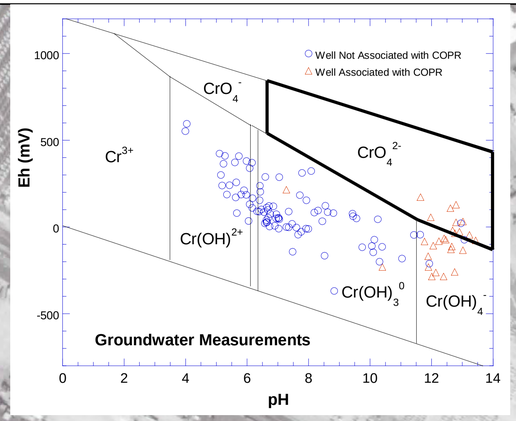
\\APHRODITE\PROJ\HONEYWELLINC\DUNDALKMARINETERMINAL\MAPFILES\CHROMIUM_TRANSPORT_STUDY\Figure 4-1-7 Hex Chromium.mxd



DMT-02M
DMT-26S
DMT-19S
DMT-21S
DMT-20S
DMT-78M
DMT-27S
DMT-41S
DMT-28S
EAC-02M
EAC-02S
DMT-35M
DMT-60M
DMT-59S
DMT-54US
DMT-47S
DMT-82D
BROENING HWY
TPZ-33
EA-08M
EA-08S
DMT-79M
DMT-40S
TPZ-36
TPZ-38
DMT-75US
DMT-48S
EAC-04M
DMT-34M
DMT-18S
EAC-04S
DMT-30S
DMT-29S
DMT-33S
EA-13M
DMT-51US
DMT-43S
DMT-64US
DMT-42S
EA-15S
EA-15M
DMT-53US
DMT-55S
DMT-22S
DMT-44S
DMT-52US
DMT-01M
G-2
DMT-17S
DMT-65US
DMT-09S
DMT-10S
DMT-25S
TPZ-45
G-4
DMT-06S
DMT-24S
DMT-08S
DMT-07S
DMT-04S
DMT-37M
DMT-05S
DMT-38M
DMT-02S
DMT-23S
DMT-49US
DMT-01S
DMT-03S
EA-10S
EA-10M
EAC-03M
EAC-03S
DMT-13S
TPZ-46
EA-05M
DMT-36M
TPZ-44
TPZ-27A
TPZ-27B
DMT-74US
EA-06M
EA-06S
DMT-71US
DMT-70US
DMT-14S
DMT-72US
DMT-12S
DMT-11S
EA-11M
DMT-50US
DMT-83D
EA-11S
DMT-31S
DMT-16S
DMT-32S
DMT-15S
DMT-67US
D-1
E-1
C-1
J-1
DMT-56S
DMT-80M
EAC-01M
TPZ-29
TPZ-28
EAC-01S
E-2
D-2
D-3
C-2
DMT-57S
J-2
DMT-63S
DMT-77M
DMT-73US
TPZ-30B
TPZ-30A
DMT-81D
E-4
DMT-58S
TPZ-49
TPZ-48
DMT-45S
DMT-39S
DMT-62S
DMT-61S
F-2
C-3
J-3
B-1
A-1
J-4
EA-07M
B-2
A-2
D-4

Legend

Hexavalent Chromium (ug/L)
- < or = 10
- > 10 - 100
- > 100 - 1,000
- > 1,000 - 10,000
- > 10,000
- Shoreline/Bulkhead
- Railroad Centerline
- Curb

- Approximate COPR Extent
- Areas
- COPR Extent
- EA - 11S Shallow Monitoring Well
- **DMT - 49US** Upper Sand Well
- **EA - 11M** M-Series Well
- ***EA - 11D*** Deep Monitoring Well

