RCRA Compliance Inspection Report

The Boeing Company Renton Plant

Renton, Washington

WAD009262171

May 13, 2021

Prepared by:

Katrina Bradshaw
U.S. Environmental Protection Agency, Region 10
Enforcement & Compliance Assurance Division
Water Enforcement & Field Branch
Field, Data & Drinking Water Enforcement Section

Inspector Signature/Date:

KATRINA BRADSHAW Digitally signed by KATRINA BRADSHAW
Date: 2021.08.06 15:56:44 -07'00'

Supervisor Signature/Date:

Jennifer A Sullivan Digitally signed by Jennifer A Sullivan
Date: 2021.08.09 09:03:52 -07'00'

Table of Contents

Disclaimer

This report is a summary of observations and information gathered from the facility at the time of the inspection. The information provided does not constitute a final decision on compliance with RCRA regulations, nor is it meant to be a comprehensive summary of all activities and processes conducted at the facility. The onsite inspection was conducted during the Novel Coronavirus (COVID-19) Pandemic and considerations and safety precautions were taken accordingly.

Section A: Basic Facility and Inspection Information

Facility Information

Handler Name:	Boeing Renton
Handler ID Number:	WAD009262171
Facility Contact(s)/Title:	Mary Jo Donnelly, Environmental Engineer John Sherman, Environmental Manager
Facility Location Address:	737 Logan Ave N Renton, WA 98055
Facility Mailing Address:	PO Box 3707 M/C 9U2-01 Seattle, WA 98124
Contact Phone Number:	Mary Jo Donnelly: (206) 484-8903 John Sherman: (253) 218-5053
Contact Email Address:	maryjo.donnelly@boeing.com johnathan.w.sherman@boeing.com
GPS Coordinates of Site:	Lat: 47.492237 Long: -122.205396

Inspection Information

Inspection Type:	RCRA Focused Compliance Inspection (FCI)
Inspection Date:	May 13, 2021
Arrival Time:	0910 hours
Departure Time:	1507 hours
Inspection Team:	Katrina (Katie) Bradshaw (EPA Region 10) Cynthia (Cindy) Schafer (EPA Region 8) Matthew Quarterman (EPA Region 10) Sara Conley (EPA Region 10)

Section B: General Facility Information

Owner/Operator Information

The Boeing Company owns and operates the Boeing Renton Production Facility (Boeing Renton or facility).

Site Location

The Boeing Renton Production Facility is located at 737 Logan Avenue North in Renton, Washington, east of the Renton Airport and south of Lake Washington, in an industrial zoned area. According to a

review of R10 EJSCREEN, the facility is not located in an Environmental Justice area. A site map is included in Attachment C.

Background and Activities

The Renton site was originally built by the Navy in 1941 to manufacture the XPBB-1 Sea Ranger patrol bomber. The U.S. Air Force bought the site in 1943 and expanded the adjacent airfield to build the Boeing B-29 Superfortress. In 1954, the factory produced the Boeing 367-80, which led to the KC-135 Stratotanker (the Air Force's first jet-powered in-flight refueler) as well as the world's first successful commercial jet, the 707. The Renton factory went on to manufacture all variants of the 737. The site also built the 727 and the 757. Currently, according to Mary Jo Donnelly, the factory assembles the 737 and then paints it.

Section C: Regulatory Information

Compliance History

According to the RCRAInfo database, the facility has not had any enforcement actions taken against it in the last five years. The most recent hazardous waste violations (three) cited were from December 3, 2015, concerning a lack of a Contingency Plan, improper labeling, and not meeting satellite accumulation area standards. The facility returned to compliance on June 30, 2017. Washington State Department of Ecology performed a Compliance Evaluation Inspection on April 22, 2021, and any violations had yet to be determined at the time of this report.

Regulatory Status

According to RCRAInfo, the facility first notified the agency of hazardous waste generation activities on December 31, 1990. The database indicates that the facility is currently a Large Quantity Generator (LQG) of hazardous waste. Based on my observations of waste generation, the amount of waste on site during the inspection, and the documentation in e-Manifest, the facility appeared to be generating greater than 1,000 kilograms of hazardous waste per month and was therefore an LQG at the time of the inspection.

