



GRETCHEN WHITMER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY
GAYLORD DISTRICT OFFICE



LIESL EICHLER CLARK
DIRECTOR

December 22, 2022

VIA EMAIL
RETURN RECEIPT REQUESTED

Bonnie Packer
Acting PFAS Program Manager
Cleanup and Restoration Branch
Army National Guard

Dear Bonnie Packer:

SUBJECT: Compliance Communication Regarding the Status of Camp Grayling Investigations for Per- and Polyfluoroalkyl Substances (PFAS) under CERCLA and Proposed Camp Grayling Expansion, Crawford County, Michigan.
EGLE Facility ID Numbers: 20000002, 20000712, 20000084, 20000099, 20000100

The Michigan Department of Environment, Great Lakes, and Energy (EGLE) Remediation and Redevelopment Division Gaylord District Office believes an update is necessary on the status of Camp Grayling Investigations for PFAS under Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). The investigation needs to be assessed as part of any Camp Grayling expansion proposal.

EGLE has been waiting on significant remedial progress for 5 years while continuing to drive further Army National Guard (ARNG) investigation at the State's expense. During these past 5 years, ARNG has repeatedly stated they are working quickly to address all PFAS impact. This week, we were told:

- **The ARNG does not intend to extend drinking water from Beaver Creek Township to Grayling Township as part of an interim remedial action.** EGLE considers this unacceptable given the known PFAS impacts to private wells emanating from Cantonment on Lake Margrethe and Grayling Army Airfield (GAAF). The State of Michigan continues to supply point of use filters to impacted residents 5 years after project initiation. The Department of Defense (DoD) has implemented a similar interim response at Eielson Air Force Base extending public water 6 miles. Grayling Township is currently modifying an existing feasibility study to accommodate Camp Grayling and completing work ARNG needs to conduct. Please cite DoD policy and CERCLA on why this measure cannot be implemented.

- **The ARNG intends to pause the Remedial Investigation (RI) at MATES until 2024 or, possibly, 2025.** Impacts at MATES have been known since 2018. The current investigation does not include the MATES buildings where PFAS impacts likely originated. The current timeline is unacceptable given the unknown PFAS extent and possible wetland/ecological impacts. Only a small subset of drinking water samples in a one-mile radius have been sampled in the area surrounding MATES. Sampling was conducted by the Michigan Department of Military and Veterans Affairs (DMVA) with detections found in drinking water samples. ARNG needs to sample all drinking water wells in a one-mile radius in the area surrounding MATES. This has been the best indicator of true PFAS extent at Cantonment and GAAF. Ecological risk assessment is necessary.

ARNG expects EGLE to prove beyond a reasonable doubt that ARNG PFAS impact exists offsite before pursuing those areas themselves. Due to the urgency with which the State has pursued PFAS impacts, investigations to prove impact by ARNG activities are causing enormous expense to the State of Michigan. Many times, EGLE has been told that policy and procedures are limiting ARNG investigations without cited documentation. Examples of areas where the State has had to open investigations first include:

- Drinking water well investigation downgradient of GAAF
- Lake Margrethe area and Borchers Way drinking water impact investigation
- Grayling resampling efforts by the Department of Health and Human Services (ARNG started sampling during the State's second round of resampling)
- Lake Margrethe investigation into discharges of PFAS impacted water from spring water downgradient of Cantonment AFFF releases and wastewater treatment plant at Lake Margrethe
- Lake Margrethe surface water impact and foam investigation
- City of Grayling sanitary sewer investigation and wastewater treatment plant impacts
- Au Sable River discharges and surface water impacts
- Lake Margrethe outflow study at Portage Creek
- Fish sampling in the Au Sable and Lake Margrethe

The areas above would have unknown impacts, no determination on absence/presence, or PFAS impacts would only be partially known if the offsite investigation would have been left to ARNG alone. Investigation step outs have been slow to occur despite a robust EGLE dataset, all of which has been supplied to the ARNG. ARNG continues to minimize known impacts in public facing documents (see attached GAAF PFOS extent figure from last Camp Grayling Restoration Advisory Board Meeting compared to existing EGLE dataset).

Reviews of Site inspections continue to recycle the same themes at ARNG sites. Deficiencies from Greater Camp Grayling investigation that need to be addressed include:

- The initial PA and SIs for Camp Grayling have been rudimentary and contain large data gaps identified in our comments for each. ARNG is working with contractors that employ some of the world's leading PFAS experts and the quality of work presented should be reflective of this. If a review from Gaylord RRD District staff can identify numerous data gaps, it can be presumed that ARNG's contractors could also identify numerous data gaps.

