

Property Review

King County Airport Maintenance Shop

6518 Ellis Ave. S.
Seattle, WA 98108

Prepared for

Toxics Cleanup Program
Northwest Regional Office
Washington State Department of Ecology
Bellevue, Washington

Prepared by



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General Facility Information

Facility Name: King County Airport Maintenance Shop

Alternate Names: King County Maintenance Facility; King County Airport Maintenance; Maintenance Shop; King County Airport Maintenance Yard

Facility Physical Address: 6518 Ellis Ave. S.
Seattle, WA 98108

Facility Mailing Address: Same

Facility Telephone Number: 206-296-7390

Facility Owner: King County International Airport
P.O. Box 80245
Seattle, WA 98108-0245

Facility Operator: Same

Property Owner: Same

Site Drainage: I-5 Storm Drain and KC Airport SD#3/PS44 EOF

Current Facility Information

Industrial Stormwater General Permit Number: SO3-000343, expiring 9/20/2007
Hazardous Waste Generator ID Number: WAD980986848 (small quantity generator; inactive)
UST Site ID: 8341 (inactive)

This facility currently operates as a maintenance shop for the King County International Airport, listed as SIC code 4581 (airports, flying fields, and airport terminal services). The site area is commercial/industrial. It is located on the northwest side of King County International Airport, which surrounds the site on the north, south, and east sides. It is bounded on the west by Ellis Avenue and residential properties. A small parcel (0.24 acres) to the north along S. Elizabeth Street is commercial property owned by Seattle Air Corp.

According to property tax records, the current 52,000 square-foot structure at the site was built in 1999. A list of King County International Airport (KCIA) facility improvement projects for 2002 identifies the following modifications, scheduled for March 2003: demolition of the existing building, construction of 18,500 square feet of maintenance shops and offices, construction of a 3,250 square foot auto maintenance shop, and construction of an 8,000 square foot training facility. An 8,900-sq.ft. open vehicle and material storage, wash bay and fueling station structure were also planned for the northeast corner of the site. Based on aerial photos of the site before and after this time, it does not appear that this project was implemented.

KCIA's Storm Water Pollution Prevention Plan (SWPPP) indicates that the 1.69-acre Maintenance Shop site consists of 0.65 acres of buildings, 0.60 acres of paved area, and 0.44 acres of landscaped and other non-paved areas [25].

A portion of the site (0.4 acres) drains to the I-5 Storm Drain after passing through an oil/water separator and catch basin (CB45). The remainder of the site drains to catch basin CB46 and the KC Airport SD#3/PS44 EOF upstream of North Boeing Field.

Current activities at the site include storage and handling of various maintenance-related materials; fuel storage and vehicle fueling; vehicle and equipment maintenance and repair; and storage of vehicles and equipment [25].

All liquid wastes are stored in a covered and contained area. Materials used or stored at the facility include: potassium acetate (for deicing), bulk construction materials; paint; and landscaping material. Other potential pollutants include detergents/solvents and metals (associated with vehicle maintenance activities). The majority of vehicles and equipment are stored inside buildings, however fleet vehicles and large vehicles are stored outside. Most maintenance and repair work is performed inside the auto shop building, although larger equipment may be worked on outdoors. Two 1,000-gallon aboveground fuel storage tanks are located at the facility; these contain unleaded gasoline and diesel. They are uncovered but double-lined, monitored, and have a 7-gallon overfill containment feature [25]. Spills associated with fueling would be contained according to the KCIA's spill procedures.

The Maintenance Shop has implemented BMPs for vehicle and equipment parking and storage; outside storage or transfer of solid raw materials; spill emergencies; and maintenance of stormwater drainage and treatment systems. Oil/water separators are inspected weekly and cleaned annually, or more frequently if accumulations are noted [25]. Two facility inspections (wet season and dry season) are conducted annually.

King County submitted a Notice of Intent (NOI) to discharge stormwater from the Airport Maintenance Shop under the Baseline General Permit on September 25, 1992 [18]. A permit for storm water discharges associated with industrial activities was issued on January 20, 1993 [19]. The permit was renewed in January 1996, November 2000, and September 2002 [21, 22].

