

**INTERIM SOURCE REMOVAL ACTION (ISRA)
PHASE I IMPLEMENTATION REPORT - 2009 ACTIVITIES
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA**

March 2010

Prepared For:

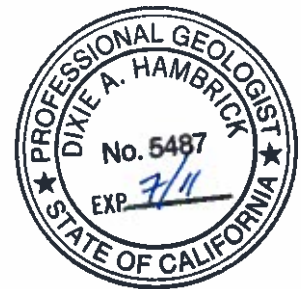
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ABBREVIATIONS AND ACRONYMS

Boeing	The Boeing Company
BMP	Best Management Practices
CAO	Cleanup and Abatement Order
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CM	culvert maintenance
COC	constituents of concern
CWA	Clean Water Act
cy	cubic yards
DTSC	Department of Toxic Substances Control
ELV	Expendable Launch Vehicle
ENTS	Engineered Natural Treatment System
HVS	Happy Valley South
ISRA	Interim Source Removal Action
NASA	National Aeronautics and Space Administration
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NWP	Nationwide Permit
PCB	polychlorinated biphenyl
PEA	preliminary evaluation area
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
RTC	response to comments
RWQCB	Los Angeles Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
SHPO	California State Historic Preservation Office
SMP	Soil Management Plan
SRG	Soil Remediation Goal
SSFL	Santa Susana Field Laboratory
SVOC	semi-volatile organic compound
SWPPP	Storm Water Pollution Prevention Plan

ABBREVIATIONS AND ACRONYMS (Continued)

SWRCB	California State Water Resources Control Board
TPH	total petroleum hydrocarbons
USEPA	United States Environmental Protection Agency
USACE	United States Army Corp of Engineers
UXO	unexploded ordinance
VOC	volatile organic compound
W and S	W and S Consultants
WDR	Waste Discharge Requirement

1.0 INTRODUCTION

This Interim Source Removal Action (ISRA) Phase I Implementation Report summarizes the ISRA activities performed during 2009 at the Santa Susana Field Laboratory (SSFL). ISRA implementation activities were conducted by MWH and CH2M Hill on behalf of The Boeing Company (Boeing) and the National Aeronautics and Space Administration (NASA) pursuant to a California Water Code Section 13304 Cleanup and Abatement Order (CAO) issued by the Los Angeles Regional Water Quality Control Board (RWQCB) dated December 3, 2008 (RWQCB, 2008). The CAO was issued by the RWQCB to achieve compliance with the Waste Discharge Requirements (WDRs) for Outfalls 008 and 009 contained in Order No. R4-2004-0111, as amended by Order Nos. R4-2006-0008, R4-2006-0036, R4-2007-0055, and R4-2009-0058. The CAO was issued to Boeing, and included provisions for Boeing to communicate and work cooperatively with NASA for ISRAs necessary on NASA property (Item 6 of the CAO). This communication and coordination is ongoing and represented in this report, as well as in previous ISRA work plans and progress reports.

ISRA Phase I implementation activities occurred during 2009 according to the Final ISRA Work Plan dated May 2009 (MWH, 2009c), as well as subsequent Work Plan Addenda and supplemental plans, in accordance with applicable regulations. As described in the Final ISRA Work Plan, the ISRA project is being conducted in annual phases to allow completion of ongoing work within the Outfall 009 watershed (Northern Drainage cleanup and storm water maintenance activities), and to accommodate federal funding schedules for work to be performed on NASA property. Final completion of the ISRA project is anticipated prior to the Fall 2012 rainy season. ISRA Phase I activities performed in 2009 are described in this implementation report, which serves in partial fulfillment of Item 4 of the CAO. Item 4 of the CAO requires that a report be submitted documenting compliance with the CAO, and detailing the results of confirmation soil samples following the completion of removal of soil from the areas for Outfall 008 and 009 watersheds. An addendum to the Final ISRA Work Plan is currently being developed for future ISRA activities.

1.1 PROJECT BACKGROUND

The SSFL is located approximately 29 miles northwest of downtown Los Angeles, California, in the southeast corner of Ventura County. Figure 1-1 shows the geographic location and property boundaries of the site, as well as surrounding communities. Storm water discharges at the SSFL are monitored according to the National Pollutant Discharge Elimination System (NPDES) Permit No. CA0001309 (NPDES Permit). The 16 outfall locations are shown on Figure 1-2, and a detailed view of the Outfall 008 and 009 watersheds are shown in Figure 1-3. The NPDES Permit established monitoring in at Outfalls 008 and 009 in August 2004. NPDES permit limits were established for Outfalls 008 and 009 in 2005-2006, and these limits presently are benchmarks. Currently and during 2009 ISRA activities, surface water discharges at the site are exclusively the result of storm water runoff and are intermittent following rain events.

The SSFL is also currently undergoing a Resource Conservation and Recovery Act (RCRA) Corrective Action Program under oversight by the Department of Toxic Substances Control (DTSC). This action is currently in the RCRA Facility Investigation (RFI) Phase.

1.1.1 ISRA Cleanup and Abatement Order (CAO)

In response to exceedances of NPDES permit limits and benchmarks at Outfall 008 and Outfall 009, the RWQCB issued a CAO to Boeing on December 3, 2008 (RWQCB, 2008). The CAO (included in Appendix A) requires that the sources which are discharging constituents that exceeded NPDES permit limits and benchmarks within the Outfall 008 and 009 watersheds be addressed. Constituents for which there have been NPDES permit limit and benchmark exceedances at Outfall 008 and Outfall 009 between 2004 and March 2008 include lead at Outfall 008; and copper, lead, dioxins, pH, and oil and grease at Outfall 009 (Boeing, 2005a, 2006, 2007, and 2008).

The objective of the ISRA RWQCB CAO is to improve surface water quality within the Outfall 008 and 009 watersheds by identifying, evaluating, and remediating areas of contaminated soil in order to eliminate the constituents of concern (COCs) that have resulted in exceedances of NPDES permit limits and benchmarks in storm water. The CAO also requires that methods be used that minimize impacts to the streambed adjacent to habitat during cleanup

activities, protect the water quality during and after cleanup activities, and restore the streambed and surrounding habitat following cleanup activities.

Addressing the sources within Outfall 008 was undertaken by Boeing because the Outfall 008 watershed is entirely on property owned by Boeing. However, because the portion of the Outfall 009 watershed upgradient of the NPDES sample location includes property owned by Boeing as well as property owned by the federal government and administered by NASA, Boeing and NASA have each addressed the sources on their respective properties.

