



**WISCONSIN AIR NATIONAL GUARD
HEADQUARTERS 115TH FIGHTER WING (ACC) (ANG)
3110 MITCHELL STREET
MADISON WISCONSIN 53704-2529**

3 December 2020

MEMORANDUM FOR WISCONSIN DEPARTMENT OF NATURAL RESOURCES

FROM: 115 CES/CC

SUBJECT: XGFG189001 F-35 Construct Simulator at Truax – Materials Management Plan

1. Pursuant to Wisconsin Administrative Code NR 700 a materials management plan is required for materials that could/will be removed that contain contaminants of concern. On 20 February 2020, Mr. Michael Schmoller of the WI DNR provided to the 115 FW a Site Characterization Sampling Plan for contaminated material management purposes for the subject project. This Site Characterization Sampling Plan is included as Attachment 1. This memorandum serves as the material management plan that the 115 FW plans to follow while constructing the subject project. This material management plan will detail plans for water and soil that have the potential to contain contaminants of concern.

2. Within Attachment 1, the WI DNR requested that soil and water samples be taken at 10 locations (shown in Attachment 1) with each sample location providing two (2) discrete soil samples. One of these would occur at a boring depth of 1-2' below ground surface (BGS) and the other occurring 1' above the water table. Additionally, the sampling plan required a groundwater sample at each of the 10 locations. For analysis, it was requested that all samples be analyzed at a WI DNR approved lab for VOC's as well as a 36 component list of PFAS compounds. The results of this analysis are included as Attachment 2, Truax Sampling Report dated 5 June 2020. Within Attachment 2, a summary of sample locations is found on PDF page 3 with a summary of results is found on PDF page 4 (of 202 pages).

3. Perfluorinated compounds are emerging contaminants as is evidence by the Unregulated Contaminant Monitoring Rule (UCMR) 3 which was published by the EPA in 2012. To date, the State of Wisconsin and the U.S. EPA have not established Maximum Contaminant Levels (MCL) for groundwater for any perfluorinated compound. Historically, PFOS and PFOA are the primary contaminants of concern. In July 2019 a Statement of Scope was developed by the WI DNR to research amending NR 105 to include PFOS and PFOA water quality standards.

4. **Perfluorinated Containing Soil** - Air Force guidance for soils and sediments determined using the USEPA Regional Screening Level calculator that a PFOS or PFOA level of 1,260 µg/kg was an acceptable level of exposure. This was based upon a Tier 3 reference dose of 0.00002 mg/kg-day. In accordance with NR 720.12 (3) (a) 2. a. an incidental ingestion of soil shall be assumed to occur at the rate of 100 mg of soil per day for a 70 kg adult for 250 days/year. This corresponds to a rate of 1.428 mg/kg-day (1,428,571 ppt) which is greater than the reference dose (0.00002 mg/kg-day) that the Air Force used in determining an acceptable

level of exposure. Therefore, it is the opinion that the AF guidance for soils and sediments for PFOS or PFOA (individually) threshold of 1,260 µg/kg (1,260,000 ppt) is a higher level of protection of human health from direct contact with contaminated soil than that found in NR 700 and plans to use this threshold for management actions concerning soil.

5. Perfluorinated Soil Results – First, all soil excavated and removed as a condition of this project to allow for the installation of foundations, utilities, grading, etc. will all be removed and placed in an appropriate landfill. Over-excavation backfill will be accomplished using existing soils that were removed. However, all excess material will be landfilled and not allowed to be sold/used on other construction sites. This will alleviate all potential for a human health hazard from direct contact after construction is complete or transportation of these trace amounts of perfluorinated compounds to other construction sites. Additionally, the construction site will be seeded at the end of construction. A review of Attachment 2 shows that for all ten sample locations at both sample depths (20 samples in all), only 3 of the 10 sample points (5 samples total) had any concentration of any perfluorinated compounds. These are detailed below.

Pt 1 – Soil @ GW – PFOS – 0.463 ng/g = 463 ppt
Pt 6 – Soil @ 1-2' – PFOS – 0.446 ng/g = 446 ppt
Pt 6 – Soil @ GW – PFOS – 1.15 ng/g = 1,150 ppt
Pt 8 – Soil @ 1-2' – PFOS – 0.518 ng/g = 518 ppt
Pt 8 – Soil @ GW – PFOS – 0.826 ng/g = 826 ppt

Given these results, the Air Force does not intend to provide for any treatment of soils for PFOS contamination as the levels dictated by NR 700 and U.S. Air Force guidance are significantly higher (~1100 times more) than what has been found on this site. As such, soil from the subject project will be considered “clean” and NR 700 does not apply to this site for soils since they do not pose a direct contact health hazard

6. Perfluorinated Containing Water – Wisconsin Department of Health Services has sent to the WI DNR a recommended groundwater standard of 20 ppt for PFOS and PFOA individually and combined. The EPA does not have drinking water standards for any PFAS, but does have a health advisory level of 70 ppt for combined levels of PFOA and PFOS. The health advisory is not a maximum contaminant level, but rather a level determined to be safe for human consumption. Both the EPA health advisory level and the recommended DHS groundwater standard are set at a level to protect people, including sensitive populations like people who are pregnant and babies, from health effects associated with PFOA and PFOS exposures. In the absence of promulgated regulations (i.e. changes to WI NR 105 as planned through the Statement of Scope submitted by the WI DNR in July 2019), the USAF has defaulted to the EPA health advisory level of 70 ppt for combined levels of PFOS and PFOA, in drinking water, as preliminary remediation goal prior to discharge.

