TECHNICAL SUPPORT DOCUMENT
FOR THE PREVENTION OF SIGNIFICANT DETERIORATION
BOEING NEW PAINT HANGAR (P1) PROJECT
PSD-08-01
RENTON, WASHINGTON
DATE, 2008

1. EXECUTIVE SUMMARY

The Washington State Department of Ecology (Ecology) determined that the applicant, Boeing Commercial Airplane Group (Boeing), satisfied all of the requirements of Prevention of Significant Deterioration (PSD). Ecology now finds that the project will have no significant adverse impact on air quality. Below is Ecology's technical analysis[1].

2. THE PERMITTING PROCESS

Prevention of Significant Deterioration (PSD) requirements are established in Title 40, Code of Federal Regulations (CFR), Part 52. Federal rules require PSD review of all new or modified stationary sources that meet certain overall size, and pollution rate criteria. 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. To meet the goal of limiting degradation of air quality, the PSD rules require an applicant use the most effective air pollution control equipment and/or methods (that are determined to be available considering environmental, economic, and energy factors), at new emission units and modified emissions units that will experience an emissions increase as a result of the modification to that unit. The program sets up a mechanism for evaluating and controlling air emissions from a proposed source or modification to minimize the impacts on air quality, visibility, soils, and vegetation.

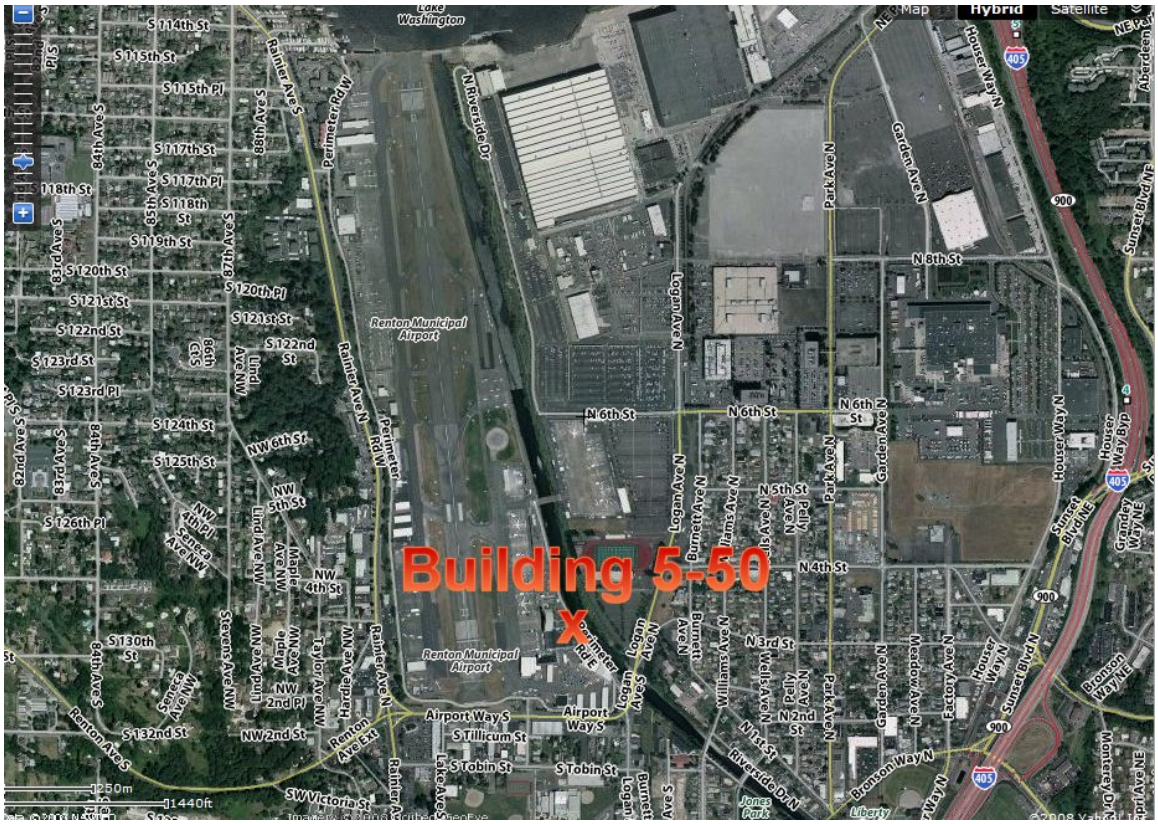
2.1 The Project

2.1.1 The site

The Boeing-Renton (City of Renton in King County, Washington) airplane manufacturing facility began operation in 1942. It occupies 339 acres, and currently manufactures and assembles parts for the 737 series airplane model. Bowing-Renton is in the south half of Section 18 Township 23N, Range 5, Willamette Meridian. It is

