November 4, 2020

Ms. Barbara Brown
Project Coordinator
Maryland Department of the Environment
1800 Washington Boulevard
Baltimore, MD 21230

Re: Comment Response Letter:
Supplemental Investigation Report
Former Rod and Wire Mill
Tradepoint Atlantic
Sparrows Point, MD 21219

Dear Ms. Brown:

ARM Group LLC (ARM) is pleased to provide responses to comments received from the United States Environmental Protection Agency (USEPA) and the Maryland Department of the Environment (MDE) regarding the Interim Measure Supplemental Investigation Report for a portion of the Tradepoint Atlantic property that has been designated as the Former Rod and Wire Mill (RWM, or the Site). ARM is providing responses to comments received from the USEPA and MDE via emails on July 7, 2020 for the previous version of the RWM Interim Measure Supplemental Investigation Report (Revision 1 dated April 8, 2020).

Responses to the USEPA and MDE comments are given below; the original comments are included in italics with responses following. A revised RWM Supplemental Investigation Report will be submitted.

1. *Page ii, third bullet – The statement that surface water was not determined to be a medium of concern should be modified to say "where sampled." Pore and surface water sampling was not conducted where intermediate zone groundwater likely discharges.*

   The suggested addition has been made to the text. However, it should be noted that comparing the elevation of the top of the intermediate zone screen intervals to the navigation chart, the bottom of Bear Creek would not intersect the intermediate zone. See the response to comment 6 for additional discussion.

2. *Page ii, fifth bullet – Modify sentence to state surface water samples contained low concentrations of zinc "where sampled." The statement that the discharge of zinc in groundwater to surface water is not a concern should be modified to state that the*

conclusion applies only to shallow zone groundwater since surface water was not sampled where intermediate zone groundwater was discharging.

The suggested additions have been made to the text. See response above for additional discussion.

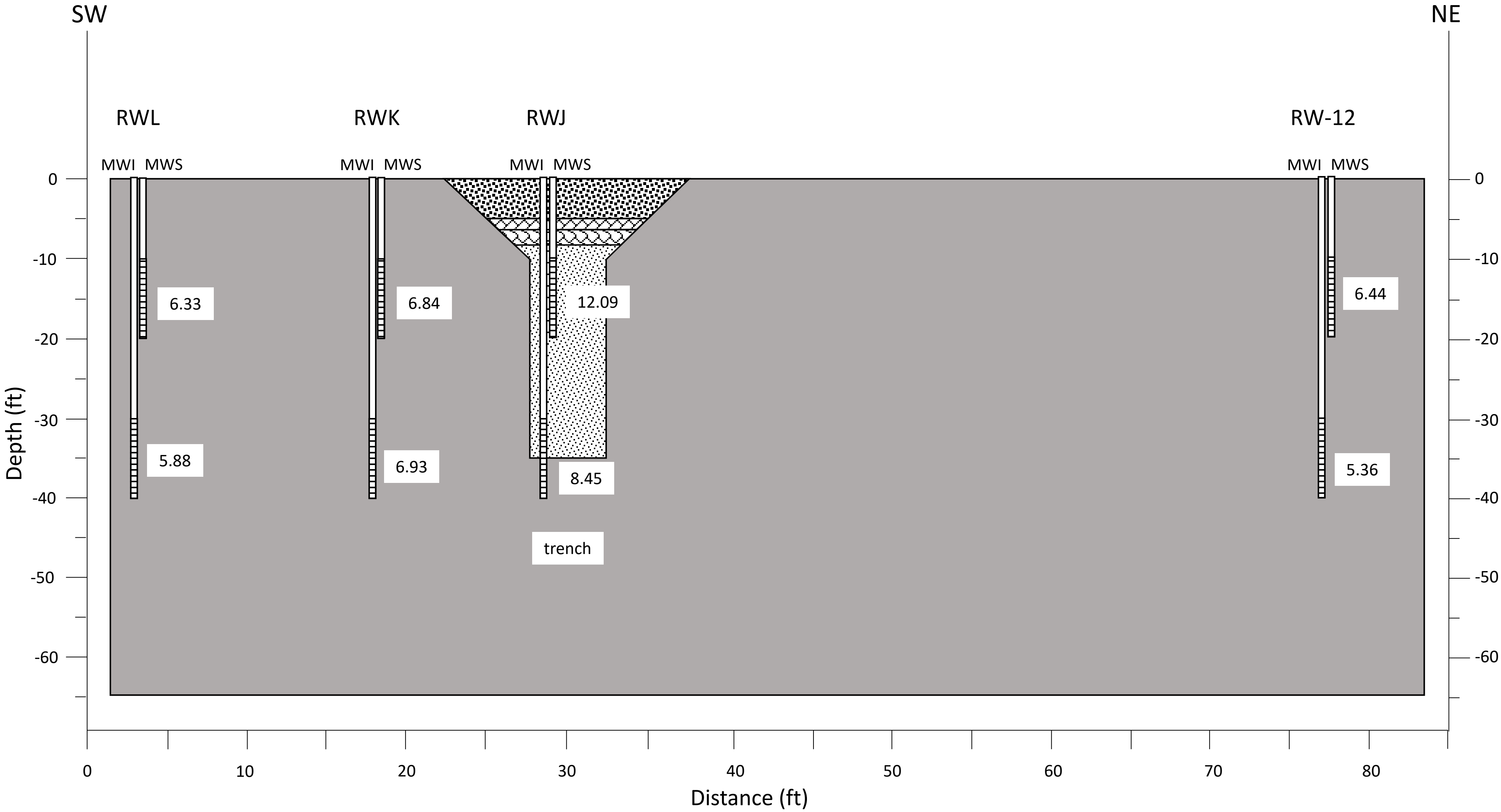
3. *Page ii, sixth bullet – the statement that groundwater discharges will not exacerbate pore water quality because of historic sources (in sediment) does not mean that the current discharge of zinc contaminated groundwater is acceptable.*

