

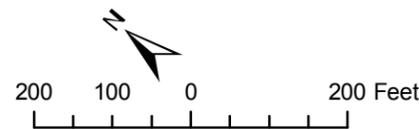
Chemistry Legend

Nickel - Surface Water		Nickel - Transition Water		Nickel - Ground Water	
total_or_dissolved	Exceedance_class	total_or_dissolved	Exceedance_class	total_or_dissolved	Exceedance_class
Green square	D, HH_Fishx10000 (4600 mg/l)	Green circle	D, HH_Fishx10000 (46000 mg/l)	Green triangle	D, HH_Fishx10000 (46000 mg/l)
Light green square	T, HH_Fishx10000 (4600 mg/l)	Light green circle	T, HH_Fishx10000 (46000 mg/l)	Light green triangle	T, HH_Fishx10000 (46000 mg/l)
Orange square	D, Acute (0.15902 mg/l)	Orange circle	D, Acute (0.15902 mg/l)	Orange triangle	D, Acute (0.15902 mg/l)
Light orange square	T, Acute (0.15902 mg/l)	Light orange circle	T, Acute (0.15902 mg/l)	Light orange triangle	T, Acute (0.15902 mg/l)
Yellow square	D, Chronic (0.018 mg/l)	Yellow circle	D, Chronic (0.018 mg/l)	Yellow triangle	D, Chronic (0.018 mg/l)
Light yellow square	T, Chronic (0.018 mg/l)	Light yellow circle	T, Chronic (0.018 mg/l)	Light yellow triangle	T, Chronic (0.018 mg/l)
White square with black border	D, None Exceeded	White circle with black border	D, None Exceeded	White triangle with black border	D, None Exceeded
White square with black border	T, None Exceeded	White circle with black border	T, None Exceeded	White triangle with black border	T, None Exceeded
Grey square	D, Not Detected	Grey circle	D, Not Detected	Grey triangle	D, Not Detected
Light grey square	T, Not Detected	Light grey circle	T, Not Detected	Light grey triangle	T, Not Detected

REVISION 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DO NOT QUOTE OR CITE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.

