

1005 BOSTON POST ROAD  
MADISON, CT 06443



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

October 4, 2019

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 18, 2019.

As discussed we will collect the next round in November of 2019.

Please contact me should you have any questions.

Sincerely,

A handwritten signature in blue ink that reads 'David C. Barris'.

David C. Barris  
Laboratory Director

Enclosure

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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 4, 2019

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## 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 18, 2019. 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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## Report of Analysis

**Name:** Old Lyme Town Hall  
c/o WPCA  
52 Lyme Street  
Old Lyme, CT 06371  
Attn: Richard Prendergast  
**Sample Date:** 9/18/2019  
**Receipt Date:** 9/18/2019  
**Report Date:** 10/3/2019  
**Sample Site:** HN-1-98

**Sample ID#:** 127654  
**Sample Type:** Groundwater  
**Sample Source:** Monitoring Wells  
**Sampler:** ECL - MB

Parameter	Sample Result	Units	Method	MDL	Analysis Date	Analyst
<b>Biological</b>						
Coliform, E. Coli	<10	MPN/100mL	Colilert-18	10	9/18/2019	JB
Coliform, Total	1842	MPN/100mL	Colilert-18	10	9/18/2019	JB
Enterococcus Bacteria	<10	MPN/100mL	Enterolert	10	9/18/2019	JB
Fecal Coliform Bacteria	<10	MPN/100mL	Colilert-18	10	9/18/2019	JB
Fecal Strep Bacteria	<10	col/100ml	SM9230	10	9/18/2019	JB
<b>Chemical</b>						
Ammonia as N	<0.05	mg/L	ASTM D6919-03	0.05	9/26/2019	KC
Chloride	15.8	mg/L	EPA300.0	0.5	9/19/2019	JB
Nitrate as N	4.51	mg/L	EPA300.0	0.1	9/19/2019	JB
Nitrite as N	ND	mg/L	EPA300.0	0.01	9/19/2019	JB
Phosphorous -Total as P	0.05	mg/L	EPA 200.7	0.04	9/24/2019	JB
TKN as N	2.83	mg/L	4500NorgC	0.5	10/2/2019	KC
Total Nitrogen as N	7.34	mg/L	CALC	1	10/3/2019	KC
<b>Physical</b>						
Conductivity	148	umhos/cm	SM2510B	1	9/18/2019	JB
PH	5.60	pH	EPA 150.2	1	6/18/2019	MB
Turbidity	5.7	NTU	180.1	0.05	9/18/2019	JB

DAVID BARRIS - LABORATORY DIRECTOR

ND = Not Detected

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## Report of Analysis

**Name:** Old Lyme Town Hall  
c/o WPCA  
52 Lyme Street  
Old Lyme, CT 06371  
Attn: Richard Prendergast  
**Sample Date:** 9/18/2019  
**Receipt Date:** 9/18/2019  
**Report Date:** 10/3/2019  
**Sample Site:** HN-2-98

**Sample ID#:** 127655  
**Sample Type:** Groundwater  
**Sample Source:** Monitoring Wells  
**Sampler:** ECL - MB

Parameter	Sample Result	Units	Method	MDL	Analysis Date	Analyst
<b>Biological</b>						
Coliform, E. Coli	<10	MPN/100mL	Colilert-18	10	9/18/2019	JB
Coliform, Total	134	MPN/100mL	Colilert-18	10	9/18/2019	JB
Enterococcus Bacteria	<10	MPN/100mL	Enterolert	10	9/18/2019	JB
Fecal Coliform Bacteria	10	MPN/100mL	Colilert-18	10	9/18/2019	JB
Fecal Strep Bacteria	<10	col/100ml	SM9230	10	9/18/2019	JB
<b>Chemical</b>						
Ammonia as N	0.12	mg/L	ASTM D6919-03	0.05	9/26/2019	KC
Chloride	24.5	mg/L	EPA300.0	0.5	9/19/2019	JB
Nitrate as N	5.00	mg/L	EPA300.0	0.1	9/19/2019	JB
Nitrite as N	ND	mg/L	EPA300.0	0.01	9/19/2019	JB
Phosphorous -Total as P	0.13	mg/L	EPA 200.7	0.04	9/24/2019	JB
TKN as N	<0.50	mg/L	4500NorgC	0.5	10/2/2019	KC
Total Nitrogen as N	5.12	mg/L	CALC	1	10/3/2019	KC
<b>Physical</b>						
Conductivity	175	umhos/cm	SM2510B	1	9/18/2019	JB
PH	5.58	pH	EPA 150.2	1	6/18/2019	MB
Turbidity	6.8	NTU		180.1	0.05	9/18/2019

  
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## Report of Analysis

<b>Name:</b>	Old Lyme Town Hall c/o WPCA 52 Lyme Street Old Lyme, CT 06371 Attn: Richard Prendergast	<b>Sample ID#:</b>	127656
<b>Sample Date:</b>	9/18/2019	<b>Sample Type:</b>	Groundwater
<b>Receipt Date:</b>	9/18/2019	<b>Sample Source:</b>	Monitoring Wells
<b>Report Date:</b>	10/3/2019	<b>Sampler:</b>	ECL - MB
<b>Sample Site:</b>	HN-3-98		

