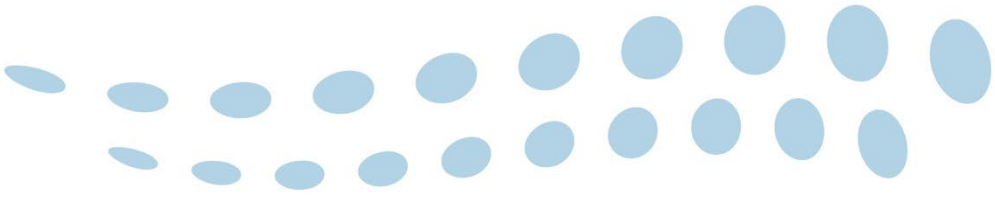
northwest Clean Air agency

Serving Island, San Juan, Skagit and Whatcom Counties

Technical Support Document

General Order 005
Spray Coating Operations

November 1, 2025



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A. INTRODUCTION

This technical support document has been developed to support the General Order (GO) of Approval 005. This GO covers spray coating facilities in the Northwest Clean Air Agency's (NWCAA) jurisdiction comprising Island, San Juan, Skagit, and Whatcom counties. The existing GO 002R1 provides exclusive coverage for eligible automotive refinishing facilities. GO 005 is not exclusive to automotive sources and will be available for use by applicants of a much wider variety of eligible spray coating operations. GO 005 will replace GO 002R1 for all future projects. However, facilities that applied for, and received, coverage under a previous GO (e.g., 002, 002R1) prior to the existence of GO 005 will continue to operate under the respective GO.

GO 005 provides owners and operators of spray coating facilities with a streamlined approach to obtain approval for new spray coating booths. Instead of case-by-case approvals issued under Section 300 – New Source Review of the NWCAA Regulation, spray coaters may apply for coverage under this General Order. If application review by the agency determines the facility will meet the criteria for coverage, written confirmation of coverage is provided to the applicant in the form of a letter granting coverage. The agency is required to confirm or deny coverage under the General Order within 30 days of receiving a complete application.

This General Order is issued pursuant to Subsection 300.16 of the NWCAA Regulation. NWCAA 300.16 specifies criteria under which the agency issues a General Order of Approval and the administrative method for processing applications for coverage. Section E of this Technical Support Document (TSD) describes how this General Order complies with the criteria in NWCAA 300.16. Section B of the TSD describes how the NWCAA met the public notice requirements for issuing this General Order as prescribed under 300.16(A)(2). Accordingly, the agency's public notice involvement procedures, NWCAA 305, were followed before issuing General Order 005.

This General Order applies generally to spray coating facilities, including automotive refinishing, commercial and industrial components, furniture such as cabinetry, and more. For this permitting action, a spray coating booth and its associated prep station are considered to be the same emissions unit covered under this General Order even though the prep station may be equipped with its own set of filters and stack. The integration of the spray booth and prep station into a single emissions unit allows the product use profile and emissions modelling to be done without separating the two. This is considered a conservative and comprehensive approach. Henceforth, when this technical support document refers to "spray booth", it also refers to the associated prep station without calling out the prep station specifically.

This General Order <u>does not apply</u> to:

- Aerosol coating products that are packaged in disposable cans (rattle cans). Although aerosol cans use may be found at auto body and other paint shops, their potential to emit (PTE) is considered to be below de minimis thresholds of NWCAA 300.5. Therefore, their use is not reviewable under Section 300 of the NWCAA Regulation.
- Mobile painting touch-up operations.

- Spray coating facilities located at a Title V air operating permit (AOP) source. This exclusion is codified in NWCAA 300.16(B)(1)(d).
- Spray booths installed at a location where spray coating is prohibited by the city or county.

Spray booths that cannot meet the criteria for coverage under this General Order may apply for case-by-case permit approval under Section 300 of the NWCAA Regulation by filing a Notice of Construction (NOC) application with the agency.

Coverage under this General Order is granted to each individual spray coating booth and associated prep station. If there are multiple spray coating booths at a facility needing coverage, separate applications must be submitted for each set and coverage is granted by the agency separately. However, no more than one application for coverage may be granted at the same facility unless the applications are separated by at least 18 months[1]. This separation in time ensures, within reason, that projects are separate capital projects and not parts of a single project. The basis for this separation lies in the fact that this General Order ensures compliance with the acceptable source impact levels (ASIL) of WAC 173-460 for toxic air pollutants for a single spray booth. Simultaneously granting coverage for multiple spray coating booths at a single facility would overlook the requirement to evaluate an increase in air toxics that are part of a single project in aggregate and comparing increases to the ASIL.

This General Order includes conditions under which a spray coating booth may operate. These conditions are summarized below. A detailed discussion of the intent of each condition is included in Section E of this TSD.

