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Certified Mail

May 28, 2010
In reply refer to SHEA-110002

BOEING

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

Attention: Mr. Peter Raftery

Dear Mr. Raftery:

Subject: 2010 Addendum to the Interim Source Removal Action (ISRA) Soil Management Plan and Transportation Plan Submittal in Response to California Water Code Section 13304 Order (NPDES No. CA0001309, CI No. 6027,
SCP No. 1111, Site ID No. 2040109)

The Boeing Company (Boeing), on behalf of Boeing and the National Aeronautics and Space Administration (NASA), wishes to provide the attached 2010 Addendum to the ISRA Soil Management Plan, as referenced in the May 1, 2009 Final ISRA Work Plan, for your review.

If you have any questions or require anything further, please contact Lori Blair at 818-466-8741.

Very truly yours,

Thomas D. Gallacher
Director, Santa Susana Field Laboratory
Environment, Health, and Safety

LNB:bjc
Attachment: (1) 2010 Addendum to the ISRA Soil Management Plan
(2) 2010 Addendum to the ISRA Transportation Plan

cc: Ms. Cassandra Owens, RWQCB
Mr. Buck King, DTSC
Mr. Gerard Abrams, DTSC
Mr. Allen Elliott, NASA
Mr. Steve Slaten, NASA

2010 ADDENDUM TO THE INTERIM SOURCE REMOVAL ACTION (ISRA) SOIL MANAGEMENT PLAN SANTA SUSANA FIELD LABORATORY VENTURA COUNTY, CALIFORNIA

Prepared For:

THE BOEING COMPANY

and

THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Prepared By:

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May 2010

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Project Geologist

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ABBREVIATIONS AND ACRONYMS

AP/STP-1	Ash Pile/ Sewage Treatment Plant I
bgs	below ground surface
BMP	Best Management Practice
Boeing	The Boeing Company
CAO	Cleanup and Abatement Order
COC	constituent of concern
CCR	California Code of Regulations
cy	cubic yards
DPH	California Department of Public Health
DTSC	Department of Toxic Substances Control
ELV	Expendable Launch Vehicle
HASL	Health and Safety Laboratory
IEL	Instrument and Equipment Laboratories
ISRA	Interim Source Removal Action
JP-4	jet propulsion fuel 4
LETF/CTL-I	Laser Engineering Test Facility/ Components Testing Laboratory I
LLRW	low-level radioactive waste
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MWH	MWH Americas, Inc.
NASA	National Aeronautics and Space Administration
NPDES	National Pollutant Discharge Elimination System
PCB	polychlorinated biphenyl
PEA	preliminary evaluation area
ppm	parts per million
QAPP	Quality Assurance Project Plan
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
ROC	reactive organic compounds
RWQCB	Regional Water Quality Control Board (Los Angeles)
SMP	Soil Management Plan
SSFL	Santa Susana Field Laboratory
SRG	soil remediation goal
STLC	Soluble Threshold Limit Concentration
SWPPP	Storm Water Pollution Prevention Plan
SVOC	semi-volatile organic compound
TCLP	toxicity characteristic leaching procedure
TPH	total petroleum hydrocarbons
TTLC	Total Threshold Limit Concentration
USEPA	U.S. Environmental Protection Agency
VCAPCD	Ventura County Air Pollution Control District
VOC	volatile organic compound
WDR	waste discharge requirements
WET	waste extraction test

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1.0 INTRODUCTION

This 2010 Addendum to the Interim Source Removal Action (ISRA) Soil Management Plan (SMP) was prepared to support implementation of 2010 ISRA activities at the Santa Susana Field Laboratory (SSFL), Ventura County, California. Details of the 2010 ISRA implementation effort that this SMP supports were described in the Final ISRA Work Plan prepared by MWH Americas, Inc. (MWH) (MWH, 2009b) and the 2010 ISRA Work Plan Addendum prepared by MWH Americas, Inc. (MWH) (MWH, 2010b). This SMP was prepared by MWH on behalf of The Boeing Company (Boeing) and the National Aeronautics and Space Administration (NASA).

This plan describes the waste soils generation and characterization, soil handling procedures, and stockpile management for all soils to be excavated during the 2010 ISRA implementation. Soils within planned excavation areas have been identified as impacted by former SSFL site operations during previous site investigation activities. This SMP describes the approach for managing soils consistent with all laws and regulations regarding the excavation, handling, and disposal of impacted soils, including Ventura County Air Pollution Control District (VCAPCD) Rule 55 (Fugitive Dust) and VCAPCD Rule 74.29 (Soil Decontamination Operations) (if applicable).

1.1 BACKGROUND

On December 3, 2008, the Los Angeles Regional Water Quality Control Board (RWQCB) issued a California Water Code Section 13304 Cleanup and Abatement Order (CAO) requiring an ISRA for Outfalls 008 and 009 (RWQCB, 2008). The CAO was issued by the RWQCB to achieve compliance with the Waste Discharge Requirements (WDR) for Outfalls 008 and 009 established in its National Pollutant Discharge Elimination System (NPDES) Permit, NPDES No. CA0001309 (NPDES Permit). A Preliminary ISRA Work Plan was submitted to the RWQCB on February 15, 2009, that presented the approach used (MWH, 2009a), and a Final ISRA Work Plan was submitted to the RWQCB on May 1, 2009, that described the ISRA area identification and remedial planning process, and completed this process for ISRA areas planned for remediation in 2009 (MWH, 2009b). A 2010 ISRA Work Plan Addendum was submitted to the

RWQCB on April 30, 2010, that detailed the ISRA area identification and remedial planning process for the remaining ISRA areas (MWH, 2010b). Remedial actions for the 2010 ISRA areas consist of excavation, offsite transportation, and disposal of impacted soil; backfill, re-contouring and re-vegetation of disturbed areas; and confirmation soil sampling.

Investigations of chemical contamination in soil, groundwater, and related media (e.g., soil vapor, weathered bedrock) at the SSFL are currently being conducted under the Resource Conservation and Recovery Act (RCRA) Corrective Action Program regulated by the Department of Toxic Substances Control (DTSC). The RCRA program at the SSFL is currently in the RCRA Facility Investigation (RFI) phase, with much of the investigative sampling complete and RFI reports being prepared. Although some of this sampling and analysis is ongoing, substantial data have already been collected in many of the planned ISRA Areas. Additional sampling in the ISRA preliminary evaluation areas (PEAs) that were identified in the Preliminary ISRA Work Plan (MWH, 2009a) has been conducted and reported in the 2010 ISRA Work Plan Addendum (MWH, 2010b) and is currently ongoing, to further define impacted soil areas for ISRA implementation. Data from these RFI and ISRA sampling efforts were used to define ISRA excavation areas and form the basis of proposed soil management procedures described in this SMP.

ISRA remedial actions at Happy Valley within the Outfall 008 watershed and at two areas within the Outfall 009 watershed (A2LF-1 and A2LF-3) were completed in 2009 and reported in the Phase I Implementation Report (MWH, 2010a). ISRA remedial actions at areas near the B-1, IEL, LETF/CTL-I, and AP/STP-1 areas within the Outfall 009 watershed are scheduled for activity in 2010, and remedial actions at other areas within the Outfall 009 watershed are scheduled for activity in 2011. This SMP describes the management of soils associated with planned excavation, backfill, and restoration activities for the ISRA project.

1.2 PURPOSE AND SCOPE

The purpose of this SMP is to provide guidance for management of soils excavated during ISRA implementation activities, in order to facilitate effective project implementation and to ensure compliance with all applicable laws. The SMP includes procedures for characterization,

handling, storage (including stockpile management), disposal, and documentation of soil generated during excavation activities, as well as categories and screening criteria for segregating and stockpiling excavated soil, and procedures for controlling fugitive dust emissions. Procedures for managing soil erosion from excavations and stockpiles, including soil erosion control Best Management Practices (BMPs), will be described in the 2010 ISRA Storm Water Pollution Prevention Plan (SWPPP), which will be submitted to the RWQCB prior to July 1, 2010. Transport requirements for impacted soil associated with ISRA excavations are described in the 2010 Addendum to the ISRA Transportation Plan (MWH, 2010c). All field activities associated with this SMP will be performed in a manner consistent with the 2010 Addendum to the ISRA project Health and Safety Plan. The 2010 Addendum to the ISRA project Health and Safety Plan is currently in preparation and will be submitted to the RWQCB.

As stated above, ISRA implementation is defined for 2010 activities; ongoing sampling and evaluation efforts will refine future activities in the Outfall 009 area that may be documented in future ISRA Work Plan Addenda for RWQCB review and approval. While this 2010 Addendum to the SMP details specific soil management actions required for planned 2010 activities, the procedures described herein are the same as those used for 2009 ISRA activities as described in the ISRA SMP and responses to agency comments (MWH, 2009c, 2009d, 2009e, 2009f; Boeing 2009), and will be used for 2011 activities as well. As necessary or required, additional addenda to the ISRA SMP will be prepared if future activities require additional soil management procedures.

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2.0 WASTE GENERATION AND CHARACTERIZATION

2.1 EXCAVATION DESCRIPTION

ISRA implementation activities are planned for 2010 at nine areas in the eastern Outfall 009 watershed and six areas in the western Outfall 009 watershed. Planned excavation boundaries for the eastern Outfall 009 ISRA Areas are shown in Figure 2-1, and planned excavation boundaries for the western Outfall 009 ISRA Areas are shown in Figure 2-2. Planned excavation boundaries were defined based on impacted soil areas revealed by historical and ISRA data gap soil sampling analytical results available at the time of Work Plan preparation and are described in the 2010 ISRA Work Plan Addendum (MWH, 2010b). Final excavation boundaries may vary from those shown on these figures based on field conditions or confirmation sampling results. Variations in the planned-versus-actual extents of the ISRA Areas will be documented and reported to the RWQCB.

Projected excavation volumes in 2010 are presented in Table 2-1. These vary slightly from excavation volumes reported in the 2010 ISRA Work Plan Addendum (MWH, 2010b), because additional data gap/delineation sampling conducted since the completion of that Work Plan caused the excavation boundaries to be refined. The estimated total volume of soil to be excavated during 2010 ISRA construction is approximately 5,200 cubic yards (cy) from eastern Outfall 009 ISRA Areas and 12,580 cy from western Outfall 009 ISRA Areas. Planned depths of excavations range from 2 to 4.5 feet below ground surface (bgs). After the initial planned excavations are completed for each ISRA area, confirmation soil samples will be collected from excavation sidewalls and floors to confirm that site-specific soil remediation goals (SRGs) were reached. Site-specific SRGs were presented in the 2010 ISRA Work Plan Addendum (MWH, 2010b). If confirmation soil sample analytical results indicate that SRGs were not met, additional soil will be excavated from the area surrounding the sample and additional confirmation samples will be collected. Once confirmation sampling results indicate that SRGs have been reached, the lateral and vertical extents of the excavation will be surveyed and the excavations will be restored to achieve general pre-existing conditions (e.g., grade, slope, drainage patterns).

Most of the ISRA areas will be re-contoured using soils adjacent to the excavation. Any adjacent soils considered for use during re-contouring will be discussed with RWQCB prior to use. These soils have been characterized, and results and figures were presented in the 2010 Work Plan Addendum (MWH, 2010b).

If additional backfill soil is needed, soil will be obtained from a local borrow source (within the watershed and near the RFI site, but not impacted by operational activities). Soil borrow areas to be used if needed are currently in the process of final selection, and pertinent information will be provided to the RWQCB and DTSC at a later date. For local soil borrow areas identified for possible use as backfill, characterization soil samples will be collected for analysis of ISRA constituents of concern (COCs) and other appropriate site-related chemicals of potential concern identified in the RFI prior to use as backfill. Potential soil borrow areas will be discussed with DTSC and will only be accepted for use as backfill if soil sample results meet DTSC guidelines for import fill, listed in Table 2-2. Soil borrow area characterization sampling frequency will follow or exceed DTSC guidelines specified below for import fill (DTSC, 2001), as follows:

1. For areas up to 1,000 cy, 1 sample will be collected per 250 cy.
2. For areas from 1,000 to 5,000 cy, 4 samples will be collected for the first 1,000 cy and 1 sample per each additional 500 cy.
3. For areas with greater than 5,000 cy, 12 samples will be collected for the first 5,000 cy, and 1 sample for each additional 1,000 cy.

All final excavation areas, soil disturbance, amounts and sources of backfill, and associated sampling results will be documented in the ISRA Phase II Implementation Report for 2010 Activities and as required for other project close-out needs.

2.2 WASTE CHARACTERIZATION

Waste characterization sampling is being conducted according to California Code of Regulations (CCR) Title 22, Section 66261.20(c), which specifies, “Sampling and sample management of wastes and other materials for analysis and testing pursuant to this article shall be in accord with the sampling planning, methodology and equipment, and the sample processing, documentation and custody procedures specified in chapter nine of ‘Test Methods for Evaluating Solid Waste, Physical/Chemical Methods’, SW-846, 3rd edition, U.S. Environmental Protection Agency

[USEPA], 1986." Accordingly, this is the foundation of ISRA waste characterization sampling, and the guidelines presented in SW-846 Chapter 9 will be followed to characterize soil removed from the ISRA excavations. As described by the USEPA Office of Resource Conservation and Recovery (formerly the Office of Solid Waste), SW-846 is the official compendium of analytical and sampling methods that have been evaluated and approved for use in complying with RCRA regulations. SW-846 functions primarily as a guidance document setting forth acceptable, although not required, methods for the regulated and regulatory communities to use in responding to RCRA-related sampling and analysis requirements. SW-846 Chapter 9 discusses the design and implementation of a sampling plan for solid waste. It should be noted that SW-846 Chapter 9 does not prescribe sampling frequencies. Rather, it requires a sufficient number of samples to achieve a valid and reliable estimate of the prospective waste's average characteristics relative to applicable regulatory limits. SW-846 provides a formula that may be based upon "limited analytical studies" for the purpose of estimating the appropriate number of samples for characterizing a waste.