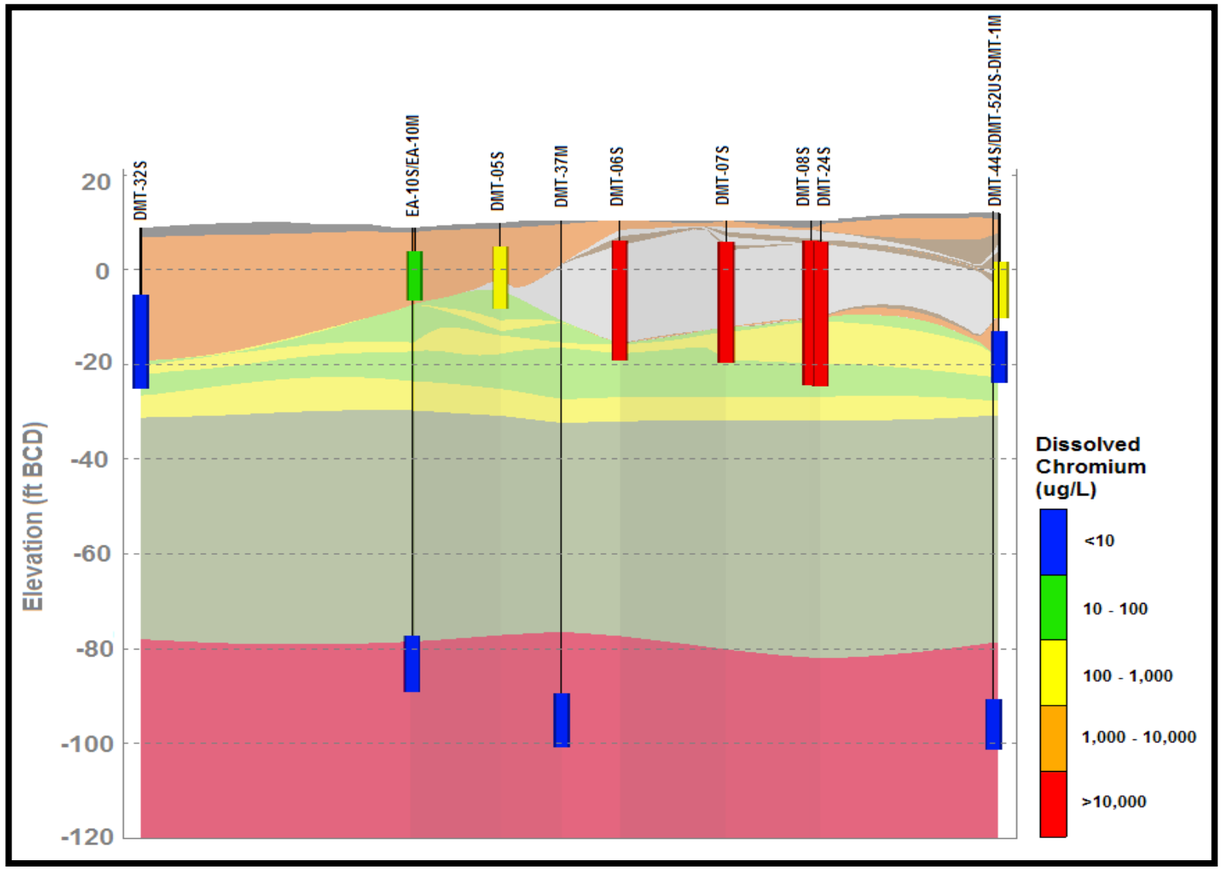
Note: Groundwater samples were collected from 2006 to 2009 and the concentrations depicted on the map represent the most recent representative sample result from each location. The pore water results represent data collected during the 4th Quarter 2008 sampling round.