- Spray coating must be done in a spray coating booth with at least 3 sides and a ceiling, equipped with exhaust filters that are at least 98% efficient as determined by ASHRAE Method 52.1 and exhausted vertically at least six feet above the highest point of the roof.
- Spray coating must be done using high-volume, low-pressure (HVLP), electrostatic or equivalent spray guns[2].
- Total applied coatings (including additives, activators, hardeners, catalysts, reducers, adhesives, primers, stains, lacquers, varnishes, base coats, topcoats, clear coats, thinners, etc.) and solvents use associated with the coating operation is limited to 490 gallons per 12-month rolling period, per spray coating booth. From here onward, this TSD refers to all of these coatings and solvents together as "products".
- Products associated with the coating operation must not contain any chromium, cadmium, lead, nickel, manganese naphthalene, or diethanolamine and must not contain ethylbenzene at a concentration greater than 3.6% by weight.
- Spray gun cleaning must be done in either an enclosed cleaning device or by disassembling the gun and cleaning in a container.

[1] Consistent with US EPA Memo dated June 17, 1993 "Applicability of New Source Review Circumvention Guidance to 3M - Maplewood, Minnesota"
[2] South Coast Air Quality Management District provides equivalency determination letters at: http://www.aqmd.gov/home/permits/spray-equipment-transfer-efficiency.

- Solvent containers must remain closed when not in use and solvent soaked materials such as rags must be stored in closed containers when not in use.

B. PUBLIC INVOLVEMENT

Public involvement for GO 005 is required under the following NWCAA subsections of the NWCAA Regulation.

305.2 Actions Subject to a Mandatory Public Comment Period

A) The NWCAA shall provide public notice and a public comment period in accordance with NWCAA 305.3, before approving or denying any of the following types of applications or other actions:

....

(9) The original issuance and any revisions to a General Order of Approval issued under NWCAA 300.16.

....

305.3 Public Comment Period

(A) Public comment period notice for the actions listed under NWCAA 305.2 shall be posted on the NWCAA website for the duration of the public comment period. The NWCAA may supplement this method of notification by advertising in a newspaper of general circulation in the area of the proposed action or by other methods appropriate to notify the local community. The public comment period shall be initiated only after the NWCAA has made a preliminary determination. In the case of a permit action, the cost of providing all noticing shall be borne by the applicant.

(B) The public comment period shall extend at least 30 days following the date the public notice is first published. If a public hearing is held, the public comment period shall extend at least through the hearing date and thereafter for such period as specified in the notice of public hearing.

(C) The NOC application and any written preliminary determination by the NWCAA shall be available for the duration of the public comment period on the NWCAA website, excluding any confidential information as provided in NWCAA Section 114. In addition, the NOC application and any written determination may be made available for public inspection in at least one location near the proposed project. The NWCAA's written preliminary determination shall include the conclusions, determinations and pertinent supporting information from the NWCAA's analysis of the effect of the proposed project on air quality.

(D) The public comment period notice shall include:

(1) Date the notice is posted.

(2) Name, location, and a brief description of the project.

(3) A description of the air contaminant emissions including the type of pollutants and quantity of emissions that would increase under the proposal.

(4) Location of documents made available for public inspection.

(5) Start date and end date of the public comment period.

(6) A statement that a public hearing may be held if the NWCAA determines that significant public interest exists.

(7) The name, telephone number, and email address of a person at the NWCAA whom interested persons may contact for additional information.

(E) The NWCAA shall distribute a copy of the notice for all actions subject to a mandatory public comment period under NWCAA 305.2, except for NWCAA 305.2(13) and (14), to the US Environmental Protection Agency Region 10 Regional Administrator.

....305.5 Public Hearings

(A) Any person, interested governmental entity, group or the applicant, may request a public hearing during the comment period specified in the public notice. Any such request shall indicate, in writing, the interest of the entity filing it and why a hearing is warranted. The NWCAA may, in its discretion, hold a public hearing if it determines that significant public interest exists. Any such hearing shall be held upon such notice and at a time and place as the NWCAA deems reasonable.

305.6 Consideration of Public Comments

The NWCAA shall not issue a final decision until the public comment period has ended and any comments received during the public comment period have been considered.

305.7 Public Information

All information, except information protected from disclosure under any applicable law including, but not limited to, NWCAA Section 114 and RCW 70A.15.2510, is available for public inspection at the NWCAA. This includes copies of Notice of Construction applications, Orders, and applications to modify Orders.

The agency took the following action to meet the requirements for public involvement.

- A public notice of the agency's preliminary determination to issue the GO 005 was posted to the NWCAA website on April 13, 2026 for a period of no less than 30 days ending on May 20, 2026. This posting included the public notice (Attachment 1), draft General Order 005 and associated Technical Support Document.
- The US EPA Region 10 Administrator was send a copy of the public notice on April 13, 2026.
- A copy of the docket containing the public notice, draft General Order 005 and associated Technical Support Document was maintained at the NWCAA office.
- A public hearing was not scheduled because no comments were received during the public comment period.

C. STATE ENVIRONMENTAL POLICY ACT (SEPA)

Issuance of this General Order of Approval for Spray Coating is considered a project approval action under the requirements of Section 155 of the NWCAA Regulation - State Environmental Policy Act (SEPA).

