

Chemistry Legend

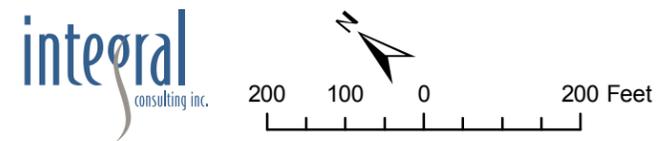
Manganese - Surface Water	Manganese - Transition Water	Manganese - Ground Water
total_or_dissolved, Exceedance_class	total_or_dissolved, Exceedance_class	total_or_dissolved, Exceedance_class
■ D, HH_Fishx10000 (100 mg/l)	● D, HH_Fishx10000 (1000 mg/l)	▲ D, HH_Fishx10000 (1000 mg/l)
■ T, HH_Fishx10000 (100 mg/l)	● T, HH_Fishx10000 (1000 mg/l)	▲ T, HH_Fishx10000 (1000 mg/l)
■ D, Acute (2.3 mg/l)	● D, Acute (2.3 mg/l)	▲ D, Acute (2.3 mg/l)
■ T, Acute (2.3 mg/l)	● T, Acute (2.3 mg/l)	▲ T, Acute (2.3 mg/l)
■ D, MCLx10 (0.5 mg/l)	● D, MCLx10 (0.5 mg/l)	▲ D, MCLx10 (0.5 mg/l)
■ T, MCLx10 (0.5 mg/l)	● T, MCLx10 (0.5 mg/l)	▲ T, MCLx10 (0.5 mg/l)
■ D, None Exceeded	● D, None Exceeded	▲ D, None
■ T, None Exceeded	● T, None Exceeded	▲ T, None
■ D, Not Detected	● D, Not Detected	▲ D, Not Detected
■ T, Not Detected	● T, Not Detected	▲ T, Not Detected

Screening Level Contours
--- Queried Where Approximate

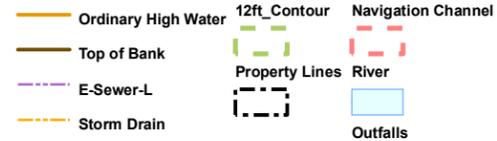
REVISED DRAFT

DO NOT QUOTE OR CITE
 This document is currently under review by US EPA and its federal, state, and tribal partners, and is subject to change in whole or in part.

Notes:
 1) If both Total and Dissolved values occur coincidentally at a sampling location, the dissolved value will appear on top.