- ARNG has not completed a preferential pathway evaluation at Cantonment on Lake Margrethe. Cantonment storm water and wastewater treatment plants are known to be impacted through DMVA studies. Further investigation and interim remedial actions are needed.
- ARNG has not completed a preferential pathway evaluation at Grayling Army Airfield. City of Grayling sanitary sewers have known impacts that extend to the wastewater treatment plant. One round of testing has been performed by EGLE during a time of low groundwater infiltration. Periodic preferential pathway analyses and mitigation are needed.
- ARNG has not completed a Groundwater to Surface Water Interface (GSI) investigation at Cantonment on Lake Margrethe (see EGLE GSI Guidance). Discharges are currently occurring from the impacted aquifer that was proven extensively by EGLE from 2018-2022. Not one foam sample has been collected by ARNG. ARNG will only take surface water samples near Cantonment shoreline even though the entire lake is impacted proven by EGLE. Large foam buildup with concentrations in excess of 10,000 ppt total PFAS occurs during wind and agitation of lake water. A surface film of PFAS is present continually that likely has much higher concentrations than surface water. Fish impacts are evident in State of Michigan data and consumption advisories for bluegill and sunfish are in effect. Ecological risk assessment is necessary. Please establish points of compliance at the Lake Margrethe shoreline with proven discharge of PFAS. Interim remedial action is necessary immediately. ARNG also needs to sample the Lake Margrethe outflow during lake drawdown to ensure high PFAS concentrations are not leaving the lake due to foam reports upon lake drawdown.
- ARNG has not completed a GSI investigation to the Au Sable River. One-time surface water sampling completed in the RI does not account for variability in surrounding aquifer PFAS concentrations and changes in discharge due to rain events. Please establish extensive points of compliance at locations along the Au Sable River likely to discharge. These need to be monitored quarterly, at minimum.
- ARNG has limited the analytes for PFAS. Please include all PFAS in the Michigan PFAS Action Response Team (MPART) recommended parameter list. HFPO-DA (GenX) needs to be part of any future analysis due to use in military equipment.
- ARNG needs to sample private drinking water wells in a one-mile radius around all AOIs in the SI. This has been the best initial gauge of PFAS extent at Cantonment and GAAF.

Additional Preliminary Assessment (PA) is needed for many base areas while some areas not identified in the 2018 PA have enough reason to suspect PFAS impact and proceed to site inspection immediately. The 2018 PA was completed at a time when much less was understood by ARNG, contractors, EGLE, and interviewees about Camp Grayling site specifics, AFFF use, and PFAS contamination and migration. The PA has been shown to be inadequate at Cantonment on Lake Margrethe, MATES, and Grayling Army Airfield. Additional release areas were found at all three locations that were not identified in the PA. The PA needs to be expanded to all sources of PFAS as AFFF was the focus.

- A supplemental PA with additional interviews and a review of off post locations where Military Specification (Mil-Spec) aqueous film forming foam (AFFF) has likely been released in unknown quantities is necessary. Additional interviews helped find additional release areas at Cantonment this summer that were previously unknown.

- In the mid-2000s when PFAS became a contaminant of concern, maintenance of Camp Grayling firefighting equipment was contracted to offsite maintenance locations. These locations need to be assessed by ARNG.
- Investigation needs to be expanded to where Mil-Spec AFFF-containing vehicles are located periodically (i.e., maintenance locations, firefighting source waters, and firefighting staging positions). Fire trucks have the potential to spill and release Mil-Spec AFFF when drawing water from surface bodies of water at around Camp Grayling. Fire trucks have the potential to spill Mil-Spec AFFF when parked (as evidenced at Grayling Army Airfield) or when worked on (likely source of PFAS in MATES wastewater).
- It is becoming increasingly clear that a culture of Mil-Spec AFFF use has developed in the greater Camp Grayling Area. EGLE's AFFF pick-up program and EGLE interviews with fire-fighting contacts willing to speak regarding AFFF use have identified that Mil-Spec AFFF was shared with local fire departments and the Michigan Department of Natural Resources to help fight wildfires or control prescribed burns emanating from Camp Grayling ranges. Many contacts are unwilling to speak or only speak anonymously for fear of reprimand/reprisal. The Supplemental PA and SI needs to expand investigation to off post locations where Mil-Spec AFFF may have been transported & released.