ISRA waste characterization analytical data will be obtained from randomly located *in situ* sample collection points within the excavation areas. If further *ex situ* sampling of stockpiles or roll-off bins is required, this will be carried out in accordance with SW-846 Chapter 9. Additional waste characterization samples may be collected and analyzed to meet waste classification requirements specified in Section 2.3. As ISRA soil is being characterized *in situ*, the limited analytical studies provision in SW-846 Chapter 9 will be implemented for each planned excavation footprint.

The analytical results of the random sampling will be evaluated to determine:

1. Whether additional samples are required consistent with the SW-846 formula, in which case additional random sampling will be conducted.
2. Whether any individual sample exhibits a constituent of concern at or above a regulatory threshold, which will result in the determination that the waste is hazardous.
3. Whether the mean of significantly present constituents of concern have an upper confidence interval at the 80% probability level that equals or exceeds a regulatory threshold, which will result in the determination that the waste is hazardous.

4. Whether any individual sample exhibits a constituent of concern at a concentration requiring TCLP and/or STLC WET leachate analysis, which will result in performance of the required analysis.

The number of randomly identified sample collection locations identified for each of the excavation areas will be determined based on results of existing relevant analytical data, historical land usage, and size and topography of the planned excavation area. Final waste characterization sampling will be documented in the ISRA Implementation Report.

The analytical suite for waste characterization samples will be determined based on documented historical information and analytical data, including data from ongoing RFI and ISRA data gap sampling. Sample analysis will use laboratory methods and reporting limits that have been previously approved by DTSC for the RFI Program. Table 2-3 provides laboratory methods and reporting limits that will be used for 2010 ISRA implementation as well as for future ISRA implementation activities. Specific waste characterization analytical requirements for the western Outfall 009 watershed ISRA areas are currently being determined and will be communicated to the RWQCB at a later date. Based on site knowledge and historical data, waste characterization samples within the eastern Outfall 009 watershed will be analyzed for one or more of the following:

- CAM 17 metals by USEPA method 6010/6020B;
- semi-volatile organic compounds (SVOCs) by USEPA method 8270C;
- Volatile organic compounds (VOCs) by USEPA method 5035/8260B (Method 5035 is a sample collection method that uses Encore samplers);
- polychlorinated biphenyls (PCBs) by USEPA method 8082;
- Total petroleum hydrocarbons (TPH) by USEPA method 8015B;
- fluoride by USEPA method 300.0/9056A; and
- pH by USEPA method 9045C.

All waste characterization samples will also be analyzed for a designated suite of radionuclides as described in Attachment A. In its November 9, 2007 letter conditionally approving a work plan submitted for the Northern Drainage cleanup project, the DTSC stated that “screening of excavated soils and debris shall be conducted to verify the excavated materials have no radiologic restrictions and do not violate any local, state or federal requirements regarding their

management, handling, or disposal" (DTSC, 2007). The procedures developed and approved by DTSC for the Northern Drainage cleanup project have been included for the ISRA project.

Sampling frequency will be determined based on waste characterization requirements as described above, augmented by any additional samples required for statistical analysis as specified in Section 2.3 for offsite disposal waste characterization requirements. Soil samples collected for offsite waste characterization will be analyzed for the following radionuclides as follows:

- Gamma emitting radionuclides using HASL Method 300;
- Strontium-90 by USEPA Method 905.0, and
- Tritium by USEPA Method 906.

Laboratory requirements for radionuclide analysis are presented in Attachment A. As described in this attachment, the gamma spectroscopy library shall include the following isotopes as a minimum: Na-22, K-40, Mn-54, Co-60, Cs-134, Cs-137, Eu-152, Eu-154, Th-228, Th-232, U-235, U-238, and Am-241.

2.3 WASTE CLASSIFICATION CRITERIA

Pursuant to CCR Title 22 Section 66261.24, a waste exhibits the characteristic of toxicity if:

1. Representative samples are tested using the Toxicity Characteristic Leaching Procedure (TCLP) and the extract from that procedure contains any of the chemicals listed in Table 2-4 at a concentration equal to or greater than the regulatory threshold limit; or,
2. Representative samples contain a chemical listed in Table 2-5 at a concentration in milligrams per liter (mg/L) of waste extract, as determined using the Waste Extraction Test (WET) method, which equals or exceeds its Soluble Threshold Limit Concentration (STLC); or contain a chemical listed in Table 2-5 at a total concentration in milligrams per kilogram (mg/kg) in the sample which equals or exceeds its listed Total Threshold Limit Concentration (TTLC).

To determine hazardous or nonhazardous classification, the concentrations of ISRA COCs and any collocated RCRA risk drivers in soil samples used for waste characterization will be compared to the TTLC for those compounds (Table 2-5). If the soil concentration exceeds the TTLC, then the soil meets hazardous waste criteria and further evaluation is not required. If the soil concentration does not exceed the TTLC, then analytical results will be used to determine whether additional waste characterization by the TCLP (USEPA Method 1311) and/or the WET

method. The regulatory threshold limits will be compared to the theoretical maximum soluble results to determine TCLP and WET analysis requirements as follows:

- A factor of 20 will be used to compare the soil concentration in mg/kg of individual compounds to the corresponding TCLP threshold limit (i.e., if the soil concentration divided by 20 is greater than or equal to the TCLP limit, TCLP will be analyzed); and,
- A factor of 10 will be used to compare the soil concentration in mg/kg of individual compounds to the corresponding STLC (i.e., if the soil concentration divided by 10 is greater or equal to the STLC limit, then the sample will be analyzed by the WET method).

If waste characterization results meet either of the toxicity criteria above, the entire stockpile will be managed as toxic hazardous waste direct shipped to a Class I disposal facility following Department of Transportation approved Bulk Packaging Specifications [49 Code of Federal Regulations 173.240] or the analytical results from that stockpile will be used to calculate the number of additional samples that will be required to determine the average characteristics with a 80% confidence level and a 2% measurement error, per a Stockpile Statistics Worksheet (Attachment B). If additional sampling and analysis is performed and the soil in the stockpile is determined to exceed hazardous waste thresholds, it will be shipped to a Class 1 disposal facility as described above.

If waste characterization samples do not meet either of the toxicity criteria (1) or (2) above, the CCR Title 22 Fathead Minnow Hazardous Waste Screen Bioassay may be performed on the sample, if required for waste characterization purposes. If the samples do not pass the bioassay, the stockpile will be managed as toxic hazardous waste as described above.

ISRA waste characterization samples will be compared to radionuclide background data from McLaren/Hart (1995), as referenced in Attachment A. Detection of radionuclides above McLaren-Hart established background levels does not necessarily indicate a local source of contamination, as this study did not necessarily take into consideration the range of natural accumulation processes of world-wide fallout. A radiological background study for the SSFL is currently being conducted by the USEPA, and once those values are finalized, they will be used for the ISRA project.

If ISRA waste characterization samples are determined to contain radionuclides above background, the RWQCB, Department of Public Health (DPH) and the DTSC will be notified. If the waste is not low-level radioactive waste (LLRW), then the waste may be sent to a Class 1 or Class 2 landfill. This determination may be accomplished (1) by dose assessment, or (2) by classifying the waste as "decommissioned materials" as defined in Executive Order D-62-02, or (3) by classifying the waste as “license-exempt”. If the waste should be classified as LLRW, the waste will be disposed of at a LLRW disposal facility, and export approval would be sought from the Southwestern LLRW Commission.

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3.0 SOIL HANDLING PROCEDURES

3.1 GENERAL PROCEDURES

Non-hazardous soil excavated from the ISRA areas within the eastern Outfall 009 watershed will be loaded directly into haul trucks and transported to a temporary stockpile location at the Lower Parking Lot near the SSFL facility entrance. Non-hazardous soil excavated from the ISRA areas within the western Outfall 009 watershed will be stockpiled at the parking lot adjacent to the helipad, located west of the ELV RFI site. Non-hazardous soil may be stockpiled until shipment offsite. Soil that is determined to be, or suspected of being, hazardous will be contained in lined and covered roll-off bins from the time it is excavated until it is shipped to and appropriately permitted facility for disposal. All roll-off bins and stockpiles of soil for the excavations will be located in these pre-designated locations. Planned locations of stockpiles and roll-off bins from ISRA areas are shown in Figure 3-1.

ISRA waste soil will be transported for disposal in accordance with the project Transportation Plan (MWH, 2010c). Based upon waste characterization determinations, the soil in stockpiles and/or bins will be shipped to appropriately permitted offsite disposal facilities. The facilities, facility addresses, and truck routes are included in the project Transportation Plan. Waste soil characterization analytical results will be submitted to the appropriate disposal facilities for approval and disposal of waste. Once approval from the disposal facility is obtained, the waste will be handled and transported to the disposal facility. All generated wastes will be sampled, analyzed, and managed in accordance with CCR Title 22, Division 4.5.

3.2 STOCKPILE EROSION CONTROL AND DUST CONTROL MEASURES

All stockpiles will be managed according to requirements outlined in the ISRA project SWPPP, including standard construction BMPs. At a minimum, the following types of BMPs will be used to properly manage stockpiles:

- Stockpiles will be located a minimum of 50 feet away from concentrated flows of stormwater, drainage courses, and inlets.

- Stockpiles will be protected from stormwater run-on using a temporary perimeter sediment barrier such as berms, dikes, fiber rolls, silt fences, sandbag, gravel bags, or straw bale barriers.
- Wind erosion control practices will be implemented for all stockpiled material.
- Stockpiles will be protected with a temporary linear sediment barrier and covered with plastic sheeting prior to the onset of precipitation.
- Stockpiles will be placed on a liner.

Dust control measures will be implemented for all stockpiles pursuant to VCAPCD Rule 55 (Fugitive Dust), including water application for active stockpiles, and tarp cover for inactive stockpiles.

3.3 STOCKPILE ROC EMISSIONS MANAGEMENT

Stockpiles containing "contaminated" soil as defined by VCAPCD and not classified as hazardous will be managed according to requirements outlined in Rule 74.29. The VCAPCD defines "contaminated" soil as "those containing jet, gasoline, or diesel fuel" which would thereby require monitoring to determine whether reactive organic compounds (ROC) emissions are in excess of 50 parts per million (ppm) by volume as hexanes. ROCs are determined by measuring a portion of soil 3 inches in depth and no less than 6 inches in diameter shall be removed from the soil surface and the probe inlet shall be placed near the center of the resulting hole, level with the soil surface surrounding the hole. The only 2010 ISRA area anticipated to contain soil that may fit this definition is B1-2, located downgradient of the B-1 RFI site where former tanks held jet propulsion fuel 4 (JP-4), and where soil borings have shown that elevated levels of jet fuel components may be present. ROC emissions from all stockpiles will be measured using a photo ionization detector when soils are initially excavated and stockpiled to determine if mitigation measures are required. A record keeping form for ROC emissions is provided in Attachment C.

Pursuant to VCAPCD Rule 74.29, during excavation, all active and inactive exposed "contaminated" soil surfaces will be kept visibly moist by water spray, treated with a vapor suppressant, or covered with a continuous heavy duty plastic sheeting (4 mil or greater) or other covering to minimize emissions of ROC to the atmosphere. The covering will be overlapped at the seams and securely anchored to minimize headspace where vapors could accumulate. Soil

stockpiles with measured ROC emissions exceeding 50 ppm by volume will be disposed of offsite within 30 days of excavation.

Per VCAPCD Rule 74.29 requirements, records summarizing soil stockpile dates, ROC emission measurements, descriptions of monitoring equipment and techniques, descriptions of mitigation measures employed for dust, odor, and ROC emissions; and details of treatment or disposal of ROC contaminated soil will be provided in the 2010 ISRA Implementation Report, described in Section 4.

3.4 FUGITIVE DUST MANAGEMENT

During the ISRA project, dust control measures will be implemented to comply with VCAPCD Rule 55 "Fugitive Dust". A copy of VCAPCD Rule 55 is provided as Attachment D. Rule 55 applies to any operation, disturbed surface area, or man-made condition that is capable of generating fugitive dust, including bulk material handling, earth-moving, construction, demolition, storage piles, unpaved roads, track-out, or off-field agricultural operations.