[1] Emphasis: This is **Ecology's** technical analysis. While having submitted sufficient information that Ecology can develop a PSD permit for this project, Boeing-Renton may or may not agree with the conclusions expressed in the technical analysis. Boeing-Renton's agreement with this technical analysis or the approval conditions in the PSD permit are not required in order to either issue or deny the permit. Boeing-Renton has the right to submit comment during the public review period on any issue toward which they wish to express disagreement, and receive the same consideration as any other party from the public domain.

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. Boeing-Renton has 47 notice of construction approvals and regulatory orders from the Puget Sound Clean Air Agency (formerly Puget Sound Air Pollution Control Agency) and 2 PSD permits from Ecology (PSD 88-4 and PSD 97-02). These approvals, orders, and permits primarily cover spray painting and related activities in locations throughout Boeing-Renton.



2.1.2 The Proposed Project

Boeing proposes to reconfigure and refurbish an existing paint hangar number 1 (P1), located in building 5-50 to accommodate the processing of 737 Next Generation model airplanes. The paint hangar will be used to remove the temporary coating, clean the aluminum and composite surfaces, manually abrade the aluminum surface, apply primer and topcoat, occasionally de-paint airplanes, and for other non-emission generating assembly activity.

Wing sealing, testing, and painting in Building 4-86 and wing buildup and final assembly in Buildings 4-20, 4-21, 4-81, and 4-82 activities are projected to increase. Both of these will have associated increases in volatile organic compound emissions. Steam demand from two, existing 150 million British thermal unit per hour boilers will increase for space-heating P1. Neither Buildings 4-20, 4-21, 4-81, 4-82, 4-86 nor the boilers will be modified to accommodate the project.

The proposed physical changes to P1 are

UTILITY CHANGES

- Install Walk-on Ceiling
- Replace Lighting system
- Repaint Hangar, Exterior and Interior
- Install building Insulation
- Refinish Hangar interior
- Seismic Upgrades to code
- Modify Fire Protection system
- Upgrade electrical Components
- Replace Cranes/Stackers
- Clean and Seal Floor Area
- Install New wing and Tail Stands
- Construct Personal Showers and Break Area

VENTILATION CHANGES

- Decrease Exhaust Airflow From 220,000 cubic feet per minute to 173,000 cubic feet per minute
- Remove Existing 14 Exhaust Stacks
- Install 3 Exhaust stacks
- Replace Exhaust Fans
- Install supply Air Preheating Coils
- Replace Supply Air Ductwork
- Install Variable Speed Drives for Air Supply Fans
- Replace Fuselage air Supply Ductwork
- Install Overhead Centerline Slot Air diffuser
- Replace Supply Fans
- Upgrade filter Banks
- Replace Air control system
- Replace/Upgrade Body downdraft Exhaust Pits
- Conduct Air Balancing at Project Conclusion

CLEANING AND COATING EQUIPMENT CHANGES

- Acquire Portable methyl propyl ketone/methyl ethyl ketone Tank
- Install New Alkasol (Temporary Protective Coating Remover) Water Wash Delivery system
- Upgrade Paint Storage Area
- Upgrade Paint mix Room
- Install Paint Can Shakers
- Install New Gun cleaning solvent Tank
- Replace/add miscellaneous coating equipment

2.1.3 Emission Sources Relative to this PSD Action

- Modification of P1: In general, new source review (NSR) permitting[2] for spray painting activities considers the paint booth to be the emissions unit rather than the individual activities that may occur inside the booth. Painting airplanes as does Boeing-Renton raises a conceptual problem due to the size of the objects being painted and the corresponding size of the "paint booth." In Boeing-Renton's case, the paint booth is an airplane hangar. It is huge.