Sampling of stormwater discharges is performed quarterly for oil & grease, turbidity, zinc, and pH; the sampling location represents the maintenance facility and runoff from the bulk storage area and the equipment storage area [25]. A sample collected in May 2003 did not detect oil & grease, had a pH of 6.4 and turbidity of 300 NTU, and contained 1,400 ug/L of zinc [25].

Inspections

Ecology inspected this facility on April 24, 1986; July 1, 1986; and July 15, 1986. During the April 1986 inspection, operations were found to be unsatisfactory [2]. Ecology found improperly stored paint, two transformers containing PCB-contaminated oil, poor containment systems, used batteries containing acid, and drums of unknown substances. Drums of lubricating oil were improperly stored with no roof, drip pan, or other containment. One drum appeared to be leaking waste oil; the gravel beneath the drums was stained with oil. A storm drain was located in the western third of the property. Also, an oil sump was identified in the maintenance building repair bay.

The following specific issues were identified [3]:

1. In the maintenance shop, the oil sump did not receive pretreatment (an oil/water separator) before discharge to the sewer system. It was not clear whether the oil sump discharges to the storm or sanitary sewer, and whether a permit was required from either Ecology or Metro. (It was later identified to discharge into Metro's sanitary sewer, and no permit was required [7].)
2. In the maintenance storage yard, there were two PCB-containing transformers. No information was available at the time of the inspection as to whether the contaminated oil had been drained from the transformers. (These were subsequently re-sampled and were removed from the site on June 6, 1986.)
3. Used paint cans containing lead chromate, toluene, methyl ethyl ketone (MEK), and petroleum distillates were stored improperly. The paint contents would likely be designated as hazardous or dangerous waste. The cans were generally not resealed, and during rain events, the contents were likely to leach out of the remaining paint and be carried to the storm drain when the cans overflow. The condition of the soil indicated a past practice of dumping excess paint on the ground, which has likely resulted in contamination of soil with heavy metals and solvents.

The facility was re-inspected on July 1, 1986, and it was noted that some cleanup had occurred. While much of the improperly stored materials had been moved, the soil had not yet been characterized or removed, no containment had been constructed, and housekeeping was still poor.

A subsequent inspection on July 15, 1986 observed that the first bay in the maintenance shed had been paved with asphalt [8]. Berms had been installed and the asphalt sealed with Jet Seal. The rack of lubricating oils, two diesel tanks, and solvent and waste oil collection barrels were being stored in this area. It was estimated that the maintenance yard would generate 110 gallons of solvent and other mineral spirits, 110 gallons of waste oil, plus 200 to 300 gallons of waste oil from other airport tenants, per year. Subsequently, storage drums were either tested and disposed, or moved to roofed, contained areas and monitored, labeled, segregated and stored appropriately [15]. Soils were tested and removed (see below), and a letter from Ecology dated December 22, 1986 indicated that the cleanup had been completed in a satisfactory manner and that the facility should be removed from Ecology's list of contaminated sites [17].

The facility was inspected by the Seattle Public Utilities & King County joint inspection team¹. An initial visit was conducted on December 22, 2004. In a letter dated February 24, 2005, the following corrective actions were requested: (1) properly dispose of waste; (2) properly store product/waste; (3) improve or create spill response procedures; (4) improve or purchase adequate spill response materials; (5) properly educate employees; (6) storm drain facility needs to be cleaned; and (7) missing or damaged components to storm drain facility need replacement/repair. No follow-up inspection had been conducted as of June 2005.

¹ King County and Seattle Public Utilities, Source Control Program for the Lower Duwamish Waterway, January 2005 and June 2005 Progress Reports

As part of King County International Airport's tenant inspections, the King County Maintenance Facility was identified as a potential source of contaminants and an inspection was performed. As of 12/31/2005, the facility was in compliance with applicable stormwater, industrial waste, and hazardous waste handling requirements.