The following actions will be taken to comply with Rule 55:

- Visible dust beyond the property line will be prevented by using water spray/mist to control fugitive dust emissions. This is a very effective method for controlling visible dust during the job and within the property boundaries. It should be noted that this is a standard practice for the industry, and that most of the areas undergoing soil removal activities for the ISRA program are well within Boeing or NASA property boundaries and are not immediately adjacent to other property owners.
- Opacity will be controlled to less than 20 percent by using water spray/mists during bulk material handling, earth-moving, construction and demolition activities, and vehicle movement on unpaved roads. Contractors will use buffalo water trucks to spray water that will suppress dust prior to the aforementioned activities. Storage piles that will be generated will be covered and anchored with "visqueen" plastic to prevent fugitive dust from occurring. In addition, Boeing will contract with an observer certified by the California Air Resources Board or the USEPA to periodically perform opacity assessments to ensure these processes are adequately controlling visible dust emissions.
- Track-out from trucks onto public roads will be prevented by having outbound trucks that will be exporting bulk material remain on paved roads within Boeing, or if travel on unpaved roads is required, rumble strips will be placed at the location where the unpaved

road joins paved roads. No soil build-up will be generated on the tires of outbound trucks. As a result, soil track-out will be prevented.

- During truck hauling, when bulk material (soil) is loaded onto outbound trucks, properly secured tarps to cover the entire surface area of the load, container-type enclosures, or other effective dust prevention control measures will be used.
- If high wind conditions occur, defined in Rule 55 as on-site wind speeds exceeding 25 miles per hour for at least 5 minutes in an hour, operations will cease.

4.0 STOCKPILE AND CONTAINER MANAGEMENT

4.1 SOIL SEGREGATION AND LABELLING

Soil excavated during construction activities will be segregated into stockpiles and containers (roll-off bins), with labels appropriate for each, according to origin and waste classification based on previous sampling results compared to hazardous waste criteria. The soil waste classifications "Potential Nonhazardous Soil" and "Potential Hazardous Soil" will be used. Potentially nonhazardous soil will be stored in stockpiles, and potentially hazardous soil will be stored in bins. Stockpiles will be labeled with the waste classification and a location identifier (e.g., B1-2). All "Potentially Hazardous Soil" will be labeled with a Hazardous Waste Label and marked "To Be Determined" on the label where type of waste is required.

4.2 DOCUMENTATION AND REPORTING

A daily soil management field oversight log will be maintained in which the following information will be recorded for each stockpile or container:

- Excavation location,
- Stockpile or container designation,
- Assigned stockpile or container number,
- Estimated stockpile or container volume,
- Start and finish date of excavation,
- Stockpile or container location,
- Sample(s) collected from stockpile or container and analyses performed,
- Description of mitigation measures employed for dust,
- Stockpile or container disposal details, and
- Notes/comments.

Stockpile and container locations will be recorded on a map during field work, and stockpiles and containers will be labeled with the assigned stockpile/container number. No containers, stockpiles or portions of a stockpile will be moved or relocated to another area at SSFL without documenting the stockpile/container number, volume, date/time of relocation, and new location.

ISRA soil management information will be reported in the 2010 ISRA Implementation Report. Soil management information reported will include:

- A summary of SMP procedures performed, including information in the daily soil management field oversight logs (listed above) and ROC emissions records (if any);
- Waste characterization information, including excavated soil, *ex situ* stockpile and container waste characterization, and hazardous waste characterization sampling results;
- A summary of any modifications to procedures outlined in this SMP; and,
- Offsite soil disposal records.

In conclusion, it should be noted that all estimated soil volumes and procedures outlined in the SMP are subject to change due to preconstruction data gap sample analytical results, field conditions related to ISRA excavations, and/or stockpile and container confirmation sample analytical results. If necessary, the SMP will be modified as sampling and field work proceed. The RWQCB will be notified of any substantial deviation from the procedures outlined in the SMP, and as described above, modifications to the SMP will be documented and reported in the 2010 ISRA Implementation Report.

5.0 REFERENCES

Boeing, 2009. Fugitive Dust Control Measures, Interim Source Removal Action (ISRA), California Water Code Section 13304 Order (NPDES NO. CA0001309, CI NO. 6027, SCP NO. 1111, Site ID No. 3040109), Letter to RWQCB. August 17.

DTSC, 2001. Information Advisory Clean Imported Fill Material. October.

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TABLES

Table 2-1
Planned Excavation Volumes
2010 Addendum to the ISRA Soil Management Plan
(Page 1 of 1)

ISRA Area	SSFL Area	Outfall Watershed	Nearest RFI Site	Ex Situ Excavation Soil Volume Estimate[1] (cy)
B1-1A	Area I	009	B-1	360
B1-1B	Area I	009	B-1	450
B1-1C	Area I	009	B-1	20
B1-1D	Area I	009	B-1	1,000
B1-2	Area I	009	B-1	1,180
CTLI-1A	Area I	009	LETF/CTL-1	910
CTLI-1B	Area I	009	LETF/CTL-1	170
IEL-1	Area I	009	IEL	80
IEL-2	Area I	009	IEL	1,030
			TOTAL EASTERN OUTFALL 009	**5,200**
AP/STP-1A	Area I	009	AP/STP-1	90
AP/STP-1B	Area I	009	AP/STP-1	1,990
AP/STP-1C	Area I	009	AP/STP-1	7,030
AP/STP-1D	Area I	009	AP/STP-1	420
AP/STP-1E	Area I	009	AP/STP-1	2,050
AP/STP-1F	Area I	009	AP/STP-1	1,000
			TOTAL WESTERN OUTFALL 009	**12,580**
			GRAND TOTAL	**17,780**

Notes:

[1] Assumes 30% expansion or "fluff" *ex situ* soils.

AP/STP - Ash Pile/ Sewage Treatment Plant
cy - cubic yards
IEL - Instrument and Equipment Laboratory
ISRA - Interim Source Removal Action
LETF/CTL-I - Laser Engineering Test Facility/Component Test Laboratory I
RCRA - Resource Conservation and Recovery Act
RFI - RCRA Facility Investigation
SSFL - Santa Susana Field Laboaratory

Table 2-2
Criteria for Import Fill
2010 Addendum to the ISRA Soil Management Plan
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Compounds	*Analytical Method*	*Screening Criteria*
VOCs	EPA 8260	Non-detectable [a]
SVOCs	EPA 8270C	Non-detectable [a]
PAHs/NDMA	EPA 8270C SIM	Non-detectable [a]
PCBs	EPA 8082	Non-detectable [a]
Pesticides	EPA 8081	Non-detectable [a]
Perchlorate [b]	EPA 314M	Non-detectable [a]
Energetics	EPA 8330A	Non-detectable [a]
Anions	EPA 300.0	Non-detectable [a]
Fluoride	EPA 300.0	6.7 mg/kg
Ammonia-N	EPA 350.3	Non-detectable [a]
Petroleum Hydrocarbons: C_4 - C_{12}	EPA 8015M	10 mg/kg
Petroleum Hydrocarbons: C_8 - C_{30}	EPA 8015M	100 mg/kg
Petroleum Hydrocarbons: C_{30} - C_{40}	EPA 8015B	100 mg/kg

Metals	*Analytical Method*	*SSFL Background Value/Screening Criteria (mg/kg)* [c]	*Southern California Background (mg/kg)* [d]
Aluminum	EPA 6010/6020B	20,000	106,000
Antimony	EPA 6010/6020B	8.7	1.95
Arsenic	EPA 6010/6020B	15	11
Barium	EPA 6010/6020B	140	1,400
Beryllium	EPA 6010/6020B	1.1	2.7
Boron	EPA 6010/6020B	9.7	74
Cadmium	EPA 6010/6020B	1	1.7
Calcium	EPA 6010/6020B	NA	45,577
Chromium Total	EPA 6010/6020B	37	1,579
Cobalt	EPA 6010/6020B	21	46.9
Copper	EPA 6010/6020B	29	96.4
Iron	EPA 6010/6020B	28,000	87,000
Lead	EPA 6010/6020B	34	97.1
Lithium	EPA 6010/6020B	37	90
Manganese	EPA 6010/6020B	495	1,687
Mercury	EPA 7471A	0.09	0.9
Molybdenum	EPA 6010/6020B	5.3	9.6
Nickel	EPA 6010/6020B	29	509
Phosphorous	EPA 6010/6020B	NA	97.1
Potassium	EPA 6010/6020B	6,400	30,000
Selenium	EPA 6010/6020B	0.655	0.43
Silver	EPA 6010/6020B	0.79	8.3
Sodium	EPA 6010/6020B	110	73,400
Strontium	EPA 6010/6020B	NA	271
Tin	EPA 6010/6020B	NA	2.44
Titanium	EPA 6010/6020B	NA	12,890
Thallium	EPA 6010/6020B	0.46	1.1
Vanadium	EPA 6010/6020B	62	288
Zinc	EPA 6010/6020B	110	236
Zirconium	EPA 6010/6020B	8.6	610

Table 2-2
Criteria for Import Fill
2010 Addendum to the ISRA Soil Management Plan
(Page 2 of 2)

Dioxins/Furans	*Analytical Method*	*SSFL Background Value/Screening Criteria (ng/kg)* [(c)]
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	EPA 8290/1613	13
1,2,3,4,6,7,8-Heptachlorodibenzofuran	EPA 8290/1613	2.5
1,2,3,4,7,8,9-Heptachlorodibenzofuran	EPA 8290/1613	0.19
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	EPA 8290/1613	0.34
1,2,3,4,7,8-Hexachlorodibenzofuran	EPA 8290/1613	0.73
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	EPA 8290/1613	0.95
1,2,3,6,7,8-Hexachlorodibenzofuran	EPA 8290/1613	0.3
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	EPA 8290/1613	1.1
1,2,3,7,8,9-Hexachlorodibenzofuran	EPA 8290/1613	0.43
1,2,3,7,8-Pentachlorodibenzo-p-dioxin	EPA 8290/1613	0.18
1,2,3,7,8-Pentachlorodibenzofuran	EPA 8290/1613	0.59
2,3,4,6,7,8-Hexachlorodibenzofuran	EPA 8290/1613	0.45
2,3,4,7,8-Pentachlorodibenzofuran	EPA 8290/1613	0.64
2,3,7,8-Tetrachlorodibenzo-p-dioxin	EPA 8290/1613	0.5
2,3,7,8-Tetrachlorodibenzofuran	EPA 8290/1613	1.80
Octachlorodibenzo-p-dioxin	EPA 8290/1613	140
Octachlorodibenzofuran	EPA 8290/1613	8.1

Radionuclides	*Analytical Method*	*MDA (pCi/g)*
Gamma emitters [(e)]	Gamma Spec, HASL 300	0.213 (Cs-137)
Strontium-90	Modified EPA 905.0	0.13
Tritium	Modified EPA 906.0	0.3

Notes:
(a) Low detections of laboratory contaminants possible and will be evaluated on a case by case basis. Detection limits will be targeted by the laboratory as specified in the analytical method.
(b) Perchlorate analysis performed on soil water extract according to RFI protocols to achieve lower reporting limits.
(c) SSFL site-specific soil background concentrations approved by DTSC in site Standardized Risk Assessment Methodology Work Plan (MWH, 2005). Southern California regional background values provided for reference. As noted in the Final ISRA Work Plan (MWH, 2009), chemical and radiological background studies by DTSC and EPA are ongoing.
(d) Kearney Study, 1996 (maximum value).
(e) Gamma spectroscopy library shall include as a minimum: Na-22, K-40, Mn-54, Co-60, Cs-134, Cs-137, Eu-152, Eu-154, Th-228, Th-232, U-235, U-238, Am-241. All other radionuclides in library shall be reported if detected.