7. Perfluorinated Water Results – For the subject project site, dewatering of the project is not anticipated to be required based upon site investigation, boring logs, PFOS testing, and project drawings. There does remain the potential that dewatering could become necessary while installing utilities to the site. A review of Attachment 2 shows that for all ten sample locations at groundwater indicate up to 13 different perfluorinated compounds (of the 36 sampled) exist in varying amounts across the site. Specifically to the largest contributors and most likely to be regulated in the future, PFOS and PFOA, amounts ranged from 9.17 ng/L (9,170 ppt) to 271

ng/L (271,000 ppt) (average 702.67 ng/L or 702,670 ppt) and ND to 7.90 ng/L (7,900 ppt) (average 2.752 ng/L or 2,752 ppt) respectively. Sample point 6 was the highest for PFOS at 271 ng/L (271,000 ppt) being approximately twice as high as the next highest amount and four times higher than the average concentration found.

Given these results and per conversations with the WI DNR, Mr. Steve Ales, the WPDES Permit No. WI-0049344-05-0 which covers general dewatering operations would not apply since the results of PFOS sampling contain a level of perfluorinated compounds above the recommended WI DHS standard of 20 ppt or the US EPA health advisory amount of 70 ppt. However, under WI NR 200.03 a permit would not be required if the groundwater percolating into the construction site was not removed from the area in which it was found during construction (ie – built around the water). As such, given the level of the water table and known construction elevations, a dewatering permit to allow discharge of PFOS containing water will not be obtained. If during construction it becomes clear that constructing around the infiltrating groundwater, the water will be removed, placed in a container and not discharged until either a) a proper WPDES dewatering permit can be obtained or b) is allowed to be discharged to the Madison Metropolitan Sewer District (in which case WI NR 200.03 (3) (a) would apply). The WPDES permit would then delineate the concentration upon which a discharge to waters of the state would be allowed.

8. Volatile Organic Compounds (VOC's) - Per the site characterization management plan delineated by the WI DNR (Attachment 1), VOC's were required to be analyzed across all 10 sampling locations. A review of NR 140.10 Table 1 provides the Enforcement Standard (ES) as well as the Preventative Action Limit (PAL) for all public health groundwater quality standards. Although any water removed from the site would not be used for drinking water, nor is the site in close proximity to any drinking water wells that use groundwater, this provides a good “starting point” for determining if treatment for VOC's would be warranted prior to discharge if dewatering were to become necessary.

9. Volatile Organic Compound (VOC) Results – Of the soil and water VOC tests that were conducted, VOC's were only found to be present within the groundwater. The specific results are within Attachment 2, PDF page 4, but only four VOC's were found to be present. These are Toluene, Acetone, 1,4 Dichlorobenzene, and Tetrachloroethene (Tetrachloroethylene). In accordance w/ NR140.10 Table 1, the following ES and PAL's for those four chemicals are:

| | ES | PAL | Largest Value Detected |
|---------------------|----------|----------|-------------------------|
| Acetone | 9 mg/L | 1.8 mg/L | 5.2 µg/L |
| 1,4 Dichlorobenzene | 75 µg/L | 15 µg/L | 0.4 µg/L |
| Toluene | 800 µg/L | 160 µg/L | 0.62 µg/L |
| Tetrachloroethylene | 5 µg/L | 0.5 µg/L | 0.69 µg/L (exceeds PAL) |

As is evidence by the above abbreviated table as well as page 4 of Attachment 2, no VOC's exceeded the enforcement standard and only Tetrachloroethylene exceeded the preventative action limit. This exceedance of the PAL is found at only at sample point 9 and no other location. Given these extremely low VOC results, the 115 FW does not intend to treat for VOC's prior to discharging water (assuming dewatering is required and that PFOS contamination is already addressed).

10. As such, the above and attached is presented as the 115th Fighter Wing's approach to material management with respect to F-35 construction project: XGFG189001 F-35 Construct Simulator at Truax. Below you will find an endorsement block for the Wisconsin DNR to concur/non-concur with the plan as stated herein. If you have any additional questions or request that corrections be made, please feel free to contact me at michael.dunlap@us.af.mil or 608-286-0010 at any time. Thank you in advance for your review of this material management plan.

MICHAEL J. DUNLAP, Lt Col, WI ANG
Commander, 115 Civil Engineer Squadron
Base Civil Engineer

Attachment:

1. Site Characterization Management Plan
2. Truax Sampling Report dated 5 June 2020

1st Ind, WI Department of Natural Resources

MEMORANDUM FOR 115 CES/CC

3 December 2020

WI Department of Natural Resources concurs with above material management plan for XGFG189001 F-35 Construct Simulator at Truax.

CHRISTINE HAAG
Director, Remediation and Redevelopment Program
Wisconsin Department of Natural Resources