Department of Toxic Substances Control

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December 11, 2012

Mr. Arthur Lenox
The Boeing Company
Environmental Remediation
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DTSC REVIEW OF NOTIFICATION PACKAGE FOR PLANNED DEMOLITION OF BUILDING 011 PHASE I, BOEING, SANTA SUSANA FIELD LABORATORY, VENTURA COUNTY, CALIFORNIA

Dear Mr. Lenox:

The Department of Toxic Substances Control (DTSC) reviewed The Boeing Company's (Boeing) document *Notification of Planned Demolition for Building 011 (Area 4), Boeing Santa Susana Field Laboratory* (Building 011 High Bay Demo Package), dated November 7, 2012. This document was submitted under the requirements of a February 11, 2010 DTSC letter to Boeing, which allows DTSC thirty days to review and comment on Boeing's proposals for SSFL Building and structure demolitions.

Boeing's Building 011 consists of two sections. The high-bay section (the portion proposed for demolition in the submitted document) is classified as a non-radiological building, and was used primarily for aerospace property warehousing, manufacturing support, administration, and machine work. The adjacent low-bay section of Building 011 will not be demolished as part of the proposed effort. This structure was classified as a radiological building, and was formerly used as a calibration and maintenance lab for radiation instrumentation. It was surveyed and released for unrestricted use by the California Department of Public Health (CDPH) in 1998, and resurveyed later by the US Environmental Protection Agency (US EPA) in 2002. We understand that the low-bay will be proposed for demolition under a separate phase 2 Building 011 notification document, anticipated for submittal to DTSC in 2013.

DTSC's evaluation of the Building 011 Demo Package included two pre-demolition site walks and an inspection conducted on October 21 and November 29, 2012, an examination of the pertinent aspects of the November 2008 Group 5 Draft Resource Conservation and Recovery Act Facility Investigation (RFI) Report, the May 2012 Gold Copy SSFL Geographic Information System (GIS) Database, and Boeing, CDPH and US EPA radiological survey reports from 1998 and 2002 (building surveys), and 2012 (soils).

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Based on our review, DTSC provides the following comments:

1. Impacts to RFI Program Chemical Soil Investigation.

   a. If implemented in accordance with the Building 011 Package and DTSC's recommendations that follow, the proposed demolition and removal of the Buildings, equipment, support structures and paved areas from the site should not disturb chemically-impacted soil or other impacted surficial media currently under investigation by the SSFL Remedial Investigation (RI) program.

   b. The proposed actions do not merit preparation of a more detailed work plan for the demolition, of the type referenced in Boeing's February 2010 Draft Building Demolition Standard Operating Procedures (SOP), and required by DTSC's February 11, 2010 letter to Boeing.

2. Building Documentation. The condition of Building 011 was documented in November 2008, and is reported in the *Boeing Area IV Leach Field – Building Feature Documentation Log*, included as an Attachment to Appendix D of the November 2008 Group 5 RFI Report. Any features that are observed during structure demolition found to be relevant to soil investigations should be noted and added to the survey in support of the ongoing SSFL Area IV data gap soil investigations. In particular, any undocumented outfalls to the Area IV Boeing Building 011 Leach Field soil investigation area should be noted and accurately located.

3. Radiological Screening. DTSC's comments and recommendations on the radiological screening conducted at Building 011 are as follows:

   a. Based on a review by DTSC staff qualified in nuclear health physics (see the attached memorandum), the radiological screening of accessible portions of Building 011 as reported in the document was performed to accepted regulatory and industry standards, and the resulting data is adequate to conclude that fixed and removable radionuclide contaminants are not present above background activity levels at the Building 011 demolition area or in demolition materials identified for disposal and recycling.
   b. Currently inaccessible portions of the Building 011 concrete slab, surrounding concrete ground cover, and paved asphalt surfaces should be radiologically screened before this material is removed from the site.
   c. DTSC consultation with CDPH confirmed that Building 011 is classified as a Non-Radiological Building under the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) criteria. DTSC also discussed the radiological screening methods used at Building 011 with US EPA staff to evaluate their adequacy and applicability.
   d. DTSC concurs that the results of both the US EPA 2010-2011 surface gamma scans and radiological soil samples at SSFL Area IV show that no significantly elevated surficial radionuclide contamination, which indicate a possible release

or would affect the building removal operations, is present in soils near or around Building 011. DTSC notes the presence of ten soil samples with cesium-137 exceeding the preliminary radiological screening levels, none of which are closer than 400 feet of Building 011.

