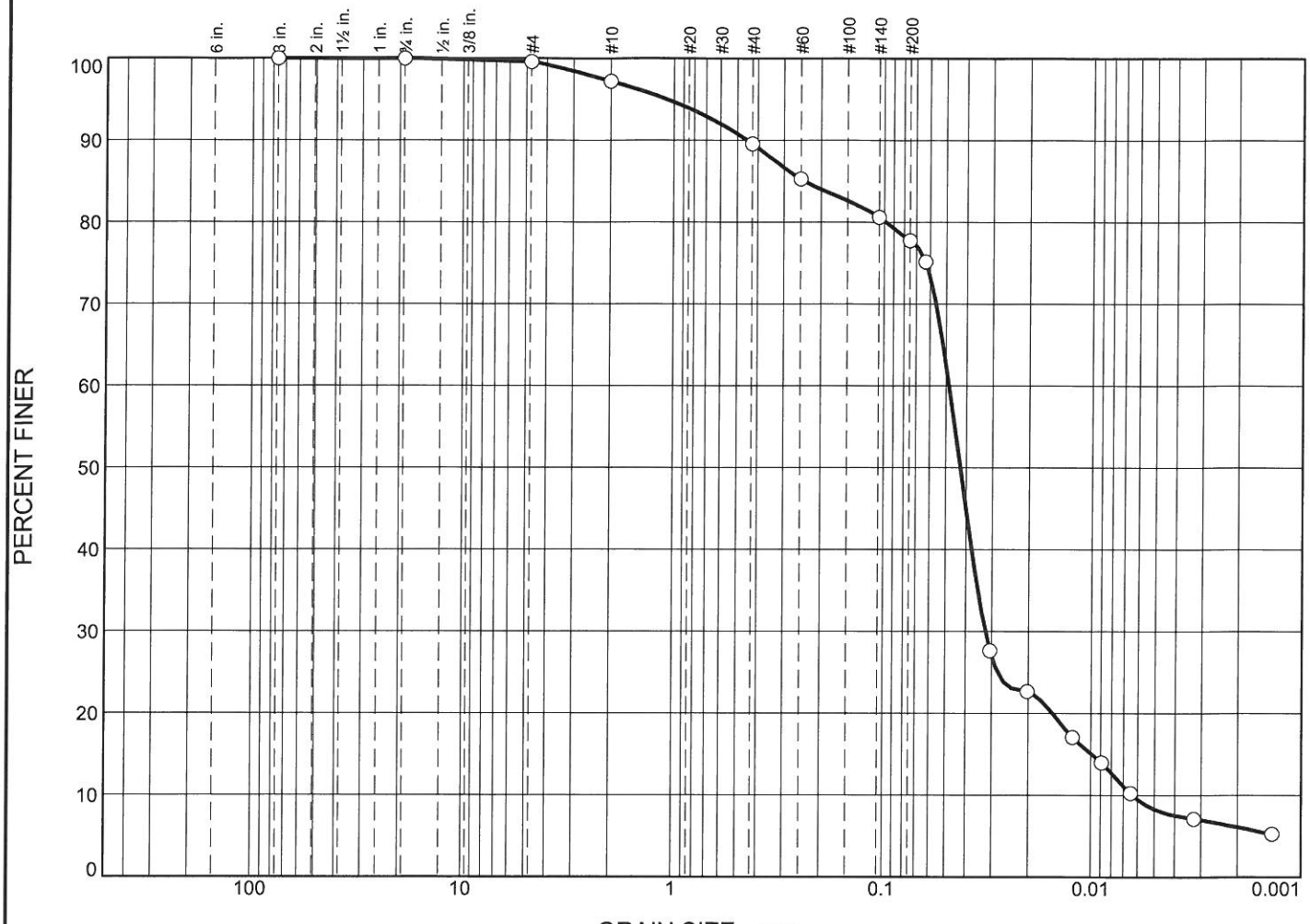
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	3.9	3.9	2.3	9.1	14.4	25.8	62.1	8.2	70.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0068	0.0139	0.0306	0.0387	0.0489	0.0555	0.2668	0.4384	0.8292	3.0635

Fineness Modulus	C_u	C_c
0.74	8.18	3.97

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.5	2.3	7.6	11.9	69.4	8.3

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.2401	0.0483	0.0426	0.0321	0.0099	0.0063	3.37	7.63

Material Description	USCS	AASHTO
○		

Project No. **Client:**

Project:

○ **Source:** LDW-BA-SU-ENR-CB-CORE **Sample No.:** WG963967-1

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

12/22/2016

Location: LDW-BA-SU-ENR-CB-CORE
Sample Number: WG963967-1

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
96.97	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	0.45	0.00	99.5
		#10	2.25	0.00	97.2
		#40	7.43	0.00	89.6
		#60	4.16	0.00	85.3
		#140	4.53	0.00	80.6
		#200	2.77	0.00	77.7
		#230	2.52	0.00	75.1

