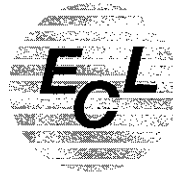


1005 BOSTON POST ROAD
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CONSULTING LABORATORIES, INC.

Phone 203-245-0568
Fax 203-318-0830
Connecticut Certification PH-0535
www.eclinonline.com

October 2, 2018

Town of Old Lyme WPCA
Attn: Richard Prendergast
Town Hall
82 Lyme Street
Old Lyme, Ct 06371

RE: Monitoring Well Test Results

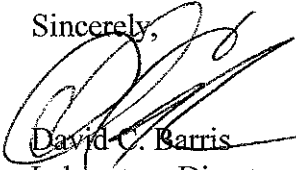
Dear Mr Prendergast,

Enclosed is the report of test results for samples collected on September 20, 2018.

There appears to be a number of houses that have private wells in the area of the monitoring wells. If these wells are active, water testing for bacteria and nitrogen's may be a source of valuable information regarding septic influence.

Please contact me should you have any questions.

Sincerely,



David C. Barris
Laboratory Director

Enclosure

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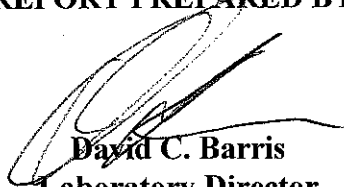
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REPORT OF TESTS

REPORT PREPARED FOR:

**Town of Old Lyme WPCA
83 Lyme Street
Old Lyme, CT 06371**

REPORT PREPARED BY:



**David C. Barris
Laboratory Director**

**ENVIRONMENTAL CONSULTING LABORATORIES, INC.
1005 Boston Post Road
Madison, CT 06443**

REPORT DATE: October 2, 2018

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III. Sampling Methodology	1

Appendices:

Appendix A - Chain of Custody
Appendix B - Site Map
Appendix C - Sampling Log Records
Appendix D- Sampling SOP

INTRODUCTION

ENVIRONMENTAL CONSULTING LABORATORIES, INC., is a State of Connecticut certified public health laboratory. Dedicated to servicing our clients, we offer comprehensive, cost-effective environmental consulting and testing services. Analytical capabilities include testing of industrial effluents, groundwater, hazardous wastes, sewage, sludge, sediment, soils. All sampling and analytical procedures are in accordance with Federal and State regulations.

Environmental Consulting Laboratories, Inc., maintains strict quality control and assurance procedures to ensure data that can be used with confidence. Strict adherence to EPA approved methods, blanks, standards, spikes, and duplicate sample analyses are routine lab practice. In addition, Environmental Consulting Laboratories, Inc., participates in EPA and Connecticut proficiency performance evaluations.

SAMPLE & SITE IDENTIFICATION

Ground water samples were collected by Environmental Consulting Laboratories, Inc., on September 20, 2018. Monitoring wells are identified as HN-1-98, HN-2-98, HN-3-98, HN-4N, HN-5N, HN-6, HN-7, HN-8, HN-9, HN-10 and HN-11. See Site Map in Appendix B

SAMPLING METHODOLOGY

Groundwater samples were taken in accordance with Town of Old Lyme Groundwater Monitoring Standard Operating Procedures. See document in Appendix D.

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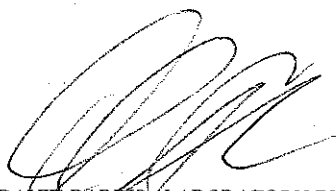
Phone 203-245-0568
Fax 203-318-0830
Connecticut Certification PH-0535
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Report of Analysis

Name: Old Lyme Town Hall
c/o WPCA
82 Lyme Street
Old Lyme, CT 06371
Attn: Richard Prendergast
Sample Date: 9/20/2018
Receipt Date: 9/20/2018
Report Date: 10/2/2018
Sample Site: HN-11

Sample ID#: 120310
Sample Type: Groundwater
Sample Source: Sewer Avoidance Monitoring - Wells
Sampler: ECL - MB

Parameter	Sample Result	Units	Method	MDL	Analysis Date	Analyst
Biological						
Coliform, E. Coli	<10	MPN/100mL	Colilert-18	10	9/20/2018	JB
Coliform, Total	>24196	MPN/100mL	Colilert-18	10	9/20/2018	JB
Enterococcus Bacteria	<10	MPN/100mL	Enterolert	10	9/20/2018	JB
Fecal Coliform Bacteria	<10	MPN/100mL	Colilert-18	10	9/20/2018	JB
Fecal Strep Bacteria	<10	col/100ml	SM9230	10	9/20/2018	JB
Chemical						
Ammonia as N	0.62	mg/L	ASTM D6919-03	0.05	9/24/2018	KC
Chloride	3323	mg/L	EPA300.0	0.5	9/21/2018	JB
Nitrate as N	0.14	mg/L	EPA300.0	0.1	9/21/2018	JB
Nitrite as N	ND	mg/L	EPA300.0	0.01	9/21/2018	JB
Phosphorous -Total as P	0.12	mg/L	EPA 200.7	0.04	9/26/2018	JM
TKN as N	1.99	mg/L	4500NorgC	0.5	10/1/2018	KC
Total Nitrogen as N	2.13	mg/L	CALC	1	10/2/2018	KC
Physical						
Conductivity	8270	umhos/cm	SM2510B	1	9/20/2018	DB
PH	6.20	pH	EPA 150.2	1	9/20/2018	MB
Turbidity	90	NTU	180.1	0.05	9/20/2018	JB


DAVID BARRIS - LABORATORY DIRECTOR

ND = Not Detected

Comments > 24196 = Greater than test dilution setup range.
<= equals less than our method detection limit.