On 4/3/2026 the NWCAA issued a SEPA threshold determination on this action as a determination of non-significance (DNS). The DNS includes a public comment period ending on 5/20/2026, the same day that the public comment period required under NWCAA Section 305 for the General Order ends. The Agency integrated the public notice periods for the SEPA determination and the General Order consistent with NWCAA 155.11 C, that states:

> *C. Whenever possible, the NWCAA shall integrate the public notice required under these policies and procedures with existing notice procedures for the NWCAA's nonexempt permit(s) or approval(s) required for the proposal.*

This SEPA determination is for air emissions from Spray Coating under coverage by the General Order. This NWCAA SEPA determination does not include construction of a building . It presumes that the spray coating operation will be located inside an existing, previously permitted, building. Construction of the building or other related facilities may be evaluated under SEPA by the city or county officials with jurisdiction as an independent SEPA action.

D. NWCAA REGISTRATION

The source registration program under Section 320 of the NWCAA Regulation requires non-Title V sources to register with the agency and pay annual registration fees. Registration of spray coating operations is required under one or more of the following.

NWCAA 320.5(A) Source Categories

Any affected source subject to a National Emission Standard for Hazardous Air Pollutants for Source Categories (NESHAP) under 40 CFR Part 63.

Any source that is subject to an Order of Approval or has been confirmed to be covered by a General Order of Approval by the NWCAA.

Any source with a facility-wide uncontrolled potential to emit emission rate of one or more pollutants equal to or greater than the registered source exemption emission rates as specified in WAC 173-400-102(5) or the Small Quantity Emission Rates (SQER) for Toxic Air Pollutants as specified in chapter 173-460 WAC.

NWCAA 320.5(B) Source Types

Surface coating operations, including coating of motor vehicles, mobile equipment, boats, ships, metal, cans, pressure sensitive tape, labels, coils, wood, plastic, rubber, glass, paper and other substrates.

NWCAA 320.5(C) Equipment classification list.

Particulate control equipment having a rated capacity greater than or equal to 2,000 cfm including, but not limited to:

(7) Mat or panel filter

(13) Water curtain

NWCAA 320.5(D) Control Officer Discretion

E. COMPLIANCE WITH NWCAA 300.16 CRITERIA

GO 005 is issued pursuant to Subsection 300.16 of the NWCAA Regulation. NWCAA 300.16(A)(1)(a) through (f) lists specific term and condition criteria that must be met, as appropriate, in issuing the general order. Each criterion and how it is addressed under GO 005 is described below.

(a) Limitations, prohibitions, and control requirements based on Best Available Control Technology (BACT) and/or BACT for Toxic Air Pollutants (T-BACT):

BACT is reflected in the requirements of GO 005 as follows:

- Spray coating operations must be conducted using high volume-low pressure (HVLP), electrostatic, or equivalent transfer efficiency spray guns.

  The agency has determined this is BACT for PM, and TBACT for toxics that are emitted as particles, over a long history of permitting spray coating operations. Good gun transfer efficiency minimizes overspray and maximizes the amount of solids applied to the part to be coated.

- All spray coating activities must be done in a spray booth comprised of at least three sides and a ceiling that captures and exhausts all overspray through a particulate filter system that discharges vertically and at least six feet above the highest point of the roof.

  This ensures proper capture and control of particulate emissions. It also ensures that all emissions of volatile compounds not captured by filters are discharged in a vertical orientation and at a significant height above the ground to ensure good air pollution dispersion to minimize impacts to the ambient air. This is consistent with the agency's common permitting practices.

- The dry filter system must be at least 98% efficient at controlling emissions consistent with the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) Method 52.1.

  The 98% control efficiency requirement is consistent with orders of approval issued by the NWCAA for spray coating operations as BACT to control PM from spray coating operations that do not use products containing any of the target HAP[3].

- Product use is limited to a total of 490 gallons in any 12-month period, and ethyl benzene content is limited to 3.6% by weight.

  These two limits (usage and ethyl benzene content) keep the facility from exceeding the ASIL for ethylbenzene. See Section G of this TSD for toxic air pollutant emission rates and their impact on the ambient air.

- Products used in the spray coating operation must not contain the target HAPs discussed above (cadmium, nickel, lead, chromium, and manganese). Products must also not contain naphthalene or diethanolamine.

[3] Target HAP are defined in 40 CFR 63.11169 as "compounds of chromium (Cr), lead (Pb), manganese (Mn), nickel (Ni), or cadmium (Cd)".

The agency has determined that products free of these chemicals are reasonably available for use by spray coaters.

Prohibiting the use of the above-mentioned target HAPs, which would all be emitted as particulate, ensures that the dry filter control efficiency of 98% is appropriate BACT/T-BACT for spray coating operations eligible for coverage under GO 005. NWCAA has historically determined[4] that BACT/T-BACT is a more stringent level of control if target HAPs are present in paints. See the TSD for GO 002 issued July 14, 2015 for a detailed write-up on the history of metals used in coatings and their regulation.

- Naphthalene and diethanolamine have also been prohibited because even at usage rates well below 490 gallons per year (the usage limit in GO 005), emissions of these air toxics would cause exceedance of the ASILs. Filter controls are not effective for naphthalene and diethanolamine as these chemicals are volatile (not particles), and evaporate as they dry. Filter controls are also not effective for ethylbenzene as it too evaporates as it dries.
- Appropriate work practice standards including cleaning spray guns in an enclosed cleaning device, or disassembled and cleaning in a container, keeping containers closed, and keeping solvent laden material in closed containers.

