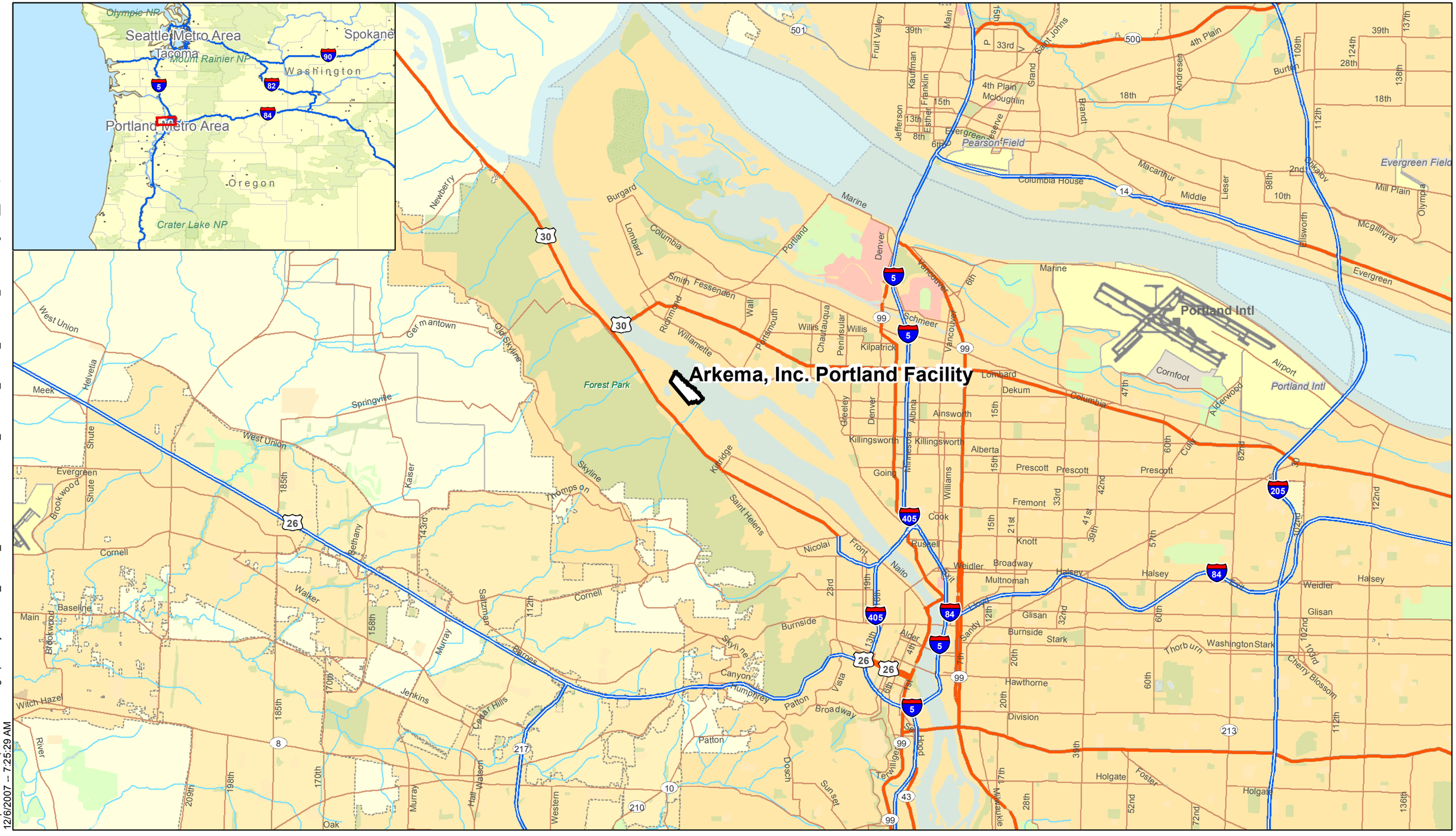
FIGURES



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integral consulting inc.

0 1.25 2.5 5 Miles

N

Figure 2-1
Regional Map

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integral consulting inc.

0 500 1,000 2,000 Feet

Figure 2-2
Site Map, with Adjacent Land Owners

Estimated Acid Plant Area RiverBank Fill

Proposed 1977, 1984, and 1993 dredge areas

Approximate location of former DDT pond and trench

Estimated location of 1956 dredging activities

Dock #2

Dock #1

Salt Dock

Estimated fill area from the 1956 dredging activities

Ordinary Highwater Line Based On Elevation of 20.46' NAVD88.

