The Boeing Company
Santa Susana Field Laboratory
5800 Woolsey Canyon Road
Canoga Park, CA 91304-1148

CERTIFIED MAIL

September 18, 2009
In reply refer to SHEA-109102

Regional Water Quality Control Board
Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, CA 90013

Department of Toxic Substances Control
8800 Cal Center Drive
Sacramento, CA 95826

Attention: Tracy Egoscue, James Pappas

Subject: HVS-2A Soil Collapse Feature and Pipeline Removal Summary and Plan, Letter Amendment to the Final Interim Source Removal Action (ISRA) Work Plan, California Water Code Section 13304 Order (NPDES NO. CA0001309, CI NO. 6027, SCP NO. 1111, SITE ID NO. 2040109)

Dear Ms. Egoscue and Mr. Pappas:

The Boeing Company (Boeing) provides the following letter amendment to the Final Interim Source Removal Action (ISRA) Work Plan prepared by MWH in response to the identification of a soil collapse area and metal pipeline within Outfall 008 in the vicinity of ISRA Area HVS-2A. This letter amendment summarizes historical information and characterization results of the pipeline and collapse feature soils, in addition to the management, disposal, and confirmation plan for these features.

We understand the handling and disposal procedures of the soil in the vicinity of the soil collapse feature and the pipeline are of interest to both the RWQCB and DTSC; if you have any questions or require anything further, please contact me at 818-466-8795. Boeing will consider this approach acceptable for project implementation if no further questions or requirements are indicated by the RWQCB or DTSC staff. Thank you for your attention to this information.

Sincerely,

Art Lenox
Environmental Remediation

cc: Cassandra Owens, RWQCB (with attachments)

Peter Raftery, RWQCB (with attachments)
Buck King, DTSC (with attachments)
Jim O'Tousa, Ventura County (with attachments)
Dixie Hambrick, MWH (without attachments)

BOEING

Attachments:

MWH, 2009. Letter Amendment for ISRA HVS-2A Soil Collapse Feature and Pipeline Removal Summary and Plan. September 18. Including:

Figure 1: Location of HVS-2A Soil Collapse Feature and Pipeline
Figure 2: Detail of HVS-2A Soil Collapse feature and Pipeline
Table 1: HVS-2A Soil Collapse Feature Data Gap Sampling Results

MWH

BUILDING A BETTER WORLD

Hand Delivered

September 18, 2009

Mr. Art Lenox
Ms. Lori Blair
The Boeing Company
Santa Susana Field Laboratory
5800 Woolsey Canyon Road
Canoga Park, CA 91304

Subject: HVS-2A Soil Collapse Feature and Pipeline Removal Summary and Plan, Letter Amendment to the Final Interim Source Removal Action (ISRA) Work Plan, California Water Code Section 13304 Order (NPDES NO. CA0001309, CI NO. 6027, SCP NO. 1111, SITE ID NO. 2040109)

Dear Mr. Lenox and Ms. Blair:

MWH provides the following letter amendment to the Final Interim Source Removal Action (ISRA) Work Plan in response to the identification of a soil collapse area and metal pipeline within Outfall 008 in the vicinity of ISRA Area HVS-2A. This letter summarizes historical information and characterization results of the pipeline and collapse feature soils, in addition to the management, disposal, and confirmation plan for these features.

Background

A soil collapse feature and a metal pipeline were identified in the western portion of ISRA Area HVS-2A following vegetation clearance performed between August 18 and 19, 2009. The location of the soil collapse feature and metal pipeline are shown in Figure 1. The soil collapse feature is approximately 18 feet wide in the northwest-southeast direction, 10 feet wide in the northeast-southwest direction at the widest portion, with a maximum depth of 3 to 4 feet below the surrounding grade in the southeast portion. The exposed portion of the metal pipeline is approximately 2 inches in diameter and is covered with a hard, non friable asbestos coal tar pipe wrap. The majority of the pipeline is buried under 1 to 2 feet of soil with exception of an approximate 5-foot segment that enters the soil collapse feature from the northwest and terminates. A geophysical survey performed on September 2, 2009 traced the buried pipeline approximately 100 feet to the northeast before losing the signal. A trench investigation performed on September 9, 2009 confirmed that the pipe terminates to the south within the soil collapse feature, and a test

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pit investigation on September 11, 2009 confirmed that the northern terminus of the pipeline is approximately 100 feet north-northeast of the collapse feature as shown in Figure 1.

A review of historical records suggests that this pipeline may have been a natural gas pipeline that was installed at Happy Valley to service Building 1749. Building 1749 had a curing oven and was located approximately 50 feet west of the western edge of HVS-2A. A 1961 design diagram shows plans for converting the Building 1749 heat source from an oil burner to a gas burner. A map titled "Santa Susana Facility Master Plan Gas Distribution" shows a natural gas pipeline heading east from Building 1749 and then turning north, going over the hill along a dirt road and ending approximately 100 feet southeast of Building 1408. Building 1749 has been demolished. This information has been previously reported in the Group 1A RCRA Facility Investigation (RFI) Report submitted to DTSC in February 2009.

The northern continuation of the pipeline was removed in October 2008. As shown on Figure 1, this removal action extended from near Building 1408 to approximately 200 feet north of the currently exposed pipe within the soil collapse feature. No staining or elevated Photo Ionization Detector readings were observed along the length of the trench used to expose and remove the pipeline. The pipeline was cut into approximately 10-foot segments, and disposed of at the Class I Waste Management's Kettleman Hills Landfill. The pipe removal work was performed by a licensed asbestos abatement contractor, Zenco Engineering, Inc. The segment of pipeline between the existing pipeline that terminates 100 feet north of the collapse feature and the end of the pipeline removed in October 2008 is believed to have been installed above grade due to extensive bedrock in this area, and removed at an earlier time. However, as described below, additional test pits are planned in this segment to confirm prior removal of the pipeline.

