# Investigation Update

## CC RVAAP-69 Bldg 1048 Fire Station

## RVAAP Restoration Program
## Camp James A. Garfield, Ohio

*Presented by:*

7 November 2018

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# Overview

- Site location
- Historical use
- Investigation results to date
- Path forward

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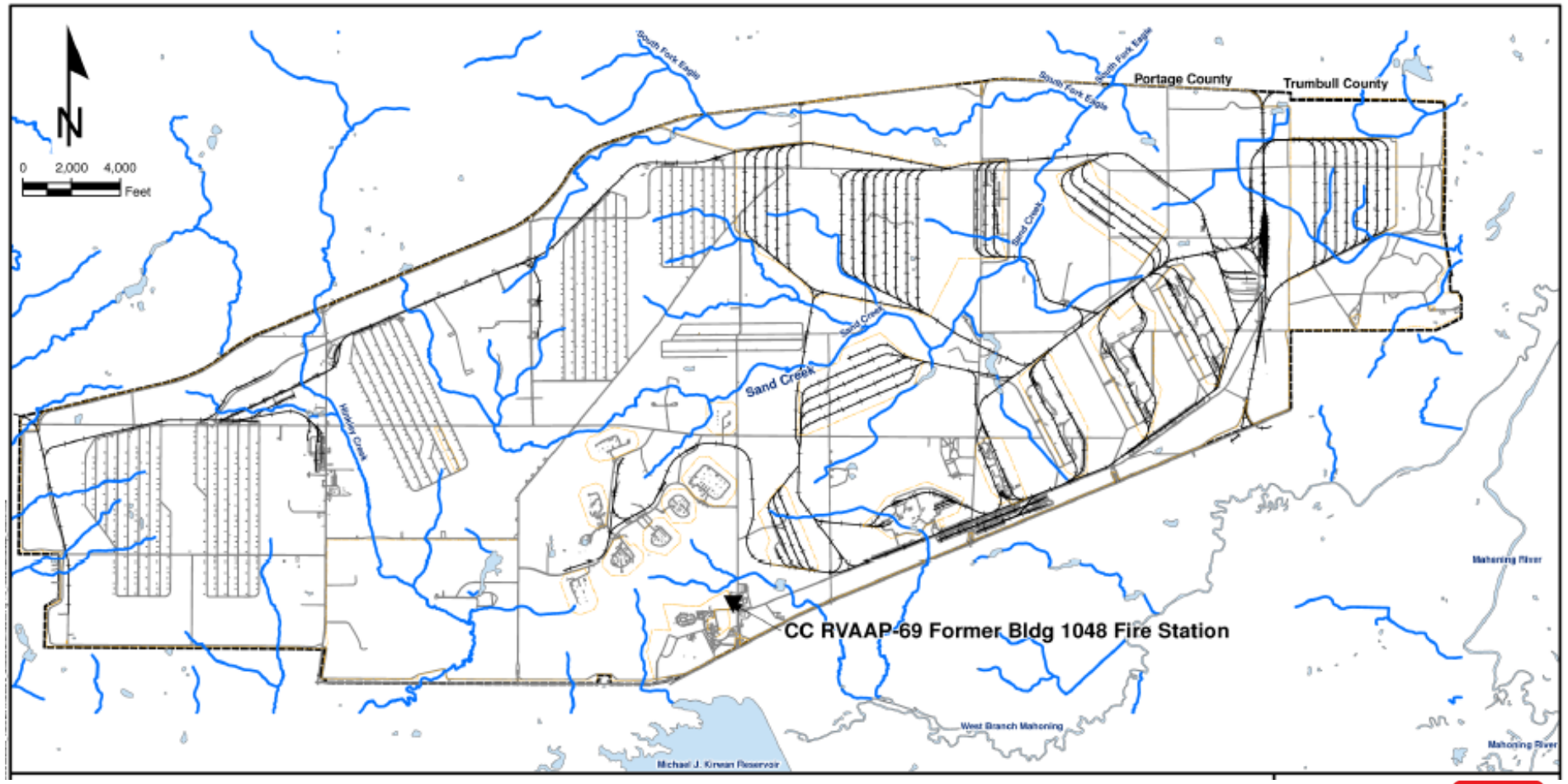
# Site Location