The CERCLA investigation progress has been too slow and costly to the State of Michigan as EGLE continues timely additional investigation and protection of human health & the environment. ARNG field activities are conducted from spring to late fall. Significant progress could be made if work continued to be conducted during the shoulder seasons.

Lack of Mitigation and Remediation

In last five years, insufficient and minimal mitigation and remediation has taken place. Only 17 drinking water wells have been given access to less impacted water through extension of City of Grayling water supply and installation of whole home filters. City of Grayling water has had periodic detections of PFHxS due to migrating PFAS contamination from GAAF that ARNG has not sampled. Whole home filters have shown detections of breakthrough in testing required by DHHS. We continue to recommend point of use filtration after whole home filtration.

EGLE continues to comment and send compliance communications to ensure areas are properly investigated and mitigated from known sites. The unmitigated areas need an interim remedial action. Unmitigated examples following compliance communication include:

- MATES wastewater compliance communication for PFAS downgradient of rapid sand filter beds;
- Cantonment wastewater compliance communication for PFAS downgradient of wastewater treatment plant; and
- Cantonment stormwater Violation Notice for PFAS discharging to Lake Margrethe.

Only 2 remedial pilot studies have been conducted at Camp Grayling. This is insufficient as interim remedial actions are necessary to prevent further migration of PFAS to downgradient receptors.

Regarding Regeneration® PlumeStop™ and SourceStop™:

- Analysis is needed to determine if colloidal carbon is migrating downgradient from the test plots through the sandy aquifer. Without doing so, EGLE cannot determine if these are options that can be implemented full-scale. Full scale implementation has the potential to cause colloidal carbon impact to private drinking water wells due to higher application rates and greater coverage area.
- These are the least costly remedial options and the only ones currently explored. They only immobilize PFAS and should be used only as an interim action, not a long-term solution. Other remedial options (i.e., pump and treat) need to be piloted at Camp Grayling for analysis in a feasibility study. Pump and treat options are a feasible option.

The deficiencies in this document should not be treated as an exhaustive list. Despite the deficiencies listed in this document, ARNG expects to reach the Risk Assessment and Feasibility Study phases of investigation at GAAF. This is unacceptable given the number of data gaps and additional RI needed. It appears that ARNG's goal is to minimize investigation scope and move quickly to a Record of Decision. EGLE expects further investigation while interim remedial measures are implemented to protect public health & the environment.

EGLE Gaylord RRD does not support the expansion of Camp Grayling based upon the inability to take timely action to investigate, mitigate, and remediate significant areas of contamination at Camp Grayling. It is EGLE Gaylord RRD's recommendation to the Michigan DNR not to accept an expansion of Camp Grayling until significant progress and timely action is taken.

If the Army National Guard wishes to meet or has questions regarding this letter, please contact the Project Manager, Christiaan Bon, at 989-370-9624 or via email at BonC@michigan.gov; or you may contact me at the telephone number listed below.

Sincerely,



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Remediation and Redevelopment Division
Gaylord District Office
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Enclosure (Figures)

cc: Col. Scot Meyers, Camp Grayling JMTC Commander
Michael Price, DMVA
Jonathan Edgerly, DMVA
Abigail Hendershott, MPART
Mike Jury, MPART
Tammy Newcomb, DNR
Mary Miller, EGLE
Amy Peterson, MPART
Lisa Kruse, EGLE

