

Former Buckley & Mann

June 6, 2018

Mabbett®

Scientists | Engineers | Program Managers

Presentation Outline

- Buckley & Mann historical operations
- Historical (pre-2001) environmental assessment and remediation
- Recent (2013-2018) environmental assessment work
- 2017 MassDEP audit findings
- Public Involvement Plan
- Next steps



To Lagoons #1 and #2

Tail Race

Carbonizer Trench to Lagoon

Area #10

Dyehouse

Carbonizer Building

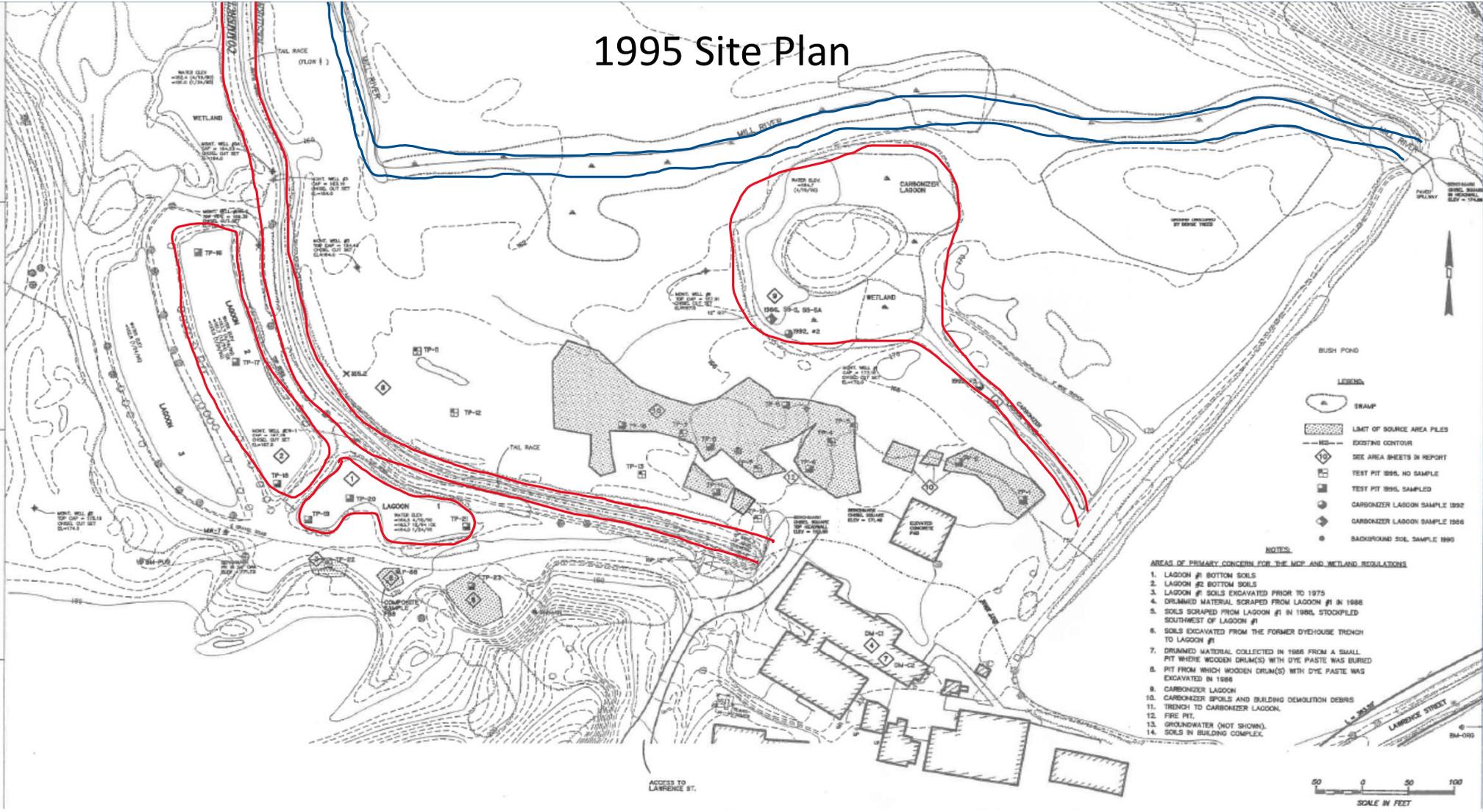
Bush Pond



Pre-2001 Investigations focused on:

- Dyehouse Lagoons
- Carbonizer Lagoon
- Carbonizer Trench
- Area #10

1995 Site Plan



- LEGEND**
- BUSH POND
 - SWAMP
 - LIMIT OF SOURCE AREA FILES
 - EXISTING CONTOUR
 - SEE AREA SHEETS IN REPORT
 - TEST PIT 1995, NO SAMPLE
 - TEST PIT 1995, SAMPLED
 - CARBONIZER LAGOON SAMPLE 1992
 - CARBONIZER LAGOON SAMPLE 1986
 - BACKGROUND SOIL SAMPLE 1995

- NOTES**
- AREAS OF PRIMARY CONCERN FOR THE MCP AND WETLAND REGULATIONS**
1. LAGOON #1 BOTTOM SOILS
 2. LAGOON #2 BOTTOM SOILS
 3. LAGOON #1 SOILS EXCAVATED PRIOR TO 1975
 4. DRUMMED MATERIAL SCRAPED FROM LAGOON #1 IN 1986
 5. SOILS SCRAPED FROM LAGOON #1 IN 1986, STOCKPILED SOUTHWEST OF LAGOON #1
 6. SOILS EXCAVATED FROM THE FORMER DYEHOUSE TRENCH TO LAGOON #1
 7. DRUMMED MATERIAL COLLECTED IN 1986 FROM A SMALL PIT WHERE WOODEN DRUM(S) WITH DYE PASTE WAS BURIED
 8. PIT FROM WHICH WOODEN DRUM(S) WITH DYE PASTE WAS EXCAVATED IN 1986
 9. CARBONIZER LAGOON
 10. CARBONIZER SPOILS AND BUILDING DEMOLITION DEBRIS
 11. TRENCH TO CARBONIZER LAGOON
 12. FIRE PIT
 13. GROUNDWATER (NOT SHOWN)
 14. SOILS IN BUILDING COMPLEX



Present Day Site Plan with Historical Features



Mill River

Carbonizer Lagoon

Carbonizer Trench

Lagoon #2

Approximate Limits of AUL Area

Lagoon #1

Tail Race



Historical Soil Sampling Locations (1986-2000)