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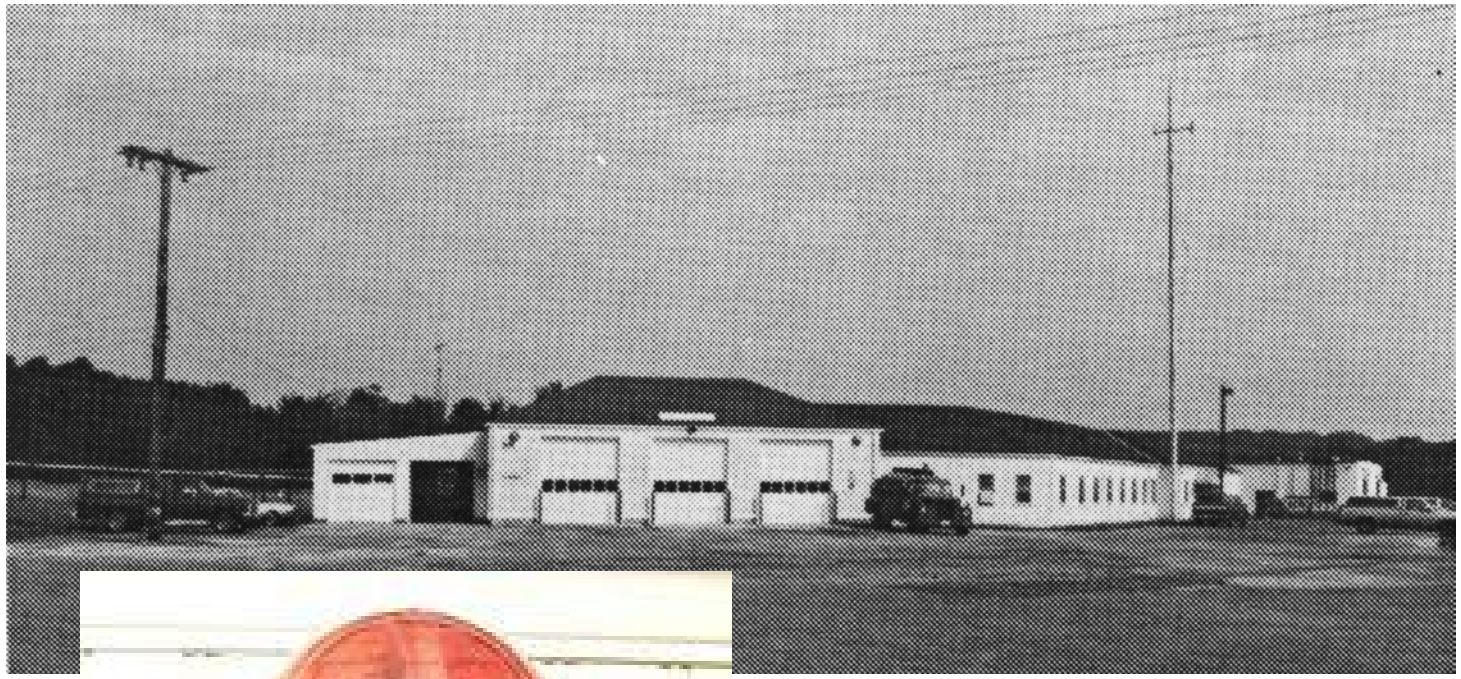
# Historical Use

- Fire station built in early 1940's; demolished 2008
- Carbon tetrachloride fire extinguishers used through 1950's
- Carbon tetrachloride reportedly discharged to the ground behind the building



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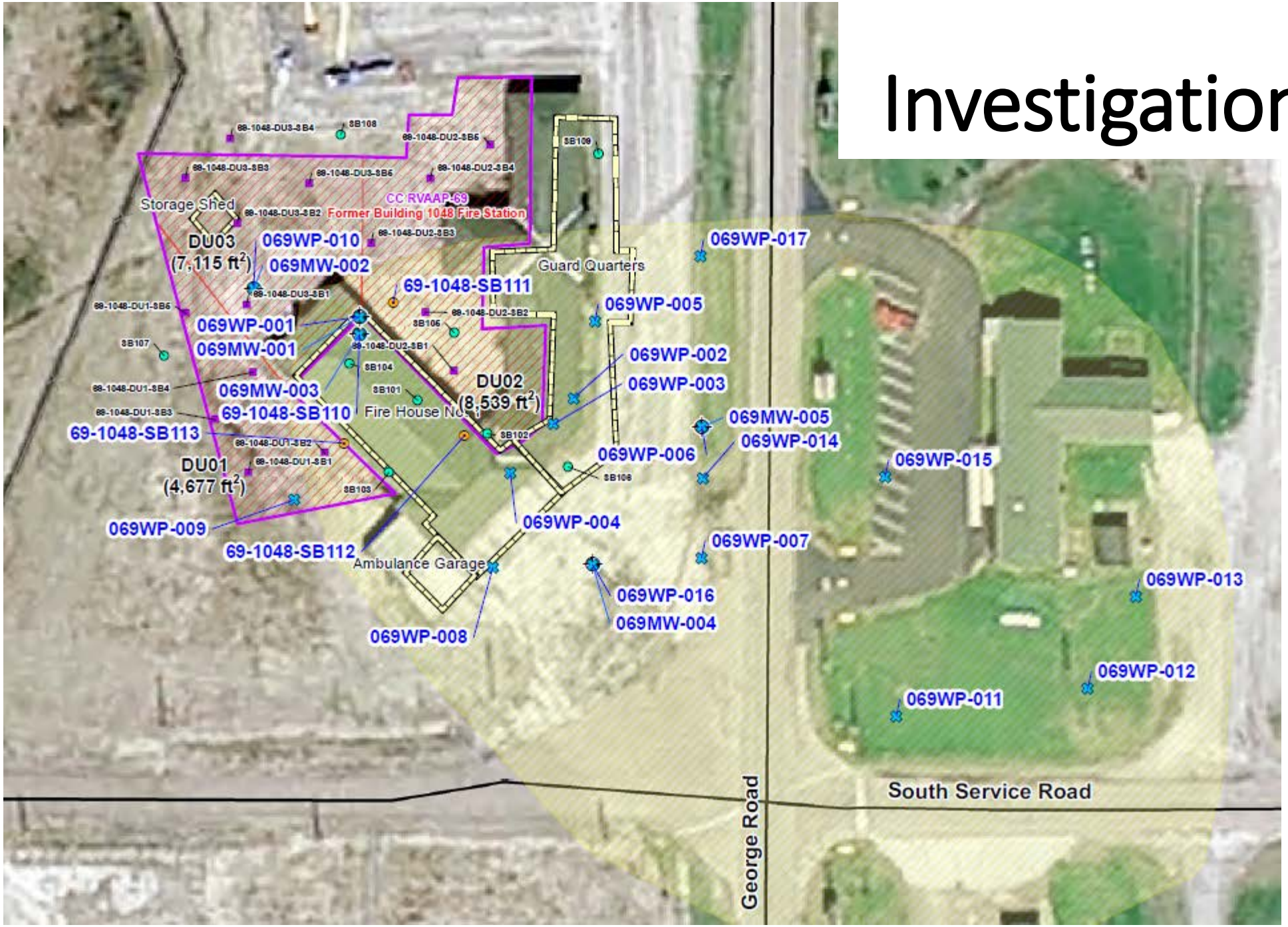
# Investigations to Date