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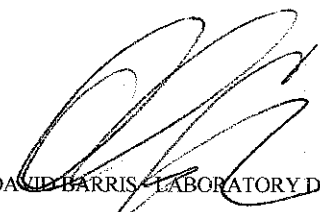
Report of Analysis

Name: Old Lyme Town Hall
c/o WPCA
82 Lyme Street
Old Lyme, CT 06371
Attn: Richard Prendergast

Sample ID#: 120311
Sample Type: Groundwater
Sample Source: Sewer Avoidance Monitoring - Wells
Sampler: ECL - MB

Sample Date: 9/20/2018
Receipt Date: 9/20/2018
Report Date: 10/2/2018
Sample Site: HN-2-98

Parameter	Sample Result	Units	Method	MDL	Analysis Date	Analyst
Biological						
Coliform, E. Coli	<10	MPN/100mL	Colilert-18	10	9/20/2018	JB
Coliform, Total	266	MPN/100mL	Colilert-18	10	9/20/2018	JB
Enterococcus Bacteria	<10	MPN/100mL	Enterolert	10	9/20/2018	JB
Fecal Coliform Bacteria	<10	MPN/100mL	Colilert-18	10	9/20/2018	JB
Fecal Strep Bacteria	<10	col/100ml	SM9230	10	9/20/2018	JB
Chemical						
Ammonia as N	ND	mg/L	ASTM D6919-03	0.05	9/24/2018	KC
Chloride	20.2	mg/L	EPA300.0	0.5	9/21/2018	JB
Nitrate as N	4.95	mg/L	EPA300.0	0.1	9/21/2018	JB
Nitrite as N	ND	mg/L	EPA300.0	0.01	9/21/2018	JB
Phosphorous -Total as P	ND	mg/L	EPA 200.7	0.04	9/26/2018	JM
TKN as N	0.51	mg/L	4500NorgC	0.5	10/1/2018	KC
Total Nitrogen as N	5.46	mg/L	CALC	1	10/2/2018	KC
Physical						
Conductivity	160	umhos/cm	SM2510B	1	9/20/2018	DB
PH	5.10	pH	EPA 150.2	1	9/20/2018	MB
Turbidity	1.1	NTU	180.1	0.05	9/20/2018	JB


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ND = Not Detected

Comments < = equals less than our method detection limit.

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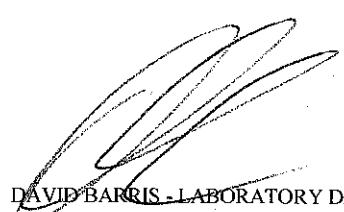
Report of Analysis

Name: Old Lyme Town Hall
c/o WPCA
82 Lyme Street
Old Lyme, CT 06371
Attn: Richard Prendergast

Sample ID#: 120312
Sample Type: Groundwater
Sample Source: Sewer Avoidance Monitoring - Wells
Sampler: ECL - MB

Sample Date: 9/20/2018
Receipt Date: 9/20/2018
Report Date: 10/2/2018
Sample Site: HN-10

Parameter	Sample Result	Units	Method	MDL	Analysis Date	Analyst
Biological						
Coliform, E. Coli	<10	MPN/100mL	Colilert-18	10	9/20/2018	JB
Coliform, Total	6488	MPN/100mL	Colilert-18	10	9/20/2018	JB
Enterococcus Bacteria	<10	MPN/100mL	Enterolert	10	9/20/2018	JB
Fecal Coliform Bacteria	<10	MPN/100mL	Colilert-18	10	9/20/2018	JB
Fecal Strep Bacteria	<10	col/100ml	SM9230	10	9/20/2018	JB
Chemical						
Ammonia as N	0.66	mg/L	ASTM D6919-03	0.05	9/24/2018	KC
Chloride	1180	mg/L	EPA300.0	0.5	9/21/2018	JB
Nitrate as N	1.28	mg/L	EPA300.0	0.1	9/21/2018	JB
Nitrite as N	ND	mg/L	EPA300.0	0.01	9/21/2018	JB
Phosphorous -Total as P	ND	mg/L	EPA 200.7	0.04	9/26/2018	JM
TKN as N	1.07	mg/L	4500NorgC	0.5	10/1/2018	KC
Total Nitrogen as N	2.35	mg/L	CALC	1	10/2/2018	KC
Physical						
Conductivity	2670	umhos/cm	SM2510B	1	9/20/2018	DB
PH	5.40	pH	EPA 150.2	1	9/20/2018	MB
Turbidity	9.1	NTU	180.1	0.05	9/20/2018	JB


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ND = Not Detected

Comments < = equals less than our method detection limit.

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Report of Analysis

Name: Old Lyme Town Hall
c/o WPCA
82 Lyme Street
Old Lyme, CT 06371
Attn: Richard Prendergast

Sample ID#: 120313
Sample Type: Groundwater
Sample Source: Sewer Avoidance Monitoring - Wells
Sampler: ECL - MB

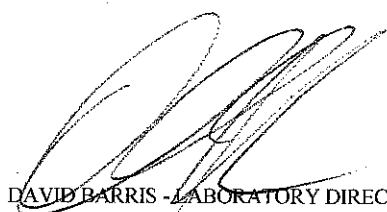
Sample Date: 9/20/2018

Receipt Date: 9/20/2018

Report Date: 10/2/2018

Sample Site: HN-9

Parameter	Sample Result	Units	Method	MDL	Analysis Date	Analyst
Biological						
Coliform, E. Coli	<10	MPN/100mL	Colilert-18	10	9/20/2018	JB
Coliform, Total	52	MPN/100mL	Colilert-18	10	9/20/2018	JB
Enterococcus Bacteria	<10	MPN/100mL	Enterolert	10	9/20/2018	JB
Fecal Coliform Bacteria	<10	MPN/100mL	Colilert-18	10	9/20/2018	JB
Fecal Strep Bacteria	<10	col/100ml	SM9230	10	9/20/2018	JB
Chemical						
Ammonia as N	0.95	mg/L	ASTM D6919-03	0.05	9/24/2018	KC
Chloride	3742	mg/L	EPA300.0	0.5	9/21/2018	JB
Nitrate as N	0.49	mg/L	EPA300.0	0.1	9/21/2018	JB
Nitrite as N	ND	mg/L	EPA300.0	0.01	9/21/2018	JB
Phosphorous -Total as P	0.18	mg/L	EPA 200.7	0.04	9/26/2018	JM
TKN as N	2.29	mg/L	4500NorgC	0.5	10/1/2018	KC
Total Nitrogen as N	2.78	mg/L	CALC	1	10/2/2018	KC
Physical						
Conductivity	2720	umhos/cm	SM2510B	1	9/20/2018	DB
PH	6.14	pH	EPA 150.2	1	9/20/2018	MB
Turbidity	26	NTU	180.1	0.05	9/20/2018	JB


