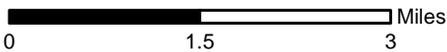


## FIGURES



1 inch = 1.5 miles



### SANTA SUSANA FIELD LABORATORY

Document: ISRA\_Plots\_Report\_Regional\_Map.mxd

Date: Apr 30, 2010

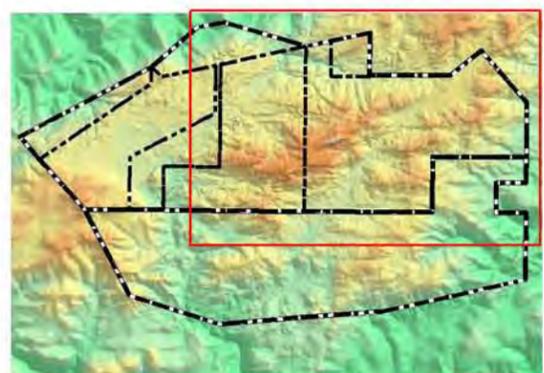
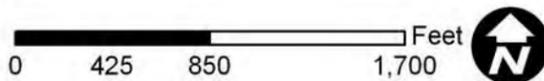
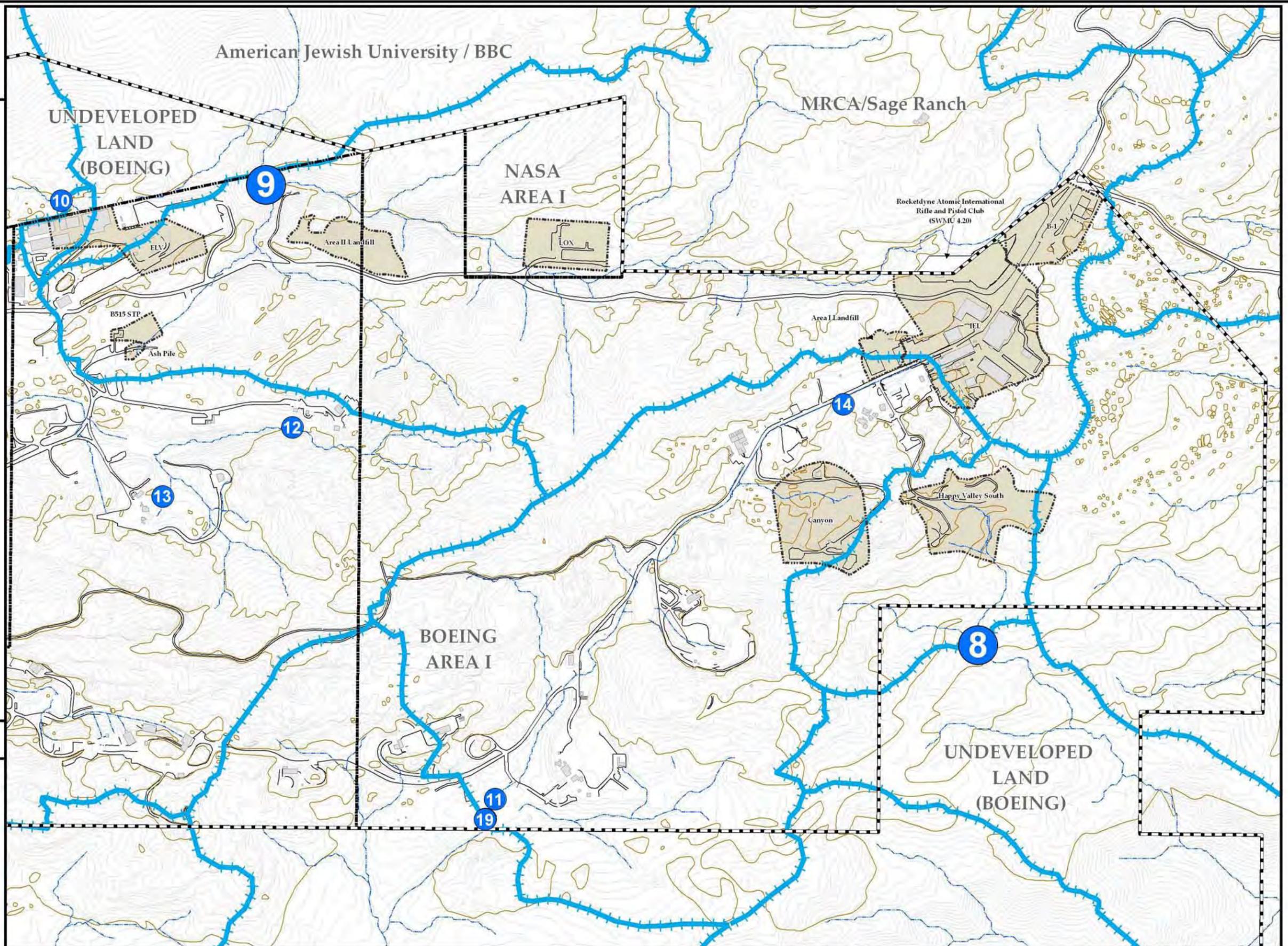
Regional Map

FIGURE  
1-1

# Outfalls 008 and 009 Location Map

## Base Map Legend

-  Administrative Area Boundary
-  Historical Operations Areas (RFI Sites) Within Outfall 008 and 009
-  Surface Water Drainage
-  Surface Water Divide
-  NPDES Outfall
-  Existing Building or Structure
-  Paved Road
-  Elevation Contour
-  Bedrock Outcrop



S A N T A S U S A N A F I E L D L A B O R A T O R Y

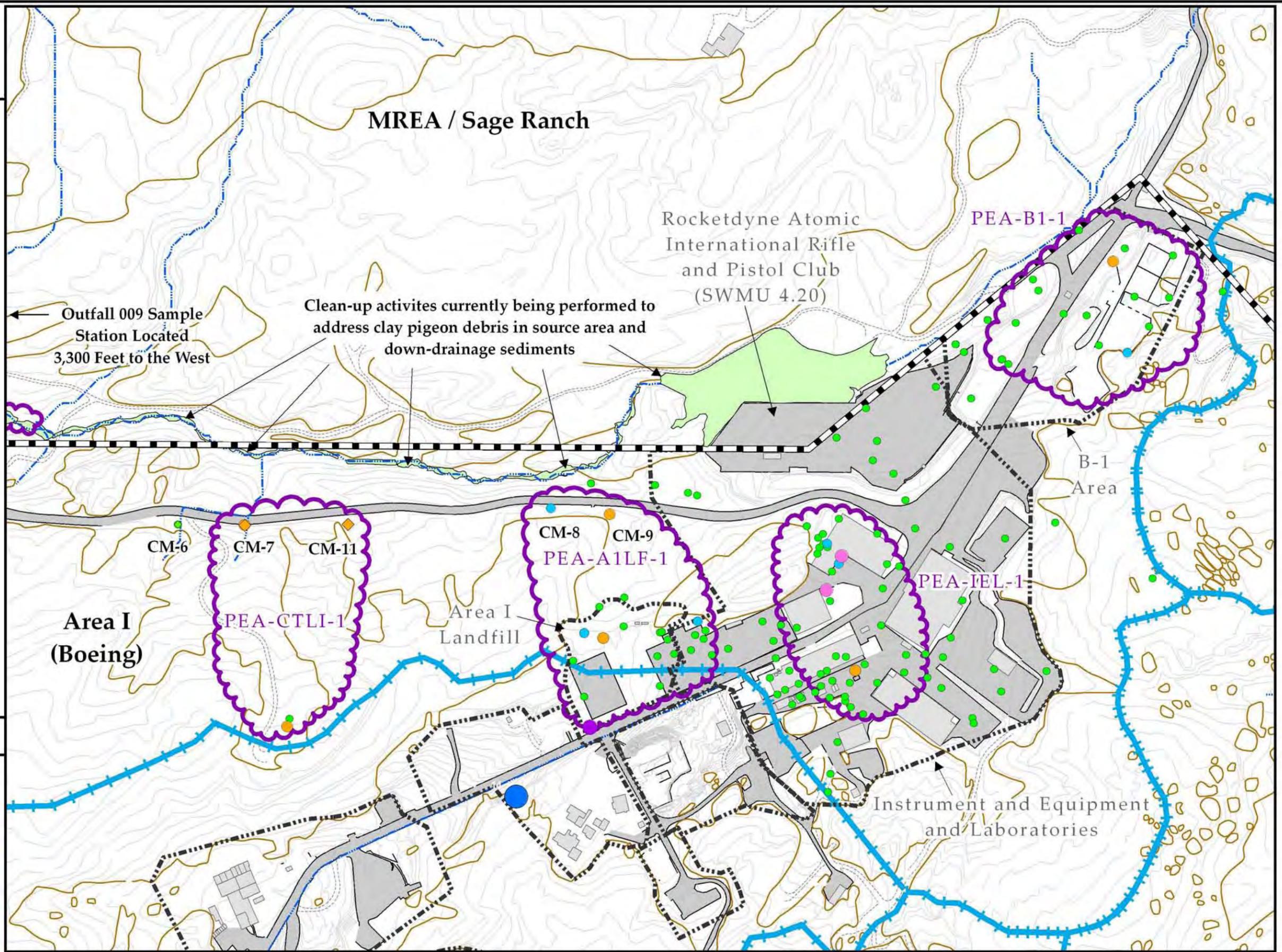
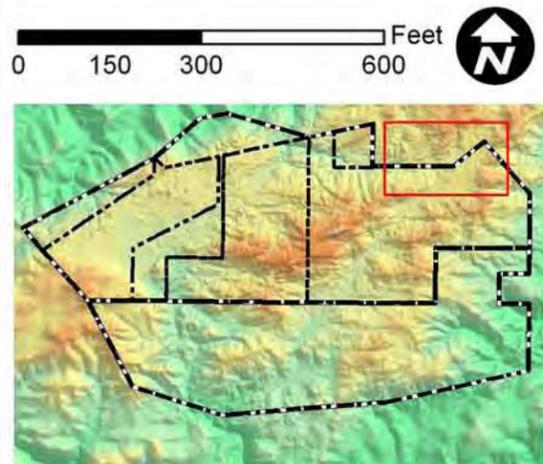


# Eastern Outfall 009 Preliminary ISRA Evaluation Areas

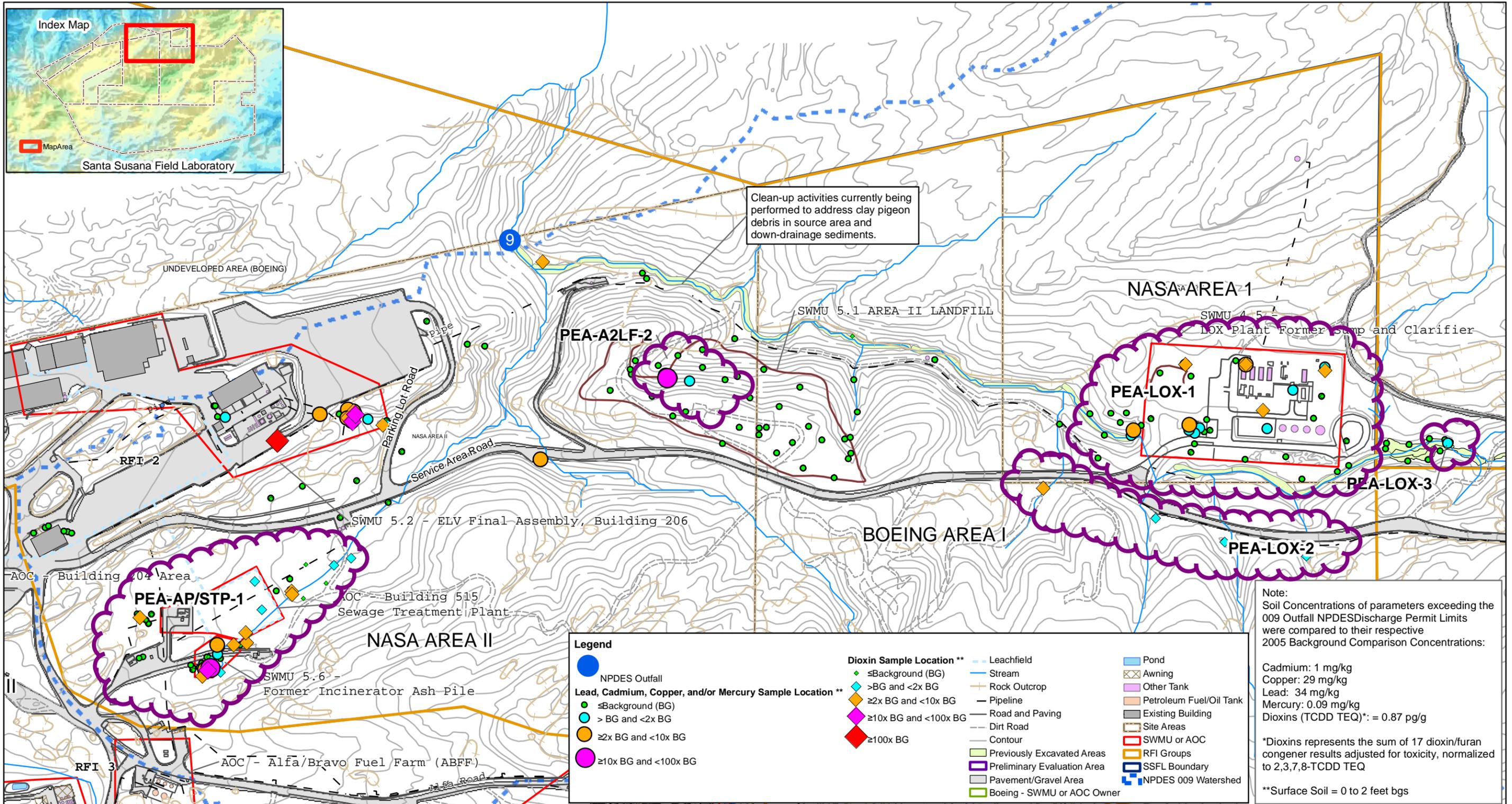
## Base Map Legend

-  Administrative Area Boundary
-  RFI Site Boundary
-  Existing Building or Structure
-  Previously Excavated Area
-  2009 Preliminary ISRA Evaluation Area
-  Surface Water Drainage
-  Surface Water Divide
-  NPDES Outfall
-  Dirt Road
-  Paved Road
-  Elevation Contour
-  Bedrock Outcrop

- Constituents of Concern**  
Cadmium, Copper, Lead, Mercury, Dioxin
- |  |  |
|--|--|
| <b>Background Comparison Concentration</b> | <b>Dioxin Sample Location (&lt;2 feet bgs)</b>   |
| Cadmium: 1 mg/kg                           |  ≤ Background (BG)    |
| Copper: 29 mg/kg                           |  >BG and <2x BG       |
| Lead: 34 mg/kg                             |  ≥2x BG and <10x BG   |
| Dioxin: 0.00087 µg/kg                      |  ≥10x BG and <100x BG |
| Mercury: 0.09 mg/kg                        |  ≥100x                |
- 
- Cadmium, Copper, Lead, and/or Mercury Sample Location (<2 feet bgs)**
- |  |
|--|
|  ≤ Background (BG)    |
|  >BG and <2x BG       |
|  ≥2x BG and <10x BG   |
|  ≥10x BG and <100x BG |
|  ≥100x                |



S A N T A S U S A N A F I E L D L A B O R A T O R Y

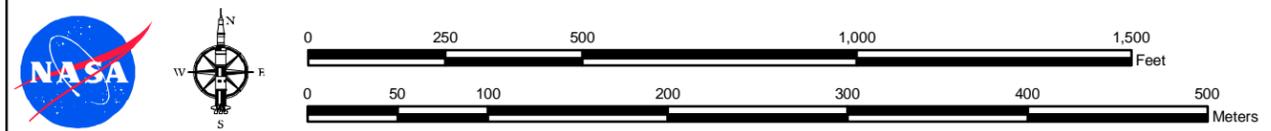


Clean-up activities currently being performed to address clay pigeon debris in source area and down-drainage sediments.