Sampling in 2012, 2015 and 2018

- 29 soil borings
- 17 groundwater grab sample locations
- 5 monitoring wells

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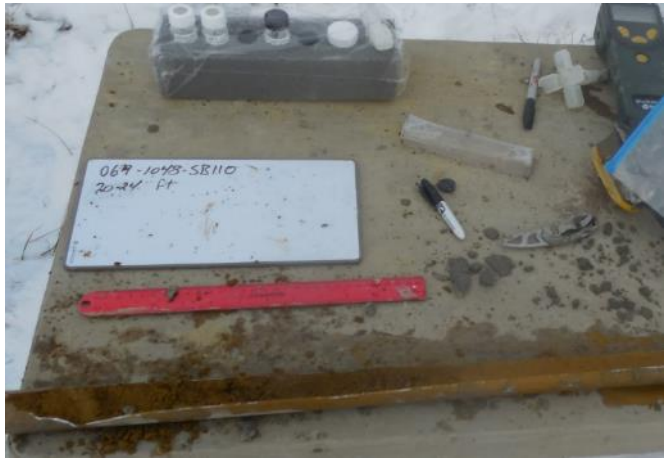
# Investigation Results to Date – Geology

- Brown clays with interbedded silts and sands extend as deep as 15 to 19 feet below the surface
- Gray clay layer below the brown clays is 4 to 7 feet thick
- Weathered bedrock (Upper Sharon Aquifer) encountered below the gray clay (about 19 to 23 feet below the surface)
- Auger refusal at 28 feet below the surface



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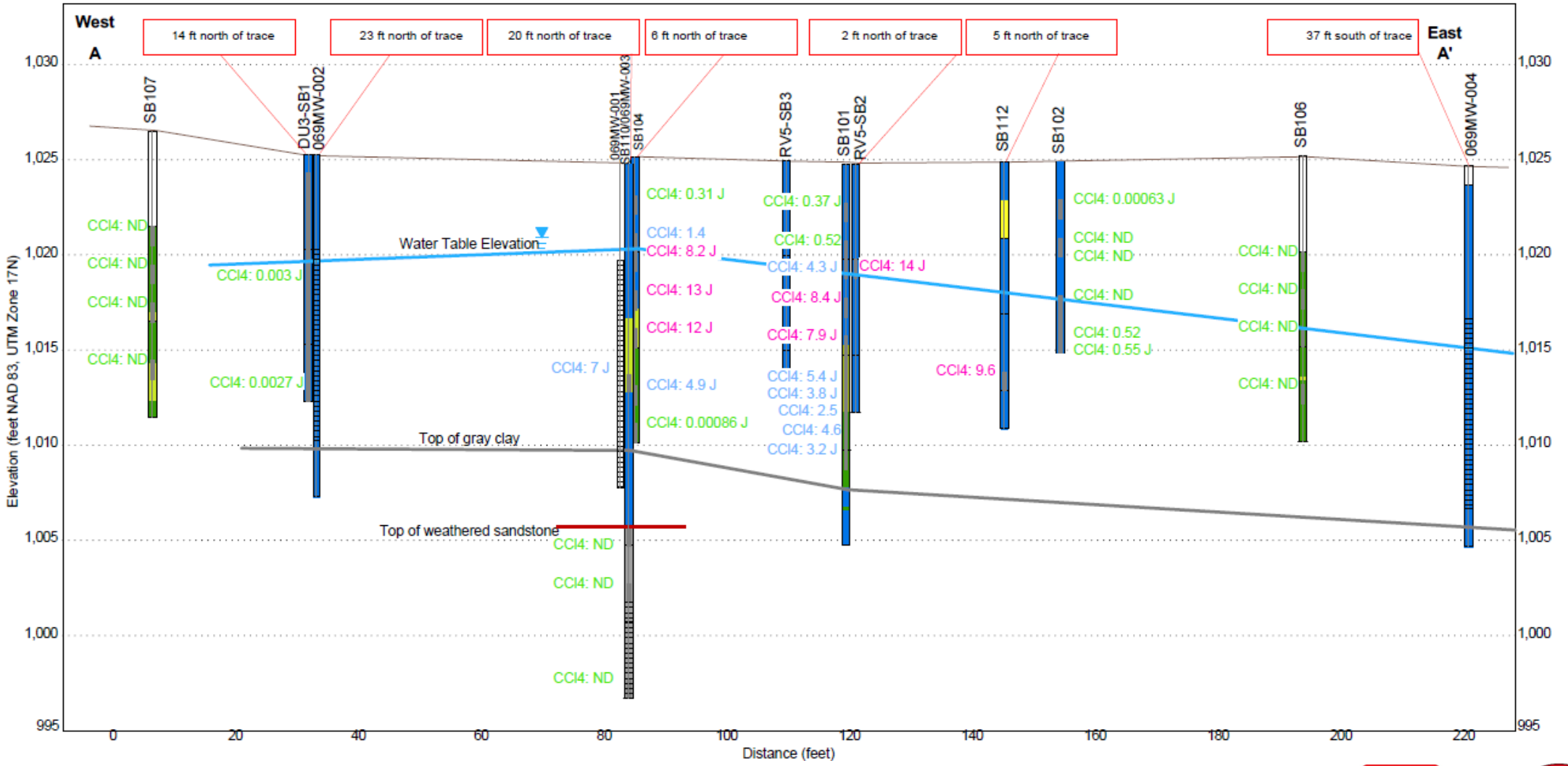
# Results to Date – Geology