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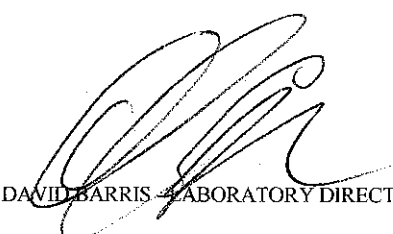
Report of Analysis

Name: Old Lyme Town Hall
c/o WPCA
82 Lyme Street
Old Lyme, CT 06371
Attn: Richard Prendergast

Sample ID#: 120314
Sample Type: Groundwater
Sample Source: Sewer Avoidance Monitoring - Wells
Sampler: ECL - MB

Sample Date: 9/20/2018
Receipt Date: 9/20/2018
Report Date: 10/2/2018
Sample Site: HN-3-98

Parameter	Sample Result	Units	Method	MDL	Analysis Date	Analyst
Biological						
Coliform, E. Coli	10	MPN/100mL	Colilert-18	10	9/20/2018	JB
Coliform, Total	2187	MPN/100mL	Colilert-18	10	9/20/2018	JB
Enterococcus Bacteria	20	MPN/100mL	Enterolert	10	9/20/2018	JB
Fecal Coliform Bacteria	<10	MPN/100mL	Colilert-18	10	9/20/2018	JB
Fecal Strep Bacteria	20	col/100ml	SM9230	10	9/20/2018	JB
Chemical						
Ammonia as N	ND	mg/L	ASTM D6919-03	0.05	9/24/2018	KC
Chloride	23.6	mg/L	EPA300.0	0.5	9/21/2018	JB
Nitrate as N	15.3	mg/L	EPA300.0	0.1	9/21/2018	JB
Nitrite as N	0.02	mg/L	EPA300.0	0.01	9/21/2018	JB
Phosphorous -Total as P	ND	mg/L	EPA 200.7	0.04	9/26/2018	JM
TKN as N	1.63	mg/L	4500NorgC	0.5	10/1/2018	KC
Total Nitrogen as N	17.0	mg/L	CALC	1	10/2/2018	KC
Physical						
Conductivity	296	umhos/cm	SM2510B	1	9/20/2018	DB
PH	5.07	pH	EPA 150.2	1	9/20/2018	MB
Turbidity	45	NTU	180.1	0.05	9/20/2018	JB


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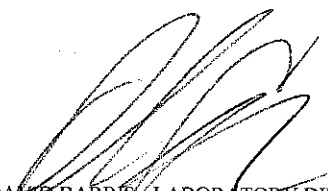
Report of Analysis

Name: Old Lyme Town Hall
c/o WPCA
82 Lyme Street
Old Lyme, CT 06371
Attn: Richard Prendergast

Sample ID#: 120315
Sample Type: Groundwater
Sample Source: Sewer Avoidance Monitoring - Wells
Sampler: ECL - MB

Sample Date: 9/20/2018
Receipt Date: 9/20/2018
Report Date: 10/2/2018
Sample Site: HN-5N

Parameter	Sample Result	Units	Method	MDL	Analysis Date	Analyst
Biological						
Coliform, E. Coli	<10	MPN/100mL	Colilert-18	10	9/20/2018	JB
Coliform, Total	12033	MPN/100mL	Colilert-18	10	9/20/2018	JB
Enterococcus Bacteria	122	MPN/100mL	Enterolert	10	9/20/2018	JB
Fecal Coliform Bacteria	<10	MPN/100mL	Colilert-18	10	9/20/2018	JB
Fecal Strep Bacteria	30	col/100ml	SM9230	10	9/20/2018	JB
Chemical						
Ammonia as N	6.15	mg/L	ASTM D6919-03	0.05	9/24/2018	KC
Chloride	46.5	mg/L	EPA300.0	0.5	9/21/2018	JB
Nitrate as N	5.76	mg/L	EPA300.0	0.1	9/21/2018	JB
Nitrite as N	ND	mg/L	EPA300.0	0.01	9/21/2018	JB
Phosphorous -Total as P	0.13	mg/L	EPA 200.7	0.04	9/26/2018	JM
TKN as N	6.78	mg/L	4500NorgC	0.5	10/1/2018	KC
Total Nitrogen as N	12.5	mg/L	CALC	1	10/2/2018	KC
Physical						
Conductivity	345	umhos/cm	SM2510B	1	9/20/2018	DB
PH	5.70	pH	EPA 150.2	1	9/20/2018	MB
Turbidity	350	NTU	180.1	0.05	9/20/2018	JB


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Report of Analysis

Name: Old Lyme Town Hall
c/o WPCA
82 Lyme Street
Old Lyme, CT 06371
Attn: Richard Prendergast

Sample ID#: 120316
Sample Type: Groundwater
Sample Source: Sewer Avoidance Monitoring - Wells
Sampler: ECL - MB

Sample Date: 9/20/2018
Receipt Date: 9/20/2018
Report Date: 10/2/2018
Sample Site: HN-4N

Parameter	Sample Result	Units	Method	MDL	Analysis Date	Analyst
Biological						
Coliform, E. Coli	<10	MPN/100mL	Colilert-18	10	9/20/2018	JB
Coliform, Total	8664	MPN/100mL	Colilert-18	10	9/20/2018	JB
Enterococcus Bacteria	<10	MPN/100mL	Enterolert	10	9/20/2018	JB
Fecal Coliform Bacteria	10	MPN/100mL	Colilert-18	10	9/20/2018	JB
Fecal Strep Bacteria	<10	col/100ml	SM9230	10	9/20/2018	JB
Chemical						
Ammonia as N	ND	mg/L	ASTM D6919-03	0.05	9/24/2018	KC
Chloride	46.5	mg/L	EPA300.0	0.5	9/21/2018	JB
Nitrate as N	6.03	mg/L	EPA300.0	0.1	9/21/2018	JB
Nitrite as N	ND	mg/L	EPA300.0	0.01	9/21/2018	JB
Phosphorous -Total as P	0.08	mg/L	EPA 200.7	0.04	9/26/2018	JM
TKN as N	0.87	mg/L	4500NorgC	0.5	10/1/2018	KC
Total Nitrogen as N	6.90	mg/L	CALC	1	10/2/2018	KC
Physical						
Conductivity	244	umhos/cm	SM2510B	1	9/20/2018	DB
PH	4.40	pH	EPA 150.2	1	9/20/2018	MB
Turbidity	220	NTU	180.1	0.05	9/20/2018	JB


DAVID BARRIS - LABORATORY DIRECTOR

ND = Not Detected

Comments < = equals less than our method detection limit.