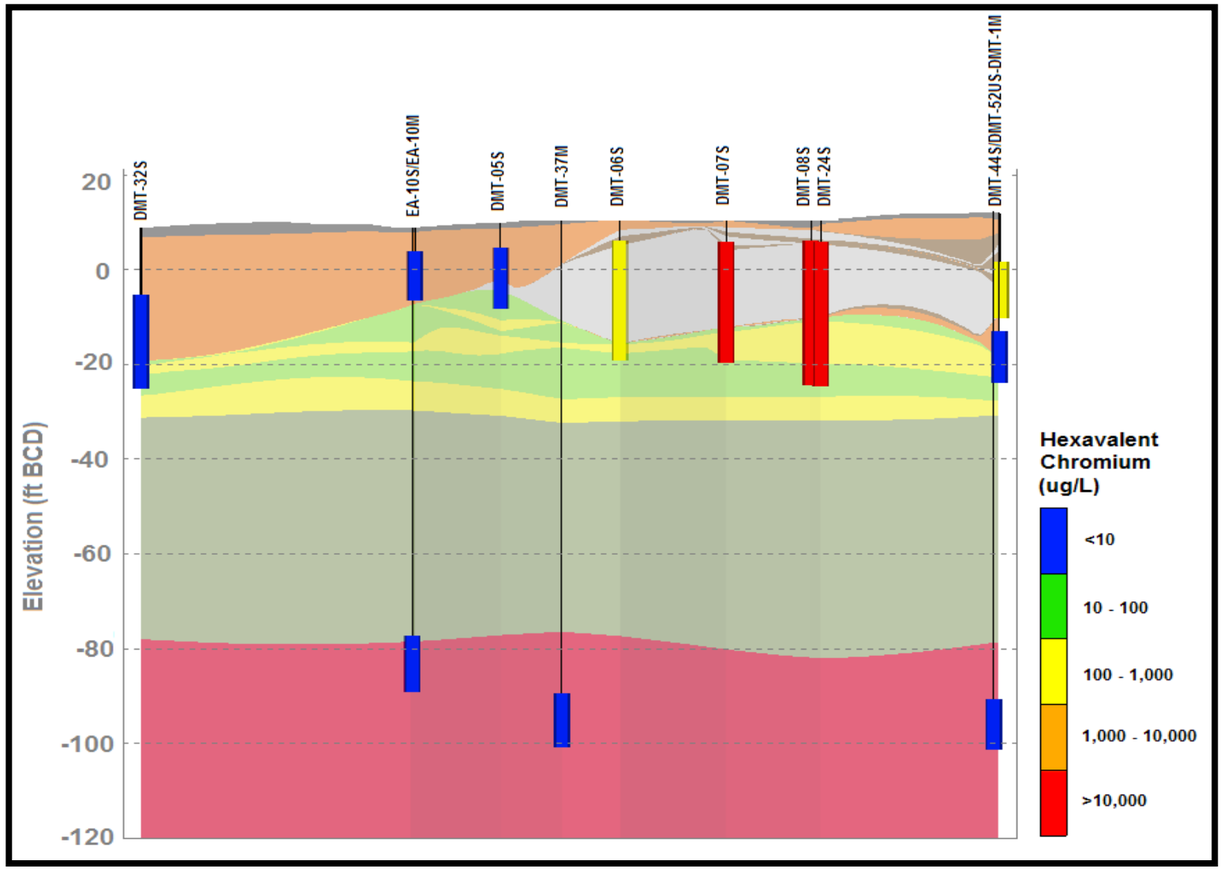
N W E S

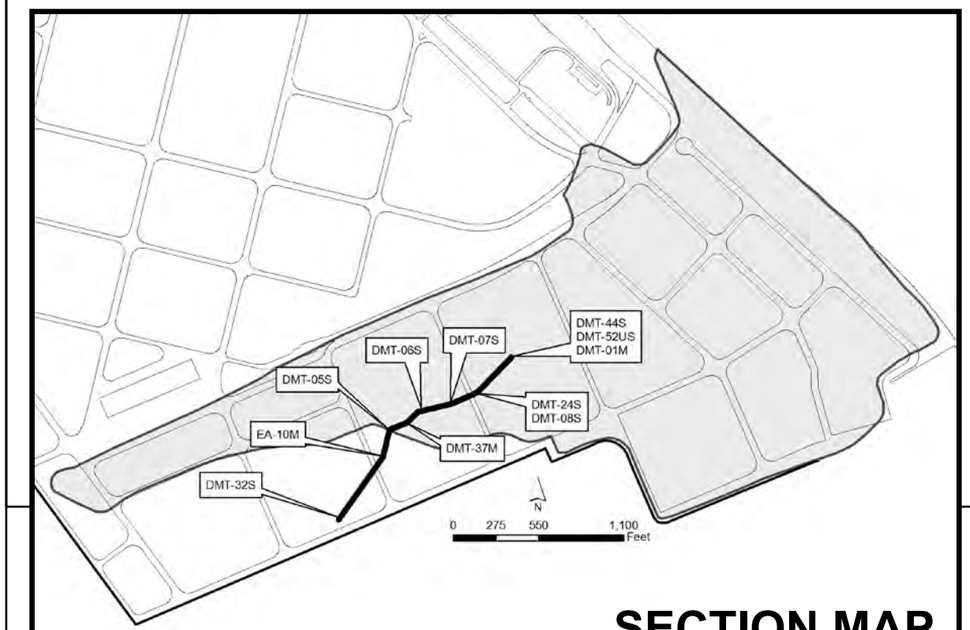
0 150 300 600 Feet

Figure 4-13 - Chromium VI Concentrations in Groundwater and Pore Water
Chromium Transport Study
Dundalk Marine Terminal
Baltimore, Maryland

