

Sager, John E - DNR

From: Ealy, Eric J <Eric.J.Ealy@xcelenergy.com>
Sent: Monday, April 26, 2021 12:46 PM
To: Sager, John E - DNR; Scott Hansen
Cc: Eric Frauen - O&M, Inc. (); Berrington, Jeff J
Subject: Ashland NSP Lakefront - Groundwater Sampling Plan Modification April 2021
Attachments: Ashland NSP-Lakefront Requested Reduction - GW Sampling Frequency-April 2021.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Hi John and Scott,

As we have discussed previously, Xcel Energy-Wisconsin is proposing to modify the groundwater sampling parameters list and frequency now that the site is in long term OM&M. Please see attached proposed changes as recommended by O&M, Inc.

In summary, sampling frequency is to be reduced from three to two times per year (spring and fall) for most wells and once per year for the deep wells (fall). The parameter list will be reduced to those primary compounds found in the ROD groundwater COC list. The current expansive VOC, SVOC and metals list is not needed for long term plume monitoring when the main drivers are benzene and naphthalene and few PAHs.

With your concurrence to the modified frequency and parameter list, Xcel Energy will work with O&M, Inc. to revise the groundwater monitoring section of the site OM&M Plan (2020) and submit the updated version to EPA and DNR.

Spring sampling will be completed this week by April 30, according to the existing sampling plan. Fall sampling will be completed in October per the modified plan with your concurrence.

Please respond with concurrence, questions or comments.

Thank you,

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To: Eric Ealy **Date:** 3/8/2021
From: Eric T. Frauen, P.G. **cc:**
Re: Ashland/NSP Lakefront Site
Recommended Groundwater Sampling
Modifications

Starting in June 2013, the monitoring well network has been sampled 15 times, including three times per year beginning in 2016. Due to Cap construction activities, the EPA approved a temporary suspension of routine groundwater sampling in 2019. As a result, groundwater sampling was only conducted once during 2019. Three annual groundwater sampling events were completed in 2020.

The purpose of this technical memorandum is to request a reduction in groundwater sampling frequency, and to notify the regulatory agencies that groundwater sample analyses for long-term monitoring will be for the contaminants of concern (COC) list. Below is a summary of the justification for the reductions. A more detailed assessment of the data is presented in the Groundwater Monitoring Reports and the Long-Term Groundwater Monitoring Optimization Report.

- Although groundwater samples from many of the monitoring wells have COCs that remain above the site Cleanup Standards, the results of groundwater sampling are not generally relied upon to determine potential adjustments to the LTWTS. The results of the groundwater sampling are for long-term assessment, such as assuring the contaminants are not migrating and assessing progress toward achieving the final goals. Based on 15 rounds of groundwater sampling over 8 years and the small amount of change over the 8 years, groundwater sampling three times per year is no longer necessary to provide this type of long-term assessment. Any potential adjustments to the LTWTS are more dictated by maintaining an inward gradient/flow toward containment, maintaining a groundwater level at least 2.5 feet below the interim grade and maximizing NAPL removal. Hydraulic head in the monitoring wells are measured a minimum of three times per year and the groundwater level within the extraction wells is monitored at a minimum of weekly. Water levels in select Kreher Park monitoring wells are also measured to verify pumping water levels. As a result of a significant number of previous sampling efforts, analysis of that data and current extraction system operations and measurements, a reduced groundwater sampling and analysis program will be sufficient for long term monitoring of the site as discussed below.

- Sampling frequency of the Water Table (T-Wells), Miller Creek (C-Wells), Upper Copper Falls (U-Wells), and Middle Copper Falls (M-Wells) hydrostratigraphic units is recommended to be reduced to twice per year.
- With the exception of MW-45L, the Lower Copper Falls (L-Wells) remains unimpacted and generally meets the Sites Cleanup Standards after 15 rounds of sampling over 8 years. Annual sampling is recommended in the Lower Copper Falls wells to monitor for potential downward migration of the contaminants. It should be noted that the Middle Copper Falls (M-Wells) is primarily unimpacted and groundwater sampling in this unit would warn of any potential downward migration. Specifically, wells that are proposed to be sampled annually include MW-8L, MW-11L, MW-22L, MW-28L, MW-34L, MW-40L, MW-42L, MW-43L, MW-44L, MW-46L, MW-47L, MW-48L, and MW-49L. Since MW-45L does have COC impacts, it will continue to be sampled twice per year.
- Cost and data management benefits may be gained from optimizing the chemical analytical program. Prior to completion of the LTWTS and Cap, site conditions were considered potentially more variable and collection of additional data was prudent for water treatment chemistry purposes. As the water treatment and monitoring has moved beyond investigation and assessment to long-term monitoring, the need to analyze compounds, in addition to the COCs approved in the Record of Decision (ROD), is no longer necessary. It is recommended that the analyses for groundwater samples consist of the COCs approved in the ROD. The List of Final COCs in the approved ROD is attached. The attached Table lists the Current Analytes versus the COCs listed in the ROD.
- Other analytes used to gauge natural attenuation, including Nitrate+Nitrite and Sulfate, may be added to the sampling regime to establish baseline natural attenuation data.

