MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

MISSOURI AIR CONSERVATION COMMISSION

PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: 102018-004 Project Number: 2018-07-046

Installation Number: 091-0011

Parent Company: DRS-SSI

Parent Company Address: 201 Evans Lane, St. Louis, MO 63121

Installation Name: DRS Sustainment Systems, Inc. West Plains

Installation Address: #1 McDaniel Street, West Plains, MO 65775

Location Information: Howell County, S17&20, T24N, R8W

Application for Authority to Construct was made for:
DRS Sustainment Systems, Inc. West Plains has applied for authority to spray apply surface coating onto Patriot missile canisters, to be conducted in new booth EP52. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

☐ Standard Conditions (on reverse) are applicable to this permit.

☑ Standard Conditions (on reverse) and Special Conditions are applicable to this permit.

Kendall B. Hale for

Director or Designee
Department of Natural Resources

OCT 05 2018

Effective Date

STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Enforcement and Compliance Section of the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review. In the event that there is a discrepancy between the permit application and this permit, the conditions of this permit shall take precedence. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the Enforcement and Compliance Section of the Department's Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available within 30 days of actual startup. Also, you must notify the Department's regional office responsible for the area within which you are located within 15 days after the actual start up of this (these) air contaminant source(s).

A copy of the permit application and this permit and permit review shall be kept at the installation address and shall be made available to Department's personnel upon request.

You may appeal this permit or any of the listed special conditions to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, MO 65102, as provided in RSMo 643.075.6 and 621.250.3. If you choose to appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If you choose not to appeal, this certificate, the project review and your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant source(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit using the contact information below.

<u>Contact Information</u>:
Missouri Department of Natural Resources
Air Pollution Control Program
P.O. Box 176
Jefferson City, MO 65102-0176
(573) 751-4817

The regional office information can be found at the following website:
http://dnr.mo.gov/regions/

SPECIAL CONDITIONS:
The permittee is authorized to construct and operate subject to the following special conditions:

The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (12)(A)10. "Conditions required by permitting authority."

DRS Sustainment Systems, Inc. West Plains
Howell County, S17&20, T24N, R8W

1. Capture Device Requirement - Booth
   A. DRS shall capture all emissions from spray applied surface coating conducted at EP52 in a totally enclosed booth.

   B. DRS shall close all booth doors and windows during operation.

   C. DRS shall monitor openings in the booth using one of the following methods,
      1) DRS shall equip all openings, except the exhaust, with an indicator that shows air flow direction into the booth during operation. DRS shall record air flow direction of each opening at least once daily during operation. Days of no operation shall be indicated; or
      2) DRS shall equip the booth with a gauge that measures booth-cabin static pressure. DRS shall record the booth-cabin static pressure at least once daily during operation. The operating pressure drop shall be maintained within the design conditions specified by the booth manufacturer. A copy of the design conditions shall be kept on site; or
      3) DRS shall equip the booth with an automatic interlock that allows the coating spray guns to operate only when booth-cabin static pressure is within the design conditions specified by the booth manufacturer. A copy of the design conditions shall be kept on site.

   D. DRS shall maintain an operating and maintenance log for the booth which shall include the following:
      1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and
      2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc; and
      3) Dates of the above.

2. Control Device Requirement - Filter
   A. DRS shall control emissions from the spray applied surface coating conducted at EP52 using an exhaust filter.

   B. DRS shall operate and maintain the filter in accordance with the manufacturer's specifications. The filter shall be equipped with a gauge or

SPECIAL CONDITIONS:
The permittee is authorized to construct and operate subject to the following special conditions:

meter, which indicates the pressure drop across the control device. These gauges or meters shall be located such that Department of Natural Resources' employees may easily observe them.

C. DRS shall keep replacement filters on hand at all times. The filters shall be made of fibers appropriate for operating conditions expected to occur (i.e. temperature limits, acidic and alkali resistance, and abrasion resistance). The replacement filter material type and weight shall meet or exceed the specifications of the existing filter. The air to cloth ratio or air to filter ratio shall not be increased when filter replacement is performed.

D. DRS shall continuously monitor and record at least once daily the operating pressure drop across the filter when the associated equipment is in operation. The operating pressure drop shall be maintained within the design conditions specified by the filter manufacturer's performance warranty.

E. DRS shall maintain a copy of the filter manufacturer's performance warranty on site.

F. DRS shall maintain an operating and maintenance log for the filter which shall include the following:
1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and
2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc; and
3) Dates of the above.

3. Alternative Coating at EP52

A. Before using an alternative coating at EP52 that differs from a material listed in Table 3, DRS shall calculate the potential emissions of all individual HAPs in the alternative coating.

B. DRS shall seek approval from the Air Pollution Control Program New Source Review Unit before use of the alternative coating if the potential individual HAP emissions for the alternative coating are greater than the SMAL for any chemical listed in Attachment B, or http://www.dnr.mo.gov/env/apcp/permits/constpmtguide.htm, whichever is most recent.

C. Attachment A or equivalent forms, such as electronic forms, approved by the Air Pollution Control Program shall be used to show compliance with Special Conditions 3.A. and 3.B.

SPECIAL CONDITIONS:
The permittee is authorized to construct and operate subject to the following special conditions:

4. Installation-Wide VOC Emission Limit
   A. DRS shall emit less than 250.0 tons of VOC in any consecutive 12-month period from the entire installation, as it is defined at the time of this permit's issuance in Table 1.

Table 1: Installation-Wide VOC Emission Units

Emission Unit	Description	VOC Emission Factor	Throughput and Factor Units
EP04	Paint Booth – Blockbooth surface coating emissions	100% weight	of VOC used (lbs, or gallons x density)
EP07	Paint Booth – P1 surface coating emissions		
EP08	Paint Booth – Plant 1 surface coating emissions		
EP10	Paint Booth – P1 surface coating emissions		
EP12	Paint Booth – P4 surface coating emissions		
EP20	Paint Booth – P4 surface coating emissions		
EP43	Paint Booth – Topcoat surface coating emissions		
EP45	Paint Booth – Wash Primer P1		
EP46	Paint Booth – Primer P1		
EP52	Global Finishing Solutions (GFS) Booth, surface coating emissions		
EP54	Two maintenance parts washers		
EP04a	Paint Booth – Blockbooth natural gas fired heater	5.5	lb/MMcf fuel input
EP07a	Paint Booth – P1 natural gas fired heater		
EP08a	Paint Booth – Plant 1 natural gas fired heater		
EP10a	Paint Booth – P1 natural gas fired heater		
EP12a	Paint Booth – P4 natural gas fired heater		
EP13	Oven P1, natural gas fired		
EP20a	Paint Booth – P4 natural gas fired heater		
EP26	Power Washers (8), natural gas fired		
EP27	Space Heaters, natural gas fired		
EP39	Area Air Makeup Units, natural gas fired		
EP41	Burnoff Oven, natural gas fired		
EP42	Cleaning Tanks, Spray Equipment, natural gas fired		
EP44	Primer Cure Infrared Oven, natural gas fired		
EP47	Infrared Oven P1, natural gas fired		
EP48	Convection Oven P1, natural gas fired		
EP52a	GFS Booth makeup air heater, natural gas fired		
EP29	Aboveground Fuel Storage – Diesel	0.01	lb/1,000 gal usage
EP33	Aboveground Fuel Storage – Gasoline	0.17	lb/1,000 gal usage
EP50	Tunner engine test, diesel RICE	0.36	lb/MMBtu fuel usage
EP50a	M1000 (APU) engine test, diesel RICE		
EP50b	Pump engine test, diesel RICE		
EP53	Emergency generator, natural gas, 60hp/45kW, June 2007	0.12	lb/MMbtu input

SPECIAL CONDITIONS:
The permittee is authorized to construct and operate subject to the following special conditions:

B. DRS shall develop and use forms to demonstrate compliance with Special Condition 4.A. The forms shall contain at a minimum the following information,
1) Installation name
2) Installation ID
3) Permit number
4) Current month
5) Current 12-month date range
6) Monthly throughput for each emission unit with the potential to emit VOC, with units of measure as indicated in Table 1
7) VOC emission factors for each emission unit, as indicated in Table 1 with the following further information,
   a) Surface coating and parts washers. DRS shall obtain the VOC content from the latest SDS or other manufacturer information. VOC weight % for use in this special condition may be a higher value than shown on the SDS due to various definitions throughout the industry. VOC means any compound of carbon that participates in atmospheric photochemical reactions to produce ozone, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, ammonium carbonate, and compounds listed in 10 CSR 10-6.020(2)(V)13.A. The VOC emission factor is 100% emission of all VOC that is used, except for reclaim. If VOC emission reductions are stated for reclaim, then DRS shall maintain monthly records of all reclaimed materials, their weight or volume/density, their VOC wt%, and reclaim emission reduction as throughput (lbs) x VOC wt%.
8) Monthly emissions for each emission unit calculated using the following equation:

$$VOC\ emissions\ (tons) = Throughput\ (units\ of\ measure) \times Emission\ unit\ specific\ emission\ factor\ \left(\frac{lb\ VOC}{units\ of\ measure}\right) \times \left(\frac{1\ ton\ VOC}{2000\ lbs\ VOC}\right)$$

9) Monthly VOC emissions calculated by summing all VOC emissions from the emission units in Table 1
10) 12-month rolling total VOC emissions from the emission units in Table 1, and the sum of all VOC emissions from startup, shutdown, and malfunction as reported the Air Pollution Control Program's Compliance/Enforcement Section
11) Indication of compliance status with Special Condition 4.A.

SPECIAL CONDITIONS:
The permittee is authorized to construct and operate subject to the following special conditions:

5. Operational Requirement – Closed Containers
DRS shall keep the coatings, thinners, reducers, catalysts, solvents, cleaners, etc. in closed containers whenever the materials are not in use. DRS shall provide and maintain suitable, easily read, permanent markings on all containers.