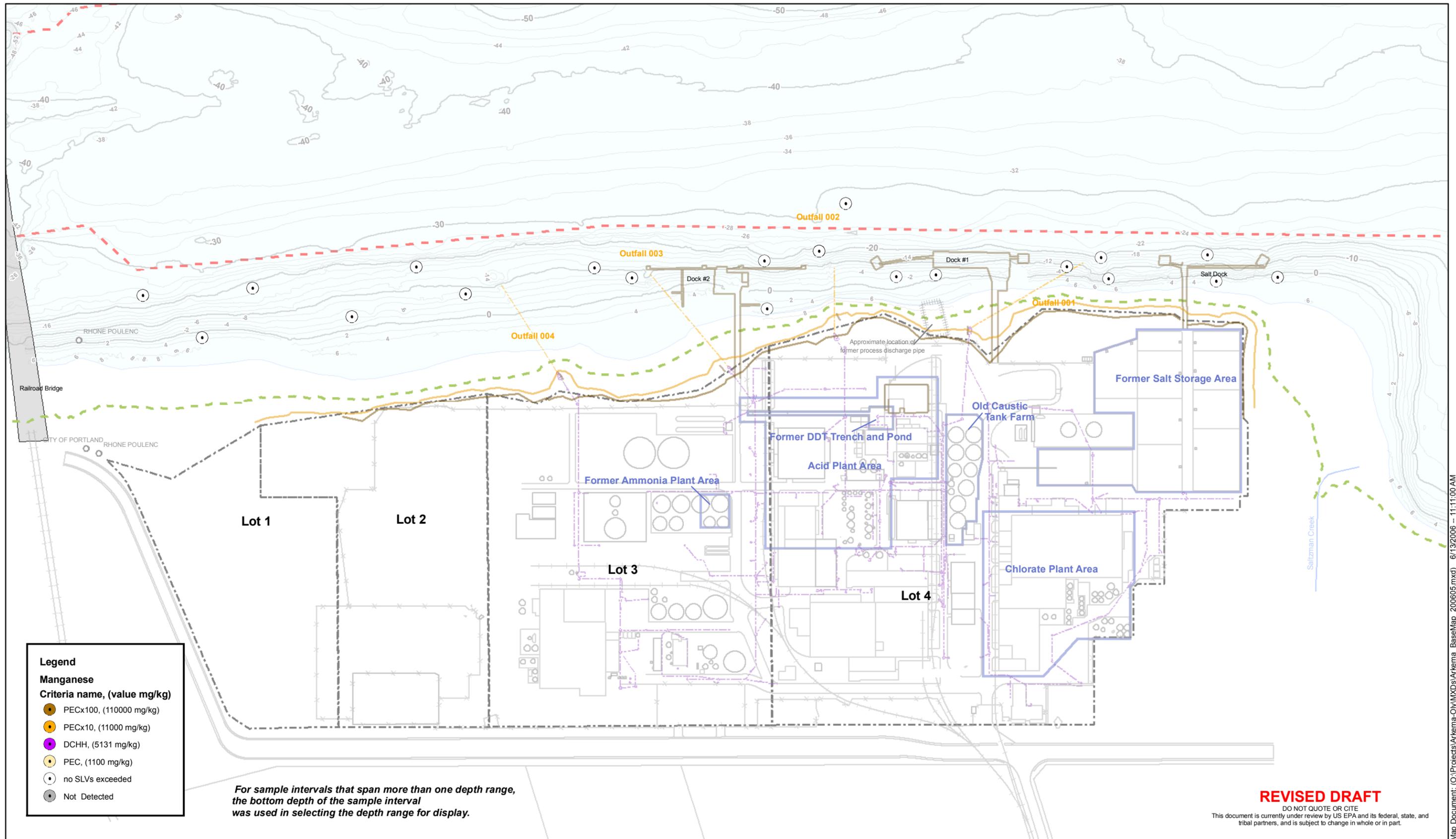


FEATURE SOURCES:
Bathymetric Information: Multibeam bathymetric survey conducted by David Evans and Associates, Inc. from February 6 - March 6, 2004. Contours were derived from a Digital Terrain Model (DTM) based on a three-foot grid of multibeam data.
Vertical Datum: North American Vertical Datum of 1988 (NAVD88).
Horizontal Datum: North American Datum of 1983 - 91 adjusted (NAD83/91), State Plane Coordinate System (SPCS), Oregon North Zone.
Units: International Feet.
Basemap: Basemap features updated in 2006 by David Evans and Associates. Ordinary high water line, top of bank, and other site features surveyed in April 2006.



Map-306
Arkema Site
Surface Water, Transition Zone Water,
and Groundwater Samples
Manganese

Map Document: (O:\Projects\Arkema-01\MXDs\ArkemaSW_DotMap_Screened_20060622.mxd) 6/23/2006 - 6:06:12 PM



Legend

Manganese

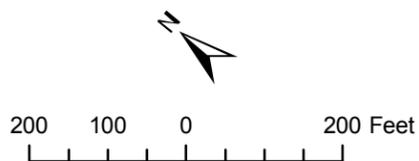
Criteria name, (value mg/kg)

- PECx100, (110000 mg/kg)
- PECx10, (11000 mg/kg)
- DCHH, (5131 mg/kg)
- PEC, (1100 mg/kg)
- no SLVs exceeded
- Not Detected

For sample intervals that span more than one depth range, the bottom depth of the sample interval was used in selecting the depth range for display.

REVISED DRAFT

DO NOT QUOTE OR CITE
 This document is currently under review by US EPA and its federal, state, and tribal partners, and is subject to change in whole or in part.

