High Resolution PFAS Plume Characterization in Fractured Sandstone to Support Groundwater Remedies

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SUPPORTING [DOING] LEADING

Battelle - 6th International Symposium on Bioremediation and Sustainable Environment Technologies

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RockGen Energy Center Facility and Site Description

Site Description

- 77.81 acres over two parcels located in the Town of Christiana/ Cambridge, WI in SW Dane County

Site History

- 1910 – Agricultural land including dairy farm on southeast portion of the property
- 1945 – Limestone quarry operated by T&T Stone Co. until 1960s
- 2000 – Construction of generation facility (facility ownership changes multiple times)

Facility Description

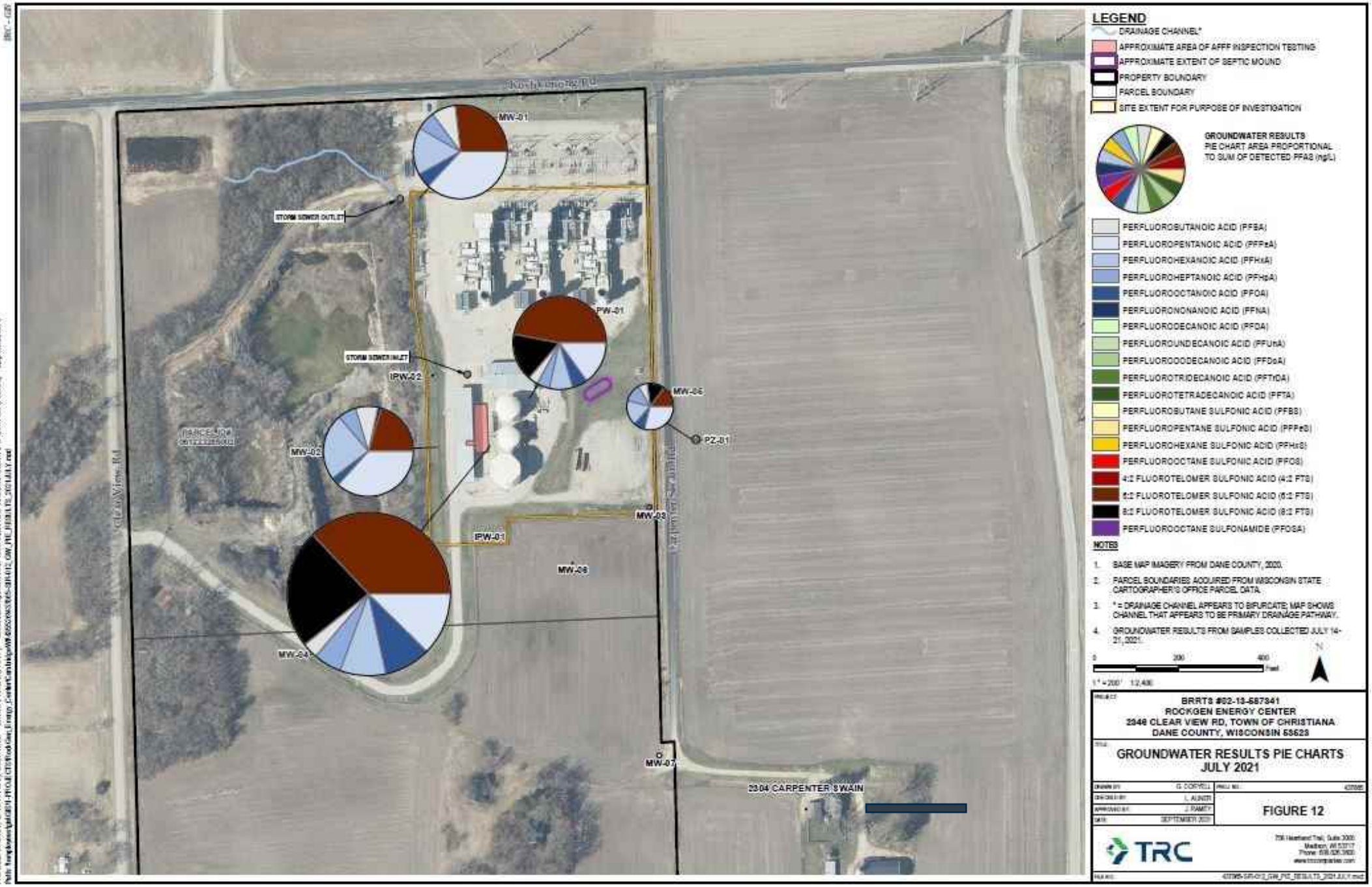
- Natural gas and fuel oil generation with three combustion turbines and generators, three above ground storage tanks, and support structures on 10 acres of the Site

