6.0 BOEING FACILITY INVESTIGATION

The Facility underwent comprehensive investigation to evaluate SWMUs and AOCs during pre-RI and RI activities. A list of documents referencing investigations that took place at each SWMU or AOC is provided in Table 2-1. Investigations of Facility SWMUs and AOCs were completed as required in the Agreed Order (Ecology 2006b). Column IA SWMUs and AOCs had both soil and groundwater investigations completed. Column IB SWMUs and AOCs had groundwater investigations completed. No additional RI investigations were required for Column II SWMUs and AOCs; therefore, they are not discussed below. The pre-RI activities, where completed for Column IA and IB SWMUs and AOCs are summarized in Appendix M. RI fieldwork began after the RI work plan was finalized in October 2003 (Geomatrix 2003b). A thorough evaluation of all data related to SWMUs and AOCs that required investigation was completed and presented to Ecology in 2009 (LAI 2009d). This evaluation was updated (with new data and current screening levels) and is presented below. All figures from the previous evaluation are presented in Appendix M[47].

One additional Facility AOC (A-13) was added to the Facility SWMUs and AOCs that were defined in the Agreed Order. AOC A-13 includes petroleum hydrocarbon soil and groundwater contamination on the east side of Building 17-06 and is discussed in Section 6.2.13. In addition to the Facility SWMUs and AOCs, two additional Site-wide AOCs were also added. AOC A-14 is the Site-wide groundwater TCE and VC plume. The Site-wide groundwater is discussed in Section 8.0. Site-wide groundwater contamination led to an investigation of Site-wide surface water and Site-wide air. Site-wide surface water was added as AOC A-15 and is discussed in Section 9.0. Site-wide air was also investigated; however, this investigation did not lead to the assignment of an additional AOC. Site-wide air is discussed in Section 10.0.

6.1 Solid Waste Management Unit Evaluation

There were 11 Column IA or Column IB SWMUs that were investigated as part of the RI. As specified in the Agreed Order, Column IA SWMUs were investigated for both soil and groundwater and Column IB SWMUs required only groundwater investigation. The 11 SWMUs are shown on Figure 6-1. Investigation activities and results are presented for each SWMU in the following subsections. Included in each subsection are pre-RI activities (if applicable), RI activities related to soil and/or groundwater, and recommendations for whether the SWMU should be carried forward to the FS.

An additional five SWMUs are not discussed in the subsections below either because they received an NFA or because they are addressed elsewhere in the document and are not presented in this section:

- Building 17-52 SWMU S-15d: Machine sump; received an NFA determination (Ecology 2002b) as part of the Safeway investigation (Hart Crowser 1987, LAI 2002a)

[47] Figures in Appendix M still show the screening levels from 2009, some of which have since changed.

- Building 17-03 SWMU S-12a: Vapor degreaser; received an NFA determination (Ecology 2004c) as part of the Area 1 RI (Appendix A)
- Building 17-05 SWMU S-12b: Vapor degreaser; Area 1 (Section 7.0)
- Building 17-05 SWMU S-12c: Vapor degreaser; received an NFA determination (Ecology 2004c) as part of the Area 1 RI (Appendix A)
- Building 17-05 SWMU S-19: Waste oil tank; received an NFA determination (Ecology 2004c) as part of the Area 1 RI (Appendix A).

6.1.1 S-06: Building 17-15 Wastewater Pre-Treatment Plant

SWMU S-06 (S-06) is defined in the RI work plan (Geomatrix 2003b) as Building 17-15. In the RFA (Tetra Tech 1998), S-06 is defined more broadly as the rinse water treatment plant and process sewers. The rinse water treatment plant, or the wastewater pre-treatment plant (WWPTP), receives wastewater from various plant operations that may include use of cutting oils, coolants, or various heavy metals. The WWPTP was constructed in 1969. Various components of the WWPTP have been upgraded or modified over time as Facility operations evolve. In 2014, a new treatment system was constructed and started operation in 2015. The current treatment system includes three main processes: oil/water separation through ultra-filtration, metals precipitation, and aqueous cleaner ultra-filtration (phone conversation with James Swortz on April 25, 2016). Historically the WWPTP also included processes for cyanide oxidation and alkaline waste treatment (Tetra Tech 1998). Originally, underground process sewer lines (these lines are now largely located in accessible utility corridors or are above ground) entered the WWPTP from various Facility buildings. The WWPTP including Building 17-15, the chrome clarifier, the aerator/oil water separator, and locations of explorations are shown on Figure 6-2.

Several investigations and cleanups have been conducted at S-06 beginning in the early 1990s. Investigation and removal of petroleum hydrocarbon contaminated soil was conducted during a 1992 plant upgrade. In 1993, a former stormwater over flow pipe from that crossed under Perimeter Rd from the WWPTP was removed and soil underlying the pipe was sampled for metals; confirmation samples indicated that concentrations of metals were below screening levels. A general groundwater investigation of the WWPTP area was conducted in 1994 when seven monitoring wells were installed in the vicinity. In 1997 and 1998 subsurface investigations were conducted in evaluate potential releases from an aerator tank and a rinse water line. In 1999, six soil borings (ASB084 through ASB089) were drilled during installation of a new oily waste pipe. These borings had detections of antimony above the screening level in 5 of the 12 samples collected from the six soil borings. The antimony-impacted soil was subsequently removed during construction of new oily waste lines. In 2001, soil removal was conducted to clean up a spill from the clarify tank; subsequent confirmation sampling indicated all impacted soil was removed. In 2003 approximately 17 yd^3 of petroleum hydrocarbon impacted soil was discovered and removed during investigation of a leaking water line near AGW024. Additional details of the Pre-RI activities are discussed in Appendix M.

6.1.1.1 Remedial Investigation

S-06 is a Column IA SWMU. The primary objective for investigating S-06 was to determine whether the WWPTP is a source of VC detected in groundwater at nearby monitoring wells (Geomatrix 2003). The WWPTP was suspected as a potential source because of the VC historically detected at AGW024 (initially 50 µg/L in 1991; see Appendix M). A second objective was to assess groundwater quality at the western property boundary (Geomatrix 2003b). Investigations at S-06 consisted of:

- Reviewing historical data
- Advancing two borings for soil and groundwater investigation near AGW024 (ASB0141 and ASB0142)
- Advancing six borings (ASB0135 to ASB0140) along the property boundary downgradient of Building 17-15 to evaluate groundwater quality at the western property boundary
- Advancing one boring (ASB0180) to confirm removal of soils with antimony concentrations exceeding screening levels
- Evaluating existing and ongoing groundwater data collected at six shallow monitoring wells (AGW024, AGW025, AGW029, AGW030, AGW032, AGW079) and one deep monitoring well (AGW034)
- Installing one intermediate zone groundwater monitoring well AGW105 as part of the RI.

Soil

Two of the RI borings (ASB0141 and ASB0142) were sampled and analyzed for VOCs, semi-volatile organic compounds (SVOCs), petroleum hydrocarbons[48], and EPH. Pre-RI borings (ASB0084 through ASB0089) were analyzed for VOCs, metals, petroleum hydrocarbons, and PCBs. The only soil constituent in the RI and pre-RI soil samples that was detected above screening levels was antimony. Other metals, petroleum hydrocarbons, VOCs (Acetone, 2-Butanone and xylenes), and SVOCs were also detected, but below screening levels. The sample analyzed for EPH (ASB0141-9) did not exceed petroleum hydrocarbon criteria based on an evaluation performed using Ecology's MTCA petroleum hydrocarbons workbook (Ecology 2007b). The results of the EPH screening evaluation are presented in Appendix K. A statistical summary of detected soil concentration data is presented in Table 6-1. Results for detected soil constituents are presented in Table 6-2.

In 2010, during excavation of a foundation for the new ultra-filtration system, Boeing discovered petroleum-contaminated soil associated with an abandoned oily waste line. Approximately 6 cubic yards of petroleum-impacted soil was removed during the excavation. Not all impacted soil could be removed due to adjacent infrastructure; however, remaining impacts appeared to be localized and

[48] Samples from these borings were analyzed for all constituents identified in WAC 173-340-900 Table 830-1 for testing of releases of diesel-range organics (DRO) and oil-range organics (ORO); analysis for PCBs was not conducted because there are no known or likely sources of PCB-containing oil in the area.

relatively small. Historical, groundwater monitoring data from WWPTP wells does not indicate petroleum hydrocarbon impacts to groundwater.

The antimony detections in pre-RI soil samples were slightly above the screening level. Antimony was detected between 6 and 9 mg/kg in 5 of 12 soil samples; the screening level for antimony in soil is 5.42 mg/kg. The detections occurred in pre-RI samples collected in 1999 from borings ASB0086, ASB0087, and ASB0089. Later in 1999, an area of contaminated soil was removed during the installation of a new oily waste pipe. Subsequent evaluation of this area was conducted in September 2009 to confirm that the contaminated soil was removed. One soil sample (ASB0180) was collected from a boring directly adjacent to the historical trench excavation where the previous samples (ASB0086, ASB0087, and ASB0089) were collected. Also in September 2009, soil samples were collected from an excavation adjacent to the former oily waste pipeline and analyzed for antimony (LAI 2010e). Antimony was not detected in the September 2009 samples from either the excavation or boring ASB0180; antimony-contaminated soil is presumed to have been removed during the 1999 trench excavation for the installation of the new oily waste pipe.

Groundwater

The groundwater investigation of S-06 included sampling at eight monitoring wells and eight borings. Depending on the location, samples were collected for VOCs, SVOCs, metals, petroleum hydrocarbons, pesticides and PCBs. VOCs were analyzed in all groundwater samples. The locations of the monitoring wells and borings are presented on Figure 6-1. VOCs, SVOCs, petroleum hydrocarbons, and metals were detected in groundwater at S-06 monitoring locations. A statistical summary of groundwater concentration data is presented in Table 6-3. Detected groundwater constituents are presented in Table 6-4.

There were 16 VOCs detected; however, only chloroform, TCE, and VC were detected above screening levels. Chloroform was only detected in one boring in 2004 and is not part of the release history from the Facility contamination[49], so it is not discussed further. Other VOCs that were detected at the WWPTP below screening levels include chlorinated solvent-related breakdown products such as cDCE, trans-1,2-dichloroethene (tDCE), and 1,1-dichloroethane (1,1-DCA).

With the exception of AGW032 and AGW025, TCE has not been detected at any shallow zone wells since 1995. At AGW032, TCE declined from a maximum concentration of 0.7 µg/L to non-detect in May 2003; the most recent sample (December 2015) was also non-detect. At AGW025, TCE was detected at a maximum concentration of 0.2 µg/L in June 2008, but was non-detect in December 2015. In contrast, TCE has been detected consistently above the screening level in intermediate zone well AGW105 and above reporting limits at deep zone well AGW034. At AGW105, the TCE concentration has remained relatively steady, with a maximum concentration of 1.4 µg/L in June 2014

[49] Chloroform is a byproduct of the disinfection of potable water sources. Potential pathways for water containing chloroform include runoff from irrigation systems, leaking wastewater sewers, and drinking water delivery systems.

and a most recent concentration of 0.9 µg/L in December 2015. At AGW034, the TCE concentration has decreased from a maximum concentration of 2.6 µg/L in March 1998 to 0.2 µg/L in December 2015.

VC was historically detected at all monitoring well locations at S-06; however, VC was not detected during the most recent sampling event at AGW029, AGW030, or AGW034. The highest detection of VC (50 µg/L) occurred at shallow well AGW024 in 1991[50]. The highest detection of VC presented in the database (20.2 µg/L in 1994) occurred at shallow well AGW024. VC concentrations have declined significantly at all wells. During the most recent sampling event in December 2015, the maximum VC concentration was 1.7 µg/L at shallow well AGW024 (down from 50 µg/L in 1991). Along the property boundary (i.e., west of Perimeter Road), VC concentrations are low and declining. VC was detected in only one (ASB0136) of six RI borings advanced along the property boundary. At intermediate zone well AGW105, VC concentrations have declined from 1.8 µg/L in 2004 to 0.8 µg/L in December 2015. At deep zone well AGW034, VC concentrations have declined from 0.026 µg/L in 2004 to below the reporting limit in December 2015.

Toluene, the only detected petroleum hydrocarbon-related volatile constituent, was detected in only 3 of 246 groundwater samples. Petroleum hydrocarbon concentrations only exceeded screening levels once (in 2000 at AGW032). Petroleum hydrocarbons were not detected in the most recent analysis from this well and no constituents associated with petroleum releases exceeded screening levels. These data indicate that petroleum hydrocarbon-related releases at the WWPTP have not resulted in a significant groundwater impact.

Bis(2-ethylhexyl)phthalate (BEHP) is the only semi-volatile constituent detected above the screening level. It was detected in 8 of 44 samples, but only twice above the screening level (at AGW030 and AGW034). The most recent result for BEHP at AGW030 was non-detect. AGW034 was only sampled once for SVOCs.

Arsenic, manganese, thallium, and vanadium are the only metals detected above screening levels. However, thallium and vanadium concentrations did not exceed screening levels during the most recent sampling event (2004) and therefore, are not discussed further. Arsenic was detected consistently above the screening level at well AGW032. The maximum concentration was 0.072 mg/L in 2002 and the most recent concentration was 0.014 mg/L in 2004. Arsenic has not been detected above the screening level at other WWPTP wells. Arsenic occurs naturally in Puget Sound groundwater supplies (WDOH 2007). The occurrence of arsenic at AGW032 is likely to be naturally occurring (not related to facility operations), given that releases of arsenic have not been identified. The occurrence of manganese is likely naturally occurring as a result of reducing aquifer conditions.

[50] These data are not included in tables because data were collected prior to the cutoff for inclusion in the database, see Section 3.4 for a description of data that was included in the database and tables.

6.1.1.2 Summary

Data indicate a number of small releases have occurred at the WWPTP since it was originally constructed (See Appendix M). These releases do not appear to have caused significant soil or groundwater contamination. TCE (currently less than 1 µg/L) and VC (currently less than 2 µg/L) are detected in groundwater at the WWPTP; however, concentrations are consistent with Site-wide concentrations and addressed as part of the Site-wide AOC (see Section 8.0). S-06 is not recommended to be carried forward to the FS.

6.1.2 S-11: Building 17-45 Aqueous Degreasers, Formerly Vapor Degreasers

SWMU S-11 (S-11) is defined in the RI work plan (Geomatrix 2003b)and the RFA (Tetra Tech 1998) as consisting of four degreasers located in Building 17-45. Subsequent investigations also identified solvent storage tanks on the north side of the building (LAI 2008b). The solvent tanks are still present, but are empty, and it is unclear whether the tanks were ever used. The degreasers were reportedly put into service in 1989 and operated as 1,1,1-trichoroethane (TCA) degreasers until they were converted to aqueous alkaline degreasers in 1993 (Tetra Tech 1998). The aqueous degreasers are currently in operation. TCA is not used in aqueous degreasers. According to the RFA, all Building 17-45 degreasers are located in coated concrete pits with containment trenches and sumps; the release potential was described as low.

6.1.2.1 Remedial Investigation

S-11 is a Column IB SWMU. No investigations were conducted at Building 17-45 prior to the RI. During the RI, two borings (ASB0155 and ASB0156) were advanced in August 2004 and one boring (ASB0177) was advanced in September 2008 to determine if historical releases from the TCA degreasers or solvent storage tanks had impacted groundwater. ASB0155 is downgradient of the middle degreaser at building column E5 and ASB0156 is downgradient of the easternmost degreaser. Borings ASB0155 and ASB0156 were advanced up to 32 ft bgs and groundwater samples were collected from temporary screens (screen placed at approximately 27 to 32 ft bgs). The base of the degreaser pits is estimated to be about 19 ft bgs. Boring ASB0177 was installed immediately north of the solvent tanks identified on the north side of the building. ASB0177 was advanced to a depth of approximately 45 ft bgs, and three groundwater samples were collected from temporary screens at 25 ft, 35 ft, and 45 ft bgs. The groundwater table was encountered at approximately 17 ft bgs. The location of the Building 17-45 degreasers, solvent storage tanks, and explorations are shown on Figure 6-3.

Groundwater

Groundwater samples from each boring were analyzed for VOCs. The only VOCs detected were acetone, bromoform, carbon disulfide, chloromethane, and toluene. TCA was not detected in any of the samples. All VOCs detected were at concentrations below screening levels. The maximum VOC detection in ASB0155 and ASB0156 in August 2004 was acetone at 2.2 µg/L. In ASB0177, chloromethane was detected at concentrations below screening levels in groundwater samples from

25 ft, 35 ft, and 45 ft bgs[51]. Bromoform was detected below screening levels in ASB0177 in groundwater at 35 ft bgs, and acetone was detected below screening levels in ASB0177 in groundwater at 25 ft bgs. Groundwater statistics for detected compounds are presented on Table 6-5. Results for detected compounds are presented on Table 6-6.

In addition, Boeing reviewed data from downgradient monitoring wells AGW082 and AGW083 at the Facility boundary to determine if there was any evidence of a TCA release from the degreasers in Building 17-45. TCA has never been detected in the two downgradient monitoring wells.

6.1.2.2 Summary

In summary, there is no evidence of a release from S-11 former TCA vapor degreasers. None of the detected constituents are related to the use of TCA as a degreasing agent. S-11 is not recommended to be carried forward to the FS.

6.1.3 S-12d: Building 17-12 Former Vapor Degreaser

SWMU S-12d (S-12d) is defined in the RI work plan (Geomatrix 2003b) and the RFA (Tetra Tech 1998) as a TCE vapor degreaser located in Building 17-12, between Building 17-07 and Building 17-10. The degreaser operated from 1980 to 1992. The degreaser operated above a pit, which drained to a sump. There are conflicting reports regarding the solvent used in the degreaser; however, degreasers across the Site were converted from TCE to TCA in 1976. The conversion was reportedly made for economic reasons and because TCA has a lower boiling point allowing lower operating temperatures (Boeing 1976a, b). Since the S-12d degreaser was not installed until 1980, it presumably operated only as a TCA degreaser. The degreaser was removed in 1992 (Tetra Tech 1998). No documentation was located concerning the depth of the degreaser sump. No investigations were conducted at SWMU S-12d prior to the RI.

6.1.3.1 Remedial Investigation

S-12d is a Column IA SWMU. During the RI, two borings (ASB0161 and ASB0162) were advanced downgradient of the degreaser to evaluate the potential for historical releases to soil and groundwater. The borings were drilled to approximately 20 ft bgs. The groundwater table was encountered at about 16 ft bgs. Soil samples were collected from 6 to 16 ft bgs. Groundwater samples were collected from about 14 ft to 20 ft bgs from temporary screens. The location of S-12d and explorations are shown on Figure 6-4.

Soil

Samples collected from ASB0161 (6 ft and 16 ft bgs) and ASB0162 (6 ft and 15 ft bgs) were analyzed for VOCs. Compounds detected in ASB0161 samples included 2-butanone[52] and acetone; acetone was

[51] There is no screening level for chloromethane.
[52] 2-butanone is as also called methyl ethyl ketone (MEK).

also detected at ASB0162. All detections were below the screening levels. Stepout borings were contingent on field screening of initial borings; based on field screening results; no stepout borings were required. Statistical summaries of detected compounds in soil and soil analytical results are presented in Tables 6-7 and 6-8, respectively.

Groundwater

Groundwater samples were collected from ASB0161 and ASB0162 and analyzed for VOCs. Six VOCs were detected; however, TCA, the solvent used in the degreaser, was not detected in soil or groundwater. Only VC, which is not a breakdown product of TCA, was detected above screening levels. The maximum VC concentration was 0.15 µg/L. Statistical summaries of detected compounds in groundwater and groundwater analytical results are presented in Tables 6-9 and 6-10, respectively.

6.1.3.2 Summary

S-12d is not recommended to be carried forward to the FS. Though the S-12d degreaser reportedly operated for approximately 12 years, there is no evidence that a significant release occurred at this SWMU. Detections of VC above screening levels are consistent with concentrations of VC detected Site-wide and are addressed as part of the Site-wide AOC (see Section 8.0).

6.1.4 S-12f: Building 17-68 Former Vapor Degreaser

SWMU S-12f (S-12f) is defined in the RI work plan (Geomatrix 2003b) as a TCE vapor degreaser. In the RFA this SWMU is simply defined as a degreaser (Tetra Tech 1998). The degreaser operated for only 3 years, from 1990 to 1993. Given the operating period of the degreaser, after TCE use in degreasers was discontinued, it is likely that the degreaser operated with TCA and not TCE. The degreaser was removed in 1993 (Tetra Tech 1998). No documentation was located concerning the depth of the degreaser sump.

6.1.4.1 Remedial Investigation

S-12f is a Column IB SWMU. No investigations were conducted at S-12f prior to the RI. During the RI, one boring (ASB0158) was advanced downgradient of the degreaser to evaluate the potential for historical releases to groundwater. The boring was drilled to about 30 ft bgs. The groundwater table was encountered at about 16 ft bgs. No soil samples were collected for analysis. A groundwater sample was collected from 28 ft to 33 ft bgs from a temporary screen. The location of S-12f and explorations are shown on Figure 6-5.

Groundwater

Groundwater samples were collected from ASB0158 and analyzed for petroleum hydrocarbons and VOCs. No constituents were detected above screening levels. Carbon disulfide and toluene were the only compounds detected at 0.3 µg/L and 0.2 µg/L, respectively. A statistical summary of detected

compounds in groundwater and groundwater analytical results are presented in Tables 6-11 and 6-12, respectively.

6.1.4.2 Summary

S-12f is not recommended to be carried forward to the FS. The degreaser operated for a relatively short time and there is no evidence of a release from the degreasers.

6.1.5 S-13a/S-13b: Building 17-07 Former Vapor Degreasers

SWMU S-13 (S-13) was defined in the Geomatrix work plan and the RFA as a TCA vapor degreaser in Building 17-07 (Geomatrix 2003b, Tetra Tech 1998). According to the RI work plan, two degreasers (an original and a replacement) were located in the tank line near the south wall of the building. The original vapor degreaser was active from 1966 to 1995 when it was removed and the replacement vapor degreaser was installed nearby (Geomatrix 2003b). The operating history of the vapor degreasers included use of TCE in the original degreaser until 1976 when it was converted to use TCA (Boeing 1976b). The replacement vapor degreaser, installed in 1996, presumably only operated using TCA since TCE use in vapor degreasers had been discontinued prior to 1995. According to Boeing records (Swortz 2007a), the replacement degreaser was installed nearby but not in the same location as the original degreaser. The original degreaser was located at about building column B9; the replacement degreaser was installed between building columns D9 and E9. SWMU S-13 was divided into S-13a and S-13b to differentiate between the original degreaser location (S-13a) and the replacement degreaser location (S-13b) (LAI 2010a). The original degreaser location (S-13a) was investigated in 1995 (Kennedy/Jenks 1996b) at the time it was removed (pre-RI). Seven soil samples along with groundwater grab samples were collected from four borings; one of the borings was converted to monitoring well AGW037. TCE and VC were both detected at concentrations above screening levels in groundwater. No VOCs were detected in soil samples. A more detailed discussion of the pre-RI evaluation of the original degreaser is provided in Appendix M.

The original degreaser was located on an at-grade grate over a containment sump (Swortz 2008). The bottom of the containment sump was about 6 ft bgs. The bottom of the sump was concrete, approximately 1-ft thick (Kennedy/Jenks 1996b). According to the RFA (Tetra Tech 1998), the replacement degreaser was located over a 6-ft deep concrete, lined containment sump. The replacement degreaser has also been decommissioned (Swortz 2007a).

6.1.5.1 Remedial Investigation

S-13 is a Column IB SWMU. The objective of the S-13 investigation was to assess groundwater impacts associated with two former degreasers, one installed in 1966 and removed in 1995 and a replacement installed in 1995, which was subsequently removed. The locations of S-13a and S-13b and explorations are shown on Figure 6-6.

The RI consisted of:

- Reviewing Pre-RI historical data
- Advancing one boring (ASB0157) and constructing two groundwater monitoring wells (AGW164 [intermediate] and AGW165 [shallow]) for groundwater investigation downgradient of the former degreasers
- Evaluation of groundwater data collected from existing shallow monitoring well AGW037 (located adjacent to the original degreaser)
- Collection of sub-slab soil gas samples to evaluate vapor concentrations that may be related to releases of VOCs.

Groundwater

There were 11 VOCs detected in groundwater samples from the four monitoring locations (ASB0157, AGW037, AGW164, and AGW165); however, only TCE and VC were detected above screening levels. At ASB0157, located downgradient of the replacement degreaser, only VC exceeded the groundwater screening level at a concentration of 0.94 µg/L; TCE was not detected. AGW037 is located adjacent to the original degreaser and was sampled five times in 1996 and 1997. TCE was detected regularly at this well with a maximum concentration of 5.3 µg/L in 1996; during this time, VC was not detected at a reporting limit of 2 µg/L. Sampling for VOCs at the well was discontinued in 1997 and resumed in December 2008. Since 2008 both TCE and VC have been detected above screening levels at AGW037; during the most recent VOC sampling event in December 2015, concentrations were 2.3 µg/L and 0.2 µg/L, respectively. AGW037 was also sampled several times for metals, most recently in 2004; concentrations of detected metals did not exceed their respective screening levels. In 2010, AGW164 and AGW165 were installed in the intermediate and shallow zone respectively, downgradient of the original degreaser. Both wells have been sampled regularly as part of the interim groundwater monitoring program. The maximum TCE concentration in the intermediate zone at AGW164 was 1.8 µg/L and the maximum concentration in the shallow zone at AGW165 was 2.8 µg/L. A statistical summary of detected groundwater concentration data is presented in Table 6-13. Detected groundwater constituents are presented in Table 6-14.

Soil Gas

In 2011, sub-slab soil gas samples were collected from 39 separate locations in Building 17-07 and Building 17-12 as part of a source area investigation. Six of the locations (SSV-27 through SSV-32) were near S-13a/S-13b (Figure 6-6); TCE was detected in all six samples. Of the samples collected in 17-07, sample SSV-29 near the original degreaser had the highest concentration of TCE (1,010 micrograms per cubic meter [µg/m^3]); the other five samples had concentrations of TCE ranging from 32.7 µg/m^3 to 190 µg/m^3. VC was detected in only one of the six samples (SSV-27) near the replacement degreaser, at a concentration of 190 µg/m^3. PCE was detected at concentrations in three samples ranging from 5.1 µg/m^3 to 160 µg/m^3. The sub-slab soil gas sample collection and analysis are presented in Section 10.0 (results are presented in Table 10-1).

6.1.5.2 Summary

S-13a/S-13b are not recommended to be carried forward to the FS. Based on groundwater and soil gas data, it is likely there were releases from or near the S-13 degreasers. Although groundwater concentrations are relatively low, a release of TCE would have occurred prior to 1976; thus, concentrations may have been higher historically. Elevated concentrations of TCE in soil gas near the original degreaser also suggests that at least a minor release probably occurred there. The residual concentrations of VOCs present at this SWMU suggest that the original release or releases probably were not extensive and the relatively high groundwater flux has depleted much of the mass from the source area. Current VOC concentrations at S-13a/S-13b are consistent with concentrations of TCE and VC detected Site-wide and are addressed as part of the Site-wide groundwater AOC (A-14) in Section 8.0.

6.1.6 S-15a/S-16: Building 17-06 Sump SAU06-12/Aluminum Briquetter and Chip Conveyance System

SWMU S-15 is a general classification for all indoor machine sumps that require additional investigation. There are approximately 103 indoor machine sumps throughout the Facility; many collect and store liquid generated during the machining process (Tetra Tech 1998). The primary constituents of concern for machine sumps are hydraulic, lubricating, and cutting fluids in the C12 to C38 carbon range. These fluids have brand names like Blasocut, Coolube® 21, Way oil, or Unax® oil. All sumps received a preliminary evaluation as part of the RCRA SWMU S-15 Sump Inspection Program (AGI 2000). Based on a review of this inspection report, four sumps were identified for further investigation: Building 17-06 sump SAU06-12, Building 17-07 sump SAU07-024, Building 17-34 sump SAU34-002, and Building 17-52 sump SAU52-001 (Geomatrix 2003b)[53]. Building 17-06 sump SAU06-12 is designated as SWMU S-15a (S-15a) to distinguish it from other S-15 sumps. The other three sumps, located in Building 17-07, Building 17-34, and Building 17-52 are discussed in Sections 6.1.7, 6.1.8, and 6.1, respectively.

Sump SAU06-12 is defined as the metal chip trench runoff sump (E.S.P. 1998). This sump is in current operation and underwent cleaning, inspection, and relining in 2010 (LAI 2011a). The sump location is shown on Figure 6-7.

SWMU S-16 (S-16) is designated as the aluminum chip briquetter located outside Building 17-06 and the associated aluminum chip conveyance system located inside Building 17-06. Together the briquetter and the aluminum chip conveyance system are referred to as the Building 17-06 chip handling system. This system is associated with S-15a (sump SAU06-12) and other sumps connected to the handling system. The chip handling system within Building 17-06 carries aluminum chips and residual cutting fluid from various machines in the operations area to the briquetter area where chips

[53] Other sumps that were identified for investigation include SAU07-024 in Building 17-07 (S-15b), SAU34-002 in Building 17-34 (S-15c), and SAU52-001 in Building 17-52 (S-15d). This latter sump was investigated in 2002 as part of the south Site (Safeway) investigation (LAI 2002).

are compressed into briquettes for recycling. The residual fluids are collected from the system and sent to the WWPTP for processing. The briquetter and conveyance system are still active. The locations of the briquetter and conveyance system are shown on Figure 6-7. A description of the aluminum chip conveyance system construction and connections between the chip runoff sumps and the aluminum chip conveyance system is provided in Appendix M.

6.1.6.1 Remedial Investigation

S-15a and S-16 are Column IA SWMUs. The objective of the investigation of these SWMUs was to assess petroleum hydrocarbon (DRO and ORO) impacts to soil and groundwater from the sump (SAU06-12) and the aluminum briquetter and chip conveyance system (Geomatrix 2003b).

For S-15a, the RI scope consisted of advancing two borings (ASB0160R[54] and ASB0168) near the sump for soil and groundwater investigations.

At S-16, 15 borings were advanced to investigate soil and groundwater near the briquetter as part of an investigation prior to the RI; five of the borings were converted to monitoring wells (AGW041 through AGW045). Analysis of soil samples from the borings found ORO above current screening levels with the highest concentration (23,900 mg/kg) at ASB0031 near sump SAU06-12. The pre-RI is discussed in Appendix M; soil results are presented in Tables 6-15 and 6-16. The RI scope consisted of advancing four borings (ASB0159, ASB0167, ASB0169, and ASB0170) along the eastside aluminum chip conveyance system (LAI 2004e). One stepout boring (ASB0171) was drilled based on field observations of petroleum hydrocarbon-impacted soil in the initial borings. A second stepout boring (ASB0172) met refusal on a concrete slab at the 3 ft depth. A moderate to strong odor and sheen was observed at ASB0160R, ASB0169, ASB0170, and ASB0171 directly above the water table at about 15 ft bgs; free product was observed at the 15 ft bgs sample at ASB0170. Consequently, four wells were installed (AGW115 to AGW118) to further investigate the eastside aluminum chip conveyance system (LAI 2004e). Soil samples were not collected from these wells.

Comments from Ecology on the draft revised RI report included a request for additional investigation at S-15a and S-16 (Ecology 2008). As a result, four additional wells (AGW127 through AGW130) were installed along the eastside aluminum chip conveyance system. Well AGW128 was installed as close as possible to sump SAU06-12 to provide additional characterization around the sump and crossover area. The locations of S-15a and S-16 and explorations are shown on Figure 6-6.

[54] The designation of "R" after a boring sample ID indicates that a replacement boring was drilled using HSA methods after DP methods failed.

Soil

RI soil samples were collected from borings (ASB0159, ASB0160R, and ASB0167 through ASB0171[55]) at or near the water table (between 16 and 20 ft bgs). Soil samples were also collected from wells AGW127 at 13.5 ft bgs, AGW128 at 17 ft bgs, AGW129 at 11 ft bgs, and AGW130 at 12.5 ft bgs. Samples from ASB0159, ASB0160R, and ASB0171 were analyzed for EPH. Samples from all borings were analyzed for SVOCs, petroleum hydrocarbons[56], and VOCs. Soil samples from the wells were analyzed for VOCs, PCBs[57], and petroleum hydrocarbons. A statistical summary of detected soil concentration data is presented in Table 6-15. Results for detected soil constituents are presented in Table 6-16.

Boring ASB0159 was completed on the west side of the building near the west side aluminum chip conveyance system. There were no detections of any of the analyzed constituents at this boring. All other borings and wells with soil samples were completed along the eastside aluminum chip conveyance system.

A number of VOCs (2-butanone, 4-methyl-2-pentanone, acetone, benzene, carbon disulfide, m-,p-Xylenes, methylene chloride, PCE, and toluene) were detected at concentrations below screening levels at various locations. TCE was detected at AGW129 (11 ft bgs), ASB0170 (17.5 ft bgs), and ASB0171 (17.5 ft bgs); however, the concentrations only exceeded screening levels at AGW129 (11 ft bgs) with a concentration of 5.4 µg/kg.

DRO and ORO were detected above screening levels in all samples collected at ASB0169, ASB0170, ASB0171, and AGW128. The maximum petroleum hydrocarbon concentration detected during the RI was for ORO at a concentration of 20,000 mg/kg at ASB0170 at 15 ft bgs.

EPH analysis was performed using Ecology's EPH method for the 16 ft bgs sample from ASB0159, the 17.5 ft bgs sample from ASB0160R, and the 17.5 ft bgs sample from ASB0171. Results were evaluated using Ecology's MTCA petroleum hydrocarbons workbook (Ecology 2007b). There were no detections in the sample from ASB0159. Sample ASB0171-17.5 did not exceed petroleum hydrocarbon criteria based on direct contact or protection of groundwater. Sample ASB0160R exceeded petroleum hydrocarbon criteria for the direct contact pathway under Method B (HI = 1.1), but not under Method C. The results of the EPH screening evaluations are presented in Appendix K.

[55] At ASB0160R, samples were collected at 5 ft and at the water table (17.5 ft bgs) because field-screening results did not indicate contamination above the water table. The 5 ft sample was collected in clean fill below Building 17-06 and no analyses were run on this sample. Samples from ASB0168 were collected where field screening indicated the greatest contamination (15 ft bgs) and at the water table (17.5 ft bgs).

[56] Boring samples were analyzed for all constituents identified in WAC 173-340-900 Table 830-1 for testing of releases of DROs and OROs. Analysis for PCBs was not conducted on boring samples because there are no known or likely sources of PCB-containing oil in the area.

[57] Ecology indicated in their comments on the Revised RI draft that PCB analysis should be conducted (Ecology 2008). As a result, PCB analysis was conducted on samples collected during the installation of wells AGW127 through AGW130.

Groundwater

Groundwater samples from RI borings were analyzed for VOCs, SVOCs, and petroleum hydrocarbons. Groundwater samples from all S-15a/S-16 monitoring wells were analyzed for petroleum hydrocarbons[58] and VOCs. Pre-RI wells AGW042 through AGW045 were also sampled for dissolved metals. A statistical summary of groundwater data for detected compounds is presented in Table 6-17. Data for detected compounds is presented in Table 6-18.

There were 17 VOCs detected in groundwater; however, only 1,1,2,2-tetrachloroethane, benzene, TCE, and VC were detected above screening levels. The detections of 1,1,2,2-tetrachloroethane and benzene were intermittent and each exceeded the screening level only once. TCE and VC were detected more frequently. TCE and VC concentrations were low with maximum concentrations of 2.3 µg/L and 1.0 µg/L, respectively. Detections of TCE and VC above screening levels are consistent with levels of TCE and VC detected Site-wide and are addressed as part of the Site-wide AOC (see Section 8.0).

SVOCs were not detected in any of the groundwater samples. Dissolved metals were not detected above screening levels at any location. Detections of ORO above the screening level (0.5 mg/L) were observed at ASB0160R (10 mg/L), ASB0168 (1.8 mg/L), ASB0169 (2.7 mg/L), ASB0170 (3.7 mg/L), and ASB0171 (3.4 mg/L). Detections of DRO above the screening level (0.5 mg/L) were observed at ASB0160R (1.5 mg/L), ASB0170 (0.69 mg/L), and ASB0171 (0.61 mg/L). There was one exceedance above the screening level for benzene at ASB0168 (0.9 µg/L); however, benzene has not been detected in samples collected from the permanent well, AGW128, installed adjacent to this location. Petroleum hydrocarbons were not detected at boring ASB0159 located toward the west side of Building 17-06 or originally in any of the four shallow monitoring wells (AGW115 through AGW118[59]) installed to monitor the western extent of the petroleum hydrocarbon release at S-16. Petroleum hydrocarbons have not been detected in AGW127, AGW129, or AGW130 (installed in September 2008). However, petroleum hydrocarbons have consistently been detected above screening levels at AGW128 near sump SAU06-12 since it was first sampled in October 2008. At the north end of the eastside aluminum chip conveyance system, petroleum hydrocarbons were also detected at wells AGW043 and AGW044. At AGW044, the highest concentration of DRO was detected in June 2007 (4.7 mg/L) and the highest concentration of ORO was detected in June 2013 (4.7 mg/L). At AGW043, located outside the building, only ORO was detected once in 1999. Current impacts to groundwater appear to be localized between AGW128 and AGW044, with AGW044 representing the northernmost extent of groundwater impacts. Boeing conducted additional cleaning, inspection, and repair activities at chip collection sumps along the eastside chip conveyor between 2009 and 2010 (LAI 2009a, 2010b, 2011a). Lining and repair work was completed in 2010. Boeing cleaned and inspected sump SAU06-12

[58] Samples were analyzed for all constituents identified in WAC 173-340-900 Table 830-1 for testing of releases of DRO and ORO; analysis for PCBs was not conducted because there are no known or likely sources of PCB-containing oil in the area.
[59] Petroleum hydrocarbons were detected at AGW118 in the June 2007 sampling event; however, petroleum hydrocarbons have not been detected before or after that sampling event.

located immediately northeast of AGW128. The epoxy lining in the sump was visibly cracked and a large unsealed orifice that appeared to be associated with piping was observed; however, the concrete within the Sump appeared to be intact. The sump was repaired and a new liner installed as part of the sump repair work.

Concentrations of petroleum hydrocarbons at AGW128 continue to be variable (between 0.84 mg/L and 5 mg/L). AGW044, the closest downgradient well to AGW128, had sporadic detections of petroleum hydrocarbons prior to 2012 but has consistently had detections over the last 4 years (since June 2012) ranging from 0.94 mg/L to 4.7 mg/L. Monitoring wells immediately upgradient (AGW129) and downgradient (AGW130) of AGW128 and AGW044 do not have detections of petroleum hydrocarbons. Free-phase product has been noted sporadically at AGW128 since it was installed with the greatest thicknesses being measured in the summer and fall when water levels are lowest. Measureable free-phase product has not been detected in AGW044. Petroleum hydrocarbon concentration time series plots for AGW044 and AGW128 are presented in Appendix N.

6.1.6.2 Summary

There is evidence of a petroleum hydrocarbon release to soil and groundwater along the eastside of building 17-06. The extent of the release to soil appears to be localized and is bounded to the north by AGW130; to the west by ASB0159, AGW115, and AGW116; to the east by AGW117 and AGW042; and to the south by AGW127[60]. Groundwater impacts from petroleum hydrocarbons appear to be localized between AGW128 and AGW044. The source of the petroleum hydrocarbon release in the area has not been identified; however, recent data suggest that the sump, chip conveyance system, and briquetter are not the source of the release (see 6.2.13). This petroleum hydrocarbon release is being designated as a new AOC (A-13) and is discussed further in Section 6.2.13. The identification of the new AOC allows consideration of other release pathways and increases flexibility for remediation options. S-15a/S-16 will not be carried forward to the FS; however, AOC A-13 will be carried forward to the FS to address the petroleum hydrocarbon soil and groundwater impacts found during the investigation of S-15a/S-16.

TCE is currently detected in groundwater at concentrations below screening levels and VC is currently detected in groundwater at concentrations below 0.5 µg/L. The concentrations of TCE and VC that were detected are consistent with concentrations of TCE and VC detected Site-wide and are addressed as part of the Site-wide groundwater AOC (A-14) in Section 8.0.

6.1.7 S-15b: Building 17-07 Machine Sumps SAU07-024, SAU07-025, SAU07-028, and SAU07-029

Building 17-07 machine sumps SAU07-024, SAU07-025, SAU07-028, and SAU07-029 are designated as SWMU S-15b (S-15b) to distinguish them from other S-15 sumps being investigated in the RI. S-15b is

[60] Well AGW041 located east of the briquetter does not contain evidence of a significant petroleum hydrocarbon release. Data from AGW041 is discussed under the evaluation of A-02b (Section 6.2.2).

designated as the four sumps associated with a set of Cincinnati milling machines near the northeast corner of Building 17-07. All four sumps are 1-ft square by 5-ft deep and constructed of coated concrete. The sumps collect coolant and mixed oils that spill or leak from the machines (ESP 1998). The RFA (Tetra Tech 1998) suggests that these sumps are uncoated; however, the sump management report indicates that these sumps are coated and specifically calls for correcting the sump records to reflect this construction detail. These sumps are in current operation. There were no pre-RI explorations of soil completed at S-15b.

6.1.7.1 Remedial Investigation

S-15b is a Column IA SWMU. The objective of the S-15b investigation was to assess petroleum hydrocarbon (DRO and ORO) impacts to soil and groundwater from the four sumps (Geomatrix 2003b). The investigative approach documented in the RI work plan was to investigate sump SAU07-24. If soil and groundwater beneath this sump exceeded screening levels, the other three sumps would be investigated. The RI consisted of advancing a single boring (ASB0163) directly next to the sump for soil and groundwater investigation. A soil sample was collected at 17 ft bgs; a groundwater sample was collected from the temporary screened interval from 16 to 24 ft bgs. Based on the results at this initial boring, the other three sumps were not investigated. The location of S-15b, the investigated sump (SAU07-024), and the exploration location are shown on Figure 6-8.

An independent cleanup was completed in 2006 in an area close to S-15b (LAI 2006c). Petroleum hydrocarbon-impacted soil was discovered in soil underneath the concrete floor slab in Building 17-07 during the installation of five new milling machines. Contaminated soil was removed; however, confirmation samples detected ORO- and DRO-contaminated soil was left in place that could not be excavated without risk to undermining the concrete slab. Ecology requested additional downgradient groundwater sampling to verify that this petroleum-impacted soil does not affect downgradient groundwater (Ecology 2016). Petroleum hydrocarbon (DRO and ORO) impacts to groundwater were investigated by collection of a groundwater sample in December 2016 from the shallowest channel (channel 1) from the downgradient monitoring well AGW202. The results of this sampling are presented in Status Report 57 (LAI 2017b) and discussed below.

Soil

The soil sample collected at 17 ft bgs from ASB0163 was analyzed for SVOCs, petroleum hydrocarbons (ORO and DRO), and EPH. The sample was not analyzed for VOCs because there were no field indications of the presence of VOCs and analysis for PCBs was not conducted because there are no known or likely sources of PCB-containing oil in the area. SVOCs and petroleum hydrocarbons were not detected. The EPH results did not exceed petroleum hydrocarbon criteria based on an evaluation performed using Ecology's MTCA petroleum hydrocarbons workbook (Ecology 2007b). The results of the EPH screening evaluation are presented in Appendix K. There was no field screening indication of petroleum hydrocarbon contamination. Consequently, no stepout boring was drilled.

Groundwater

The groundwater at ASB0163 was analyzed for petroleum hydrocarbons (DRO and ORO) and SVOCs. No constituents were detected. Groundwater collected from AGW202-1 in December 2016 was analyzed for petroleum hydrocarbons (DRO and ORO). DRO was detected at a concentration of 200 µg/L, below the DRO screening level (500 µg/L). ORO was not detected[61].

6.1.7.2 Summary

S-15b is not recommended to be carried forward to the FS. Based on field screening and analytical results from ASB0163, a stepout boring at sump SAU07-024 was not required; contingent investigation of the other Building 17-07 machine sumps were also not required. Petroleum hydrocarbons were not detected or were detected at concentrations below the screening level in groundwater. The data collected do not show evidence that there has been a significant release from S-15b sumps.

6.1.8 S-15c: Building 17-34 Chip Shed Sumps SAU034-001 through SAU034-004

Building 17-34 is a temporary chip storage shed. Four sumps, SAU034-001, SAU034-002, SAU034-003, and SAU034-004 are associated with the chip shed and are designated as SWMU S-15c (S-15c) to distinguish them from other S-15 sumps being investigated in the RI. All four sumps are 6 ft in diameter, 5-ft 1-inch deep, and constructed of coated concrete. The sumps collect coolant drained from metal chips (ESP 1998). The collected coolant is transported to the WWPTP for processing. The chips are transported to the Building 17-06 aluminum briquetter. The RFA (Tetra Tech 1998) indicates that in 1997 the sumps were coated. These sumps are in current operation. There are no pre-RI activities that were completed at S-15c.

6.1.8.1 Remedial Investigation

S-15c is a Column IA SWMU. The objective of the S-15c investigation was to assess petroleum hydrocarbon (DRO and ORO) impacts to soil and groundwater from the four sumps (Geomatrix 2003b). The investigative approach documented in the RI work plan was to investigate sump SAU034-002. If soil and groundwater beneath this sump exceeded screening levels, the other three sumps would be investigated. The RI consisted of advancing a single boring (ASB0166R) to 22.5 ft bgs directly next to the sump for soil and groundwater investigation. A soil sample was collected at 5 ft bgs; a groundwater sample was collected from the temporary screened interval from 17.5 to 22.5 ft bgs. As part of the evaluation of this sump, groundwater data from three shallow wells (AGW084, AGW085, and AGW086) at the north end of Building 17-34 were also evaluated.

[61] These results are presented in Status Report Number 57 (LAI 2017), but are not presented in any tables or figures as the sampling took place after the RI cutoff date of December 2015.

Comments from Ecology on the 2nd revised RI draft included a request for additional investigation at S-15c due to the poor recovery of the soil sample (Ecology 2009b). As a result, one additional boring (ASB0179) was advanced adjacent to the southernmost sump (SAU034-001). Soil samples were collected from 6 and 17 ft bgs for petroleum hydrocarbons (DRO, ORO, and gasoline-range organics [GRO]) and a water sample was collected from the final boring depth (19 ft bgs). Based on the results of borings ASB0166R and ASB0179, the other two sumps were not investigated. The location of S-15c, sumps SAU034-002 and SAU034-001, and explorations are shown on Figure 6-9.

Soil

Boring ASB0166R was advanced next to sump SAU034-002. A single soil sample was collected at 5 ft bgs at this location due to gravelly soil and poor sample recovery. Only enough soil was recovered for analysis of VOCs. VOCs were not detected. There was no field screening evidence of soil contamination at this location during drilling. In 2009, one additional boring (ASB0179) was advanced at the southernmost sump (SAU034-001). Soil samples were collected at 6 and 17 ft bgs and were analyzed for petroleum hydrocarbons (DRO, ORO, and GRO) and VOCs. Seven VOC constituents were detected and petroleum hydrocarbons were detected; however, all concentrations were below screening levels. A statistical summary of detected soil concentration data is presented in Table 6-19. Detected soil constituents are presented in Table 6-20.

Groundwater

Groundwater samples at ASB0166R were analyzed for petroleum hydrocarbons, VOCs, and SVOCs. Petroleum hydrocarbons and SVOCs were not detected. A groundwater sample from ASB0179 was analyzed for petroleum hydrocarbons and VOCs. Petroleum hydrocarbons were not detected. Groundwater samples at the three shallow downgradient wells (AGW084, AGW085, and AGW086) were analyzed for petroleum hydrocarbons, SVOCs, metals, cyanide, and VOCs. Petroleum hydrocarbons were detected in 1 of 28 samples. This detection of 0.98 mg/L, which exceeded the screening level, was in 1999 at well AGW086. Subsequent analyses from this well have been non-detect for petroleum hydrocarbons. The SVOC, BEHP, was detected in 2 of 28 samples, but concentrations were below screening levels. A number of dissolved metals were also detected, but all concentrations were below screening levels. Cyanide was detected only once at AGW086.

In borings and wells, 12 VOCs were detected; however, only chloroform and TCE were detected above screening levels. Chloroform was only detected above the screening level once (1.8 µg/L at AGW086 in 1999). Chloroform is not part of the contamination from the Facility so is not discussed further[62]. TCE has been detected at concentrations less than 3.2 µg/L. A statistical summary of detected groundwater concentration data is presented in Table 6-21. Detected groundwater constituents are presented in Table 6-22.

[62] Chloroform is a byproduct of the disinfection of potable water sources. Potential pathways for water containing chloroform include runoff from irrigation systems and leaking wastewater sewers and drinking water delivery systems.

6.1.8.2 Summary

S-15c is not recommended to be carried forward to the FS. There is no evidence of a release at the Building 17-34 chip shed sumps. Concentrations of TCE (maximum concentration 3.2 µg/L) were detected in groundwater above screening levels; however, there is no apparent source of TCE from the SWMU. The concentrations of TCE that were detected are consistent with Site-wide TCE concentrations and are addressed as part of Site-wide groundwater contamination in Section 8.0.

6.1.9 S-17: Building 17-29 Titanium Chip Bailer (Shed and Sump)

SWMU S-17 (S-17) is defined in the RI work plan as the titanium chip bailer shed and sump in Building 17-29. The bailer was located in the northwest corner of the building (GeoEngineers 1997). Titanium chips were collected in the bailer and pressed into blocks. Coolants and machine oils drained from the bailer to a sump and then into a holding tank. The sump was located west of the bailer outside the building and was designated as SAU29-02 in the sump management report . The sump was 3-ft square by 3-ft deep and consists of steel-lined concrete. The titanium bailer has been removed from operation and closed[63]. The tank is designated as AOC A-04 and is addressed separately in Section 6.2.6.

A pre-RI evaluation of soil and groundwater conditions surrounding the northern end of Building 17-29 (titanium bailing area) was conducted in 1997 (GeoEngineers 1997). Three shallow borings were drilled at the north end of Building 17-29. These borings were converted to monitoring wells (AGW076, AGW077, and AGW078) during a 1997 investigation (GeoEngineers 1997); data from these wells are included in the RI data set. Soil and groundwater were analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX), and petroleum hydrocarbons (DRO, ORO, and GRO). Groundwater was also analyzed for metals; none were detected above screening levels. ORO was detected below screening levels in soil at one boring; petroleum hydrocarbons and related constituents were not detected in groundwater.

6.1.9.1 Remedial Investigation

S-17 is a Column IA SWMU. The objective of the SWMU S-17 investigation was to assess oil-range petroleum hydrocarbon impacts to soil and groundwater from the titanium chip bailer system (Geomatrix 2003b). Two RI borings (ASB0164R and ASB0165R) were advanced near the northeast corner of Building 17-29 to 20.2 ft and 23 ft bgs, respectively. The location of S-17 and explorations are shown on Figure 6-10.

[63] Phone conversation with Jennifer Wynkoop, LAI, and Jim Swortz, Boeing on January 12, 2017.

Soil

Soil samples from borings ASB0164R (20 ft bgs) and ASB0165R (22 ft bgs) were analyzed for VOCs, SVOCs, and petroleum hydrocarbons[64]. An EPH analysis was performed on the sample from ASB0164R. Shallow soil samples (5 ft bgs) from each boring were analyzed for VOCs only. Acetone was detected in all samples at concentrations below screening levels. EPH and DRO were detected at low concentrations at ASB0164R. The EPH results did not exceed petroleum hydrocarbon criteria based on an evaluation performed using Ecology's MTCA petroleum hydrocarbons workbook (Ecology 2007b). The results of the EPH screening evaluation are presented in Appendix K. No constituents were detected above screening levels. A statistical summary of detected soil concentration data is presented in Table 6-23. Detected soil constituents are presented in Table 6-24.

Groundwater

Groundwater samples from the two RI borings were analyzed for SVOCs, VOCs, and petroleum hydrocarbons[65]. Groundwater samples from three groundwater monitoring wells (AGW076, AGW077, and AGW078) were analyzed for metals, VOCs, and petroleum hydrocarbons. In addition, SVOCs were analyzed in samples from AGW077 and AGW078 and PCBs were analyzed in samples from AGW078. A statistical summary of detected groundwater concentration data is presented in Table 6-25. Detected groundwater constituents are presented in Table 6-26.

No petroleum hydrocarbons were detected at the RI borings. Petroleum hydrocarbons were analyzed in groundwater samples at all three monitoring wells, but only detected once (in 2002) at monitoring well AGW078 below the screening levels. More recent sample results are non-detect. No PCBs were detected. No SVOC constituents were detected above the screening levels. No dissolved metals were detected above screening levels.

TCE was detected above screening levels at boring ASB0164R and all three monitoring wells. The maximum detected concentration was 1.5 µg/L at well AGW078. However, more recent concentrations of TCE at well AGW078 are below the reporting limit.

6.1.9.2 Summary

S-17 is not recommended to be carried forward to the FS. There is no evidence of a significant release at the Building 17-29 titanium bailer. TCE (maximum concentration 1.5 µg/L) was detected in groundwater at concentrations above screening levels; however, concentrations at the currently monitored well have decreased below the screening levels. The concentrations of TCE that were

[64] Samples were analyzed for all constituents identified in WAC 173-340-900 Table 830-1 for testing of releases of petroleum hydrocarbons (DRO and ORO). Analysis for PCBs was not conducted because there are no known or likely sources of PCB-containing oil in the area.

[65] Samples were analyzed for all constituents identified in WAC 173-340-900 Table 830-1 for testing of releases of DROs and OROs.

detected are consistent with concentrations of TCE detected Site-wide and are addressed as part of the Site-wide groundwater in Section 8.0.

6.1.10 S-18: Building 17-35 Miscellaneous Sumps at Chip Shed

The miscellaneous sumps at the chip shed are designated as SWMU S-18 (S-18). The Building 17-35 chip shed is a management area for metal chips from machining activities. Metal chips that contain some coolant or cutting fluid are transported in tub skids to the shed, where they are loaded into roll-off boxes. The fluid draining from the chips drains into a 1-ft wide by approximately 6-inch deep sump that runs the length of Building 17-35. The sump is connected to piping that leads to the nearby WWPTP (Geomatrix 2003b). This long sump is not described in the sump management report (E.S.P. 1998) , but is described in the RFA (Tetra Tech 1998). This sump is currently in operation. There were no pre-RI explorations of soil conducted at Building 17-35.

6.1.10.1 Remedial Investigation

S-18 is a Column IA SWMU. The objective of the S-18 investigation was to assess petroleum hydrocarbon (DRO and ORO) impacts to soil and groundwater from chip management activities. Two initial borings (ASB0144 and ASB0145) and two stepout borings (ASB0147 and ASB0148) were advanced around the chip shed. Stepout borings were advanced based on field screening results. Samples at depths between 6 ft bgs and 18 ft bgs were analyzed for VOCs, SVOCs, and petroleum hydrocarbons[66]. The 15 ft sample from boring ASB0147 was analyzed for EPH. Two shallow zone monitoring wells, AGW131 and AGW152, were installed directly south of the chip shed as part of the supplemental RI activities. Groundwater samples from AGW131 and AGW152 were analyzed for VOCs. The location of S-18 and explorations are shown on Figure 6-11.

Soil

Shallow soil samples (6 ft bgs) and deeper samples (15 to 18 ft bgs) collected from each boring contained 2-butanone and acetone at concentrations below screening levels. No other VOCs were detected. SVOCs and petroleum hydrocarbons were not detected. EPH analysis was conducted on the soil sample collected from 15 ft bgs at boring ASB0147; results did not exceed petroleum hydrocarbon criteria based on an evaluation performed using Ecology's MTCA petroleum hydrocarbons workbook (Ecology 2007b). The results of the EPH screening evaluation are presented in Appendix K. A statistical summary of detected soil concentration data is presented in Table 6-27. Detected soil constituents are presented in Table 6-28.

[66] Samples were analyzed for all constituents identified in WAC 173-340-900 Table 830-1 for testing of releases of petroleum hydrocarbons (DRO and ORO). Analysis for PCBs was not conducted because there are no known or likely sources of PCB-containing oil in the area.