  Nonetheless, similar operations are permitted under NSR in California, Georgia, Indiana, Kentucky, New York, Oregon, Texas, and Utah[3]. Consistently, these states define or imply that the emission unit is the paint hangar not the individual activities performed inside the paint hangar. In the Boeing-Renton Air Operating Permit (#13125 under Title V of the federal Clean Air Act), Puget Sound Clean Air Agency lists Building 5-50 as emissions unit MSS/ID #G60023. There is no logical reason why the paint hangar would be classified as an emission unit under an air operating permit (that incorporates the conditions of all air quality control permits applicable to the source) and not under a PSD review. Washington PSD 88-04 issued for Boeing Renton's painting activity in Building 4-41 addresses the "paint hangar" in totality for NSR review and best available control technology (BACT) analysis. In Washington PSD 97-02, it appears that the BACT analysis was applied to the paint hangar (Building 4-86, Boeing-Renton) in its totality. Washington PSD 06-04 covers a "new paint hangar" for Boeing's Everett manufacturing facility in its totality that has a variety of painting-related activities.

  Boeing-Renton suggested that because the Aerospace NESHAPS (40 CFR Part 63) focuses on individual operations within a paint hangar as "affected sources," Ecology should draw an analogy and call the individual activities the "emissions units." Ecology disagrees. The rational for segregating the individual activities in rule-making in the NESHAPS is that the rule describes specific operating practices and controls to be applied to specific equipment items and activities. BACT determinations under NSR focus on emissions to the environment. Admittedly, that sometimes involves specifying equipment controls and operating practices. However, that is not a necessary or sufficient condition in BACT determinations.

  Boeing-Renton proposed that the P1 hangar is "simply an enclosure" within which "cleaning and coating operations occur," and that the proposed P1 project merely enables increased utilization of those operation. Ecology rejects this perspective for two reasons:

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[2] Notice of construction approval and PSD permitting

[3] EPA's RACT/BACT/LAER Clearinghouse entries CA-0410, CA-0549, and UT-0058. Indiana Department of Environmental Management permit CP 003-449, Georgia Air Protection Branch permit 3721-051-0046-V-020, Kentucky Division of Air Quality permit #F-03-029, New York 1-4720-01919/00001, Oregon 022642, and Texas 70267.

- The cleaning and coating activities that take place within it are the same as the activities that take place in an automotive body painting booth. If the operator of an automotive body painting booth that had never previously required a permit were to modify emitting equipment to the booth, and trigger NSR permitting, the permitting agency would require a BACT analysis on the booth including the emitting activity within the booth. There is no logical reason why this approach should not be applied to P1.
- Segregating the activities within P1 from P1 in defining the emissions unit is tantamount to segregating the firebox of a waste wood-burning boiler from the grate on which the fuel is burned. In both P1's and the boiler's cases, the emissions are an aggregate of the "activity" in the emissions source, and pass to the environment via vent stacks. The fact that Boeing-Renton raises the temperature of the entire hangar to 120 ^{o}F to speed curing of the primer coat on the airplane supports this analogy.

Boeing-Renton proposed that the P1 project should be considered to be "routine maintenance and repair" analogous to changing the brakes on a vehicle. Ecology rejected this point-of-view because

- Changing the brakes on a vehicle is a known and predictable maintenance requirement that is directly related to wear-and-tear. The P1 project is the first "reconfiguration and refurbishment" to Building 5-50 since it was built in about 1986. "Reconfiguration and refurbishments" that were not identifiable and predictable at the time of and occur over twenty years after construction of an emissions unit cannot be called "routine."
- The "reconfigurations and refurbishments" are being done to accommodate projected market increases, not to compensate for routine and predictable wear-and-tear, and
- New equipment items are being introduced, as opposed to repairing or replacing existing equipment in a like-kind manner, to accommodate increased throughput.

Ecology concludes that the consistency of agency determinations within Washington and elsewhere in the U.S. supports the conclusion that P1 is an emissions unit for NSR permitting purposes including BACT analysis. Ecology does not find Boeing-Renton's arguments to the contrary to be convincing.

- De-bottlenecking of Wing Buildup and Final Assembly: Buildings 4-20, 4-21, 4-81, and 4-82 have been used for miscellaneous VOC-emitting activities since before the inception of state or federal new source review permitting without permit-triggering modification. There are no approvals, orders, and permits for VOC-emissions for these buildings. None will be imposed unless a future Boeing-Renton project requires them to be physically modified or there is a change in the method of their operation. However, modification of P1 will result in an increased level of activity in these buildings from historical levels. Ecology believes there is

sufficient evidence to conclude that the modification of P1 causes de-bottlenecking of these buildings under physical and/or economic causation[4]. Emission increases from the Wing Buildup and Final Assembly Operation that are caused by the modification of P1 must be considered under this PSD action.