CH2MHILL







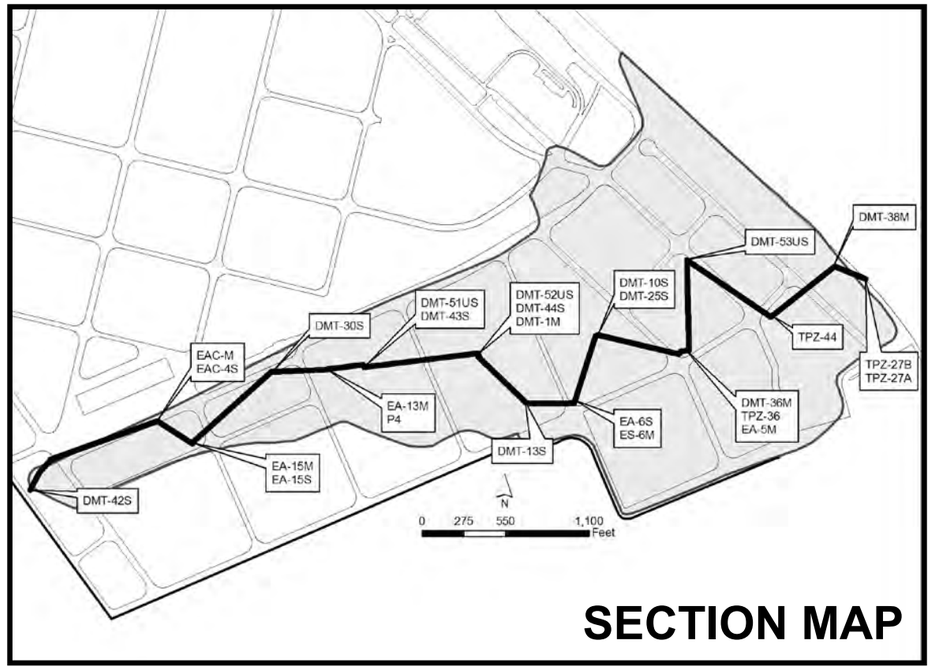
SECTION MAP

- Surface Cover and Type I Fill
- Type II Fill
- HB COPR
- GB COPR
- Alluvial Sand
- Upper Silt
- Lower Silt
- Potomac Group

