

APPENDIX E

**PRE-AND POST-EXCAVATION
FIGURES AND TABLES**

Appendix E – Pre- and Post-Excavation Figures and Tables

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APPENDIX E –Pre- and Post-Excavation Tables

Footnotes

Acronyms:

"--" – not analyzed / not applicable

BERA – Baseline Ecological Risk Assessment

bgs - below ground surface

CMS – Corrective Measures Study

COC – constituent of concern

DNQ – detected but not quantified

DTSC – Department of Toxic Substances Control

ECO RBSL – Ecological Risk-Based Screening Level

EPA – Environmental Protection Agency

ISRA – Interim Source Removal Action

MDL– method detection limit

mg/kg – milligrams per kilogram

MS – matrix spike

MSD – matrix spike duplicate

NPDES – National Pollutant Discharge Elimination System

PCB – polychlorinated biphenyl

pg/g - picograms per gram

RBSL – risk-based screening level

RCRA – Resource Conservation and Recovery Act

RES RBSL – Residential Human Health Risk-Based Screening Level

RL – reporting limit

RME – Reasonable Maximum Exposure

RPD – Relative Percent Difference

RWQCB – Regional Water Quality Control Board

SRG – Soil Remediation Goal

TEF – toxic equivalency factor

TCDD TEQ – tetrachlorobenzo-p-dioxin toxic equivalent (normalized to 2,3,7,8-TCDD)

TRV = Toxicity Reference Value

ug/kg – micrograms per kilogram

WHO – World Health Organization

Data Validation Qualifiers:

J – Estimated value. Analyte was detected at a level less than the RL and greater than or equal to the MDL. The user of this data should be aware that this data is of limited reliability.

R – Result was rejected during validation.

B – Analyte was detected in the associated Method Blank.

P – Preliminary result, data not validated.

R-3 – The RPD exceeded the acceptance limit due to sample matrix effects.

M1 – The MS and/or MSD were above the acceptance limits due to sample matrix interference.

< – Result was not detected above the value shown.

Notes:

Soil background values are from Soil Background Report, Santa Susana Field Laboratory, Ventura County, California (MWH, September 2005).

ISRA SRGs are established for ISRA COCs, including cadmium, copper, lead, mercury, and dioxins. SRGs for metals are equal to the 2005 background comparison concentration, and the SRG for dioxins is approximately 3 times the 2005 background comparison concentration. Soil background values are from the Soil Background Report, Santa Susana Field Laboratory, Ventura County, California (MWH, September 2005).

Grey highlighted cell indicates result that exceed the SRG.

Other screening values, including CMS and RBSL values, shown for reference purposes only.

RBSL values were provided to DTSC in the Interim Final Human Health and Ecological Risk-Based Screening Levels (RBSLs) for Use in RCRA Facility (MWH, March 2009). The two types of RBSLs are Ecological RBSLs, which were calculated at the 10% soil consumed fraction for the deer mouse, and Residential RBSLs, which are Human Health (RME) risk-based screening levels for a resident.

CMS screening levels are BERA TRV-based screening levels, which only include those chemicals with available TRV-high values previously-approved by DTSC were used. For those chemicals with a Characterization Screening Level RBSL based upon the soil invertebrate, then the next minimum RBSL for the next trophic level higher was chosen.

Dioxins/ TCDD TEQ - A sum of 17 dioxin / furan congener results adjusted for toxicity. The TEQ is calculated by multiplying the result of each congener by its respective 2005 WHO TEF, which is based on the relative potency of the congener to cause a toxic response relative to 2,3,7,8-TCDD. Non Detects are calculated as zero. TCDD TEQ values do not include laboratory data detected but not quantified (DNQ), as specified in NPDES Permit No. CA0001309.

Zero value for TCDD TEQ result indicates that all the analytical results used to calculate the TEQ were non-detect.

Selenium was added to the analytical suite of confirmation samples collected at ISRA areas CTLI-1A, CTLI-1B, B1-1, and B1-2 because selenium was identified as a potential RCRA risk driver in these areas based on waste characterization sample results using EPA method 6010B. EPA method 6010B is known to generate biased high results and/or false positives for samples that are known to contain elevated levels of iron and aluminum, as is often the case for samples collected at the Santa Susana Site. Waste characterization samples were subsequently analyzed for selenium by EPA method 6020, and results were not detected above the method detection limit.

Asbestos and/or PCBs were added to the analytical suite to select confirmation samples collected at ISRA area B1-2 because the samples were located near removed pipelines/conduits that contained pipewrapping with asbestos and/or PCBs.

Figure Views for Phase II ISRA Areas Eastern Outfall 009 Watershed

- Base Map Legend**
- Administrative Area Boundary
 - RFI Site Boundary
 - Soil Borrow Area
 - NPDES Outfall
 - Surface Water Divide
 - Drainage
 - Non Jurisdictional Surface Water Pathway
 - Previous Excavation Area
 - A/C Paving
 - Dirt Road
 - Elevation Contour

- Figure Legend**
- Actual excavation boundaries
 - ISRA Areas completed in 2009
 - Planned excavation boundaries
 - ISRA Areas completed in 2010
 - ISRA Areas planned for future remediation
 - ISRA PEAs not planned for future remediation

- Chemical Data Legend**
- Dioxin Sample Locations (< 2 feet bgs)**
- ≤ SRG
 - > SRG and < 2x SRG
 - ≥ 2x SRG and < 10 x SRG
 - ≥ 10x SRG
- Metal Sample Locations (< 2 feet bgs)**
- ≤ SRG
 - > SRG and < 2x SRG
 - ≥ 2x SRG and < 10 x SRG
 - ≥ 10x SRG