   This conclusion was only meant to indicate that the pore water constituent levels would not be elevated by the groundwater discharges, and as such is not time critical. It was not intended to imply whether current discharges are acceptable or not. Clarifications have been added to the text.

4. *Section 3.5 Trench Material, page 16, last paragraph – The paragraph describes the three wells placed in close proximity and located progressively further from the western-most trench to assess the near-field effect of the remediation trenches. Because the treatment trench serves as a conduit for shallow zone groundwater to recharge intermediate zone groundwater, it isn't clear whether the zinc concentration adjacent to the trench in the intermediate zone indicates treatment of intermediate zone groundwater or represents treated shallow groundwater discharging to the intermediate zone.*

   The text has been updated to acknowledge the low concentration, treated, shallow groundwater as a possible mechanism or contributing factor for the reduced zinc concentrations in proximity to the trench. Migration of low concentration, treated, shallow groundwater through the trench into the intermediate zone could explain lower zinc concentrations in proximity to the trench. This may also explain the elevated pH and alkalinity in proximity to the trench. As indicated in Figures 8 and 9, the pH and alkalinity in RWJ-MWS, in or immediately adjacent to the trench, is much higher than the pH in the surrounding shallow zone. Similarly, Figure 14 shows the pH in RWJ-MWI is elevated above the surrounding intermediate zone, and above the pH shown in Figure 9 in the surrounding shallow zone. Since the pH in the surrounding shallow zone is lower than in RWJ-MWI, shallow water discharging through the trench into the intermediate zone could not raise the pH in the intermediate zone except for the effects that the alkaline charge is having on the shallow and intermediate groundwater. **Attachment 1** presents a cross-section view of pH values in both the shallow and intermediate zones in close proximity to the trench. This cross-section shows that the alkaline charge has had some effect on the intermediate groundwater outside the trench. As discussed above, compared to the surrounding wells, the pH of the groundwater in the trench is clearly elevated due the alkaline charge. In the cross section, the pH values in the well pair outside the trench (RWK) are higher in both the shallow and intermediate