Hydrometer Test Data

Hydrometer test uses material passing #230
Percent passing #230 based upon complete sample = 75.1
Weight of hydrometer sample =96.97
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 0
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.8	1.0220	1.0222	0.0133	22.0	10.5	0.0305	27.7
5.00	21.8	1.0180	1.0182	0.0133	18.0	11.5	0.0203	22.7
15.00	21.8	1.0135	1.0137	0.0133	13.5	12.7	0.0123	17.1
30.00	21.8	1.0110	1.0112	0.0133	11.0	13.4	0.0089	14.0
60.00	21.8	1.0080	1.0082	0.0133	8.0	14.2	0.0065	10.2
250.00	21.8	1.0055	1.0057	0.0133	5.5	14.8	0.0033	7.1
1440.00	21.8	1.0040	1.0042	0.0133	4.0	15.2	0.0014	5.3

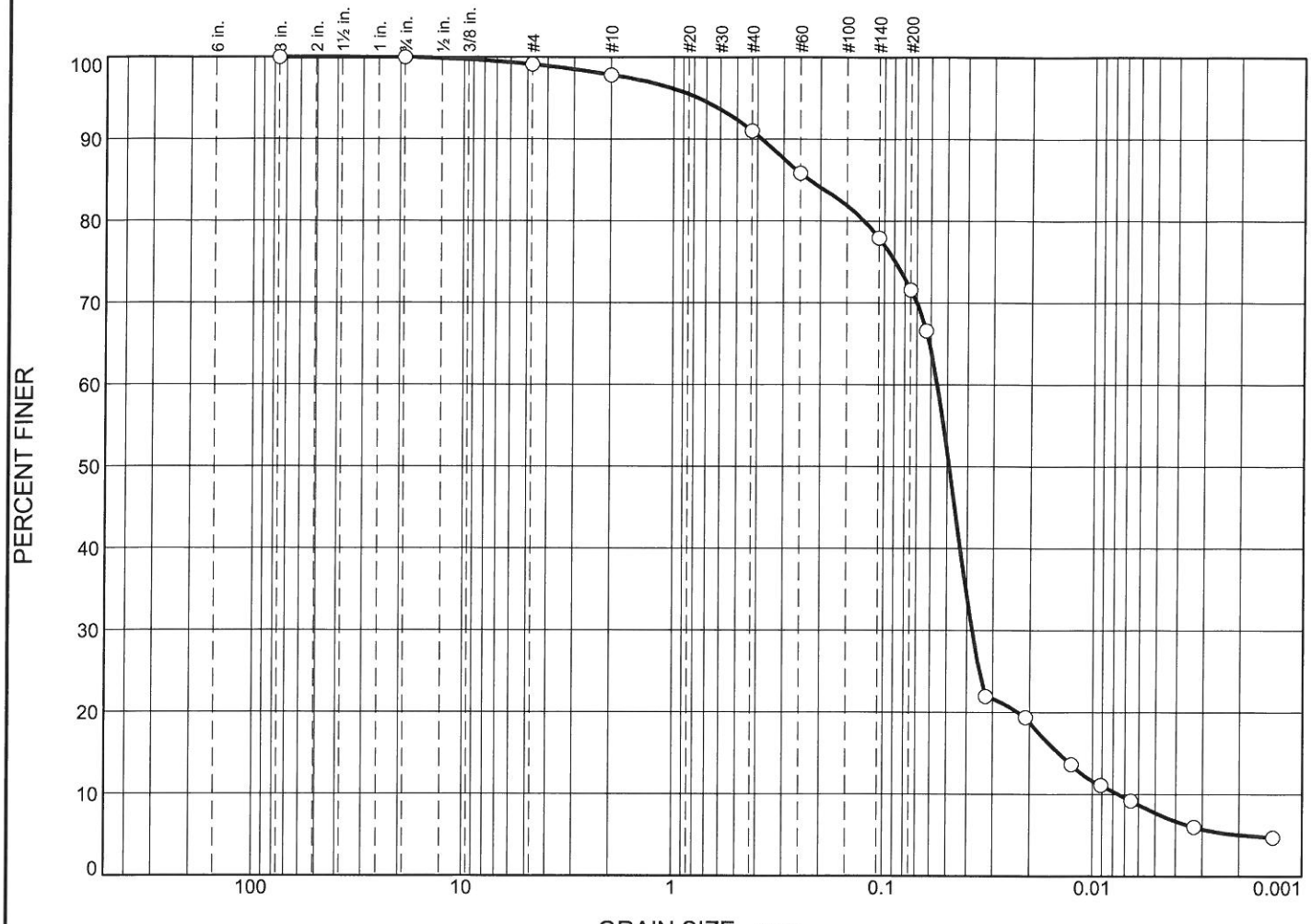
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.5	0.5	2.3	7.6	11.9	21.8	69.4	8.3	77.7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0063	0.0099	0.0154	0.0321	0.0426	0.0483	0.0983	0.2401	0.4499	1.0809

Fineness Modulus	C_u	C_c
0.46	7.63	3.37

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.9	1.3	6.8	19.4	63.8	7.8

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.2255	0.0559	0.0488	0.0377	0.0145	0.0075	3.37	7.42

	Material Description	USCS	AASHTO
○			

Project No. **Client:**

Project:

○ **Source:** LDW-BA-SU-ENR-CC-CORE **Sample No.:** L1638960-03

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

12/22/2016

Location: LDW-BA-SU-ENR-CC-CORE
Sample Number: L1638960-03

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
84.00	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	0.75	0.00	99.1
		#10	1.07	0.00	97.8
		#40	5.74	0.00	91.0
		#60	4.33	0.00	85.8
		#140	6.65	0.00	77.9
		#200	5.33	0.00	71.6
		#230	4.18	0.00	66.6