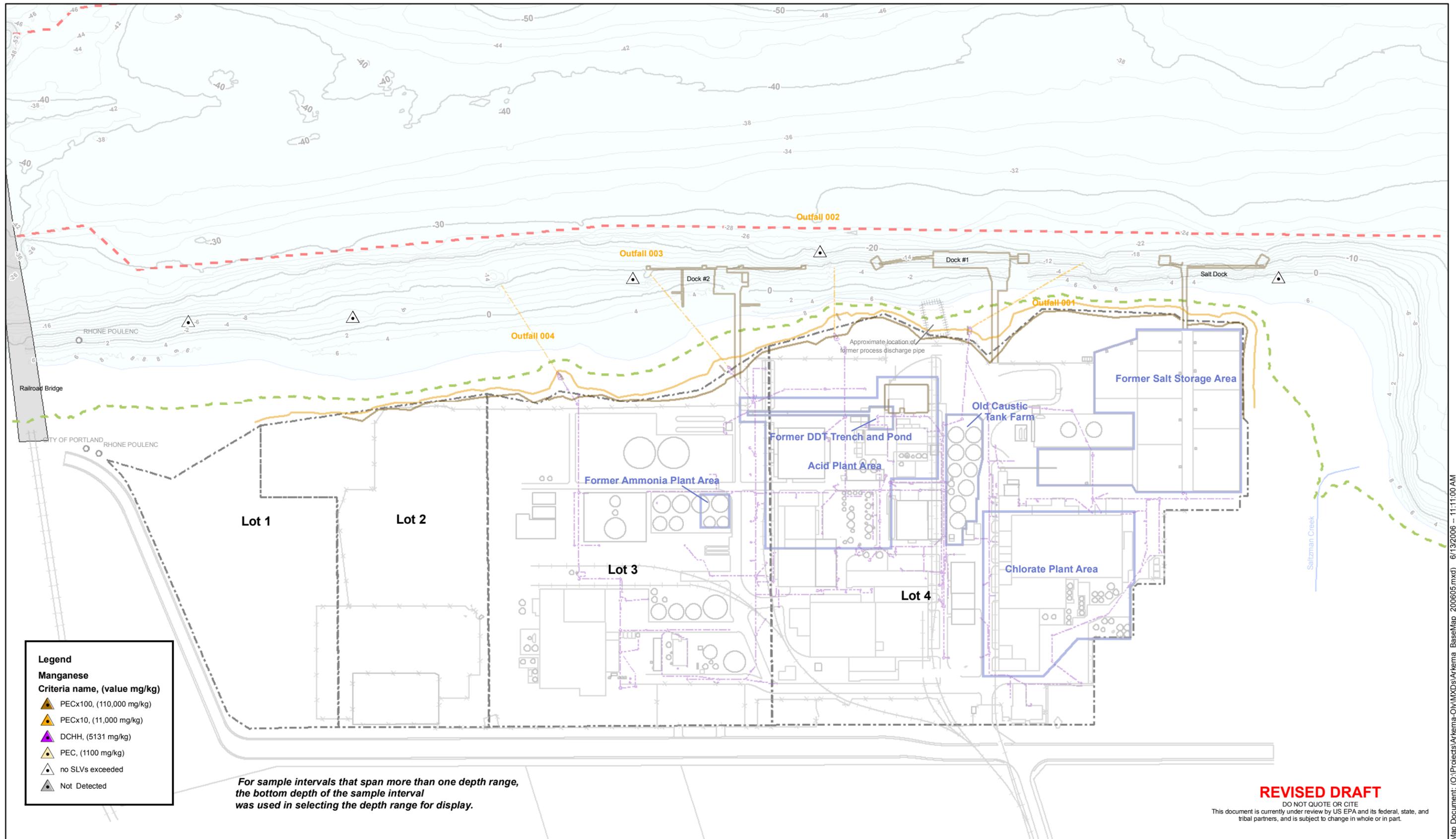


FEATURE SOURCES:
 Bathymetric Information: Multibeam bathymetric survey conducted by David Evans and Associates, Inc. from February 6 - March 6, 2004. Contours were derived from a Digital Terrain Model (DTM) based on a three-foot grid of multibeam data.
 Vertical Datum: North American Vertical Datum of 1988 (NAVD88).
 Horizontal Datum: North American Datum of 1983 - 91 adjusted (NAD83/91), State Plane Coordinate System (SPCS), Oregon North Zone.
 Units: International Feet.
 Basemap: Basemap features updated in 2006 by David Evans and Associates. Ordinary high water line, top of bank, and other site features surveyed in April 2006. Most buildings and structures on the Arkema site have been demolished or removed.
 OHW and Top of Slope lines were created from the April 2006 DEA survey, the +12ft contour line was derived from the combined lidar/bathymetry grid.
 Lot Lines: Created by importing pdf file from ERM, georeferencing to CAD lines (RMS error = 2.3042) and heads-up digitizing the lot lines.

