Groundwater Monitoring at Solid Waste Facilities

Geological Services Section

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Purpose

- To detect the earliest possible release from the solid waste facility
- To protect human health & the environment
- To protect the facility

Regulations

- LAC 33:VII.522 & Chapter 8
  - GW Monitoring specifically in §805

Treatment Storage Disposal

- Landfills
- Surface Impoundments

LAC 33:VII.522 / Chapter 8

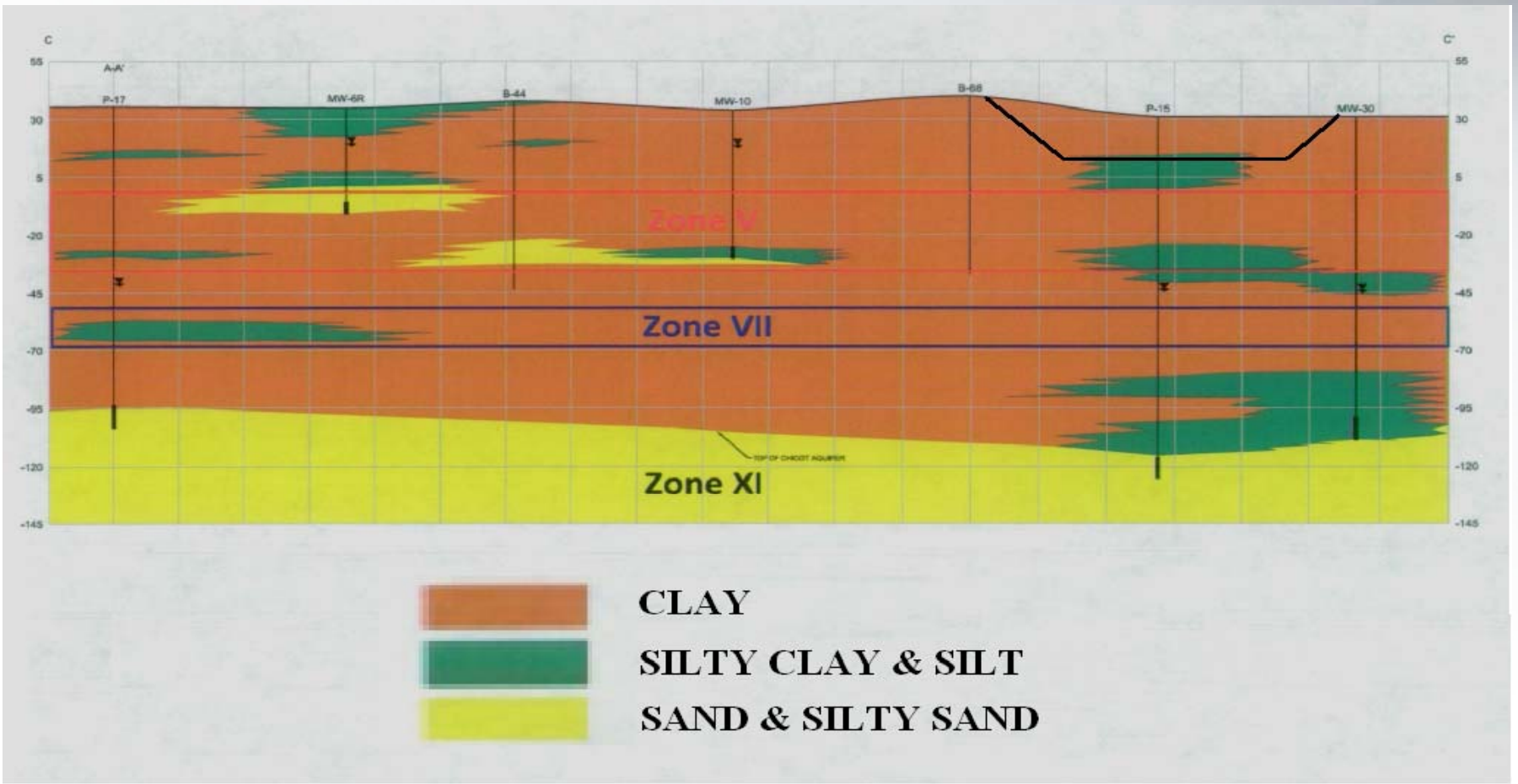
- Subsurface Geology & Hydrogeology
- Groundwater Monitoring Network
- Sampling and Analysis Plan
- Detection Monitoring

Subsurface Geology

- Boring spacing and depth requirements
- Regional information
- Uppermost water bearing unit, uppermost aquifer, lower confining unit
- Isometric profile vs. isopach and structure maps.