Acronyms:
DTSC - Department of Toxic Substances Control
EPA - Environmental Protection Agency
HASL - Health and Safety Laboratory
ISRA - Interim Source Removal Action
mg/kg - milligram per kilogram
MDA - minimum detectable activity
NA - not applicable
NDMA - N-nitrosodimethylamine
ng/kg - nanogram per kilogram
PAH - polycyclic aromatic hydrocarbon
PCB - polychlorinated biphenyl
pCi/g - picocuries per gram
RCRA - Resource Conservation and Recovery Act
RFI - RCRA Facility Investigation
SVOC - semi-volatile organic compound
ug/L - micrograms per liter
VOC - volatile organic compound

Table 2-3
Soil Matrix Reporting Limits
2010 Addendum to the ISRA Soil Management Plan
(Page 1 of 10)

SOIL REPORTING LIMITS	
Analyte	**Laboratory RL**
Volatile Organics by EPA 8260B	**µg/kg**
1,3-Dichlorobenzene	2
1,3-Dichloropropane	2
1,4-Dichlorobenzene	2
2-Chloroethyl vinyl ether	5
2-Chloro-1,1,1-trifluoroethane	5
2-Chlorotoluene	5
2-Butanone (MEK)	10
2-Hexanone	10
2,2-Dichloropropane	1
4-Chlorotoluene	5
4-Methyl-2-pentanone (MIBK)	5
Acetone	10
Benzene	2
Bromobenzene	5
Bromochloromethane	5
Bromodichloromethane	2
Bromoform	5
Bromomethane	5
n-Propylbenzene	2
p-Isopropyltoluene	2
sec-Butylbenzene	5
tert-Butylbenzene	5
Styrene	2
Tetrachloroethene	2
Toluene	2
trans-1,2-Dichloroethene	2
trans-1,3-Dichloropropene	2
Trichloroethene	2
Trichlorofluoromethane	5
o-Xylene	2
m, p-Xylene	5
Vinyl chloride	2
1,1,2-Trichloro-1,2,2-trifluoroethane	5
1,1,1-Trichloroethane	2
1,1,1,2-Tetrachloroethane	1
1,1,2,2-Tetrachloroethane	2
1,1,2-Trichloroethane	2
1,1-Dichloroethane	2
1,1-Dichloroethene	5

Table 2-3
Soil Matrix Reporting Limits
2010 Addendum to the ISRA Soil Management Plan
(Page 2 of 10)

SOIL REPORTING LIMITS	
Analyte	**Laboratory RL**
1,1-Dichloropropene	2
1,2,3-Trichlorobenzene	5
1,2,3-Trichloropropane	1
1,2,4-Trichlorobenzene	5
1,2,4-Trimethylbenzene	2
1,2-Dibromo-3-chloropropane	5
1,2-Dibromoethane (EDB)	2
1,2-Dichlorobenzene	2
1,2-Dichloroethane	1
1,2-Dichloropropane	2
1,3,5-Trimethylbenzene	2
Carbon tetrachloride	1
Chlorobenzene	2
Chloroethane	5
Chloroform	2
Chloromethane	5
Chlorotrifluoroethylene	5
cis-1,2-Dichloroethene	2
cis-1,3-Dichloropropene	2
Dibromochloromethane	2
Dibromomethane	1
Dichlorodifluoromethane	5
Ethylbenzene	2
Hexachlorobutadiene	5
Isopropylbenzene	2
Methyl-tert-butyl- Ether (MTBE)	5
Methylene chloride	5
n-butylbenzene	5
Semivolatiles by EPA 8270C	**µg/kg**
1-Methylnaphthalene	330
1,2-Dichlorobenzene	330
1,2-Diphenylhydrazine/Azobenzene	330
1,3-Dichlorobenzene	330
1,4-Dichlorobenzene	330
1,2,4-Trichlorobenzene	330
2,4,5-Trichlorophenol	330
2,4,6-Trichlorophenol	330
2,4-Dichlorophenol	330
2,4-Dimethylphenol	330

Table 2-3
Soil Matrix Reporting Limits
2010 Addendum to the ISRA Soil Management Plan
(Page 3 of 10)

SOIL REPORTING LIMITS	
Analyte	**Laboratory RL**
2,4-Dinitrophenol	660
2,4-Dinitrotoluene	330
2,6-Dinitrotoluene	330
3,3-Dichlorobenzidine	830
2-Chloronaphthalene	330
2-Chlorophenol	330
2-Methylnaphthalene	330
2-Methylphenol	330
2-Nitroaniline	330
2-Nitrophenol	330
3-Nitroaniline	330
4,6-Dinitro-2-methylphenol	420
4-Bromophenyl-phenylether	330
4-Chloroaniline	330
4-Chloro-3-methylphenol	330
4-Chlorophenyl-phenylether	330
4-Methylphenol	330
4-Nitroaniline	830
4-Nitrophenol	830
Acenaphthene	330
Acenaphthylene	330
Aniline	420
Anthracene	330
Benzidine	1600
Benzoic acid	830
Benzo(a)anthracene	330
Benzo(a)pyrene	330
Benzo(b)fluoranthene	330
Benzo(g,h,i)perylene	330
Benzo(k)fluoranthene	330
Benzyl alcohol	330
bis(2-Chloroethoxy)methane	330
Bis(2-chloroethyl)ether	330
Bis(2-chloroisopropyl)ether	330
Bis(2-ethylhexyl)phthalate	330
Butylbenzylphthalate	330
Carbazole	330
Chrysene	330
Dibenzo(a,h)anthracene	330
Dibenzofuran	330

Table 2-3
Soil Matrix Reporting Limits
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SOIL REPORTING LIMITS	
Analyte	**Laboratory RL**
Diethylphthalate	330
Dimethylphthalate	330
Di-n-butylphthalate	330
Di-n-octyl-phthalate	330
Fluoranthene	330
Fluorene	330
Hexachlorobenzene	330
Hexachlorobutadiene	330
Hexachlorocyclopentadiene	830
Hexachloroethane	330
Indeno(1,2,3-cd)pyrene	330
Isophorone	330
Naphthalene	330
Nitrobenzene	330
n-Nitroso-di-n-propylamine	330
n-Nitrosodimethylamine	330
n-Nitrosodiphenylamine	330
Phenanthrene	330
Pentachlorophenol	830
Phenol	330
Pyrene	330
Semivolatiles EPA 8270C (SIM*) PAHs	**µg/kg**
1-Methylnaphthalene	20
2-Methylnaphthalene	20
Acenaphthene	20
Acenaphthylene	20
Anthracene	20
Benzo(a)anthracene	20
Benzo(a)pyrene	20
Benzo(b)fluoranthene	20
Benzo(g,h,i)perylene	20
Benzo(k)fluoranthene	20
Bis(2-ethylhexyl)phthalate	20
Butyl benzyl phthalate	20
Chrysene	20
Di-n-butyl phthalate	20
Di-n-octyl phthalate	20
Dibenz(a,h)anthracene	20
Diethyl phthalate	20

Table 2-3
Soil Matrix Reporting Limits
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SOIL REPORTING LIMITS	
Analyte	**Laboratory RL**
Dimethyl phthalate	20
Fluoranthene	20
Fluorene	20
Indeno(1,2,3-cd)pyrene	20
n-Nitrosodimethylamine	20
Naphthalene	20
Phenanthrene	20
Pyrene	20
NDMA by EPA 1625C	**µg/kg*****
n-Nitrosodimethylamine	3
Dioxin/Furans By EPA 8290/1613	**ng/kg or pg/g**
2,3,7,8-TCDD	1
1,2,3,7,8-PeCDD	5
1,2,3,4,7,8-HxCDD	5
1,2,3,6,7,8-HxCDD	5
1,2,3,7,8,9-HxCDD	5
1,2,3,4,6,7,8-HpCDD	5
OCDD	10
2,3,7,8-TCDF	1
1,2,3,7,8-PeCDF	5
2,3,4,7,8-PeCDF	5
1,2,3,4,7,8-HxCDF	5
1,2,3,6,7,8-HxCDF	5
2,3,4,6,7,8-HxCDF	5
1,2,3,7,8,9-HxCDF	5
1,2,3,4,6,7,8-HpCDF	5
1,2,3,4,7,8,9-HpCDF	5
OCDF	10
Total TCDD	1
Total PeCDD	5
Total HxCDD	5
Total HpCDD	5
Total TCDF	1
Total PeCDF	5
Total HxCDF	5
Total HpCDF	5

Table 2-3
Soil Matrix Reporting Limits
2010 Addendum to the ISRA Soil Management Plan
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SOIL REPORTING LIMITS	
Analyte	**Laboratory RL**
Metals by EPA 6010/6020B	**mg/kg**
Aluminum	10
Antimony	1
Arsenic	0.5
Barium	0.5
Beryllium	0.3
Boron	5
Cadmium	0.2
Calcium	10
Chromium	1
Cobalt	0.5
Copper	0.2
Iron	5
Lead	0.4
Lithium	6.3
Magnesium	10
Manganese	1
Molybdenum	0.1
Nickel	0.4
Phosphorus	50
Potassium	50
Selenium	1
Silver	0.2
Sodium	50
Strontium	5
Thallium	0.2
Tin	10
Titanium	2
Vanadium	1
Zinc	5
Zirconium	25
Mercury by EPA 7471A	**mg/kg**
Mercury	0.01
Chromium VI by EPA 7196A or 7199	**mg/kg**
Chromium VI	0.2
Formaldehyde by EPA 8315A	**mg/kg**
Formaldehyde	1

Table 2-3
Soil Matrix Reporting Limits
2010 Addendum to the ISRA Soil Management Plan
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SOIL REPORTING LIMITS	
Analyte	**Laboratory RL**
Perchlorate	**µg/kg**
EPA 8321/331.0/6850/6860	2
EPA 314.0	4.0
EPA 314.0 ClO4 Soil **	4.0 (µg/L)
Pesticides by EPA 8081	**µg/kg**
Aldrin	5
Alpha-BHC	5
Beta-BHC	5
Delta-BHC	10
Gamma-BHC	5
Chlordane (Technical)	10
4,4'-DDD	5
4,4'-DDE	5
4,4'-DDT	5
Dieldrin	5
Endosulfan I	5
Endosulfan II	5
Endosulfan sulfate	10
Endrin	5
Endrin aledhyde	5
Endrin ketone	5
Heptachlor	5
Heptachlor epoxide	5
Methoxychlor	5
Mirex	5
Toxaphene	50
PCB by EPA 8082	**µg/kg**
Aroclor 1016	15
Aroclor 1221	15
Aroclor 1232	15
Aroclor 1242	15
Aroclor 1248	15
Aroclor 1254	15
Aroclor 1260	15
Herbicides by EPA 8151A	**µg/kg**
2,4-D	20
2,4-DB	80

Table 2-3
Soil Matrix Reporting Limits
2010 Addendum to the ISRA Soil Management Plan
(Page 8 of 10)

SOIL REPORTING LIMITS	
Analyte	**Laboratory RL**
2,4,5-T	20
2,4,5-TP (Silvex)	80
Dalapon	50
Dicamba	40
Dichloroprop	80
Dinoseb	12
MCPA	8000
MCPP	8000
Energetics by EPA 8330A	**µg/kg**
HMX	250
Nitrobenzene	250
Nitroglycerin	5000
PETN	4000
RDX	250
Tetryl	500
1,3-Dinitrobenzene	250
1,3,5-Trinitrobenzene	250
2-Amino-4,6-dinitrotoluene	250
2-Nitrotoluene	250
2,4-diamino-6-nitrotoluene	1000
2,4-Dinitrotoluene	250
2,4,6-Trinitrotoluene	250
2,6-diamino-4-nitrotoluene	1000
2,6-Dinitrotoluene	250
3-Nitrotoluene	250
4-Amino-2,6-dinitrotoluene	250
4-Nitrotoluene	400
Anions by EPA 300.0/9056A	**mg/kg**
Bromide	5
Chloride	5
Fluoride	5
Nitrate-NO3	5
Nitrite-NO2	5
Orthophosphate - PO4	5
Sulfate	5
	pH
pH by EPA 9045C	0.1 pH units

Table 2-3
Soil Matrix Reporting Limits
2010 Addendum to the ISRA Soil Management Plan
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SOIL REPORTING LIMITS	
Analyte	**Laboratory RL**
TPH by EPA 8015B	**mg/kg**
Total Petroleum Hydrocarbons as Gasoline (C4-C12)	5
Total Petroleum Hydrocarbons as Diesel – Specific Carbon Ranges	
EFH(C8-C11)	5
EFH(C12-C14)	5
EFH(C15-C20)	5
EFH(C21-C30)	5
Total Petroleum Hydrocarbons as Oil (C30-C40)	25
% Solids by D2216	**percent**
Percent Solids	0.1
Total Solids by 160.3	**percent**
Total Solids	0.1

Table 2-3
Soil Matrix Reporting Limits
2010 Addendum to the ISRA Soil Management Plan
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Notes:

na Not applicable

a MDA are goals and are dependent on sample volume and count times, methods will optimize to the lowest MDA achievable which meets DQOs.

* SIM not required if RL is achievable in full scan mode.

** SSFL site specific prep and analysis with 1:1 leaching ratio. Reporting limits of µg/kg to represent soil concentrations and µg/L to represent leaching potential from a solid.

*** Data reported to RL only.

Compound lists and reporting limits taken from SSFL RFI Surficial Media QAPP March 2009, rev.4

Table 2-4
Maximum Concentration of Contaminants
for the Toxicity Characteristic Leaching Procedure
2010 Addendum to the ISRA Soil Management Plan
(Page 1 of 1)

EPA Hazardous Waste Number	Toxic Substance	Regulatory Threshold (mg/L)
D004	Arsenic	5.0
D005	Barium	100.0
D018	Benzene	0.5
D006	Cadmium	1.0
D019	Carbon Tetrachloride	0.5
D020	Chlordane	0.03
D021	Chlorobenzene	100.0
D022	Chloroform	6.0
D007	Chromium	5.0
D023	o-Cresol	200.0 [1]
D025	m-Cresol	200.0 [1]
D025	p-Cresol	200.0 [1]
D026	Cresol	200.0 [1]
D016	2,4-D	10.0
D027	1,4-Dichlorobenzene	7.5
D028	1,2-Dichloroethane	0.5
D029	1,1-Dichloroethylene	0.7
D030	2,4-Dinitrotoluene	0.13
D012	Endrin	0.02
D031	Heptachlor(and its epoxide)	0.008
D032	Hexachlorobenzene	0.13
D033	Hexachlorobutadiene	0.5
D034	Hexachloroethane	3.0
D008	Lead	5.0
D013	Lindane	0.4
D009	Mercury	0.2
D014	Methoxychlor	10.0
D035	Methyl ethyl ketone	200.0
D036	Nitrobenzene	2.0
D037	Pentachlorophenol	100.0
D038	Pyridine	5.0 [2]
D010	Selenium	1.0
D011	Silver	5.0
D039	Tetrachlorethylene	0.7
D015	Toxaphene	0.5
D040	Trichloroethylene	0.5
D041	2,4,5-Trichlorophenol	400.0
D042	2,4,6-Trichlorophenol	2.0
D017	2,4,5-TP (Silvex)	1.0
D043	Vinyl chloride	0.2

Notes:
1. If o-, m- and p- Cresol concentrations cannot be differentiated the total cresol (D026) concentration is used. The regulatory level of total cresol is 200 mg/l.
2. Quantitation limit is greater than the calculated regulatory level. The quantitation limit therefore becomes the regulatory level.