Hydrometer Test Data

Hydrometer test uses material passing #230
Percent passing #230 based upon complete sample = 66.6
Weight of hydrometer sample =84
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 0
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.8	1.0170	1.0172	0.0133	17.0	11.8	0.0324	21.9
5.00	21.8	1.0150	1.0152	0.0133	15.0	12.3	0.0210	19.4
15.00	21.8	1.0105	1.0107	0.0133	10.5	13.5	0.0127	13.7
30.00	21.8	1.0085	1.0087	0.0133	8.5	14.0	0.0091	11.1
60.00	21.8	1.0070	1.0072	0.0133	7.0	14.4	0.0065	9.2
250.00	21.8	1.0045	1.0047	0.0133	4.5	15.1	0.0033	6.0
1440.00	21.8	1.0035	1.0037	0.0133	3.5	15.4	0.0014	4.7

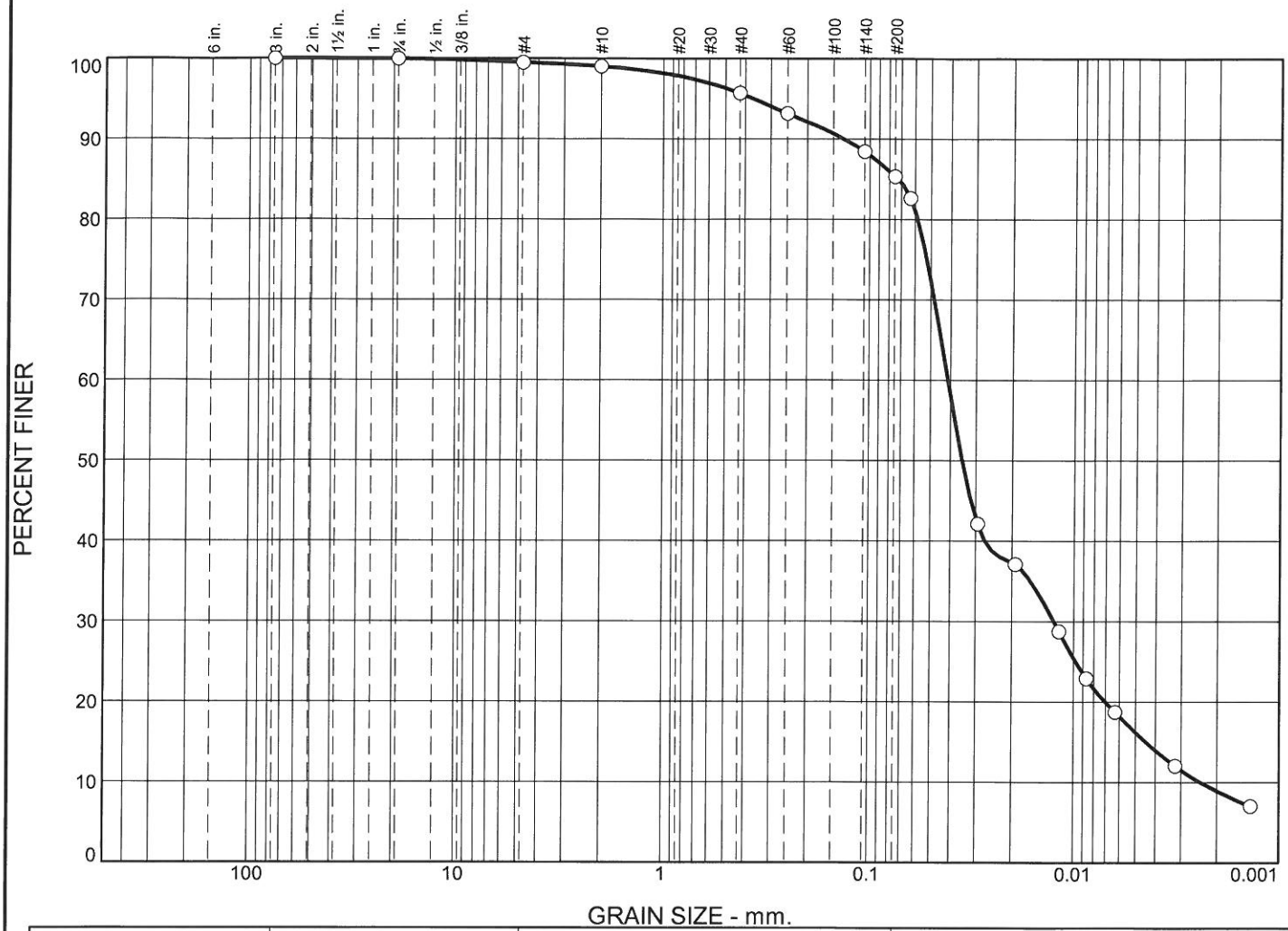
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.9	0.9	1.3	6.8	19.4	27.5	63.8	7.8	71.6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0075	0.0145	0.0226	0.0377	0.0488	0.0559	0.1242	0.2255	0.3825	0.7626

Fineness Modulus	C_u	C_c
0.43	7.42	3.37

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.5	0.5	3.3	10.4	69.1	16.2

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.0727	0.0411	0.0349	0.0126	0.0044	0.0024	1.60	17.19

	Material Description	USCS	AASHTO
○			

Project No. **Client:**

Project:

○ **Source:** LDW-BA-SU-ENR-AC-CA-CORE **Sample No.:** L1638960-04

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

12/22/2016

Location: LDW-BA-SU-ENR-AC-CA-CORE
Sample Number: L1638960-04

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
79.48	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	0.40	0.00	99.5
		#10	0.39	0.00	99.0
		#40	2.65	0.00	95.7
		#60	2.00	0.00	93.2
		#140	3.76	0.00	88.4
		#200	2.47	0.00	85.3
		#230	2.15	0.00	82.6

Hydrometer Test Data

Hydrometer test uses material passing #230
Percent passing #230 based upon complete sample = 82.6
Weight of hydrometer sample =79.48
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 0
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.8	1.0250	1.0252	0.0133	25.0	9.7	0.0294	42.1
5.00	21.8	1.0220	1.0222	0.0133	22.0	10.5	0.0193	37.1
15.00	21.8	1.0170	1.0172	0.0133	17.0	11.8	0.0118	28.7
30.00	21.8	1.0135	1.0137	0.0133	13.5	12.7	0.0087	22.9
60.00	21.8	1.0110	1.0112	0.0133	11.0	13.4	0.0063	18.7
250.00	21.8	1.0070	1.0072	0.0133	7.0	14.4	0.0032	12.1
1440.00	21.8	1.0040	1.0042	0.0133	4.0	15.2	0.0014	7.0

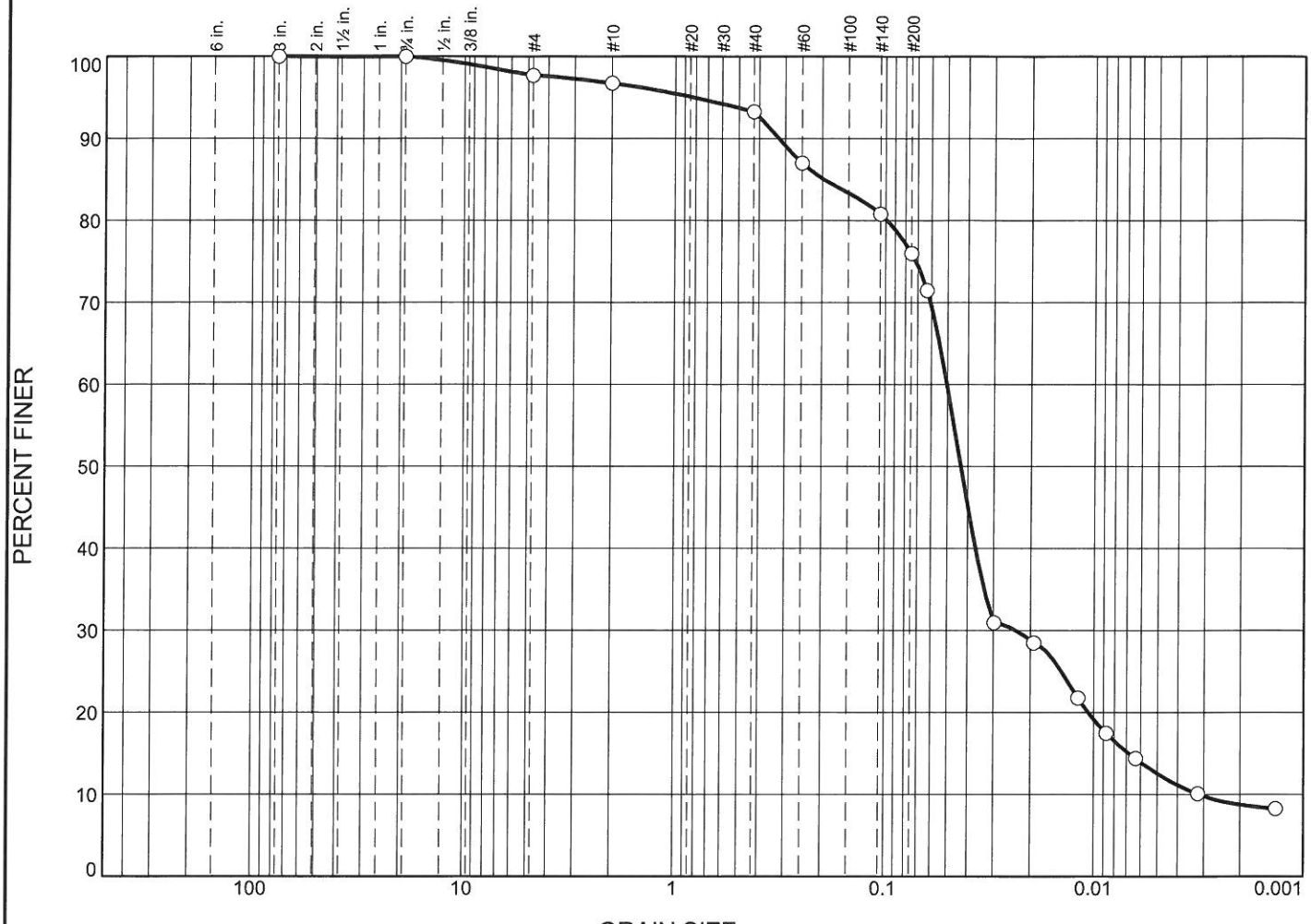
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.5	0.5	0.5	3.3	10.4	14.2	69.1	16.2	85.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0024	0.0044	0.0070	0.0126	0.0349	0.0411	0.0583	0.0727	0.1332	0.3659