1.1.2 ISRA Project Approach

The ISRA project approach for developing remediation plans was presented in detail in the Final ISRA Work Plan (MWH, 2009c). The approach included:

- (1) Compiling the previously existing data set of soil and sediment samples for the Outfall 008 and Outfall 009 watersheds;
- (2) Identifying potential source areas of ISRA COCs and designating them as Preliminary ISRA Evaluation Areas (ISRA PEAs). ISRA PEAs represent areas in which samples from the previously existing data set contain concentrations of the ISRA COCs exceeding DTSC-approved background comparison concentrations (MWH, 2005);
- (3) Performing additional soil sampling to fill data gaps and delineate the lateral and vertical extents of the source areas, producing refined ISRA PEAs;
- (4) Evaluating each refined ISRA PEA, based on criteria including sampling results, soil type, site geomorphology, and type of vegetation, to highlight which areas were likely to be contributing ISRA COCs to surface water and should be identified as an ISRA area requiring remediation; and
- (5) Performing a remedial alternatives analysis and developing soil remediation goals (SRGs) for each proposed ISRA area.

ISRA COCs for surface water at Outfalls 008 and 009 were determined by surface water samples collected for monitoring or compliance under the NPDES Permit at those outfalls. Since the establishment of NPDES permit limits/benchmarks for Outfalls 008 and 009, constituents for which there have been NPDES permit limit and benchmark exceedances include lead at Outfall 008, and copper, lead, dioxins, pH, and oil and grease at Outfall 009 (Boeing, 2005a, 2006, 2007, and 2008). However, based on an evaluation of all surface water samples collected at Outfalls 008 and 009 since August 2004, including sample data collected for monitoring before

the NPDES permit limits/benchmarks were established, the ISRA COCs for surface water are copper, lead, and dioxins at Outfall 008, and cadmium, copper, lead, mercury, and dioxins, pH, and oil and grease at Outfall 009. Since the exceedances of oil and grease and pH at Outfall 009 each occurred only once and are attributable to natural causes (Boeing, 2005b and 2006), they are not considered ISRA COCs as described in the ISRA work plans (MWH, 2009b and 2009c).

The ISRA approach presented in the Final ISRA Work Plan also specifies that where RCRA risk drivers are collocated with ISRA areas, the RCRA risk drivers will be considered in ISRA activities (MWH, 2009c). RCRA risk drivers are those chemicals that significantly contribute to unacceptable human risks and ecological risks within the Outfall 008 and 009 watersheds, as presented in the RFI Group reports.

The SRGs established for the ISRA project are consistent with or near background concentrations (MWH, 2005), as described in the ISRA Final Work Plan (MWH, 2009c). However, since the 2005 soil background data are being re-evaluated by DTSC and a final background dataset is not defined at this time, ISRA SRGs will be adjusted, as necessary, once a final background dataset is approved by DTSC. The SRG for dioxins is slightly higher than current background levels (approximately 3 times the background concentration) since there is more uncertainty in the 2005 data set for dioxins than for other ISRA COCs, and because the Outfall 008 and 009 watersheds were extensively burned during the 2005 Topanga Fire, resulting in dioxin-containing ash and burned debris being deposited throughout the area.

1.1.3 Phase I Scope

Phase I activities described in the Final ISRA Work Plan included ISRA implementation at all three ISRA PEAs identified in the Outfall 008 watershed, and at PEA-ELV-1 in the western Outfall 009 watershed on NASA property, near the Expendable Launch Vehicle (ELV) RFI Site (MWH, 2009c). However, following submittal of the Final ISRA Work Plan, implementation of remedial activities at PEA-ELV-1 was put on hold by the RWQCB until a disposal facility could be identified. Two alternative ISRA PEAs were then selected for Phase I activities in the Outfall 009 watershed on NASA property: PEA-A2LF-1 and PEA-A2LF-3. The remaining PEAs within the Outfall 009 watershed are currently undergoing refinement and evaluation in preparation for

future implementation, and addenda to the Final ISRA Work Plan will be prepared to describe these activities and present the remediation strategy selected for each.

Within the three Outfall 008 PEAs, seven ISRA areas were identified (Figure 1-4), via data gap and delineation soil sampling, PEA refinement, and evaluation according to the criteria described in Section 1.1.2., as presented in the Final ISRA Work Plan (MWH, 2009c). These ISRA areas are located within the Happy Valley South (HVS) RFI Site, the Canyon RFI Site, and in the drainage downgradient from the Canyon RFI Site. A remedial alternatives analysis in the Final ISRA Work Plan (MWH, 2009c) identified excavation and offsite disposal as the optimal remediation strategy for each of these ISRA areas, and SRGs were developed as cleanup goals for confirmation sampling. Subsequently, additional delineation soil sampling within the Outfall 008 watershed was performed in areas where excavation boundaries were farther than approximately 25 feet from the locations of SRG exceedances, and the seven ISRA areas were further refined and subdivided into ten final ISRA areas in 2009 (CYN-1, DRG-1, HVS-1, HVS-2A, HVS-2B-1, HVS-2B-2, HVS-2C, HVS-2D, HVS-3, and HVS-4).

The two Outfall 009 ISRA PEAs selected for Phase I activities, PEA-A2LF-1 and PEA-A2LF-3, were refined via data gap and delineation soil sampling (Figure 1-5). Sampling results and the resulting two final ISRA Areas, A2LF-1 and A2LF-3, were presented in an Addendum to the Final ISRA Work Plan submitted to the RWQCB (NASA, 2009), along with SRGs developed as cleanup goals for confirmation sampling for each ISRA area. ISRA Area A2LF-1 is located on the northeast bank of the Northern Drainage immediately upgradient from the Outfall 009 location, and ISRA Area A2LF-3 is located adjacent to and within a road culvert southeast of the ELV RFI Site. Excavation and offsite disposal was identified as the optimal remediation strategy for each of these ISRA areas.

Soil sample locations, boring logs, and the final planned excavation boundaries for these 12 Phase I ISRA areas are included in appendices to this report (see Section 1.2). SRGs for each ISRA area are listed on figures and tables in appendices to this report.

Following the identification of the ISRA areas for Phase I activities, several preparatory activities were performed prior to implementation as described in Section 2. Once the preparatory activities were completed, the ten final ISRA areas within Outfall 008 and the two ISRA areas within Outfall 009 were excavated and restored as part of the Phase I ISRA activities in 2009. Section 3 provides the details of the excavation and site restoration activities.