Groundwater

Groundwater samples were analyzed for VOCs, SVOCs, and petroleum hydrocarbons[67] at each of the four borings. Petroleum hydrocarbons and SVOCs were not detected in any samples. There were 10 VOCs detected in groundwater. Only benzene, TCE, and VC were detected at concentrations above the screening levels. Benzene was detected at a concentration above the screening level in the sample from ASB0148 (5.4 µg/L) and in one sample from downgradient well, AGW152 (0.8 µg/L); however, benzene is currently not detected in samples from AGW152. Benzene was also detected in the sample from ASB0144, at a concentration less than the screening level. Benzene has not been detected above screening levels in groundwater samples from wells near this SWMU since 2009. VC was also detected above screening levels in all groundwater samples at concentrations ranging from 0.18 µg/L to 7.5 µg/L. VC was the only detected constituent in groundwater in December 2015. A statistical summary of detected groundwater concentration data is presented in Table 6-29. Detected groundwater constituents are presented in Table 6-30.

6.1.10.2 Summary

S-18 is not recommended to be carried forward to the FS. There is no evidence of a significant release of petroleum hydrocarbons related to cutting oil or coolant at S-18. VC was consistently detected at elevated concentrations in groundwater. This area historically had elevated VC concentrations compared to other areas of the Facility; VC is a breakdown product of TCE and current concentrations are consistent with an upgradient TCE source associated with Building 17-07. Site-wide VOC concentrations are addressed as part of Site-wide groundwater and discussed in Section 8.0.

6.1.11 S-30: Building 17-10 Former Debris Pile and Burn Pit

SWMU S-30 (S-30) is a former debris pile and burn pit located near the western portion of Building 17-10. The debris pile was discovered during geotechnical drilling for the planned expansion of Building 17-10 in January 1990. The source of the debris is attributed to activities in the 1940s and 1950s prior to Boeing's ownership and occupation of the Facility (LAI 1990, Tetra Tech 1998). Approximately 2,500 cubic yards (yd^3) of soil and debris were excavated and disposed of prior to expansion of the building (LAI 1990). After soil and debris excavation, 23 composite confirmation samples were collected from the base and sides of the excavation and tested for petroleum hydrocarbons and metals. None of the samples exceeded MTCA screening level criteria at the time. Further discussion of the pre-RI activities are provided in Appendix M.

6.1.11.1 Remedial Investigation

S-30 is a Column IB SWMU. The objective of the S-30 investigation was to evaluate impacts from the former debris pile on groundwater. No specific explorations were called for in the RI work plan. Data

[67] Samples were analyzed for all constituents identified in WAC 173-340-900 Table 830-1 for testing of releases of DRO. Analysis for PCBs was not conducted because there are no known or likely sources of PCB-containing oil in the area.

from two existing downgradient shallow wells (AGW026 and AGW028) were evaluated. S-30 and the downgradient wells are shown on Figure 6-12.

Wells AGW026 and AGW028 were installed in 1991 as part of investigations at the WWPTP (SWMU S-06). Samples collected from these wells were analyzed for metals and VOCs. A statistical summary of detected groundwater concentration data is presented in Table 6-31. Detected groundwater constituents are presented in Table 6-32.

No metals were detected above the screening levels. Seven VOCs were detected; however, only TCE and VC were detected above screening levels. The maximum TCE concentration detected was 3.1 µg/L at AGW028. The maximum VC concentration detected was 0.15 µg/L. Concentrations of TCE and VC are consistent with low-level concentrations in groundwater Site-wide.

6.1.11.2 Summary

S-30 is not recommended to be carried forward to the FS. Previous activities removed debris associated with this SWMU and compliance soil sampling did not detect residual contamination at SWMU S-30. TCE and VC are detected in groundwater above screening levels downgradient of SWMU S-30. The concentrations of TCE and VC are consistent with Site-wide concentrations and are discussed in Section 8.0.

6.2 Area of Concern Evaluation

This section discusses 13 Column IA and Column IB AOCs. The 13 AOCs are shown on Figure 6-13. Included in each subsection are pre-RI activities (if applicable), RI activities for soil and/or groundwater, and recommendations for whether the AOC should be carried forward to the FS.

An additional four AOCs have either received an NFA or are addressed elsewhere in the document and are not presented in this section:

- Building 17-03 AOC A-02a: Former USTs; received an NFA determination(Ecology 2004c) as part of the Area 1 RI (Appendix A)
- Building 17-05 AOC A-08: Metalbond Tankline; Area 1 (Section 7.0)
- AOC A-14: Site-wide Groundwater (Sections 8.0)
- AOC A-15: Site-wide Surface Water (Section 9.0).

6.2.1 A-01: Building 17-06 Former Underground Storage Tanks TAU-01 and TAU-02

AOC A-01 (A-01) consists of two former 10,000-gallon fuel USTs installed near the northwest corner of Building 17-06 in 1967. UST TAU-01 was a diesel tank used to power emergency generators and UST TAU-02 was a gasoline tank. Both tanks were removed in 1990 and approximately 500 yd^3 of contaminated soil was excavated from the former tank areas (Geomatrix 2003b). A fuel island was

also removed. Fuel piping was left in place (Tetra Tech 1998), including piping to a satellite service island near the southwest corner of Building 17-05 (GeoEngineers 1992c). Additional details of the pre-RI activities are presented in Appendix M. Pre-RI explorations are shown in figures, and pre-RI data is provided in tables.

6.2.1.1 Remedial Investigation

A-01 is a Column IA AOC. The objective of the A-01 investigation was to evaluate the extent of residual contamination at A-01 (Geomatrix 2003b). The RI evaluation included reviewing historical soil data and groundwater data in the database. The location of A-01 and both pre-RI and RI explorations are shown on Figure 6-14.

Soil

Soil data was collected at 13 boring locations, 9 of which were converted to wells. GRO and BTEX were commonly detected in soil; however, the only location where these constituents exceeded screening levels was at boring B-4 at 13 ft bgs and boring B-5 at 7 ft bgs. Other VOCs were also detected in soil, such as methylene chloride, TCA, acetone, and 2-butanone; of these constituents, only methylene chloride exceeded screening levels (at B-4 and B-5). A statistical summary of detected soil concentration data is presented in Table 6-33. Detected soil constituents that exceed screening levels are presented in Table 6-34.

During the RI, petroleum hydrocarbon-impacted soil was encountered at A-01 during repair of a water line. Approximately 10 yd^3 of soil was removed from beneath asphalt pavement in an area about 20 ft southwest of AGW010. After excavation, five confirmation soil samples were collected. Sample results indicated the presence of DRO and GRO, and/or ethylbenzene and xylenes, but at concentrations below screening levels (LAI 2004d).

Groundwater

Groundwater samples were collected at all nine groundwater monitoring wells. Most of the wells were sampled from 1995 to 1997, and then again in 2003 and 2004. AGW017 was also sampled in December 2009. Analyses include petroleum hydrocarbons (DRO, ORO, GRO), VOCs (including BTEX), and metals[68]. Only AGW009 (VOCs) and AGW010 (VOCs and petroleum hydrocarbons) are currently sampled as part of interim Site-wide groundwater monitoring (LAI 2016j). A statistical summary of detected groundwater concentration data is presented in Table 6-35. Detected groundwater constituents are presented in Table 6-36.

Petroleum hydrocarbons were detected at four locations: AGW010, AGW011, AGW015, and AGW016. At AGW015, only DRO was detected; the maximum concentration was 0.59 mg/L, only slightly above the screening level of 0.5 mg/L. At AGW016, DRO (maximum 0.59 mg/L) and GRO (maximum 2.07

[68] Metals were only sampled from 1995 to 1997.

mg/L) were detected. At AGW010 and AGW011, the maximum GRO concentrations were 120 mg/L and 2.45 mg/L, respectively. DRO concentrations at these two wells were considerably lower, but still above screening levels. These two wells are located directly northwest of the former tanks. AGW010 is the only well that continues to be sampled for petroleum hydrocarbons. Petroleum hydrocarbon sampling was discontinued at other wells because petroleum hydrocarbon concentrations declined below reporting limits. At AGW010, GRO concentrations have declined from a maximum of 120 mg/L in 1999 to 34 mg/L in December 2015; DRO concentrations have declined from a maximum of 18.7 mg/L in 1995 to 0.97 mg/L in December 2015.

BTEX constituents were detected in wells in the direct vicinity of the former tanks. The pattern of detections is similar to petroleum; however, detections are more widespread. The highest BTEX concentrations were detected at AGW010. Concentrations of BTEX constituents have similarly declined; however, ethylbenzene and xylene still exceed screening levels at AGW010. Petroleum hydrocarbon-related concentrations tend to be higher in the winter suggesting that a smear zone of petroleum hydrocarbons may be present near AGW010. At AGW009, BTEX constituents are non-detect.

The only other VOC constituents that were detected with a moderate level of frequency are TCE and cDCE. VC was also detected once at AGW010 (0.085 µg/L). CDCE was detected at a maximum of 7.41 µg/L at AGW011 in 1994, below the screening level. TCE was detected in all wells except AGW011 and AGW016. The maximum TCE concentration was 9.25 µg/L at AGW017 in 1994. Concentrations have declined to non-detect at wells that continue to be monitored (AGW009 and AGW010).

A number of other VOCs were detected intermittently slightly above screening levels (e.g., 1,1,2,2-tetrachloroethene [1,1,2,2-PCE]; 1,1,2-trichloroethane [1,1,2-TCA]; and 1,2-dichloroethane [1,2-DCA]). These VOCs are no longer detected at A-01 and therefore, are not considered significant. Metals were sampled for once; no dissolved metals were detected above screening levels.

6.2.1.2 Summary

Releases from the A-01 USTs resulted in groundwater petroleum hydrocarbon contamination downgradient of the USTs to the north and northwest of the former tanks. Detections of BTEX constituents were more widespread. Currently, exceedances of screening levels for petroleum hydrocarbon and BTEX constituents are limited to well AGW010, based on the most recent sampling data. Concentrations of petroleum hydrocarbons and BTEX have shown a declining trend consistent with natural attenuation processes. There may be minor amounts of residual product in groundwater smear zone near this well that have caused concentrations to persist. A-01 will be carried forward for evaluation in the FS to address petroleum hydrocarbon groundwater impacts.

TCE and VC historically occurs near the former UST both upgradient and downgradient; however, neither constituent was detected in the most recent samples (June/December 2015). TCE and VC

concentrations that were detected historically are consistent with concentrations of TCE and VC detected Site-wide and are discussed in Section 8.0.

6.2.2 A-02b: Building 17-06 Former Underground Storage Tank TAU-23

AOC A-02b (A-02b) is a former jet fuel product storage tank that was installed in 1982 along the eastside of Building 17-06 and directly west of Building 17-09. The tank was reportedly never filled. It was constructed of single-walled fiberglass (Kennedy/Jenks/Chilton 1989). The UST was removed in 1986 and identified as former UST TAU-23 (Tetra Tech 1998). There were no pre-RI explorations that specifically targeted A-02b. However, there were extensive investigations associated with SWMU S-15a/S-16, the aluminum briquetter, located about 200 ft to the northwest in Building 17-06, and several groundwater monitoring wells are located downgradient including AGW041. AGW117 is located just south of A-02b.

6.2.2.1 Remedial Investigation

A-02b is a Column IB AOC. The objective of the A-02b investigation was to evaluate potential petroleum hydrocarbon impacts from the former UST TAU-23. No specific explorations were called for in the RI work plan. Groundwater data from existing shallow well AGW041 and RI shallow well AGW117 were used to evaluate this AOC. AGW117 is located upgradient of the UST and AGW041 is located downgradient. The location of A-02b and groundwater wells are shown on Figure 6-15. A statistical summary of detected compounds in groundwater and groundwater analytical results are presented in Tables 6-37, and 6-38, respectively.

AGW041 was sampled for VOCs, metals, and petroleum hydrocarbons. AGW117 was sampled for VOCs and petroleum hydrocarbons. Petroleum hydrocarbons were not detected at either well. Ethylbenzene and xylene were detected below screening levels at AGW041. It is more likely that these detections are associated with a release from Building 17-06. than the A-02b UST, given the proximity of this well to the building and similar concentrations of these compounds in S-15a/S-16 wells.

TCE and PCE were consistently detected at both wells; however, only TCE was detected above screening levels, with a maximum concentration of 2.3 µg/L. VC was also detected once above the screening level at AGW117. All current concentrations of VOCs are below screening levels.

6.2.2.2 Summary

A-02b is not recommended to be carried forward to the FS. There is no evidence of a release from the former A-02b UST. The occurrence of TCE and VC above the screening levels is unlikely to be associated with the former UST. The concentrations of TCE and VC that were detected are consistent with concentrations of TCE and VC detected Site-wide. Concentrations of TCE and VC are currently below screening levels at AGW117 and AGW041 and are discussed in Section 8.0.

6.2.3 A-02c: Building 17-08 Former Underground Storage Tank TAU-16

AOC A-02c (A-02c) is a former 5,000-gallon fuel oil UST installed in 1966. According to one report, this steel tank UST was located 9 ft north of the Building 17-08 boiler room (Kennedy/Jenks/Chilton 1989). The RFA (Tetra Tech 1998) summary indicates the UST, identified as TAU-16, was located east of Building 17-08. The RI work plan indicates the UST was located about 100 ft north of the northeast corner of Building 17-08. The tank was reportedly out of service in 1984 and was removed in 1986 (Tetra Tech 1998). When the A-02c tank was removed in 1986 there was an indication of minor petroleum hydrocarbon contamination. Soil sample results ranged from 50 mg/kg to 600 mg/kg (Kennedy/Jenks/Chilton 1989), below current screening levels.

In 2007, subsequent to completion of RI fieldwork, Boeing personnel located what appeared to be the former boiler room in Building 17-08. Outside of the building is a large asphalt patch and what may have been a fill or vent port (Swortz 2007b). These findings suggest that the UST location documented in the RI work plan may be incorrect and the location documented in the 1989 Kennedy/Jenks/Chilton report was correct. The patched asphalt area was subsequently investigated as part of the RI.

6.2.3.1 Remedial Investigation

A-02c is a Column IA AOC. The objective of the A-02c investigation was to evaluate potential petroleum hydrocarbon and SVOC impacts from the former TAU-16 UST. A single RI boring (ASB0149) was advanced in 2004 near the presumed location of the former UST (near the northeast corner of the building). An additional boring (ASB0178) was advanced in 2008 as part of the supplemental RI to investigate the asphalt patch area north of the former boiler room that is thought to be the correct location of the former UST. Soil and groundwater samples were collected from both borings. Groundwater data from existing well AGW104, located about 320 ft downgradient, was also used to evaluate this location. The location of A-02c and explorations are shown on Figure 6-16.

Soil

Two samples were collected at depths of 15 ft bgs and 21 ft bgs from boring ASB0149 for analysis of SVOCs, petroleum hydrocarbons (DRO and ORO), and EPH. No analysis for VOCs or PCBs was conducted; there were no petroleum-related VOCs detected in groundwater and there are no known or likely sources of PCB-containing oil in the area. EPH results did not exceed petroleum hydrocarbon criteria based on an evaluation performed using Ecology's MTCA petroleum hydrocarbons workbook (Ecology 2007b). The results of the EPH screening evaluation are presented in Appendix K. Two samples were collected at depths of 13 ft bgs and 16 ft bgs from boring ASB0178 for analysis of SVOCs and petroleum hydrocarbons. There were only two detections of SVOCs at either sample depth, and both were below screening levels. There were no detections of petroleum hydrocarbons. Stepout borings were contingent on field screening of initial borings; based on field screening results, no stepout borings were required. A statistical summary of detected soil concentration data is presented in Table 6-39. Detected soil constituents are presented in Table 6-40.

Groundwater

Groundwater samples were collected from ASB0149 at 18 ft bgs and ASB0178 at 16 ft bgs and analyzed for SVOCs and petroleum hydrocarbons. There were no detections of any constituents. AGW104 was sampled twice in 2004 for VOCs, SVOCs, metals, and petroleum hydrocarbons[69]; currently this well is only sampled for VOCs. There were no detections of petroleum hydrocarbons or related constituents. The only constituent detected above the screening level was TCE at a concentration of 0.6 µg/L. However, TCE concentrations have decreased and were non-detect during the most recent sampling event in June 2015. A statistical summary of detected groundwater concentration data is presented in Table 6-41. Detected groundwater constituents are presented in Table 6-42.

6.2.3.2 Summary

A-02c is not recommended to be carried forward to the FS. No evidence of a release from the A-02c UST was detected during the RI. However, it is likely that the identified location of A-02c was incorrect and boring ASB0149 was not located at this former UST. During the supplemental RI, boring ASB0178 was installed at what is expected to be the correct UST location. There was no evidence of a release based on data from this new boring. The detections of TCE in groundwater at AGW104 are not likely to be from the UST, but are consistent with concentrations of TCE detected Site-wide. TCE is now non-detect at AGW104.

6.2.4 A-02d: Building 17-10 Former Underground Storage Tank TAU-06

AOC A-02d (A-02d) is a former 1,200-gallon diesel oil UST installed in 1967 to fuel an emergency generator. The steel UST was located 10 ft north of the emergency generator room outside on the east side of Building 17-10. The RFA summary indicates the tank had a release from the piping or overflow (Tetra Tech 1998). The tank, identified as TAU-06, was removed in 1986. This tank was replaced with a double walled UST with an integrated leak detection system identified as TAU-27[70] [71].

When UST TAU-06 was removed in 1986, soil samples were collected for petroleum hydrocarbon analysis. Soil concentrations ranged from 150 mg/kg to 850 mg/kg (Kennedy/Jenks/Chilton 1989). These levels are below the current diesel-range petroleum hydrocarbon screening level of 2,000 mg/kg (see Section 5.3.1 for a discussion on the development of petroleum hydrocarbon screening levels).

6.2.4.1 Remedial Investigation

A-02d is a Column IA AOC. The objective of the A-02d investigation was to evaluate potential petroleum hydrocarbon and SVOC impacts from the former TAU-06 UST to soil and groundwater. A

[69] Samples were analyzed for all constituents identified in WAC 173-340-900 Table 830-1 for testing of releases of DROS. Analysis for PCBs was not conducted because there are no known or likely sources of PCB-containing oil in the area.
[70] The replacement tank is also identified with the MSS number: A0011001.
[71] Phone conversation with Jennifer Wynkoop, LAI, and Jim Swortz, Boeing on January 12, 2017.

single RI boring (ASB0150) was advanced near the former UST to evaluate soil and groundwater conditions. A-02d and explorations are shown on Figure 6-17.

Soil

A soil sample was collected at 21 ft bgs from boring ASB0150 for analysis of SVOCs, petroleum hydrocarbons, and EPH. SVOCs and petroleum hydrocarbons were not detected; however low concentrations of, aromatic EPH in the C8-C10 range were detected. EPH results did not exceed petroleum hydrocarbon criteria based on an evaluation performed using Ecology's MTCA petroleum hydrocarbons workbook (Ecology 2007b). The results of the EPH screening evaluation are presented in Appendix K. Stepout borings were contingent on field screening of initial borings; based on field screening results, no stepout borings were required.

Groundwater

A groundwater sample was collected from ASB0150 at 18 ft bgs. The sample was analyzed for SVOC and petroleum hydrocarbons. There were no detections of any constituents.

6.2.4.2 Summary

A-02d is not recommended to be carried forward to the FS. Soil and groundwater data from downgradient boring ASB0150 did not detect evidence of a release from this former UST.

6.2.5 A-03: Building 17-35 Former Unregistered Waste Oil Tanks

AOC A-03 (A-03) consists of two former underground tanks at the Building 17-35 chip shed. The chip shed and associated sump that is still in operation are designated as SWMU S-18. The Building 17-35 chip shed is a management area for metal chips from machining activities. Metal chips that contain some coolant or cutting fluid are transported in tub skids to the shed, where they are loaded into roll-off boxes. The fluid draining from the chips drains into a sump that runs the length of Building 17-35. The sump is connected to piping that leads to the nearby WWPTP (Geomatrix 2003b). The former tanks that are designated as A-03 were used to collect rainwater contaminated with coolant or cutting fluid and were located near the southeast and southwest corners of the building (Geomatrix 2003b). The tanks were apparently discovered by Boeing and reported to Ecology in 1990 (Geomatrix 2003b). The tanks were subsequently removed and replaced with a new sump system connected to the WWPTP (GeoEngineers 1991a). The new sump system is presumed to be the current system described as SWMU S-18. There are no known pre-RI explorations associated with these tanks.

6.2.5.1 Remedial Investigation

A-03 is a Column IA AOC. The objective of the A-03 investigation was to evaluate potential for releases of coolant or cutting fluid constituents from these tanks. An RI boring was advanced directly downgradient of each of the tank locations (ASB0143 and ASB0146) to evaluate soil and groundwater conditions. The location of A-03 and explorations are shown on Figure 6-18.

Soil

Soil samples were collected at 12 ft and 15 ft bgs at ASB0143 and 15 ft bgs at ASB0146. Samples were analyzed for VOCs, petroleum hydrocarbons[72], and SVOCs. The only constituents detected were acetone and 2-butanone below screening levels. A statistical summary of detected soil concentration data is presented in Table 6-43. Detected soil constituents are presented in Table 6-44.

Groundwater

Groundwater samples were collected from both borings and analyzed for VOCs, petroleum hydrocarbons, and SVOCs. Naphthalenes were detected at ASB0143 at concentrations below the screening level. VC was detected at 0.75 µg/L, above the screening level, at ASB0143. A statistical summary of detected groundwater concentration data is presented in Table 6-45. Detected groundwater constituents are presented in Table 6-46.

6.2.5.2 Summary

A-03 is not recommended to be carried forward to the FS. There is no evidence of a significant release from the A-03 waste oil tanks. The detection of VC is consistent with other VC detections in the area and is addressed as part of the Site-wide groundwater contamination in Section 8.0.

6.2.6 A-04: Former Underground Bailer Tank/Sump

AOC A-04 (A-04) is the sump tank associated with the titanium chip bailer that is designated as SWMU S-17 at Building 17-29 (see Section 6.1.9). The sump tank was apparently discovered by Boeing and reported to Ecology in 1990 (Geomatrix 2003b). The sump tank is postulated to be the same as one of the AOC A-03 waste oil tanks that were reported at this location (Geomatrix 2003b). When the tank was discovered, there was visible evidence of a release due to tank overfilling (Tetra Tech 1998). The tank was removed in 1991 (Tetra Tech 1998). Approximately 200 yd^3 of soil was excavated when the tank was removed. Confirmation soil samples were collected at the sides of the excavation. Only the soil remaining along the east edge of the excavation (beneath the west edge of Building 17-29) had detectable petroleum hydrocarbons but concentrations were below current screening levels.

6.2.6.1 Remedial Investigation

A-04 is a Column IB AOC. The objective of the A-04 investigation was to evaluate the potential for releases of coolant or cutting fluid constituents from the tank. No RI borings were advanced specifically for this AOC; however, two borings were advanced nearby to investigate SWMU S-17 (Section 6.1.9). Based on the evaluation of SWMU S-17, there is no evidence of a significant release of cutting oil or coolant near the titanium chip bailer, including the sump tank. Three existing nearby wells (AGW076, AGW077, and AGW078) were also evaluated to assess impacts from the A-04 sump tank. These wells are located north and west of A-04 and Building 17-29. Well AGW076 is located

[72] Samples were analyzed for all constituents identified in WAC 173-340-900 Table 830-1 for testing of releases of DROs. Analysis for PCBs was not conducted because there are no known or likely sources of PCB-containing oil in the area.

directly downgradient of the sump tank. The location of A-04 and explorations are shown on Figure 6-19.

AGW076 and AGW077 were sampled periodically between 1996 and 2004. AGW078 is still sampled for VOCs as part of the interim groundwater monitoring program and was most recently sampled in June 2015. Constituents that were analyzed at these three wells include VOCs, SVOCs, metals, and petroleum hydrocarbons. The only constituents that were detected above screening levels were bromodichloromethane and TCE. The maximum detected concentrations were 0.3 µg/L and 1.5 µg/L, respectively. VOCs have not been detected since 2004. A statistical summary of detected groundwater concentration data is presented in Table 6-47. Detected groundwater constituents are presented in Table 6-48.

6.2.6.2 Summary

A-04 is not recommended to be carried forward to the FS. No evidence of a release from the A-04 sump tank was detected based on nearby soil borings associated with the SWMU S-17 investigation or groundwater data from nearby monitoring wells. The previous detections of VOCs in groundwater at nearby wells are not considered to be associated with the sump tank, and are consistent with concentrations on the east side of the Site. Site-wide VOCs in groundwater are discussed in Section 8.0.

6.2.7 A-05: Building 17-64 Unleaded Gasoline Underground Storage Tank TAU-32

AOC A-05 (A-05) is a 10,000 gallon unleaded gasoline UST near the southeast corner of Building 17-64 (Tetra Tech 1998). The UST, identified as TAU-32, was installed in 1992. Evidence of gasoline contamination in soil was discovered during construction at a nearby fuel island (Boeing 1993); however, there is no record of a release at the UST. This UST remains in service. In addition, there is also a 10,000-gallon diesel UST that was installed at the same time as the gasoline UST. The diesel UST is identified as TAU-31[73]. Both of the USTs are double walled and have continuous leak detection monitoring systems[74].

Boeing performed a cleanup action at the fuel island in 1993. There were 19 confirmation samples collected and petroleum hydrocarbons did not exceed screening levels in any sample. Additional details regarding pre-RI activities are presented in Appendix M.

6.2.7.1 Remedial Investigation

A-05 is a Column IB AOC. The objective of the A-05 investigation was to evaluate the potential for releases to groundwater of gasoline and associated constituents from the UST. A single RI boring (ASB0154) was advanced directly downgradient of the tank location. The boring was drilled to 20 ft

[73] The USTs TAU-31 and TAU-32 are also identified with the MSS number: 9754.
[74] Phone conversation with Jennifer Wynkoop, LAI, and Jim Swortz, Boeing on January 12, 2017.

with a temporary screen set between 15 ft and 20 ft bgs. A single groundwater sample was collected and analyzed for petroleum hydrocarbons, volatile petroleum hydrocarbons, EPH, and BTEX. No constituents were detected. The location of A-05 and explorations are shown on Figure 6-20.

6.2.7.2 Summary

A-05 is not recommended to be carried forward to the FS. A-05 is a relatively new UST (i.e., installed in 1992) and has an active continuous leak detection system.. RI explorations at the UST location did not detect any evidence of a release.

6.2.8 A-06: Building 17-66 Building Expansion Excavations

AOC A-06 (A-06) consists of four areas[75] that were excavated during construction activities at Building 17-66. Debris and/or visibly contaminated soil were observed and removed in all four areas. Confirmation samples were collected to confirm adequate soil removal. The excavated soil contained petroleum hydrocarbons, BTEX, VOCs (including TCE), and metals (chromium, aluminum, zinc, and nickel) (Geomatrix 2003b, Kennedy/Jenks 1992a, 1993b, c). Groundwater monitoring wells were installed during a subsequent hydrogeologic investigation to evaluate the surrounding groundwater quality. VOCs were detected in groundwater at concentrations below the applicable MTCA screening levels at the time (Geomatrix 2003b). Additional detail regarding pre-RI activities is provided in Appendix M.

6.2.8.1 Remedial Investigation

A-06 is a Column IB AOC. The objective of the A-06 investigation was to evaluate the potential for releases to groundwater from the excavated soil debris areas beneath and south of Building 17-66. No RI borings were advanced specifically for this AOC evaluation. The four existing nearby wells (AGW020, AGW021, AGW022, and AGW023) were evaluated to assess impacts from these excavation areas. The location of A-06, pre-RI excavation areas, and wells are shown on Figure 6-21.

Sampling at wells AGW020 through AGW023 was conducted between 1995 and 2000[76] and included:

- Six to twelve VOC analyses at all wells
- Six petroleum hydrocarbon analyses at wells AGW020 and AGW023
- A single dissolved metals analysis at all wells
- Pesticides, PCBs, and SVOCs once in 1995 at AGW020.

In addition, Ecology requested three additional shallow zone monitoring wells (AGW132, AGW133, and AGW153) be installed and be sampled for VOCs. Groundwater samples from AGW133 were also collected from approximately 25 ft bgs (shallow zone), 35 ft bgs (intermediate zone), and 45 ft bgs

[75] The RI work plan only lists three areas (Geomatrix 2003b).
[76] At least one sample was analyzed for all constituents identified in WAC 173-340-900 Table 830-1 for testing of releases of DROs.

(intermediate zone). There were no exceedances of screening levels for VOCs at AGW133 from 35 ft or 45 ft bgs; therefore, no further evaluation of intermediate and deep zone groundwater in this area was conducted. A statistical summary of detected groundwater concentration data is presented in Table 6-49. Detected groundwater constituents are presented in Table 6-50.

The only constituents detected above screening levels were TCE and VC. The maximum concentration of TCE was 1.16 µg/L at AGW023 in 1994. TCE was not detected in more recent samples from AGW023. The maximum concentration of VC was 0.17 µg/L at AGW153 in 2009. In the wells still monitored as part of the Site-wide groundwater monitoring program (AGW133 and AGW155) no VOCs exceeded screening levels during the most recent sampling event (June 2015).

6.2.8.2 Summary

A-06 is not recommended to be carried forward to the FS. Historical disposal of debris and waste material occurred near Building 17-66. The source of the debris is unknown. Contaminated soil and debris were removed from four excavations. The primary constituents of concern in the excavations were VOCs, petroleum hydrocarbons, and metals. The initial June 1992 excavation area may have been a minor source of TCE and related constituents to groundwater, as TCE was detected in soil debris from the June 1992 excavation. TCE was also detected in temporary groundwater sampling locations at concentrations up to 93 µg/L near this excavation. RI evaluations of nearby monitoring wells did not detect any constituents above screening levels with the exception of TCE and VC at concentrations below 2 µg/L. Both constituents were below screening levels during the most recent sampling event in June 2015. This suggests that TCE impacts associated with the debris areas were minor and the impacts have been largely addressed through soil removal and natural attenuation.

6.2.9 A-07: Building 17-08 Former Methyl Ethyl Ketone Underground Storage Tank TAU-18

AOC A-07 (A-07) is a former UST (TAU-18) located at Building 17-08. This tank was a 10,000-gallon, single-wall, steel underground tank that was used to store MEK[77]. The tank was installed in 1966 and removed in 1992 (Tetra Tech 1998). Confirmation sampling following tank removal confirmed that MEK levels in soil were below screening levels. Additional detail regarding pre-RI activities is provided in Appendix M.

6.2.9.1 Remedial Investigation

A-07 is a Column IB AOC. The objective of the A-07 investigation was to evaluate potential for releases to groundwater from the MEK tank. No RI borings were advanced specifically for this AOC evaluation. The existing monitoring well AGW018 is located directly north (downgradient) of the tank. Data from

[77] MEK or methyl ethyl ketone is also called 2-butanone.

this well was evaluated to assess impacts from the former UST. The location of A-07 and well AGW018 are shown on Figure 6-22.

AGW018 was sampled for VOCs between 1994 and 2003; the well was sampled once for metals in 1995. Eight VOCs were detected; MEK was not detected. TCE and 1,2-DCA were detected at concentrations above screening levels. The maximum TCE concentration was 4.8 µg/L; the most recent concentration was 0.4 µg/L (below the screening level) in 2003. A statistical summary of detected groundwater concentration data is presented in Table 6-51. Detected groundwater constituents are presented in Table 6-52.

6.2.9.2 Summary

A-07 is not recommended to be carried forward to the FS. RI evaluations indicate that there was not a significant release of MEK to groundwater from the A-07 UST. The occurrence of TCE and other VOCs is consistent with detections Site-wide and is discussed in Section 8.0.

6.2.10 A-09: Building 17-07 Acid Scrubber Drain Line Leak

AOC A-09 (A-09) is defined as a leak from the acid scrubber drain line located on the south side of Building 17-07 near column C11. The acid scrubber drain line connected scrubbers No. 2 and No. 3 to the tank line in Building 17-07. The leak was discovered during closure and removal of two waste holding tanks, one used for acid waste and one used for cyanide waste[78], (AGI 1996c) located between scrubbers No. 2 and No. 3. During an excavation to remove the waste holding tanks, seepage was noted about 5 ft bgs near a structural pier along the south wall of Building 17-07 (Column C11). Inspection of the area following excavation revealed that the seepage was the result of a leak from the acid scrubber drain line. Impacted soil was excavated to the extent practicable, and a new drain line was installed and re-routed to prevent further discharges. Due to structural stability issues, some impacted soil was left under the footprint of the building and under the adjacent scrubber No. 3 pad foundation. Approximately 60 yd^3 of concrete and 200 yd^3 of soil were removed during excavation; the total depth of excavation was about 12 ft bgs. The excavation was backfilled with imported clean pit run sand and gravel. Additional details of the pre-RI excavation activities are presented in Appendix M.

6.2.10.1 Remedial Investigation

A-09 is a Column IA AOC. The objective of the A-09 investigation was to evaluate potential releases of metals to groundwater from the historical drain line leak. No RI borings were advanced specifically for

[78] The acid and cyanide waste holding tanks were closed in accordance with an Ecology approved closure plan under RCRA (AGI 1996a, AGI 1996b). A final closure report was submitted to Ecology with a request for clean closure certification (AGI 1996c). Ecology accepted the clean closure certification for the waste tanks and indicated that Boeing had satisfied the closure requirements for both units (Ecology 1997). In the clean closure certification letter Ecology indicated that since the acid scrubber drain line leak, not the tanks, appeared to be the source of residual cadmium and copper contamination in soil, Ecology did not require cleanup of the area as part of the RCRA closure activities. However, Ecology advised Boeing that the area would be included in the list of SWMUs and AOCs requiring RCRA Corrective Action. This area is now designated as A-09.

this AOC evaluation. Previous soil sampling data (pre-RI) and data from existing monitoring wells AGW046, AGW047, AGW048, AGW049, and AGW050 were evaluated to assess potential impacts. The location of A-09 and explorations are shown on Figure 6-23.

Soil

Compliance soil samples indicated that cadmium, copper, cyanide, and lead concentrations were left in place above current screening levels. A statistical summary of detected soil constituents is presented in Table 6-53. Detected soil constituents are presented in Table 6-54.

Groundwater

Samples were collected from existing shallow zone monitoring wells AGW046 through AGW050 for analysis of metals. In addition, these wells were occasionally sampled for VOCs and cyanide. VOC concentrations are consistent with Site-wide concentrations. A statistical summary of detected groundwater constituents is presented in Table 6-55. Detected groundwater constituents are presented in Table 6-56.

Dissolved metals and cyanide exceeded screening levels at least once in each of the wells. Constituents that exceeded screening levels were arsenic, cadmium, chromium, hexavalent chromium, copper, cyanide, mercury, nickel, and vanadium. Cadmium, nickel, and copper exceeded screening levels most frequently. The highest concentrations were detected at AGW049 and AGW050, located directly downgradient of the leak area in Building 17-07.

Groundwater concentrations have declined at all wells over time. AGW048, AGW049, and AGW050 continue to be monitored for cadmium and nickel. Time series plots for cadmium and nickel are presented in Appendix N. During the most recent sampling event in December 2015, only cadmium exceeded its screening level in a sample collected from AGW050. All other constituents are currently below screening levels.

6.2.10.2 Summary

Soil data collected during excavation and removal of the waste hold tanks and excavation of the acid scrubber line confirmed that metals-contaminated soil was left in place. Groundwater sampling confirmed contamination of groundwater with a number of dissolved metals. Some of the metal contamination in groundwater may have been associated with low pH levels caused by the leak; pH in groundwater at AGW048, AGW049, and AGW050 is currently around 6. Concentrations of metals in groundwater have continued to decline over time; currently only cadmium exceeds the screening level at AGW050. A-09 will be carried forward for evaluation in the FS to address metals and cyanide in groundwater.

6.2.11 A-10: Building 17-10 G&L Post Mill

AOC A-10 (A-10) is the former G&L post mill located in the Building 17-10. This large mill was brought into service in 1968 and uses cutting fluids and coolants. A coolant recirculation system and concrete sump were located at the south end of the mill. The sump served as a fluids collection point. The sump dimensions were approximately 4 ft by 9 ft; the base of the sump extended to about 7 ft bgs. A smaller sub-sump was located at the western end of the main sump. The sump, designated SAU10-05, was repaired in 1996 after a breach in the sump wall was confirmed (LAI 2001a). In 2001, the G&L post mill was removed and the coolant recirculation system and sump areas were filled with concrete (Swortz 2007c). As part of the mill decommissioning, a PCB cleanup of the anchor bolt attachments in the machine pit base was conducted; affected attachment assemblies were cored out and subsequent verification sampling confirmed that PCBs were less than 1 mg/kg (CDM 2001a). Additional details of pre-RI activities are provided in Appendix M.

6.2.11.1 Remedial Investigation

A-10 is a Column IB AOC. The objective of the A-10 investigation was to evaluate the potential for ongoing impacts from coolants and cutting oils previously used in the G&L post mill. No RI borings were drilled specifically for this AOC evaluation. Existing monitoring well data, pre-RI soil boring data, and soil sampling data were evaluated to assess potential impacts. The location of A-10 and explorations are shown on Figure 6-24.

Ecology requested additional downgradient groundwater sampling to verify that impacts from this AOC are not affecting downgradient groundwater (Ecology 2016). Monitoring wells AGW026 and AGW028 were sampled for petroleum hydrocarbons (DRO and ORO). The additional groundwater sampling was completed in December 2016. The results of this sampling are presented in Status Report 57(LAI 2017b) and discussed below.

Soil

Pre-RI explorations documented soil impacts in the area of the mill sump at AGW038 and AGW039. The maximum petroleum hydrocarbon concentration was for ORO (26,000 mg/kg) at 8.5 ft bgs at AGW038. Carcinogenic polycyclic aromatic hydrocarbons; as the toxic equivalent concentration of benzo(a)pyrene also exceeded screening levels at nearby sump borings ASB0090, ASB0091, and ASB0092. Methylene chloride exceeded screening levels in two samples. Petroleum hydrocarbons and antimony concentrations exceeding screening levels were encountered in an excavation for an electrical trench near the southwest corner of the mill. PCBs were detected in soil adjacent to the trench; however, concentrations did not exceed screening levels. PCBs were analyzed in seven soil samples collected from AGW038 and AGW039 located next to the G&L post mill sump. The samples were collected from 2.5 ft to 8.5 ft bgs. PCBs were detected in one sample at 41 µg/kg, below the screening level. A statistical summary of detected soil concentration data is presented in Table 6-57. Detected soil constituents are presented in Table 6-58.

Groundwater

Groundwater was sampled for petroleum hydrocarbons[79] and VOCs at the three A-10 monitoring wells (AGW038, AGW039, and AGW040) between 1995 and 2004. PCBs, SVOCs, and metals were sampled at least once from each of the three wells. DRO and ORO concentrations exceeded screening levels at the two wells adjacent to the sump (AGW038 and AGW039), but not at the downgradient well (AGW040). More recent sampling indicates that petroleum hydrocarbon concentrations are declining and during the most recent sampling event in June 2013, no petroleum hydrocarbons were detected at AGW039 and AGW040. SVOCs were not detected above screening levels and PCBs were not detected in the three wells. TCE and VC consistently exceeded screening levels at all three wells. All three wells had at least one exceedance of TCE and/or VC during the most recent sampling event in June 2015. Dissolved arsenic previously exceeded screening levels at AGW039. In 2004, arsenic had declined from a maximum of 24 µg/L to 3 µg/L (below the screening levels). During sampling of this well in December 2015, arsenic concentrations were 9.9 µg/L, above the screening level. However, no anthropogenic source of arsenic is present in this area and concentrations in groundwater are consistent with naturally occurring arsenic; occurrence of arsenic in this area may be related to reducing conditions present in the aquifer. A statistical summary of detected groundwater concentration data is presented in Table 6-59. Detected groundwater constituents are presented in Table 6-60.

Groundwater collected from AGW026 and AGW028 in December 2016 was analyzed for petroleum hydrocarbons (DRO and ORO). There were no detections of petroleum hydrocarbons at these wells downgradient of A-10[80].

6.2.11.2 Summary

A-10 is not recommended to be carried forward to the FS. Soil and groundwater investigations near the A-10 sump indicate that minor releases of coolant and cutting oils occurred at the G&L post mill near the mill sump; however, petroleum hydrocarbon concentrations have declined below reporting limits at wells AGW039 and AGW040 and are not detected at downgradient monitoring wells AGW026 and AGW028.

PCBs were detected in hydraulic oil associated with the machine pit bolt assemblies; however, verification sampling after a self-implemented cleanup indicated that PCBs had not penetrated appreciably into the concrete foundation. PCBs were also detected in soil samples collected adjacent to the G&L post mill concentrations did not exceeded screening levels. Also, PCBs were not detected in groundwater samples from the three A-10 monitoring wells.

[79] At least one sample was analyzed for all constituents identified in WAC 173-340-900 Table 830-1 for testing of releases of DROs.

[80] These results are presented in Status Report Number 57 (LAI 2017), but are not presented in any tables or figures as the sampling took place after the RI cutoff date of December 2015.

Dissolved arsenic concentrations slightly exceeded screening levels in groundwater near the sump; however, concentrations have declined as petroleum hydrocarbon concentrations have declined; arsenic concentrations slightly exceed the screening level at AGW039 in December 2015. The source of arsenic is likely naturally occurring, as no anthropogenic sources of arsenic are present in the vicinity or upgradient. Naturally occurring elevated arsenic concentrations (i.e., above 10 µg/L) have been documented in a number of water systems in southwestern King County by WDOH (2007).

TCE and/or VC exceeded screening levels in groundwater at all wells; however, concentrations are consistent with Site-wide concentrations and are addressed as part of the Site-wide groundwater AOC and discussed in Section 8.0.

6.2.12 A-12: Building 17-09 Historical Fuel Oil Spill

AOC A-12 (A-12) is the area of a reported fuel oil spill associated with a 400,000-gallon fuel oil tank. The tank was an aboveground storage tank installed in 1966 southwest of Building 17-09 and east of the southern portion of Building 17-06. The tank was used for No. 6 fuel oil until 1993 and subsequently used for No. 2 fuel oil (Tetra Tech 1998). The aboveground storage tank was moved into secondary containment in 1987 and remains in service holding No. 2 fuel oil[81].

In 1995, discolored soil was discovered near the tank and attributed to spillage associated with filling operations. Eight yd^3 of petroleum hydrocarbon-contaminated soil was removed and confirmation soil samples collected. Sample results indicated that concentrations in remaining soil were below screening levels (Geomatrix 2003b).

6.2.12.1 Remedial Investigation

A-12 is a Column IA AOC. The objective of the A-12 investigation was to evaluate potential for releases of petroleum hydrocarbon and SVOCs to soil and groundwater from the fuel oil spill. Two soil borings (ASB0151 and ASB0152) were advanced directly downgradient of the AST. The borings were drilled to 17 ft and 16 ft bgs, respectively. The locations of A-12 and explorations are shown on Figure 6-25.

Soil

A single soil sample was collected from each boring at a depth of 15 ft bgs for analysis of SVOCs and petroleum hydrocarbons (DRO and ORO)[82]; the ASB0152 sample was also analyzed for EPH. ORO was detected in both samples at concentrations of 21 mg/kg (ASB0151) and 17 mg/kg (ASB0152), well below the screening level of 2,000 mg/kg. DRO and EPH were not detected. The results of the EPH screening evaluation are presented in Appendix K. Stepout borings were contingent on field screening of initial borings; based on field screening results, no stepout borings were required. A statistical

[81] Phone conversation with Jennifer Wynkoop, LAI, and Jim Swortz, Boeing on January 12, 2017.

[82] Samples were analyzed for all constituents identified in WAC 173-340-900 Table 830-1 for testing of releases of petroleum hydrocarbons (DRO and ORO). Analysis for PCBs was not conducted because there are no known or likely sources of PCB-containing oil in the area.

summary of detected soil concentration data is presented in Table 6-61. Detected soil constituents are presented in Table 6-62.

Groundwater

Groundwater samples were collected from ASB0151 and ASB0152 from temporary screens. These samples were submitted for analysis of SVOCs and petroleum hydrocarbons. There were no detections of any constituents.

6.2.12.2 Summary

A-12 is not recommended to be carried forward to the FS. A reported fuel oil spill at A-12 resulted in contamination of a relatively small amount of soil that was removed in 1995. RI evaluations did not detect evidence of a significant release at this location.

6.2.13 A-13: Building 17-06 Petroleum Hydrocarbon Contamination

A new AOC (A-13) was designated to address petroleum hydrocarbon soil and groundwater contamination on the east side of Building 17-06. This AOC encompasses the area investigated for SWMU S-15a and S-16 (Section 6.1.6). The purpose of designating a new AOC in this area is to streamline the FS and cleanup in this area. The source of petroleum hydrocarbons in A-13 was initially thought to be the chip collection system, associated sumps, and the aluminum briquetter (defined as SWMU S-15a/S-16). However, subsequent investigation indicates that the source of petroleum hydrocarbons in the subsurface may be unrelated to the chip collection system and briquetter structures. Designating this area as an AOC allows consideration of other release pathways and remediation options. Because A-13 encompasses S-15a and S-16, these SWMUs will not be carried forward to the FS, but impacts to soil and groundwater associated with these SWMUs will be carried forward to the FS as part of A-13.

In 2010, Boeing conducted a sump cleaning and lining project at the eight waste oil sumps associated with the chip collection system near A-13. Each sump was cleaned, inspected, repaired if necessary, and a new epoxy liner was installed to prevent fluid leakage out of the sump (LAI 2011a). Because of this work, the waste oil sumps associated with the chip collection system are unlikely to be a current point of release. The primary concern at A-13 is petroleum hydrocarbon contamination in well AGW128, which also periodically exhibits free phase petroleum product (light non-aqueous phase liquid [LNAPL]). To further investigate the source of the petroleum hydrocarbons in well AGW128, Boeing completed forensic analysis of samples from the well and other possible sources. In addition, Boeing completed dye testing in Mill 142, which is just north of AGW128.

6.2.13.1 Forensic Analysis

Recent investigation at A-13 included collection and forensic analysis of samples from AGW128, possible source areas, and reference samples in 2015. The purpose of the forensic investigation was to determine whether samples from nearby waste oil accumulation area or reference samples

matched the petroleum hydrocarbon profile at well AGW128. Samples submitted for forensic analysis included:

- Water and product from well AGW128
- Waste oil from six accumulation areas associated with the chip conveyance system and aluminum briquetter including sumps and collection trenches
- Nine reference samples of raw oil products that are used in the milling processes on the east side of the building.

Forensic sample analysis was completed by Apex Environmental Laboratory (APEX) and utilized modified ASTM International (ASTM) D2887-14 to evaluate the petroleum fractions in each sample and determine if the samples contain similar mixtures of petroleum products.

Findings from the forensic analysis indicated that although none of the waste oil samples were an identical match to the well samples, the samples that most closely approximated those collected from the well were the reference samples for hydraulic oil HM-46, hydraulic oil HM-32, and gear oil 68, which is similar in composition to the hydraulic oils. The dynalube reference sample also shared some similarities with well sample, but was not as close of a match as the hydraulic and gear oil. Notably, the well samples did not appear to contain coolant (Coolube 21). The absence of coolant in the well samples is an indicator that the contamination in the well probably did not originate from the chip collection system or briquetter. Coolant from the milling process is present on the aluminum chips as they enter the chip collection system, which is designed to drain off the coolant and direct it to the associated sumps; the briquetting process also generates coolant in the waste oil stream as the aluminum chips are hydraulically pressed into cylinders for recycling. Coolant is visually distinctive in the waste oil stream (milky in appearance) and was noted in almost all of the waste oil accumulation areas during sampling. The absence of coolant in the well and the similarity of the product in the well to hydraulic and gear oils suggest the release may have come directly from a mill rather than the chip collection or briquetter systems. A summary report from APEX is presented in Appendix F.

6.2.13.2 Mill Operations and Dye Testing

Subsequent to the findings of the forensic investigation, Boeing reviewed operations at the existing mills near AGW128 to determine if there are other potential release points associated with the mills. Currently, two mills are located upgradient of AGW128; however, the mills began operation in 2015 and the release occurred prior to the installation of these mills. Historically, three spar mills were located directly upgradient (south) of AGW128; these mills were removed in 2002 according to one of Boeing's Equipment Services Engineers (Personal Email Communication, Robin Nichols, January 25, 2017). The nearest mill to AGW128 in current operation is spar Mill 142, located approximately 25 ft downgradient (north) of the well. Dye testing of the hydraulic oil in Mill 142 was completed in an attempt to identify potential release points. The dye testing revealed hydraulic oil dripping from the area near the reservoir on top of the gantry (the portion of the mill that contains the cutting heads). The former spar mill located adjacent to AGW128 reportedly had a similar configuration, including a

hydraulic oil reservoir located on top of the gantry. On Mill 142, the hydraulic oil appears to drip from the gantry down onto the plates covering the chase on the north side of the mill and onto the concrete floor. Some hydraulic oil was also noted on the accumulated chips inside the chase. Conduits to the subsurface were not immediately evident in the area around Mill 142. AGW128 was monitored for dye for several months following the dye testing of Mill 142; dye was never detected in the well. Additionally, Mill 142 is located downgradient of AGW128 and releases of hydraulic oil at this location are unlikely to impact the well. It is more likely that the contamination present in AGW128 was the result of a historical release from one or more of the former spar mills south of the well.

6.2.13.3 Free Phase Product Thickness

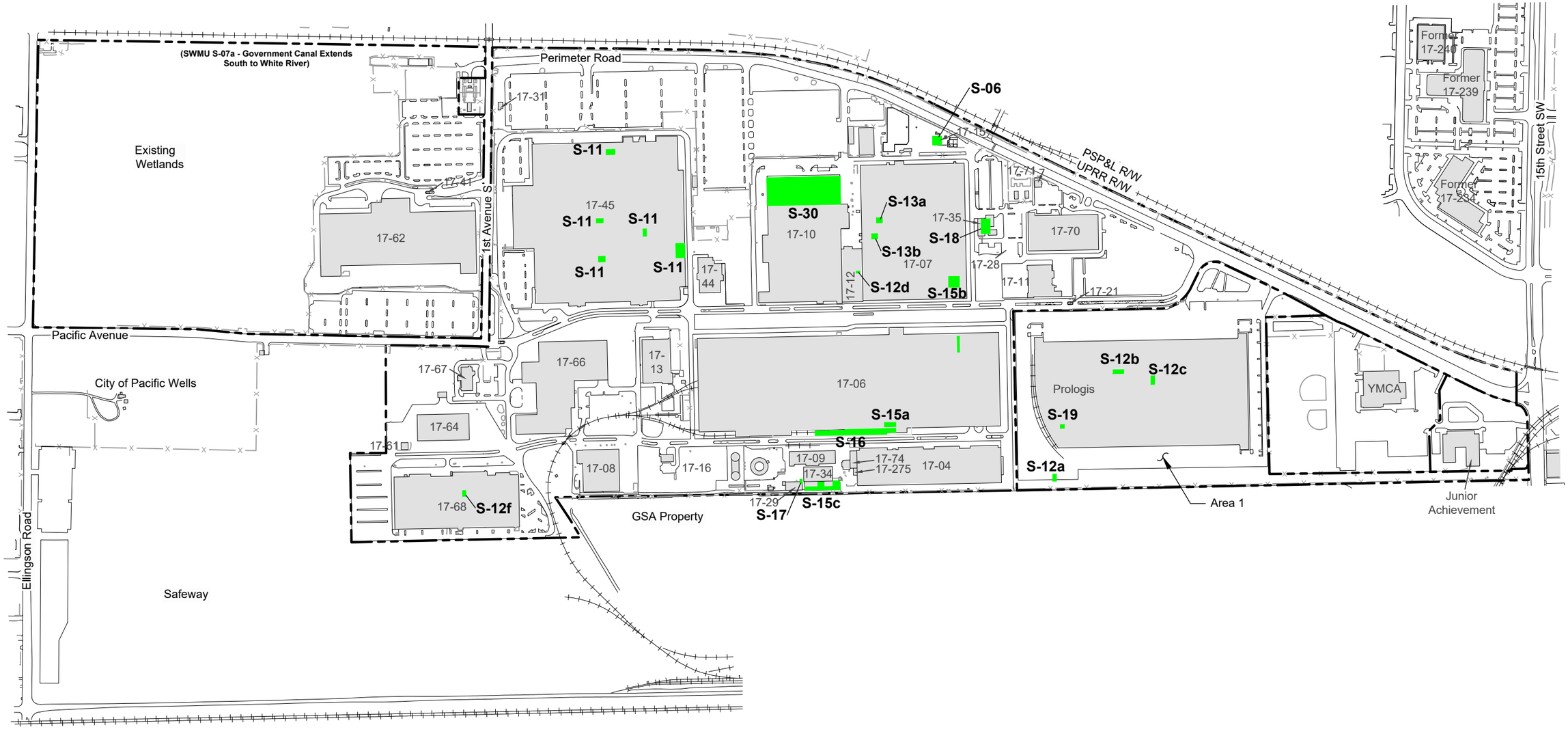
Free-phase petroleum product (LNAPL) is periodically observed in well AGW128. LNAPL is present intermittently in the well and measurements to date do not suggest an ongoing release. LNAPL thickness in the well peaks at the end of the dry season (late September to early October) when the water table is lowest and falls quickly as the water table rises in early to mid-fall. Measureable LNAPL is absent in the well throughout the wet season and does not reappear until the water table begins to drop in late spring. LNAPL thickness through the dry season (late spring and summer) of 2016 was relatively small (less than 0.03 ft) and did not increase significantly until September when the water table was reaching its low point. The maximum recorded product thickness in 2016 was 0.22 ft. In 2015, the maximum recorded LNAPL thickness was 0.71 ft at the end of September; however, 2015 had an abnormally dry summer with a regional drought. The lowest water level recorded in 2015 was approximately 1.5 ft lower than the lowest recorded water level in recorded in 2016, which may explain the greater LNAPL thickness observed in 2015. The product measurements suggest that a small amount of residual LNAPL is present in soil near the water table and fluctuation of the water table has created a smear zone[83]. The seasonal fluctuation in LNAPL thickness can be explained by pore water pressure that prevents LNAPL from entering the well when the groundwater table is high; as the water table drops, pressure is released and LNAPL is able to flow from the soil into the well. The disappearance of LNAPL during the wet season and the relatively small LNAPL thickness recorded throughout most of the dry season suggests that the residual LNAPL in soil is relatively small. Additionally, measurements collected to date do not show evidence of increasing LNAPL thickness that would suggest an ongoing release.

6.2.13.4 Summary

Concentrations of petroleum hydrocarbons are detected in soil and groundwater on the east side of Building 17-06. Several RI soil borings (ASB0169, ASB0170, ASB0171, and AGW128) had detections of petroleum hydrocarbons above screening levels. The extent of AOC A-13 and the locations where soil and groundwater concentrations exceeded screening levels are presented on Figure 6-26. A more detailed description of soil and groundwater impacts is presented in Section 6.1.6.

[83] A smear zone is a soil zone where LNAPL has smeared vertically as a result of water table fluctuation.

Monitoring wells AGW128 and AGW044 currently have concentrations of petroleum hydrocarbons above screening levels. In addition, well AGW128 periodically has measureable LNAPL. LNAPL has not been observed in downgradient monitoring well AGW044. AGW130 is located downgradient of AGW044 and has never had detectable concentrations of petroleum hydrocarbons, indicating that groundwater contamination does not appear to be migrating. Petroleum hydrocarbons in soil and groundwater at A-13 are believed to be the result of a historical release. AOC A-13 will be carried forward to the FS to address the petroleum hydrocarbon soil and groundwater impacts.