ISRA COCs/ SRGs
 Cadmium: 1 mg/kg
 Copper: 29 mg/kg
 Lead: 34 mg/kg
 Mercury: 0.09 mg/kg
 Dioxin: 3.0 pg/g

- Figure Notes:**
- Implementation at 2009 ISRA areas was described in the ISRA Phase I Implementation Report (MWH, 2009).
 - PEA-CTLI-2, PEA-IEL-4, PEA-IEL-5, and PEA-IEL-6 underwent a contaminant migration potential evaluation based on chemical and physical characteristics in the 2010 Work Plan Addendum (MWH, 2010), with a resulting low rank, and therefore were not considered ISRA areas and were not carried forward for the remedial alternatives evaluation.
 - Aerial imagery and topographic contours were collected June 2, 2010 by Sage Consultants, Inc., and represent pre-excavation conditions.

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1 inch = 300 feet
 0 300 600 Feet

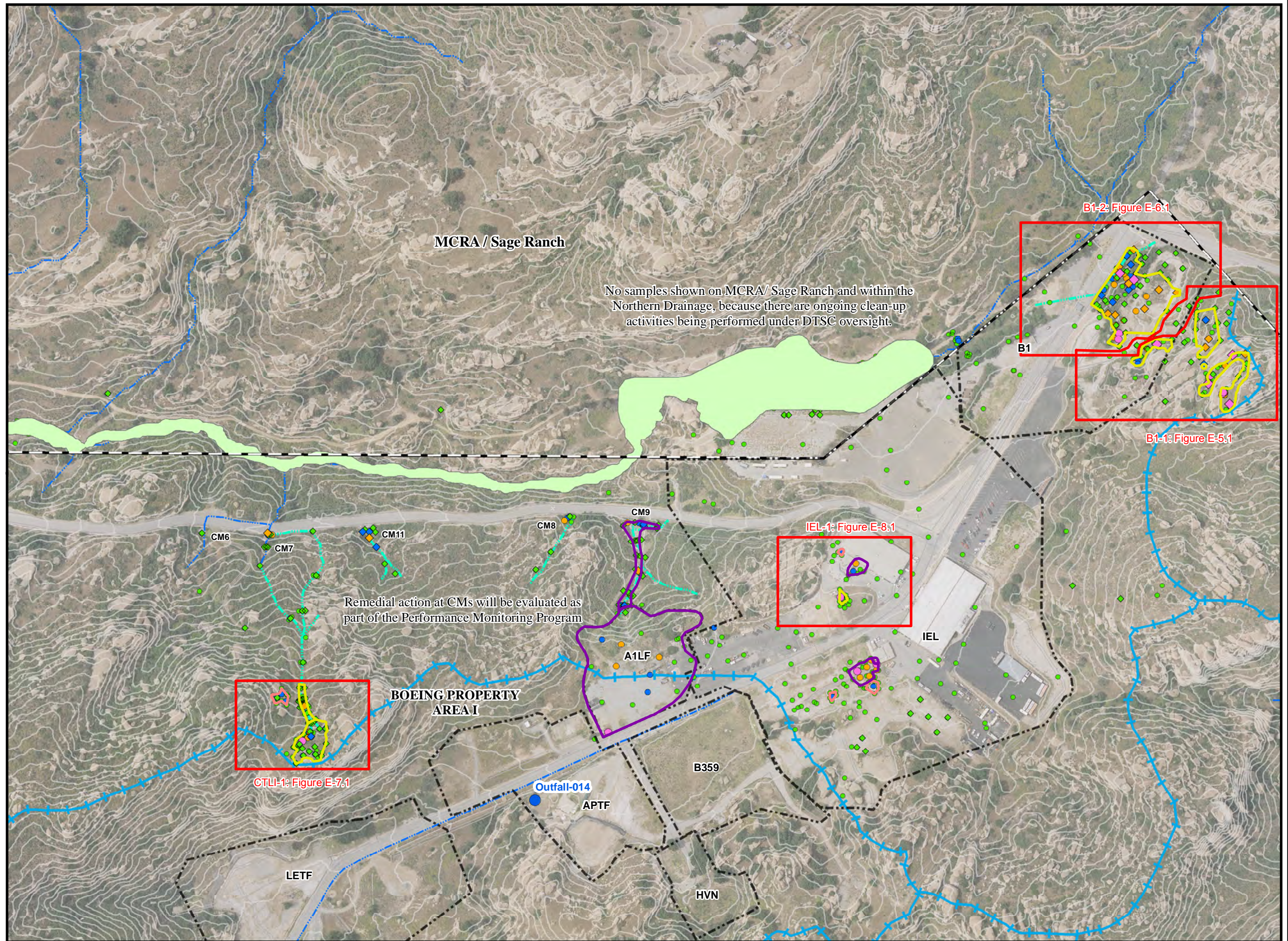
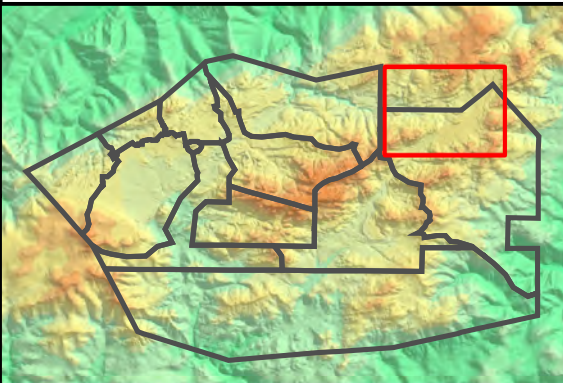