Acronyms:
EPA - Environmental Protection Agency
mg/L - milligrams per liter

Table 2-5
Soluble Threshold Limit Concentration and
Total Threshold Limit Concentration Values
2010 Addendum to the ISRA Soil Management Plan

Organic Chemicals

Substance	STLC (mg/L)	TTLC Wet Weight (mg/kg)
Aldrin	0.14	1.4
Chlordane	0.25	2.5
DDT, DDE, DDD	0.1	1
2,4-Dichlorophenoxyacetic acid	10	100
Dieldren	0.8	8
Dioxin (2,3,7,8-TCDD)	0.001	0.01
Endrin	0.02	0.2
Heptachlor	0.47	4.7
Kepone	2.1	21
Lead compounds, organic	--	13
Lindane	0.4	4
Methoxychlor	10	100
Mirex	2.1	21
Pentachlorophenol	1.7	17
Polychlorinated biphenyls (PCBs)	5	50
Toxaphene	0.5	5
Trichloroethylene	204	2040
2,4,5-Trichlorophenoxypropionic acid	1	10

Inorganic Chemicals

Substance [a,b]	STLC (mg/L)	TTLC Wet Weight (mg/kg)
Antimony and/or antimony compounds	15	500
Arsenic and/or arsenic compounds	5	500
Asbestos		1.0 (as percent)
Barium and/or barium compounds (excluding barite)	100	10,000[c]
Beryllium and/or beryllium compounds	0.75	75
Cadmium and/or cadmium compounds	1	100
Chromium (VI) compounds	5	500
Chromium and/or chromium (III) compounds	5[d]	2500
Cobalt and/or cobalt compounds	80	8000
Copper and/or copper compounds	25	2500
Fluoride salts	180	18000
Lead and/or lead compounds	5	1000
Mercury and/or mercury compounds	0.2	20
Molybdenum and/or molybdenum compounds	350	3,500[e]
Nickel and/or nickel compounds	20	2000
Selenium and/or selenium compounds	1	100
Silver and/or silver compounds	5	500
Thallium and/or thallium compounds	7	700
Vanadium and/or vanadium compounds	24	2400
Zinc and/or zinc compounds	250	5000

Notes:

[a] STLC and TTLC values are calculated on the concentrations of the elements, not the compounds.

[b] In the case of asbestos and elemental metals, the specified concentration limits apply only if the substances are in a friable, powdered or finely divided state. Asbestos includes chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite.

[c] Excluding barium sulfate.

[d] If the soluble chromium, as determined by the TCLP set forth in Appendix I of Chapter 18 of this division, is less than 5 mg/L, and the soluble chromium, as determined by the procedures set forth in Appendix II of Chapter 11, equals or exceeds 560 mg/L and the waste is not otherwise identified as a RCRA hazardous waste pursuant to §66261.100, then the waste is a non‑RCRA hazardous waste.

[e] Excluding molybdenum disulfide.

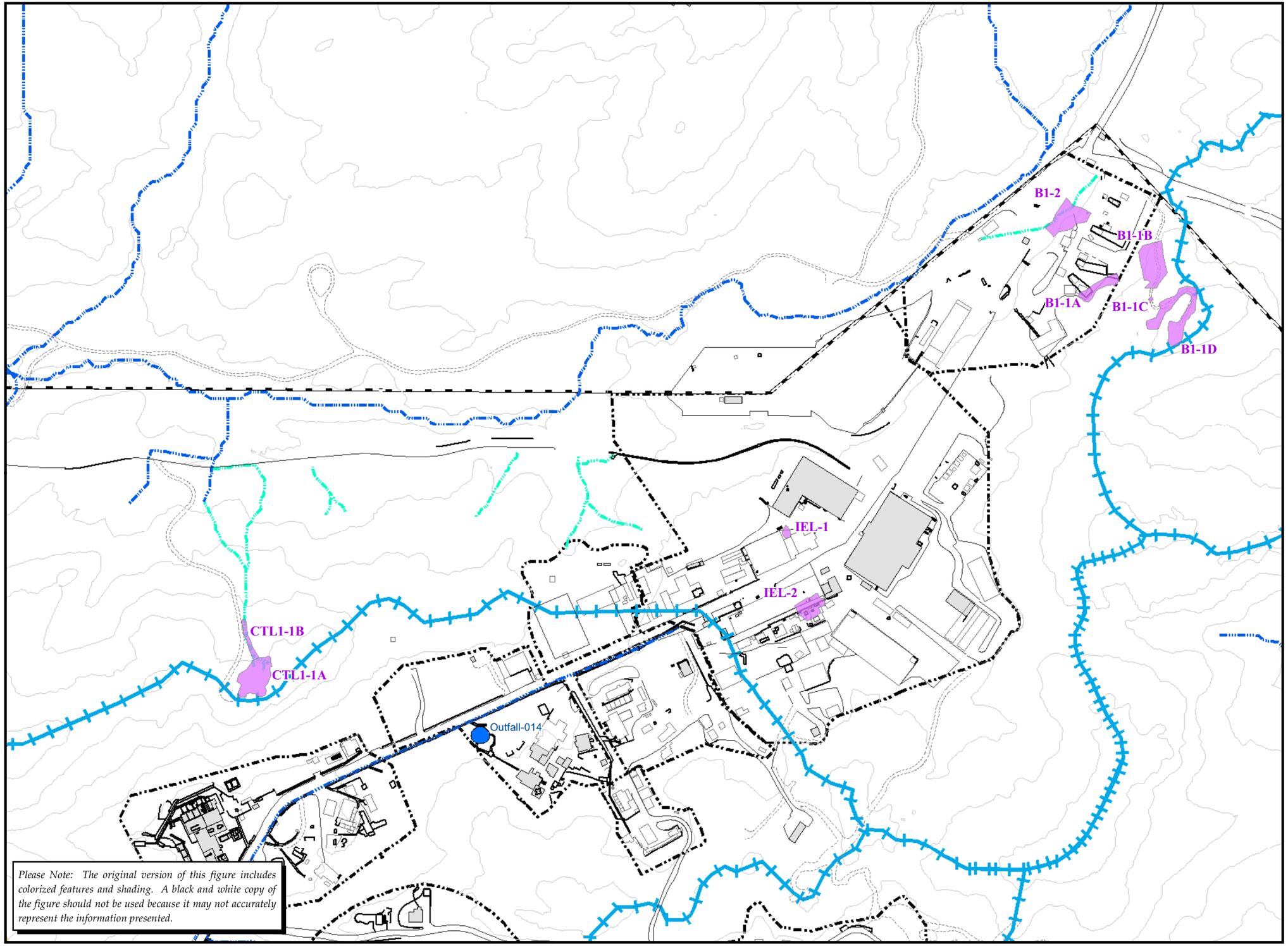
Acronyms:
STLC - Soluble Threshold Limit Concentration
TTLC - Total Threshold Limit Concentration
mg/L - milligrams per liter
mg/kg - milligrams per kilogram

FIGURES

ISRA Excavation Areas for 2010
Eastern Outfall 009 Watershed

Base Map Legend

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

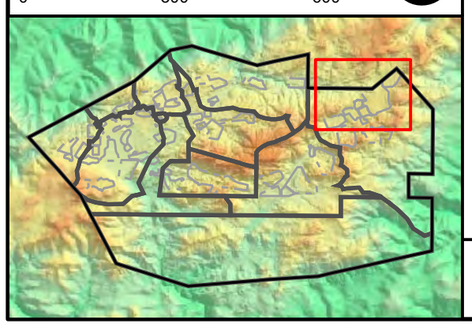


Document: ISRA_Plots_WP_B1_SampleLocations.mxd Date: May 18, 2010

1 inch = 300 feet

Feet

0 300 600



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.

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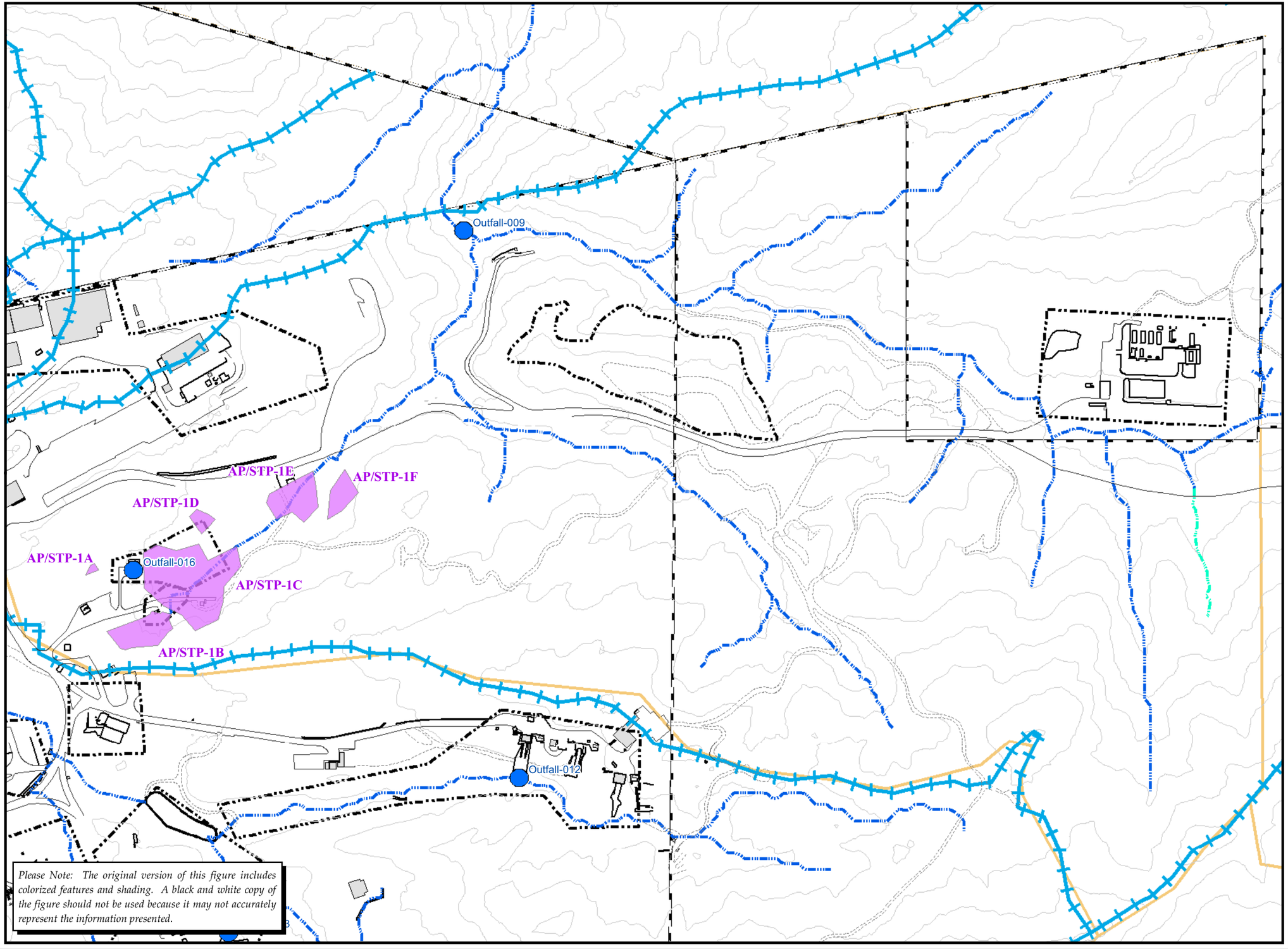
SANTA SUSANA FIELD LABORATORY

FIGURE 2-1

ISRA Excavation Areas for 2010
Western Outfall 009 Watershed

Base Map Legend

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



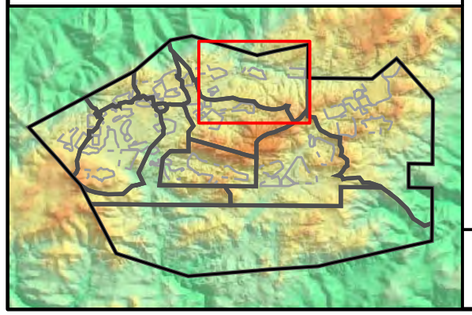
Please Note: The original version of this figure includes colorized features and shading. A black and white copy of the figure should not be used because it may not accurately represent the information presented.