Acid Plant Area

Outfall 004

Outfall 003

Outfall 002

Outfall 001

RHONE POULENC

Railroad Bridge

Approximate Location of Former Process Discharge Pipe

Old Caustic Tank Farm

Salt Pads

Former DDT Process Building

Warehouse No. 2

Former Chlorate Plant Barge Loading Overhead Pipeline

CITY OF PORTLAND

RHONE POULENC

Approximate Top of Bank

Former Ammonia Plant Area

Former brine mud pile and pond area

Former location of asbestos trenches

Boiler Room

Chlorate Plant

Warehouse No. 1

New Caustic Tank Farm

Former Asbestos Ponds

BPA Substation Annex

Lot 1

Lot 2

Lot 3

BPA Main Substation

Lot 4

New Chlorine Cell room (1962-2001)

Old Chlorine cell room (1946-1971)

CB-001-01
CB-001-02
CB-001-04
CB-001-05
CB-001-06
CB-001-07
CB-002-01
CB-002-02
CB-002-03
CB-003-01
CB-003-02
CB-003-03
CB-003-04
CB-003-05
CB-003-06
CB-003-07
CB-003-08
CB-004-01
CB-004-02
CB-004-03

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integral consulting inc.

0 0.02 0.04 0.08 Miles

E-Sewer-L
Storm Drain
12ft_Contour
Navigation Channel
Bridges
Property Lines
Outfalls
Catch Basins
Top of Bank
Ordinary Low Water Line
Mean High Water
Overhead Pipeline
Estimated Fill Area
Proposed 1977, 1984, and 1993 dredge areas
Estimated Dredged Area

Figure 2-3
Dredge and Fill and Historical Uses of Site

Map Document: (\\192.168.5.11\gis\po\Projects\C167_Arkema_Arkema\mxd2007\FIG4_12052007_Arkema_ECO-HHR_overview-figures__.mxd)
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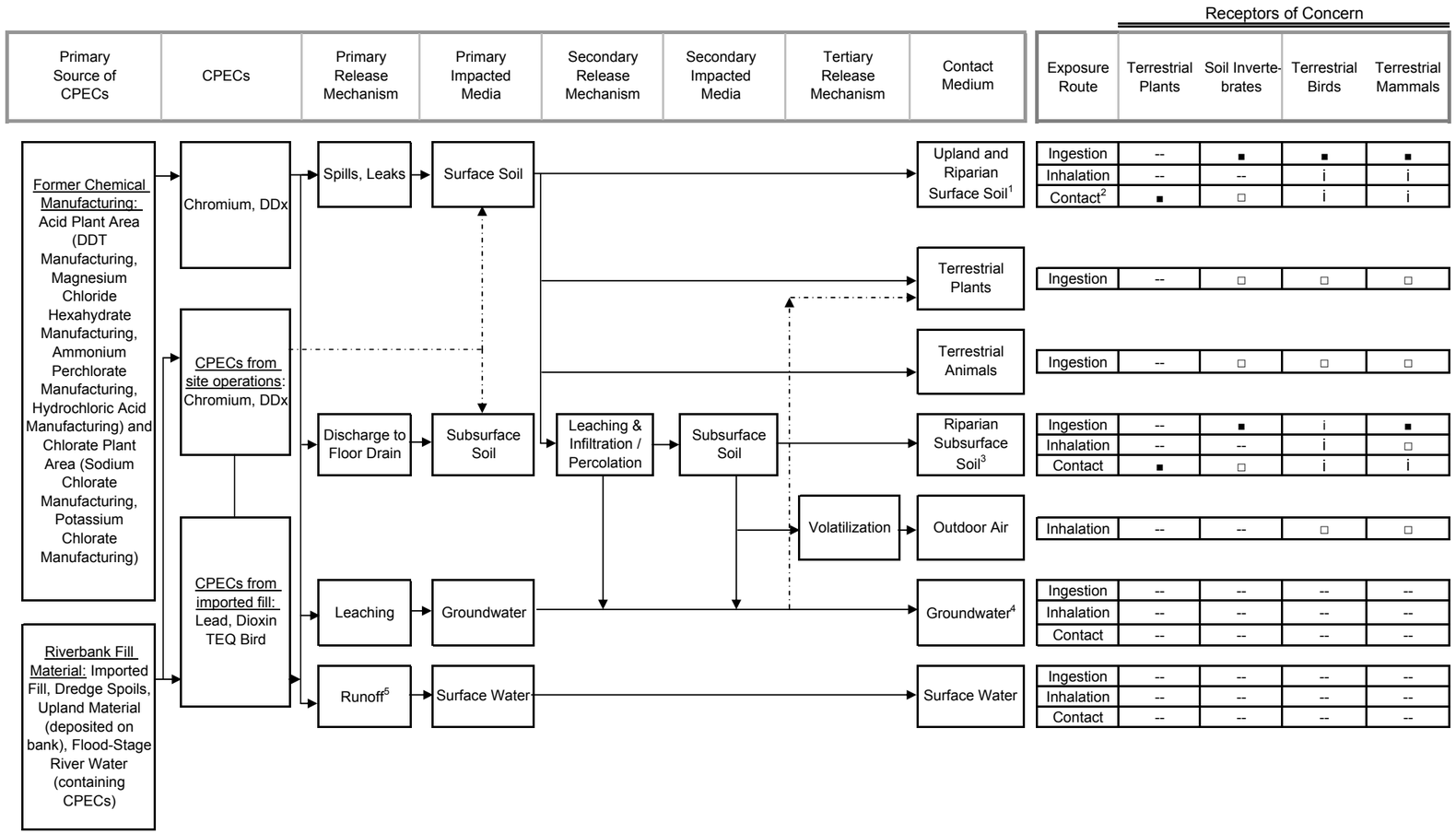
integral consulting inc.