6. Record Keeping and Reporting Requirements
   A. DRS shall maintain all records required by this permit for not less than five years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request. These records shall include SDS for all materials used.

   B. DRS shall report to the Air Pollution Control Program's Compliance/Enforcement Section, by mail at P.O. Box 176, Jefferson City, MO 65102 or by e-mail at AirComplainceReporting@dnr.mo.gov, no later than 10 days after the end of the month during which any record required by this permit shows an exceedance of a limitation imposed by this permit.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (5) REVIEW
Project Number: 2018-07-046
Installation ID Number: 091-0011
Permit Number:

Installation Address:
DRS Sustainment Systems, Inc. West Plains
#1 McDaniel Street
West Plains, MO 65775

Parent Company:
DRS-SSI
201 Evans Lane
St. Louis, MO 63121

Howell County, S17&20, T24N, R8W

REVIEW SUMMARY

- DRS Sustainment Systems, Inc. West Plains has applied for authority to spray apply surface coating onto Patriot missile canisters, to be conducted in new booth EP52.
- The application was deemed complete as of July 26, 2018.
- Several HAPs are potentially emitted by the project.
- None of the NSPS under 40 CFR 60 apply to the project.
- None of the NESHAPs under 40 CFR 61 apply to the project.
- 40 CFR 63 MMMM, *National Emission Standards for Hazardous Air Pollutants for Surface Coating of Miscellaneous Metal Parts and Products*, applies to EP52. The canisters are not military munitions.
- A totally enclosed booth and exhaust filter are being used to control the particulate matter and particulate matter HAP emissions from the spray applied surface coating.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of hexavalent chromium compounds are conditioned to below the SMAL by the booth and exhaust filter requirements. Potential emissions of all other pollutants are less than de minimis levels and SMALs.
- This installation is located in Howell County, an attainment/unclassifiable area for all criteria pollutants.

- This installation is not on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation's major source level is 250 tons per year and fugitive emissions are not counted toward major source applicability.

- Ambient air quality modeling was not performed since potential emissions of the project are conditioned below de minimis levels and SMALs.

- Emission testing is not required as part of this permit. Performance testing of capture efficiency and emission testing of control efficiency may be required by MACT MMMM, depending on the compliance demonstration method chosen.

- Submittal of an application to amend the part 70 operating permit is required within 1 year of equipment startup.

- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

DRS Sustainment Systems, Inc. West Plains is a manufacturing installation whose principal product is military truck trailers. Current processes at the installation include power washing, media blasting, welding, painting, makeup air units, heated drying ovens, a burn-off oven, diesel engine testing, diesel and gasoline fuel tanks, and an emergency engine. There are 10 active paint booths in the EIQ. The installation is a major HAP source for construction permitting (MIBK PTE exceeds 10 tpy according to draft operating permit OP2018-058) and a part 70 source for operating permits (VOC, NOx, and HAPs major). The following permits have been issued to the installation from the Air Pollution Control Program.

Table 2: Permit History

Permit Number	Description
0787-006	Brule incinerator (later removed)
1088-013	Three paint booths where one is a booth/propane oven combination
0990-005	Five paint booths, four boilers, two drying ovens
0395-014	Uncontrolled abrasive blast booth
0896-001	Install a dust filter for existing plasma cutter (plasma cutter later removed from service)
0197-027	Pyrolysis cleaning oven
1198-016	Conveyorized paint line consisting of one heated cleaning tank (EP42), three paint booths, three drying ovens (EP44, 47, 48)
OP2002-033	Part 70 operating permit
042009-007	Diesel engine testing (EP-49, EIQ indicates inactive)
OP2010-032	Part 70 operating permit
012011-005	Diesel engine testing (Tunner, APU, and pump)
022016-003	Abrasive blasting EP51 consisting of four booths
022016-003A	Amendment for booth capture efficiency monitoring
OP2018-058 draft	Part 70 operating permit

PROJECT DESCRIPTION

The installation proposes to spray apply surface coating to Patriot missile canisters. Coating will be applied inside a new, totally enclosed booth and emit to EP52. Exhaust is controlled by panel filters. The booth is equipped with a 2.33 MMBtu/hr input, natural gas, direct-fired, makeup air heater. The booth will be located in Plant 2. Canister finishing already takes place at the installation. The finishing is being relocated to be in the same building as welding and assembly. Relocating the finishing process does not debottleneck other emission units. A permit is being issued to make the use of the booth and exhaust filter practically enforceable, which allows their capture and control to be considered in emission calculations.

EMISSIONS/CONTROLS EVALUATION

The spray rate of 0.035 canisters per hour is based upon coating 144 canisters a year in a 5 day work week for 16 hours a day. Potential emissions are based upon 8,760 hours per year of operation. Coatings provided in the application are listed below. All coatings are from Hentzen Coatings Inc. The potential emissions are a sum from using all coatings, not a worst case hybrid of the maximum of each pollutant regardless of the coating.

Table 3: Evaluated Coatings

Coating	Usage per Canister (gal)	Potential Usage (gal/hr)
Metal Pretreatment Wash Primer DOD-P-15328D, Part A	2.5	0.0865
Wash Primer Acid for DOD-P-15328D, Part B	2.5	0.0865
Zinc Rich 3.50 VOC Primer A-A-59745, Part A	1.0	0.0346
Catalyst for Zinc Rich Epoxy, Part B	0.25	0.0087
Off-White Epoxy Primer MIL-DTL-53022E, Type IV, Part A	1.25	0.0433
Epoxy Hardener MIL-DTL-53022E, Type IV, Part B	0.31	0.0107
33531 Sand VOHAP Free Zenthane 1.0 VOC MIL-DTL-53039E, Type IV	2	0.0692
36081 Gray Nonskid Zenthane A-A-59166, Type II, 1.8 VOC	0.5	0.0173

Potential emissions from surface coating were calculated using mass balance. The maximum of the weight % range was used for each component on the SDS. For a given coating, the sum of VOC and PM is presumed 100% for this review. A transfer efficiency of 65% for the HVLP gun(s) was determined from four references. Actual transfer may be higher, but 65% was chosen conservatively for potential particulate matter and particulate HAP emissions. The totally enclosed booth was assigned 100% capture efficiency for particulate matter. The filter manufacturer lists arrestance range for air dry enamel at 94.5-97.0% and high solids bake enamel at 98.5-99.5%. The filter is stated to meet the MACT Subpart HHHHHH 98% requirement. However, the manufacturer's data does not mention PM, PM_{10}, or $PM_{2.5}$ control efficiency. For this project, the filter's $PM_{2.5}$ control was presumed 94.5%. PM_{10} and PM control were

conservatively assumed the same as $PM_{2.5}$ control. Overspray PM, PM_{10}, and $PM_{2.5}$ particle size distribution of 100, 70, and 16% respectively, were obtained from two Sabty-Daily references.

All VOC and volatile HAP components were assumed to be emitted. This is a conservative approach for the two part coatings, as some of the components are expected to be consumed in the curing reactions. The one part coatings, moisture cured Zenthanes, each contain a HDI homopolymer and HDI monomer. The polymer is not a HAP. The monomer portion is a HAP. The monomer portion was assumed to emit even though it may be consumed with atmospheric moisture to form CO_2 and urea. Flash-off, curing, and drying are not required to occur inside the booth, therefore 100% capture for volatiles cannot be assumed.

Some coatings contain variations of naphtha or hydrocarbons. These materials are not classified as HAPs, however they do contain the HAPs naphthalene, xylene, toluene, and ethylbenzene according to 40 CFR 63 VVVV, *National Emission Standards for Hazardous Air Pollutants for Boat Manufacturing*, Tables 5 and 6.

Potential emissions from the natural gas-fired heater were calculated using the EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Chapter 1.4, Natural Gas Combustion, July, 1998.

Potential emissions from receiving canister raw materials and shipping finished canisters on internal roads were calculated using AP-42, Chapter 13.2.1, Paved Roads, January, 2011. One-way distance is approximately 800 feet from the guard post to Plant 2 per aerial imagery. A silt loading value of 2.0 grams per square meter was presumed per Program judgement. Potential particulate matter emissions from project haul roads are less than 0.01 tpy.

Table 4 provides an emissions summary for this project.

- Existing installation-wide potential emissions were obtained from draft operating permit OP2018-058. Those potential emissions are stated as uncontrolled, however the permit contains control device and emission limit requirements. Therefore, the potential emissions were corrected in Table 4 to represent required emission controls and limits. The operating permit calculated potential emissions based upon the EIQ, however the EIQ does not report all emissions from all emission units.

  DRS is subject to the major source MACT MMMM as existing installation-wide MIBK potential emissions reported in the operating permit are 10.54 tpy, which exceeds the major source level of 10 tpy. Existing installation-wide combined HAP potential emissions are less than the major source level of 25 tpy. During this project, the Program informed DRS that accepting and complying with a limit of less than 10/25 tpy would make the installation an area HAP source. Following January 25, 2018 EPA guidance concerning the "once in always in" policy, DRS may then be no longer subject to MACT MMMM.

Installation-wide VOC potential emissions are limited to less than 250 tpy. Actual emissions reported in the EIQ are substantially less than 40 tpy. During this project, the Program informed DRS that accepting and complying with a limit of less than 40 tpy would make DRS a de minimis VOC source.

Installation-wide NOx potential emissions are reported as 140.37 tpy in the operating permit. Engine testing EP49 from construction permit 042009-007 is responsible for 40 tpy of that amount. The emission unit has been marked inactive in the EIQ. The construction permit included engine testing as a stationary source (as their emissions were counted in the permit), but said MACT and NSPS do not apply to engine testing. A similar issue exists for construction permit 012011-005 for the Tunner, APU, and pump engine testing. However, applying methods used in more recent EPA determinations (Hyundai 2010, General Motors 2012, John Deere 2016) may contradict this. The engine testing may be stationary and therefore subject to permitting and MACT/NSPS; or the engine testing may be mobile/nonroad, not subject to permitting, nor MACT/NSPS. During this project, the Program informed DRS of this potential issue. The engine testing is not related to this current project.