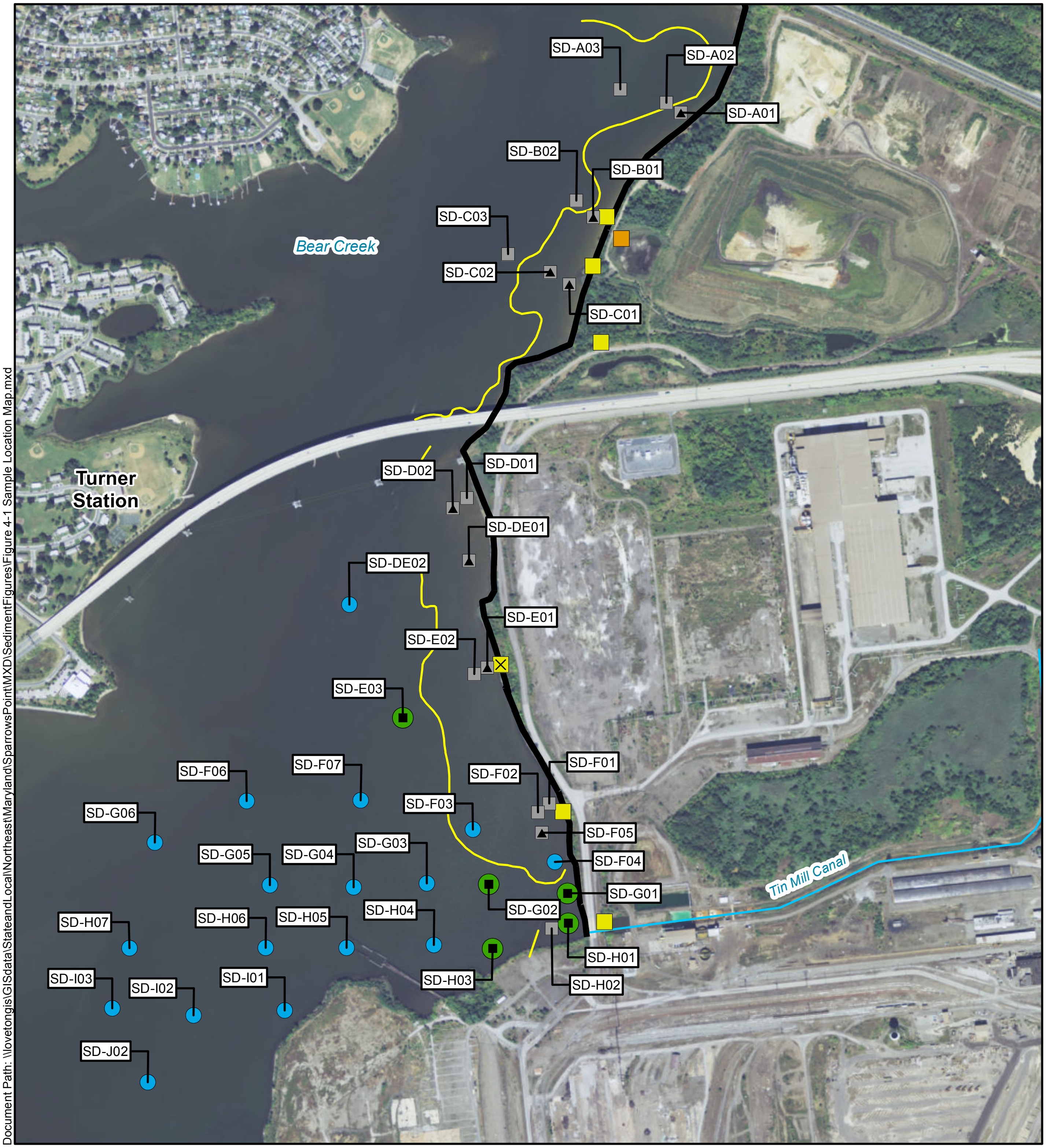
Rod and Wire Mill Cross Section - pH Values



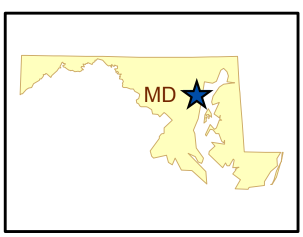
Notes:
- Assumption of flat ground surface; actual ground surface varies by a few feet
- Diagram is horizontally exaggerated

Fine (<¾") steel mill slag
#57 Crushed limestone aggregate
Large (>2") steel mill slag
Terrabond/#57 Crushed limestone reagent mixture

pH
May 2019



Document Path: \\lovetongis\GISdata\StateandLocal\Northeast\Maryland\SparrowsPoint\MXD\SedimentFigures\Figure 4-1 Sample Location Map.mxd



0 250 500 1,000
Feet

1 inch = 1,000 feet

N

Legend

- Phase 1 Northwest Shoreline
- Perennial Creek/Stream
- Boundary between Sand and Fine Grained Sediment
- Approximate Location of Active Stormwater Outfall
- Approximate Location of Inactive Stormwater Outfall

Sample Location

- Coring Location
- Surface Grab and Coring Location
- Surface Grab
- Surface Grab and Pore Water Sampling Location
- Stormwater Pond Sampling Location