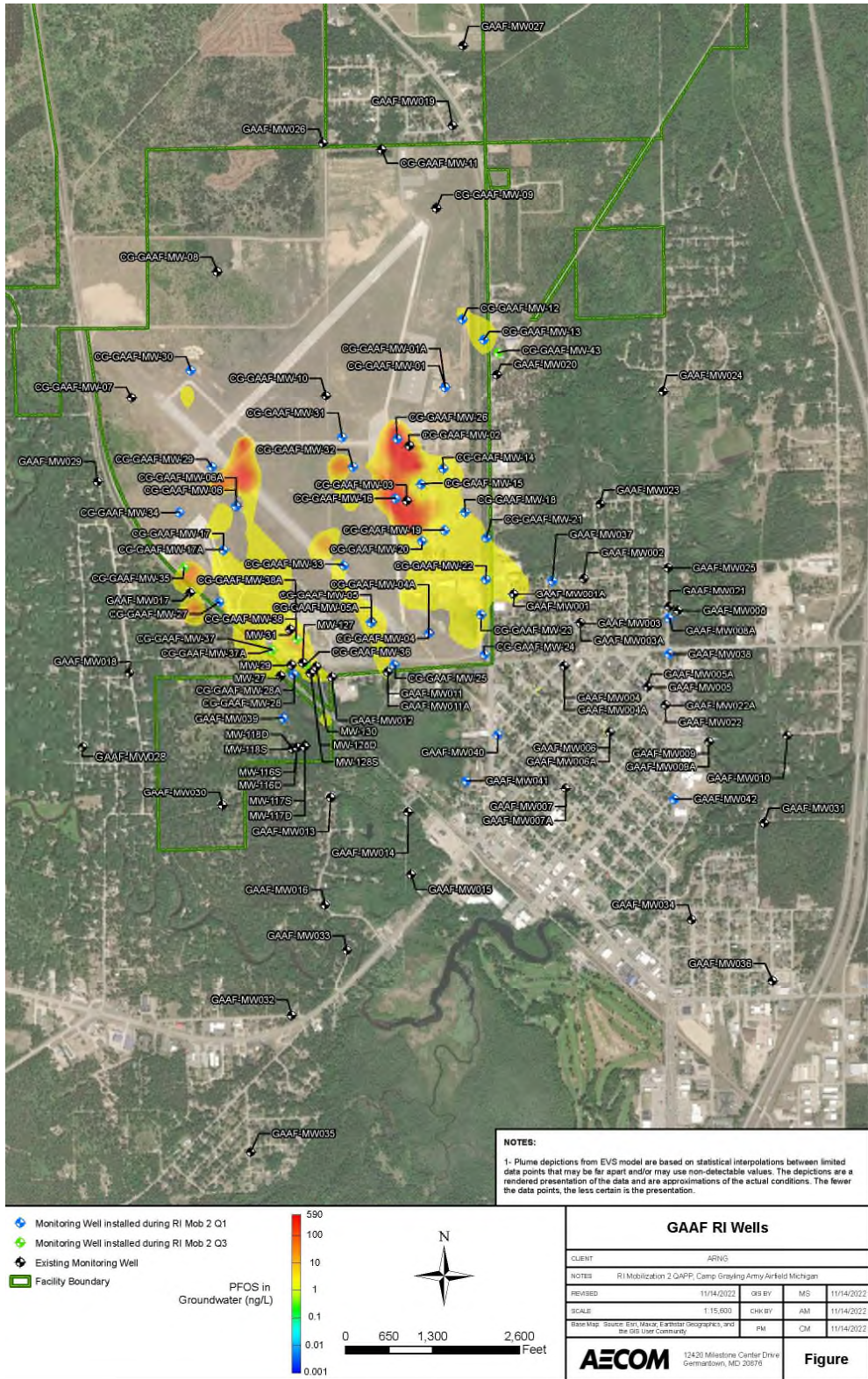


Figure 1: ARNG public-facing figure showing PFOS detection extent approximation. PFOS concentrations in groundwater have been detected at least an order of magnitude higher than the highest PFOS concentration in the legend. PFOS detections have been found well outside of the yellow shading by ARNG and EGLE. EGLE discussed with ARNG that the interpolation method was inaccurate in 2021.

