TECHNICAL SUPPORT DOCUMENT
FOR PREVENTION OF SIGNIFICANT DETERIORATION
PSD-08-01, AMENDMENT 1

Boeing Commercial Airplanes
737 Paint Hangar Refurbishment & Reconfiguration Project
Renton (King County), Washington

Administrative Amendment

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August 2010

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1.1.1 The Prevention of Significant Deterioration Process

The Prevention of Significant Deterioration (PSD) requirements are established in Title 40, Code of Federal Regulations (CFR), and Part 52.21. Federal rules require PSD review of all new or modified stationary sources in certain specified source categories or sources with emissions above certain potential mass emission thresholds. The objective of the PSD program is to prevent serious adverse environmental impact from emissions into the atmosphere by a new or modified stationary source. The program limits degradation of air quality to that which is not considered "significant" as defined by the federal regulations listed above. PSD rules require that an applicant utilize the most effective air pollution control equipment and procedures after considering environmental, economic, and energy factors. The program sets up a mechanism for evaluating and controlling air emissions from a proposed source to minimize the impacts on air quality, visibility, soils, and vegetation.

The Washington State Department of Ecology (Ecology) has been delegated the authority by the U.S. Environmental Protection Agency (EPA) Region 10, to implement the PSD program in Washington State. The authority to issue this permit comes from Chapter 173-400 Washington Administrative Code (WAC), specifically WAC 173-400-720, and the Washington State Clean Air Act Chapter 70.94 Revised Code of Washington (RCW).

1.2 The Project

1.2.1 The Site

The Boeing airplane manufacturing facility located in the city of Renton in King County, Washington (Boeing-Renton) began operation in 1942. It occupies 339 acres, and currently manufactures and assembles parts for the 737 series airplane model. Boeing-Renton is located in the south half of Section 18 Township 23N, Range 5, Willamette Meridian. It is bounded to the north by Lake Washington, to the south by Airport Way, to the east by Logan Avenue, and to the west by the Renton Airport.

1.2.2 Boeing-Renton PSD Permitting History

Boeing-Renton currently has 42 active notices of construction approvals and regulatory orders from the Puget Sound Clean Air Agency (formerly Puget Sound Air Pollution Control Authority) and three PSD permits from Ecology (PSD 88-4, PSD 97-02, and PSD-08-01). These approvals, orders, and permits primarily cover spray painting and related activities in locations throughout Boeing-Renton.

On May 6, 2008, Boeing-Renton submitted a PSD application to Ecology for the reconfiguration and refurbishment of the paint hangar (P1) in Building 5-50. Boeing-Renton submitted additional information to Ecology on July 21, 2008. Ecology determined the application to be

complete on August 19, 2008. Notice for public review was published in *The Seattle Times* on September 5, 2008. Ecology issued the final PSD-08-01 on October 7, 2008.

Boeing-Renton has not completed construction of the P1 project as approved by PSD-08-01. Construction of the P1 project commenced in June 2009,[1] and is not expected to be completed until the 2011-2012 timeframe. Boeing-Renton recognizes that construction of the P1 project must be completed within a reasonable time, as required by 40 CFR 52.21(r)(2).

1.2.3 The Proposed Project

In the 2008 application, Boeing-Renton assumed a future production rate of 41 airplanes per month when estimating their projected actual emissions and emissions increases associated with the P1 project. Boeing-Renton has now determined that while the peak capacity of the existing 737 Wing Buildup and Final Assembly operations is approximately 41 airplanes per month, it is unlikely this rate could be sustained over the long run. In order to assure that Boeing-Renton can sustainably maintain production of 41 airplanes per month, consistent with the purpose of the P1 project, Boeing-Renton plans to install two additional automated spar assembly tools (ASATs)[2] and a metal shim wet milling machine in Building 4-21, an additional automatic wing fastener insertion system (AWFIS),[3] and additional assembly tooling and support equipment in Buildings 4-20, 4-21, 4-81, and 4-82. The proposed support equipment will include an additional lower wing panel buildup tool and moving line tugs.[4]

Boeing-Renton requests an amendment to PSD-08-01 to include authorization to install the additional equipment listed above. None of the proposed equipment are VOC emissions units, and maximum emissions of particulates from these equipment are expected to be far below 0.1 tons per year (tpy). Boeing-Renton also requests an amendment to PSD-08-01 to establish a new VOC emissions limit of 118 tpy for the Wing Buildup and Final Assembly operations in Buildings 4-20, 4-21, 4-81, and 4-82.