Fineness Modulus	C_u	C_c
0.21	17.19	1.60

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	2.3	1.0	3.4	17.3	63.4	12.6

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.1961	0.0503	0.0431	0.0234	0.0068	0.0031	3.47	16.03

	Material Description	USCS	AASHTO
○			

Project No. **Client:**
Project:

○ **Source:** LDW-BA-SU-ENR-AC-CB-CORE **Sample No.:** L1638960-05

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

12/22/2016

Location: LDW-BA-SU-ENR-AC-CB-CORE
Sample Number: L1638960-05

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
93.55	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	2.16	0.00	97.7
		#10	0.91	0.00	96.7
		#40	3.22	0.00	93.3
		#60	5.88	0.00	87.0
		#140	5.82	0.00	80.8
		#200	4.49	0.00	76.0
		#230	4.21	0.00	71.5

Hydrometer Test Data

Hydrometer test uses material passing #230
Percent passing #230 based upon complete sample = 71.5
Weight of hydrometer sample =93.55
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 1
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.8	1.0240	1.0252	0.0133	24.0	9.9	0.0298	30.9
5.00	21.8	1.0220	1.0232	0.0133	22.0	10.5	0.0193	28.5
15.00	21.8	1.0165	1.0177	0.0133	16.5	11.9	0.0119	21.7
30.00	21.8	1.0130	1.0142	0.0133	13.0	12.9	0.0087	17.5
60.00	21.8	1.0105	1.0117	0.0133	10.5	13.5	0.0063	14.4
250.00	21.8	1.0070	1.0082	0.0133	7.0	14.4	0.0032	10.1
1440.00	21.8	1.0055	1.0067	0.0133	5.5	14.8	0.0014	8.2

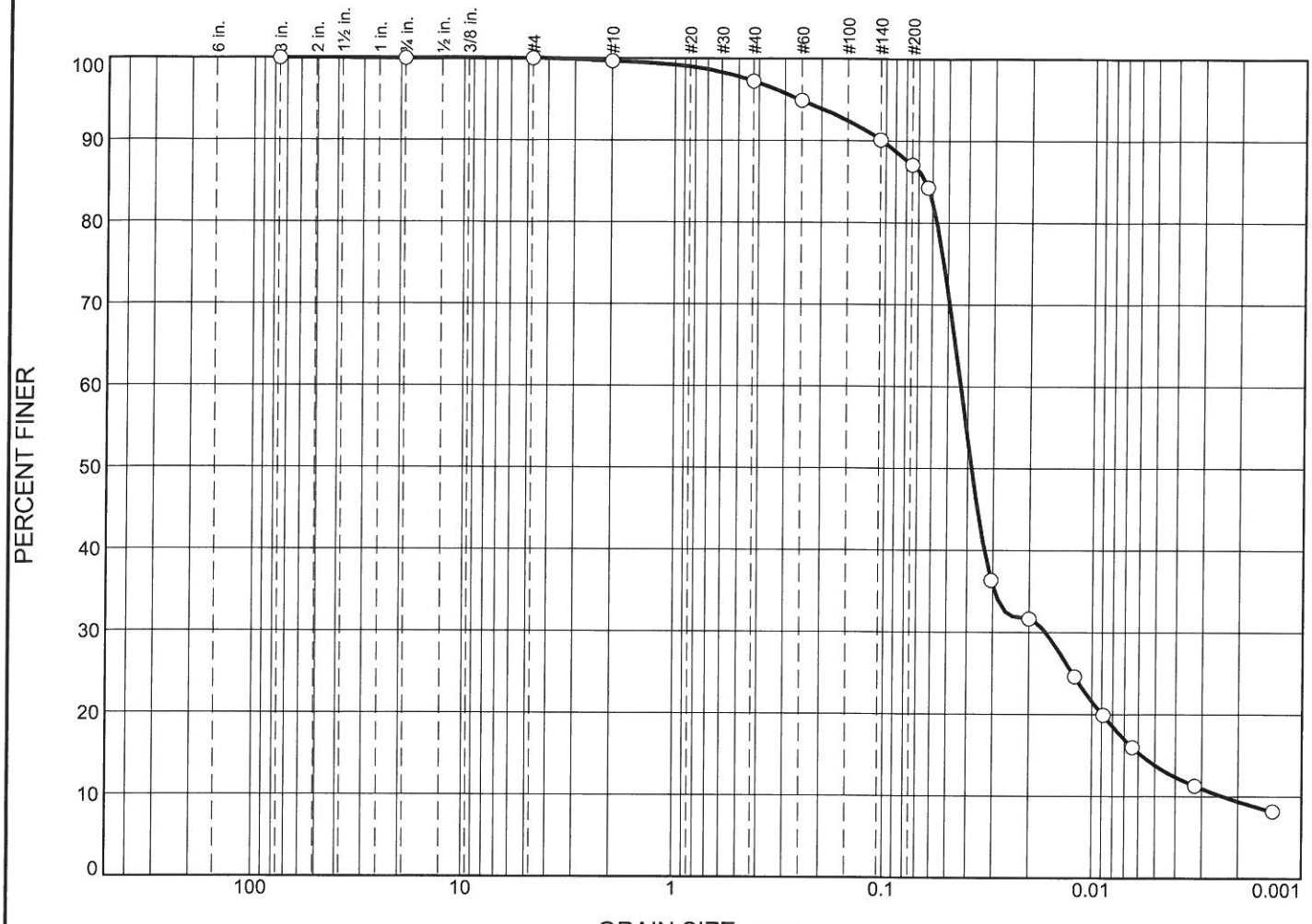
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	2.3	2.3	1.0	3.4	17.3	21.7	63.4	12.6	76.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0031	0.0068	0.0106	0.0234	0.0431	0.0503	0.0985	0.1961	0.3230	0.8188