Lagoon #1/Lagoon #2 Sampling Results

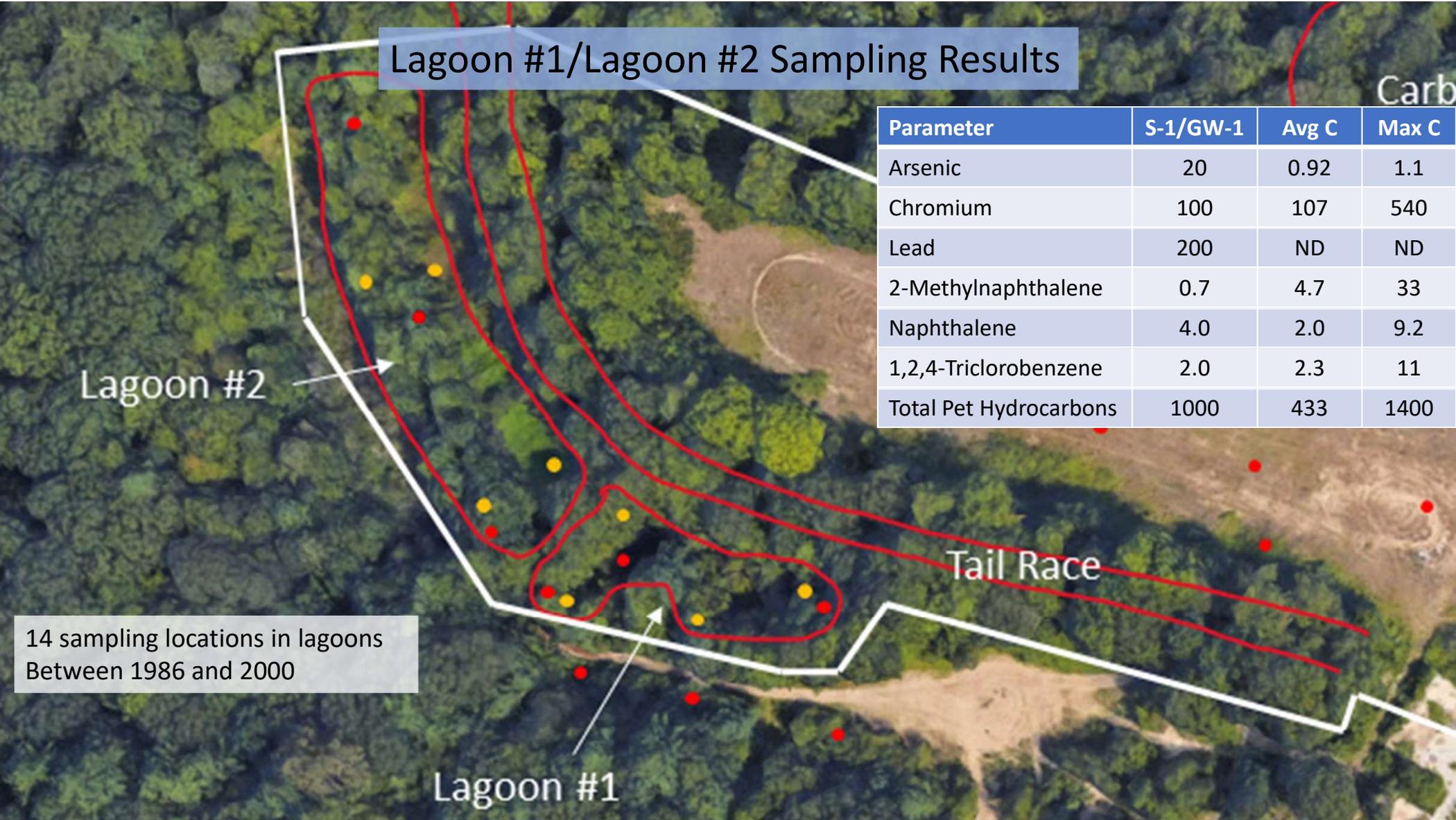
Parameter	S-1/GW-1	Avg C	Max C
Arsenic	20	0.92	1.1
Chromium	100	107	540
Lead	200	ND	ND
2-Methylnaphthalene	0.7	4.7	33
Naphthalene	4.0	2.0	9.2
1,2,4-Trichlorobenzene	2.0	2.3	11
Total Pet Hydrocarbons	1000	433	1400