  The agency has determined that these good housekeeping practices representing BACT/T-BACT for volatile air pollutants.

(b) Operational restrictions, such as:

(i) Criteria related to the physical size of the source or emissions unit(s) covered;

(ii) Criteria related to raw materials and fuels used;

(iii) Criteria related to allowed or prohibited locations; and

(iv) Other similar criteria as determined by the NWCAA;

Operational restrictions in GO 005 include:

- Limiting product use to 490 gallons in any consecutive 12-month period
- Limiting the ethylbenzene content of products to 3.6% by weight.

  Both of these operational restrictions ensure that toxic air pollutant emissions are limited to acceptable levels as prescribed under Chapter 173-460 WAC.

(c) Monitoring, reporting, and recordkeeping requirements to ensure compliance with the applicable emission limits and/or control requirements:

The general order includes the following monitoring, reporting, and recordkeeping provisions.

- Periodic monitoring of the pressure drop across the filter bank and visual checks for gaps in the filter bank.

  Monitoring ensures that the filter bank is being properly operated and maintained.

[4] See Munson Boat OAC 1102 issued September 26, 2011 requiring dry filters meeting the aerospace MACT requirements of 40 CFR 63 Subpart GG.

- Records of filter bank monitoring inspections, purchase records for filters, copies of manufacturer data sheets for all products used, along with usage records.

  These records are used to demonstrate that the facility is being operated and maintained in accordance with the conditions of the General Order.

- Reporting to the agency of the spray booth startup date.

  This ensures the facility has commenced construction and has begun operation in a timely manner after obtaining coverage under the General Order. It also notifies the agency staff that the facility is operating so that a compliance inspection can be scheduled.

(d) Initial and periodic emission testing requirements:

There are no periodic testing requirements in the General Order due to the size and emission characteristics of spray coating operations.

(e) Compliance with WAC 173-400-112, NWCAA 300.9(B), and 300.9(C), as applicable:

- WAC 173-400-112 prescribes requirements for new source review for those sources located in non-attainment areas with regard to National Ambient Air Quality Standards (NAAQS).

  There are no non-attainment areas within the jurisdiction of the NWCAA.

- NWCAA 300.9(C) requires a toxic air pollutant review be performed under Chapter 173-460 WAC as referenced under WAC 173-400-110(2)(d).

  A review of toxic air pollutant emissions and their impacts on the ambient air is included in Section G of this TSD.

- NWCAA 300.9(B) requires the following:

  (1) Comply with all applicable New Source Performance Standards (NSPS), National Emission Standards for Hazardous Air Pollutants (NESHAP), National Emission Standards for Hazardous Air Pollutants for source categories (NESHAP), emission standards adopted under chapter 70.94 RCW and all applicable NWCAA emission standards.

  Any facility that is subject to either 40 CFR 63 Subpart HHHHHH, for Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources or 40 CFR 63 Subpart XXXXXX, for Nine Metal Fabrication And Finishing Source Categories, would not be eligible for GO 005. Both of those Subparts prescribe additional controls for "target HAPs" (compounds of chromium, lead, manganese, nickel, or cadmium), all of which are toxic air pollutants with relatively small SQER and ASIL. If these target HAPs were to be allowed in products approved for use under GO 005, the product usage allowance would be too small to be of value for many of the painting operations in NWCAA's jurisdiction. Moreover, less than 10% of the facilities in the NWCAA jurisdiction are subject to those two Subparts.

  Chapter 70.94 RCW does not contain any air pollution regulations specific to spray coating operations.

The only NWCAA rule specifically applicable to spray coating facilities is Section 508. The General Order has been written consistent with the requirements of Section 508.

The NWCAA Regulation has general provisions that are applicable to spray coating operations. These include a visible emissions limit of 20% opacity as determined by Method 9A (NWCAA Section 451) and a particulate limit of 0.10 grain/dry standard cubic foot from the spray booth exhaust (NWCAA Section 455). Spray coating operations controlled as required under the General Order are inherently low emitting particulate sources that meet these requirements by a substantial margin. Refer to Section F of this TSD for an estimate of particulate emissions.

The NWCAA Regulation includes a general nuisance provisions under Sections 530 and 535. These rules prohibit emissions that are detrimental to persons or property, including odors that adversely impact the use and enjoyment of property. There is a potential for odorous compounds to be emitted from spray coating operations but GO 005 requires specific control and ventilation practices consistent with to limit odor impacts . These include capturing coating overspray in a booth and exhausting vertically at least six feet above the highest point on the roof. If an odor complaint is received against a spray coating facility operating under this General Order, the agency can ensure that BACT/T-BACT is being employed as required by the order as a first line of action to resolve the problem.

(2) Employ Best Available Control Technology (BACT) and T-BACT.