ISRA activities are performed to meet the requirements of the CAO, and therefore the Phase I ISRA activities focused on remediation of soil areas considered to be potentially contributing to exceedances of the benchmarks at Outfalls 008 and 009. ISRA Phase I activities did not include investigation or remediation of other types of soil contamination within the Outfall 008 or 009 watersheds, or include activities within other watersheds, since such activity was not directed by the CAO, and overall investigation and cleanup is being addressed under DTSC oversight as part of the currently-ongoing RCRA Corrective Action Program.

However, unanticipated conditions during ISRA Phase I activities did require remedial action in two instances. In the first, an abandoned natural gas pipeline segment adjacent to ISRA Area HVS-2A was identified in a soil collapse feature after vegetation was cleared, and the pipeline was removed under DTSC and RWQCB oversight during ISRA activities. Pipeline removal activities are described in Section 3. In the second, a previously undocumented septic tank was identified within ISRA Area HVS-3, again following vegetation clearance, and this tank was also removed during ISRA activities under DTSC, RWQCB, and Ventura County oversight. Documents related to the septic tank removal are presented in Appendix H.

1.1.4 Agency and Public Involvement

The RWQCB provides primary regulatory oversight of the ISRA project. In addition to the RWQCB, all Phase I ISRA activities were closely overseen by DTSC and the SSFL Surface Water Expert Panel, and Outfall 008 grading activities and the septic tank removal within Outfall 008 were permitted and overseen by Ventura County. Below are additional details of how each agency was involved with the Phase I activities:

- Weekly teleconferences to provide updates on project activities, schedule, and any ongoing issues were held since April 15, 2009 and were attended by Boeing, NASA, RWQCB, DTSC, Ventura County, and the Surface Water Expert Panel,.

- Monthly and quarterly ISRA progress reports were submitted to the RWQCB describing ISRA activities since December 2008 (Boeing, 2009e, 2009i, 2009j, 2009k, 2009o-u).
- ISRA work plans and supplemental plans were submitted to the RWQCB and DTSC for review and comments, and comments were addressed in work plan addenda.
- Draft versions of the ISRA work plans and the ISRA Performance Monitoring Plan were submitted to the Surface Water Expert Panel for review and comments, and comments were addressed prior to finalization.
- The Surface Water Expert Panel developed Containerized Planting Plans for areas within Outfall 008 as part of site restoration.
- During Phase I ISRA implementation (July – December 2009), the RWQCB conducted 25 site visits; DTSC conducted 5 site visits; and Ventura County conducted 6 site visits.
- The RWQCB collected and analyzed 27 split samples of excavation confirmation soil samples at Outfall 008 and Outfall 009 ISRA areas. The RWQCB also collected 5 split samples of the confirmation samples collected after removal of the septic tank, soil collapse feature, and abandoned metal pipeline.
- Excavation confirmation soil sampling results for each ISRA area were provided to the RWQCB and DTSC for review, results were discussed on teleconferences, and approval that SRGs had been achieved was received from the RWQCB prior to excavation backfill and restoration of each ISRA area.
- Boeing, NASA, and the Surface Water Expert Panel gave a presentation on ISRA Phase I progress at the RWQCB public meeting on December 10, 2009.

Public participation during Phase I ISRA activities included public review and comment periods on the Preliminary ISRA Work Plan (MWH, 2009b) and the Final ISRA Work Plan (MWH, 2009c); and three site visits by members of the public between September and December 2009. ISRA documents including work plans, supplemental plans, soil waste characterizations, monthly progress reports, quarterly progress reports, and letter communications with regulatory agencies were made available to the public on the Boeing external web site, on a page dedicated to ISRA, within 10 working days of submittal to the RWQCB, at the following web address: http://www.boeing.com/aboutus/environment/santa_susana/isra.html

1.2 REPORT CONTENT

This data report includes the following four sections and 11 appendices:

- Section 1 presents project background information, describes the scope and objectives of the Phase I ISRA implementation activities, and discusses the involvement of regulatory agencies and the public.

- Section 2 describes the preparation activities that were undertaken prior to Phase I ISRA implementation, including work plan preparation, supplemental plan preparation, permitting, waste characterization sampling, Outfall 008 soil borrow area sampling, and site surveys and site preparation activities.
- Section 3 presents the results of the Phase I ISRA implementation activities, including excavations, Storm Water Pollution Prevention Plan (SWPPP) implementation, and site restoration. It also describes the plan that has been approved and implemented for storm water performance monitoring during the 2009-2010 and 2010-2011 rainy seasons.
- Section 4 presents a summary of the work performed and ongoing.
- Appendix A provides copies of correspondence regarding Phase I ISRA implementation activities.
- Appendix B provides waste certification documents for excavated soils.
- Appendix C presents topographic surveys of Phase I ISRA implementation areas.
- Appendix D provides boring logs for soil samples and trench logs for excavations conducted during Phase I ISRA implementation activities.
- Appendix E presents maps and tables showing pre-excavation and post-excavation soil sampling results and excavation boundaries for Phase I ISRA implementation activities.
- Appendix F provides offsite disposal records for excavated soils that were transported offsite in 2009.
- Appendix G provides laboratory and data validation reports for soil and surface water samples collected during Phase I implementation.
- Appendix H provides documents and correspondence related to the removal of the septic tank within ISRA Area HVS-3 during Phase I implementation activities.
- Appendix I provides photographs of ISRA Phase I activities.
- Appendix J lists the results of surface water samples collected per the ISRA SWPPP.
- Appendix K provides design diagrams for culvert installations performed during 2009 as part of surface water maintenance activities within the Outfall 009 watershed.

2.0 PREPARATION ACTIVITIES

This section describes the preparation activities undertaken prior to Phase I ISRA implementation. Preparation activities included work plan preparation, supplemental plan preparation, obtaining necessary permits, soil waste characterization sampling, development of soil waste profiles, sampling in the Outfall 008 soil borrow area, and conducting site surveys and other site preparation activities.

2.1 WORK PLANS

Two work plans were required by the RWQCB CAO: a Preliminary ISRA Work Plan and a Final ISRA Work Plan. The Preliminary ISRA Work Plan was submitted to the RWQCB on February 13, 2009 (MWH, 2009b), and the Final ISRA Work Plan was submitted to the RWQCB on May 1, 2009 (MWH, 2009c).