— Ordinary High Water	— 12ft_Contour	— Navigation Channel
— Top of Bank	— Bridges	— River
— E-Sewer-L	— Property Lines	— Outfalls
— Storm Drain		

Map-307
Arkema Site
Surface & Sub-Surface Sediment Samples
Depth Range: Surface (0-1 ft)
Manganese

Map Document: (O:\Projects\Arkema-01\MapDocs\Arkema_BaseMap_200605.mxd) 6/13/2006 11:11:00 AM



Legend

Manganese

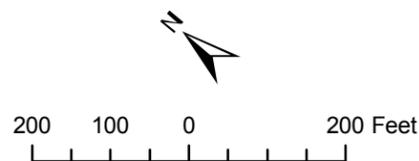
Criteria name, (value mg/kg)

- PECx100, (110,000 mg/kg)
- PECx10, (11,000 mg/kg)
- DCHH, (5131 mg/kg)
- PEC, (1100 mg/kg)
- no SLVs exceeded
- Not Detected

For sample intervals that span more than one depth range, the bottom depth of the sample interval was used in selecting the depth range for display.

REVISED DRAFT

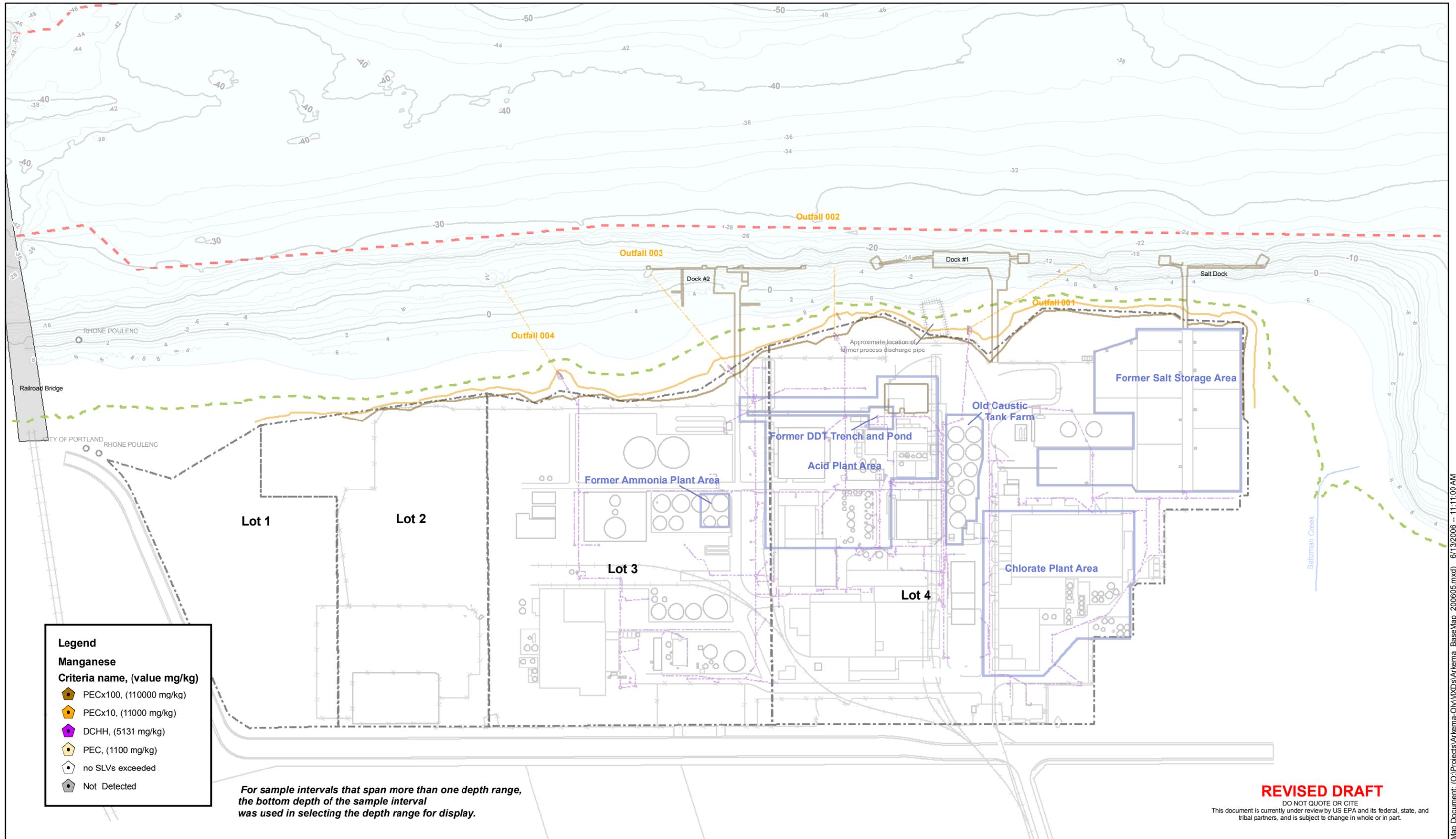
DO NOT QUOTE OR CITE
This document is currently under review by US EPA and its federal, state, and tribal partners, and is subject to change in whole or in part.