Site Topography and Layout

NR 700 Steps Completed/ In Progress

- March 2021 – NR 706 Hazardous Substances Discharge Notification
- April 2021 – NR 716 SIWP w/ Interim Action Options (approved within 1 week)
- Apr. 2021 – Jul. 2021 – NR 716 SI (initial)
- July 2021 – NR 708 Interim Action Workplan (approved within 1 week)
- August 2021 – NR 716 Supplemental SIWP (approved within 1 week)
- September 2021 – NR 716 SIR (approved April 2022)
- Oct. 2021 – Dec. 2021 – NR 716 SI (phase 2)
- Apr. 2022 – Jun. 2022 – NR 708 Interim Action Construction
- October 2022 – NR 708 Remedial Action Documentation Report (approved January 2023)
- December 2022 – NR 716 Technical Assistance Meeting CSM/3D Model (memo. January 2023)
- March 2023 – NR 716 Supplemental SIWP Addendum (review requested within 2 weeks)
- **April 2023 – May 2023 – NR 716 SI (phase 3)**

Site Geology

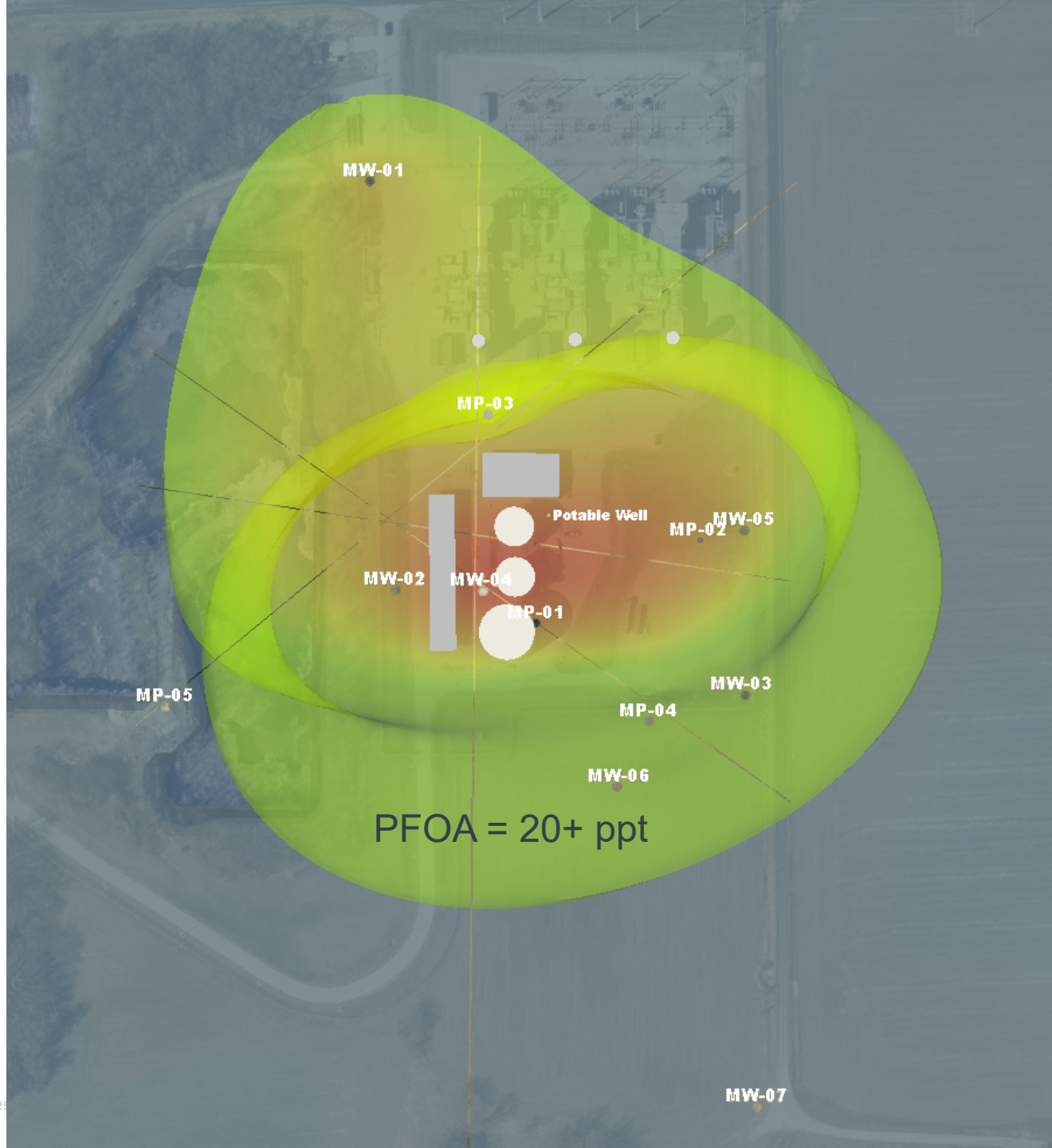


Forensic Signature

Ansulite 3% AFFF AFC-3A

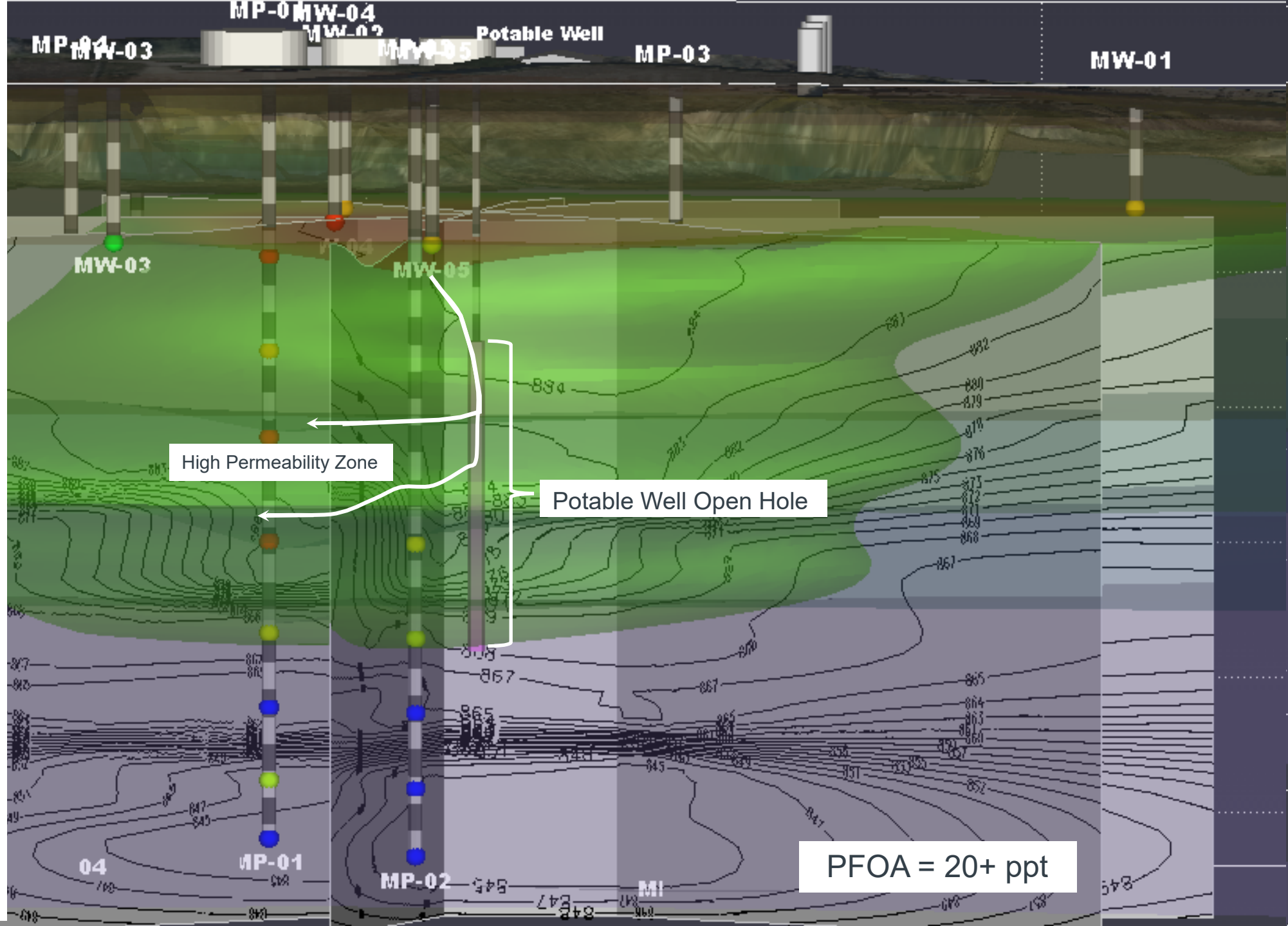
PFOA Groundwater Results

- Field data from:
  - 7 water table wells
  - 1 piezometer
  - 5 Multiport locations/8 ports/location
- 3D interpolation of PFOA analytical results
- Extrapolated extent of PFOA plume