2.1.1 Preliminary ISRA Work Plan

Per the RWQCB CAO, a Preliminary ISRA Work Plan was prepared and submitted to the RWQCB on February 13, 2009 (MWH, 2009b). The Preliminary ISRA Work Plan provided the site use, history, land ownership, existing site geologic and hydrologic conditions, and environmental programs generally at the SSFL and specifically within the Outfall 008 and Outfall 009 watersheds. In addition, the Preliminary ISRA Work Plan described the process that would be used to recommend remedial actions within the Outfall 008 and Outfall 009 watersheds. That process is described above in Section 1.1.2. At the time the Preliminary ISRA Work Plan was submitted, the existing data set had been compiled and the ISRA PEAs identified. The Preliminary ISRA Work Plan also included a draft implementation schedule for the remaining work to be performed to complete the ISRA effort.

The DTSC, Ventura County, and members of the public submitted comments on the Preliminary ISRA Work Plan to the RWQCB in March and April 2009 (DTSC, 2009a; Ventura County, 2009a). The RWQCB submitted a letter to Boeing dated April 20, 2009 containing these and additional comments on the Preliminary ISRA Work Plan, and indicated conditional approval of the approach presented for identifying ISRA Areas and selecting remedial technologies for them

(RWQCB, 2009a). These letters are included in Appendix A. The comments and conditional approval requirements presented in these letters were incorporated into the Final ISRA Work Plan. After reviewing the RWQCB conditional approval letter, Boeing submitted a letter to the RWQCB dated April 30, 2009 clarifying a few items from the RWQCB comment letter (Boeing, 2009a). This letter is also included in Appendix A.

2.1.2 Final ISRA Work Plan

The Final ISRA Work Plan was submitted to the RWQCB on May 1, 2009 (MWH, 2009c). The Final ISRA Work Plan supplemented the Preliminary ISRA Work Plan by completing the ISRA Area identification and remedial planning process for the Outfall 008 watershed and one portion of the Outfall 009 watershed near the ELV RFI Site. The Final ISRA Work Plan also described remedial action implementation methods for four preferred remedial action alternatives, site preparation activities, confirmation soil and ISRA performance sampling requirements and procedures, and site restoration activities; and summarized additional remedial action planning activities to be performed for ISRA implementation.

The DTSC submitted comments on the Final ISRA Work Plan to the RWQCB in June 2009 (DTSC, 2009b). The RWQCB submitted letters to Boeing dated June 5 and 10, 2009 containing these and additional comments on the Final ISRA Work Plan (RWQCB, 2009c, 2009d). In response, Boeing submitted an Addendum to the Final ISRA Work Plan to RWQCB on June 19, 2009 (MWH, 2009g). RWQCB indicated its approval of the Final ISRA Work Plan and the Addendum to the Final ISRA Work Plan in a letter to Boeing dated July 7, 2009 (RWQCB, 2009f). These letters are included in Appendix A.

2.1.3 Final Work Plan Amendments

Three amendments to the Final ISRA Work Plan were prepared: a letter Addendum to the Final ISRA Work Plan (MWH, 2009g); a Work Plan Letter Amendment, HVS-2A Soil Collapse Feature and Pipeline Summary and Plan (MWH, 2009p); and a Work Plan Addendum for Additional Work in the Outfall 009 Watershed (NASA, 2009). A summary of the contents of each is provided below. Additionally, a work plan for removal of the septic tank discovered at Happy Valley South (MWH, 2009r) was submitted to the RWQCB on October 9, 2009, and is included in Appendix H.

2.1.3.1 Response to Agency Comments

An Addendum to the Final ISRA Work Plan was submitted to the RWQCB on June 19, 2009 (MWH, 2009g), to respond to RWQCB and DTSC comments on the Final ISRA Work Plan. This Addendum is included in Appendix A.

2.1.3.2 HVS-2A Soil Collapse Feature and Pipeline Summary and Plan

The HVS-2A Soil Collapse Feature and Pipeline Removal Summary and Plan, Letter Amendment to the Final ISRA Work Plan, was submitted to the RWQCB on September 18, 2009 (MWH, 2009p). This document was prepared when a portion of a buried abandoned metal pipeline and a soil collapse area were identified adjacent to Outfall 008 ISRA Area HVS-2A at the beginning of Phase I remedial activities. The Letter Amendment summarized historical information, the results of a geophysical survey and trench investigations confirming the locations of the terminations of the pipeline segment, and results of samples of the pipeline wrapping and collapse feature soils. The Letter Amendment also presented a plan for the removal of the pipeline segment, the management and disposal of soils excavated during the pipeline removal effort, and confirmation sampling of the pipeline removal trench. RWQCB sent a letter dated September 29, 2009 to Boeing indicating approval of this plan (RWQCB, 2009k). The Letter Amendment and RWQCB correspondence are included in Appendix A.

2.1.3.3 ISRA Areas A2LF-1 and A2LF-3

ISRA Areas A2LF-1 and A2LF-3 in the Outfall 009 watershed on NASA property were identified for Phase I remedial activity after the Final ISRA Work Plan had been submitted and approved, as described in Section 1.1.3 above. Therefore, a request for approval of the additional work at these ISRA areas was sent to the RWQCB on September 18, 2009 (NASA, 2009). This request presented results of additional soil sampling for ISRA Area delineation, final excavation boundaries, a table summarizing the remedial actions for the two ISRA areas, and a plan for Best Management Practices (BMP) installations at the ISRA areas.

RWQCB sent a letter to NASA on September 30, 2009 requesting clarification of the planned work (RWQCB, 2009l), and additional information and clarifications were sent to RWQCB on October 14, 2009 (CH2M Hill, 2009). DTSC indicated concurrence in a letter to the RWQCB dated November 4, 2009 (DTSC, 2009e), and the RWQCB sent a letter to NASA on

November 4, 2009 approving the additional work at A2LF-1 and A2LF-3 (RWQCB, 2009n). These correspondences are included in Appendix A.

2.2 SUPPLEMENTAL PLANS

Following work plan development, the supplemental plans listed below were prepared to support Phase I ISRA implementation. These supplemental plans were submitted to the RWQCB and DTSC prior to the commencement of applicable Phase I activities. Review comments on the supplemental plans were provided by RWQCB and DTSC, and Response to Comments (RTC) memoranda and plan amendments were submitted to RWQCB and DTSC for approval prior to Phase I implementation. Regulatory correspondence and RTC memoranda are provided in Appendix A.