- De-bottlenecking of Wing Seal, Test, and Paint: PSD 97-02 covers the VOC-emitting activity in Building 4-86. Boeing-Renton believes that the expected increases related to the modification of P1 will not cause an exceedance of the limits in that permit. Consequently, on the basis of legal causation (ibid.), those emission increases are not "caused" by the modification of P1, and are not subject to consideration under this PSD action.
- De-bottlenecking boilers: As with the wing buildup and final assembly activity, the steam demand from the boilers for space-heating will be greater than historical levels. Ecology concludes the boilers are being de-bottlenecked by the P1 project. The related emissions increases must be considered under this PSD action.

Project Emissions and PSD Applicability

Boeing-Renton is located in an area designated as in attainment or unclassifiable with respect to national and state ambient air quality standards (NAAQS and WAAQS, respectively). Boeing-Renton is a "major source", as defined in PSD regulations (40 CFR 52.21). Emission increases of each regulated pollutant resulting from new construction or emission unit modification at Boeing-Renton must be compared to the corresponding PSD significant emission rate (SER) threshold to determine if PSD review is required. Any criteria pollutant expected to have an emissions increase in excess of its SER threshold is subject to PSD permitting.

VOC emissions come from the solvents in the materials used in the P1 final exterior coating and de-painting operations. Boeing-Renton proposes using low-VOC coatings required under the National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Aerospace Manufacturing and Rework Facilities (40 CFR 63, Subpart GG) and best management practices to minimize VOC emissions from P1 activities. Boeing-Renton proposes using spray-painting equipment rated at not less than 65% transfer efficiency, and exhaust filters for P1 that will capture at least 95% of the emissions of particulate matter less than 10 microns in aerodynamic diameter (PM_{10})[5]. On this basis, Boeing-Renton proposes the following emissions increases for this project:

[4] 71 Federal Register 54235, 54240 (September 26, 2006)
[5] PM_{10} emissions from spray-painting come from the paint solids in the over-spray.

Table 1: Project Emissions

Process	Maximum Projected Emissions Increases (tons/year)					
	Nitrogen oxides (NO_X)	Carbon monoxide (CO)	Sulfur oxides (SO2)	PM_{10}	$PM_{2.5}$[6]	VOCs
Final Exterior Coating Building 5-50 Paint Hangar P1	0	0	0	0.1	0.1	36.4
De-painting Building 5-50 Paint Hangar P1	0	0	0	0	0	4.4
Wing Buildup and Final Assembly Buildings 4-81, 4-82, 4-20, and 4-21	0	0	0	0	0	32.3
Boilers Building 5-50	14.7	12	0.166	1.2	1.2	0.8
Total	14.7	12	0.166	1.3	1.3	73.9
Significant emission rate	40	100	40	15	10	40

PSD review is required for the proposed P1 project. Only VOCs are subject to PSD review because all other pollutant emission increases for the P1 project are lower than the corresponding SER.

2.2 New Source Performance Standards

New Source Performance Standards (NSPS) apply to certain types of equipment that are newly constructed, modified, or reconstructed after a given applicability date. There are no NSPSs that apply to the proposed P1 project.

The National Emission Standards for Hazardous Air Pollutants (NESHAP) apply to categories of equipment with hazardous air pollutant emissions. NESHAPs applicability is discussed below:

[6] NO_X and SO_2 are precursor chemicals to $PM_{2.5}$. They trigger $PM_{2.5}$ into NSR analysis if either has emissions of at least 40 tons per year. States are not required to address VOCs as a $PM_{2.5}$ precursor unless Washington or EPA makes a technical demonstration that they contribute significantly in a nonattainment area ("Policies for Addressing $PM_{2.5}$ Precursor Emissions," Rich Damberg, EPA Office of Air Quality Planning and Statistics, June 20, 2007)

2.2.1 NESHAP 40 CFR 63 Subpart GG

40 CFR 63.741 through 63.753, otherwise known as Subpart GG applies to facilities that are engaged in the manufacture or rework of commercial, civil, or military aerospace vehicles or components and that are major sources of hazardous air pollutants.

2.3 The PSD Application

Boeing-Renton submitted the original PSD application on May 6, 2008. Ecology determined the application to be incomplete on June 4, 2008. Boeing-Renton submitted an amended application on July 21, 2008. Ecology determined that application to be complete on August 20, 2008.