Addressed earlier in this section under NWCAA 300.16(A)(1)(a)

(3) Allowable emissions will not cause or contribute to a violation of any ambient air quality standard. In addition, if located in a nonattainment area, allowable emissions will not violate the requirements for reasonable further progress established by the State Implementation Plan (SIP). If NWCAA has reason to be concerned that the construction or modification would cause or contribute to a violation of a NAAQS, the agency may require modeling using the guideline models and procedures of Appendix W of 40 CFR Part 51 as referenced in NWCAA 104.2. Written approval from the EPA must be obtained for any modification to, or substitution of, the guideline model.

Refer to Section F of this TSD for an ambient impact analysis for facilities granted coverage under this General Order.

(4) Comply with the applicable requirements of NWCAA Section 305.

Refer to Section B of this TSD for details on the public involvement process followed under NWCAA Section 305 prior to issuing this General Order.

(5) Comply with the applicable requirements of WAC 173-400-200 and 173-400-205.

WAC 173-400-200 entitled "Creditable stack height and dispersion techniques", prohibits the use of dispersion techniques or excess stack height to meet ambient air quality standards or PSD increment limitations. The configuration of a spray booth approved under this General Order is in compliance with these requirements.

WAC 173-400-205 entitled "Adjustment for atmospheric conditions" prohibits varying emissions according to atmospheric conditions or ambient concentrations of that pollutant, except as directed during air pollution episode. The configuration of a spray booth approved under this General Order is in compliance with this requirement.

(6) Ensure all fees required under NWCAA 324.2 have been paid.

The application includes the fees required for coverage under the General Order.

(f) Compliance with 40 CFR Parts 60, 61, 62, and 63; emission standards adopted under chapter 70.94 RCW; and all applicable NWCAA emission standards.

Compliance with federal, state and NWCAA air quality rules is also required under NWCAA 300.9(B). See the discussion under NWCAA 300.9(B) above for details.

(g) The application and approval process to obtain coverage under the specific General Order of Approval.

The application for the General Order describes what is needed to approve coverage.

F. CRITERIA AIR POLLUTION EMISSIONS AND IMPACTS

The following calculations estimate the potential to emit (PTE) from a spray coating operation that uses 490 gallons per year of products combined. This is the maximum use rate allowable under the General Order. A product density of 9.65 lb/gallon is used (see Table 1). Assumptions in the emission estimates are conservative and likely overestimate the emission rates.

Particulate Matter (PM)

Uncontrolled PM

Assumptions: Annual product use: 490 gal/year *(conservatively high as solvents, which have no solids and hence no PM emissions, will also be used)*
Product density:9.65 lb/gal
Product solids content: 40%

Annual PM emissions:

$$490\ \frac{gallons}{year} \times\ 9.65 \frac{lb\ product}{gallon} \times\ 0.40\ \frac{lb\ PM}{lb\ product} = 1{,}891\ \frac{lb\ PM}{year}\ or\ 0.95 \frac{ton}{year} PM$$

Controlled PM

PM will be controlled both by the transfer efficiency of the spray gun (65%) as well as the efficiency of the filtration system (98%). Both will be required by the GO.

Annual PM emissions:

$$1{,}891\ \frac{lb}{year} \times\ (1 - 0.65)\ \times\ (1 - 0.98) = 13 \frac{lb}{year} PM$$

Volatile Organic Compounds (VOC)

Assumptions: Annual solvent use: 490 gal/year *(conservative as this calculation assumes all 490 gallons are solvent, which is higher in VOC than paint and contains no solids)*

Solvent density: 9.65 lb/gal
100% of solvent is VOC

Annual VOC emissions:

$$490\ \frac{gallons}{year} \times\ 9.65 \frac{lb}{gallon}\ \times \frac{ton}{2000\ lb} = 2.4\ tons\ per\ year\ VOC$$

Hazardous Air Pollutants (HAP)

Even if all VOCs are assumed to be HAPs, which is highly conservative, annual HAP emissions would be 2.4 tons per year.

Regulatory analysis based on emission rates of criteria air pollutants.

- Uncontrolled emissions of PM and VOC exceed NWCAA NSR thresholds of 0.75 tpy PM and 2.0 tpy VOC, respectively. Therefore, both are subject to NSR in accordance with the NSR de minimis thresholds under NWCAA 300.4.
- The worst-case VOC emission rate is 2.4 tpy. This is less than the Title V threshold of 100 tpy and the AOP program does not apply if this is a single source.
- The worst-case HAP emission rate is 2.4 tpy and less than the 10 tpy of a single HAP, and 25 tpy of a combination of HAPs threshold for Title V program.

G. METHODOLOGY

GO 002R1 (Automotive Refinishing) limits the ethylbenzene content of products to 3.6% by weight and allows an annual limit of 490 gallons of all products. These limits have proved to be adequate for automotive refinishing operations. To provide continuity with GO 002R1 the same limits have been selected for GO 005.

To make sure the proposed limits in GO 005 could be used by a wide range of spray coating facilities, all permits issued by NWCAA to spray coating booths were examined, 89 permits in all. All MSDS for products used by all permitted facilities were examined. Two questions were asked:

1. Are the proposed limits of 3.6% ethylbenzene content and 490 gallons of products per year too limiting for sources?
2. Are there any toxic air pollutants present in the examined products for which the ASIL would be exceeded if 490 gal/yr are used?