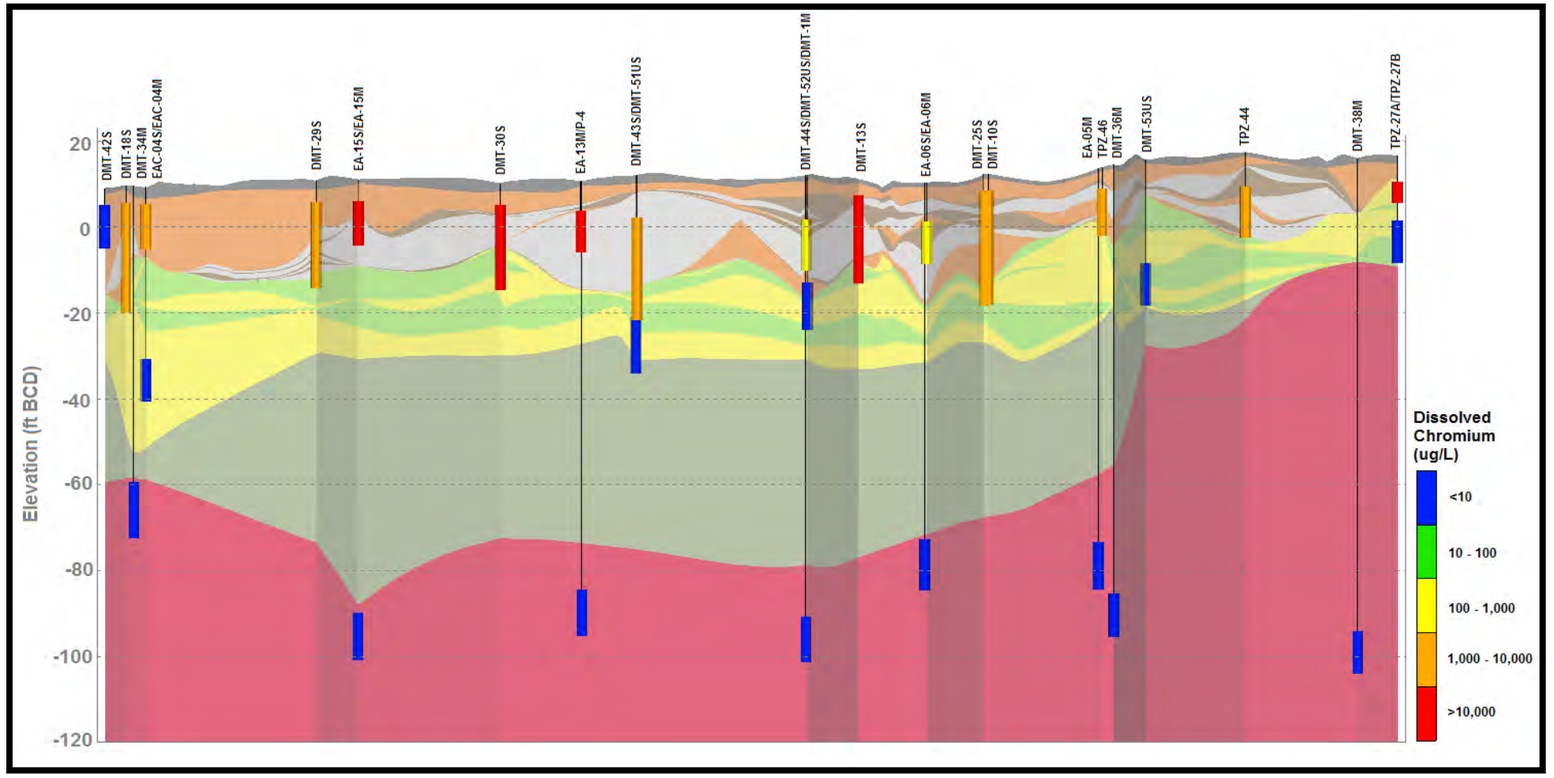
Notes:
1) Horizontal scale for cross-section is distorted due to variability in section orientation. Refer to scale on plan view to determine the actual distance between boring locations.