During this project, the Program informed DRS that addressing installation-wide emission limits could make the installation no longer subject to a part 70 operating permit and major source MACT. DRS confirmed that it wanted to remain a part 70 source at this time and not accept additional installation-wide emission limits. The new surface coating operating at EP52 is subsequently subject to MACT MMMM.

- Existing installation-wide actual emissions were obtained from the 2017 EIQ. Values may be slightly lower than other years as a note indicates the installation was affected by a flood for two months.
- The project potential emissions represent the potential of the new equipment at 8,760 hours per year of operation, considering reductions from the booth and exhaust filter. All HAPs listed in the coating SDS are represented below.
- The new installation-wide potential emissions are a sum of the existing installation potential emissions and this current project. The prior installation-wide VOC emission limit of 250 tpy is being restated to include this project and updated existing emission units.

Table 4: Emissions Summary (tpy)

Pollutant	*De Minimis* Level / SMAL	Existing Installation Potential Emissions	Existing Installation Actual Emissions	Project Potential Emissions	New Installation Potential Emissions
PM	25.0	N/D	N/D	1.76E-01	N/D
PM_{10}	15.0	31.39	0.30	1.82E-01	31.57
$PM_{2.5}$	10.0	29.69	0.30	1.03E-01	29.79
SO_2	40.0	7.04	0.11	6.01E-03	7.05
NOx	40.0	140.37	2.87	1.00	141.37
VOC	40.0	< 250	6.65	9.37	< 250
CO	100.0	48.75	1.19	0.84	49.59
GHG (CO_2e)	N/A	N/D	N/D	1,209.22	N/D
GHG (mass)	N/A	N/D	N/D	1,202.08	N/D
Combined HAPs	25.0	24.33	0.96	0.21	24.54
Chromium VI Compounds [1]	10.0	N/D	N/D	5.43E-03	N/D
Chromium VI Compounds [2]	0.002	N/D	N/D	4.88E-04	N/D
Chromium Compounds [1]	10.0	0.11	2.59E-03	6.54E-04	0.11
Chromium Compounds [2]	5	N/D	N/D	5.75E-05	N/D
Ethylbenzene	10.0	0.22	3.90E-03	4.49E-03	0.22
Glycol Ether [3]	10.0 / 5	0.55	5.28E-02	7.54E-02	0.63
HDI	10.0 / 0.02	0.95	2.60E-02	1.15E-03	0.95
MIBK	10.0	10.54	0.39	4.33E-02	10.58
Naphthalene	10.0	N/D	3.0E-05	3.85E-02	N/D
Toluene	10.0	3.45	3.67E-02	4.52E-03	3.45
Xylenes	10.0	6.67	0.17	1.85E-02	6.69

[1] for comparison towards HAP major
[2] for comparison towards SMAL and RAL
[3] ethylene glycol ethers
N/A = Not Applicable; N/D = Not Determined
Other individual HAPs are potentially emitted by the project from natural gas combustion, but in amounts less than the respective SMAL and are excluded here for brevity.

APPLICABLE REQUIREMENTS

DRS Sustainment Systems, Inc. West Plains shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved. For a complete list of applicable requirements for your installation, please consult your operating permit.

GENERAL REQUIREMENTS

- *Operating Permits*, 10 CSR 10-6.065
- *Start-Up, Shutdown, and Malfunction Conditions,* 10 CSR 10-6.050
- *Submission of Emission Data, Emission Fees and Process Information,* 10 CSR 10-6.110
    - Per 10 CSR 10-6.110(4)(B)2.B(II) and (4)(B)2.C(II) a full EIQ is required for the first full calendar year the equipment (or modifications) approved by this permit are in operation.
- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170
- *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.220
- *Restriction of Emission of Odors*, 10 CSR 10-6.165

SPECIFIC REQUIREMENTS

- *MACT Regulations*, 10 CSR 10-6.075
    - *National Emission Standards for Hazardous Air Pollutants for Surface Coating of Miscellaneous Metal Parts and Products,* 40 CFR Part 63, Subpart MMMM

STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, it is recommended that this permit be granted with special conditions.

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated July 25, 2018, received July 26, 2018, designating DRS-SSI as the owner and operator of the installation.

The following documents are permit references:

- APTI 482 Sources and Control of VOC. USEPA, 2002. Page 120 of 357 pdf. "Transfer efficiencies of 60% to 70% have been reported for this application method (HVLP)."
- National Emission Standards for Hazardous Air Pollutant Emissions for Shipbuilding and Ship Repair (Surface Coating); National Emission Standards for Wood Furniture Manufacturing Operations. Final Rule. Federal Register Vol 76, No. 224, page 72058. November 21, 2011. "A typical transfer efficiency of an HVLP gun is 65-80 percent"
- General Air Quality Permit Approval to Construct and Operate Auto Body Shops & Surface Coating Operations, Draft. USEPA, 2011. "HVLP spray gun, or equivalent technology, with a minimum 65% transfer efficiency"
- Air Emissions Inventory Guidance Document for Stationary Sources at Air Force Installations. US Air Force IERA. December 2003. Table 30-1.
- Table of Hazardous Air Pollutants, Screening Model Action Levels, and Risk Assessment Levels. Missouri Department of Natural Resources, Air Pollution Control Program. 2017, Revision 14. "The total mass of the compound is used to determine emissions for comparison to the Major Source Thresholds. The mass of the metal portion of the compound is used to determine emissions for comparison to the SMALs and RALs."
- Size Distribution of Chromate Paint Aerosol Generated in a Bench-Scale Spray Booth. Sabty-Daily, Hinds, and Froines. Ann. Occup. Hyg., Vol 49, No. 1, pp33-45, 2005. Figure 4.
- Size Distribution and Speciation of Chromium in Paint Spray Aerosol at an Aerospace Facility. Sabty-Daily, Harris, Hinds, Froines. Ann Occup Hyg, Vol 49 No. 1, pp 47-59. 2005. Table 2.
- Missouri Emissions Inventory System. Missouri Department of Natural Resources. https://dnr.mo.gov/moeis/main/login
- The Chemistry of Polyurethane Coatings. Bayer MaterialScience. August 2005.
- AP-42, Compilation of Air Pollutant Emissions Factors, Stationary Point and Area Sources, Volume 1, Fifth Edition. USEPA

APPENDIX A

Abbreviations and Acronyms

% ..... percent
°F ..... degrees Fahrenheit
acfm ..... actual cubic feet per minute
BACT ..... Best Available Control Technology
BMPs ..... Best Management Practices
Btu ..... British thermal unit
CAM ..... Compliance Assurance Monitoring
CAS ..... Chemical Abstracts Service
CEMS ..... Continuous Emission Monitor System
CFR ..... Code of Federal Regulations
CO ..... carbon monoxide
CO_2 ..... carbon dioxide
CO_2e ..... carbon dioxide equivalent
COMS ..... Continuous Opacity Monitoring System
CSR ..... Code of State Regulations
dscf ..... dry standard cubic feet
EIQ ..... Emission Inventory Questionnaire
EP ..... Emission Point
EPA ..... Environmental Protection Agency
EU ..... Emission Unit
fps ..... feet per second
ft ..... feet
GACT ..... Generally Available Control Technology
GHG ..... Greenhouse Gas
gpm ..... gallons per minute
gr ..... grains
GWP ..... Global Warming Potential
HAP ..... Hazardous Air Pollutant
hr ..... hour
hp ..... horsepower
lb ..... pound
lbs/hr ..... pounds per hour
MACT ..... Maximum Achievable Control Technology
$\mu g/m^3$ ..... micrograms per cubic meter
m/s ..... meters per second
Mgal ..... 1,000 gallons
MW ..... megawatt
MHDR ..... maximum hourly design rate
MMBtu ..... Million British thermal units
MMCF ..... million cubic feet
MSDS ..... Material Safety Data Sheet
NAAQS ..... National Ambient Air Quality Standards
NESHAPs National Emissions Standards for Hazardous Air Pollutants
NO_x ..... nitrogen oxides
NSPS ..... New Source Performance Standards
NSR ..... New Source Review
PM ..... particulate matter
$PM_{2.5}$ ..... particulate matter less than 2.5 microns in aerodynamic diameter
PM_{10} ..... particulate matter less than 10 microns in aerodynamic diameter
ppm ..... parts per million
PSD ..... Prevention of Significant Deterioration
PTE ..... potential to emit
RACT ..... Reasonable Available Control Technology
RAL ..... Risk Assessment Level
SCC ..... Source Classification Code
scfm ..... standard cubic feet per minute
SDS ..... Safety Data Sheet
SIC ..... Standard Industrial Classification
SIP ..... State Implementation Plan
SMAL ..... Screening Model Action Levels
SO_x ..... sulfur oxides
SO_2 ..... sulfur dioxide
SSM ..... Startup, Shutdown & Malfunction
tph ..... tons per hour
tpy ..... tons per year
VMT ..... vehicle miles traveled
VOC ..... Volatile Organic Compound

Attachment A – EP52 Alternative Coating Compliance Worksheet

DRS Sustainment Systems, Inc. West Plains
Project: 2018-07-046
Facility ID: 091-0011
Permit: _____
Complete this sheet before using a new coating at EP52.
Copy this sheet as needed for new coatings.

Coating or material name _____ SDS Date/Version_____Today's Date _____ .