A table with the current and recommended monitoring wells to be sampled, is attached.

Long-Term Monitoring Program Flexibility

The monitoring program recommendations described above are based on available data regarding current (and expected future) site conditions. Changing site conditions, such as changes in hydraulic (pumping-related) stresses brought on by remedial system operation, could affect contaminant fate and transport. Therefore, the monitoring program should be reviewed if site conditions change significantly and revised as necessary to adequately track changes in the magnitude and extent of COCs in groundwater over time.

List of Final COCs Identified by the HHRA and BERA

Surface Water	Groundwater	Sediment	Soil	Fish	Indoor Air
Benzo(a)anthracene	1-Methylnaphthalene	Antimony	1-Methylnaphthalene	1-Methylnaphthalene	1,2,4-Trimethylbenzene
Benzo(a)pyrene	2-Methylnaphthalene	Iron	2-Methylnaphthalene	Benzo(a)anthracene	1,4-Dichlorobenzene
Benzo(b)fluoranthene	Acenaphthene	Manganese	Acenaphthene	Benzo(a)pyrene	Benzene
Benzo(k)fluoranthene	Benzo(a)anthracene	Vanadium	Benzo(a)anthracene	Benzo(e)pyrene	Carbon tetrachloride
Chrysene	Benzo(a)pyrene	1-Methylnaphthalene	Benzo(a)pyrene	Benzo(b)fluoranthene	Trichloroethylene
Dibenzo(a,h)anthracene	Benzo(b)fluoranthene	2-Methylnaphthalene	Benzo(b)fluoranthene	Dibenzo(a,h)anthracene	
Indeno(1,2,3-cd)pyrene	Benzo(k)fluoranthene	Benzo(a)anthracene	Benzo(k)fluoranthene	Dibenzofuran	
	Chrysene	Benzo(a)pyrene	Chrysene		
	Dibenzo(a,h)anthracene	Benzo(b)fluoranthene	Dibenzo(a,h)anthracene		
	Dibenzofuran	Benzo(k)fluoranthene	Dibenzofuran		
	Fluoranthene	Indeno(1,2,3-cd)pyrene	Fluoranthene		
	Fluorene	Naphthalene	Fluorene		
	Indeno(1,2,3-cd)pyrene	Total PAHs	Indeno(1,2,3-cd)pyrene		
	Naphthalene	Dibenzofuran	Naphthalene		
	Phenanthrene	m-Cresol	Phenanthrene		
	Pyrene	o-Cresol	Pyrene		
	1,2,4-Trichlorobenzene	p-Cresol	1,2,4-Trichlorobenzene		
	1,2,4-Trimethylbenzene	1,2,4-Trimethylbenzene	1,2,4-Trimethylbenzene		
	1,3,5-Trimethylbenzene	1,3,5-Trimethylbenzene	1,3,5-Trimethylbenzene		
	Benzene	Benzene	Benzene		
	Ethylbenzene	Ethylbenzene	Ethylbenzene		
	Toluene	Toluene	Toluene		
	Total Xylenes	Total Xylenes	n-Butylbenzene		
		Arsenic	sec-Butylbenzene		
		Barium	Total Xylenes		
		Cadmium	Arsenic		