Figure Views for Phase II ISRA Areas Western Outfall 009 Watershed

- Base Map Legend**
- Administrative Area Boundary
 - RFI Site Boundary
 - Soil Borrow Area
 - NPDES Outfall
 - Surface Water Divide
 - Drainage
 - Non Jurisdictional Surface Water Pathway
 - Previous Excavation Area
 - A/C Paving
 - Dirt Road
 - Elevation Contour

- Figure Legend**
- Actual excavation boundaries
 - ISRA Areas completed in 2009
 - Planned excavation boundaries
 - ISRA Areas completed in 2010
 - ISRA Areas planned for future remediation
 - ISRA PEAs not planned for future remediation

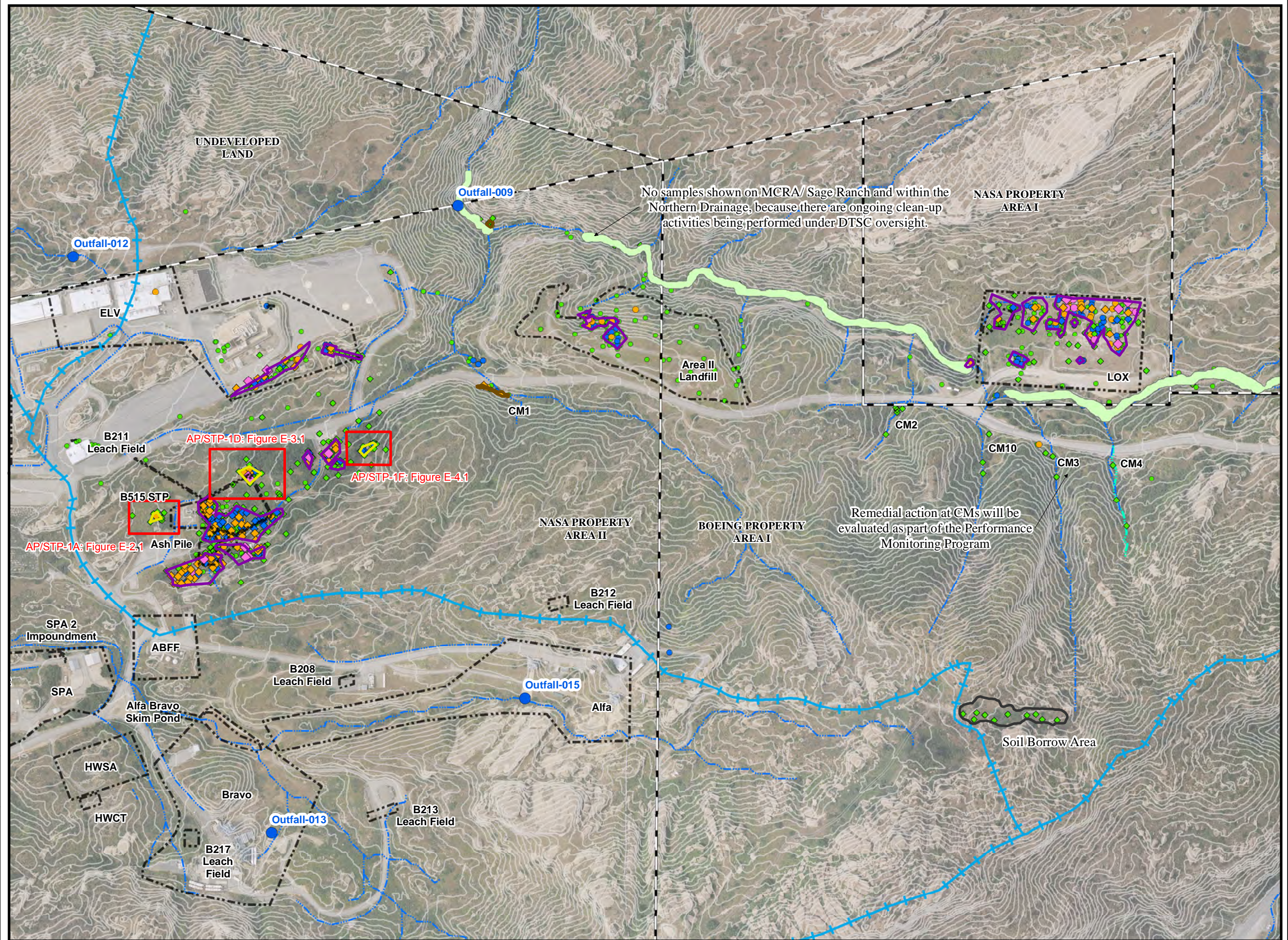
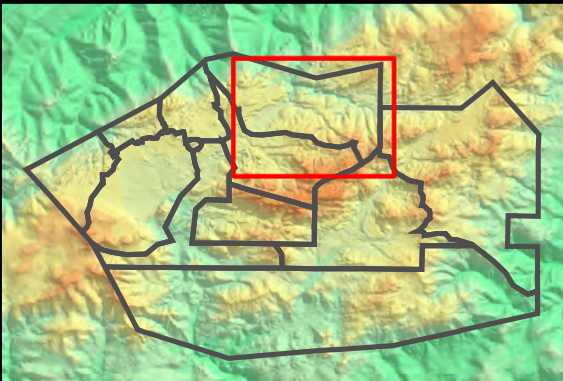
- Chemical Data Legend**
- Dioxin Sample Locations (< 2 feet bgs)**
- ≤ SRG
 - > SRG and < 2x SRG
 - ≥ 2x SRG and < 10 x SRG
 - ≥ 10x SRG
- Metal Sample Locations (< 2 feet bgs)**
- ≤ SRG
 - > SRG and < 2x SRG
 - ≥ 2x SRG and < 10 x SRG
 - ≥ 10x SRG