A	B	C	D	E	F	G	H
Coating Density (lb/gal)	Coating Usage (gal / canister)	Coating Maximum Hourly Usage Rate (lbs/hr)	Individual HAP Name and CAS #	HAP is also Particulate Matter (yes / no)	Individual HAP Content (max weight %)	Individual HAP PTE (tpy)	Individual HAP SMAL (tpy)
Example			*Benzene 71-43-2*	*no*	*2.0%*	*0.0843*	*2.0*
10.0	*2.75*	*0.9625*	*Cobalt 2-Ethylhexanoate 136-52-7*	*yes*	*0.5%*	*0.00041*	*0.1*

A. Record this coating's density as stated on the SDS.
B. Record this coating's usage rate per canister.
C. Calculate this coating's maximum hourly usage rate: C = A x B x 0.035 Seek approval from the Air Pollution Control Program New Source Review Unit if the average production rate will exceed 0.035 canisters per hr.
D. Compare each of the coating's ingredient names and CAS stated on the SDS to Attachment B for verification as a HAP. Record each of the individual HAPs within this coating.
E. Compare the HAP to Attachment B for verification as particulate matter.
F. Record the maximum weight percent of each HAP as stated on the SDS.
G. Calculate the individual HAP PTE. For particulate matter HAP: G = [C x F x (1-65%) x 100% x (1-94.5%)] x 8,760 / 2,000. For volatile HAP: G = C x F x 8,760 / 2,000. 65% = HVLP gun transfer efficiency. 100% = booth capture efficiency. 94.5% = exhaust filter control efficiency.
H. Record the individual HAP SMAL from Attachment B. If G > H then seek approval from the Air Pollution Control Program New Source Review Unit before using this coating.

MISSOURI DEPARTMENT OF NATURAL RESOURCES

Attachment B - Air Pollution Control Program
Table of Hazardous Air Pollutants and Screening Model Action Levels

Chemical	CAS #	SMAL tons/yr	Group ID	VOC	PM
ACETALDEHYDE	75-07-0	9		Y	N
ACETAMIDE	60-35-5	1		Y	N
ACETONITRILE	75-05-8	4		Y	N
ACETOPHENONE	98-86-2	1		Y	N
ACETYLAMINOFLUORINE, [2-]	53-96-3	0.005	V	Y	Y
ACROLEIN	107-02-8	0.04		Y	N
ACRYLAMIDE	79-06-1	0.02		Y	N
ACRYLIC ACID	79-10-7	0.6		Y	N
ACRYLONITRILE	107-13-1	0.3		Y	N
ALLYL CHLORIDE	107-05-1	1		Y	N
AMINOBIPHENYL, [4-]	92-67-1	1	V	Y	N
ANILINE	62-53-3	1		Y	N
ANISIDINE, [ORTHO-]	90-04-0	1		Y	N
ANTHRACENE	120-12-7	0.01	V	Y	N
ANTIMONY COMPOUNDS		5	H	N	Y
ANTIMONY PENTAFLUORIDE	7783-70-2	0.1	H	N	Y
ANTIMONY POTASSIUM TARTRATE	28300-74-5	1	H	N	Y
ANTIMONY TRIOXIDE	1309-64-4	1	H	N	Y
ANTIMONY TRISULFIDE	1345-04-6	0.1	H	N	Y
ARSENIC COMPOUNDS		0.005	I	N	Y
ASBESTOS	1332-21-4	0	A	N	Y
BENZ(A)ANTHRACENE	56-55-3	0.01	V	Y	N
BENZENE	71-43-2	2		Y	N
BENZIDINE	92-87-5	0.0003	V	Y	N
BENZO(A)PYRENE	50-32-8	0.01	V	Y	N
BENZO(B)FLUORANTHENE	205-99-2	0.01	V	Y	N
BENZO(K)FLUORANTHENE	207-08-9	0.01	V	Y	N
BENZOTRICHLORIDE	98-07-7	0.006		Y	N
BENZYL CHLORIDE	100-44-7	0.1		Y	N
BERYLLIUM COMPOUNDS		0.008	J	N	Y
BERYLLIUM SALTS		2E-05	J	N	Y
BIPHENYL, [1,1-]	92-52-4	10	V	Y	N
BIS(CHLOROETHYL)ETHER	111-44-4	0.06		Y	N
BIS(CHLOROMETHYL)ETHER	542-88-1	0.0003		Y	N
BROMOFORM	75-25-2	10		Y	N
BROMOMETHANE	74-83-9	10		Y	N
BUTADIENE, [1,3-]	106-99-0	0.07		Y	N
BUTOXYETHANOL ACETATE, [2-]	112-07-2	5	P	Y	N
BUTYLENE OXIDE, [1,2-]	106-88-7	1		Y	N
CADMIUM COMPOUNDS		0.01	K	N	Y
CALCIUM CYANAMIDE	156-62-7	10		Y	Y
CAPROLACTAM (Delisted)	105-60-2				
CAPTAN	133-06-2	10		Y	Y
CARBARYL	63-25-2	10	V	Y	Y
CARBON DISULFIDE	75-15-0	1		Y	N
CARBON TETRACHLORIDE	56-23-5	1		Y	N
CARBONYL SULFIDE	463-58-1	5		Y	N
CATECHOL	120-80-9	5		Y	N
CHLORAMBEN	133-90-4	1		Y	Y
CHLORDANE	57-74-9	0.01		Y	Y
CHLORINE	7782-50-5	0.1		N	N
CHLOROACETIC ACID	79-11-8	0.1		Y	N
CHLOROACETOPHENONE, [2-]	532-27-4	0.06		Y	N
CHLOROBENZENE	108-90-7	10		Y	N
CHLOROBENZILATE	510-15-6	0.4	V	Y	Y
CHLOROFORM	67-66-3	0.9		Y	N

Chemical	CAS #	SMAL tons/yr	Group ID	VOC	PM
CHLOROMETHYL METHYL ETHER	107-30-2	0.1		Y	N
CHLOROPRENE	126-99-8	1		Y	N
CHROMIUM (VI) COMPOUNDS		0.002	L	N	Y
CHROMIUM COMPOUNDS		5	L	N	Y
CHRYSENE	218-01-9	0.01	V	Y	N
COBALT COMPOUNDS		0.1	M	N	Y
COKE OVEN EMMISIONS	8007-45-2	0.03	N	Y	N
CRESOL, [META-]	108-39-4	1	B	Y	N
CRESOL, [ORTHO-]	95-48-7	1	B	Y	N
CRESOL, [PARA-]	106-44-5	1	B	Y	N
CRESOLS (MIXED ISOMERS)	1319-77-3	1	B	Y	N
CUMENE	98-82-8	10		Y	N
CYANIDE COMPOUNDS		0.1	O	Y	N
DDE	72-55-9	0.01	V	Y	Y
DI(2-ETHYLHEXYL) PHTHALATE, (DEHP)	117-81-7	5		Y	N
DIAMINOTOLUENE, [2,4-]	95-80-7	0.02		Y	N
DIAZOMETHANE	334-88-3	1		Y	N
DIBENZ(A,H)ANTHRACENE	53-70-3	0.01	V	Y	N
DIOXINS/FURANS		6E-07	D,V	Y	N
DIBENZOFURAN	132-64-9	5	V	Y	N
DIBROMO-3-CHLOROPROPANE, [1,2-]	96-12-8	0.01		Y	N
DIBROMOETHANE, [1,2-]	106-93-4	0.1		Y	N
DIBUTYL PHTHALATE	84-74-2	10		Y	Y
DICHLOROBENZENE, [1,4-]	106-46-7	3		Y	N
DICHLOROBENZIDENE, [3,3-]	91-94-1	0.2	V	Y	Y
DICHLOROETHANE, [1,1-]	75-34-3	1		Y	N
DICHLOROETHANE, [1,2-]	107-06-2	0.8		Y	N
DICHLOROETHYLENE, [1,1-]	75-35-4	0.4		Y	N
DICHLOROMETHANE	75-09-2	10		N	N
DICHLOROPHENOXY ACETIC ACID, [2,4-]	94-75-7	10	C	Y	Y
DICHLOROPROPANE, [1,2-]	78-87-5	1		Y	N
DICHLOROPROPENE, [1,3-]	542-75-6	1		Y	N
DICHLORVOS	62-73-7	0.2		Y	N
DIETHANOLAMINE	111-42-2	5		Y	N
DIETHYL SULFATE	64-67-5	1		Y	N
DIETHYLENE GLYCOL MONOBUTYL ETHER	112-34-5	5	P	Y	N
DIMETHOXYBENZIDINE, [3,3-]	119-90-4	0.1	V	Y	Y
DIMETHYL BENZIDINE, [3,3-]	119-93-7	0.008	V	Y	Y
DIMETHYL CARBAMOYL CHLORIDE	79-44-7	0.02		Y	N
DIMETHYL FORMAMIDE	68-12-2	1		Y	N
DIMETHYL HYDRAZINE, [1,1-]	57-14-7	0.008		Y	N
DIMETHYL PHTHALATE	131-11-3	10		Y	N
DIMETHYL SULFATE	77-78-1	0.1		Y	N
DIMETHYLAMINOAZOBENZENE, [4-]	60-11-7	1		Y	N
DIMETHYLANILINE, [N-N-]	121-69-7	1		Y	N
DINITRO-O-CRESOL, [4,6-] (Note 6)	534-52-1	0.1	E	Y	Y
DINITROPHENOL, [2,4-]	51-28-5	1		Y	N
DINITROTOLUENE, [2,4-]	121-14-2	0.02		Y	N
DIOXANE, [1,4-]	123-91-1	6		Y	N
DIPHENYLHYDRAZINE, [1,2-]	122-66-7	0.09	V	Y	Y
DIPHENYLMETHANE DIISOCYANATE, [4,4-]	101-68-8	0.1	V	Y	N
EPICHLOROHYDRIN	106-89-8	2		Y	N
ETHOXYETHANOL, [2-]	110-80-5	10	P	Y	N
ETHOXYETHYL ACETATE, [2-]	111-15-9	5	P	Y	N
ETHYL ACRYLATE	140-88-5	1		Y	N
ETHYL BENZENE	100-41-4	10		Y	N