Xcel Ashland - LTWTS
Current vs. Proposed Analytes

VOCs

Current Analytes	Proposed Analytes
1,1,1,2-Tetrachloroethane	
1,1,1-Trichloroethane	
1,1,1,2-Tetrachloroethane	
1,1,2-Trichloroethane	
1,1-Dichloroethane	
1,1-Dichloroethene	
1,1-Dichloropropene	
1,2,3-Trichlorobenzene	
1,2,3-Trichloropropane	
1,2,4-Trichlorobenzene	1,2,4-Trichlorobenzene
1,2,4-Trimethylbenzene	1,2,4-Trimethylbenzene
1,2-Dibromo-3-Chloropropane	
1,2-Dibromoethane	
1,2-Dichlorobenzene	
1,2-Dichloroethane	
1,2-Dichloropropane	
1,3,5-Trimethylbenzene	1,3,5-Trimethylbenzene
1,3-Dichlorobenzene	
1,3-Dichloropropane	
1,4-Dichlorobenzene	
2,2-Dichloropropane	
2-Chlorotoluene	
4-Chlorotoluene	
Benzene	Benzene
Bromobenzene	
Bromochloromethane	
Bromodichloromethane	
Bromoform	
Bromomethane	
Carbon tetrachloride	
Chlorobenzene	
Chloroethane	
Chloroform	
Chloromethane	
cis-1,2-Dichloroethene	
cis-1,3-Dichloropropene	
Dibromochloromethane	
Dibromomethane	
Dichlorodifluoromethane	
Ethylbenzene	Ethylbenzene
Hexachlorobutadiene	
Isopropyl ether	
Isopropylbenzene	
Methyl tert-butyl ether	
Methylene Chloride	
n-Butylbenzene	
N-Propylbenzene	
p-Isopropyltoluene	
sec-Butylbenzene	
Styrene	
tert-Butylbenzene	
Tetrachloroethene	
Toluene	Toluene
trans-1,2-Dichloroethene	
trans-1,3-Dichloropropene	
Trichloroethene	
Trichlorofluoromethane	
Vinyl chloride	
Xylenes, Total	Xylenes, Total

SVOCs

Current Analytes	Proposed Analytes
1,2,4-Trichlorobenzene	
1,2-Dichlorobenzene	
1,3-Dichlorobenzene	
1,4-Dichlorobenzene	
1-Methylnaphthalene	1-Methylnaphthalene
2,2'-oxybis[1-chloropropane]	
2,4,5-Trichlorophenol	
2,4,6-Trichlorophenol	
2,4-Dichlorophenol	
2,4-Dimethylphenol	
2,4-Dinitrophenol	
2,4-Dinitrotoluene	
2,6-Dinitrotoluene	
2-Chloronaphthalene	
2-Chlorophenol	
2-Methylnaphthalene	2-Methylnaphthalene
2-Methylphenol	
2-Nitroaniline	
2-Nitrophenol	
3 & 4 Methylphenol	
3,3'-Dichlorobenzidine	
3-Nitroaniline	
4,6-Dinitro-2-methylphenol	
4-Bromophenyl phenyl ether	
4-Chloro-3-methylphenol	
4-Chloroaniline	
4-Chlorophenyl phenyl ether	
4-Nitroaniline	
4-Nitrophenol	
Acenaphthene	Acenaphthene
Acenaphthylene	
Anthracene	
Benzo[a]anthracene	Benzo[a]anthracene
Benzo[a]pyrene	Benzo[a]pyrene
Benzo[b]fluoranthene	Benzo[b]fluoranthene
Benzo[g,h,i]perylene	
Benzo[k]fluoranthene	Benzo[k]fluoranthene
Benzoic acid	
Benzyl alcohol	
Bis(2-chloroethoxy)methane	
Bis(2-chloroethyl)ether	
Bis(2-ethylhexyl) phthalate	
Butyl benzyl phthalate	
Carbazole	
Chrysene	Chrysene
Dibenz(a,h)anthracene	Dibenz(a,h)anthracene
Dibenzofuran	Dibenzofuran
Diethyl phthalate	
Dimethyl phthalate	
Di-n-butyl phthalate	
Di-n-octyl phthalate	
Fluoranthene	Fluoranthene
Fluorene	Fluorene
Hexachlorobenzene	
Hexachlorobutadiene	
Hexachlorocyclopentadiene	
Hexachloroethane	
Indeno[1,2,3-cd]pyrene	Indeno[1,2,3-cd]pyrene
Isophorone	
Naphthalene	Naphthalene
Nitrobenzene	
N-Nitrosodi-n-propylamine	
N-Nitrosodiphenylamine	
Pentachlorophenol	
Phenanthrene	Phenanthrene
Phenol	
Pyrene	Pyrene

