



Statement of Basis
Air Quality Construction Permit
Crenlo Engineered Cabs
Watertown, South Dakota

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1.0 Background

On October 15, 2019, the Department of Agriculture and Natural Resources (DANR) issued a renewed minor air quality operating permit to Workhorse Cabs for their facility in Watertown, South Dakota.

Since the permit issuance, the following changes have been made:

- December 4, 2019 - administrative amendment to change Worthington Industries' Watertown to Workhorse Cabs, LLC Watertown Division. The renewal application submitted in July 22, 2024, identifies Workhorse Cabs as Crenlo Engineered Cabs. Therefore, the facility will be identified as Crenlo for this permit review.

On April 7, 2026, DANR received a construction application to add a paint booth. The application was considered complete on July 20, 2026.

1.1 Existing Equipment

Table 1-1 provides a list of the units currently permitted to operate at Crenlo under the existing minor air quality operating permit issued December 4, 2019.

Table 1-1 – Description of Permitted Units, Operations, and Processes

Unit	Description	Maximum Operating Rate	Control Device
#3	Paint Booth #3 – 1988 Logan Valley paint booth, model DT1422	Not applicable	Dry particle filters
#6	Down Draft #1 – 1998 National Booth paint booth, model DDTBP201242	Not applicable	Dry particle filters
#7	2003 Rite boiler fired with natural gas	6.0 million Btus per hour heat input	Not applicable
#8	2003 Electro Deposition Coating System, Eisenmann, MD: SN A 50-070	Not applicable	Not applicable
#11	2011 Quadstates Finishing Systems Side Downdraft Paint Booth, model: CATSDD-14-12-18-PDT	Not applicable	Dry particle filters
#12	2003 Caterpillar Olympian, MD# G100F3, Engine MD# Ford WSG1068 Turbo, Spark Ignition, Natural Gas	100 kilowatts	Not applicable
#13	Air Make-up #1 – 1992 King National model DF-149-60-102	6.6 million Btus per hour heat input	Not applicable

1.2 Proposed Changes

On April 7, 2026, DANR received an application to propose construction of an airless spray paint booth. Table 1-2 shows the description of the new equipment proposed.

Table 1-2 – Description of Proposed Units, Operations, and Processes

Unit	Description	Maximum Operating Rate	Control Device
#14	Paint Booth #4 – model DFECG, airless spray method	Not applicable	Dry particle filters

2.0 New Source Performance Standards

DANR reviewed the New Source Performance Standards under 40 CFR Part 60 and determined no standards are applicable to Crenlo’s proposed construction.

3.0 New Source Review

Administrative Rules of South Dakota (ARSD) 74:36:10:01 states that New Source Review regulations apply to areas of the state which are designated as nonattainment pursuant to the Clean Air Act for any pollutant regulated under the Clean Air Act. Crenlo is located in Watertown, South Dakota, which is in attainment or unclassifiable for all the pollutants regulated under the Clean Air Act. Therefore, Crenlo is not subject to New Source Review.

4.0 Prevention of Significant Deterioration

A Prevention of Significant Deterioration (PSD) review applies to new major stationary sources and major modifications to existing major stationary sources in areas designated as attainment under Section 107 of the Clean Air Act for any regulated air pollutant. The following is a list of regulated air pollutants under the PSD program:

1. Total suspended particulate (PM);
2. Particulate with a diameter less than or equal to 10 microns (PM₁₀);
3. Particulate with a diameter less than or equal to 2.5 microns (PM_{2.5});
4. Sulfur dioxide (SO₂);
5. Nitrogen oxides (NO_x);
6. Carbon monoxide (CO);
7. Ozone – measured as volatile organic compounds (VOC);
8. Lead;
9. Fluorides;
10. Sulfuric acid mist;
11. Hydrogen sulfide;
12. Reduced sulfur compounds;
13. Total reduced sulfur; and
14. Greenhouse gases (carbon dioxide, methane, nitrous oxide, etc.).