e. The section of the Radiological Waste Certification Report titled "USEPA Data from the Surrounds of Building 4011" discusses the significance of the nearby USEPA radiological soil sample results in the context of risk-based exposures. The risk-based evaluation and discussion of the USEPA sample results included in the document is not relevant to demolition-related analyses or conclusions, and DTSC's conclusions are based solely on our evaluation of the site history, site inspections, and the direct characterization data presented in the document.

f. Radiological screening of a ceramic sink in Building 011 revealed beta activity in excess of the general release criteria. Based on extensive sink outfall monitoring, follow up scans, and onsite observations, DTSC concurs that the sink ceramic material itself is the source of the elevated activity. DTSC concurs with the decision to segregate the sink for appropriate disposal after the completion of focused radionuclide analysis of a sample of the sink material.

g. DTSC comments on the Building 011 radiological characterization are specific to this structure. Future Boeing Area IV Buildings proposed for demolition may require additional focused radiological screening, to be determined by DTSC, based on site-specific conditions.

4. Asphalt and Roadbase Chemical Screening and Disposal. DTSC concurs with the characterization and disposition recommendations for the asphalt and roadbase material in and surrounding Building 011. DTSC notes the presence of lead and chromium detected in yellow traffic control lines painted on asphalt surfaces, and the plan to segregate and handle this material as hazardous waste. Following the additional radiological screening described in item 3b (above), the proposed asphalt disposal methods are considered appropriate.

5. Concrete Chemical Screening and Disposal. DTSC concurs with the concrete inspection, chemical characterization and waste disposal information reported in the Building 011 Demo Package. Of note is the presence, in several sampled areas, of Total Petroleum Hydrocarbons and the regulated metals chromium and cadmium. These results are consistent with several detections of these same constituents in concrete samples collected at previous SSFL demolition sites. Following the additional radiological screening described in item 3b (above), the proposed concrete disposal methods are considered appropriate. During demolition, concrete designated for recycling should be segregated and managed separately from the concrete designated for landfill disposal.

6. Interior Paint and Leveling Table Fluid Characterization and Disposal. DTSC concurs that the chemical characterization sampling and analyses performed for painted wall surfaces and leveling table fluids removed from B 011 are appropriate, and the results support the proposed Class I and Class 2 landfill disposal options for the solid material, as well as the industrial wastewater disposal method for the fluids.

7. Materials Removed from Building 011 Prior to Demolition. Hazardous construction materials such as asbestos, insulation, electronic waste, and fluids were removed from Building 011 in September and October of 2012, and were being stored temporarily onsite for 90 days, pending DTSC's review of their screening data. As we communicated to Boeing in an email dated December 5, 2012, DTSC concluded that this material is suitable for offsite shipment to the facilities proposed. We also concur that metal shelving and other metal waste, removed from Building 011 and currently being stockpiled to the east of the building, have been adequately screened for recycling purposes.

8. SOP Amendment 1 for Area IV. DTSC concurs that the October 2012 Amendment 1 to Boeing's Building Demolition SOP should be applied in the demolition of the high-bay of Building 011. This update to the February 2010 Boeing SOP includes updated worker notification and administrative controls for the demolition of structures near radiological-classified buildings.

DTSC will plan to be onsite periodically throughout the demolition process to assure that the proposed activities and waste management procedures are implemented in accordance with the Building 011 Demo Package and the Boeing Building Demo SOP, and are consistent with the SSFL RFI surficial media program and applicable Hazardous Waste regulations. DTSC will also observe the additional radiological screening recommended in item 3b, above. Onsite demolition oversight may include a review of relevant demolition documentation, including pre-demolition activities such as Building abatement.

If you have any questions regarding the content of this letter, please contact me at Paul.Carpenter@dtsc.ca.gov, or (916) 255-3691.

Sincerely,

Paul Carpenter, C.HG
DTSC SSFL Senior Engineering Geologist

Attachment: *Review Memorandum for Building 011 Radiological Certification and Release*

cc: (via e-mail)

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MEMORANDUM

TO: Paul Carpenter
Senior Engineering Geologist
Brownfields & Environmental Restoration Programs

FROM: Valerie Chenoweth-Brown
Senior Health Physicist
Brownfields & Environmental Restoration Program

DATE: December 10, 2012

SUBJECT: COMMENTS ON – NOTIFICATION OF PLANNED DEMOLITION FOR BUILDING 011 (AKA BUILDING 4011), AREA 4, BOEING, SANTA SUSANA FIELD LABORATORY, VENTURA COUNTY, CALIFORNIA