The examined permits showed that around 85% of products being used by permittees have an ethylbenzene content that is less than 3.6% and 81% of permitted facilities have an annual product limit of less than 490 gal/yr.

Under this proposed annual limit, only diethanolamine and naphthalene were found to cause exceedance of their respective ASIL if a usage of 490 gal/yr is allowed. GO 005 will prohibit use of these chemicals.

Since any facility subject to either 40 CFR 63 Subpart HHHHHH or 40 CFR 63 Subpart XXXXXX would not be eligible for this General Order and be required to undergo separate

NSR, the target HAP as defined in those subparts (compounds of chromium, lead, manganese, nickel, or cadmium) also will be prohibited in this General Order.

Silica, a TAP that's emitted as particulate matter, was also closely examined as its present in some products. The use of HVLP paint spray guns and the exhaust filters required by GO 005 and NWCAA 508 will keep silica emissions below the ASIL if a usage is limited to 490 gal/yr.

H. TOXIC AIR POLLUTANT (TAP) EMISSIONS AND IMPACTS

During new source review, toxic air pollutants must be reviewed in accordance with Chapter 173-460 WAC – Controls for Sources of Toxic Air Pollutants. Compliance with the ASILs was shown through air dispersion modeling using the EPA-approved screening model AERSCREEN[5]. The flow rate, building and stack dimensions used are the average from all NSR permits reviewed by NWCAA. Complete modeling results from the AERSCREEN air dispersion model are in the Appendix of this document.

Taking into account the product usage limit (490 gallons/yr), the ethylbenzene content limit (3.6% by weight) and a product density of 9.65 lb/gal[6] modeled results were found to be just below the ethylbenzene ASIL.

No other TAP[7] other than those excluded (Section E.a) present in 490 gal/yr was found to exceed its ASIL.

From the data collection, research, and analysis performed, the proposed General Order allowing up to 490 gallons of product containing no greater than 3.6% ethylbenzene with a density not greater than 9.65 lb/gal is both a practical permitting option for most sources and meets the requirements in WAC 173-460.

I. APPLICATION PROCESSING

This General Order is issued in accordance with Subsection 300.16 of the NWCAA Regulation. 300.16(B) through (D) outline the process for granting coverage under a general order. Upon submittal of an application, the NWCAA has 30 days to review the application for completeness and either grant coverage or deem the application incomplete.

When the application is deemed complete, the agency issues a letter to the applicant within 30 days confirming coverage under the General order. If the agency deems the application incomplete, the agency will provide written notice to the applicant within 30 days informing them that the application is incomplete and identifies the information needed to make the application complete.

[5] See https://www.epa.gov/scram/air-quality-dispersion-modeling-screening-models#aerscreen for information about AERSCREEN and EPA's approval.
[6] The average density of all products in permits issued by NWCAA is 9.14 lb/gal. A density of 9.65 lb/gal, a conservatively high value, was used in the GO 005 analysis to ensure a conservative analysis and provide further assurance that the ASIL for ethylbenzene will be met when 490 gallons/yr are allowed.
[7] With the exception of naphthalene, diethanolamine, and the target HAP as mentioned before.

For an application to be deemed complete, an application review fee must be received by the NWCAA. The current application fee is $1126. This fee may be changed in the future as New Source Review fees are periodically adjusted.

An application for coverage under General Order GO 005 has been prepared and is included as Attachment 4 of this TSD. The application ensures that the facility is being constructed and operated consistent with the requirements of the General Order.

J. GENERAL ORDER APPEAL RIGHTS

Pursuant to Section 300.10 of the NWCAA Regulation and chapter 43.21B RCW, issuance of this General Order may be appealed to the Pollution Control Hearings Board (PCHB). To appeal, a written notice of appeal must be filed with the PCHB and a copy served upon the NWCAA within 30 days of the date the General Order is issued.

After conclusion of this 30-day period, only the agency's case-by-case decision to approve or deny coverage for a specific facility may be appealed to the PCHB.

Information regarding the appeal procedures can be found at: www.eluho.wa.gov under Pollution Control Hearings Board.

K. CONCLUSION

Under the evaluation described in this technical support document (TSD), the Northwest Clean Air Agency hereby concludes that issuance of General Order 005 meets all applicable requirements.

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L. ACRONYMS AND ABBREVIATIONS

ASHRAE	American Society of Heating, Refrigerating, and Air-Conditioning Engineers
ASIL	Acceptable Source Impact Level
BACT	Best Available Control Technology
CFR	Code of Federal Regulations
lb/hr	Pounds per hour
NAAQS	National Ambient Air Quality Standard
NWCAA	Northwest Clean Air Agency
PM	Particulate matter also known as total suspended particulate
PTE	Potential to emit
RCW	Revised Code of Washington
SEPA	State Environmental Policy Act
SQER	Small Quantity Emission Rate
T-BACT	Toxic Air Pollutant Best Available Control Technology
tpy	Tons per year
TSD	Technical Support Document
WAC	Washington Administrative Code

LIST OF ATTACHMENTS

- **ATTACHMENT 1 – PUBLIC NOTICE**
- **ATTACHMENT 2 – AERSCREEN MODELING AND COMPARISON OF RESULTS TO ASILs AND NAAQS**

Attachment : spreadsheets

- **ATTACHMENT 3 – APPLICATION FOR COVERAGE UNDER GO 005**

ATTACHMENT 2 AERSCREEN MODELING AND COMPARISON OF RESULTS TO ASILs AND NAAQS

Note that modeling is not pollutant specific. A single modeling run was done for all pollutants. Modeling results were scaled for each pollutant emitted based on the mass emissions (lb/hr) of that pollutant. These scaled modeling results were then compared to the ASILs and NAAQS on a pollutant-by-pollutant basis.