Note:  
Soil Concentrations of parameters exceeding the 009 Outfall NPDES Discharge Permit Limits were compared to their respective 2005 Background Comparison Concentrations:  
Cadmium: 1 mg/kg  
Copper: 29 mg/kg  
Lead: 34 mg/kg  
Mercury: 0.09 mg/kg  
Dioxins (TCDD TEQ)\*: = 0.87 pg/g

\*Dioxins represents the sum of 17 dioxin/furan congener results adjusted for toxicity, normalized to 2,3,7,8-TCDD TEQ

\*\*Surface Soil = 0 to 2 feet bgs



30-APR-2010  
Drawn By:  
Alberta Cooley  
D. Scott Stevens

Figure 1-4  
Western Outfall 009  
Preliminary ISRA Evaluation Areas  
Santa Susana Field Laboratory

# Outfall 009 Sample Locations for PEA B1-1 and B1-2

## Base Map Legend

- Administrative Area
- Boundary
- RFI Site Boundary
- Report Group Boundary
- NPDES Outfall
- A/C Paving
- Drainage
- Non Jurisdictional Surface Water Pathway
- Surface Water Divide
- Elevation Contour

## Figure Legend

- Revised Preliminary ISRA Evaluation Area
- ISRA Sample Location
- Historic Metal Sample Locations**
- ≤ SRG
- > SRG and < 2x SRG
- ≥ 2x SRG and < 10 x SRG
- ≥ 10x SRG
- Historic Dioxin Sample Locations**
- ≤ SRG
- > SRG and < 2x SRG
- ≥ 2x SRG and < 10 x SRG
- ≥ 10x SRG

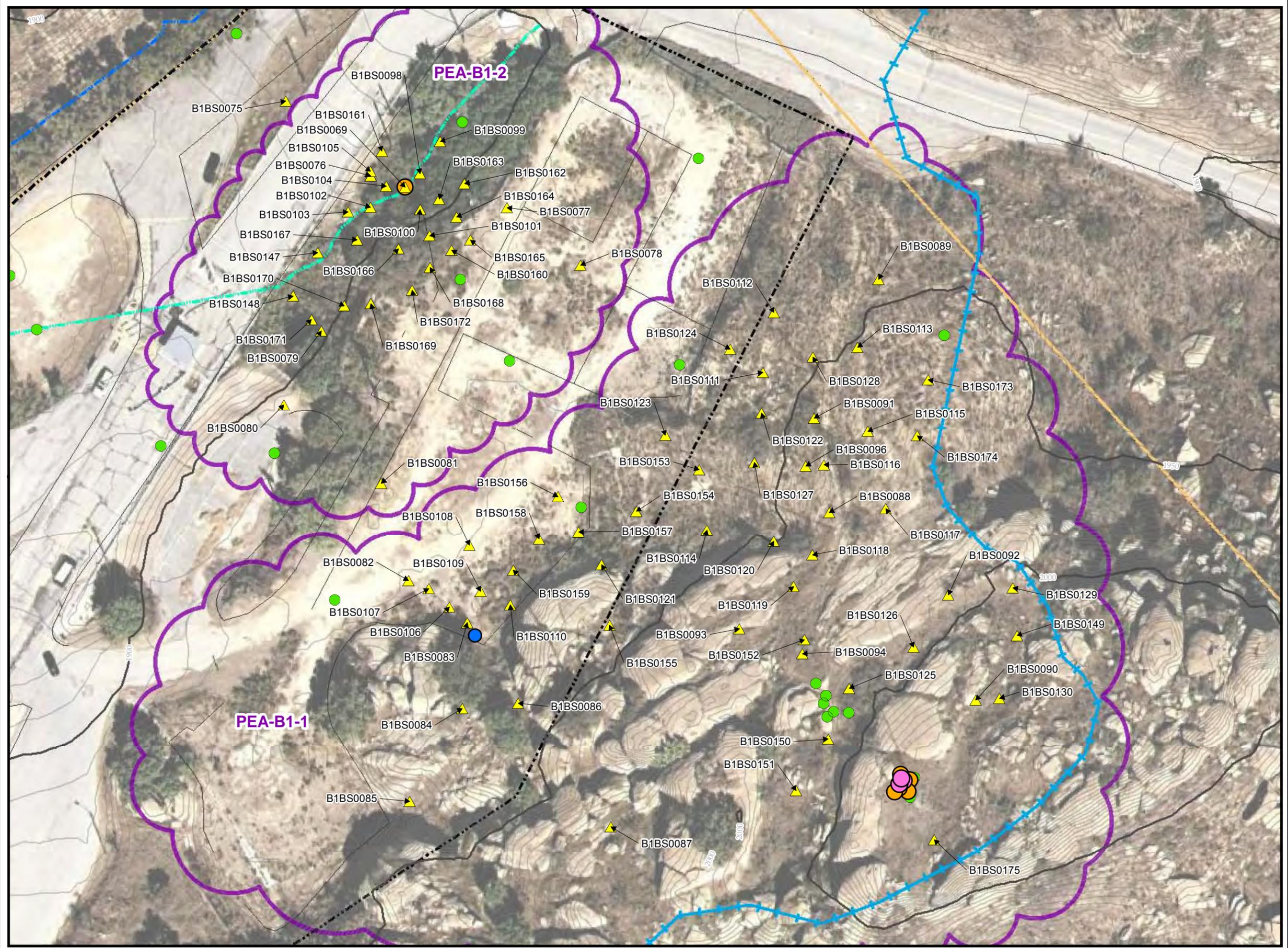
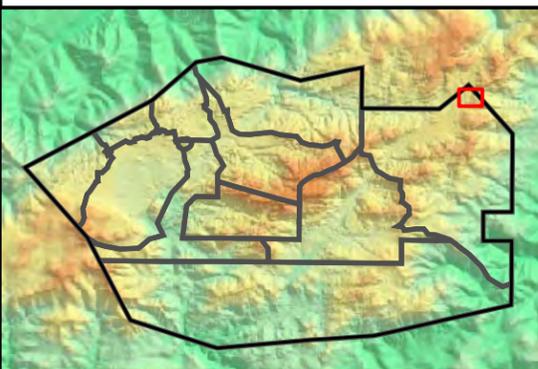
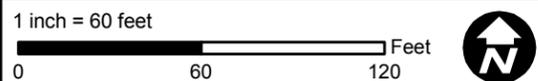
**ISRA Constituents of Concern**  
Cadmium, Copper, Lead, Mercury, Dioxin

**Soil Remediation Goals (SRGs)**  
Cadmium: 1 mg/kg  
Copper: 29 mg/kg  
Lead: 34 mg/kg  
Mercury: 0.09 mg/kg  
Dioxin: 3.0 pg/g

### Note:

1. Dioxin represents the sum of 17 dioxin/furan congener results adjusted for toxicity, normalized to 2,3,7,8,-TCDD-TEQ.
2. Cadmium, copper, lead, and mercury SRG are equal to the 2005 background comparison concentration, and SRG for dioxins is approximately 3 times the 2005 background comparison concentration.
3. All sample locations shown were collected at a depth less than or equal to 2 feet below ground surface.
4. Aerial imagery from Google Earth, 2010.
5. Topographic contours from Lidar data, 2008.

Document: ISRA\_Plots\_Report\_B1\_SampleLocations.mxd Date: Apr 30, 2010



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FIGURE 2-1

**Outfall 009**  
**Sample Locations for PEA IEL-1,**  
**IEL-2, IEL-3, IEL-4, IEL-5, IEL-6,**  
**IEL-7, and IEL-8**

- Base Map Legend**
- Administrative Area Boundary
  - RFI Site Boundary
  - Report Group Boundary
  - NPDES Outfall
  - A/C Paving
  - Drainage
  - Non Jurisdictional Surface Water Pathway
  - Surface Water Divide
  - Elevation Contour

- Figure Legend**
- Revised Preliminary ISRA Evaluation Area
  - ISRA Sample Location
- Historic Metal Sample Locations**
- ≤ SRG
  - > SRG and < 2x SRG
  - ≥ 2x SRG and < 10 x SRG
  - ≥ 10x SRG
- Historic Dioxin Sample Locations**
- ≤ SRG
  - > SRG and < 2x SRG
  - ≥ 2x SRG and < 10 x SRG
  - ≥ 10x SRG

**ISRA Constituents of Concern**  
 Cadmium, Copper, Lead, Mercury, Dioxin

**Soil Remediation Goals (SRGs)**  
 Cadmium: 1 mg/kg  
 Copper: 29 mg/kg  
 Lead: 34 mg/kg  
 Mercury: 0.09 mg/kg  
 Dioxin: 3.0 pg/g

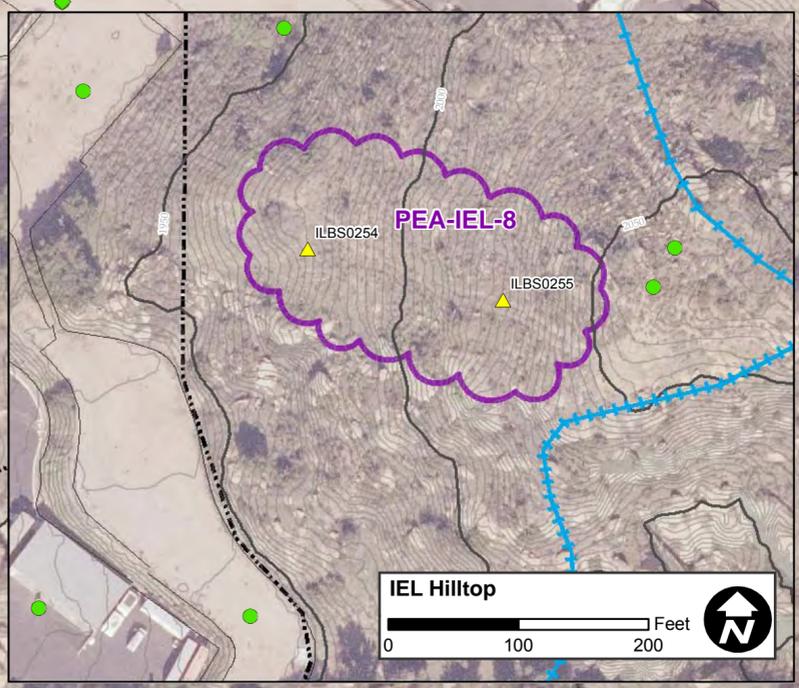
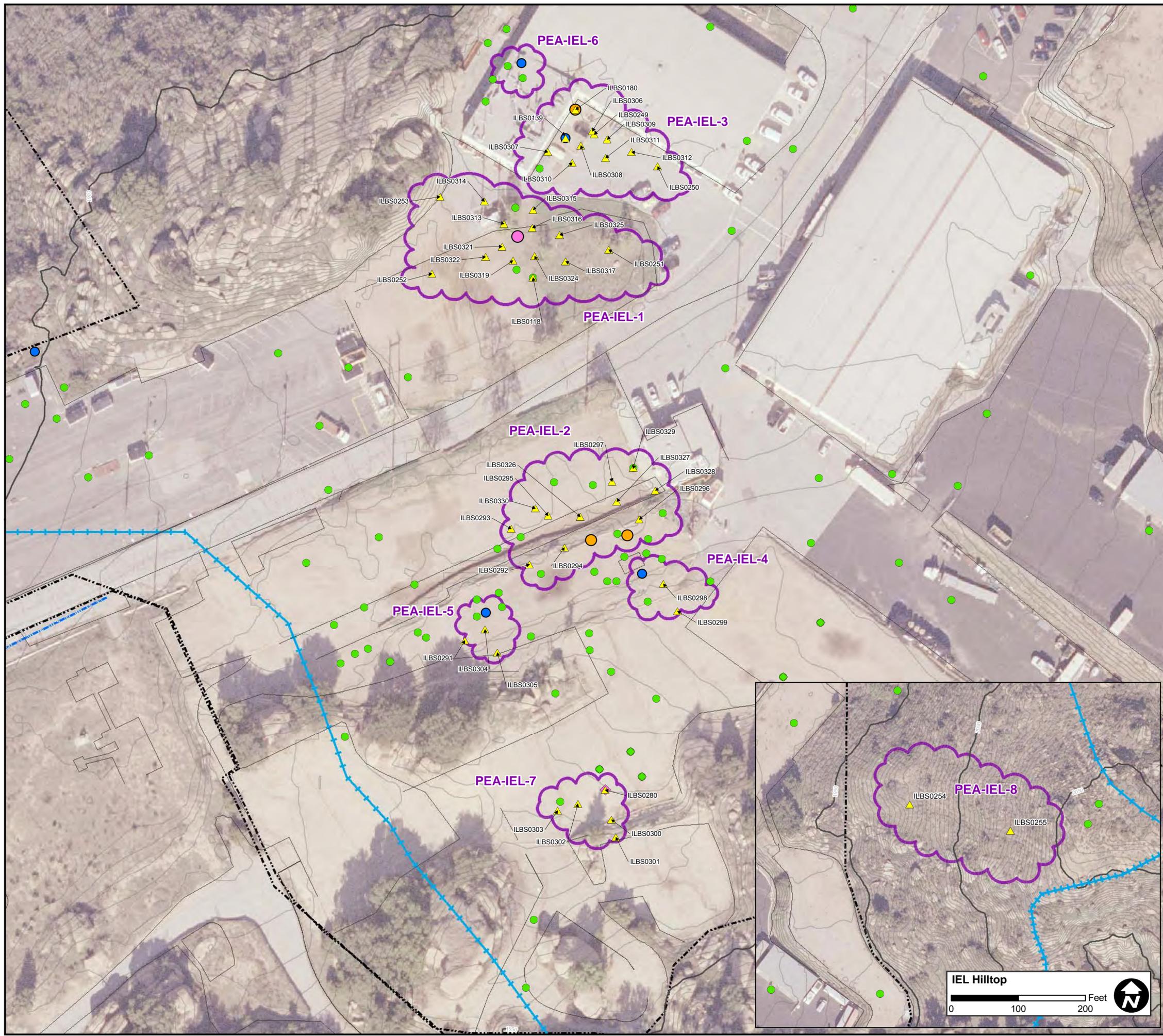
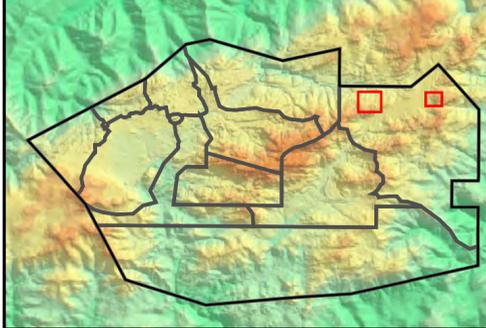
**Note:**