2) Vertical Exaggeration = 20X

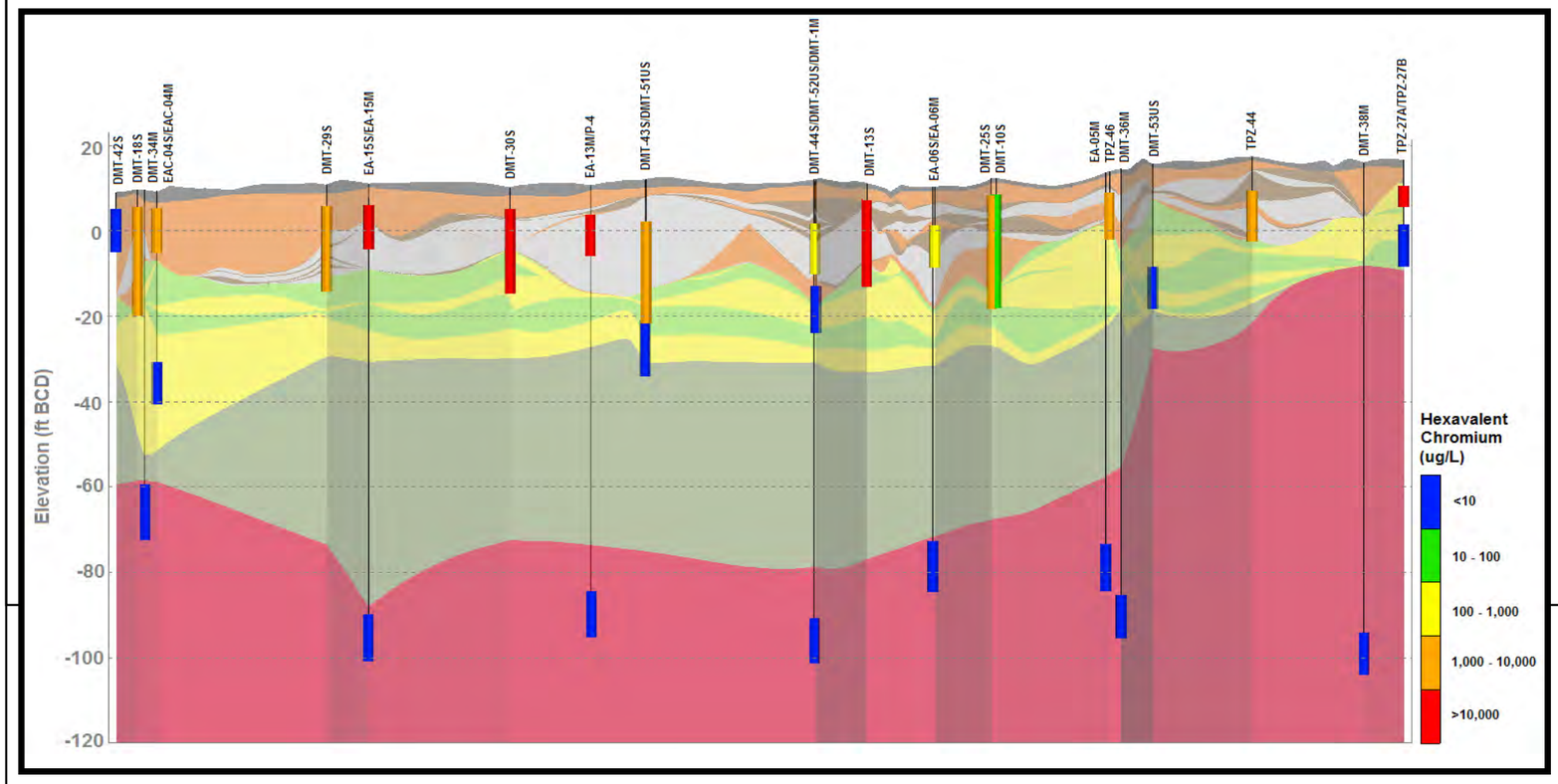
Figure 4-14
Dissolved Chromium and Chromium VI Results in Groundwater (Section 1)
Chromium Transport Study
Dundalk Marine Terminal, Baltimore, Maryland