Boeing Renton is covered under NAICS code 336411 Aircraft Manufacturing.

Site Hazardous Waste Information

The facility generates solvent-bearing hazardous wastes. During assembly, there is a small parts build-up, final assembly, then a decorative paint. Aircraft parts arrive at the facility from other Boeing sites, get painted, are wiped with solvent, and waste goes to containers. Paint materials are brought on site and to the factory and mixed on an as-needed basis. There is a permitted wastewater treatment plant (WWTP) to treat process waste, and all other wastes are containerized and shipped offsite to a transfer, storage, and disposal facility (TSDF).

In its 2019 Biennial Report, the largest quantities of hazardous waste generated by the facility were reported to be:

Debris contaminated with paints and sealants – 544 tons
Solvents (Acetone, Methylene Chloride, MEK, others) – 97 tons

Section D: Description of Inspection

Purpose of Inspection

This was a Resource Conservation and Recovery Act (RCRA) inspection conducted pursuant to Washington's federally authorized RCRA program. The facility was inspected to evaluate compliance with the organic air emissions standards found in 40 CFR Part 265, Subparts AA, BB, and CC, as incorporated by reference into the Washington Administrative Code (WAC) at 173-303-400. The inspection was conducted as part of the EPA National Compliance Initiative for organic emissions from RCRA facilities.

Site Access

EPA was not denied access to the facility and was allowed inspection of all areas. All inspectors submitted a security badge form prior to the inspection to gain pre-approval access to the facility, with the understanding that we would always be escorted by facility representatives.

Inspection Entry and Opening Conference

As a result of the COVID-19 Pandemic safety measures, this was an announced inspection. Boeing office employees and EPA inspectors have all been working from home at least part-time, and it was thought prudent to extend social distancing precautions by conducting the opening conference using Microsoft Teams and to minimize the time on site for the inspection. A virtual conference was confirmed, via email on May 6, 2021 with MaryJo Donnelly, to be conducted on May 10, 2021 from 1100-1300 hours, and the onsite walk through for May 13, 2021 at 0900 hours. The following individuals were present during the Microsoft Teams conference:

Katrina Bradshaw – USEPA Region 10 Inspector
Cynthia Schafer – USEPA Region 8 Inspector
Matthew Quarterman – USEPA Region 10 Inspector-in-training
Mary Jo Donnelly – Boeing Environmental Engineer
Michelle Frome – Boeing Environmental Engineer
Nancy Swenson – Boeing Environmental Engineer
Paul Yount – Boeing Environmental Engineer
John Sherman – Boeing Environmental Manager
Isabella Lewis – Boeing Environmental Engineer

I opened the meeting by explaining that this was a focused compliance inspection for RCRA organic air emission requirements found in Subparts AA, BB, and CC of Part 265 of Chapter 40 of the Code of Federal Regulations. I explained that I would be leading the inspection, along with Cindy Schafer and Matt Quarterman, as well as Sara Conley (who was unable to join the opening conference). I turned it over to Cindy Schafer, as she has more experience with these types of inspections, to ask process-based questions on solvent waste generation.

Ms. Donnelly gave the general overview that the factory assembles the 737 and then paints it. During assembly, there is a small parts buildup, followed by final assembly, and then decorative paint. She explained that they have a permitted wastewater treatment plant (WWTP) to treat process waste before discharging to the publicly owned treatment works (POTW). All other waste is containerized and shipped off-site to a TSDF. Starting in 2014, Ms. Donnelly said they had installed a still to process used solvent in the central accumulation area "drum yard." This is a 30% methyl ethyl ketone (MEK) and 70% methyl propyl ketone (MPK) solvent blend used throughout the Boeing Renton facility and the only solvent processed through the distillation unit. Other hazardous waste accumulated at the factory includes solvent cleaning wipes that are collected in containers during small parts assembly and

cleaning.