MISSOURI DEPARTMENT OF NATURAL RESOURCES

Attachment B - Air Pollution Control Program
Table of Hazardous Air Pollutants and Screening Model Action Levels

Chemical	CAS #	SMAL tons/yr	Group ID	VOC	PM
ETHYL CHLORIDE	75-00-3	10		Y	N
ETHYLENE GLYCOL	107-21-1	10		Y	N
ETHYLENE GLYCOL MONOBUTYL ETHER (Delisted)	111-76-2				
ETHYLENE GLYCOL MONOHEXYL ETHER	112-25-4	5	P	Y	N
ETHYLENE IMINE [AZIRIDINE]	151-56-4	0.003		Y	N
ETHYLENE OXIDE	75-21-8	0.1		Y	N
ETHYLENE THIOUREA	96-45-7	0.6		Y	Y
FORMALDEHYDE	50-00-0	2		Y	N
GLYCOL ETHER (ETHYLENE GLYCOL ETHERS)		5	P	Y	N
GLYCOL ETHER (DIETHYLENE GLYCOL ETHERS)		5	P	Y	N
HEPTACHLOR	76-44-8	0.02		Y	N
HEXACHLOROBENZENE	118-74-1	0.01		Y	N
HEXACHLOROBUTADIENE	87-68-3	0.9		Y	N
HEXACHLOROCYCLOHEXANE, [ALPHA-]	319-84-6	0.01	F	Y	N
HEXACHLOROCYCLOHEXANE, [BETA-]	319-85-7	0.01	F	Y	N
HEXACHLOROCYCLOHEXANE, [DELTA-]	319-86-8	0.01	F	Y	N
HEXACHLOROCYCLOHEXANE, [TECHNICAL]	608-73-1	0.01	F	Y	N
HEXACHLOROCYCLOPENTADIENE	77-47-4	0.1		Y	N
HEXACHLOROETHANE	67-72-1	5		Y	N
HEXAMETHYLENE,-1,6-DIISOCYANATE	822-06-0	0.02		Y	N
HEXAMETHYLPHOSPHORAMIDE	680-31-9	0.01		Y	N
HEXANE, [N-]	110-54-3	10		Y	N
HYDRAZINE	302-01-2	0.004		N	N
HYDROGEN CHLORIDE	7647-01-0	10		N	N
HYDROGEN FLUORIDE	7664-39-3	0.1		N	N
HYDROQUINONE	123-31-9	1		Y	N
INDENO(1,2,3CD)PYRENE	193-39-5	0.01	V	Y	N
ISOPHORONE	78-59-1	10		Y	N
LEAD COMPOUNDS		0.01	Q	N	Y
LINDANE [GAMMA-HEXACHLOROCYCLOHEXANE]	58-89-9	0.01	F	Y	N
MALEIC ANHYDRIDE	108-31-6	1		Y	N
MANGANESE COMPOUNDS		0.8	R	N	Y
MERCURY COMPOUNDS		0.01	S	N	N
METHANOL	67-56-1	10		Y	N
METHOXYCHLOR	72-43-5	10	V	Y	Y
METHOXYETHANOL, [2-]	109-86-4	10	P	Y	N
METHYL CHLORIDE	74-87-3	10		Y	N
METHYL ETHYL KETONE (Delisted)	78-93-3				
METHYL HYDRAZINE	60-34-4	0.06		Y	N
METHYL IODIDE	74-88-4	1		Y	N
METHYL ISOBUTYL KETONE	108-10-1	10		Y	N
METHYL ISOCYANATE	624-83-9	0.1		Y	N
METHYL METHACRYLATE	80-62-6	10		Y	N
METHYL TERT-BUTYL ETHER	1634-04-4	10		Y	N
METHYLCYCLCOPENTADIENYL MANGANESE	12108-13-3	0.1	R	N	Y
METHYLENE BIS(2-CHLOROANILINE), [4,4-]	101-14-4	0.2	V	Y	Y
METHYLENEDIANILINE, [4,4-]	101-77-9	1	V	Y	N
METHYLNAPHTHALENE, [2-]	91-57-6	0.01	V	Y	N
MINERAL FIBERS		0	T	N	Y
NAPHTHALENE	91-20-3	10	V	Y	N
NAPHTHYLAMINE, [ALPHA-]	134-32-7	0.01	V	Y	N
NAPHTHYLAMINE, [BETA-]	91-59-8	0.01	V	Y	N
NICKEL CARBONYL	13463-39-3	0.1	U	N	Y
NICKEL COMPOUNDS		1	U	N	Y
NICKEL REFINERY DUST		0.08	U	N	Y
NICKEL SUBSULFIDE	12035-72-2	0.04	U	N	Y

Chemical	CAS #	SMAL tons/yr	Group ID	VOC	PM
NITROBENZENE	98-95-3	1		Y	N
NITROBIPHENYL, [4-]	92-93-3	1	V	Y	N
NITROPHENOL, [4-]	100-02-7	5		Y	N
NITROPROPANE, [2-]	79-46-9	1		Y	N
NITROSODIMETHYLAMINE, [N-]	62-75-9	0.001		Y	N
NITROSOMORPHOLINE, [N-]	59-89-2	1		Y	N
NITROSO-N-METHYLUREA, [N-]	684-93-5	0.0002		Y	N
OCTACHLORONAPTHALENE	2234-13-1	0.01	V	Y	N
PARATHION	56-38-2	0.1		Y	Y
PCB [POLYCHLORINATED BIPHENYLS]	1336-36-3	0.009	X	Y	Y
PENTACHLORONITROBENZENE	82-68-8	0.3		Y	N
PENTACHLOROPHENOL	87-86-5	0.7		Y	N
PHENOL	108-95-2	0.1		Y	N
PHENYLENEDIAMINE, [PARA-]	106-50-3	10		Y	N
PHOSGENE	75-44-5	0.1		Y	N
PHOSPHINE	7803-51-2	5		N	N
PHOSPHOROUS (YELLOW OR WHITE)	7723-14-0	0.1		N	N
PHTHALIC ANHYDRIDE	85-44-9	5		Y	N
POLYCYLIC ORGANIC MATTER		0.01	V	Y	N
PROPANE SULTONE, [1,3-]	1120-71-4	0.03		Y	Y
PROPIOLACTONE, [BETA-]	57-57-8	0.1		Y	N
PROPIONALDEHYDE	123-38-6	5		Y	N
PROPOXUR [BAYGON]	114-26-1	10		Y	Y
PROPYLENE OXIDE	75-56-9	5		Y	N
PROPYLENEIMINE, [1,2-]	75-55-8	0.003		Y	N
QUINOLINE	91-22-5	0.006		Y	N
QUINONE	106-51-4	5		Y	N
RADIONUCLIDES		Note 1	Y	N	Y
SELENIUM COMPOUNDS		0.1	W	N	Y
STYRENE	100-42-5	1		Y	N
STYRENE OXIDE	96-09-3	1		Y	N
TETRACHLORODIBENZO-P-DIOXIN,[2,3,7,8]	1746-01-6	6E-07	D,V	Y	Y
TETRACHLOROETHANE, [1,1,2,2-]	79-34-5	0.3		Y	N
TETRACHLOROETHYLENE	127-18-4	10		N	N
TITANIUM TETRACHLORIDE	7550-45-0	0.1		N	N
TOLUENE	108-88-3	10		Y	N
TOLUENE DIISOCYANATE, [2,4-]	584-84-9	0.1		Y	N
TOLUIDINE, [ORTHO-]	95-53-4	4		Y	N
TOXAPHENE	8001-35-2	0.01		Y	N
TRICHLOROBENZENE, [1,2,4-]	120-82-1	10		Y	N
TRICHLOROETHANE, [1,1,1-]	71-55-6	10		N	N
TRICHLOROETHANE, [1,1,2-]	79-00-5	1		Y	N
TRICHLOROETHYLENE	79-01-6	10		Y	N
TRICHLOROPHENOL, [2,4,5-]	95-95-4	1		Y	N
TRICHLOROPHENOL, [2,4,6-]	88-06-2	6		Y	N
TRIETHYLAMINE	121-44-8	10		Y	N
TRIFLURALIN	1582-09-8	9		Y	Y
TRIMETHYLPENTANE, [2,2,4-]	540-84-1	5		Y	N
URETHANE [ETHYL CARBAMATE]	51-79-6	0.8		Y	N
VINYL ACETATE	108-05-4	1		Y	N
VINYL BROMIDE	593-60-2	0.6		Y	N
VINYL CHLORIDE	75-01-4	0.2		Y	N
XYLENE, [META-]	108-38-3	10	G	Y	N
XYLENES (MIXED ISOMERS)	1330-20-7	10	G	Y	N

Attachment B - Air Pollution Control Program
Table of Hazardous Air Pollutants and Screening Model Action Levels

Chemical	CAS #	SMAL tons/yr	Group ID	VOC	PM	Chemical	CAS #	SMAL tons/yr	Group ID	VOC	PM

Legend	
Group ID	
A	Asbestos
B	Cresols/Cresylic Acid (isomers and mixtures)
C	2,4 - D, Salts and Esters
D	Dibenzofurans, Dibenzodioxins
E	4, 6 Dinitro-o-cresol, and Salts
F	Lindane (all isomers)
G	Xylenes (all isomers and mixtures)
H	Antimony Compounds
I	Arsenic Compounds
J	Beryllium Compounds
K	Cadmium Compounds
L	Chromium Compounds
M	Cobalt Compounds
N	Coke Oven Emissions
O	Cyanide Compounds
P	Glycol Ethers
Q	Lead Compounds (except elemental Lead)
R	Manganese Compounds
S	Mercury Compounds
T	Fine Mineral Fibers
U	Nickel Compounds
V	Polycyclic Organic Matter
W	Selenium Compounds
X	Polychlorinated Biphenyls (Aroclors)
Y	Radionuclides
Notes	The SMAL for radionuclides is defined as the effective dose equivalent to 0.3 millirems per year for 7 years exposure associated with a cancer risk of 1 in 1 million

Missouri Department of NATURAL RESOURCES
dnr.mo.gov
Michael L. Parson, Governor
Carol S. Comer, Director

OCT 05 2018

Ms. Tammy Hampton
Environmental Specialist
DRS Sustainment Systems, Inc. West Plains
P.O. Box 196
West Plains, MO 65775

RE: New Source Review Permit - Project Number: 2018-07-046

Dear Ms. Hampton:

Enclosed with this letter is your permit to construct. Please study it carefully and refer to Appendix A for a list of common abbreviations and acronyms used in the permit. Also, note the special conditions on the accompanying pages. The document entitled, "Review of Application for Authority to Construct," is part of the permit and should be kept with this permit in your files. Operation in accordance with these conditions, your new source review permit application, and your amended operating permit is necessary for continued compliance. The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri.