0 125 250 500 Feet

Figure 3-1
Selected Ecological Soil Sample Locations



Key:

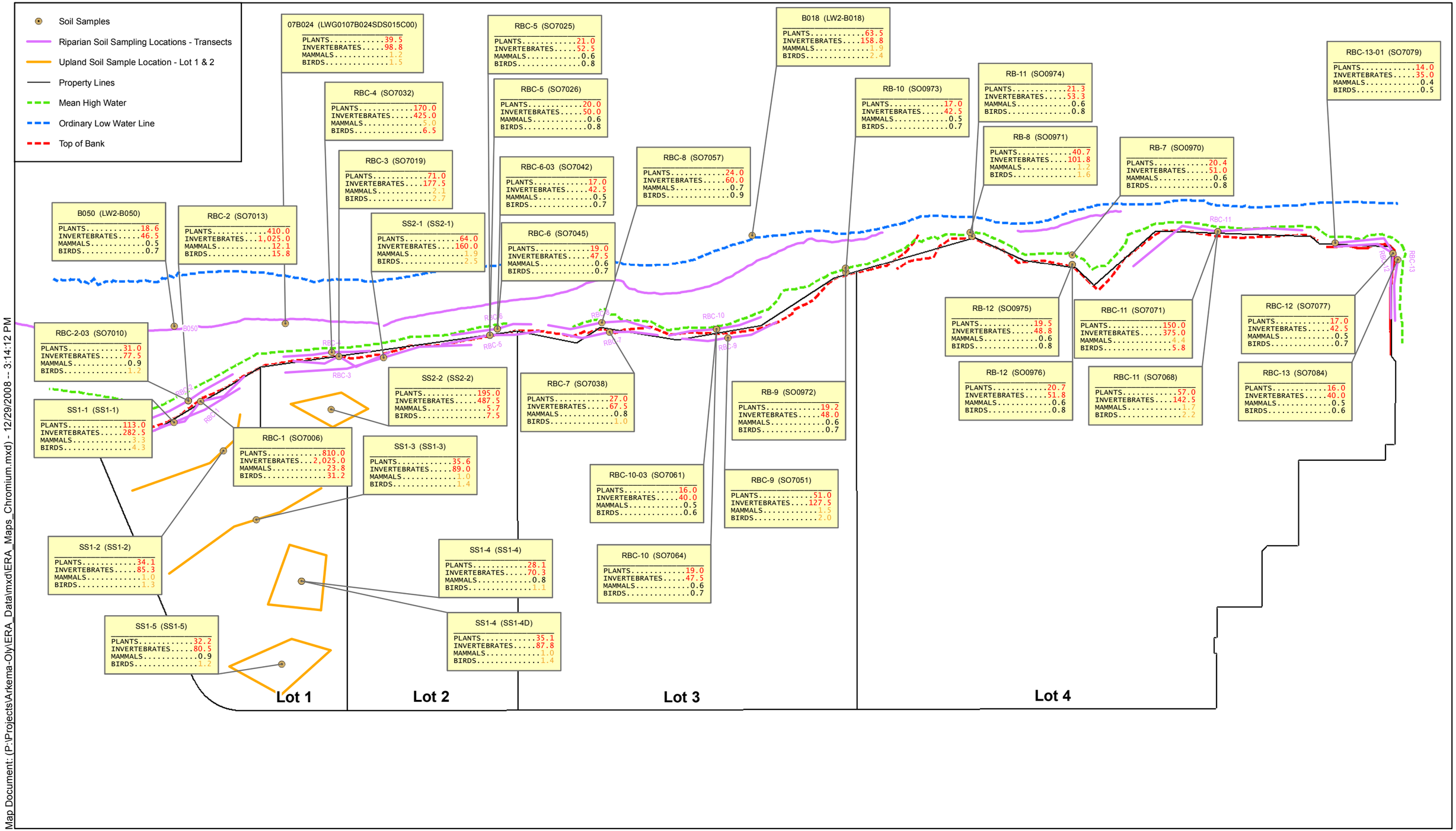
■ = Complete and significant exposure pathway.
□ = Potentially complete exposure pathway, not quantified in ERA.
i = Complete and insignificant exposure pathway.
-- = Incomplete exposure pathway.