Fineness Modulus	C_u	C_c
0.44	16.03	3.47

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.3	2.5	10.1	73.3	13.8

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.0647	0.0433	0.0382	0.0168	0.0058	0.0024	2.76	18.35

	Material Description	USCS	AASHTO
○			

Project No. **Client:**

Project:

○ **Source:** LDW-BA-SU-ENR-AC-CC-CORE **Sample No.:** L1638960-06

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

12/22/2016

Location: LDW-BA-SU-ENR-AC-CC-CORE
Sample Number: L1638960-06

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
86.49	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	0.00	0.00	100.0
		#10	0.29	0.00	99.7
		#40	2.09	0.00	97.2
		#60	2.03	0.00	94.9
		#140	4.15	0.00	90.1
		#200	2.64	0.00	87.1
		#230	2.40	0.00	84.3

Hydrometer Test Data

Hydrometer test uses material passing #230
Percent passing #230 based upon complete sample = 84.3
Weight of hydrometer sample =86.49
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 1
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.8	1.0220	1.0232	0.0133	22.0	10.5	0.0305	36.3
5.00	21.8	1.0190	1.0202	0.0133	19.0	11.3	0.0200	31.6
15.00	21.8	1.0145	1.0157	0.0133	14.5	12.5	0.0122	24.6
30.00	21.8	1.0115	1.0127	0.0133	11.5	13.3	0.0089	19.9
60.00	21.8	1.0090	1.0102	0.0133	9.0	13.9	0.0064	16.0
250.00	21.8	1.0060	1.0072	0.0133	6.0	14.7	0.0032	11.3
1440.00	21.8	1.0040	1.0052	0.0133	4.0	15.2	0.0014	8.2

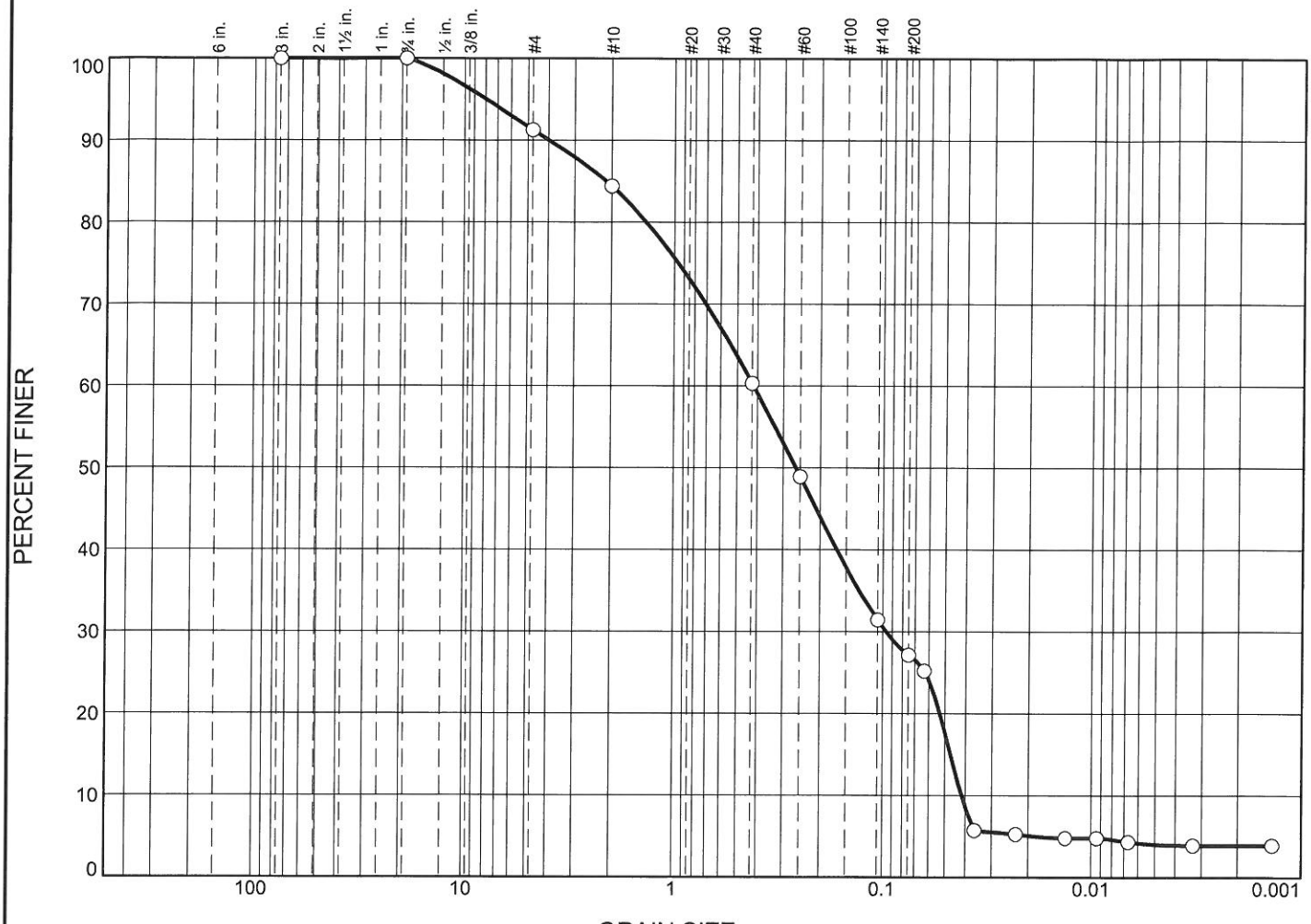
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.3	2.5	10.1	12.9	73.3	13.8	87.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0024	0.0058	0.0089	0.0168	0.0382	0.0433	0.0571	0.0647	0.1047	0.2554