If the source is considered one of the 28 named Prevention of Significant Deterioration source categories listed in Section 169 of the federal Clean Air Act, the major source threshold is 100 tons per year of any regulated air pollutant, except for greenhouse gases. The major source threshold for all other sources is 250 tons per year of any regulated air pollutant, except for greenhouse gases. Crenlo does not fall under one of the 28 named Prevention of Significant Deterioration source categories. A facility must trigger one of the major source thresholds for another regulated pollutant before greenhouse gas emissions can be considered under the Prevention of Significant Deterioration permitting program. This applies to both new Prevention of Significant Deterioration program sources as well as major source modifications.

4.1 Potential Emissions for Criteria Pollutants

DANR uses stack test results to determine air emissions whenever stack test data is available from the source or a similar source. When stack test results are not available, DANR relies on manufacturing data, material balance, EPA's Compilation of Air Pollutant Emission Factors (AP-42, Fifth Edition, Volume 1) document, the applicant's application, or other methods to determine potential air emissions.

Potential emissions for each applicable pollutant are calculated from the maximum design capacity listed in the application and assume the unit operates every hour of every day of the year, while using the fuel that will emit the greatest emissions. Potential emissions are not realistic of the actual emissions and are used only to identify which type of air quality operating permit and potential regulations Crenlo may be required to meet.

4.1.1 Potential Emissions – Paint Booths

Emission factors for Crenlo's new proposed paint booth (Unit #14) are derived from the material safety data sheets for the products used in the paint booth. The potential emission rate will be estimated from the amount of paint and solvent used and the amount of time the booth operates. Crenlo's new paint booth will operate for 20 hours per day, 260 days per year (5,200 hours per year). Potential emissions are calculated assuming the facility operates for 8,760 hours per year. The potential emission for the spray booths will be calculated by using the multiplying factor derived in Equation 4.1.

Equation 4.1 – Multiplying Ratio

$$\text{Multiplying Ratio} = \frac{\text{Potential Operating hours per year}}{\text{Actual Operating hours per year}} = 1.68$$

There is no air pollution control equipment for volatile organic compounds associated with the spray booth operation. Therefore, the potential uncontrolled and controlled volatile organic compound emissions are equal. The potential uncontrolled volatile organic compound and particulate matter emissions from the spray booth will be based on the actual usage of products and information obtained from the Safety Data Sheets submitted in the application. Actual usage were given through email correspondence. The volatile organic compound content and particulate matter content are calculated by multiplying paints' density and its weight percentage for each product and are summarized in Table 4-1.

Table 4-1 – Potential Usage from VOC Content and PM Content

Product Name	Actual Usage (gallon per year)	Potential Usage (gallon per year) ¹	VOC Content (pounds per gallon)	PM Content (pounds per gallon)
Black Durabed	1,500	2,520	0.00	8.26
Catalyst 133	1,500	2,520	0.00	9.18

¹ – Potential usage is actual usage multiplied by the multiplying ratio, 1.68.

Potential volatile organic compound emissions from Crenlo are calculated using Equation 4.2, the potential usage from Table 4-1, the volatile organic compound, and the conversion factor 2,000 pounds per ton. The results are shown in Table 4-2.

Equation 4.2 – Potential Volatile Organic Compound Emissions

$$\text{Potential Emissions} \left[\frac{\text{tons}}{\text{year}} \right] = \frac{\text{Potential Usage} \left[\frac{\text{gallons}}{\text{year}} \right] \times \text{VOC Content} \left[\frac{\text{pounds}}{\text{gallon}} \right]}{2,000 \left[\frac{\text{pound}}{\text{ton}} \right]}$$

The paint booth's spray method is airless. This type of spray gun has a transfer efficiency of 70%. The overspray would be 30%. Equation 4.3 calculates potential particulate matter emissions using potential usage from Table 4-1, particulate matter content, and a conversion factor of 2,000 pounds per ton. The results are shown in Table 4-2.

Equation 4.3 – Potential Particulate Matter Emissions

$$\text{Potential Emissions} \left[\frac{\text{tons}}{\text{year}} \right] = \frac{\text{Potential Usage} \left[\frac{\text{gallons}}{\text{year}} \right] \times \text{PM Content} \left[\frac{\text{pounds}}{\text{gallon}} \right] \times 0.30}{2,000 \left[\frac{\text{pound}}{\text{ton}} \right]}$$

Table 4-2 – Potential Emissions from proposed Paint Booth

	VOC Emissions (tons per year)	PM Emissions (tons per year)
Black Durabed	0	3.12
Catalyst 133	0	3.47
Total	0	6.59

4.1.2 Potential Emissions Summary

Table 4-3 shows the summary of affected potential emissions from the addition of the new paint booth.