Sample calculation (using ethyl benzene):
If all 490 gallons/yr of allowed product include ethylbenzene at 3.6% by weight, and an average density of 9.65 lb/gal, the amount of emitted ethylbenzene would be 490×9.65×0.036=170.3 lb/yr. This is equivalent to 0.0194 lb/hr.
According to the results of AERSCREEN modeling presented below, at an emission rate of 1 lb/hr, the maximum annual concentration is predicted to be 20.57 µg/m^3. At an emission rate of 0.0194 lb/hr, the maximum annual concentration is going to be 0.0194×20.57 = 0.3997 µg/m^3. The ASIL for ethylbenzene (see WAC 173-460-150) is 0.4 µg/m^3. The modeled, scaled, emission rate of ethylbenzene is just under the ASIL.

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********** STACK PARAMETERS **********

SOURCE EMISSION RATE: 0.1260 g/s 1.000 lb/hr
STACK HEIGHT: 7.92 meters 26.00 feet
STACK INNER DIAMETER: 0.914 meters 36.00 inches
PLUME EXIT TEMPERATURE: 291.5 K 65.0 Deg F
PLUME EXIT VELOCITY: 13.295 m/s 43.62 ft/s
STACK AIR FLOW RATE: 18500 ACFM
RURAL OR URBAN: RURAL

INITIAL PROBE DISTANCE = 1525. meters 5003. feet

********** BUILDING DOWNWASH PARAMETERS **********

BUILDING HEIGHT: 6.1 meters 20.0 feet
MAX BUILDING DIMENSION: 25.9 meters 85.0 feet
MIN BUILDING DIMENSION: 14.0 meters 46.0 feet
BUILDING ORIENTATION TO NORTH: 0. degrees
STACK DIRECTION FROM CENTER: 0. degrees
STACK DISTANCE FROM CENTER: 0.0 meters 0.0 feet

********** FLOW SECTOR ANALYSIS **********

25 meter receptor spacing: 7. meters - 1525. meters

FLOW SECTOR	BUILD WIDTH	BUILD LENGTH	XBADJ	YBADJ	MAX 1-HR CONC	DIST (m)	TEMPORAL PERIOD
10*	18.30	27.94	-13.97	0.00	191.2	75.0	WIN
20	22.03	29.13	-14.57	0.00	171.5	25.0	WIN
30	25.09	29.44	-14.72	0.00	171.5	25.0	WIN
40	27.39	28.85	-14.43	0.00	171.5	25.0	WIN
50	28.85	27.39	-13.69	0.00	171.5	25.0	WIN
60	29.44	25.09	-12.55	0.00	171.5	25.0	WIN
70	29.13	22.03	-11.02	0.00	171.5	25.0	WIN
80	27.94	18.30	-9.15	0.00	171.5	25.0	WIN
90	25.90	14.02	-7.01	0.00	171.5	25.0	WIN
100	27.94	18.30	-9.15	0.00	171.5	25.0	WIN
110	29.13	22.03	-11.02	0.00	171.5	25.0	WIN
120	29.44	25.09	-12.55	0.00	171.5	25.0	WIN
130	28.85	27.39	-13.69	0.00	171.5	25.0	WIN
140	27.39	28.85	-14.43	0.00	171.5	25.0	WIN
150	25.09	29.44	-14.72	0.00	171.5	25.0	WIN
160	22.03	29.13	-14.57	0.00	171.5	25.0	WIN
170	18.30	27.94	-13.97	0.00	191.2	75.0	WIN
180	14.02	25.90	-12.95	0.00	191.2	75.0	WIN
190	18.30	27.94	-13.97	0.00	191.2	75.0	WIN
200	22.03	29.13	-14.57	0.00	171.5	25.0	WIN
210	25.09	29.44	-14.72	0.00	171.5	25.0	WIN
220	27.39	28.85	-14.43	0.00	171.5	25.0	WIN
230	28.85	27.39	-13.69	0.00	171.5	25.0	WIN
240	29.44	25.09	-12.55	0.00	171.5	25.0	WIN
250	29.13	22.03	-11.02	0.00	171.5	25.0	WIN
260	27.94	18.30	-9.15	0.00	171.5	25.0	WIN
270	25.90	14.02	-7.01	0.00	171.5	25.0	WIN
280	27.94	18.30	-9.15	0.00	171.5	25.0	WIN
290	29.13	22.03	-11.02	0.00	171.5	25.0	WIN
300	29.44	25.09	-12.55	0.00	171.5	25.0	WIN
310	28.85	27.39	-13.69	0.00	171.5	25.0	WIN
320	27.39	28.85	-14.43	0.00	171.5	25.0	WIN
330	25.09	29.44	-14.72	0.00	171.5	25.0	WIN
340	22.03	29.13	-14.57	0.00	171.5	25.0	WIN
350	18.30	27.94	-13.97	0.00	191.2	75.0	WIN
360	14.02	25.90	-12.95	0.00	191.2	75.0	WIN