This permit may include requirements with which you may not be familiar. If you would like the department to meet with you to discuss how to understand and satisfy the requirements contained in this permit, an appointment referred to as a Compliance Assistance Visit (CAV) can be set up with you. To request a CAV, please contact your local regional office or fill out an online request. The regional office contact information can be found at the following website: http://dnr.mo.gov/regions/. The online CAV request can be found at http://dnr.mo.gov/cav/compliance.htm.

If you were adversely affected by this permit decision, you may be entitled to pursue an appeal before the administrative hearing commission pursuant to Sections 621.250 and 643.075.6 RSMo. To appeal, you must file a petition with the administrative hearing commission within thirty days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed; if it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the administrative hearing commission,

whose contact information is: Administrative Hearing Commission, United States Post Office Building, 131 West High Street, Third Floor, P.O. Box 1557, Jefferson City, Missouri 65102, phone: 573-751-2422, fax: 573-751-5018, website: www.oa.mo.gov/ahc.

If you have any questions regarding this permit, please do not hesitate to contact David Little, at the Department of Natural Resources' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or at (573) 751-4817. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Susan Heckenkamp
New Source Review Unit Chief

SH:dlj

Enclosures

c: Southeast Regional Office
PAMS File: 2018-07-046

Permit Number: 102018-004

Installation: DRS Sustainment West Plains
ID: 091-0011
Calculation Date: 9/11/2018
Project Description: spray apply surface coating to Patriot missile canisters at booth EP52, restate installation-wide 250 tpy VOC limit

Pollutant	coating	makeup air heater	haul rd	project total		de minimis / SMAL	project exceeds?
PM filt	0.14931192	1.90E-02	0.0078093	0.1761541		25	
PM10	0.10451835	7.61E-02	0.0015619	0.1822118		15	
PM2.5	0.02631141	7.61E-02	0.0003834	0.1028264		10	
SO2		6.01E-03		0.0060104		40	
NOX		1.00E+00		1.0017318		40	
VOC	9.30196531	5.51E-02		9.3570606		40	
CO		8.41E-01		0.8414547		100	
Hydrogen Sulfide		0.00E+00		0		10	
Total Reduced Sulfur		0.00E+00		0		10	
Reduced Sulfur Compounds		0.00E+00		0		10	
Lead, as NSR pollutant		5.01E-06		5.009E-06		0.6	
Fluorides excluding HF		0.00E+00		0		3	
SAM		0.00E+00		0		7	
CO2		1.20E+03		1202.0781			
CH4		2.30E-02		0.0230398			
N2O		2.20E-02		0.0220381			
GHG (mass)		1.20E+03		1202.1232		0	
GHG (CO2e)		1.21E+03		1209.2215		75000	
Combined HAPs	0.19193759	1.89E-02		0.2108549		25.0	
POM aggregate group		6.99E-06		6.994E-06		10.0	
POM Acenaphthene		1.80E-08		1.803E-08		0.01	
POM Acenaphthylene		1.80E-08		1.803E-08		0.01	
POM Anthracene		2.40E-08		2.404E-08		0.01	
POM Benzo(a)Anthracene		1.80E-08		1.803E-08		0.01	
POM Benzo(a)Pyrene		1.20E-08		1.202E-08		0.01	
POM Benzo(b)Fluoranthene		1.80E-08		1.803E-08		0.01	
POM Benzo(g,h,i)Perylene		1.20E-08		1.202E-08		0.01	
POM Benzo(k)Fluoranthene		1.80E-08		1.803E-08		0.01	
POM Chrysene		1.80E-08		1.803E-08		0.01	
POM Dibenz(a,h)Anthracene		1.20E-08		1.202E-08		0.01	
POM 7,12-Dimethylbenz(a)Anthracene		1.60E-07		1.603E-07		0.01	
POM Fluoranthene		3.01E-08		3.005E-08		0.01	
POM Fluorene		2.80E-08		2.805E-08		0.01	
POM Indeno(1,2,3-c,d)Pyrene		1.80E-08		1.803E-08		0.01	
POM 2-Methylnaphthalene		2.40E-07		2.404E-07		0.01	
POM 3-Methylcholanthrene		1.80E-08		1.803E-08		0.01	
POM Naphthalene	0.03853684	6.11E-06		0.038543		10	
POM Phenanthrene		1.70E-07		1.703E-07		0.01	
POM Pyrene		5.01E-08		5.009E-08		0.01	
Arsenic compounds		2.00E-06		2.003E-06		0.005	
Benzene		2.10E-05		2.104E-05		2	
Beryllium compounds		1.20E-07		1.202E-07		0.008	
Cadmium compounds		1.10E-05		1.102E-05		0.01	
Chromium VI compounds	0.00542859	0.00E+00		0.0054286		10	
Chromium compounds	0.00064034	1.40E-05		0.0006544		10	
Cobalt compounds		8.41E-07		8.415E-07		0.1	
1,4-Dichlorobenzene(p) CAS 106-46-7		1.20E-05		1.202E-05		3	
Ethyl benzene	0.00448638	0.00E+00		0.0044864		10	
Formaldehyde		7.51E-04		0.0007513		2	
Glycol Ether (Ethylene Glycol Ethers)	0.07538923	0.00E+00		0.0753892		5	
Hexamethylene-1,6-diisocyanate	0.00115026	0.00E+00		0.0011503		0.02	
Hexane		1.80E-02		0.0180312		10	
Lead compounds		5.01E-06		5.009E-06		0.01	
Manganese compounds		3.81E-06		3.807E-06		0.8	
Mercury compounds		2.60E-06		2.605E-06		0.01	
Methyl isobutyl ketone (MIBK)	0.04334684	0.00E+00		0.0433468		10	
Nickel compounds		2.10E-05		2.104E-05		1	
Selenium compounds		2.40E-07		2.404E-07		0.1	
Toluene	0.00448638	3.41E-05		0.0045204		10	
Xylenes (isomers and mixture)	0.01847274	0.00E+00		0.0184727		10	

	tpy	SMAL	project exceeds?
this is the PTE towards HAP major/area. The PTE towards SMAL is	0.0004875	0.002	
this is the PTE towards HAP major/area. The PTE towards SMAL is	5.751E-05	5	

144 Canisters per year produced for military
5 days per week
16 hours per day
52 weeks per year
4160 hours per year
0.035 canisters per hour
8760 operation hours per year for PTE

Product	Hentzen Product Code	Usage per Canister (gallons)	Usage gallons per hour
Metal Pretreatment Wash Primer	02110GVP	2.5	0.0865
DOD-P-15328D, Part A			
Wash Primer Acid for DOD-P-15328D	02111SSC	2.5	0.0865
Part B			
Zinc Rich 3.50 VOC Primer A-A-59745, Part A	00812FEP-2	1	0.0346
Catalyst for Zinc Rich Epoxy, Part B	06888CEH-3	0.25	0.0087
MIL-DTL-53022E, Type IV, Part A	22167WEP	1.25	0.0433
Off-White Epoxy Primer			
MIL-DTL-53022E, Type IV, Part B	2217OCEH	0.31	0.0107
Epoxy Hardener			
MIL-DTL-53039E, Type IV	03813TUA-ULVOC	2	0.0692
33531 Sand VOHAP Free Zenthane, 1.0 VOC			
A-A-59166, Type II, 1.8 VOC	03916AMZ-B	0.5	0.0173
36081 Gray Nonskid Zenthane			

		source
HVLP transfer efficiency	65%	1,2,3,4
booth capture efficiency	100%	10
exhaust filter control efficiency pm	94.5%	conservative presumption
exhaust filter control efficiency pm10	94.5%	conservative presumption
exhaust filter control efficiency pm2.5	94.5%	worst case vendor spec, presumed as pm2.5

zinc tetraoxychromate	formula	CrH8O12Zn5	mass	mass	cr vi wt% of compound
	cr	1	51.9961	51.9961	8.98%
	h	8	1.00794	8.06352	
	o	12	15.999	191.988	
	zn	5	65.38	326.9	
				578.94762	