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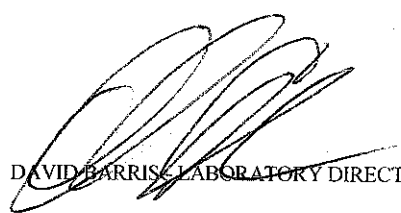
Report of Analysis

Name: Old Lyme Town Hall
c/o WPCA
82 Lyme Street
Old Lyme, CT 06371
Attn: Richard Prendergast

Sample ID#: 120317
Sample Type: Groundwater
Sample Source: Sewer Avoidance Monitoring - Wells
Sampler: ECL - MB

Sample Date: 9/20/2018
Receipt Date: 9/20/2018
Report Date: 10/2/2018
Sample Site: HN-1-98

Parameter	Sample Result	Units	Method	MDL	Analysis Date	Analyst
Biological						
Coliform, E. Coli	<10	MPN/100mL	Colilert-18	10	9/20/2018	JB
Coliform, Total	<10	MPN/100mL	Colilert-18	10	9/20/2018	JB
Enterococcus Bacteria	<10	MPN/100mL	Enterolert	10	9/20/2018	JB
Fecal Coliform Bacteria	<10	MPN/100mL	Colilert-18	10	9/20/2018	JB
Fecal Strep Bacteria	<10	col/100ml	SM9230	10	9/20/2018	JB
Chemical						
Ammonia as N	ND	mg/L	ASTM D6919-03	0.05	9/24/2018	KC
Chloride	24.1	mg/L	EPA300.0	0.5	9/21/2018	JB
Nitrate as N	6.60	mg/L	EPA300.0	0.1	9/21/2018	JB
Nitrite as N	ND	mg/L	EPA300.0	0.01	9/21/2018	JB
Phosphorous -Total as P	ND	mg/L	EPA 200.7	0.04	9/26/2018	JM
TKN as N	0.56	mg/L	4500NorgC	0.5	10/1/2018	KC
Total Nitrogen as N	7.16	mg/L	CALC	1	10/2/2018	KC
Physical						
Conductivity	170	umhos/cm	SM2510B	1	9/20/2018	DB
PH	5.20	pH	EPA 150.2	1	9/20/2018	MB
Turbidity	8.1	NTU	180.1	0.05	9/20/2018	JB


DAVID BARRIS, LABORATORY DIRECTOR

ND = Not Detected

Comments < = equals less than our method detection limit.

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Report of Analysis

Name: Old Lyme Town Hall
c/o WPCA
82 Lyme Street
Old Lyme, CT 06371
Attn: Richard Prendergast

Sample ID#: 120318
Sample Type: Groundwater
Sample Source: Sewer Avoidance Monitoring - Wells
Sampler: ECL - MB

Sample Date: 9/20/2018

Receipt Date: 9/20/2018

Report Date: 10/2/2018

Sample Site: HN-7

Parameter	Sample Result	Units	Method	MDL	Analysis Date	Analyst
Biological						
Coliform, E. Coli	<10	MPN/100mL	Colilert-18	10	9/20/2018	JB
Coliform, Total	30	MPN/100mL	Colilert-18	10	9/20/2018	JB
Enterococcus Bacteria	<10	MPN/100mL	Enterolert	10	9/20/2018	JB
Fecal Coliform Bacteria	<10	MPN/100mL	Colilert-18	10	9/20/2018	JB
Fecal Strep Bacteria	<10	col/100ml	SM9230	10	9/20/2018	JB
Chemical						
Ammonia as N	ND	mg/L	ASTM D6919-03	0.05	9/24/2018	KC
Chloride	195	mg/L	EPA300.0	0.5	9/21/2018	JB
Nitrate as N	0.96	mg/L	EPA300.0	0.1	9/21/2018	JB
Nitrite as N	ND	mg/L	EPA300.0	0.01	9/21/2018	JB
Phosphorous -Total as P	0.20	mg/L	EPA 200.7	0.04	9/26/2018	JM
TKN as N	0.51	mg/L	4500NorgC	0.5	10/1/2018	KC
Total Nitrogen as N	1.47	mg/L	CALC	1	10/2/2018	KC
Physical						
Conductivity	759	umhos/cm	SM2510B	1	9/20/2018	DB
PH	4.84	pH	EPA 150.2	1	9/20/2018	MB
Turbidity	85	NTU	180.1	0.05	9/20/2018	JB


DAVID BARRIS - LABORATORY DIRECTOR

ND = Not Detected

Comments < = equals less than our method detection limit.

1005 BOSTON POST ROAD
MADISON, CT 06443



ENVIRONMENTAL
CONSULTING LABORATORIES, INC.

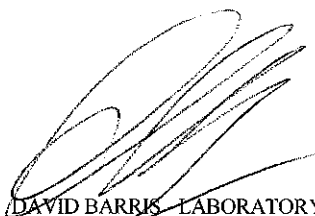
Phone 203-245-0568
Fax 203-318-0830
Connecticut Certification PH-0535
www.eclinonline.com

Report of Analysis

Name: Old Lyme Town Hall
c/o WPCA
82 Lyme Street
Old Lyme, CT 06371
Attn: Richard Prendergast
Sample Date: 9/20/2018
Receipt Date: 9/20/2018
Report Date: 10/2/2018
Sample Site: HN-6

Sample ID#: 120319
Sample Type: Groundwater
Sample Source: Sewer Avoidance Monitoring - Wells
Sampler: ECL - MB

Parameter	Sample Result	Units	Method	MDL	Analysis Date	Analyst
Biological						
Coliform, E. Coli	<10	MPN/100mL	Colilert-18	10	9/20/2018	JB
Coliform, Total	20	MPN/100mL	Colilert-18	10	9/20/2018	JB
Enterococcus Bacteria	<10	MPN/100mL	Enterolert	10	9/20/2018	JB
Fecal Coliform Bacteria	<10	MPN/100mL	Colilert-18	10	9/20/2018	JB
Fecal Strep Bacteria	<10	col/100ml	SM9230	10	9/20/2018	JB
Chemical						
Ammonia as N	ND	mg/L	ASTM D6919-03	0.05	9/24/2018	KC
Chloride	63.6	mg/L	EPA300.0	0.5	9/21/2018	JB
Nitrate as N	1.58	mg/L	EPA300.0	0.1	9/21/2018	JB
Nitrite as N	ND	mg/L	EPA300.0	0.01	9/21/2018	JB
Phosphorous -Total as P	ND	mg/L	EPA 200.7	0.04	9/26/2018	JM
TKN as N	0.77	mg/L	4500NorgC	0.5	10/1/2018	KC
Total Nitrogen as N	2.35	mg/L	CALC	1	10/2/2018	KC
Physical						
Conductivity	290	umhos/cm	SM2510B	1	9/20/2018	DB
PH	5.10	pH	EPA 150.2	1	9/20/2018	MB
Turbidity	16	NTU	180.1	0.05	9/20/2018	JB


DAVID BARRIS - LABORATORY DIRECTOR

ND = Not Detected

Comments <= equals less than our method detection limit.