Figure 4-1
Sample Location Map
Phase I Northwest Shoreline
Baltimore, Maryland

Map Date: September 2015
Image Source: ESRI 2011
Projection: NAD 1983 StatePlane
Maryland FIPS 1900 (US Feet)

SEDIMENT BORING F03B

EA Engineering, Science, and Technology, Inc., PBC

PROJECT NAME Sparrow's Point Offshore Investigation
DATE COLLECTED 4/29/2015 10:57:00 AM
DATE LOGGED 5/1/2015 2:20:00 PM
DRILLING CONTRACTOR EA Engineering
DRILLING METHOD Vibracore
LOGGED BY M. Gelinas

PROJECT NUMBER 15131.01
LOCATION Baltimore, Maryland
NORTHING* 569596.99
EASTING* 1455740.35
WATER DEPTH (MLLW) 5.1
CORE RECOVERY (ft) 1.4

DEPTH FROM SEDIMENT SURFACE (ft)	SAMPLE INTERVAL (inches)	SAMPLE TYPE**	SAMPLE SUBMITTED FOR ANALYSIS (Sample ID at sample depth)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION	Depth (ft)
0	17	CT	SD-F03-0002 (Collected from 0 to 1.4 ft)		ML	SILT: Black silt, strong hydrocarbon odor	0.8
					SM	SILTY SAND: Black silty sand (fine) and silt (40%), trace clay (10%)	0.9
-1					SM	SILTY SAND: Gray/tan silty sand (fine), trace clay (10%)	1.1
					CL	CLAY: tan/yellow clay	1.3
					SM	SILTY SAND: Black silty sand (very fine)/sandy silt	1.4
-2						End of Core at 1.4 ft.	
-3							
-4							
-5							
-6							
-7							

NOTES:

Last 4 digits of sample ID describes the depth interval collected, in feet (0204 is 2 to 4 ft), unless specified further

* Coordinates collected in Maryland State Plane
** CT = Composited over interval

SEDIMENT BORING DE02B

EA Engineering, Science, and Technology, Inc., PBC

PROJECT NAME Sparrow's Point Offshore Investigation
DATE COLLECTED 4/29/2015 3:52:00 PM
DATE LOGGED 4/30/2015 1:50:00 PM
DRILLING CONTRACTOR EA Engineering
DRILLING METHOD Vibracore
LOGGED BY M. Gelinas

PROJECT NUMBER 15131.01
LOCATION Baltimore, Maryland
NORTHING* 571195.36
EASTING* 1454862.7
WATER DEPTH (MLLW) 11.5
CORE RECOVERY (ft) 6.3

DEPTH FROM SEDIMENT SURFACE (ft)	SAMPLE INTERVAL (inches)	SAMPLE TYPE**	SAMPLE SUBMITTED FOR ANALYSIS (Sample ID at sample depth)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION	Depth (ft)
0							
-1	24	CT	SD-DE02-0002				
-2							
-3	24	CT	SD-DE02-0204 (Archived)		ML	SILT: Black silt, visible sheen, soupy, strong petroleum odor - whole clam ~1/2" across in 0002 sample	
-4							
-5	28	CT	SD-DE02-0406 (Collected from 4 to 6.3 ft)				5.8
-6					CL	CLAY: Dark gray to black soft clay	6.3
-7						End of Core at 6.3 ft.	

NOTES:

Last 4 digits of sample ID describes the depth interval collected, in feet (0204 is 2 to 4 ft), unless specified further

* Coordinates collected in Maryland State Plane
** CT = Composited over interval

SEDIMENT BORING E03B

PROJECT NAME Sparrow's Point Offshore Investigation	**PROJECT NUMBER** 15131.01
DATE COLLECTED 4/29/2015 9:48:00 AM	**LOCATION** Baltimore, Maryland
DATE LOGGED 4/30/2015 2:00:00 PM	**NORTHING*** 570389.68
DRILLING CONTRACTOR EA Engineering	**EASTING*** 1455241.92
DRILLING METHOD Vibracore	**WATER DEPTH (MLLW)** 8.7
LOGGED BY M. Gelinas	**CORE RECOVERY (ft)** 4.8

DEPTH FROM SEDIMENT SURFACE (ft)	SAMPLE INTERVAL (inches)	SAMPLE TYPE**	SAMPLE SUBMITTED FOR ANALYSIS (Sample ID at sample depth)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION	Depth (ft)
0 to -2	24	CT	SD-E03-0002		ML	SILT: Black silt, visible sheen, strong petroleum odor	
-2 to -4	24	CT	SD-E03-0204				3.9
-4 to -4.8	10	CT	SD-E03-0406 (Collected from 4 to 4.8 ft)		CL	CLAY: Gray to dark-gray clay, trace shell fragments (1%) <1/2" across	4.8
-5 to -7						End of Core at 4.8 ft.	