The requested 118 tpy VOC emissions limit is 20 tpy more than the projected actual VOC emissions rate estimated in the 2008 PSD permit application for Wing Buildup and Final Assembly operations.[5] Boeing-Renton states that the purpose of the additional 20 tpy is to mitigate any potential errors in their prior projected future actual emissions analysis for those operations. Since the total increase in VOC emissions from the original P1 project were documented by Ecology to be 73.9 tpy,[6] even if the additional 20 tpy buffer were considered to

[1] Michael L. Verhaar to David Ogulei, August 9, 2010.
[2] The ASAT is an automated piece of equipment that automatically drills, measures, and installs thousands of fasteners into the spar. The spar is the internal support structure that runs through the full length of the wings and provides support to the wing.
[3] The AWFIS is similar in function to an ASAT. It automatically drills, rivets, and installs fasteners into a different part of the wing than the ASAT.
[4] "Moving line tugs" are automated electric motors that pull the work platforms on which the airplane rests.
[5] Boeing-Renton's 2008 PSD permit application reported projected actual VOC emissions from "Wing Buildup and Final Assembly" operations of 97.8 tons per year.
[6] PSD-08-01, Finding 9.

increase the projected actual emissions from Wing Buildup and Final Assembly operations, this would result in a total VOC emissions increase for the revised project of only 93.9 tpy (73.9 + 20). A VOC increase below 100 tpy does not trigger an additional ambient impacts analysis. Also, since neither the ASATs nor any of the additional proposed tooling and equipment for the Wing Buildup and Final Assembly operations is VOC emissions units, no further Best Available Control Technology (BACT) analysis is required.

It is important to note that Boeing-Renton could currently emit up to the requested VOC emissions limit without violating any PSD permit condition. Therefore, today's permitting action would simply create a voluntary emissions limit, based on the estimated projected actual emissions rate, so that the P1 project does not trigger a comprehensive ambient impacts analysis for VOC. Boeing-Renton is fully aware that if they later request to lift this voluntary emissions limit, such request might be considered a request to relax a "synthetic minor" limit. Such action could trigger a reassessment of ambient impacts as well as a reevaluation of BACT for the P1 project, in accordance with 40 CFR 52.21(r)(4).

1.2.4 Emission Sources Relative to This PSD Action

None of the additional equipment proposed by Boeing-Renton are VOC emissions units for PSD purposes. Furthermore, the addition of the proposed ASATs and additional tooling and equipment to the Wing Buildup and Final Assembly operations will not cause or result in an emissions increase at those operations, or elsewhere at the Boeing-Renton facility beyond those already evaluated in PSD-08-01.

Boeing-Renton is not seeking to relax any of PSD-08-01's approval conditions.

1.3 New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants

New Source Performance Standards (NSPS) apply to certain types of equipment that are newly constructed, modified, or reconstructed after a given applicability date. The National Emission Standards for Hazardous Air Pollutants (NESHAP) apply to categories of equipment with hazardous air pollutant emissions. The applicability of the following NSPS and NESHAPs are presented below:

1.3.1 New Source Performance Standards

The P1 project does not contain processes or equipment that is subject to NSPS regulations. Therefore, NSPS regulations **are not** applicable.

1.3.2 National Emission Standards for Hazardous Air Pollutants

40 CFR 63.741 through 63.753 (also known as Subpart GG) applies to facilities that are engaged in the manufacture or rework of commercial, civil, or military aerospace vehicles or components that are major sources of hazardous air pollutants. The P1 project **is subject** to Subpart GG.

1.4 The PSD Permit Amendment Request

Boeing-Renton submitted a request to amend PSD-08-01, on June 10, 2010. Ecology requested for additional information on June 14, 2010. The requested information was submitted on June 22, 2010. The request was deemed complete on August 4, 2010.