FEATURE SOURCES:
 Bathymetric Information: Multibeam bathymetric survey conducted by David Evans and Associates, Inc. from February 6 - March 6, 2004. Contours were derived from a Digital Terrain Model (DTM) based on a three-foot grid of multibeam data.
 Vertical Datum: North American Vertical Datum of 1988 (NAVD88).
 Horizontal Datum: North American Datum of 1983 - 91 adjusted (NAD83/91), State Plane Coordinate System (SPCS), Oregon North Zone.
 Units: International Feet.
 Basemap: Basemap features updated in 2006 by David Evans and Associates. Ordinary high water line, top of bank, and other site features surveyed in April 2006. Most buildings and structures on the Arkema site have been demolished or removed.
 OHW and Top of Slope lines were created from the April 2006 DEA survey, the +12ft contour line was derived from the combined lidar/bathymetry grid.
 Lot Lines: Created by importing pdf file from ERM, georeferencing to CAD lines (RMS error = 2.3042) and heads-up digitizing the lot lines.

Ordinary High Water	12ft Contour	Navigation Channel
Top of Bank	Bridges	River
E-Sewer-L	Property Lines	Outfalls
Storm Drain		

Map-308
Arkema Site
Surface & Sub-Surface Sediment Samples
Depth Range: Shallow Subsurface (1-4 ft)
Manganese



Legend

Manganese

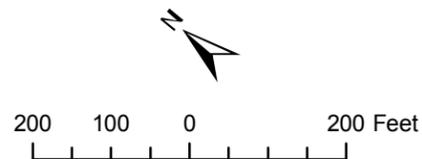
Criteria name, (value mg/kg)

- PECx100, (110000 mg/kg)
- PECx10, (11000 mg/kg)
- DCHH, (5131 mg/kg)
- PEC, (1100 mg/kg)
- no SLVs exceeded
- Not Detected

For sample intervals that span more than one depth range, the bottom depth of the sample interval was used in selecting the depth range for display.

REVISED DRAFT

DO NOT QUOTE OR CITE
This document is currently under review by US EPA and its federal, state, and tribal partners, and is subject to change in whole or in part.