  - Log interpolation following the governing equation for contaminant transport
  - Used to select locations for “extent of plume” multiports for phase 3 investigation.



Conclusions

- Potable well was a vertical migration pathway.
- Minimal vertical migration through the aquifer.
- 3D interpolation of groundwater elevations shows a high permeability zone at depth.
- High permeability zone is the base of the plume.
- Migration through the high permeability zone, via the potable well, is the largest extent of the plume.
- CSM and remedy selection benefitted from the multiports and info from the potable well.
- Model provided to WDNR improve understanding.



Phase 3 SI


KOSHKONONG ROAD
CLEAR VIEW ROAD
LEGEND
NOTES
1. BASE MAP IMAGERY FROM GOOGLE EARTH PRO, 06/2022.
2. PARCEL DATA ACQUIRED FROM WISCONSIN STATE CARTOGRAPHER'S OFFICE PARCEL DATA.
3. * = DRAINAGE CHANNEL APPEARS TO BIFURCATE; MAP SHOWS CHANNEL THAT APPEARS TO BE PRIMARY DRAINAGE PATHWAY.
BRRTS #02-13-557341
ROCKGEN ENERGY CENTER
2346 CLEAR VIEW RD, TOWN OF CHRISTIANA
DANE COUNTY, WISCONSIN 53523
PROPOSED SOIL BORINGS AND WELLS
FIGURE 2
TRC

Thanks!

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