Boeing-Renton requested, and Ecology approves, the following changes to their existing PSD Permit No. 08-01, issued on October 7, 2008:

a. Add the following equipment to the list of authorized equipment for the P1 project:

   i. Two additional automated spar assembly tools (ASATs) and a metal shim milling machine in Building 4-21;

   ii. One additional automatic wing fastener insertion system (AWFIS); and

   iii. Additional assembly tooling and support equipment in Buildings 4-20, 4-21, 4-81, and 4-82. This will include an additional lower wing panel buildup tool and moving line tugs.

b. Establish a new VOC emissions limit of 118 tpy for the Wing Buildup and Final Assembly operations in Buildings 4-20, 4-21, 4-81, and 4-82. This addition simply establishes a voluntary emissions limit based on the estimated projected actual emissions rate, so that the P1 project does not trigger a comprehensive ambient impacts analysis for VOC.

c. Establish appropriate monitoring, recordkeeping and reporting requirements for demonstrating compliance with the new VOC emissions limit.

1.5 PSD Applicability

Boeing-Renton is a major stationary source under the Clean Air Act Title 40, Code of the Federal Regulations, Part 52.21 because:

- The Boeing-Renton facility has the potential to emit more than 250 tons per year of at least one regulated pollutant.

- The site of the proposed project is in an area that has been designated as in attainment with national and state ambient air quality standards for all pollutants.

For the P1 project, only VOCs are subject to PSD review because all other pollutant emissions increases for the P1 project are lower than their corresponding significant emission rates (SERs). VOC emissions primarily come from painting and solvent use.

The proposed addition of equipment and the establishment of a new VOC emissions limit do not qualify as a "major modification" because those changes do not result in significant additional emissions or additional emissions units beyond those already evaluated as part of the PSD-08-01 permitting process.

Boeing-Renton's permit amendment request is subject to PSD review as required by WAC 173-400-750. This request has been processed as an administrative amendment as defined at WAC 173-400-750(3).

1.6 Emissions and Emission Control

As stated above, the proposed addition of equipment and the establishment of a new VOC emission limit do not qualify as a "major modification" because those changes do not result in significant additional emissions or additional emissions units beyond those already evaluated as part of the PSD-08-01 permitting process for P1. Although the new 118 tpy VOC limit is 20 tpy more than the projected actual emissions rate estimated during the 2008 emissions evaluation process, the 20 tpy adjustment does not significantly alter the P1 project. For example, no additional ambient impacts analysis would be required, and the increase is less than the SER for VOC (i.e., 40 tpy).

After adding the new equipment, the potential to emit[7] of the P1 project could increase. It is possible that the increase in potential to emit could result in an overall VOC emissions increase of more than 100 tpy from the P1 project. An increase of more than 100 tpy would trigger an ambient impact evaluation for ozone. However, because Boeing-Renton is taking a cap on VOC emissions from Wing Buildup and Final Assembly operations, which is consistent with the previously calculated projected actual VOC emissions rate, and there is no proposal to relax the current 40.8 tpy VOC emissions limit for final exterior operations in Building 5-50, no additional ambient impacts analysis is triggered.

The P1 project will continue to employ Best Available Control Technology for VOC as defined at the time of the original permit issuance in 2008.

[7] Potential to emit (PTE) means "the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable. Secondary emissions do not count in determining the potential to emit of a stationary source." 40 CFR §52.21(b)(4).

1.6.1 Federally Enforceable Limitations

Boeing-Renton has proposed a new federally enforceable emissions limit of 118 tpy for VOC. This limit applies to total VOC emissions from Wing Buildup and Final Assembly operations in Buildings 4-20, 4-21, 4-81, and 4-82. It includes VOC emissions associated with the P1 project as well as emissions from existing unmodified emissions units and activities in Buildings 4-20, 4-21, 4-81, and 4-82 (the Wing Buildup and Final Assembly operations). PSD-08-01 estimated that VOC emissions from existing unmodified emissions units and activities in Buildings 4-20, 4-21, 4-81, and 4-82 were 65.5 tpy (i.e., 97.8-32.3 tpy).

If Boeing-Renton later requests a relaxation of this emissions limit, that request should be evaluated as a request to relax a "synthetic minor" limit. In accordance with 40 CFR 52.21(r)(4), such action would trigger a reassessment of ambient impacts as well as a reevaluation of BACT for the P1 project.