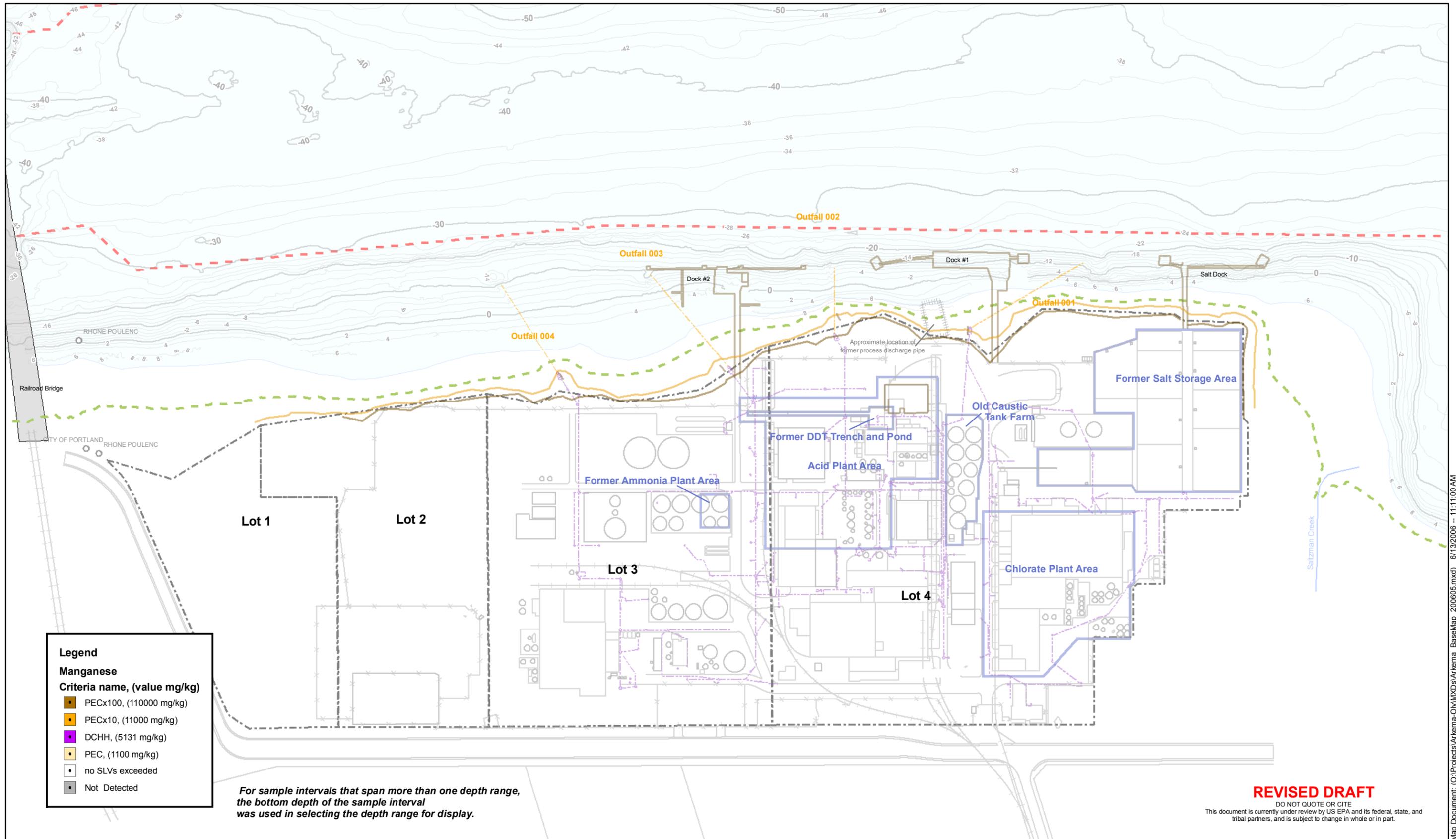


FEATURE SOURCES:
 Bathymetric Information: Multibeam bathymetric survey conducted by David Evans and Associates, Inc. from February 6 - March 6, 2004. Contours were derived from a Digital Terrain Model (DTM) based on a three-foot grid of multibeam data.
 Vertical Datum: North American Vertical Datum of 1988 (NAVD88).
 Horizontal Datum: North American Datum of 1983 - 91 adjusted (NAD83/91), State Plane Coordinate System (SPCS), Oregon North Zone.
 Units: International Feet.
 Basemap: Basemap features updated in 2006 by David Evans and Associates. Ordinary high water line, top of bank, and other site features surveyed in April 2006. Most buildings and structures on the Arkema site have been demolished or removed.
 OHW and Top of Slope lines were created from the April 2006 DEA survey, the +12ft contour line was derived from the combined lidar/bathymetry grid.
 Lot Lines: Created by importing pdf file from ERM, georeferencing to CAD lines (RMS error = 2.3042) and heads-up digitizing the lot lines.

— Ordinary High Water	12ft_Contour	Navigation Channel
— Top of Bank	— Bridges	— River
— E-Sewer-L	— Property Lines	— Outfalls
— Storm Drain	—	—

Map-309
Arkema Site
Surface & Sub-Surface Sediment Samples
Depth Range: Intermediate Subsurface (4-8 ft)
Manganese

Map Document: (O:\Projects\Arkema-01\MXDs\Arkema_BaseMap_200605.mxd) 6/13/2006 -- 11:11:00 AM



Legend

Manganese

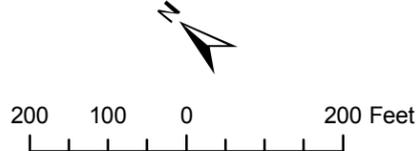
Criteria name, (value mg/kg)

■	PECx100, (110000 mg/kg)
■	PECx10, (11000 mg/kg)
■	DCHH, (5131 mg/kg)
■	PEC, (1100 mg/kg)
□	no SLVs exceeded
□	Not Detected

For sample intervals that span more than one depth range, the bottom depth of the sample interval was used in selecting the depth range for display.