PCA 22120 Site Code 300232 WP 48

DOCUMENTS REVIEWED

Work Scope Information for Removal of Buildings and Structures November 6, 2012 (Attachment A); In-Situ Asphalt, Roadbase, Paint and Concrete Characterization Report October 2012 (Attachment B); Waste Characterization Analytical Results (Appendix A); Sample Collection Points and Results (Appendix B); Waste Disposition (Appendix C); Radiological Release Survey and Waste Certification September 18, 2012 (Attachment C); Surface Activity Limits (Appendix 1); Field Survey Results (Appendix 2); USEPA Data from the Surrounds of Building 4011 (Attachment D); Gamma Scan for Subarea 5B July 27, 2012 (Attachment 1); Soil Sample Locations for Subarea 5B May 22, 2012 (Attachment 2); Soil Sample Exceedances for Subarea 5B May 22, 2012 (Attachment 3); Radiological Document Review and Operations Certification November 1, 2012 (Attachment E); Certification of No Impacts to Biological, Cultural, or Historical Resources November 5, 2012 (Attachment F); SSFL Site Map with Project Location (Attachment G); and RFI Feature Map (Attachment H) for Santa Susana Field Laboratory (SSFL), Ventura County, California.

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INTRODUCTION

This memorandum presents the findings of a review of the above-referenced documents summarizing the results of the pre-demolition surveys of Building 011 (aka Building 4011), excluding the former calibration laboratory for radiation instrumentation and equipment maintenance, located within Area IV of SSFL. This review focused on radiological constituents and survey results. If you have questions about the following comments or recommendations, please contact me by phone at (916) 255-3784 or email at valerie.chenoweth-brown@dtsc.ca.gov.

GENERAL COMMENTS AND RECOMMENDATIONS

1. The documents indicate that the survey instruments used—Ludlum 2224 survey meter plus Ludlum 43-89 plastic scintillator probe for alpha and beta/gamma total surface activity, Bicron microRem meter for gamma exposure rate, and Tennelec alpha/beta counter in labor—were in calibration and appropriate for use with adequate sensitivity to accurately measure values below US NRC Regulatory Guide 1.86/DOE Order 5400.5 action levels. The majority of instrument surface activity measurements and wipe tests were below the detection limit, the level at which there is a 5% probability of incorrectly concluding that no activity is present when it is indeed present. The majority of surface activity measurements met the most restrictive regulatory surface activity limits for release/clearance of equipment and materials for unrestricted use from former radiological facilities. The majority of surface activity measurements met the general surface activity limits for release/clearance of equipment and material for unrestricted use from former radiological facilities and was below US NRC Regulatory Guide 1.86, USDOE Order 5400.5 and CDPH guidance DECON-1 and IPM-88-2 action levels.

2. The Field Survey Results indicate that three measurements on a deep sink in Building 4011 exhibited relatively high beta activity that exceeded the general release limits for uranium and mixed fission products. The sink will be segregated during demolition, and disposal will be determined based upon results of radionuclide analysis in compliance with applicable regulations.

3. The Building 4011 Area IV Non-radiological High-Bay Document Review and Operations Certification indicates that the high-bay section of Building 4011 was not a former radiological facility and that neither the Department of Energy nor the Environmental Protection Agency Area IV Historical Site Assessment teams found any evidence of use or storage of radioactive material in the non-radiological high-bay portions of building 4011. Survey results support this conclusion.

4. The Building 4011 (Telecom & Storage), Area IV Radiological Release Survey and Waste Certification indicates that post-demolition debris (except the sink as identified above) is certified to be radiologically acceptable for off-site disposal and/or recycling, and the waste from the demolition project meets the requirements of disposal facility permits and complies with the California Health & Safety Code. Survey results support this conclusion.

5. The Work Scope Information indicates the former calibration laboratory for radiation instrumentation and equipment maintenance, called the low-bay section, will remain intact and standing after this demolition (phase 1) is complete. The low-bay section removal (phase 2) will be considered upon a separate submission.

6. The USEPA Data from the Surrounds of Building 4011 indicates that radiation at and in the surrounds of Building 4011 did not exceed background. No soil samples in the immediate vicinity of Building 4011 exceeded USEPA radiological trigger levels (RTL). Ten soil samples taken approximately 400 feet from Building 4011 within the 17th Street drainage did exceed RTLs for Cesium-137, however that area will not be impacted by 4011 demolition activities.

Reviewed By:

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Human and Ecological Risk Office