

August 5, 2021
September 10, 2021 Revision

Ms. Alyssa Sellwood, P.E.
Complex Sites Project Manager, Remediation and Redevelopment Program
Wisconsin Department of Natural Resources
101 South Webster Street
Box 7921
Madison, WI 53707-7921

**Subject: Tyco Fire Technology Center
Groundwater Extraction and Treatment System
REVISED - Interim Remedial Action Materials Management Plan
WDNR BRRTS No. 02-38-580694**

Dear Ms. Sellwood:

SUMMARY

The purpose of this Materials Management Plan (MMP) is to provide a plan for properly managing potentially impacted personal protective equipment, soil, and water generated during construction of the groundwater extraction and treatment system (GETS) interim remedial action at the Tyco Fire Products LP (Tyco) Fire Technology Center (FTC) in Marinette, Wisconsin. This MMP will be implemented by contractors and subcontractors disturbing, generating and handling soil, generating and handling water, and using disposable personal protective equipment (PPE).

Per- and polyfluoroalkyl substances (PFAS) are the primary constituents of concern in soil, and PFAS and volatile organic compounds (VOCs) are the primary constituents of concern in the groundwater.

SOIL MANAGEMENT

This MMP will be implemented during all soil disturbing and handling activities during construction of the GETS including, but not limited to, open excavation work, groundwater extraction well installation, and treatment building and access road area grading. Soil disturbance activities will be conducted in such a manner that limits:

- size and period of open excavation;
- size and period of exposed soil in stockpiles;
- storm water runoff into and from soil disturbance areas;
- runoff of water from point of generation temporary management areas/stockpiles;

- contact water generation;
- tracking of soil;
- dust generation; and
- potential for cross-contamination (refer to FTC Property Soil Stockpile Management section).

SOIL CHARACTERIZATION

Soil samples will be collected before disturbing the soil to determine PFAS concentrations at the following locations:

- Extraction well vaults
- Horizontal directional drilling vaults
- GETS building area

Two samples will be collected from each location. One sample will be collected from unsaturated soil within one foot of the ground surface; the second sample will be collected from the saturated material at the approximate maximum depth of the vault (estimated at five feet below ground surface).

The samples will be submitted to Eurofins Test America for analysis of PFAS in accordance with the Quality Assurance Project Plan (QAPP) for the GETS project. Data from the soil samples will be compared to the soil to groundwater pathway Site-Specific Residual Contaminant Limits (SSRCLs) developed for perfluorooctane sulfonate (PFOS; 0.9 micrograms per kilogram (ug/kg)) and perfluorooctanoic acid (PFOA; 5.0 ug/kg) to determine whether the soil may be reused at the Tyco FTC property.

OPEN EXCAVATION WORK

Open excavation work will generally include, but is not limited to, horizontal directional drilling (HDD) entry/exit vaults for GETS piping installation, open trench excavations for GETS conveyance piping, and extraction well vault and piping connection vault installation. Soil will be managed consistent with Wisconsin Administrative Code Chapter NR 718, the procedures described in the “Soil Characterization” section and based on the pre-excavation characterization soil data.

In general, soil will be reused as backfill material at the point of generation regardless of whether the PFOA and PFOS concentrations are above the soil to groundwater pathway SSRCL. Excess soil that cannot be used as backfill and has PFOS and PFOA concentrations below the SSRCLs may be either reused as landscaping material on the Tyco FTC property or managed in stockpiles

at the Tyco FTC property until it is disposed off-site. Soil exceeding either the PFOA or PFOS SSRCL will be managed in stockpiles at the Tyco FTC property until disposed off-site.

Based on analytical data, saturated and unsaturated soil may be separated/segregated and managed differently during site activities. For example, if unsaturated soil has PFOS and PFOA concentrations less than the SSRCLs and saturated soil has concentrations greater than the SSRCLs, the unsaturated material will be used as backfill and the saturated material will be disposed off-site.

More specifically, soil generated from open excavation areas will be beneficially reused at the point of generation to the extent feasible. Generated soil designated for reuse will be managed temporarily near the point of generation in a manner that prevents erosion and runoff in accordance with the project Stormwater Pollution Prevention Plan (SWPPP). Proper management will include placing the soil upon and covering with plastic sheeting, placing in a lined and covered roll-off box, or other method as approved by the supervising Engineer. Soil piles will be constructed in such a way as to minimize free water accumulation. Any free water that accumulates in lined stockpiles or roll-off boxes will be collected and managed consistent with other generated water (refer to Water Management section). Soil generated during open excavations will be used to backfill the excavations. Excess soil that is unable to be reused at the point of generation will be loaded onto trucks, transported to, and managed in segregated stockpiles or roll-offs in a designated area on the FTC property.

The estimated volumes of soil that will be generated during open excavation work include:

- Reused as backfill at the point of generation – approximately 420 cubic yards
- Managed in temporary stockpiles or roll-off boxes on FTC property – approximately 650 cubic yards

The excess soil temporarily managed on the FTC property may be beneficially reused on the FTC property, or transported off-site for disposal based on the pre-excavation characterization data.