Ms. Donnelly summarized the process flow as follows: assembly of wings and buildup of wings begins in Buildings 4-20 and 4-21; then to Building 4-86 to prepare the wings for fuel tanks; then on to Buildings 4-81 and 4-82 for final assembly; and finally, to the paint hangar in Building 4-41. Inspector Schafer asked if there were any maintenance or paint stripping activities. Mr. Paul Yount said that there was no full airplane de-painting—only situational stripping of components for touchups. Ms. Donnelly said that the protective coating on the airplane when it arrives is removed with Alkasol. Ms. Michelle Frome further explained that they either spray or hand apply Alkasol to remove the green protective plastic coating, and then it is sprayed off and collected in trenches that lead to the WWTP. Hard to work parts are hand wiped off.

Ms. Donnelly then explained that used solvent comes from paint gun cleaning primarily, but also includes excess solvents from painting operations. The painters collect used solvent in a 55-gallon drum, which goes to the drum yard for processing through the still. Waste solvent is pumped into the still, heated, and regenerated solvent goes to a container. Waste distillation bottoms are removed, collected, and managed as hazardous waste. Inspector Schafer asked how frequently the distillation unit is used. Ms. Frome said it depends on how many airplanes they are making, and that they are not making a lot of airplanes right now. Ms. Donnelly said that when running normally, they probably use the still almost daily. However, only first shift is operating right now, and they currently use the still about twice a month. The reclaimed solvent is stored in a 250 or 500-gallon tote. Ms. Donnelly said they do not inspect the tote because they consider the tote to be usable material.

When asked about other organic waste, Ms. Donnelly stated that they have organic debris, which is generally Q-tips for paint touchups, personal protective equipment (PPE), and seal applicators. Organic debris is managed in step-cans, 55-gallon drums and 323-gallon rag and debris containers (aka “SHAMs”). The SHAMs are then dumped into a roll-off with a cover. We concluded the opening conference by planning on arrival that Thursday (May 13, 2021) and possibly Friday at 0900 hours. Ms. Donnelly said she would get back to us on information for the current number of employees as well as the following records:

- Safety Data Sheets (SDSs) for the two primary solvents used
- Inspection and maintenance records for the distillation still
- Test results from untreated waste samples

The opening conference concluded at 1245 hours.

Inspection Summary

The Region 10 inspection team arrived at the security building parking lot at approximately 0900 on May 13, 2021. Initially, the security personnel insisted on providing them a copy of our drivers’ licenses, but after explaining that our federal personal identity verification (PIV) cards should be sufficient, we were granted temporary security access badges. We then performed calibrations on both flame ionization detectors (TVA 2020s) and the forward-looking infrared camera (FLIR GF320), and then performed a bump check. The flame ionization detectors were each calibrated with zero air, 500 parts per million (ppm) methane and 10,000 ppm methane. Boeing representatives MaryJo Donnelly, John Sherman, Paul Yount, and Michelle Frome arrived around 0910 hours, and Inspector Schafer and I presented our credentials to each of them.

We began the inspection at Building 4-70, the CAA for hazardous waste collection. Mr. Scott Brandt showed us around the area. We asked about the Alodine-chromic acid labeled waste. He said that was used for surface preparation. Small local repairs are completed with pens, which are sent offsite for incineration at Clean Earth. He said they have one area in which they do submersion for repair in a dip tank, and the liquid goes to the WWTP.

We then inspected the SHAMs (11 total) that were accumulated right outside of Building 4-70. It was noted that SHAMs are not Department of Transportation (DOT) containers, but they are considered Subpart CC containers. According to the Generator's Waste Material Profile Sheet (Attachment D-BOE00001), this waste contains a Total Organic Carbon greater than or equal to 10%, including 4.9 to 9.8% MEK and 0.2 to 4.9% benzene, which is well above 500 ppm. Ms. Donnelly said that when SHAMs arrive at the 90-day area that they check the gaskets and ensure that the containers are closed. Inspector Schafer asked if they did annual testing. The reply was that they had done sampling years ago and thought that the waste did not meet light material standards. Ms. Frome had re-examined the need for testing and is in the process to get a contract to test that the containers are closed. Inspectors-in-training Quarterman and Conley, under the direction of Inspectors Bradshaw and Schafer, began EPA Method 21 emissions monitoring of the 11 SHAMs, noting a background reading of 1.7 ppm for Conley's instrument, and 0.8 ppm for Quarterman. The following SHAMs had over 500 ppm readings:

- SHAM 095 (see photo DSCN0347)
    - 3,500 ppm
    - 5,300 ppm confirmation
- SHAM 089 (photo DSCN0348)
    - 800 ppm
    - 900 ppm confirmation
- SHAM 088 (photo DSCN0349)
    - 800 ppm
    - 570 ppm confirmation
- SHAM 094 (photo DSCN0350)
    - 3,500 ppm
    - 5,000 ppm confirmation
- SHAM 005 (labeled "RCRA empty" photo DSCN0351)
    - 2,150 ppm
    - 1,300 ppm confirmation

The inspection proceeded to the distillation unit in Building 4-70. Mr. Brandt explained the steps in their distillation process of the 70/30 MEK/MPK solvent blend. He said that they weigh the solvent drum when it arrives, and, if good, they dump it into the top of the still. He demonstrated the process by dumping a batch of solvent from a drum of paint gun residual into the still. Afterwards, we monitored the metal tote holding the processed solvent and did not get a reading above 500 ppm.

Next, we inspected the Building 4-41, the paint hangar. Mr. Bill Clogston and Mr. Jordan Robertson, who both work in the hangar, told us that is takes three to four days to paint an airplane, and 200 to 300 gallons per airplane. We monitored the SHAM next to the left wing of the airplane, and found one reading at 2300 ppm, confirmed by another reading at 3100 ppm.

Another painter, TJ, showed us the paint gun cleaning process in a nearby flammable/restricted room in the hangar. He said they wear a respirator, put the paint gun in the parts cleaning tank and use brushes and other tools to hand clean and rinse with solvent. It then stays in the tank to remove any residual. There is a final rinse with fresh solvent and then the gun is blown dry with air and solvent evaporates. The team broke for lunch from 1205-1300 hours.

After lunch, the inspection team and Boeing representatives met outside Building 4-83 (the WWTP) and spoke to the WWTP manager, Mr. Terry Hoskinson, as well as Ms. Isabella Lewis, about the wastewater treatment process. We observed three, 25,000-gallon tanks and two, 11,700-gallon tanks that are used for wastewater storage, treatment and disposal. Before and after treatment, the facility takes samples which are sent to a third-party lab for testing, which takes about three to four days. The waste is treated and then put back into the same tank it came from. They treat about 23,000 gallons in

a day, but it takes (at least currently) a few days to generate a tankful of waste. The unit receives about 1,000 gallons per day from Building 4-86. Inspector Quarterman and I climbed the top of tank ARE 215 and monitored 11 components (see DSCN0354) using EPA Method 21 and did not see a reading over 500 ppm.

We then went to Building 4-86 and monitored one SHAM, which showed a 400 ppm reading on the TVA. Next, we went to Building 4-82 and found one SHAM (labeled 104, see DSCN0355) with a reading of 5,000 ppm and a confirmation of 3,000 ppm. The background reading was 4 ppm. We ended the inspection and went to the cafeteria for records review and closing conference.

Areas of Concern

The following areas of concern were found during this inspection:

- There is no monitoring program for containers for Subpart CC organic air emission standards
- The SHAMs in use currently appear to be inadequate containers, as we detected leaks above 500 ppm in seven SHAMs, and we did not monitor every SHAM at the facility

Closing Conference

We briefly discussed the records we had requested during opening conference. The following was received by email on May 10, 2021 (Attachment D):

- Safety Data Sheets (SDSs) for solvents used at the facility
- Inspection records for the distillation still
- Environmental information sheets for untreated waste
- Annual periodic maintenance for still

We then discussed the leaking SHAMs. Ms. Donnelly said that they do not monitor SHAMs for Subpart CC standards and acknowledged that they are not DOT containers, and that they know it is a problem. She said they thought they could not use a photoionization detector (PID) to monitor the SHAMs because of calibration and inability to calibrate n-hexane above a certain amount. Inspector Schafer explained that some states allow an alternative work practice of calibrating the PID with isobutylene and calculating an adjustment to n-hexane. I asked Ms. Donnelly and Ms. Frome to take photos of the new gaskets when they repair the leaking SHAMs and to email them to me. We also requested inspection records for the month of June 2019 for all 90-day areas, to be emailed by May 28, 2021. They agreed and the inspection team left the facility at 1505 hours.