ISRA COCs/SRGs
 Cadmium: 1 mg/kg
 Copper: 29 mg/kg
 Lead: 34 mg/kg
 Mercury: 0.09 mg/kg
 Dioxin: 3.0 pg/g

- Figure Notes:**
- Implementation at 2009 ISRA areas was described in the ISRA Phase I Implementation Report (MWH, 2009).
 - PEA-CTL-2, PEA-IEL-4, PEA-IEL-5, and PEA-IEL-6 underwent a contaminant migration potential evaluation based on chemical and physical characteristics in the 2010 Work Plan Addendum (MWH, 2010), with a resulting low rank, and therefore were not considered ISRA areas and were not carried forward for the remedial alternatives evaluation.
 - Aerial imagery and topographic contours were collected June 2, 2010 by Sage Consultants, Inc., and represent pre-excavation conditions.

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1 inch = 400 feet



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.



AP/STP-1A
 ISRA COCs: Dioxins, Lead
 RCRA R.D.s: None

Data Box Information

All Result(s) Less than or equal to SRGs

ILBS0307	Result X SRG
ISRA COCs	<= SRG
RCRA R.D.s	>SL

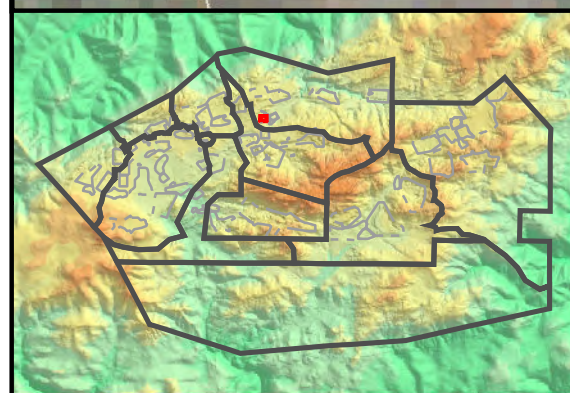
Result(s) Greater than SRGs

ILBS0139	Result X SRG
Mercury	0.12 mg/kg 1.3
RCRA R.D.s	>SL

Result and Comparison to SRG

RCRA R.D.s Compared to SL

[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
- Previous Excavation Area
- Elevation Contour

Figure Legend

- Planned Excavation Area
- Near Surface Well
- Chatsworth Well

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

RCRA R.D.s = RCRA Risk Drivers
 SL = Screening Level

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. Screening level for RCRA risk drivers is the lower of the Ecological or Residential Risk-Based Screening Level. All RCRA risk drivers identified on this figure view are evaluated at each sample location shown.
 4. Aerial imagery and topographic contours from Sage, 2010. Aerial imagery was collected June 2, 2010, and represents pre-excavation conditions. Topographic contours represent pre-excavation conditions.

Chemical Data Legend

Cadmium, Copper, Lead, and/or Mercury Sample Locations

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

Dioxin Sample Locations

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

Sample Not Analyzed for ISRA COCs

- > SL for one or more RCRA R.D.s
- ≤ SL for all RCRA R.D.s
- Not analyzed for RCRA R.D.s

Outfall 009 – ISRA Area AP/STP-1A
Pre-Excavation Sample Results
Surface Soils (0-2 feet bgs)
SANTA SUSANA FIELD LABORATORY

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1 inch = 10 feet

0 10 20 Feet

MWH

Figure E-2.1

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.



AP/STP-1A
ISRA COCs: Dioxins, Lead
RCRA R.D.s: None

BTBST009 Result X SRG
 ISRA COCs <= SRG
 RCRA R.D.s None

BTBST018 Result X SRG
 ISRA COCs <= SRG
 RCRA R.D.s None

BTBST007 Result X SRG
 ISRA COCs <= SRG
 RCRA R.D.s None

BTBST008 Result X SRG
 ISRA COCs <= SRG
 RCRA R.D.s None

BTBST017 Result X SRG
 ISRA COCs <= SRG
 RCRA R.D.s None

Data Box Information

All Result(s) Less than or equal to SRGs

ILBS0307	Result X SRG
ISRA COCs	<= SRG
RCRA R.D.s	> SL

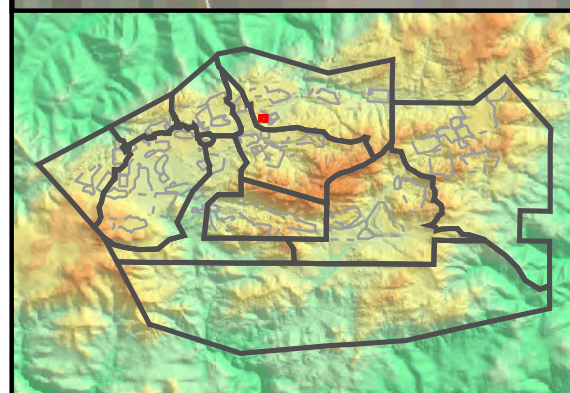
Result(s) Greater than SRGs

ILBS0139	Result X SRG
Mercury	0.12 mg/kg 1.3
RCRA R.D.s	> SL

Result and Comparison to SRG

RCRA R.D.s Compared to SL

[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
 - Previous Excavation Area
 - Elevation Contour

- Figure Legend**
- Planned Excavation Area
 - Near Surface Well
 - Chatsworth Well

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

RCRA R.D.s = RCRA Risk Drivers
 SL = Screening Level

Notes:
 1. Dioxin represents the sum of 17 dioxin/furan congeners 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. Screening level for RCRA risk drivers is the lower of the Ecological or Residential Risk-Based Screening Level. All RCRA risk drivers identified on this figure view are evaluated at each sample location shown.
 4. Aerial imagery and topographic contours from Sage, 2010. Aerial imagery was collected June 2, 2010, and represents pre-excavation conditions. Topographic contours represent pre-excavation conditions.