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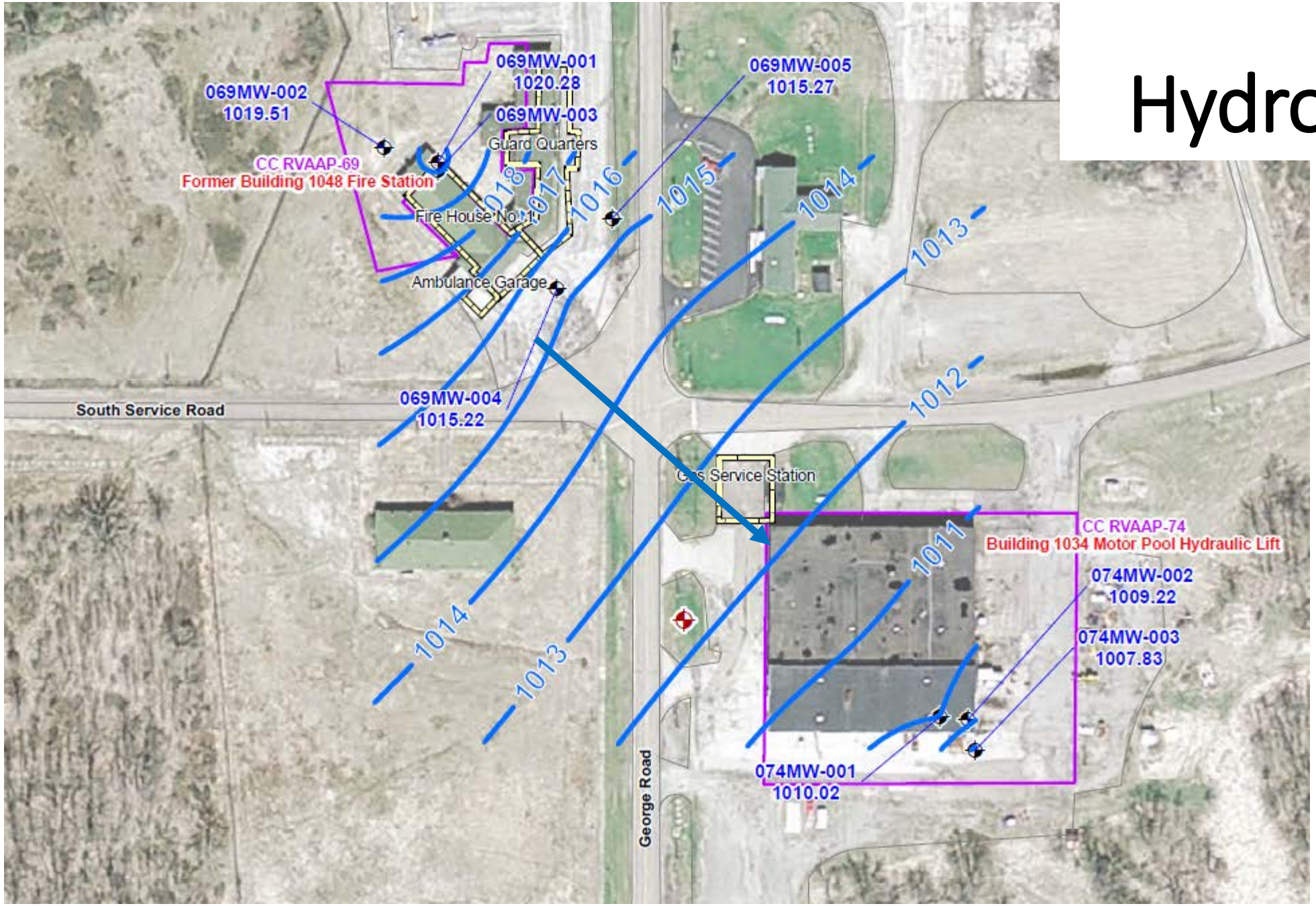
# Hydrogeology