Past Site Use

Construction of the King County Airport (known originally as Boeing Field) began in 1928. It has served as a regional center for commercial and recreational aviation since that time. During World War II, the Airport was taken over by the federal government and was dedicated to the production of thousands of B-17 and B-29 bombers. After the war, Boeing Field reopened for civilian use and today is one of the busiest general aviation airports in the nation (<http://www.metrokc.gov/airport/history.stm>).

The King County Airport Maintenance Yard has been in operation at least since 1964. No information on site use prior to that time was available.

Ecology's UST Database lists six former underground storage tanks at this site. Two tanks were in place as of December 31, 1964 and contained used oil/waste oil. Three tanks were installed on June 1, 1972. Two of these contained leaded and unleaded gasoline; the contents of the third are unknown. A sixth tank, for diesel fuel, was installed on October 1, 1972. The database indicates that all six tanks have been removed. Five of the tanks had a capacity of less than or equal to 1,100 gallons; capacity of the sixth tank is not listed. According to a site map drawn during a July 1986 site inspection, a 10,000-gallon UST was present at that time [8].

According to the facility's 1993 SWPPP, a 1,750-gallon underground heating oil tank provided secondary fuel for the Maintenance Shop's low pressure steam boiler [24]. A 1,000-gallon underground diesel fuel tank was decommissioned in 1993 and was scheduled for removal in early 1994. An aboveground propane tank was used to store fuel for the crack filler tar pot.

Spills and Releases

A 1986 Ecology inspection (described above) identified both accidental spills and intentional releases of contaminants to soil at the site. Materials spilled/released included paint containing chromate, toluene, MEK, and other distillates and petroleum hydrocarbons. Two transformers containing low levels of PCBs were also present and leakage may have occurred (although none is documented).

Ecology's LUST database lists a release to soil and groundwater, dated December 15, 1992². Cleanup on this release was started on June 1, 1995, and it was reported "cleaned up" on September 1, 1998.

According to the 1993 SWPPP, there have been no significant spills of materials that would have affected the stormwater at this facility. In 1993, two 1,000-gallon underground fuel tanks were

² Ecology Facility/Site Database

removed. These tanks were observed to have leaked; affected soil was removed [24]. (*Note: The relationship between these leaking tanks and the tank identified in the LUST database is unclear.*)

A 2001 Ecology review of the King County International Airport's SWPPP identified two items of concern [24]. First, the facility's practice of washing down oil spills with a degreaser/dispersant substance (CEJER) into the storm drain system was not acceptable. Ecology specified that the washdown must be controlled and discharged to the sanitary sewer or vacuumed and hauled to a legal disposal point. Second, oil separator maintenance records indicated that an oil spill in separators E6 and E7 occurred in January 2001 and was not cleaned up until April 2001; oil spills must be cleaned up as soon as they are observed. (*Note: while the Ecology review document was located in the Airport Maintenance Shop file, it could not be confirmed that the referenced oil/water separators are actually located at this facility.*)

According to the 2003 SWPPP, no significant spills associated with fueling of maintenance equipment or vehicles have occurred [25].

Environmental Sampling and Remediation

Three oil samples were analyzed for PCBs in April 1985. The samples were identified as Sa T-1, T2E, and T3E, and contained 9, 16, and 10 mg/kg PCBs, respectively [1]. Based on later correspondence, T2E and T3E appear to be samples collected from the two transformers identified at the site during the April 24, 1986 Ecology site inspection. The source of sample Sa T-1 is not known, but may be a sanitary or storm drain sample.

Subsequent to the April 24, 1986 site inspection, three oil samples were analyzed [4]: two from the transformers and one from the main stormwater vault. One of the transformers contained 32 mg/kg PCBs; the other was apparently not sampled for PCBs. The stormwater vault contained 8 mg/kg PCBs.

In October 1986, three samples were collected at a depth of 6 inches from locations identified based on the site inspection: one sample from the oil drum area, a second from the oil tank/spill area, and a third from the paint spill area [12]. The oil drum and oil tank/spill samples were analyzed for PCBs and PAHs. Sample 1 contained 0.1 mg/kg PCBs (Aroclor 1254) and 830 mg/kg PAHs [13]. PCBs were not detected in Sample 3, however it contained 5,500 mg/kg PAHs. The paint spill area sample was analyzed for metals; it contained barium (35 mg/kg), chromium (11 mg/kg), lead (54 mg/kg), copper (18 mg/kg), nickel (6 mg/kg), and zinc (48 mg/kg) [13].