1005 BOSTON POST ROAD
MADISON, CT 06443



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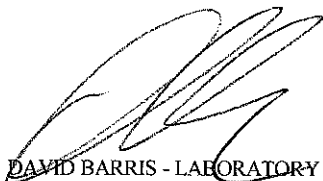
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Report of Analysis

Name: Old Lyme Town Hall
c/o WPCA
82 Lyme Street
Old Lyme, CT 06371
Attn: Richard Prendergast
Sample Date: 9/20/2018
Receipt Date: 9/20/2018
Report Date: 10/2/2018
Sample Site: HN-8

Sample ID#: 120320
Sample Type: Groundwater
Sample Source: Sewer Avoidance Monitoring - Wells
Sampler: ECL - MB

Parameter	Sample Result	Units	Method	MDL	Analysis Date	Analyst
Biological						
Coliform, E. Coli	<10	MPN/100mL	Colilert-18	10	9/20/2018	JB
Coliform, Total	24196	MPN/100mL	Colilert-18	10	9/20/2018	JB
Enterococcus Bacteria	<10	MPN/100mL	Enterolert	10	9/20/2018	JB
Fecal Coliform Bacteria	<10	MPN/100mL	Colilert-18	10	9/20/2018	JB
Fecal Strep Bacteria	<10	col/100ml	SM9230	10	9/20/2018	JB
Chemical						
Ammonia as N	ND	mg/L	ASTM D6919-03	0.05	9/24/2018	KC
Chloride	89.4	mg/L	EPA300.0	0.5	9/21/2018	JB
Nitrate as N	2.03	mg/L	EPA300.0	0.1	9/21/2018	JB
Nitrite as N	ND	mg/L	EPA300.0	0.01	9/21/2018	JB
Phosphorous -Total as P	0.57	mg/L	EPA 200.7	0.04	9/26/2018	JM
TKN as N	2.35	mg/L	4500NorgC	0.5	10/1/2018	KC
Total Nitrogen as N	4.38	mg/L	CALC	1	10/2/2018	KC
Physical						
Conductivity	362	umhos/cm	SM2510B	1	9/20/2018	DB
PH	4.90	pH	EPA 150.2	1	9/20/2018	MB
Turbidity	620	NTU	180.1	0.05	9/20/2018	JB


DAVID BARRIS - LABORATORY DIRECTOR

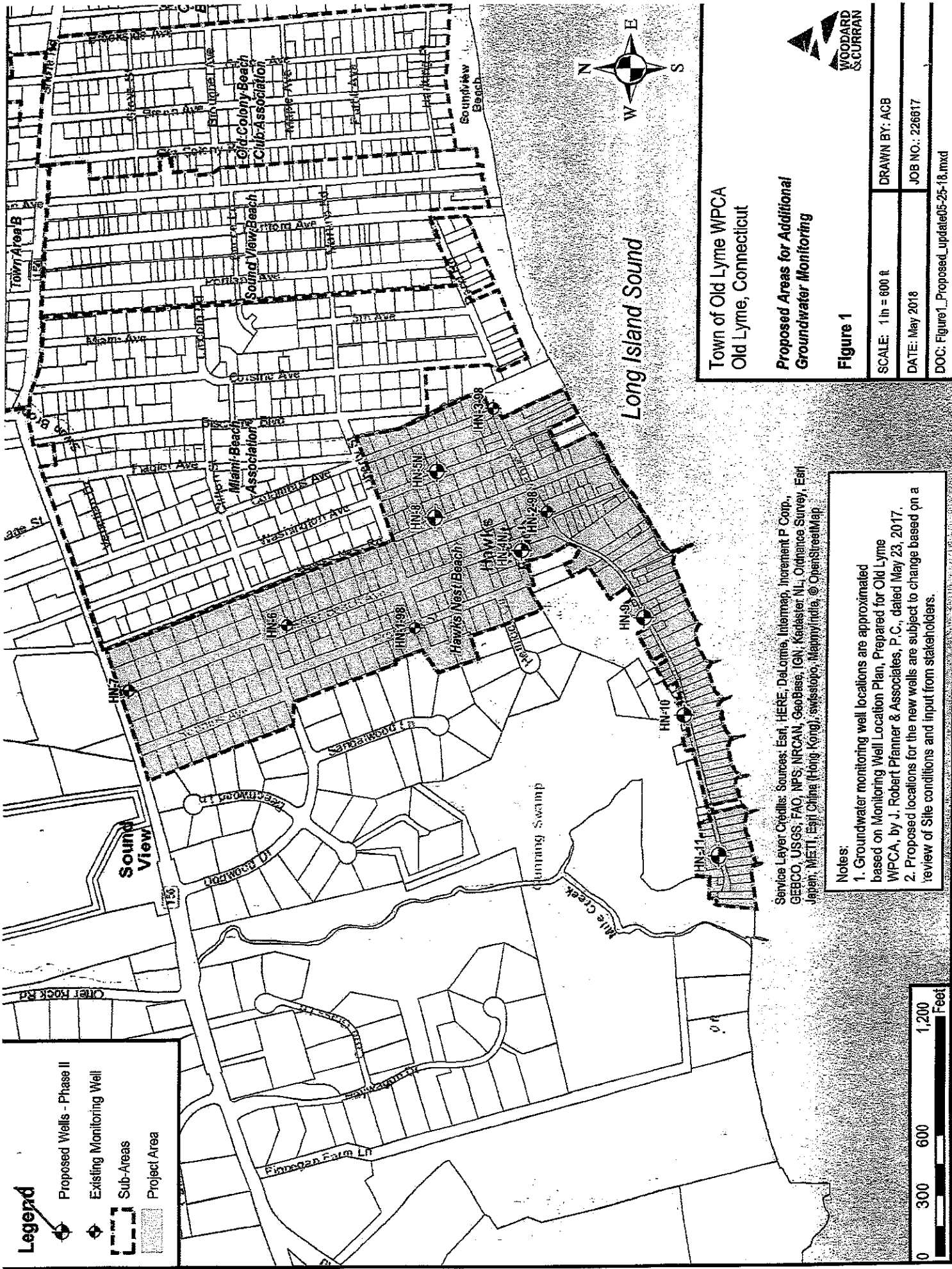
ND = Not Detected

Comments <= equals less than our method detection limit.