- Groundwater flows to the southeast
- Hydraulic head in shallow groundwater is about 3 feet higher than in Upper Sharon Aquifer

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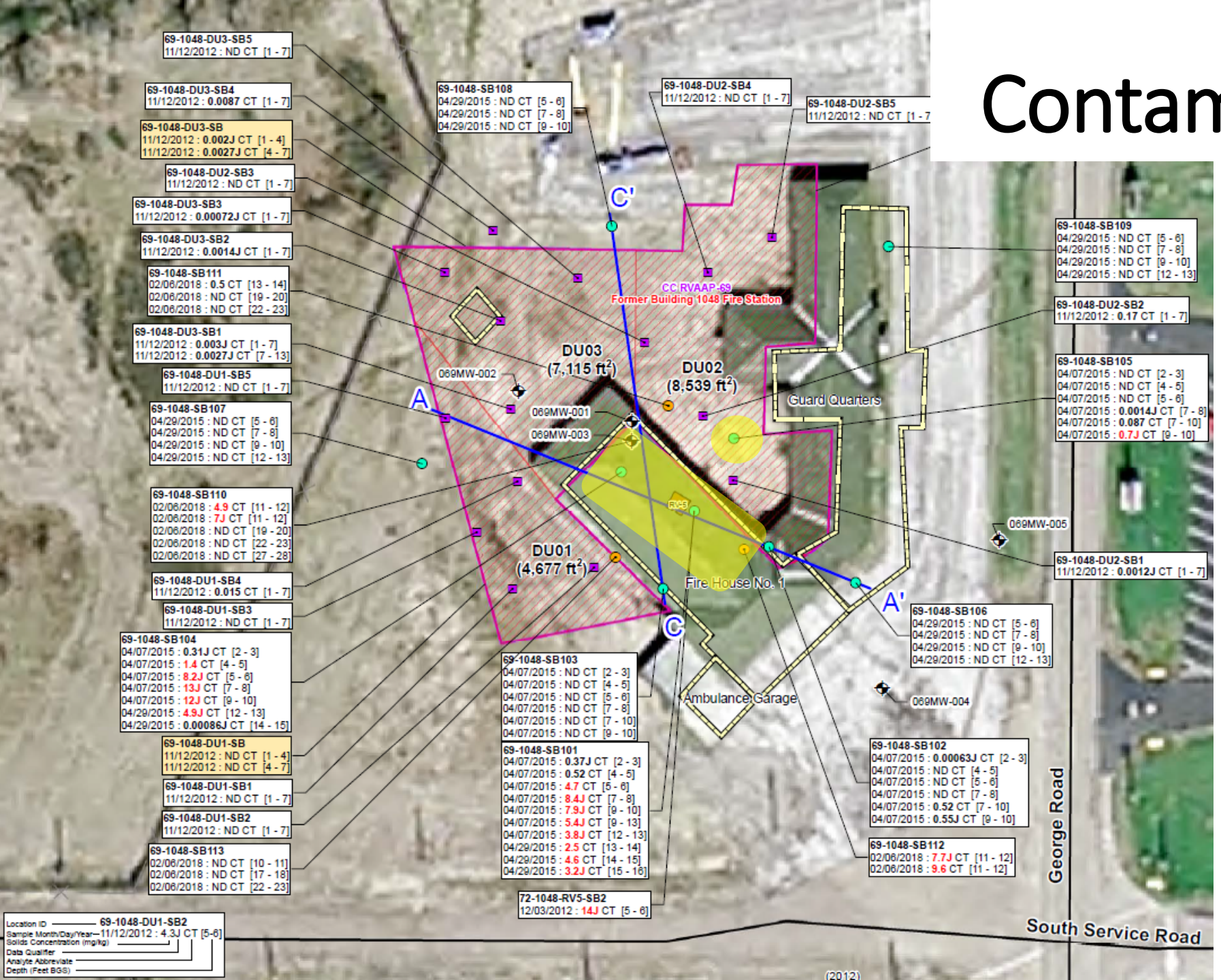
# Contaminants in Soil




- Carbon tetrachloride located within former building footprint
- Contaminants not found behind former building
- No contaminants in gray clay or bedrock