* = worst case flow sector

********** MAKEMET METEOROLOGY PARAMETERS **********

MIN/MAX TEMPERATURE: 272.0 / 310.9 (K)

MINIMUM WIND SPEED: 0.5 m/s

ANEMOMETER HEIGHT: 10.000 meters

SURFACE CHARACTERISTICS INPUT: AERMET SEASONAL TABLES

DOMINANT SURFACE PROFILE: Urban
DOMINANT CLIMATE TYPE: Wet Conditions
DOMINANT SEASON: Winter

ALBEDO: 0.35
BOWEN RATIO: 0.50
ROUGHNESS LENGTH: 1.000 (meters)

SURFACE FRICTION VELOCITY (U*) NOT ADUSTED

METEOROLOGY CONDITIONS USED TO PREDICT OVERALL MAXIMUM IMPACT

YR	MO	DY	JDY	HR
10	02	21	21	01

H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O LEN	Z0	BOWEN	ALBEDO	REF WS
-3.68	0.087	-9.000	0.020	-999.	59.	17.0	1.000	0.50	0.35	1.00

HT	REF TA	HT
10.0	310.9	2.0

WIND SPEED AT STACK HEIGHT (non-downwash): 0.9 m/s
STACK-TIP DOWNWASH ADJUSTED STACK HEIGHT: 7.9 meters
ESTIMATED FINAL PLUME RISE (non-downwash): 0.0 meters
ESTIMATED FINAL PLUME HEIGHT (non-downwash): 7.9 meters

METEOROLOGY CONDITIONS USED TO PREDICT AMBIENT BOUNDARY IMPACT

YR	MO	DY	JDY	HR
10	02	28	21	13

H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O LEN	Z0	BOWEN	ALBEDO	REF WS

169.41 1.066 1.200 0.020 365. 2532. -640.6 1.000 0.50 0.14 6.00

HT	REF TA	HT
10.0	291.5	2.0

WIND SPEED AT STACK HEIGHT (non-downwash): 5.4 m/s
STACK-TIP DOWNWASH ADJUSTED STACK HEIGHT: 7.9 meters
ESTIMATED FINAL PLUME RISE (non-downwash): 4.3 meters
ESTIMATED FINAL PLUME HEIGHT (non-downwash): 12.2 meters

********** AERSCREEN AUTOMATED DISTANCES **********
OVERALL MAXIMUM CONCENTRATIONS BY DISTANCE

MAXIMUM DIST (m)	MAXIMUM 1-HR CONC (ug/m3)	MAXIMUM DIST (m)	MAXIMUM 1-HR CONC (ug/m3)
7.01	69.24	775.00	13.63
25.00	171.5	800.00	13.06
50.00	173.8	825.00	12.53
75.00	191.2	850.00	12.04
100.00	155.5	875.00	11.58
125.00	128.3	900.00	11.16
150.00	107.2	925.00	10.76
175.00	90.79	950.00	10.39
200.00	78.01	975.00	10.05
225.00	67.90	1000.00	9.721
250.00	59.77	1025.00	9.416
275.00	53.14	1050.00	9.131
300.00	47.65	1075.00	8.862
325.00	43.04	1100.00	8.610
350.00	39.14	1125.00	8.372
375.00	35.81	1150.00	8.149
400.00	32.92	1175.00	7.937
425.00	30.41	1200.00	7.738
450.00	28.21	1225.00	7.550
475.00	26.26	1250.00	7.372
500.00	24.53	1275.00	7.203
525.00	22.99	1300.00	7.040
550.00	21.61	1325.00	6.859
575.00	20.36	1350.00	6.687
600.00	19.23	1375.00	6.521
625.00	18.20	1400.00	6.363
650.00	17.27	1425.00	6.211
675.00	16.41	1450.00	6.065

700.00	15.63	1475.00	5.925
725.00	14.91	1500.00	5.790
750.00	14.24	1525.00	5.660

********** AERSCREEN MAXIMUM IMPACT SUMMARY **********

CALCULATION PROCEDURE	MAXIMUM 1-HOUR CONC (ug/m3)	SCALED 3-HOUR CONC (ug/m3)	SCALED 8-HOUR CONC (ug/m3)	SCALED 24-HOUR CONC (ug/m3)	SCALED ANNUAL CONC (ug/m3)
FLAT TERRAIN	205.7	205.7	185.1	123.4	20.57

DISTANCE FROM SOURCE 62.00 meters directed toward 10 degrees

IMPACT AT THE
AMBIENT BOUNDARY 69.24 69.24 62.32 41.55 6.924

DISTANCE FROM SOURCE 7.01 meters directed toward 40 degrees