- Soil Management Plan (SMP) (MWH, 2009h), which described procedures for waste soils characterization, soil handling, and stockpile and container management; in response to agency review comments, addenda to the SMP were prepared (MWH, 2009l and 2009m);
- ISRA SWPPP (MWH, 2009f), which described erosion control and storm water pollution prevention measures for the ISRA project area; in response to agency review comments, a revised SWPPP and response to comments memorandum were prepared (MWH, 2009j and 2009n);
- Transportation Plan (MWH, 2009d), which identified procedures for loading, SSFL entry and egress, and transportation of soil waste of public roads, and provided a plan for minimizing potential health, safety, and environmental risks that may result during these activities; in response to agency review comments, an amendment to the Transportation Plan was prepared (MWH, 2009k);
- Health and Safety Plan Addendum 23 to the RCRA Facility Investigation Health and Safety Plan (MWH, 2009e), which describes overall health and safety requirements for the ISRA project tasks;
- Health and Safety Plan, Addendum 25 for Wildfire Smoke Conditions (MWH, 2009o), prepared in response to wildfire smoke conditions at SSFL from the Station Fire in late August and early September 2009;
- Health and Safety Plan Addendum 26 for Asbestos Pipeline Removal (MWH, 2009q), prepared to support removal of the abandoned pipeline segment adjacent to ISRA Area HVS-2A after that pipeline was determined to have an asbestos-containing pipe wrapping;
- Technical Report, Revegetation in the Outfall 008 Watershed, October 30, 2009 (Josselyn, 2009), prepared to provide recommendations for the installation of plant materials to prevent soil erosion in the Outfall 008 watershed, and,

- Performance Monitoring Plan, (MWH, 2010), which describes the sampling and analysis plan for performance monitoring at ISRA areas; RWQCB approved this plan in a letter dated February 3, 2010 (RWQCB, 2010).

2.3 PERMITTING

Permitting activities were conducted after submittal of the Final Work Plan, as required by Item 7 of the CAO. All necessary permits were obtained prior to beginning remediation activities and included the following:

- Clean Water Act (CWA) Section 404, Nationwide Permit (NWP) 38 (Cleanup of Hazardous and Toxic Waste), from the U.S. Army Corps of Engineers (USACE), for jurisdictional waters at ISRA Area DRG-1 (other Phase I ISRA Areas were determined by USACE to be outside their jurisdiction) (Boeing, 2009b, 2009g; USACE, 2009a, 2009b);
- CWA Section 401 Pre-Certification Notification to RWQCB for Phase I ISRA Areas in the Outfall 008 and 009 watersheds (Boeing, 2009c, 2009f; RWQCB, 2009e, 2009i);
- Determination that Phase I activities were covered under an existing Amendment to Streambed Alteration Agreement (SAA) No. 1600-2003-5052-R5 with the California Department of Fish and Game (CDFG) (Boeing, 2009d; CDFG, 2009);
- Notice of Intent (NOI) for coverage under the General Construction Storm Water Permit (Water Quality Order 99-08-DWQ) and Modifications, administered by the State Water Resources Control Board (SWRCB) (SWRCB, 2009);
- Grading Permit from Ventura County for Phase I ISRA Areas located on non-Federal property, including the Outfall 008 ISRA areas (MWH, 2009i; Boeing, 2009m), approved by Ventura County on August 20, 2009 ; and
- Tree permit AD09-0086 from Ventura County, to remove one small *Quercus agrifolia* (Coast Live Oak) at ISRA Area HVS-1, and to conduct excavation activities in the vicinity of another *Quercus agrifolia* within ISRA Area HVS-2A (Ventura County, 2009b).

Correspondence relevant to these permits is included in Appendix A. In addition, a tank removal permit for removal of the underground septic tank identified within ISRA Area HVS-3 was obtained from Ventura County (Ventura County, 2009c). The Ventura County tank removal permit is included in Appendix H.

2.4 WASTE CHARACTERIZATION SAMPLING

The guidelines presented in “Test Methods for Evaluating Solid Waste, Physical/Chemical Methods”, U.S. Environmental Protection Agency (USEPA) publication SW-846, were followed

to characterize soil removed from the ISRA excavations as either nonhazardous or hazardous waste for disposal purposes, as described in the ISRA SMP (MWH, 2009h). To facilitate this, *in situ* waste characterization soil samples were collected from Phase I ISRA areas after the excavation boundaries were finalized and prior to beginning remedial activities. The number of waste characterization samples required for each ISRA area was determined based on the planned excavation volume. *In situ* waste characterization samples were collected from random locations within each ISRA area, with sample locations determined by randomly-generated coordinates within the ISRA area boundary. In two cases, additional *ex situ* waste characterization samples were collected from stockpiles after excavation was conducted. Sample locations and results for waste characterization samples are shown in Appendix E. Boring logs for waste characterization samples are included in Appendix D.

Waste characterization samples were analyzed for the full suite of metals and collocated RCRA risk drivers. Dioxins were not analyzed because the level of dioxins in soil was not expected to exceed hazardous waste criteria based on the results of samples within each ISRA area. In addition, all waste characterization samples were analyzed for the radiological constituents listed below. The radionuclide sampling and analysis protocol for waste characterization sampling was the same as that used for the Northern Drainage cleanup action approved by DTSC. Laboratory requirements for radionuclide analysis were presented in the ISRA SMP (MWH, 2009h), as indicated below:

- Gamma-emitting radionuclides by USEPA Method 901.1;
- Strontium-90 by USEPA Method 905.0; and
- Tritium by USEPA Method 906.0.

The results of waste characterization samples were used to develop chemical and radiological waste certifications prepared by Boeing. Chemical waste certifications classified waste soils from each ISRA area as nonhazardous or hazardous, pursuant to Title 22 of the California Code of Regulations (CCR). Radiological waste certifications identified the amount of radionuclides in waste soils compared to local soil background and human health standards. These waste certifications are included in Appendix B. The nonhazardous or hazardous classification and the

outcome of radiological analyses of waste soils from each ISRA area are listed in Section 3 tables.

2.5 OUTFALL 008 SOIL BORROW AREA SAMPLING

A local soil borrow source was used for fill during recontouring of excavations in Outfall 008. The soil borrow area was located within the Outfall 008 watershed adjacent to ISRA Area HVS-2A, but in an area that has not been impacted by operational activities. Prior to use, samples were collected from the soil borrow area and analyzed for the following ISRA COCs and other site-related chemicals of potential concern:

- Metals by USEPA Method 6010B/6020/7471A;
- Dioxins by USEPA Method 1613B;
- Polychlorinated biphenyls (PCBs) by USEPA Method 8082;
- Semi-volatile organic compounds (SVOCs) by USEPA Method 8270C SIM;
- Perchlorate by USEPA Methods 314.0 DI-WET and 6850; and
- Total Petroleum Hydrocarbons (TPH) by USEPA Method SW8015BM.