Parameter	Sample Result	Units	Method	MDL	Analysis Date	Analyst
<b>Biological</b>						
Coliform, E. Coli	84	MPN/100mL	Colilert-18	10	9/18/2019	JB
Coliform, Total	3654	MPN/100mL	Colilert-18	10	9/18/2019	JB
Enterococcus Bacteria	86	MPN/100mL	Enterolert	10	9/18/2019	JB
Fecal Coliform Bacteria	233	MPN/100mL	Colilert-18	10	9/18/2019	JB
Fecal Strep Bacteria	300	col/100ml	SM9230	10	9/18/2019	JB
<b>Chemical</b>						
Ammonia as N	0.53	mg/L	ASTM D6919-03	0.05	9/26/2019	KC
Chloride	24.2	mg/L	EPA300.0	0.5	9/19/2019	JB
Nitrate as N	0.63	mg/L	EPA300.0	0.1	9/19/2019	JB
Nitrite as N	ND	mg/L	EPA300.0	0.01	9/19/2019	JB
Phosphorous -Total as P	ND	mg/L	EPA 200.7	0.04	9/24/2019	JB
TKN as N	1.41	mg/L	4500NorgC	0.5	10/2/2019	KC
Total Nitrogen as N	2.04	mg/L	CALC	1	10/3/2019	KC
<b>Physical</b>						
Conductivity	200	umhos/cm	SM2510B	1	9/18/2019	JB
PH	5.80	pH	EPA 150.2	1	6/18/2019	MB
Turbidity	4.2	NTU		180.1	0.05	9/18/2019

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Old Lyme, CT 06371  
Attn: Richard Prendergast  
**Sample Date:** 9/18/2019  
**Receipt Date:** 9/18/2019  
**Report Date:** 10/3/2019  
**Sample Site:** HN-4N

**Sample ID#:** 127657  
**Sample Type:** Groundwater  
**Sample Source:** Monitoring Wells  
**Sampler:** ECL - MB

Parameter	Sample Result	Units	Method	MDL	Analysis Date	Analyst
<b>Biological</b>						
Coliform, E. Coli	<10	MPN/100mL	Colilert-18	10	9/18/2019	JB
Coliform, Total	<10	MPN/100mL	Colilert-18	10	9/18/2019	JB
Enterococcus Bacteria	<10	MPN/100mL	Enterolert	10	9/18/2019	JB
Fecal Coliform Bacteria	<10	MPN/100mL	Colilert-18	10	9/18/2019	JB
Fecal Strep Bacteria	<10	col/100ml	SM9230	10	9/18/2019	JB
<b>Chemical</b>						
Ammonia as N	ND	mg/L	ASTM D6919-03	0.05	9/26/2019	KC
Chloride	24.4	mg/L	EPA300.0	0.5	9/19/2019	JB
Nitrate as N	2.45	mg/L	EPA300.0	0.1	9/19/2019	JB
Nitrite as N	ND	mg/L	EPA300.0	0.01	9/19/2019	JB
Phosphorous -Total as P	0.71	mg/L	EPA 200.7	0.04	9/24/2019	JB
TKN as N	1.35	mg/L	4500NorgC	0.5	10/2/2019	KC
Total Nitrogen as N	3.80	mg/L	CALC	1	10/3/2019	KC
<b>Physical</b>						
Conductivity	150	umhos/cm	SM2510B	1	9/18/2019	JB
PH	5.60	pH	EPA 150.2	1	6/18/2019	MB
Turbidity	450	NTU	180.1	0.05	9/18/2019	JB

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## Report of Analysis

<b>Name:</b>	Old Lyme Town Hall c/o WPCA 52 Lyme Street Old Lyme, CT 06371 Attn: Richard Prendergast	<b>Sample ID#:</b>	127658
<b>Sample Date:</b>	9/18/2019	<b>Sample Type:</b>	Groundwater
<b>Receipt Date:</b>	9/18/2019	<b>Sample Source:</b>	Monitoring Wells
<b>Report Date:</b>	10/3/2019	<b>Sampler:</b>	ECL - MB
<b>Sample Site:</b>	HN-5N		

Parameter	Sample Result	Units	Method	MDL	Analysis Date	Analyst
<b>Biological</b>						
Coliform, E. Coli	<10	MPN/100mL	Colilert-18	10	9/18/2019	JB
Coliform, Total	31	MPN/100mL	Colilert-18	10	9/18/2019	JB
Enterococcus Bacteria	<10	MPN/100mL	Enterolert	10	9/18/2019	JB
Fecal Coliform Bacteria	<10	MPN/100mL	Colilert-18	10	9/18/2019	JB
Fecal Strep Bacteria	<10	col/100ml	SM9230	10	9/18/2019	JB
<b>Chemical</b>						
Ammonia as N	9.11	mg/L	ASTM D6919-03	0.05	9/26/2019	KC
Chloride	40.6	mg/L	EPA300.0	0.5	9/19/2019	JB
Nitrate as N	0.26	mg/L	EPA300.0	0.1	9/19/2019	JB
Nitrite as N	ND	mg/L	EPA300.0	0.01	9/19/2019	JB
Phosphorous -Total as P	0.52	mg/L	EPA 200.7	0.04	9/24/2019	JB
TKN as N	9.61	mg/L	4500NorgC	0.5	10/2/2019	KC
Total Nitrogen as N	9.87	mg/L	CALC	1	10/3/2019	KC
<b>Physical</b>						
Conductivity	443	umhos/cm	SM2510B	1	9/18/2019	JB
PH	5.40	pH	EPA 150.2	1	6/18/2019	MB
Turbidity	85	NTU		180.1	0.05	9/18/2019