Chemical Data Legend

Cadmium, Copper, Lead, and/or Mercury Sample Locations

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

Dioxin Sample Locations

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

Sample Not Analyzed for ISRA COCs

- ▲ > SL for one or more RCRA R.D.s
- ▲ ≤ SL for all RCRA R.D.s
- ▼ Not analyzed for RCRA R.D.s

Outfall 009 – ISRA Area AP/STP-1A
Pre-Excavation Sample Results
SubSurface Soils (2-10 feet bgs)
SANTA SUSANA FIELD LABORATORY

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1 inch = 10 feet

0 10 20 Feet

MWH

Figure E-2.2

INTERIM SOURCE REMOVAL ACTION (ISRA)

TABLE E-2.1 AP/STP-1A PRE-EXCAVATION SAMPLE RESULTS
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY

Group						Metals	Metals	Metals	Metals	Metals	Metals	Metals	Metals	Metals	Metals	Metals	Metals	Metals	
Preferred Analyte						Aluminum	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	
Result Value Units						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Background						20,000	8.7	15	140	1.1	9.7	1	36.8	21	29	34	0.09	5.3	
ISRA SRG						--	--	--	--	--	--	1	--	--	29	34	0.09	--	
CMS						--	0.77	--	--	--	--	--	--	--	8.2	--	0.88	--	
Lowest Characterization RBSL						12	0.095	0.095	15	5.1	6.8	0.021	930	8.9	1.1	0.063	0.1	0.11	
RBSL Type						ECO	ECO	RES	ECO	ECO	ECO	ECO	ECO	ECO	ECO	ECO	ECO	ECO	
Object Name	Sample Name	Collection Date	Sample Depth (feet bgs)	Matrix Type	ISRA Area	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	
BTBS1005	BTBS1005S01	6/12/2008	0.5-1.0	Soil	AP/STP-1A	11,800	<0.311	3	114	0.64	<3.6	0.33	21.9	6.4	10	9.2	0.0081 J	0.54	
BTBS1005	BTBS1005S02	6/12/2008	4.5-5.5	Soil	AP/STP-1A	11,300	<0.317	3.1	96.7	0.66	<2.2	0.28	20.9	6.2	9.3	5.8	0.0026 J	<0.47	
BTBS1008	BTBS1008S01	6/12/2008	0.5-1.5	Soil	AP/STP-1A	10,800	<0.313	2.8	97.7	0.57	<2	0.28	19.6	5.7	9.3	8.3	0.0052 J	<0.44	
BTBS1008	BTBS1008S02	6/12/2008	5.0-6.0	Soil	AP/STP-1A	12,800	<0.315	3.3	99.6	0.69	<2	0.26	21.5	6.2	9.3	6.3	0.0034 J	<0.48	
BTBS1009	BTBS1009S01	6/12/2008	0.5-1.5	Soil	AP/STP-1A	13,000	<0.306	2.9	97.1	0.47	<2.1	0.29	17.4	4.9	9.7	5.4	0.0027 J	<0.45	
BTBS1009	BTBS1009S02	6/12/2008	5.0-6.0	Soil	AP/STP-1A	13,100	<0.313	3.6	111	0.72	<1.8	0.28	23.6	6.8	10	6.2	0.0029 J	<0.5	
BTBS1017	BTBS1017S001	4/1/2009	0.0-0.1	Soil	AP/STP-1A	--	--	--	--	--	--	--	--	--	--	--	--	--	
BTBS1017	BTBS1017S002	4/1/2009	2.5-3.0	Soil	AP/STP-1A	--	--	--	--	--	--	--	--	--	--	--	--	--	
BTBS1018	BTBS1018S001	4/1/2009	0.0-0.5	Soil	AP/STP-1A	--	--	--	--	--	--	--	--	--	--	--	--	--	
BTBS1018	BTBS1018S002	4/1/2009	2.5-3.0	Soil	AP/STP-1A	--	--	--	--	--	--	--	--	--	--	--	--	--	
APBS1022	APBS1022S001	3/31/2009	0.0-0.5	Soil	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
BTBS1006	BTBS1006S01	6/6/2008	0.5-1.5	Soil	--	10,000	<0.316	3.4	91.3	0.49	<4.1	0.26	16.8	4.5	8.4	12.6	0.017	<0.49	
BTBS1007	BTBS1007S01	6/6/2008	0.5-1.0	Soil	--	11,000	<0.312	2.7	92.2	0.45 J	<2.1	0.28	15.8 J	4.6	8.7	6.4 J	0.0079 J	<0.43	
BTBS1007	BTBS1007S02	6/6/2008	5.0-6.0	Soil	--	14,500	<0.33	4.9	85.8	0.72	<1.8	0.19 J	18.5	9.2	8.3	8	0.0074 J	<0.64	
APWC0801	APWC0801S001	7/28/2010	0.5-1.0	Soil	AP/STP-1A	--	1.1 J	3.6	72	0.47 J	--	<0.20	16	4.6	7.7	4.1	0.013 J	0.65 J	
APWC0802	APWC0802S001	7/28/2010	0.5-0.8	Soil	AP/STP-1A	--	1.1 J	4.0	79	0.49	--	<0.20	16	3.8	8.2	40	0.016 J	0.68 J	
APWC0804	APWC0804S001	7/28/2010	0.5-1.0	Soil	AP/STP-1A	--	1.1 J	4.7	74	0.56	--	<0.20	21	4.6	10	8.8	0.018 J	0.86 J	
APWC0803	APWC0803S001	7/28/2010	0.5-1.0	Soil	AP/STP-1A	--	1.1 J	4.5	96	0.62	--	<0.20	23	5.4	11	7.1	0.013 J	0.75 J	