Subsurface Geology

(continued)



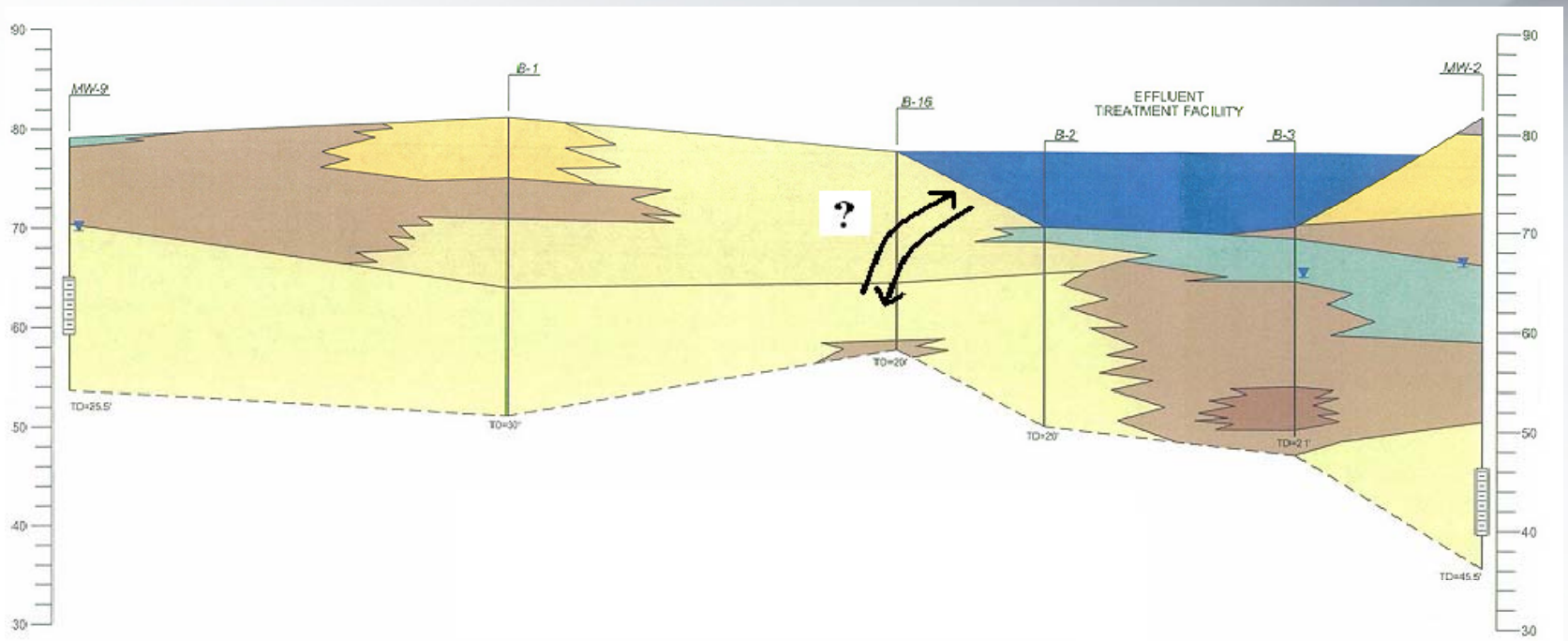
Subsurface Geology

(continued)

Hydrogeology

- Groundwater flow direction
- Mounding
  - Lined vs. unlined impoundments
  - Depth and thickness of permeable units beneath the impoundment
  - Depth of impoundment (bottom of the excavation)

Hydrogeology (continued)



Fill
Sand
Silty Sand & Sandy Silt
Clay
Silty Clay
Water
Clayey Sand
Silty Clay w/ Wood

GW Monitoring Network

- Location of monitoring wells
  - Mounding vs. Upgradient and Downgradient
- Appropriate number of monitoring wells
  - Does the facility need additional monitoring wells?