Soil borrow area sample results did not exceed the SRGs for ISRA COCs. Soil borrow area sampling results were provided to the RWQCB and DTSC for review and approved for use as backfill within the Outfall 008 ISRA area excavations prior to beginning restoration activities. Soil borrow area sample results are discussed in Section 3 and shown with other ISRA Phase I sample results in Appendix E figures and tables. Boring logs for soil borrow area samples are included in Appendix D.

2.6 SITE SURVEYS AND SITE PREPARATION ACTIVITIES

The following site surveys and site preparation activities were conducted prior to the Phase I ISRA implementation:

- Biological surveys of planned Phase I ISRA areas, conducted by Padre, Inc., (Padre, 2009a-c). The biological surveys were performed to identify the presence of sensitive species and to help prepare potential relocation and/or mitigation options, and to ensure compliance with the CDFG SAA.
- Archaeological assessment of planned Phase I ISRA areas within Outfall 008, conducted by W and S Consultants (W and S, 2009). The archeological assessment was performed to identify the potential for adverse impacts to cultural resources. Results of the

archaeological survey report for Boeing property within Outfall 008 were summarized in a letter to RWQCB.

- Archaeological assessment of planned Phase I ISRA areas within the Outfall 009 watershed (NASA property) was conducted by CH2M Hill to identify the potential for adverse impacts to cultural resources. The archaeological survey report for NASA property within Outfall 009 was provided to the California State Historic Preservation Office (SHPO); NASA received concurrence from California SHPO on August 3, 2009 and submitted the report to the South Central Coastal Information Center, California State University, Fullerton.
- Pre-excavation aerial topographic survey of planned Phase I ISRA areas within the Outfall 008 watershed, conducted by Sage Consultants, Inc.. Pre-excavation topographic survey drawings are included in Appendix C-1.
- Storm water BMP installation, per the SWPPP, on August 10-13, 2009 for planned Phase I ISRA areas within Outfall 008, and on September 25, 2009 for planned Phase I ISRA areas within Outfall 009.
- Underground utility survey prior to advancement of all planned soil sampling and prior to Phase I implementation excavation.
- Vegetation clearance of all planned Phase I implementation excavation areas.

3.0 PHASE I REMEDIAL ACTION IMPLEMENTATION SUMMARY

During Phase I implementation, remedial actions were conducted at the ten ISRA areas within the Outfall 008 watershed and the two ISRA areas within the Outfall 009 watershed on NASA property. The recommended remedial alternative identified for each of the Outfall 008 and 009 ISRA areas was excavation and offsite disposal, as described above in Section 1.1.3. Remedial actions consisted of installing and inspecting erosion control BMPs per the ISRA SWPPP, excavating soil, transporting soil to an offsite disposal facility, collecting confirmation soil samples, backfilling excavations, completing site restoration, performing post-excavation and post-restoration topographic surveys, and conducting performance monitoring storm water inspections and sampling. These activities are described in more detail below.

3.1 OUTFALL 008 EXCAVATION SUMMARY

Excavations were conducted at Outfall 008 Phase I ISRA areas, with work practices in accordance with the ISRA supporting plans (MWH, 2009d-f, 2009h, 2009j). The total volume of soil excavated from Outfall 008 ISRA areas was approximately 5,200 cubic yards (cy) (*ex situ* estimate). Outfall 008 excavation activities began on August 25, 2009 and were completed on October 19, 2009. Contractors conducting the remedial activities were MPE (heavy equipment operation), EnviroSolve (geologic logging and sample collection), and MWH (field oversight). In addition, an unexploded ordnance (UXO) monitor was on site as required by facility land use modifications; UXO monitoring was conducted by EcoMunitions. Equipment used during excavations included an excavator, a water truck, a haul truck, a vacuum truck, and a portable office trailer. A summary of the excavation details for each ISRA area, including the ISRA COCs and collocated RCRA risk drivers, planned and actual excavation surface areas and volumes, backfill volumes, excavation depths, numbers of waste characterization and confirmation samples collected, numbers of RWQCB split samples collected, and soil waste classifications, is provided in Table 3-1. Trench logs for the excavations are included in Appendix D.

Additional details of excavation activities are as follows:

- An abandoned natural gas pipeline segment was identified in a soil collapse feature within ISRA Area HVS-2A after vegetation was cleared. The soil collapse feature and associated pipeline segment was investigated for metals, energetics, TPH, PCBs, SVOCs, VOCs, and asbestos, as described in the HVS-2A Soil Collapse Feature and Pipeline Removal Summary and Plan, Letter Amendment to the Final ISRA Work Plan (MWH, 2009p). Under RWQCB and DTSC oversight, the soil collapse feature was excavated, the pipeline segment was removed, and confirmation soil sampling was performed between October 2 and 6, 2009. Additional excavation along the pipeline trench was conducted on October 19, 2009 to remove soils associated with confirmation samples with PCBs exceeding screening levels. Pipeline and soil collapse feature characterization and confirmation sample boring logs are included in Appendix D, and sample locations and results are included in Appendix E.
- A previously undocumented septic tank was identified within ISRA Area HVS-3 after vegetation was cleared. Under RWQCB, DTSC, and Ventura County oversight, the septic tank was removed and confirmation sampling was performed on October 29, 2009. Documents pertaining to septic tank removal activities are provided in Appendix H. Sampling results for water contained in the septic tank were provided in the Happy Valley South Underground Septic Tank Removal Plan (MWH, 2009r), included in Appendix H. A detailed summary of the septic tank removal activities and excavation confirmation soil sample results are also provided in Appendix H. Boring logs for tank excavation confirmation soil samples are included in Appendix D.
- During excavation activities at HVS-3, a transformer approximately 10 x 20 feet in size, the concrete pad under the transformer, and a 5 x 5 foot concrete pad associated with a former electrical shed were removed on September 21, 2009. These features had been investigated during the Group 1A RFI Report (MWH, 2009a). During the Group 1A RFI investigation, soil samples collected near the concrete pad associated with the former electrical shed were analyzed for PCBs; results were all non-detect.
- Regulatory agencies conducted site visits on 15 days during Phase I implementation activities (14 RWQCB visits, 4 DTSC visits, and 4 Ventura County visits).
- A public site walk was held on September 23, 2009; a site tour for representatives from the Acorn newspaper was held on October 2, 2009; and a site tour for West Hills community representatives was held on December 1, 2009.