NOTES:

Last 4 digits of sample ID describes the depth interval collected, in feet (0204 is 2 to 4 ft), unless specified further

* Coordinates collected in Maryland State Plane
** CT = Composited over interval

TABLE 5-8 METALS, CYANIDE, OIL AND GREASE, AND GENERAL CHEMISTRY CONCENTRATIONS IN SEDIMENT CORE SAMPLES.
SPARROWS POINT PHASE I OFFSHORE INVESTIGATION

						Southwest/Tin Mill Canal Effluent Grouping													
ANALYTE	UNITS	AVG RL	BTAG[1]	PEC[2]	HHRA[3]	SD-DE02-0002	SD-DE02-0406	SD-E03-0002	SD-E03-0204	SD-E03-0204-FD	SD-E03-0406	SD-F03-0002	SD-F04-0002	SD-F04-0406	SD-F06-0002	SD-F06-0406	SD-F07-0002	SD-F07-0406	SD-G01-0002
ANTIMONY	MG/KG	0.51	--	--	410	**3.7 J**	**3.2**	**6.2 J**	**2.3 J**	**2.7 J**	**0.37 J**	**3.2 J**	**6.3 J**	**1.5 J**	**4.6 J**	**3.7 J**	0.48 UJ	**3.3**	**6.2 J**
ARSENIC	MG/KG	0.14	7.24	33	92	**35 J**	**83**	**60 J**	**65**	**72**	**29**	**22**	**27**	**5.3**	**79 J**	**140**	**77 J**	**97**	**21**
BERYLLIUM	MG/KG	0.25	--	--	96	**1.3 J**	**1.1**	**0.5 J**	**0.86**	**0.83**	**1.2**	**0.2**	**0.36**	**0.11**	**1.6 J**	**0.94**	**1.1 J**	**1.3**	**0.17**
CADMIUM	MG/KG	0.25	0.68	4.98	1706	**26 J**	**3.5 J**	**13 J**	**6.6 J**	**6.5 J**	**0.4 J**	**7.5**	**4.6**	**2.7**	**27 J**	**6.5**	**22 J**	**6.1 J**	**2.1 J**
CHROMIUM	MG/KG	0.67	52.3	111	133098	**2300 J**	**440**	**1600 J**	**330**	**360**	**67**	**1500**	**3100**	**340**	**3300 J**	**560**	**2700 J**	**460**	**2900**
COPPER	MG/KG	0.51	18.7	149	273022	**290 J**	**190**	**330 J**	**200**	**200**	**58**	**260**	**250**	**54**	**540 J**	**300**	**480 J**	**270**	**200**
LEAD	MG/KG	0.25	30.2	128	--	**320 J**	**1000**	**860 J**	**1000**	**1100**	**88**	**290**	**130**	**82**	**710 J**	**1200**	**920 J**	**1300**	**77**
MERCURY	MG/KG	0.05	0.18*	1.06	48	**0.69 J**	**1**	**1 J**	**0.86**	**0.87**	**0.29**	**0.77**	**0.4**	**0.31**	**1.3 J**	**0.88**	**1.6 J**	**1.5**	**0.32**
NICKEL	MG/KG	0.25	15.9	48.6	136511	**67 J**	**36**	**56 J**	**45**	**48**	**32**	**49 J**	**160 J**	**15 J**	**71 J**	**34 J**	**69 J**	**43**	**180**
SELENIUM	MG/KG	1.28	2*	--	34128	**4.4 J**	**15 J**	**9.7 J**	**17**	**25**	**1.5**	**1.9 J**	**1.3 J**	**0.44 J**	**14 J**	**21 J**	**13 J**	**30 J**	**0.88**
SILVER	MG/KG	0.25	0.73	--	1365	**3.9 J**	**1**	**3.8 J**	**1**	**0.8**	**0.16**	**3.5 J**	**2.3 J**	**0.79 J**	**5.5 J**	**1.4 J**	**6.2 J**	**1**	**2**
THALLIUM	MG/KG	0.25	--	--	68	**0.7 J**	**0.49**	**0.51 J**	**0.57**	**0.52**	**0.25**	**0.16**	**0.22**	**0.043 J**	**0.98 J**	**0.63**	**0.86 J**	**0.7**	**0.16**
ZINC	MG/KG	1.83	124	459	2047665	**4100 J**	**2100**	**3400 J**	**4000**	**4500**	**190**	**2200**	**2000**	**650**	**4200 J**	**2300**	**4600 J**	**2400**	**880**
CYANIDE, TOTAL	MG/KG	0.72	0.1*	--	4095	**4.5 J**	**8.2**	**29 J**	**27 J**	**13 J**	**0.26 J**	**6.2**	**4.2**	**0.63**	**0.42 J**	**26 J**	**15 J**	**13**	**17 J**
OIL AND GREASE	MG/KG	364.57	--	--	--	1400 J	280 U	3100 J	470	310 U	200 U	450	4400	660	430 UJ	380	4400 J	470	11000
PERCENT MOISTURE	%	0.10	--	--	--	81	67	80	68	68	52	37	61	31	78	68	79	68	64
TOTAL ORGANIC CARBON	MG/KG	2873	--	--	--	120000	47000	84000	38000	40000	22000	34000	180000	44000	140000	59000	180000	50000	190000