3. DETERMINATION OF BEST AVAILABLE CONTROL TECHNOLOGY

3.1 Definitions

Best Available Control Technology (BACT) is an emission limitation based on the most stringent level of emission control that is technically and economically feasible, and that has been applied at similar sources.

In a BACT analysis, the applicant must rank all control options from 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 would be evaluated. Ultimately, the burden is on the applicant, to prove why the most stringent level of control should not be selected as BACT.

BACT is only applied to emission units that have an increase in emissions and that undergo a physical change or change in the method of operation. That criterion applies only to P1 in this proposed project. VOC emission increases from Wing Buildup and Final Assembly in Buildings 4-81, 4-82, 4-20, and 4-21 are due solely to de-bottlenecking without emission unit modification.

3.2 BACT analysis

Federal and state laws as related to PSD require an applicant to apply BACT for each regulated pollutant that will have a significant net emission increase due to the establishment of a new source or a physical change or change in the method of operation at an existing stationary source.

Boeing-Renton submitted a review of relevant available technology including research on prior BACT determinations listed and described in EPA's RACT/BACT/LAER Clearinghouse (RBLC) and control technology determinations from the South Coast and Bay Area Air Quality Management Districts, and San Juan Valley Air Pollution Control District. Boeing-Renton found the following control technologies for VOCs have been successfully applied in spray-painting operations. Based on its independent research, Ecology believes this is a satisfactorily complete list:

- Activated carbon or zeolite adsorption: The VOC-laden exhaust air is passed through granular adsorbents. Some of the VOCs are attracted to and attach themselves to the surface of the adsorbent, occupying available "active sites." When the active sites are all occupied, the adsorbent is saturated. The VOCs must be removed to re-activate the adsorbent for repeated use. This is usually done by heating the adsorbent in situ with either hot air or steam. If the VOCs can be stripped from the adsorbent at a sufficient concentration, they may be concentrated for recovery. Otherwise, the control technology must use an additional disposal method.

  Because of the size of the paint hangar, the exhaust air volume is very large, and the VOC concentration is very low, about 173,000 cubic feet per minute and about 27 parts per million by volume (ppmv), respectively, using Boeing's average operating schedule.

  Adsorption of organic chemicals on activated carbon is directly related to the concentration in the treated gas, and inversely related to temperature. At equilibrium with a 27 ppmv paint-type VOC-laden air stream at room temperature, the activated carbon would carry about 7.9% of its weight as VOCs[7]. The treated exhaust stream would probably average around 200 parts per billion VOC by volume.

  Once saturated (i.e., at equilibrium with the untreated gas stream), the activated carbon must be regenerated. This could be done by removing the carbon, and sending it back to the vendor for reprocessing, or by raising the temperature of the carbon in situ, and stripping off the VOCs.

  At a saturation carrying capacity of 7.9%, the system would saturate 510 tons of activated carbon per year, regardless of the replacement/regeneration cycle. Boeing estimated vendor-regeneration would cost about $1.50 per pound, and Ecology believes this is conservative. This gives a regeneration cost of $1.5 million per year, or $38,000 per ton VOC removed.

  Alternately, the VOCs could be stripped in-situ. Because the VOCs are explosive solvents, and to take advantage of limited aqueous solubility of the VOCs, steam is usually used as the stripping medium. The average concentration of VOCs in the steam condensate should be around 1% by weight (ibid.). About 95% of that should decant from the steam condensate if it is cooled to room temperature. The aqueous phase of the steam condensate, containing about 500 parts per million VOCs by weight, is now a 2,600 gallon per day dangerous waste stream[8]. The recovered VOCs are a contaminated mixture of paint solvent chemicals with no commercial value (and may in themselves be dangerous waste). Even if this dangerous waste could be disposed of for 25¢ per pound, the annual disposal cost

[7] Estimated from data in "Capturing organic vapors from non-condensable gases using activated carbon technology," Mike Worrall, Chemical Processing (January 1998)

[8] Washington regulations

would be almost $2 million per year. That translates to $49,000 per ton of VOC removal.

Ecology believes these treatment costs are more than an order-of-magnitude higher that justifiable, and capital and operating costs have not yet been considered.

- Thermal oxidation: Basically, this means heating the VOC-laden air stream up enough that the VOCs will oxidize to CO_2 and water. In very small systems, this is often done by heating the entire air stream. For the P1 exhaust stream, the natural gas cost would be about $26 million per year or $650,000 per ton VOC removed. Obviously infeasible.