Document: ISRA_Plots_SWP_Outfall9_Western.mxd

Date: May 18, 2010

1 inch = 350 feet

0 300 600 Feet



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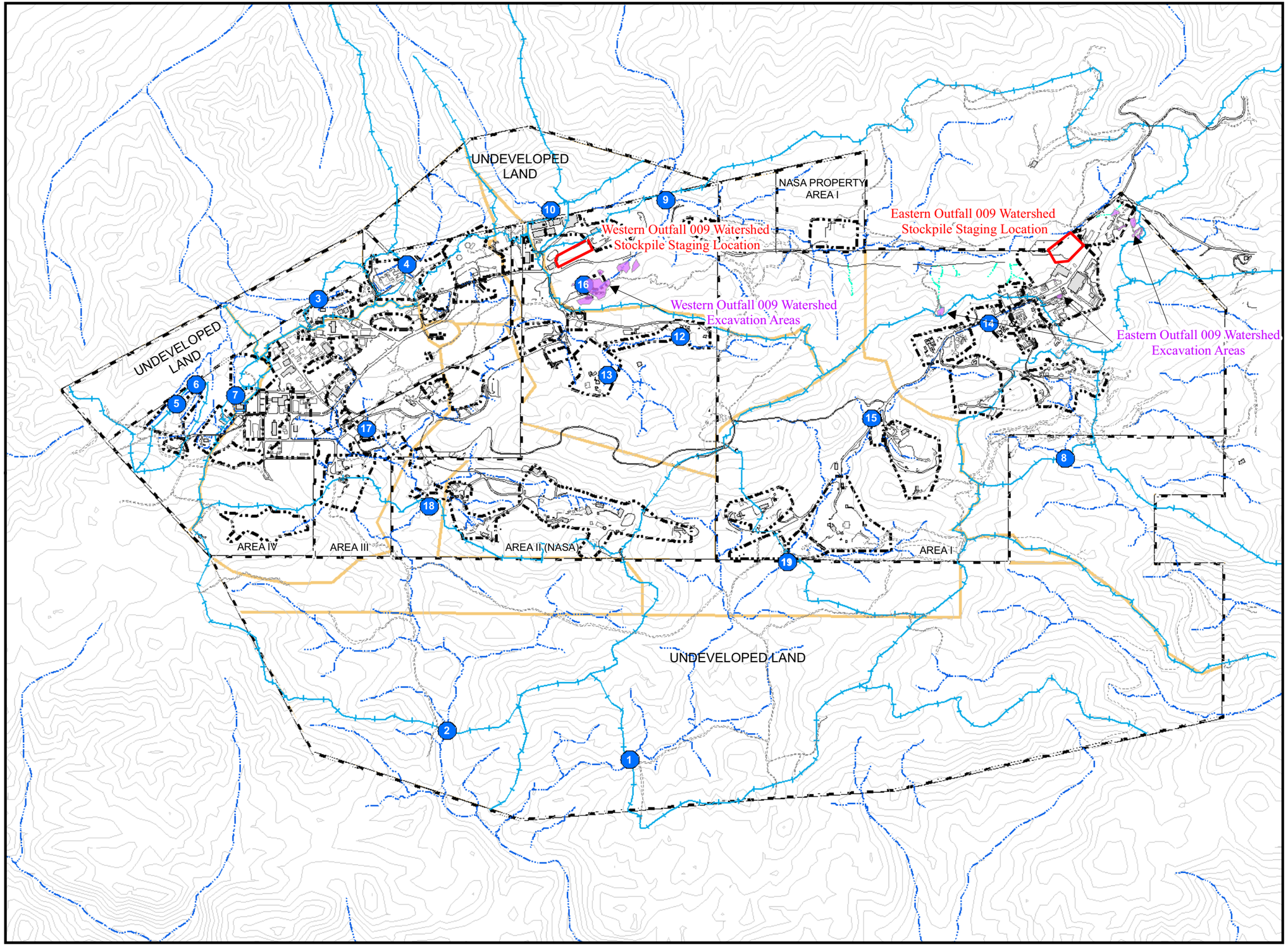
SANTA SUSANA FIELD LABORATORY

FIGURE 2-2

Stockpile Staging Locations
Outfall 009 Watershed

Base Map Legend

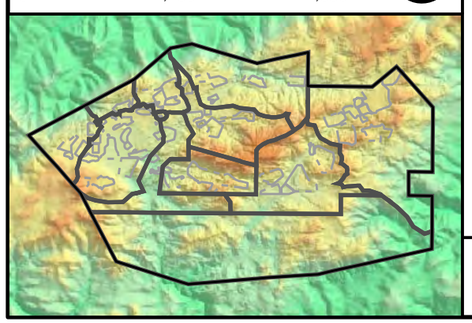
- Administrative Area Boundary
- RFI Site Boundary
- Report Group Boundary
- Existing Building
- Removed Building
- NPDES Outfall
- Dirt Road
- A/C Paving
- Drainage
- Non Jurisdictional Surface Water Pathway
- Surface Water Divide
- Elevation Contour



Document: ISRA_Plots_SWP_Outfall9_StockpileStaging.mxd Date: May 19, 2010

1 inch = 1,400 feet

0 1,400 2,800 Feet



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SANTA SUSANA FIELD LABORATORY

FIGURE 3-1

ATTACHMENT A

ISRA WASTE SAMPLING FOR RADIONUCLIDES

Attachment A
ISRA Waste Sampling for Radionuclides

The following provides guidance for radiological sampling of waste generated during excavation within areas of the eastern and western Outfall 009 watersheds.

All of the chemical samples taken for soil disposal characterization shall be split for potential analyses for gamma spectroscopy, strontium-90 and tritium, using an off-site laboratory. Radiological analyses shall be conducted only if the results of chemical analyses determine that off-site disposal is necessary. A 1-liter plastic or glass bottle shall be used for the combined gamma, strontium and tritium sample. Minimum detectable activity for both cesium-137 and strontium-90 shall be $\leq$ 0.05 pCi/g. Minimum detectable activity for tritium shall be $\leq$ 1 pCi/g. The laboratory gamma spectroscopy library shall also include the following contaminants-of-concern as a minimum: Na-22, K-40, Mn-54, Co-60, Cs-134, Cs-137, Eu-152, Eu-154, Th-228, Th-232, U-235, U-238 and Am-241. Any detection of any gamma emitting radionuclides in the library shall also be reported.

Statistical evaluation of sample analytical results to determine whether or not the sampled waste contains Cs-137 or Sr-90 activity elevated above local background shall be conducted using the Wilcoxon Rank Sum Test using protocols described in NUREG-1505[1] and Department of Toxic Substances Control (DTSC) guidance[2]. Local background identified in Table 20 of the 1995 McLaren/Hart report[3] will be used in the statistical comparison. The Department of Public Health (DPH) and the DTSC will be notified if wastes are determined to contain radionuclides above background. The need for further waste evaluation or alternate disposition shall be determined. The waste shall be subjected to a dose analysis to determine if the material can be shipped off-site in compliance with the California Health & Safety Code[4].

Field surveys, including gamma exposure, total beta contamination and alpha/beta wipe tests will be taken of any solid debris or discrete objects which may be found that would be difficult to sample and analyze in a laboratory. Any solid debris surveyed that exceeds instrument minimum detectable activity, using commonly used survey instrumentation, will be held for further evaluation.

Waste generated shall be shown to meet the requirements of the relevant waste disposal facility permit before being shipped offsite.

Based on site history, there is no evidence to suggest that any nuclear research or nuclear operations were conducted in the ISRA areas. The ISRA is not a radiological remediation project. Therefore the radiological controls normally associated with radiological remediation projects, including radiation worker training, personnel dosimetry, baseline and post-project bioassays, workplace air monitoring for radionuclides, continuous routine radiation and contamination surveys, personnel and area contamination controls, tenting and HEPA ventilation, etc., are not planned for the ISRA project. However, as part of

[1] NUREG-1505, Nuclear Regulatory Commission, "A Non-parametric Statistical Methodology for the Design and Analysis of Final Status Decommissioning Surveys." January 1998. http://www.philrutherford.com/Radiation_Cleanup_Standards/NUREG-1505.pdf

[2] DTSC, "Selecting Inorganic Constituents as Chemicals of Concern at Risk Assessments at Hazardous Waste Sites and Permitted Facilities." February 1997.

[3] McLaren/Hart, "Additional Soil and Water Sampling at the Brandeis-Bardin Institute and Santa Monica Mountains Conservancy." Jan 19, 1995. http://www.etec.energy.gov/Health-and-Safety/Documents/BrandeisBardin/AddSoilandWaterSamp.pdf

[4] California Health & Safety Code, Division 104, Part 9, Chapter 5, Sections 114705-114780. http://www.leginfo.ca.gov/cgi-bin/displaycode?section=hsc&group=114001-115000&file=114705-114780

Boeing's commitment to a safe working environment, site conditions will be reviewed throughout the duration of the project, and adjustment to work plan monitoring will be made, as necessary.

ATTACHMENT B

STOCKPILE STATISTICS WORKSHEET

ATTACHMENT B

Stockpile Statistics Worksheet

ISRA Soil Management Plan

(Page 1 of 2)

STOCKPILE STATISTICS WORKSHEET[1]

1	List sample results from laboratory Analytical Method: _____ Units (e.g., mg/kg): _____		1 | 2 | 3 4 | 5 | 6 7 | 8 | 9
2	Determine number of sample values	n	n=
3	Calculate sample mean with n = number of sample measurements	$\bar{x} = \frac{\sum_{i=1}^{n} x_i}{n}$	$\bar{x}$=
4	Calculate sample variance	$s^2 = \frac{\sum_{i=1}^{n} x_i^2 - \frac{(\sum_{i=1}^{n} x_i)^2}{n}}{n-1}$	s^2=
5	Calculate sample standard deviation	$s = \sqrt{s^2}$	s=
6	Calculate degrees of freedom	$df = n-1$	df=
7	Calculate standard error of the mean	$s_{\bar{x}} = \frac{s}{\sqrt{n}}$	$s_{\bar{x}}$=
8	Obtain *student's t value* corresponding to the degree of freedom value determined in #6 above	(See attached table of values on next page)	$t_{.20}$=
9	Calculate the confidence interval	$CI = \bar{x} \pm t_{.20}\, s_{\bar{x}}$	CI=
10	Obtain regulatory threshold for the contaminant of concern	RT	RT=
11	Calculate	$\Delta = RT - \bar{x}$	Δ=
12	Estimate minimum number of samples	$n_{min} = \frac{t_{.20}^2\, s^2}{\Delta^2}$	n_{min}=

[1] In accordance with the California Code of Regulations, Title 22, Section 66694, DEH follows the sampling guidelines set forth in *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, Third Edition,* US Environmental Protection Agency, 1986. This worksheet is based on information found in Volume II, Part III, Chapter 9 of *"SW-846"* and is provided as an aid for stockpile characterization. For circumstances requiring data manipulation beyond that indicated on the worksheet, refer to *"SW-846."*

ATTACHMENT B

Stockpile Statistics Worksheet
ISRA Soil Management Plan
(Page 2 of 2)

TABULATED VALUES OF STUDENT'S *'t'* FOR EVALUATING SOLID WASTES	
Degrees of Freedom[1] *df* (*n*-1)	Tabulated value[2] $t_{.20}$ (80% confidence interval)
1 2 3 4 5	3.078 1.886 1.638 1.533 1.476
6 7 8 9 10	1.440 1.415 1.397 1.393 1.372
11 12 13 14 15	1.363 1.356 1.350 1.345 1.341
16 17 18 19 20	1.337 1.333 1.330 1.328 1.325
21 22 23 24 25	1.323 1.321 1.319 1.318 1.316
26 27 28 29 30	1.315 1.314 1.313 1.311 1.310
40 60 120	1.303 1.296 1.289

[1] Degrees of freedom ***(df)*** are equal to the number of samples ***(n)*** collected less one.

[2]Tabulated ***'t'*** values are for a two-tailed confidence interval and a probability of 0.20 (80% confidence level). The same values are applicable to a one-tailed confidence interval and a probability of 0.10 (90% confidence level).

ATTACHMENT C

ROC EMISSIONS RECORD FORM

Soil Disturbance or Aeration Containing Gasoline, Diesel, or Jet Fuel: RECORDKEEPING FORM for Rule 74.29 Compliance

Requirement:	Record your response below:
List the dates and quantity (in cubic yards) of soil disturbed for each date.	
List the reasons for excavating or grading.	
State the cause of VOC soil contamination and history of the site.	
Describe the tanks or piping associated with the soil contamination, size, and contents.	
Describe the mitigation measures employed for dust, odors, and ROC emissions.	
Detail treatment and/or disposal of ROC contaminated soil, including the ultimate receptor.	
Describe the type, model of monitoring equipment used and techniques (e.g. calibration gas, etc.)	
Record all ROC emission measurements using an OVA* on a continuous permanent strip-chart or in a format approved by VCAPCD. Attach strip chart print outs to this form.	
Attach a map showing the facility layout, property lines, and surrounding area up to 2500 feet away and including any schools, residential areas or other sensitive receptors such as hospitals or locations where children or elderly people live or work.	

Notes:
Use one form per job.
Operator should be familiar with using an Organic Vapor Analyzer* (OVA).
Return completed form to Jenna Latt M/S T486, EHS

ATTACHMENT D

VCAPCD RULE 55 FUGITIVE DUST

VENTURA COUNTY AIR POLLUTION CONTROL DISTRICT

RULE 55 – FUGITIVE DUST
(Adopted 6/10/08)

A. Applicability

The provisions of this rule shall apply to any operation, disturbed surface area, or man-made condition capable of generating fugitive dust, including bulk material handling, earth-moving, construction, demolition, storage piles, unpaved roads, track-out, or off-field agricultural operations.