Lagoon #2

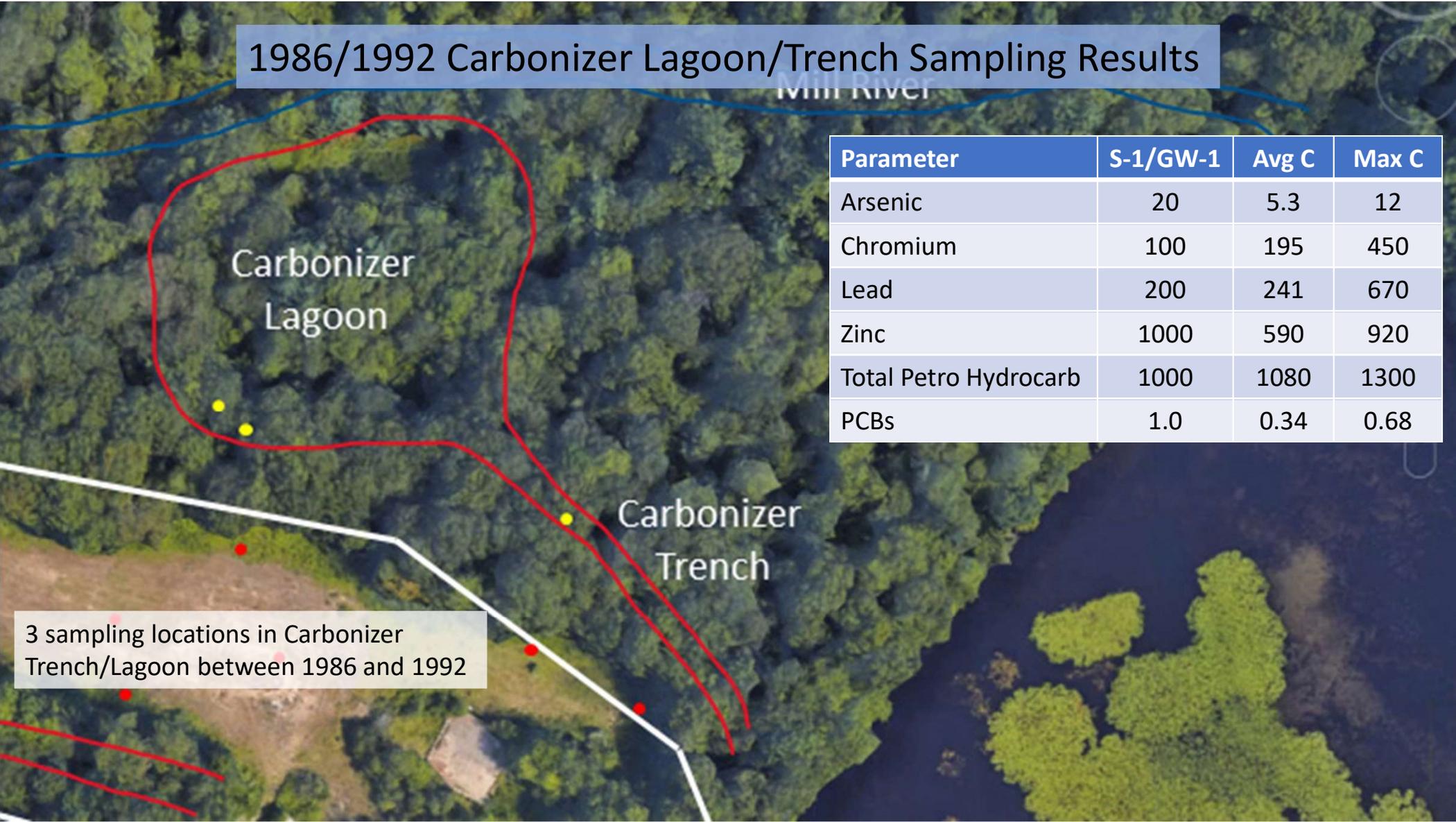
Tail Race

Lagoon #1

14 sampling locations in lagoons
Between 1986 and 2000



1986/1992 Carbonizer Lagoon/Trench Sampling Results



Parameter	S-1/GW-1	Avg C	Max C
Arsenic	20	5.3	12
Chromium	100	195	450
Lead	200	241	670
Zinc	1000	590	920
Total Petro Hydrocarb	1000	1080	1300
PCBs	1.0	0.34	0.68