Fineness Modulus	C_u	C_c
0.14	18.35	2.76

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	8.7	6.9	24.1	33.2	23.1	4.0

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			2.1266	0.4182	0.2626	0.0964	0.0471	0.0417	0.53	10.04

	Material Description	USCS	AASHTO
○			

Project No. **Client:**

Project:

○ **Source:** LDW-BA-SU-ENR-CB-CORE **Sample No.:** L1638960-07

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

12/22/2016

Location: LDW-BA-SU-ENR-CB-CORE
Sample Number: L1638960-07

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
44.04	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	3.85	0.00	91.3
		#10	3.02	0.00	84.4
		#40	10.60	0.00	60.3
		#60	5.03	0.00	48.9
		#140	7.69	0.00	31.4
		#200	1.90	0.00	27.1
		#230	0.85	0.00	25.2

Hydrometer Test Data

Hydrometer test uses material passing #230
Percent passing #230 based upon complete sample = 25.2
Weight of hydrometer sample =44.04
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 0
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.8	1.0060	1.0062	0.0133	6.0	14.7	0.0362	5.7
5.00	21.8	1.0055	1.0057	0.0133	5.5	14.8	0.0230	5.3
15.00	21.8	1.0050	1.0052	0.0133	5.0	15.0	0.0133	4.8
30.00	21.8	1.0050	1.0052	0.0133	5.0	15.0	0.0094	4.8
60.00	21.8	1.0045	1.0047	0.0133	4.5	15.1	0.0067	4.3
250.00	21.8	1.0040	1.0042	0.0133	4.0	15.2	0.0033	3.9
1440.00	21.8	1.0040	1.0042	0.0133	4.0	15.2	0.0014	3.9

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	8.7	8.7	6.9	24.1	33.2	64.2	23.1	4.0	27.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0417	0.0471	0.0531	0.0964	0.2626	0.4182	1.3637	2.1266	3.9837	7.8980

Fineness Modulus	C_u	C_c
1.91	10.04	0.53

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
EPA 300: DW: Bromide
EPA 6860: NPW and SCM: Perchlorate
EPA 9010: NPW and SCM: Amenable Cyanide Distillation
EPA 9012B: NPW: Total Cyanide
EPA 9050A: NPW: Specific Conductance
SM3500: NPW: Ferrous Iron
SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO2, NO3.
SM5310C: DW: Dissolved Organic Carbon

Mansfield Facility
SM 2540D: TSS
EPA 3005A NPW
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: ***EPA 3050B***

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **SM4500NO3-F, EPA 353.2**: Nitrate-N**, EPA 351.1, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D.**
EPA 624: Volatile Halocarbons & Aromatics,
EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9222D-MF**.

Mansfield Facility:

Drinking Water
EPA 200.7: Ba, Be, Cd, Cr, Cu, Ni, Na, Ca. **EPA 200.8:** Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, TL. **EPA 245.1** Hg.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 2

ALPHA ANALYTICAL
8 Walkup Drive, Westboro, MA 01581, Tel: 508-898-9220
320 Forbes Blvd, Mansfield, MA 02048, Tel: 508-822-9300

Date Rec'd in Lab: 12/1/16

ALPHA Job #: L1638960

Project Information

Project Name: LDW ENR/AC Pilot Study
Project Location: LDW
Project #: LY15160310
Project Manager: Liz Porta
ALPHA Quote #:

Report Information - Data Deliverables

☐ ADEx ☒ EMAIL

Billing Information

☒ Same as Client info PO #:

Client Information

Client: Floyd Snider
Address: 601 union St., Suite 600, Seattle, WA 98101
Phone: 206-292-2078
Email: gretchen.heavner@floydsnider.com

Regulatory Requirements & Project Information Requirements

☐ Yes ☐ No MA MCP Analytical Methods
☐ Yes ☐ No CT RCP Analytical Methods
☐ Yes ☐ No Matrix Spike Required on this SDG? (Required for MCP Inorganics)
☐ Yes ☐ No GW1 Standards (Info Required for Metals & EPH with Targets)
☐ Yes ☐ No NPDES RGP
☐ Other State /Fed Program _____ Criteria _____

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due:

Additional Project Information:

ANALYSIS: VOC: ☐ 8260 ☐ 624 ☐ 524.2; SVOC: ☐ ABN ☐ PAH; METALS: ☐ MCP 13 ☐ MCP 14 ☐ RCP 15; METALS: ☐ RCRA5 ☐ RCRA8 ☐ PP13; EPH: ☐ Ranges & Targets ☐ Ranges Only; VPH: ☐ Ranges & Targets ☐ Ranges Only; ☐ PCB ☐ PEST; TPH: ☐ Quant Only ☐ Fingerprint; Black Carbon; TOC; Grain size

SAMPLE INFO: Filtration ☐ Field ☐ Lab to do; Preservation ☐ Lab to do

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler Initials	Black Carbon	TOC	Grain size	Sample Comments	Total # Bottles
38960.01	LDW-BA-SU-ENR-CA-CORE	11/26/16	1715	Sed	JL	✓	✓		1-16oz amber	1
.01	↓	↓	↓	↓	↓			✓	↓	1
.02	LDW-BA-SU-ENR-CB-CORE	11/26/16	1730			✓	✓		1-16oz amber	1
.02	↓	↓	↓					✓	2-4oz amber	2
.03	LDW-BA-SU-ENR-CC-CORE	11/26/16	1535			✓	✓		1-16oz amber	1
.03	↓	↓	↓					✓		1
.04	LDW-BA-SU-ENR+AC-CA-CORE	11/26/16	1515			✓	✓			1
.04	↓	↓	↓					✓		1
.05	LDW-BA-SU-ENR+AC-CB-CORE	11/26/16	1420			✓	✓			1
.05	↓	↓	↓					✓	1-8oz amber	1
					Container Type			A →		
					Preservative			A →		

Container Type: P= Plastic, A= Amber glass, V= Vial, G= Glass, B= Bacteria cup, C= Cube, O= Other, E= Encore, D= BOD Bottle

Preservative: A= None, B= HCl, C= HNO_3, D= H_2SO_4, E= NaOH, F= MeOH, G= $NaHSO_4$, H = $Na_2S_2O_3$, I= Ascorbic Acid, J = NH_4Cl, K= Zn Acetate, O= Other

Relinquished By:	Date/Time	Received By:	Date/Time
Julia Levengood FedEx	11/30/16 1300	FedEx Kim Ebach, APL	12/1/16 10:27

All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 12-Mar-2012)

CHAIN OF CUSTODY

PAGE 2 OF 2

Date Rec'd in Lab: 12/1/16

ALPHA Job #: L1638960

ALPHA ANALYTICAL
8 Walkup Drive, Westboro, MA 01581, Tel: 508-898-9220
320 Forbes Blvd, Mansfield, MA 02048, Tel: 508-822-9300

Project Information

Project Name: LDW ENR/AC Pilot Study
Project Location: LDW
Project #: L415160310
Project Manager: Liz Porta
ALPHA Quote #:

Report Information - Data Deliverables

☐ ADEx ☒ EMAIL

Billing Information

☒ Same as Client info PO #:

Client Information

Client: Floyd Snider
Address: 601 Union St., Suite 600, Seattle, WA 98101
Phone: 206-292-2078
Email: gretchen.heavener@floydsnider.com

Regulatory Requirements & Project Information Requirements

☐ Yes ☐ No MA MCP Analytical Methods ☐ Yes ☐ No CT RCP Analytical Methods
☐ Yes ☐ No Matrix Spike Required on this SDG? (Required for MCP Inorganics)
☐ Yes ☐ No GW1 Standards (Info Required for Metals & EPH with Targets)
☐ Yes ☐ No NPDES RGP
☐ Other State /Fed Program _____ Criteria _____

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due:

Additional Project Information:

ANALYSIS: VOC: ☐ 8260 ☐ 624 ☐ 524.2; SVOC: ☐ ABN ☐ PAH; METALS: ☐ MCP 13 ☐ MCP 14 ☐ RCP 15; METALS: ☐ RCRA5 ☐ RCRA8 ☐ PP13; EPH: ☐ Ranges & Targets ☐ Ranges Only; VPH: ☐ Ranges & Targets ☐ Ranges Only; ☐ PCB ☐ PEST; TPH: ☐ Quant Only ☐ Fingerprint; Black Carbon; TOC; Grain Size

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler Initials	Black Carbon	TOC	Grain Size	Sample Comments (SAMPLE INFO: Filtration ☐ Field ☐ Lab to do; Preservation ☐ Lab to do)	TOTAL # BOTTLES
38960.06	LDW-BA-SU-ENR+AC-CC-CORE	11/26/16	1435	Sed	JL	✓	✓		1-16 oz amber	1
06	↓	↓	↓	↓	↓			✓	↓	1

Container Type	Preservative
P= Plastic	A= None
A= Amber glass	B= HCl
V= Vial	C= HNO_3
G= Glass	D= H_2SO_4
B= Bacteria cup	E= NaOH
C= Cube	F= MeOH
O= Other	G= $NaHSO_4$
E= Encore	H = $Na_2S_2O_3$
D= BOD Bottle	I= Ascorbic Acid
	J = NH_4Cl
	K= Zn Acetate
	O= Other

	Black Carbon	TOC	Grain Size
Container Type	A		
Preservative	A		

Relinquished By:	Date/Time	Received By:	Date/Time
Julie Evensgard FedEx	11/30/16 1300	FedEx [illegible] AAL	12/1/16 10:27

All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 12-Mar-2012)