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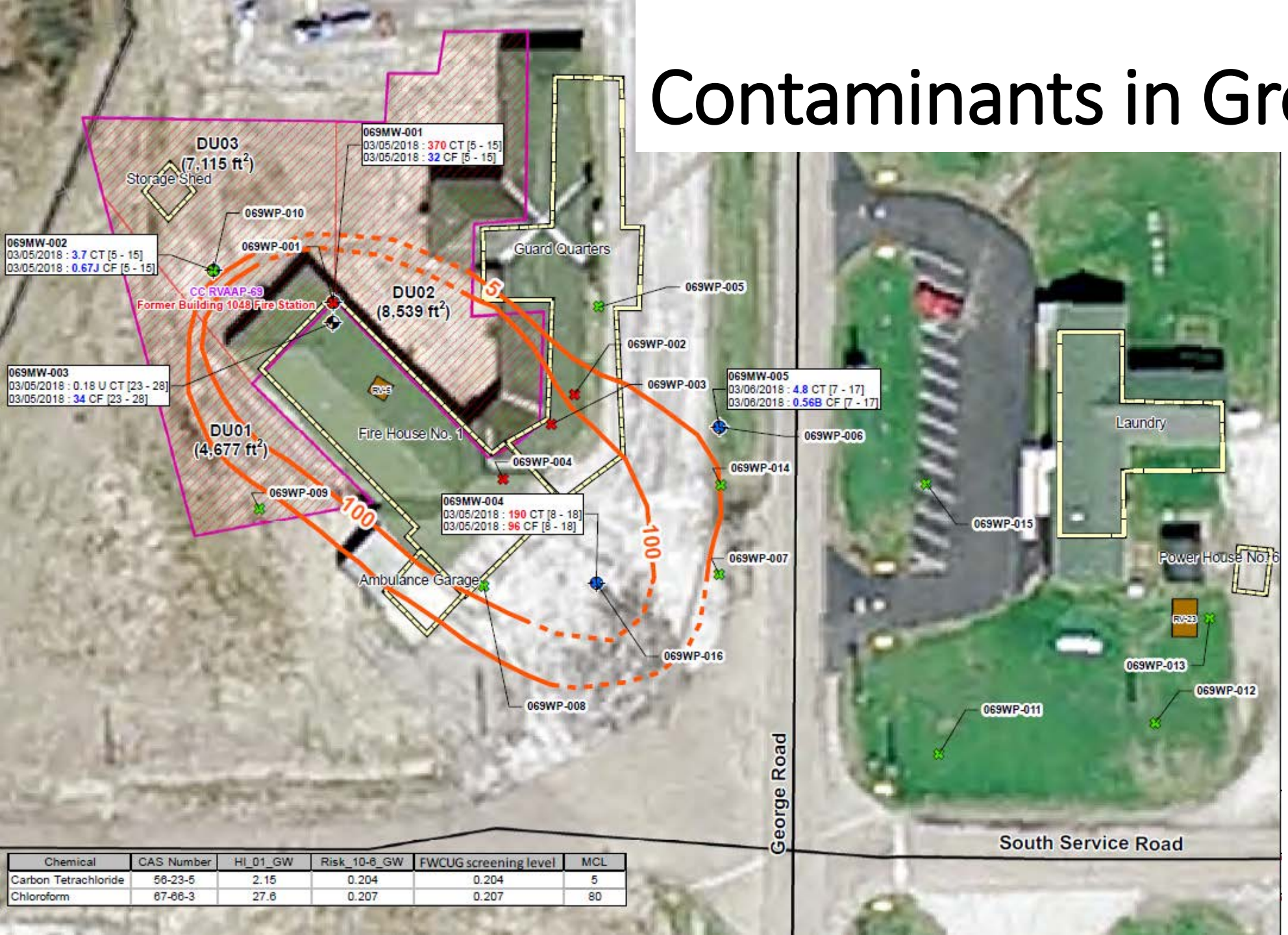
# Contaminants in Groundwater




| Chemical | CAS Number | HI_01_GW | Risk_10-6_GW | FWCUG screening level | MCL |
|---|---|---|---|---|---|
| Carbon Tetrachloride | 56-23-5 | 2.15 | 0.204 | 0.204 | 5 |
| Chloroform | 67-66-3 | 27.6 | 0.207 | 0.207 | 80 |

- Carbon tetrachloride and chloroform detected
- Not yet delineated
- Chloroform concentrations in Sharon aquifer decreased from March to June

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# Path Forward

- Complete geology characterization to southeast (extent and thickness of gray clay)
- Confirm vertical extent of contamination to southeast
  - Advance two new soil borings in November 2018
- Complete delineation of groundwater plume
  - Install four new wells in November 2018
- Collect four quarterly groundwater samples from all wells
- Conduct additional sampling as needed depending on results