Legend

- S-11 — Solid Waste Management Unit (SWMU)
- 17-68 — Current Building and Number
- Property Boundary

Notes:

1. SWMU S-15d (Machine Sump SAU52-001) is not shown on this figure. S-15d was previously located in former Building 17-52 on Safeway Property.
2. Buildings formerly identified as 17-234, 17-239, and 17-240 are currently owned by Fana.
3. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

N

0 600 1200

Scale in Feet

Base map source: Geomatrix 2003

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Auburn, Washington

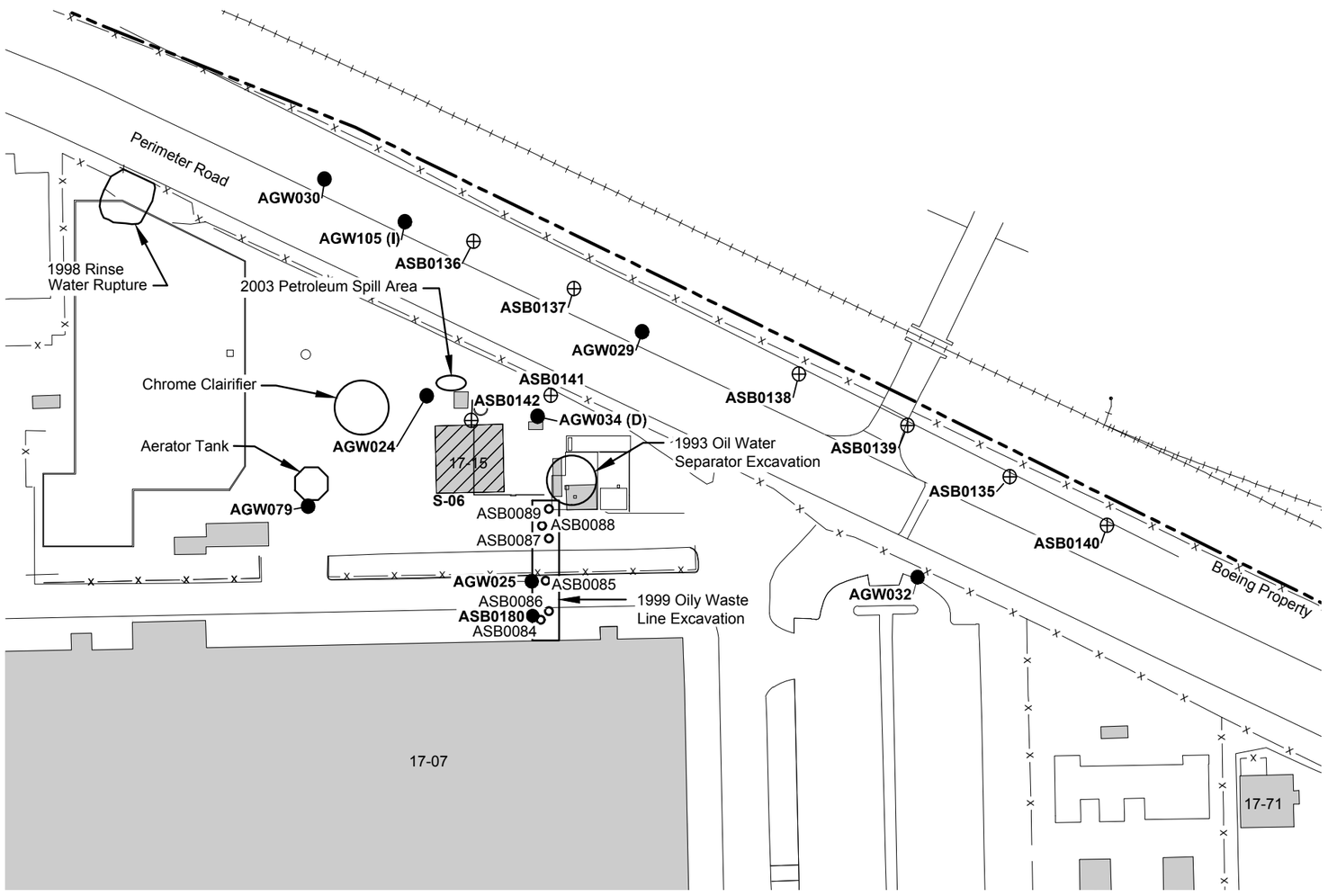
All Facility Column IA and IB SWMUs

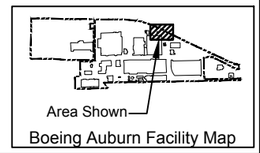
Figure 6-1

N

Legend

- AGW016 — Monitoring Well Location and Designation
- ASB0149 — Soil Boring Location and Designation
- ASB0089 — Pre-RI Sample Boring Location and Designation (Locations are Approximate)
- S-12b — Solid Waste Management Unit (SWMU)
- 17-05 — Current Building and Number
- Facility Boundary
- Fence





Base map source: Geomatrix 2003

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Scale in Feet

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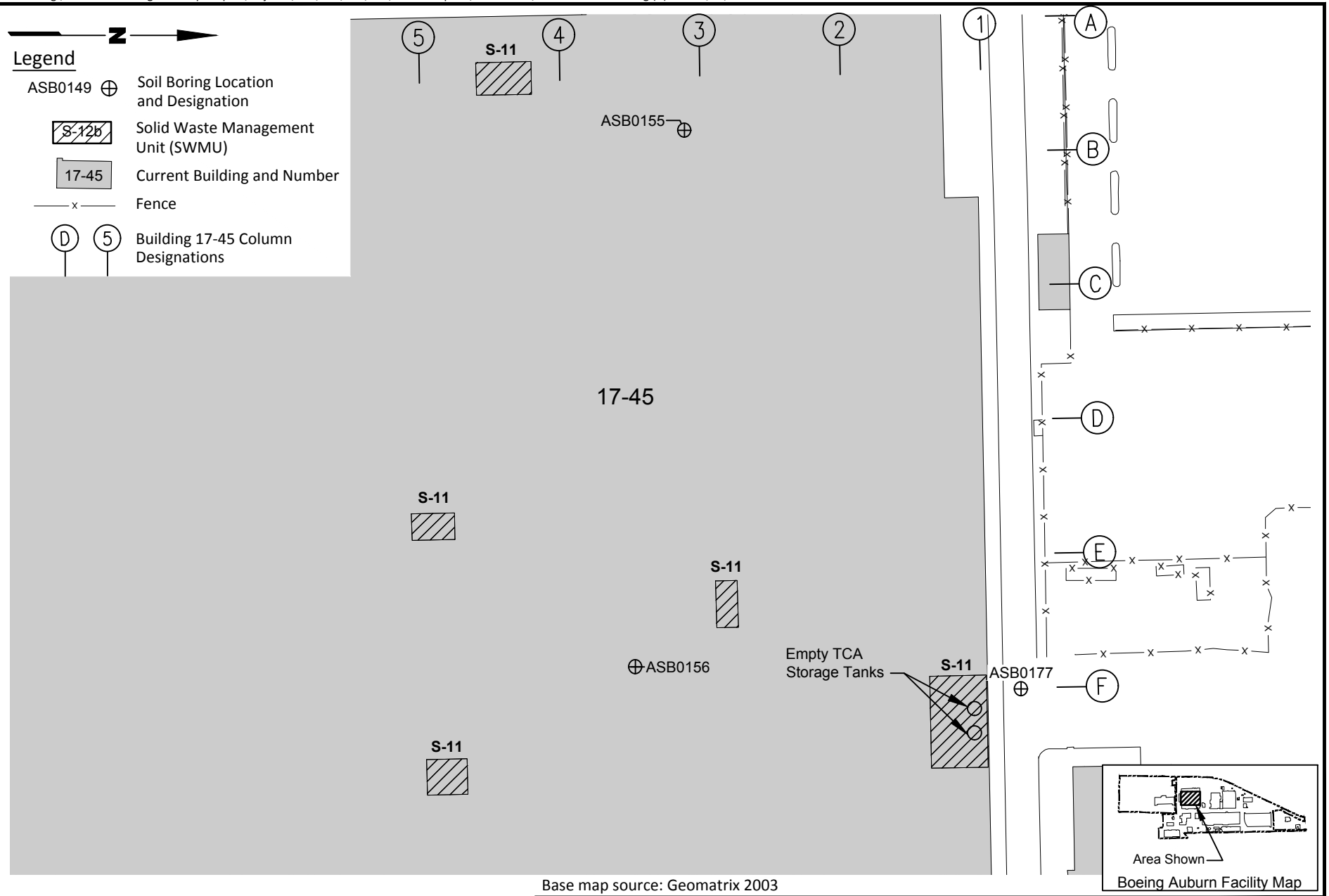
Boeing Auburn Remedial Investigation Auburn, Washington	**SWMU S-06: Building 17-15 Wastewater Pre-Treatment Plant Exploration Plan**	Figure 6-2

Boeing\Remedial Investigation Report | G:\Projects\025\164\130\111\Final RI Report\Section 6.0\F06-02SWMUS06.dwg (A) "6-2" 12/28/2016



Base map source: Geomatrix 2003

0 120 240
Scale in Feet

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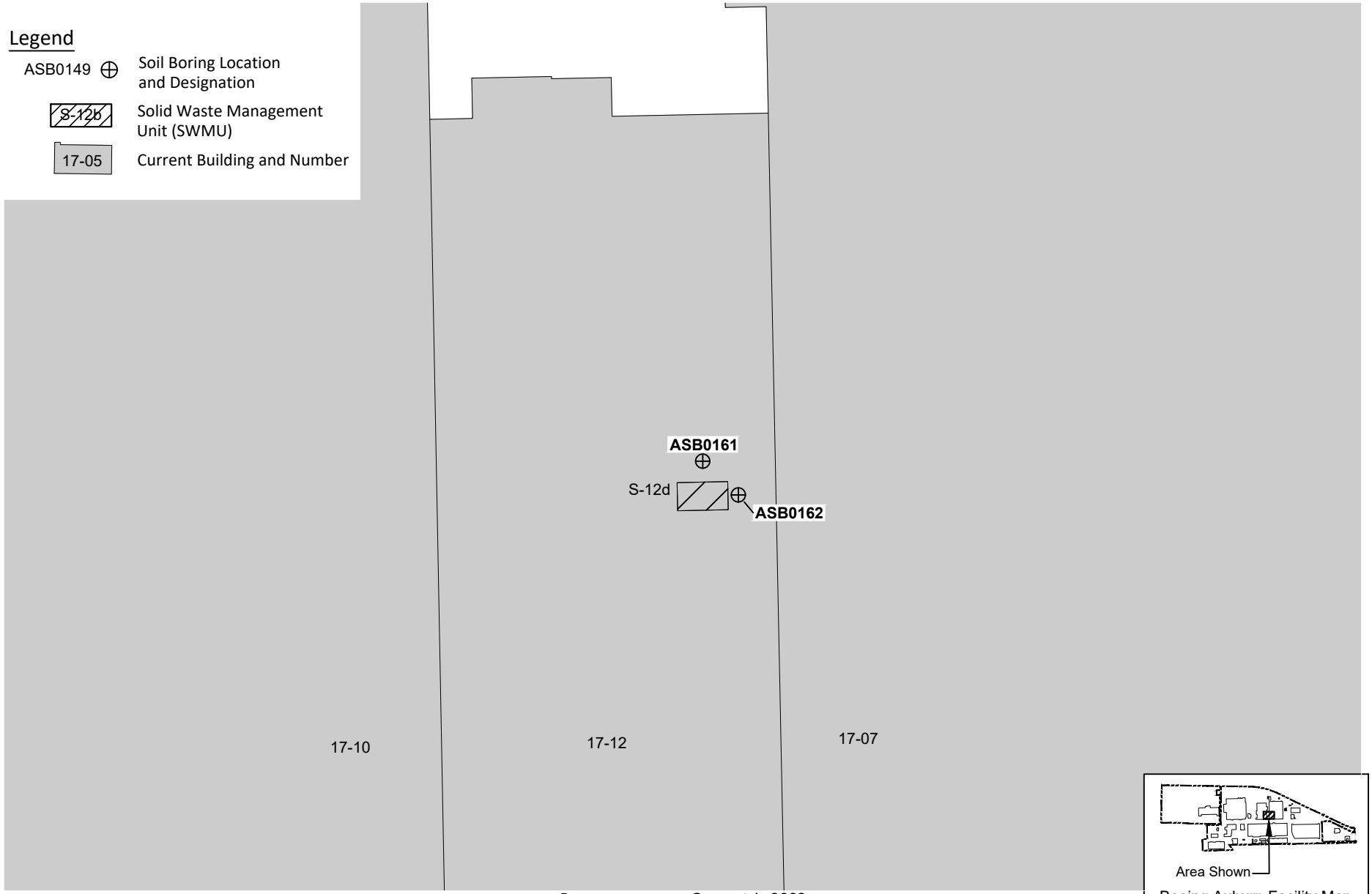
Auburn, Washington

SWMU S-11: Building 17-45
Aqueous Degreasers Exploration Plan

Figure
6-3



Base map source: Geomatrix 2003

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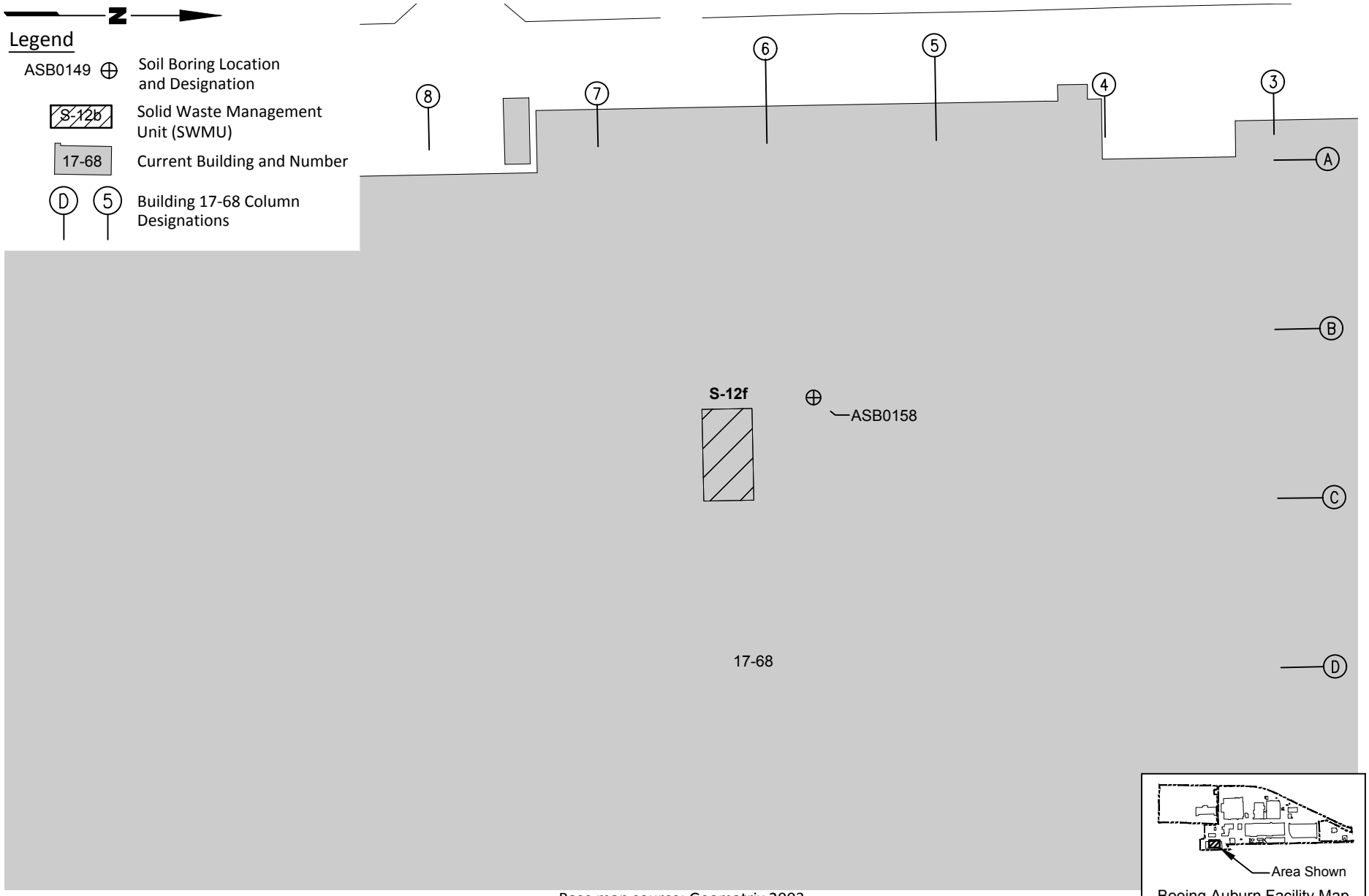
Auburn, Washington

SWMU S-12d: Building 17-12
Former Vapor Degreaser
Exploration Plan

Figure
6-4



Base map source: Geomatrix 2003

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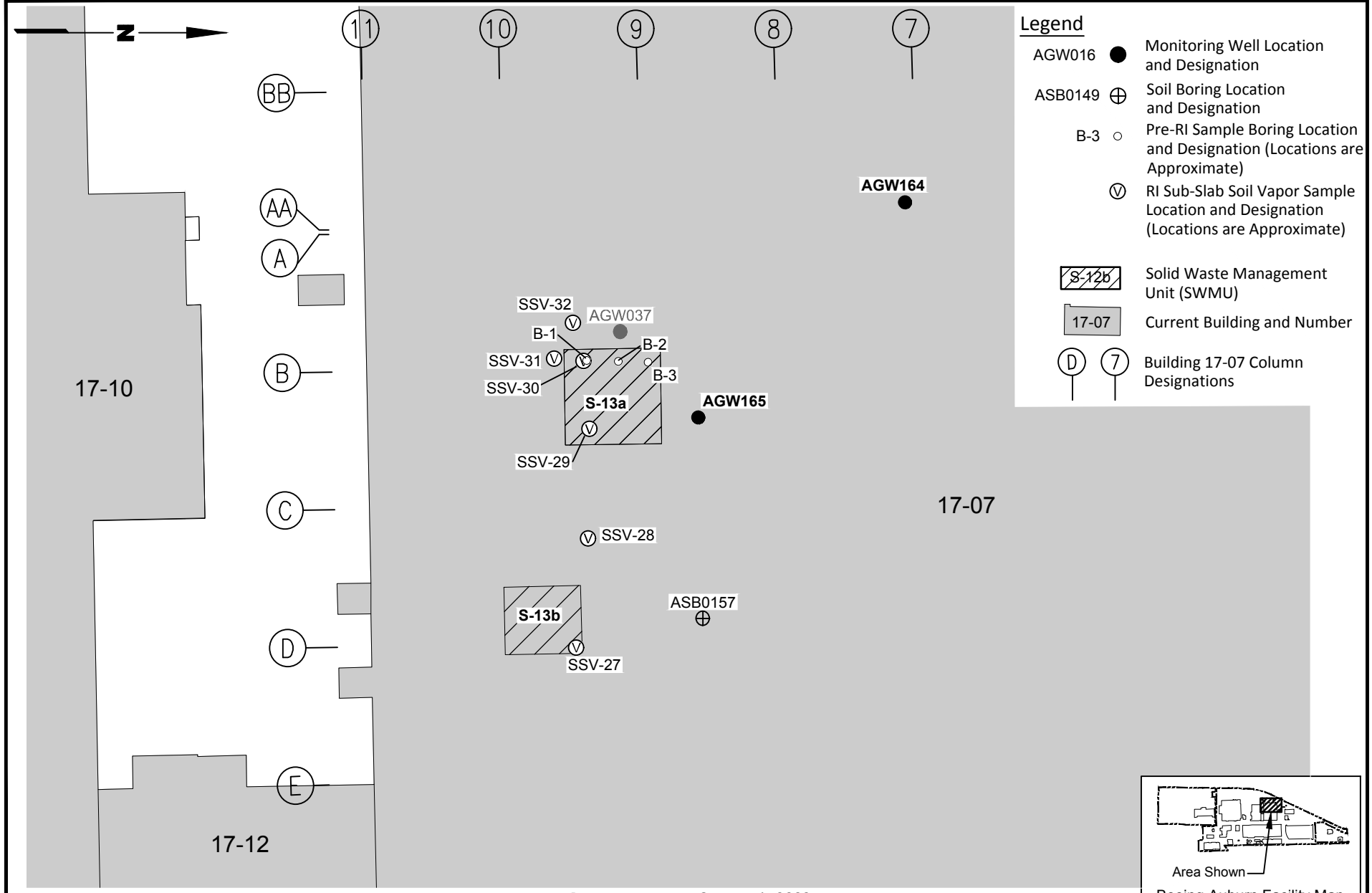
Scale in Feet

Boeing Auburn
Remedial Investigation
Auburn, Washington

SWMU S-12f: Building 17-68
Former Vapor Degreaser
Exploration Plan

Figure
6-5



Base map source: Geomatrix 2003

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Scale in Feet

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Remedial Investigation
Auburn, Washington

SWMU S-13a/13b: Building 17-07 Former Vapor Degreasers Exploration Plan

Figure
6-6

Legend

- AGW016 — Monitoring Well Location and Designation
- ASB0149 — Soil Boring Location and Designation
- ASB0149 — Abandoned Monitoring Well Location and Designation
- ASB0089 — Pre-RI Sample Boring Location and Designation (Locations are Approximate)
- Ⓢ — Sump
- S-12b — Solid Waste Management Unit (SWMU)
- 17-06 — Current Building and Number
- Ⓓ 5 — Building 17-06 Column Designations

30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3

A B C D E

ASB0159

17-06

Aluminum Trench Conveyor System (Approximate Location)

AGW116 AGW115

AGW118 AGW127 AGW129 AGW117

ASB0171 ASB0170

ASB0169 ASB0172 AGW045A

AGW128 ASB0160R ASB0168 ASB0031 ASB0030 AGW044 AGW130 ASB0167

ASB0029 AGW043

Sump SAU06-12 S-15a ASB0024 ASB0022 ASB0023 ASB0026 ASB0025 AGW042 ASB0028 ASB0027 AGW041

S-16

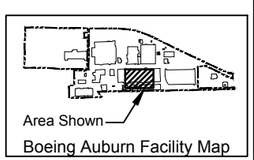
A-12

17-09

17-74

17-275

17-04



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Scale in Feet

Base map source: Geomatrix 2003

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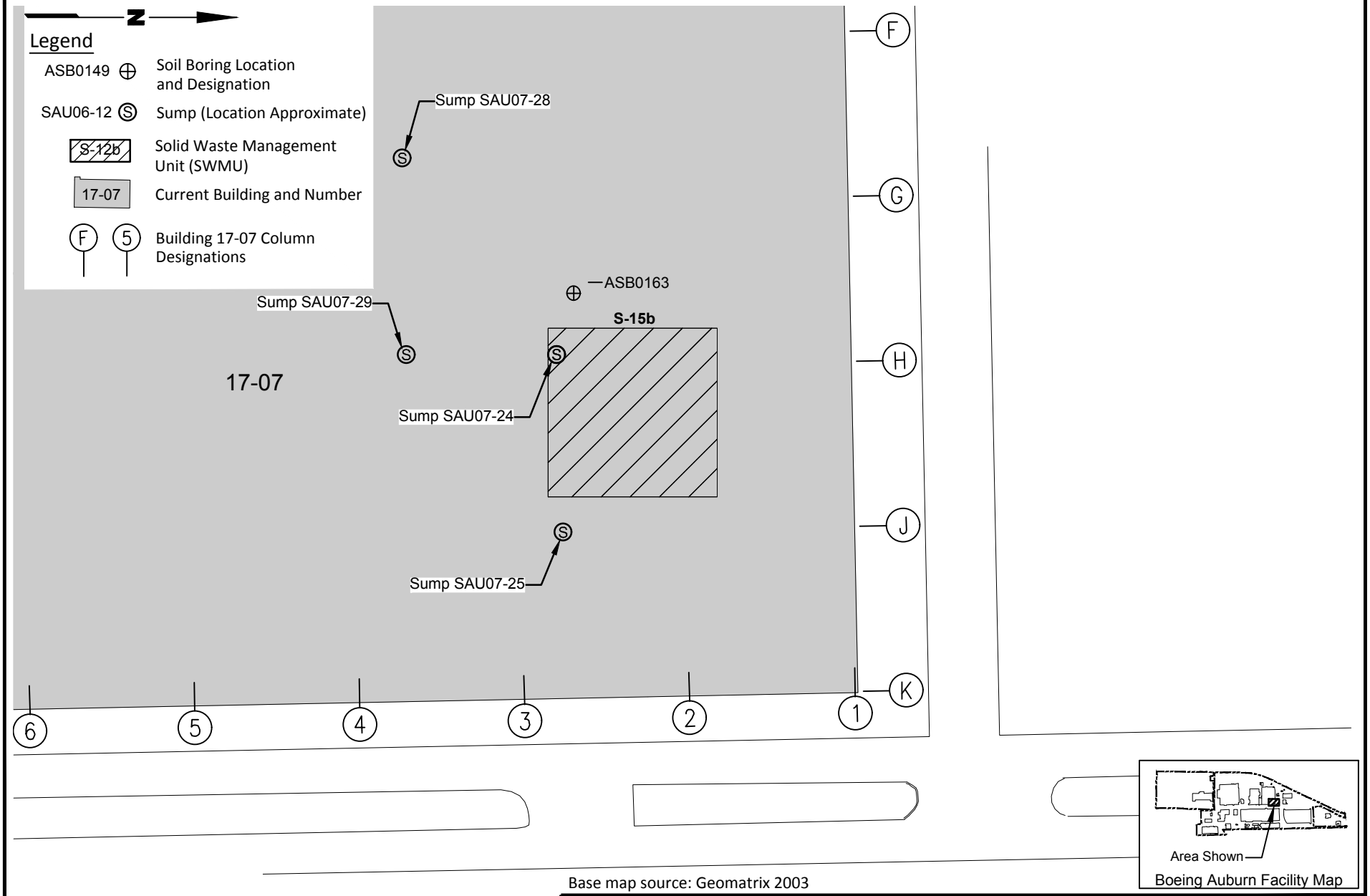
Remedial Investigation
Auburn, Washington

SWMU S-15a/S-16: Building 17-06 Sump, Briquetter, and Chip Conveyance Exploration Plan

Figure 6-7

Boeing\Remedial Investigation Report | G:\Projects\025\164\130\111\Final RI Report\Section 6.0\F06-07bSWMUS16.dwg (A) "6-7" 1/25/2017



Base map source: Geomatrix 2003

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Scale in Feet

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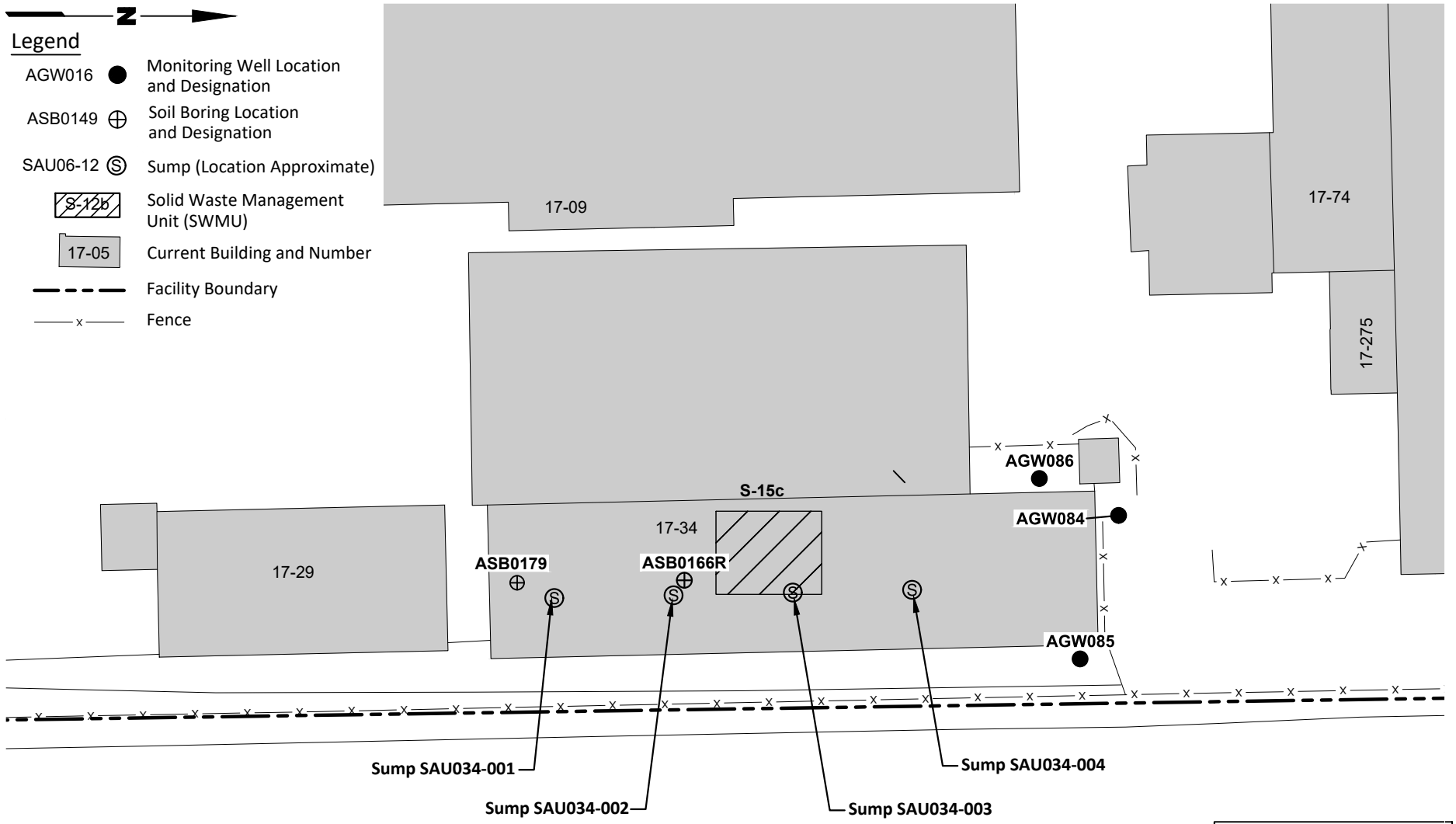
Remedial Investigation
Auburn, Washington

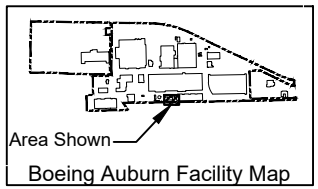
SWMU S-15b: Building 17-07 Machine Sumps Exploration Plan

Figure
6-8



Note

Based on results of explorations at SAU034-001 and SAU034-002, SAU034-003 and SAU034-004 were not investigated.



Base map source: Geomatrix 2003

LANDAU ASSOCIATES

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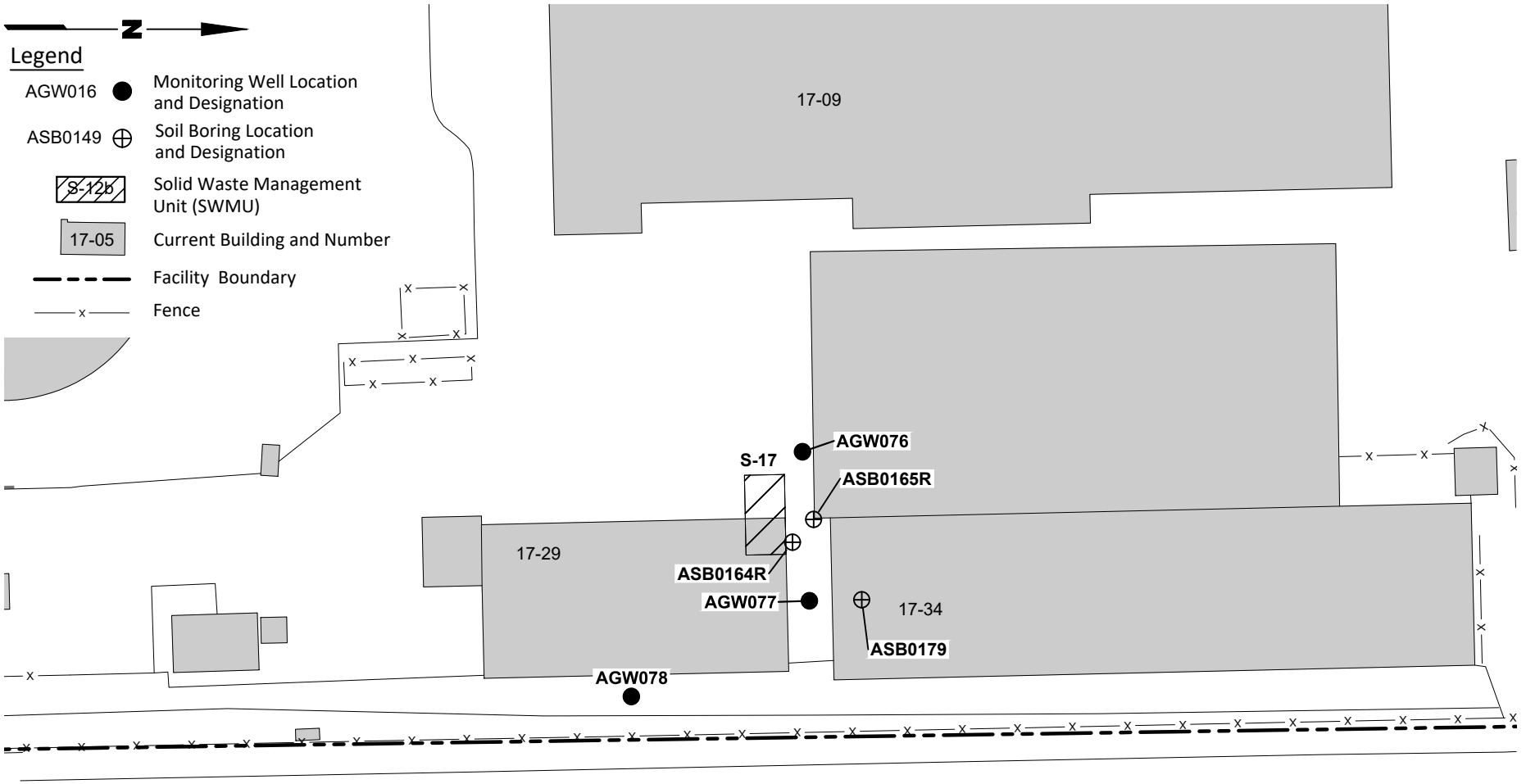
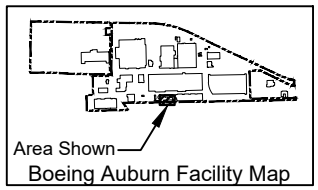
Scale in Feet

Boeing Auburn
Remedial Investigation
Auburn, Washington

SWMU S-15c: Building 17-34
Chip Shed Sumps Exploration Plan

Figure
6-9





Base map source: Geomatrix 2003

LANDAU ASSOCIATES

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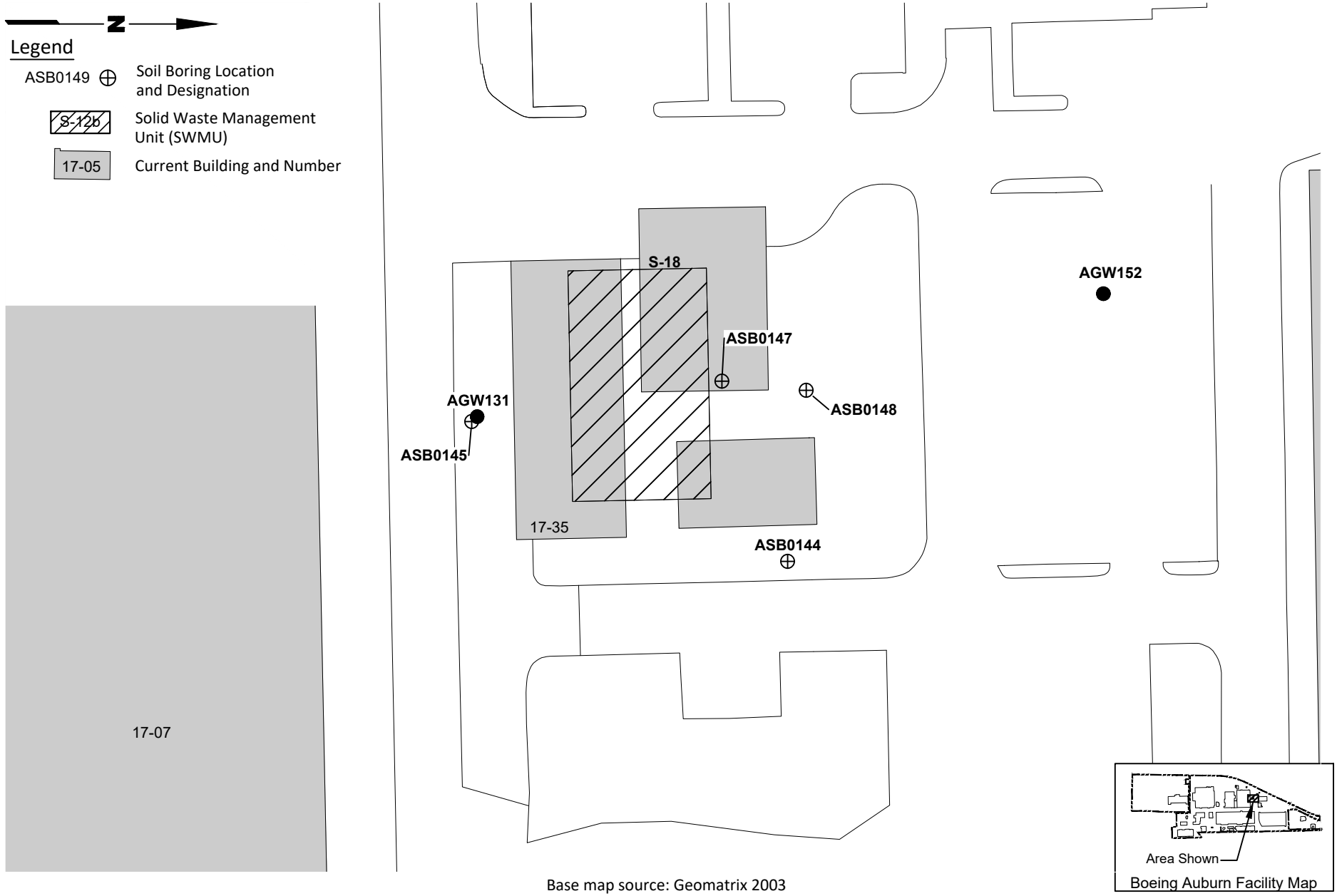
Scale in Feet

Boeing Auburn
Remedial Investigation
Auburn, Washington

SWMU S-17: Building 17-29
Titanium Chip Bailer
Exploration Plan

Figure
6-10



Base map source: Geomatrix 2003

0 50 100
Scale in Feet

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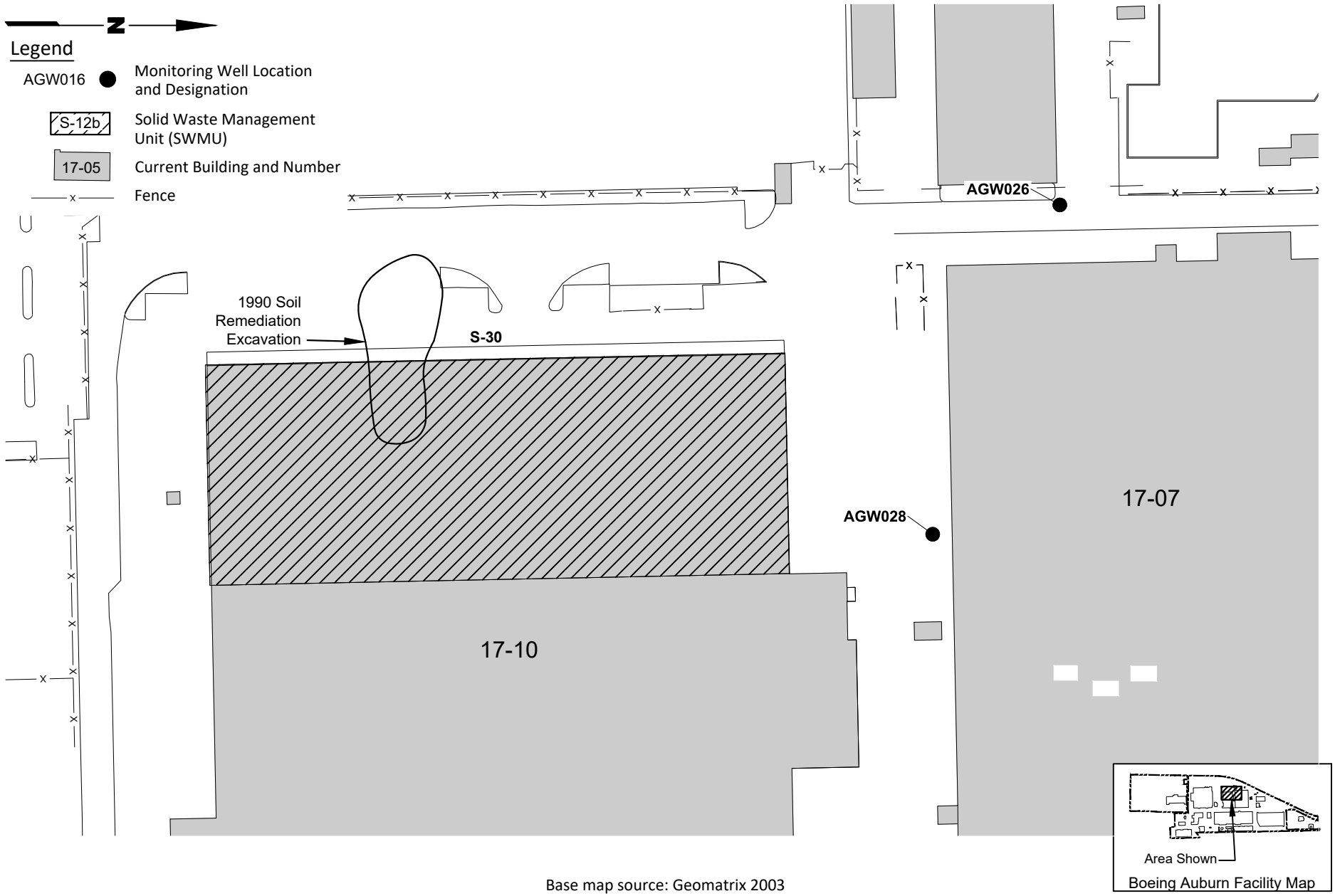
Remedial Investigation
Auburn, Washington

SWMU S-18: Building 17-35 Sumps Exploration Plan

Figure
6-11



Base map source: Geomatrix 2003

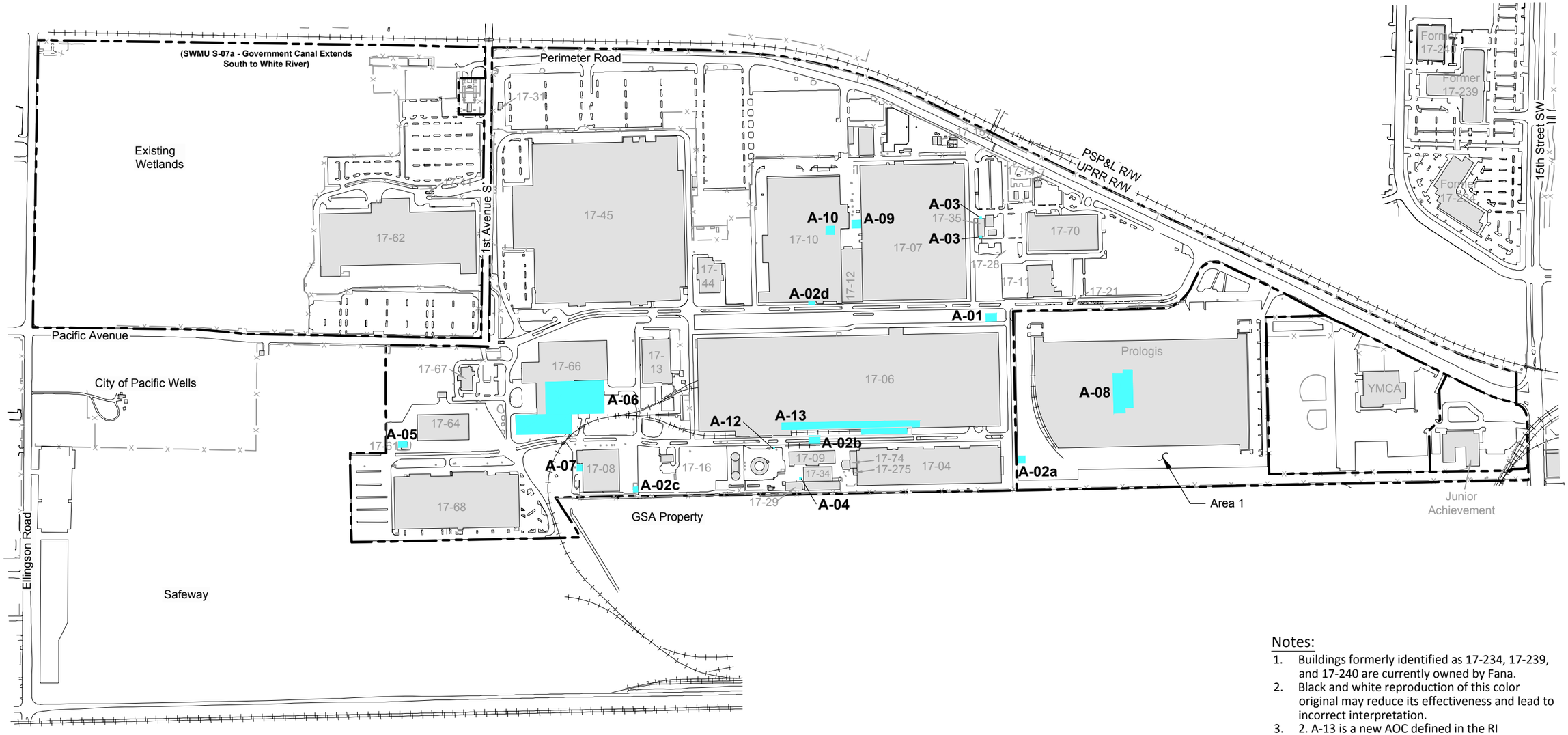
LANDAU ASSOCIATES

0 100 200
Scale in Feet

Boeing Auburn
Remedial Investigation
Auburn, Washington

SWMU S-30: Building 17-10
Former Debris Pile and Burn Pit
Exploration Plan

Figure
6-12



Notes:

1. Buildings formerly identified as 17-234, 17-239, and 17-240 are currently owned by Fana.
2. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.
3. 2. A-13 is a new AOC defined in the RI designated to address petroleum hydrocarbon soil and groundwater contamination that encompasses areas investigated for SWMU S-15a/S-16. This new AOC has been added as a Column 1A AOC

Legend

- A-05 — Area of Concern (AOC)
- 17-68 — Current Building and Number
- Property Boundary

N

0 600 1200

Scale in Feet

Base map source: Geomatrix 2003

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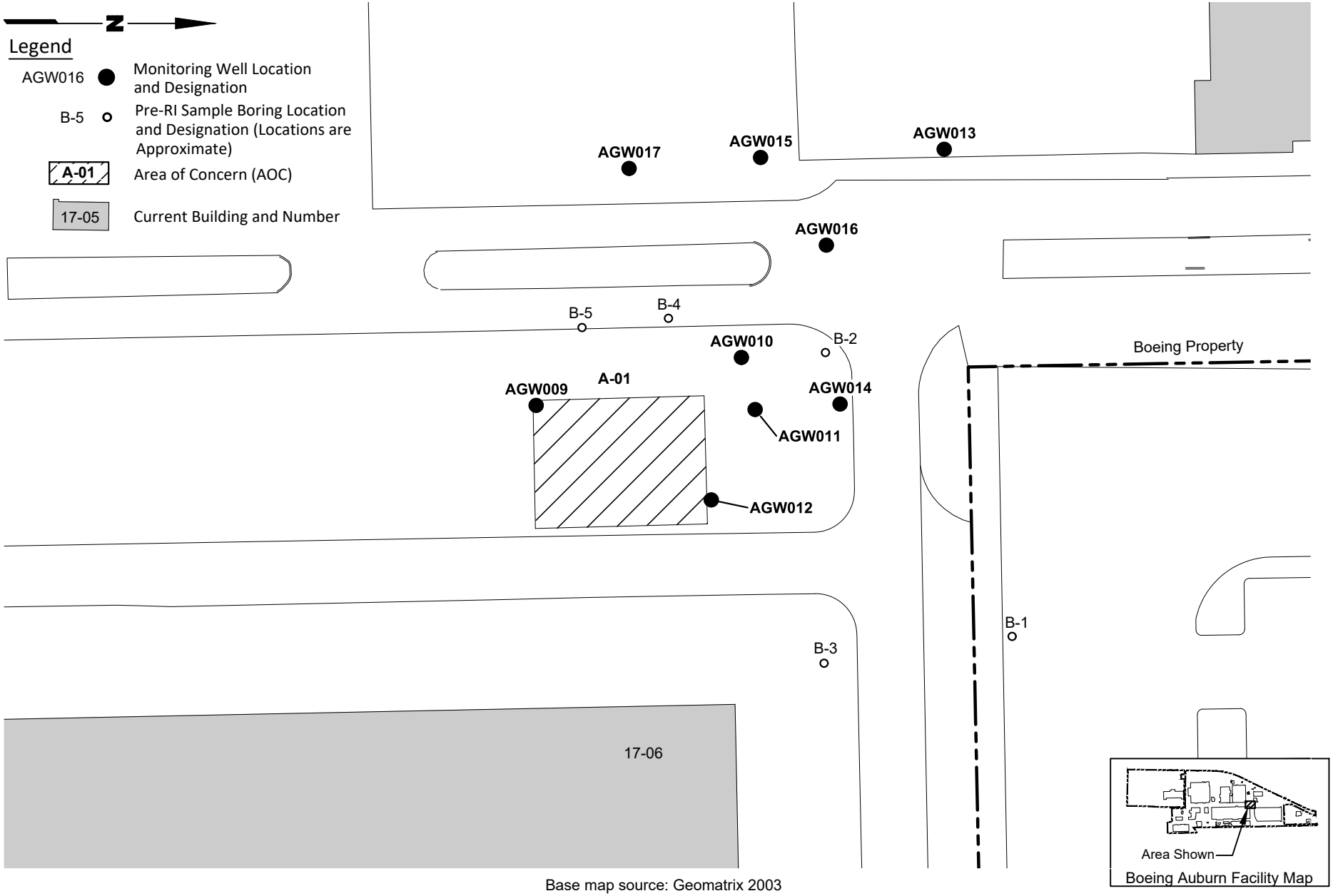
Remedial Investigation
Auburn, Washington

All Facility Column IA and IB AOCs

Figure 6-13

Boeing\Remedial Investigation Report | G:\Projects\025\164\130\111\Final RI Report\Section 6.0\F06-13Column1AOCs.dwg (A) "6-13" 1/13/2017



Base map source: Geomatrix 2003

0 50 100
Scale in Feet

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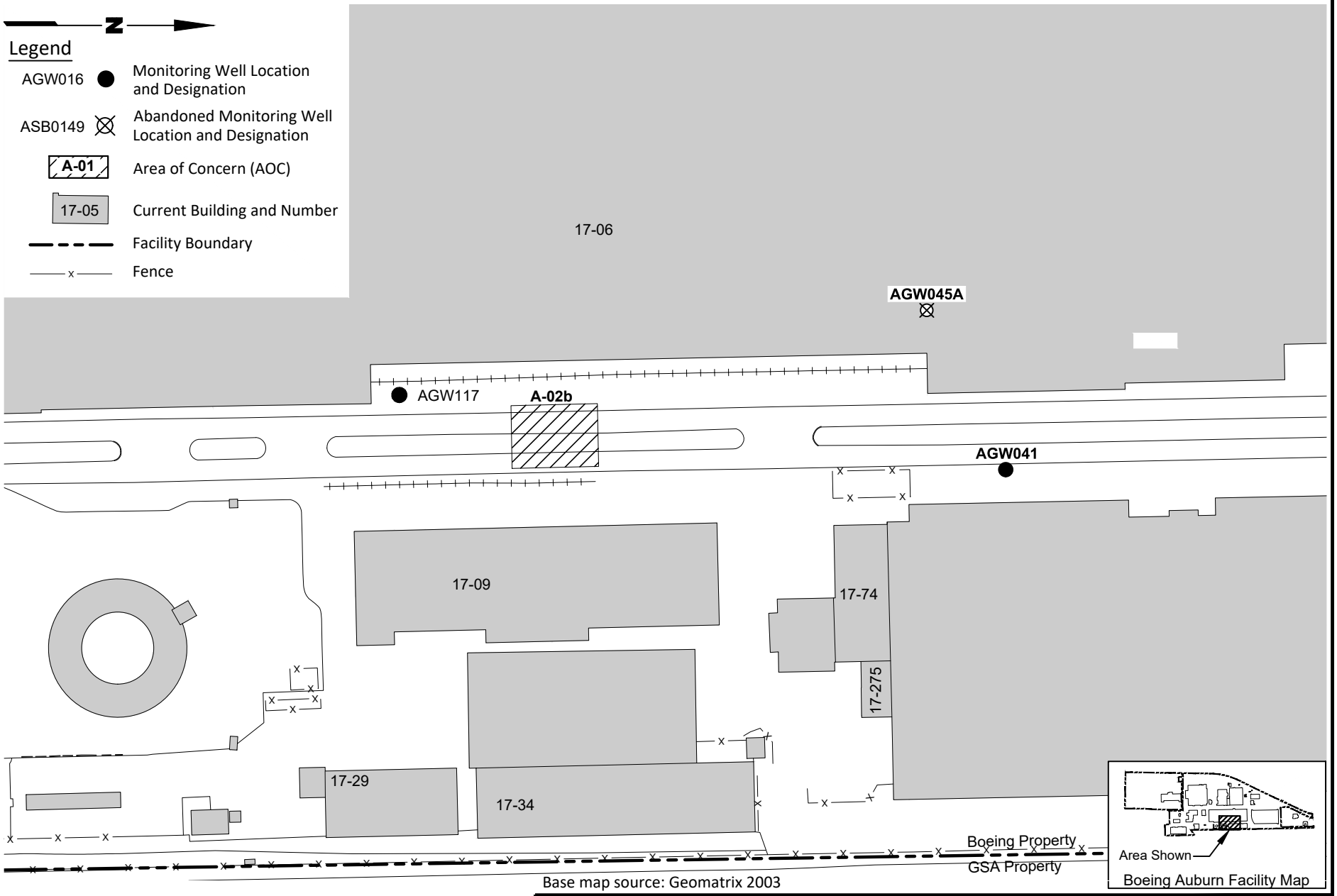
Remedial Investigation
Auburn, Washington

AOC A-01: Building 17-06
Former Underground Storage Tanks
(TAU-01 and TAU-02) Exploration Plan