  Large exhaust air systems would use a process called "regenerative thermal oxidation" (RTO). An RTO uses two or more chambers containing heat-absorbing material. The heat of combustion from oxidizing the VOCs, along with whatever supplementary heat, in the first chamber in the flow train is absorbed by the subsequent chambers. When the next chamber in the train is hot enough to oxidize the VOCs, flow is diverted to it, and it becomes the combustion chamber as it releases its heat to the exhaust gas. Overall, the system cycles back-and-forth between chambers. Up to about 95% of the heat load can be recovered, or in other words, the net heat load may be as low a 5% of the "direct heat" requirement. Even so, the natural gas cost for treatment of P1's exhaust air would be over $30,000 per ton VOC removed. Once again, this is without considering the capital and operating costs of the treatment system. The literature indicates the capital cost of an RTO system to treat P1's exhaust air would cost about $3.2 million. This translates to a contribution to the BACT-effectiveness cost of about $16,000 per ton VOC removed. So, considering only fuel and capital cost, an RTO system would cost over $45,000 per ton VOC removed. Ecology believes this treatment cost is unjustifiable.

- Adsorption combined with thermal oxidation: Hot air may be used to strip the VOCs off the carbon as long as fail-safes are put in action to assure the VOC concentration does not approach the lower explosion limit. The VOCs in the hot air may then be destroyed by using an RTO. Standard-design systems are available that are called rotary concentrator/RTO systems.

  The lower explosion limit of paint-type VOCs is about 12,000 ppm. At 200 ^{o}F, the stripping hot air should not exceed about 4,100 ppmv (estimated in the same way as in the activated carbon discussion). The RTO system would be much smaller than the stand-alone alternative, discussed above, because the air stream to be treated would be reduced to 0.5% of the P1 exhaust air volume.

  This configuration presents a great economic improvement over either activated carbon adsorption or an RTO alone. The energy cost to heat the stripping air and to maintain operation of the RTO are reduced to $24,000 per year or about $600 per ton. Unfortunately, the capital cost is essentially a trade-off. Boeing-Renton

acquired an estimate for such a system from Met-Pro Corporation indicating a capital cost of $2.3 million to $3.6 million. This agrees with capital cost estimates available in the literature of about $3.7 million[9]. This gives a capital cost contribution to the BACT effectiveness cost of $10,500/ton-VOC to $17,000/ton-VOC. Ecology believes this treatment cost is unjustifiable.

- Low-VOC coatings, High transfer efficiency paint-spraying equipment and techniques, best management practices: these are specified and required in the Aerospace NESHAP (40 CFR Part 63). Ecology recognized these as BACT and required their application in PSD 91-06, Amendment 2 (June 10, 2005). Boeing-Everett proposes and Ecology agrees that this is BACT for the P1 project:
    - Use of low-VOC vapor pressure cleaning solvents and depainting stripping solutions and low-VOC primers and topcoats.
        - Low-VOC vapor pressure cleaning solvents are prescribed in 40 CFR 63.744(b) and 40 CFR 63.744(e).
        - For the purpose of this PSD permit, low-VOC vapor pressure stripping solutions have a composite[10] VOC vapor pressure not greater than 45 mm Hg (20° C).
        - Low-VOC primers are prescribed in 40 CFR 63.745(c)(2)
        - Low-VOC topcoats are prescribed in 40 CFR.745(c)(4).
    - Use of high volume, low pressure (HVLP) or other high application efficiency paint spray guns (greater than or equal to 65% rated transfer efficiency).
    - Low pressure application of bulk solvent.
    - Capture and containment of paint gun cleaning solvents.
    - Capture and containment of flush cleaning solvents and VOCs on spent cleaning rags.

4. AMBIENT AIR QUALITY ANALYSIS

The PSD permitting program requires that an ambient Air Quality Impacts Analysis (AQIA) be performed for those pollutants that are subject to PSD review. 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 ambient concentration increase for a given pollutant is below the significance level for each averaging period as given in 40 CFR 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

[9] Durr Environmental Inc. technical article, "Comparison of Regenerative Thermal Oxidizer to a Rotary Concentrator," Stephen Blocki (2003)
[10] Composite vapor pressure: Molar average.

modeling for ozone is required for a proposed project only if the net emissions of either VOCs or NO_X are 100 tons per year or more[11, 12]. The P1 project's net emissions increase of VOCs and NO_X are both less than 100 tons per year. So, no preliminary modeling is required for the proposed P1 project.