B. General Requirements – All Fugitive Dust Sources

1. Visible Dust Beyond the Property Line: No person shall cause or allow the emissions of fugitive dust from any applicable source such that the dust remains visible beyond the midpoint (width) of a public street or road adjacent to the property line of the emission source or beyond 50 feet from the property line if there is not an adjacent public street or road.

2. Opacity: No person shall cause or allow the emissions of fugitive dust from any applicable source such that the dust causes 20 percent opacity or greater during each observation and the total duration of such observations (not necessarily consecutive) is a cumulative 3 minutes or more in any one (1) hour. Only opacity readings from a single source shall be included in the cumulative total used to determine compliance.

3. Track-Out
   a. No person shall allow track-out to extend 25 feet or more in length unless at least one of the following three control measures is utilized:

      i. Track-Out Area Improvement: Pave or apply chemical stabilization at sufficient concentration and frequency to maintain a stabilized surface starting from the point of intersection with public paved surface, and extend for a centerline distance of at least 100 feet with an acceptable width to accommodate traffic ingress and egress from the site.

      ii. Track-Out Prevention: Check and clean the undercarriage and wheels on all vehicles before leaving unpaved surface or install a properly functioning and well-maintained track-out control device(s) that prevents track-out of soil onto paved public roads.

      iii. Track-Out Removal: Remove track-out from pavement as soon as possible but no later than one hour after it has been deposited on the paved road. If a street sweeper is used to remove any track-out, only

PM10-efficient street sweepers certified to meet South Coast AQMD Rule 1186 requirements shall be used. The make and model information and certification documentation of any sweeper used shall be made available upon request.

b. Notwithstanding the preceding, all track-out shall be removed at the conclusion of each workday or evening shift subject to the same condition regarding PM-10 efficient street sweepers as outlined in Subsection B.3.a.iii. The use of blowers for removal of track-out is expressly prohibited under any circumstances.

C. Specific Activity Requirements

1. Earth-Moving: No person shall engage in earth-moving activities in a manner that creates visible dust emissions over 100 feet in length.

2. Bulk Material Handling Facilities Track-Out Prevention: No person shall conduct an active operation with a monthly import or export of 2,150 cubic yards or more of bulk material without utilizing at least one of the following measures at each vehicle egress from the site to a public paved road:

   a. Install a pad consisting of washed gravel (minimum size: one inch) maintained in a clean condition to a depth of at least six inches and extending at least 30 feet wide and at least 50 feet long.

   b. Pave the surface at least 100 feet long and at least 20 feet wide.

   c. Utilize a wheel shaker/wheel spreading device, also known as a rumble grate, consisting of raised dividers (rails, pipe, or grates) at least 24 feet long and sufficient width to allow all wheels of vehicle traffic to travel over grate to remove bulk material from tires and vehicle undercarriages before vehicles exit the site.

   d. Install and utilize a wheel washing system to remove bulk material from tires and vehicle undercarriages before vehicles exit the site.

   e. Any other control measure or device that prevents track-out onto public paved roads.

3. Truck Hauling: No person (including facility or site operator) shall load or allow the loading of bulk materials or soil onto outbound trucks unless at least one of the following dust prevention techniques is utilized:

a. Use properly secured tarps or cargo covering that covers the entire surface area of the load or use a container-type enclosure.

b. Maintain a minimum of 6 inches of freeboard below the rim of the truck bed where the load touches the sides of the cargo area and insure that the peak of the load does not extend above any part of the upper edge of the cargo area.

c. Water or otherwise treat the bulk material to minimize loss of material to wind or spillage.

d. Other effective dust prevention control measures.

D. Exemptions

1. This rule shall not apply to:

a. On-field agricultural operations.

b. Off-field agricultural operations necessary to minimize adverse effects on agricultural or horticultural commodities caused during officially declared disasters or states of emergency.

c. Active operations conducted during emergency life-threatening situations, or in conjunction with any officially declared disaster or state of emergency.

d. Active operations conducted by essential service utilities to provide electricity, natural gas, telecommunication, water or sewer during periods of service outages or emergency disruptions.

e. Weed abatement operations provided that:

i. Mowing, cutting or other similar process is used which maintains weed stubble at least three inches above the soil, or

ii. Any disking or similar operation where effective dust emission prevention control measures are used.

f. Abrasive blasting operations meeting the requirements of Rule 74.1.

g. Unpaved service roads having traffic volume of 20 vehicle trips or fewer per day used by one or more public agencies for inspection of infrastructure and not used for construction or maintenance-related activity.

h. Motion picture, television, or video production activities when dust emissions are required for visual effects. In order to obtain this exemption, the APCO must receive notification in writing at least 72 hours in advance of any such activity and no nuisance results from such activity.

i. Temporary earth coverings of public paved roadways where such coverings are approved by a local government agency for protection of the roadway, and where such roadway is closed to through traffic and visible roadway dust is removed within one day following cessation of activities.

j. Any paved road unless it has track-out or any publicly-owned unpaved road.

k. Demolition operations using blasting explosives, which have been permitted by the California Division of Industrial Safety.

l. The disturbance (i.e., disking, ripping, or scraping) of spreading ground lands in preparation for percolative groundwater recharge. Spreading ground lands are ponds, a system of ponds, or basins into which surface water is introduced for the purpose of allowing or enhancing the infiltration of water into underlying aquifers.

2. Frequently Traveled Private Unpaved Road Conditional Exemption: The requirements in Subsections B.1 (Visible Dust Beyond the Property Line) and B.2 (Opacity) shall not apply to fugitive dust from frequently traveled (more than 20 vehicles per day passing in either direction) unpaved private roads if the operator has covered them with a low silt content material such as recycled road base or gravel to a minimum of four inches; or has implemented all of the following control measures:

a. Control Speed: Control speed to 15 miles per hour or less on unpaved roads through worker notification, signage, and any other necessary means.

b. Restrict Access: Restrict access to private unpaved roads currently used by the public either through signage or physical access restrictions.

c. Road Treatments: Treat unpaved and uncovered frequently traveled roads with water, mulch, or a non-toxic chemical dust suppressant that complies with all applicable air and water quality government standards. If treated, roads shall be treated in a manner that will avoid the sticking of mud to tires that will be carried onto paved public roads.

3. Lightly Traveled Unpaved Private Road Conditional Exemption: The requirements in Subsections B.1 (Visible Dust Beyond the Property Line) and B.2 (Opacity) shall not

apply to fugitive dust from lightly traveled unpaved private roads if the operator has implemented both of the following control measures:

a. Control Speed: Control speed to 15 miles per hour or less on unpaved roads through worker notification, signage, and any other necessary means.

b. Restrict Access: Restrict access to private unpaved roads currently used by the public either through signage or physical access restrictions.

4. Storage Pile Conditional Exemption: The requirements in Subsections B.1 (Visible Dust Beyond the Property Line) and B.2 (Opacity) shall not apply to fugitive dust from storage piles if the operator has implemented at least one of the following control measures:

a. Wind Sheltering: Enclose material in a three or four sided barrier equal to the height of the material.

b. Watering: Apply water at a sufficient quantity and frequency to prevent wind driven dust.

c. Chemical Stabilization: Apply a non-toxic dust suppressant that complies with all applicable air and water quality government standards at a sufficient quantity and frequency to prevent wind driven dust.

d. Covering: Install and anchor tarps, plastic, or other material to prevent wind driven dust.

5. High Wind Exemption: The requirements in Subsections B.1 (Visible Dust Beyond the Property Line). B.2 (Opacity), and C.1 (Earth-Moving) shall not apply to fugitive dust when on-site wind speed exceeds 25 miles per hour (mph) for at least 5 minutes in any one hour period as measured by an anemometer with a minimum resolution of 1.0 mph provided:

a. Applicable control measures outlined in Table 1 have been implemented, and

b. Daily records of specific dust control measures have been maintained.

6. Track-out Exemption: The provisions of Subsection B.3 (Track-Out) shall not apply to on-road vehicles (trucks and passenger vehicles) associated with agricultural operations that have caused track-out due to excessively muddy conditions resulting from rainfall.

E. Recordkeeping Requirements

1. Bulk Material Handling Records: Any operator handling bulk materials and having an APCD Permit to Operate shall keep a monthly log, available upon request, containing or referencing the following information:

   a. Operator name, location of operation, and dates of operation.

   b. Amount (in yards) of bulk material imported or exported per month.

   c. Diagram or map of all egress sites to a public paved road and description of corresponding track-out control measure, if required by this rule.

2. Frequently Traveled Unpaved Road Exemption Records: Any operator or owner of an private unpaved road claiming exemption from the requirements in Subsection B.1 (Visible Dust Beyond the Property Line) and Subsection B.2 (Opacity) shall keep the following records:

   a. Operator name, location of operation, dates when road is open to travel.

   b. List and diagram of unpaved private roads that have more than 20 vehicle trips per day with corresponding method and description of fugitive dust control. If an unpaved private road is being treated, then describe the method used to control speed and restrict access.

3. Storage Pile Exemption Records: Any owner or operator of a storage pile claiming the exemption from the requirements in Subsection B.1 (Visible Dust Beyond the Property Line) and Subsection B.2 (Opacity) shall keep the following records:

   a. Operator name, location of operation, dates of operation

   b. Description of control measure used to minimize fugitive dust including amount of material applied and frequency of application if watering or chemical suppressants are used.

4. High Wind Exemption Records: Any operator claiming the high wind exemption in Subsection D.5 shall keep daily records of specific dust control actions taken.

5. Track-Out Area Exemption Records: Any operator claiming an exemption from track-out area requirements in Subsection B.3.a shall keep the following records:

   a. Operator name, location of operation, and dates of operations.

   b. Description of control measure used in the improvement of the track-out area or control measure used to prevent track-out.

6. Dust Suppressant Records: Any person using dust suppressants shall keep the following records: Description of dust control measure; Location and extent of coverage; Date, amount, and frequency of application of dust suppressant; and Manufacturer's dust suppressant product information sheets.

7. Any recordkeeping required by this rule shall be made available to APCD compliance personnel upon request. Records shall be retained for a minimum of two years.

F. Test Methods

Compliance with the opacity limit in Subsection B.2 shall be determined using EPA Method 9 with the following modifications:

1. Position: Stand at least 16.5 feet from the plume(s) with the sun oriented in the 140° sector to your back. If feasible, make opacity observations so your line of sight is approximately perpendicular to the direction of plume travel. To the extent possible, position yourself to make opacity observations using a contrasting background.

2. Field Records: Note the following on a record sheet:

   a. Description and location of activity generating emissions, and method of control used, if any.

   b. Observer's name, certification data, and affiliation, and a sketch of the observer's position relative to the dust generating activity and the sun, including estimated distances and direction to the plume.

   c. Time that reading began, approximate wind speed and direction, description of the sky condition (presence and color of clouds), color of the plume, and type of background.

3. Observations: For each reading, make the observation at the highest opacity in the dust plume starting at an elevation line 5 feet above the emission source. Do not look continuously at the source, but make momentary observations once every 15 seconds. Record each observation to the nearest 5 percent. Each reading represents a 15 second period. If multiple plumes exist, do not include more than one plume in the line of sight at one time.

4. Compliance Determination: If the observer records twelve (12) readings of 20 percent or greater during a one-hour period, the source is not in compliance and observations may stop. The 20 percent or greater opacity readings are not required to be consecutive.

5. Only observers certified by the California Air Resources Board, or the U.S. Environmental Protection Agency may determine compliance with opacity limits.

G. Violations

Failure to comply with any provision of this rule is a violation of this rule.

H. Definitions

1. "Active Operation": Any source capable of generating fugitive dust, including, but not limited to, bulk material handling, earth-moving activities, construction or demolition activities, or vehicular movement on unpaved surfaces.

2. "Bulk Material": Sand, gravel, aggregate material less than two inches in length or diameter, and other organic or inorganic particulate matter.

3. "Construction/Demolition Activities": Any on-site mechanical activities conducted in preparation of, or related to, the building, alteration, rehabilitation, demolition, or improvement of property, including, but not limited to, grading, excavating, loading, crushing, cutting, planing, or ground breaking.

4. "Disturbed Surface Area": This means a portion of the earth's surface which has been physically moved, uncovered, destabilized, or otherwise modified from its undisturbed natural soil condition, thereby increasing the potential for emission of fugitive dust. This definition excludes those areas which have:

   a. Been restored to a natural state, such that the vegetative ground cover and soil characteristics are similar to adjacent or nearby natural conditions;

   b. Been paved or otherwise covered by a permanent structure.

5. "Earth-Moving Activities": This means the use of any equipment for any activity where soil is being moved or uncovered, and shall include, but not be limited to the following: grading, earth cutting and filling operations, loading and unloading of dirt, adding to or removing from open storage piles, landfill operations, mining operations, and weed abatement operations.

6. "Frequently-Traveled Unpaved Private Road": For the purpose of defining the conditional exemption in Subsection D.2 , any private unpaved road where the count of vehicles traveling in either direction on the road exceeds 20 in any 24 hour period.

7. "Fugitive Dust": Any solid particulate matter that becomes airborne, other than emitted from an exhaust stack, directly or indirectly as a result of the activities of any person(s).

8. "Lightly-Traveled Unpaved Private Road": For the purpose of defining the conditional exemption in Subsection D.3, any private unpaved road where the count of vehicles traveling in either direction on the road is 20 or less in any 24 hour period.