Coating Name	SDS Version	Design Rate (gph)	Density (lb/gal)	Composition	CAS	Max Wt %	Pollutant	Available Emissions (lb/hr)	Capture Efficiency	Control Efficiency	Fugitive Emissions (lb/hr)	Stack Emissions (lb/hr)	PTE (tpy)
Hentzen Coatings Inc, Metal Pretreatment Wash Primer DOD-P-15328D Amend 1, 1983, Part A. Product Code 02110GVP	9/27/2016	0.0865	7.44	IPA	67-63-0	60%	voc						
				butyl alcohol	71-36-3	20%	voc						
				zinc tetraoxychromate	49663-84-5	10%	CrVi towards HAP major, PM	0.0225346	100%	94.5%	0	0.0012394	0.0054286
							CrVi towards HAP major, PM10, source 7	0.0082319	100%	94.5%	0	0.0004528	0.0019831
							CrVi towards HAP major, PM2.5, source 7	0.0007572	100%	94.5%	0	4.164E-05	0.0001824
							CrVi towards SMAL and RAL, PM	0.0020239	100%	94.5%	0	0.0001113	0.0004875
							CrVi towards SMAL and RAL, PM10, source 7	0.0007393	100%	94.5%	0	4.066E-05	0.0001781
							CrVi towards SMAL and RAL, PM2.5, source 7	6.8E-05	100%	94.5%	0	3.74E-06	1.638E-05
						80%	total VOC	0.5150769	100%	0%	0	0.5150769	2.2560369
						20%	total PM, by subtraction	0.0450692	100%	94.5%	0	0.0024788	0.0108572
							PM10, source 6	0.0315485	100%	94.5%	0	0.0017352	0.0076
							PM2.5, source 6	0.0072111	100%	94.5%	0	0.0003966	0.0017371

Coating Name	SDS Version	Design Rate (gph)	Density (lb/gal)	Composition	CAS	Max Wt %	Pollutant	Available Emissions (lb/hr)	Capture Efficiency	Control Efficiency	Fugitive Emissions (lb/hr)	Stack Emissions (lb/hr)	PTE (tpy)
Hentzen Coatings Inc, Wash Primer Acid for DOD-P-15328D, Amend 1, 1983, Part B. Product Code 02111SSC	6/1/2016	0.0865	6.77	IPA	67-63-0	100%	voc	0.5858654	100%	0%	0	0.5858654	2.5660904
				phosphoric acid	7664-38-2	5%	not a VOC, maybe PM by method 5						

Coating Name	SDS Version	Design Rate (gph)	Density (lb/gal)	Composition	CAS	Max Wt %	Pollutant	Available Emissions (lb/hr)	Capture Efficiency	Control Efficiency	Fugitive Emissions (lb/hr)	Stack Emissions (lb/hr)	PTE (tpy)
	3/16/2017	0.0346	28.59	zinc dust	7440-66-6	90%	pm						
Hentzen Coatings Inc, Zinc Rich 3.50 VOC Primer A-A-59745, Part A. Product Code 00812FEP-2				bisphenol A / epichlorohydri	25068-38-6	10%	assume voc						
				butyl acetate	123-86-4	5%	voc						
				MIBK	108-10-1	1%	voc, hap	0.0098965	100%	0%	0	0.0098965	0.0433468
				methyl propyl ketone	107-87-9		voc						
						16%	total voc	0.1583446	100%	0%	0	0.1583446	0.6935494
						84%	total PM, by subtraction	0.2909582	100%	94.5%	0	0.0160027	0.0700918
							PM10, source 6	0.2036708	100%	94.5%	0	0.0112019	0.0490643
							PM2.5, source 6	0.0465533	100%	94.5%	0	0.0025604	0.0112147

Coating Name	SDS Version	Design Rate (gph)	Density (lb/gal)	Composition	CAS	Max Wt %	Pollutant	Available Emissions (lb/hr)	Capture Efficiency	Control Efficiency	Fugitive Emissions (lb/hr)	Stack Emissions (lb/hr)	PTE (tpy)
Hentzen Coatings Inc, Catalyst for Zinc Rich Epoxy, Part B. Product Code 06888CEH-3	6/2/2016	0.0087	8.16	ethylene glycol butyl ether	111-76-2	40%	delisted hap, still a voc						
				benzyl alcohol	100-51-6	20%	voc						
				TEPA	112-57-2	5%	assume voc						
						65%	total voc	0.0459	100%	0%	0	0.0459	0.201042
						35%	total PM, by subtraction	0.0086504	100%	94.5%	0	0.0004758	0.0020839
							PM10, source 6	0.0060553	100%	94.5%	0	0.000333	0.0014587
							PM2.5, source 6	0.0013841	100%	94.5%	0	7.612E-05	0.0003334

Coating Name	SDS Version	Design Rate (gph)	Density (lb/gal)	Composition	CAS	Max Wt %	Pollutant	Available Emissions (lb/hr)	Capture Efficiency	Control Efficiency	Fugitive Emissions (lb/hr)	Stack Emissions (lb/hr)	PTE (tpy)
Hentzen Coatings Inc, Off-White Epoxy Primer, MIL-DTL-53022E, Type IV, Part A. Product Code 22167WEP	9/28/2016	0.0433	11.98	methyl acetate	79-20-9	20%	assume voc						
				bisphenol A / epichlorohydri	25068-38-6	10%	assume voc						
				titanium dioxide	13463-67-7	10%	pm						
				diisobutyl ketone	108-83-8	10%	assume voc						
				methyl amyl ketone	110-43-0	5%	assume voc						
				zinc phosphate	7779-90-0	5%	pm						
				butyl acetate	123-86-4	5%	assume voc						
				calcium carbonate	1317-65-3		pm						
				talc	14807-96-6		pm						
						50%	total voc	0.2591827	100%	0%	0	0.2591827	1.1352202
						50%	total PM, by subtraction	0.0907139	100%	94.5%	0	0.0049893	0.021853
							PM10, source 6	0.0634998	100%	94.5%	0	0.0034925	0.0152971
							PM2.5, source 6	0.0145142	100%	94.5%	0	0.0007983	0.0034965

Coating Name	SDS Version	Design Rate (gph)	Density (lb/gal)	Composition	CAS	Max Wt %	Pollutant	Available Emissions (lb/hr)	Capture Efficiency	Control Efficiency	Fugitive Emissions (lb/hr)	Stack Emissions (lb/hr)	PTE (tpy)
Hentzen Coatings Inc, Epoxy Hardener MIL-DTL-53022E, Type IV, Part B. Product Code 22170CEH	6/17/2016	0.0107	8.02	1-methoxy-2-propanol	107-98-2	30%	assume voc						
				methyl amyl ketone	110-43-0	20%	assume voc						
				ethylene glycol propyl ether	2807-30-9	20%	hap, voc	0.0172122	100%	0%	0	0.0172122	0.0753892
				diethylenetriamine	111-40-0	10%	assume voc						
						80%	total voc	0.0688486	100%	0%	0	0.0688486	0.3015569
						20%	total PM, by subtraction	0.0060243	100%	94.5%	0	0.0003313	0.0014512
							PM10, source 6	0.004217	100%	94.5%	0	0.0002319	0.0010159
							PM2.5, source 6	0.0110158	100%	94.5%	0	0.0006059	0.0026537

Coating Name	SDS Version	Design Rate (gph)	Density (lb/gal)	Composition	CAS	Max Wt %	Pollutant	Available Emissions (lb/hr)	Capture Efficiency	Control Efficiency	Fugitive Emissions (lb/hr)	Stack Emissions (lb/hr)	PTE (tpy)
Hentzen Coatings Inc, 33531 Sand VOHAP Free Zenthane, 1.0 VOC, MIL-DTL-53039E, Type IV. Product Code 03813-TUA-ULVOC	10/21/2016	0.0692	10.97	benzene, 1-chloro-4 (trifluor	98-56-6	40%	assume voc, even though says voc exempt in various sds online not listed as epa exempt						
				titanium dioxide	13463-67-7	20%	pm						
				homopolymer of HDI	28182-81-2	20%	pm						
				aromatic hydrocarbon	64742-94-5	10%	hap mixture, voc						
							naphthalene, source 8	0.0075946	100%	0%	0	0.0075946	0.0332644
							xylene, source 8	0.0030378	100%	0%	0	0.0030378	0.0133058
							toluene, source 8	0.0007595	100%	0%	0	0.0007595	0.0033264
							ethylbenzene, source 8	0.0007595	100%	0%	0	0.0007595	0.0033264
			see source 11	HDI monomer	822-06-0	0.029%	hap, voc, assume it doesn't polymerize	0.0002202	100%	0%	0	0.0002202	0.0009647
			see source 9	chromic oxide green pigmen	1308-38-9	1%	Criii towards HAP major, PM	0.0026581	100%	94.5%	0	0.0001462	0.0006403
							Criii towards HAP major, PM10, source 7	0.000971	100%	94.5%	0	5.341E-05	0.0002339
							Criii towards HAP major, PM2.5, source 7	8.931E-05	100%	94.5%	0	4.912E-06	2.152E-05
							Criii towards SMAL and RAL, PM	0.0002387	100%	94.5%	0	1.313E-05	5.751E-05
							Criii towards SMAL and RAL, PM10, source 7	8.721E-05	100%	94.5%	0	4.796E-06	2.101E-05
							Criii towards SMAL and RAL, PM2.5, source 7	8.021E-06	100%	94.5%	0	4.412E-07	1.932E-06
				iron iii oxide	1309-37-1		pm						
						50%	total voc	0.3797308	100%	0%	0	0.3797308	1.6632208
						50%	total PM, by subtraction	0.1329058	100%	94.5%	0	0.0073098	0.032017
							PM10, source 6	0.093034	100%	94.5%	0	0.0051169	0.0224119
							PM2.5, source 6	0.0212649	100%	94.5%	0	0.0011696	0.0051227