Notes:

CSM includes potential chemical transport pathways and exposure media for ecological habitat in Lots 1 and 2 (upland habitat) and the riverbank (riparian habitat).
In-water transport pathways, exposure media, and exposure pathways are discussed in Section 4 of the Arkema EE/CA Work Plan (Integral 2006).
Dashed lines are employed for resolving arrow paths especially where arrows intersect.
2,4'- and 4,4'-DDD, DDE, and DDT are expressed as DDx.

[1] For the purposes of this ERA, surface soil is defined as soil between the ground surface and 0.5 ft below ground surface (bgs), except for the upland where surface soil samples from 0 to 1.0 ft bgs were used.
[2] Contact route for plants is via root uptake and for animals is via direct dermal exposure and assimilation.
[3] For the purposes of this ERA, subsurface soil is defined as extending between 0.5 ft bgs and 3.0 ft bgs. No data is available for upland subsurface soil, as samples extend to a maximum of 1 ft bgs and were therefore classified with surface soils.
[4] Groundwater at the site is deeper than accessible by the plant root zone and to wildlife receptors (>1m); therefore, groundwater pathway is not expected to be a source of contaminants for terrestrial plants or animals.
[5] Stormwater is collected and conveyed to the Willamette River and managed under a NPDES permit issued by DEQ. No overland run-off is expected.

Figure 7-1
Ecological Conceptual Site Model



Map Document: (P:\Projects\Arkema-Oly\ERA_Data\mxd\ERA_Maps_Chromium.mxd) - 12/29/2008 -- 3:14:12 PM

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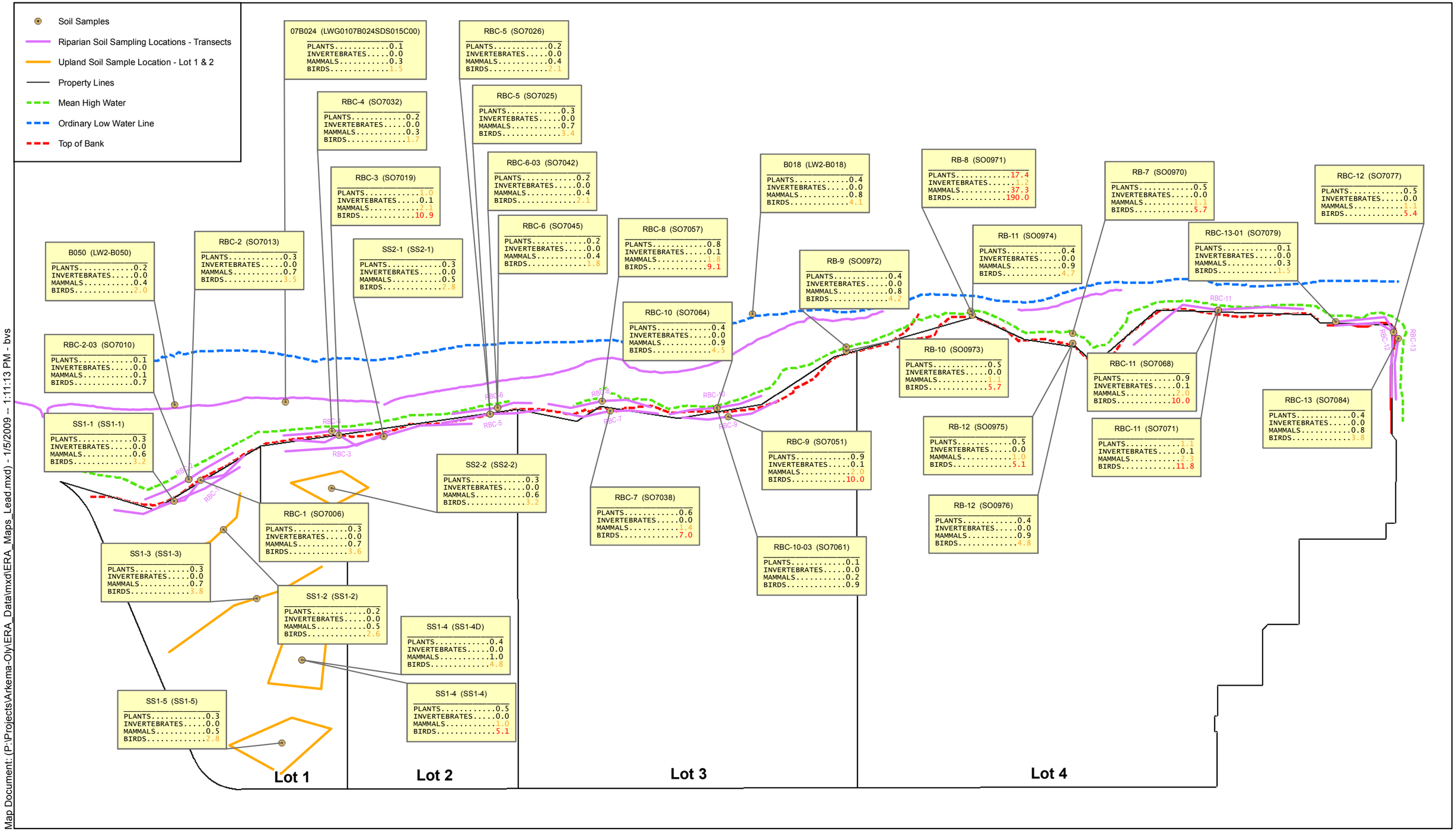
0 100 200 400 Feet