1. Dioxin represents the sum of 17 dioxin/furan congener results adjusted for toxicity, normalized to 2,3,7,8,-TCDD-TEQ.
2. Cadmium, copper, lead, and mercury SRG is equal to the 2005 background comparison concentration, and SRG for dioxins is approximately 3 times the 2005 background comparison concentration.
3. All sample locations shown were collected at a depth less than or equal to 2 feet below ground surface.
4. Aerial imagery from Sage, November 2009.
5. Topographic contours from Lidar data, 2008.

Document: ISRA\_Plots\_Report\_IEL\_SampleLocations\_C.mxd Date: Apr 30, 2010

1 inch = 55 feet

0 55 110 Feet



# Outfall 009 Sample Locations for PEA A1LF-1, A1LF-2, and A1LF-3

## Base Map Legend

- Administrative Area Boundary
- Drainage
- RFI Site Boundary
- Non Jurisdictional Surface Water Pathway
- Report Group Boundary
- Surface Water Divide
- NPDES Outfall
- Elevation Contour
- A/C Paving

## Figure Legend

- Revised Preliminary ISRA Evaluation Area
- ISRA Sample Location

## Historic Metal Sample Locations

- ≤ SRG
- > SRG and < 2x SRG
- ≥ 2x SRG and < 10 x SRG
- ≥ 10x SRG

## Historic Dioxin Sample Locations

- ≤ SRG
- > SRG and < 2x SRG
- ≥ 2x SRG and < 10 x SRG
- ≥ 10x SRG

**ISRA Constituents of Concern**  
Cadmium, Copper, Lead, Mercury, Dioxin

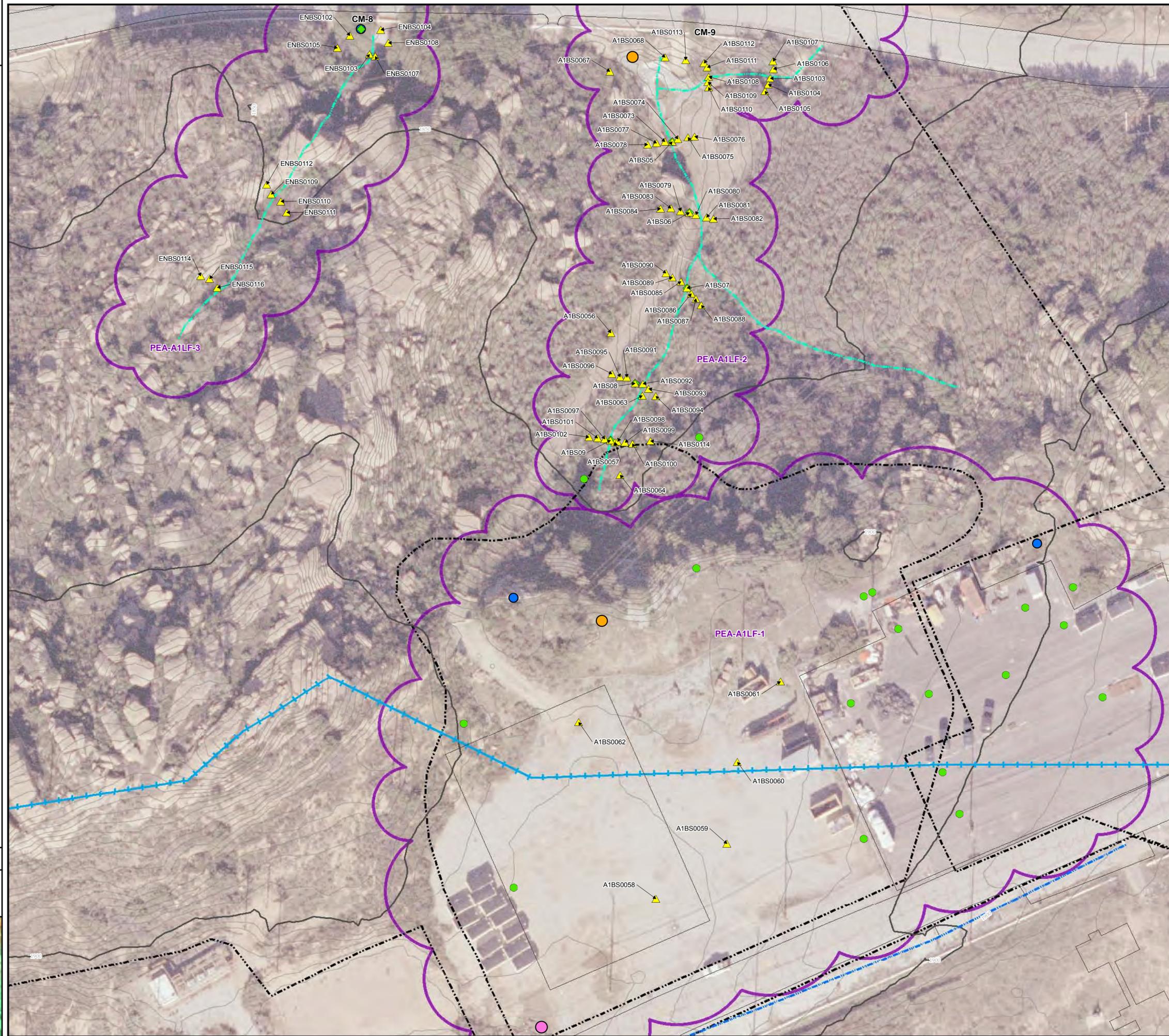
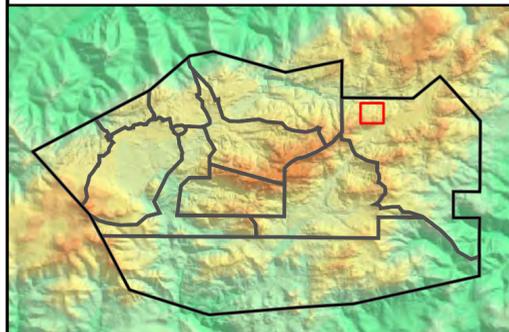
**Soil Remediation Goals (SRGs)**  
Cadmium: 1 mg/kg  
Copper: 29 mg/kg  
Lead: 34 mg/kg  
Mercury: 0.09 mg/kg  
Dioxin: 3.0 pg/g

## Note:

1. Dioxin represents the sum of 17 dioxin/furan congener results adjusted for toxicity, normalized to 2,3,7,8,-TCDD-TEQ.
2. Cadmium, copper, lead, and mercury SRG is equal to the 2005 background comparison concentration, and SRG for dioxins is approximately 3 times the 2005 background comparison concentration.
3. All sample locations shown were collected at a depth less than or equal to 2 feet below ground surface.
4. Aerial imagery from Sage, November 2009.
5. Topographic contours from Lidar data, 2008.

Document: ISRA\_Plots\_Report\_A1LF1\_SampleLocations\_C.mxd Date: Apr 30, 2010

1 inch = 45 feet  
0 45 90 Feet



**Outfall 009**  
**Sample Locations for PEA**  
**CTLI-1, CTLI-2, CTLI-3, and CTLI-4**

- Base Map Legend**
- Administrative Area Boundary
  - Drainage
  - RFI Site Boundary
  - Non Jurisdictional Surface Water Pathway
  - Report Group Boundary
  - Surface Water Divide
  - NPDES Outfall
  - Elevation Contour
  - A/C Paving

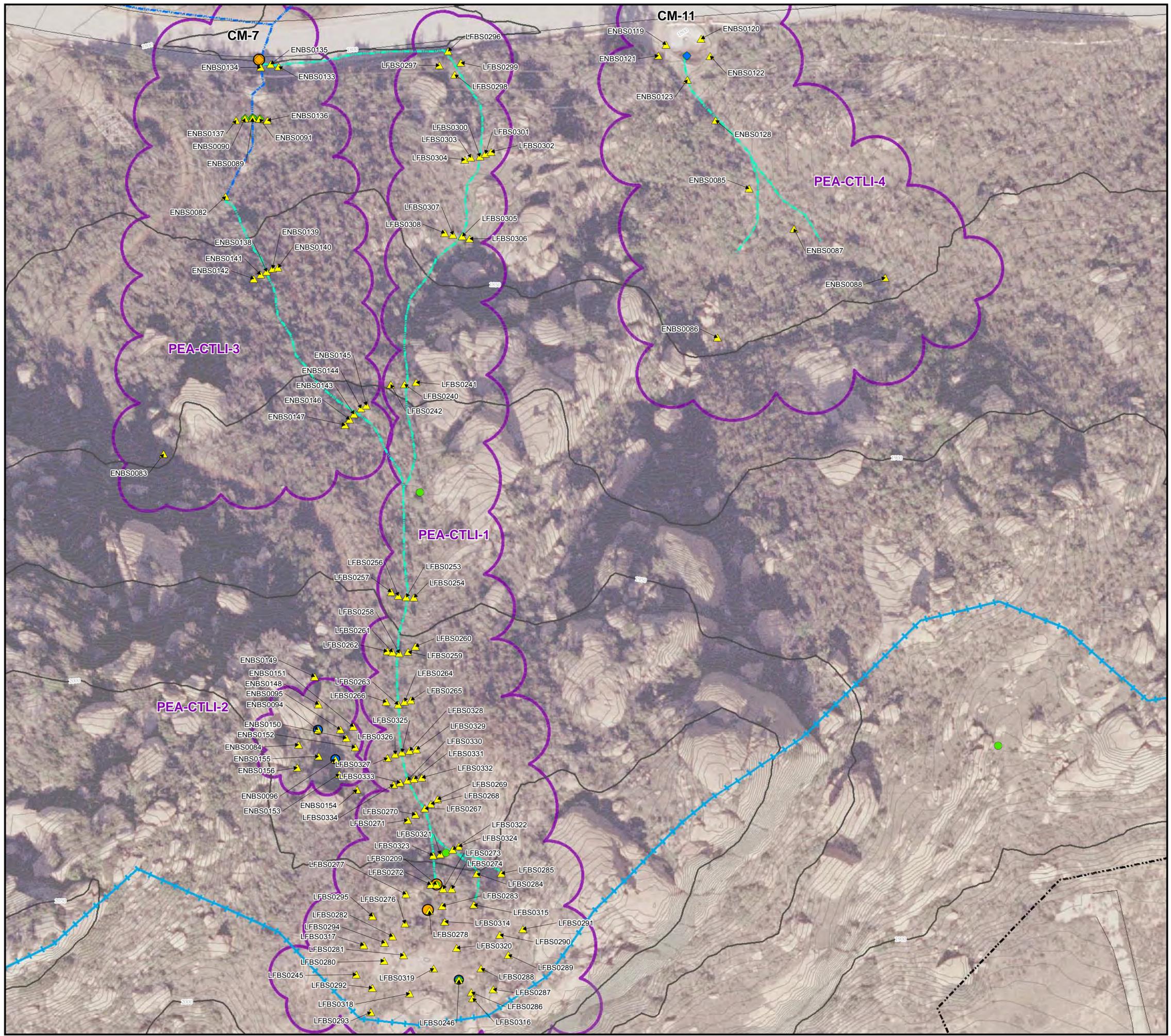
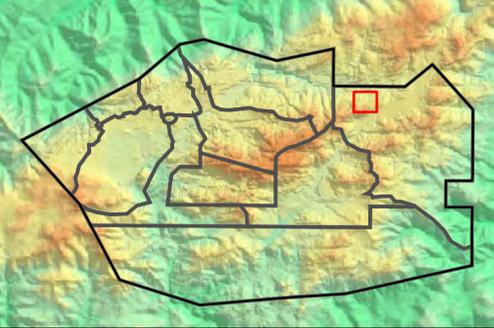
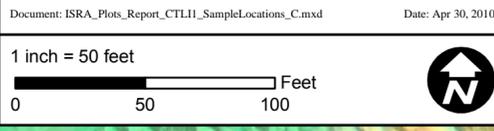
- Figure Legend**
- Revised Preliminary ISRA Evaluation Area
  - ISRA Sample Location
- Historic Metal Sample Locations**
- ≤ SRG
  - > SRG and < 2x SRG
  - ≥ 2x SRG and < 10 x SRG
  - ≥ 10x SRG
- Historic Dioxin Sample Locations**
- ≤ SRG
  - > SRG and < 2x SRG
  - ≥ 2x SRG and < 10 x SRG
  - ≥ 10x SRG

**ISRA Constituents of Concern**  
 Cadmium, Copper, Lead, Mercury, Dioxin

**Soil Remediation Goals (SRGs)**  
 Cadmium: 1 mg/kg  
 Copper: 29 mg/kg  
 Lead: 34 mg/kg  
 Mercury: 0.09 mg/kg  
 Dioxin: 3.0 pg/g

**Note:**

1. Dioxin represents the sum of 17 dioxin/furan congener results adjusted for toxicity, normalized to 2,3,7,8,-TCDD-TEQ.
2. Cadmium, copper, lead, and mercury SRG is equal to the 2005 background comparison concentration, and SRG for dioxins is approximately 3 times the 2005 background comparison concentration.
3. All sample locations shown were collected at a depth less than or equal to 2 feet below ground surface.
4. Aerial imagery from Sage, November 2009.
5. Topographic contours from Lidar data, 2008.