After the excavations at the Phase I ISRA areas within Outfall 008 were completed, confirmation soil samples were collected from the sidewalls and floors of the excavations, at frequencies specified in the Final ISRA Work Plan, to confirm that SRGs were met. Data gap samples that remained in place along the sidewalls of excavations were also used for confirmation sample purposes, with the approval of the RWQCB. The number of confirmation samples collected at each ISRA area is provided in Table 3-1. Confirmation sample locations are shown in

Appendix E figures, and confirmation sample results are listed in Appendix E tables. Confirmation soil samples were also collected from the HVS-2A pipeline removal trench; these are also shown in Appendix E Figure E-5.2. Soil associated with confirmation samples with results exceeding SRGs, such as at HVS-3 and HVS-2B-1, was subsequently removed. The remediation status of confirmation samples with results above SRGs are, therefore, listed as “Excavated” in Appendix E tables. If the additional excavation did not contact bedrock, additional confirmation samples were collected.

Soil management was conducted as specified in the ISRA Transportation Plan (MWH, 2009d) and the ISRA SMP (MWH, 2009h). Excavated soil was loaded directly into haul trucks and transported to a temporary stockpile location at the Lower Parking Lot near the SSFL facilities entrance. Soil excavated from HVS-2B-1 on September 14, 2009 and soil excavated from the HVS-2A pipeline trench, HVS-2D, and HVS-3 on October 19, 2009 were temporarily stored in stockpiles and *ex situ* stockpile samples were collected for waste characterization purposes. All waste soils from Outfall 008 were classified as nonhazardous and were transported to Antelope Valley Recycle and Disposal Facility in Palmdale, California, for disposal. Offsite disposal of Outfall 008 waste soils was completed on November 30, 2009. Offsite disposal records, including a summary of offsite disposal records and waste manifests, are provided in Appendix F.

Confirmation sample location maps and results tables for each ISRA area were provided to RWQCB for review and approval prior to backfill and site restoration. Following review of the confirmation sampling data, RWQCB concurred that excavation was complete at each ISRA area and restoration activities could proceed. Results for ISRA COCs in samples remaining in place are shown in Figure 3-1.

A post-excavation aerial topographic survey was conducted by Sage Consultants, Inc., on November 13, 2009, after all Outfall 008 excavations were completed and confirmation samples were approved by the RWQCB, and prior to the beginning of recontouring activities. Post-excavation topographic survey drawings are included in Appendix C-2.

3.2 OUTFALL 009 EXCAVATION SUMMARY

Excavations were conducted at Outfall 009 Phase I ISRA areas, with work practices in accordance with the ISRA supporting plans (MWH, 2009d-f, 2009h, 2009j). The total volume of soil excavated from Outfall 009 ISRA areas was approximately 180 cy (*ex situ* estimate). Outfall 009 excavation activities began on November 6, 2009 and were completed on November 12, 2009. Contractors conducting the A2LF-1 remedial activities were MPE (vacuum truck operation), Aerotek (geologic logging and sample collection), and MWH (field oversight). Contractors conducting the A2LF-3 remedial activities were B.L. Hall and MPE (heavy equipment operation), Envirosolve (geologic logging and sample collection), and MWH (field oversight). Equipment used during excavations included an excavator, a water truck, a haul truck, a vacuum truck, and hand tools. The RWQCB conducted site visits on two days during remedial activities within Outfall 009. A summary of the excavation details for each ISRA area, including the ISRA COCs and collocated RCRA risk drivers, planned and actual excavation surface areas and volumes, excavation depths, numbers of waste characterization and confirmation samples collected, numbers of RWQCB split samples collected, soil waste classifications, and number of truckloads for offsite disposal, is provided in Table 3-1. Trench logs for the excavations are included in Appendix D.

After the excavations at the Phase I ISRA areas within Outfall 009 were completed, confirmation soil samples were collected from the sidewalls and floors of the excavations, at frequencies specified in the Final ISRA Work Plan, to confirm that SRGs were met. Data gap samples that remained in place along the sidewalls of excavations were also used for confirmation sample purposes, with the approval of the RWQCB. The number of confirmation samples collected at each ISRA area is provided in Table 3-2. Confirmation sample locations are shown in Appendix E figures, and confirmation sample results are listed in Appendix E tables. All confirmation samples were below SRGs. A post-excavation aerial topographic survey was not conducted since both excavation areas were relatively small.

Soil management was conducted as specified in the ISRA Transportation Plan (MWH, 2009d) and the ISRA SMP (MWH, 2009h). The removed soil was loaded into bins and stored in a temporary location at the parking lot adjacent to the helipad west of the ELV RFI Site for

shipment in 2010. Waste soils from A2LF-1 were classified as nonhazardous, and soils from A2LF-3 were classified as hazardous for lead.

Confirmation sample location maps and results tables for each ISRA area were provided to RWQCB for review and approval prior to backfill and site restoration. Following review of the confirmation sampling data, RWQCB concurred that excavation was complete at each ISRA area and restoration activities could proceed. Results for ISRA COCs in samples remaining in place are shown in Figure 3-2.

3.3 SWPPP IMPLEMENTATION

Erosion control BMPs were installed at the Outfall 008 ISRA areas between August 10 and 13, 2009, and at the Outfall 009 ISRA areas on September 25, 2009, prior to the start of remediation activities, per the ISRA SWPPP. Weekly BMP inspections have been conducted during the rainy season per the ISRA SWPPP, beginning on October 14, 2009. BMP conditions have been documented during inspections, and BMP repairs and maintenance have been performed on an ongoing basis.

Two rain events occurred during Phase I excavation activities, including a rain event between October 13 and 14, 2009, during excavation activities at Outfall 008, and between December 7 and 12, 2009, prior to the completion of site restoration at A2LF-3, but after the completion of site restoration at all other ISRA areas. In anticipation of and prior to these rain events, all in-progress ISRA area excavations were covered with plastic tarps to control soil migration. During the October 2009 rain event, SWPPP samples were collected downgradient of Outfall 008 ISRA Areas HVS-2B-2 and HVS-2C. During the December 2009 rain event, SWPPP samples were collected downgradient of Outfall 009 ISRA Area A2LF-3. The sample locations and results for the Outfall 008 SWPPP samples are provided in Appendix J figures and tables. Following these rain events, BMPs were repaired or replaced as necessary.

3.4 SITE RESTORATION

Restoration of each Phase I ISRA area was performed after RWQCB concurred that the excavation was complete, based on a comparison of confirmation sample results to SRGs. Site

restoration consisted of excavation backfill, excavation recontouring, installation of natural BMPs, and/or installation of erosion control BMPs, as described below.