  
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## Report of Analysis

<b>Name:</b>	Old Lyme Town Hall c/o WPCA 52 Lyme Street Old Lyme, CT 06371 Attn: Richard Prendergast	<b>Sample ID#:</b>	127659
<b>Sample Date:</b>	9/18/2019	<b>Sample Type:</b>	Groundwater
<b>Receipt Date:</b>	9/18/2019	<b>Sample Source:</b>	Monitoring Wells
<b>Report Date:</b>	10/3/2019	<b>Sampler:</b>	ECL - MB
<b>Sample Site:</b>	HN-6		

Parameter	Sample Result	Units	Method	MDL	Analysis Date	Analyst
<b>Biological</b>						
Coliform, E. Coli	<10	MPN/100mL	Colilert-18	10	9/18/2019	JB
Coliform, Total	<10	MPN/100mL	Colilert-18	10	9/18/2019	JB
Enterococcus Bacteria	<10	MPN/100mL	Enterolert	10	9/18/2019	JB
Fecal Coliform Bacteria	<10	MPN/100mL	Colilert-18	10	9/18/2019	JB
Fecal Strep Bacteria	<10	col/100ml	SM9230	10	9/18/2019	JB
<b>Chemical</b>						
Ammonia as N	ND	mg/L	ASTM D6919-03	0.05	9/26/2019	KC
Chloride	44.2	mg/L	EPA300.0	0.5	9/19/2019	JB
Nitrate as N	2.53	mg/L	EPA300.0	0.1	9/19/2019	JB
Nitrite as N	ND	mg/L	EPA300.0	0.01	9/19/2019	JB
Phosphorous -Total as P	0.23	mg/L	EPA 200.7	0.04	9/24/2019	JB
TKN as N	2.72	mg/L	4500NorgC	0.5	10/2/2019	KC
Total Nitrogen as N	5.25	mg/L	CALC	1	10/3/2019	KC
<b>Physical</b>						
Conductivity	244	umhos/cm	SM2510B	1	9/18/2019	JB
PH	5.10	pH	EPA 150.2	1	6/18/2019	MB
Turbidity	28	NTU	180.1	0.05	9/18/2019	JB

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## Report of Analysis

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52 Lyme Street  
Old Lyme, CT 06371  
Attn: Richard Prendergast

**Sample Date:** 9/18/2019  
**Receipt Date:** 9/18/2019  
**Report Date:** 10/3/2019  
**Sample Site:** HN-7

**Sample ID#:** 127660  
**Sample Type:** Groundwater  
**Sample Source:** Monitoring Wells  
**Sampler:** ECL - MB

Parameter	Sample Result	Units	Method	MDL	Analysis Date	Analyst
<b>Biological</b>						
Coliform, E. Coli	<10	MPN/100mL	Colilert-18	10	9/18/2019	JB
Coliform, Total	<10	MPN/100mL	Colilert-18	10	9/18/2019	JB
Enterococcus Bacteria	<10	MPN/100mL	Enterolert	10	9/18/2019	JB
Fecal Coliform Bacteria	<10	MPN/100mL	Colilert-18	10	9/18/2019	JB
Fecal Strep Bacteria	<10	col/100ml	SM9230	10	9/18/2019	JB
<b>Chemical</b>						
Ammonia as N	ND	mg/L	ASTM D6919-03	0.05	9/26/2019	KC
Chloride	90.9	mg/L	EPA300.0	0.5	9/19/2019	JB
Nitrate as N	1.26	mg/L	EPA300.0	0.1	9/19/2019	JB
Nitrite as N	ND	mg/L	EPA300.0	0.01	9/19/2019	JB
Phosphorous -Total as P	2.33	mg/L	EPA 200.7	0.04	9/24/2019	JB
TKN as N	0.77	mg/L	4500NorgC	0.5	10/2/2019	KC
Total Nitrogen as N	1.26	mg/L	CALC	1	10/3/2019	KC
<b>Physical</b>						
Conductivity	358	umhos/cm	SM2510B	1	9/18/2019	JB
PH	5.50	pH	EPA 150.2	1	6/18/2019	MB
Turbidity	750	NTU		180.1	0.05	9/18/2019

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## Report of Analysis

<b>Name:</b>	Old Lyme Town Hall c/o WPCA 52 Lyme Street Old Lyme, CT 06371 Attn: Richard Prendergast	<b>Sample ID#:</b>	127661
<b>Sample Date:</b>	9/18/2019	<b>Sample Type:</b>	Groundwater
<b>Receipt Date:</b>	9/18/2019	<b>Sample Source:</b>	Monitoring Wells
<b>Report Date:</b>	10/3/2019	<b>Sampler:</b>	ECL - MB
<b>Sample Site:</b>	HN-8		