# Outfall 009 Sample Locations for PEA-LOX-2

- Base Map Legend**
- Administrative Area Boundary
  - RFI Site Boundary
  - Report Group Boundary
  - NPDES Outfall
  - A/C Paving
  - Drainage
  - Non Jurisdictional Surface Water Pathway
  - Surface Water Divide
  - Elevation Contour

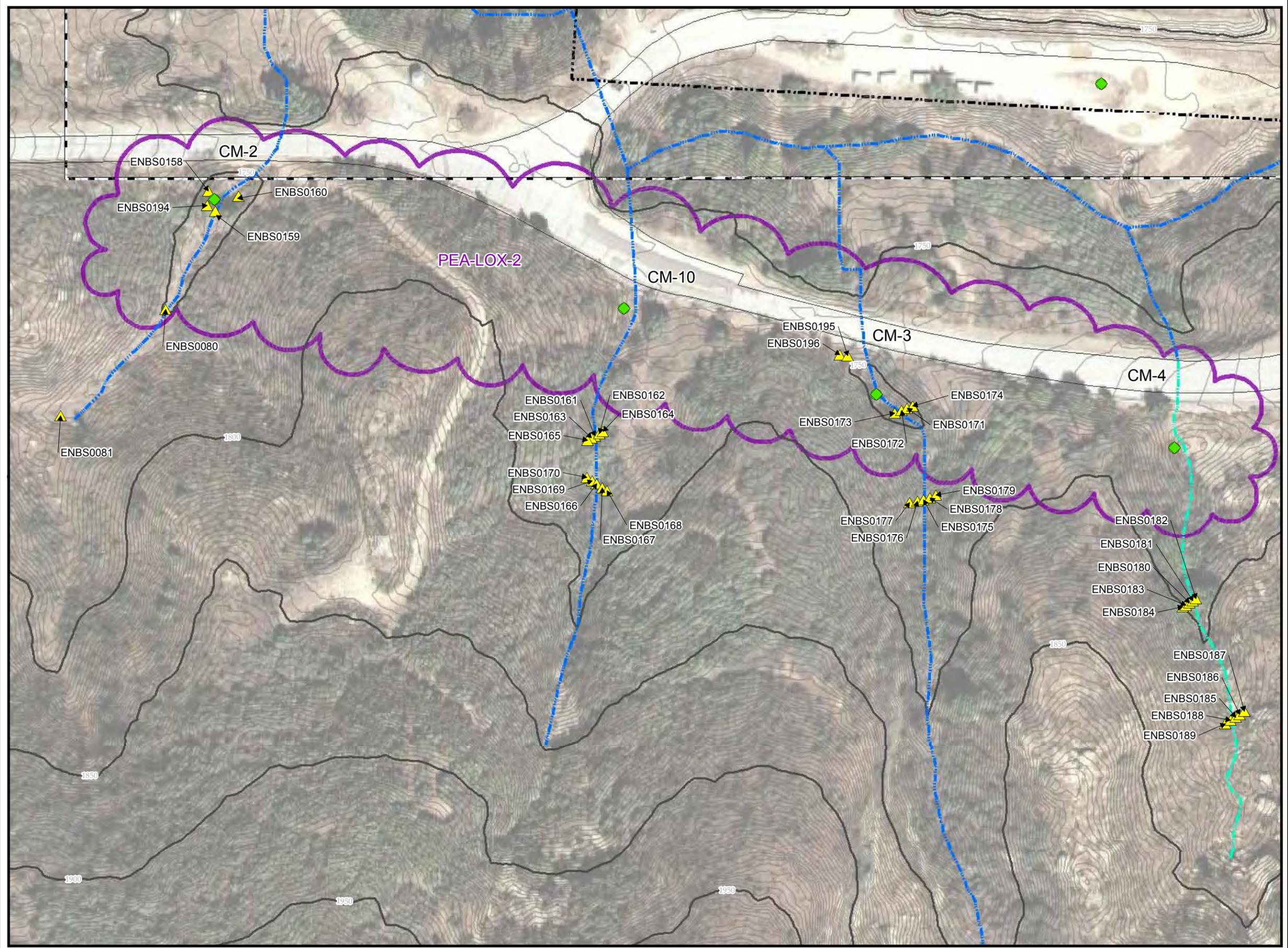
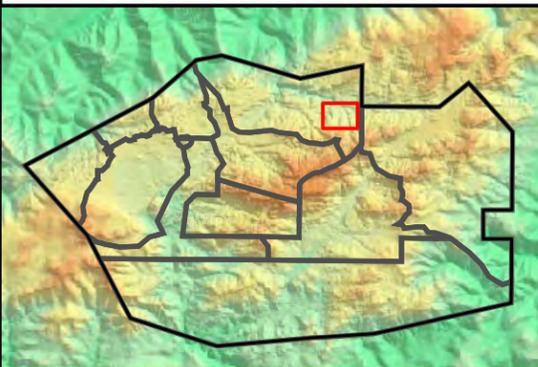
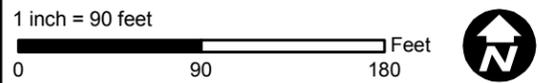
- Figure Legend**
- Revised Preliminary ISRA Evaluation Area
  - ISRA Sample Location
  - Historic Metal Sample Locations
    - ≤ SRG
    - > SRG and < 2x SRG
    - ≥ 2x SRG and < 10 x SRG
    - ≥ 10x SRG
  - Historic Dioxin Sample Locations
    - ≤ SRG
    - > SRG and < 2x SRG
    - ≥ 2x SRG and < 10 x SRG
    - ≥ 10x SRG

**ISRA Constituents of Concern**  
Cadmium, Copper, Lead, Mercury, Dioxin

**Soil Remediation Goals (SRGs)**  
Cadmium: 1 mg/kg  
Copper: 29 mg/kg  
Lead: 34 mg/kg  
Mercury: 0.09 mg/kg  
Dioxin: 3.0 pg/g

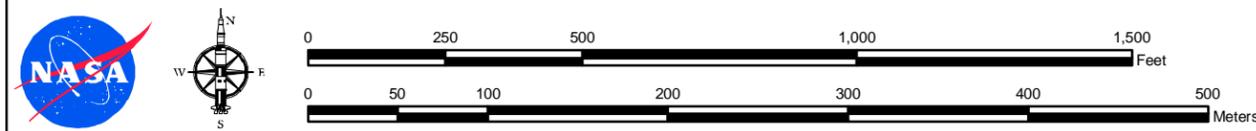
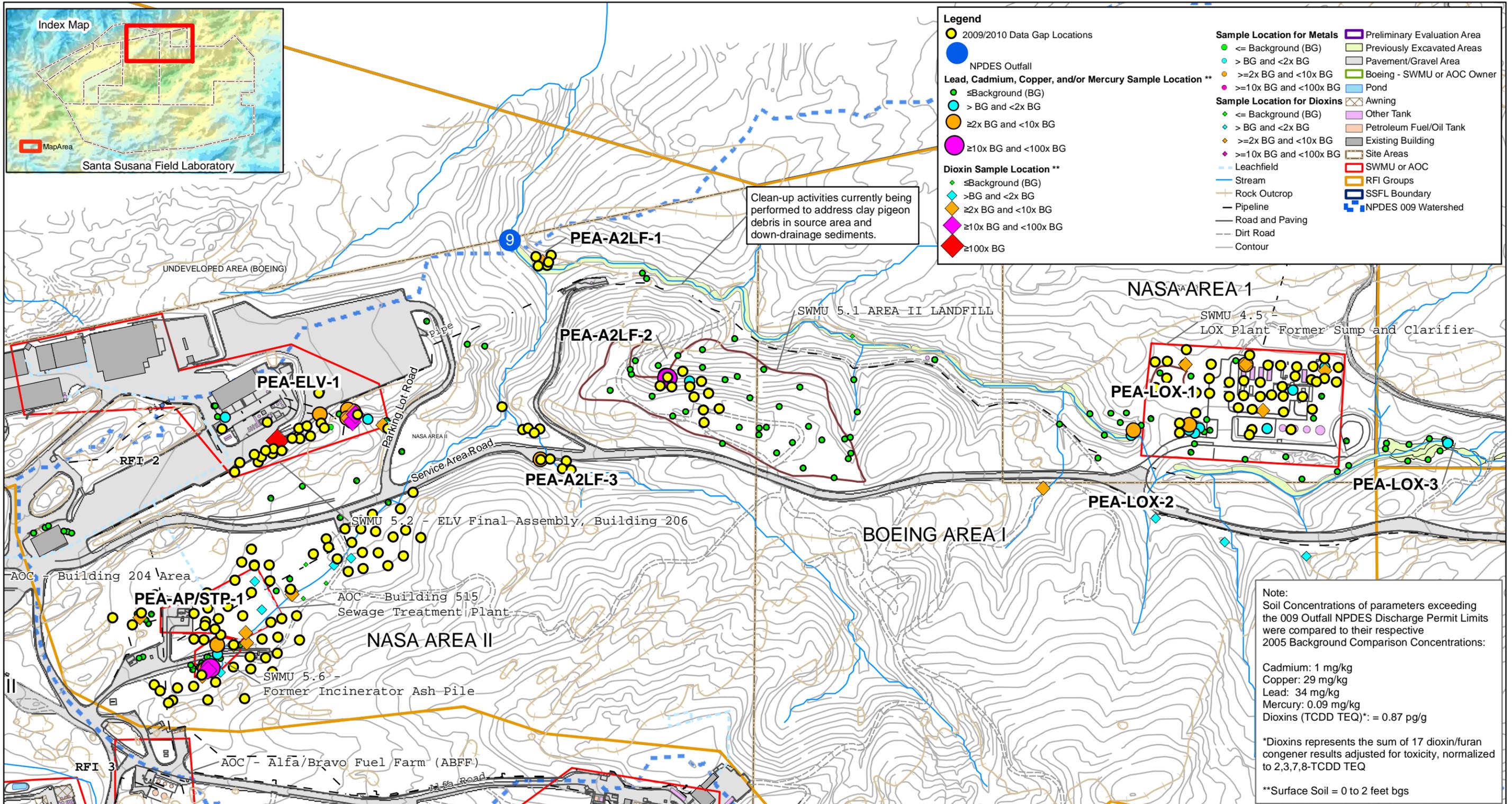
- Note:**
1. Dioxin represents the sum of 17 dioxin/furan congener results adjusted for toxicity, normalized to 2,3,7,8-TCDD-TEQ.
  2. Cadmium, copper, lead, and mercury SRG is equal to the 2005 background comparison concentration, and SRG for dioxins is approximately 3 times the 2005 background comparison concentration.
  3. All sample locations shown were collected at a depth less than or equal to 2 feet below ground surface.
  4. Aerial imagery from Google Earth, 2010.
  5. Topographic contours from Lidar data, 2008.

Document: ISRA\_Plots\_Report\_LOX\_SampleLocations.mxd Date: Apr 30, 2010



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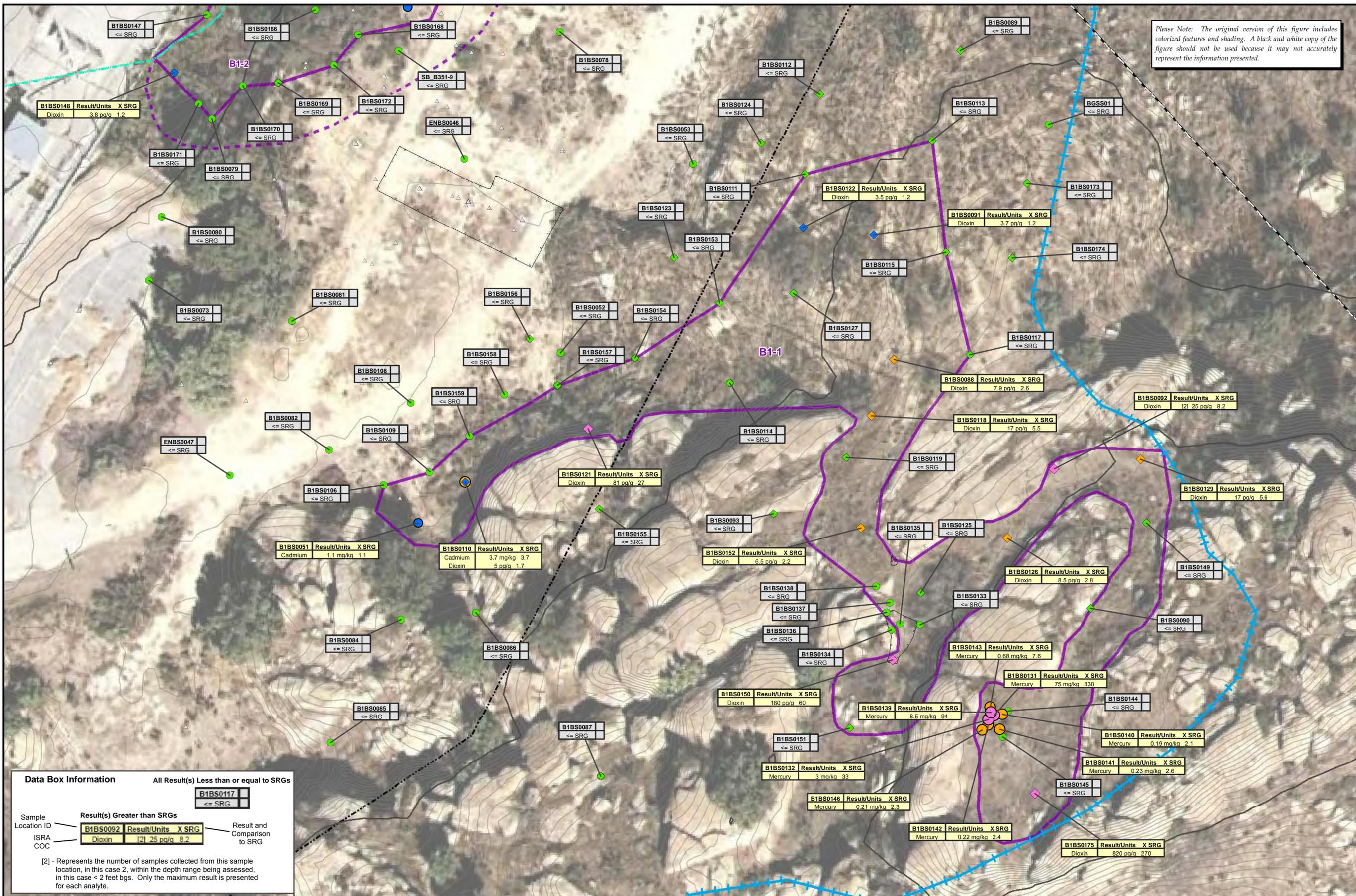
FIGURE 2-5



16-APR-2010  
Drawn By:  
D. Scott Stevens  
Alberta Cooley

Figure 2-6  
Sample Locations  
Western Outfall 009  
Preliminary ISRA Evaluation Areas  
Santa Susana Field Laboratory

Please Note: The original version of this figure includes colored features and shading. A black and white copy of the figure should not be used because it may not accurately represent the information presented.