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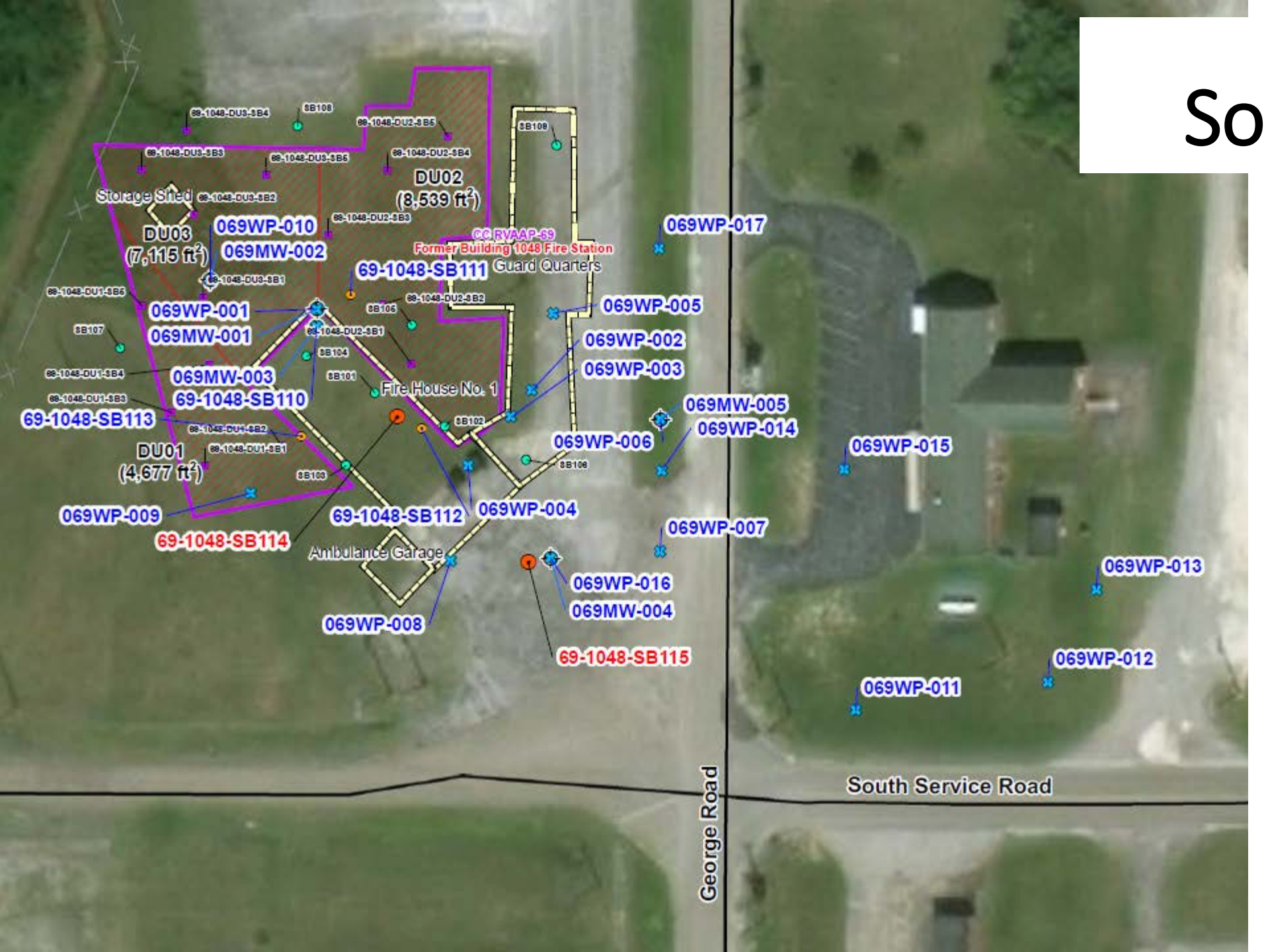


# Soil Borings

- Two soil borings advanced to top of Upper Sharon Aquifer
- Collect soil samples for chemical analysis
- Collect one sample from gray clay layer

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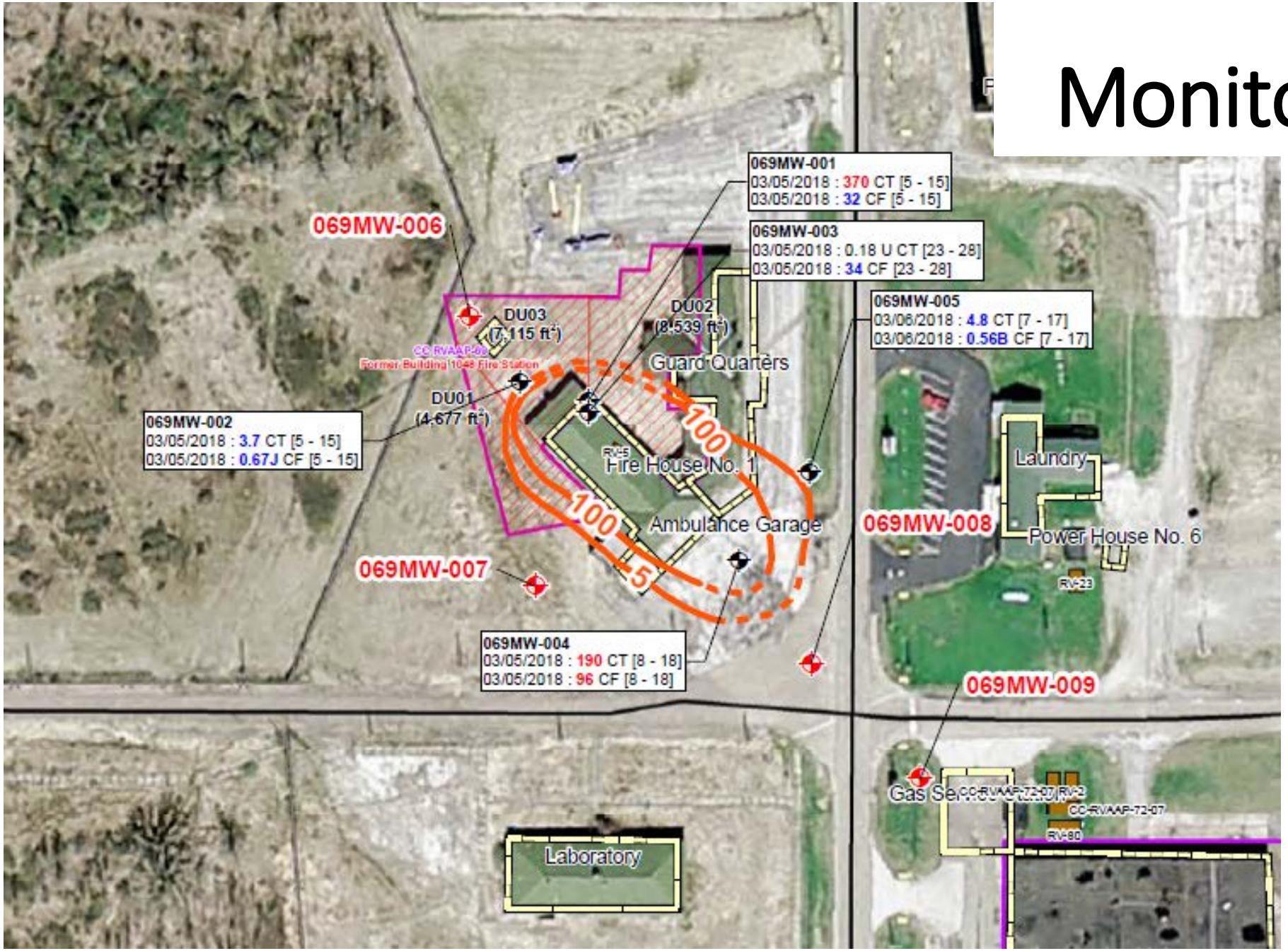
# Monitoring Wells