APPENDIX A

[illegible]

APPENDIX B



Legend

- Proposed Wells - Phase II
- Existing Monitoring Well
- Sub-Areas
- Project Area

Town of Old Lyme WPCA
Old Lyme, Connecticut

Proposed Areas for Additional
Groundwater Monitoring

Figure 1

SCALE: 1 in = 600 ft	DRAWN BY: ACB
DATE: May 2018	JOB NO.: 226617
DOC: Figure1_Proposed_updated05-25-18.mxd	

Notes:

1. Groundwater monitoring well locations are approximated based on Monitoring Well Location Plan, Prepared for Old Lyme WPCA, by J. Robert Pfanner & Associates, P.C., dated May 23, 2017.
2. Proposed locations for the new wells are subject to change based on a review of site conditions and input from stakeholders.

Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, Mapbox India, © OpenStreetMap



APPENDIX C

FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) - Old Lyme

Well Number HN-11 Date 9/22

[illegible]

* Sample Turned Black
After 1/2 Hour...
Preserved Bottles Stayed
more in solution.

GROUND WATER SAMPLE LOG

1. Sample Location: OL
2. Well Number: HN-11
3. Sampled By: MB
4. Date: 9-20
5. Time: 7:09
6. Weather: Cloudy Cold Snow
 Sunny Warm Rain
 Hot Windy
7. Sample Method: **Bailer (Disposable)**
8. Depth to bottom of well from measuring point: 11.4 Feet
9. Depth to Water: 4.20 Feet
10. #8 - #9 = LWC: 7.20 Feet (**Length of water column**)
11. Diameter of inner casings: 2" 4" 6"
12. Volume of water in well:
 2" Diameter well = $0.163 \times \text{LWC} =$ 1.17 Gallons
 4" Diameter Well = $0.633 \times \text{LWC} =$ _____ Gallons
 6" Diameter Well = $1.467 \times \text{LWC} =$ _____ Gallons
13. Purge Volume: $3 \times \#12 =$ 3.52 Gallons to purge

FIELD WATER QUALITY MEASUREMENTS FORM

[illegible]

GROUND WATER SAMPLE LOG

1. Sample Location: OL
2. Well Number: HM-2-98
3. Sampled By: MB
4. Date: 9/20
5. Time: 7:55pm
6. Weather: Cloudy Cold Snow
 ~~Sunny~~ Warm Rain
 Hot Windy
7. Sample Method: **Bailer (Disposable)**
8. Depth to bottom of well from measuring point: 15.6 Feet
9. Depth to Water: 7.10 Feet
10. #8 - #9 = LWC: 8.5 Feet (**Length of water column**)
11. Diameter of inner casings: (2") 4" 6"
12. Volume of water in well:
 (2") Diameter well = $0.163 \times \text{LWC} =$ 1.39 Gallons
 4" Diameter Well = $0.633 \times \text{LWC} =$ _____ Gallons
 6" Diameter Well = $1.467 \times \text{LWC} =$ _____ Gallons
13. Purge Volume: $3 \times \#12 =$ 4.16 Gallons to purge

Town of Old Lyme

FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) - Old Lyme

Well Number FW-10 Date _____[illegible]

GROUND WATER SAMPLE LOG

1. Sample Location: CL
2. Well Number: HN-10
3. Sampled By: MB
4. Date: 9/20
5. Time: 8:40 AM
6. Weather: Cloudy Cold Snow
 Sunny Warm Rain
 Hot Windy
7. Sample Method: **Bailer (Disposable)**
8. Depth to bottom of well from measuring point: 11.5 Feet
9. Depth to Water: 3.70 Feet
10. #8 - #9 = LWC: 7.8 Feet (**Length of water column**)
11. Diameter of inner casings: 2" 4" 6"
12. Volume of water in well:
 2" Diameter well = $0.163 \times \text{LWC} =$ 1.27 Gallons
 4" Diameter Well = $0.633 \times \text{LWC} =$ _____ Gallons
 6" Diameter Well = $1.467 \times \text{LWC} =$ _____ Gallons
13. Purge Volume: $3 \times \#12 =$ 3.81 Gallons to purge

FIELD WATER QUALITY MEASUREMENTS FORM

Well Number HW-9 Date 9-20-18

[illegible]

GROUND WATER SAMPLE LOG

1. Sample Location: OL
2. Well Number: HN-9
3. Sampled By: MB
4. Date: 9/20
5. Time: 9:09 Am
6. Weather: Cloudy Cold Snow
 ~~Sunny~~ ~~Warm~~ Rain
 Hot Windy
7. Sample Method: **Bailer (Disposable)**
8. Depth to bottom of well from measuring point: 11.4 Feet
9. Depth to Water: 3.10 Feet
10. #8 - #9 = LWC: 8.3 Feet (**Length of water column**)
11. Diameter of inner casings: (2") 4" 6"
12. Volume of water in well:
 (2") Diameter well = $0.163 \times \text{LWC} =$ 1.35 Gallons
 4" Diameter Well = $0.633 \times \text{LWC} =$ _____ Gallons
 6" Diameter Well = $1.467 \times \text{LWC} =$ _____ Gallons
13. Purge Volume: $3 \times \#12 =$ 4.06 Gallons to purge

Town of Old Lyme

Location (Site/Facility Name) - Old Lyme

Well Number HN-3-98 Date _____[illegible]