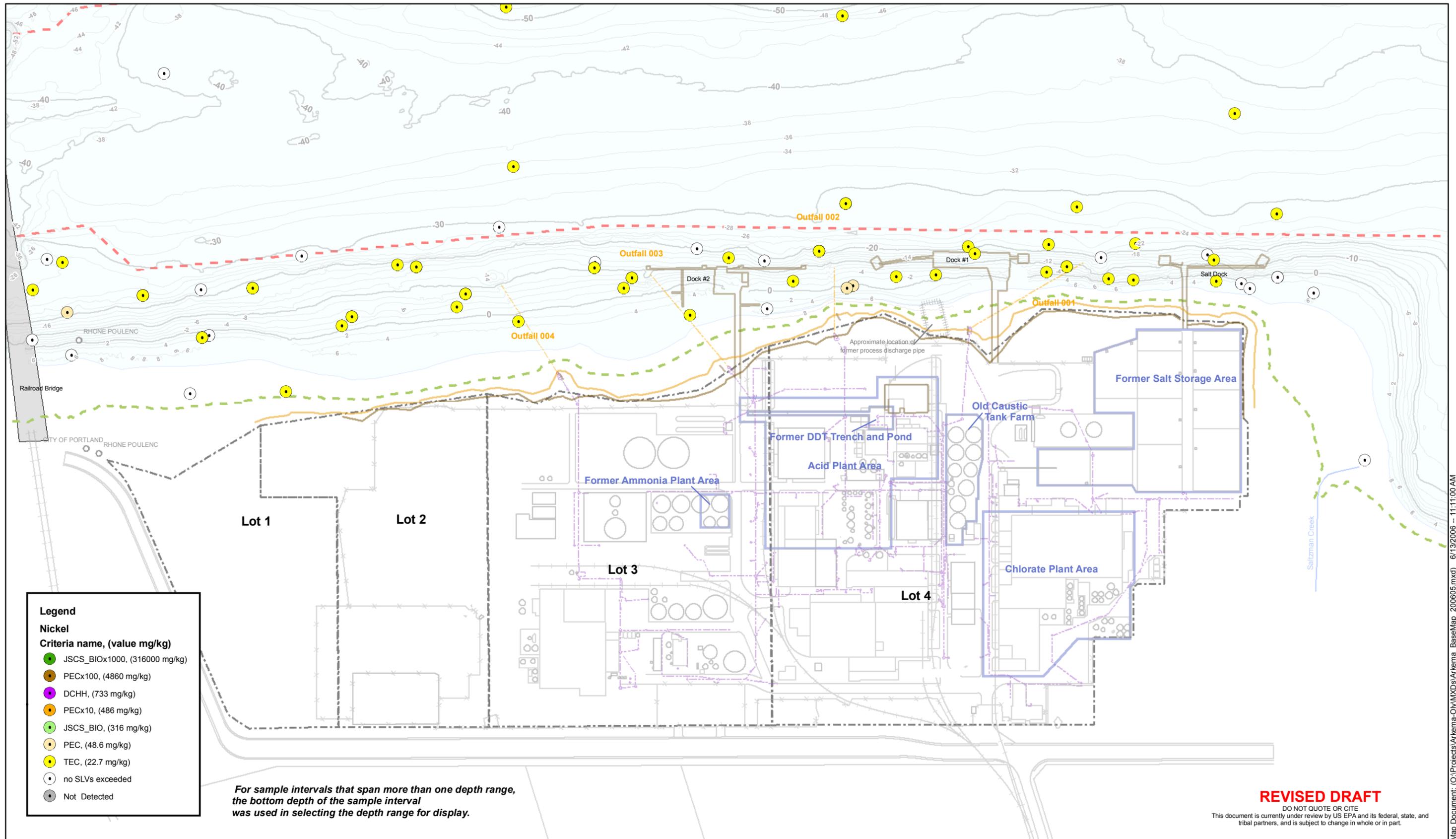


FEATURE SOURCES:
Bathymetric Information: Multibeam bathymetric survey conducted by David Evans and Associates, Inc. from February 6 - March 6, 2004. Contours were derived from a Digital Terrain Model (DTM) based on a three-foot grid of multibeam data.
Vertical Datum: North American Vertical Datum of 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.

Orange line	Ordinary High Water	Green dashed line	12ft_Contour	Red dashed line	Navigation Channel
Black line	Top of Bank	Black dashed line	Property Lines	Blue line	River
Purple dashed line	E-Sewer-L	Blue line	Outfalls		
Yellow dashed line	Storm Drain				

Map-312
Arkema Site
Surface Water, Transition Zone Water,
and Groundwater Samples
Nickel

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

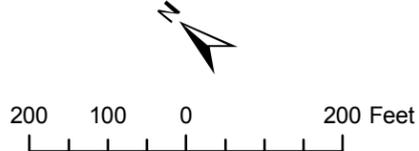


- Legend**
- Nickel**
- Criteria name, (value mg/kg)**
- JSCS_BIOx1000, (316000 mg/kg)
 - PECx100, (4860 mg/kg)
 - DCHH, (733 mg/kg)
 - PECx10, (486 mg/kg)
 - JSCS_BIO, (316 mg/kg)
 - PEC, (48.6 mg/kg)
 - TEC, (22.7 mg/kg)
 - no SLVs exceeded
 - Not Detected

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.