Parameter	Sample Result	Units	Method	MDL	Analysis Date	Analyst
<b>Biological</b>						
Coliform, E. Coli	<10	MPN/100mL	Colilert-18	10	9/18/2019	JB
Coliform, Total	<10	MPN/100mL	Colilert-18	10	9/18/2019	JB
Enterococcus Bacteria	10	MPN/100mL	Enterolert	10	9/18/2019	JB
Fecal Coliform Bacteria	<10	MPN/100mL	Colilert-18	10	9/18/2019	JB
Fecal Strep Bacteria	<10	col/100ml	SM9230	10	9/18/2019	JB
<b>Chemical</b>						
Ammonia as N	ND	mg/L	ASTM D6919-03	0.05	9/26/2019	KC
Chloride	23.8	mg/L	EPA300.0	0.5	9/19/2019	JB
Nitrate as N	1.21	mg/L	EPA300.0	0.1	9/19/2019	JB
Nitrite as N	ND	mg/L	EPA300.0	0.01	9/19/2019	JB
Phosphorous -Total as P	0.09	mg/L	EPA 200.7	0.04	9/24/2019	JB
TKN as N	1.99	mg/L	4500NorgC	0.5	10/2/2019	KC
Total Nitrogen as N	3.20	mg/L	CALC	1	10/3/2019	KC
<b>Physical</b>						
Conductivity	149	umhos/cm	SM2510B	1	9/18/2019	JB
PH	5.80	pH	EPA 150.2	1	6/18/2019	MB
Turbidity	60	NTU		180.1	0.05	9/18/2019

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<b>Name:</b>	Old Lyme Town Hall c/o WPCA 52 Lyme Street Old Lyme, CT 06371 Attn: Richard Prendergast	<b>Sample ID#:</b>	127662
<b>Sample Date:</b>	9/18/2019	<b>Sample Type:</b>	Groundwater
<b>Receipt Date:</b>	9/18/2019	<b>Sample Source:</b>	Monitoring Wells
<b>Report Date:</b>	10/3/2019	<b>Sampler:</b>	ECL - MB
<b>Sample Site:</b>	HN-9		

Parameter	Sample Result	Units	Method	MDL	Analysis Date	Analyst
<b>Biological</b>						
Coliform, E. Coli	<10	MPN/100mL	Colilert-18	10	9/18/2019	JB
Coliform, Total	<10	MPN/100mL	Colilert-18	10	9/18/2019	JB
Enterococcus Bacteria	<10	MPN/100mL	Enterolert	10	9/18/2019	JB
Fecal Coliform Bacteria	<10	MPN/100mL	Colilert-18	10	9/18/2019	JB
Fecal Strep Bacteria	<10	col/100ml	SM9230	10	9/18/2019	JB
<b>Chemical</b>						
Ammonia as N	0.93	mg/L	ASTM D6919-03	0.05	9/26/2019	KC
Chloride	4372	mg/L	EPA300.0	0.5	9/19/2019	JB
Nitrate as N	0.19	mg/L	EPA300.0	0.1	9/19/2019	JB
Nitrite as N	ND	mg/L	EPA300.0	0.01	9/19/2019	JB
Phosphorous -Total as P	0.53	mg/L	EPA 200.7	0.04	9/24/2019	JB
TKN as N	2.62	mg/L	4500NorgC	0.5	10/2/2019	KC
Total Nitrogen as N	2.81	mg/L	CALC	1	10/3/2019	KC
<b>Physical</b>						
Conductivity	5990	umhos/cm	SM2510B	1	9/18/2019	JB
PH	6.40	pH	EPA 150.2	1	6/18/2019	MB
Turbidity	150	NTU	180.1	0.05	9/18/2019	JB

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<b>Name:</b>	Old Lyme Town Hall c/o WPCA 52 Lyme Street Old Lyme, CT 06371 Attn: Richard Prendergast	<b>Sample ID#:</b>	127663
<b>Sample Date:</b>	9/18/2019	<b>Sample Type:</b>	Groundwater
<b>Receipt Date:</b>	9/18/2019	<b>Sample Source:</b>	Monitoring Wells
<b>Report Date:</b>	10/3/2019	<b>Sampler:</b>	ECL - MB
<b>Sample Site:</b>	HN-10		

Parameter	Sample Result	Units	Method	MDL	Analysis Date	Analyst
<b>Biological</b>						
Coliform, E. Coli	<10	MPN/100mL	Colilert-18	10	9/18/2019	JB
Coliform, Total	<10	MPN/100mL	Colilert-18	10	9/18/2019	JB
Enterococcus Bacteria	<10	MPN/100mL	Enterolert	10	9/18/2019	JB
Fecal Coliform Bacteria	<10	MPN/100mL	Colilert-18	10	9/18/2019	JB
Fecal Strep Bacteria	<10	col/100ml	SM9230	10	9/18/2019	JB
<b>Chemical</b>						
Ammonia as N	2.13	mg/L	ASTM D6919-03	0.05	9/26/2019	KC
Chloride	1789	mg/L	EPA300.0	0.5	9/19/2019	JB
Nitrate as N	1.03	mg/L	EPA300.0	0.1	9/19/2019	JB
Nitrite as N	ND	mg/L	EPA300.0	0.01	9/19/2019	JB
Phosphorous -Total as P	ND	mg/L	EPA 200.7	0.04	9/24/2019	JB
TKN as N	3.14	mg/L	4500NorgC	0.5	10/2/2019	KC
Total Nitrogen as N	4.17	mg/L	CALC	1	10/3/2019	KC
<b>Physical</b>						
Conductivity	2930	umhos/cm	SM2510B	1	9/18/2019	JB
PH	5.20	pH	EPA 150.2	1	6/18/2019	MB
Turbidity	6.2	NTU	180.1	0.05	9/18/2019	JB

  
DAVID BARRIS - LABORATORY DIRECTOR

ND = Not Detected

1005 BOSTON POST ROAD  
MADISON, CT 06443  
Phone 203-245-0568  
FAX 203-318-0830  
Connecticut Certification PH-0535  
www.eclinconline.com