3.4.1 Outfall 008 ISRA Areas

Site restoration at the ten Outfall 008 ISRA areas began on November 20, 2009, and was completed on December 4, 2009. Excavations were backfilled using soil from the soil borrow area adjacent to HVS-2A, as described in Section 2.5, and/or adjacent soils were recontoured. Restored excavations approximately matched the previously existing topographic grade and sloped to ensure there were no areas where water might pond. Erosion control BMPs including fiber rolls, hay bales, silt fences, and hydroseed mulch were installed on and near the restored excavations.

In addition, a plan to install natural erosion control BMPs in the Outfall 008 watershed was developed by the Surface Water Expert Panel, as described in Section 2.2 above (Josselyn, 2009). The natural BMPs consist of plants and plant materials that originally were being grown for use in Engineered Natural Treatment Systems (ENTS) that were planned prior to the issuance of the CAO directing the performance of ISRA activities in the Outfall 008 watershed program. To prevent soil erosion in the Outfall 008 watershed, containerized plants were planted in several topographic lows within and adjacent to the drainages from the HVS RFI Site and the Canyon RFI Site, and near the ISRA areas; and mulefat wattles were constructed and placed at several points within the drainage from HVS RFI Site. The natural BMPs were installed on November 4 and 5, 2009. The natural BMP installation locations are shown in Figure 3-3.

A post-restoration aerial topographic survey of the Outfall 008 watershed was conducted by Sage Consultants, Inc., on December 18, 2009, after Outfall 008 excavation backfill and recontouring activities were completed. Post-restoration topographic survey drawings are included in Appendix C-3.

3.4.2 Outfall 009 ISRA Areas

Site restoration at the two Outfall 009 ISRA areas began on November 24, 2009, and was completed on January 15, 2010. Site restoration at A2LF-1 consisted of recontouring adjacent soils and installation of erosion control BMPs (fiber rolls and hydroseed mulch). Site restoration

at A2LF-3 consisted of recontouring adjacent soils and installing a new culvert headwall, followed by erosion control BMPs (rip-rap, fiber rolls, plastic tarp, sandbags, and hydroseed mulch). Restored excavations approximately matched the previously existing topographic grade and sloped to ensure there were no areas where water might pond. A post-restoration aerial topographic survey was not conducted for Outfall 009 Phase I ISRA areas since these excavations were relatively small.

As part of the SSFL surface water maintenance program, culvert upgrades were also performed at 12 culverts within the Outfall 009 watershed in early 2009. These culvert maintenance actions included installation of culvert headwalls and filtration media to reduce sediment loads in storm water discharging into the primary Outfall 009 drainage. The design of the culvert maintenance actions was completed by Geosyntec consultants under direction of the Surface Water Expert Panel. Although these culvert maintenance (CM) actions were not specifically installed to address potential ISRA areas, some of them occurred within ISRA PEAs identified in the ISRA work plans. As such, these CM actions have been included in this ISRA implementation report and as part of the ISRA Performance Monitoring Plan (MWH, 2010). Culvert design diagrams are provided in Appendix K.

3.5 PERFORMANCE MONITORING

A Performance Monitoring Plan was developed for monitoring surface water at Phase I ISRA areas after remediation and site restoration are complete, and at selected culverts within the Outfall 009 watershed (MWH, 2010). Per the plan, storm water runoff samples are collected once per rain event, if surface water flow is observed, at locations upgradient and downgradient of completed ISRA areas and at selected culverts within the Outfall 009 watershed. Performance monitoring samples are analyzed for the ISRA COCs for that ISRA area and screened against NPDES permit benchmarks for comparison and evaluation purposes only.

Performance monitoring at the Phase I ISRA areas and selected culverts is ongoing during the 2009/2010 rainy season, and is planned to continue through the 2010/2011 rainy season. Performance monitoring sampling results from the 2009/2010 rainy season are being reviewed

with the RWQCB and DTSC on an ongoing basis as data are received, and will be presented in the first ISRA quarterly progress report after the end of the 2009/2010 rainy season. Similarly, performance monitoring sampling results from the 2010/2011 rainy season will be reviewed with the RWQCB and DTSC on an ongoing basis as data are received, and will be presented in the first ISRA quarterly progress report after the end of the 2010/2011 rainy season.

4.0 SUMMARY AND ONGOING WORK

Phase I ISRA remedial activities during 2009 consisted of excavation and site restoration at ten ISRA areas in the Outfall 008 watershed on Boeing property and two ISRA areas in the Outfall 009 watershed on NASA property. A total of approximately 5,200 cy (*ex situ*) of soil was removed from Outfall 008 ISRA Area excavations, and approximately 180 cy (*ex situ*) of soil was removed from Outfall 009 ISRA area excavations. Confirmation sampling and analysis results indicate that the soil remaining in place at the 2009 Outfall 008 and 009 ISRA areas contain ISRA COCs at concentrations that are below or consistent with the ISRA SRGs. The RWQCB and DTSC reviewed the confirmation sampling data, and agreed that the soil removal actions at these areas were complete prior to implementing restoration activities.

Restoration activities at Outfall 008 ISRA areas included backfilling excavations using a local soil borrow source approved by RWQCB and DTSC, recontouring the areas to approximately pre-existing topographic grades, and installing natural and construction BMPs to prevent erosion. Restoration activities at the Outfall 009 A2LF-1 ISRA area included recontouring the area to approximately pre-existing topographic grade, and installing construction BMPs to prevent erosion. Site restoration at the Outfall 009 A2LF-3 ISRA area at culvert CM-1 consisted of installation of a new culvert headwall and additional erosion control BMPs.

Performance monitoring of storm water runoff upgradient and downgradient of the Phase I ISRA areas and selected Outfall 009 culverts is currently ongoing for the 2009/2010 rainy season, and will be reported in the first ISRA Quarterly Progress Report after the end of the rainy season. Performance monitoring at Phase I ISRA areas and selected Outfall 009 culverts is planned to continue through the end of the 2010/2011 rainy season. Also, additional containerized native plants were installed in Outfall 008, and BMP/SWPPP inspections have continued in both outfalls throughout the rainy season.

Preparation of the 2010 ISRA Work Plan Addendum is in progress, including additional data gap and delineation sampling of the remaining Outfall 009 ISRA PEAs, preparation of permitting packages, and conducting biological surveys to support the planned 2010 activities. The 2010 ISRA Work Plan Addendum is scheduled to be submitted to the RWQCB for review by April 30, 2010.

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