Table 4-3 – Facility Wide Potential Emissions

Unit	TSP	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO	VOC
Existing Facility¹	2	2	2	0	26	21	70
New Paint Booth	6.59	6.59	6.59	-	-	-	0

Unit	TSP	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO	VOC
Total	9	9	9	0	26	21	70

¹ – From air quality construction permit #28.3303-06 Statement of Basis, which shows up-to-date potential emissions.

The addition of the new paint booth does not increase the uncontrolled potential emissions to over 250 tons per year for any criteria pollutant. Therefore, Crenlo is still considered a minor source.

4.2 Prevention of Significant Deterioration Summary

The addition of the new paint booth does not increase the uncontrolled potential emissions to over 250 tons per year for any criteria pollutant. Therefore, Crenlo is still considered a minor source under the Prevention of Significant Deterioration program and is not subject to a Prevention of Significant Deterioration review.

5.0 National Emission Standards for Hazardous Air Pollutants

DANR reviewed 40 CFR Part 61 and determined there are no National Emissions Standards for Hazardous Air Pollutants applicable to Crenlo's operations.

6.0 Maximum Achievable Control Technology Standards

The federal Maximum Achievable Control Technology Standards are applicable to both major and area sources of hazardous air pollutants (HAP). A major source of hazardous air pollutants is defined as having the potential to emit 10 tons or more per year of a single hazardous air pollutant or 25 tons or more per year of a combination of hazardous air pollutants. An area source is a facility that is not a major source of hazardous air pollutants.

6.1 Potential Hazardous Air Pollutant Emissions

The federal Maximum Achievable Control Technology Standards are applicable to both major and area sources of hazardous air pollutants. A major source of hazardous air pollutants is defined as having the potential to emit 10 tons or more per year of a single hazardous air pollutant or 25 tons per year or more of a combination of hazardous air pollutants. An area source is a source that is not a major source of hazardous air pollutants.

6.1.1 Potential Hazardous Air Pollutant Emissions – Paint Booth

Dry filter media are used to control particulate matter; however, the filters do not control hazardous air pollutant emissions. The potential emissions from the spray booths will be based on the amount of products used, found in Table 4-1. Uncontrolled potential hazardous air pollutant emissions are those that would occur with no air emission controls. There is no

pollution control equipment associated with hazardous air pollutants. Therefore, potential uncontrolled and controlled hazardous air pollutant emissions are equal. The potential uncontrolled hazardous air pollutant emissions from the spray booths will be based on the potential usage of products and information obtained from the Safety Data Sheets submitted in the application. The hazardous air pollutant content for each paint product is shown in Table 6-1.

Table 6-1 –Hazardous Air Pollutant Content From Products (pounds per gallon)

Product	Hexamethylene-di-isocyanate
Catalyst 133	0.092

Potential hazardous air pollutant emissions are calculated using potential usage in Table 4-1, the hazardous air pollutant content in pounds per gallon in Table 6-1, and the conversion factor to 2,000 pounds per tons shown in Equation 6.1. The results are shown in Table 6-2.

Equation 6.1 – Hazardous Air Pollutant Potential Emissions

$$\text{Potential} \left[\frac{\text{tons}}{\text{year}} \right] = \frac{\text{Potential Usage} \left[\frac{\text{gallons}}{\text{year}} \right] \times \text{HAPs content} \left[\frac{\text{pounds}}{\text{gallon}} \right]}{2000 \left[\frac{\text{pounds}}{\text{ton}} \right]}$$

Table 6-2 – Potential Hazardous Air Pollutant Emissions from Paint Booth (tons per year)

Hazardous Air Pollutants	HAP Potential Emissions
Proposed Paint Booth	0.12

Products that emit hazardous air pollutants emit volatile organic compounds. However, based on Safety Data Sheet for the product that emits hazardous air pollutants, the product is considered a polymer. Polymer compounds tend to stick together instead of vaporizing. Therefore, the potential volatile organic compounds convert to particulate matter during spraying.