Metals

Current Analytes	Proposed Analytes
Antimony, Dissolved	
Arsenic, Dissolved	
Barium, Dissolved	
Beryllium, Dissolved	
Cadmium, Dissolved	
Chromium, Dissolved	
Cobalt, Dissolved	
Copper, Dissolved	
Iron, Dissolved	
Lead, Dissolved	
Manganese, Dissolved	
Nickel, Dissolved	
Selenium, Dissolved	
Silver, Dissolved	
Thallium, Dissolved	
Vanadium, Dissolved	
Zinc, Dissolved	
Mercury, Dissolved	

Evaluation of Ashland/NSP Groundwater Monitoring Network

Well Name	Hydrostratigraphic Unit	Current Sampling Frequency	Monitoring Frequency Recommendation
MW-8L	Lower Copper Falls	3 Times/Yr	Annual
MW-11L	Lower Copper Falls	3 Times/Yr	Annual
MW-22L	Lower Copper Falls	3 Times/Yr	Annual
MW-28L	Lower Copper Falls	3 Times/Yr	Annual
MW-34L	Lower Copper Falls	3 Times/Yr	Annual
MW-40L	Lower Copper Falls	3 Times/Yr	Annual
MW-42L	Lower Copper Falls	3 Times/Yr	Annual
MW-43L	Lower Copper Falls	3 Times/Yr	Annual
MW-44L	Lower Copper Falls	3 Times/Yr	Annual
MW-45L	Lower Copper Falls	3 Times/Yr	Semi-Annual
MW-46L	Lower Copper Falls	3 Times/Yr	Annual
MW-47L	Lower Copper Falls	3 Times/Yr	Annual
MW-48L	Lower Copper Falls	3 Times/Yr	Annual
MW-49L	Lower Copper Falls	3 Times/Yr	Annual
MW-8M	Middle Copper Falls	3 Times/Yr	Semi-Annual
MW-11M	Middle Copper Falls	3 Times/Yr	Semi-Annual
MW-28M	Middle Copper Falls	3 Times/Yr	Semi-Annual
MW-34M	Middle Copper Falls	3 Times/Yr	Semi-Annual
MW-40M	Middle Copper Falls	3 Times/Yr	Semi-Annual
MW-42M	Middle Copper Falls	3 Times/Yr	Semi-Annual
MW-43M	Middle Copper Falls	3 Times/Yr	Semi-Annual
MW-44M	Middle Copper Falls	3 Times/Yr	Semi-Annual
MW-45M	Middle Copper Falls	3 Times/Yr	Semi-Annual
MW-46M	Middle Copper Falls	3 Times/Yr	Semi-Annual
MW-47M	Middle Copper Falls	3 Times/Yr	Semi-Annual
MW-48M	Middle Copper Falls	3 Times/Yr	Semi-Annual
MW-49M	Middle Copper Falls	3 Times/Yr	Semi-Annual
MW-28C	Miller Creek	3 Times/Yr	Semi-Annual
MW-30C	Miller Creek	3 Times/Yr	Semi-Annual
MW-32C	Miller Creek	3 Times/Yr	Semi-Annual
MW-33C	Miller Creek	3 Times/Yr	Semi-Annual
MW-34C	Miller Creek	3 Times/Yr	Semi-Annual
MW-35C	Miller Creek	3 Times/Yr	Semi-Annual
MW-36C	Miller Creek	3 Times/Yr	Semi-Annual