GROUND WATER SAMPLE LOG

1. Sample Location: OL
2. Well Number: HN-3-98
3. Sampled By: MB
4. Date: 9/20
5. Time: 9:40 AM
6. Weather: Cloudy Cold Snow
 ~~Sunny~~ Warm Rain
 Hot Windy
7. Sample Method: **Bailer (Disposable)**
8. Depth to bottom of well from measuring point: 13.0 Feet
9. Depth to Water: 5.70 Feet
10. #8 - #9 = LWC: 7.30 Feet (**Length of water column**)
11. Diameter of inner casings: 2" 4" 6"
12. Volume of water in well:
 2" Diameter well = $0.163 \times \text{LWC} =$ 1.19 Gallons
 4" Diameter Well = $0.633 \times \text{LWC} =$ _____ Gallons
 6" Diameter Well = $1.467 \times \text{LWC} =$ _____ Gallons
13. Purge Volume: $3 \times \#12 =$ 3.57 Gallons to purge

FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) - Old Lyme

Well Number FW-5 Date 5/1/54

2/2

[illegible]

GROUND WATER SAMPLE LOG

1. Sample Location: OL
2. Well Number: HN-5N
3. Sampled By: MB
4. Date: 9/20
5. Time: 10:01 Am
6. Weather: Cloudy Cold Snow
 ~~Sunny~~ Warm Rain
 Hot Windy
7. Sample Method: **Bailer (Disposable)**
8. Depth to bottom of well from measuring point: 12.9 Feet
9. Depth to Water: 5.20 Feet
10. #8 - #9 = LWC: 7.7 Feet (**Length of water column**)
11. Diameter of inner casings: 2" 4" 6"
12. Volume of water in well:
 2" Diameter well = $0.163 \times \text{LWC} =$ 1.26 Gallons
 4" Diameter Well = $0.633 \times \text{LWC} =$ _____ Gallons
 6" Diameter Well = $1.467 \times \text{LWC} =$ _____ Gallons
13. Purge Volume: $3 \times \#12 =$ 3.77 Gallons to purge

FIELD WATER QUALITY MEASUREMENTS FORM

Well Number HN-4N Date 9/20

[illegible]

GROUND WATER SAMPLE LOG

1. Sample Location: OL
2. Well Number: HN-4W
3. Sampled By: MB
4. Date: 9/20
5. Time: 10:30 Am
6. Weather: Cloudy Cold Snow
~~Sunny~~ ~~Warm~~ Rain
Hot Windy
7. Sample Method: **Bailer (Disposable)**
8. Depth to bottom of well from measuring point: 16.3 Feet
9. Depth to Water: 9.80 Feet
10. #8 - #9 = LWC: 6.5 Feet (**Length of water column**)
11. Diameter of inner casings: 2" 4" 6"
12. Volume of water in well:
2" Diameter well = $0.163 \times \text{LWC} =$ 1.06 Gallons
4" Diameter Well = $0.633 \times \text{LWC} =$ _____ Gallons
6" Diameter Well = $1.467 \times \text{LWC} =$ _____ Gallons
13. Purge Volume: $3 \times \#12 =$ 3.18 Gallons to purge

FIELD WATER QUALITY MEASUREMENTS FORM

[illegible]

GROUND WATER SAMPLE LOG

1. Sample Location: OL
2. Well Number: HN-1-98
3. Sampled By: MB
4. Date: 9/20
5. Time: 10:55A
6. Weather: ~~Cloudy~~ ~~Cold~~ ~~Snow~~
Sunny Warm Rain
~~Hot~~ Windy
7. Sample Method: **Bailer (Disposable)**
8. Depth to bottom of well from measuring point: 20.1 Feet
9. Depth to Water: 11.60 Feet
10. #8 - #9 = LWC: 8.50 Feet (**Length of water column**)
11. Diameter of inner casings: 2" 4" 6"
12. Volume of water in well:
2" Diameter well = $0.163 \times \text{LWC} =$ 1.39 Gallons
4" Diameter Well = $0.633 \times \text{LWC} =$ _____ Gallons
6" Diameter Well = $1.467 \times \text{LWC} =$ _____ Gallons
13. Purge Volume: $3 \times \#12 =$ 4.16 Gallons to purge

FIELD WATER QUALITY MEASUREMENTS FORM

Well Number HV-7 Date 9/20[illegible]

GROUND WATER SAMPLE LOG

1. Sample Location: OL
2. Well Number: HN-7
3. Sampled By: MB
4. Date: 9/20
5. Time: 11:33a
6. Weather: Cloudy Cold Snow
Sunny Warm Rain
Hot Windy
7. Sample Method: **Bailer (Disposable)**
8. Depth to bottom of well from measuring point: 16.8 Feet
9. Depth to Water: 10.70 Feet
10. #8 - #9 = LWC: 6.1 Feet (**Length of water column**)
11. Diameter of inner casings: 2" 4" 6"
12. Volume of water in well:
2" Diameter well = $0.163 \times \text{LWC} =$ 0.99 Gallons
4" Diameter Well = $0.633 \times \text{LWC} =$ _____ Gallons
6" Diameter Well = $1.467 \times \text{LWC} =$ _____ Gallons
13. Purge Volume: $3 \times \#12 =$ 2.98 Gallons to purge

FIELD WATER QUALITY MEASUREMENTS FORM

Well Number HN-6 Date 9/20

[illegible]

GROUND WATER SAMPLE LOG

1. Sample Location: OL
2. Well Number: HW-6
3. Sampled By: mjb
4. Date: 9/20
5. Time: 11:55am
6. Weather: Cloudy Cold Snow
 ~~Sunny~~ ~~Warm~~ Rain
 Hot Windy
7. Sample Method: **Bailer (Disposable)**
8. Depth to bottom of well from measuring point: 13 Feet
9. Depth to Water: 10.80 Feet
10. #8 - #9 = LWC: 2.2 Feet (**Length of water column**)
11. Diameter of inner casings (2") 4" 6"
12. Volume of water in well:
 (2") Diameter well = $0.163 \times \text{LWC} =$.36 Gallons
 4" Diameter Well = $0.633 \times \text{LWC} =$ _____ Gallons
 6" Diameter Well = $1.467 \times \text{LWC} =$ _____ Gallons
13. Purge Volume: $3 \times \#12 =$ 1.08 Gallons to purge

FIELD WATER QUALITY MEASUREMENTS FORM

Well Number HW-8 Date 9/20

[illegible]