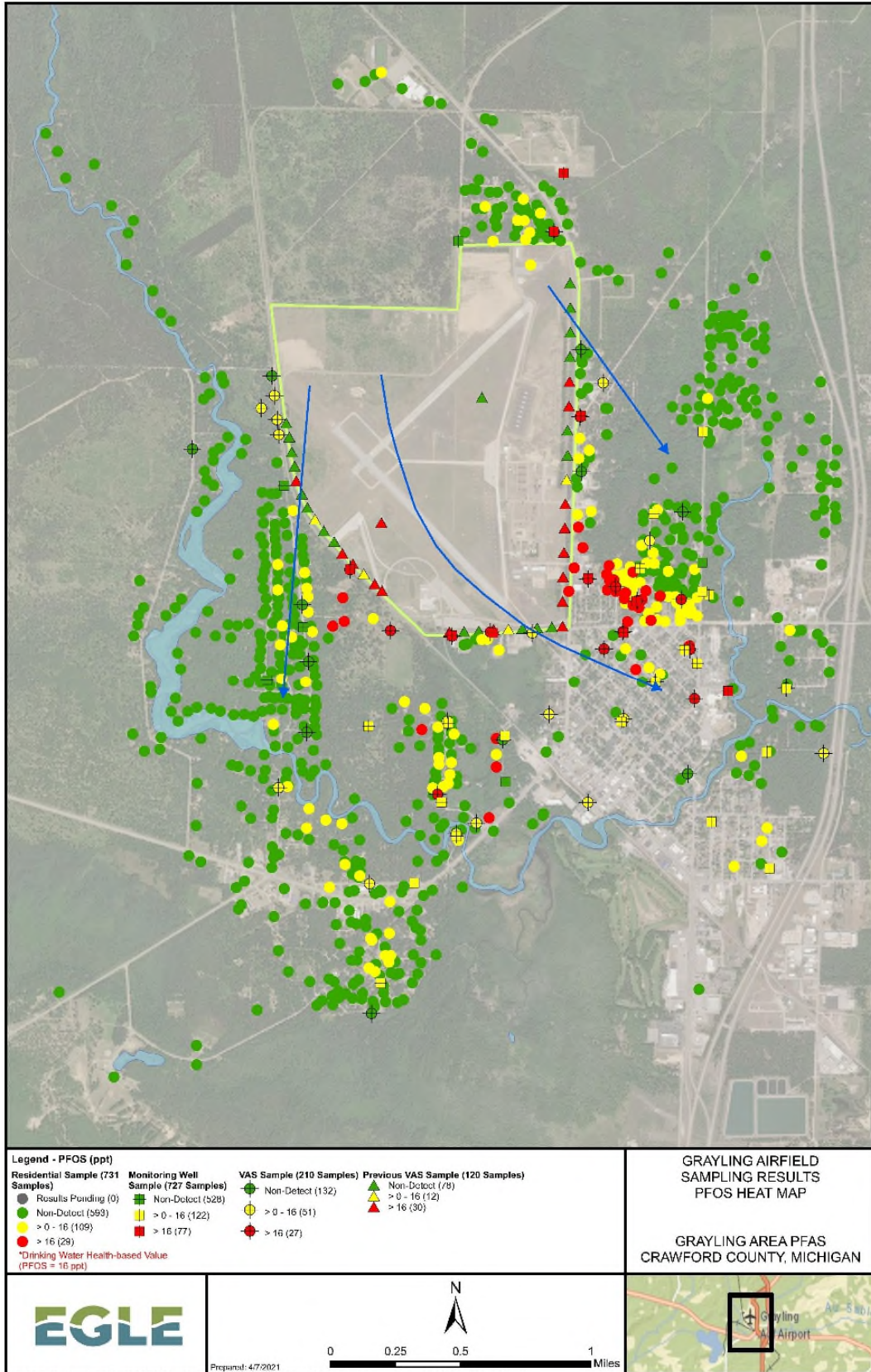


Figure 2: EGLE data shared with ARNG showing PFOS detections (yellow) well outside ARNG area of detections approximation.