						Southwest/Tin Mill Canal Effluent Grouping													
ANALYTE	UNITS	AVG RL	BTAG[1]	PEC[2]	HHRA[3]	SD-H01-0002	SD-H01-0406	SD-H03-0002	SD-H03-0406	SD-H03-0607	SD-H04-0002	SD-H04-0002-FD	SD-H04-0406	SD-H05-0002	SD-H05-0406	SD-H06-0002	SD-H06-0002-FD	SD-H06-0204	SD-H07-0002
ANTIMONY	MG/KG	0.51	--	--	410	**10 J**	**7.7 J**	**3.8 J**	**6 J**	**0.29 J**	**7.4 J**	**10 J**	**4.6 J**	**6.8**	**11 J**	**4.2 J**	**4 J**	**5.9 J**	**3.2 J**
ARSENIC	MG/KG	0.14	7.24	33	92	**25**	**42 J**	**43 J**	**56**	**16**	**28 J**	**37 J**	**90**	**31**	**69 J**	**26 J**	**28 J**	**62 J**	**67 J**
BERYLLIUM	MG/KG	0.25	--	--	96	**0.35**	**0.35 J**	**0.26 J**	**0.53**	**1.6**	**0.37 J**	**0.35 J**	**0.88**	**0.63**	**0.7 J**	**1 J**	**1.2 J**	**1 J**	**1.2 J**
CADMIUM	MG/KG	0.25	0.68	4.98	1706	**3.5 J**	**81 J**	**110 J**	**32**	**0.73**	**21 J**	**22 J**	**7.6**	**4.6 J**	**62 J**	**4.4 J**	**5.4 J**	**36 J**	**8.6 J**
CHROMIUM	MG/KG	0.67	52.3	111	133098	**1900**	**5300 J**	**4600 J**	**3700**	**68**	**3400 J**	**4300 J**	**420**	**2100**	**6900 J**	**1600 J**	**2100 J**	**4000 J**	**1100 J**
COPPER	MG/KG	0.51	18.7	149	273022	**180**	**400 J**	**550 J**	**510**	**38**	**350 J**	**510 J**	**300**	**240**	**940 J**	**200 J**	**240 J**	**610 J**	**290 J**
LEAD	MG/KG	0.25	30.2	128	--	**94**	**940 J**	**500 J**	**1000**	**63**	**300 J**	**410 J**	**1200**	**130**	**1000 J**	**150 J**	**190 J**	**680 J**	**570 J**
MERCURY	MG/KG	0.05	0.18*	1.06	48	0.053 U	0.046 UJ	**0.74 J**	**1.3**	**0.2**	**0.74 J**	**0.67 J**	**0.91**	**0.38**	**2.3 J**	**0.47 J**	**0.54 J**	**1.5 J**	**0.91 J**
NICKEL	MG/KG	0.25	15.9	48.6	136511	**110**	**120 J**	**210 J**	**130 J**	**35 J**	**140 J**	**220 J**	**36 J**	**120**	**120 J**	**78 J**	**79 J**	**83 J**	**43 J**
SELENIUM	MG/KG	1.28	2*	--	34128	**1.2**	**1.8 J**	**1.3 J**	**5.4 J**	**1.8 J**	**1.8 J**	**2.2 J**	**17 J**	**2.1 J**	**7.6 J**	**2.6 J**	**2.8 J**	**7.7 J**	**9.9 J**
SILVER	MG/KG	0.25	0.73	--	1365	**2.1**	**8.6 J**	**6 J**	**6.6 J**	**0.15 J**	**5.4 J**	**6.3 J**	**1.1 J**	**3.1**	**15 J**	**2.4 J**	**3.2 J**	**7.5 J**	**2.5 J**
THALLIUM	MG/KG	0.25	--	--	68	**0.23**	**0.18 J**	**0.65 J**	**0.38**	**0.26**	**0.35 J**	**0.44 J**	**0.54**	**0.41**	**1.1 J**	**0.4 J**	**0.48 J**	**0.85 J**	**0.81 J**
ZINC	MG/KG	1.83	124	459	--	**1400**	**10000 J**	**17000 J**	**8600**	**250**	**5500 J**	**11000 J**	**3500**	**1700**	**9800 J**	**1300 J**	**1500 J**	**5600 J**	**2000 J**
CYANIDE, TOTAL	MG/KG	0.72	0.1*	--	4095	0.81 UJ	**5.2 J**	**16 J**	**6.4**	**7 J**	**7.1 J**	**9.5 J**	**7.2 J**	**3.3**	**13 J**	**2.5 J**	**6.5 J**	**14 J**	**34 J**
OIL AND GREASE	MG/KG	364.57	--	--	--	4900	5300 J	5700 J	3000	210 U	4700 J	2300 J	1300	3300	2000 J	1100 J	1400 J	1900 J	470 J
PERCENT MOISTURE	%	0.1	--	--	--	69	73	78	66	54	75	75	64	69	72	78	79	76	70
TOTAL ORGANIC CARBON	MG/KG	2873	--	--	--	260000	220000	250000	130000	19000	240000	200000	81000	210000	230000	150000	140000	150000	87000