**ENVIRONMENTAL  
CONSULTING LABORATORIES, INC.**

## Report of Analysis

**Name:** Old Lyme Town Hall  
c/o WPCA  
52 Lyme Street  
Old Lyme, CT 06371  
Attn: Richard Prendergast  
**Sample Date:** 9/18/2019  
**Receipt Date:** 9/18/2019  
**Report Date:** 10/3/2019  
**Sample Site:** HN-11

**Sample ID#:** 127664  
**Sample Type:** Groundwater  
**Sample Source:** Monitoring Wells  
**Sampler:** ECL - MB

Parameter	Sample Result	Units	Method	MDL	Analysis Date	Analyst
<b>Biological</b>						
Coliform, E. Coli	<10	MPN/100mL	Colilert-18	10	9/18/2019	JB
Coliform, Total	10	MPN/100mL	Colilert-18	10	9/18/2019	JB
Enterococcus Bacteria	<10	MPN/100mL	Enterolert	10	9/18/2019	JB
Fecal Coliform Bacteria	<10	MPN/100mL	Colilert-18	10	9/18/2019	JB
Fecal Strep Bacteria	<10	col/100ml	SM9230	10	9/18/2019	JB
<b>Chemical</b>						
Ammonia as N	1.08	mg/L	ASTM D6919-03	0.05	9/26/2019	KC
Chloride	7634	mg/L	EPA300.0	0.5	9/19/2019	JB
Nitrate as N	0.24	mg/L	EPA300.0	0.1	9/19/2019	JB
Nitrite as N	ND	mg/L	EPA300.0	0.01	9/19/2019	JB
Phosphorous -Total as P	0.35	mg/L	EPA 200.7	0.04	9/24/2019	JB
TKN as N	3.93	mg/L	4500NorgC	0.5	10/2/2019	KC
Total Nitrogen as N	4.17	mg/L	CALC	1	10/3/2019	KC
<b>Physical</b>						
Conductivity	10730	umhos/cm	SM2510B	1	9/18/2019	JB
PH	6.30	pH	EPA 150.2	1	6/18/2019	MB
Turbidity	65	NTU	180.1	0.05	9/18/2019	JB

DAVID BARRIS - LABORATORY DIRECTOR

ND = Not Detected

# APPENDIX A

ENVIRONMENTAL

CONSULTING LABORATORIES, INC.

1005 Boston Post Road  
Madison, CT 06443

(203) 245-0568 Phone  
(203) 318-0830 Fax

Contact: C/O WPCA Richard Prendergast  
Address: 52 Lyme St. Old Lyme, CT 06371

Phone: 203-641-1237 Email: [ChairWPcA@oldlyme-ct.gov](mailto:ChairWPcA@oldlyme-ct.gov)

卷之三

System Type:

Cost

Sampling Location	Date	Time
Client ID:		

88-1-NH 1-8 11/18/88

HN-2-98 9150A

HN-3-98  
10:00 AM

HN-4N  
10.50 Km

HN-5N  
10.30 Km

HN-2 9-NH

HN-8

HN-9

HN-10 9160

HN-11 80:50:60

111

—

Relinquished by: \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Fig. 1 in *Proc. Roy. Soc. (London)* 1936, p. 113.

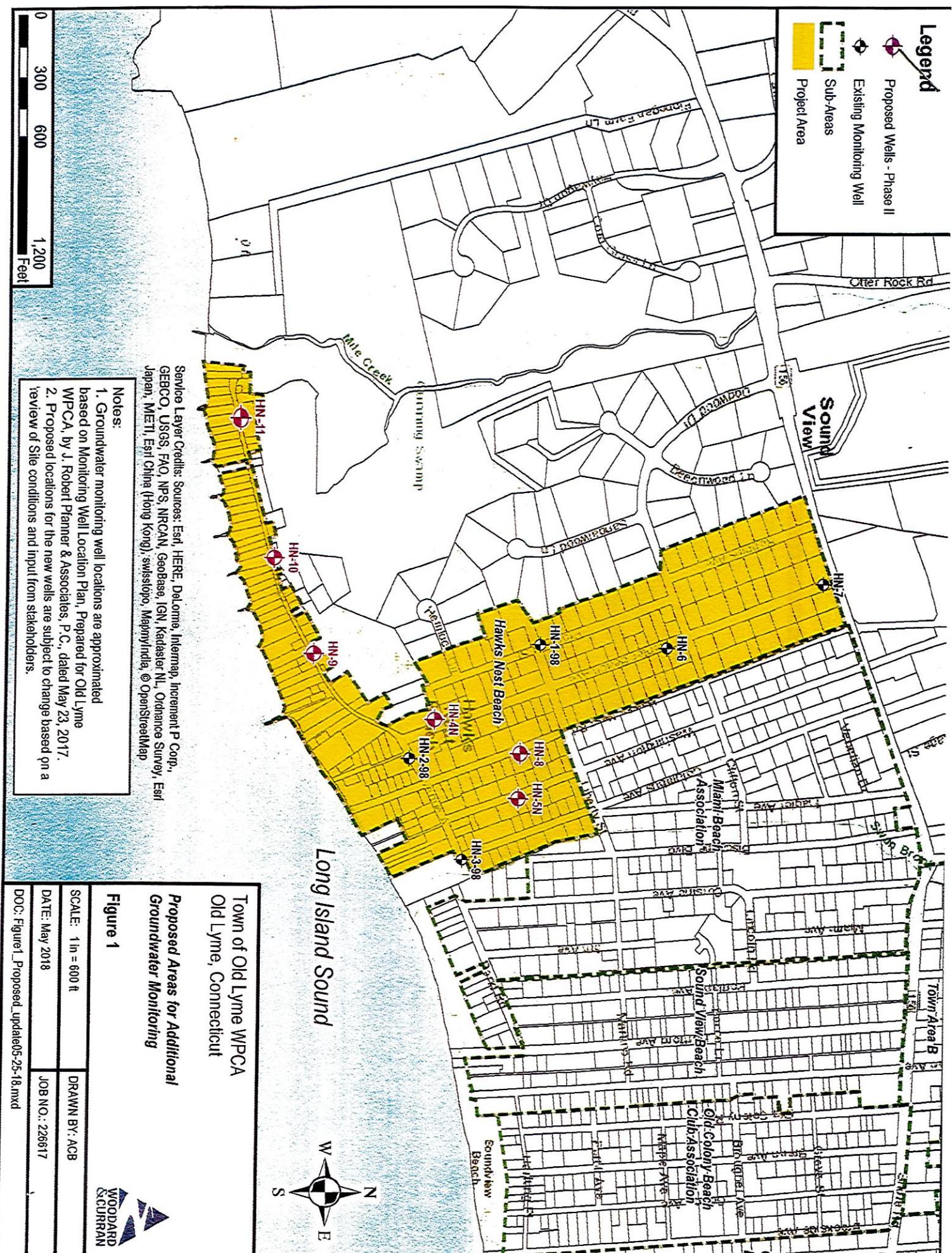
Relinquished by: Mr. Long Date 1/13/14 Time 10:15 A.M.