Characterization Information

Investigatory trenching of the collapse feature indicated poorly compacted soils, a buried layer of vegetation, and minor metal debris. An additional disconnected 2-foot segment of the pipeline was also identified during the trenching. Based on the observed conditions in the trenches, it appears this collapse feature formed due to poorly compacted soils during site construction. The depth to bedrock in the deepest part of the feature is about 6 feet below ground surface (bgs), or about 10 feet below the surrounding grade.

Five soil samples have been collected from three borings within the soil collapse feature, including HZBS0135, HZBS0173, and HZBS0174. Figure 2 shows the locations of samples and features within the soil collapse feature. A surface soil sample (0.5 feet bgs) was collected from boring HZBS0135 on July 14, 2009 within dense brush, prior to identification of the soil collapse feature. The sample was collected to further delineate HVS-2A and analyzed for lead, the ISRA constituents of concern (COCs) for HVS-2A. A surface soil sample and a subsurface soil sample were collected from borings HZBS0173 and HZBS0174 on August 20, 2009 following identification of the soil collapse feature. HZBS0173 was advanced in the deepest portion of the feature and HZBS0174 was advanced near the terminus of the exposed pipeline. The samples were collected to

characterize soils within the collapse feature and analyzed for metals, energetics, perchlorate, total petroleum hydrocarbons (TPH), polychlorinated biphenyls (PCBs), semi-volatile organic compounds (SVOCs), volatile organic compounds (VOCs), and asbestos. Bedrock was encountered at 4 feet bgs in the southeast portion of the soil collapse feature, and was about 6 feet deep near the exposed pipeline. In addition, three samples of the coal tar pipe wrap were collected and analyzed for asbestos and one for PCBs. The soil sampling, laboratory analysis, and quality control samples were conducted according to Department of Toxic Substances Control (DTSC)-approved RFI field Standard Operating Procedures and Quality Assurance Project Plan (QAPP) requirements.

Sampling results are presented in Table 1, along with a comparison of detected results to the DTSC-approved 2005 background comparison concentrations and current characterization risk-based screening levels (RBSLs) submitted to DTSC in March 2009. For detected constituents where both Human Health and Ecological RBSLs exist, the lower RBSL is shown. Soil sample results are either non-detect or if detected, below background concentrations (in the case of metals), or less than RBSLs, except for PCBs in the subsurface sample collected from HZBS0174, located near the pipeline terminus. Aroclor-1248, Aroclor-1254, and Aroclor-1260 were detected in the sample at concentrations of 274, 222, and 91.5 micrograms per kilogram (µg/kg), respectively, exceeding characterization RBSLs. The coal tar pipe wrap contained Aroclor 1254 at a concentration of 13,800 µg/kg, and chrysotile asbestos and non fibrous materials at 20 and 80 percent, respectively. Based on these sample results, the coal tar pipe wrap is believed to be the source of the PCBs in the subsurface sample from HZBS0174.

Planned Removal Activities, Soil and Waste Management, and Confirmation Sampling

Excavation of HVS-2A in the vicinity of the soil collapse feature will include removal of the collapsed soils to a depth of approximately 5 to 6 feet bgs or to bedrock if encountered at shallower depths. Excavated soils from the collapse feature will be managed as described in the ISRA Soil Management Plan (SMP), and disposed of along with other non-hazardous soils from Outfall 008 ISRA areas. Confirmation samples in this portion of the HVS-2A ISRA Area will include lead, PCB, and asbestos analysis, and be collected as shown on Figure 2.

The buried pipeline will also be removed, both within the soil collapse feature and extending to the pipeline's northern terminus. Based on the prior removal action, the buried pipeline is expected to be about 3 feet bgs, requiring a trench about 5 feet wide for removal.

All work for the pipeline removal will be performed by a California licensed asbestos abatement contractor (Zenco Engineering, Inc.), assisted by onsite project geologists for soil sampling. The pipeline excavation will proceed as follows since *in situ* waste characterization of soils adjacent to the pipeline has not been performed.

- Soils covering the buried pipeline are considered not impacted by the pipeline and will be placed on plastic sheeting adjacent to the pipeline trench and used for backfill following pipeline removal.
- Soils surrounding and immediately beneath the pipeline are considered non hazardous based on previous sampling results of the coal tar pipe wrap and of soils in the collapse feature. The surrounding soils will be excavated, placed on plastic sheeting segregated from the cover material, and sampled *ex situ* for PCBs and asbestos since these soils may be impacted by the wrapping covering the buried pipeline. Approximately 40 to 60 cy of surrounding soils are expected to be excavated, and eight random samples will be collected to characterize the soil. If soil sampling results are less than characterization RBSLs, then these soils will be used for backfill following pipeline removal, otherwise soils will be disposed offsite. If offsite soil disposal is planned, the collected samples will also be run for radionuclides and metals for waste characterization requirements per the ISRA SMP. If disposed offsite, the disposal facility will be one of those specified in the ISRA SMP.
- Once exposed, the pipeline will be cut into approximately 10-foot segments, and each segment double sleeved in 6 millimeter plastic prior to shipment to a Class I disposal facility (anticipated to be Waste Management's Kettleman Hills Facility). The pipeline segments will be placed into lined containers and transported to the stockpile staging area prior to shipment offsite. Based on the analytical results and type of materials, this waste will be classified as non-friable, non hazardous Class 2 asbestos containing materials (ACM).
- *In situ* soils in the bottom of the pipeline trench will be sampled and analyzed for PCBs and asbestos at approximately 50-foot spacing to characterize conditions for the ongoing RCRA Facility Investigation (RFI) at the SSFL.
- Two to three additional investigation test pits will be performed where soils exist in the segment of former pipeline between the current removal action and that performed in October 2008 to confirm that the pipeline has been removed. If segments are identified, then the procedures described above will be applied for removal and characterization purposes.