- One upgradient
- One cross-gradient
- Two down-gradient
- Sample all 9 wells for carbon tetrachloride and decay products (chloroform, methylene chloride and choromethane)

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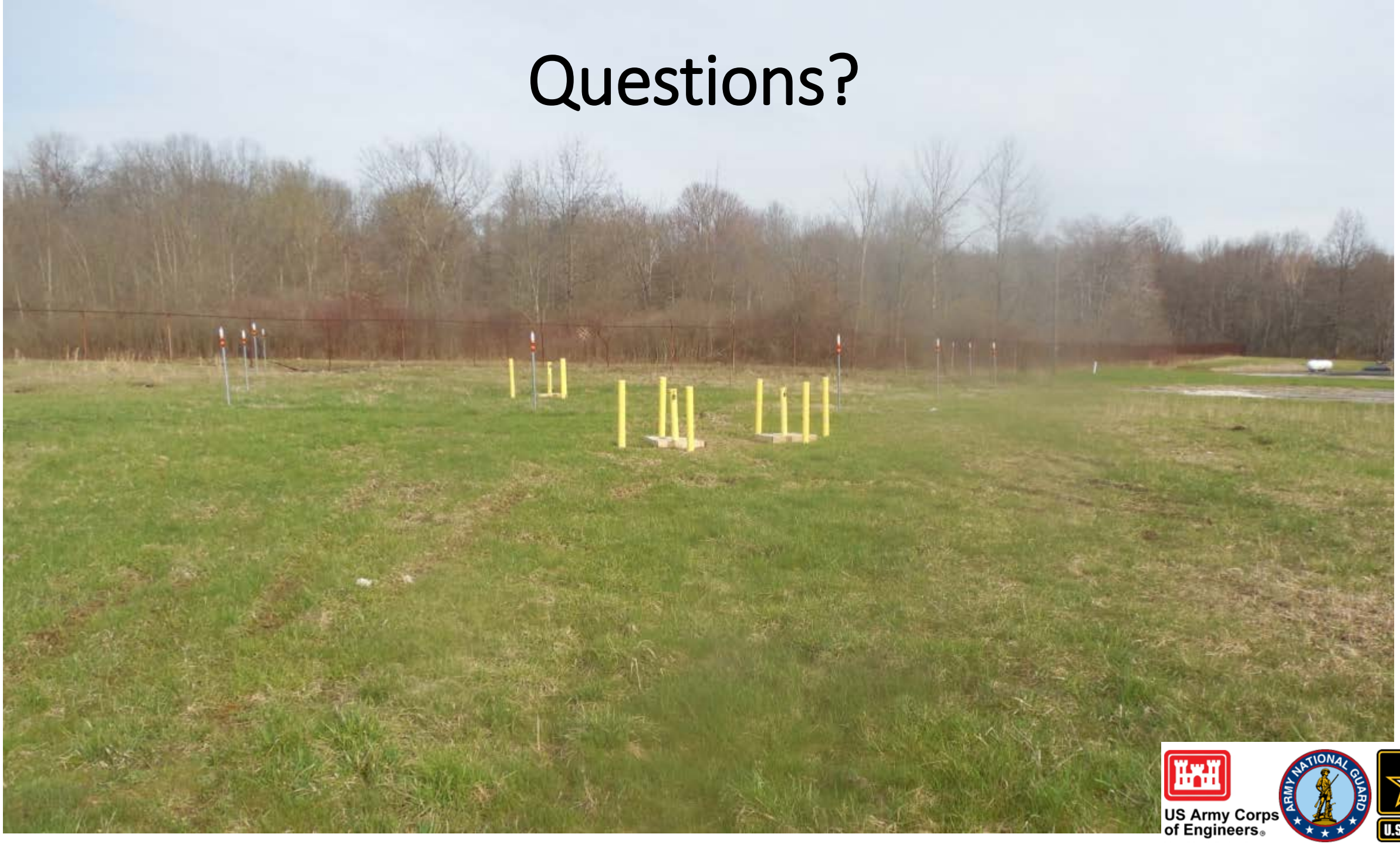
# Questions?



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