

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

**REGION 4**

**61 FORSYTH STREET  
ATLANTA, GEORGIA 30303-8960**

August 15, 2023

**4SEMD-SRSIB**

**MEMORANDUM**

**SUBJECT:** Review of the Surface Water Sample Data taken April 16, 2023 for the Pinova Facility Fire in Brunswick, Georgia

**FROM:** Brett Thomas, Ph.D., Life Scientist  
Scientific Support Section  
Superfund & Emergency Management Division  
Superfund Resource and Scientific Integrity Branch

**THRU:** Tim Frederick, Chief, Scientific Support Section  
Superfund & Emergency Management Division  
Superfund Resource and Scientific Integrity Branch

**TO:** Benjamin Franco, Emergency Response On-Scene Coordinator  
Superfund & Emergency Management Division

Per your request, I reviewed the surface water analytical data for the four surface water samples taken on April 16, 2023 and that were sent for review on May 18, 2023 for the Pinova Facility Fire in Brunswick, Georgia. No particular requests were made regarding the review of the data, so I assumed comparing the data to surface water screening values to determine if the contaminants might pose risks to ecological receptors would be the most appropriate evaluation.

For the data review, in the interest of time, I opted to only review data for the samples that had at least one reported detection for the chemicals that were analyzed. To do this I sorted the analytical results database and selected for review all of the samples that had no “U” or ‘non-detect’ qualifier.

In Table 1 below, I listed the chemicals and their reported concentrations for the chemicals that had at least one detection and compared the reported concentrations to the EPA Region 4 surface water screening values. The right four columns in the table are the hazard quotients (HQs), which were calculated by dividing the measured concentration of the analyte by the EPA Region

4 surface water screening value for that analyte. An HQ greater than 1 indicates a potential for risk to ecological receptors.

Table 1. Detected chemicals and comparisons with screening values for the Pinova Surface Water Samples taken April 16, 2023.

	Reported Surface Water Conc (VOCs in µg/L; metals in mg/L)				R4 chronic Surf Water Screening values	HQs (meas conc/scrn value)			
	Sample Location					Sample Location			
Chemical	1	2	3	4		1	2	3	4
Acetone	140	50 U	50 U	50 U	1700	0.08	0.03	0.03	0.03
m,p-Xylene	11	5.0 U	5.0 U	5.0 U	27	0.41	0.19	0.19	0.19
Styrene	9.5	5.0 U	5.0 U	5.0 U	32	0.30	0.16	0.16	0.16
Xylenes, Total	13	5.0 U	5.0 U	5.0 U	27	0.48	0.19	0.19	0.19
Aluminum	1.44	0.200 U	0.377	0.200 U	0.087 (0.75 - acute)	16.55 (1.9)	2.30 (0.3)	4.33 (0.5)	2.30 (0.3)
Barium	0.0709	0.020 U	0.020 U	0.020 U	0.22	0.32	0.09	0.09	0.09
Calcium	67.6	117	114	115	116	0.58	1.01	0.98	0.99
Iron	0.335	0.297	0.559	0.224	1	0.34	0.30	0.56	0.22
Magnesium	46.4	514	473	471	82	0.57	6.27	5.77	5.74
Manganese	0.0463	0.101	0.116	0.0782	0.093	0.50	1.09	1.25	0.84
Mercury	0.00027	0.00020 U	0.00020 U	0.00020 U	0.00077	0.35	0.26	0.26	0.26
Nickel	0.0234	0.020 U	0.020 U	0.020 U	0.029	0.81	0.69	0.69	0.69
Potassium	7.09	178	168	171	53	0.13	3.36	3.17	3.23
Sodium	184	3240	2970	3010	680	0.27	4.76	4.37	4.43
Zinc	0.131	0.020 U	0.020 U	0.020 U	0.120	1.09	0.17	0.17	0.17

Looking at the data, it is assumed that sample locations 2, 3 and 4 are in brackish water, as the Ca, Mg, Na and K concentrations increased greatly downstream of the outfall sample (location 1) and the increases were similar across the samples and roughly in ratios that would reflect those found in seawater.

The only analyte of potential concern is aluminum in sample location 1 which is notably elevated in concentration compared to the chronic exposure freshwater benchmark. The data tables indicate that the water samples were total (unfiltered) samples. Because they were unfiltered, it is possible that the outfall sample water had appreciable suspended sediment in it, in which case the high aluminum could have simply been associated with the sediment and not representative of dissolved aluminum concentrations, which would effectively negate the risk concerns. And if the exposure was short term (hours), the aluminum concentration even if dissolved is only twice the acute screening value. None of the other analytes of concern (those not associated with seawater) looked to be appreciably elevated. So in general, the data did not indicate a cause for ecological concern for the analytes reported, especially in the water samples downstream of the outfall (if this water is brackish).

Thank you for the opportunity to review these data and provide these comments. If you have questions or would like to discuss these comments, please contact me at (404) 562-8751 or at [Thomas.Brett@epa.gov](mailto:Thomas.Brett@epa.gov).

Brett Thomas