EXTRACTION WELL INSTALLATION

Soil generated from the extraction well installation (borehole cuttings) will be direct loaded onto trucks or water-tight roll-off boxes, transported to, and managed in segregated stockpiles or water-tight roll-off boxes in a designated area on the FTC property. The soil generated during extraction well installation will be properly characterized for off-site disposal.

The estimated volumes of soil that will be generated during extraction well installation include:

- Reused at point of generation – 0 cubic yards
- Managed in temporary stockpiles or roll-off boxes on FTC property – approximately 20 cubic yards

GETS TREATMENT BUILDING AND ACCESS ROAD AREA GRADING

Soil that is disturbed/generated by grading of the treatment building and access road areas will be reused for grading or landscaping (i.e., used to create berms) purposes near the point of generation. The materials used for grading and landscaping purposes will be revegetated to match existing conditions and reduce erosion.

The estimated volumes of soil that will be reused at the GETS treatment building and access road grading areas include:

- Reused at point of generation
 - GETS treatment building – approximately 900 cubic yards
 - Access road – approximately 0 cubic yards
- Managed in temporary stockpiles or roll-off boxes on FTC property – 0 cubic yards

UNEXPECTED SUBSURFACE CONDITIONS

Soil-disturbing activities will immediately cease upon the discovery of unexpected subsurface conditions including, but not limited to, the following:

- Stained or discolored soil;
- significant odor;
- drums, underground storage tanks, piping, sumps, etc.;
- suspect regulated materials (e.g. suspect asbestos containing debris); and/or.
- significant uncharted utilities or subsurface obstructions/features.

FTC PROPERTY SOIL STOCKPILE MANAGEMENT

Soil transported to and stockpiled on the FTC property will be placed upon and covered with secured plastic-sheeting or in roll-offs at the location shown on **Figure 1**. Soil generated from each discrete location, such as exit/entry vaults, will be managed in a discrete, separate stockpiles. Common stockpiles will be segregated in a manner that prevents comingling with adjacent common stockpiles. Each stockpile will be properly labeled with the source location(s) and date(s) of generation.

If soil is in wet condition, with the potential to generate significant free water, the soil will be placed in roll-off boxes or managed in another consistent manner, as approved by the supervising Engineer, to prevent free-water runoff.

The stockpiled soil may be beneficially reused on the FTC property, or transported off-site for disposal based on pre-excavation characterization data. If the soil designated for disposal remains on the FTC property for 90 days or more, Tyco will notify the Wisconsin Department of Natural

Resources (WDNR) in writing in accordance with Wisconsin Administrative Code Chapter NR 718.

Temporarily stockpiled soil designated for reuse on the FTC property will be used for grading and landscaping purposes near the GETS treatment building. The soil will be used to create berms or general grading purposes. The soil will be revegetated. The area near the GETS treatment building meets the criteria described in Wisconsin Administrative Code Chapter NR 718(1)(c) for reuse of soil on-site. Specifically, the reuse location area meets the following criteria:

- Is not within a floodplain;
- Is not within 100 feet of a wetland or critical habitat area;
- Is not within 300 feet of a navigable river, stream, lake, pond, or flowage;
- Is not within 3 feet of the high groundwater table (data from nearby monitoring wells indicates the high groundwater table is approximately 4 to 5 feet below the ground surface);
- The soil will be used for grading or to create berms or other aboveground landscape features; therefore, it will not be reused at depths greater than the excavations where generated; and,
- The reused soil will be characterized prior to being excavated at the point of generation to demonstrate it does not pose a threat to public health, safety, or welfare or the environment.

Finally, in accordance with Wisconsin Administrative Code Chapter NR 726.13(1)(b) 1 through 5, reuse of the soil will not prohibit the WDNR from authorizing case closure. Analytical data collected during soil characterization will be used to demonstrate that reuse of the soil will not do any of the following:

- Pose a threat to public health, safety, or welfare or the environment;
- Cause a violation of a groundwater quality enforcement standard at the point of reuse;
- Cause a violation of surface water quality standards;
- Cause a violation of air quality standards; or,
- Cause a vapor action level in indoor air to be attained or exceeded.

Soil designated for off-site disposal will be transported by a licensed transporter in accordance with Federal, State, and local marking, labeling, placarding, and manifesting requirements, and treated or disposed at a facility licensed to accept the material.

WATER CHARACTERIZATION

Groundwater samples will be collected before excavation activities begin to determine PFAS concentrations at the following locations:

- Extraction well vaults

- Horizontal directional drilling vaults

The groundwater samples will be collected from the deeper of the following:

- Either one foot beneath the groundwater table, or
- Five feet below ground surface (approximate depth of the bottom of the vaults)

The samples will be submitted to Eurofins Test America for analysis of PFAS in accordance with the Quality Assurance Project Plan (QAPP) for the GETS project.