Evaluation of Ashland/NSP Groundwater Monitoring Network

Well Name	Hydrostratigraphic Unit	Current Sampling Frequency	Monitoring Frequency Recommendation
MW-38C	Miller Creek	3 Times/Yr	Semi-Annual
MW-40C	Miller Creek	3 Times/Yr	Semi-Annual
MW-42C	Miller Creek	3 Times/Yr	Semi-Annual
MW-43C	Miller Creek	3 Times/Yr	Semi-Annual
MW-6A	Upper Copper Falls	3 Times/Yr	Semi-Annual
MW-8A	Upper Copper Falls	3 Times/Yr	Semi-Annual
MW-10A	Upper Copper Falls	3 Times/Yr	Semi-Annual
MW-10B	Upper Copper Falls	3 Times/Yr	Semi-Annual
MW-11U	Upper Copper Falls	3 Times/Yr	Semi-Annual
MW-17A	Upper Copper Falls	3 Times/Yr	Semi-Annual
MW-18A	Upper Copper Falls	3 Times/Yr	Semi-Annual
MW-18B	Upper Copper Falls	3 Times/Yr	Semi-Annual
MW-21A	Upper Copper Falls	3 Times/Yr	Semi-Annual
MW-21B	Upper Copper Falls	3 Times/Yr	Semi-Annual
MW-22A	Upper Copper Falls	3 Times/Yr	Semi-Annual
MW-22B	Upper Copper Falls	3 Times/Yr	Semi-Annual
MW-28U	Upper Copper Falls	3 Times/Yr	Semi-Annual
MW-30U	Upper Copper Falls	3 Times/Yr	Semi-Annual
MW-32U	Upper Copper Falls	3 Times/Yr	Semi-Annual
MW-33U	Upper Copper Falls	3 Times/Yr	Semi-Annual
MW-34U	Upper Copper Falls	3 Times/Yr	Semi-Annual
MW-35U	Upper Copper Falls	3 Times/Yr	Semi-Annual
MW-36U	Upper Copper Falls	3 Times/Yr	Semi-Annual
MW-38U	Upper Copper Falls	3 Times/Yr	Semi-Annual
MW-40U	Upper Copper Falls	3 Times/Yr	Semi-Annual
MW-42U	Upper Copper Falls	3 Times/Yr	Semi-Annual
MW-43U	Upper Copper Falls	3 Times/Yr	Semi-Annual
MW-44U	Upper Copper Falls	3 Times/Yr	Semi-Annual
MW-45U	Upper Copper Falls	3 Times/Yr	Semi-Annual
MW-46U	Upper Copper Falls	3 Times/Yr	Semi-Annual
MW-47U	Upper Copper Falls	3 Times/Yr	Semi-Annual
MW-48U	Upper Copper Falls	3 Times/Yr	Semi-Annual
MW-49U	Upper Copper Falls	3 Times/Yr	Semi-Annual
MW-6	Water Table	3 Times/Yr	Semi-Annual

Evaluation of Ashland/NSP Groundwater Monitoring Network

Well Name	Hydrostratigraphic Unit	Current Sampling Frequency	Monitoring Frequency Recommendation
MW-8	Water Table	3 Times/Yr	Semi-Annual
MW-10	Water Table	3 Times/Yr	Semi-Annual
MW-11	Water Table	3 Times/Yr	Semi-Annual
MW-17	Water Table	3 Times/Yr	Semi-Annual
MW-22T	Water Table	3 Times/Yr	Semi-Annual
MW-27T	Water Table	3 Times/Yr	Semi-Annual
MW-28T	Water Table	3 Times/Yr	Semi-Annual
MW-29T	Water Table	3 Times/Yr	Semi-Annual
MW-30T	Water Table	3 Times/Yr	Semi-Annual
MW-31TR	Water Table	3 Times/Yr	Semi-Annual
MW-32T	Water Table	3 Times/Yr	Semi-Annual
MW-33T	Water Table	3 Times/Yr	Semi-Annual
MW-34T	Water Table	3 Times/Yr	Semi-Annual
MW-35T	Water Table	3 Times/Yr	Semi-Annual
MW-36T	Water Table	3 Times/Yr	Semi-Annual
MW-37T	Water Table	3 Times/Yr	Semi-Annual
MW-38T	Water Table	3 Times/Yr	Semi-Annual
MW-39T	Water Table	3 Times/Yr	Semi-Annual
MW-40T	Water Table	3 Times/Yr	Semi-Annual
MW-41T	Water Table	3 Times/Yr	Semi-Annual
MW-42T	Water Table	3 Times/Yr	Semi-Annual
MW-43T	Water Table	3 Times/Yr	Semi-Annual
MW-44T	Water Table	3 Times/Yr	Semi-Annual
MW-45T	Water Table	3 Times/Yr	Semi-Annual
MW-46T	Water Table	3 Times/Yr	Semi-Annual
MW-47T	Water Table	3 Times/Yr	Semi-Annual
MW-48T	Water Table	3 Times/Yr	Semi-Annual
MW-49T	Water Table	3 Times/Yr	Semi-Annual
MW-50T	Water Table	3 Times/Yr	Semi-Annual
PEZ-10	Water Table	3 Times/Yr	Semi-Annual