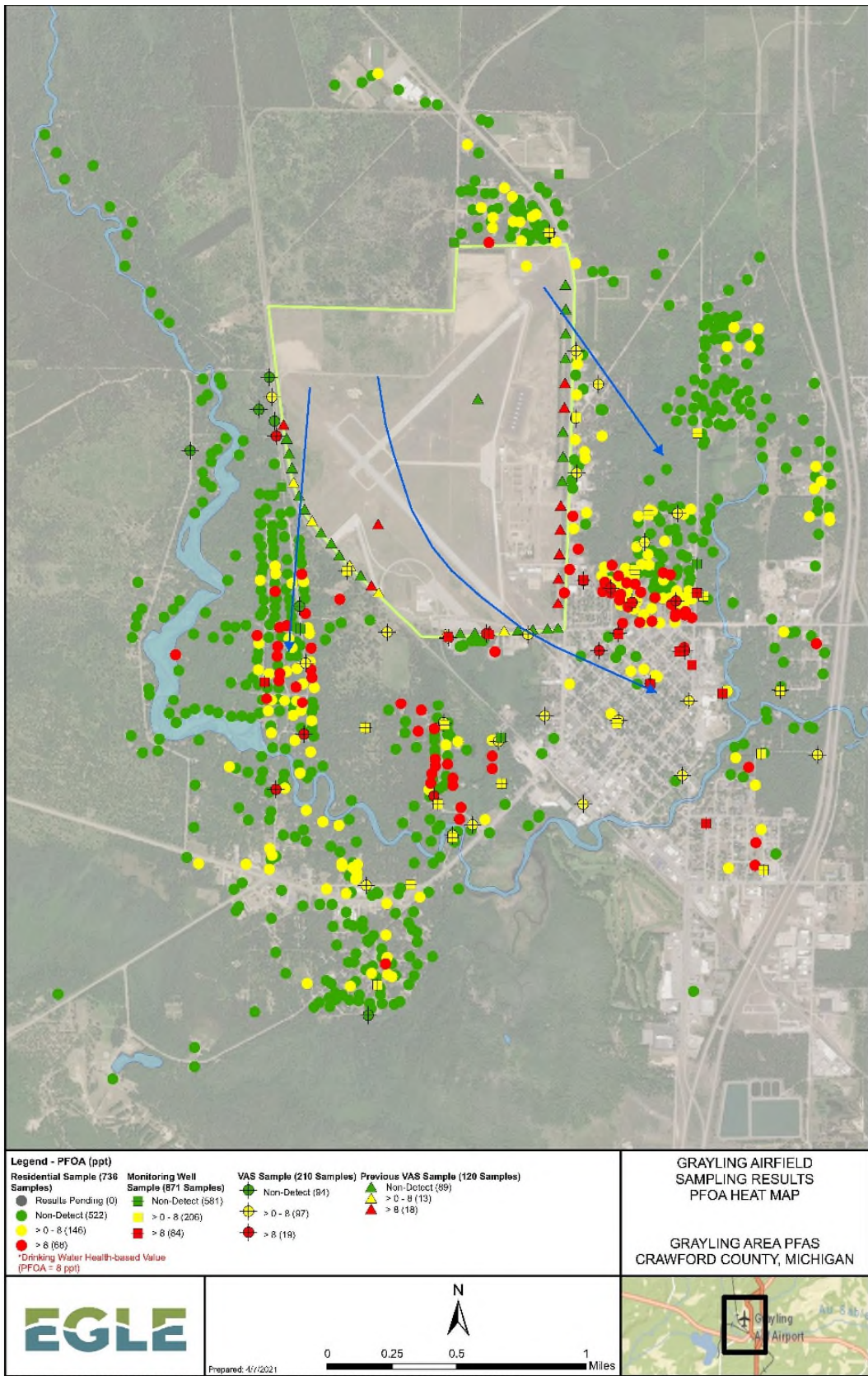


Figure 3: EGLE data shared with ARNG showing PFOA impact.

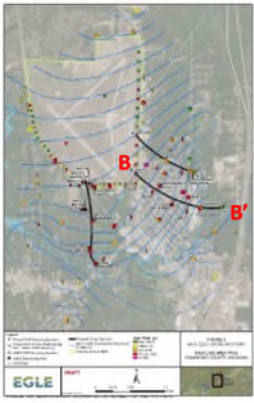
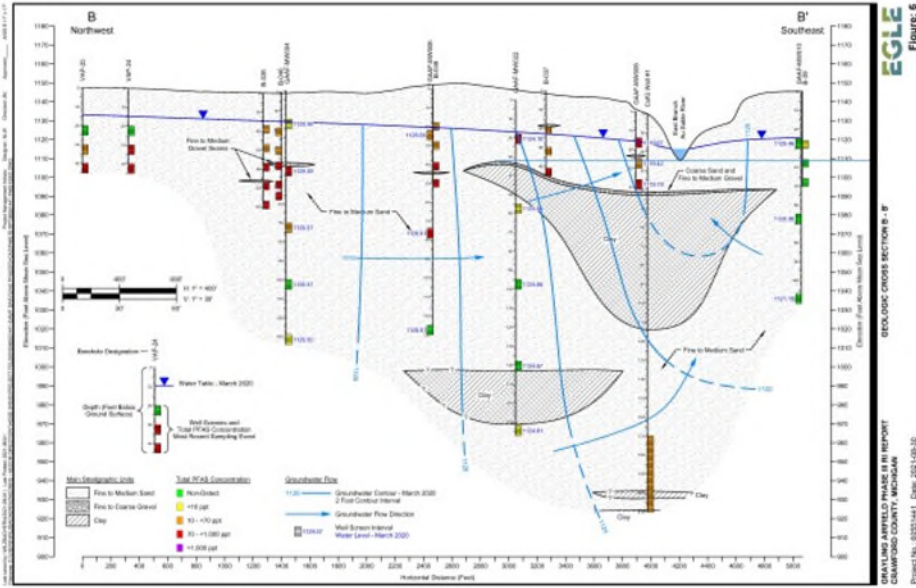


Figure 4: Cross section of total PFAS impacts downgradient of Camp Grayling. PFAS has been transported to depth and affecting City of Grayling well. ARNG is not routinely sampling the City of Grayling well. Additionally, high PFAS levels have the potential for discharge to the Au Sable River. Currently, wells do not exist at all areas where points of compliance for the Groundwater Surface Water Interface need to be established.