6.1.2 Summary of Potential Hazardous Air Pollutant Emissions

Table 6-3 displays a summary of potential hazardous air pollutant emissions from all activities at the facility, in units of tons per year.

Table 6-3 – Potential HAP Emissions at the Facility (tons per year)

Description	HAP Emissions
Existing Facility ¹	4
Proposed Paint Booth	0.12
Facility Summary	4

¹ – From air quality construction permit #28.3303-06 Statement of Basis, which shows up-to-date potential emissions.

Crenlo's potential hazardous air pollutants emissions are still less than 10 tons per year of a single hazardous air pollutant or 25 tons per year of a combination of hazardous air pollutants. Therefore, Crenlo will still be considered an area source of hazardous air pollutants.

6.2 Maximum Achievable Control Technology Standards

DANR reviewed the Maximum Achievable Control Technology Standards under 40 CFR Part 63 and determined the following standards may be applicable to Crenlo at this time.

6.2.1 Surface Coating of Miscellaneous Metal Parts and Products – Subpart MMMM

Subpart MMMM of 40 CFR Part 63 establishes national emission standards for hazardous air pollutants for miscellaneous metal parts and products surface coating facilities. This subpart covers the following affected sources at an applicable facility:

1. All coating operations. Coating operations are defined as equipment used to apply cleaning materials to a substrate to prepare it for coating application or to remove dried coating; to apply coating to a substrate and to dry or cure the coating after application; or to clean coating operation equipment;
2. All storage containers and mixing vessels in which coatings, thinners and/or other additives, and cleaning materials are stored or mixed;
3. All manual and automated equipment and containers used for conveying coatings, thinners and/or additives, and cleaning materials; and
4. All storage containers and all manual and automated equipment and containers used for conveying waste materials generated by a coating operation.

New, reconstructed, and existing affected sources are subject to Subpart MMMM if they use 946 liters (250 gallons) per year, or more, of coatings that contain hazardous air pollutants and they are located at a major source of hazardous air pollutants.

Crenlo is not a major source of hazardous air pollutants; therefore, it is not subject to 40 CFR Part 63, Subpart MMMM.

6.2.2 Paint Stripping and Miscellaneous Surface Coating – Subpart HHHHHH

DANR reviewed the National Emission Standards for Hazardous Air Pollutants: paint Stripping and Miscellaneous Surface Coating Operations at Area Sources, and determined Crenlo may be applicable to 40 CFR Part 63, Subpart HHHHHH. This subpart is applicable to owners or operators of paint stripping operations, miscellaneous surface coating area sources and the spray application of coatings containing compounds of chromium (Cr) lead (Pb), manganese (Mn), nickel (Ni), or cadmium (Cd), to any part or product made of metal or plastic, or combinations of metal and plastic that are not motor vehicles or mobile equipment.

This subpart applies to sources using spray booths, ventilated prep stations, curing ovens, and associated equipment; spray guns and associated equipment, spray gun cleaning equipment

This subpart defines spray-applied coating operations as coatings that are applied using a hand-held device that creates an atomized mist of coating and deposits the coating on a substrate. For the purposes of this subpart, spray-applied coatings do not include the following materials or activities:

1. Coatings applied from a hand-held device with a paint cup capacity that is equal to or less than 3.0 fluid ounces (89 cubic centimeters); and
2. Surface coating application using powder coating, hand-held, non-refillable aerosol containers, or non-atomizing application technology, including, but not limited to, paint brushes, rollers, hand wiping, flow coating, dip coating, electro-deposition coating, web coating, coil coating, touch-up markers, or marking pens.

The Material Safety Data Sheets for the facility indicate that Crenlo does not use coatings that contain chromium and manganese and does not spray apply coatings to vehicles or mobile equipment. Therefore, this subpart is not applicable to Crenlo.