Figure
6-14



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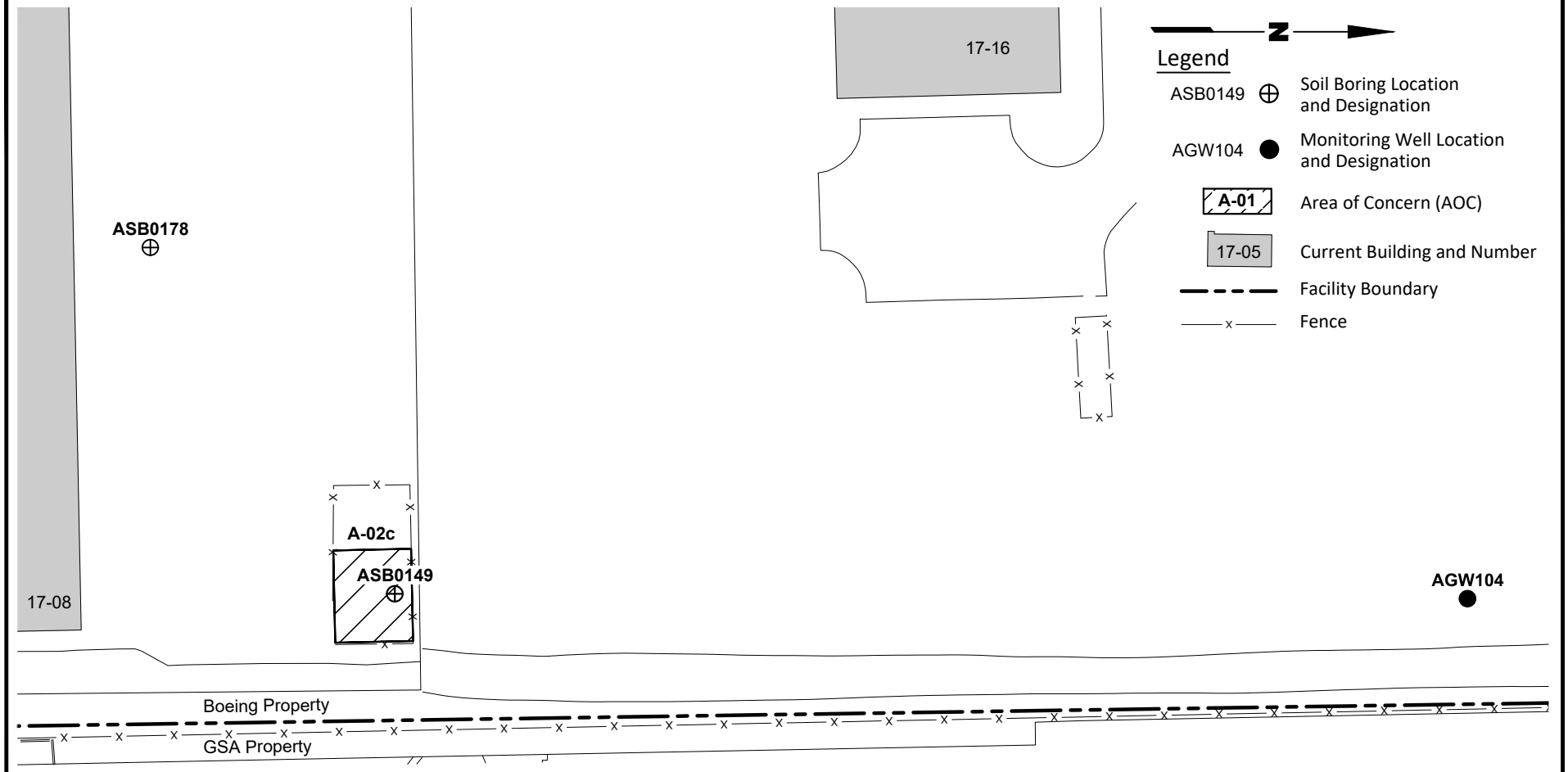
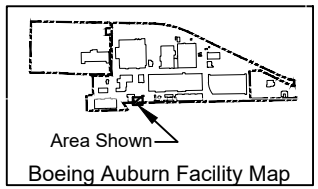
Boeing Auburn
Remedial Investigation
Auburn, Washington

AOC A-02b: Building 17-06 Former Underground Storage Tank (TAU-23) Exploration Plan

Figure
6-15





Base map source: Geomatrix 2003

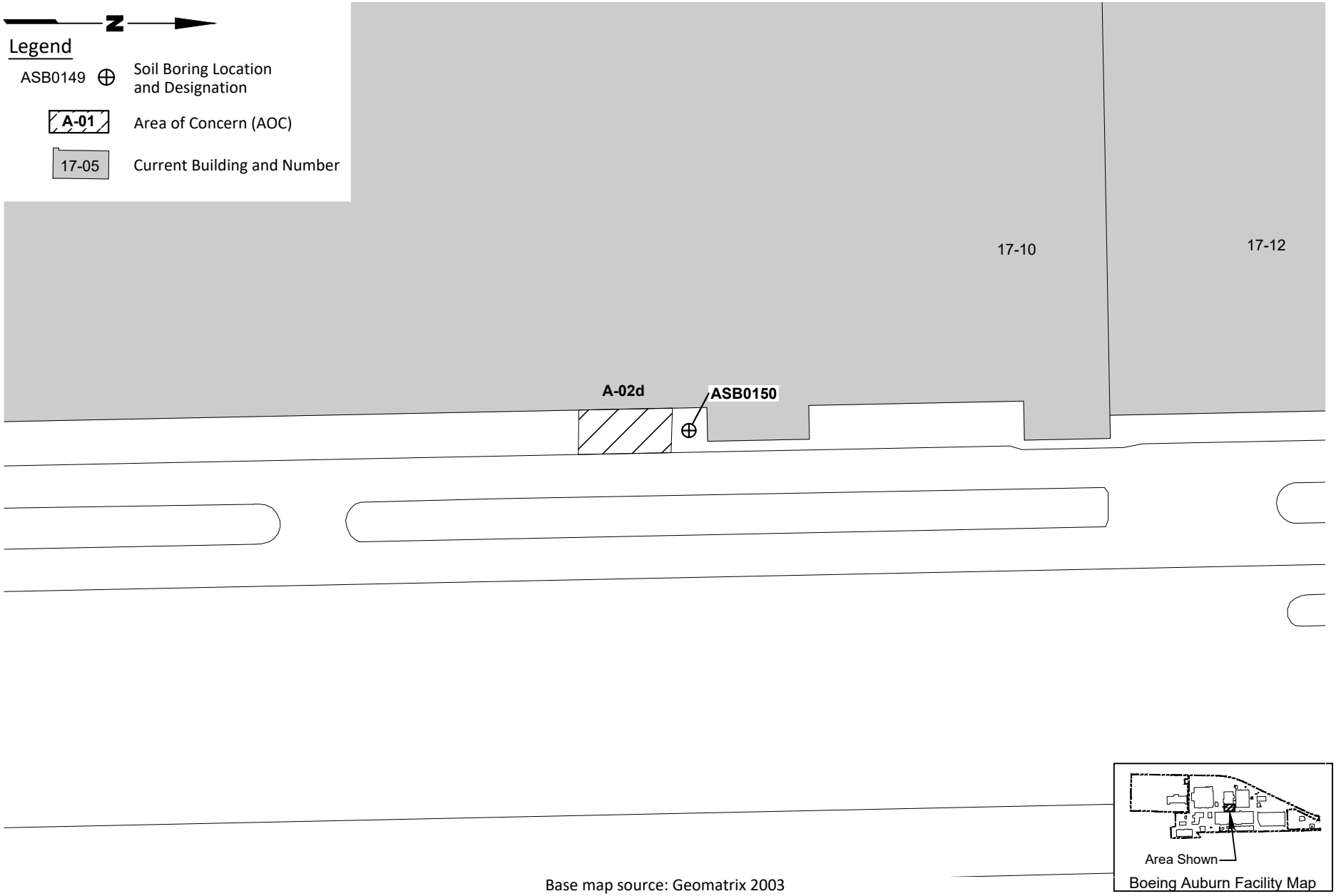
LANDAU ASSOCIATES

0 50 100
Scale in Feet

Boeing Auburn
Remedial Investigation
Auburn, Washington

AOC A-02c: Building 17-08 Former Underground Storage Tank (TAU-16) Exploration Plan

Figure
6-16



Base map source: Geomatrix 2003

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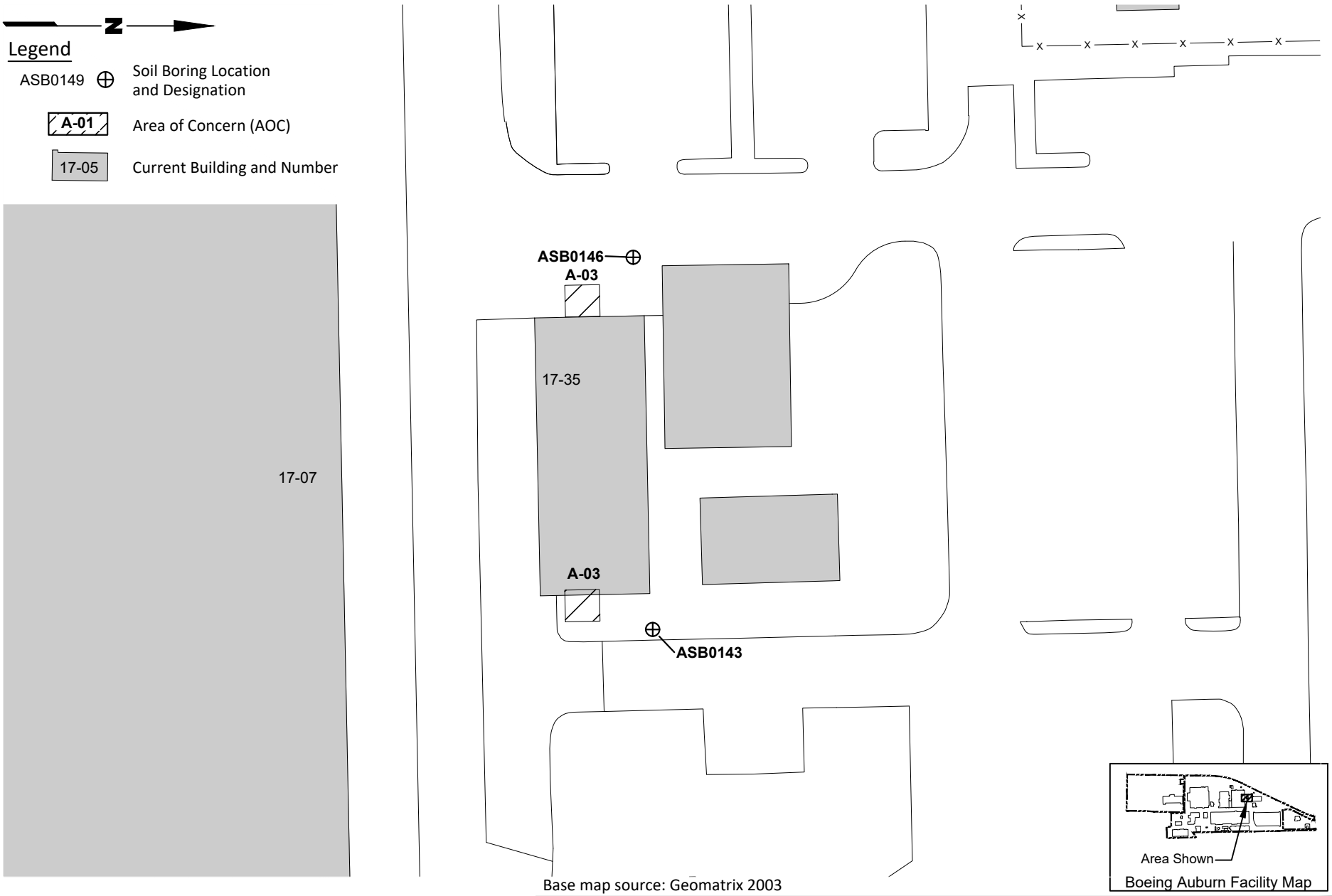
Boeing Auburn
Remedial Investigation
Auburn, Washington

AOC A-02d: Building 17-10 Former Underground Storage Tank (TAU-06) Exploration Plan

Figure
6-17



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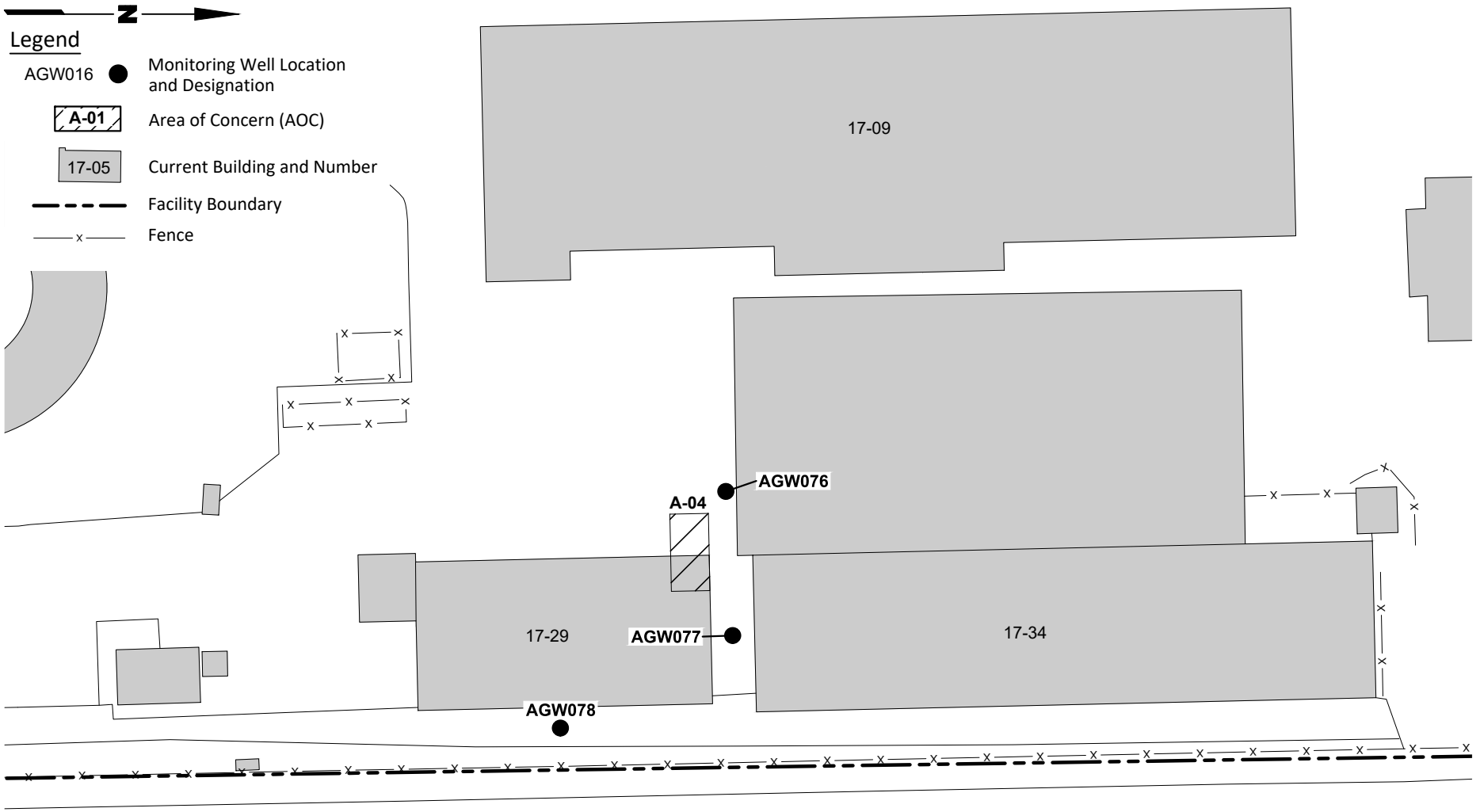
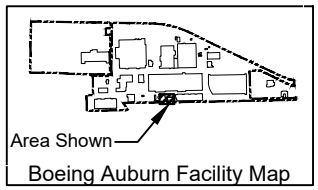
Boeing Auburn
Remedial Investigation
Auburn, Washington

AOC A-03: Building 17-35
Former Waste Oil Tanks
Exploration Plan

Figure
6-18





Base map source: Geomatrix 2003

LANDAU ASSOCIATES

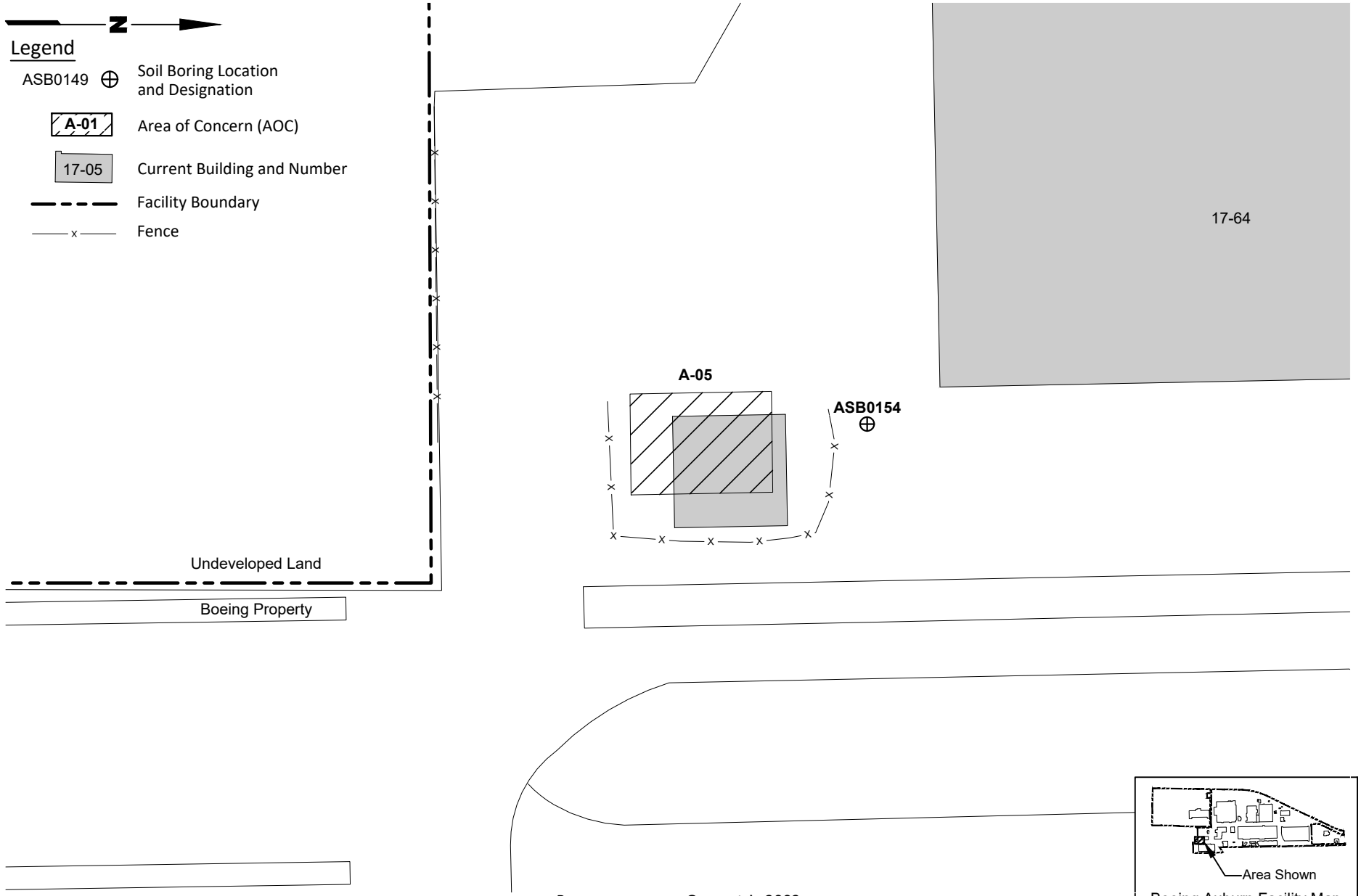
0 50 100
Scale in Feet

Boeing Auburn
Remedial Investigation
Auburn, Washington

AOC A-04: Building 17-29
Former Underground Bailer Tank/Sump Exploration Plan

Figure
6-19

Boeing\Remedial Investigation Report | G:\Projects\025\164\130\111\Final RI Report\Section 6.0\F06-20AOCA-05.dwg (A) "6-20" 1/11/2017



Base map source: Geomatrix 2003

0 50 100

Scale in Feet

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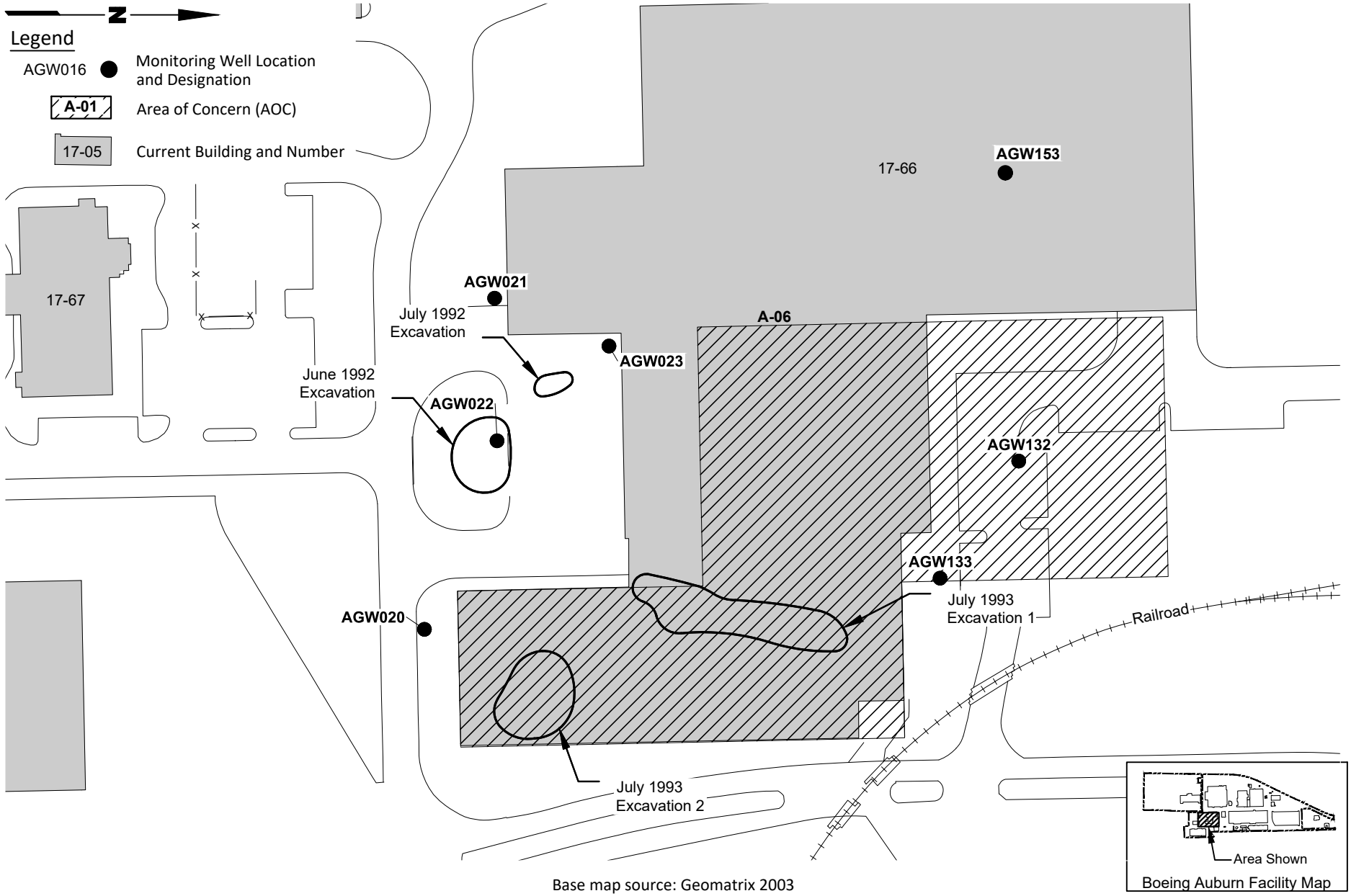
Boeing Auburn
Remedial Investigation
Auburn, Washington

AOC A-05: Building 17-64 Underground Storage Tank (TAU-32) Exploration Plan

Figure
6-20

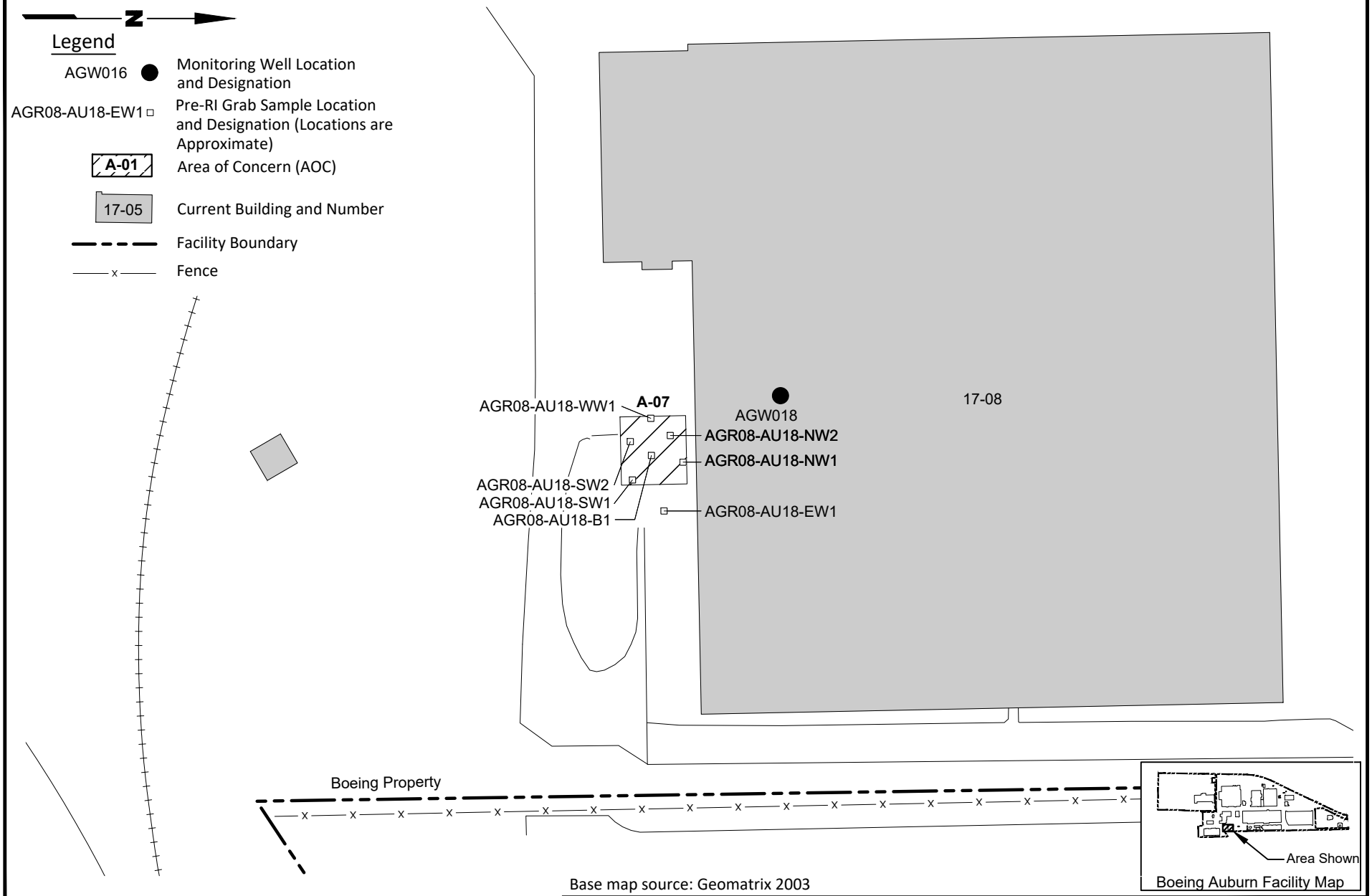


LANDAU ASSOCIATES

Boeing Auburn
Remedial Investigation
Auburn, Washington

AOC A-06: Building 17-66 Expansion Excavations Exploration Plan

Figure
6-21



Base map source: Geomatrix 2003

0 50 100
Scale in Feet

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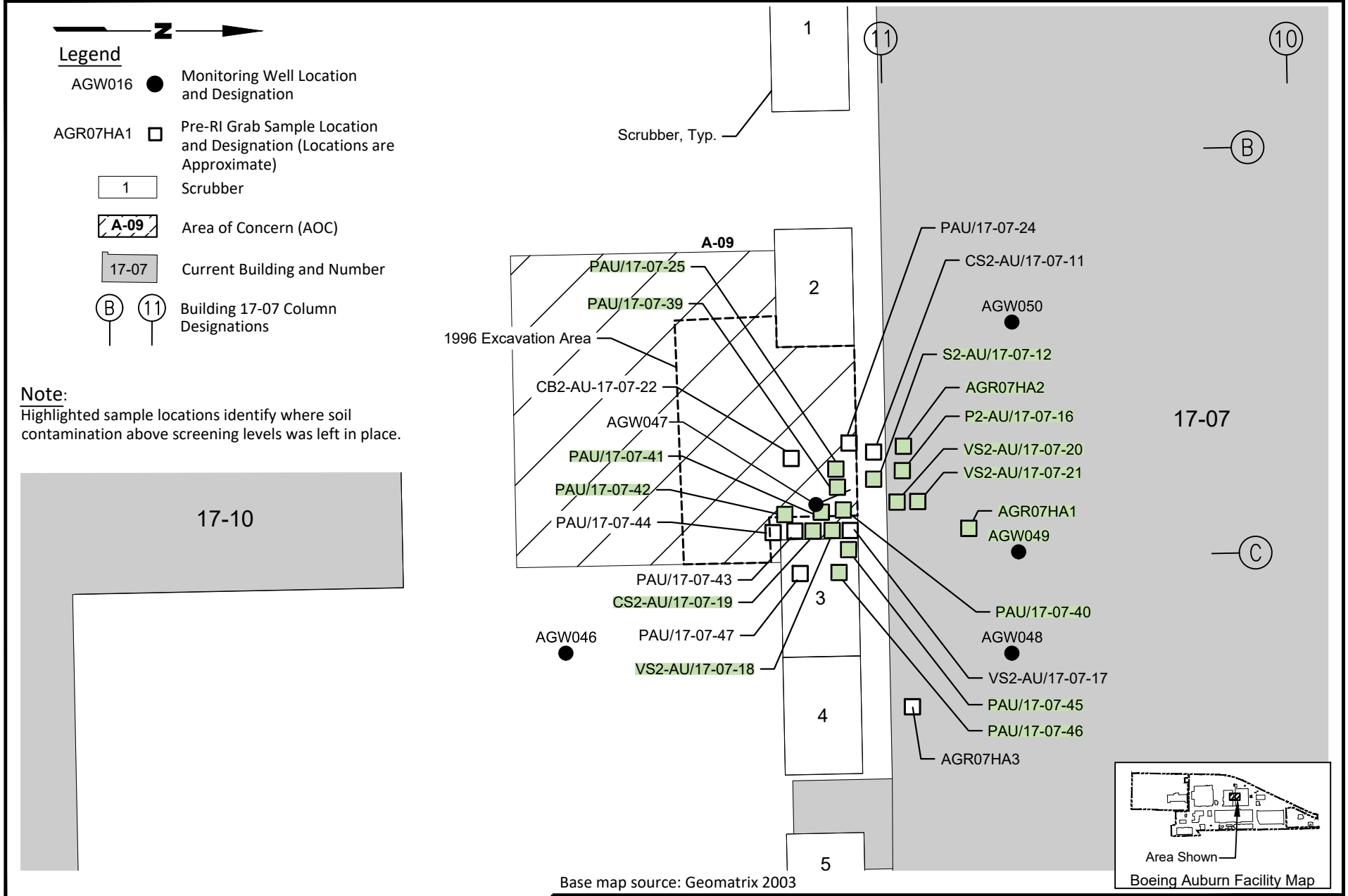
Boeing Auburn
Remedial Investigation
Auburn, Washington

AOC A-07: Building 17-08
Former Underground Storage Tank (TAU-18) Exploration Plan

Figure
6-22



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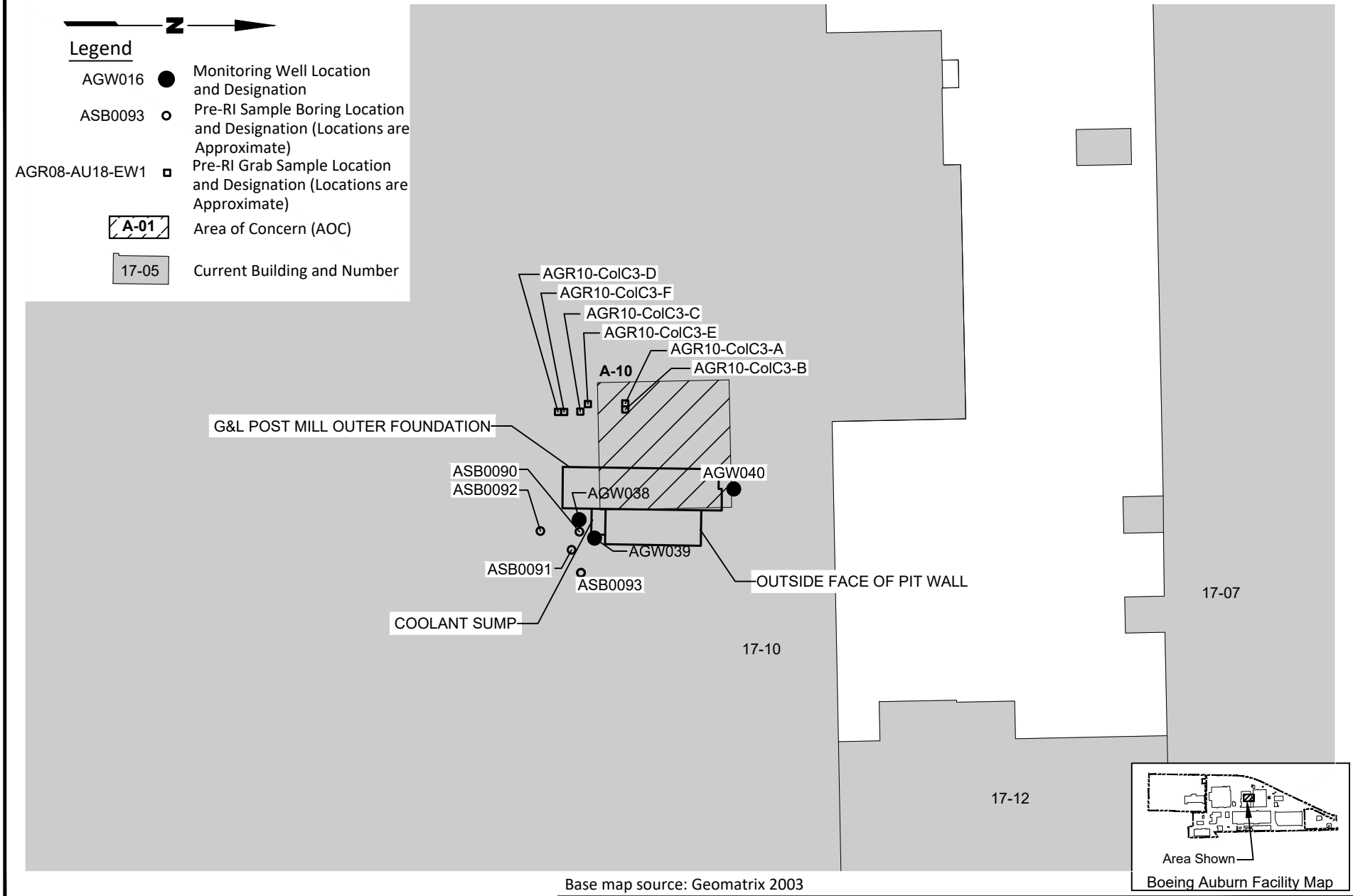
Boeing Auburn
Remedial Investigation
Auburn, Washington

AOC A-09: Building 17-07
Acid Scrubber Drain Line Leak
Exploration Plan

Figure
6-23



Base map source: Geomatrix 2003

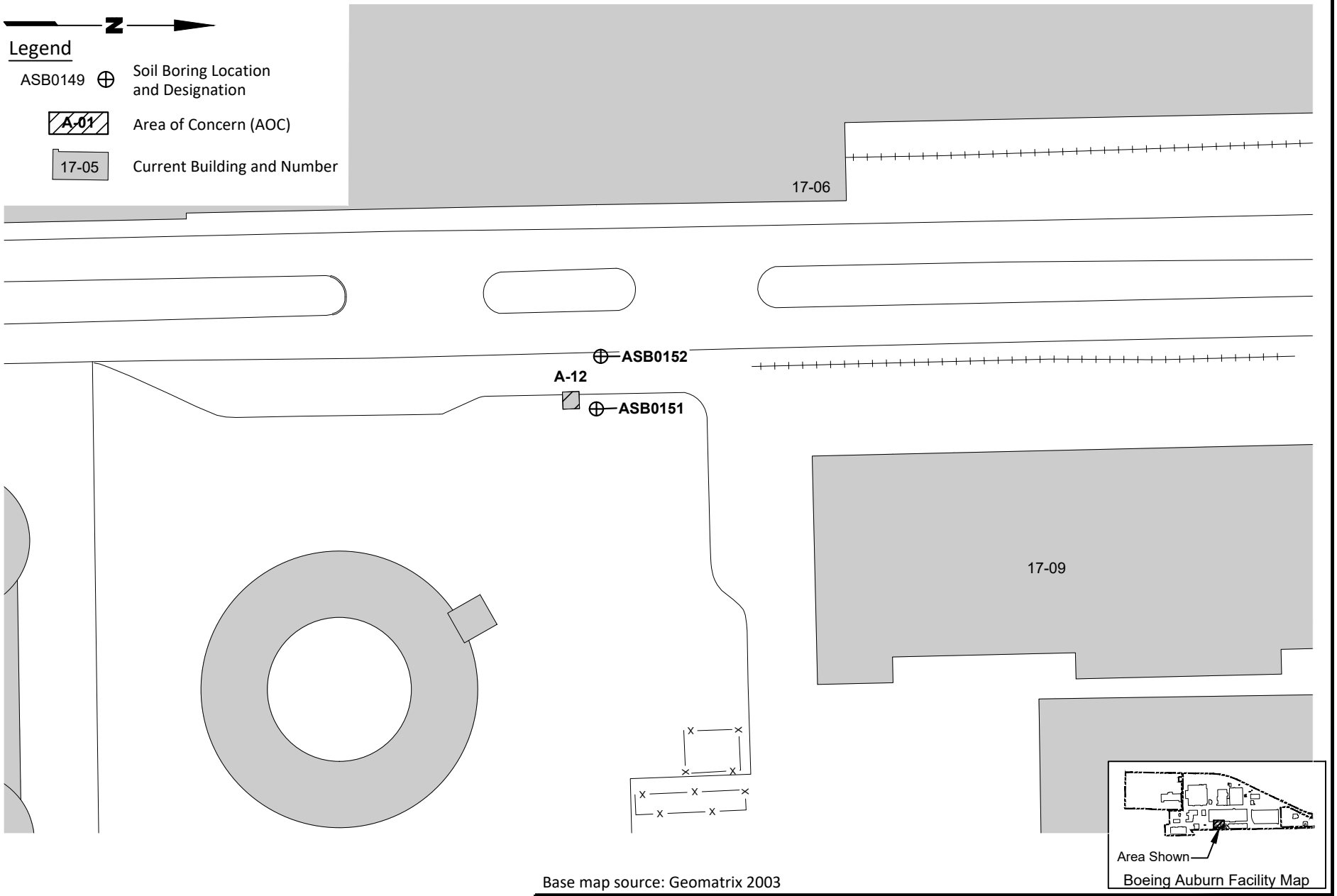
0 50 100
Scale in Feet

LANDAU ASSOCIATES

Boeing Auburn
Remedial Investigation
Auburn, Washington

AOC A-10: Building 17-10
G&L Post Mill Exploration Plan

Figure
6-24



Base map source: Geomatrix 2003

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Boeing Auburn
Remedial Investigation
Auburn, Washington

AOC A-12: Building 17-09
Historical Fuel Oil Spill
Exploration Plan

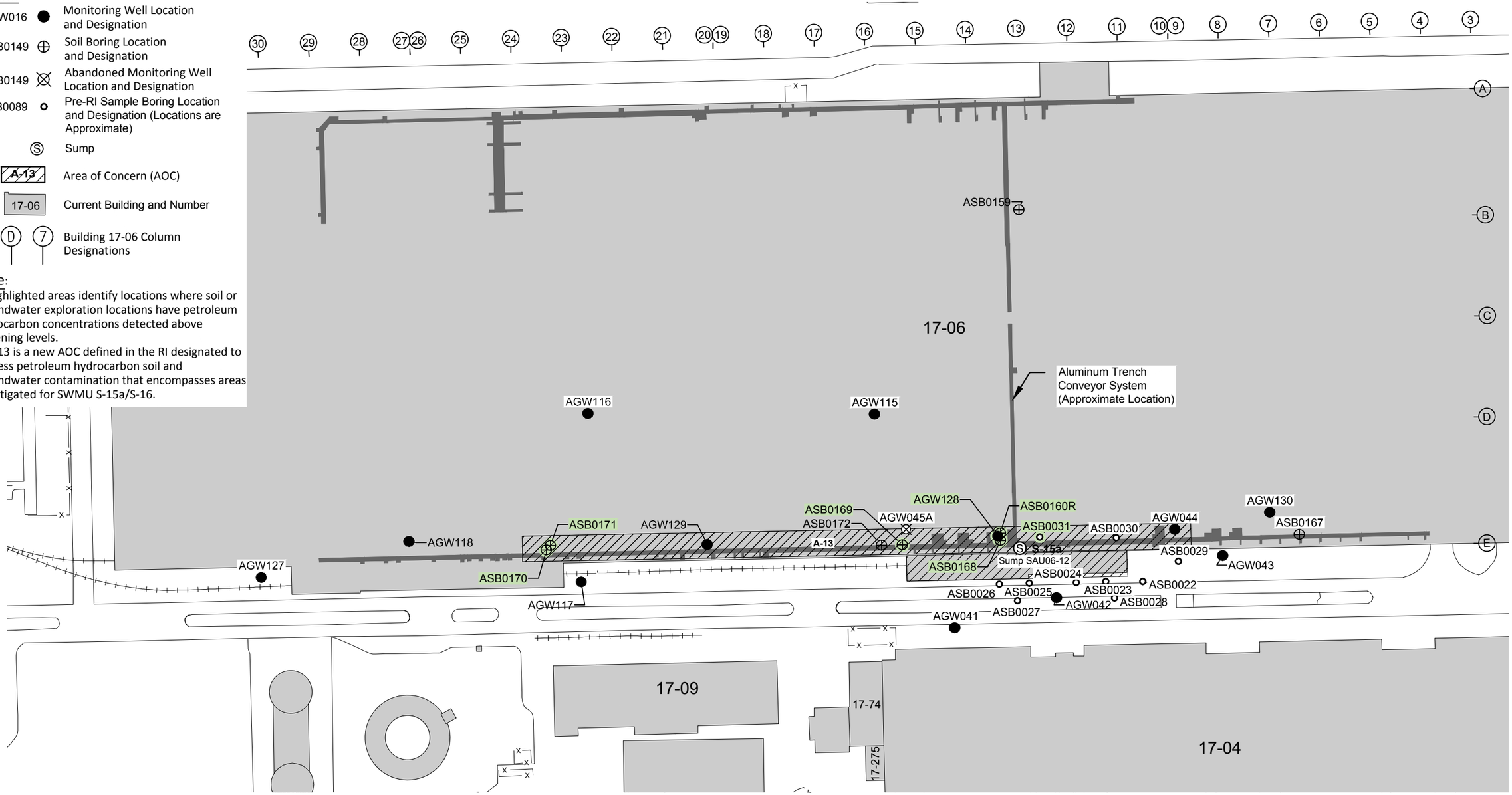
Figure
6-25

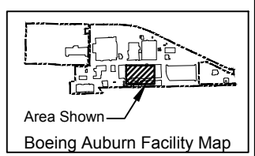
Legend

- AGW016 — Monitoring Well Location and Designation
- ASB0149 — Soil Boring Location and Designation
- ASB0149 — Abandoned Monitoring Well Location and Designation
- ASB0089 — Pre-RI Sample Boring Location and Designation (Locations are Approximate)
- Ⓢ — Sump
- A-13 — Area of Concern (AOC)
- 17-06 — Current Building and Number
- (D) (7) — Building 17-06 Column Designations

Note:

1. Highlighted areas identify locations where soil or groundwater exploration locations have petroleum hydrocarbon concentrations detected above screening levels.
2. A-13 is a new AOC defined in the RI designated to address petroleum hydrocarbon soil and groundwater contamination that encompasses areas investigated for SWMU S-15a/S-16.





N

0 120 240

Scale in Feet

Base map source: Geomatrix 2003

Boeing Auburn Remedial Investigation Auburn, Washington	**AOC-13: 17-06 Petroleum Hydrocarbon Soil and Groundwater Exploration Locations**	Figure 6-26

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Table 6-0
Footnotes for Section 6.0 Tables
Boeing Auburn Remedial Investigation
Auburn, Washington

Notes:

1. Groundwater monitoring wells installed for the remedial investigation are identified by the AGW prefix. Soil borings installed for the remedial investigation are identified by the ASB prefix.
2. Borehole grab samples designations include the locations name (e.g., ASB0207 or AGW024) followed by the depth (feet, below ground surface) at which the sample was collected (e.g., 7). Borehole grab samples were one time samples collected at time of drilling.
3. Monitoring well results presented are maximum concentration detected since 1995 and most recent concentration detected (as of December 2015). 1995 and later was the timeframe previously agreed upon by Ecology and Boeing for inclusion of historical data. Some data prior to 1995 was added to the tables where practical and relevant.
4. **Bold** text indicates detected analyte.
5. Green shading indicates exceedance of screening level.

(a) Evaluated using total toxic equivalent concentration of benzo(a)pyrene.
(b) Model Toxics Control Act Method A soil cleanup levels for unrestricted land uses are used for lead and petroleum hydrocarbons
(c) For gasoline mixtures without benzene and the total of ethylbenzene, toluene, and xylene is less than 1 percent of the gasoline mixture. For samples with benzene or the total of ethylbenzene, toluene, and xylene is greater than 1 percent of the gasoline it is 30 mg/kg.
(d) Unax and Way Oil fall in the diesel and oil hydrocarbon range; thus, the Model Toxics Control Act Method A cleanup level of 2,000 mg/kg for diesel-range organics and oil-range organics is used.

Abbreviations/Acronyms:

-- = not analyzed or not applicable
J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
M = Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match.
µg/kg = micrograms per kilogram
mg/kg = milligrams per kilogram
NA = Screening level not available
ND = The analyte was analyzed for, but was not detected.
TEQ = toxicity equivalency quotient
U = The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
UJ = The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
MEK = methyl ethyl ketone, also 2-butanone
PCBs = polychorinated biphenyls

Table 6-1
SWMU S-06 Soil Statistics
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Screening Level	# of Screening Level Exceedances	# of Results	# of Detects	Max of Detected Results	Min of Detected Results
VOLATILES (µg/kg)						
2-Butanone/MEK	4.80E+07	0	16	8	24	7.2
Acetone	7.20E+07	0	16	10	100	6.5
m-&p-Xylenes	1.46E+04	0	16	2	2.7	1.4
SEMI-VOLATILES (µg/kg)						
Benzo(a)anthracene	(a)	NA	4	1	110	110
Benzo(a)pyrene	1.37E+02	0	4	1	80	80
Benzo(b)fluoranthene	(a)	NA	4	1	83	83
Benzo(k)fluoranthene	(a)	NA	4	1	83	83
Chrysene	(a)	NA	4	1	240	240
Fluoranthene	3.20E+06	0	4	1	470	470
Phenanthrene	NA	NA	4	1	180	180
Pyrene	2.40E+03	0	4	1	280	280
TOTAL METALS (mg/kg)						
Aluminum	8.00E+04	0	12	12	25100	7890
Antimony	5.42E+00	5	13	5	9	6
Arsenic	7.00E+00	0	12	12	6	0.6
Barium	1.60E+04	0	12	12	91.9	21.1
Beryllium	1.60E+02	0	12	11	0.3	0.1
Cadmium	1.00E+00	0	12	1	0.2	0.2
Calcium	NA	NA	12	12	7310	4350
Chromium, Total	1.20E+05	0	12	12	22.1	9.6
Cobalt	NA	NA	12	12	10.6	3.3
Copper	2.84E+02	0	12	12	31.7	9.3
Iron	5.60E+04	0	12	12	24700	9450
Lead	250 (b)	0	12	12	9.3	1.5
Magnesium	NA	NA	12	12	5540	1500
Manganese	1.12E+04	0	12	12	384	87.5
Mercury	2.09E+00	0	12	1	0.06	0.06
Nickel	1.30E+02	0	12	12	20	6
Potassium	NA	NA	12	12	1100	370
Sodium	NA	NA	12	12	1510	713
Thallium	1.00E+00	0	12	12	0.3	0.1
Vanadium	4.00E+02	0	12	12	61.6	40.9
Zinc	2.40E+04	0	12	12	80.4	19.7
PETROLEUM HYDROCARBONS (mg/kg)						
Diesel-Range Organics	2,000 (b)	0	16	2	200	42
Oil-Range Organics	2,000 (b)	0	10	2	1600	21
EXTRACTABLE PETROLEUM HYDROCARBONS (mg/kg)						
Aliphatic Hydrocarbons C21-C34	NA	NA	1	1	5500	5500

Table 6-2
SWMU S-06 Soil Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Sample Location: / Screening Level	ASB0084-4 4/2/1999	ASB0084-12 4/2/1999	ASB0085-4 4/2/1999	ASB0085-11 4/2/1999	ASB0086-1 4/2/1999	ASB0086-4 4/2/1999
VOLATILES (µg/kg)							
2-Butanone/MEK	4.80E+07	6 U	6.4 U	**13**	**16**	5.7 U	6 U
Acetone	7.20E+07	6 U	**24**	**83**	**70**	5.7 U	6 U
m-&p-Xylenes	1.46E+04	1.2 U	1.3 U	1.2 U	1.3 U	**2.7**	1.2 U
SEMI-VOLATILES (µg/kg)							
Benzo(a)anthracene	(a)	--	--	--	--	--	--
Benzo(a)pyrene	1.37E+02	--	--	--	--	--	--
Benzo(b)fluoranthene	(a)	--	--	--	--	--	--
Benzo(k)fluoranthene	(a)	--	--	--	--	--	--
Chrysene	(a)	--	--	--	--	--	--
Fluoranthene	3.20E+06	--	--	--	--	--	--
Phenanthrene	NA	--	--	--	--	--	--
Pyrene	2.40E+03	--	--	--	--	--	--
TEQ	1.37E+02	--	--	--	--	--	--
TOTAL METALS (mg/kg)							
Aluminum	8.00E+04	**19200**	**7890**	**18100**	**16000**	**13700**	**19100**
Antimony	5.42E+00	6 U	6 U	6 U	6 U	**6**	**9**
Arsenic	7.00E+00	**4.5**	**0.6**	**3.4**	**1.6**	**2.2**	**3.2**
Barium	1.60E+04	**70.4**	**21.1**	**64.2**	**53.4**	**50.7**	**67.2**
Beryllium	1.60E+02	**0.3**	0.1 U	**0.3**	**0.2**	**0.1**	**0.2**
Cadmium	1.00E+00	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Calcium	NA	**6260**	**4350**	**5750**	**6750**	**5180**	**6170**
Chromium, Total	1.20E+05	**18.5**	**9.6**	**17.2**	**16.5**	**16.7**	**17.8**
Cobalt	NA	**7.5**	**3.3**	**7.1**	**6.1**	**6.1**	**7.7**
Copper	2.84E+02	**25.7**	**9.3**	**25.4**	**27.1**	**18.7**	**27.7**
Iron	5.60E+04	**19200**	**9450**	**16400**	**12400**	**16800**	**19800**
Lead	2.50E+02	**3.8**	**1.5**	**3.2**	**2.8**	**5.6**	**4.1**
Magnesium	NA	**3590**	**1500**	**3370**	**3110**	**3550**	**3590**
Manganese	1.12E+04	**288**	**87.7**	**209**	**123**	**222**	**226**
Mercury	2.09E+00	0.05 U	0.06 U	**0.06**	0.06 U	0.04 U	0.06 U
Nickel	1.30E+02	**15**	**6**	**13**	**13**	**14**	**13**
Potassium	NA	**850**	**370**	**830**	**730**	**700**	**820**
Sodium	NA	**1240**	**861**	**1090**	**1360**	**713**	**1100**
Thallium	1.00E+00	**0.2**	**0.2**	**0.2**	**0.2**	**0.3**	**0.2**
Vanadium	4.00E+02	**54.5**	**40.9**	**52.4**	**49.1**	**48.2**	**54.9**
Zinc	2.40E+04	**35**	**19.7**	**31.5**	**30.3**	**33.6**	**33.8**
PETROLEUM HYDROCARBONS (mg/kg)							
Diesel-Range Organics	2,000 (b)	6.1 U	6.1 U	6.4 U	6.6 U	25 U	25 U
Oil-Range Organics	2,000 (b)	12 U	12 U	13 U	13 U	**66**	50 U
EXTRACTABLE PETROLEUM HYDROCARBONS (µg/kg)							
Aliphatic Hydrocarbons C21-C34	NA	--	--	--	--	--	--

Table 6-2
SWMU S-06 Soil Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Sample Location: / Screening Level	ASB0087-1 4/2/1999	ASB0087-4 4/2/1999	ASB0088-4 4/2/1999	ASB0088-12 4/2/1999	ASB0089-1 4/2/1999	ASB0089-4 4/2/1999
VOLATILES (µg/kg)							
2-Butanone/MEK	4.80E+07	5.6 U	6 U	**9.1**	**14**	5.3 U	6.3 U
Acetone	7.20E+07	5.6 U	**6.5**	**49**	**68**	5.3 U	6.3 U
m-&p-Xylenes	1.46E+04	1.1 U	1.2 U	1.2 U	1.2 U	**1.4**	1.3 U
SEMI-VOLATILES (µg/kg)							
Benzo(a)anthracene	(a)	--	--	--	--	--	--
Benzo(a)pyrene	1.37E+02	--	--	--	--	--	--
Benzo(b)fluoranthene	(a)	--	--	--	--	--	--
Benzo(k)fluoranthene	(a)	--	--	--	--	--	--
Chrysene	(a)	--	--	--	--	--	--
Fluoranthene	3.20E+06	--	--	--	--	--	--
Phenanthrene	NA	--	--	--	--	--	--
Pyrene	2.40E+03	--	--	--	--	--	--
TEQ	1.37E+02	--	--	--	--	--	--
TOTAL METALS (mg/kg)							
Aluminum	8.00E+04	**15800**	**17500**	**25100**	**10600**	**17100**	**18600**
Antimony	5.42E+00	**6**	6 U	6 U	6 U	**8**	**6**
Arsenic	7.00E+00	**2.5**	**2.7**	**6**	**4.5**	**3.2**	**2.6**
Barium	1.60E+04	**54.6**	**60.3**	**91.9**	**31.8**	**58.8**	**61.3**
Beryllium	1.60E+02	**0.2**	**0.2**	**0.3**	**0.1**	**0.3**	**0.2**
Cadmium	1.00E+00	0.2 U	0.2 U	0.2 U	0.2 U	**0.2**	0.2 U
Calcium	NA	**5970**	**5980**	**7310**	**4560**	**6890**	**5690**
Chromium, Total	1.20E+05	**19.9**	**17.2**	**22.1**	**14**	**20.6**	**19.5**
Cobalt	NA	**6.8**	**7**	**10.6**	**5.8**	**7.8**	**7.2**
Copper	2.84E+02	**21.2**	**23**	**31.7**	**12**	**22.8**	**24.1**
Iron	5.60E+04	**18800**	**18500**	**24700**	**11200**	**20400**	**19300**
Lead	2.50E+02	**7.3**	**3.7**	**4.1**	**2**	**9.3**	**3.5**
Magnesium	NA	**4230**	**3280**	**4590**	**1970**	**5540**	**3460**
Manganese	1.12E+04	**244**	**263**	**384**	**87.5**	**345**	**190**
Mercury	2.09E+00	0.05 U	0.05 U	0.06 U	0.06 U	0.04 U	0.05 U
Nickel	1.30E+02	**17**	**12**	**19**	**11**	**20**	**14**
Potassium	NA	**830**	**860**	**1100**	**400**	**960**	**780**
Sodium	NA	**792**	**1110**	**1510**	**887**	**788**	**1030**
Thallium	1.00E+00	**0.2**	**0.2**	**0.3**	**0.1**	**0.2**	**0.2**
Vanadium	4.00E+02	**48.8**	**54.8**	**61.6**	**48.7**	**52.2**	**54.4**
Zinc	2.40E+04	**80.4**	**32.6**	**41.1**	**23.1**	**39.5**	**33.3**
PETROLEUM HYDROCARBONS (mg/kg)							
Diesel-Range Organics	2,000 (b)	25 U	25 U	6.3 U	6.4 U	**42**	25 U
Oil-Range Organics	2,000 (b)	**74**	50 U	13 U	13 U	50 U	50 U
EXTRACTABLE PETROLEUM HYDROCARBONS (µg/kg)							
Aliphatic Hydrocarbons C21-C34	NA	--	--	--	--	--	--