5. ADDITIONAL IMPACTS ANALYSIS

The PSD regulations require an evaluation of the effects of the anticipated emissions from the proposed source on visibility, soils, and vegetation in Class I and II areas, and the effect of increased air pollutant concentrations on flora and fauna in the Class I areas. Impacts were evaluated for the nine Class I areas and two Class II wilderness areas within 270 kilometers of Boeing-Renton (Table 1).

Table 1: Potentially Impacted Wilderness and Scenic Areas

Class I Area	**Approximate Distance from Boeing-Renton, kilometers**
Alpine lakes Wilderness	48
Glacier Peak Wilderness	146
Goat Rocks Wilderness	106
Mt. Adams Wilderness	142
Mt. Rainier National Park	58
North Cascades National Park	124
Olympic National Park	71
Pasayten Wilderness	155
Class II Area	**Approximate Distance from Boeing Renton, kilometers**
Columbia River Gorge NSA	190
Mt. Baker Wilderness	75

5.1 Local Impacts on Soils, Vegetation, and Animals

According to the EPA's New Source Review guidance (op. cit., Chapter D, § IIC), for most types of soils and vegetation, ambient concentrations of criteria pollutants below the secondary NAAQS will not result in harmful effects. Only the VOC emissions from the proposed P1 project are great enough to require review under this PSD analysis. VOCs are the pollutant emitted by the process that is the surrogate for ozone formed in the

[11] Table I-C-4, NSR Workshop Manual (October 1990)

[12] "Interim guidance on New Source Review (NSR) Questions Raised in Letters Dated September 9 and 24, 1992," Stanley Meiburg, Director, Air, Pesticides and Toxics, Division, EPA Region VI to Mr. William R. Campbell, Executive Director Texas Air Control Board (November 19, 1992)

ambient atmosphere. Ozone has no secondary NAAQS, and the VOC emissions are not great enough to require a detailed ambient air quality impact analysis (See Section 4). Consequently, Ecology concludes that the impacts on local soils, vegetation, and animals attributable to the proposed P1 project will be negligible.

5.2 Visibility Impact in Class I Areas

Only the VOC emissions from the proposed P1 project are great enough to require review under this PSD analysis. Air quality models for estimating visibility impacts in Class I Areas do not have a component for noncondensable VOCs. All the VOCs expected to be emitted from P1 are noncondensable. The magnitude of the NO_X emission increase (from the boiler) related to the proposed P1 project is not great enough to require that NO_X emissions be included in the NSR analysis. However, based on visibility analyses performed for NO_X emissions from boilers in Everett[13], Ecology estimates the worst impact to be less than a 0.3% reduction in visibility in Mt. Rainier National Park during September. This is less than 6% of the impact the federal land managers consider to be "a just noticeable change in most landscapes." Ecology concludes the visibility impact of emissions from P1 on Class I Areas will be insignificant.

5.3 Class I Area Deposition

Similarly to visibility analysis, federal land manager guidelines do not consider VOC deposition on Class I Areas, and the NO_X emissions from P1 are below NSR analysis thresholds. However, based on deposition analyses performed for NO_X emissions from boilers in Everett (ibid.), Ecology would expect the worst deposition to be less than 0.00025 kilograms nitrates per hectare per year in Olympic National Park. This is less than 5% of the federal land manager threshold for concern. Ecology concludes the deposition of emissions from P1 on Class I Areas will be insignificant.

5.4 Construction and Growth Impacts

The proposed P1 project will not lead to a significant increase in the number of employees at Boeing-Renton. No increase in emissions from residential growth or in commuting-related mobile source emissions will be directly related to the proposed project. Boeing-Renton does not expect the proposed P1 project to lead to industrial growth in the area that would subsequently cause an increase in emissions of air contaminants.

Therefore, Ecology does not expect the proposed P1 project to cause any construction or growth related air quality impacts at or around the SPI.

[13] Fact Sheet for Prevention of Significant Deterioration No. PSD 05-03 (cancelled), Sierra Pacific Industries Everett Division.

6. CONCLUSION

The project will have no significant adverse impact on air quality. The Washington State Department of Ecology finds that the applicant, The Boeing Company, has satisfied all requirements for PSD.

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