All field activities and sample analysis will be conducted according to protocols specified in the Final ISRA Work Plan and addenda approved by the RWQCB, which follow DTSC-approved procedures for the ongoing RFI. Additionally, sample analysis for PCBs will be performed using EPA Method 8082, and for asbestos using EPA Method 600/R-93/116, again following DTSC-approved protocols for the RFI. Since the ISRA project is an interim cleanup action under RWQCB oversight solely to address potential soil sources within the Outfall 008 and 009 areas for NPDES exceedances and PCBs and asbestos are not ISRA COCs, additional ISRA excavation will not necessarily be performed if these constituents exceed their RBSLs. However, all results will be reviewed and discussed with the RWQCB and DTSC prior to trench backfill and completion of the ISRA excavation activities. Final remedial requirements for the SSFL, including the

Outfall 008 and 009 areas, will be addressed as part of RCRA Corrective Action project under oversight of DTSC.

Closing

MWH understands this letter amendment is being submitted under Boeing cover letter to the RWQCB and DTSC for review. The work described in this letter amendment will not proceed until authorized by Boeing following agency review and acceptance of the proposed procedures.

Sincerely,

MWH

Dixie Hambrick, P.G. 5487
Surficial Media Program Director

PROFESSIONAL GEOLOGIST
DIXIE A. HAMBRICK
No. 5487
EXP. 7/11
STATE OF CALIFORNIA

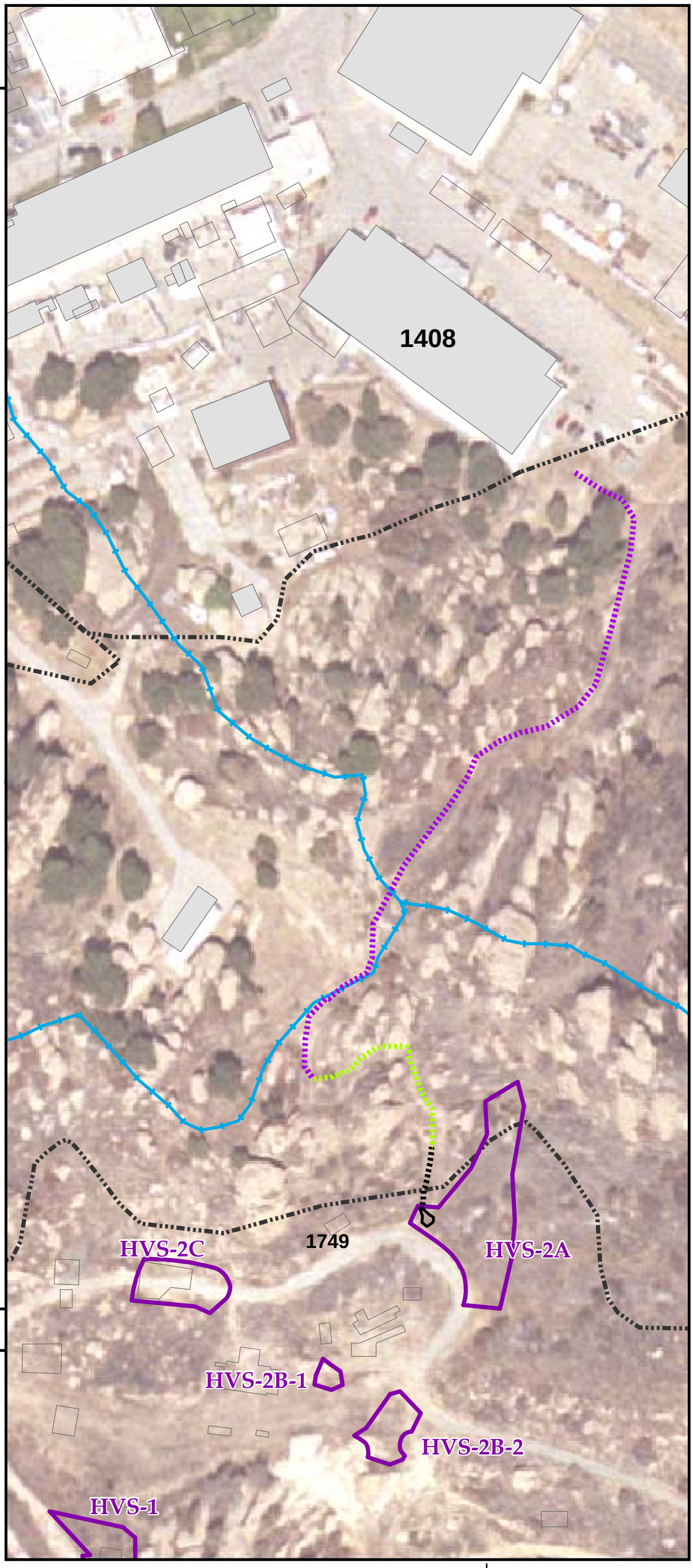
Alex Fischl, PMP
ISRA Project Manager

Attachments: Figure 1: Location of HVS-2A Soil Collapse Feature and Pipeline
Figure 2: Detail of HVS-2A Soil Collapse feature and Pipeline
Table 1: HVS-2A Soil Collapse Feature Data Gap Sampling Results