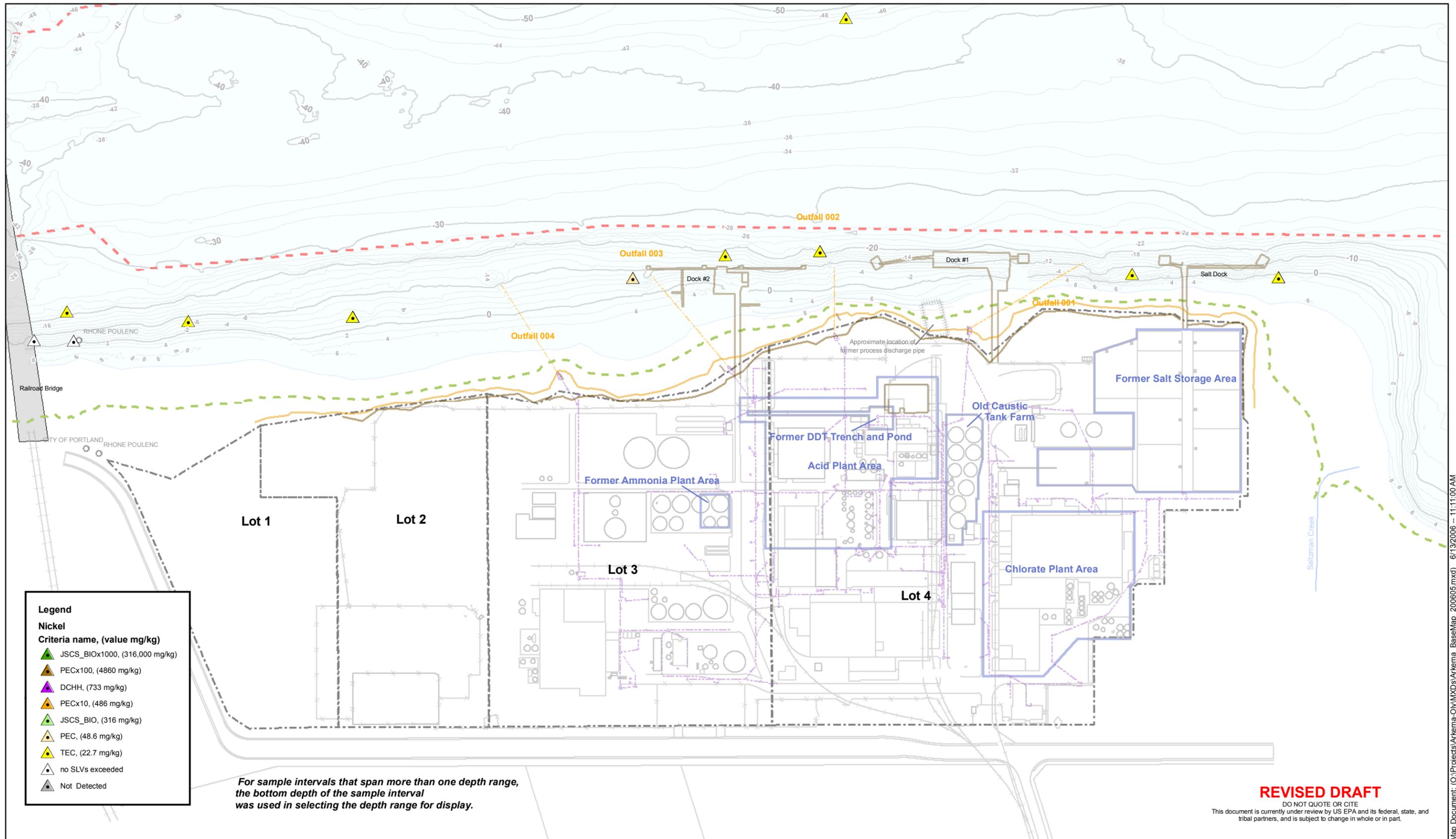


FEATURE SOURCES:
 Bathymetric Information: Multibeam bathymetric survey conducted by David Evans and Associates, Inc. from February 6 - March 6, 2004. Contours were derived from a Digital Terrain Model (DTM) based on a three-foot grid of multibeam data.
 Vertical Datum: North American Vertical Datum 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
- Top of Bank
- E-Sewer-L
- - - Storm Drain
- - - 12ft Contour
- Bridges
- Property Lines
- - - Navigation Channel
- River
- Outfalls

Map-313
Arkema Site
Surface & Sub-Surface Sediment Samples
Depth Range: Surface (0-1 ft)
Nickel

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



Legend

Nickel

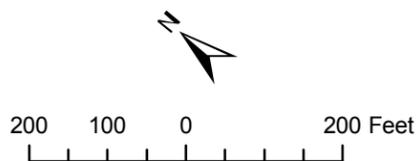
Criteria name, (value mg/kg)

- ▲ JSCS_BIOx1000, (316,000 mg/kg)
- ▲ PECx100, (4860 mg/kg)
- ▲ DCHH, (733 mg/kg)
- ▲ PECx10, (486 mg/kg)
- ▲ JSCS_BIO, (316 mg/kg)
- ▲ PEC, (48.6 mg/kg)
- ▲ TEC, (22.7 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.