3 sampling locations in Carbonizer Trench/Lagoon between 1986 and 1992

Area 10 Excavation and Consolidation of Waste

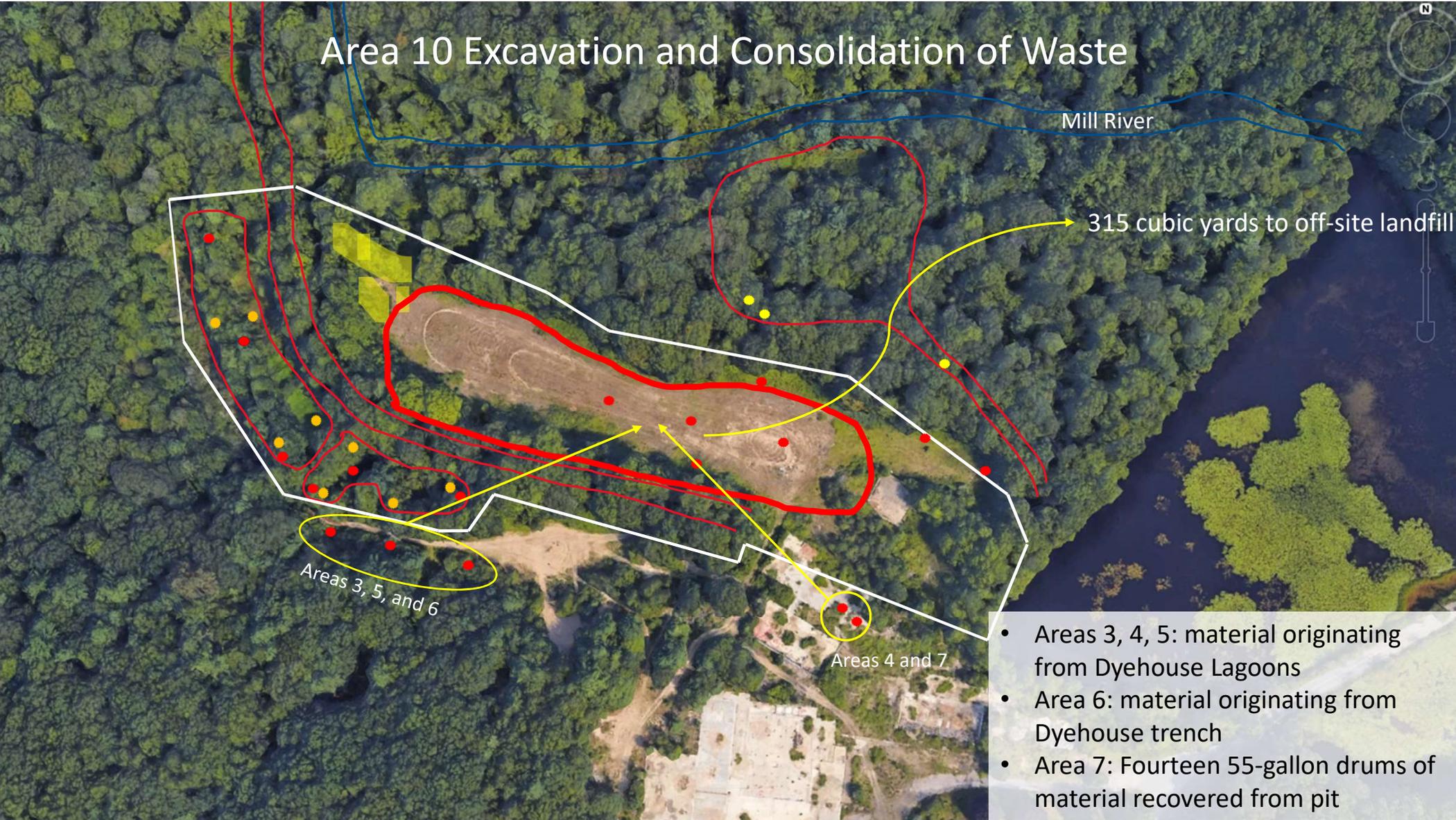
Mill River

315 cubic yards to off-site landfill

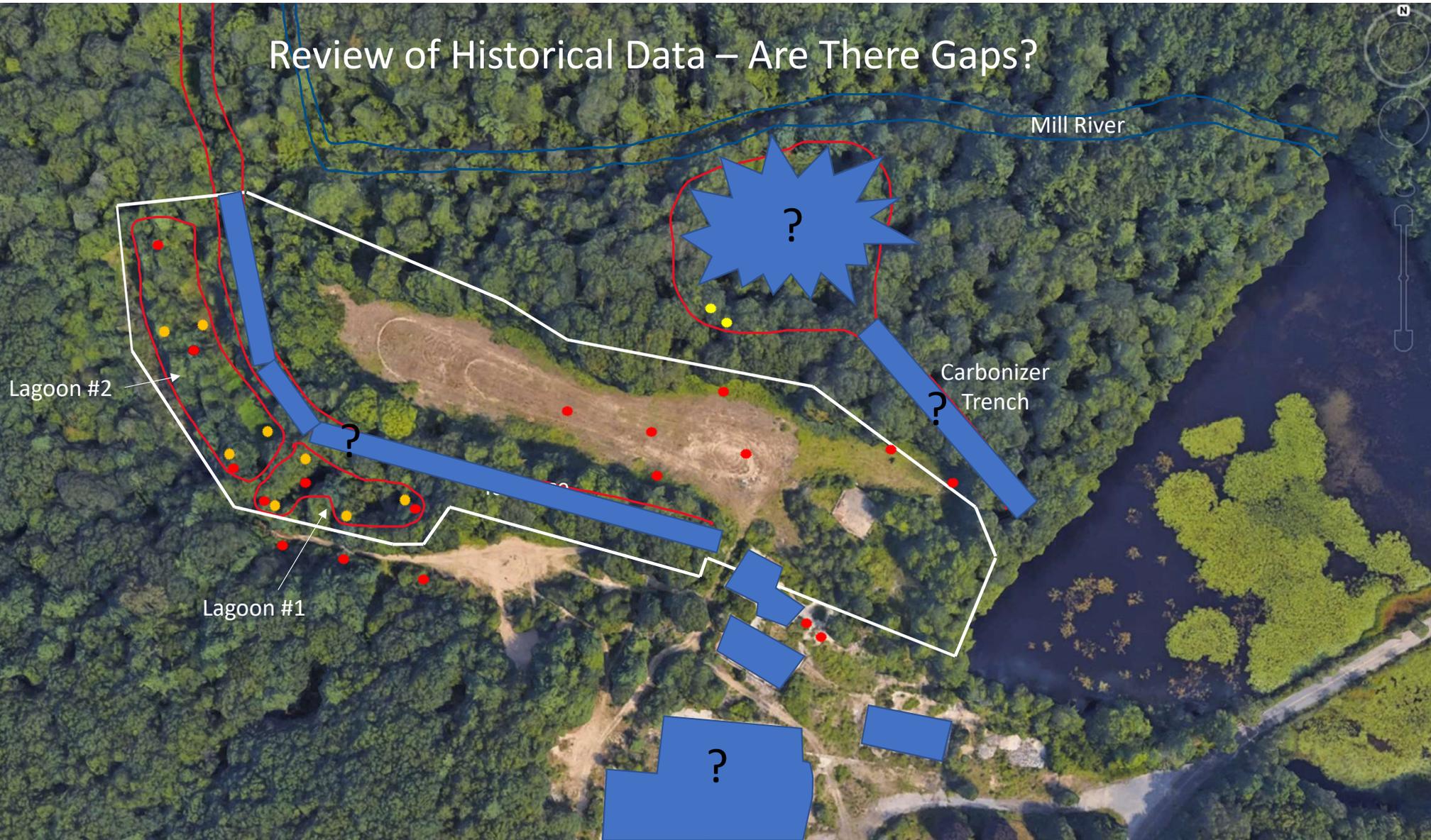
Areas 3, 5, and 6

Areas 4 and 7

- Areas 3, 4, 5: material originating from Dyehouse Lagoons
- Area 6: material originating from Dyehouse trench
- Area 7: Fourteen 55-gallon drums of material recovered from pit



Review of Historical Data – Are There Gaps?

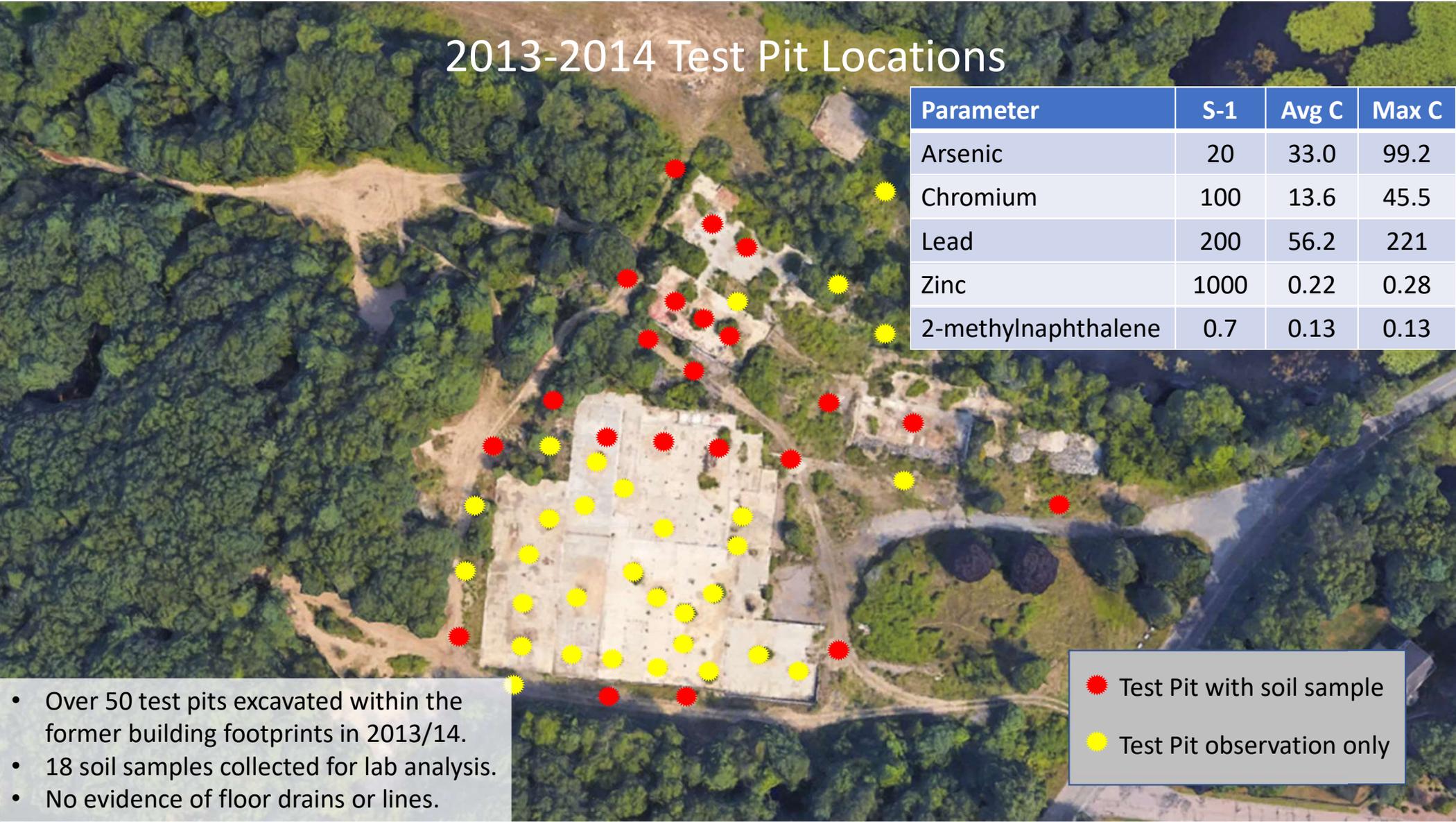


Post-RAO Investigations

- 2013: Test Pits excavated within building foundations
 - Are there contaminants in soil beneath the building foundations?
 - Are there floor drains or sub-slab conduits beneath the buildings?
- 2014: Test pits excavated throughout the former building complex
 - Was something missed within the former building complex?
 - Are there underground utility lines that carried waste away from the buildings?
- 2014-2015 Groundwater Sampling
- 2018: Tail Race, Carbonizer Trench, Carbonizer Lagoon sampling
 - What are the contaminant levels in these locations?
 - Was something missed during the prior investigation?