INTERIM SOURCE REMOVAL ACTION (ISRA)

**TABLE E-2.1 AP/STP-1A PRE-EXCAVATION SAMPLE RESULTS
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY**

Group						Metals	Metals	Metals	Metals	Metals	Metals	Dioxins
Preferred Analyte						Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	TCDD TEQ
Result Value Units						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	pg/g
Background						29	0.655	0.79	0.46	62	110	0.87
ISRA SRG						--	--	--	--	--	--	3
CMS						15	--	96	--	--	26	--
Lowest Characterization RBSL						0.1	0.17	0.54	2.9	1.5	21	4.27
RBSL Type						ECO	ECO	ECO	ECO	ECO	ECO	ECO
Object Name	Sample Name	Collection Date	Sample Depth (feet bgs)	Matrix Type	ISRA Area	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS
BTBS1005	BTBS1005S01	6/12/2008	0.5-1.0	Soil	AP/STP-1A	15.4	<0.513	0.081 J	<0.26	31.9	55.5	8.44
BTBS1005	BTBS1005S02	6/12/2008	4.5-5.5	Soil	AP/STP-1A	14.6	<0.52	0.054 J	<0.24	31.3	48.3	0.0220
BTBS1008	BTBS1008S01	6/12/2008	0.5-1.5	Soil	AP/STP-1A	13.3	<0.491	0.071 J	<0.23	29.7	54.4	0.394
BTBS1008	BTBS1008S02	6/12/2008	5.0-6.0	Soil	AP/STP-1A	14.5	<2.5	0.059 J	<0.25	34.2	48.8	0.223
BTBS1009	BTBS1009S01	6/12/2008	0.5-1.5	Soil	AP/STP-1A	11.4	<0.518	0.054 J	<0.24	31.5	50.5	0.174
BTBS1009	BTBS1009S02	6/12/2008	5.0-6.0	Soil	AP/STP-1A	16.1	<2.57	0.06 J	<0.28	36.2	54.4	0.0164
BTBS1017	BTBS1017S001	4/1/2009	0.0-0.1	Soil	AP/STP-1A	--	--	--	--	--	--	0.128
BTBS1017	BTBS1017S002	4/1/2009	2.5-3.0	Soil	AP/STP-1A	--	--	--	--	--	--	0.0355
BTBS1018	BTBS1018S001	4/1/2009	0.0-0.5	Soil	AP/STP-1A	--	--	--	--	--	--	0.0912
BTBS1018	BTBS1018S002	4/1/2009	2.5-3.0	Soil	AP/STP-1A	--	--	--	--	--	--	0.00357
APBS1022	APBS1022S001	3/31/2009	0.0-0.5	Soil	--	--	--	--	--	--	--	0.131
BTBS1006	BTBS1006S01	6/6/2008	0.5-1.5	Soil	--	10.6	<0.508	0.19 J	0.24	30.3	58.3	0.402
BTBS1007	BTBS1007S01	6/6/2008	0.5-1.0	Soil	--	11.4	<0.511 J	0.1 J	0.24	26.1	47.9	0.183
BTBS1007	BTBS1007S02	6/6/2008	5.0-6.0	Soil	--	11	<0.518	0.046 J	0.25	35.4	48.6	0.0759
APWC0801	APWC0801S001	7/28/2010	0.5-1.0	Soil	AP/STP-1A	10	<0.99	<0.79	<0.79	27	38 B	--
APWC0802	APWC0802S001	7/28/2010	0.5-0.8	Soil	AP/STP-1A	9.9	<0.99	<0.79	<0.79	27	57 B	--
APWC0804	APWC0804S001	7/28/2010	0.5-1.0	Soil	AP/STP-1A	13	<0.99	<0.79	<0.79	35	52 M1, R-3, B	--
APWC0803	APWC0803S001	7/28/2010	0.5-1.0	Soil	AP/STP-1A	15	<1.0	<0.80	<0.80	36	53 B	--

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.