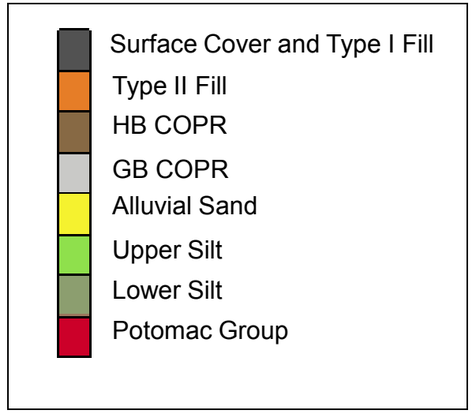
CH2MHILL



SECTION MAP

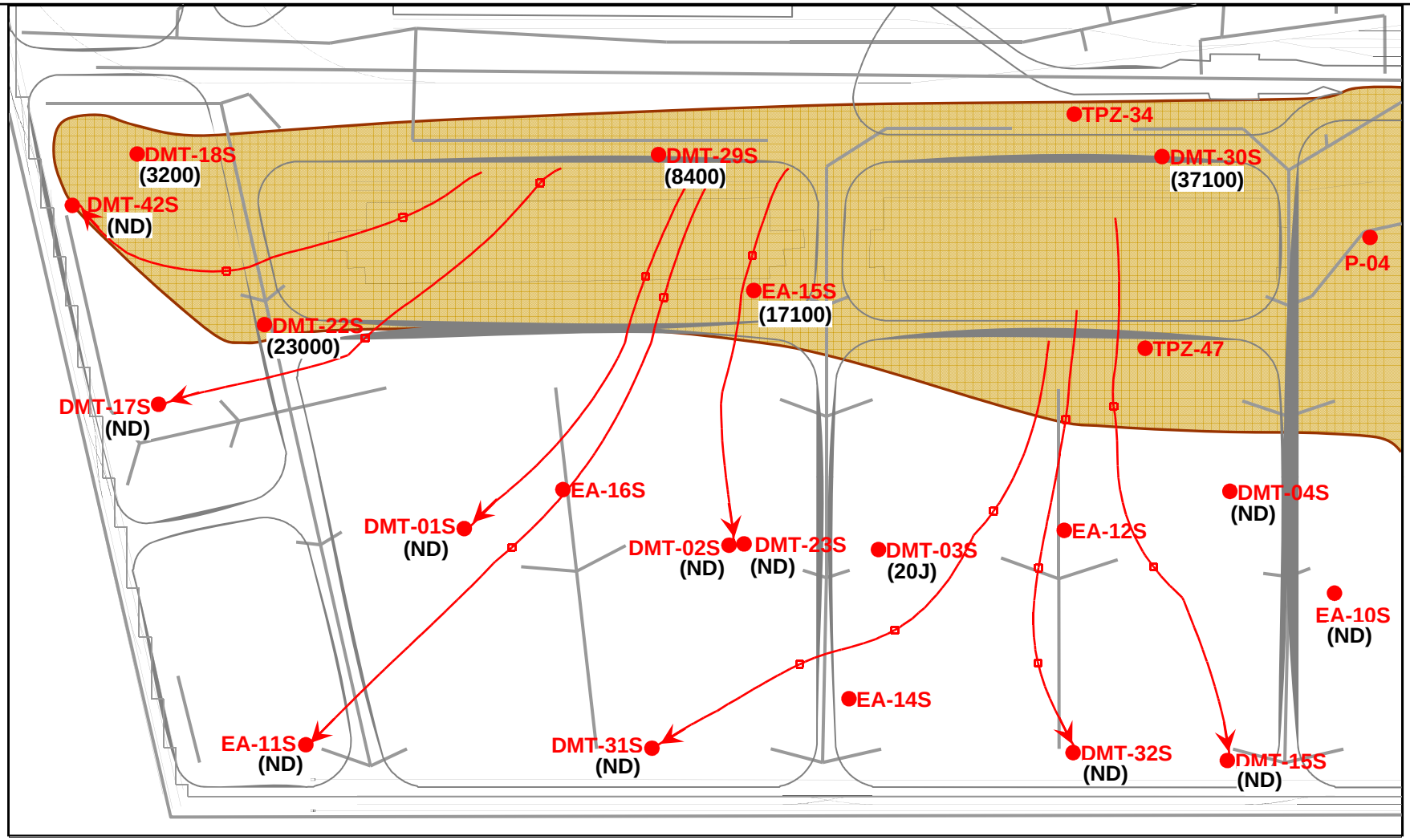






Notes:
1) Horizontal scale for cross-section is distorted due to variability in section orientation. Refer to scale on plan view to determine the actual distance between boring locations.
2) Vertical Exaggeration = 20X

Figure 4-15
Dissolved Chromium and Chromium VI Results in Groundwater (Section 2)
Chromium Transport Study
Dundalk Marine Terminal, Baltimore, Maryland



Legend

- EA-11S — Shallow Aquifer Monitoring Well
- (20) — Dissolved Cr-VI Concentration (µg/L)
- (ND) — Not Detected above Quantitation Limit
- Particle Pathline with 5-YearTravel Time Tic Mark
- Approximate Extent of COPR Fill

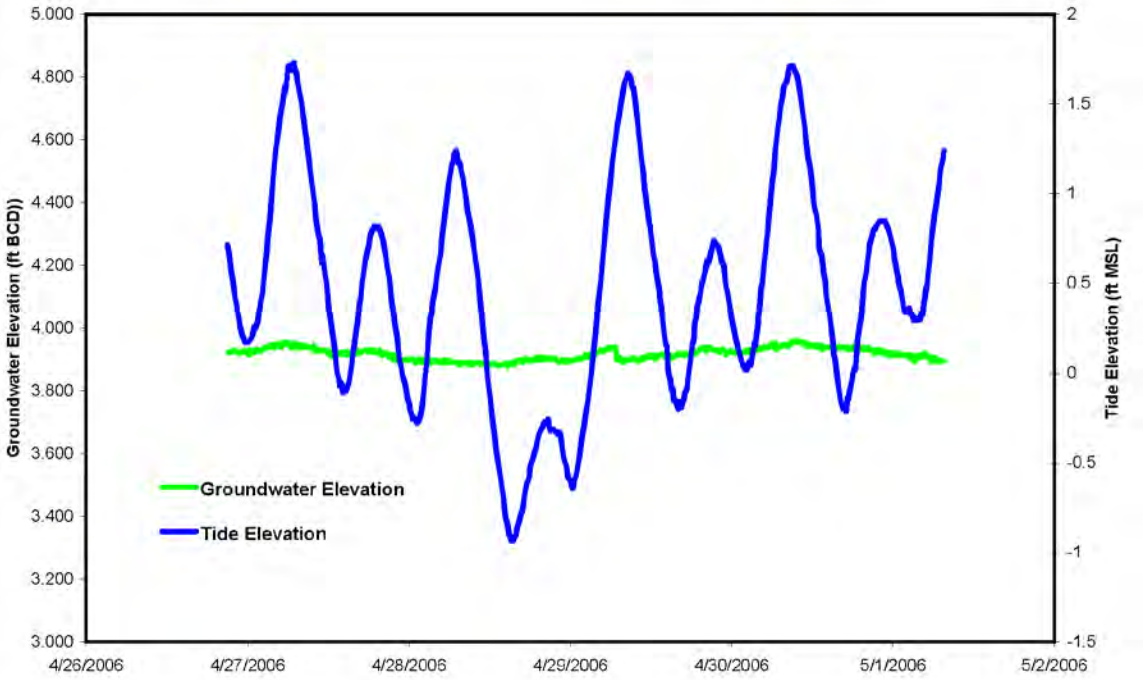
Note: The estimated distance traveled by a flowing groundwater particle over a 5-year period is represented by the distance between the square tic marks spaced along the pathlines.