2013-2014 Test Pit Locations

Parameter	S-1	Avg C	Max C
Arsenic	20	33.0	99.2
Chromium	100	13.6	45.5
Lead	200	56.2	221
Zinc	1000	0.22	0.28
2-methylnaphthalene	0.7	0.13	0.13

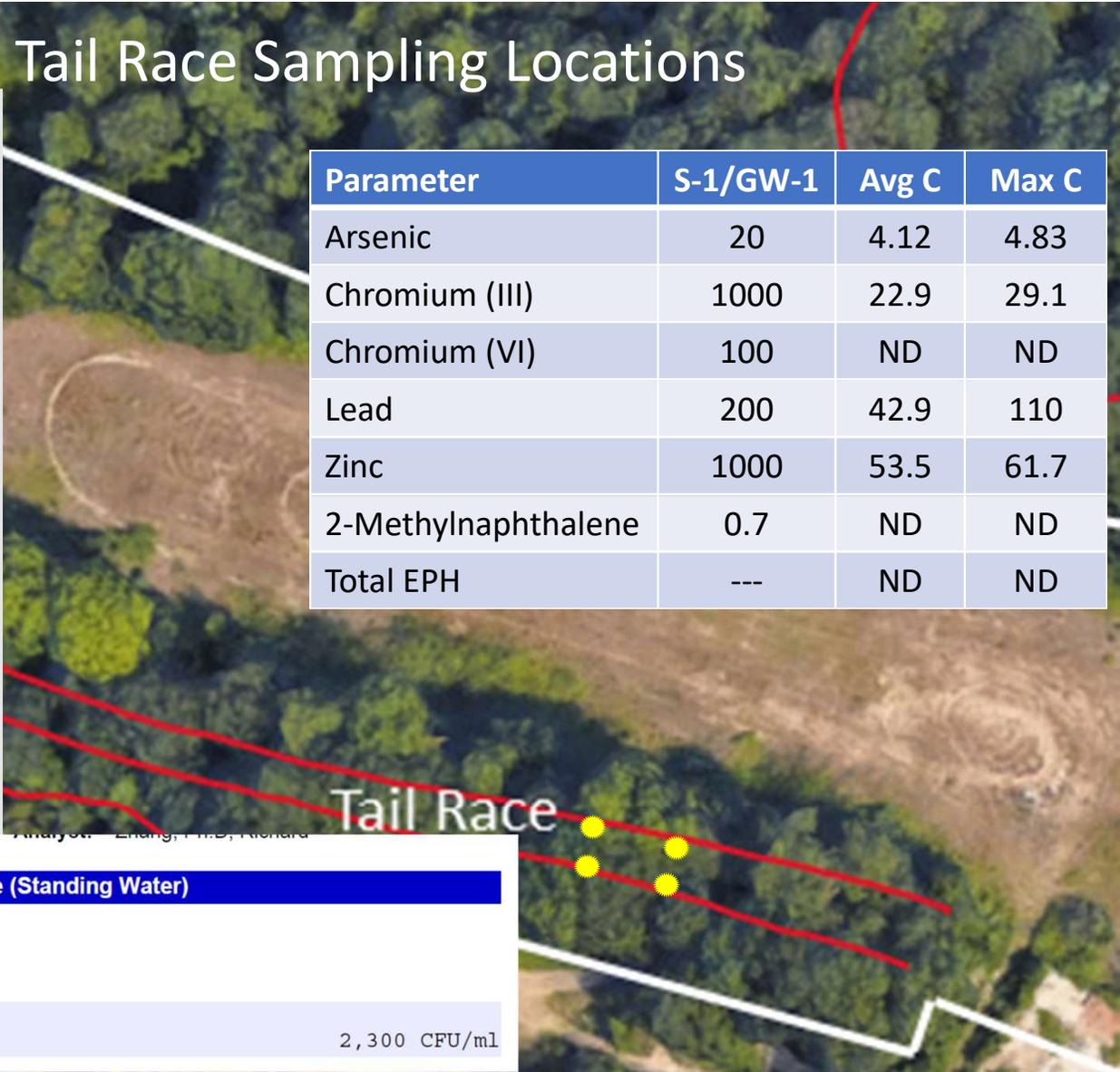


● Test Pit with soil sample
● Test Pit observation only

- Over 50 test pits excavated within the former building footprints in 2013/14.
- 18 soil samples collected for lab analysis.
- No evidence of floor drains or lines.

2018 Tail Race Sampling Locations

Parameter	S-1/GW-1	Avg C	Max C
Arsenic	20	4.12	4.83
Chromium (III)	1000	22.9	29.1
Chromium (VI)	100	ND	ND
Lead	200	42.9	110
Zinc	1000	53.5	61.7
2-Methylnaphthalene	0.7	ND	ND
Total EPH	---	ND	ND



Culture Analysis

SanAir ID: 18010853-001 Sample #: 1803-05237-001 ID: Tail Race (Standing Water)