Location → SS1-5 (SS1-5) ← Sample ID

Receptors → PLANTS.....32.2 INVERTEBRATES.....80.5 MAMMALS.....0.9 BIRDS.....1.2 ← concentration:SLV ratios

- < 1.0 (No SLV Exceedance)
- < 5.0 (SLV Exceeded)
- >= 5.0 (SLV Exceeded 5x or Greater)

Figure 7-2
Relative Exceedances of Screening Level Values
Chromium



Map Document: (P:\Projects\Arkema-Oly\ERA_Data\mxd\ERA_Maps_Lead.mxd) - 1/5/2009 -- 1:11:13 PM - bvs

integral consulting inc.

0 100 200 400 Feet

Location → SS1-5 (SS1-5) ← Sample ID

Receptors → PLANTS.....32.2 INVERTEBRATES.....80.5 MAMMALS.....0.9 BIRDS.....1.2 ← concentration:SLV ratios

- < 1.0 (No SLV Exceedance)
- < 5.0 (SLV Exceeded)
- >= 5.0 (SLV Exceeded 5x or Greater)

Figure 7-3
Relative Exceedances of Screening Level Values
Lead

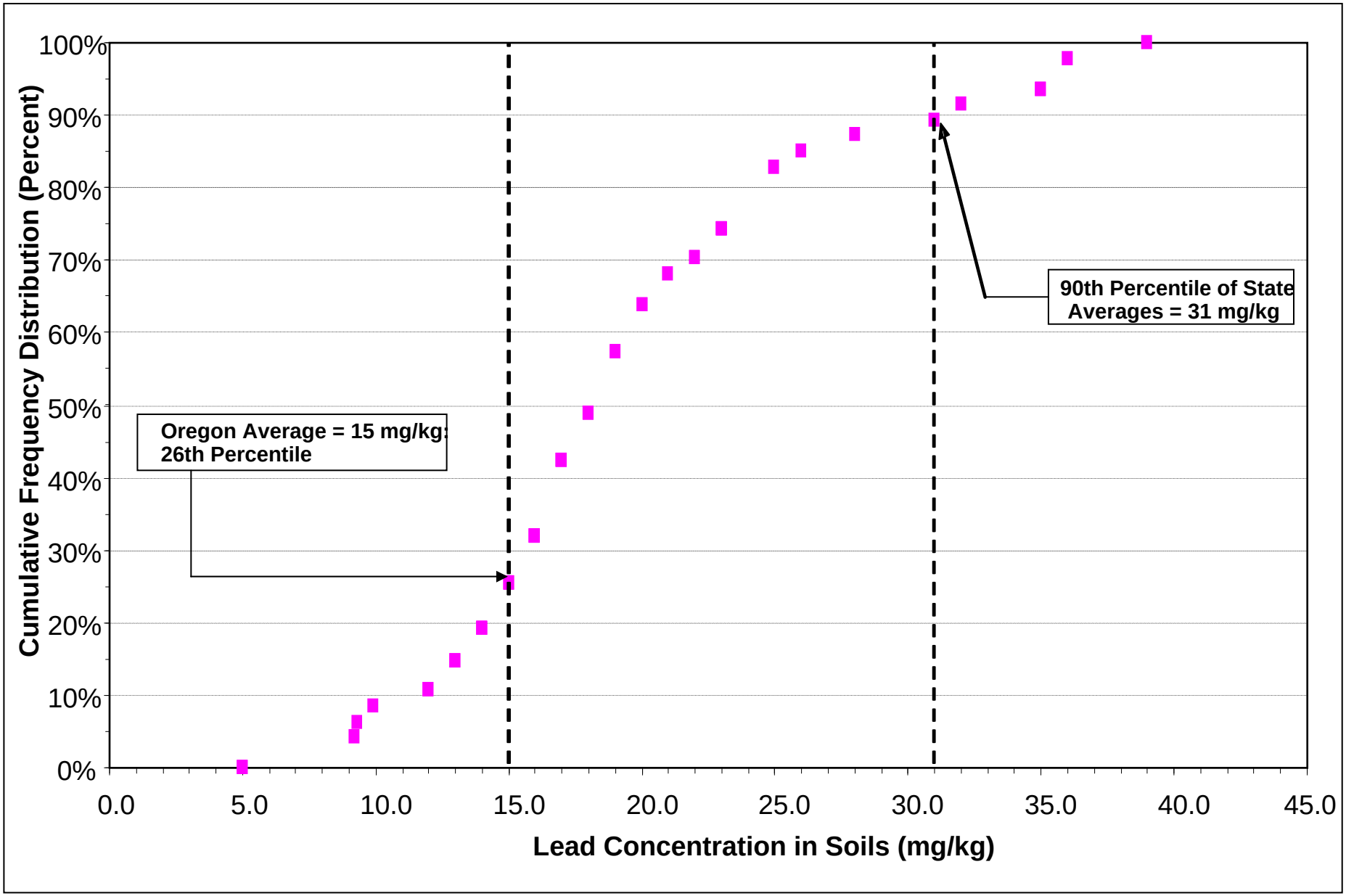


Figure 7-4. Distribution of Average Background Values for Lead for 48 Contiguous U.S. States