GW Monitoring Network

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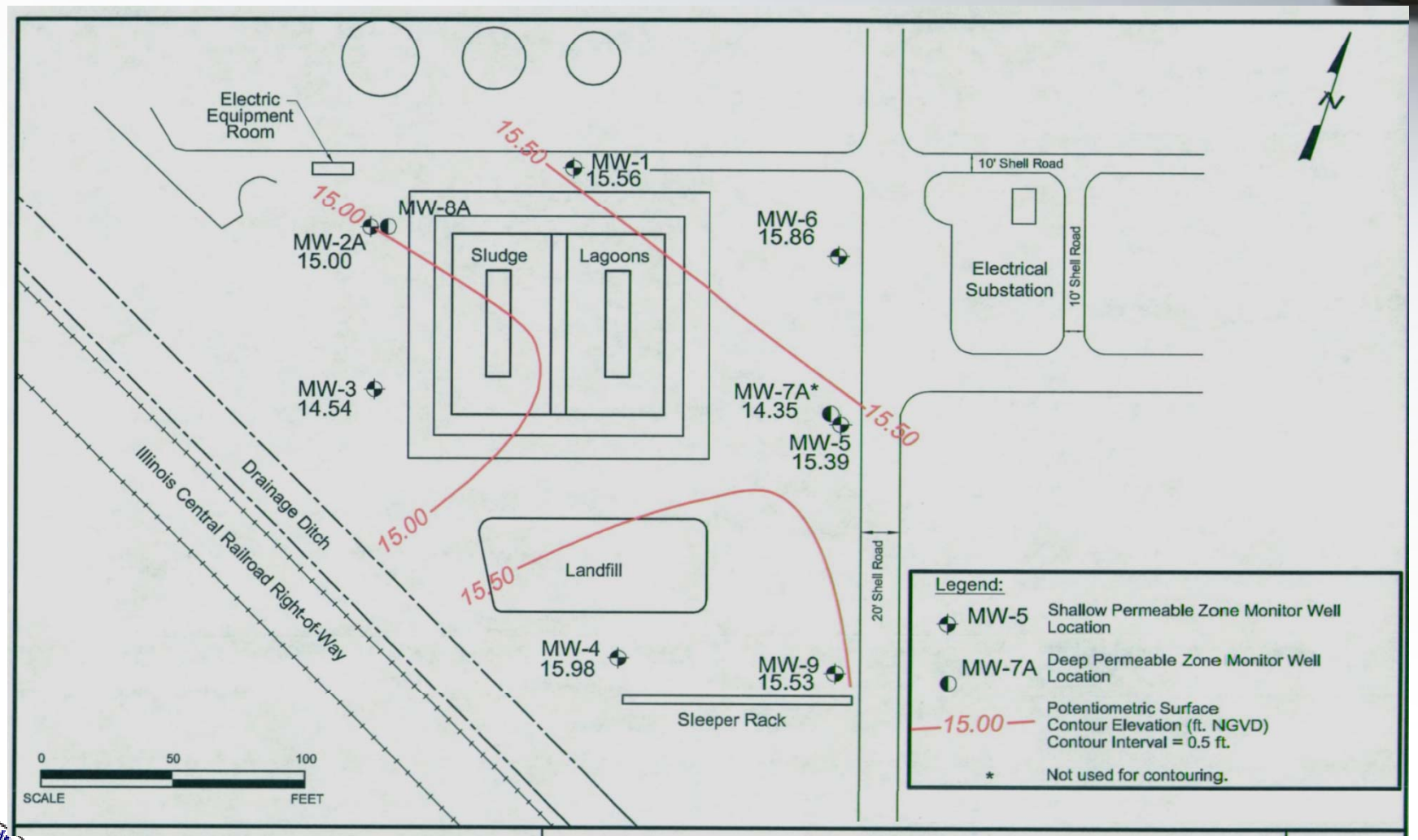