Table 6-2
SWMU S-06 Soil Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Sample Location: / Screening Level	ASB0141-6 5/4/2004	ASB0141-9 5/4/2004	ASB0142-12 5/4/2004	ASB0142-15 5/4/2004	ASB0180-4 9/30/2009
VOLATILES (µg/kg)						
2-Butanone/MEK	4.80E+07	**7.2** J	**24** J	**16** J	**7.8** J	--
Acetone	7.20E+07	**16** J	**89** J	**100** J	**47** J	--
m-&p-Xylenes	1.46E+04	1.2 UJ	1.3 UJ	1.3 UJ	1.3 UJ	--
SEMI-VOLATILES (µg/kg)						
Benzo(a)anthracene	(a)	**110**	9.1 U	8.6 U	8.2 U	--
Benzo(a)pyrene	1.37E+02	**80**	9.1 U	8.6 U	8.2 U	--
Benzo(b)fluoranthene	(a)	**83**	9.1 U	8.6 U	8.2 U	--
Benzo(k)fluoranthene	(a)	**83**	9.1 U	8.6 U	8.2 U	--
Chrysene	(a)	**240**	9.1 U	8.6 U	8.2 U	--
Fluoranthene	3.20E+06	**470**	9.1 U	8.6 U	8.2 U	--
Phenanthrene	NA	**180**	9.1 U	8.6 U	8.2 U	--
Pyrene	2.40E+03	**280**	9.1 U	8.6 U	8.2 U	--
TEQ	1.37E+02	**110**	ND	ND	ND	--
TOTAL METALS (mg/kg)						
Aluminum	8.00E+04	--	--	--	--	--
Antimony	5.42E+00	--	--	--	--	6 U
Arsenic	7.00E+00	--	--	--	--	--
Barium	1.60E+04	--	--	--	--	--
Beryllium	1.60E+02	--	--	--	--	--
Cadmium	1.00E+00	--	--	--	--	--
Calcium	NA	--	--	--	--	--
Chromium, Total	1.20E+05	--	--	--	--	--
Cobalt	NA	--	--	--	--	--
Copper	2.84E+02	--	--	--	--	--
Iron	5.60E+04	--	--	--	--	--
Lead	2.50E+02	--	--	--	--	--
Magnesium	NA	--	--	--	--	--
Manganese	1.12E+04	--	--	--	--	--
Mercury	2.09E+00	--	--	--	--	--
Nickel	1.30E+02	--	--	--	--	--
Potassium	NA	--	--	--	--	--
Sodium	NA	--	--	--	--	--
Thallium	1.00E+00	--	--	--	--	--
Vanadium	4.00E+02	--	--	--	--	--
Zinc	2.40E+04	--	--	--	--	--
PETROLEUM HYDROCARBONS (mg/kg)						
Diesel-Range Organics	2,000 (b)	**200** J	5 U	5 U	5 U	--
Oil-Range Organics	2,000 (b)	**1600** J	**21**	10 U	10 U	--
EXTRACTABLE PETROLEUM HYDROCARBONS (µg/kg)						
Aliphatic Hydrocarbons C21-C34	NA	--	**5500**	--	--	--

Table 6-3
SWMU S-06 Groundwater Statistics
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Screening Level	# of Screening Level Exceedances	# of Results	# of Detects	Max of Detected Results	Min of Detected Results
VOLATILES (µg/L)						
1,1-Dichloroethane	7.68E+00	0	252	64	5.29	0.2
1,1-Dichloroethene	7.00E+00	0	246	5	0.059	0.027
1,2-Dichloroethane	4.81E-01	0	246	5	0.2	0.2
4-Methyl-2-pentanone	6.40E+02	0	246	2	10	6.1
Acetone	7.20E+03	0	246	23	9.3	1
Carbon Disulfide	8.00E+02	0	246	2	0.4	0.2
Chloroform	1.41E+00	1	246	1	1.6	1.6
Chloromethane	NA	NA	246	2	0.2	0.2
cis-1,2-Dichloroethene	1.60E+01	0	250	130	10.71	0.2
2-Butanone/MEK	4.80E+03	0	246	9	14	1
Methylene Chloride	5.00E+00	0	246	2	0.8	0.4
Tetrachloroethene	5.00E+00	0	246	1	0.029	0.029
Toluene	6.40E+02	0	246	3	0.4	0.2
trans-1,2-Dichloroethene	1.00E+02	0	246	37	1.1	0.2
Trichloroethene	5.40E-01	43	246	52	2.6	0.2
Vinyl Chloride	2.90E-02	156	254	159	20.16	0.02
DISSOLVED METALS (mg/L)						
Aluminum	1.60E+01	0	43	25	0.46	0.02
Arsenic	8.00E-03	10	58	29	0.072	0.001
Barium	2.00E+00	0	48	48	0.042	0.006
Calcium	NA	NA	41	41	95.7	3.28
Chromium, Hexavalent	4.80E-02	0	34	7	0.034	0.01
Chromium, Total	1.00E-01	0	59	9	0.014	0.006
Cobalt	NA	NA	42	6	0.016	0.003
Copper	6.40E-01	0	52	14	0.009	0.002
Lead	1.50E-02	0	59	4	0.002	0.001
Magnesium	NA	NA	41	41	24.9	0.8
Manganese	2.24E+00	6	49	49	5.52	0.042
Mercury	2.00E-03	0	58	1	0.0001	0.0001
Nickel	1.00E-01	0	53	1	0.01	0.01
Potassium	NA	NA	42	42	12.3	2.5
Silicon	NA	NA	1	1	22.6	22.6
Sodium	NA	NA	42	42	175	8.6
Thallium	1.60E-04	3	52	3	0.001	0.001
Vanadium	8.00E-02	2	48	41	0.136	0.004
Zinc	4.80E+00	0	53	8	0.013	0.005
SEMI-VOLATILES (µg/L)						
4-Methylphenol	8.00E+02	0	44	1	3.2	3.2
bis(2-Ethylhexyl) Phthalate	6.00E+00	2	44	8	48	1.3
Butyl Benzyl Phthalate	4.61E+01	0	44	1	2.3	2.3
Di-n-octyl Phthalate	1.60E+02	0	44	1	1.1	1.1
PETROLEUM HYDROCARBONS (mg/L)						
Diesel-Range Organics	5.00E-01	1	49	4	1.4	0.28

Table 6-4
SWMU S-06 Groundwater Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Sample Location: / Screening Level	AGW024 Max	AGW024 Date	AGW024 Most Recent	AGW024 Date	AGW025 Max	AGW025 Date	AGW025 Most Recent	AGW025 Date	AGW029 Max	AGW029 Date	AGW029 Most Recent	AGW029 Date	AGW030 Max	AGW030 Date	AGW030 Most Recent	AGW030 Date	AGW032 Max	AGW032 Date	AGW032 Most Recent	AGW032 Date	AGW034 Max	AGW034 Date	AGW034 Most Recent	AGW034 Date
VOLATILES (µg/L)																									
1,1-Dichloroethane	7.68E+00	**4.5**	2/9/1994	0.5 U	12/8/2015	**5.29**	2/9/1994	0.5 U	12/3/2015	ND	--	0.5 U	6/4/2015	ND	--	0.5 U	6/4/2015	**2.1**	10/2/1996	0.5 U	12/3/2015	ND	--	0.5 U	6/4/2015
1,1-Dichloroethene	7.00E+00	**0.044**	12/10/2008	0.2 U	12/8/2015	**0.063**	12/4/2008	0.2 U	12/3/2015	ND	--	0.2 U	6/4/2015	ND	--	0.2 U	6/4/2015	**0.027**	12/10/2007	0.2 U	12/3/2015	**0.03**	12/5/2005	0.2 U	6/4/2015
1,2-Dichloroethane	4.81E-01	ND	--	0.2 U	12/8/2015	**0.2**	6/8/2004	0.2 U	12/3/2015	ND	--	0.2 U	6/4/2015	ND	--	0.2 U	6/4/2015	ND	--	0.2 U	12/3/2015	ND	--	0.2 U	6/4/2015
2-Butanone/MEK	4.80E+03	ND	--	5.0 U	12/8/2015	**1.2 J**	2/16/1999	5.0 U	12/3/2015	**1.3**	2/18/1999	5.0 U	6/4/2015	**1.1**	2/18/1999	5.0 U	6/4/2015	**14**	12/10/2014	**12**	12/3/2015	ND	--	5.0 U	6/4/2015
4-Methyl-2-pentanone	6.40E+02	ND	--	5.0 U	12/8/2015	ND	--	5.0 U	12/3/2015	ND	--	5.0 U	6/4/2015	ND	--	5.0 U	6/4/2015	ND	--	5.0 U	12/3/2015	ND	--	5.0 U	6/4/2015
Acetone	7.20E+03	ND	--	5.0 U	12/8/2015	**1.2**	6/6/2006	5.0 U	12/3/2015	**3.4 J**	11/25/2002	5.0 U	6/4/2015	**3.5**	11/25/2002	5.0 U	6/4/2015	**3.2**	5/21/2003	5.0 U	12/3/2015	**3.2**	6/8/2004	5.0 U	6/4/2015
Carbon Disulfide	8.00E+02	ND	--	0.5 U	12/8/2015	**0.4**	12/4/2008	0.5 U	12/3/2015	ND	--	0.5 U	6/4/2015	ND	--	0.5 U	6/4/2015	ND	--	0.5 U	12/3/2015	ND	--	0.5 U	6/4/2015
Chloroform	1.41E+00	ND	--	0.2 U	12/8/2015	ND	--	0.2 U	12/3/2015	ND	--	0.2 U	6/4/2015	ND	--	0.2 U	6/4/2015	ND	--	0.2 U	12/3/2015	ND	--	0.2 U	6/4/2015
Chloromethane	NA	ND	--	0.5 U	12/8/2015	**0.2**	6/3/2008	0.5 U	12/3/2015	**0.2**	9/10/1997	0.5 U	6/4/2015	**0.2**	9/10/1997	0.5 U	6/4/2015	ND	--	0.5 U	12/3/2015	ND	--	0.5 U	6/4/2015
cis-1,2-Dichloroethene	1.60E+01	**1.8**	9/9/1997	**0.3**	12/8/2015	**10.71**	2/9/1994	**3.6**	12/3/2015	ND	--	0.2 U	6/4/2015	ND	--	0.2 U	6/4/2015	**3.3**	9/9/1997	0.2 U	12/3/2015	**0.9**	3/19/1998	0.2 U	6/4/2015
Methylene Chloride	5.00E+00	ND	--	0.5 U	12/8/2015	ND	--	0.5 U	12/3/2015	**0.8 J**	12/5/2005	0.5 U	6/4/2015	ND	--	0.5 U	6/4/2015	ND	--	0.5 U	12/3/2015	ND	--	0.5 U	6/4/2015
Tetrachloroethene	5.00E+00	ND	--	0.2 U	12/8/2015	ND	--	0.2 U	12/3/2015	ND	--	0.2 U	6/4/2015	ND	--	0.2 U	6/4/2015	ND	--	0.020 U	12/3/2015	ND	--	0.2 U	6/4/2015
Toluene	6.40E+02	ND	--	0.2 U	12/8/2015	ND	--	0.2 U	12/3/2015	ND	--	0.2 U	6/4/2015	ND	--	0.2 U	6/4/2015	**0.4**	5/20/2002	0.2 U	12/3/2015	ND	--	0.2 U	6/4/2015
trans-1,2-Dichloroethene	1.00E+02	**0.2**	12/4/2014	0.2 U	12/8/2015	**1.1**	9/2/1998	**0.4**	12/3/2015	ND	--	0.2 U	6/4/2015	ND	--	0.2 U	6/4/2015	**0.3**	9/9/1997	0.2 U	12/3/2015	ND	--	0.2 U	6/4/2015
Trichloroethene	5.40E-01	ND	--	0.2 U	12/8/2015	**0.2**	6/3/2008	0.2 U	12/3/2015	ND	--	0.2 U	6/4/2015	ND	--	0.2 U	6/4/2015	**0.7**	9/9/1997	0.2 U	12/3/2015	**2.6**	3/19/1998	**0.2**	6/4/2015
Vinyl Chloride	2.90E-02	**20.16**	2/9/1994	**1.7**	12/8/2015	**15.51**	2/9/1994	**1.1**	12/3/2015	**0.5**	12/5/2005	0.020 U	6/4/2015	**0.4**	11/2/2001	0.020 U	6/4/2015	**5.2**	8/30/1999	**0.041**	12/3/2015	**0.026**	6/8/2004	0.020 U	6/4/2015
DISSOLVED METALS (mg/L)																									
Aluminum	1.60E+01	--	--	--	--	ND	--	0.05 U	6/8/2004	**0.14**	9/3/1998	0.05 U	6/2/2004	**0.46**	11/7/2000	**0.26**	6/2/2004	**0.12**	6/8/2004	**0.12**	6/8/2004	ND	--	0.05 U	6/8/2004
Arsenic	8.00E-03	ND	--	0.001 U	12/11/1995	ND	--	0.001 U	12/7/2004	**0.004**	3/14/2000	0.001 U	12/1/2004	**0.002**	8/30/1999	0.001 U	12/1/2004	**0.072**	5/20/2002	**0.014**	12/7/2004	**0.001**	12/7/2004	**0.001**	12/7/2004
Barium	2.00E+00	--	--	--	--	**0.022**	12/7/2004	**0.022**	12/7/2004	**0.032**	5/20/2002	**0.029**	12/1/2004	**0.036**	11/7/2000	**0.008**	12/1/2004	**0.042**	5/21/2003	**0.022**	12/7/2004	**0.012**	6/8/2004	**0.008**	12/7/2004
Calcium	NA	--	--	--	--	**39**	6/8/2004	**39**	6/8/2004	**27.3**	5/20/2002	**24.3**	6/2/2004	**22.4**	11/7/2000	**8.51**	6/2/2004	**95.7**	5/21/2003	**75.8**	6/8/2004	**24.4**	6/8/2004	**24.4**	6/8/2004
Chromium, Hexavalent	4.80E-02	--	--	--	--	**0.011**	6/8/2004	0.011 U	12/7/2004	**0.011 J**	6/2/2004	**0.011 J**	6/2/2004	ND	--	0.01 U	11/25/2002	**0.034**	6/8/2004	0.011 U	12/7/2004	ND	--	0.011 U	12/7/2004
Chromium, Total	1.00E-01	ND	--	0.005 U	12/11/1995	ND	--	0.005 U	12/7/2004	**0.006**	11/25/2002	0.005 U	12/1/2004	**0.014**	11/7/2000	0.005 U	12/1/2004	**0.006**	6/8/2004	0.005 U	12/7/2004	ND	--	0.005 U	12/7/2004
Cobalt	NA	--	--	--	--	ND	--	.003 U	6/8/2004	ND	--	.003 U	6/2/2004	**0.004**	2/18/1999	.003 U	6/2/2004	**0.016**	6/8/2004	**0.016**	6/8/2004	ND	--	.003 U	6/8/2004
Copper	6.40E-01	--	--	--	--	ND	--	0.002 U	12/7/2004	**0.004**	5/16/2001	0.002 U	12/1/2004	**0.003**	3/14/2000	0.002 U	12/1/2004	**0.009**	9/9/1997	0.002 U	12/7/2004	**0.002**	9/9/1997	0.002 U	12/7/2004
Lead	1.50E-02	ND	--	0.001 U	12/11/1995	ND	--	0.001 U	12/7/2004	**0.002**	5/20/2002	0.001 U	12/1/2004	**0.002**	5/20/2002	0.001 U	12/1/2004	**0.002**	5/20/2002	0.001 U	12/7/2004	ND	--	0.001 U	12/7/2004
Magnesium	NA	--	--	--	--	**13.8**	6/8/2004	**13.8**	6/8/2004	**7.5**	5/21/2003	**6.85**	6/2/2004	**5.8**	9/3/1998	**2.29**	6/2/2004	**24.9**	5/21/2003	**18.7**	6/8/2004	**9.05**	6/8/2004	**9.05**	6/8/2004
Manganese	2.24E+00	--	--	--	--	**0.286**	9/26/1996	**0.208**	12/7/2004	**0.712**	5/21/2003	**0.662**	12/1/2004	**0.381**	11/2/2001	**0.104**	12/1/2004	**5.52**	5/20/2002	**4.22**	12/7/2004	**0.093**	6/8/2004	**0.047**	12/7/2004
Mercury	2.00E-03	ND	--	0.0001 U	12/11/1995	ND	--	0.0001 U	12/7/2004	ND	--	0.0001 U	12/1/2004	ND	--	0.0001 U	12/1/2004	**0.0001**	8/30/1999	0.0001 U	12/7/2004	ND	--	0.0001 U	12/7/2004
Nickel	1.00E-01	--	--	--	--	ND	--	0.01 U	12/7/2004	ND	--	0.01 U	12/1/2004	ND	--	0.01 U	12/1/2004	**0.01**	6/8/2004	0.01 U	12/7/2004	ND	--	0.01 U	12/7/2004
Potassium	NA	--	--	--	--	**4.3**	6/8/2004	**4.3**	6/8/2004	**5.6**	11/25/2002	**5.3**	6/2/2004	**6.3**	11/7/2000	**3.6**	6/2/2004	**12.3**	6/8/2004	**12.3**	6/8/2004	**4.4**	3/19/1998	**3.7**	6/8/2004
Silicon	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**22.6**	6/23/2011	**22.6**	6/23/2011
Sodium	NA	--	--	--	--	**16.6**	6/8/2004	**16.6**	6/8/2004	**79.4**	9/3/1998	**47.2**	6/2/2004	**175**	11/2/2001	**74**	6/2/2004	**26.2**	6/8/2004	**26.2**	6/8/2004	**9.8**	3/19/1998	**9.6**	6/8/2004
Thallium	1.60E-04	--	--	--	--	ND	--	0.001 U	12/7/2004	**0.001**	11/7/2000	0.001 U	12/1/2004	**0.001**	11/25/2002	0.001 U	12/1/2004	**0.001**	2/16/1999	0.001 U	12/7/2004	ND	--	0.001 U	12/7/2004
Vanadium	8.00E-02	--	--	--	--	**0.004**	12/7/2004	**0.004**	12/7/2004	**0.039**	9/3/1998	**0.025**	12/1/2004	**0.136**	11/7/2000	**0.043**	12/1/2004	**0.043**	6/8/2004	**0.019**	12/7/2004	ND	--	0.003 U	12/7/2004
Zinc	4.80E+00	--	--	--	--	ND	--	0.006 U	12/7/2004	**0.007**	11/25/2002	0.006 U	12/1/2004	**0.005**	9/3/1998	0.006 U	12/1/2004	**0.013**	9/9/1997	**0.008**	12/7/2004	**0.009**	9/9/1997	0.006 U	12/7/2004
SEMI-VOLATILES (µg/L)																									
4-Methylphenol	8.00E+02	ND	--	1 U	12/11/1995	ND	--	1 U	12/7/2004	ND	--	1 U	12/1/2004	ND	--	1 U	12/1/2004	**3.2**	5/20/2002	1 U	12/7/2004	ND	--	1 U	9/2/1998
bis(2-Ethylhexyl) Phthalate	6.00E+00	ND	--	1 U	12/11/1995	ND	--	1 U	12/7/2004	**1.4**	11/7/2000	1 U	12/1/2004	**15**	5/21/2003	1 U	12/1/2004	**3.9**	9/2/1998	**1.8**	12/7/2004	**48**	9/2/1998	**48**	9/2/1998
Butyl Benzyl Phthalate	4.61E+01	ND	--	1 U	12/11/1995	ND	--	1 U	12/7/2004	ND	--	1 U	12/1/2004	**2.3**	5/21/2003	1 U	12/1/2004	ND	--	1 U	12/7/2004	ND	--	1 U	9/2/1998
Di-n-octyl Phthalate	1.60E+02	ND	--	1 U	12/11/1995	ND	--	1 U	12/7/2004	ND	--	1 U	12/1/2004	**1.1**	5/21/2003	1 U	12/1/2004	ND	--	1 U	12/7/2004	ND	--	1 U	9/2/1998
PETROLEUM HYDROCARBONS (mg/L)																									
Diesel-Range Organics	5.00E-01	ND	--	0.25 U	12/11/1995	**0.37**	3/9/2000	0.25 U	12/7/2004	ND	--	0.25 U	12/1/2004	ND	--	0.25 U	12/1/2004	**1.4**	3/13/2000	0.25 U	12/7/2004	ND	--	0.25 U	12/7/2004

Table 6-4
SWMU S-06 Groundwater Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Sample Location: / Screening Level	AGW079 Max	AGW079 Date	AGW079 Most Recent	AGW079 Most Recent Date	AGW105 Max	AGW105 Date	AGW105 Most Recent	AGW105 Most Recent Date	ASB0135-13 3/22/2004	ASB0136-15 3/22/2004	ASB0137-13 3/22/2004	ASB0138-12 3/22/2004	ASB0139-13 3/22/2004	ASB0140-11 3/22/2004	ASB0141-9 5/4/2004	ASB0142-14 5/4/2004
VOLATILES (µg/L)																	
1,1-Dichloroethane	7.68E+00	**0.5**	6/3/2010	0.5 U	12/7/2015	ND	--	0.5 U	12/7/2015	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 UJ	**0.6 J**
1,1-Dichloroethene	7.00E+00	**0.034**	12/8/2008	0.2 U	12/7/2015	**0.044**	12/8/2008	0.2 U	12/7/2015	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 UJ	0.02 UJ
1,2-Dichloroethane	4.81E-01	ND	--	0.2 U	12/7/2015	ND	--	0.2 U	12/7/2015	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 UJ
2-Butanone/MEK	4.80E+03	ND	--	5.0 U	12/7/2015	ND	--	5.0 U	12/7/2015	1 U	**1**	1 U	**1.1**	1 U	1 U	1 UJ	1 UJ
4-Methyl-2-pentanone	6.40E+02	**10**	12/9/2009	5.0 U	12/7/2015	ND	--	5.0 U	12/7/2015	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ
Acetone	7.20E+03	**9.3**	12/8/2008	5.0 U	12/7/2015	**1**	6/2/2004	5.0 U	12/7/2015	1 U	**1.7 M**	**1.5 M**	**3**	1 U	**1.5 M**	**3.1 J**	**2.6 J**
Carbon Disulfide	8.00E+02	**0.2**	12/8/2008	0.5 U	12/7/2015	ND	--	0.5 U	12/7/2015	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 UJ
Chloroform	1.41E+00	ND	--	0.2 U	12/7/2015	ND	--	0.2 U	12/7/2015	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**1.6 J**	0.2 UJ
Chloromethane	NA	ND	--	0.5 U	12/7/2015	ND	--	0.5 U	12/7/2015	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 UJ
cis-1,2-Dichloroethene	1.60E+01	**3**	12/8/2008	**0.4**	12/7/2015	**1.1**	6/5/2006	**0.6**	12/7/2015	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 UJ
Methylene Chloride	5.00E+00	ND	--	0.5 U	12/7/2015	**0.4**	12/5/2005	0.5 U	12/7/2015	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 UJ	0.3 UJ
Tetrachloroethene	5.00E+00	**0.029**	12/4/2012	0.2 U	12/7/2015	ND	--	0.2 U	12/7/2015	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 UJ
Toluene	6.40E+02	ND	--	0.2 U	12/7/2015	ND	--	0.2 U	12/7/2015	0.2 U	0.2 U	0.2 U	**0.3**	0.2 U	0.2 U	0.2 UJ	0.2 UJ
trans-1,2-Dichloroethene	1.00E+02	ND	--	0.2 U	12/7/2015	**0.2**	12/4/2006	0.2 U	12/7/2015	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 UJ
Trichloroethene	5.40E-01	ND	--	0.2 U	12/7/2015	**1.4**	6/16/2014	**0.9**	12/7/2015	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 UJ
Vinyl Chloride	2.90E-02	**2.1**	6/2/2009	**0.9**	12/7/2015	**1.8**	12/1/2004	**0.8**	12/7/2015	0.020 U	**0.083**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 UJ	**0.4 J**
DISSOLVED METALS (mg/L)																	
Aluminum	1.60E+01	--	--	--	--	ND	--	0.05 U	6/2/2004	--	--	--	--	--	--	--	--
Arsenic	8.00E-03	--	--	--	--	**0.006**	12/1/2004	**0.006**	12/1/2004	--	--	--	--	--	--	--	--
Barium	2.00E+00	--	--	--	--	**0.011**	12/1/2004	**0.011**	12/1/2004	--	--	--	--	--	--	--	--
Calcium	NA	--	--	--	--	**30.9**	6/2/2004	**30.9**	6/2/2004	--	--	--	--	--	--	--	--
Chromium, Hexavalent	4.80E-02	--	--	--	--	**0.011 J**	6/2/2004	**0.011 R**	12/1/2004	--	--	--	--	--	--	--	--
Chromium, Total	1.00E-01	--	--	--	--	ND	--	0.005 U	12/1/2004	--	--	--	--	--	--	--	--
Cobalt	NA	--	--	--	--	ND	--	.003 U	6/2/2004	--	--	--	--	--	--	--	--
Copper	6.40E-01	--	--	--	--	ND	--	0.002 U	12/1/2004	--	--	--	--	--	--	--	--
Lead	1.50E-02	--	--	--	--	ND	--	0.001 U	12/1/2004	--	--	--	--	--	--	--	--
Magnesium	NA	--	--	--	--	**11.2**	6/2/2004	**11.2**	6/2/2004	--	--	--	--	--	--	--	--
Manganese	2.24E+00	--	--	--	--	**0.128**	6/2/2004	**0.119**	12/1/2004	--	--	--	--	--	--	--	--
Mercury	2.00E-03	--	--	--	--	ND	--	0.0001 U	12/1/2004	--	--	--	--	--	--	--	--
Nickel	1.00E-01	--	--	--	--	ND	--	0.01 U	12/1/2004	--	--	--	--	--	--	--	--
Potassium	NA	--	--	--	--	**4.7**	6/2/2004	**4.7**	6/2/2004	--	--	--	--	--	--	--	--
Silicon	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	NA	--	--	--	--	**18.6**	6/2/2004	**18.6**	6/2/2004	--	--	--	--	--	--	--	--
Thallium	1.60E-04	--	--	--	--	ND	--	0.001 U	12/1/2004	--	--	--	--	--	--	--	--
Vanadium	8.00E-02	--	--	--	--	**0.006**	12/1/2004	**0.006**	12/1/2004	--	--	--	--	--	--	--	--
Zinc	4.80E+00	--	--	--	--	**0.007**	6/2/2004	0.006 U	12/1/2004	--	--	--	--	--	--	--	--
SEMI-VOLATILES (µg/L)																	
4-Methylphenol	8.00E+02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
bis(2-Ethylhexyl) Phthalate	6.00E+00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Butyl Benzyl Phthalate	4.61E+01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Di-n-octyl Phthalate	1.60E+02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PETROLEUM HYDROCARBONS (mg/L)																	
Diesel-Range Organics	5.00E-01	--	--	--	--	ND	--	0.25 U	12/1/2004	--	--	--	--	--	--	--	--

Table 6-5
SWMU S-11 Groundwater Statistics
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Screening Level	# of Screening Level Exceedances	# of Results	# of Detects	Max of Detected Results	Min of Detected Results
VOLATILES (µg/L)						
Acetone	7.20E+03	0	5	2	3.6	2.2
Bromoform	5.54E+00	0	5	1	0.3	0.3
Carbon Disulfide	8.00E+02	0	5	2	0.8	0.3
Chloromethane	NA	NA	5	3	0.4	0.3
Toluene	6.40E+02	0	5	2	0.4	0.2

Table 6-6
SWMU S-11 Groundwater Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Sample Location: / Screening Level	ASB0155-32 8/23/2004	ASB0156-32 8/24/2004	ASB0177-25 9/8/2008	ASB0177-35 9/8/2008	ASB0177-45 9/8/2008
VOLATILES (µg/L)						
Acetone	7.20E+03	**2.2**	1 U	**3.6**	3 U	3 U
Bromoform	5.54E+00	0.2 U	0.2 U	0.2 U	**0.3**	0.2 U
Carbon Disulfide	8.00E+02	**0.8**	**0.3**	0.2 U	0.2 U	0.2 U
Chloromethane	NA	0.2 U	0.2 U	**0.4**	**0.4**	**0.3**
Toluene	6.40E+02	**0.2**	**0.4**	0.2 U	0.2 U	0.2 U

Table 6-7
SWMU S-12d Soil Statistics
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Screening Level	# of Screening Level Exceedances	# of Results	# of Detects	Max of Detected Results	Min of Detected Results
VOLATILES (µg/kg)						
2-Butanone/MEK	4.80E+07	0	4	1	130	130
Acetone	7.20E+07	0	4	4	630	19

TABLE 6-8
SWMU S-12d Soil Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Sample Location: / Screening Level	ASB0161-6 8/31/2004	ASB0161-14 8/31/2004	ASB0161-16 8/31/2004	ASB0162-6 8/31/2004	ASB0162-14 8/31/2004	ASB0162-15 8/31/2004
VOLATILES (µg/kg)							
2-Butanone/MEK	4.80E+07	**130**	--	8.6 U	7.1 U	--	9.7 U
Acetone	7.20E+07	**630**	--	**50**	**19**	--	**75**

Table 6-9
SWMU S-12d Groundwater Statistics
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Screening Level	# of Screening Level Exceedances	# of Results	# of Detects	Max of Detected Results	Min of Detected Results
VOLATILES (µg/L)						
1,1-Dichloroethane	7.68E+00	0	2	2	1.7	1.6
1,1-Dichloroethene	7.00E+00	0	2	2	0.059	0.034
Acetone	7.20E+03	0	2	2	2.2	2
cis-1,2-Dichloroethene	1.60E+01	0	2	2	4	3.7
trans-1,2-Dichloroethene	1.00E+02	0	2	2	0.4	0.3
Vinyl Chloride	2.90E-02	2	2	2	0.15	0.13

Table 6-10
SWMU S-12d Groundwater Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Sample Location: / Screening Level	ASB0161-18 8/31/2004	ASB0162-17 8/31/2004
VOLATILES (µg/L)			
1,1-Dichloroethane	7.68E+00	**1.6**	**1.7**
1,1-Dichloroethene	7.00E+00	**0.059**	**0.034**
Acetone	7.20E+03	**2 J**	**2.2**
cis-1,2-Dichloroethene	1.60E+01	**4**	**3.7**
trans-1,2-Dichloroethene	1.00E+02	**0.4**	**0.3**
Vinyl Chloride	2.90E-02	**0.13 J**	**0.15 J**

Table 6-11
SWMU S-12f Groundwater Statistics
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Screening Level	# of Screening Level Exceedances	# of Results	# of Detects	Max of Detected Results	Min of Detected Results
VOLATILES (µg/L)						
Carbon Disulfide	8.00E+02	0	1	1	0.3	0.3
Toluene	6.40E+02	0	2	1	0.2	0.2

Table 6-12
SWMU S-12f Groundwater Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Sample Location: / Screening Level	ASB0158-32 / 8/25/2004
VOLATILES (µg/L)		
Carbon Disulfide	8.00E+02	**0.3**
Toluene	6.40E+02	**0.2**

Table 6-13
SWMU S-13 Groundwater Statistics
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Screening Level	# of Screening Level Exceedances	# of Results	# of Detects	Max of Detected Results	Min of Detected Results
VOLATILES (µg/L)						
1,1-Dichloroethane	7.68E+00	0	61	3	2	1
1,1-Dichloroethene	7.00E+00	0	61	2	0.068	0.046
Acetone	7.20E+03	0	61	2	7.2	5.9
Carbon Disulfide	8.00E+02	0	61	2	2.3	0.8
Chloromethane	NA	0	61	1	0.6	0.6
cis-1,2-Dichloroethene	1.60E+01	0	61	61	3.9	0.2
Tetrachloroethene	5.00E+00	0	61	48	0.11	0.026
Toluene	6.40E+02	0	61	1	3.2	3.2
trans-1,2-Dichloroethene	1.00E+02	0	61	1	0.2	0.2
Trichloroethene	5.40E-01	60	61	60	5.3	0.6
Vinyl Chloride	2.90E-02	47	61	50	4.5	0.022
DISSOLVED METALS (mg/L)						
Aluminum	1.60E+01	0	2	1	0.04	0.04
Arsenic	8.00E-03	0	2	1	0.001	0.001
Barium	2.00E+00	0	2	2	0.01	0.008
Calcium	NA	0	1	1	24.2	24.2
Iron	1.12E+01	0	2	2	0.47	0.31
Magnesium	NA	0	1	1	7.98	7.98
Manganese	2.24E+00	0	3	3	0.5	0.347
Potassium	NA	0	1	1	3.5	3.5
Silicon	NA	0	1	1	25.2	25.2
Sodium	NA	0	1	1	10.8	10.8
Vanadium	8.00E-02	0	2	2	0.011	0.01

Table 6-14
SWMU S-13 Groundwater Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

	Sample Location:	AGW037				AGW164				AGW164-29
Detected Analyte	Screening Level	Max	Date	Most Recent	Date	Max	Date	Most Recent	Date	8/24/2010
VOLATILES (µg/L)										
1,1-Dichloroethane	7.68E+00	**2**	6/21/1996	0.5 U	12/3/2015	ND	--	0.5 U	12/8/2015	0.2 U
1,1-Dichloroethene	7.00E+00	**0.068**	12/15/2008	0.2 U	12/3/2015	ND	--	0.2 U	12/8/2015	0.2 U
Acetone	7.20E+03	ND	--	5.0 U	12/3/2015	**5.9**	8/24/2010	5.0 U	12/8/2015	**5.9**
Carbon Disulfide	8.00E+02	ND	--	0.5 U	12/3/2015	**0.8**	8/24/2010	0.5 U	12/8/2015	**0.8**
Chloromethane	NA	ND	--	0.5 U	12/3/2015	ND	--	0.5 U	12/8/2015	0.2 U
cis-1,2-Dichloroethene	1.60E+01	**2.6**	3/29/1996	**1.2**	12/3/2015	**3.9**	8/24/2010	**0.4**	12/8/2015	**3.9**
Tetrachloroethene	5.00E+00	**0.11**	6/10/2010	**0.08**	12/3/2015	**0.078**	3/3/2013	**0.029**	12/8/2015	0.02 U
Toluene	6.40E+02	ND	--	0.2 U	12/3/2015	ND	--	0.2 U	12/8/2015	0.2 U
trans-1,2-Dichloroethene	1.00E+02	ND	--	0.2 U	12/3/2015	**0.2**	8/24/2010	0.2 U	12/8/2015	**0.2**
Trichloroethene	5.40E-01	**5.3**	12/13/1996	**2.3**	12/3/2015	**1.8**	12/6/2012	**1.7**	12/8/2015	**0.9**
Vinyl Chloride	2.90E-02	**0.2**	12/3/2015	**0.2**	12/3/2015	**4.5 J**	8/24/2010	**0.1**	12/8/2015	**4.5 J**
DISSOLVED METALS (mg/L)										
Aluminum	1.60E+01	**0.04**	9/26/1996	0.05 U	6/16/2004	--	--	--	--	--
Arsenic	8.00E-03	**0.001**	12/10/2004	**0.001**	12/10/2004	--	--	--	--	--
Barium	2.00E+00	**0.01**	6/16/2004	**0.008**	12/10/2004	--	--	--	--	--
Calcium	NA	**24.2**	6/16/2004	**24.2**	6/16/2004	--	--	--	--	--
Iron	1.12E+01	**0.47**	6/19/2004	**0.31**	12/10/2004					--
Magnesium	NA	**7.98**	6/16/2004	**7.98**	6/16/2004	--	--	--	--	--
Manganese	2.24E+00	**0.5**	9/26/1996	**0.359**	12/10/2004	--	--	--	--	--
Potassium	NA	**3.5**	6/16/2004	**3.5**	6/16/2004	--	--	--	--	--
Silicon	NA	--	--	--	--	--	--	--	--	--
Sodium	NA	**10.8**	6/16/2004	**10.8**	6/16/2004	--	--	--	--	--
Vanadium	8.00E-02	**0.011**	12/10/2004	**0.011**	12/10/2004	--	--	--	--	--

Table 6-14
SWMU S-13 Groundwater Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

	Sample Location:	AGW165				AGW165-55	ASB0157-17			
Detected Analyte	Screening Level	Max	Date	Most Recent	Date	8/25/2010	Max	Date	Most Recent	Date
VOLATILES (µg/L)										
1,1-Dichloroethane	7.68E+00	ND	--	0.5 U	12/3/2015	0.2 U	ND	--	0.2 U	8/24/2004
1,1-Dichloroethene	7.00E+00	ND	--	0.2 U	12/3/2015	0.2 U	ND	--	0.02 U	8/24/2004
Acetone	7.20E+03	**7.2**	8/25/2010	5.0 U	12/3/2015	**7.2**	ND	--	1 U	8/24/2004
Carbon Disulfide	8.00E+02	**2.3**	8/25/2010	0.5 U	12/3/2015	**2.3**	ND	--	0.2 U	8/24/2004
Chloromethane	NA	**0.6 J**	8/25/2010	0.5 U	12/3/2015	**0.6 J**	ND	--	0.2 U	8/24/2004
cis-1,2-Dichloroethene	1.60E+01	**1.8**	6/19/2014	**1.2**	12/3/2015	**0.2**	**0.6**	8/24/2004	**0.6**	8/24/2004
Tetrachloroethene	5.00E+00	**0.077**	12/9/2013	**0.06**	12/3/2015	0.02 U	ND	--	0.2 U	8/24/2004
Toluene	6.40E+02	ND	--	0.2 U	12/3/2015	0.2 U	**3.2**	8/24/2004	**3.2**	8/24/2004
trans-1,2-Dichloroethene	1.00E+02	ND	--	0.2 U	12/3/2015	0.2 U	ND	--	0.2 U	8/24/2004
Trichloroethene	5.40E-01	**2.8**	12/8/2014	**2.3**	12/3/2015	**0.6**	ND	--	0.2 U	8/24/2004
Vinyl Chloride	2.90E-02	**0.4 J**	8/25/2010	**0.16**	12/3/2015	**0.4 J**	**0.94**	8/24/2004	**0.94**	8/24/2004
DISSOLVED METALS (mg/L)										
Aluminum	1.60E+01	--	--	--	--	--	--	--	--	--
Arsenic	8.00E-03	--	--	--	--	--	--	--	--	--
Barium	2.00E+00	--	--	--	--	--	--	--	--	--
Calcium	NA	--	--	--	--	--	--	--	--	--
Iron	1.12E+01					--				
Magnesium	NA	--	--	--	--	--	--	--	--	--
Manganese	2.24E+00	--	--	--	--	--	--	--	--	--
Potassium	NA	--	--	--	--	--	--	--	--	--
Silicon	NA	**25.2**	6/22/2011	**25.2**	06/22/11	--	--	--	--	--
Sodium	NA	--	--	--	--	--	--	--	--	--
Vanadium	8.00E-02	--	--	--	--	--	--	--	--	--

Table 6-15
SWMU S-15a/S-16 Soil Statistics
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Screening Level	# of Screening Level Exceedances	# of Results	# of Detects	Max of Detected Results	Min of Detected Results
VOLATILES (µg/kg)						
2-Butanone/MEK	4.80E+07	0	13	5	48	8.2
4-methyl-2-pentanone	6.40E+06	0	16	1	51	51
Acetone	7.20E+07	0	13	10	230	7.5
Benzene	4.48E+00	0	13	6	4.5	1.2
Carbon Disulfide	8.00E+06	0	16	2	2.5	1.2
m-&p-Xylenes	1.46E+04	0	13	4	2	1.2
Methylene Chloride	2.18E+01	0	16	3	4.3	2.3
o-Xylene	1.46E+04	0	16	1	1.1	1.1
Tetrachloroethene	4.76E+05	0	13	6	29	1.4
Toluene	4.65E+03	0	13	4	82	3.7
Trichloroethene	3.57E+00	1	13	3	5.4	1.6
TOTAL METALS (mg/kg)						
Beryllium	1.60E+02	0	34	27	0.26	0.1
Cadmium	1.00E+00	0	34	7	0.3	0.2
Chromium, Total	1.20E+05	0	34	34	27.6	9.3
Copper	2.84E+02	0	34	34	124	11.4
Lead	250 (b)	0	34	33	15	3
Nickel	1.30E+02	0	34	34	24.6	6
Selenium	4.00E+02	0	34	2	6	5
Silver	4.00E+02	0	34	3	0.4	0.4
Thallium	1.00E+00	3	34	3	11	5
Zinc	2.40E+04	0	34	34	391	17.8
PETROLEUM HYDROCARBONS (mg/kg)						
Diesel-Range Organics	2,000 (b)	2	12	9	3900	5.3
Oil-Range Organics	2,000 (b)	7	14	10	20000	12
Unax Oil Range	2,000 (d)	1	34	1	23900	23900
Way Oil Range	2,000 (d)	0	34	5	430	190
EXTRACTABLE PETROLEUM HYDROCARBONS (mg/kg)						
Aliphatic Hydrocarbons C16-C21	NA	NA	2	1	250000	250000
Aliphatic Hydrocarbons C21-C34	NA	NA	2	1	6900000	6900000
Aromatic Hydrocarbons C16-C21	NA	NA	2	1	44000	44000
Aromatic Hydrocarbons C21-C34	NA	NA	2	1	1100000	1100000
POLYCHLORINATED BIPHENYLS (µg/kg)						
Aroclor 1254	5.00E+02	0	10	3	180	130
Aroclor 1260	5.00E+02	0	10	3	100	90
Total PCBs	5.00E+02	0	10	4	270	100

Table 6-16
SWMU S-15a/S-16 Soil Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Sample Location: / Screening Level	AGW041-2.0 5/30/1996	AGW041-10.0 5/30/1996	AGW042-2.0 5/30/1996	AGW042-10.0 5/30/1996	AGW043-2.0 5/30/1996	AGW043-10.0 5/30/1996	AGW044-2.0 5/29/1996	AGW044-10.0 5/30/1996	AGW045-2.0 5/29/1996	AGW045-11.0 5/30/1996	AGW127 9/8/2008	AGW128 9/12/2008	AGW129 9/11/2008	AGW130 9/11/2008	ASB0022-2.0 5/29/1996	ASB0022-7.0 5/29/1996	ASB0022-10.0 5/29/1996	ASB0023-2.0 5/29/1996
VOLATILES (µg/kg)																			
2-Butanone/MEK	4.80E+07	--	--	--	--	--	--	--	--	--	--	4.4 U	**8.8**	5.7 U	6.1 U	--	--	--	--
4-methyl-2-pentanone	6.40E+06	--	--	--	--	--	--	--	--	--	--	4.4 U	5.7 U	5.7 U	6.1 U	--	--	--	--
Acetone	7.20E+07	--	--	--	--	--	--	--	--	--	--	**31**	**42**	**43**	**16**	--	--	--	--
Benzene	4.48E+00	--	--	--	--	--	--	--	--	--	--	0.9 U	**2.8**	**1.9**	1.2 U	--	--	--	--
Carbon Disulfide	8.00E+06	--	--	--	--	--	--	--	--	--	--	**1.2**	**2.5**	1.1 U	1.2 U	--	--	--	--
m-&p-Xylenes	1.46E+04	--	--	--	--	--	--	--	--	--	--	0.9 U	**1.5**	1.1 U	1.2 U	--	--	--	--
Methylene Chloride	2.18E+01	--	--	--	--	--	--	--	--	--	--	2.3 U	**3.6**	**3.0**	**4.3**	--	--	--	--
o-Xylene	1.46E+04	--	--	--	--	--	--	--	--	--	--	0.9 U	1.2 U	1.1 U	1.2 U	--	--	--	--
Tetrachloroethene	4.76E+05	--	--	--	--	--	--	--	--	--	--	0.9 U	**2.7**	1.1 U	1.2 U	--	--	--	--
Toluene	4.65E+03	--	--	--	--	--	--	--	--	--	--	0.9 U	**21**	1.1 U	1.2 U	--	--	--	--
Trichloroethene	3.57E+00	--	--	--	--	--	--	--	--	--	--	0.9 U	1.2 U	**5.4**	1.2 U	--	--	--	--
TOTAL METALS (mg/kg)																			
Beryllium	1.60E+02	**0.2**	**0.1**	**0.1**	**0.1**	**0.1**	**0.12**	**0.2**	**0.1**	**0.26**	**0.2**	--	--	--	--	**0.2**	**0.1**	0.1 U	**0.2**
Cadmium	1.00E+00	**0.3**	0.2 U	**0.3**	0.2 U	**0.3**	0.2 U	0.2 U	0.2 U	0.2 U	**0.2**	--	--	--	--	0.2 U	0.2 U	0.2 U	**0.3**
Chromium, Total	1.20E+05	**23**	**12**	**14.2**	**10.5**	**14.5**	**11.9**	**15.4**	**15.9**	**26.1**	**27.6**	--	--	--	--	**16.6**	**12.8**	**9.3**	**20.2**
Copper	2.84E+02	**23.9**	**17.4**	**86.7**	**13.6**	**14.2**	**14.6**	**15.2**	**15.1**	**41**	**32.2**	--	--	--	--	**19.7**	**13.6**	**11.4**	**23.2**
Lead	2.50E+02	**11**	**4**	**8**	**5**	**6**	**3**	**8**	**4**	**6**	**6**	--	--	--	--	**15**	**3**	2 U	**9**
Nickel	1.30E+02	**22**	**10**	**10**	**7**	**10**	**12.3**	**12**	**10**	**24.6**	**22**	--	--	--	--	**14**	**9**	**6**	**19**
Selenium	4.00E+02	5 U	5 U	5 U	6 U	5 U	5 U	5 U	5 U	**5**	**6**	--	--	--	--	6 U	5 U	6 U	5 U
Silver	4.00E+02	0.3 U	0.3 U	0.3 U	0.4 U	0.3 U	0.3 U	0.3 U	**0.4**	**0.4**	**0.4**	--	--	--	--	0.3 U	0.3 U	0.4 U	0.3 U
Thallium	1.00E+00	5 U	5 U	5 U	6 U	5 U	5 U	5 U	5 U	**10**	**11**	--	--	--	--	6 U	5 U	6 U	5 U
Zinc	2.40E+04	**43.4**	**25.3**	**216**	**38.8**	**28.9**	**24**	**29.1**	**25.5**	**79**	**50.6**	--	--	--	--	**93**	**23.9**	**17.8**	**43.3**
PETROLEUM HYDROCARBONS (mg/kg)																			
Diesel-Range Organics	2,000 (b)	--	--	--	--	--	--	--	--	--	--	**5.3**	**880**	5.7 U	**5.6**	--	--	--	--
Oil-Range Organics	2,000 (b)	--	--	--	--	--	--	--	--	--	--	11 U	**4,400**	**12**	11 U	--	--	--	--
Unax Oil Range	2,000 (d)	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	--	--	--	--	50 U	50 U	50 U	50 U
Way Oil Range	2,000 (d)	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	**260**	--	--	--	--	**190**	50 U	50 U	**190**
EXTRACTABLE PETROLEUM HYDROCARBONS (µg/kg)																			
Aliphatic Hydrocarbons C16-C21	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aliphatic Hydrocarbons C21-C34	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aromatic Hydrocarbons C16-C21	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aromatic Hydrocarbons C21-C34	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
POLYCHLORINATED BIPHENYLS/ PESTICIDES (µg/kg)																			
Aroclor 1254	5.00E+02	--	--	--	--	--	--	--	--	--	**170**	33 U	31 U	32 U	32 U	**130**	--	--	53 U
Aroclor 1260	5.00E+02	--	--	--	--	--	--	--	--	--	34 U	**100**	31 U	32 U	32 U	36 U	--	--	110 U
Total PCBs	5.00E+02	--	--	--	--	--	--	--	--	--	**170**	**100**	ND	ND	ND	**130**	--	--	ND

Table 6-16
SWMU S-15a/S-16 Soil Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Screening Level	Sample Location: ASB0023-5.0 5/29/1996	ASB0023-11.0 5/29/1996	ASB0024-2.0 5/29/1996	ASB0024-10.0 5/29/1996	ASB0025-2.0 5/29/1996	ASB0025-7.5 5/29/1996	ASB0025-10.0 5/29/1996	ASB0026-2.0 5/29/1996	ASB0026-11.0 5/29/1996	ASB0027-2.0 5/29/1996	ASB0027-7.5 5/29/1996	ASB0027-10.0 5/29/1996	ASB0028-2.0 5/29/1996	ASB0028-7.5 5/29/1996	ASB0029-2.0 5/29/1996	ASB0029-10.0 5/29/1996	ASB0030-2.0 5/29/1996	ASB0030-10.0 5/31/1996
VOLATILES (µg/kg)																			
2-Butanone/MEK	4.80E+07	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-methyl-2-pentanone	6.40E+06	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acetone	7.20E+07	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzene	4.48E+00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon Disulfide	8.00E+06	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
m-&p-Xylenes	1.46E+04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methylene Chloride	2.18E+01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
o-Xylene	1.46E+04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachloroethene	4.76E+05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Toluene	4.65E+03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trichloroethene	3.57E+00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TOTAL METALS (mg/kg)																			
Beryllium	1.60E+02	**0.1**	0.1 U	**0.1**	**0.1**	**0.1**	0.1 U	**0.1**	**0.1**	0.1 U	**0.2**	**0.1**	0.1 U	**0.2**	0.1 U	**0.1**	0.1 U	**0.1**	**0.2**
Cadmium	1.00E+00	0.2 U	0.2 U	0.2 U	0.2 U	**0.3**	0.2 U	0.2 U	0.2 U	0.2 U	**0.2**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chromium, Total	1.20E+05	**10.9**	**12.7**	**13.5**	**11.4**	**16.1**	**11.5**	**11**	**9.9**	**12.2**	**21.8**	**14**	**12.9**	**13.9**	**11.2**	**11.5**	**10.4**	**12**	**21**
Copper	2.84E+02	**15.6**	**15.9**	**14.7**	**17.1**	**27.2**	**14.1**	**14.3**	**13.6**	**15.9**	**124**	**36**	**17.2**	**27.6**	**15.7**	**12.9**	**13.5**	**16.1**	**21.2**
Lead	2.50E+02	**3**	**3**	**6**	**4**	**9**	**4**	**4**	**3**	**4**	**12**	**5**	**6**	**7**	**5**	**4**	**4**	**6**	**5**
Nickel	1.30E+02	**8**	**8**	**10**	**9**	**11**	**8**	**7**	**9**	**10**	**9**	**9**	**10**	**12**	**9**	**8**	**7**	**9**	**10**
Selenium	4.00E+02	5 U	6 U	5 U	6 U	5 U	5 U	5 U	5 U	6 U	5 U	5 U	6 U	5 U	5 U	5 U	5 U	5 U	5 U
Silver	4.00E+02	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Thallium	1.00E+00	5 U	6 U	5 U	6 U	5 U	5 U	5 U	5 U	6 U	5 U	5 U	6 U	5 U	5 U	5 U	5 U	5 U	5 U
Zinc	2.40E+04	**36.5**	**24.2**	**27.3**	**25.1**	**41**	**22.1**	**22.7**	**23.7**	**27.2**	**391**	**81.6**	**26.8**	**63.3**	**22.7**	**21.7**	**19.4**	**25.9**	**27.4**
PETROLEUM HYDROCARBONS (mg/kg)																			
Diesel-Range Organics	2,000 (b)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Oil-Range Organics	2,000 (b)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Unax Oil Range	2,000 (d)	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Way Oil Range	2,000 (d)	50 U	50 U	50 U	50 U	**390**	50 U	50 U	50 U	50 U	**430**	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
EXTRACTABLE PETROLEUM HYDROCARBONS (µg/kg)																			
Aliphatic Hydrocarbons C16-C21	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aliphatic Hydrocarbons C21-C34	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aromatic Hydrocarbons C16-C21	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aromatic Hydrocarbons C21-C34	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
POLYCHLORINATED BIPHENYLS/ PESTICIDES (µg/kg)																			
Aroclor 1254	5.00E+02	--	--	--	--	**180**	--	--	--	--	36 U	--	--	--	--	--	--	--	--
Aroclor 1260	5.00E+02	--	--	--	--	**90**	--	--	--	--	36 U	--	--	--	--	--	--	--	--
Total PCBs	5.00E+02	--	--	--	--	**270**	--	--	--	--	ND	--	--	--	--	--	--	--	--