1000

111

System Type:	Samplers Name: (Print)						Required Analysis		
	Client I.D.	Sampling Location	Date	Time	Sample Type	Number of Containers	Total Coliform + Ecoli	Fecal Coliform	
HN-1-98	9-18	11:08 AM	X	X	5	X	X	X	127054
HN-2-98	9:50 AM	X	X	X	5	X	X	X	127055
HN-3-98	10:22 AM	X	X	X	5	X	X	X	127056
HN-4N	10:30 AM	X	X	X	5	X	X	X	127057
HN-5N	10:30 AM	X	X	X	5	X	X	X	127058
HN-6	11:25 AM	X	X	X	5	X	X	X	127059
HN-7	11:50 AM	X	X	X	5	X	X	X	127060
HN-8	10:32 AM	X	X	X	5	X	X	X	127061
HN-9	9:30 AM	X	X	X	5	X	X	X	127062
HN-10	9:16 AM	X	X	X	5	X	X	X	127063
HN-11	8:56 AM	X	X	X	5	X	X	X	127064
Relinquished by:	Date	Time	Received by:	M. J. - J. McKenna					
<i>R. m. Barris</i>	9-18-14	11:30 AM	<i>Johnnie Barris</i>						
Relinquished by:	Date	Time	Received by:						
Were Samples received within holding time? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Were Samples chilled upon receipt? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Were Samples in appropriate containers? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N If No Explain _____									
Are containers broken/leaking? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Did Samples need to be split upon receipt? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Were Samples preserved properly? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <i>Not preserved</i>									

# APPENDIX B



# APPENDIX C

# GROUND WATER SAMPLE LOG

1. Sample Location: OL

2. Well Number: HN-1-98

3. Sampled By: MB-JM

4. Date: 9-18-19

5. Time: 11:08 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: 20.0 Feet

9. Depth to Water: 11.90 Feet

10. #8 - #9 = LWC: 8.20 Feet (**Length of water column**)

11. Diameter of inner casings: 2" 4" 6"

12. Volume of water in well:

2" Diameter well =  $0.163 \times \text{LWC} =$  1.33 Gallons

4" Diameter Well =  $0.633 \times \text{LWC} =$  \_\_\_\_\_ Gallons

6" Diameter Well =  $1.467 \times \text{LWC} =$  \_\_\_\_\_ Gallons

13. Purge Volume:  $3 \times \#12 =$  4.01 Gallons to purge

## Town of Old Lyme

## FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) - Old Lyme  
Well Number HV-198 Date 9-18-19

Clock Time 24 HR	Depth To Water	pH	Temperature	Comments
11:08 AM	11, 90	5.6	16.4 °C	- meter

## GROUND WATER SAMPLE LOG

1. Sample Location: OL

2. Well Number: HIN-2-98

3. Sampled By: Mb-jm

4. Date: 9-18-19

5. Time: 9:50 Am

6. Weather:

Cloudy	Cold	Snow
<u>Sunny</u>	<u>Warm</u>	Rain
Hot	<u>Windy</u>	

7. Sample Method: **Bailer (Disposable)**

8. Depth to bottom of well from measuring point: 15.60 Feet

9. Depth to Water: 7.70 Feet

10. #8 - #9 = LWC: 7.90 Feet (**Length of water column**)

11. Diameter of inner casings: 2" 4" 6"

12. Volume of water in well:

2" Diameter well =  $0.163 \times \text{LWC} =$  1.29 Gallons

4" Diameter Well =  $0.633 \times \text{LWC} =$  \_\_\_\_\_ Gallons

6" Diameter Well =  $1.467 \times \text{LWC} =$  \_\_\_\_\_ Gallons

13. Purge Volume:  $3 \times \#12 =$  3.86 Gallons to purge

## Town of Old Lyme

## FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) - Old Lyme  
Well Number HW-2-98 Date 9-18-19

# GROUND WATER SAMPLE LOG

1. Sample Location: OL

2. Well Number: HN-3-98

3. Sampled By: MB-JM

4. Date: 9-18-19

5. Time: 10:00 am

6. Weather:

<u>Cloudy</u>	Cold	Snow
<u>Sunny</u>	Warm	Rain
Hot	<u>Wind</u>	

7. Sample Method: **Bailer (Disposable)**

8. Depth to bottom of well from measuring point: 13.0 Feet

9. Depth to Water: 6.50 Feet

10. #8 - #9= LWC: 6.50 Feet (**Length of water column**)