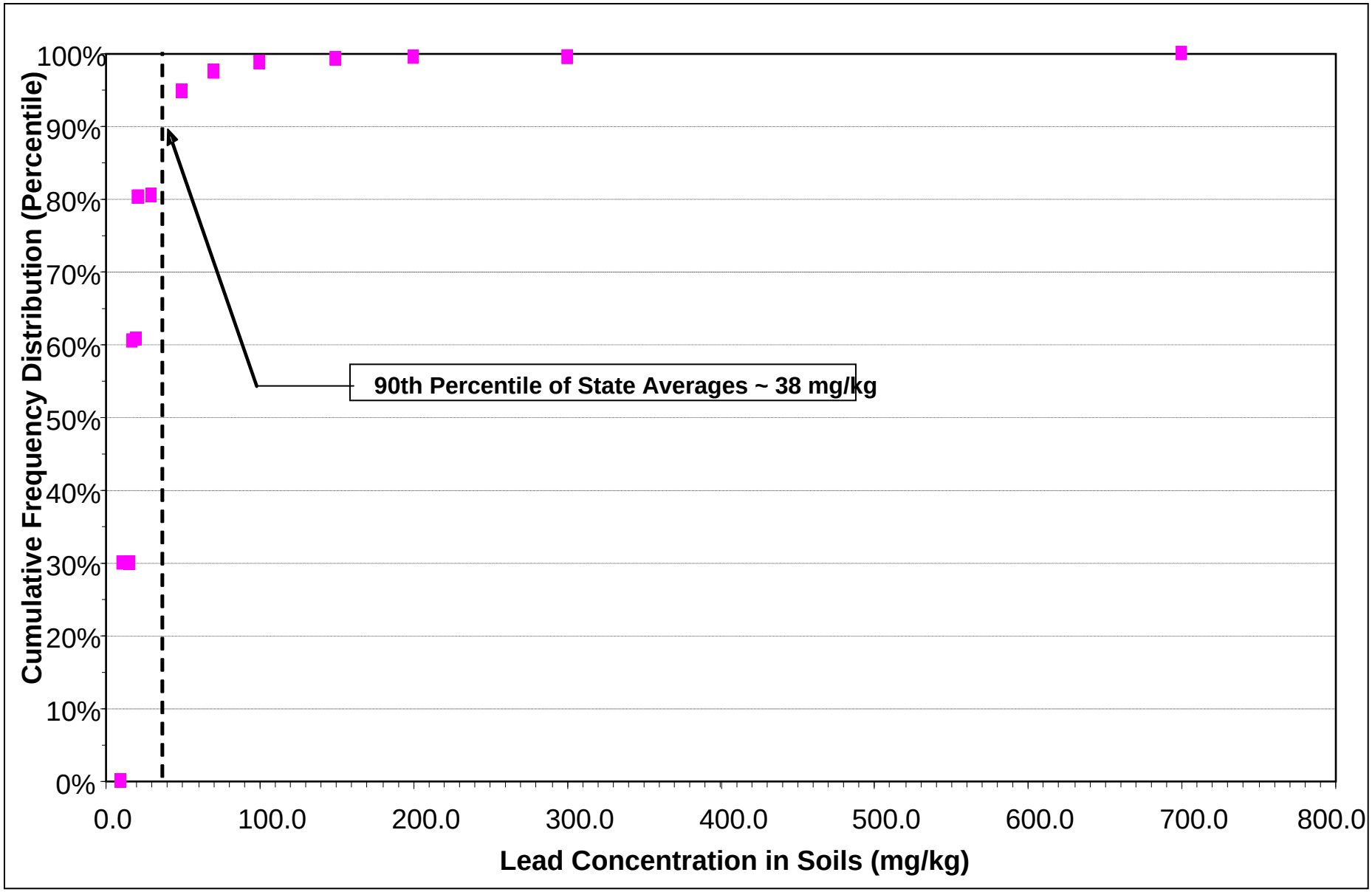
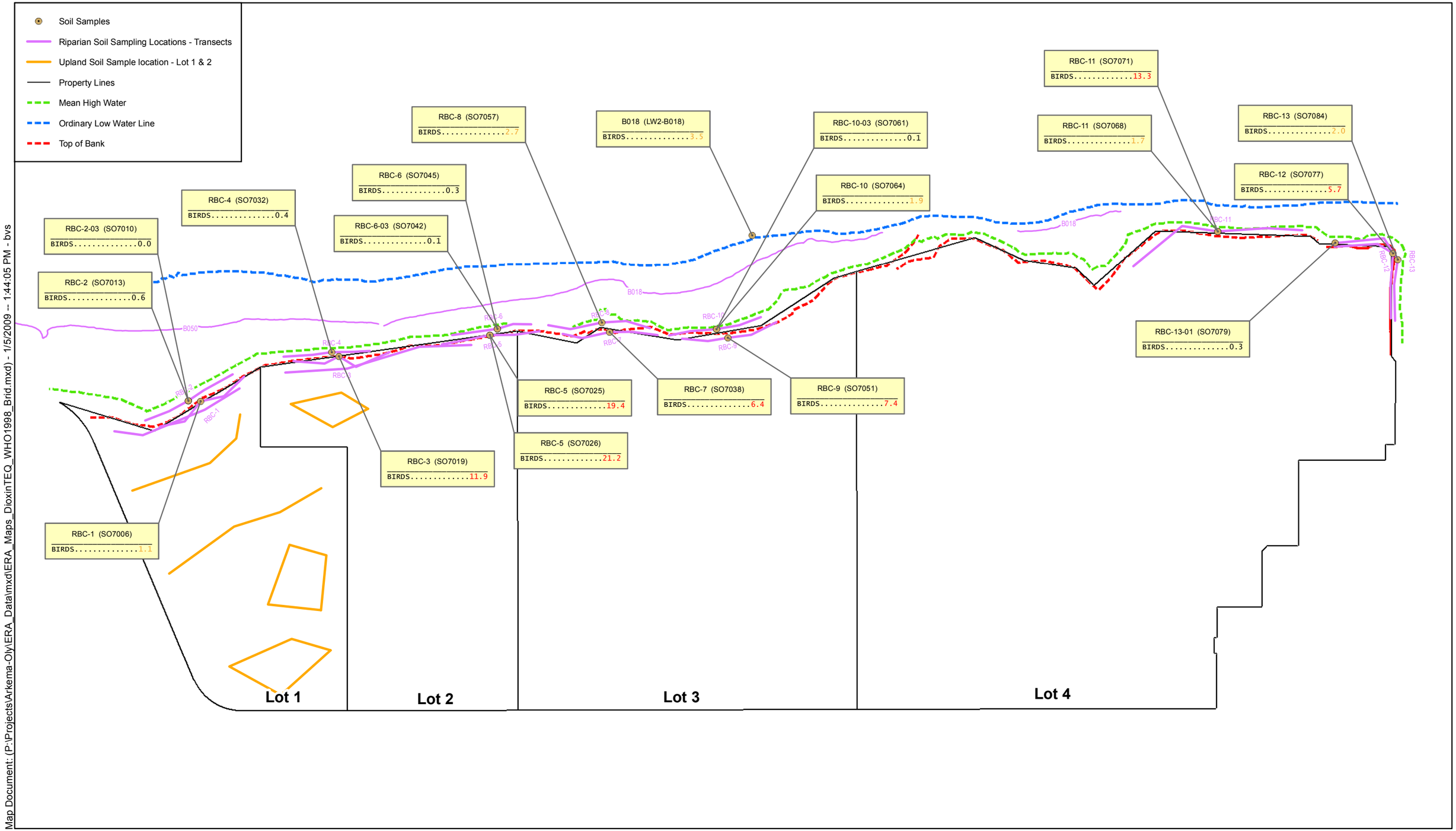


Figure 7-5. Distribution of Lead Analyses by County (USGS)



Map Document: (P:\Projects\Arkema-Oly\ERA_Data\mxd\ERA_Maps_DioxinTEQ_WHO1998_Brid.mxd) - 1/5/2009 -- 1:44:05 PM - bvs

integral consulting inc.