2. DETERMINATION OF BEST AVAILABLE CONTROL TECHNOLOGY

2.1 Definitions

Best Available Control Technology (BACT) is a project-specific emissions limitation based on the most stringent level of emissions control applied at similar sources that are technically and economically feasible.

In a BACT analysis, the applicant must rank all control options from the highest level of control to the lowest. If the applicant can show that the highest level of control is technically or economically infeasible for the proposed source, then the next most stringent level of control is evaluated. Ultimately, the burden is on the applicant to prove why the most stringent level of control should not be used.

2.2 Regulatory Requirements

Federal and state laws require an applicant to use BACT for any pollutant that will have a significant emissions increase at any major or minor source. An applicant is required by Washington State regulations to use BACT for any pollutant that will have a significant emissions increase at the major source, if the emissions unit was physically modified. BACT is only applied to emissions units that have an increase in emissions and that undergo a physical change or change in the method of operation. VOC emissions increases from Wing Buildup and Final Assembly operations in Buildings 4-20, 4-21, 4-81, and 4-82 are due solely to de-bottlenecking. None of the proposed additional equipment are VOC emissions units.

This administrative amendment does not result in a significant emissions increase for any pollutant regulated by PSD regulations. Therefore, there is no BACT review required. The P1 project will continue to employ BACT for VOC as defined at the time of the original permit issuance in October 2008.

3. AMBIENT AIR QUALITY ANALYSIS

3.1 Regulatory Requirements

PSD rules require an assessment of ambient air quality impacts from any facility emitting regulated pollutants in significant quantities. Ordinarily, this starts with preliminary modeling for each pollutant to determine whether an applicant can forego detailed analysis and pre-construction monitoring. If the projected increase in ambient concentrations for a given pollutant is below the significance level for each averaging period as given in 40 CFR Part 51, Appendix S, no further analysis of the ambient impact is required for that pollutant.

However, there is no significant impact threshold defined for ozone or by extension for VOCs. Instead, EPA defined a policy that modeling for ozone is required for a proposed project, only if the net emissions of either VOCs or NO_X are 100 tpy or more.

Even with the 20 tpy adjustment to the projected actual emissions rate for Wing Buildup and Final Assembly operations, the P1 project's net emissions increase of VOCs and NO_X are both less than 100 tpy. Therefore, no preliminary modeling or other ambient impact analysis is required for the P1 project.

3.2 Toxic Air Pollutants

PSD rules require the applicant to consider emissions of toxic air pollutants during the course of a BACT analysis. One reason for this requirement is to ensure that the source does not employ an emissions control technique that controls the main pollutant of concern but emits a new toxic air pollutant in large quantities. This administrative amendment will not result in increases in TAPs that require New Source Review permitting.

4. AIR QUALITY RELATED VALUES

4.1 Impacts on Visibility

There was no visibility impact analysis performed for this amendment request.

4.2 Other Air Quality Related Issues

No analysis for other air quality related values (AQRVs) was undertaken.

4.3 Construction and Growth Impacts

This amendment is not expected to cause adverse construction and growth-related impacts.

4.4 Impacts on Soils and Vegetation

This amendment is not expected to cause or contribute to any violation of the national ambient air quality standards (NAAQS) or AQRVs. As such, this amendment should not cause any impacts on soils and vegetation.

5. REVIEWS BY FEDERAL LANDS MANAGERS

The U.S. Forest Service and the National Park Service have not objected to issuance of the revised PSD permit. The proposed amendment will not result in an increase in pollutants that will affect Air Quality Related Values in any of the Class I areas managed by those agencies.

6. ENDANGERED SPECIES ACT

On August 25, 2008, the U.S. Environmental Protection Agency (USEPA) notified Ecology that the USEPA has satisfied its obligations under the Endangered Species Act (ESA) and the Magnuson-Stevens Act (MSA) relative to PSD-08-01. No further ESA or MSA consultation was undertaken relative to this administrative amendment.

7. PUBLIC INVOLVEMENT

This administrative amendment did not trigger public review and comment, as allowed by WAC 173-400-750(3).

8. CONCLUSION

The proposal by Boeing-Renton will not have a significant adverse impact on air quality. The Washington State Department of Ecology finds that Boeing-Renton has satisfied all requirements for approval of the PSD amendment application.

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