NOTES: Bold values represent detected concentrations. RL is reported for non-detected constituents

This table includes data that were not considered in the risk assessments (i.e., data for subsurface sediments). Tables 8-6 through 8-10 present data used in the risk assessment for the Southwest Grouping.

[1] Sediment Benchmarks from the U.S. Environmental Protection Agency Biological Technical Assistance Group. Marine values unless marked with asterisk.

*BTAG freshwater sediment benchmark

[2] Probable Effects Concentrations from MacDonald, 2000.

[3] Calculated site-specific human health screening levels, Appendix H.

Value exceeds BTAG benchmark

Value exceeds PEC

Value exceeds human health screening level

-- = no screening criterion or not analyzed

mg/kg = milligrams per kilogram

RL = reporting limit

J = compound was detected, but below the reporting limit (value is estimated)

U = compound was analyzed, but not detected zones than in both the well pairs further from the trench (RW-12 and RWL). In addition, the pH in the intermediate zone well RWK-MWI (6.93) is higher than in the surrounding shallow zone wells RW-12-MWS and RWL-MWS (6.44 and 6.33) and slightly higher than in the collocated shallow well RWK-MWS. This indicates that, although the effect outside the trench is relatively minor, the increase in pH is likely due to dissemination of the alkaline reagent outside the trench.

5. *Section 5.3 Groundwater Flow, page 22 and 23 – the text states that outward gradients from the trenches will distribute the alkalinity dissolved into the water moving through the trenches out into the intermediate zone beyond the physical limits of the trenches to raise the pH and immobilize dissolved metals in any groundwater flowing through the gaps between trenches or around the ends of the trenches. This ability of this process to treat any groundwater not flowing through the trenches is unknown. Mounding of groundwater adjacent to the trenches may also deflect intermediate groundwater around or below the trenches, with very little mixing. The current monitoring well network may not be situated to intercept new flow paths to evaluate the effectiveness of this process. Increases in zinc concentration in certain wells may indicate new flow directions resulting from cessation of pumping (the previous interim measure) and installation of the treatment trenches.*

   As discussed in the response to comment 4 above, the near trench wells provide some evidence that the alkaline charge is raising the pH in the intermediate zone in proximity to the trench, although the effect has not been pronounced. However, the gaps between trenches are not large and it is reasonable to expect that alkalinity would be distributed to groundwater flowing between trenches. The design intent of the trench system has always been to contain the specified primary source of the zinc and cadmium (i.e., the former East Pond and Sludge Bin Storage Area) and to cut off continued migration of dissolved phase contamination from these primary sources east of the trenches toward Bear Creek (west of the trenches). There was never an intent that the trenches would treat groundwater contamination that was already outside the overall limits of the trench system. Due to the very slow migration rates, increases in concentrations observed in wells away from the trench area are not likely associated with increased migration from the source areas within the trench area, and are more likely associated with a reduction in infiltration due to paving and greater equilibration with the soils due to reduced groundwater velocities as a result of flattened gradients.