Location of Soil Collapse Feature and Pipeline

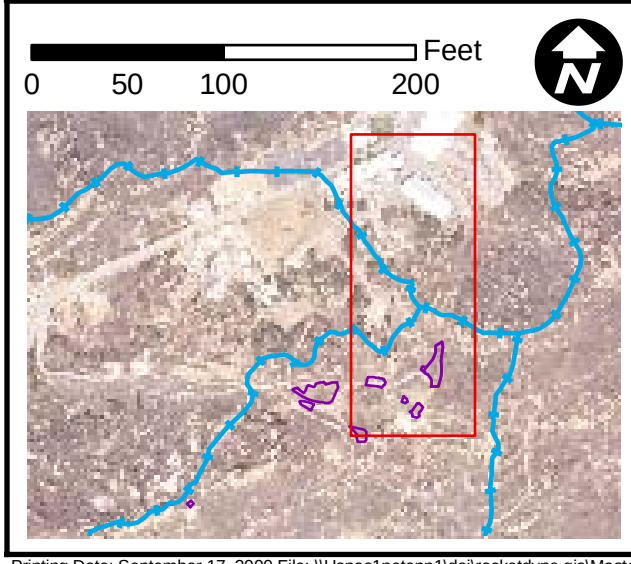
Legend

- RFI Site Boundary
- Existing Building or Structure
- Removed Building or Structure
- Surface Water Divide
- Former buried and above ground pipeline, removed prior to 2008
- Existing buried pipeline, to be removed in 2009
- Former buried and above ground pipeline, removed in October 2008
- Preliminary ISRA Evaluation Boundary
- Soil Collapse Feature



Note:
1. Aerial imagery from Sage, 2005
2. Pipeline is approximately 2 inches in diameter and is covered with a hard, non friable asbestos coal tar pipe wrap. A review of historical records suggests that the pipeline may have been a natural gas pipeline that was installed at Happy Valley to service Building 1749.

Date: September 17, 2009



SANTA SUSANA FIELD LABORATORY

MWH

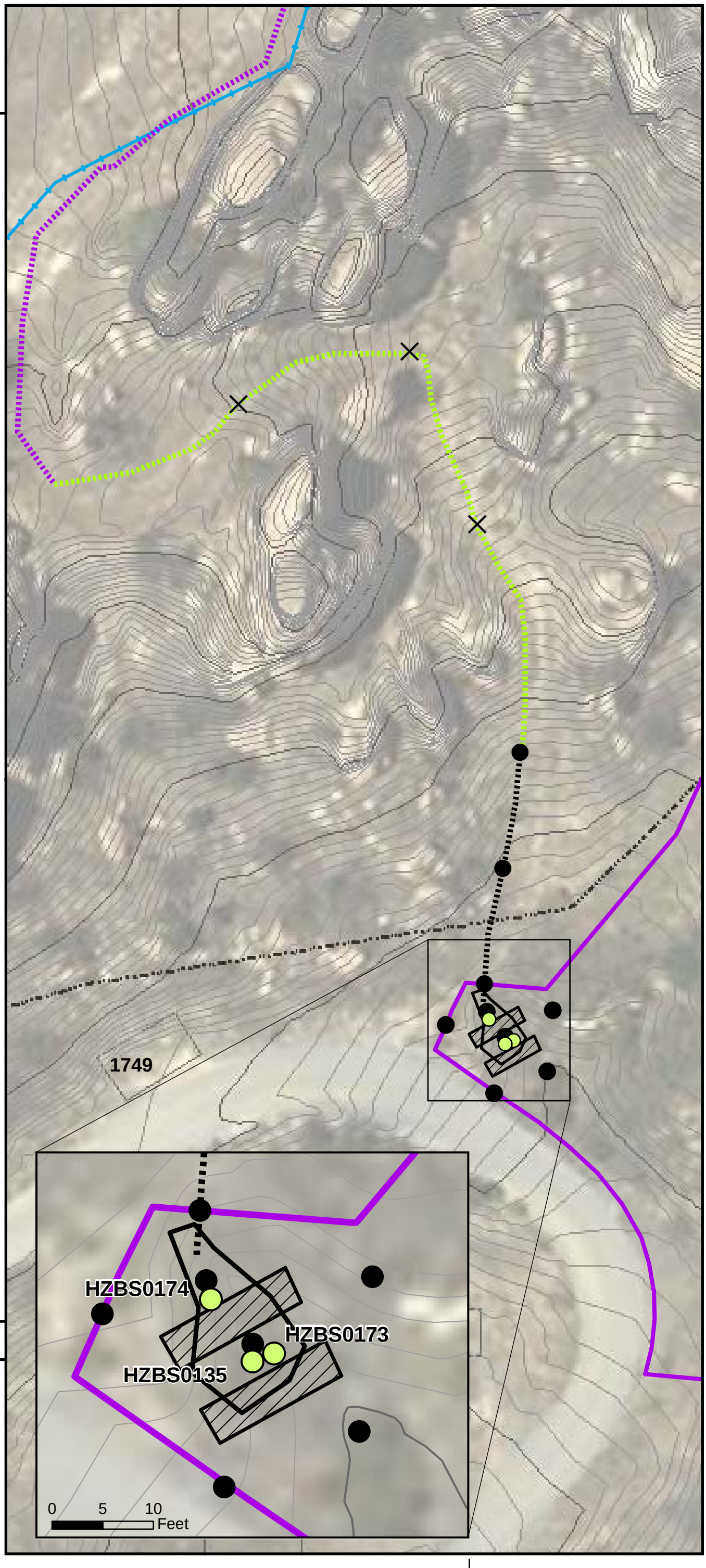
FIGURE 1

Printing Date: September 17, 2009 File: \\Uspas1netapp1\dei\rocketdyne gis\MasterGISFiles\ISRA_Projects\Surface Water Driver Maps\ISRA-Sept2009\SinkHoleWkpln\HVS2ASoilCollapseFig1Portrait.mxd