AP/STP-1A
ISRA COCs: Dioxins, Lead
RCRA R.D.s: None

BTSS1009	Result X SRG
ISRA COCs	<= SRG
RCRA R.D.s	[2] None

BTSS1018	Result X SRG
ISRA COCs	<= SRG
RCRA R.D.s	[2] None

APET0101	Result X SRG
ISRA COCs	<= SRG
RCRA R.D.s	None

APET0102	Result X SRG
ISRA COCs	<= SRG
RCRA R.D.s	None

BTSS1008	Result X SRG
ISRA COCs	<= SRG
RCRA R.D.s	[2] None

APET0100	Result X SRG
ISRA COCs	<= SRG
RCRA R.D.s	None

BTSS1017	Result X SRG
ISRA COCs	<= SRG
RCRA R.D.s	[2] None

Data Box Information

All Result(s) Less than or equal to SRGs

ILBS0307	Result X SRG
ISRA COCs	<= SRG
RCRA R.D.s	>SL

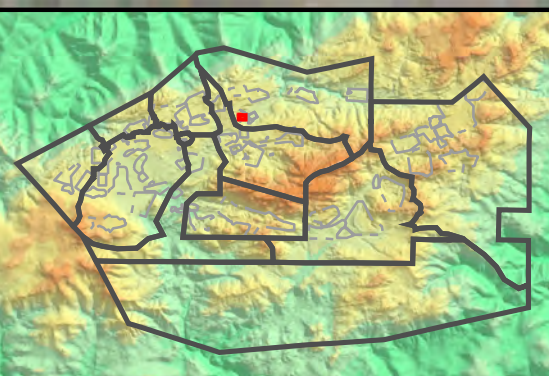
Result(s) Greater than SRGs

ILBS0139	Result X SRG
Mercury	0.12 mg/kg 1.3
RCRA R.D.s	>SL

Result and Comparison to SRG

RCRA R.D.s Compared to SL

[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
 - Previous Excavation Area

- Figure Legend**
- Planned Excavation Area
 - Actual Excavation Area
 - Additional Excavation Area
 - Soil Not Excavated to Preserve Protected Species
 - Near Surface Well
 - Chatsworth Well

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

RCRA R.D.s = RCRA Risk Drivers
 SL = Screening Level

Notes:
 1. Dioxin represents the sum of 17 dioxin/furan congeners 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. Screening level for RCRA risk drivers is the lower of the Ecological or Residential Risk-Based Screening Level. All RCRA risk drivers identified on this figure view are evaluated at each sample location shown.
 4. Aerial imagery and topographic contours from Sage, 2010. Aerial imagery was collected June 2, 2010, and represents pre-excavation conditions. Topographic contours represent post-excavation conditions.

- Chemical Data Legend**
- Cadmium, Copper, Lead, and/or Mercury Sample Locations**
- ≤ SRG
 - > SRG and < 2x SRG
 - ≥ 2x SRG and < 10 x SRG
 - ≥ 10x SRG

- Dioxin Sample Locations**
- ≤ SRG
 - > SRG and < 2x SRG
 - ≥ 2x SRG and < 10 x SRG
 - ≥ 10x SRG

- Sample Not Analyzed for ISRA COCs**
- > SL for one or more RCRA R.D.s
 - ≤ SL for all RCRA R.D.s
 - Not analyzed for RCRA R.D.s

Outfall 009 – ISRA Area AP/STP-1A Confirmation Sample Results
SANTA SUSANA FIELD LABORATORY

Path: T:\projects\rock3\ISRA\Figures\NASA\AP-STP-1A\Confirmation.mxd Date: 4/29/2011