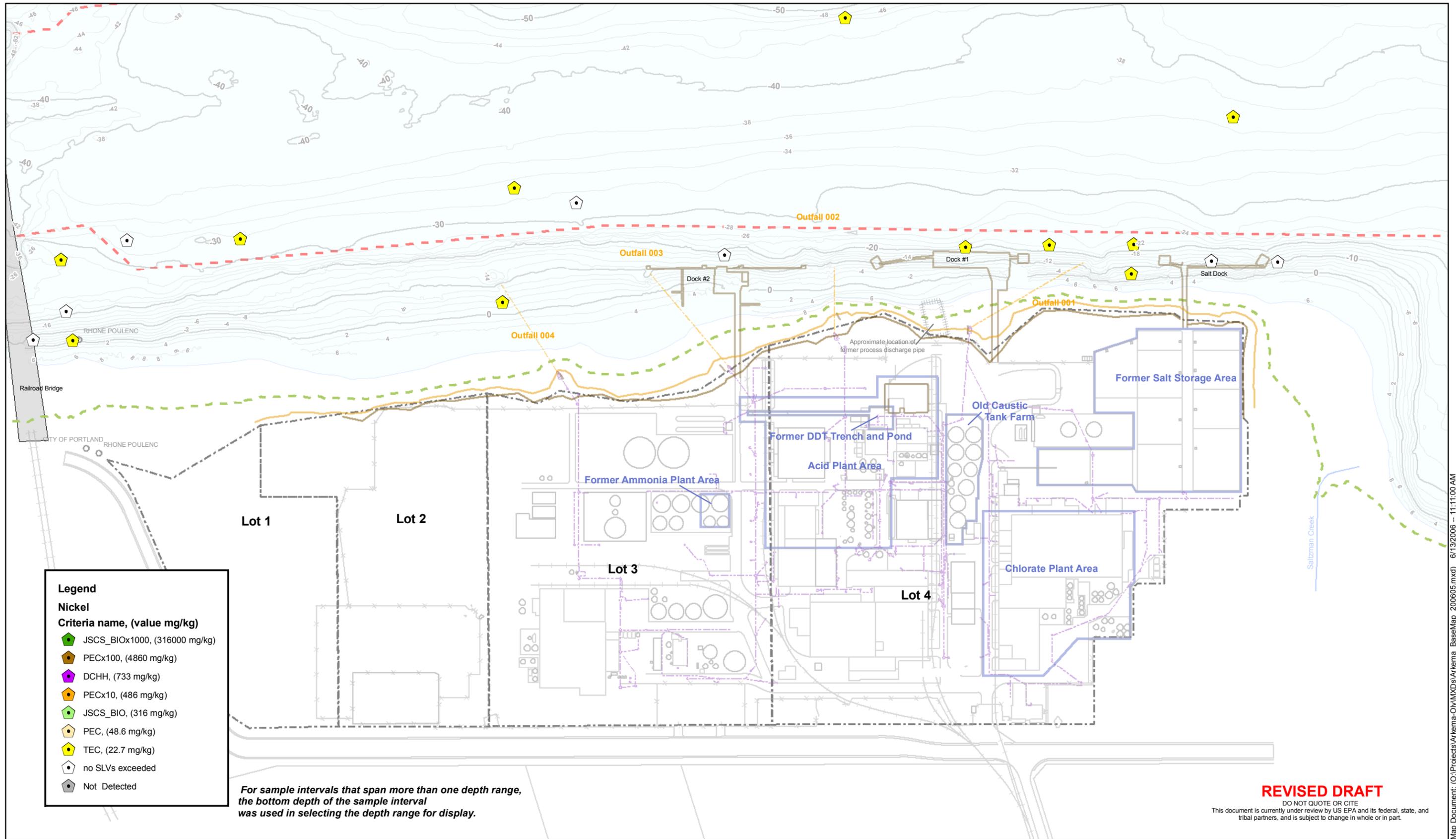


FEATURE SOURCES:
 Bathymetric Information: Multibeam bathymetric survey conducted by David Evans and Associates, Inc. from February 6 - March 6, 2004. Contours were derived from a Digital Terrain Model (DTM) based on a three-foot grid of multibeam data.
 Vertical Datum: North American Vertical Datum 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	- - - Lot Lines	