IO-Culture Analysis on Water

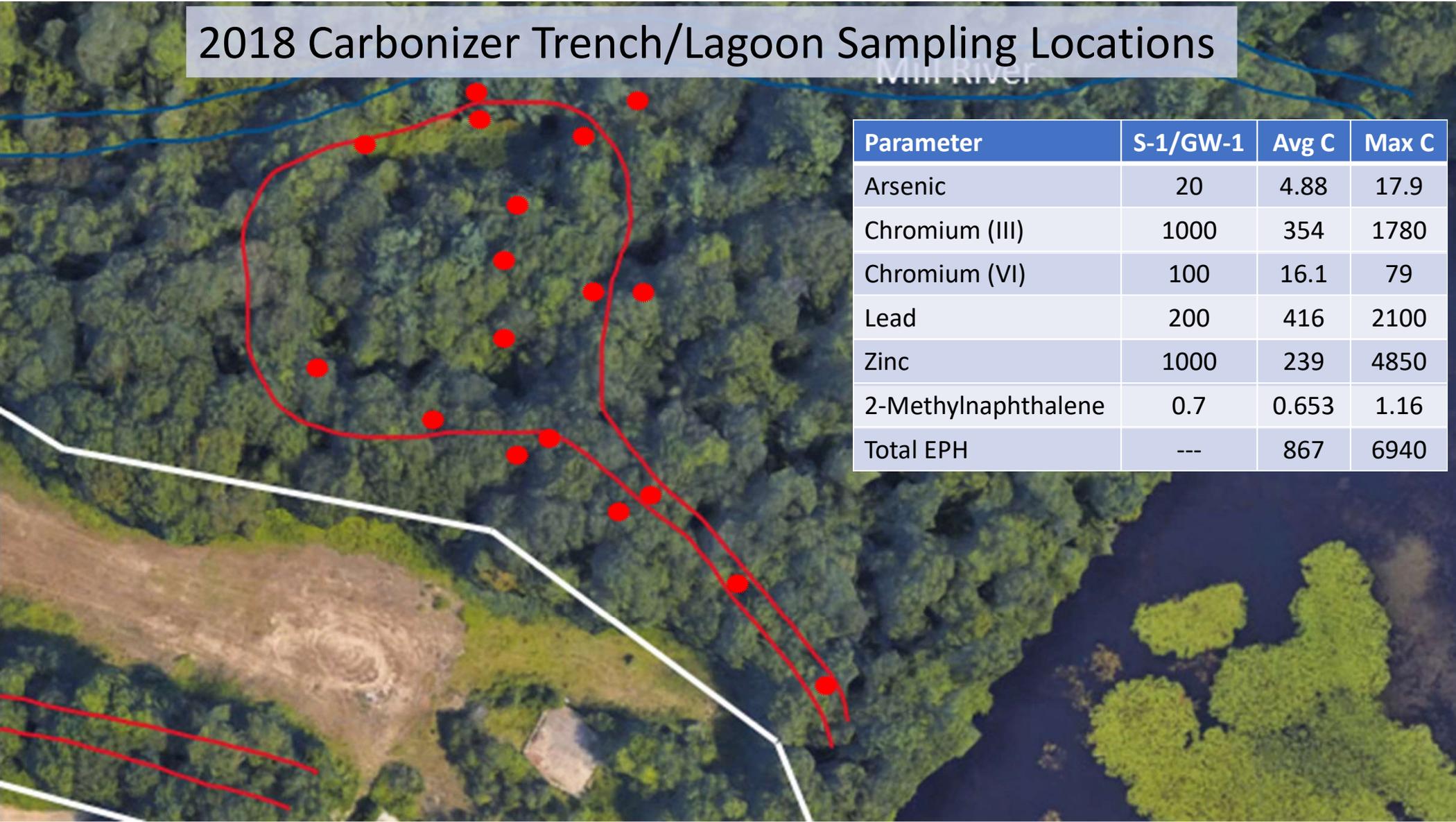
Iron Related Bacteria

Analytical Sensitivity: 25 CFUs/Milliliter

Other Raw Count

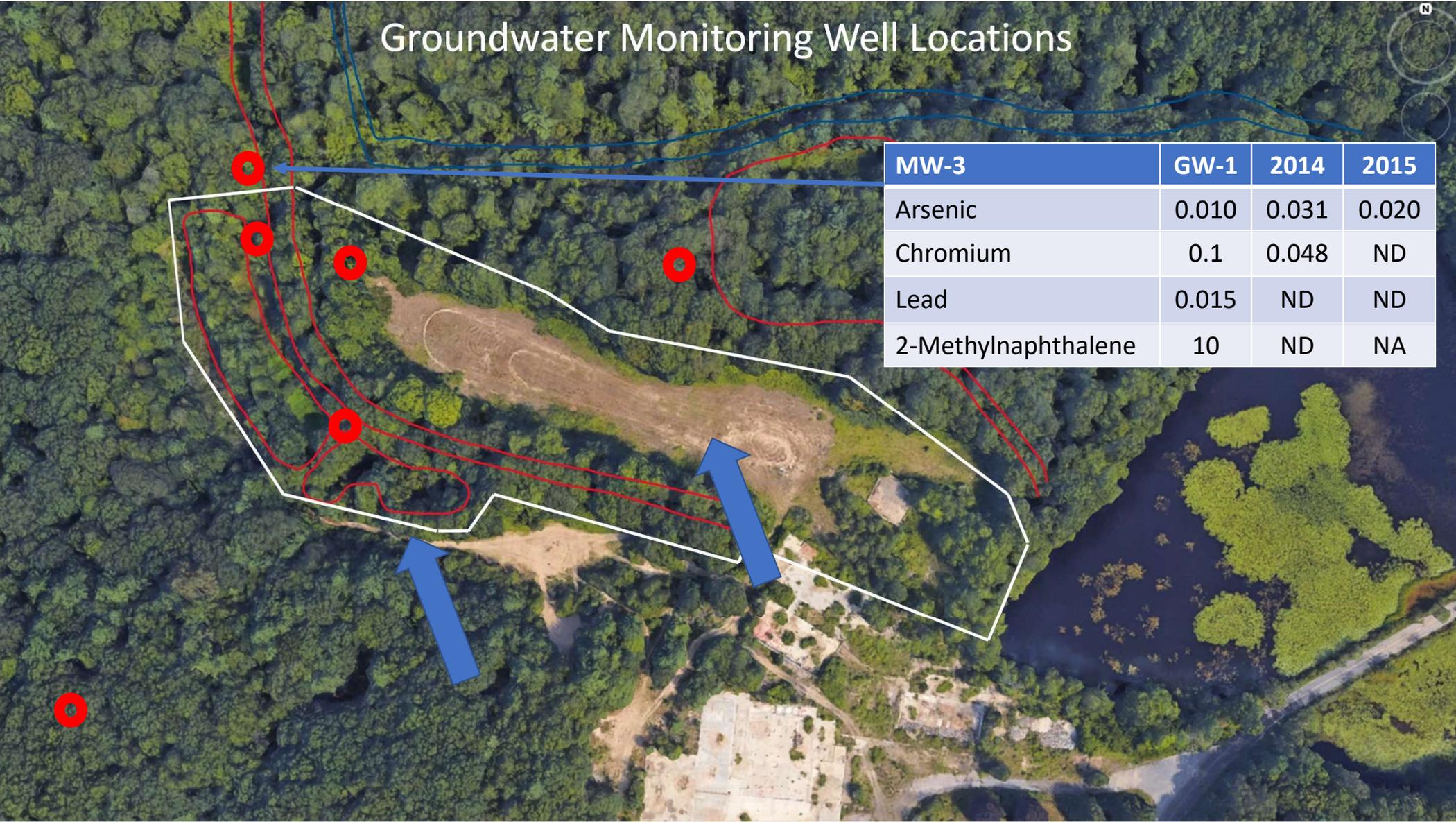
Positive 2,300 CFU/ml

2018 Carbonizer Trench/Lagoon Sampling Locations



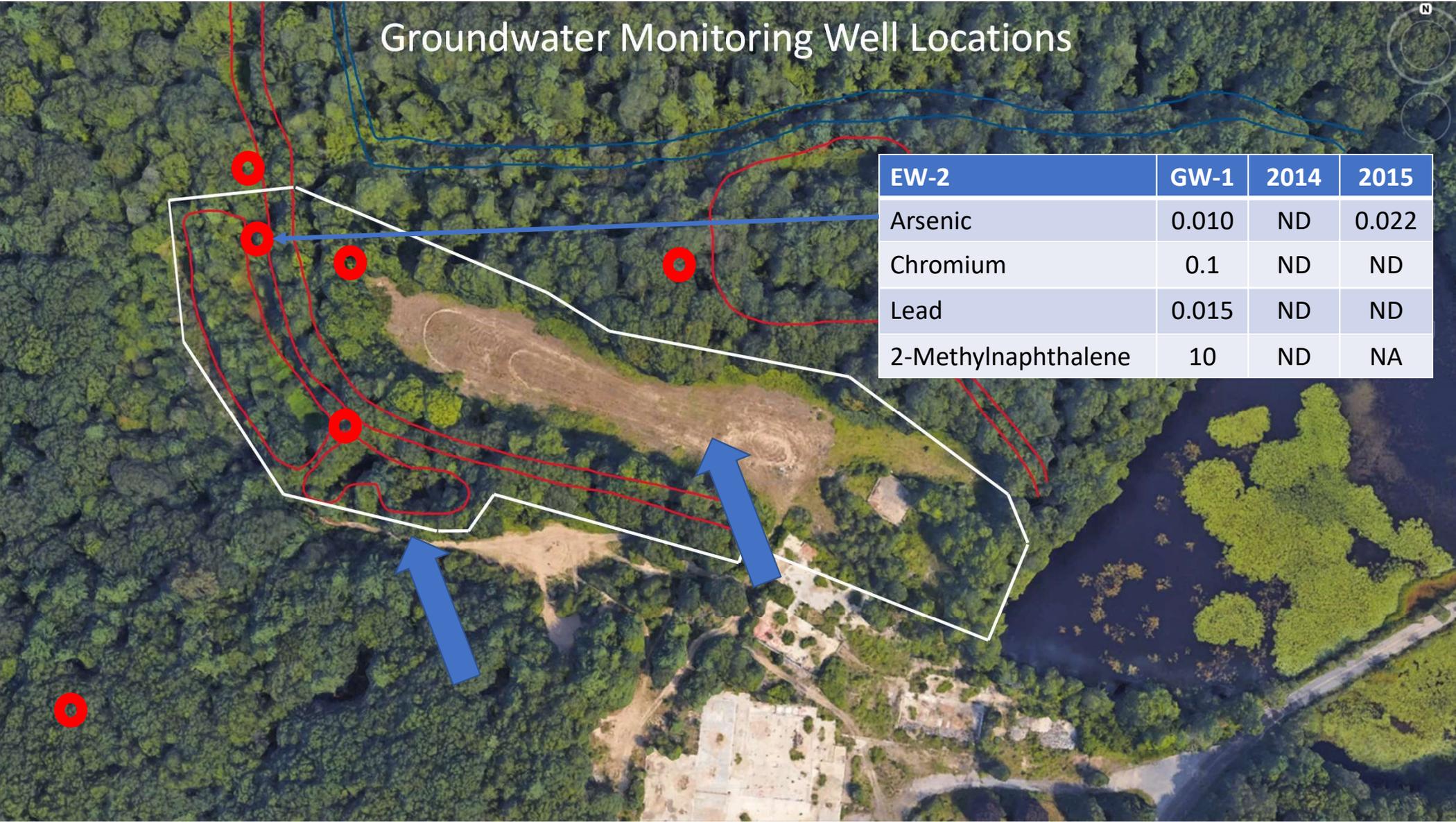
Parameter	S-1/GW-1	Avg C	Max C
Arsenic	20	4.88	17.9
Chromium (III)	1000	354	1780
Chromium (VI)	100	16.1	79
Lead	200	416	2100
Zinc	1000	239	4850
2-Methylnaphthalene	0.7	0.653	1.16
Total EPH	---	867	6940

Groundwater Monitoring Well Locations



MW-3	GW-1	2014	2015
Arsenic	0.010	0.031	0.020
Chromium	0.1	0.048	ND
Lead	0.015	ND	ND
2-Methylnaphthalene	10	ND	NA