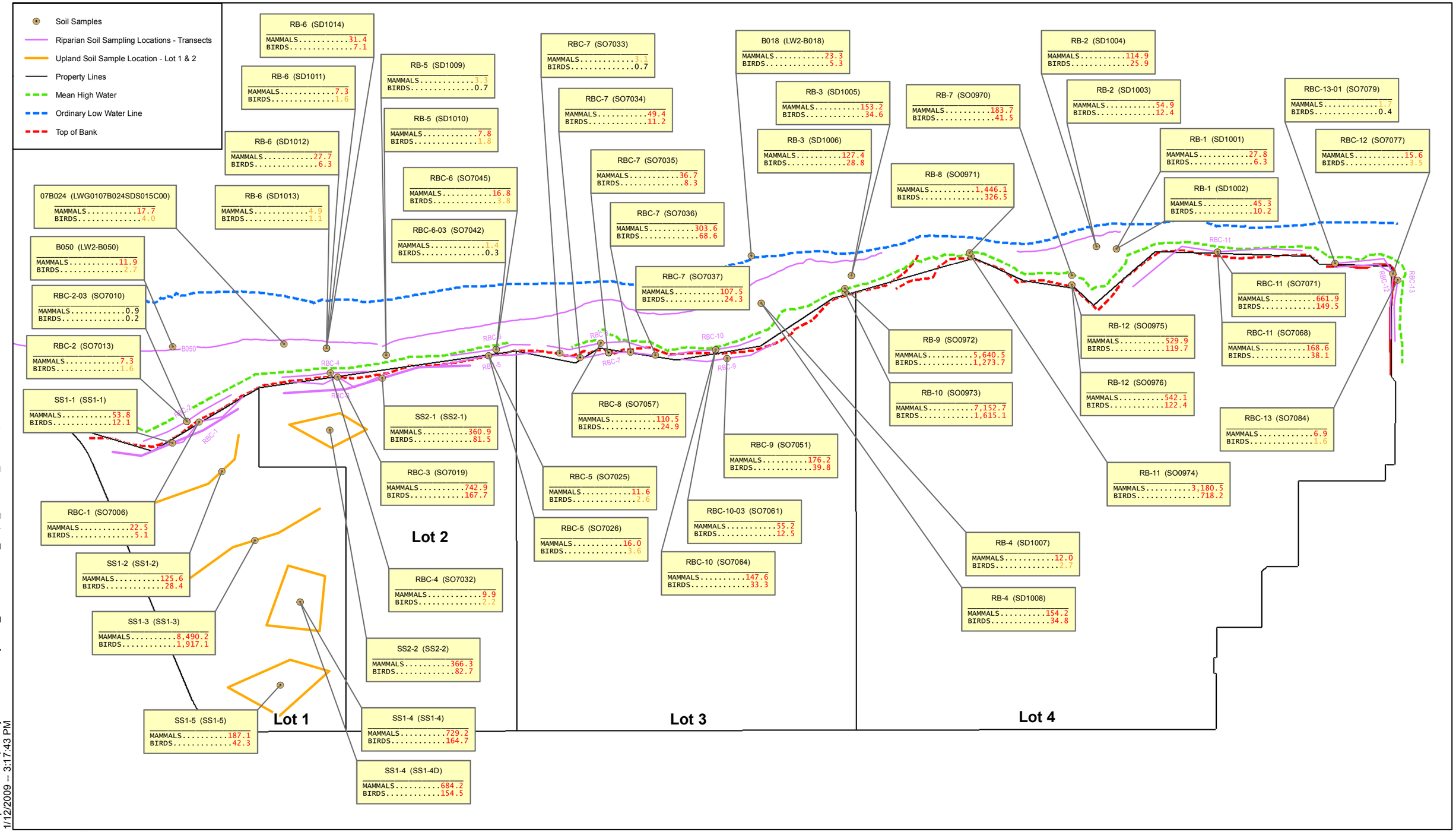
0 100 200 400 Feet

Location → SS1-5 (SS1-5) ← Sample ID

Receptors → PLANTS.....32.2
INVERTEBRATES.....80.5
MAMMALS.....0.9
BIRDS.....1.2 ← concentration:SLV ratios

- < 1.0 (No SLV Exceedance)
- < 5.0 (SLV Exceeded)
- >= 5.0 (SLV Exceeded 5x or Greater)

Figure 7-6
Relative Exceedances of Screening Level Values
Dioxin TEQ WHO1998 Bird



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1/12/2009 -- 3:17:43 PM

integral consulting inc.

0 100 200 400 Feet

Location → SS1-5 (SS1-5) ← Sample ID
Receptors → PLANTS 32.2, INVERTEBRATES 80.5, MAMMALS 0.9, BIRDS 1.2 ← concentration:SLV ratios

- < 1.0 (No SLV Exceedance)
- < 5.0 (SLV Exceeded)
- >= 5.0 (SLV Exceeded 5x or Greater)

Figure 7-7
Relative Exceedances of Screening Level Values
Total DDx