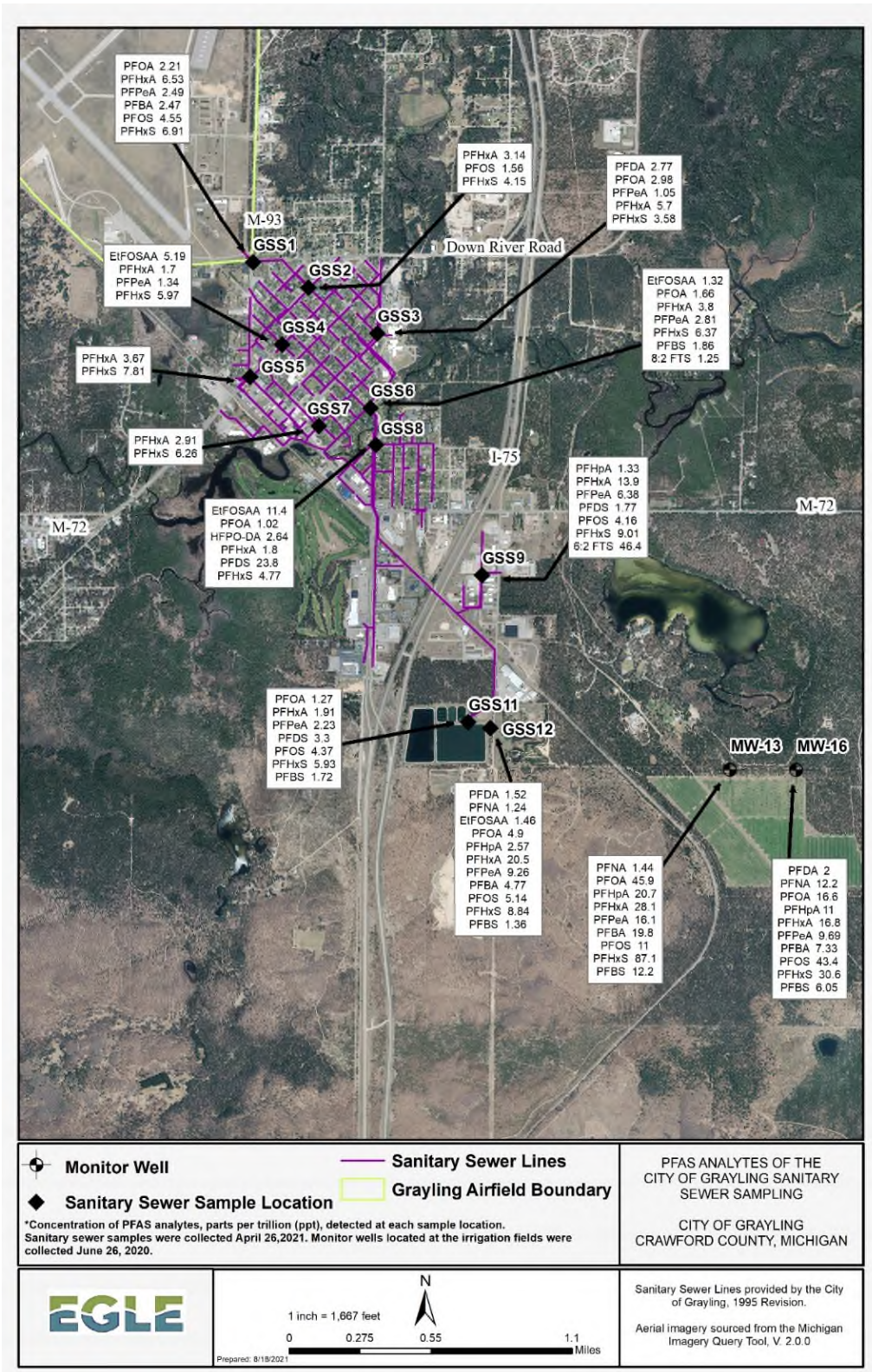


Figure 5: PFAS found in City of Grayling sanitary sewers during a period of time of low infiltration potential. Higher potential for infiltration during wet periods of time are likely (higher sewer discharge seen during rainfall events by Grayling DPW). ANRG has not completed a preferential flow study despite similar PFAS found in sewer samples as surrounding aquifer much of the sewer straddling the water table at areas of impacted water. Note that GSS9 is the only sample that is likely another source in the Grayling Industrial Park. Coincidentally, this source is contracted to work on ARNG firetrucks.