11. Diameter of inner casings: 2" 4" 6"

12. Volume of water in well:

$$\text{Diameter well} = 0.163 \times \text{LWC} = \underline{1.06} \text{ Gallons}$$

$$4" \text{ Diameter Well} = 0.633 \times \text{LWC} = \underline{\quad} \text{ Gallons}$$

$$6" \text{ Diameter Well} = 1.467 \times \text{LWC} = \underline{\quad} \text{ Gallons}$$

13. Purge Volume:  $3 \times \#12 = \underline{3.18}$  Gallons to purge

# Town of Old Lyme WATER CITY MEASUREMENTS FORM

## IEEE WAIK QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) - Old Lyme  
Well Number HV-3-48 Date 9-18-19

Location (Site/Facility Name) - Old Lyme  
 Well Number H/N-3-48 Date 9-18-19

## GROUND WATER SAMPLE LOG

1. Sample Location: OL

2. Well Number: HN-4N

3. Sampled By: mb jm

4. Date: 9-18-19

5. Time: 10:50 AM

6. Weather:

Cloudy	Cold	Snow
<u>Sunny</u>	<u>Warm</u>	Rain
Hot	<u>Windy</u>	

7. Sample Method: Bailer (Disposable)

8. Depth to bottom of well from measuring point: 16.30 Feet

9. Depth to Water: 10.40 Feet

10. #8 - #9= LWC: 5.90 Feet (Length of water column)

11. Diameter of inner casings: 2" 4" 6"

12. Volume of water in well:

2" Diameter well =  $0.163 \times \text{LWC} =$  , 96 Gallons

4" Diameter Well =  $0.633 \times \text{LWC} =$  \_\_\_\_\_ Gallons

6" Diameter Well =  $1.467 \times \text{LWC} =$  \_\_\_\_\_ Gallons

13. Purge Volume:  $3 \times \#12 =$  2.86 Gallons to purge

## Town of Old Lyme

## FIELDWATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) - Old Lyme  
Well Number JHW-4N Date 9-18-19

Clock Time		Depth To Water	pH	Temperature	Comments
24 HR	10:54PM	10.40	5.6	17.8 °C	—

## GROUND WATER SAMPLE LOG

1. Sample Location: OL

2. Well Number: HN-5N

3. Sampled By: MB-JM

4. Date: 9-17-19

5. Time: 10:20 ~~

6. Weather:

Cloudy	Cold	Snow
<u>Sunny</u>	<u>Warm</u>	<u>Rain</u>
Hot	<u>Windy</u>	

7. Sample Method: **Bailer (Disposable)**

8. Depth to bottom of well from measuring point: 12.90 Feet

9. Depth to Water: 5.90 Feet

10. #8 - #9= LWC: 7.0 Feet (Length of water column)

11. Diameter of inner casings: 2" 4" 6"

12. Volume of water in well:

2" Diameter well =  $0.163 \times \text{LWC} = 1.14$  Gallons

4" Diameter Well =  $0.633 \times \text{LWC} =$  \_\_\_\_\_ Gallons

6" Diameter Well =  $1.467 \times \text{LWC} =$  \_\_\_\_\_ Gallons

13. Purge Volume:  $3 \times \#12 =$  3.4 Gallons to purge

**TOWN OF OLD LYME**  
**FIELD WATER QUALITY MEASUREMENTS FORM**

Location (Site/Facility Name) - Old Lyme  
Well Number ~~111-55~~ Date 9-18-19

## GROUND WATER SAMPLE LOG

1. Sample Location: CL

2. Well Number: HW-6

3. Sampled By: M.B. - JM

4. Date: 9-18-19

5. Time: 11:25A

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: 11.10 Feet

10. #8 - #9 = LWC: 1.90 Feet (Length of water column)

11. Diameter of inner casings: 2"      4"      6"

12. Volume of water in well:  
2" Diameter well =  $0.163 \times \text{LWC} =$  31 Gallons

4" Diameter Well =  $0.633 \times \text{LWC} =$  \_\_\_\_\_ Gallons

6" Diameter Well =  $1.467 \times \text{LWC} =$  \_\_\_\_\_ Gallons

13. Purge Volume:  $3 \times \#12 =$  93 Gallons to purge

## Town of Old Lyme

## FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) - Old Lyme  
Well Number HV-6 Date 9-18-19

Location (Site/Facility Name) - Old Lyme  
 Well Number HW-6 Date 9-18-19

## GROUND WATER SAMPLE LOG

1. Sample Location: CL

2. Well Number: HN-7

3. Sampled By: m3vjm

4. Date: 9-18-19

5. Time: 11:50 Am

6. Weather:

Cloudy	Cold	Snow
<u>Sunny</u>	<u>Warm</u>	Rain
Hot	<u>Windy</u>	

7. Sample Method: **Bailer (Disposable)**

8. Depth to bottom of well from measuring point: 16.80 Feet

9. Depth to Water: 10.60 Feet

10. #8 - #9 = LWC: 6.20 Feet (**Length of water column**)