Confirmation Sampling Plan for the Soil Collapse Feature and Pipeline

Legend

- RFI Site Boundary
- Elevation Contour
- Surface Water Divide
- Removed Building or Structure
- Planned Test Pit
- Planned Confirmation Samples
- Data Gap Sample
- Former buried and above ground pipeline, removed prior to 2008
- Existing buried pipeline, to be removed in 2009
- Former buried and above ground pipeline, removed in October 2008
- Preliminary ISRA Evaluation Boundary
- Soil Collapse Feature
- Investigative Trench

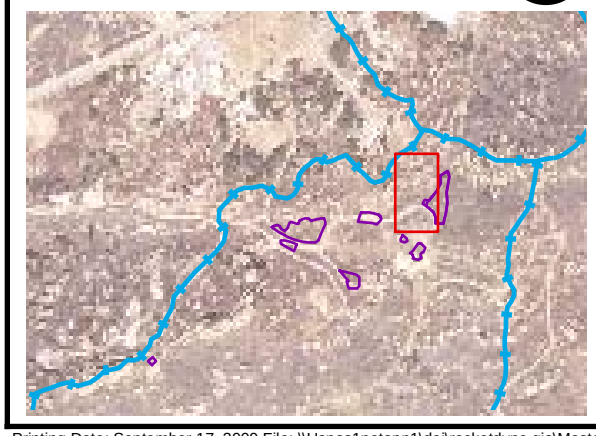


Note:

1. Aerial imagery from Google Earth, 2007
2. Topographic contours from Sage, July 2009
3. Pipeline is approximately 2 inches in diameter and is covered with a hand, non friable asbestos coal tar pipe wrap. A review of historical records suggests that the pipeline may have been a natural gas pipeline that was intalled at Happy Valley to service Building 1749.
4. Sample IDs shown represent ISRA data gap samples collected within the soil collapse feature.
5. Excavation of HVS-2A in the vicinity of the soil collapse feature will include removal of the collapsed soils to a depth of approximately 5 to 6 feet bgs or to bedrock if encountered at shallower depths.

Date: September 17, 2009

0 12.5 25 50 Feet



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

MWH

FIGURE 2

Printing Date: September 17, 2009 File: \\Uspas1netapp1\dei\rocketdyne gis\MasterGISFiles\ISRA_Projects\Surface Water Driver Maps\ISRA-Sept2009\091509\HVS2ASoilCollapse.mxd