**Data Box Information**

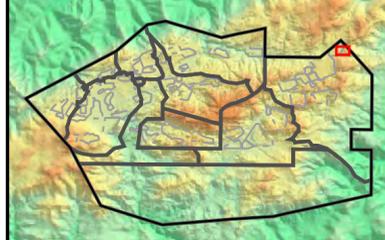
All Result(s) Less than or equal to SRGs

B1BS0117	<= SRG
----------	--------

Result(s) Greater than SRGs

B1BS0092	Result/Units	X SRG	Result and Comparison to SRG
Dioxin	[2] 25 pg/g	8.2	

[2] - Represents the number of samples collected from this sample location, in this case 2, within the depth range being assessed, in this case < 2 feet bgs. Only the maximum result is presented for each analyte.



**Base Map Legend**

- Administrative Area Boundary
- RFI Site Boundary
- Report Group Boundary
- Drainage
- Non Jurisdictional Surface Water Pathway
- Surface Water Divide
- Excavation
- Elevation Contour

**Figure Legend**

- Preliminary ISRA Evaluation Area
- Dashed area represents potential expansion of PEA based on pending sample results
- Non-ISRA Project Sample Not Analyzed for ISRA COCs

**ISRA Constituents of Concern**  
Cadmium, Copper, Lead, Mercury, Dioxin

**Soil Remediation Goals (SRGs)**  
Cadmium: 1 mg/kg  
Copper: 29 mg/kg  
Lead: 34 mg/kg  
Mercury: 0.09 mg/kg  
Dioxin: 3.0 pg/g

**Cadmium, Copper, Lead, and/or Mercury Sample Locations (<2 feet bgs)**

- ≤ SRG
- > SRG and < 2x SRG
- ≥ 2x SRG and < 10 x SRG
- ≥ 10x SRG

**Dioxin Sample Locations (<2 feet bgs)**

- ≤ SRG
- > SRG and < 2x SRG
- ≥ 2x SRG and < 10 x SRG
- ≥ 10x SRG

Notes:  
1. Dioxin represents the sum of 17 dioxin/furan congener results adjusted for toxicity, normalized to 2,3,7,8-TCDD-TEQ.  
2. Cadmium, copper, lead, and mercury SRG is equal to the 2005 background comparison concentration, and SRG for dioxins is approximately 3 times the 2005 background comparison concentration.  
3. Aerial imagery from Google Earth, 2010.  
4. Topographic contours from Lidar data, 2008.

**Refined Preliminary ISRA Evaluation Areas**  
**Outfall 009 - B1-1**  
**SANTA SUSANA FIELD LABORATORY**

Document: ISRA\_Plots\_Report\_Evaluation\_B1-1.mxd Date: Apr 30, 2010

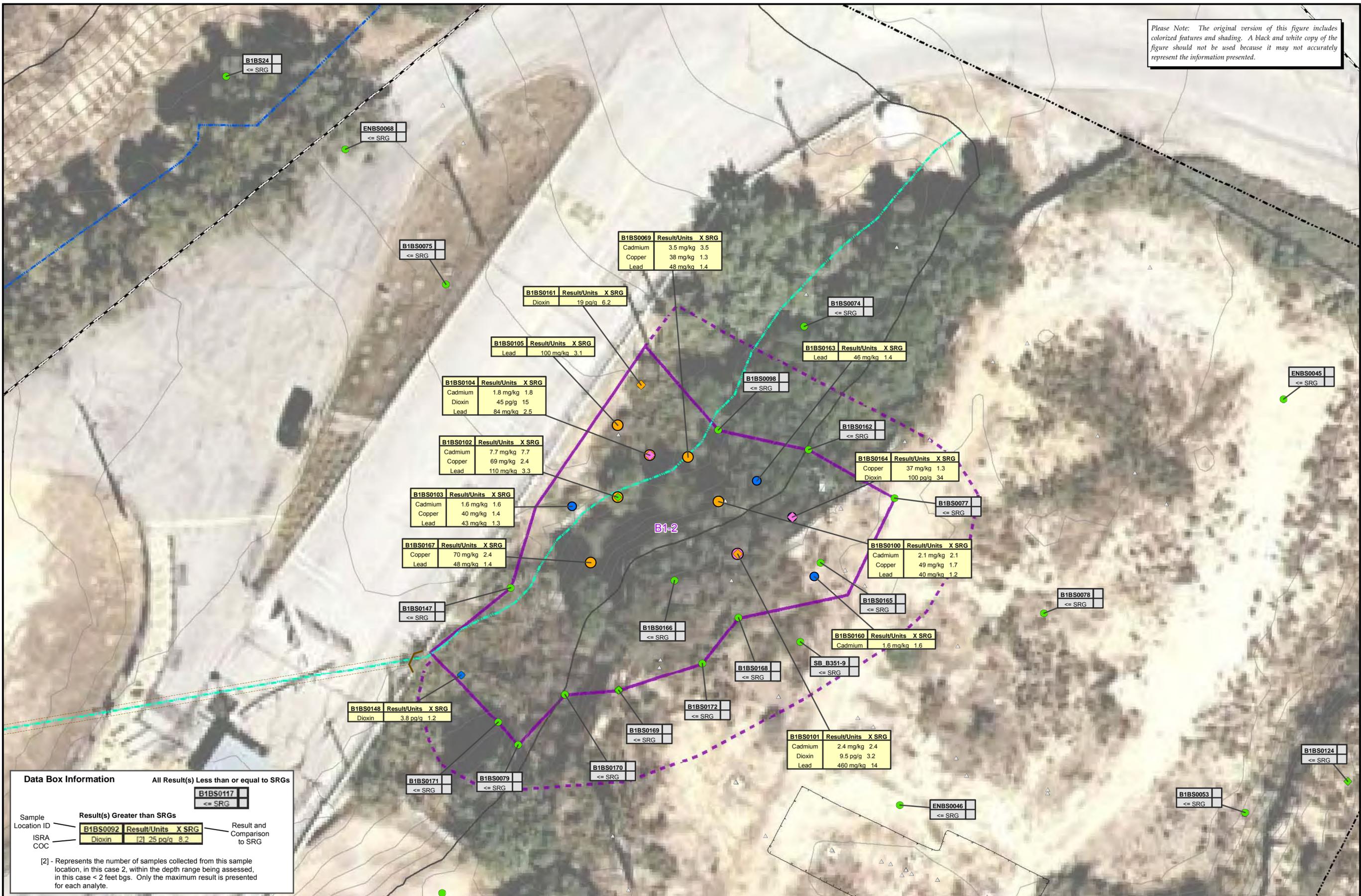
1 inch = 30 feet

0 30 60 Feet

MWH

**FIGURE 2-7**

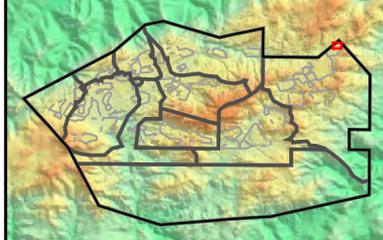
Please Note: The original version of this figure includes colorized features and shading. A black and white copy of the figure should not be used because it may not accurately represent the information presented.



**Data Box Information** All Result(s) Less than or equal to SRGs

Sample Location ID	Result(s) Greater than SRGs	Result and Comparison to SRG
B1BS0117	<= SRG	<= SRG
B1BS0092	Dioxin [2] 25 pg/g 8.2	> SRG

[2] - Represents the number of samples collected from this sample location, in this case 2, within the depth range being assessed, in this case < 2 feet bgs. Only the maximum result is presented for each analyte.



**Base Map Legend**

- Administrative Area Boundary
- RFI Site Boundary
- Report Group Boundary
- Drainage
- Non Jurisdictional Surface Water Pathway
- Surface Water Divide
- Excavation
- Elevation Contour

**Figure Legend**

- Preliminary ISRA Evaluation Area
- Dashed area represents potential expansion of PEA based on pending sample results
- Non-ISRA Project Sample Not Analyzed for ISRA COCs

**ISRA Constituents of Concern**  
Cadmium, Copper, Lead, Mercury, Dioxin

**Soil Remediation Goals (SRGs)**  
Cadmium: 1 mg/kg  
Copper: 29 mg/kg  
Lead: 34 mg/kg  
Mercury: 0.09 mg/kg  
Dioxin: 3.0 pg/g

**Cadmium, Copper, Lead, and/or Mercury Sample Locations (<2 feet bgs)**

- ≤ SRG
- > SRG and < 2x SRG
- ≥ 2x SRG and < 10 x SRG
- ≥ 10x SRG

Notes:  
1. Dioxin represents the sum of 17 dioxin/furan congener results adjusted for toxicity, normalized to 2,3,7,8-TCDD-TEQ.  
2. Cadmium, copper, lead, and mercury SRG is equal to the 2005 background comparison concentration, and SRG for dioxins is approximately 3 times the 2005 background comparison concentration.  
3. Aerial imagery from Google Earth, 2010.  
4. Topographic contours from Lidar data, 2008.

**Dioxin Sample Locations (<2 feet bgs)**

- ≤ SRG
- > SRG and < 2x SRG
- ≥ 2x SRG and < 10 x SRG
- ≥ 10x SRG

**Refined Preliminary ISRA Evaluation Areas**  
**Outfall 009 - B1-2**  
**SANTA SUSANA FIELD LABORATORY**

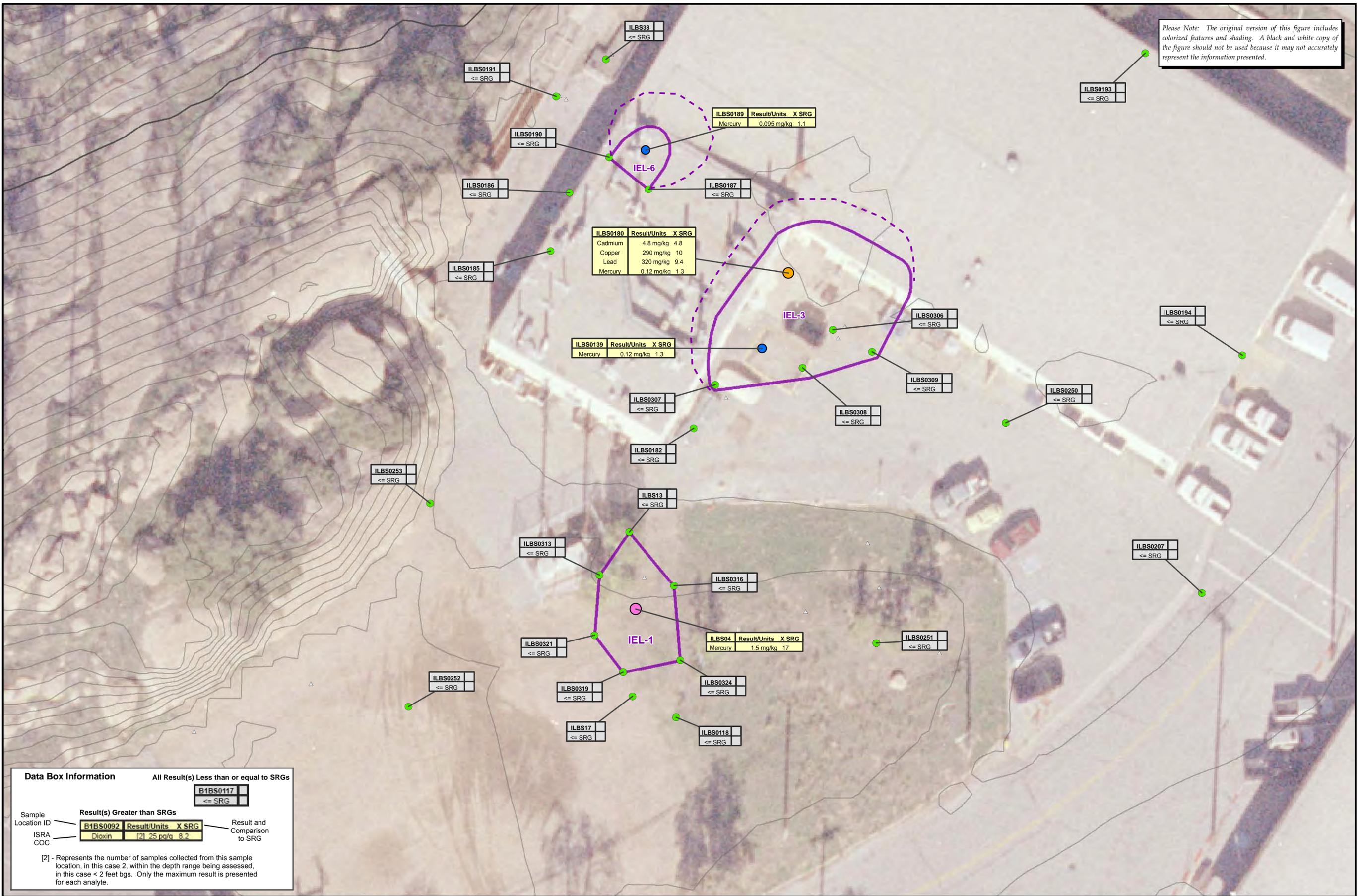
Document: ISRA\_Plots\_Report\_Evaluation\_B1-2.mxd Date: Apr 30, 2010

1 inch = 20 feet

0 20 40 Feet

MWH **FIGURE 2-8**

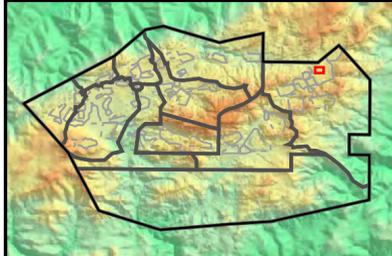
Please Note: The original version of this figure includes colored features and shading. A black and white copy of the figure should not be used because it may not accurately represent the information presented.