REVISED DRAFT

DO NOT QUOTE OR CITE
This document is currently under review by US EPA and its federal, state, and tribal partners, and is subject to change in whole or in part.

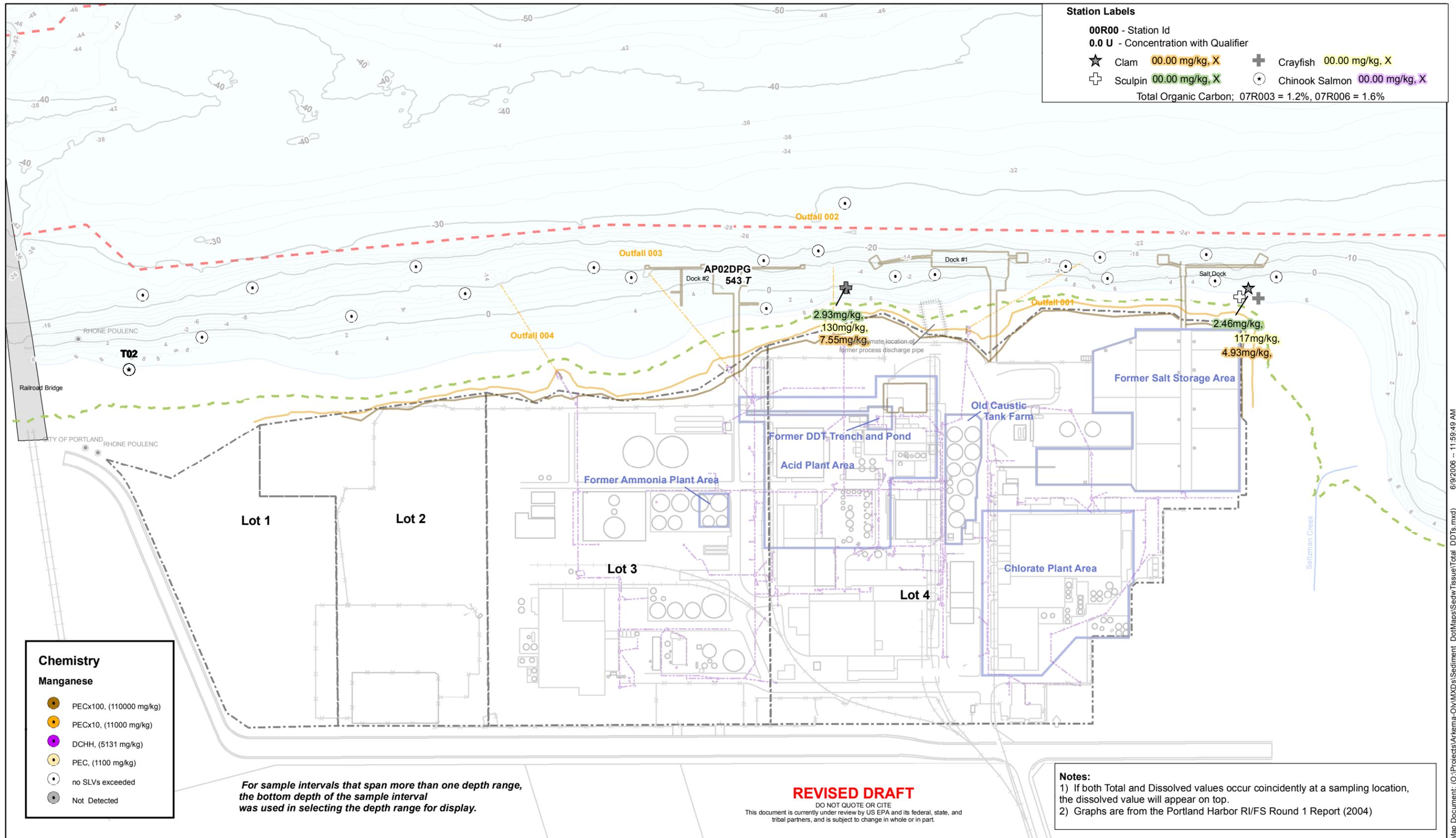


FEATURE SOURCES:
 Bathymetric Information: Multibeam bathymetric survey conducted by David Evans and Associates, Inc. from February 6 - March 6, 2004. Contours were derived from a Digital Terrain Model (DTM) based on a three-foot grid of multibeam data.
 Vertical Datum: North American Vertical Datum of 1988 (NAVD88).
 Horizontal Datum: North American Datum of 1983 - 91 adjusted (NAD83/91), State Plane Coordinate System (SPCS), Oregon North Zone.
 Units: International Feet.
 Basemap: Basemap features updated in 2006 by David Evans and Associates. Ordinary high water line, top of bank, and other site features surveyed in April 2006. Most buildings and structures on the Arkema site have been demolished or removed.
 OHW and Top of Slope lines were created from the April 2006 DEA survey, the +12ft contour line was derived from the combined lidar/bathymetry grid.
 Lot Lines: Created by importing pdf file from ERM, georeferencing to CAD lines (RMS error = 2.3042) and heads-up digitizing the lot lines.

—	Ordinary High Water	—	12ft_Contour	—	Navigation Channel
—	Top of Bank	—	Bridges	—	River
—	E-Sewer-L	—	Property Lines	—	Outfalls
—	Storm Drain	—		—	

Map-310
Arkema Site
Surface & Sub-Surface Sediment Samples
Depth Range: Deep Subsurface (> 8 ft)
Manganese

Map Document: (O:\Projects\Arkema-01\MapDocs\Arkema_BaseMap_200605.mxd) 6/13/2006 11:11:00 AM



Station Labels

00R00 - Station Id
 0.0 U - Concentration with Qualifier

★ Clam	00.00 mg/kg, X	+	Crayfish	00.00 mg/kg, X
⊕ Sculpin	00.00 mg/kg, X	⊙	Chinook Salmon	00.00 mg/kg, X

Total Organic Carbon: 07R003 = 1.2%, 07R006 = 1.6%

Chemistry

Manganese

●	PECx100, (110000 mg/kg)
●	PECx10, (11000 mg/kg)