Legend

Porewater Samples - Total PFAS

- Non-Detect
- < 10 - 10 ppt
- < 10 - 50 ppt
- < 50 - 100 ppt
- < 100 - 200 ppt
- < 200 ppt

Figure 6: Areas of Total PFAS discharge to Lake Margrethe that go unmitigated and unmonitored by ARNG. All discharges correspond to ARNG AOIs. Exceedances of surface water values are seen in areas of highest total PFAS concentrations.

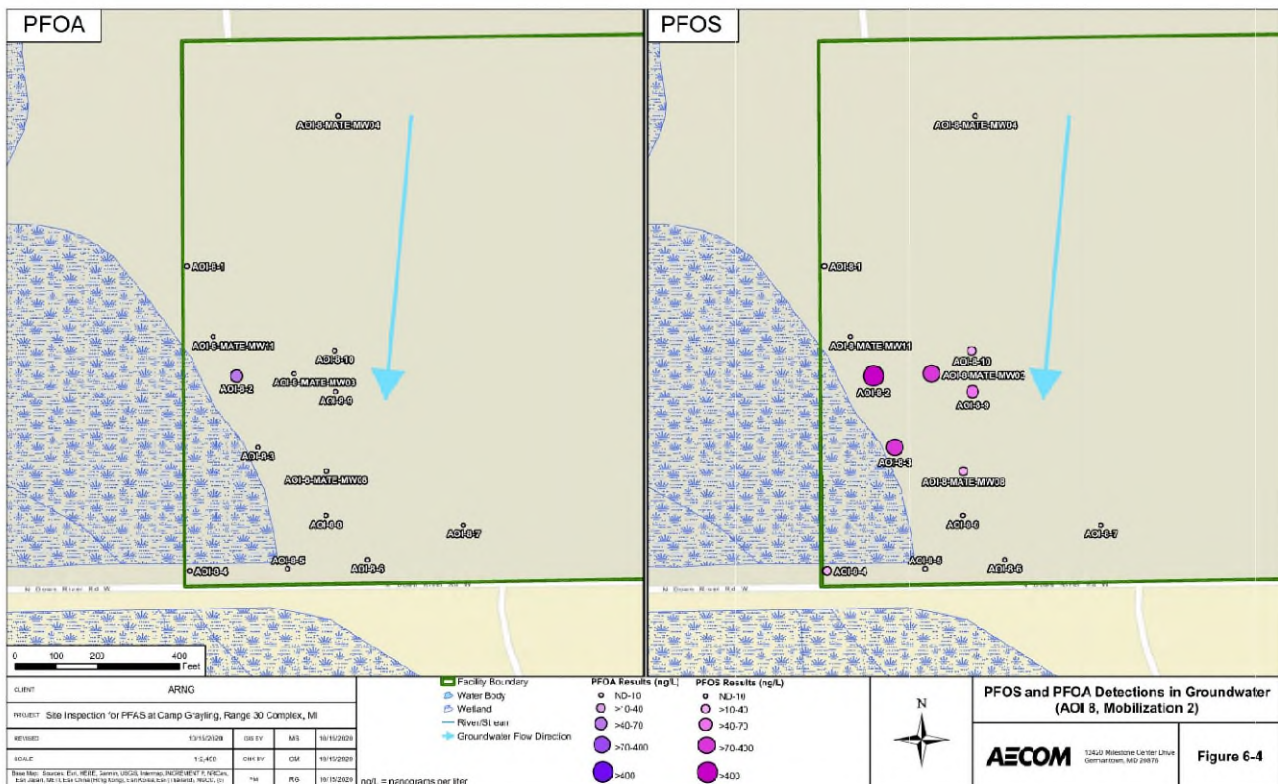


Figure 7: PFOA and PFOS impacts in groundwater at MATES. PFOS has been detected in groundwater up to 7810 ppt. Impacts to the downgradient wetlands are not assessed. The SI investigation did not include the MATES buildings where PFAS impacts likely originated.