N W E S

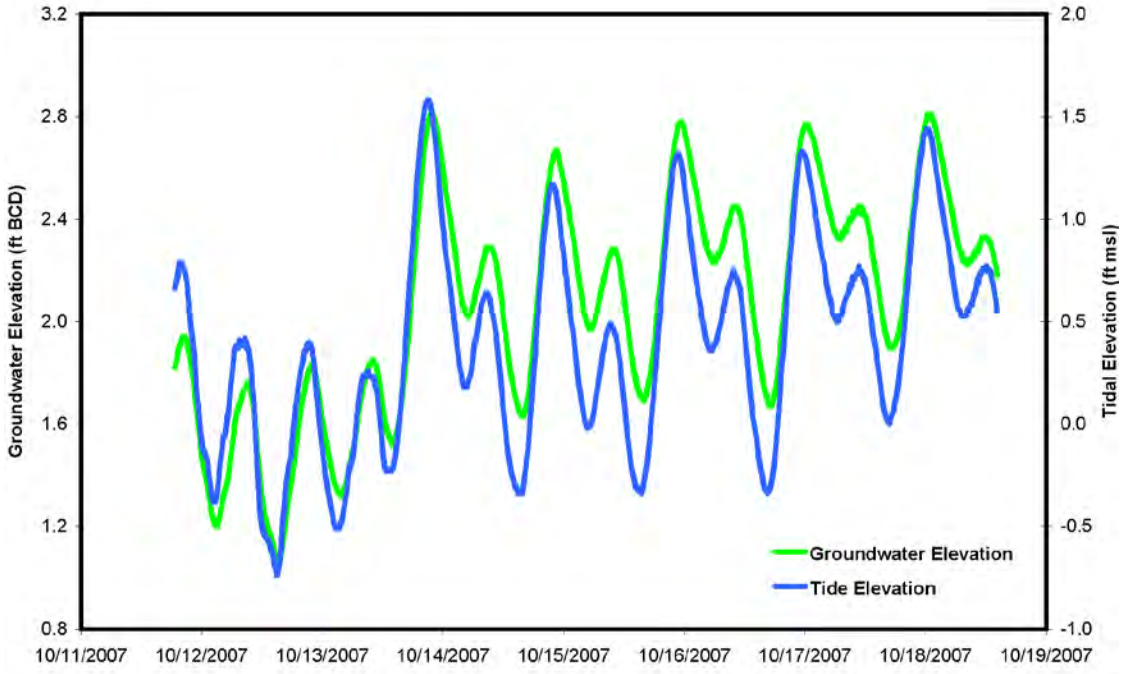
0 100 200 300

Scale in Feet

Figure 4-16
Simulated Backward Particle Tracks
Leading to Selected Shallow Monitoring Wells
Chromium Transport Study
Dundalk Marine Terminal, Baltimore, Maryland



a) Tidal study hydrograph for well DMT-15S, which is located immediately inboard of the sheet pile bulkhead in Area 1200. The tidal response is negligible where the shallow fill unit is bounded by the sheet pile bulkhead.



b) Tidal study hydrograph for well DMT-58S, which is located on the southeast corner of Area 1501 adjacent to the Patapsco River. Tidal response is observed where the shallow fill unit is not bounded by the sheet pile bulkhead. .

Figure 4-17
Tidal Response in the Shallow Fill Unit
Chromium Transport Study
Dundalk Marine Terminal, Baltimore, Maryland