●	DCHH, (5131 mg/kg)
●	PEC, (1100 mg/kg)
○	no SLVs exceeded
○	Not Detected

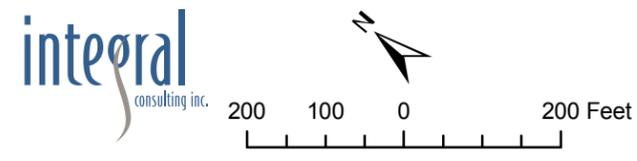
For sample intervals that span more than one depth range, the bottom depth of the sample interval was used in selecting the depth range for display.

REVISED DRAFT
 DO NOT QUOTE OR CITE
 This document is currently under review by US EPA and its federal, state, and tribal partners, and is subject to change in whole or in part.

Notes:
 1) If both Total and Dissolved values occur coincidentally at a sampling location, the dissolved value will appear on top.
 2) Graphs are from the Portland Harbor RI/FS Round 1 Report (2004)

FEATURE SOURCES:
 Bathymetric Information: Multibeam bathymetric survey conducted by David Evans and Associates, Inc. from February 6 - March 6, 2004. Contours were derived from a Digital Terrain Model (DTM) based on a three-foot grid of multibeam data.
 Vertical Datum: North American Vertical Datum of 1988 (NAVD88).
 Horizontal Datum: North American Datum of 1983 - 91 adjusted (NAD83/91), State Plane Coordinate System (SPCS), Oregon North Zone.
 Units: International Feet.
 Basemap: Basemap features updated in 2006 by David Evans and Associates. Ordinary high water line, top of bank, and other site features surveyed in April 2006. Basemap features reflect structures that have been removed from the site.
 OHW and Top of Slope lines were created from the April 2006 DEA survey, the +12ft contour line was derived from the combined lidar/bathymetry grid.

—	Ordinary High Water	—	12ft_Contour	—	Navigation Channel
—	Top of Bank	—	Bridges	—	River
—	E-Sewer-L	—	Property Lines	—	Outfalls
—	Storm Drain	—		—	



Map-311
Arkema Site
Surface Sediment & Tissue Samples
Manganese
Depth Range: Surface (0 - 1 ft)

Map Document: (O:\Projects\Arkema-0\MapDocs\Sediment_DotMaps\SedW\Tissue\Total_DDTs.mxd) 6/9/2006 -- 11:59:49 AM