TABLE 1
INTERIM SOURCE REMOVAL ACTION (ISRA) - OUTFALL 008

SOIL COLLAPSE FEATURE AND PIPELINE SAMPLING RESULTS
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY

			Object Name:		HZBS0135	HZBS0173	HZBS0173	HZBS0174	HZBS0174	HZSO0001	--	--	--
			Sample Name:		HZBS0135S001	HZBS0173S001	HZBS0173S002	HZBS0174S001	HZBS0174S002	HZSO0001S001	SSFL-HV-090209-1	SSFL-HV-090209-2	SSFL-HV-090209-3
			Collection Date:		7/14/2009	8/20/2009	8/20/2009	8/20/2009	8/20/2009	9/3/2009	9/2/2009	9/2/2009	9/2/2009
			Sample Depth (feet bgs):		0.0 - 0.5	0.5 - 1.0	3.5 - 4.0	0.5 - 1.0	4.5 - 5.0	--	--	--	--
ANALYTE	**UNITS**	**Background [a]**	**Lowest Characterization RBSL [b]**	**RBSL Type**	**RESULT**	**RESULT [c]**	**RESULT [c]**	**RESULT [c]**	**RESULT [c]**	**RESULT [c]**	**RESULT [c]**	**RESULT [c]**	**RESULT [c]**
METALS													
Aluminum	mg/kg	20,000	--	--	--	8,910	6,180	8,500	9,680	--	--	--	--
Antimony	mg/kg	8.7	--	--	--	0.501 J	<0.352	<0.342	<0.343	--	--	--	--
Arsenic	mg/kg	15	--	--	--	4.43	2.89	3.56	2.47	--	--	--	--
Barium	mg/kg	140	--	--	--	70.7	63.8	67.4	40.3	--	--	--	--
Beryllium	mg/kg	1.1	--	--	--	0.593	0.506	0.599	0.489	--	--	--	--
Boron	mg/kg	--	--	--	--	<1.02	<1.07	<1.04	<1.04	--	--	--	--
Cadmium	mg/kg	1	--	--	--	0.315	0.22	0.185 J	0.0962 J	--	--	--	--
Chromium	mg/kg	36.8	--	--	--	16	13.9	18.6	16	--	--	--	--
Cobalt	mg/kg	21	--	--	--	4.82	3.8	4.39	3.12	--	--	--	--
Copper	mg/kg	29	--	--	--	8.09 E	7.75 E	5.29 E	3.87 E	--	--	--	--
Lead	mg/kg	34	--	--	12.8	10.9	8.32	9.9	4.48	--	--	--	--
Mercury	mg/kg	0.09	--	--	--	0.0172	0.0135	0.0112	<0.00368	--	--	--	--
Molybdenum	mg/kg	5.3	--	--	--	0.453	0.313	0.378	0.174 J	--	--	--	--
Nickel	mg/kg	29	--	--	--	9.62	7.65	13.2	6.15	--	--	--	--
Selenium	mg/kg	--	--	--	--	<0.514	<0.516	<0.523	<0.525	--	--	--	--
Silver	mg/kg	0.79	--	--	--	0.0966 J	0.0801 J	0.0544 J	<0.042	--	--	--	--
Thallium	mg/kg	0.46	--	--	--	0.25	0.22	0.217	0.175 J	--	--	--	--
Vanadium	mg/kg	62	--	--	--	26.1	22.9	25.7	24.5	--	--	--	--
Zinc	mg/kg	110	--	--	--	54.3	43.3	44.7	34.5	--	--	--	--
ENERGETICS													
1,3,5-Trinitrobenzene	µg/kg	--	--	--	--	<150	<150	<150	<150	--	--	--	--
2,4,6-Trinitrotoluene	µg/kg	--	--	--	--	<150	<150	<150	<150	--	--	--	--
2,4-Diamino-6-nitrotoluene	µg/kg	--	--	--	--	<2,000	<2,000	<2,000	<2,000	--	--	--	--
2,4-Dinitrotoluene	µg/kg	--	--	--	--	<150	<150	<150	<150	--	--	--	--
2,6-Diamino-4-nitrotoluene	µg/kg	--	--	--	--	<2,000	<2,000	<2,000	<2,000	--	--	--	--
2,6-Dinitrotoluene	µg/kg	--	--	--	--	<150	<150	<150	<150	--	--	--	--
2-Amino-4,6-dinitrotoluene	µg/kg	--	--	--	--	<150	<150	<150	<150	--	--	--	--
4-Amino-2,6-dinitrotoluene	µg/kg	--	--	--	--	<150	<150	<150	<150	--	--	--	--
HMX	µg/kg	--	--	--	--	<150	<150	<150	<150	--	--	--	--
m-Dinitrobenzene	µg/kg	--	--	--	--	<150	<150	<150	<150	--	--	--	--
m-Nitrotoluene	µg/kg	--	--	--	--	<150	<150	<150	<150	--	--	--	--
Nitrobenzene	µg/kg	--	--	--	--	<150	<150	<150	<150	--	--	--	--
Nitroglycerin	µg/kg	--	--	--	--	<1,000	<1,000	<1,000	<1,000	--	--	--	--
o-Nitrotoluene	µg/kg	--	--	--	--	<150	<150	<150	<150	--	--	--	--
PETN	µg/kg	--	--	--	--	500	500	500	500	--	--	--	--
p-Nitrotoluene	µg/kg	--	--	--	--	<150	<150	<150	<150	--	--	--	--
RDX	µg/kg	--	--	--	--	<150	<150	<150	<150	--	--	--	--
Tetryl	µg/kg	--	--	--	--	<150	<150	<150	<150	--	--	--	--
TPH													
EFH (C8 - C11)	mg/kg	--	--	--	--	<3.43	<17.7	<3.49	<3.5	--	--	--	--
EFH (C12 - C14)	mg/kg	--	--	--	--	<3.43	<17.7	<3.49	<3.5	--	--	--	--
EFH (C15 - C20)	mg/kg	--	1,400 (C11-C30)	HH	--	1.87 J	<17.7	1.29 J	<3.5	--	--	--	--
EFH (C21 - C30)	mg/kg	--	1,400 (C11-C30)	HH	--	21.8	128	8.08	1.44 J	--	--	--	--
ASBESTOS													