**Data Box Information** All Result(s) Less than or equal to SRGs

Sample Location ID	Result(s) Greater than SRGs			Result and Comparison to SRG
ISRA COC	<b>B1BS0092</b>	<b>Dioxin</b>	[2] 25 pg/g 8.2	

[2] - Represents the number of samples collected from this sample location, in this case 2, within the depth range being assessed, in this case < 2 feet bgs. Only the maximum result is presented for each analyte.



**Base Map Legend**

- Administrative Area Boundary
- RFI Site Boundary
- Report Group Boundary
- Drainage
- Non Jurisdictional Surface Water Pathway
- Surface Water Divide
- Excavation
- Elevation Contour

**Figure Legend**

- Preliminary ISRA Evaluation Area
- Dashed area represents potential expansion of PEA based on pending sample results
- Non-ISRA Project Sample Not Analyzed for ISRA COCs

**ISRA Constituents of Concern**  
Cadmium, Copper, Lead, Mercury, Dioxin

**Soil Remediation Goals (SRGs)**  
Cadmium: 1 mg/kg  
Copper: 29 mg/kg  
Lead: 34 mg/kg  
Mercury: 0.09 mg/kg  
Dioxin: 3.0 pg/g

**Cadmium, Copper, Lead, and/or Mercury Sample Locations (<2 feet bgs)**

- ≤ SRG
- > SRG and < 2x SRG
- ≥ 2x SRG and < 10 x SRG
- ≥ 10x SRG

**Dioxin Sample Locations (<2 feet bgs)**

- ≤ SRG
- > SRG and < 2x SRG
- ≥ 2x SRG and < 10 x SRG
- ≥ 10x SRG

Notes:  
1. Dioxin represents the sum of 17 dioxin/furan congener results adjusted for toxicity, normalized to 2,3,7,8-TCDD-TEQ.  
2. Cadmium, copper, lead, and mercury SRG is equal to the 2005 background comparison concentration, and SRG for dioxins is approximately 3 times the 2005 background comparison concentration.  
3. Aerial imagery from Sage, November 2009.  
4. Topographic contours from Lidar data, 2008.

**Refined Preliminary ISRA Evaluation Areas**  
**Outfall 009 - IEL-1, IEL-3, and IEL-6**  
**SANTA SUSANA FIELD LABORATORY**

Document: ISRA\_Plots\_Report\_Evaluation\_IEL-1.mxd Date: Apr 30, 2010

1 inch = 20 feet

0 20 40 Feet

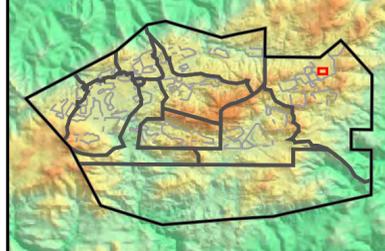
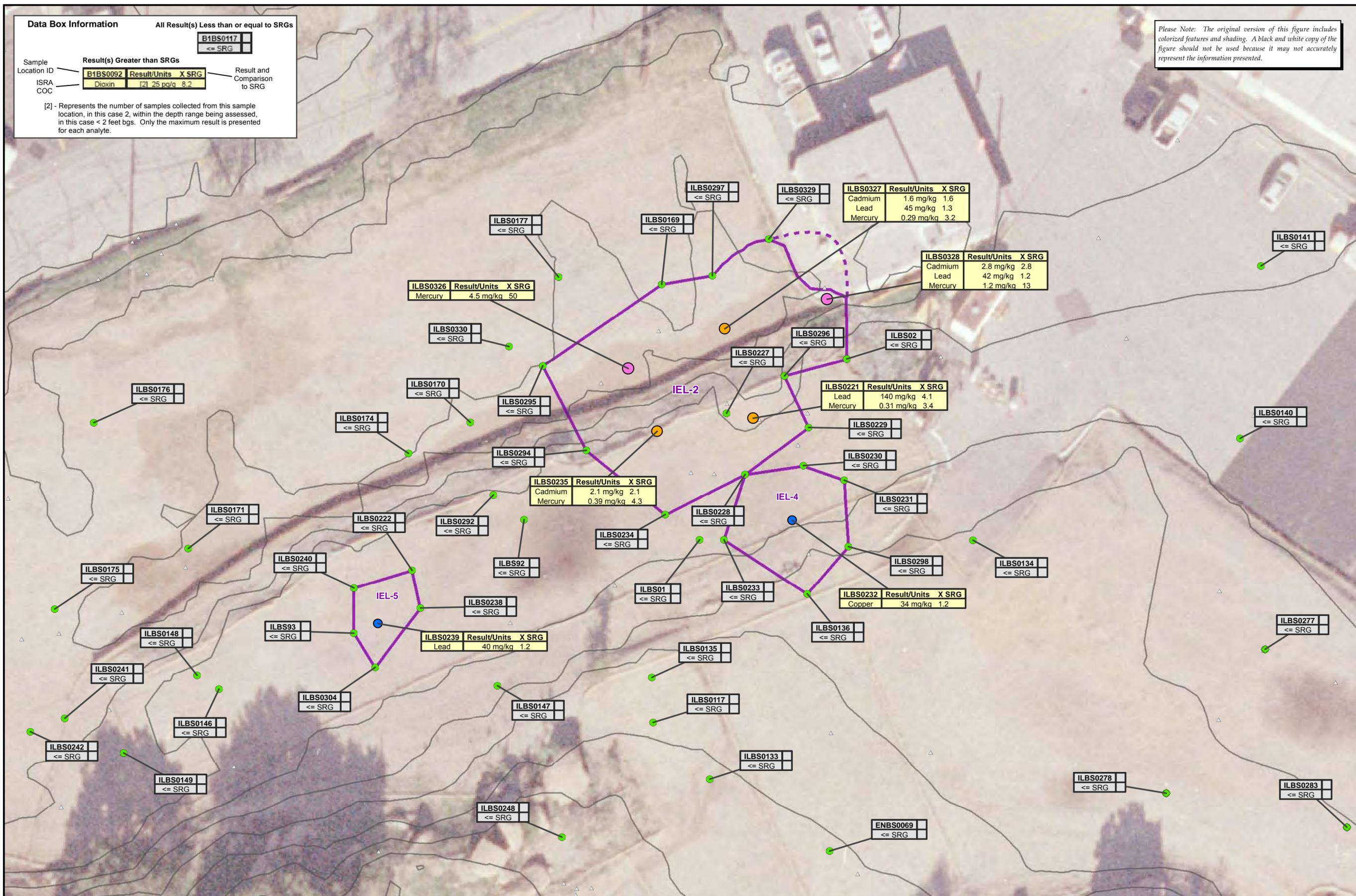
MWH **FIGURE 2-9**

**Data Box Information** All Result(s) Less than or equal to SRGs

Sample Location ID	B1BS0117			Result and Comparison to SRG
ISRA COC	Result(s) Greater than SRGs	Result/Units	X SRG	
	B1BS0092	Dioxin	[2] 25 pg/g	8.2

[2] - Represents the number of samples collected from this sample location, in this case 2, within the depth range being assessed, in this case < 2 feet bgs. Only the maximum result is presented for each analyte.

Please Note: The original version of this figure includes colorized features and shading. A black and white copy of the figure should not be used because it may not accurately represent the information presented.



**Base Map Legend**

- Administrative Area Boundary
- RFI Site Boundary
- Report Group Boundary
- Drainage
- Non-Jurisdictional Surface Water Pathway
- Surface Water Divide
- Excavation
- Elevation Contour

**Figure Legend**

- Preliminary ISRA Evaluation Area
- Dashed area represents potential expansion of PEA based on pending sample results
- Non-ISRA Project Sample Not Analyzed for ISRA COCs

**ISRA Constituents of Concern**  
Cadmium, Copper, Lead, Mercury, Dioxin

**Soil Remediation Goals (SRGs)**  
Cadmium: 1 mg/kg  
Copper: 29 mg/kg  
Lead: 34 mg/kg  
Mercury: 0.09 mg/kg  
Dioxin: 3.0 pg/g

**Cadmium, Copper, Lead, and/or Mercury Sample Locations (<2 feet bgs)**

- ≤ SRG
- > SRG and < 2x SRG
- ≥ 2x SRG and < 10 x SRG
- ≥ 10x SRG

**Dioxin Sample Locations (<2 feet bgs)**

- ≤ SRG
- > SRG and < 2x SRG
- ≥ 2x SRG and < 10 x SRG
- ≥ 10x SRG

- Notes:
- Dioxin represents the sum of 17 dioxin/furan congener results adjusted for toxicity, normalized to 2,3,7,8-TCDD-TEQ.
  - Cadmium, copper, lead, and mercury SRG is equal to the 2005 background comparison concentration, and SRG for dioxins is approximately 3 times the 2005 background comparison concentration.
  - Aerial imagery from Sage, November 2009.
  - Topographic contours from Lidar data, 2008.

**Refined Preliminary ISRA Evaluation Areas**  
**Outfall 009 - IEL-2, IEL-4, and IEL-5**  
**SANTA SUSANA FIELD LABORATORY**

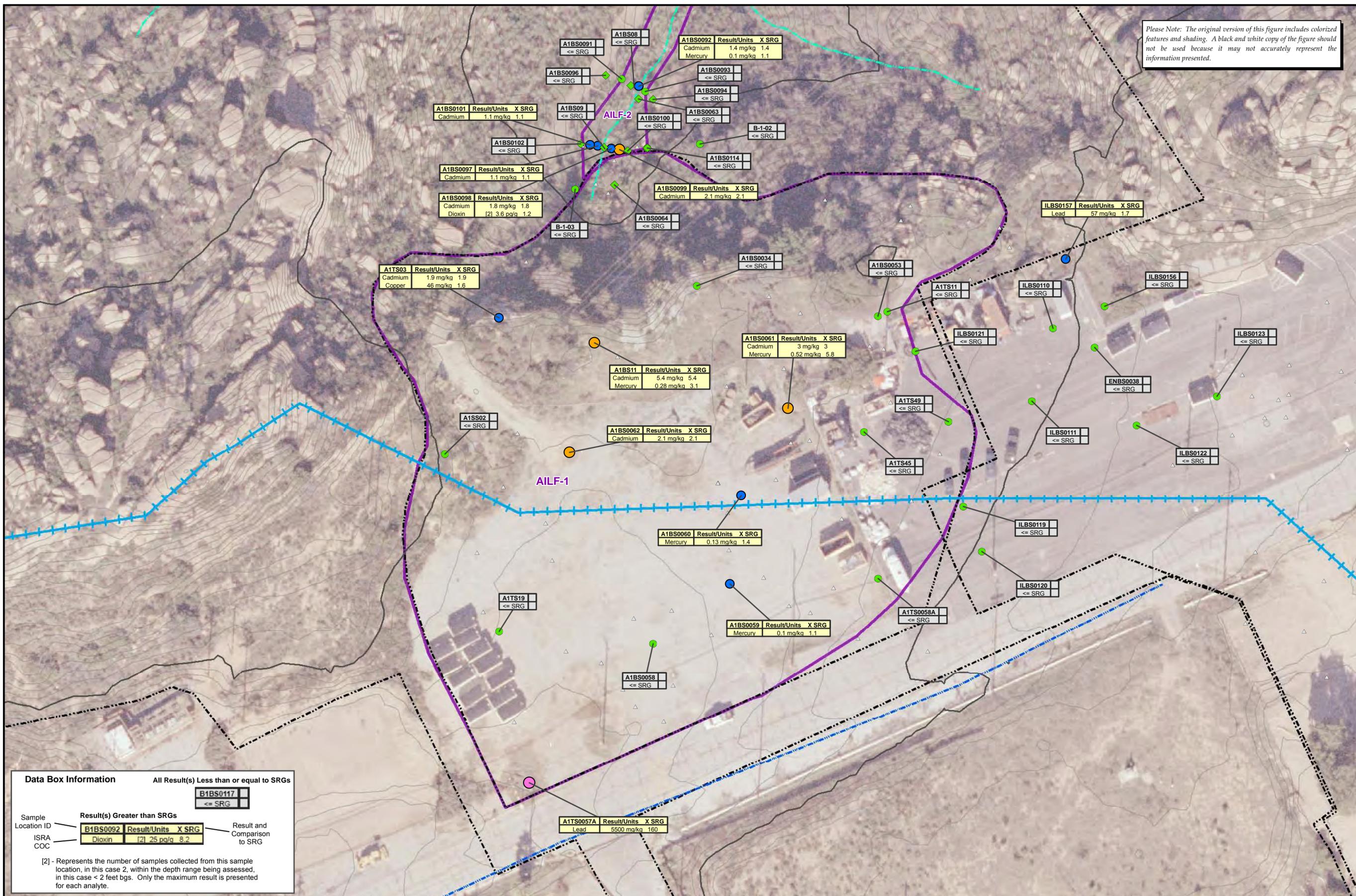
Document: ISRA\_Plots\_Report\_Evaluation\_IEL-2.mxd Date: Apr 30, 2010

1 inch = 20 feet

0 20 40 Feet

MWH **FIGURE 2-10**

Please Note: The original version of this figure includes colorized features and shading. A black and white copy of the figure should not be used because it may not accurately represent the information presented.