GROUND WATER SAMPLE LOG

1. Sample Location: OL
2. Well Number: HN-8
3. Sampled By: MB
4. Date: 9/20
5. Time: 12:15pm
6. Weather: Cloudy Cold Snow
 Sunny Warm Rain
 Hot Windy
7. Sample Method: **Bailer (Disposable)**
8. Depth to bottom of well from measuring point: 11.9 Feet
9. Depth to Water: 6.50 Feet
10. #8 - #9 = LWC: 5.4 Feet (**Length of water column**)
11. Diameter of inner casings: 2" 4" 6"
12. Volume of water in well:
 2" Diameter well = $0.163 \times \text{LWC} =$ 0.88 Gallons
 4" Diameter Well = $0.633 \times \text{LWC} =$ _____ Gallons
 6" Diameter Well = $1.467 \times \text{LWC} =$ _____ Gallons
13. Purge Volume: $3 \times \#12 =$ 2.64 - Gallons to purge

APPENDIX D

Town of Old Lyme Ground Water Monitoring

SAMPLING SOP Rev 4 - Environmental Consulting Lab

Groundwater Monitoring Wells

Bailer Purge Technique

Overview:

Stagnant water must be removed from the monitoring well in order to obtain an accurate sample of groundwater for laboratory analysis.

This SOP will address the bailing and sampling procedures to be taken.

Safety:

Prior to sampling, field personnel should conduct a preliminary assessment of the area to determine any safety hazards.

Placement of traffic cones, safety vests and truck hazard lights should be used.

Minimize monitoring well water contact with potential personal protective equipment i.e. safety glasses & nitrile gloves.

Procedure:

Prior to purging the well, observe for any physical problems with monitoring well, ie: lock present, well cap broken or missing, condition of casing, etc.

Measure groundwater to the nearest hundredth of inch record on field sheet with time of measurement. Calculate the volume of standing water to purge a minimum of three volumes using prior readings of depth to bottom, to avoid agitating fines that may have accumulated on the bottom of the well.

A separate new bailer will be used for each well to minimize the potential for cross contamination of sampling equipment.

Lower bailer into monitoring well in a manner as to create minimum water disturbance. Repeat this process until three well volumes have been purged.

Following purging of three well volumes, measure pH and Temperature of the groundwater and record on field worksheet.

Sample Collection:

1. Do not rinse or empty bottles. Several bottles contain a preservative that must remain in the bottle.
2. If there is an overflow while filling a sample bottle that contains preservatives, restart the procedure using a new sample bottle.
3. If one bottle is to be used for several different tests, be sure there are no conflicts with preservation requirements.

Field Logs:

Use the Ground Water Sample Log (attached) to record all field information. Include Well ID, Date and Time, Weather, readings, observations and calculations for purge volume

Complete the Chain of Custody form (attached). Include sample ID/location, date and time.

The following pages contain specific sampling instructions and procedures that are dependent on analyte type.

GROUP:
Inorganics

SUBGROUP:

Chloride,Nitrate,Nitrite

BOTTLE: 500-mL

Preservative: Chill to 4 degrees C.

Holding Time: 48 Hrs

Test Method: EPA 300.1 Ion Chromatography

PROCEDURE

1. Using waterproof ink, fill out and attach label. At a minimum, include the Well ID number, sampling point and date.
2. Remove the sampling container cap. Be careful not to touch the inside of the sampling container or cap with your fingers. When possible, hold the sampling container in one hand and the cap in the other or set the cap on a clean surface. Quickly position the sampling container under the water flow.
3. Fill to the shoulder of the container. Do not over fill.
4. Quickly remove the sampling container from the water flow.
5. Replace cap and tighten.
6. Completely fill out the chain of custody form.
7. Sample must be placed in coolers for laboratory submittal.

GROUP:

Bacteria

Total/ Fecal

Coliforms,

Enterococci, Fecal

Strep

BOTTLE: (4) 120 mL sterile plastic bottle

Preservative: Chill to 4 degrees C.

Holding Time: 8 Hrs.

Test Methods: Colilert-18, Enterolert, SM9230

PROCEDURE

1. Using waterproof ink, fill out and attach label. At a minimum, include the Well ID number, sampling point and date.
2. Remove the sampling container cap. Be careful not to touch the inside of the sampling container or cap with your fingers. When possible, hold the sampling container in one hand and the cap in the other or set the cap on a clean surface. Quickly position the sampling container under the water flow.
3. Fill to at least the 100 mL mark. Leave some air space.
4. Quickly remove the sampling container from the waterflow.
5. Replace cap and tighten.
6. Completely fill out the chain of custody form.
7. Sample must be placed in coolers for laboratory submittal.

GROUP:

Inorganic

SUBGROUP:

Phosphorus-Total

BOTTLE: One 125 ml

Preservative: PH<2 1:1 Nitric Acid

Test Method: EPA 200.7 ICP

PROCEDURE:

1. Using waterproof ink, fill out and attach label. At a minimum, include the Well ID number, sampling point and date.
2. Remove the sampling container cap. Be careful not to touch the inside of the sampling container or cap with your fingers. When possible, hold the sampling container in one hand and the cap in the other or set the cap on a clean surface. Quickly position the sampling container under the water flow.
3. Fill to the shoulder of the container. Do not over fill.
4. Quickly remove the sampling container from the water flow.
5. Bottle contains Nitric Acid Preservative.
6. Replace cap and tighten.
7. Completely fill out the chain of custody form.
8. Sample must be placed in coolers for laboratory submittal.

GROUP:
Inorganic

SUBGROUP:
Ammonia, TKN

BOTTLE: 125-mL

Preservative: PH <2 with 1:1 Sulfuric Acid

Holding time: 28 Days

Test Method: ASTM D6919-03, SM 4500-Norg C

PROCEDURE

1. Using waterproof ink, fill out and attach label. At a minimum, include the Well ID number, sampling point and date.
2. Remove the sampling container cap. Be careful not to touch the inside of the sampling container or cap with your fingers. When possible, hold the sampling container in one hand and the cap in the other or set the cap on a clean surface. Quickly position the sampling container under the water flow.
3. Fill to the shoulder of the container. Do not over fill.
4. Quickly remove the sampling container from the water flow.
5. Bottle contains Sulfuric Acid Preservative.
6. Replace cap and tighten.
7. Completely fill out the chain of custody form.
8. Sample must be placed in coolers for laboratory submittal