Map-314
Arkema Site
Surface & Sub-Surface Sediment Samples
Depth Range: Shallow Subsurface (1-4 ft)
Nickel

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



Legend

Nickel

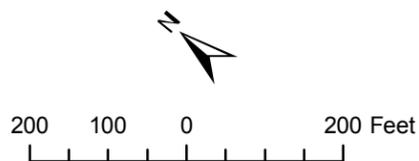
Criteria name, (value mg/kg)

- ◆ JSCS_BIOx1000, (316000 mg/kg)
- ◆ PECx100, (4860 mg/kg)
- ◆ DCHH, (733 mg/kg)
- ◆ PECx10, (486 mg/kg)
- ◆ JSCS_BIO, (316 mg/kg)
- ◆ PEC, (48.6 mg/kg)
- ◆ TEC, (22.7 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.

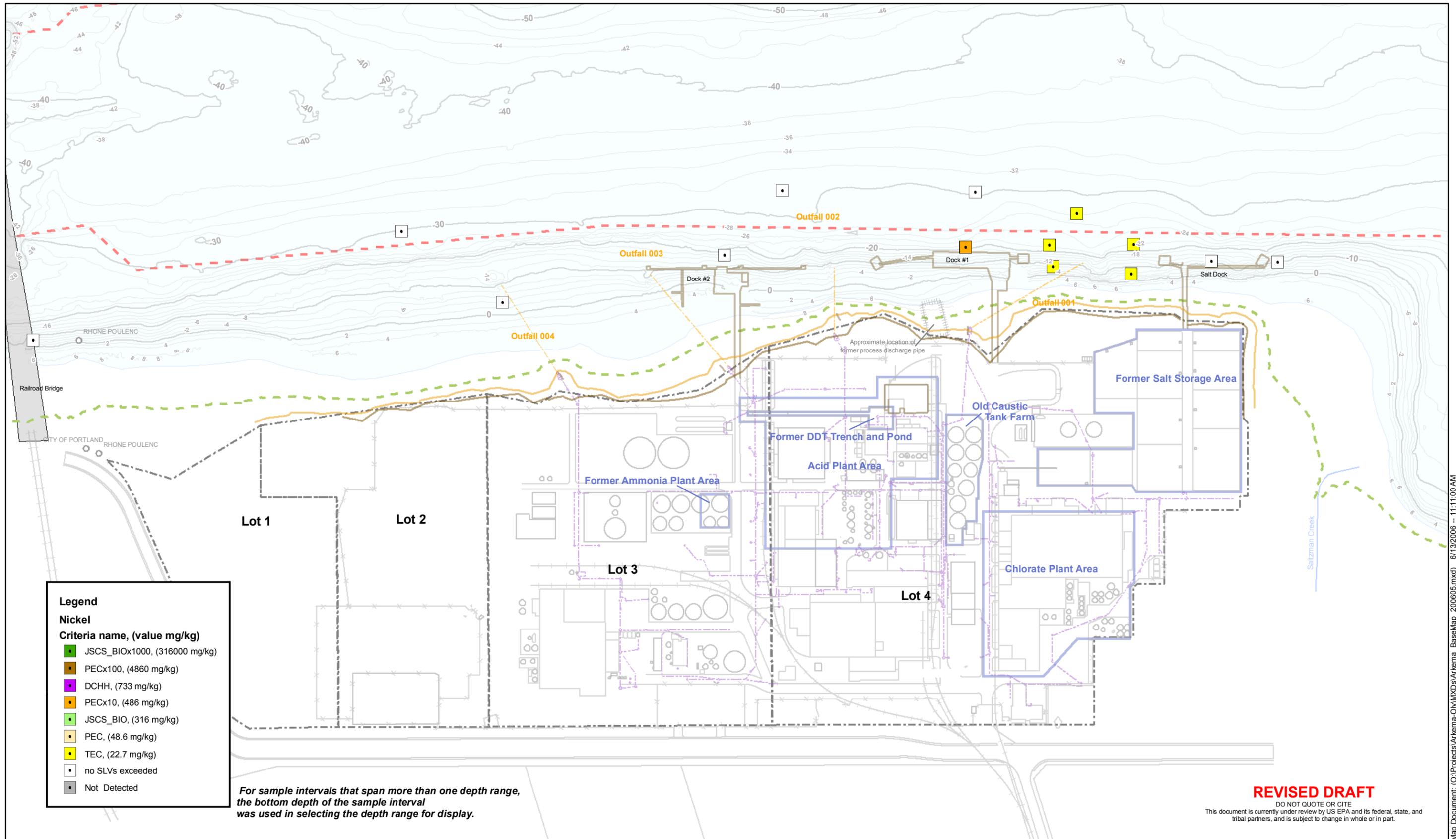


FEATURE SOURCES:
 Bathymetric Information: Multibeam bathymetric survey conducted by David Evans and Associates, Inc. from February 6 - March 6, 2004. Contours were derived from a Digital Terrain Model (DTM) based on a three-foot grid of multibeam data.
 Vertical Datum: North American Vertical Datum 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	- - - Property Lines	● Outfalls

Map-315
Arkema Site
Surface & Sub-Surface Sediment Samples
Depth Range: Intermediate Subsurface (4-8 ft)
Nickel

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



Legend

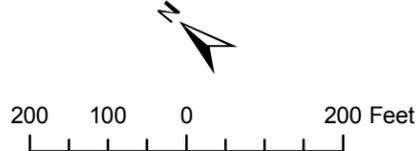
Nickel

Criteria name, (value mg/kg)

Green square	JSCS_BIOx1000, (316000 mg/kg)
Brown square	PECx100, (4860 mg/kg)
Purple square	DCHH, (733 mg/kg)
Orange square	PECx10, (486 mg/kg)
Light green square	JSCS_BIO, (316 mg/kg)
Light brown square	PEC, (48.6 mg/kg)
Yellow square	TEC, (22.7 mg/kg)
White square with black border	no SLVs exceeded
Grey square	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.