GW Monitoring Network

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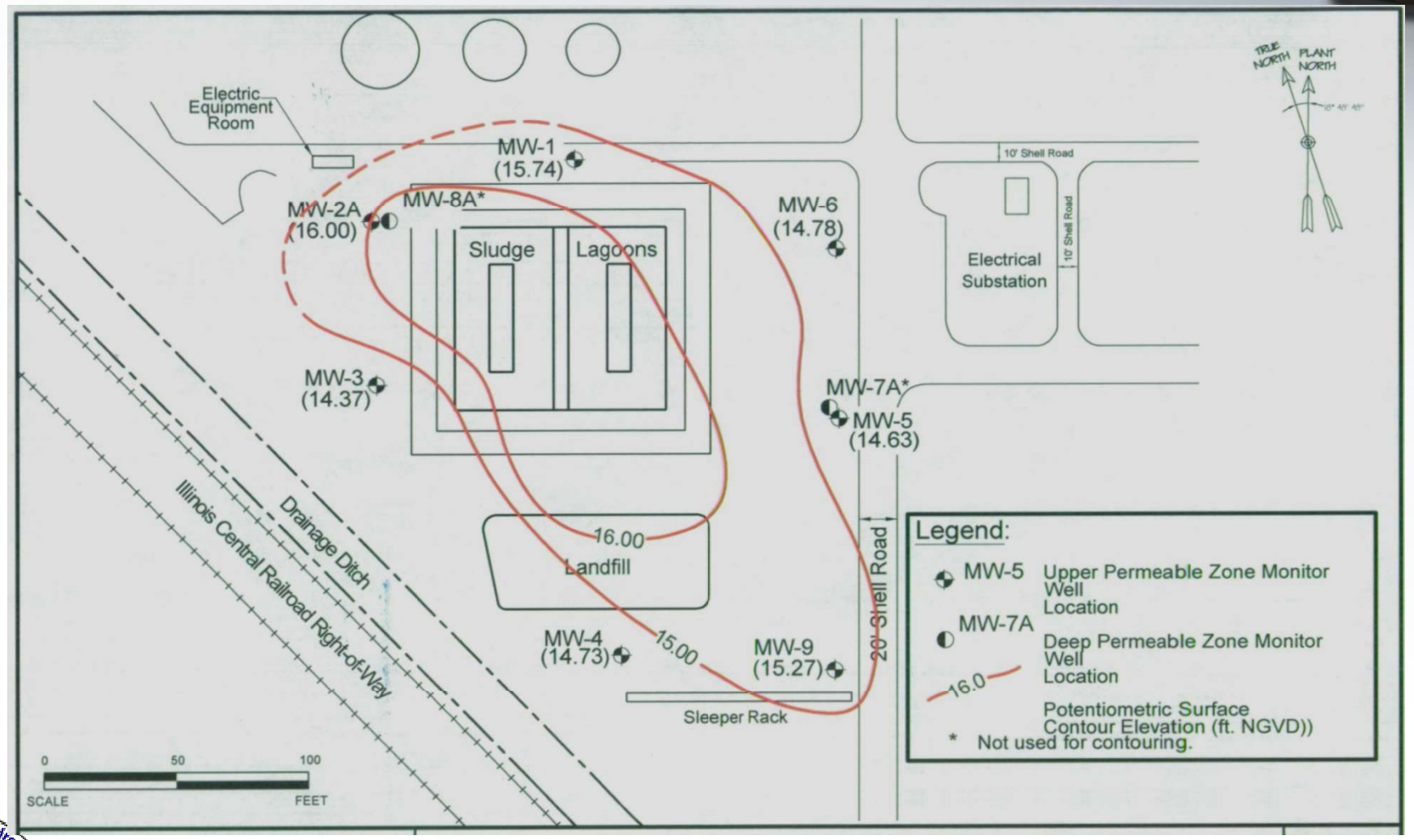


Sampling and Analysis Plan

- What parameters should be monitored in groundwater?
  - Natural vs. unnatural?
- Process knowledge?
- Complete chemical analysis of the waste
  - (not TCLP or Waste Water)

Sampling and Analysis Plan

(continued)

- An initial sampling event consisting of quarterly background sampling for one year.
- Semiannual detection monitoring
- Statistical comparison of data from downgradient wells to background data

Sampling and Analysis Plan

(continued)

- Statistical Analysis
  - Proposed after initial sampling event
  - Interwell Statistical Analyses
- Decision Tree