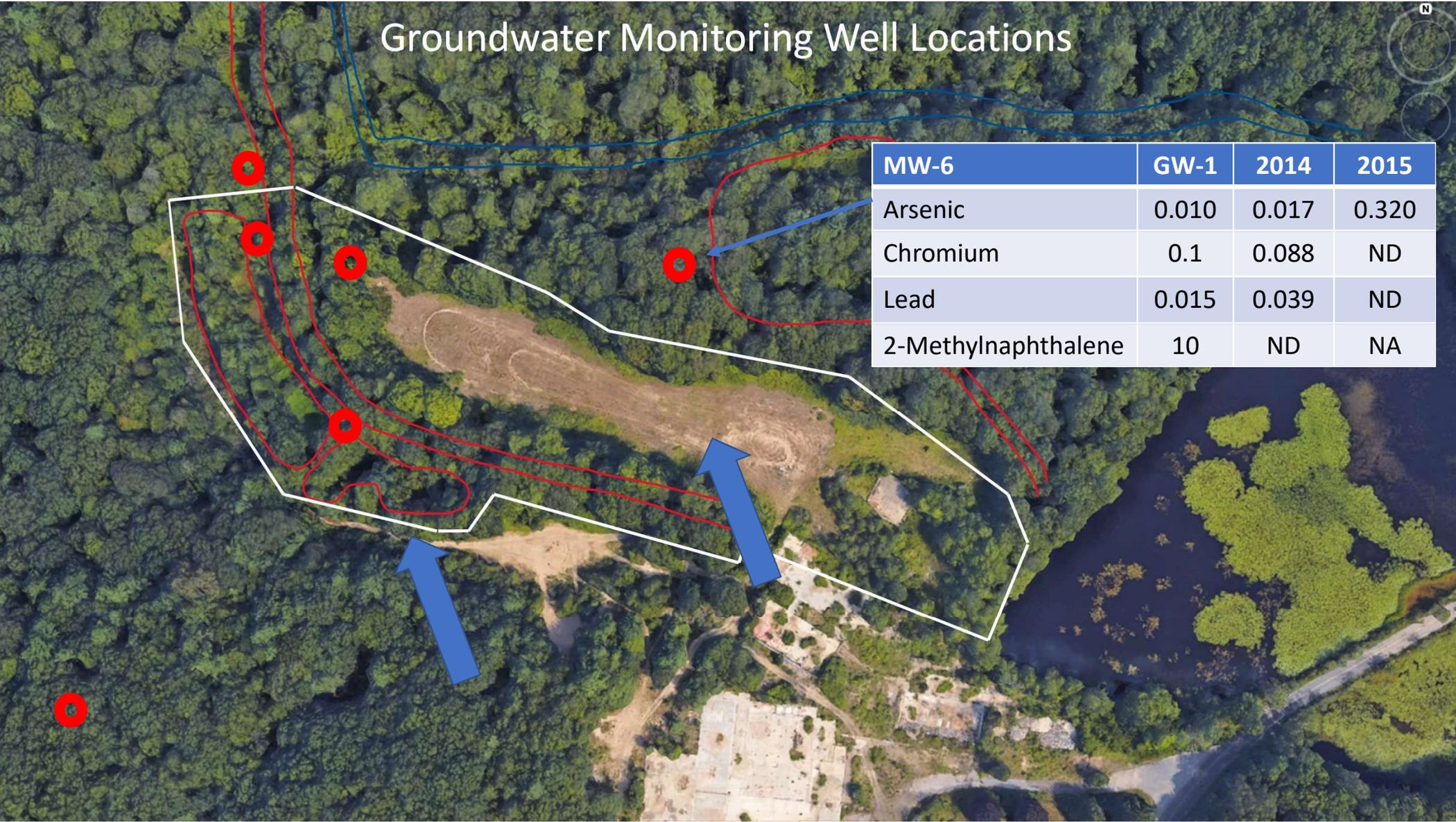
Groundwater Monitoring Well Locations



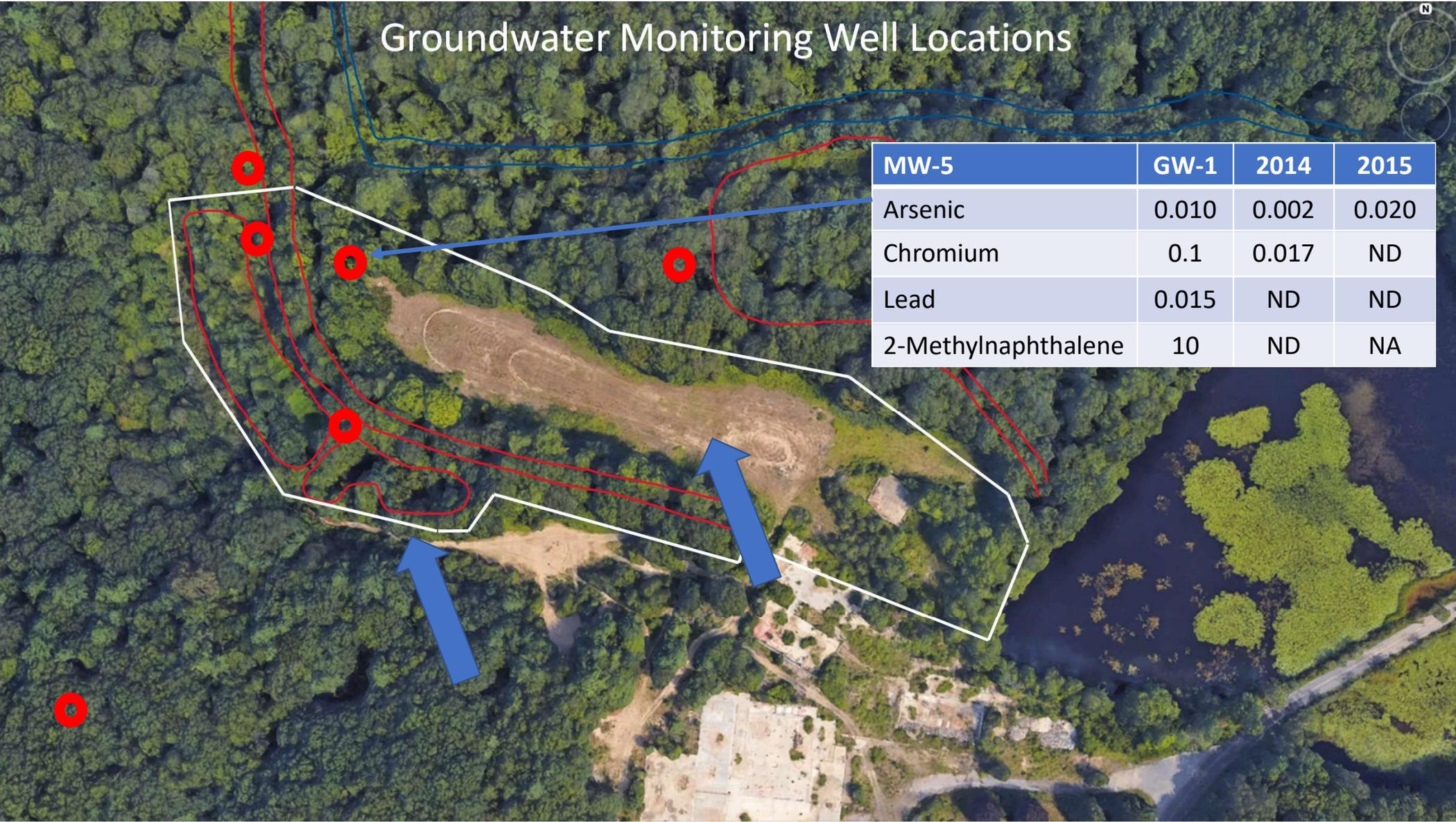
EW-2	GW-1	2014	2015
Arsenic	0.010	ND	0.022
Chromium	0.1	ND	ND
Lead	0.015	ND	ND
2-Methylnaphthalene	10	ND	NA

Groundwater Monitoring Well Locations

MW-6	GW-1	2014	2015
Arsenic	0.010	0.017	0.320
Chromium	0.1	0.088	ND
Lead	0.015	0.039	ND
2-Methylnaphthalene	10	ND	NA



Groundwater Monitoring Well Locations



MW-5	GW-1	2014	2015
Arsenic	0.010	0.002	0.020
Chromium	0.1	0.017	ND
Lead	0.015	ND	ND
2-Methylnaphthalene	10	ND	NA

MassDEP Audit of RAO

- September 7, 2017: Notified by MassDEP of intent to audit the RAO
- September 13, 2017: Audit site inspection
- November 17, 2017: Notice of Audit Findings (NOAF) letter
- Non-compliance issues identified:
 1. AUL did not contain documentation verifying that Richard Mann had signatory authority for Buckley & Mann, Inc.
 2. AUL did not explicitly prohibit residential use.
 3. MassDEP was not provided documentation that holders of any record interests were notified of the existence of the AUL.
 4. The RAO did not provide a screening of potential environmental risks.
- 180-day deadline established (May 17, 2018)

Technical Administrative

Final Steps

- Complete Environmental Risk Characterization (ongoing)
- Re-Evaluate Human Health Risk Characterization
- Revise AUL Language
- Prepare/Submit Permanent Solution Statement
- Re-Record AUL
- Establish Plan for Maintenance and Monitoring of AUL Area

Public Involvement

- May 23, 2018: petition filed to establish a PIP
- 20 days to respond to petitioners
- 80 days to prepare Public Involvement Plan and hold public meeting
- Public notice published at least 14 days prior to public meeting
- 20 day public comment period for PIP and all other MCP documents