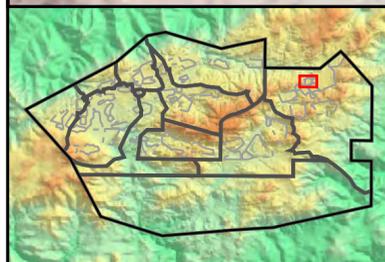


**Data Box Information**

All Result(s) Less than or equal to SRGs

Sample Location ID	Result(s) Greater than SRGs	Result and Comparison to SRG
B1BS0117	<= SRG	
B1BS0092	Dioxin [2] 25 pg/g	8.2

[2] - Represents the number of samples collected from this sample location, in this case 2, within the depth range being assessed, in this case < 2 feet bgs. Only the maximum result is presented for each analyte.



**Base Map Legend**

- Administrative Area Boundary
- RFI Site Boundary
- Report Group Boundary
- Drainage
- Non Jurisdictional Surface Water Pathway
- Surface Water Divide
- Excavation
- Elevation Contour

**Figure Legend**

- Preliminary ISRA Evaluation Area
- Non-ISRA Project Sample Not Analyzed for ISRA COCs

**ISRA Constituents of Concern**  
Cadmium, Copper, Lead, Mercury, Dioxin

**Soil Remediation Goals (SRGs)**  
Cadmium: 1 mg/kg  
Copper: 29 mg/kg  
Lead: 34 mg/kg  
Mercury: 0.09 mg/kg  
Dioxin: 3.0 pg/g

**Cadmium, Copper, Lead, and/or Mercury Sample Locations (<2 feet bgs)**

- ≤ SRG
- > SRG and < 2x SRG
- ≥ 2x SRG and < 10 x SRG
- ≥ 10x SRG

**Dioxin Sample Locations (<2 feet bgs)**

- ≤ SRG
- > SRG and < 2x SRG
- ≥ 2x SRG and < 10 x SRG
- ≥ 10x SRG

Notes:  
1. Dioxin represents the sum of 17 dioxin/furan congener results adjusted for toxicity, normalized to 2,3,7,8-TCDD-TEQ.  
2. Cadmium, copper, lead, and mercury SRG is equal to the 2005 background comparison concentration, and SRG for dioxins is approximately 3 times the 2005 background comparison concentration.  
3. Aerial imagery from Sage, November 2009.  
4. Topographic contours from Lidar data, 2008.

**Refined Preliminary ISRA Evaluation Areas**  
**Outfall 009 - A1LF-1**  
**SANTA SUSANA FIELD LABORATORY**

Document: ISRA\_Plots\_Report\_Evaluation\_A1LF-1.mxd Date: Apr 30, 2010

1 inch = 40 feet

0 40 80 Feet

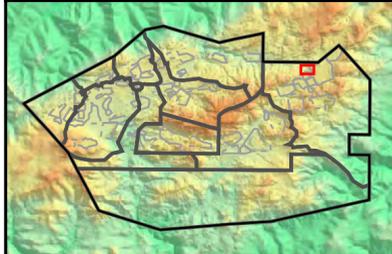
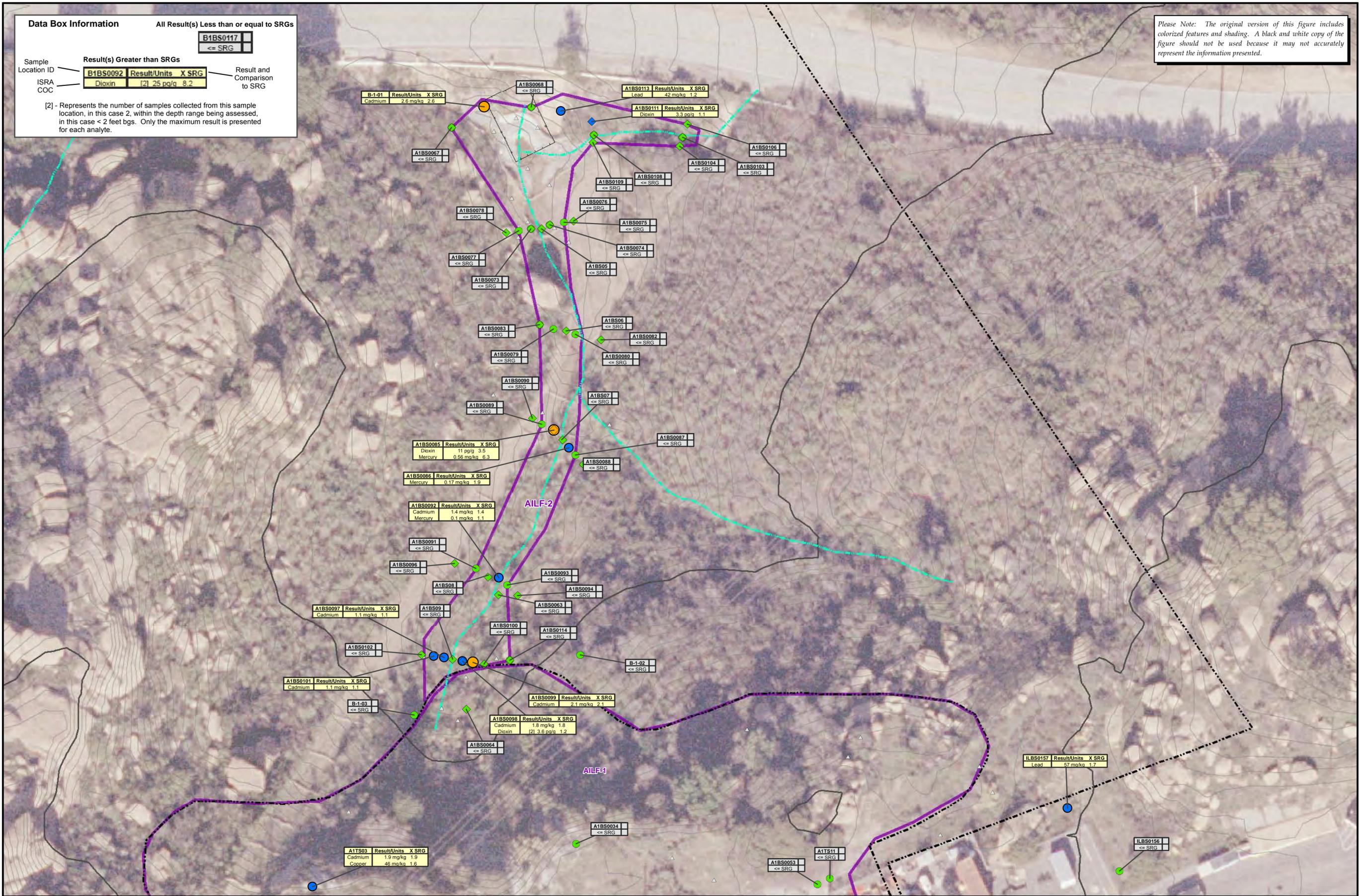
MWH **FIGURE 2-11**

**Data Box Information** All Result(s) Less than or equal to SRGs

Sample Location ID	B1BS0117		Result and Comparison to SRG
ISRA COC	Dioxin		
	Result/Units	X SRG	
	[2] 25 pg/g	8.2	

[2] - Represents the number of samples collected from this sample location, in this case 2, within the depth range being assessed, in this case < 2 feet bgs. Only the maximum result is presented for each analyte.

Please Note: The original version of this figure includes colored features and shading. A black and white copy of the figure should not be used because it may not accurately represent the information presented.



**Base Map Legend**

- Administrative Area Boundary
- RFI Site Boundary
- Report Group Boundary
- Drainage
- Non Jurisdictional Surface Water Pathway
- Surface Water Divide
- Excavation
- Elevation Contour

**Figure Legend**

- Preliminary ISRA Evaluation Area; 2010 Pre
- Culvert Main ISRA Evaluation
- Non-ISRA Project Sample Not Analyzed for ISRA COCs

**ISRA Constituents of Concern**  
 Cadmium, Copper, Lead, Mercury, Dioxin

**Soil Remediation Goals (SRGs)**  
 Cadmium: 1 mg/kg  
 Copper: 29 mg/kg  
 Lead: 34 mg/kg  
 Mercury: 0.09 mg/kg  
 Dioxin: 3.0 pg/g

**Cadmium, Copper, Lead, and/or Mercury Sample Locations (<2 feet bgs)**

- Green dot: ≤ SRG
- Blue dot: > SRG and < 2x SRG
- Orange dot: ≥ 2x SRG and < 10 x SRG
- Pink dot: ≥ 10x SRG

**Dioxin Sample Locations (<2 feet bgs)**

- Green diamond: ≤ SRG
- Blue diamond: > SRG and < 2x SRG
- Orange diamond: ≥ 2x SRG and < 10 x SRG
- Pink diamond: ≥ 10x SRG

**Notes:**

- Dioxin represents the sum of 17 dioxin/furan congener results adjusted for toxicity, normalized to 2,3,7,8-TCDD-TEQ.
- Cadmium, copper, lead, and mercury SRG is equal to the 2005 background comparison concentration, and SRG for dioxins is approximately 3 times the 2005 background comparison concentration.
- Aerial imagery from Sage, November 2009.
- Topographic contours from Lidar data, 2008.

**Refined Preliminary ISRA Evaluation Areas**  
**Outfall 009 - A1LF-2**  
**SANTA SUSANA FIELD LABORATORY**

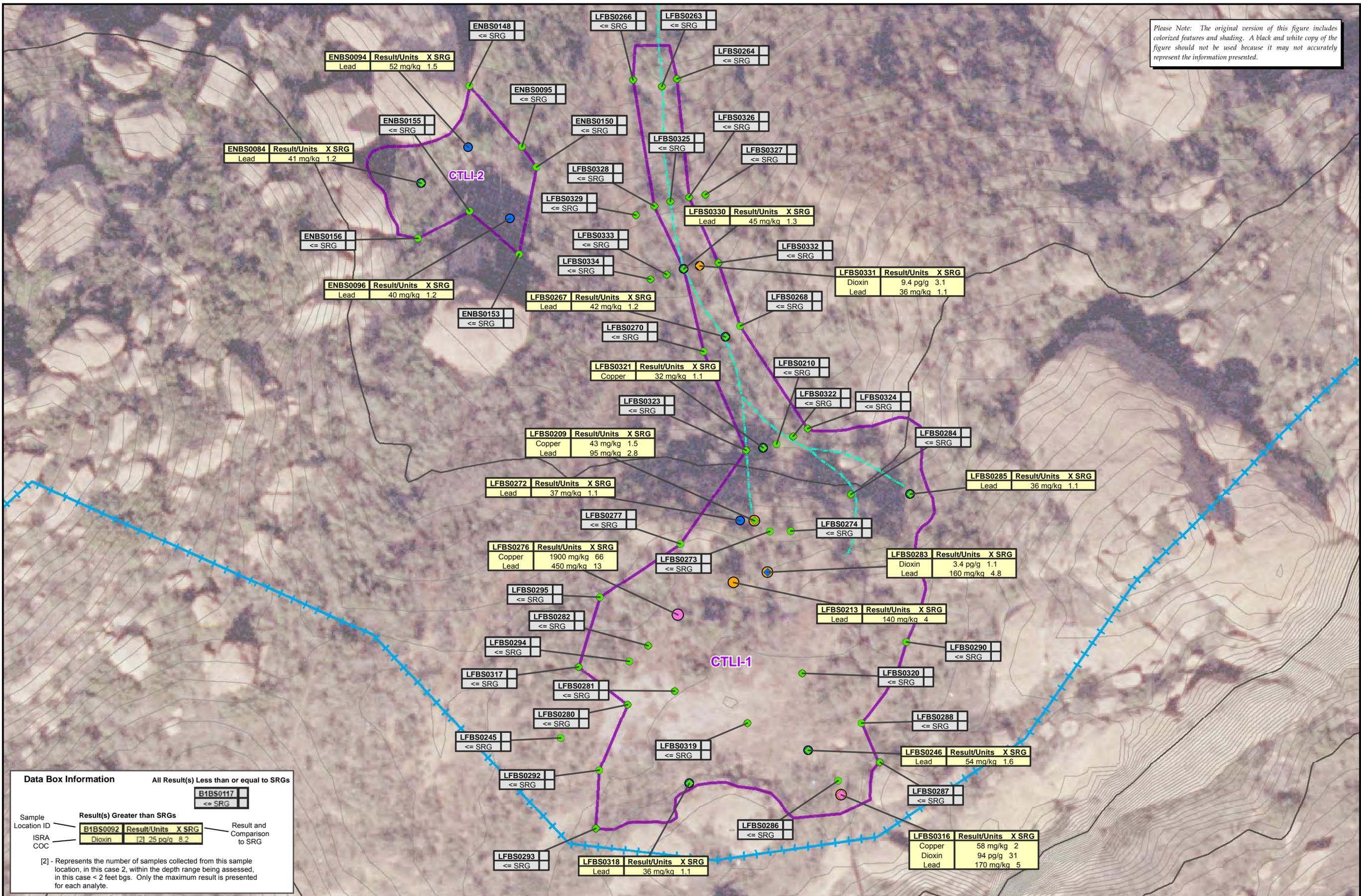
Document: ISRA\_Plots\_Report\_Evaluation\_A1LF-2.mxd Date: Apr 30, 2010

1 inch = 30 feet

0 30 60 Feet

MWH **FIGURE 2-12**

Please Note: The original version of this figure includes colored features and shading. A black and white copy of the figure should not be used because it may not accurately represent the information presented.