1 inch = 10 feet

0 10 20 Feet

MWH

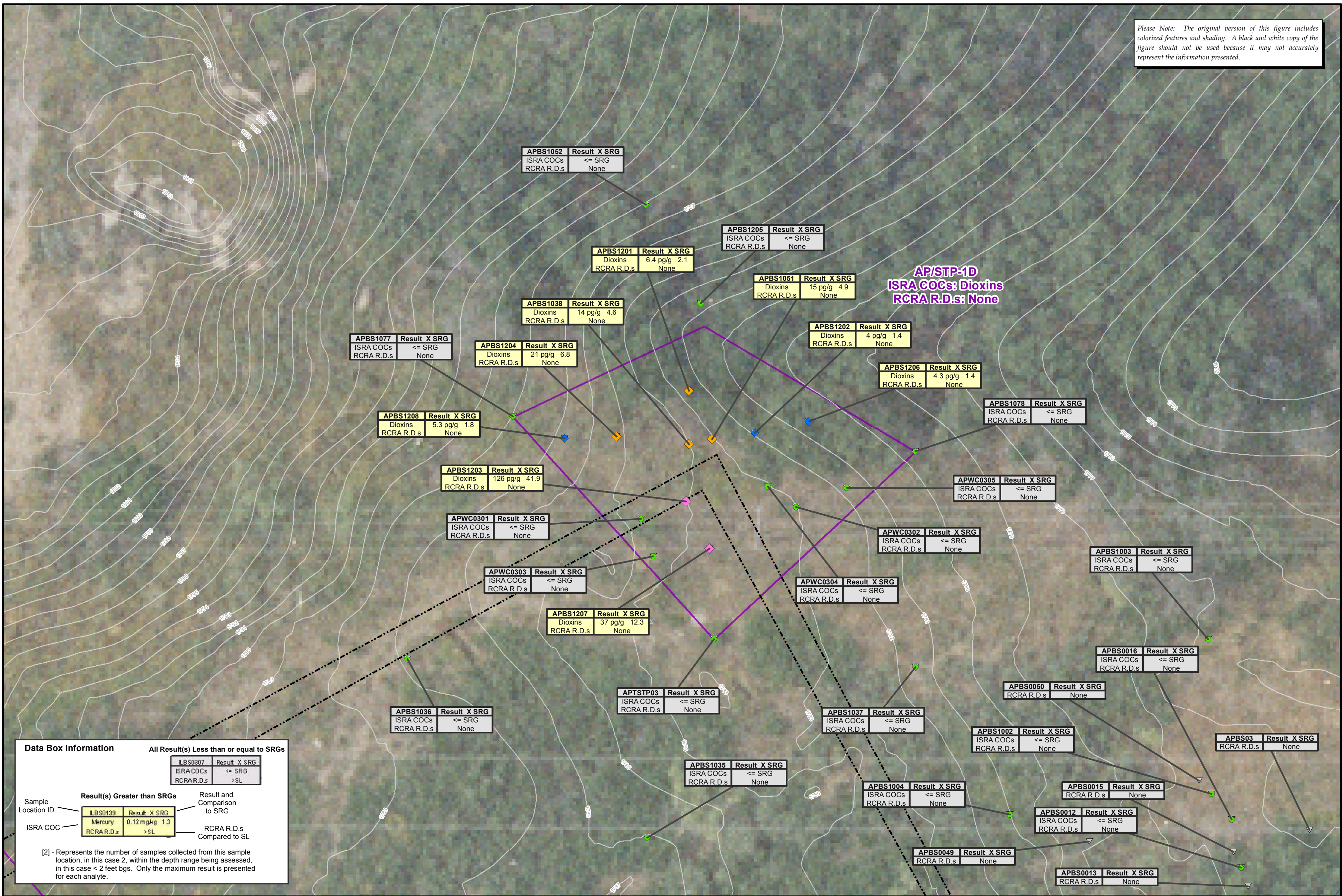
Figure E-2.3

INTERIM SOURCE REMOVAL ACTION (ISRA)

**TABLE E-2.2 AP/STP-1A CONFIRMATION SAMPLE RESULTS
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY**

							Group	Metals	Dioxins
							Preferred Analyte	Lead	TCDD TEQ
							Result Value Units	mg/kg	pg/g
							Background	34	0.87
							ISRA SRG	34	3
							CMS	--	--
							Lowest Characterization RBSL	0.063	4.27
							RBSL Type	ECO	ECO
Object Name	Sample Name	Sample Date	Sample Depth	Sample Status	Floor/Sidewall	ISRA Area	RESULTS	RESULTS	
APET0100	APET0100S001	10/18/2010	1.0-1.5	In Place	Floor	AP/STP-1A	8.07 J	0.036	
APET0101	APET0101S001-RWQCB	10/18/2010	1.0-1.5	In Place	Floor	AP/STP-1A	5.8	0.05	
APET0101	APET0101S001	10/18/2010	1.0-1.5	In Place	Floor	AP/STP-1A	10.6 J	0.078	
APET0102	APET0102S001	10/18/2010	1.0-1.5	In Place	Floor	AP/STP-1A	13.4 J	0.146	
BTBS1008	BTBS1008S01	6/12/2008	0.5-1.5	In Place	Sidewall	AP/STP-1A	8.3	0.394	
BTBS1009	BTBS1009S01	6/12/2008	0.5-1.5	In Place	Sidewall	AP/STP-1A	5.4	0.174	
BTBS1017	BTBS1017S001	4/1/2009	0.0-0.1	In Place	Sidewall	AP/STP-1A	--	0.128	
BTBS1018	BTBS1018S001	4/1/2009	0.0-0.5	In Place	Sidewall	AP/STP-1A	--	0.0912	

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

ILB0307	Result X SRG
ISRA COCs	<= SRG
RCRA R.D.s	>SL

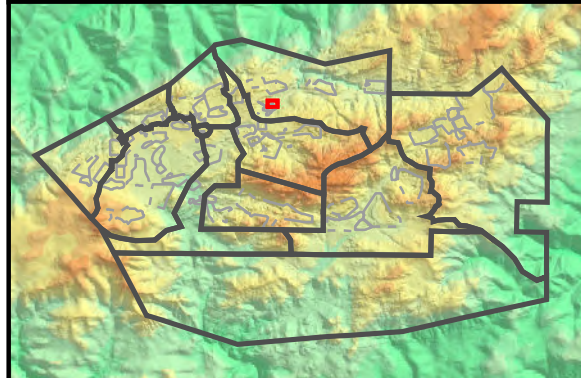
Result(s) Greater than SRGs

Sample Location ID	ILB0139	Result X SRG
ISRA COC	Mercury	0.12 mg/kg 1.3
	RCRA R.D.s	>SL

Result and Comparison to SRG

RCRA R.D.s Compared to SL

[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
 - Previous Excavation Area
 - Elevation Contour

- Figure Legend**
- Planned Excavation Area
 - Near Surface Well
 - Chatsworth Well

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

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

RCRA R.D.s = RCRA Risk Drivers
SL = Screening Level

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. Screening level for RCRA risk drivers is the lower of the Ecological or Residential Risk-Based Screening Level. All RCRA risk drivers identified on this figure view are evaluated at each sample location shown.
4. Aerial imagery and topographic contours from Sage, 2010. Aerial imagery was collected June 2, 2010, and represents pre-excavation conditions. Topographic contours represent pre-excavation conditions.

Chemical Data Legend

Cadmium, Copper, Lead, and/or Mercury Sample Locations

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

Dioxin Sample Locations

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

Sample Not Analyzed for ISRA COCs

- ▲ > SL for one or more RCRA R.D.s
- ▲ ≤ SL for all RCRA R.D.s
- ▼ Not analyzed for RCRA R.D.s

**Outfall 009 – ISRA Area AP/STP-1D
Pre-Excavation Sample Results
Surface Soils (0-2 feet bgs)
SANTA SUSANA FIELD LABORATORY**

Path: T:\projects\rock3\ISRA\Figures\NASA\AP-STP-1D\Pre-Excavation_Shallow.mxd Date: 4/28/2011

1 inch = 15 feet

0 15 30 Feet

MWH

Figure E-3.1