6. *Section 5.6 Potential Exposure Pathways – This section describes groundwater discharge to Bear Creek, but does not differentiate between shallow and intermediate discharge. The conclusion that current groundwater discharge to Bear Creek is not a concern (norther portion of the Site) or from historical sources rather than current discharge may apply to shallow groundwater discharge. Intermediate zone groundwater discharge*

occurs further offshore than where surface water and pore water samples were collected, which represents a data gap.

The conclusion will be clarified to apply to the shallow zone groundwater discharge and the potential for intermediate zone groundwater discharge further offshore will be noted.

The elevations of the top of the screened interval for the intermediate zone wells are typically 15 to 20 feet below mean sea level. The navigation charts show the bottom of Bear Creek in the middle of the channel off the shore from the Rod and Wire Mill area to be 12 to 14 feet below mean sea level. Based on these elevations, the top of the intermediate groundwater zone would not be expected to intersect with the bottom of Bear Creek, and if at all, only within a small area in the center of the channel.

Sediment core logs from the offshore investigation by EA for borings further offshore from the Rod and Wire Mill area (locations DE02B, E03B and F03B) show 0.8 to 5.8 feet of black silt with visible sheen and a strong petroleum odor. Boring F03B only went to a depth of 6.5 feet below the water surface of Bear Creek, and thus did not extend to the top of the intermediate zone. The deeper of these sediment borings (DE02B and E03B) both were terminated in a gray to dark gray clay underlying the black silt layer and show no sand layers in the cores. The previous sampling efforts have shown that obtaining pore water samples from this type of bottom material has been difficult to impossible.

Sediment samples from these borings show zinc concentrations decreasing with depth in the upper 6 feet, indicating the source of elevated zinc concentrations in these sediments is more likely to be deposition from above rather than discharge from the underlying intermediate zone groundwater. Since the existing zinc concentrations in the sediments due to apparent deposition are an order of magnitude higher than the highest levels observed in the intermediate zone groundwater, the lack of pore water samples from this area is not a significant data gap. The select pages from the offshore report are included as **Attachment 2.**

7. *Section 6.0 Findings – The third paragraph states that the permeable reactive wall treatment technology and the reagent is effective for containing the migration of contaminants from specific source areas (Former sludge bin storage area and former east pond) The treatment trenches do not capture all of the groundwater from the east pond source area. The pond is wider than the trench system and there is flow to the north and south that is unaddressed by the trenches based on Figure 25, Intermediate Zone Groundwater Elevation Contours (December 2019). The CMS will need to evaluate other remedies or modifications to the current interim measures to address all the source areas.*

Acknowledged. However, as discussed below, no change to the text is required. Note that the referenced figure is in the Rod and Wire Mill Interim Measures 2019 Progress Report (Rev 0) dated Feb 14, 2020, not in this supplement investigation report.

The referenced statement specifically addressed the ability of the technology and reagent to treat the type of groundwater contamination that is associated with the source areas (i.e., high in acidity and dissolved zinc and cadmium concentrations). As noted in the second paragraph of this section of the report, the groundwater impacts were found to extend further outside the suspected source areas than previously identified during the design of the trench IM system.

The last paragraph in this section acknowledges that this investigation has identified elevated intermediate zone groundwater concentrations in some areas outside the effective treatment zone of the current interim measure that require further evaluation in the Corrective Measures Study. The report notes that modifications to, or alternatives to the existing interim measure, will be evaluated in the proposed Corrective Measures Study to determine the appropriate final corrective action.

If you have any questions, or if we can provide any additional information at this time, please do not hesitate to contact ARM Group LLC at 410-290-7775.

Respectfully Submitted,
ARM Group LLC

Stewart Kabis, P.G.
Project Geologist

T. Neil Peters, P.E.
Senior Vice President

Attachments:

Attachment 1 – Rod and Wire Mill Cross Section – pH Values
Attachment 2 – Select Pages from Offshore Report