11. Diameter of inner casings: 2" 4" 6"

12. Volume of water in well:

$$2" \text{ Diameter well} = 0.163 \times \text{LWC} = \underline{1.01} \text{ Gallons}$$

$$4" \text{ Diameter Well} = 0.633 \times \text{LWC} = \underline{\quad} \text{ Gallons}$$

$$6" \text{ Diameter Well} = 1.467 \times \text{LWC} = \underline{\quad} \text{ Gallons}$$

13. Purge Volume:  $3 \times \#12 = \underline{3.03}$  Gallons to purge

## Town of Old Lyme

## FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) - Old Lyme  
Well Number H/W-7 Date 5-18-94

Clock Time 24 HR	Depth To Water	pH	Temperature	Comments
11:55 AM	10.60	5.5	15.7 ° C	—

## GROUND WATER SAMPLE LOG

1. Sample Location: OL

2. Well Number: HN-8

3. Sampled By: MB-JM

4. Date: 9-18-19

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: 11.90 Feet

9. Depth to Water: 7.00 Feet

10. #8 - #9 = LWC: 4.90 Feet (**Length of water column**)

11. Diameter of inner casings: 2" 4" 6"

12. Volume of water in well:

2" Diameter well =  $0.163 \times \text{LWC} =$  .798 Gallons

4" Diameter Well =  $0.633 \times \text{LWC} =$  \_\_\_\_\_ Gallons

6" Diameter Well =  $1.467 \times \text{LWC} =$  \_\_\_\_\_ Gallons

13. Purge Volume:  $3 \times \#12 =$  7.4 Gallons to purge

# Town of Old Lyme

# GROUND WATER SAMPLE LOG

1. Sample Location: CL

2. Well Number: HW-9

3. Sampled By: MB-JM

4. Date: 9-18-19

5. Time: 9:30 AM

6. Weather:

<u>Cloudy</u>	<u>Cold</u>	<u>Snow</u>
<u>Sunny</u>	<u>Warm</u>	<u>Rain</u>
<u>Hot</u>	<u>Windy</u>	

7. Sample Method: **Bailer (Disposable)**

8. Depth to bottom of well from measuring point: 11.40 Feet

9. Depth to Water: 3.50 Feet

10. #8 - #9 = LWC: 7.90 Feet (**Length of water column**)

11. Diameter of inner casings: 2" 4" 6"

12. Volume of water in well:

$$2" \text{ Diameter well} = 0.163 \times \text{LWC} = \underline{1.29} \text{ Gallons}$$

$$4" \text{ Diameter Well} = 0.633 \times \text{LWC} = \underline{\quad\quad\quad} \text{ Gallons}$$

$$6" \text{ Diameter Well} = 1.467 \times \text{LWC} = \underline{\quad\quad\quad} \text{ Gallons}$$

13. Purge Volume:  $3 \times \#12 = \underline{3.87-}$  Gallons to purge

## Town of Old Lyme

## FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) - Old Lyme  
Well Number HV-9 Date 9-18-19

Location (Site/Facility Name) - Old Lyme  
 Well Number HW-9 Date 9-18-99

## GROUND WATER SAMPLE LOG

1. Sample Location: OL

2. Well Number: HW-10

3. Sampled By: mB:jm

4. Date: 9-18-15

5. Time: 9:16 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: 11.50 Feet

9. Depth to Water: 4.10 Feet

10. #8 - #9 = LWC: 7.40 Feet (**Length of water column**)

11. Diameter of inner casings: 2" 4" 6"

12. Volume of water in well:

2" Diameter well =  $0.163 \times \text{LWC} = 1.21$  Gallons

4" Diameter Well =  $0.633 \times \text{LWC} =$  \_\_\_\_\_ Gallons

6" Diameter Well =  $1.467 \times \text{LWC} =$  \_\_\_\_\_ Gallons

13. Purge Volume:  $3 \times \#12 =$  3.62 Gallons to purge

# Town of Old Lyme

## GROUND WATER SAMPLE LOG

1. Sample Location: OL

2. Well Number: HN-11

3. Sampled By: MB-jm

4. Date: 9-18-19

5. Time: 8:50 A.M.

6. Weather:

Cloudy	Cold	Snow
<u>Sunny</u>	<u>Warm</u>	Rain
Hot	<u>Windy</u>	

7. Sample Method: **Bailer (Disposable)**

8. Depth to bottom of well from measuring point: 11.40 Feet

9. Depth to Water: 5.10 Feet

10. #8 - #9= LWC: 6.30 Feet (**Length of water column**)

11. Diameter of inner casings: 2" 4" 6"

12. Volume of water in well:

2" Diameter well =  $0.163 \times \text{LWC} = \underline{1.02}$  Gallons

4" Diameter Well =  $0.633 \times \text{LWC} = \underline{\quad}$  Gallons

6" Diameter Well =  $1.467 \times \text{LWC} = \underline{\quad}$  Gallons

13. Purge Volume:  $3 \times \#12 = \underline{3.08}$  Gallons to purge

## Town of Old Lyme

## FIELD WATER QUALITY MEASUREMENTS FORM

**Location (Site/Facility Name) - Old Lyme**

Well Number H-14 - 11 Date 9 - 18 - 19

Location (Site/Facility Name) - Old Lyme  
 Well Number 144 - 11 Date 9 - 18 - 19

# 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