6.2.3 Nine Metal Fabrication and Finishing Source Categories – Subpart XXXXXX

DANR reviewed the National Emission Standards for Hazardous Air Pollutants: Area Source Standards for Nine Metal Fabrication and Finishing Source Categories, and determined that Crenlo may be applicable to 40 CFR Part 63, Subpart XXXXXX. The provisions of this subpart are applicable to an area source that is primarily engaged in the operations in one of the following nine source categories:

1. Electrical and Electronic Equipment Finishing Operations (NAICS codes 335999 and 335312);
2. Fabricated Metal Products (NAICS codes 332117 and 332999);
3. Fabricated Plate Work (Boiler Shops) (NAICS codes 332313, 332410, and 332420);
4. Fabricated Structural Metal Manufacturing (NAICS code 332312);
5. Heating Equipment, except Electric (NAICS code 333414);
6. Industrial Machinery and Equipment Finishing Operations (NAICS codes 333120, 333132 and 333911);
7. Iron and Steel Forging (NAICS code 33211);
8. Primary Metal products Manufacturing (NAICS code 332618); and
9. Valves and Pipe Fittings (NAICS code 332919).

Crenlo has a Standard Industrial Classification code of 3531 – Construction Machinery and Equipment. The North American Industry Classification System equivalent code for 3531 is 333120 – Construction Machinery Manufacturing. Therefore, Crenlo is subject to the requirements of Subpart XXXXXX.

6.2.4 Standards Applicable to Plating and Polishing Facilities – Subpart WWWWWW

40 CFR Part 63, Subpart WWWWWW is applicable to plating and polishing facilities that are area sources of hazardous air pollutants. As defined in 40 CFR §63.11504(a)(1,3), a plating and polishing facility is a plant site that is engaged in one or more of the processes listed below:

1. Electroplating other than chromium electroplating (i.e., non-chromium electroplating);
2. Electroless or non-electrolytic plating;

3. Other non-electrolytic metal coating processes, such as chromate conversion coating, nickel acetate sealing, sodium dichromate sealing, and manganese phosphate coating; and thermal spraying;
4. Dry mechanical polishing of finished metals and formed products after plating or thermal spraying;
5. Electroforming; and
6. Electropolishing.

An applicable plating or polishing facility will use or have emissions of compounds of one or more of the following metal hazardous air pollutants: cadmium, chromium, lead, manganese, and nickel. With the exception of lead, the metal hazardous air pollutants may be compounds of any of these metals or the metals in elemental form.

DANR reviewed the safety data sheets determined that neither of the components had cadmium, chromium, lead, manganese, or nickel. Because the paint booths process does not use compounds of these metal hazardous air pollutants, Crenlo is not applicable to Subpart WWWWWW.

6.2.5 Other Maximum Achievable Control Technology Standards

DANR reviewed the Maximum Achievable Control Technology standards under 40 CFR Part 63 and determined that no other subparts are applicable to the proposed construction at this time.

7.0 State Requirements

7.1 Permit Type

Crenlo is an existing source covered under a minor air quality operating permit. In accordance with Administrative Rules of South Dakota (ARSD) 74:36:20:01, a construction permit is required for all modifications to an existing source. Therefore, Crenlo is required to obtain a construction permit for the proposed paint booth. Crenlo will be required to record operating hours and product use with the proposed paint booth to ensure compliance with the construction permit.

7.2 State Emission Limits

In accordance with Administrative Rules of South Dakota 74:36:06:02, a fuel-burning unit and process industry unit may not cause emissions of particulate matter or sulfur dioxide in excess of the emissions limits outlined in this section. Crenlo's paint booth is not considered a fuel-burning or a process industry unit. Therefore, the paint booth is exempt from state emission limits.

Administrative Rules of South Dakota 74:36:12:01 establishes a visible emission limit of 20 percent opacity for each unit. The proposed construction is still required to comply with this opacity limit.

8.0 Recommendation

Based on the above findings, Crenlo is required to obtain an air quality construction permit for the proposed paint booth and operate within the requirements stipulated in the following regulations:

1. ARSD 74:36:06 – Regulated Air Pollutant Emissions;
2. ARSD 74:36:08 – National Emission Standards for Hazardous Air Pollutants;
3. ARSD 74:36:12 – Control of Visible Emissions; and
4. ARSD 74:36:20 – Construction permits for new sources or modifications.

Based on the information in the air quality permit application, DANR recommends conditional approval of a construction permit for Crenlo's proposed paint booth in Watertown, South Dakota. Questions regarding this permit review should be directed to Thang Nguyen, Engineer I, Department of Agriculture and Natural Resources – Air Quality Program.