Table 6-16
SWMU S-15a/S-16 Soil Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Sample Location: / Screening Level	ASB0031-2.0 5/29/1996	ASB0031-10.0 5/31/1996	ASB0159-16 8/30/2004	ASB0159-18 8/30/2004	ASB0160R-17.5 9/7/2004	ASB0167-5 9/7/2004	ASB0167-15 9/7/2004	ASB0167-20 9/7/2004	ASB0168-15 9/8/2004	ASB0168-17.5 9/8/2004	ASB0169-15 9/8/2004	ASB0169-17.5 9/8/2004	ASB0170-15 9/9/2004	ASB0170-17.5 9/9/2004	ASB0171-15 9/9/2004	ASB0171-17.5 9/9/2004
VOLATILES (µg/kg)																	
2-Butanone/MEK	4.80E+07	--	--	4.6 UJ	--	--	7.4 U	--	4.8 U	--	--	6.2 UJ	4.6 U	**48** J	**8.2** J	**37** J	**8.5** J
4-methyl-2-pentanone	6.40E+06	--	--	4.6 UJ	--	**51** J	7.4 U	--	4.8 U	6.4 UJ	5 U	6.2 UJ	4.6 U	3.9 UJ	4.8 UJ	5.7 UJ	**5.7** UJ
Acetone	7.20E+07	--	--	4.6 UJ	--	--	7.4 U	--	4.8 U	--	--	**11** J	**23**	**230** J	**91** J	**190** J	**50** J
Benzene	4.48E+00	--	--	0.9 UJ	--	--	1.5 U	--	1 U	--	--	1.2 UJ	0.9 U	**1.6** J	**1.2** J	**2.6** J	**4.5** J
Carbon Disulfide	8.00E+06	--	--	0.9 UJ	--	1 UJ	1.5 U	--	1 U	1.3 UJ	1 U	1.2 UJ	0.9 U	0.8 UJ	1 UJ	1.1 UJ	1.1 UJ
m-&p-Xylenes	1.46E+04	--	--	0.9 UJ	--	--	1.5 U	--	1 U	--	--	1.2 UJ	0.9 U	**1.2** J	1 UJ	**1.5** J	**2** J
Methylene Chloride	2.18E+01	--	--	1.9 UJ	--	2.1 UJ	3 U	--	1.9 U	2.6 UJ	2 U	2.5 UJ	1.9 U	1.6 UJ	1.9 UJ	2.3 UJ	2.2 UJ
o-Xylene	1.46E+04	--	--	0.9 UJ	--	**1.1** J	1.5 U	--	1 U	1.3 UJ	1 U	1.2 UJ	0.9 U	0.8 UJ	1 UJ	1.1 UJ	1.1 UJ
Tetrachloroethene	4.76E+05	--	--	0.9 UJ	--	--	1.5 U	--	1 U	--	--	**2.8** J	0.9 U	**5.3** J	**13** J	**8** J	**29** J
Toluene	4.65E+03	--	--	0.9 UJ	--	--	1.5 U	--	1 U	--	--	1.2 UJ	0.9 U	**82** J	**3.7** J	**8** J	**6.5** J
Trichloroethene	3.57E+00	--	--	0.9 UJ	--	--	1.5 U	--	1 U	--	--	1.2 UJ	0.9 U	0.8 UJ	**1.6** J	1.1 UJ	**3** J
TOTAL METALS (mg/kg)																	
Beryllium	1.60E+02	**0.2**	**0.1**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	1.00E+00	0.2 U	0.2 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium, Total	1.20E+05	**14.4**	**11.1**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	2.84E+02	**17.3**	**15.5**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	2.50E+02	**8**	**3**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	1.30E+02	**13**	**9**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	4.00E+02	5 U	5 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	4.00E+02	0.3 U	0.3 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	1.00E+00	5 U	**5**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	2.40E+04	**42.3**	**28.1**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PETROLEUM HYDROCARBONS (mg/kg)																	
Diesel-Range Organics	2,000 (b)	--	--	5 U	--	--	--	--	5 U	--	--	**320**	**460**	**3900**	**2200**	**1600**	**1200**
Oil-Range Organics	2,000 (b)	--	--	10 U	--	--	--	--	10 U	**1400**	**240**	**2100**	**2900**	**20000**	**13000**	**9500**	**7000**
Unax Oil Range	2,000 (d)	50 U	**23900**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Way Oil Range	2,000 (d)	50 U	50 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EXTRACTABLE PETROLEUM HYDROCARBONS (µg/kg)																	
Aliphatic Hydrocarbons C16-C21	NA	--	--	2300 U	--	--	--	--	--	--	--	--	--	--	--	--	**250000** J
Aliphatic Hydrocarbons C21-C34	NA	--	--	2300 U	--	--	--	--	--	--	--	--	--	--	--	--	**6900000** J
Aromatic Hydrocarbons C16-C21	NA	--	--	2300 U	--	--	--	--	--	--	--	--	--	--	--	--	**44000**
Aromatic Hydrocarbons C21-C34	NA	--	--	2300 U	--	--	--	--	--	--	--	--	--	--	--	--	**1100000**
POLYCHLORINATED BIPHENYLS/ PESTICIDES (µg/kg)																	
Aroclor 1254	5.00E+02	--	38 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1260	5.00E+02	--	38 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total PCBs	5.00E+02	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 6-17
SWMU S-15a/S-16 Groundwater Statistics
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Screening Level	# of Screening Level Exceedances	# of Results	# of Detects	Max of Detected Results	Min of Detected Results
VOLATILES (µg/L)						
1,1,1-Trichloroethane	2.00E+02	0	221	3	0.6	0.3
1,1,2,2-Tetrachloroethane	2.19E-01	1	221	1	0.5	0.5
4-Methyl-2-pentanone	6.40E+02	0	221	1	79	79
Acetone	7.20E+03	0	221	24	24	1.1
Benzene	7.95E-01	1	221	6	0.9	0.2
Carbon Disulfide	8.00E+02	0	221	3	0.4	0.2
Chloroform	1.41E+00	0	221	1	1.3	1.3
Chloromethane	NA	NA	211	1	0.2	0.2
cis-1,2-Dichloroethene	1.60E+01	0	221	49	9.3	0.2
Ethylbenzene	7.00E+02	0	221	5	0.3	0.2
m-&p-Xylenes	1.60E+03	0	221	5	0.8	0.4
2-Butanone/MEK	4.80E+03	0	221	9	26	1.7
Tetrachloroethene	5.00E+00	0	313	233	1.6	0.023
Toluene	6.40E+02	0	221	14	7.4	0.2
Trichloroethene	5.40E-01	63	221	148	2.3	0.2
Trichlorofluoromethane	2.40E+03	0	221	1	0.2	0.2
Vinyl Chloride	2.90E-02	36	383	39	1	0.022
DISSOLVED METALS (mg/L)						
Aluminum	1.60E+01	0	5	1	0.02	0.02
Antimony	6.00E-03	0	11	1	0.002	0.002
Arsenic	8.00E-03	0	11	1	0.002	0.002
Barium	2.00E+00	0	5	5	0.006	0.005
Calcium	NA	NA	5	5	21.6	18.7
Copper	6.40E-01	0	11	1	0.017	0.017
Magnesium	NA	NA	5	5	6.3	5.38
Potassium	NA	NA	5	5	3	2.4
Sodium	NA	NA	5	5	9.17	8.54
Vanadium	8.00E-02	0	5	1	0.003	0.003
PETROLEUM HYDROCARBONS (mg/L)						
Diesel-Range Organics	5.00E-01	23	152	29	5.4	0.13
Oil-Range Organics	5.00E-01	29	151	30	16	0.23

Table 6-18
SWMU S-15a/S-16 Groundwater Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

Sample Location:		AGW041				AGW042				AGW043				AGW044				AGW045				AGW115			
Detected Analyte	Screening Level	Max	Date	Most Recent	Date	Max	Date	Most Recent	Date	Max	Date	Most Recent	Date	Max	Date	Most Recent	Date	Max	Date	Most Recent	Date	Max	Date	Most Recent	Date
VOLATILES (µg/L)																									
1,1,1-Trichloroethane	2.00E+02	ND	--	0.5 U	6/3/2015	ND	--	1 U	3/12/1997	**0.6**	2/15/1999	0.2 U	12/18/2003	ND	--	0.5 U	6/9/2015	ND	--	1 U	3/12/1997	ND	--	0.5 U	12/9/2015
1,1,2,2-Tetrachloroethane	2.19E-01	ND	--	0.2 U	6/3/2015	ND	--	1 U	3/12/1997	ND	--	0.2 U	12/18/2003	ND	--	0.2 U	6/9/2015	ND	--	1 U	3/12/1997	ND	--	0.2 U	12/9/2015
4-Methyl-2-pentanone	6.40E+02	ND	--	5.0 U	6/3/2015	ND	--	5 U	3/12/1997	ND	--	1 U	12/18/2003	ND	--	5.0 U	6/9/2015	ND	--	5 U	3/12/1997	ND	--	5.0 U	12/9/2015
Acetone	7.20E+03	**2.4**	12/7/2005	5.0 U	6/3/2015	ND	--	5 U	3/12/1997	**1.2**	8/31/1998	1 U	12/18/2003	**4.6**	12/11/2008	5.0 U	6/9/2015	**12**	12/18/1996	5 U	3/12/1997	**11**	6/5/2008	5.0 U	12/9/2015
Benzene	7.95E-01	ND	--	0.2 U	6/3/2015	ND	--	1 U	3/12/1997	ND	--	0.2 U	12/18/2003	ND	--	0.2 U	6/9/2015	ND	--	1 U	3/12/1997	ND	--	0.2 U	12/9/2015
Carbon Disulfide	8.00E+02	ND	--	0.5 U	6/3/2015	ND	--	1 U	3/12/1997	ND	--	0.2 U	12/18/2003	ND	--	0.5 U	6/9/2015	ND	--	1 U	3/12/1997	ND	--	0.5 U	12/9/2015
Chloroform	1.41E+00	ND	--	0.2 U	6/3/2015	ND	--	1 U	3/12/1997	ND	--	0.2 U	12/18/2003	**1.3**	6/11/1996	0.2 U	6/9/2015	ND	--	1 U	3/12/1997	ND	--	0.2 U	12/9/2015
Chloromethane	NA	**0.2**	12/13/2007	0.5 U	6/3/2015	ND	--	2 U	3/12/1997	ND	--	0.2 U	12/18/2003	ND	--	0.5 U	6/9/2015	ND	--	2 U	3/12/1997	ND	--	0.5 U	12/9/2015
cis-1,2-Dichloroethene	1.60E+01	ND	--	0.2 U	6/3/2015	ND	--	1 U	3/12/1997	ND	--	0.2 U	12/18/2003	**0.6**	12/13/2007	0.2 U	6/9/2015	**3.1**	10/1/1996	1 U	3/12/1997	**9.3**	12/7/2005	**3.2**	12/9/2015
Ethylbenzene	7.00E+02	**0.3**	12/8/2006	0.5 U	6/3/2015	ND	--	1 U	3/12/1997	ND	--	0.2 U	12/18/2003	**0.3**	12/8/2006	0.5 U	6/9/2015	ND	--	1 U	3/12/1997	**0.2**	12/8/2006	0.5 U	12/9/2015
m-&p-Xylenes	1.60E+03	**0.8**	12/8/2006	0.5 U	6/3/2015	ND	--	1 U	3/12/1997	ND	--	0.4 U	12/18/2003	**0.7**	12/8/2006	0.5 U	6/9/2015	ND	--	1 U	3/12/1997	**0.5**	12/8/2006	0.5 U	12/9/2015
Methyl Ethyl Ketone	4.80E+03	ND	--	5.0 U	6/3/2015	ND	--	5 U	3/12/1997	ND	--	1 U	12/18/2003	ND	--	5.0 U	6/9/2015	ND	--	5 U	3/12/1997	ND	--	5.0 U	12/9/2015
Tetrachloroethene	5.00E+00	**1.6 J**	9/27/1996	**0.3**	6/3/2015	ND	--	1 U	3/12/1997	**0.8**	3/24/1998	**0.3**	12/18/2003	**0.1**	6/23/2014	**0.046**	6/9/2015	ND	--	1 U	3/12/1997	**0.4**	6/6/2007	**0.031**	12/9/2015
Toluene	6.40E+02	**0.2**	8/11/2005	0.2 U	6/3/2015	ND	--	1 U	3/12/1997	ND	--	0.2 U	12/18/2003	ND	--	0.2 U	6/9/2015	**2.3**	6/11/1996	1 U	3/12/1997	**0.2**	5/27/2005	0.2 U	12/9/2015
Trichloroethene	5.40E-01	**2.3 J**	9/27/1996	**0.4**	6/3/2015	**1.1 J**	9/27/1996	1 U	3/12/1997	**1.7 J**	9/27/1996	**0.6**	12/18/2003	**0.2**	12/7/2005	0.2 U	6/9/2015	**1.1**	6/11/1996	1 U	3/12/1997	**0.6**	6/6/2007	0.2 U	12/9/2015
Trichlorofluoromethane	2.40E+03	ND	--	0.5 U	6/3/2015	ND	--	2 U	3/12/1997	ND	--	0.2 U	12/18/2003	ND	--	0.5 U	6/9/2015	ND	--	2 U	3/12/1997	ND	--	0.5 U	12/9/2015
Vinyl Chloride	2.90E-02	ND	--	0.020 U	6/3/2015	ND	--	2 U	3/12/1997	ND	--	0.2 U	12/18/2003	ND	--	0.020 U	6/9/2015	ND	--	2 U	3/12/1997	**1**	6/12/2013	**0.5**	12/9/2015
DISSOLVED METALS (mg/L)																									
Aluminum	1.60E+01	**--**	--	**--**	--	**--**	--	**--**	--	**0.02**	3/24/1998	0.02 U	3/8/2000	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--
Antimony	6.00E-03	ND	--	0.001 U	6/11/1996	**0.002**	6/11/1996	**0.002**	6/11/1996	ND	--	0.05 U	3/8/2000	ND	--	0.001 U	6/11/1996	ND	--	0.001 U	6/11/1996	**--**	--	**--**	--
Arsenic	8.00E-03	ND	--	0.001 U	6/11/1996	ND	--	0.001 U	6/11/1996	ND	--	0.001 U	3/8/2000	**0.002**	6/11/1996	**0.002**	6/11/1996	ND	--	0.001 U	6/11/1996	**--**	--	**--**	--
Barium	2.00E+00	**--**	--	**--**	--	**--**	--	**--**	--	**0.006**	3/8/2000	**0.006**	3/8/2000	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--
Calcium	NA	**--**	--	**--**	--	**--**	--	**--**	--	**21.6**	8/24/1999	**20.6**	3/8/2000	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--
Copper	6.40E-01	ND	--	0.002 U	6/11/1996	ND	--	0.002 U	6/11/1996	ND	--	0.002 U	3/8/2000	**0.017**	6/11/1996	**0.017**	6/11/1996	ND	--	0.002 U	6/11/1996	**--**	--	**--**	--
Magnesium	NA	**--**	--	**--**	--	**--**	--	**--**	--	**6.3**	2/15/1999	**5.96**	3/8/2000	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--
Potassium	NA	**--**	--	**--**	--	**--**	--	**--**	--	**3**	2/15/1999	**2.4**	3/8/2000	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--
Sodium	NA	**--**	--	**--**	--	**--**	--	**--**	--	**9.17**	2/15/1999	**9.12**	3/8/2000	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--
Vanadium	8.00E-02	**--**	--	**--**	--	**--**	--	**--**	--	**0.003**	2/15/1999	0.003 U	3/8/2000	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--
PETROLEUM HYDROCARBONS (mg/L)																									
Diesel-Range Organics	5.00E-01	ND	--	0.095 U	6/13/2013	**--**	--	**--**	--	ND	--	0.25 U	1/15/2009	**4.7**	6/6/2007	**1.9**	6/9/2015	**--**	--	**--**	--	ND	--	0.094 U	12/11/2013
Oil-Range Organics	5.00E-01	ND	--	0.24 U	6/13/2013	**--**	--	**--**	--	**2.7**	2/15/1999	0.5 U	1/15/2009	**4.7**	6/12/2013	**0.94**	6/9/2015	**--**	--	**--**	--	ND	--	0.23 U	12/11/2013

Table 6-18
SWMU S-15a/S-16 Groundwater Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

	Sample Location:	AGW116				AGW117				AGW118				AGW127				AGW128				AGW129			
Detected Analyte	Screening Level	Max	Date	Most Recent	Date	Max	Date	Most Recent	Date	Max	Date	Most Recent	Date	Max	Date	Most Recent	Date	Max	Date	Most Recent	Date	Max	Date	Most Recent	Date
VOLATILES (µg/L)																									
1,1,1-Trichloroethane	2.00E+02	ND	--	0.5 U	12/9/2015	ND	--	0.5 U	12/9/2015	ND	--	0.5 U	12/9/2015	ND	--	0.5 U	6/3/2015	ND	--	0.5 U	12/9/2015	ND	--	0.5 U	12/9/2015
1,1,2,2-Tetrachloroethane	2.19E-01	ND	--	0.2 U	12/9/2015	ND	--	0.2 U	12/9/2015	ND	--	0.2 U	12/9/2015	ND	--	0.2 U	6/3/2015	ND	--	0.2 U	12/9/2015	ND	--	0.2 U	12/9/2015
4-Methyl-2-pentanone	6.40E+02	ND	--	5.0 U	12/9/2015	ND	--	5.0 U	12/9/2015	ND	--	5.0 U	12/9/2015	ND	--	5.0 U	6/3/2015	ND	--	5.0 U	12/9/2015	ND	--	5.0 U	12/9/2015
Acetone	7.20E+03	**7.5**	12/11/2008	5.0 U	12/9/2015	**2.8**	11/23/2004	5.0 U	12/9/2015	**2.1**	11/23/2004	5.0 U	12/9/2015	**7.9**	6/14/2010	5.0 U	6/3/2015	**9.7**	12/7/2010	**6.0**	12/9/2015	ND	--	5.0 U	12/9/2015
Benzene	7.95E-01	ND	--	0.2 U	12/9/2015	ND	--	0.2 U	12/9/2015	ND	--	0.2 U	12/9/2015	ND	--	0.2 U	6/3/2015	ND	--	0.2 U	12/9/2015	ND	--	0.2 U	12/9/2015
Carbon Disulfide	8.00E+02	**0.2**	12/8/2006	0.5 U	12/9/2015	ND	--	0.5 U	12/9/2015	**0.4**	12/8/2006	0.5 U	12/9/2015	ND	--	0.5 U	6/3/2015	**0.2**	12/7/2010	0.5 U	12/9/2015	ND	--	0.5 U	12/9/2015
Chloroform	1.41E+00	ND	--	0.2 U	12/9/2015	ND	--	0.2 U	12/9/2015	ND	--	0.2 U	12/9/2015	ND	--	0.2 U	6/3/2015	ND	--	0.2 U	12/9/2015	ND	--	0.2 U	12/9/2015
Chloromethane	NA	ND	--	0.5 U	12/9/2015	ND	--	0.5 U	12/9/2015	ND	--	0.5 U	12/9/2015	ND	--	0.5 U	6/3/2015	ND	--	0.5 U	12/9/2015	ND	--	0.5 U	12/9/2015
cis-1,2-Dichloroethene	1.60E+01	ND	--	0.2 U	12/9/2015	ND	--	0.2 U	12/9/2015	ND	--	0.2 U	12/9/2015	ND	--	0.2 U	6/3/2015	ND	--	0.2 U	12/9/2015	**1.2**	12/11/2008	**0.4**	12/9/2015
Ethylbenzene	7.00E+02	**0.3**	6/11/2009	0.5 U	12/9/2015	ND	--	0.5 U	12/9/2015	**0.2**	12/8/2006	0.5 U	12/9/2015	ND	--	0.5 U	6/3/2015	ND	--	0.5 U	12/9/2015	ND	--	0.5 U	12/9/2015
m-&p-Xylenes	1.60E+03	**0.4**	12/8/2006	0.5 U	12/9/2015	ND	--	0.5 U	12/9/2015	**0.5**	12/8/2006	0.5 U	12/9/2015	ND	--	0.5 U	6/3/2015	ND	--	0.5 U	12/9/2015	ND	--	0.5 U	12/9/2015
Methyl Ethyl Ketone	4.80E+03	ND	--	5.0 U	12/9/2015	ND	--	5.0 U	12/9/2015	**1.7**	6/13/2006	5.0 U	12/9/2015	ND	--	5.0 U	6/3/2015	**9.5**	12/11/2008	**5.1**	12/9/2015	ND	--	5.0 U	12/9/2015
Tetrachloroethene	5.00E+00	**1**	12/8/2006	**0.5**	12/9/2015	**1.1**	12/8/2006	**0.5**	12/9/2015	**1.3**	12/8/2006	**0.6**	12/9/2015	**0.5**	12/10/2008	0.2 U	6/3/2015	**0.3**	6/14/2010	**0.13**	12/9/2015	**0.7**	6/11/2009	**0.5**	12/9/2015
Toluene	6.40E+02	ND	--	0.2 U	12/9/2015	ND	--	0.2 U	12/9/2015	ND	--	0.2 U	12/9/2015	ND	--	0.2 U	6/3/2015	**1.9**	6/23/2014	0.2 U	12/9/2015	ND	--	0.2 U	12/9/2015
Trichloroethene	5.40E-01	**0.5**	6/11/2009	**0.2**	12/9/2015	**1 J**	6/10/2014	**0.3**	12/9/2015	**0.8**	12/7/2005	**0.3**	12/9/2015	**0.3**	10/1/2008	0.2 U	6/3/2015	**0.5**	10/1/2008	0.2 U	12/9/2015	**1.7**	12/11/2008	**0.6**	12/9/2015
Trichlorofluoromethane	2.40E+03	ND	--	0.5 U	12/9/2015	**0.2**	12/7/2005	0.5 U	12/9/2015	ND	--	0.5 U	12/9/2015	ND	--	0.5 U	6/3/2015	ND	--	0.5 U	12/9/2015	ND	--	0.5 U	12/9/2015
Vinyl Chloride	2.90E-02	**0.022**	6/11/2009	0.2 U	12/9/2015	**0.041 J**	6/6/2007	0.2 U	12/9/2015	**0.028**	6/11/2009	0.2 U	12/9/2015	ND	--	0.020 U	6/3/2015	**0.34**	6/12/2013	0.020 U	12/9/2015	ND	--	0.2 U	12/9/2015
DISSOLVED METALS (mg/L)																									
Aluminum	1.60E+01	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--
Antimony	6.00E-03	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--
Arsenic	8.00E-03	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--
Barium	2.00E+00	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--
Calcium	NA	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--
Copper	6.40E-01	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--
Magnesium	NA	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--
Potassium	NA	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--
Sodium	NA	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--
Vanadium	8.00E-02	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--	**--**	--
PETROLEUM HYDROCARBONS (mg/L)																									
Diesel-Range Organics	5.00E-01	ND	--	0.095 U	12/11/2013	ND	--	0.094 U	12/10/2013	**1.6**	6/6/2007	0.094 U	12/11/2013	ND	--	0.095 U	12/10/2013	**5.4**	12/5/2014	**5.0**	12/9/2015	ND	--	0.095 U	12/11/2013
Oil-Range Organics	5.00E-01	ND	--	0.24 U	12/11/2013	ND	--	0.24 U	12/10/2013	**1.1**	6/6/2007	0.23 U	12/11/2013	ND	--	0.24 U	12/10/2013	**16**	12/5/2014	**4.3**	12/9/2015	ND	--	0.24 U	12/11/2013

Table 6-18
SWMU S-15a/S-16 Groundwater Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

Sample Location:		AGW130-35	AGW130-45	AGW130				ASB0159-19	ASB0160R-18	ASB0167-18	ASB0168-18	ASB0169-18	ASB0170-18	ASB0171-18
Detected Analyte	Screening Level	9/11/2008	9/11/2008	Max	Date	Most Recent	Date	8/30/2004	9/7/2004	9/7/2004	9/8/2004	9/8/2004	9/9/2004	9/9/2004
VOLATILES (µg/L)														
1,1,1-Trichloroethane	2.00E+02	0.2 U	0.2 U	ND	--	0.5 U	12/9/2015	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1,2,2-Tetrachloroethane	2.19E-01	0.2 U	0.2 U	ND	--	0.2 U	12/9/2015	**0.5 J**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
4-Methyl-2-pentanone	6.40E+02	2.5 U	2.5 U	ND	--	5.0 U	12/9/2015	1 UJ	**79**	1 U	1 U	1 U	1 U	1 U
Acetone	7.20E+03	3 U	**4.8**	ND	--	5.0 U	12/9/2015	1 UJ	**24**	**3.7**	**6.1**	**2**	**5.7**	**7.2**
Benzene	7.95E-01	0.2 U	**0.2**	ND	--	0.2 U	12/9/2015	0.2 UJ	**0.7**	0.2 U	**0.9**	**0.3**	**0.3**	**0.7**
Carbon Disulfide	8.00E+02	0.2 U	**0.2**	ND	--	0.5 U	12/9/2015	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chloroform	1.41E+00	0.2 U	0.2 U	ND	--	0.2 U	12/9/2015	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chloromethane	NA	0.2 U	0.2 U	ND	--	0.5 U	12/9/2015	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
cis-1,2-Dichloroethene	1.60E+01	0.2 U	0.2 U	**0.5**	10/1/2008	0.2 U	12/9/2015	0.2 UJ	0.2 U	**0.4**	0.2 U	**0.4**	**0.2**	0.2 U
Ethylbenzene	7.00E+02	0.2 U	0.2 U	ND	--	0.5 U	12/9/2015	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
m-&p-Xylenes	1.60E+03	0.4 U	0.4 U	ND	--	0.5 U	12/9/2015	0.4 UJ	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Methyl Ethyl Ketone	4.80E+03	2.5 U	2.5 U	ND	--	5.0 U	12/9/2015	1 UJ	**26**	1 U	**2.4**	1 U	**2.7**	**2.1**
Tetrachloroethene	5.00E+00	**0.3**	**0.2**	**0.7**	12/11/2008	**0.4**	12/9/2015	**0.6 J**	0.2 U	**0.4**	**0.2**	**0.2**	**0.8**	**0.8**
Toluene	6.40E+02	0.2 U	**0.2**	ND	--	0.2 U	12/9/2015	0.2 UJ	**7.4**	0.2 U	**0.4**	**0.2**	**2**	**0.6**
Trichloroethene	5.40E-01	**0.6**	**0.5**	**0.6**	6/11/2009	**0.4**	12/9/2015	**1.8 J**	**0.5**	**0.8**	**0.6**	**0.6**	**0.7**	**0.8**
Trichlorofluoromethane	2.40E+03	0.2 U	0.2 U	ND	--	0.5 U	12/9/2015	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Vinyl Chloride	2.90E-02	0.2 U	0.2 U	ND	--	0.2 U	12/9/2015	0.020 UJ	0.020 U	0.020 U	0.020 U	**0.025**	0.020 U	0.020 U
DISSOLVED METALS (mg/L)														
Aluminum	1.60E+01	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	6.00E-03	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	8.00E-03	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	2.00E+00	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	NA	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	6.40E-01	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	NA	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	NA	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	NA	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	8.00E-02	--	--	--	--	--	--	--	--	--	--	--	--	--
PETROLEUM HYDROCARBONS (mg/L)														
Diesel-Range Organics	5.00E-01	--	--	ND	--	0.095 U	12/9/2015	0.25 U	**1.5**	0.25 U	**0.32**	**0.46**	**0.69**	**0.61**
Oil-Range Organics	5.00E-01	--	--	ND	--	0.24 U	12/9/2015	0.5 U	**10**	0.5 U	**1.8**	**2.7**	**3.7**	**3.4**

Table 6-19
SWMU S-15c Soil Statistics
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Screening Level	# of Screening Level Exceedances	# of Results	# of Detects	Max of Detected Results	Min of Detected Results
VOLATILES (µg/kg)						
2-Butanone/MEK	4.80E+07	0	3	1	10	10
Acetone	7.20E+07	0	3	2	68	26
Benzene	4.48E+00	0	3	1	2.1	2.1
Carbon Disulfide	8.00E+06	0	3	1	2.1	2.1
Chloromethane	NA	NA	3	1	1.9	1.9
Methylene Chloride	2.18E+01	0	3	1	2.4	2.4
Trichloroethene	3.57E+00	0	3	2	2	1.8
PETROLEUM HYDROCARBONS (mg/kg)						
Diesel-Range Organics	2,000 (b)	0	2	2	170	6.8
Gasoline-Range Organics	100 (b,c)	0	2	1	7.1	7.1
Oil-Range Organics	2,000 (b)	0	2	1	210	210

Table 6-20
SWMU S-15c Soil Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Screening Location: Screening Level	ASB0166R-5 9/2/2004	ASB0179-17 10/1/2009	ASB0179-6 10/1/2009
VOLATILES (µg/kg)				
2-Butanone/MEK	4.80E+07	5.8 U	**10**	7.8 U
Acetone	7.20E+07	5.8 U	**68**	**26**
Benzene	4.48E+00	1.2 U	**2.1 J**	1.6 U
Carbon Disulfide	8.00E+06	1.2 U	**2.1**	1.6 U
Chloromethane	NA	1.2 U	1.2 U	**1.9 M**
Methylene Chloride	2.18E+01	2.3 U	**2.4**	3.1 U
Trichloroethene	3.57E+00	1.2 U	**1.8 J**	**2**
PETROLEUM HYDROCARBONS (mg/kg)				
Diesel-Range Organics	2,000 (b)	---	**170**	**6.8**
Gasoline-Range Organics	100 (b,c)	---	**7.1**	6.5 U
Oil-Range Organics	2,000 (b)	---	**210**	10 U

Table 6-21
SWMU S-15c Groundwater Statistics
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analytes	Screening Level	# of Screening Level Exceedances	# of Results	# of Detects	Max of Detected Results	Min of Detected Results
VOLATILES (µg/L)						
1,1,1-Trichloroethane	2.00E+02	0	54	2	0.2	0.2
Acetone	7.20E+03	0	54	7	82	1.5
Benzene	7.95E-01	0	54	2	0.6	0.2
Bromodichloromethane	7.06E-01	0	54	4	0.4	0.2
Chloroform	1.41E+00	1	54	7	1.8	0.2
Chloromethane	NA	NA	54	1	0.6	0.2
cis-1,2-Dichloroethene	1.60E+01	0	54	1	0.2	0.2
2-Butanone/MEK	4.80E+03	0	54	1	10	10
Methylene Chloride	5.00E+00	0	54	1	0.6	0.6
Tetrachloroethene	5.00E+00	0	54	52	2.2	0.087
Toluene	6.40E+02	0	54	1	0.3	0.3
Trichloroethene	5.40E-01	36	54	41	3.2	0.2
DISSOLVED METALS (mg/L)						
Aluminum	1.60E+01	0	24	2	0.09	0.04
Arsenic	8.00E-03	0	27	5	0.002	0.001
Barium	2.00E+00	0	27	26	0.016	0.004
Calcium	NA	NA	24	24	21.9	7.18
Chromium, Hexavalent	4.80E-02	0	27	4	0.03	0.02
Cobalt	NA	NA	24	3	0.004	0.003
Copper	6.40E-01	0	27	1	0.003	0.003
Cyanide	9.60E-03	1	9	1	0.018	0.018
Lead	1.50E-02	0	27	2	0.002	0.001
Magnesium	NA	NA	24	24	6.7	2.09
Manganese	2.24E+00	0	27	11	0.044	0.001
Potassium	NA	NA	24	24	2.9	1.6
Sodium	NA	NA	24	24	24.7	6.29
SEMI-VOLATILES (µg/L)						
bis(2-Ethylhexyl) Phthalate	6.00E+00	0	30	2	1.8	1.2
PETROLEUM HYDROCARBONS (mg/L)						
Oil-Range Organics	5.00E-01	1	29	1	0.98	0.98

Table 6-22
SWMU S-15c Groundwater Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

	Sample Location:	AGW084				AGW085			
Detected Analyte	Screening Level	Max	Date	Most Recent	Date	Max	Date	Most Recent	Date
VOLATILES (µg/L)									
1,1,1-Trichloroethane	2.00E+02	ND	--	0.2 U	12/6/2004	**0.2**	11/8/2000	0.5 U	12/8/2015
Acetone	7.20E+03	**2**	12/6/2004	**2**	12/6/2004	**1.8**	12/6/2004	5.0 U	12/8/2015
Benzene	7.95E-01	ND	--	0.2 U	12/6/2004	ND	--	0.2 U	12/8/2015
Bromodichloromethane	7.06E-01	**0.4**	5/22/2003	0.2 U	12/6/2004	**0.2**	5/22/2003	0.5 U	12/8/2015
Chloroform	1.41E+00	**0.9**	5/22/2003	0.2 U	12/6/2004	**0.4**	5/22/2003	0.2 U	12/8/2015
Chloromethane	NA	ND	--	0.2 U	12/6/2004	**0.2**	12/5/2005	0.5 U	12/8/2015
cis-1,2-Dichloroethene	1.60E+01	ND	--	0.2 U	12/6/2004	ND	--	0.2 U	12/8/2015
2-Butanone/MEK	4.80E+03	ND	--	1 U	12/6/2004	ND	--	5.0 U	12/8/2015
Methylene Chloride	5.00E+00	ND	--	0.3 U	12/6/2004	ND	--	0.5 U	12/8/2015
Tetrachloroethene	5.00E+00	**2.2**	5/21/2001	**1.3**	12/6/2004	**2**	5/21/2001	**0.16**	12/8/2015
Toluene	6.40E+02	ND	--	0.2 U	12/6/2004	ND	--	0.2 U	12/8/2015
Trichloroethene	5.40E-01	**1.4**	5/21/2001	**0.9**	12/6/2004	**2.7**	11/8/2000	0.2 U	12/8/2015
DISSOLVED METALS (mg/L)									
Aluminum	1.60E+01	**0.09**	11/29/2001	0.05 U	6/10/2004	ND	--	0.05 U	6/10/2004
Arsenic	8.00E-03	**0.001**	5/22/2003	0.001 U	12/6/2004	**0.002**	11/29/2001	0.001 U	12/6/2004
Barium	2.00E+00	**0.016**	5/15/2002	**0.008**	12/6/2004	**0.006**	12/6/2004	**0.006**	12/6/2004
Calcium	NA	**21.4**	08/25/99	20.7	6/10/2004	**21.5**	8/25/1999	**19**	6/10/2004
Chromium, Hexavalent	4.80E-02	**0.03**	11/29/2001	0.011 U	12/6/2004	**0.02**	8/25/1999	0.011 U	12/6/2004
Cobalt	NA	ND	--	.003 U	6/10/2004	**0.004**	11/8/2000	.003 U	6/10/2004
Copper	6.40E-01	ND	--	0.002 U	12/6/2004	ND	--	0.002 U	12/6/2004
Lead	1.50E-02	**0.001**	6/10/2004	0.001 U	12/6/2004	ND	--	0.001 U	12/6/2004
Magnesium	NA	**6.46**	11/8/2000	**6.08**	6/10/2004	**6.35**	5/21/2001	**5.3**	6/10/2004
Manganese	2.24E+00	**0.044**	8/25/1999	0.001 U	12/6/2004	**0.001**	8/25/1999	0.001 U	12/6/2004
Potassium	NA	**2.9**	6/10/2004	**2.9**	6/10/2004	**2.6**	5/21/2001	**2.1**	6/10/2004
Sodium	NA	**24.7**	5/15/2002	**8.4**	6/10/2004	**7.85**	8/25/1999	**6.6**	6/10/2004
CYANIDE (mg/L)									
Cyanide	9.60E-03	ND	--	0.005 U	3/9/2000	ND	--	0.005 U	3/9/2000
SEMI-VOLATILES (µg/L)									
bis(2-Ethylhexyl) Phthalate	6.00E+00	**1.8**	12/6/2004	**1.8**	12/6/2004	ND	--	1 U	12/6/2004
PETROLEUM HYDROCARBONS (mg/L)									
Oil-Range Organics	5.00E-01	ND	--	0.5 U	12/6/2004	ND	--	0.5 U	12/6/2004

Table 6-22
SWMU S-15c Groundwater Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

	Sample Location:	AGW086				ASB0166R-18	ASB0179-19
Detected Analyte	Screening Level	Max	Date	Most Recent	Date	9/2/2004	10/1/2009
VOLATILES (µg/L)							
1,1,1-Trichloroethane	2.00E+02	ND	--	0.2 U	12/6/2004	**0.2**	0.2 U
Acetone	7.20E+03	**1.5**	12/6/2004	**1.5**	12/6/2004	**4.8**	**82**
Benzene	7.95E-01	ND	--	0.2 U	12/6/2004	**0.2**	**0.6**
Bromodichloromethane	7.06E-01	**0.3**	5/22/2003	0.2 U	12/6/2004	0.2 U	0.2 U
Chloroform	1.41E+00	**1.8**	4/19/1999	0.2 U	12/6/2004	0.2 U	0.2 U
Chloromethane	NA	ND	--	0.2 U	12/6/2004	0.2 U	**0.6 M**
cis-1,2-Dichloroethene	1.60E+01	ND	--	0.2 U	12/6/2004	0.2 U	**0.2**
2-Butanone/MEK	4.80E+03	ND	--	1 U	12/6/2004	1 U	**10**
Methylene Chloride	5.00E+00	ND	--	0.3 U	12/6/2004	0.3 U	**0.6**
Tetrachloroethene	5.00E+00	**2.1**	5/21/2001	**1.4**	12/6/2004	**0.3**	**0.2**
Toluene	6.40E+02	ND	--	0.2 U	12/6/2004	0.2 U	**0.3**
Trichloroethene	5.40E-01	**1.5**	11/29/2001	**1**	12/6/2004	**2**	**3.2**
DISSOLVED METALS (mg/L)							
Aluminum	1.60E+01	**0.04**	5/21/2001	0.05 U	6/10/2004	--	--
Arsenic	8.00E-03	**0.002**	11/29/2001	0.001 U	12/6/2004	--	--
Barium	2.00E+00	**0.007**	11/8/2000	**0.006**	12/6/2004	--	--
Calcium	NA	**21.9**	11/8/2000	**21.2**	6/10/2004	--	--
Chromium, Hexavalent	4.80E-02	**0.02**	8/25/1999	0.011 U	12/6/2004	--	--
Cobalt	NA	**0.004**	3/9/2000	.003 U	6/10/2004	--	--
Copper	6.40E-01	**0.003**	5/21/2001	0.002 U	12/6/2004	--	--
Lead	1.50E-02	**0.002**	6/10/2004	0.001 U	12/6/2004	--	--
Magnesium	NA	**6.7**	11/8/2000	**6.51**	6/10/2004	--	--
Manganese	2.24E+00	**0.015**	5/21/2001	0.001 U	12/6/2004	--	--
Potassium	NA	**2.8**	5/21/2001	**2.6**	6/10/2004	--	--
Sodium	NA	**8**	6/10/2004	**8**	6/10/2004	--	--
CYANIDE (mg/L)							
Cyanide	9.60E-03	**0.018**	3/9/2000	**0.018**	3/9/2000	--	--
SEMI-VOLATILES (µg/L)							
bis(2-Ethylhexyl) Phthalate	6.00E+00	**1.2**	4/19/1999	1 U	12/6/2004	--	--
PETROLEUM HYDROCARBONS (mg/L)							
Oil-Range Organics	5.00E-01	**0.98**	8/25/1999	0.5 U	12/6/2004	0.5 U	0.5 U

Table 6-23
SWMU S-17 Soil Statistics
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analytes	Screening Level	# of Screening Level Exceedances	# of Results	# of Detects	Max of Detected Results	Min of Detected Results
VOLATILES (µg/kg)						
Acetone	7.20E+07	0	4	3	15	6.9
PETROLEUM HYDROCARBONS (mg/kg)						
Oil-Range Organics	2,000 (b)	0	2	1	12	12
EXTRACTABLE PETROLEUM HYDROCARBONS (mg/kg)						
Aromatic Hydrocarbons C16-C21	NA	NA	1	1	2400	2400

Table 6-24
SWMU S-17 Soil Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Sample Location: / Screening Level	ASB0164R-5 9/2/2004	ASB0164R-20 9/2/2004	ASB0165R-5 9/2/2004	ASB0165R-22 9/2/2004
VOLATILES (µg/kg)					
Acetone	7.20E+07	**15 J**	**7.6**	8.7 U	**6.9**
PETROLEUM HYDROCARBONS (mg/kg)					
Oil-Range Organics	2,000 (b)	--	**12**	--	10 U
EXTRACTABLE PETROLEUM HYDROCARBONS (µg/kg)					
Aromatic Hydrocarbons C16-C21	NA	--	**2400 J**	--	--

Table 6-25
SWMU S-17 Groundwater Statistics
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Screening Level	# of Screening Level Exceedances	# of Results	# of Detects	Max of Detected Results	Min of Detected Results
VOLATILES (µg/L)						
1,1,1-Trichloroethane	2.00E+02	0	29	2	0.5	0.5
Acetone	7.20E+03	0	29	5	5.6	1.6
Benzene	7.95E-01	0	33	1	0.2	0.2
Bromodichloromethane	8.00E-02	1	29	1	0.3	0.3
2-Butanone/MEK	4.80E+03	0	29	1	1.5	1.5
Tetrachloroethene	5.00E+00	0	29	29	2.2	0.14
Trichloroethene	5.40E-01	11	29	19	1.5	0.3
DISSOLVED METALS (mg/L)						
Aluminum	1.60E+01	0	11	1	0.02	0.02
Arsenic	8.00E-03	0	15	2	0.001	0.001
Barium	2.00E+00	0	15	14	0.007	0.004
Calcium	NA	NA	11	11	22	17.9
Chromium, Hexavalent	4.80E-02	0	12	1	0.022	0.022
Lead	1.50E-02	0	15	1	0.001	0.001
Magnesium	NA	NA	11	11	6.54	5.16
Manganese	2.24E+00	0	12	1	0.001	0.001
Potassium	NA	NA	11	11	3	2.1
Sodium	NA	NA	11	11	8.3	6.96
Vanadium	8.00E-02	0	12	1	0.003	0.003
Zinc	4.80E+00	0	12	1	0.021	0.021
SEMI-VOLATILES (µg/L)						
bis(2-Ethylhexyl) Phthalate	6.00E+00	0	3	1	1.2	1.2
PETROLEUM HYDROCARBONS (mg/L)						
Diesel-Range Organics	5.00E-01	0	25	1	0.28	0.28

Table 6-26
SWMU S-17 Groundwater Results - Detects
Boeing Aunurn Remedial Investigation
Auburn, Washington

	Sample Location:	AGW076				AGW077			
Detected Analyte	Screening Level	Max	Date	Most Recent	Date	Max	Date	Most Recent	Date
VOLATILES (µg/L)									
1,1,1-Trichloroethane	2.00E+02	**0.5**	8/31/1998	1 U	3/8/2000	ND	--	0.2 U	12/12/2004
Acetone	7.20E+03	ND	--	5 U	3/8/2000	ND	--	1 U	12/12/2004
Benzene	7.95E-01	ND	--	1 U	3/8/2000	ND	--	0.2 U	12/12/2004
Bromodichloromethane	7.06E-01	ND	--	1 U	3/8/2000	ND	--	0.2 U	12/12/2004
2-Butanone/MEK	4.80E+03	ND	--	5 U	3/8/2000	ND	--	1 U	12/12/2004
Tetrachloroethene	5.00E+00	**1.5**	2/15/1999	**1.2**	3/8/2000	**1.6**	12/12/2004	**1.6**	12/12/2004
Trichloroethene	5.40E-01	**1.1**	8/31/1998	1 U	3/8/2000	**1**	12/12/2004	**1**	12/12/2004
DISSOLVED METALS (mg/L)									
Aluminum	1.60E+01	--	--	**--**	--	--	--	**--**	--
Arsenic	8.00E-03	ND		0.001 U	3/28/1997	**0.001**	3/28/1997	**0.001**	3/28/1997
Barium	2.00E+00	**0.007**	3/28/1997	**0.007**	3/28/1997	**0.006**	3/28/1997	**0.006**	3/28/1997
Calcium	NA	--	--	**--**	--	--	--	**--**	--
Chromium, Hexavalent	4.80E-02	--	--	**--**	--	--	--	**--**	--
Lead	1.50E-02	ND		0.001 U	3/28/1997	ND	--	0.001 U	3/28/1997
Magnesium	NA	--	--	**--**	--	--	--	**--**	--
Manganese	2.24E+00	--	--	**--**	--	--	--	**--**	--
Potassium	NA	--	--	**--**	--	--	--	**--**	--
Sodium	NA	--	--	**--**	--	--	--	**--**	--
Vanadium	8.00E-02	--	--	**--**	--	--	--	**--**	--
Zinc	4.80E+00	--	--	**--**	--	--	--	**--**	--
SEMI-VOLATILES (µg/L)									
bis(2-Ethylhexyl) Phthalate	6.00E+00	--	--	**--**	--	--	--	**--**	--
PETROLEUM HYDROCARBONS (mg/L)									
Diesel-Range Organics	5.00E-01	ND	--	0.25 U	3/8/2000	ND	--	0.25 U	12/12/2004

Table 6-26
SWMU S-17 Groundwater Results - Detects
Boeing Aunurn Remedial Investigation
Auburn, Washington

	Sample Location:	AGW078				ASB0164R-20	ASB0165R-20
Detected Analyte	Screening Level	Max	Date	Most Recent	Date	9/2/2004	9/2/2004
VOLATILES (µg/L)							
1,1,1-Trichloroethane	2.00E+02	ND	--	0.5 U	6/3/2015	0.2 U	0.2 U
Acetone	7.20E+03	**2.7**	12/6/2004	5.0 U	6/3/2015	**5.6**	**2.4**
Benzene	7.95E-01	ND	--	0.2 U	6/3/2015	**0.2**	0.2 U
Bromodichloromethane	7.06E-01	**0.3**	11/29/2001	0.5 U	6/3/2015	0.2 U	0.2 U
2-Butanone/MEK	4.80E+03	ND	--	5.0 U	6/3/2015	**1.5**	1 U
Tetrachloroethene	5.00E+00	**2.2**	5/21/2001	**0.22**	6/3/2015	**0.5**	**0.9**
Trichloroethene	5.40E-01	**1.5**	8/31/1998	0.2 U	6/3/2015	**1.2**	**0.5**
DISSOLVED METALS (mg/L)							
Aluminum	1.60E+01	**0.02**	3/24/1998	0.05 U	6/9/2004	--	--
Arsenic	8.00E-03	**0.001**	11/29/2001	0.001 U	12/6/2004	--	--
Barium	2.00E+00	**0.006**	3/28/1997	**0.004**	12/6/2004	--	--
Calcium	NA	**22**	11/6/2000	**21.4**	6/9/2004	--	--
Chromium, Hexavalent	4.80E-02	**0.022 J**	6/9/2004	0.011 U	12/6/2004	--	--
Lead	1.50E-02	**0.001**	6/9/2004	0.001 U	12/6/2004	--	--
Magnesium	NA	**6.54**	11/6/2000	**6**	6/9/2004	--	--
Manganese	2.24E+00	**0.001**	3/24/1998	0.001 U	12/6/2004	--	--
Potassium	NA	**3**	6/9/2004	**3**	6/9/2004	--	--
Sodium	NA	**8.3**	6/9/2004	**8.3**	6/9/2004	--	--
Vanadium	8.00E-02	**0.003**	2/15/1999	0.003 U	12/6/2004	--	--
Zinc	4.80E+00	**0.021**	8/31/1998	0.006 U	12/6/2004	--	--
SEMI-VOLATILES (µg/L)							
bis(2-Ethylhexyl) Phthalate	6.00E+00	**1.2**	5/15/2002	**1.2**	5/15/2002	--	--
PETROLEUM HYDROCARBONS (mg/L)							
Diesel-Range Organics	5.00E-01	**0.28**	5/15/2002	0.25 U	12/6/2004	0.25 U	0.25 U

Table 6-27
SWMU S-18 Soil Statistics
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Screening Level	# of Screening Level Exceedances	# of Results	# of Detects	Max of Detected Results	Min of Detected Results
VOLATILES (µg/kg)						
2-Butanone/MEK	4.80E+07	0	7	4	56	31
Acetone	7.20E+07	0	7	7	360	16
EXTRACTABLE PETROLEUM HYDROCARBONS (mg/kg)						
Aromatic Hydrocarbons C8-C10	NA	NA	1	1	9600	9600

Table 6-28
SWMU S-18 Soil Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Sample Location: / Screening Level	ASB0144-6 5/4/2004	ASB0144-18 5/4/2004	ASB0145-6 5/4/2004	ASB0145-15 5/4/2004	ASB0147-6 5/5/2004	ASB0147-15 5/5/2004	ASB0148-6 5/5/2004
VOLATILES (µg/kg)								
2-Butanone/MEK	4.80E+07	**43 J**	5.5 UJ	**31 J**	5.9 UJ	**33 J**	5.8 UJ	**56 J**
Acetone	7.20E+07	**300 J**	**16 J**	**220 J**	**49 J**	**240 J**	**32 J**	**360 J**
EXTRACTABLE PETROLEUM HYDROCARBONS (µg/kg)								
Aromatic Hydrocarbons C8-C10	NA	--	--	--	--	--	**9600**	--

Table 6-29
SWMU S-18 Groundwater Statistics
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Screening Level	# of Screening Level Exceedances	# of Results	# of Detects	Max of Detected Results	Min of Detected Results
VOLATILES (µg/L)						
1,1-Dichloroethene	7.00E+00	0	34	4	0.13	0.025
Acetone	7.20E+03	0	34	4	8	2.6
Benzene	7.95E-01	3	34	15	5.4	0.3
Chloromethane	NA	NA	34	1	0.2	0.2
cis-1,2-Dichloroethene	1.60E+01	0	34	28	2.9	0.3
m-&p-Xylenes	1.60E+03	0	34	2	0.8	0.4
Toluene	6.40E+02	0	34	6	0.5	0.2
trans-1,2-Dichloroethene	1.00E+02	0	34	2	0.2	0.2
Trichloroethene	5.40E-01	1	34	11	0.7	0.2
Vinyl Chloride	2.90E-02	34	34	34	7.5	0.18

Table 6-30
SWMU S-18 Groundwater Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Sample Location: / Screening Level	AGW131 Max	AGW131 Date	AGW131 Most Recent	AGW131 Date	AGW152 Max	AGW152 Date	AGW152 Most Recent	AGW152 Date
VOLATILES (µg/L)									
1,1-Dichloroethene	7.00E+00	**0.13**	12/4/2008	0.2 U	12/3/2015	**0.025**	10/29/2009	0.2 U	12/3/2015
Acetone	7.20E+03	ND	--	5.0 U	12/3/2015	ND	--	5.0 U	12/3/2015
Benzene	7.95E-01	ND	--	0.2 U	12/3/2015	**0.8**	12/8/2009	0.2 U	12/3/2015
Chloromethane	NA	**0.2**	10/1/2008	0.5 U	12/3/2015	ND	--	0.5 U	12/3/2015
cis-1,2-Dichloroethene	1.60E+01	**2.9**	12/8/2009	**2.1**	12/3/2015	**1.4**	10/29/2009	**0.6**	12/3/2015
m-&p-Xylenes	1.60E+03	ND	--	0.5 U	12/3/2015	ND	--	0.5 U	12/3/2015
Toluene	6.40E+02	**0.5**	12/4/2008	0.2 U	12/3/2015	ND	--	0.2 U	12/3/2015
trans-1,2-Dichloroethene	1.00E+02	**0.2**	12/4/2008	0.2 U	12/3/2015	ND	--	0.2 U	12/3/2015
Trichloroethene	5.40E-01	**0.7**	10/1/2008	0.2 U	12/3/2015	ND	--	0.2 U	12/3/2015
Vinyl Chloride	2.90E-02	**7.5**	12/8/2009	**5.0**	12/3/2015	**6.8**	12/8/2009	**3.0**	12/3/2015

Table 6-30
SWMU S-18 Groundwater Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Sample Location: Screening Level	ASB0144-17 5/4/2004	ASB0145-17 5/4/2004	ASB0147-15 5/5/2004	ASB0148-17 5/5/2004
VOLATILES (µg/L)					
1,1-Dichloroethene	7.00E+00	0.02 UJ	**0.044 J**	0.02 U	0.02 U
Acetone	7.20E+03	**3.1 J**	**2.6 J**	**8 J**	**4.2 J**
Benzene	7.95E-01	**0.4 J**	0.2 UJ	0.2 UJ	**5.4 J**
Chloromethane	NA	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ
cis-1,2-Dichloroethene	1.60E+01	**0.5 J**	**0.8 J**	0.2 UJ	0.2 UJ
m-&p-Xylenes	1.60E+03	0.4 UJ	0.4 UJ	**0.8 J**	**0.4 J**
Toluene	6.40E+02	**0.2 J**	0.2 UJ	**0.3 J**	**0.4 J**
trans-1,2-Dichloroethene	1.00E+02	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ
Trichloroethene	5.40E-01	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ
Vinyl Chloride	2.90E-02	**3.7 J**	**5.5 J**	**0.18 J**	**4.7 J**

Table 6-31
SWMU S-30 Groundwater Statistics
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Screening Level	# of Screening Level Exceedances	# of Results	# of Detects	Max of Detected Results	Min of Detected Results
VOLATILES (µg/L)						
1,1-Dichloroethene	7.00E+00	0	27	1	0.03	0.03
Acetone	7.20E+03	0	27	1	9.4	9.4
Carbon Disulfide	8.00E+02	0	27	1	0.5	0.5
cis-1,2-Dichloroethene	1.60E+01	0	29	25	2.63	0.2
Tetrachloroethene	5.00E+00	0	27	1	0.049	0.049
Trichloroethene	5.40E-01	29	30	29	3.1	0.6
Vinyl Chloride	2.90E-02	3	27	12	0.15	0.02
DISSOLVED METALS (mg/L)						
Arsenic	8.00E-03	0	2	2	0.006	0.001
Manganese	2.24E+00	0	2	2	1.1	0.079
Zinc	4.80E+00	0	2	1	0.004	0.004

Table 6-32
SWMU S-30 Groundwater Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

	Sample Location:	AGW026				AGW028			
Detected Analyte	Screening Level	Max	Date	Most Recent	Date	Max	Date	Most Recent	Date
VOLATILES (µg/L)									
1,1-Dichloroethene	7.00E+00	**0.036**	12/8/2008	0.2 U	12/3/2015	ND	--	0.2 U	9/29/2010
Acetone	7.20E+03	**9.4**	12/8/2008	5.0 U	12/3/2015	ND	--	5 U	9/29/2010
Carbon Disulfide	8.00E+02	**0.5**	12/8/2008	0.5 U	12/3/2015	ND	--	0.2 U	9/29/2010
cis-1,2-Dichloroethene	1.60E+01	**2.63**	9/21/1994	**0.9**	12/3/2015	**1.1**	6/20/1996	**0.2**	9/29/2010
Tetrachloroethene	5.00E+00	ND	--	0.2 U	12/3/2015	**0.049**	9/29/2010	**0.049**	9/29/2010
Trichloroethene	5.40E-01	**2.29**	9/21/1994	**0.9**	12/3/2015	**3.1**	**6/20/1996**	**1.2**	9/29/2010
Vinyl Chloride	2.90E-02	**0.15**	12/3/2015	**0.15**	12/3/2015	ND	--	0.020 U	9/29/2010
DISSOLVED METALS (mg/L)									
Arsenic	8.00E-03	**0.006**	12/8/1995	**0.006**	12/8/1995	**0.001**	12/11/1995	**0.001**	12/11/1995
Manganese	2.24E+00	**1.1**	9/26/1996	**1.1**	9/26/1996	**0.079**	9/26/1996	**0.079**	9/26/1996
Zinc	4.80E+00	ND	--	0.004 U	9/26/1996	**0.004**	9/26/1996	**0.004**	9/26/1996

Table 6-33
AOC A-01 Soil Statistics
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analytes	Screening Level	# of Screening Level Exceedances	# of Results	# of Detects	Max of Detected Results	Min of Detected Results
VOLATILES (µg/kg)						
1,1,1-Trichloroethane	1.58E+03	0	19	1	15	15
2-Butanone/MEK	4.80E+07	0	12	6	29	7.1
Acetone	7.20E+07	0	12	12	7300	2.8
Benzene	4.48E+00	0	12	4	2.5	0.9
Ethylbenzene	6.05E+03	1	13	6	9400	0.6
Methylene Chloride	2.18E+01	2	18	12	810	0.9
Toluene	4.65E+03	0	13	9	4200	0.7
Xylenes, Total	1.46E+04	1	15	11	64000	0.9
PETROLEUM HYDROCARBONS (mg/kg)						
Diesel-Range Organics	2,000 (b)	0	12	3	250	10
Gasoline-Range Organics	100 (b,c)	1	11	2	1300	12
Total Petroleum Hydrocarbons	NA	NA	33	20	2000	8

Table 6-34
AOC A-01 Soil Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Sample Location: / Screening Level	AGW009-10.5 8/22/1990	AGW009-13.0 8/22/1990	AGW010-13.0 8/23/1990	AGW010-15.5 8/23/1990	AGW011-10.5 8/23/1990	AGW011-13.0 8/23/1990
VOLATILES (µg/kg)							
1,1,1-Trichloroethane	1.58E+03	--	--	--	--	--	**15**
2-Butanone/MEK	4.80E+07	--	--	--	--	--	--
Acetone	7.20E+07	--	--	--	--	--	--
Benzene	4.48E+00	--	--	--	--	--	--
Ethylbenzene	6.05E+03	--	--	--	**250**	--	--
Methylene Chloride	2.18E+01	--	--	--	--	--	--
Toluene	4.65E+03	--	--	--	**39**	--	--
Xylenes, Total	1.46E+04	--	--	--	**1200**	--	**34**
PETROLEUM HYDROCARBONS (mg/kg)							
Diesel-Range Organics	2,000 (b)	--	--	--	**240**	--	--
Gasoline-Range Organics	100 (b,c)	--	--	--	--	--	--
Total Petroleum Hydrocarbons	NA	**41**	**14**	**21**	**100**	**18**	**8**

Detected Analyte	Sample Location: / Screening Level	AGW012-6.5 8/23/1990	AGW012-13.0 8/23/1990	AGW013-3 7/31/1991	AGW013-5.5 7/31/1991	AGW013-8 7/31/1991	AGW013-10.5 7/31/1991
VOLATILES (µg/kg)							
1,1,1-Trichloroethane	1.58E+03	--	--	--	--	--	--
2-Butanone/MEK	4.80E+07	--	--	--	--	--	--
Acetone	7.20E+07	--	--	--	--	--	--
Benzene	4.48E+00	--	--	--	--	--	--
Ethylbenzene	6.05E+03	--	--	--	--	--	--
Methylene Chloride	2.18E+01	--	--	--	--	--	--
Toluene	4.65E+03	--	--	--	--	--	--
Xylenes, Total	1.46E+04	**48**	--	--	--	--	--
PETROLEUM HYDROCARBONS (mg/kg)							
Diesel-Range Organics	2,000 (b)	--	--	--	--	--	--
Gasoline-Range Organics	100 (b,c)	--	--	--	--	--	--
Total Petroleum Hydrocarbons	NA	**21**	**40**	10 U	**76**	**17**	10 U