In December 1986, 16 cubic yards of contaminated soil from parking areas and storage yards was approved for disposal at the Cedar Hills Landfill [14]. This was comprised of the top 6 inches of soil from the areas sampled in October. The area was scheduled to be paved with asphalt in the spring of 1987 [16].

In 1993, two 1,000-gallon fuel USTs were removed. Approximately 600 cubic yards of contaminated soil was excavated, and groundwater monitoring wells were installed [24]. No groundwater monitoring data were found in the files.

Seattle Public Utilities (SPU) sampled the two catch basins (CB45 and CB46) located on the north side of the Airport Maintenance Shop in December 2004 [26]. CB45 discharges to the I-5 Storm Drain; CB46 discharges to KC Airport SD#3/PS44 EOF upstream of North Boeing Field. A comparison of results to Sediment Quality Standards (SQS) and Cleanup Screening Levels (CSLs) is shown in Table 1. Copper, zinc, benzo(a)pyrene, benzo(b+k)fluoranthene, benzo(g,h,i)perylene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, and bis(2-ethylhexyl)phthalate (BEHP) exceeded both SQS and CSL values. The catch basins may also be affected by dust from the bag filter unit on a nearby metal finishing facility's air filtration system [28]. CB45 is located directly adjacent to the bag filter unit.

The catch basins were cleaned out in 1998-1999, 2001, 2003, and early 2005, and the airport was reportedly working to install outlet traps on these catch basins [27].

Potential for Sediment Recontamination

Based on the facility's location, the only pathways for transport of contaminants to Slip 4 sediments are via the storm drain system. Past site inspections have identified practices that could have resulted in releases of contaminants of concern to storm drains, including poor housekeeping, accidental and intentional spillage, improper storage of PCB-containing transformers, and leaking USTs. Many of these potential sources have been removed (transformers, USTs), and potentially contaminated soil was removed in 1986 and 1993. Although no groundwater monitoring data were located, historic sources are not believed to pose a risk of Slip 4 sediment recontamination.

More recently, a December 2004 source control inspection identified several corrective actions; as of June 2005, no follow-up inspection had been conducted. Sampling of catch basin sediments collected at that time indicated the presence of copper, zinc, PAHs, and BEHP at concentrations that could potentially contribute to Slip 4 sediment recontamination. Release of contaminants to the storm drains may be a result of current painting and vehicle maintenance operations. While current sources are not believed to pose an immediate threat of Slip 4 sediment recontamination, follow-up action at this site is warranted.

The following data gaps were identified:

- Re-inspection to confirm that all corrective actions have been implemented.
- Confirmation that outlet traps have been installed on catch basins CB45 and CB46, as planned; in addition, resampling of catch basin sediments is warranted to determine whether there is an ongoing source of contaminants to the storm drain system from the Airport Maintenance Shop.
- Review of groundwater monitoring data (if available) to confirm that groundwater is not a potential source of contaminants to the storm drainage system.

Facility Name	King County Airport Maintenance Shop
Current Use	Vehicle maintenance and storage facility
Chemicals of Concern for Sediment Recontamination	metals, PAHs, phthalates
Pathways to Sediments	KC Airport SD#3/PS44 EOF and I-5 Storm Drain
Data Gaps	Re-inspection results; recent catch basin sediment samples; groundwater monitoring data if available

Documents Reviewed:

- [1] Letter from J.M. Owens, Laucks Testing Laboratories, Inc., to King County Airport, Re: Oil test results. April 24, 1985
- [2] Inspection Report. Conducted by Richard Koch at King County Airport Maintenance Yard, 6518 Ellis Ave., South, Seattle, Washington. April 24, 1986.
- [3] Letter from Richard Koch, Ecology, to Jeff Winters, King County International Airport, Re: Inspection summary. April 30, 1986.
- [4] Letter from J.M. Owens, Laucks Testing Laboratories, Inc., to King County Airport, Re: PCB test results. June 3, 1986.
- [5] Letter from Arthur Grashin, Olympic Iron & Metal, to King County Airport, Re: Removal and analysis of transformers. June 6, 1986.
- [6] Inspection Report. Conducted by Richard Koch, Ecology, at King County Airport Maintenance Yard, 6518 Ellis Ave., South, Seattle, Washington. July 1, 1986.
- [7] Memorandum from Robert Nonas, King County International Airport, to Richard Koch, Ecology, Re: Ecology Inspection Compliance Status. July 3, 1986.
- [8] Inspection Report. Conducted by Richard Koch at King County Airport Maintenance Yard, 6518 Ellis Ave., South, Seattle, Washington. July 15, 1986.
- [9] Letter from Gary Hildebrand, Center Roofing, to King County International Airport, Re: Inspection of drums. September 16, 1986.
- [10] Letter from John O'Brien, Northwest EnviroService, Inc., to King County International Airport, Re: Sampling and testing of drums. September 24, 1986.
- [11] Letter from John R. Lamb, Northwest EnviroService, Inc., to King County International Airport, Re: Disposal of tanks and drums. September 24, 1986.
- [12] Telephone Record. Call from Don Lehman, King County Health and Safety, to Daniel Cargill, Ecology, Re: Minimum testing for samples at King County Airport facility. October 14, 1986.

[13] Letter from J.M. Owens, Laucks Testing Laboratories, Inc., to King County Airport, Re: Soil test results. November 17, 1986.

[14] Memorandum from Steve Burke, Department of Public Health, to Rod Hansen, King County International Airport, Re: Waste material cleared for disposal at landfill. December 10, 1986.

[15] Memorandum from King County International Airport, Maintenance, to Richard Koch, Ecology, Re: DOE Inspection Compliance Synopsis. December 16, 1986.

[16] Letter from Don Lehman, King County Safety and Workers' Compensation Program, to Richard Koch, Ecology, Re: Soil Contamination citation. December 17, 1986.

[17] Memorandum Richard Koch, Ecology, to Dee Ragsdale, Re: King County Airport Maintenance Facility request for removal from list of contaminated sites. December 22, 1986.

[18] Letter from Jeffrey Winter, KCIA, to Washington State Department of Ecology, Re: Notice of Intent (NOI) for Baseline General Permit for Airport Maintenance Site. September 25, 1992.

[19] Letter from James Krull, Ecology, to Jeffrey Winter, King County International Airport, Re: Coverage Under the Storm Water Baseline General Permit. January 20, 1993.

[20] Request for Renewal of Coverage Under Ecology's Baseline General Permit for Discharge of Stormwater Associated with Industrial Activity. King County Int. Airport Maint. Shop. May 3, 1995.

[21] Letter from James Krull, Ecology, to King County International Airport, Re: Renewal of coverage under the new Stormwater Baseline General Permit for Industrial Facilities. January 10, 1996.

[22] Industrial Stormwater General Permit, King County Int. Airport Maint. Shop – NWRO. SO3-00343. Coverage Date: November 18, 2000. Expiration Date: November 18, 2005.

[23] Letter from Cynthia Stewart, King County International Airport, to Melodie Selby, Ecology, Re: Stormwater Pollution Prevention Plan for King County International Airport (KCIA) Maintenance Shop. October 9, 2001.

[24] Letter from Richard Thomas, Ecology, to Rick Renaud, King County International Airport, Re: King County International Airport Storm Water Pollution Prevention Plan. Attachment: Storm Water Pollution Prevention Plan, King County Airport, November 1993. December 13, 2001.