TABLE 1
INTERIM SOURCE REMOVAL ACTION (ISRA) - OUTFALL 008

SOIL COLLAPSE FEATURE AND PIPELINE SAMPLING RESULTS
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY

			Object Name:		HZBS0135	HZBS0173	HZBS0173	HZBS0174	HZBS0174	HZSO0001	--	--	--
			Sample Name:		HZBS0135S001	HZBS0173S001	HZBS0173S002	HZBS0174S001	HZBS0174S002	HZSO0001S001	SSFL-HV-090209-1	SSFL-HV-090209-2	SSFL-HV-090209-3
			Collection Date:		7/14/2009	8/20/2009	8/20/2009	8/20/2009	8/20/2009	9/3/2009	9/2/2009	9/2/2009	9/2/2009
			Sample Depth (feet bgs):		0.0 - 0.5	0.5 - 1.0	3.5 - 4.0	0.5 - 1.0	4.5 - 5.0	--	--	--	--
ANALYTE	**UNITS**	**Background [a]**	**Lowest Characterization RBSL [b]**	**RBSL Type**	**RESULT**	**RESULT [c]**	**RESULT [c]**	**RESULT [c]**	**RESULT [c]**	**RESULT [c]**	**RESULT [c]**	**RESULT [c]**	**RESULT [c]**
Chrysotile [d]	%	--	--	--	--	ND	ND	ND	ND	--	20	20	20
PERCHLORATE													
Perchlorate	µg/L	--	--	--	--	<4	<40	<4	<4	--	--	--	--
PCBs													
Aroclor-1016	µg/kg	--	--	--	--	<3.42	<3.54	<3.49	<34.9	<2,880	--	--	--
Aroclor-1221	µg/kg	--	--	--	--	<3.42	<3.54	<3.49	<34.9	<2,880	--	--	--
Aroclor-1232	µg/kg	--	--	--	--	<3.42	<3.54	<3.49	<34.9	<2,880	--	--	--
Aroclor-1242	µg/kg	--	--	--	--	<3.42	<3.54	<3.49	<34.9	<2,880	--	--	--
Aroclor-1248	µg/kg	--	11	Eco	--	<3.42	<3.54	<3.49	274 P	<2,880	--	--	--
Aroclor-1254	µg/kg	--	78	Eco	--	4.9	<3.54	1.7 J	222	13,800	--	--	--
Aroclor-1260	µg/kg	--	78	Eco	--	4.3	<3.54	1.7 J	91.5 P	<2,880	--	--	--
SVOCs													
1-Methylnaphthalene	µg/kg	--	--	--	--	<17.1	<70.9	<17.4	<17.5	--	--	--	--
2-Methylnaphthalene	µg/kg	--	--	--	--	<17.1	<70.9	<17.4	<17.5	--	--	--	--
Acenaphthene	µg/kg	--	--	--	--	<17.1	<70.9	<17.4	<17.5	--	--	--	--
Acenaphthylene	µg/kg	--	--	--	--	<17.1	<70.9	<17.4	<17.5	--	--	--	--
Anthracene	µg/kg	--	--	--	--	<17.1	<70.9	<17.4	<17.5	--	--	--	--
Benzo(a)anthracene	µg/kg	--	--	--	--	<17.1	<70.9	<17.4	<17.5	--	--	--	--
Benzo(a)pyrene	µg/kg	--	--	--	--	<17.1	<70.9	<17.4	<17.5	--	--	--	--
Benzo(b)fluoranthene	µg/kg	--	--	--	--	<17.1	<70.9	<17.4	<17.5	--	--	--	--
Benzo(ghi)perylene	µg/kg	--	--	--	--	<17.1	<70.9	<17.4	<17.5	--	--	--	--
Benzo(k)fluoranthene	µg/kg	--	--	--	--	<17.1	<70.9	<17.4	<17.5	--	--	--	--
bis(2-Ethylhexyl)phthalate	µg/kg	--	4,900	Eco	--	16.8 BJ	<70.9	12.2 BJ	12.2 BJ	--	--	--	--
Butyl benzyl phthalate	µg/kg	--	--	--	--	<17.1	<70.9	<17.4	<17.5	--	--	--	--
Chrysene	µg/kg	--	--	--	--	<17.1	<70.9	<17.4	<17.5	--	--	--	--
Dibenzo(a,h)anthracene	µg/kg	--	--	--	--	<17.1	<70.9	<17.4	<17.5	--	--	--	--
Diethylphthalate	µg/kg	--	--	--	--	<17.1	<70.9	<17.4	<17.5	--	--	--	--
Dimethylphthalate	µg/kg	--	--	--	--	<17.1	<70.9	<17.4	<17.5	--	--	--	--
Di-n-butylphthalate	µg/kg	--	--	--	--	<17.1	<70.9	<17.4	<17.5	--	--	--	--
Di-n-octyl-phthalate	µg/kg	--	--	--	--	<17.1	<70.9	<17.4	<17.5	--	--	--	--
Fluoranthene	µg/kg	--	--	--	--	<17.1	<70.9	<17.4	<17.5	--	--	--	--
Fluorene	µg/kg	--	--	--	--	<17.1	<70.9	<17.4	<17.5	--	--	--	--
Indeno(1,2,3-cd)pyrene	µg/kg	--	--	--	--	<17.1	<70.9	<17.4	<17.5	--	--	--	--
Naphthalene	µg/kg	--	--	--	--	<17.1	<70.9	<17.4	<17.5	--	--	--	--
n-Nitrosodimethylamine	µg/kg	--	--	--	--	<17.1	<70.9	<17.4	<17.5	--	--	--	--
Phenanthrene	µg/kg	--	--	--	--	<17.1	<70.9	<17.4	<17.5	--	--	--	--
Pyrene	µg/kg	--	--	--	--	<17.1	<70.9	<17.4	<17.5	--	--	--	--
VOCs													
1,1,1,2-Tetrachloroethane	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
1,1,1-Trichloroethane	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
1,1,2,2-Tetrachloroethane	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/kg	--	--	--	--	<9.9	<7.2	<5.96	<5.47	--	--	--	--
1,1,2-Trichloroethane	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
1,1-Dichloroethane	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
1,1-Dichloroethene	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--

TABLE 1
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SOIL COLLAPSE FEATURE AND PIPELINE SAMPLING RESULTS
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY

			Object Name:		HZBS0135	HZBS0173	HZBS0173	HZBS0174	HZBS0174	HZSO0001	--	--	--
			Sample Name:		HZBS0135S001	HZBS0173S001	HZBS0173S002	HZBS0174S001	HZBS0174S002	HZSO0001S001	SSFL-HV-090209-1	SSFL-HV-090209-2	SSFL-HV-090209-3
			Collection Date:		7/14/2009	8/20/2009	8/20/2009	8/20/2009	8/20/2009	9/3/2009	9/2/2009	9/2/2009	9/2/2009
			Sample Depth (feet bgs):		0.0 - 0.5	0.5 - 1.0	3.5 - 4.0	0.5 - 1.0	4.5 - 5.0	--	--	--	--
ANALYTE	**UNITS**	**Background [a]**	**Lowest Characterization RBSL [b]**	**RBSL Type**	**RESULT**	**RESULT [c]**	**RESULT [c]**	**RESULT [c]**	**RESULT [c]**	**RESULT [c]**	**RESULT [c]**	**RESULT [c]**	**RESULT [c]**
1,1-Dichloropropene	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
1,2,3-Trichlorobenzene	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
1,2,3-Trichloropropane	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
1,2,4-Trichlorobenzene	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
1,2,4-Trimethylbenzene	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
1,2-Dibromo-3-chloropropane	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
1,2-Dibromoethane (EDB)	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
1,2-Dichlorobenzene	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
1,2-Dichloroethane	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
1,2-Dichloropropane	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
1,3,5-Trimethylbenzene	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
1,3-Dichlorobenzene	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
1,3-Dichloropropane	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
1,4-Dichlorobenzene	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
2,2-Dichloropropane	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
2-Butanone (MEK)	µg/kg	--	--	--	--	<9.9	<7.2	<5.96	<5.47	--	--	--	--
2-Chloro-1,1,1-trifluoroethane	µg/kg	--	--	--	--	<19.8	<14.4	<11.9	<10.9	--	--	--	--
2-Chloroethyl vinyl ether	µg/kg	--	--	--	--	<9.9	<7.2	<5.96	<5.47	--	--	--	--
2-Chlorotoluene	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
2-Hexanone	µg/kg	--	--	--	--	<9.9	<7.2	<5.96	<5.47	--	--	--	--
4-Chlorotoluene	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
4-Methyl-2-pentanone (MIBK)	µg/kg	--	--	--	--	<9.9	<7.2	<5.96	<5.47	--	--	--	--
Acetone	µg/kg	--	43,000	Eco	--	<9.9	39.9	7.73	<5.47	--	--	--	--
Benzene	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
Bromobenzene	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
Bromochloromethane	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
Bromodichloromethane	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
Bromoform	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
Bromomethane	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
Carbon tetrachloride	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
Chlorobenzene	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
Chloroethane	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
Chloroform	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
Chloromethane	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
Chlorotrifluoroethylene	µg/kg	--	--	--	--	<19.8	<14.4	<11.9	<10.9	--	--	--	--
cis-1,2-Dichloroethene	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
cis-1,3-Dichloropropene	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
Dibromochloromethane	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
Dibromomethane	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
Dichlorodifluoromethane	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
Ethylbenzene	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
Hexachlorobutadiene	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
Isopropylbenzene	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
m,p-Xylenes	µg/kg	--	--	--	--	<3.96	<2.88	<2.38	<2.19	--	--	--	--
Methylene chloride	µg/kg	--	--	--	--	<9.9	<7.2	<5.96	<5.47	--	--	--	--
Methyl-tert-butyl Ether (MTBE)	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--

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			Object Name:		HZBS0135	HZBS0173	HZBS0173	HZBS0174	HZBS0174	HZSO0001	--	--	--
			Sample Name:		HZBS0135S001	HZBS0173S001	HZBS0173S002	HZBS0174S001	HZBS0174S002	HZSO0001S001	SSFL-HV-090209-1	SSFL-HV-090209-2	SSFL-HV-090209-3
			Collection Date:		7/14/2009	8/20/2009	8/20/2009	8/20/2009	8/20/2009	9/3/2009	9/2/2009	9/2/2009	9/2/2009
			Sample Depth (feet bgs):		0.0 - 0.5	0.5 - 1.0	3.5 - 4.0	0.5 - 1.0	4.5 - 5.0	--	--	--	--
ANALYTE	**UNITS**	**Background [a]**	**Lowest Characterization RBSL [b]**	**RBSL Type**	**RESULT**	**RESULT [c]**	**RESULT [c]**	**RESULT [c]**	**RESULT [c]**	**RESULT [c]**	**RESULT [c]**	**RESULT [c]**	**RESULT [c]**
n-Butylbenzene	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
n-Propylbenzene	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
o-Xylene	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
p-Isopropyltoluene	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
sec-Butylbenzene	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
Styrene	µg/kg	--	7,200	HH	--	0.858 J	0.724 J	0.471 J	0.371 J	--	--	--	--
tert-Butylbenzene	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
Tetrachloroethene	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
Toluene	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
trans-1,2-Dichloroethene	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
trans-1,3-Dichloropropene	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
Trichloroethene	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
Trichlorofluoromethane	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--
Vinyl chloride	µg/kg	--	--	--	--	<1.98	<1.44	<1.19	<1.09	--	--	--	--

NOTES

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

[b] RBSL values provided to DTSC in March 2009, Interim Final Human Health and Ecological Risk-Based Screening Levels (RBSLs) for Use in RCRA Facility Investigations (RFIs) at the Santa Susana Field Laboratory (SSFL), California. RBSLs shown only for detected analytes.

[c] Results as reported by laboratory; data will not be excvated because soil is planned for excavation.

[d] Asbestos analysis by EPA Method 600/M4-82-020. The material was determined to be non-friable by Pacific Health and Safety.

E - the concentration exceeds the the instrument calibration range

J - the result is estimated (reported between the MDL and RL)

P - the concentrations between the the primary and confirmation columns/detectors differ by > 40%

Perchlorate was analyzed by the 314.0-DI WET method and is therefore reported in units of µg/L.

ACRONYMS

-- - not applicable, not analyzed
Eco - Ecological RBSL
EFH - extractable fuel hydrocarbons
feet bgs - feet below ground surface
HH - Human Health RBSL
MDL - method detection limit
mg/kg - milligrams per kilogram
ND - not detected
PCB - polychlorinated biphenyl
RBSL - risk-based screening level
RL - reporting limit
SVOC - semi-volatile organic compound
TPH - total petroleum hydrocarbons
VOC - volatile organic compound
µg/kg - micrograms per kilogram
µg/L - micrograms per liter