**Data Box Information**

All Result(s) Less than or equal to SRGs

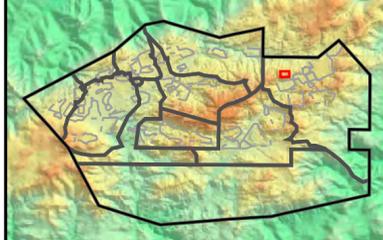
B1BS0117	<= SRG
----------	--------

Result and Comparison to SRG

Result(s) Greater than SRGs

B1BS0092	Result/Units	X SRG
ISRA COC	Dioxin	[2] 25 pg/g 8.2

[2] - Represents the number of samples collected from this sample location, in this case 2, within the depth range being assessed, in this case < 2 feet bgs. Only the maximum result is presented for each analyte.



**Base Map Legend**

- Administrative Area Boundary
- RFI Site Boundary
- Report Group Boundary
- Drainage
- Non Jurisdictional Surface Water Pathway
- Surface Water Divide
- Excavation
- Elevation Contour

**Figure Legend**

- Preliminary ISRA Evaluation Area
- Non-ISRA Project Sample Not Analyze for ISRA COCs

**ISRA Constituents of Concern**  
Cadmium, Copper, Lead, Mercury, Dioxin

**Soil Remediation Goals (SRGs)**  
Cadmium: 1 mg/kg  
Copper: 29 mg/kg  
Lead: 34 mg/kg  
Mercury: 0.09 mg/kg  
Dioxin: 3.0 pg/g

**Cadmium, Copper, Lead, and/or Mercury**  
Sample Locations (<2 feet bgs)

- ≤ SRG
- > SRG and < 2x SRG
- ≥ 2x SRG and < 10 x SRG
- ≥ 10x SRG

**Dioxin Sample Locations (<2 feet bgs)**

- ≤ SRG
- > SRG and < 2x SRG
- ≥ 2x SRG and < 10 x SRG
- ≥ 10x SRG

Notes:  
1. Dioxin represents the sum of 17 dioxin/furan congener results adjusted for toxicity, normalized to 2,3,7,8-TCDD-TEQ.  
2. Cadmium, copper, lead, and mercury SRG is equal to the 2005 background comparison concentration, and SRG for dioxins is approximately 3 times the 2005 background comparison concentration.  
3. Aerial imagery from Sage, November 2009.  
4. Topographic contours from Lidar data, 2008.

**Refined Preliminary ISRA Evaluation Areas**  
**Outfall 009 - CTLI-1 and CTLI-2**  
**SANTA SUSANA FIELD LABORATORY**

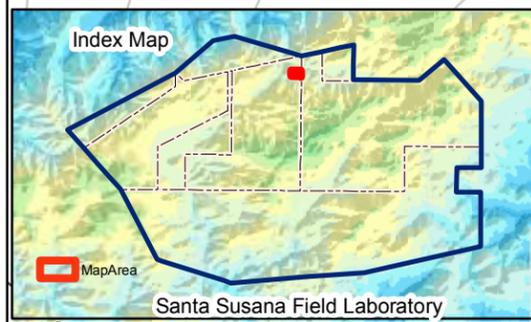
Document: ISRA\_Plots\_Report\_Evaluation\_CTLI1.mxd Date: Apr 30, 2010

1 inch = 20 feet

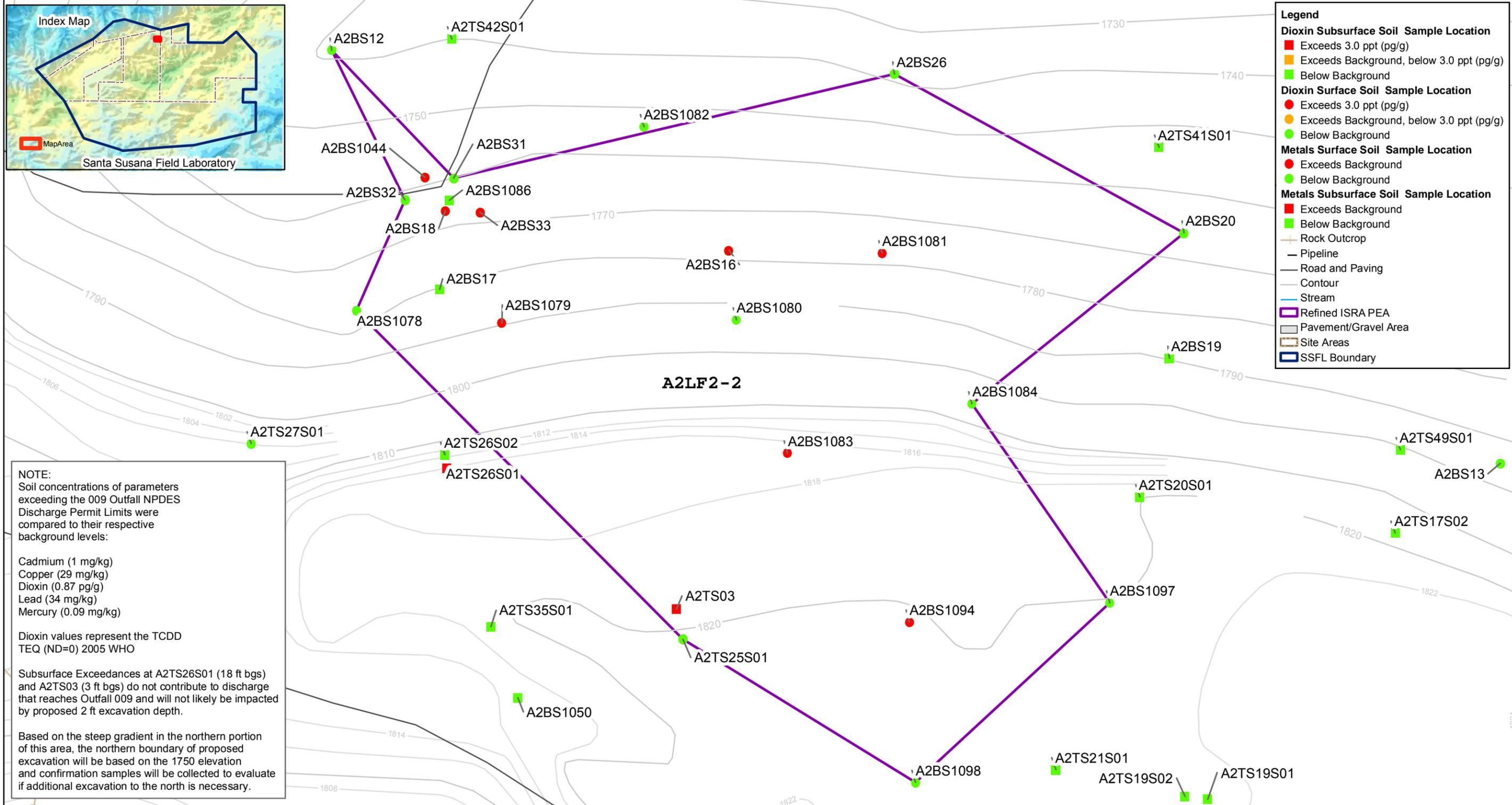
0 20 40 Feet

MWH **FIGURE 2-13**





Santa Susana Field Laboratory



**Legend**

**Dioxin Subsurface Soil Sample Location**

- Exceeds 3.0 ppt (pg/g)
- Exceeds Background, below 3.0 ppt (pg/g)
- Below Background

**Dioxin Surface Soil Sample Location**

- Exceeds 3.0 ppt (pg/g)
- Exceeds Background, below 3.0 ppt (pg/g)
- Below Background

**Metals Surface Soil Sample Location**

- Exceeds Background
- Below Background

**Metals Subsurface Soil Sample Location**

- Exceeds Background
- Below Background

Rock Outcrop  
 Pipeline  
 Road and Paving  
 Contour  
 Stream  
 Refined ISRA PEA  
 Pavement/Gravel Area  
 Site Areas  
 SSFL Boundary

**NOTE:**  
 Soil concentrations of parameters exceeding the 009 Outfall NPDES Discharge Permit Limits were compared to their respective background levels:

Cadmium (1 mg/kg)  
 Copper (29 mg/kg)  
 Dioxin (0.87 pg/g)  
 Lead (34 mg/kg)  
 Mercury (0.09 mg/kg)

Dioxin values represent the TCDD TEQ (ND=0) 2005 WHO

Subsurface Exceedances at A2TS26S01 (18 ft bgs) and A2TS03 (3 ft bgs) do not contribute to discharge that reaches Outfall 009 and will not likely be impacted by proposed 2 ft excavation depth.

Based on the steep gradient in the northern portion of this area, the northern boundary of proposed excavation will be based on the 1750 elevation and confirmation samples will be collected to evaluate if additional excavation to the north is necessary.



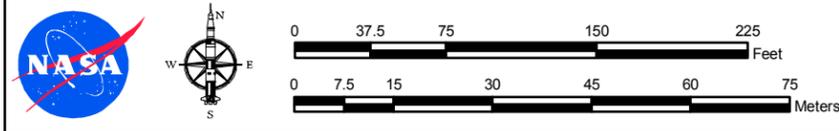
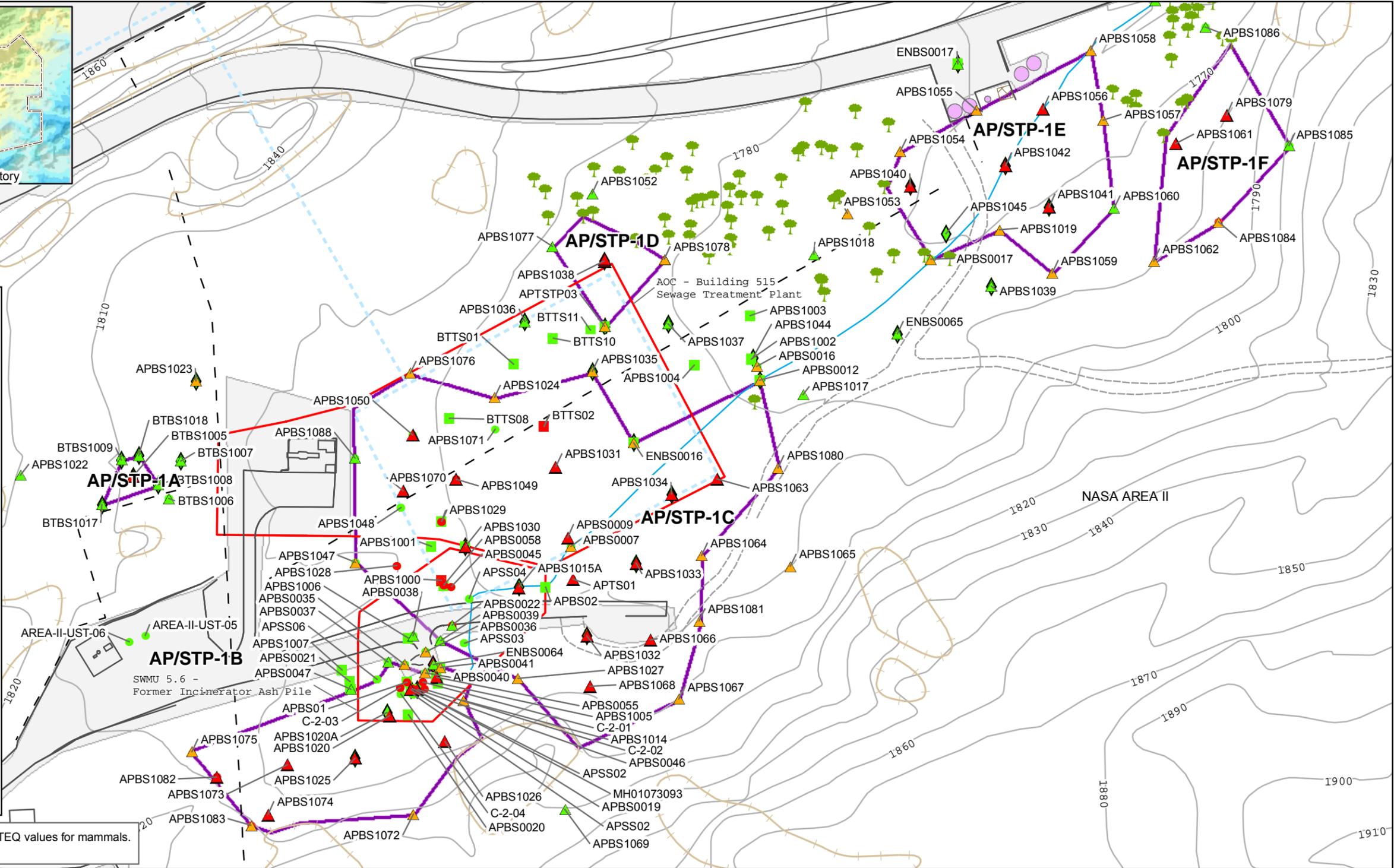
15-APR-2010  
 Drawn By:  
 Alberta Cooley

Figure 2-15  
 Refined Preliminary ISRA Evaluation Areas  
 A2LF2-2 PEA, Outfall 009  
 Santa Susana Field Laboratory



- Legend**
- Oak Tree
  - Dioxin Surface Soil Sample Location**
    - Below Background
    - Exceeds Background, below 3.0 ppt (pg/g)
    - Exceeds 3.0 ppt (pg/g)
  - Dioxin Subsurface Soil Sample Location**
    - Below Background
    - Exceeds Background, below 3.0 ppt (pg/g)
    - Exceeds 3.0 ppt (pg/g)
  - Metals Subsurface Soil Sample Location**
    - Below Background
    - Exceeds Background
  - Metals Surface Soil Sample Location**
    - Below Background
    - Exceeds Background
  - Leachfield
  - Rock Outcrop
  - Pipeline
  - Road and Paving
  - Dirt Road
  - Contour
  - Stream
  - Refined ISRA PEA
  - Pavement/Gravel Area
  - Awning
  - Other Tank
  - Petroleum Fuel/Oil Tank
  - Site Areas
  - SWMU or AOC
  - SSFL Boundary
  - Soil Sample Results**
    - Below Background
    - Exceeds Background

NOTE: Concentrations are compared as TEQ values for mammals.  
Surface Soil = 0 to 2 feet bgs



15-APR-2010  
Drawn By:  
Alberta Cooley

Figure 2-16  
Refined Preliminary ISRA Evaluation Areas  
AP-STP-1 PEA, Outfall 009  
Santa Susana Field Laboratory