Data from the groundwater samples will be used to document the near surface, shallow groundwater quality and will be used in determining how to manage water generated during GETS construction activities. Water at vault locations that has a pre-excavation combined PFOS and PFOA concentration less than 20 nanograms per liter (ng/L) will be discharged directly to Ditch B. Water that exceeds 20 ng/L will be stored in frac tanks for treatment in either the existing Ditch A treatment system, the GETS once constructed, or a portable treatment system that will discharge to either Ditch A or Ditch B. The water will be treated to meet or exceed the limits defined in the Wisconsin Pollution Discharge Elimination System (WPDES) permit associated with the treatment system selected to manage the water generated during construction activities. Tyco or its designee will request the WDNR approve the selected treatment method prior to treating water derived during construction activities.

WATER MANAGEMENT DURING CONSTRUCTION

Water generation during construction activities will be minimized to the extent feasible. Water generated during construction activities (i.e., open excavation dewatering for vaults) with combined PFOA and PFOS concentrations less than 20 ng/L in the pre-excavation samples will be discharged directly to Ditch B.

Water generated during construction activities that may include open excavation dewatering for vaults, extraction well and piezometer installation, development, and aquifer testing will be directly pumped into tanker trucks at each point of generation. The tanker trucks will transfer the water to heated frac tanks placed on the FTC property. The estimated volume of water that will be generated could approach 1,000,000 gallons. Water that exceeds 20 ng/L will be stored in frac tanks for treatment in either the existing Ditch A treatment system, the GETS once constructed, or a portable treatment system that will discharge to either Ditch A or Ditch B. The water will be treated to meet or exceed the limits defined in the WPDES permit associated with the treatment system selected to manage the water generated during construction activities. Tyco or its designee will request the

WDNR approve the selected treatment method prior to treating water derived during construction activities.

Water in the frac tanks may be stored on the FTC property for an extended period due to the selected treatment system capacity. Although not required under Wisconsin Administrative Code Chapter NR 718, if the water remains in the frac tanks on the FTC property for 90 days or more, Tyco will notify the WDNR as a courtesy.

Construction equipment in contact with potentially impacted soil or groundwater will be cleaned on decontamination pads. The decontamination pads will be constructed with berms and a liner to contain the wash water. Decontamination-generated wash water will be routinely removed from the pad and transferred to the frac tanks on the FTC property.

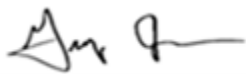
Each frac tank will be cleaned after the water is transferred to the GETS. Solids that settle in the frac tanks will be removed, placed in water-tight roll-off boxes, characterized, and transported off-site for disposal. The frac tanks will be cleaned using potable water from a PFAS-free source. Water generated during the frac tank cleaning activities will be incorporated into the construction water treatment system for treatment.

PERSONAL PROTECTIVE EQUIPMENT AND GENERAL DEBRIS MANAGEMENT

Personal protective equipment (PPE) and general debris will be managed as general solid waste. The material will be placed in plastic garbage bags and stored in a roll-off box designated as PPE and debris management specific to the GETS construction project. The PPE and debris will be disposed at a local disposal facility licensed to accept general solid waste.

NR 712 CERTIFICATION

I, Greg Johnson, hereby certify that I am a registered professional engineer in the State of Wisconsin, registered in accordance with the requirements of ch. [A-E 4](#), Wis. Adm. Code; that this document has been prepared in accordance with the Rules of Professional Conduct in ch. [A-E 8](#), Wis. Adm. Code; and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. [NR 700](#) to [726](#), Wis. Adm. Code.



Greg Johnson, P.H., P.G., P.E. (WI)
Senior Engineer

P.E.# 29898-006



Materials Management Plan
August 5, 2021
September 10, 2021 Revision
Page 8

Geosyntec requests the WDNR review and approve this plan. Please call (414.918.7481) or e-mail (jtracy@geosyntec.com) me with any questions or if you wish to discuss.

Regards,

A handwritten signature in black ink, appearing to read "Jeff Tracy". The signature is fluid and cursive, with the first name "Jeff" and last name "Tracy" clearly distinguishable.

Jeff Tracy, P.G. (WI)
Senior Geologist

Attachment

cc: Jeff Danko, Tyco Fire Products, LP
Scott Wahl, Tyco Fire Products LP



LEGEND:

- DITCH
- SOIL STOCKPILE LOCATION



NOTES:

1. IMAGERY SOURCE: 4/27/2016, DIGITALGLOBE, VIVID - USA.
2. FTC: Fire Technology Center.
3. OTA: Outdoor testing/training area.



| | |
|---|--------------------|
| TYCO FIRE TECHNOLOGY CENTER MARINETTE, WISCONSIN | |
| Soil Stockpile Location | |
|  | FIGURE 1 |
| MILWAUKEE, WISCONSIN | MAY 2021 |