9. "Off-field Agricultural Operations": Any activities excluding those considered by this rule to be on-field agricultural operations.

10. "On-field Agricultural Operations": Activities, excluding travel on field access roads, conducted solely for the purpose of preparing land for the growing of agricultural or horticultural commodities, tree fruits, or raising of fowl or animals, such as:

    a. Brush or timber clearing, grubbing, scraping, ground excavation, land leveling, grading, turning under stalks, disking or tilling.

    b. Drying, pre-cleaning, handling, or storing of agricultural commodity material on the field where it was harvested.

    c. Handling of fowl, or animal feed materials at sites where animals or fowl are raised.

    d. Disturbing of cultivated land as a result of fallowing, seeding, planting, plowing, disking, fertilizing the soil, cultivating, irrigating, controlling weeds, thinning, heating, pruning, fumigating, spraying, dusting, or harvesting.

11. "Paved Road": A public or private improved street, highway, alley, public way, or easement that is covered by typical roadway materials including, but not limited to, asphalt paving or concrete. For this purpose of this rule, roads covered with recycled road base or gravel are not considered to be paved.

12. "PM-10 Efficient Street Sweeper": Any street sweeper certified by the South Coast AQMD to meet their Particulate Matter (10 microns and less) capture efficiency criteria outlined in SCAQMD Rule 1186 Appendix A.

13. "Source": A source includes all activities and operations that are located on contiguous property under common ownership or control, and includes associated facility-access and haul roads.

14. "Stabilized Surface": Any surface that has been treated, worked, or modified to increase soil stability in order to limit fugitive dust emissions. Methods used to stabilize surface include but are not limited to the following: watering, dust palliatives, vegetation, aggregates, and paving.

15. "Storage Pile": Any accumulation of bulk material or soil, which attains a height of three feet or more and a total surface area of 150 or more square feet.

16. "Track-Out": Any material that adheres to and agglomerates on the exterior surface or tires of motor vehicles, haul trucks, or mobile equipment that have been released onto a named, numbered, or lettered public paved road and can be removed by a PM-10 efficient street sweeper under normal operating conditions.

I. Compliance Schedule:

The requirements of this rule shall become effective on October 8, 2008.

J. Compliance Status

Compliance with this rule shall not guarantee that a person will be in compliance with any other district rule or state regulation, including but not limited to, Rule 50 (Opacity), Rule 51 (Nuisance), Health and Safety Code Section 41700 (Nuisance), or Health and Safety Code Section 41701 (Opacity).

Table 1
Control Measures Needed to Qualify for High Wind Exemption in Subsection D.5

FUGITIVE DUST SOURCE CATEGORGY	CONTROL MEASURES
Earth-Moving	1. Cease all active operations; OR 2. Apply water to soil not more than 15 minutes prior to earth-moving activities.
Disturbed Surface Area	1. On the last day of active operations prior to any Sunday, 1-day holiday, or any other period when active operations will not occur for at least four consecutive days, apply water with a mixture of chemical stabilizer diluted to not less than 5 percent by volume of the chemical stabilizer or to chemical stabilizer manufacturer specifications; OR 2. Apply chemical stabilizers at least 30 minutes prior to the wind event; OR 3. Apply water to all unstabilized disturbed areas at least every 4 hours during the wind event. If there is any evidence of wind-driven dust, water frequency is increased until wind-driven dust is minimized; OR 4. Establish a vegetative ground cover within 21 days after active operations have ceased. Ground cover must be of sufficient density to expose less than 30 percent of unstabilized ground within 90 days of planting, and at all times thereafter.
Unpaved Roads	1. Apply chemical stabilizers prior to allowing traffic; OR 2. Apply water at least twice per hour during active operations;OR 3. Stop all vehicular traffic.
Open Storage Piles	1. Apply water at least twice per hour during the wind event; OR 2. Install temporary coverings.

ATTACHMENT E

LETTER FROM DTSC DATED NOVEMBER 9, 2007

Linda S. Adams
Secretary for
Environmental Protection

Department of Toxic Substances Control

Maureen F. Gorsen, Director
8800 Cal Center Drive
Sacramento, California 95826-3200

Arnold Schwarzenegger
Governor

November 9, 2007

Mr. Arthur J. Lenox
Environmental Remediation
The Boeing Company
Santa Susana Field Laboratory
5800 Woolsey Canyon Road
Canoga Park, California 91304-1148

CONDITIONAL APPROVAL FOR IMMINENT AND SUBSTANTIAL ENDANGERMENT DETERMINATION AND ORDER AND REMEDIAL ACTION ORDER-REQUIRED WORK PLAN-RELATED SUBMITTALS, FORMER LIQUID OXYGEN PLANT DEBRIS FIELD, SAGE RANCH AND SANTA SUSANA FIELD LABORATORY, VENTURA COUNTY (CAD 093365435 AND CA1800090010)

Dear Mr. Lenox:

On November 1, 2007, the Department of Toxic Substances Control (DTSC) issued an Imminent and Substantial Endangerment Determination and Order and Remedial Action Order (Docket No. I/SED 07/08-002) (Order) for cleanup of hazardous substances associated with the former Liquid Oxygen Plant (LOX) debris field. The LOX debris field is located on and near the Northern Drainage at the Santa Susana Field Laboratory and the Mountains Recreation Conservancy Authority's Sage Ranch. The purpose of this letter is to provide conditional approval for LOX debris field removal activity-related documents that were recently submitted, as required by the Order.

Please note that review and approval of documents required by the Order for removal of hazardous substances associated with the former Rocketdyne – Atomics International Rifle and Pistol Club shooting range and Northern Drainage is not yet complete, and will be addressed under separate cover.

The following documents are required by the Order for the LOX debris field removal activities:

1. **Work Plan Addendum**. An Asbestos Abatement Work Plan (Work Plan), prepared by Zenco Engineering and dated September 10, 2007 describes asbestos abatement activities to be conducted for the LOX debris field. The

Order identified deficiencies in the Work Plan, and required submittal of a Work Plan Addendum to address the additional requirements specified in the Order.

On November 6, 2007, Boeing submitted a "Response to DTSC Conditions in Imminent and Substantial Endangerment Determination and Order and Remedial Action Order" for SSFL. This transmittal included a "Revised Asbestos Abatement Work Plan for the Northern Drainage Debris Area", prepared by Zenco Engineering and dated November 6, 2007. Also included was a "Former Shooting Range/Northern Drainage Clay Target Debris Removal Work Plan Addendum" prepared by Haley & Aldrich and dated November 6, 2007.

Conditions for approval: Requirements described in the Order's Section 5.1.1.3 (a) through (f) shall be incorporated into the scope of work specifically for the LOX debris field removal activities. These requirements are not listed in Zenco's "Revised Asbestos Abatement Work Plan for the Northern Drainage Debris Area"; however, they are included in Haley & Aldrich's Work Plan Addendum for the Former Shooting Range/Northern Drainage Clay Target Debris Removal Work Plan Addendum". DTSC approves the items listed in Haley & Aldrich's Work Plan Addendum for the LOX debris field removal activities under the following conditions:

Drainage Control: All work conducted for the LOX debris field removal activities shall comply with the California Regional Water Quality Control Board's Cleanup and Abatement Order No. R4-2007-0054, issued November 6, 2007.

Contaminated Soil Removal: A contingency that addresses detection of antimony in confirmation samples at concentrations that exceed its risk-based interim cleanup goal must be submitted in writing and approved by DTSC before work commences.

Containerized Waste Removal: See comments below under Item 2 "Transportation Plan."

Radiologic Screening of Excavated Material: See comments below under Item 3 "Radiologic Screening of Excavated Material."

List of confirmation sample analytes, analytical methods and associated method reporting limits: This was not specified in the Work Plan Addendum. DTSC requires that the tabulated summary of confirmation sampling analytes, analytical methods and associated method reporting limits provided via email by Boeing on November 6,

2007 be incorporated into the scope of work for the LOX debris field removal activities.

2. **Transportation Plan**. A Transportation Plan for the Northern Drainage Debris/Asbestos Removal was prepared by MWH and submitted on October 23, 2007. The Transportation plan describes procedures intended to identify and minimize potential health, safety, and environmental risks resulting from implementation of the associated Work Plan, particularly during loading, Site entry, and egress, and during transportation of waste on public roads. The Order indicated that the Transportation Plan would be reviewed and commented on by DTSC, prior to issuance of approval. Based on verbal comments issued by DTSC during the week of October 24, 2007, clarification for various elements of the Transportation plan was provided in a memorandum prepared by Haley & Aldrich, dated November 1, 2007. A tabulated summary of waste characterization analytes, analytical methods and associated method reporting limits was submitted via email by Boeing on November 2, 2007.

   Conditions for approval: DTSC approves the "Transportation Plan for the Northern Drainage Debris/Asbestos Removal" under the following conditions:

   Waste Profiling and Traffic Control: DTSC requires incorporation of the scope of work described in the memorandum prepared by Haley & Aldrich, dated November 1, 2007, for the LOX debris field removal activities.

3. **Radiologic Screening of Excavated Material**. The Order requires the Respondents to submit a radiological screening procedure, developed with input from the Department of Public Health – Radiologic Health Branch (DPH-RHB), to screen excavated materials. Screening of excavated soils and debris shall be conducted to verify the excavated materials have no radiologic restrictions and do not violate any local, state, or federal requirements regarding their management, handling, or disposal. In response to this requirement by the Order, Boeing submitted "Northern Drainage Waste Sampling for Radionuclides", as an attachment to the transmittal letter "Response to DTSC Conditions in Imminent and Substantial Endangerment Determination and Order and Remedial Action Order", prepared by Boeing and dated November 6, 2007. DTSC understands that this written procedure was developed with input from the DPH-RHB.

   Conditions for approval: DTSC concurs with the proposed Radiologic Screening of Excavated Material under the condition that it is clearly understood that it is the Respondents' responsibility to utilize the appropriate statistical evaluation of waste profiling sample analytical results, based on the respondents'

understanding of the data distribution and limitations of each proposed statistical method. DTSC approves moving forward with the proposed radiologic screening procedures with the understanding that written verification, signed by the responsible agent of the Respondents, will be provided to DTSC.

4. **Schedule**. As required by the Order, a schedule for the Northern Drainage debris removal activities was submitted as an attachment to "Former Shooting Range/Northern Drainage Clay Target Debris Removal Work Plan Addendum" prepared by Haley & Aldrich and dated November 6, 2007.

5. **Health and Safety Plan.** The Order requires submittal of a site-specific Health and Safety Plan, prepared in accordance of with federal (29 CFR 1910.120) and state (Title 8 CCR Section 5192) regulations. Health and Safety Addendum Number 17, prepared by MWH and dated October 24, 2007, and Site Health and Safety Plan prepared by Zenco Engineering and dated October 23, 2007 were submitted to DTSC. These health and safety plans describe basic safety requirements for the work associated with debris and incidental soil removal activities associated with the LOX debris field. The existing Rocketdyne RCRA Facility Investigation, Volume III, Appendix E, Health and Safety Plan, prepared by MWH and dated June 2003 was previously submitted to DTSC. This Health and Safety Plan applies to the overall removal action work for the Northern Drainage. As required by the Order, revised Health and Safety Plans were submitted to address comments prepared by DTSC's Industrial Hygiene and Safety Branch (IHSB). A revised Zenco Engineering Health and Safety Plan, prepared by Zenco Engineering and dated November 5, 2007 and a Revised Site-Specific Health and Safety Plan, Northern Drainage Clay Target and Grey Foam Removal, prepared by Haley & Aldrich, dated November 5, 2007 were submitted to DTSC.

   DTSC's IHSB has reviewed Zenco Engineering's Revised Health and Safety Plan, which covers the activities for the LOX debris removal activities. In a memorandum dated November 7, 2007, IHSB indicated that the revised Zenco Health and Safety Plan adequately addressed previously outstanding comments submitted by IHSB.

   DTSC thus approves Zenco Engineering's Revised Health and Safety Plan, dated November 5, 2007 for purposes of proceeding with the LOX debris field removal activities. Comments regarding the remaining health and safety plans that address the clay target debris removal activities in the Northern Drainage will be issued by DTSC under separate cover.

6. **Notification of Project Coordinator.** The Order requires the Respondents to submit to DTSC a Notification of Project Coordinator. In response, Boeing submitted "Notification of Project Coordinator for the Boeing Company" dated November 5, 2007. The Boeing Company has designated Mr. Art Lenox as Boeing's Project Coordinator.

   DTSC requires verification that Mr. Art Lenox (or other designee) will also serve as NASA's Project Coordinator.

7. **Notification of Project Engineer/Geologist.** The Order requires the Respondents to submit to DTSC a Notification of a project engineer or geologist. DTSC reiterates that work performed pursuant to the Order shall be under the direction and supervision of a qualified professional engineer or a registered geologist in the State of California, with expertise in hazardous substance site cleanups. Submittal of notification of the project engineer or geologist is pending, and must be submitted by November 11, 2007. If the LOX debris field removal activities are anticipated to occur before November 11, 2007, then the notification shall be submitted no later than one calendar day before the work commences.

If you have any questions, please contact me at (916) 255-3574.

Sincerely,

James M. Pappas, P.E., Chief
Northern California Permitting and Corrective Action Branch

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