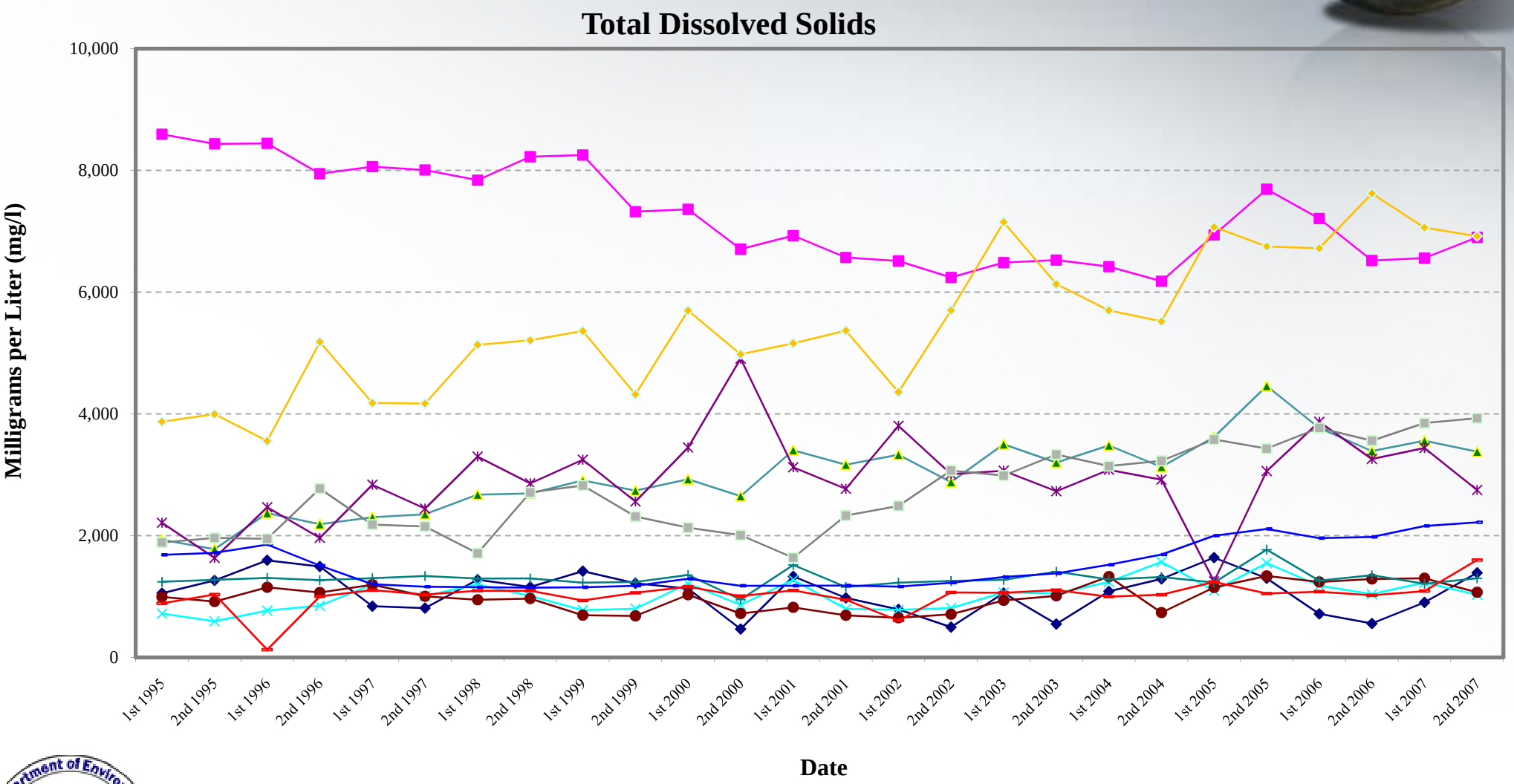
Detection Monitoring

(continued)

- Evaluation of data
- Concentration vs. Time Graphs
  - Explain any Variabilities or Trends
- Statistical Analyses results
  - Include documentation and interpretations

Detection Monitoring

(continued)



Detection Monitoring

(continued)

- Any VOC or SVOC detection is considered to be statistically significant

- Comparisons to RECAP Standards are not allowed while in detection monitoring

Questions or Comments

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