Detected Analyte	Sample Location: / Screening Level	AGW013-13 7/31/1991	AGW013-15.5 7/31/1991	AGW013-18 7/31/1991	AGW013-20.5 7/31/1991	AGW014-3 7/31/1991	AGW014-5.5 7/31/1991
VOLATILES (µg/kg)							
1,1,1-Trichloroethane	1.58E+03	1.3 U	--	--	--	--	--
2-Butanone/MEK	4.80E+07	**29**	--	--	--	--	--
Acetone	7.20E+07	**43**	--	--	--	--	--
Benzene	4.48E+00	**1.4**	--	--	--	--	--
Ethylbenzene	6.05E+03	**1.6**	--	--	--	--	--
Methylene Chloride	2.18E+01	**3.2**	--	--	--	--	--
Toluene	4.65E+03	**11**	--	--	--	--	--
Xylenes, Total	1.46E+04	**9.8**	--	--	--	--	--
PETROLEUM HYDROCARBONS (mg/kg)							
Diesel-Range Organics	2,000 (b)	10 U	--	--	--	--	--
Gasoline-Range Organics	100 (b,c)	10 U	--	--	--	--	--
Total Petroleum Hydrocarbons	NA	10 U	10 U	10 U	10 U	**11**	**12**

Table 6-34
AOC A-01 Soil Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Sample Location: / Screening Level	AGW014-8 7/31/1991	AGW014-13 7/31/1991	AGW014-15.5 7/31/1991	AGW014-18 7/31/1991	AGW014-20.5 7/31/1991	AGW015-9 8/2/1991
VOLATILES (µg/kg)							
1,1,1-Trichloroethane	1.58E+03	--	1.2 U	--	--	--	1.1 U
2-Butanone/MEK	4.80E+07	--	**15**	--	--	--	**9.6**
Acetone	7.20E+07	--	**4.7** J	--	--	--	**29**
Benzene	4.48E+00	--	1.2 U	--	--	--	**0.9** M
Ethylbenzene	6.05E+03	--	1.2 U	--	--	--	**0.6** J
Methylene Chloride	2.18E+01	--	**2.2** J	--	--	--	**0.9** J
Toluene	4.65E+03	--	**3.2**	--	--	--	**7.9**
Xylenes, Total	1.46E+04	--	**0.9** M	--	--	--	**3.8** M
PETROLEUM HYDROCARBONS (mg/kg)							
Diesel-Range Organics	2,000 (b)	--	10 U	--	--	--	10 U
Gasoline-Range Organics	100 (b,c)	--	10 U	--	--	--	10 U
Total Petroleum Hydrocarbons	NA	10 U	11 U	**11**	10 U	**11**	**290**

Detected Analyte	Sample Location: / Screening Level	AGW016-9.5 8/2/1991	AGW017-3 8/5/1991	AGW017-13 8/5/1991	B-1-3 7/30/1991	B-1-9 1/8/1996	B-1-11 1/8/1996
VOLATILES (µg/kg)							
1,1,1-Trichloroethane	1.58E+03	1.1 U	1.1 U	1.2 U	1.1 U	50 U	50 U
2-Butanone/MEK	4.80E+07	**21**	**23**	8.7 U	8.2 U	--	--
Acetone	7.20E+07	**63**	**86**	**7.3**	**2.8** J	--	--
Benzene	4.48E+00	**1.9**	1.1 U	1.2 U	1.1 U	--	--
Ethylbenzene	6.05E+03	**0.8** J	1.1 U	1.2 U	1.1 U	--	--
Methylene Chloride	2.18E+01	**1.9** J	**5.2**	**12**	**2.5**	50 U	50 U
Toluene	4.65E+03	**14**	1.1 U	1.2 U	**12**	--	--
Xylenes, Total	1.46E+04	**5.3**	2.2 U	1.2 U	**3.1**	--	--
PETROLEUM HYDROCARBONS (mg/kg)							
Diesel-Range Organics	2,000 (b)	10 U	10 U	**10**	10 U	--	--
Gasoline-Range Organics	100 (b,c)	10 U	10 U	10 U	10 U	--	--
Total Petroleum Hydrocarbons	NA	**47**	**18**	**12**	29 U	--	--

Detected Analyte	Sample Location: / Screening Level	B-2-10.5 7/30/1991	B-2-8 1/8/1996	B-2-10 1/8/1996	B-2-15 7/30/1991	B-3-5.5 7/30/1991	B-3-8 1/8/1996
VOLATILES (µg/kg)							
1,1,1-Trichloroethane	1.58E+03	1 U	50 U	50 U	1.1 U	1.1 U	50 U
2-Butanone/MEK	4.80E+07	7.8 U	--	--	**7.1** J	8 U	--
Acetone	7.20E+07	**7.1**	--	--	**5** J	**3.5** J	--
Benzene	4.48E+00	1 U	--	--	**2.5**	1.1 U	--
Ethylbenzene	6.05E+03	1 U	--	--	**0.7** J	1.1 U	--
Methylene Chloride	2.18E+01	**1.3** J	50 U	50 U	**1.6** J	**1.6** J	50 U
Toluene	4.65E+03	1 U	--	--	**0.7** J	**1.7**	--
Xylenes, Total	1.46E+04	2.1 U	--	--	2.2 U	**0.9** J	--
PETROLEUM HYDROCARBONS (mg/kg)							
Diesel-Range Organics	2,000 (b)	10 U	--	--		10 U	--
Gasoline-Range Organics	100 (b,c)	10 U	--	--		10 U	--
Total Petroleum Hydrocarbons	NA	13 U	--	--	19 U	37 U	--

Table 6-34
AOC A-01 Soil Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Sample Location: / Screening Level	B-3-10 1/8/1996	B-4-13 8/1/1991	B-5-7 8/6/1991
VOLATILES (µg/kg)				
1,1,1-Trichloroethane	1.58E+03	50 U	630 U	11 U
2-Butanone/MEK	4.80E+07	--	4700 U	83 U
Acetone	7.20E+07	--	**7300**	**74**
Benzene	4.48E+00	--	630 U	11 U
Ethylbenzene	6.05E+03	--	**9400**	11 U
Methylene Chloride	2.18E+01	50 U	**810** J	**130** J
Toluene	4.65E+03	--	**4200**	11 U
Xylenes, Total	1.46E+04	--	**64000**	**180** M
PETROLEUM HYDROCARBONS (mg/kg)				
Diesel-Range Organics	2,000 (b)	--	**250**	10 U
Gasoline-Range Organics	100 (b,c)	--	**1300**	**12**
Total Petroleum Hydrocarbons	NA	--	**2000**	**21**

Table 6-35
AOC A-01 Groundwater Statistics
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Screening Level	# of Screening Level Exceedances	# of Results	# of Detects	Max of Detected Results	Min of Detected Results
VOLATILES (µg/L)						
1,1,2,2-Tetrachloroethane	2.19E-01	1	98	1	1.5	1.5
1,1,2-Trichloroethane	7.68E-01	2	98	2	1.6	1.1
1,2-Dichloroethane	4.81E-01	2	99	2	3.3	1.6
2-Hexanone	NA	NA	98	1	5.3	5.3
4-Methyl-2-pentanone	6.40E+02	0	99	2	5.9	3.11
Acetone	7.20E+03	0	98	10	45	4.8
Benzene	7.95E-01	62	149	64	5250	0.2
cis-1,2-Dichloroethene	1.60E+01	0	112	36	7.41	0.3
Ethylbenzene	7.00E+02	32	148	62	3600	1.1
m-&p-Xylenes	1.60E+03	23	136	46	11000	1.4
2-Butanone/MEK	4.80E+03	0	98	2	10	5.7
Methylene Chloride	5.00E+00	0	100	2	2.93	2.31
o-Xylene	1.60E+03	19	136	37	4300	1.3
Styrene	1.00E+02	0	98	2	12	2.3
Tetrachloroethene	5.00E+00	0	98	15	0.3	0.027
Toluene	6.40E+02	16	141	43	15000	0.3
Trichloroethene	5.40E-01	37	110	41	9.25	0.2
Vinyl Acetate	8.00E+03	0	98	2	17	8.2
Vinyl Chloride	2.90E-02	1	98	1	0.085	0.085
Xylenes, Total	1.60E+03	4	12	11	13199	10.53
DISSOLVED METALS (mg/L)						
Arsenic	8.00E-03	0	11	4	0.008	0.001
Lead	1.50E-02	0	11	2	0.014	0.006
Zinc	4.80E+00	0	2	2	0.017	0.006
PETROLEUM HYDROCARBONS (mg/L)						
Diesel-Range Organics	5.00E-01	34	84	38	18.7	0.21
Gasoline-Range Organics	8.00E-01	39	84	40	120	0.67
Oil-Range Organics	5.00E-01	7	88	17	276	0.1

Table 6-36
AOC A-01 Groundwater Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

	Sample Location:	AGW009				AGW010			
Detected Analyte	Screening Level	Max	Date	Most Recent	Date	Max	Date	Most Recent	Date
VOLATILES (µg/L)									
1,1,2,2-Tetrachloroethane	2.19E-01	**1.5**	10/1/1996	0.2 U	6/2/2015	ND	--	2.0 U	12/3/2015
1,1,2-Trichloroethane	7.68E-01	ND	--	0.2 U	6/2/2015	**1.1**	3/23/1998	2.0 U	12/3/2015
1,2-Dichloroethane	4.81E-01	ND	--	0.2 U	6/2/2015	**3.3**	3/24/1995	2.0 U	12/3/2015
2-Hexanone	NA	ND	--	5.0 U	6/2/2015	**5.3 J**	6/18/1996	50 U	12/3/2015
4-Methyl-2-pentanone	6.40E+02	ND	--	5.0 U	6/2/2015	**5.9**	6/18/1996	50 U	12/3/2015
Acetone	7.20E+03	ND	--	5.0 U	6/2/2015	**45**	3/23/1998	50 U	12/3/2015
Benzene	7.95E-01	ND	--	0.2 U	6/2/2015	**5250**	3/24/1995	2.0 U	12/3/2015
cis-1,2-Dichloroethene	1.60E+01	ND	--	0.2 U	6/2/2015	**5.35**	2/15/1994	2.0 U	12/3/2015
Ethylbenzene	7.00E+02	ND	--	0.5 U	6/2/2015	**3600**	12/5/2004	**1200**	12/3/2015
m-&p-Xylenes	1.60E+03	**2.1**	12/5/2004	0.5 U	6/2/2015	**11000**	8/26/1999	**2600**	12/3/2015
Methylene Chloride	5.00E+00	ND	--	0.5 U	6/2/2015	ND	--	5.0 U	12/3/2015
2-Butanone/MEK	4.80E+03	ND	--	5.0 U	6/2/2015	**10**	6/18/1996	50 U	12/3/2015
o-Xylene	1.60E+03	ND	--	0.5 U	6/2/2015	**4300**	8/26/1999	**560**	12/3/2015
Styrene	1.00E+02	ND	--	0.5 U	6/2/2015	**12**	3/20/1997	5.0 U	12/3/2015
Tetrachloroethene	5.00E+00	**0.3**	12/4/2008	**0.14**	6/2/2015	**0.15 J**	12/5/2011	**0.12**	12/3/2015
Toluene	6.40E+02	ND	--	0.2 U	6/2/2015	**15000**	9/12/1997	**15**	12/3/2015
Trichloroethene	5.40E-01	**8.07**	2/16/1994	0.2 U	6/2/2015	**7.01**	2/15/1994	2.0 U	12/3/2015
Vinyl Acetate	8.00E+03	ND	--	0.5 U	6/2/2015	ND	--	5.0 U	12/3/2015
Vinyl Chloride	2.90E-02	ND	--	0.020 U	6/2/2015	**0.085**	6/12/2012	0.020 U	12/3/2015
Xylenes, Total	1.60E+03	--	--	--	--	**13199**	3/24/1995	**540**	6/7/2006
DISSOLVED METALS (mg/L)									
Arsenic	8.00E-03	ND	--	0.001 U	12/14/1995	**0.006**	9/12/1997	**0.006**	9/12/1997
Lead	1.50E-02	ND	--	0.001 U	12/14/1995	**0.014**	12/14/1995	**0.006**	9/12/1997
Zinc	4.80E+00	--	--	--	--	**0.006**	9/12/1997	**0.006**	9/12/1997
PETROLEUM HYDROCARBONS (mg/L)									
Diesel-Range Organics	5.00E-01	ND	--	0.1 U	12/1/2010	**18.7**	3/24/1995	**0.97**	12/3/2015
Gasoline-Range Organics	8.00E-01	ND	--	0.25 U	12/1/2010	**120 J**	8/26/1999	**34**	12/3/2015
Oil-Range Organics	5.00E-01	0.2	2/16/1994	0.2 U	12/1/2010	**276**	3/24/1995	0.24 U	12/3/2015

Table 6-36
AOC A-01 Groundwater Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

	Sample Location:	AGW011				AGW012			
Detected Analyte	Screening Level	Max	Date	Most Recent	Date	Max	Date	Most Recent	Date
VOLATILES (µg/L)									
1,1,2,2-Tetrachloroethane	2.19E-01	ND	--	1 U	3/20/1997	ND	--	1 U	3/20/1997
1,1,2-Trichloroethane	7.68E-01	ND	--	1 U	3/20/1997	ND	--	1 U	3/20/1997
1,2-Dichloroethane	4.81E-01	ND	--	1 U	3/20/1997	ND	--	1 U	3/20/1997
2-Hexanone	NA	ND	--	5 U	3/20/1997	ND	--	5 U	3/20/1997
4-Methyl-2-pentanone	6.40E+02	ND	--	5 U	3/20/1997	ND	--	5 U	3/20/1997
Acetone	7.20E+03	**5.8**	10/1/1996	5 U	3/20/1997	ND	--	5 U	3/20/1997
Benzene	7.95E-01	**688**	2/14/1994	**1.2**	12/5/2004	ND	--	1 U	12/5/2004
cis-1,2-Dichloroethene	1.60E+01	**7.41**	2/14/1994	1 U	3/20/1997	**6.32**	2/14/1994	1 U	3/20/1997
Ethylbenzene	7.00E+02	**285**	3/24/1995	1 U	12/5/2004	ND	--	1 U	12/5/2004
m-&p-Xylenes	1.60E+03	**40**	12/19/1996	**1.6**	12/5/2004	**1.4**	3/26/1996	1 U	12/5/2004
Methylene Chloride	5.00E+00	**2.31**	3/24/1994	2 U	3/20/1997	ND	--	2 U	3/20/1997
2-Butanone/MEK	4.80E+03	ND	--	5 U	3/20/1997	ND	--	5 U	3/20/1997
o-Xylene	1.60E+03	**1.3**	12/14/1995	1 U	12/5/2004	ND	--	1 U	12/5/2004
Styrene	1.00E+02	ND	--	1 U	3/20/1997	ND	--	1 U	3/20/1997
Tetrachloroethene	5.00E+00	ND	--	1 U	3/20/1997	ND	--	1 U	3/20/1997
Toluene	6.40E+02	**5.34**	3/24/1995	1 U	12/5/2004	**1.3**	3/26/1996	1 U	12/5/2004
Trichloroethene	5.40E-01	ND	--	1 U	3/20/1997	**2.48**	2/14/1994	**1**	3/20/1997
Vinyl Acetate	8.00E+03	**17 J**	12/14/1995	5 U	3/20/1997	ND	--	5 U	3/20/1997
Vinyl Chloride	2.90E-02	ND	--	2 U	3/20/1997	ND	--	2 U	3/20/1997
Xylenes, Total	1.60E+03	**18.61**	3/24/1994	**15.98**	3/24/1995	**--**	--	**--**	--
DISSOLVED METALS (mg/L)									
Arsenic	8.00E-03	ND	--	0.001 U	12/14/1995	ND	--	0.001 U	12/13/1995
Lead	1.50E-02	ND	--	0.001 U	12/14/1995	ND	--	0.002 U	12/13/1995
Zinc	4.80E+00	**--**	--	**--**	--	**--**	--	**--**	--
PETROLEUM HYDROCARBONS (mg/L)									
Diesel-Range Organics	5.00E-01	**0.68**	2/14/1994	0.25 U	12/5/2004	**0.37**	2/14/1994	0.25 U	12/5/2004
Gasoline-Range Organics	8.00E-01	**2.45**	3/24/1995	0.25 U	12/5/2004	ND	--	0.25 U	12/5/2004
Oil-Range Organics	5.00E-01	**0.6**	2/14/1994	0.5 U	12/5/2004	**0.1**	2/14/1994	0.5 U	12/5/2004

Table 6-36
AOC A-01 Groundwater Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

	Sample Location:	AGW013				AGW014			
Detected Analyte	Screening Level	Max	Date	Most Recent	Date	Max	Date	Most Recent	Date
VOLATILES (µg/L)									
1,1,2,2-Tetrachloroethane	2.19E-01	ND	--	1 U	3/21/1997	ND	--	0.2 U	2/20/2004
1,1,2-Trichloroethane	7.68E-01	ND	--	1 U	3/21/1997	ND	--	0.2 U	2/20/2004
1,2-Dichloroethane	4.81E-01	ND	--	1 U	3/21/1997	ND	--	0.2 U	2/20/2004
2-Hexanone	NA	ND	--	5 U	3/21/1997	ND	--	1 U	2/20/2004
4-Methyl-2-pentanone	6.40E+02	ND	--	5 U	3/21/1997	ND	--	1 U	2/20/2004
Acetone	7.20E+03	ND	--	5 U	3/21/1997	ND	--	1 U	2/20/2004
Benzene	7.95E-01	ND	--	1 U	12/5/2004	ND	--	1 U	12/5/2004
cis-1,2-Dichloroethene	1.60E+01	ND	--	1 U	3/21/1997	**5.73**	2/14/1994	0.2 U	2/20/2004
Ethylbenzene	7.00E+02	ND	--	1 U	12/5/2004	ND	--	1 U	12/5/2004
m-&p-Xylenes	1.60E+03	ND	--	1 U	12/5/2004	ND	--	1 U	12/5/2004
Methylene Chloride	5.00E+00	ND	--	2 U	3/21/1997	ND	--	0.3 U	2/20/2004
2-Butanone/MEK	4.80E+03	ND	--	5 U	3/21/1997	ND	--	1 U	2/20/2004
o-Xylene	1.60E+03	ND	--	1 U	12/5/2004	ND	--	1 U	12/5/2004
Styrene	1.00E+02	ND	--	1 U	3/21/1997	ND	--	0.2 U	2/20/2004
Tetrachloroethene	5.00E+00	ND	--	1 U	3/21/1997	ND	--	0.2 U	2/20/2004
Toluene	6.40E+02	ND	--	1 U	12/5/2004	ND	--	1 U	12/5/2004
Trichloroethene	5.40E-01	**1.33**	2/16/1994	1 U	3/21/1997	**2.86**	2/14/1994	0.2 U	2/20/2004
Vinyl Acetate	8.00E+03	ND	--	5 U	3/21/1997	ND	--	0.2 U	2/20/2004
Vinyl Chloride	2.90E-02	ND	--	2 U	3/21/1997	ND	--	0.2 U	2/20/2004
Xylenes, Total	1.60E+03	**--**	--	**--**	--	**--**	--	**--**	--
DISSOLVED METALS (mg/L)									
Arsenic	8.00E-03	**0.001**	12/13/1995	**0.001**	12/13/1995	ND	--	0.001 U	12/13/1995
Lead	1.50E-02	ND	--	0.001 U	12/13/1995	ND	--	0.001 U	12/13/1995
Zinc	4.80E+00	**--**	--	**--**	--	**--**	--	**--**	--
PETROLEUM HYDROCARBONS (mg/L)									
Diesel-Range Organics	5.00E-01	ND	--	0.25 U	12/5/2004	ND	--	0.25 U	12/5/2004
Gasoline-Range Organics	8.00E-01	ND	--	0.25 U	12/5/2004	ND	--	0.25 U	12/5/2004
Oil-Range Organics	5.00E-01	**0.1**	2/16/1994	0.5 U	12/5/2004	**0.2**	2/14/1994	0.5 U	12/5/2004

Table 6-36
AOC A-01 Groundwater Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Sample Location: Screening Level	AGW015 Max	AGW015 Date	AGW015 Most Recent	AGW015 Date	AGW016 Max	AGW016 Date	AGW016 Most Recent	AGW016 Date
VOLATILES (µg/L)									
1,1,2,2-Tetrachloroethane	2.19E-01	ND	--	0.2 U	6/9/2009	ND	--	1 U	3/13/2000
1,1,2-Trichloroethane	7.68E-01	**1.6**	6/3/2008	0.2 U	6/9/2009	ND	--	1 U	3/13/2000
1,2-Dichloroethane	4.81E-01	ND	--	0.2 U	6/9/2009	ND	--	1 U	3/13/2000
2-Hexanone	NA	ND	--	5 U	6/9/2009	ND	--	5 U	3/13/2000
4-Methyl-2-pentanone	6.40E+02	ND	--	5 U	6/9/2009	ND	--	5 U	3/13/2000
Acetone	7.20E+03	**15**	3/26/1996	5 U	6/9/2009	**6.6**	9/4/1998	5 U	3/13/2000
Benzene	7.95E-01	**1.6**	10/1/1996	0.2 U	6/9/2009	**24.98**	2/15/1994	1 U	12/5/2004
cis-1,2-Dichloroethene	1.60E+01	**3.31**	2/15/1994	0.2 U	6/9/2009	**2.13**	2/15/1994	1 U	3/13/2000
Ethylbenzene	7.00E+02	**7.6**	12/5/2006	0.2 U	6/9/2009	**49.54**	2/15/1994	1 U	12/5/2004
m-&p-Xylenes	1.60E+03	**19**	12/5/2006	0.4 U	6/9/2009	**2**	12/19/1996	1 U	12/5/2004
Methylene Chloride	5.00E+00	ND	--	0.5 U	6/9/2009	**2.93**	3/24/1994	2 U	3/13/2000
2-Butanone/MEK	4.80E+03	ND	--	5 U	6/9/2009	ND	--	5 U	3/13/2000
o-Xylene	1.60E+03	**4.4**	12/5/2006	0.2 U	6/9/2009	ND	--	1 U	12/5/2004
Styrene	1.00E+02	ND	--	0.2 U	6/9/2009	ND	--	1 U	3/13/2000
Tetrachloroethene	5.00E+00	ND	--	0.2 U	6/9/2009	ND	--	1 U	3/13/2000
Toluene	6.40E+02	**1.6**	3/20/1997	0.2 U	6/9/2009	**0.3**	9/4/1998	1 U	12/5/2004
Trichloroethene	5.40E-01	**1.5**	3/24/1995	0.2 U	6/9/2009	ND	--	1 U	3/13/2000
Vinyl Acetate	8.00E+03	**8.2 J**	12/13/1995	1 U	6/9/2009	ND	--	5 U	3/13/2000
Vinyl Chloride	2.90E-02	ND	--	0.020 U	6/9/2009	ND	--	1 U	3/13/2000
Xylenes, Total	1.60E+03	ND	--	2 U	6/7/2006	**51.47**	2/15/1994	**10.53**	9/15/1994
DISSOLVED METALS (mg/L)									
Arsenic	8.00E-03	**0.008**	12/13/1995	**0.008**	12/13/1995	**0.002**	9/12/1997	**0.002**	9/12/1997
Lead	1.50E-02	ND	--	0.001 U	12/13/1995	ND	--	0.001 U	9/12/1997
Zinc	4.80E+00	**--**	--	**--**	--	**0.017**	9/12/1997	**0.017**	9/12/1997
PETROLEUM HYDROCARBONS (mg/L)									
Diesel-Range Organics	5.00E-01	**0.59**	12/5/2004	0.25 U	12/8/2009	**0.59**	2/15/1994	0.25 U	12/5/2004
Gasoline-Range Organics	8.00E-01	ND	--	0.25 U	12/8/2009	**2.07**	2/15/1994	0.25 U	12/5/2004
Oil-Range Organics	5.00E-01	**0.2**	2/15/1994	0.5 U	12/8/2009	**0.4**	2/15/1994	0.5 U	12/5/2004

Table 6-36
AOC A-01 Groundwater Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

	Sample Location:	AGW017			
Detected Analyte	Screening Level	Max	Date	Most Recent	Date
VOLATILES (µg/L)					
1,1,2,2-Tetrachloroethane	2.19E-01	ND	--	0.2 U	6/9/2009
1,1,2-Trichloroethane	7.68E-01	ND	--	0.2 U	6/9/2009
1,2-Dichloroethane	4.81E-01	ND	--	0.2 U	6/9/2009
2-Hexanone	NA	ND	--	5 U	6/9/2009
4-Methyl-2-pentanone	6.40E+02	ND	--	5 U	6/9/2009
Acetone	7.20E+03	**5.6**	12/13/1995	5 U	6/9/2009
Benzene	7.95E-01	ND	--	0.2 U	6/9/2009
cis-1,2-Dichloroethene	1.60E+01	**1.1**	3/26/1996	**0.4**	6/9/2009
Ethylbenzene	7.00E+02	ND	--	0.2 U	6/9/2009
m-&p-Xylenes	1.60E+03	ND	--	0.4 U	6/9/2009
Methylene Chloride	5.00E+00	ND	--	0.5 U	6/9/2009
2-Butanone/MEK	4.80E+03	ND	--	5 U	6/9/2009
o-Xylene	1.60E+03	ND	--	0.2 U	6/9/2009
Styrene	1.00E+02	ND	--	0.2 U	6/9/2009
Tetrachloroethene	5.00E+00	ND	--	0.2 U	6/9/2009
Toluene	6.40E+02	ND	--	0.2 U	6/9/2009
Trichloroethene	5.40E-01	**9.25**	2/15/1994	**1.3**	6/9/2009
Vinyl Acetate	8.00E+03	ND	--	1 U	6/9/2009
Vinyl Chloride	2.90E-02	ND	--	0.020 U	6/9/2009
Xylenes, Total	1.60E+03	**--**	--	**--**	--
DISSOLVED METALS (mg/L)					
Arsenic	8.00E-03	ND	--	0.001 U	12/13/1995
Lead	1.50E-02	ND	--	0.001 U	12/13/1995
Zinc	4.80E+00	**--**	--	**--**	--
PETROLEUM HYDROCARBONS (mg/L)					
Diesel-Range Organics	5.00E-01	ND	--	0.25 U	12/5/2004
Gasoline-Range Organics	8.00E-01	ND	--	0.25 U	12/5/2004
Oil-Range Organics	5.00E-01	ND	--	0.5 U	12/5/2004

Table 6-37
AOC A-02b Groundwater Statistics
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Screening Level	# of Screening Level Exceedances	# of Results	# of Detects	Max of Detected Results	Min of Detected Results
VOLATILES (µg/L)						
Acetone	7.20E+03	0	44	2	2.8	2.4
Chloromethane	NA	NA	44	1	0.2	0.2
Ethylbenzene	7.00E+02	0	44	1	0.3	0.3
m-&p-Xylenes	1.60E+03	0	44	1	0.8	0.8
Tetrachloroethene	5.00E+00	0	58	57	1.6	0.27
Toluene	6.40E+02	0	44	1	0.2	0.2
Trichloroethene	5.40E-01	22	44	42	2.3	0.3
Trichlorofluoromethane	2.40E+03	0	44	1	0.2	0.2
Vinyl Chloride	2.90E-02	1	79	1	0.041	0.041

Table 6-38
AOC A-02b Groundwater Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

Sample Location:		AGW041				AGW117			
Detected Analyte	Screening Level	Max	Date	Most Recent	Date	Max	Date	Most Recent	Date
VOLATILES (µg/L)									
Acetone	7.20E+03	**2.4**	12/7/2005	5.0 U	6/3/2015	**2.8**	11/23/2004	5.0 U	12/9/2015
Chloromethane	NA	**0.2**	12/13/2007	0.5 U	6/3/2015	ND	--	0.5 U	12/9/2015
Ethylbenzene	7.00E+02	**0.3**	12/8/2006	0.5 U	6/3/2015	ND	--	0.5 U	12/9/2015
m-&p-Xylenes	1.60E+03	**0.8**	12/8/2006	0.5 U	6/3/2015	ND	--	0.5 U	12/9/2015
Tetrachloroethene	5.00E+00	**1.6 J**	9/27/1996	**0.3**	6/3/2015	**1.1**	12/8/2006	**0.5**	12/9/2015
Toluene	6.40E+02	**0.2**	8/11/2005	0.2 U	6/3/2015	ND	--	0.2 U	12/9/2015
Trichloroethene	5.40E-01	**2.3 J**	9/27/1996	**0.4**	6/3/2015	**1**	6/10/2014	**0.3**	12/9/2015
Trichlorofluoromethane	2.40E+03	ND	--	0.5 U	6/3/2015	**0.2**	12/7/2005	0.5 U	12/9/2015
Vinyl Chloride	2.90E-02	ND	--	0.020 U	6/3/2015	**0.041 J**	6/6/2007	0.2 U	12/9/2015

Table 6-39
AOC A-02c Soil Statistics
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Screening Level	# of Screening Level Exceedances	# of Results	# of Detects	Max of Detected Results	Min of Detected Results
SEMI-VOLATILES (µg/kg)						
bis(2-Ethylhexyl) Phthalate	1.34E+04	0	2	1	60	60
Diethyl Phthalate	6.40E+07	0	2	1	82	82
EXTRACTABLE PETROLEUM HYDROCARBONS (mg/kg)						
Aliphatic Hydrocarbons C21-C34	NA	NA	1	1	5500	5500

Table 6-40
AOC A-02c Soil Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Sample Location: / Screening Level	ASB0149-15 5/5/2004	ASB0149-21 5/5/2004	ASB0178-13 8/4/2008	ASB0178-16 8/4/2008
SEMI-VOLATILES (µg/kg)					
bis(2-Ethylhexyl) Phthalate	1.34E+04	--	--	**60**	61 U
Diethyl Phthalate	6.40E+07	--	--	59 U	**82**
EXTRACTABLE PETROLEUM HYDROCARBONS (µg/kg)					
Aliphatic Hydrocarbons C21-C34	NA	**5500**	--	--	--

Table 6-41
AOC A-02c Groundwater Statistics
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Screening Level	# of Screening Level Exceedances	# of Results	# of Detects	Max of Detected Results	Min of Detected Results
VOLATILES (µg/L)						
Acetone	7.20E+03	0	10	2	4.3	2.1
Tetrachloroethene	5.00E+00	0	10	9	1.2	0.092
Trichloroethene	5.40E-01	1	10	1	0.6	0.6
SEMI-VOLATILES (µg/L)						
bis(2-Ethylhexyl) Phthalate	6.00E+00	0	2	1	1.1	1.1
DISSOLVED METALS (mg/L)						
Barium	2.00E+00	0	2	2	0.006	0.004
Calcium	NA	NA	1	1	20.9	20.9
Chromium, Hexavalent	4.80E-02	0	2	1	0.045	0.045
Lead	1.50E-02	0	2	1	0.001	0.001
Magnesium	NA	NA	1	1	6.62	6.62
Manganese	2.24E+00	0	2	2	0.016	0.001
Potassium	NA	NA	1	1	2.7	2.7
Sodium	NA	NA	1	1	8	8

Table 6-42
AOC A-02c Groundwater Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

	Sample Location:	AGW104			
Detected Analyte	Screening Level	Max	Date	Most Recent	Date
VOLATILES (µg/L)					
Acetone	7.20E+03	**4.3**	6/9/2004	5.0 U	6/3/2015
Tetrachloroethene	5.00E+00	**1.2**	12/6/2004	**0.13**	6/3/2015
Trichloroethene	5.40E-01	**0.6**	12/6/2004	0.2 U	6/3/2015
SEMI-VOLATILES (µg/L)					
bis(2-Ethylhexyl) Phthalate	6.00E+00	**1.1**	6/9/2004	1 U	12/6/2004
DISSOLVED METALS (mg/L)					
Barium	2.00E+00	**0.006**	6/9/2004	**0.004**	12/6/2004
Calcium	NA	**20.9**	6/9/2004	**20.9**	6/9/2004
Chromium, Hexavalent	4.80E-02	**0.045 J**	6/9/2004	0.011 U	12/6/2004
Lead	1.50E-02	**0.001**	6/9/2004	0.001 U	12/6/2004
Magnesium	NA	**6.62**	6/9/2004	**6.62**	6/9/2004
Manganese	2.24E+00	**0.016**	6/9/2004	**0.001**	12/6/2004
Potassium	NA	**2.7**	6/9/2004	**2.7**	6/9/2004
Sodium	NA	**8**	6/9/2004	**8**	6/9/2004

Table 6-43
AOC A-03 Soil Statistics
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Screening Level	# of Screening Level Exceedances	# of Results	# of Detects	Max of Detected Results	Min of Detected Results
VOLATILES (µg/kg)						
2-Butanone/MEK	4.80E+07	0	3	3	32	7.1
Acetone	7.20E+07	0	3	3	190	58

Table 6-44
AOC A-03 Soil Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Sample Location: / Screening Level	ASB0143-12 5/4/2004	ASB0143-15 5/4/2004	ASB0146-12 5/5/2004
VOLATILES (µg/kg)				
2-Butanone/MEK	4.80E+07	**29 J**	**7.1 J**	**32 J**
Acetone	7.20E+07	**170 J**	**58 J**	**190 J**

Table 6-45
AOC A-03 Groundwater Statistics
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Screening Level	# of Screening Level Exceedances	# of Results	# of Detects	Max of Detected Results	Min of Detected Results
VOLATILES (µg/L)						
Acetone	7.20E+03	0	2	2	5.8	2.7
Vinyl Chloride	2.90E-02	1	2	1	0.75	0.75
SEMI-VOLATILES (µg/L)						
1-Methylnaphthalene	1.51E+00	0	2	1	0.5	0.5
2-Methylnaphthalene	3.20E+01	0	2	1	0.59	0.59

Table 6-46
AOC A-03 Groundwater Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Sample Location: / Screening Level	ASB0143-17 5/4/2004	ASB0146-10 5/5/2004
VOLATILES (µg/L)			
Acetone	7.20E+03	**2.7 J**	**5.8 J**
Vinyl Chloride	2.90E-02	**0.75 J**	0.020 U
SEMI-VOLATILES (µg/L)			
1-Methylnaphthalene	1.51E+00	**0.5**	0.1 U
2-Methylnaphthalene	3.20E+01	**0.59**	0.1 U

Table 6-47
AOC A-04 Groundwater Statistics
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Screening Level	# of Screening Level Exceedances	# of Results	# of Detects	Max of Detected Results	Min of Detected Results
VOLATILES (µg/L)						
1,1,1-Trichloroethane	2.00E+02	0	27	2	0.5	0.5
Acetone	7.20E+03	0	27	3	2.7	1.6
Bromodichloromethane	7.06E-01	0	27	1	0.3	0.3
Tetrachloroethene	5.00E+00	0	27	27	2.2	0.14
Trichloroethene	5.40E-01	10	27	17	1.5	0.3
SEMI-VOLATILES (µg/L)						
bis(2-Ethylhexyl) Phthalate	6.00E+00	0	3	1	1.2	1.2
DISSOLVED METALS (mg/L)						
Aluminum	1.60E+01	0	11	1	0.02	0.02
Arsenic	8.00E-03	0	15	2	0.001	0.001
Barium	2.00E+00	0	15	14	0.007	0.004
Calcium	NA	NA	11	11	22	17.9
Chromium, Hexavalent	4.80E-02	0	12	1	0.022	0.022
Lead	1.50E-02	0	15	1	0.001	0.001
Magnesium	NA	NA	11	11	6.54	5.16
Manganese	2.24E+00	0	12	1	0.001	0.001
Potassium	NA	NA	11	11	3	2.1
Sodium	NA	NA	11	11	8.3	6.96
Vanadium	8.00E-02	0	12	1	0.003	0.003
Zinc	4.80E+00	0	12	1	0.021	0.021
PETROLEUM HYDROCARBONS (mg/L)						
Diesel-Range Organics	5.00E-01	0	23	1	0.28	0.28

Table 6-48
AOC A-04 Groundwater Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

	Sample Location:	AGW076				AGW077			
Detected Analyte	Screening Level	Max	Date	Most Recent	Date	Max	Date	Most Recent	Date
VOLATILES (µg/L)									
1,1,1-Trichloroethane	2.00E+02	**0.5**	8/31/1998	1 U	3/8/2000	ND	--	0.2 U	12/12/2004
Acetone	7.20E+03	ND	--	5 U	3/8/2000	ND	--	1 U	12/12/2004
Bromodichloromethane	7.06E-01	ND	--	1 U	3/8/2000	ND	--	0.2 U	12/12/2004
Tetrachloroethene	5.00E+00	**1.5**	2/15/1999	**1.2**	3/8/2000	**1.6**	12/12/2004	**1.6**	12/12/2004
Trichloroethene	5.40E-01	**1.1**	8/31/1998	1 U	3/8/2000	**1**	12/12/2004	**1**	12/12/2004
SEMI-VOLATILES (µg/L)									
bis(2-Ethylhexyl) Phthalate	6.00E+00	**--**	--	**--**	--	**--**	--	**--**	--
DISSOLVED METALS (mg/L)									
Aluminum	1.60E+01	**--**	--	**--**	--	**--**	--	**--**	--
Arsenic	8.00E-03	ND	--	0.001 U	3/28/1997	**0.001**	3/28/1997	**0.001**	3/28/1997
Barium	2.00E+00	**0.007**	3/28/1997	**0.007**	3/28/1997	**0.006**	3/28/1997	**0.006**	3/28/1997
Calcium	NA	**--**	--	**--**	--	**--**	--	**--**	--
Chromium, Hexavalent	4.80E-02	**--**	--	**--**	--	**--**	--	**--**	--
Lead	1.50E-02	ND	--	0.001 U	3/28/1997	ND	--	0.001 U	3/28/1997
Magnesium	NA	**--**	--	**--**	--	**--**	--	**--**	--
Manganese	2.24E+00	**--**	--	**--**	--	**--**	--	**--**	--
Potassium	NA	**--**	--	**--**	--	**--**	--	**--**	--
Sodium	NA	**--**	--	**--**	--	**--**	--	**--**	--
Vanadium	8.00E-02	**--**	--	**--**	--	**--**	--	**--**	--
Zinc	4.80E+00	**--**	--	**--**	--	**--**	--	**--**	--
PETROLEUM HYDROCARBONS (mg/L)									
Diesel-Range Organics	5.00E-01	ND	--	0.25 U	3/8/2000	ND	--	0.25 U	12/12/2004

Table 6-48
AOC A-04 Groundwater Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

	Sample Location:	AGW078			
Detected Analyte	Screening Level	Max	Date	Most Recent	Date
VOLATILES (µg/L)					
1,1,1-Trichloroethane	2.00E+02	ND	--	0.5 U	6/3/2015
Acetone	7.20E+03	**2.7**	12/6/2004	5.0 U	6/3/2015
Bromodichloromethane	7.06E-01	**0.3**	11/29/2001	0.5 U	6/3/2015
Tetrachloroethene	5.00E+00	**2.2**	5/21/2001	**0.22**	6/3/2015
Trichloroethene	5.40E-01	**1.5**	8/31/1998	0.2 U	6/3/2015
SEMI-VOLATILES (µg/L)					
bis(2-Ethylhexyl) Phthalate	6.00E+00	**1.2**	5/15/2002	**1.2**	5/15/2002
DISSOLVED METALS (mg/L)					
Aluminum	1.60E+01	**0.02**	3/24/1998	0.05 U	6/9/2004
Arsenic	8.00E-03	**0.001**	11/29/2001	0.001 U	12/6/2004
Barium	2.00E+00	**0.006**	3/28/1997	**0.004**	12/6/2004
Calcium	NA	**22**	11/6/2000	**21.4**	6/9/2004
Chromium, Hexavalent	4.80E-02	**0.022 J**	6/9/2004	0.011 U	12/6/2004
Lead	1.50E-02	**0.001**	6/9/2004	0.001 U	12/6/2004
Magnesium	NA	**6.54**	11/6/2000	**6**	6/9/2004
Manganese	2.24E+00	**0.001**	3/24/1998	0.001 U	12/6/2004
Potassium	NA	**3**	6/9/2004	**3**	6/9/2004
Sodium	NA	**8.3**	6/9/2004	**8.3**	6/9/2004
Vanadium	8.00E-02	**0.003**	2/15/1999	0.003 U	12/6/2004
Zinc	4.80E+00	**0.021**	8/31/1998	0.006 U	12/6/2004
PETROLEUM HYDROCARBONS (mg/L)					
Diesel-Range Organics	5.00E-01	**0.28**	5/15/2002	0.25 U	12/6/2004

Table 6-49
AOC A-06 Groundwater Statistics
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Screening Level	# of Screening Level Exceedances	# of Results	# of Detects	Max of Detected Results	Min of Detected Results
VOLATILES (µg/L)						
Acetone	7.20E+03	0	67	3	8.4	1.8
Chloromethane	NA	NA	67	4	0.8	0.3
Tetrachloroethene	5.00E+00	0	67	20	0.5	0.044
Trichloroethene	5.40E-01	2	69	3	1.16	0.2
Trichlorofluoromethane	2.40E+03	0	67	21	3	0.2
Vinyl Chloride	2.90E-02	6	67	6	0.17	0.05
DISSOLVED METALS (mg/L)						
Arsenic	8.00E-03	0	6	1	0.001	0.001
Copper	6.40E-01	0	2	2	0.002	0.002
Silver	8.00E-02	0	2	1	0.006	0.006
Zinc	4.80E+00	0	2	1	0.004	0.004

Table 6-50
AOC A-06 Groundwater Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

	Sample Location:	AGW020				AGW021			
Detected Analyte	Screening Level	Max	Date	Most Recent	Date	Max	Date	Most Recent	Date
VOLATILES (µg/L)									
Acetone	7.20E+03	**1.8**	9/8/1997	5 U	11/25/2014	ND	--	5 U	3/11/1997
Chloromethane	NA	ND	--	0.5 U	11/25/2014	ND	--	2 UJ	3/11/1997
Tetrachloroethene	5.00E+00	**0.049**	7/28/2014	0.2 U	11/25/2014	ND	--	1 U	3/11/1997
Trichloroethene	5.40E-01	ND	--	0.2 U	11/25/2014	**1.05**	2/8/1994	1 U	3/11/1997
Trichlorofluoromethane	2.40E+03	**3**	3/11/1997	**1.1**	11/25/2014	ND	--	2 UJ	3/11/1997
Vinyl Chloride	2.90E-02	ND	--	0.020 U	11/25/2014	ND	--	2 UJ	3/11/1997
DISSOLVED METALS (mg/L)									
Arsenic	8.00E-03	ND	--	0.001 U	9/8/1997	ND	--	0.001 U	12/7/1995
Copper	6.40E-01	**0.002**	9/8/1997	0.002	9/8/1997	--	--	--	--
Silver	8.00E-02	**0.006**	9/8/1997	0.006	9/8/1997	--	--	--	--
Zinc	4.80E+00	ND	--	0.004 U	9/8/1997	--	--	--	--

	Sample Location:	AGW022				AGW023			
Detected Analyte	Screening Level	Max	Date	Most Recent	Date	Max	Date	Most Recent	Date
VOLATILES (µg/L)									
Acetone	7.20E+03	ND	--	5 U	3/11/1997	ND	--	5 U	3/8/2000
Chloromethane	NA	ND	--	2 U	3/11/1997	**0.3**	9/8/1997	1 U	3/8/2000
Tetrachloroethene	5.00E+00	ND	--	1 U	3/11/1997	ND	--	1 U	3/8/2000
Trichloroethene	5.40E-01	ND	--	1 U	3/11/1997	**1.16**	2/8/1994	1 U	3/8/2000
Trichlorofluoromethane	2.40E+03	ND	--	2 U	3/11/1997	**2.1**	9/25/1996	1 U	3/8/2000
Vinyl Chloride	2.90E-02	ND	--	2 U	3/11/1997	ND	--	1 U	3/8/2000
DISSOLVED METALS (mg/L)									
Arsenic	8.00E-03	ND	--	0.001 U	12/7/1995	**0.001**	9/8/1997	0.001	9/8/1997
Copper	6.40E-01	--	--	--	--	**0.002**	9/8/1997	0.002	9/8/1997
Silver	8.00E-02	--	--	--	--	ND	--	0.003 U	9/8/1997
Zinc	4.80E+00	--	--	--	--	**0.004**	9/8/1997	0.004	9/8/1997

	Sample Location:	AGW132				AGW133-35			
Detected Analyte	Screening Level	Max	Date	Most Recent	Date	Max	Date	Most Recent	Date
VOLATILES (µg/L)									
Acetone	7.20E+03	ND	--	5 U	6/9/2009	**3.7**	9/9/2008	**3.7**	9/9/2008
Chloromethane	NA	**0.8**	10/1/2008	0.5 U	6/9/2009	ND	--	0.2 U	9/9/2008
Tetrachloroethene	5.00E+00	**0.4**	6/9/2009	**0.4**	6/9/2009	ND	--	0.2 U	9/9/2008
Trichloroethene	5.40E-01	ND	--	0.2 U	6/9/2009	ND	--	0.2 U	9/9/2008
Trichlorofluoromethane	2.40E+03	ND	--	0.2 U	6/9/2009	ND	--	0.2 U	9/9/2008
Vinyl Chloride	2.90E-02	**0.1**	6/9/2009	**0.1**	6/9/2009	ND	--	0.2 U	9/9/2008
DISSOLVED METALS (mg/L)									
Arsenic	8.00E-03	--	--	--	--	--	--	--	--
Copper	6.40E-01	--	--	--	--	--	--	--	--
Silver	8.00E-02	--	--	--	--	--	--	--	--
Zinc	4.80E+00	--	--	--	--	--	--	--	--

Table 6-50
AOC A-06 Groundwater Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

Sample Location:		AGW133-45				AGW133			
Detected Analyte	Screening Level	Max	Date	Most Recent	Date	Max	Date	Most Recent	Date
VOLATILES (µg/L)									
Acetone	7.20E+03	ND	--	3 U	9/9/2008	ND	--	5.0 U	6/3/2015
Chloromethane	NA	**0.4**	9/9/2008	**0.4**	9/9/2008	**0.6**	10/1/2008	0.5 U	6/3/2015
Tetrachloroethene	5.00E+00	ND	--	0.2 U	9/9/2008	**0.5**	6/9/2009	**0.4**	6/3/2015
Trichloroethene	5.40E-01	ND	--	0.2 U	9/9/2008	ND	--	0.2 U	6/3/2015
Trichlorofluoromethane	2.40E+03	ND	--	0.2 U	9/9/2008	ND	--	0.5 U	6/3/2015
Vinyl Chloride	2.90E-02	ND	--	0.2 U	9/9/2008	**0.13**	6/9/2009	0.020 U	6/3/2015
DISSOLVED METALS (mg/L)									
Arsenic	8.00E-03	**--**	--	**--**	--	**--**	--	**--**	--
Copper	6.40E-01	**--**	--	**--**	--	**--**	--	**--**	--
Silver	8.00E-02	**--**	--	**--**	--	**--**	--	**--**	--
Zinc	4.80E+00	**--**	--	**--**	--	**--**	--	**--**	--

Sample Location:		AGW153			
Detected Analyte	Screening Level	Max	Date	Most Recent	Date
VOLATILES (µg/L)					
Acetone	7.20E+03	**8.4**	10/29/2009	5.0 U	6/3/2015
Chloromethane	NA	ND	--	0.5 U	6/3/2015
Tetrachloroethene	5.00E+00	**0.2**	6/23/2014	0.2 U	6/3/2015
Trichloroethene	5.40E-01	ND	--	0.2 U	6/3/2015
Trichlorofluoromethane	2.40E+03	ND	--	0.5 U	6/3/2015
Vinyl Chloride	2.90E-02	**0.17**	10/29/2009	0.020 U	6/3/2015
DISSOLVED METALS (mg/L)					
Arsenic	8.00E-03	**--**	--	**--**	--
Copper	6.40E-01	**--**	--	**--**	--
Silver	8.00E-02	**--**	--	**--**	--
Zinc	4.80E+00	**--**	--	**--**	--

Table 6-51
AOC A-07 Groundwater Statistics
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Screening Level	# of Screening Level Exceedances	# of Results	# of Detects	Max of Detected Results	Min of Detected Results
VOLATILES (µg/L)						
1,1,1-Trichloroethane	2.00E+02	0	13	1	0.2	0.2
1,1-Dichloroethane	7.68E+00	0	13	3	0.6	0.3
1,2-Dichloroethane	4.81E-01	5	14	6	1.33	0.4
Acetone	7.20E+03	0	13	1	2.5	2.5
cis-1,2-Dichloroethene	1.60E+01	0	13	3	0.8	0.2
Tetrachloroethene	5.00E+00	0	13	4	0.9	0.2
Trichloroethene	5.40E-01	13	15	14	4.8	0.4
Trichlorofluoromethane	2.40E+03	0	13	1	0.2	0.2
DISSOLVED METALS (mg/L)						
Arsenic	8.00E-03	0	1	1	0.001	0.001

Table 6-52
AOC A-07 Groundwater Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

	Sample Location:	AGW018			
Detected Analyte	Screening Level	Max	Date	Most Recent	Date
VOLATILES (µg/L)					
1,1,1-Trichloroethane	2.00E+02	**0.2**	9/8/1997	0.2 U	5/23/2003
1,1-Dichloroethane	7.68E+00	**0.6**	9/8/1997	0.2 U	5/23/2003
1,2-Dichloroethane	4.81E-01	**1.33 J**	2/10/1994	0.2 U	5/23/2003
Acetone	7.20E+03	**2.5**	5/23/2003	**2.5**	5/23/2003
cis-1,2-Dichloroethene	1.60E+01	**0.8**	3/24/1998	0.2 U	5/23/2003
Tetrachloroethene	5.00E+00	**0.9**	9/8/1997	**0.2**	5/23/2003
Trichloroethene	5.40E-01	**4.8**	12/19/1996	**0.4**	5/23/2003
Trichlorofluoromethane	2.40E+03	**0.2**	2/15/1999	0.2 U	5/23/2003
DISSOLVED METALS (mg/L)					
Arsenic	8.00E-03	**0.001**	12/7/1995	**0.001**	12/7/1995

Table 6-53
AOC A-09 Soil Statistics
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Screening Level	# of Screening Level Exceedances	# of Results	# of Detects	Max of Detected Results	Min of Detected Results
TOTAL METALS (mg/kg)						
Aluminum	8.00E+04	0	47	47	23100	7170
Arsenic	7.00E+00	0	11	11	4.3	1.3
Barium	1.60E+04	0	11	11	69.1	32.3
Beryllium	1.60E+02	0	11	11	0.2	0.2
Cadmium	1.00E+00	15	47	31	642	0.2
Calcium	NA	NA	11	11	22200	5260
Chromium, Hexavalent	1.84E+01	0	35	2	0.49	0.45
Chromium, Total	1.20E+05	0	47	47	89.2	10.9
Cobalt	NA	NA	11	11	7.9	5.3
Copper	2.84E+02	3	47	47	619	9.6
Iron	5.60E+04	0	11	11	22400	13400
Lead	2.50E+02	1	47	43	615	2
Magnesium	NA	NA	11	11	5850	2920
Manganese	1.12E+04	0	47	47	480	89.5
Nickel	1.30E+02	0	47	47	37	5
Potassium	NA	NA	11	11	1140	630
Sodium	NA	NA	11	11	1050	787
Titanium	NA	NA	36	36	1370	777
Vanadium	4.00E+02	0	11	11	51.1	40.3
Zinc	2.40E+04	0	47	47	191	20.8
CYANIDE (mg/kg)						
Cyanide, Post Chlorination	NA	0	16	12	530	0.33
Cyanide	4.80E+01	8	46	35	350	0.28

Table 6-54
AOC A-09 Soil Results - Detections
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Sample Location: / Screening Level	AGR07-HA1-1 9/12/1996	AGR07-HA1-3 9/12/1996	AGR07-HA1-6.5 9/12/1996	AGR07-HA2-3.75 9/13/1996	AGR07-HA2-6.0 9/13/1996	AGR07-HA3-2.5 9/13/1996	AGR07-SC4A-0-0.7 12/22/1997	AGR07-SC4A-1-1.5 12/22/1997	AGR07-SC4B-0-0.5 12/22/1997	AGR07-SC4B-1-1.5 12/22/1997	AGR07-SC4C-0-0.5 12/22/1997	AGR07-SC4C-1-1.5 12/22/1997	AGR07-SC4D-0-0.5 12/22/1997	AGR07-SC4D-1-1.5 12/22/1997	AGR07-SC4E-0-0.5 12/22/1997
TOTAL METALS (mg/kg)																
Aluminum	8.00E+04	**13400**	**16000**	**13800**	**17500**	**17500**	**14100**	**15200**	**13600**	**12800**	**12800**	**13800**	**12800**	**13400**	**10700**	**17500**
Arsenic	7.00E+00	--	--	--	--	--	--	**3.5**	**2.1**	**4.3**	**2.2**	**1.9**	**3**	**4**	**1.3**	**2.2**
Barium	1.60E+04	--	--	--	--	--	--	**49.9**	**47.7**	**36.7**	**34.6**	**42.5**	**69.1**	**40.6**	**32.3**	**50.4**
Beryllium	1.60E+02	--	--	--	--	--	--	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**
Cadmium	1.00E+00	0.2 U	0.2 U	**248**	**0.3**	0.2 U	**0.3**	**0.4**	**0.2**	**0.4**	0.2 U	0.2 U	0.2 U	**0.2**	0.2 U	0.2 U
Calcium	NA	--	--	--	--	--	--	**22200**	**9240**	**8670**	**6370**	**6790**	**5970**	**7080**	**5260**	**8890**
Chromium, Hexavalent	1.84E+01	0.22 U	0.21 U	0.24 U	0.24 U	0.24 U	0.22 U	--	--	--	--	--	--	--	--	--
Chromium, Total	1.20E+05	**20.7**	**22.2**	**89.2**	**21.4**	**20.6**	**35.3**	**27.9**	**18.1**	**20.6**	**15.3**	**20.5**	**26.6**	**17.9**	**14.7**	**16.9**
Cobalt	NA	--	--	--	--	--	--	**6.3**	**5.8**	**6.8**	**5.5**	**5.9**	**6.3**	**7.1**	**5.3**	**7.9**
Copper	2.84E+02	**19.2**	**26.5**	**378**	**21.9**	**385**	**32.9**	**21.7**	**16.7**	**22.4**	**19.2**	**20.8**	**23.4**	**21.2**	**17.1**	**22.6**
Iron	5.60E+04	--	--	--	--	--	--	**18200**	**15000**	**14800**	**14200**	**17600**	**17500**	**16500**	**13400**	**22400**
Lead	2.50E+02	**6**	**5**	2 U	**5**	**5**	**74**	**5.8**	**4.1**	**6.5**	**3.1**	**3.8**	**6.2**	**5.8**	**2.6**	**3.8**
Magnesium	NA	--	--	--	--	--	--	**4170**	**3330**	**3320**	**3930**	**4600**	**3500**	**3930**	**2920**	**5850**
Manganese	1.12E+04	**196**	**265**	**132**	**264**	**184**	**220**	**222**	**171**	**218**	**184**	**248**	**204**	**207**	**166**	**317**
Nickel	1.30E+02	**14**	**17**	**27**	**14**	**31**	**12**	**14**	**13**	**13**	**12**	**16**	**13**	**13**	**10**	**16**
Potassium	NA	--	--	--	--	--	--	**1060**	**760**	**710**	**640**	**1090**	**1130**	**780**	**640**	**1140**
Sodium	NA	--	--	--	--	--	--	**895**	**938**	**909**	**962**	**787**	**897**	**862**	**787**	**1050**
Titanium	NA	**964**	**994**	**897**	**1050**	**1140**	**947**	--	--	--	--	--	--	--	--	--
Vanadium	4.00E+02	--	--	--	--	--	--	**47.9**	**45.6**	**42.4**	**43.7**	**40.3**	**48.1**	**43.1**	**44**	**50**
Zinc	2.40E+04	**33.6**	**35.3**	**27**	**38.3**	**35**	**191**	**42.3**	**31.5**	**36.1**	**28**	**33.8**	**34.6**	**32.7**	**27.6**	**39.2**
CYANIDE (mg/kg)																
Cyanide, Post Chlorination	NA	**1.4**	**0.36**	**89**	**1.9**	**390**	0.21 U	--	--	--	--	--	--	--	--	--
Cyanide	4.80E+01	0.21 U	0.21 U	**62**	**1.6**	**200**	0.21 U	**0.34**	**0.4**	**0.34**	**0.34**	**0.32**	**0.39**	**0.33**	**0.28**	**0.32**