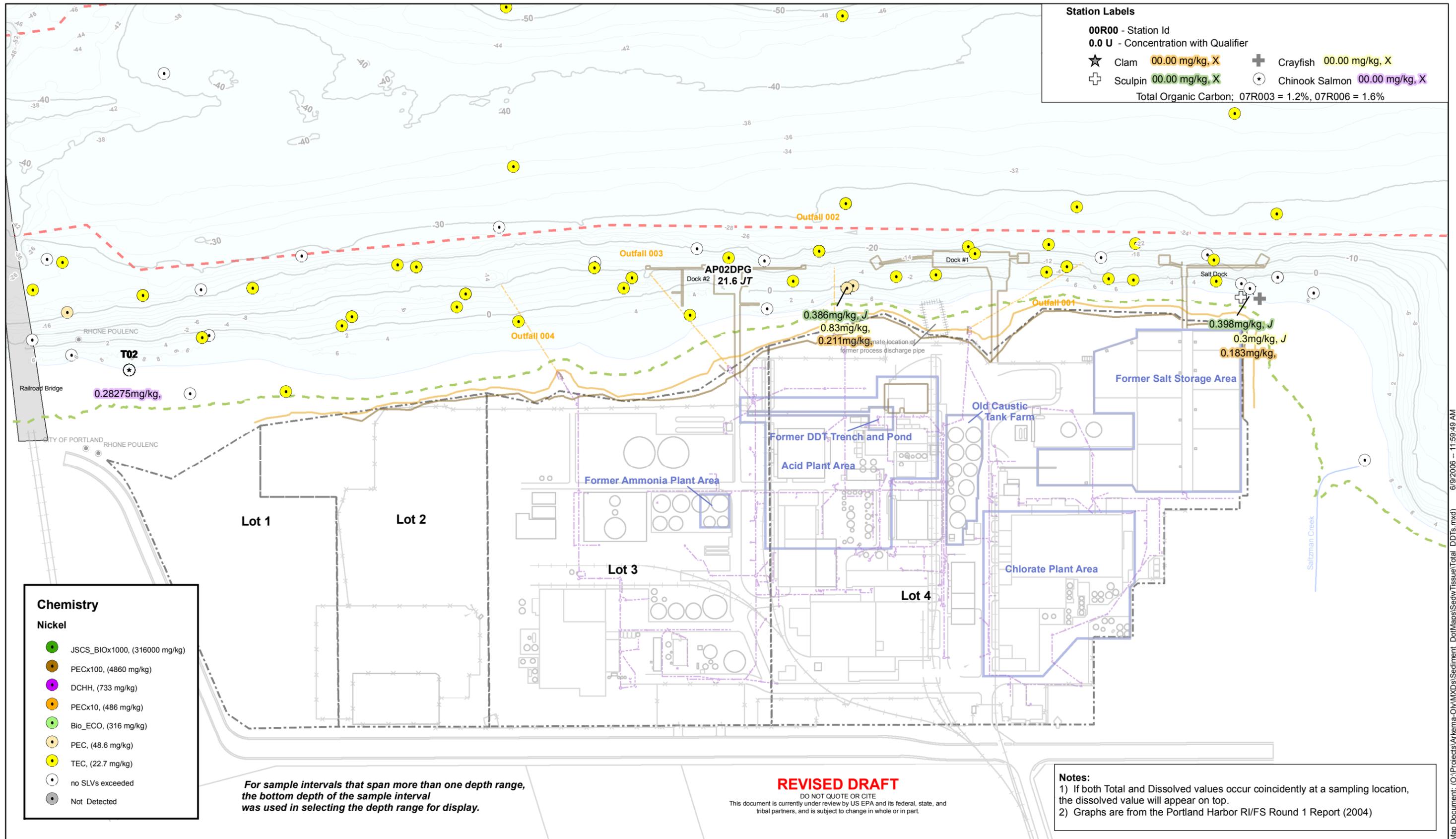


FEATURE SOURCES:
 Bathymetric Information: Multibeam bathymetric survey conducted by David Evans and Associates, Inc. from February 6 - March 6, 2004. Contours were derived from a Digital Terrain Model (DTM) based on a three-foot grid of multibeam data.
 Vertical Datum: North American Vertical Datum 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.

Orange line	Ordinary High Water	Green dashed line	12ft_Contour	Red dashed line	Navigation Channel
Brown line	Top of Bank	Black dashed line	Bridges	Blue line	River
Purple dashed line	E-Sewer-L	Grey rectangle	Property Lines	Black circle	Outfalls
Yellow dashed line	Storm Drain	Black dashed line			

Map-316
Arkema Site
Surface & Sub-Surface Sediment Samples
Depth Range: Deep Subsurface (> 8 ft)
Nickel

Map Document: (O:\Projects\Arkema-01\MXDs\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

Nickel

●	JSCS_BIOx1000, (316000 mg/kg)
●	PECx100, (4860 mg/kg)
●	DCHH, (733 mg/kg)
●	PECx10, (486 mg/kg)
●	Bio_ECO, (316 mg/kg)
●	PEC, (48.6 mg/kg)
●	TEC, (22.7 mg/kg)
○	no SLVs exceeded
○	Not Detected

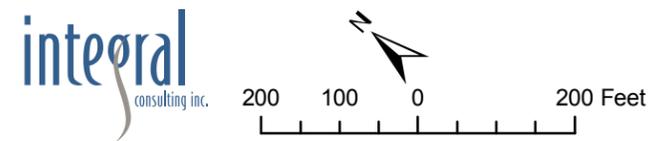
For sample intervals that span more than one depth range, the bottom depth of the sample interval was used in selecting the depth range for display.

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-317
Arkema Site
Surface Sediment and Tissue Samples
Nickel
Depth Range: Surface (0 - 1 ft)

Map Document: (O:\Projects\Arkema-01\MapDocs\Sediment_DotMaps\SedWtTissueTotal_DDTs.mxd) 6/9/2006 - 11:59:49 AM