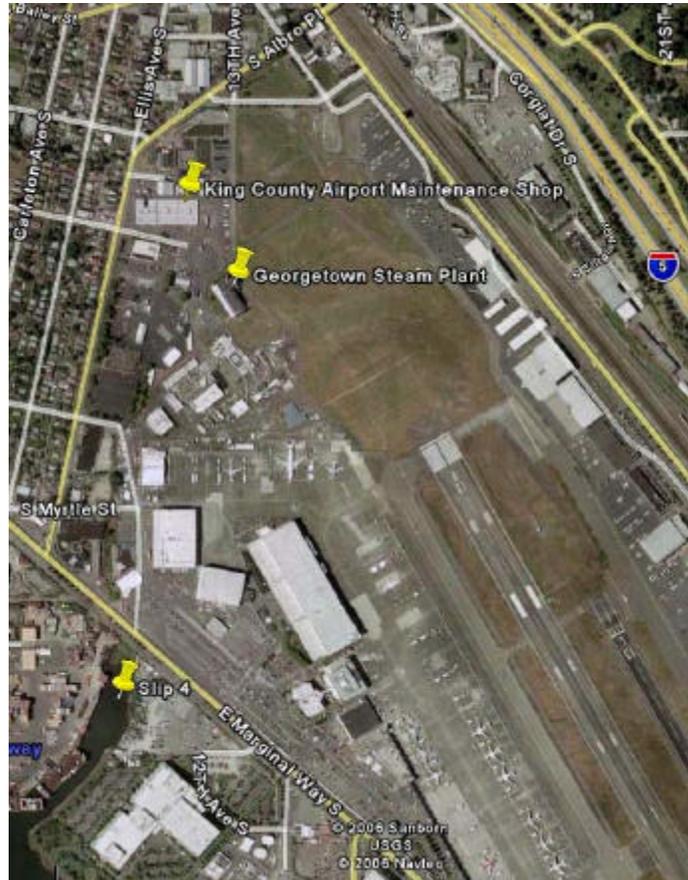
[25] Storm Water Pollution Prevention Plan, King County International Airport. Prepared by Rick Renaud, KCIA. April 2003.

[26] Lower Duwamish Waterway Slip 4 Early Action Area, Engineering Evaluation/Cost Analysis, Appendix B. Prepared by Integral Consulting, Inc. February 10, 2006.

[27] King County and Seattle Public Utilities Source Control Program for the Lower Duwamish Waterway, June 2005 Progress Report.

[28] King County and Seattle Public Utilities Source Control Program for the Lower Duwamish Waterway, January 2005 Progress Report.

Figure 1
Site Location: King County Airport Maintenance



Source: Google Earth 2006

**Table 1
Catch Basin Sampling Results
King County Airport Maintenance Shop**

Chemical	SQS	CSL	CB45	CB46
TOC (percent)			9.74	10.4
Metals (mg/kg DW)				
Arsenic	57	93	20	20
Copper	390	390	6,320	5,660
Lead	450	530	481	396
Mercury	0.41	0.59	0.30	0.20
Zinc	410	960	3,420	3,530
LPAH (mg/kg OC)				
Acenaphthene	16	57	8	15 U
Anthracene	220	1,200	22	48
Fluorene	23	79	13	29
Phenanthrene	100	480	175	337
HPAH (mg/kg OC)				
Benzo(a)anthracene	110	270	133	260
Benzo(a)pyrene	99	210	154	308
Benzo(b+k)fluoranthene	230	450	308	654
Benzo(g,h,i)perylene	31	78	75	154
Chrysene	110	460	205	413
Dibenzo(a,h)anthracene	12	33	28	52
Fluoranthene	160	1,200	318	817
Indeno(1,2,3-cd)pyrene	34	88	88	183
Pyrene	1,000	1,400	236	471
Phthalates (mg/kg OC)				
Bis(2-ethylhexyl)phthalate	47	78	90	288
Butylbenzylphthalate	5	64	5	15 U
Dimethylphthalate	53	53	6	15 U
Di-n-butylphthalate	220	1,700	12	15 U
Di-n-octylphthalate	58	4,500	12	15
PCBs (mg/kg OC)				
Aroclor 1254			1.7	2.4
Aroclor 1260			3.1	4.1
Total PCBs	12	65	4.8	6.5
TPH (mg/kg)				
Diesel	2,000 ^a		950	1,900
Motor Oil	2,000 ^a		4,700	4,600

^aMTCA Method A soil cleanup level for unrestricted use.

Samples were collected on 12/22/04.

Source: [26]