Table 6-54
AOC A-09 Soil Results - Detections
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Sample Location: / Screening Level	AGR07-SC4E-1-1.5 12/22/1997	AGR07-SC4E-1.5-2 12/22/1997	AGW046-5 9/13/1996	AGW046-15 9/13/1996	AGW048-5 9/13/1996	AGW048-15 9/13/1996	AGW049-2 9/13/1996	AGW049-7.5 9/13/1996	AGW049-10 9/13/1996	AGW049-12.5 9/13/1996	AGW050-5 9/12/1996	AGW050-13 9/12/1996	CB2-AU-17-07-22 7/31/1996	CS2-AU/17-07-11 7/30/1996	CS2-AU/17-07-19 7/31/1996	P2-AU/17-07-16 7/30/1996
TOTAL METALS (mg/kg)																	
Aluminum	8.00E+04	**13300**	**13700**	**11600**	**9610**	**14800**	**7170**	**14500**	**14300**	**12800**	**9690**	**14700**	**10300**	**7570**	**14300**	**12800**	**15200**
Arsenic	7.00E+00	**3.4**	**3.2**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	1.60E+04	**45.5**	**43.1**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	1.60E+02	**0.2**	**0.2**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	1.00E+00	**0.3**	0.2 U	0.2 U	0.2 U	0.2 U	**0.3**	0.2 U	**37.8**	**0.5**	0.2 U	**0.3**	**0.5**	**0.3**	**0.8**	**642**	**492**
Calcium	NA	**7510**	**7590**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium, Hexavalent	1.84E+01	--	--	0.23 U	0.24 U	0.22 U	0.26 U	0.21 U	0.23 U	0.23 U	0.21 U	0.22 U	0.21 U	0.24 U	0.25 U	0.25 U	**0.49**
Chromium, Total	1.20E+05	**26**	**15**	**15.6**	**15.3**	**17.4**	**17.7**	**23.9**	**37.5**	**22.3**	**17**	**16.4**	**25.8**	**10.9**	**16**	**15.6**	**22.3**
Cobalt	NA	**6**	**5.3**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	2.84E+02	**18.1**	**18**	**12.4**	**11.6**	**20.3**	**11.8**	**19.4**	**242**	**619**	**123**	**17.2**	**15.2**	**9.6**	**28**	**81.5**	**94.3**
Iron	5.60E+04	**14300**	**14400**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	2.50E+02	**10**	**8**	**5**	**3**	**6**	2 U	**6**	**5**	**5**	2 U	**4**	**2**	2 U	**10**	**5**	**4**
Magnesium	NA	**3280**	**3010**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	1.12E+04	**183**	**192**	**185**	**126**	**229**	**109**	**233**	**160**	**162**	**115**	**206**	**144**	**89.5**	**160**	**115**	**171**
Nickel	1.30E+02	**13**	**12**	**9**	**8**	**11**	**5**	**19**	**37**	**30**	**17**	**11**	**11**	**7**	**12**	**10**	**22**
Potassium	NA	**690**	**630**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	NA	**1020**	**928**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Titanium	NA	--	--	**923**	**922**	**1010**	**1050**	**1050**	**973**	**966**	**908**	**984**	**950**	**777**	**1030**	**917**	**993**
Vanadium	4.00E+02	**47.7**	**51.1**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	2.40E+04	**38.1**	**32.1**	**25.3**	**25.6**	**31.8**	**25.9**	**33.4**	**31.3**	**29.5**	**22.8**	**32**	**26.8**	**20.8**	**35.3**	**42.2**	**43.5**
CYANIDE (mg/kg)																	
Cyanide, Post Chlorination	NA	--	--	**0.86**	0.23 U	**0.33**	**0.7**	0.21 U	**530**	**21**	**1.7**	**0.38**	0.21 U	--	--	--	--
Cyanide	4.80E+01	**0.43**	**0.29**	0.23 U	0.24 U	0.22 U	**0.76**	0.2 U	**350**	**19**	**0.53**	0.22 U	0.21 U	**0.59**	**1**	**200**	**73**

Table 6-54
AOC A-09 Soil Results - Detections
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Sample Location: / Screening Level	PAU/17-07-24 8/1/1996	PAU/17-07-25 8/1/1996	PAU/17-07-39 8/1/1996	PAU/17-07-40 8/1/1996	PAU/17-07-41 8/1/1996	PAU/17-07-42 8/1/1996	PAU/17-07-43 8/1/1996	PAU/17-07-44 8/1/1996	PAU/17-07-45 8/6/1996	PAU/17-07-46 8/6/1996	PAU/17-07-47 8/6/1996	S2-AU/17-07-12 7/30/1996	VS2-AU/17-07-17 7/31/1996	VS2-AU/17-07-18 7/31/1996	VS2-AU/17-07-20 7/31/1996	VS2-AU/17-07-21 7/31/1996
TOTAL METALS (mg/kg)																	
Aluminum	8.00E+04	**9650**	**14900**	**15300**	**21700**	**10300**	**15100**	**21200**	**19000**	**23000**	**14100**	**13500**	**12000**	**12400**	**23100**	**17500**	**20300**
Arsenic	7.00E+00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	1.60E+04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	1.60E+02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	1.00E+00	0.2 U	**124**	**163**	**146**	**84**	**1.5**	**0.5**	0.2 U	**148**	**15**	**0.4**	**353**	**1**	**169**	**77.9**	**224**
Calcium	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium, Hexavalent	1.84E+01	0.23 U	0.23 U	**0.45**	0.22 U	0.22 U	0.23 U	0.25 U	0.24 U	0.22 U	0.33 U	0.27 U	0.23 U	0.22 U	0.22 U	0.23 U	0.22 U
Chromium, Total	1.20E+05	**18.5**	**35.2**	**38.1**	**36.5**	**15.7**	**21.2**	**19.6**	**16.3**	**29.4**	**16.7**	**15.9**	**20.7**	**14.8**	**30.1**	**41.3**	**28.2**
Cobalt	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	2.84E+02	**13.2**	**64**	**35.4**	**90.6**	**80**	**19.8**	**36.6**	**21.2**	**131**	**102**	**21.4**	**181**	**16**	**108**	**22.6**	**93.5**
Iron	5.60E+04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	2.50E+02	**3**	**42**	**127**	**11**	**3**	**6**	**8**	**8**	**5**	**8**	**7**	**16**	**3**	**6**	**615**	**8**
Magnesium	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	1.12E+04	**103**	**220**	**221**	**302**	**165**	**208**	**196**	**177**	**332**	**263**	**343**	**156**	**187**	**480**	**256**	**310**
Nickel	1.30E+02	**8**	**18**	**16**	**28**	**9**	**13**	**15**	**13**	**32**	**15**	**11**	**17**	**14**	**36**	**21**	**25**
Potassium	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Titanium	NA	**1090**	**1010**	**961**	**1180**	**839**	**1010**	**1220**	**1140**	**1200**	**872**	**957**	**950**	**1030**	**1370**	**1100**	**1030**
Vanadium	4.00E+02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	2.40E+04	**25.4**	**42.5**	**47.6**	**65.6**	**21.3**	**38.2**	**39.4**	**31.9**	**48.1**	**31.4**	**27.9**	**36**	**27.7**	**49.5**	**37.3**	**42.9**
CYANIDE (mg/kg)																	
Cyanide, Post Chlorination	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanide	4.80E+01	0.22 U	**110**	**77**	**28**	**41**	**2.9**	**0.44**	0.22 U	**5.3**	**18**	0.24 U	**75**	**2.2**	**16**	**21**	**13**

Table 6-55
AOC A-09 Groundwater Statistics
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Screening Level	# of Screening Level Exceedances	# of Results	# of Detects	Max of Detected Results	Min of Detected Results
VOLATILES (µg/L)						
Acetone	7.20E+03	0	15	1	6.8	6.8
Chloroform	1.41E+00	1	15	2	1.6	1.2
Chloromethane	NA	NA	15	1	0.7	0.7
cis-1,2-Dichloroethene	1.60E+01	0	15	12	1.6	0.2
Tetrachloroethene	5.00E+00	0	15	5	0.068	0.054
Trichloroethene	5.40E-01	13	15	13	4.9	1
DISSOLVED METALS (mg/L)						
Aluminum	3.50E+01	0	20	12	2.32	0.02
Arsenic	8.00E-03	2	22	13	0.014	0.001
Barium	2.00E+00	0	20	20	0.113	0.007
Beryllium	4.00E-03	0	22	1	0.002	0.002
Cadmium	5.00E-03	53	88	82	0.545	0.002
Calcium	NA	NA	15	15	60.5	7.75
Chromium, Hexavalent	4.80E-02	1	14	1	0.13	0.13
Chromium, Total	1.00E-01	2	27	13	0.263	0.005
Cobalt	NA	NA	15	7	0.083	0.005
Copper	6.40E-01	8	27	24	28.3	0.004
Lead	1.50E-02	0	27	3	0.006	0.003
Magnesium	NA	NA	19	19	12.7	1.86
Manganese	2.24E+00	0	25	25	1.57	0.003
Mercury	2.00E-03	1	22	7	0.0036	0.0002
Nickel	1.00E-01	15	76	48	2.06	0.007
Potassium	NA	NA	15	15	10.6	3.7
Silver	8.00E-02	0	22	3	0.015	0.003
Sodium	NA	NA	15	15	543	12.2
Titanium	NA	NA	5	2	0.478	0.026
Vanadium	8.00E-02	1	20	18	0.432	0.003
Zinc	4.80E+00	0	27	7	1.18	0.007
CYANIDE (mg/L)						
Cyanide	9.60E-03	25	29	27	0.93	0.008

Table 6-56
AOC A-09 Groundwater Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

Sample Location:		AGW046				AGW047			
Detected Analyte	Screening Level	Max	Date	Most Recent	Date	Max	Date	Most Recent	Date
VOLATILES (µg/L)									
Acetone	7.20E+03	ND	--	5 U	9/29/2010	ND	--	5 U	9/29/2010
Chloroform	1.41E+00	ND	--	0.2 U	9/29/2010	ND	--	0.2 U	9/29/2010
Chloromethane	NA	ND	--	0.5 U	9/29/2010	ND	--	0.5 U	9/29/2010
cis-1,2-Dichloroethene	1.60E+01	**1.5**	3/19/1997	**0.6**	9/29/2010	**1.4**	12/13/1996	**0.3**	9/29/2010
Tetrachloroethene	5.00E+00	**0.054**	9/29/2010	**0.054**	9/29/2010	**0.062**	9/29/2010	**0.062**	9/29/2010
Trichloroethene	5.40E-01	**2.9**	12/13/1996	**1.2**	9/29/2010	**3.3**	3/19/1997	**1**	9/29/2010
DISSOLVED METALS (mg/L)									
Aluminum	1.60E+01	**0.02**	9/26/1996	0.05 U	6/16/2004	**0.04**	9/26/1996	0.05 U	6/16/2004
Arsenic	8.00E-03	**0.003**	12/10/2004	**0.003**	12/10/2004	**0.002**	12/10/2004	**0.002**	12/10/2004
Barium	2.00E+00	**0.017**	6/16/2004	**0.012**	12/10/2004	**0.013**	8/31/1999	**0.007**	12/10/2004
Beryllium	4.00E-03	ND	--	0.001 U	12/10/2004	ND	--	0.001 U	12/10/2004
Cadmium	5.00E-03	ND	--	0.002 U	12/10/2004	**0.008**	9/10/1997	0.002 U	12/10/2004
Calcium	NA	**26.4**	6/16/2004	**26.4**	6/16/2004	**44.4**	2/22/1999	**37.7**	6/16/2004
Chromium, Hexavalent	4.80E-02	ND	--	0.01 U	9/26/1996	ND	--	0.01 U	3/13/2000
Chromium, Total	1.00E-01	ND	--	0.005 U	12/10/2004	ND	--	0.005 U	12/10/2004
Cobalt	NA	**0.005**	6/16/2004	**0.005**	6/16/2004	ND	--	.003 U	6/16/2004
Copper	6.40E-01	ND	--	0.002 U	12/10/2004	**0.012**	9/26/1996	**0.005**	12/10/2004
Lead	1.50E-02	ND	--	0.001 U	12/10/2004	ND	--	0.001 U	12/10/2004
Magnesium	NA	**7.37**	6/16/2004	**7.37**	6/16/2004	**10.7**	2/22/1999	**8.73**	6/16/2004
Manganese	2.24E+00	**0.939**	9/26/1996	**0.575**	12/10/2004	**0.39**	9/26/1996	**0.143**	12/10/2004
Mercury	2.00E-03	ND	--	0.0001 U	12/10/2004	ND	--	0.0001 U	12/10/2004
Nickel	1.00E-01	ND	--	0.01 U	12/10/2004	ND	--	0.01 U	12/10/2004
Potassium	NA	**5.3**	6/16/2004	**5.3**	6/16/2004	**4.7**	3/26/1998	**4.5**	6/16/2004
Silver	8.00E-02	ND	--	0.003 U	12/10/2004	**0.003**	3/13/2000	0.003 U	12/10/2004
Sodium	NA	**12.2**	6/16/2004	**12.2**	6/16/2004	**21.2**	3/26/1998	**15.3**	6/16/2004
Titanium	NA	ND	--	.005 U	9/26/1996	ND	--	.005 U	9/26/1996
Vanadium	8.00E-02	**0.004**	12/10/2004	**0.004**	12/10/2004	**0.004**	12/10/2004	**0.004**	12/10/2004
Zinc	4.80E+00	ND	--	0.006 U	12/10/2004	ND	--	0.006 U	12/10/2004
CYANIDE (mg/L)									
Cyanide	9.60E-03	**--**	--	**--**	--	**0.3**	2/22/1999	**0.074**	3/13/2000

Table 6-56
AOC A-09 Groundwater Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

Sample Location:		AGW048				AGW049			
Detected Analyte	Screening Level	Max	Date	Most Recent	Date	Max	Date	Most Recent	Date
VOLATILES (µg/L)									
Acetone	7.20E+03	ND	--	5 U	9/29/2010	ND	--	5 U	9/29/2010
Chloroform	1.41E+00	ND	--	0.2 U	9/29/2010	ND	--	0.2 U	9/29/2010
Chloromethane	NA	ND	--	0.5 U	9/29/2010	ND	--	0.5 U	9/29/2010
cis-1,2-Dichloroethene	1.60E+01	**1.6**	3/19/1997	**0.5**	9/29/2010	**0.7**	9/29/2010	**0.7**	9/29/2010
Tetrachloroethene	5.00E+00	**0.058**	9/29/2010	**0.058**	9/29/2010	**0.064**	9/29/2010	**0.064**	9/29/2010
Trichloroethene	5.40E-01	**4.9**	3/19/1997	**1.1**	9/29/2010	**1.6**	9/29/2010	**1.6**	9/29/2010
DISSOLVED METALS (mg/L)									
Aluminum	1.60E+01	**0.11**	9/26/1996	0.05 U	6/16/2004	**2.32**	9/26/1996	**0.07**	6/16/2004
Arsenic	8.00E-03	ND	--	0.001 U	12/10/2004	**0.014**	9/10/1997	**0.003**	12/10/2004
Barium	2.00E+00	**0.014**	6/16/2004	**0.01**	12/10/2004	**0.113**	9/3/1998	**0.022**	12/10/2004
Beryllium	4.00E-03	ND	--	0.001 U	12/10/2004	**0.002**	9/10/1997	0.001 U	12/10/2004
Cadmium	5.00E-03	**0.01**	9/26/1996	**0.0038**	6/9/2015	**0.545 J**	9/26/1996	**0.0039**	12/8/2015
Calcium	NA	**36.3**	6/16/2004	**36.3**	6/16/2004	**60.5**	9/3/1998	**7.75**	6/16/2004
Chromium, Hexavalent	4.80E-02	ND	--	0.01 U	9/26/1996	**0.13**	9/3/1998	0.5 U	3/13/2000
Chromium, Total	1.00E-01	**0.005**	9/26/1996	0.005 U	12/10/2004	**0.263**	9/10/1997	**0.007**	12/10/2004
Cobalt	NA	ND	--	0.003 U	6/16/2004	**0.083**	9/3/1998	**0.009**	6/16/2004
Copper	6.40E-01	**0.392**	9/26/1996	**0.01**	12/10/2004	**28.3**	9/10/1997	**1.47**	12/10/2004
Lead	1.50E-02	ND	--	0.001 U	12/10/2004	**0.006**	9/10/1997	0.001 U	12/10/2004
Magnesium	NA	**8.55**	6/16/2004	**8.55**	6/16/2004	**11**	9/3/1998	**1.86**	6/16/2004
Manganese	2.24E+00	**0.293**	9/26/1996	**0.178**	12/10/2004	**1.57**	9/26/1996	**0.306**	12/10/2004
Mercury	2.00E-03	ND	--	0.0001 U	12/10/2004	**0.0036**	9/10/1997	**0.0002**	12/10/2004
Nickel	1.00E-01	**0.03**	9/26/1996	0.0020 U	6/9/2015	**2.06**	9/26/1996	**0.0498**	12/8/2015
Potassium	NA	**4.7**	6/16/2004	**4.7**	6/16/2004	**10.6**	9/3/1998	**3.7**	6/16/2004
Silver	8.00E-02	ND	--	0.003 U	12/10/2004	**0.015**	9/10/1997	0.003 U	12/10/2004
Sodium	NA	**17**	6/16/2004	**17**	6/16/2004	**543**	9/3/1998	**84.2**	6/16/2004
Titanium	NA	**0.026**	9/26/1996	**0.026**	9/26/1996	**0.478**	9/26/1996	**0.478**	9/26/1996
Vanadium	8.00E-02	**0.003**	12/10/2004	**0.003**	12/10/2004	**0.432**	9/3/1998	**0.026**	12/10/2004
Zinc	4.80E+00	ND	--	0.006 U	12/10/2004	**1.18**	9/26/1996	**0.011**	12/10/2004
CYANIDE (mg/L)									
Cyanide	9.60E-03	**--**	--	**--**	--	**0.078**	8/31/1999	**0.022**	3/13/2000

Table 6-56
AOC A-09 Groundwater Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

	Sample Location:	AGW050			
Detected Analyte	Screening Level	Max	Date	Most Recent	Date
VOLATILES (µg/L)					
Acetone	7.20E+03	**6.8**	9/29/2010	**6.8**	9/29/2010
Chloroform	1.41E+00	**1.6**	3/19/1997	0.2 U	9/29/2010
Chloromethane	NA	**0.7**	9/29/2010	**0.7**	9/29/2010
cis-1,2-Dichloroethene	1.60E+01	**1.3**	3/19/1997	**0.2**	9/29/2010
Tetrachloroethene	5.00E+00	**0.068**	9/29/2010	**0.068**	9/29/2010
Trichloroethene	5.40E-01	**3.2**	3/19/1997	**1.1**	9/29/2010
DISSOLVED METALS (mg/L)					
Aluminum	1.60E+01	**0.76**	9/26/1996	0.05 U	6/16/2004
Arsenic	8.00E-03	**0.001**	12/10/2004	**0.001**	12/10/2004
Barium	2.00E+00	**0.023**	6/16/2004	**0.013**	12/10/2004
Beryllium	4.00E-03	ND	--	0.001 U	12/10/2004
Cadmium	5.00E-03	**0.105**	6/16/2011	**0.0169**	12/8/2015
Calcium	NA	**53.8**	6/16/2004	**53.8**	6/16/2004
Chromium, Hexavalent	4.80E-02	ND	--	0.01 U	9/26/1996
Chromium, Total	1.00E-01	**0.009**	6/16/2004	**0.008**	12/10/2004
Cobalt	NA	ND	--	0.003 U	6/16/2004
Copper	6.40E-01	**0.039**	9/26/1996	**0.021**	12/10/2004
Lead	1.50E-02	ND	--	0.001 U	12/10/2004
Magnesium	NA	**12.7**	6/16/2004	**12.7**	6/16/2004
Manganese	2.24E+00	**0.658**	9/26/1996	**0.113**	12/10/2004
Mercury	2.00E-03	ND	--	0.0001 U	12/10/2004
Nickel	1.00E-01	**0.207**	6/24/2014	**0.0189**	12/8/2015
Potassium	NA	**6.4**	6/16/2004	**6.4**	6/16/2004
Silver	8.00E-02	ND	--	0.003 U	12/10/2004
Sodium	NA	**24.9**	6/16/2004	**24.9**	6/16/2004
Titanium	NA	ND	--	0.005 U	9/26/1996
Vanadium	8.00E-02	**0.006**	12/10/2004	**0.006**	12/10/2004
Zinc	4.80E+00	**0.013**	9/26/1996	**0.007**	12/10/2004
CYANIDE (mg/L)					
Cyanide	9.60E-03	**--**	--	**--**	--

Table 6-57
AOC A-10 Soil Statistics
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Screening Level	# of Screening Level Exceedances	# of Results	# of Detects	Max of Detected Results	Min of Detected Results
VOLATILES (µg/kg)						
1,1-Dichloroethane	4.19E+01	0	13	1	2.6	2.6
1,2,4-Trimethylbenzene	NA	NA	11	1	1300	1300
1,3,5-Trimethylbenzene	8.00E+05	0	5	1	370	370
2-Butanone/MEK	4.80E+07	0	13	6	80	18
4-Isopropyltoluene	NA	NA	5	1	100	100
4-Methyl-2-pentanone	6.40E+06	0	13	3	6200	74
Acetone	7.20E+07	0	13	11	2700	5.3
Carbon Disulfide	8.00E+06	0	8	2	2	1
Ethylbenzene	6.05E+03	0	18	3	14	2.5
Isopropylbenzene	8.00E+06	0	5	1	34	34
m-&p-Xylenes	1.46E+04	0	18	6	74	1.9
Methylene Chloride	2.18E+01	2	8	3	240	3.1
Naphthalene	1.60E+06	0	12	2	79	5.1
n-Butylbenzene	4.00E+06	0	5	1	130	130
n-Propylbenzene	8.00E+06	0	5	1	110	110
o-Xylene	1.46E+04	0	18	4	72	2.2
sec-Butylbenzene	8.00E+06	0	5	1	110	110
Toluene	4.65E+03	0	18	7	38	1.2
SEMI-VOLATILES (µg/kg)						
2-Methylnaphthalene	3.20E+05	0	2	2	180	41
Acenaphthene	4.80E+06	0	7	1	5.2	5.2
Anthracene	2.40E+07	0	7	1	15	15
Benzo(a)anthracene	(a)	NA	13	1	200	200
Benzo(a)pyrene	1.37E+02	0	13	2	7.2	3.8
Benzo(b)fluoranthene	(a)	NA	13	5	570	54
Benzo(g,h,i)perylene	NA	NA	7	1	38	38
Benzo(k)fluoranthene	(a)	NA	13	3	100	43
Chrysene	(a)	NA	13	4	18	3.9
Fluoranthene	3.20E+06	0	7	1	76	76
Fluorene	3.20E+06	0	7	2	9.4	6.6
Indeno(1,2,3-cd)pyrene	(a)	NA	13	2	25	2.5
Phenanthrene	NA	NA	7	3	100	26
Pyrene	2.40E+03	0	7	2	82	12
TOTAL METALS (mg/kg)						
Aluminum	8.00E+04	0	6	6	18500	15300
Antimony	5.42E+00	4	16	5	7	5
Barium	1.60E+04	0	6	6	2100	46.2
Beryllium	1.60E+02	0	16	16	0.31	0.1
Cadmium	1.00E+00	0	16	8	0.6	0.2

Table 6-57
AOC A-10 Soil Statistics
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Screening Level	# of Screening Level Exceedances	# of Results	# of Detects	Max of Detected Results	Min of Detected Results
Calcium	NA	NA	6	6	12200	7040
Chromium, Total	1.20E+05	0	16	16	25.2	12.9
Cobalt	NA	NA	6	6	9.1	5.6
Copper	2.84E+02	0	16	16	33.5	10.2
Iron	5.60E+04	0	6	6	21100	16300
Lead	2.50E+02	0	16	16	16	3
Magnesium	NA	NA	6	6	5900	3460
Manganese	1.12E+04	0	6	6	327	253
Mercury	2.09E+00	0	16	2	0.18	0.05
Nickel	1.30E+02	0	16	16	24.1	9
Potassium	NA	NA	6	6	1140	760
Selenium	4.00E+02	0	16	3	8	6
Silver	4.00E+02	0	16	6	0.6	0.3
Sodium	NA	NA	6	6	827	618
Vanadium	4.00E+02	0	6	6	52	43.5
Zinc	2.40E+04	0	16	16	382	21.4
PETROLEUM HYDROCARBONS (mg/kg)						
Diesel-Range Organics	2000 (b)	5	16	11	6900	5.9
Gasoline-Range Organics	100 (b,c)	0	4	4	91	7.4
Oil-Range Organics	2000 (b)	7	16	11	26000	18
EXTRACTABLE PETROLEUM HYDROCARBONS (mg/kg)						
Aliphatic Hydrocarbons C10-C12	NA	NA	10	1	13000	13000
Aliphatic Hydrocarbons C12-C16	NA	NA	5	1	18000	18000
Aliphatic Hydrocarbons C16-C18	NA	NA	5	1	54000	54000
Aliphatic Hydrocarbons C18-C21	NA	NA	5	1	280000	280000
Aliphatic Hydrocarbons C21-C28	NA	NA	5	2	3400000	7100
Aliphatic Hydrocarbons C28-C36	NA	NA	5	1	6200000	6200000
Aliphatic Hydrocarbons, Total	NA	NA	3	3	10000000	7100
Aromatic Hydrocarbons C16-C18	NA	NA	5	1	20000	20000
Aromatic Hydrocarbons C18-C21	NA	NA	5	1	60000	60000
Aromatic Hydrocarbons C21-C28	NA	NA	5	1	430000	430000
Aromatic Hydrocarbons C28-C36	NA	NA	5	1	290000	290000
Aromatic Hydrocarbons C8-C10	NA	NA	5	1	8800	8800
Aromatic Hydrocarbons, Total	NA	NA	2	2	810000	8800
POLYCHLORINATED BIPHENYLS/ PESTICIDES (µg/kg)						
Aroclor 1260	5.00E+02	0	5	1	41	41
Total PCBs	5.00E+02	0	5	1	41	41

Table 6-58
AOC A-10 Soil Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Sample Location: / Screening Level	AGR10-C3A-1 9/14/2001	AGR10-C3B-1.6 9/14/2001	AGR10-C3C-1 9/14/2001	AGR10-C3D-1 9/14/2001	AGR10-C3E-1.6 9/14/2001	AGR10-C3F-1.6 9/14/2001	AGW038-2.5 4/30/1996	AGW038-6.0 4/30/1996	AGW038-8.5 4/30/1996	AGW038-11.0 4/30/1996	AGW039-6.0 4/30/1996	AGW039-8.5 4/30/1996	AGW039-11.0 4/30/1996	AGW040-6.5 4/30/1996	AGW040-8.5 4/30/1996	AGW040-11.0 4/30/1996
VOLATILES (µg/kg)																	
1,1-Dichloroethane	4.19E+01	1 U	1 U	1 U	1 U	1 U	1 U	--	--	--	1.3 U	--	1.1 U	--	--	--	--
1,2,4-Trimethylbenzene	NA	1 U	1 U	1 U	1 U	1 U	1 U	--	--	--	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	8.00E+05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Butanone/MEK	4.80E+07	5.2 U	5.2 U	5 U	5.1 U	5.1 U	5.2 U	--	--	--	**51**	--	**80**	--	--	--	--
4-Isopropyltoluene	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Methyl-2-pentanone	6.40E+06	5.2 U	5.2 U	5 U	5.1 U	5.1 U	5.2 U	--	--	--	**3700**	--	**6200**	--	--	--	--
Acetone	7.20E+07	**6.1**	**9.7**	**6.1**	**6.8**	**13**	**5.3**	--	--	--	**2700**	--	**1400**	--	--	--	--
Carbon Disulfide	8.00E+06	1 U	1 U	1 U	1 U	1 U	1 U	--	--	--	1.3 U	--	**2**	--	--	--	--
Ethylbenzene	6.05E+03	1 U	**2.1**	1 U	1 U	1 U	**2.5**	--	--	--	1.3 U	--	**13**	--	--	--	--
Isopropylbenzene	8.00E+06	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
m-&p-Xylenes	1.46E+04	1 U	**9.7**	1 U	1 U	**1.9**	**11**	--	--	--	**3.2**	--	**71**	--	--	--	--
Methylene Chloride	2.18E+01	3.1 U	**3.1**	3 U	3 U	3.1 U	3.1 U	--	--	--	**240**	--	**130**	--	--	--	--
Naphthalene	1.60E+06	--	--	--	--	--	--	--	--	--	**5.1**	--	42 U	--	--	--	--
n-Butylbenzene	4.00E+06	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Propylbenzene	8.00E+06	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
o-Xylene	1.46E+04	1 U	**3.2**	1 U	1 U	1 U	**3.5**	--	--	--	**2.2**	--	**72**	--	--	--	--
sec-Butylbenzene	8.00E+06	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Toluene	4.65E+03	1 U	**6.9**	1 U	**1.2**	**1.2**	**8.8**	--	--	--	**6.4**	--	**24**	--	--	--	--
SEMI-VOLATILES (µg/kg)																	
2-Methylnaphthalene	3.20E+05	--	--	--	--	--	--	--	--	--	**41**	--	**180**	--	--	--	--
Acenaphthene	4.80E+06	--	--	--	--	--	--	--	--	--	**5.2**	--	45 U	--	--	--	--
Anthracene	2.40E+07	--	--	--	--	--	--	--	--	--	4.2 U	--	45 U	--	--	--	--
Benzo(a)anthracene	(a)	70 U	70 U	70 U	260 U	69 U	100 U	--	--	--	4.2 U	--	45 U	--	--	--	--
Benzo(a)pyrene	1.37E+02	70 U	70 U	70 U	260 U	69 U	100 U	--	--	--	4.2 U	--	45 U	--	--	--	--
Benzo(b)fluoranthene	(a)	70 U	70 U	70 U	260 U	69 U	100 U	--	--	--	4.2 U	--	45 U	--	--	--	--
Benzo(g,h,i)perylene	NA	--	--	--	--	--	--	--	--	--	4.2 U	--	45 U	--	--	--	--
Benzo(k)fluoranthene	(a)	70 U	70 U	70 U	260 U	69 U	100 U	--	--	--	4.2 U	--	45 U	--	--	--	--
Chrysene	(a)	70 U	70 U	70 U	260 U	69 U	100 U	--	--	--	4.2 U	--	45 U	--	--	--	--
Fluoranthene	3.20E+06	--	--	--	--	--	--	--	--	--	4.2 U	--	45 U	--	--	--	--
Fluorene	3.20E+06	--	--	--	--	--	--	--	--	--	**6.6**	--	45 U	--	--	--	--
Indeno(1,2,3-cd)pyrene	(a)	70 U	70 U	70 U	260 U	69 U	100 U	--	--	--	4.2 U	--	45 U	--	--	--	--
Phenanthrene	NA	--	--	--	--	--	--	--	--	--	**26**	--	**100**	--	--	--	--
Pyrene	2.40E+03	--	--	--	--	--	--	--	--	--	**12**	--	45 U	--	--	--	--
TEQ	137	ND	ND	ND	ND	ND	ND	--	--	--	ND	--	ND	--	--	--	--
TOTAL METALS (mg/kg)																	
Aluminum	8.00E+04	**16400**	**17600**	**16500**	**15300**	**18500**	**15600**	--	--	--	--	--	--	--	--	--	--
Antimony	5.42E+00	5 U	**6**	**7**	**6**	**6**	**5**	5 U	5 U	5 U	6 U	6 U	5 U	6 U	8 U	5 U	6 U
Barium	1.60E+04	**61.7**	**77.5**	**46.2**	**2100**	**102**	**271**	--	--	--	--	--	--	--	--	--	--
Beryllium	1.60E+02	**0.3**	**0.31**	**0.28**	**0.3**	**0.29**	**0.28**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.1**	**0.2**	**0.3**	**0.1**	**0.2**
Cadmium	1.00E+00	0.2 U	**0.2**	**0.2**	**0.5**	**0.3**	**0.3**	**0.3**	**0.2**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.6**	0.2 U	0.3 U
Calcium	NA	**7770**	**10300**	**7530**	**7040**	**12200**	**7800**	--	--	--	--	--	--	--	--	--	--

Table 6-58
AOC A-10 Soil Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Sample Location: / Screening Level	AGR10-C3A-1 9/14/2001	AGR10-C3B-1.6 9/14/2001	AGR10-C3C-1 9/14/2001	AGR10-C3D-1 9/14/2001	AGR10-C3E-1.6 9/14/2001	AGR10-C3F-1.6 9/14/2001	AGW038-2.5 4/30/1996	AGW038-6.0 4/30/1996	AGW038-8.5 4/30/1996	AGW038-11.0 4/30/1996	AGW039-6.0 4/30/1996	AGW039-8.5 4/30/1996	AGW039-11.0 4/30/1996	AGW040-6.5 4/30/1996	AGW040-8.5 4/30/1996	AGW040-11.0 4/30/1996
Chromium, Total	1.20E+05	**20.1**	**21.3**	**20.3**	**23.9**	**25.2**	**23**	**16.2**	**13.9**	**14.5**	**15.8**	**14.8**	**13**	**20.7**	**21.2**	**12.9**	**13.3**
Cobalt	NA	**6.1**	**6.4**	**7.2**	**5.6**	**9.1**	**7.7**	--	--	--	--	--	--	--	--	--	--
Copper	2.84E+02	**21.1**	**22.3**	**18.1**	**19.7**	**24.5**	**20.6**	**17**	**15.6**	**15.9**	**16.2**	**13.5**	**10.2**	**23.5**	**33.5**	**12.6**	**18.9**
Iron	5.60E+04	**16300**	**16900**	**18700**	**20100**	**20800**	**21100**	--	--	--	--	--	--	--	--	--	--
Lead	2.50E+02	**5**	**5**	**6**	**3**	**10**	**11**	**7**	**5**	**5**	**5**	**6**	**4**	**5**	**16**	**5**	**4**
Magnesium	NA	**3460**	**3740**	**4740**	**5800**	**5060**	**5900**	--	--	--	--	--	--	--	--	--	--
Manganese	1.12E+04	**253**	**276**	**281**	**299**	**320**	**327**	--	--	--	--	--	--	--	--	--	--
Mercury	2.09E+00	0.05 U	0.04 U	0.04 U	0.04 U	**0.05**	0.04 U	0.05 U	0.05 U	0.05 U	0.06 U	0.05 U	0.05 U	0.05 U	**0.18**	0.05 U	0.06 U
Nickel	1.30E+02	**15**	**17.1**	**19.8**	**22**	**21**	**24.1**	**11**	**10**	**11**	**11**	**10**	**9**	**19**	**15**	**9**	**12**
Potassium	NA	**770**	**1000**	**760**	**1060**	**990**	**1140**	--	--	--	--	--	--	--	--	--	--
Selenium	4.00E+02	5 U	5 U	**8**	5 U	**7**	**6**	5 U	5 U	5 U	6 U	6 U	5 U	6 U	8 U	5 U	6 U
Silver	4.00E+02	**0.6**	**0.4**	**0.3**	**0.5**	**0.5**	**0.4**	0.3 U	0.3 U	0.3 U	0.4 U	0.3 U	0.3 U	0.4 U	0.5 U	0.3 U	0.4 U
Sodium	NA	**827**	**812**	**791**	**618**	**809**	**620**	--	--	--	--	--	--	--	--	--	--
Vanadium	4.00E+02	**44.2**	**43.5**	**52**	**47**	**49.9**	**50.5**	--	--	--	--	--	--	--	--	--	--
Zinc	2.40E+04	**42.1**	**50.7**	**33.6**	**382**	**227**	**106**	**39.4**	**25.5**	**31.1**	**23.2**	**27.2**	**21.4**	**28.2**	**44.4**	**23.2**	**23.4**
PETROLEUM HYDROCARBONS (mg/kg)																	
Diesel-Range Organics	2,000 (b)	**8.8**	**170**	**5.9**	**3400**	**160**	**800**	25 U	**3500**	**6900**	**550**	25 U	**2200**	**620**	25 U	25 U	25 U
Gasoline-Range Organics	100 (b,c)	--	--	--	--	--	--	20 U	20 U	**27**	**7.4**	20 U	**86**	**91**	20 U	20 U	20 U
Oil-Range Organics	2,000 (b)	**42**	**690**	**18**	**6100**	**490**	**2300**	50 U	**12000**	**26000**	**2500**	50 U	**12000**	**2600**	50 U	50 U	50 U
EXTRACTABLE PETROLEUM HYDROCARBONS (µg/kg)																	
Aliphatic Hydrocarbons C10-C12	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aliphatic Hydrocarbons C12-C16	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aliphatic Hydrocarbons C16-C18	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aliphatic Hydrocarbons C18-C21	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aliphatic Hydrocarbons C21-C28	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aliphatic Hydrocarbons C28-C36	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aromatic Hydrocarbons C16-C18	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aromatic Hydrocarbons C18-C21	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aromatic Hydrocarbons C21-C28	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aromatic Hydrocarbons C28-C36	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aromatic Hydrocarbons C8-C10	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
POLYCHLORINATED BIPHENYLS (µg/kg)																	
Aroclor 1260	5.00E+02	--	--	--	--	--	--	--	37 U	110 U	42 U	--	**41**	130 U	--	--	--
Total PCBs	5.00E+02	--	--	--	--	--	--	--	ND	ND	ND	--	**41**	ND	--	--	--

Table 6-58
AOC A-10 Soil Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Sample Location: / Screening Level	ASB0090-10 2/28/2001	ASB0090-14 2/28/2001	ASB0091-14 2/28/2001	ASB0092-7.5 3/1/2001	ASB0092-14 3/1/2001	ASB0093-7.5 3/1/2001
VOLATILES (µg/kg)							
1,1-Dichloroethane	4.19E+01	11 U	**2.6**	1.3 U	--	1.3 U	12 U
1,2,4-Trimethylbenzene	NA	**1300**	1.5 U	1.3 U	--	1.3 U	12 U
1,3,5-Trimethylbenzene	8.00E+05	**370**	1.5 U	1.3 U	--	1.3 U	12 U
2-Butanone/MEK	4.80E+07	55 U	**18**	**25**	--	**28**	**72**
4-Isopropyltoluene	NA	**100**	1.5 U	1.3 U	--	1.3 U	12 U
4-Methyl-2-pentanone	6.40E+06	**74**	7.6 U	6.7 U	--	6.7 U	58 U
Acetone	7.20E+07	**340**	**81**	**140**	--	**130**	380 U
Carbon Disulfide	8.00E+06	--	--	--	--	--	--
Ethylbenzene	6.05E+03	**14**	1.5 U	1.3 U	--	1.3 U	12 U
Isopropylbenzene	8.00E+06	**34**	1.5 U	1.3 U	--	1.3 U	12 U
m-&p-Xylenes	1.46E+04	**74**	1.5 U	1.3 U	--	1.3 U	12 U
Methylene Chloride	2.18E+01	--	--	--	--	--	--
Naphthalene	1.60E+06	**79**	7.6 U	6.7 U	50 U	6.7 U	53 U
n-Butylbenzene	4.00E+06	**130** J	3 U	2.7 U	--	2.7 U	23 U
n-Propylbenzene	8.00E+06	**110**	1.5 U	1.3 U	--	1.3 U	12 U
o-Xylene	1.46E+04	**65**	1.5 U	1.3 U	--	1.3 U	12 U
sec-Butylbenzene	8.00E+06	**110**	1.5 U	1.3 U	--	1.3 U	12 U
Toluene	4.65E+03	**38**	1.5 U	1.3 U	--	1.3 U	12 U
SEMI-VOLATILES (µg/kg)							
2-Methylnaphthalene	3.20E+05	--	--	--	--	--	--
Acenaphthene	4.80E+06	56 U	55 U	65 U	50 U	--	53 U
Anthracene	2.40E+07	**15**	13 U	15 U	12 U	--	12 U
Benzo(a)anthracene	(a)	**200**	1 U	1.2 U	0.95 U	--	1 U
Benzo(a)pyrene	1.37E+02	**7.2**	**3.8**	1.7 U	1.3 U	--	1.4 U
Benzo(b)fluoranthene	(a)	**130**	**570**	**270**	**460**	--	**54**
Benzo(g,h,i)perylene	NA	130 U	**38**	3.6 U	2.8 U	--	3 U
Benzo(k)fluoranthene	(a)	**51**	**100**	**43**	1.1 U	--	19 U
Chrysene	(a)	**18**	**14**	**9.7**	3.3 U	--	**3.9**
Fluoranthene	3.20E+06	**76**	9.8 U	12 U	8.9 U	--	9.5 U
Fluorene	3.20E+06	**9.4**	9.2 U	11 U	8.4 U	--	8.9 U
Indeno(1,2,3-cd)pyrene	(a)	**25**	6.3 U	**2.5**	1.4 U	--	1.5 U
Phenanthrene	NA	**36**	13 U	15 U	12 U	--	12 U
Pyrene	2.40E+03	**82**	5.5 U	6.5 U	5 U	--	5.3 U
TEQ	137	**140**	**576**	**271**	**460**	--	**54**
TOTAL METALS (mg/kg)							
Aluminum	8.00E+04	--	--	--	--	--	--
Antimony	5.42E+00	--	--	--	--	--	--
Barium	1.60E+04	--	--	--	--	--	--
Beryllium	1.60E+02	--	--	--	--	--	--
Cadmium	1.00E+00	--	--	--	--	--	--
Calcium	NA	--	--	--	--	--	--

Table 6-58
AOC A-10 Soil Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Sample Location: / Screening Level	ASB0090-10 2/28/2001	ASB0090-14 2/28/2001	ASB0091-14 2/28/2001	ASB0092-7.5 3/1/2001	ASB0092-14 3/1/2001	ASB0093-7.5 3/1/2001
Chromium, Total	1.20E+05	--	--	--	--	--	--
Cobalt	NA	--	--	--	--	--	--
Copper	2.84E+02	--	--	--	--	--	--
Iron	5.60E+04	--	--	--	--	--	--
Lead	2.50E+02	--	--	--	--	--	--
Magnesium	NA	--	--	--	--	--	--
Manganese	1.12E+04	--	--	--	--	--	--
Mercury	2.09E+00	--	--	--	--	--	--
Nickel	1.30E+02	--	--	--	--	--	--
Potassium	NA	--	--	--	--	--	--
Selenium	4.00E+02	--	--	--	--	--	--
Silver	4.00E+02	--	--	--	--	--	--
Sodium	NA	--	--	--	--	--	--
Vanadium	4.00E+02	--	--	--	--	--	--
Zinc	2.40E+04	--	--	--	--	--	--
PETROLEUM HYDROCARBONS (mg/kg)							
Diesel-Range Organics	2,000 (b)	--	--	--	--	--	--
Gasoline-Range Organics	100 (b,c)	--	--	--	--	--	--
Oil-Range Organics	2,000 (b)	--	--	--	--	--	--
EXTRACTABLE PETROLEUM HYDROCARBONS (µg/kg)							
Aliphatic Hydrocarbons C10-C12	NA	**13000**	5000 U	5000 U	5000 U	--	5000 U
Aliphatic Hydrocarbons C12-C16	NA	**18000**	6500 U	6400 U	6000 U	--	6200 U
Aliphatic Hydrocarbons C16-C18	NA	**54000**	6500 U	6400 U	6000 U	--	6200 U
Aliphatic Hydrocarbons C18-C21	NA	**280000**	6500 U	6400 U	6000 U	--	6200 U
Aliphatic Hydrocarbons C21-C28	NA	**3400000**	**7100**	6400 U	6000 U	--	6200 U
Aliphatic Hydrocarbons C28-C36	NA	**6200000**	6500 U	6400 U	6000 U	--	6200 U
Aromatic Hydrocarbons C16-C18	NA	**20000**	6500 U	6400 U	6000 U	--	6200 U
Aromatic Hydrocarbons C18-C21	NA	**60000**	6500 U	6400 U	6000 U	--	6200 U
Aromatic Hydrocarbons C21-C28	NA	**430000**	6500 U	6400 U	6000 U	--	6200 U
Aromatic Hydrocarbons C28-C36	NA	**290000**	6500 U	6400 U	6000 U	--	6200 U
Aromatic Hydrocarbons C8-C10	NA	**8800**	5000 U	5000 U	5000 U	--	5000 U
POLYCHLORINATED BIPHENYLS (µg/kg)							
Aroclor 1260	5.00E+02	--	--	--	--	--	--
Total PCBs	5.00E+02	--	--	--	--	--	--

Table 6-59
AOC A-10 Groundwater Statistics
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Screening Level	# of Screening Level Exceedances	# of Results	# of Detects	Max of Detected Results	Min of Detected Results
VOLATILES (µg/L)						
1,1-Dichloroethane	7.68E+00	1	41	19	9.5	0.2
1,1-Dichloroethene	7.00E+00	0	41	6	0.078	0.043
2-Butanone/MEK	4.80E+03	0	41	3	51	18
4-Methyl-2-pentanone	6.40E+02	0	41	4	120	16
Acetone	7.20E+03	0	41	7	19	1.1
Carbon Disulfide	8.00E+02	0	41	1	1	1
Chloroethane	NA	NA	41	1	0.3	0.3
Chloroform	1.41E+00	1	41	1	5	5
cis-1,2-Dichloroethene	1.60E+01	0	41	37	2.5	0.4
m-&p-Xylenes	1.60E+03	0	44	2	1	0.5
Methylene Chloride	5.00E+00	0	41	1	0.3	0.3
Naphthalene	1.60E+02	0	12	3	0.42	0.08
o-Xylene	1.60E+03	0	44	1	0.2	0.2
Tetrachloroethene	5.00E+00	0	41	6	0.092	0.034
Toluene	6.40E+02	0	44	2	1	0.9
Trichloroethene	5.40E-01	35	41	36	4	0.5
Vinyl Chloride	2.90E-02	12	41	17	0.06	0.023
SEMI-VOLATILES (µg/L)						
2-Methylnaphthalene	3.20E+01	0	12	3	1.5	0.18
Acenaphthene	9.60E+02	0	12	1	0.12	0.12
Dibenzofuran	1.60E+01	0	6	1	0.24	0.24
Fluorene	6.40E+02	0	12	1	0.18	0.18
Phenanthrene	NA	NA	12	4	0.56	0.06
DISSOLVED METALS (mg/L)						
Arsenic	8.00E-03	11	21	20	0.024	0.001
Barium	2.00E+00	0	4	4	0.016	0.007
Calcium	NA	NA	4	4	53.6	24.4
Chromium, Hexavalent	4.80E-02	0	5	1	0.02	0.02
Magnesium	NA	NA	4	4	16.8	8.74
Manganese	2.24E+00	0	4	4	2.05	1.15
Potassium	NA	NA	4	4	7.9	4
Sodium	NA	NA	4	4	49.6	14.9
PETROLEUM HYDROCARBONS (mg/L)						
Diesel-Range Organics	5.00E-01	8	32	12	9.6	0.32
Gasoline-Range Organics	8.00E-01	0	10	1	0.14	0.14
Oil-Range Organics	5.00E-01	11	32	11	35	0.79

Table 6-60
AOC A-10 Groundwater Results- Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Sample Location: Screening Level	AGW038 Max	AGW038 Date	AGW038 Most Recent	AGW038 Date	AGW039 Max	AGW039 Date	AGW039 Most Recent	AGW039 Date
VOLATILES (µg/L)									
1,1-Dichloroethane	7.68E+00	**9.5 J**	9/27/1996	**0.5**	6/10/2009	**7.4 J**	9/27/1996	0.5 U	6/9/2015
1,1-Dichloroethene	7.00E+00	**0.061**	6/10/2009	**0.061**	6/10/2009	**0.11**	12/15/2008	0.2 U	6/9/2015
2-Butanone/MEK	4.80E+03	**51**	5/3/1996	5 U	6/10/2009	**26**	5/3/1996	5.0 U	6/9/2015
4-Methyl-2-pentanone	6.40E+02	**120 J**	9/27/1996	5 U	6/10/2009	**78 J**	5/3/1996	5.0 U	6/9/2015
Acetone	7.20E+03	**16 J**	5/3/1996	5 U	6/10/2009	**19 J**	5/3/1996	5.0 U	6/9/2015
Carbon Disulfide	8.00E+02	**1**	5/3/1996	0.2 U	6/10/2009	ND	--	0.5 U	6/9/2015
Chloroethane	NA	**0.3**	3/26/1998	0.2 U	6/10/2009	ND	--	0.5 U	6/9/2015
Chloroform	1.41E+00	**5**	5/3/1996	0.2 U	6/10/2009	ND	--	0.2 U	6/9/2015
cis-1,2-Dichloroethene	1.60E+01	**2.5**	3/19/1997	**1.5**	6/10/2009	**2.1**	3/19/1997	**1.1**	6/9/2015
m-&p-Xylenes	1.60E+03	**0.5**	3/26/1998	0.4 U	6/10/2009	ND	--	0.5 U	6/9/2015
Methylene Chloride	5.00E+00	ND	--	0.5 U	6/10/2009	**0.3**	6/15/2004	0.5 U	6/9/2015
Naphthalene	1.60E+02	**0.42**	5/3/1996	0.1 U	12/12/2004	**0.21**	5/3/1996	0.1 U	12/12/2004
o-Xylene	1.60E+03	**0.2**	3/26/1998	0.2 U	6/10/2009	ND	--	0.5 U	6/9/2015
Tetrachloroethene	5.00E+00	ND	--	0.2 U	6/10/2009	ND	--	0.2 U	6/9/2015
Toluene	6.40E+02	**1 J**	9/27/1996	0.2 U	6/10/2009	ND	--	0.2 U	6/9/2015
Trichloroethene	5.40E-01	**2.8**	2/22/1999	**0.6**	6/10/2009	**2**	12/13/1996	**0.5**	6/9/2015
Vinyl Chloride	2.90E-02	**0.052**	6/10/2009	**0.052**	6/10/2009	**0.06**	6/10/2009	**0.03**	6/9/2015
SEMI-VOLATILES (µg/L)									
2-Methylnaphthalene	3.20E+01	**1.5**	5/3/1996	0.1 U	12/12/2004	**0.57**	5/3/1996	0.1 U	12/12/2004
Acenaphthene	9.60E+02	**0.12**	5/3/1996	0.1 U	12/12/2004	ND	--	0.1 U	12/12/2004
Dibenzofuran	1.60E+01	**0.24 J**	5/3/1996	0.1 U	3/13/2000	ND	--	0.1 U	5/3/1996
Fluorene	6.40E+02	**0.18**	5/3/1996	0.1 U	12/12/2004	ND	--	0.1 U	12/12/2004
Phenanthrene	NA	**0.56 J**	5/3/1996	0.1 U	12/12/2004	**0.13**	5/3/1996	0.1 U	12/12/2004
DISSOLVED METALS (mg/L)									
Arsenic	8.00E-03	**0.024**	9/10/1997	**0.0052**	6/10/2009	**0.014**	12/15/2008	**0.0099**	6/9/2015
Barium	2.00E+00	**0.016**	8/31/1999	**0.007**	3/13/2000	**--**	--	**--**	--
Calcium	NA	**53.6**	8/31/1999	**29.4**	3/13/2000	**--**	--	**--**	--
Chromium, Hexavalent	4.80E-02	**0.02 J**	8/31/1999	0.01 U	3/13/2000	**--**	--	**--**	--
Magnesium	NA	**16.8**	8/31/1999	**10.5**	3/13/2000	**--**	--	**--**	--
Manganese	2.24E+00	**2.05**	8/31/1999	**1.29**	3/13/2000	**--**	--	**--**	--
Potassium	NA	**7.9**	8/31/1999	**4.8**	3/13/2000	**--**	--	**--**	--
Sodium	NA	**49.6**	8/31/1999	**17.7**	3/13/2000	**--**	--	**--**	--
PETROLEUM HYDROCARBONS (mg/L)									
Diesel-Range Organics	5.00E-01	**9.6**	5/3/1996	0.25 U	6/10/2009	**1.4**	6/10/2009	0.095 U	6/13/2013
Gasoline-Range Organics	8.00E-01	ND	--	0.25 U	2/27/2001	**0.14 J**	5/3/1996	0.25 U	2/27/2001
Oil-Range Organics	5.00E-01	**35**	5/3/1996	**1**	6/10/2009	**4.9**	6/10/2009	0.24 U	6/13/2013

Table 6-60
AOC A-10 Groundwater Results- Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

	Sample Location:	AGW040			
Detected Analyte	Screening Level	Max	Date	Most Recent	Date
VOLATILES (µg/L)					
1,1-Dichloroethane	7.68E+00	ND	--	0.5 U	6/9/2015
1,1-Dichloroethene	7.00E+00	**0.094**	12/15/2008	0.2 U	6/9/2015
2-Butanone/MEK	4.80E+03	**18**	5/3/1996	5.0 U	6/9/2015
4-Methyl-2-pentanone	6.40E+02	ND	--	5.0 U	6/9/2015
Acetone	7.20E+03	**8.7 J**	5/3/1996	5.0 U	6/9/2015
Carbon Disulfide	8.00E+02	ND	--	0.5 U	6/9/2015
Chloroethane	NA	ND	--	0.5 U	6/9/2015
Chloroform	1.41E+00	ND	--	0.2 U	6/9/2015
cis-1,2-Dichloroethene	1.60E+01	**1.3**	12/13/1996	**0.6**	6/9/2015
m-&p-Xylenes	1.60E+03	**1**	2/27/2001	0.5 U	6/9/2015
Methylene Chloride	5.00E+00	ND	--	0.5 U	6/9/2015
Naphthalene	1.60E+02	ND	--	0.1 U	12/12/2004
o-Xylene	1.60E+03	ND	--	0.5 U	6/9/2015
Tetrachloroethene	5.00E+00	**0.092**	12/6/2010	**0.034**	6/9/2015
Toluene	6.40E+02	ND	--	0.2 U	6/9/2015
Trichloroethene	5.40E-01	**4**	12/13/1996	**1**	6/9/2015
Vinyl Chloride	2.90E-02	**0.039**	6/10/2009	0.020 U	6/9/2015
SEMI-VOLATILES (µg/L)					
2-Methylnaphthalene	3.20E+01	ND	--	0.1 U	12/12/2004
Acenaphthene	9.60E+02	ND	--	0.1 U	12/12/2004
Dibenzofuran	1.60E+01	ND	--	0.1 U	5/3/1996
Fluorene	6.40E+02	ND	--	0.1 U	12/12/2004
Phenanthrene	NA	ND	--	0.1 U	12/12/2004
DISSOLVED METALS (mg/L)					
Arsenic	8.00E-03	**0.003**	5/3/1996	**0.001**	6/10/2009
Barium	2.00E+00	**--**	--	**--**	--
Calcium	NA	**--**	--	**--**	--
Chromium, Hexavalent	4.80E-02	**--**	--	**--**	--
Magnesium	NA	**--**	--	**--**	--
Manganese	2.24E+00	**--**	--	**--**	--
Potassium	NA	**--**	--	**--**	--
Sodium	NA	**--**	--	**--**	--
PETROLEUM HYDROCARBONS (mg/L)					
Diesel-Range Organics	5.00E-01	ND	--	0.097 U	6/13/2013
Gasoline-Range Organics	8.00E-01	ND	--	0.25 U	2/27/2001
Oil-Range Organics	5.00E-01	ND	--	0.24 U	6/13/2013

Table 6-61
AOC A-12 Soil Statistics
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Screening Level	# of Screening Level Exceedances	# of Results	# of Detects	Max of Detected Results	Min of Detected Results
PETROLEUM HYDROCARBONS (mg/kg)						
Oil-Range Organics	2,000 (b)	0	2	2	21	17

Table 6-62
AOC A-12 Soil Results - Detects
Boeing Auburn Remedial Investigation
Auburn, Washington

Detected Analyte	Sample Location: / Screening Level	ASB0151-12 5/6/2004	ASB0151-15 5/6/2004	ASB0152-12 5/6/2004	ASB0152-15 5/6/2004
PETROLEUM HYDROCARBONS (mg/kg)					
Oil-Range Organics	2,000 (a)	--	**21**	--	**17**