Coating Name	SDS Version	Design Rate (gph)	Density (lb/gal)	Composition	CAS	Max Wt %	Pollutant	Available Emissions (lb/hr)	Capture Efficiency	Control Efficiency	Fugitive Emissions (lb/hr)	Stack Emissions (lb/hr)	PTE (tpy)
Hentzen Coatings Inc, 36081 Gray Nonskid	12/7/2016	0.0173	13.91	benzene, 1-chloro-4 (trifluori	98-56-6	30%	assume voc, even though says voc exempt in various sds online not listed as epa exempt						
Zenthane A-A-59166, Type II, 1.8 VOC. Product				homopolymer of HDI	28182-81-2	10%	pm						
Code 03916AMZ-B				barium sulfate	7727-43-7	5%	pm						
				titanium dioxide	13463-67-7	5%	pm						
				aromatic hydrocarbon	64742-94-5	5%	hap mixture, voc						
							naphthalene, source 8	0.0012038	100%	0%	0	0.0012038	0.0052724
							xylene, source 8	0.0004815	100%	0%	0	0.0004815	0.002109
							toluene, source 8	0.0001204	100%	0%	0	0.0001204	0.0005272
							ethylbenzene, source 8	0.0001204	100%	0%	0	0.0001204	0.0005272
				light aromatic naphtha	64742-95-6	5%	hap mixture, voc						
							xylene, source 8	0.0006019	100%	0%	0	0.0006019	0.0026362
							toluene, source 8	0.0001204	100%	0%	0	0.0001204	0.0005272
							ethylbenzene, source 8	0.0001204	100%	0%	0	0.0001204	0.0005272
				1,2,4-trimethylbenzene	95-63-6	5%	voc						
				naphtha, petroleum heavy al	64741-65-7	1%	hap mixture, voc						
							xylene, source 8	0.0000963	100%	0%	0	0.0000963	0.0004218
							toluene, source 8	2.408E-05	100%	0%	0	2.408E-05	0.0001054
							ethylbenzene, source 8	2.408E-05	100%	0%	0	2.408E-05	0.0001054
			see source 11	HDI monomer	822-06-0	0.0176%	hap, voc, assume it doesn't polymerize	4.237E-05	100%	0%	0	4.237E-05	0.0001856
						46%	total voc	0.1107874	100%	0%	0	0.1107874	0.4852487
						54%	total PM, by subtraction	0.0454869	100%	94.5%	0	0.0025018	0.0109578
							PM10, source 6	0.0318408	100%	94.5%	0	0.0017512	0.0076705
							PM2.5, source 6	0.0072779	100%	94.5%	0	0.0004003	0.0017532

source

1 "APTI 482 Sources and Control of VOC" USEPA, 2002. Page 120 of 357 pdf. "Transfer efficiencies of 60% to 70% have been reported for this application method (HVLP)."
2 National Emission Standards for Hazardous Air Pollutant Emissions for Shipbuilding and Ship Repair (Surface Coating); National Emission Standards for Wood Furniture Manufacturing Operations. Final Rule. Federal Register Vol 76, No. 224, page 72058. November 21, 2011. "A typical transfer efficiency of an HVLP gun is 65-80 percent"
3 "General Air Quality Permit Approval to Construct and Operate Auto Body Shops & Surface Coating Operations, Draft" USEPA. 2011. All painting shall be conducted with a HVLP spray gun, or equivalent technology, with a minimum 65% transfer efficiency.
4 "Air Emissions Inventory Guidance Document for Stationary Sources at Air Force Installations" US Air Force IERA. December 2003. Table 30-1.
5 APCP SMAL Table 2017 Revision 14, The total mass of the CrVi compound is used to determine emissions for comparison to the Major Source Thresholds. The mass of the metal portion of the CrVi compound is used to determine emissions for comparison to the SMALs and RALs.
6 "Size Distribution of Chromate Paint Aerosol Generated in a Bench-Scale Spray Booth" Sabty-Daily, Hinds, and Froines. Ann. Occup. Hyg., Vol 49, No. 1, pp33-45, 2005. Figure 4.
p.s.d. for total PM, PM10, PM2.5
100% PM
70% 10 microns
16% 2.5 microns
7 "Size Distribution and Speciation of Chromium in Paint Spray Aerosol at an Aerospace Facility" Sabty-Daily, Harris, Hinds, Froines. Ann occup Hyg, Vol 49 No. 1, pp 47-59. 2005. Table 2.
p.s.d. for metal HAPs
100% PM
36.53% 10 microns
3.36% 2.5 microns
8 40 CFR 63 Subpart VVVV, Tables 5 and 6

name on SDS	CAS on SDS	name in tables 5 and 6	item in table	table	hap in table	table wt%
aromatic hydrocarbon	64742-94-5	aromatic solvent	10	5	naphthalene	10%
		aromatic hydrocarbons	n/a	6	xylene	4%
				6	toluene	1%
				6	ethylbenzene	1%
light aromatic naphtha	64742-95-6	super high flash naphtha	19	5	xylenes	5%
		light aromatic naphtha	n/a	6	toluene	1%
				6	ethylbenzene	1%
naphtha, petroleum heavy alkylate	64741-65-7	petroleum naphtha	n/a	6	xylene	4%
					toluene	1%
					ethylbenzene	1%

9 Product Code 03813-TUA-ULVOC chromic oxide content 0.671%, per Jon Pollina Sales Manager Hentzen email 8/10/2018. APCP rounded up to 1.0%
10 booth is a Global Finishing Solutions crossdraft 18'W x 12'H x 30' L drive thru, totally enclosed per vendor spec sheet
11 08/21/2018 forwarded email from consultant Gayle Lee, original from Hentzen Coatings

This is a sum of all coatings for PTE, not a worst case of each pollutant.

PTE (tpy)	coating 1	coating 2	coating 3	coating 4	coating 5	coating 6	coating 7	coating 8	sum
VOC	2.256036923	2.5660904	0.6935494	0.201042	1.13522019	0.3015569	1.663220769	0.4852487	9.3019653
PM	0.010857178		0.0700918	0.002083878	0.02185299	0.0014512	0.032017	0.0109578	0.1493119
PM10	0.007600024		0.0490643	0.001458714	0.01529709	0.0010159	0.0224119	0.0076705	0.1045183
PM2.5	0.001737148		0.0112147	0.00033342	0.00349648	0.0026537	0.00512272	0.0017532	0.0263114
Combined HAPs	0.005428589	0	0.0433468	0	0	0.0753892	0.054828073	0.0129449	0.1919376
Cr VI Compounds towards major	0.005428589								0.0054286
Cr VI Compounds towards SMAL	0.000487549								0.0004875
Cr Compounds towards major							0.00064034		0.0006403
Cr Compounds towards SMAL							5.75098E-05		5.751E-05
MIBK			0.0433468						0.0433468
Glycol Ether (ethylene glycol ethers)						0.0753892			0.0753892
hdi							0.000964668	0.0001856	0.0011503
naphthalene							0.033264415	0.0052724	0.0385368
xylene							0.013305766	0.005167	0.0184727
toluene							0.003326442	0.0011599	0.0044864
ethylbenzene							0.003326442	0.0011599	0.0044864

Emission Unit	Emission Point	Description, burner model	MHDR (MMBtu/hr input)	Combined MHDR (MMBtu/hr input)	MHDR (MMcf/hr)
EP52a	EP52	makeup air RAM-25, direct fired	2.3328	2.3328	0.0023

	lb/mmcf	capture %	control %
PM10 filt	1.9	100%	0%
PM10 cond	5.7	100%	0%
PM2.5 filt	1.9	100%	0%
PM2.5 cond	5.7	100%	0%

potential operation (hr/yr)
8,760

Natural Gas HHV (Btu/cf)
1,020

100yr GWP 40 CFR 98 Table A-1, Jan 1 2014	
CO2	1
CH4	25
N2O	298

	SO2 (lb/mmcf)	grains sulfur per	scf	grs/cf
AP-42	0.6	2000	1,000,000	0.002
40 CFR 72.2	1.5	0.5	100	0.005
site specific	#VALUE!	fill in	fill in	#VALUE!

Turbine natural gas emission factor obtained from AP-42 Table 3.1-2a (0.94*S lb/MMBtu), 40 CFR 72.2 "pipeline natural gas" definition of 0.5 grains or less of total sulfur per 100 SCF (S = 1.62E-03), natural gas density of 0.044 lb/CF, and HHV of 1,020 Btu/CF. The result is 1.56 lb/MMCF. However all natural gas combustion types should have the same emission factor regardless of the type as long as there is good combustion. SO2 is based upon fuel sulfur content. AP-42 Table 1.4-2 says based on 2,000 grains per MMCF, and to convert based upon ratio of concentrations (0.005 gr/cf / 0.002 gr/cf). The 0.6 factor becomes 1.5. So, 1.5 lb/MMCF was selected.

Pollutant	Emission Factor (lb/mmcf)	Emission Factor Source	Available Pollutant (lb/hr)	Control Device	Capture Efficiency	Control Efficiency	PTE (lb/hr)	PTE (tpy)
PM filt	1.9	SCC 1-02-006-02 industrial boiler, natural gas, 10-100MMBtu and SCC 1-02-006-03 < 10MMBtu	0.004345412	none	100%	0%	0.004345412	0.02
PM10	7.6		0.017381647	n/a for combined filt+cond	n/a	n/a	0.017381647	0.08
PM2.5	7.6		0.017381647	n/a for combined filt+cond	n/a	n/a	0.017381647	0.08
SO2	0.6		0.001372235	none	100%	0%	0.001372235	0.01
NOX	100		0.228705882	none	100%	0%	0.228705882	1.00
VOC	5.5		0.012578824	none	100%	0%	0.012578824	0.06
CO	84		0.192112941	none	100%	0%	0.192112941	0.84
Hydrogen Sulfide			0	none	100%	0%	0	0.00
Total Reduced Sulfur			0	none	100%	0%	0	0.00
Reduced Sulfur Compounds			0	none	100%	0%	0	0.00
Lead, as NSR pollutant	5.00E-04		1.14353E-06	none	100%	0%	1.14353E-06	5.01E-06
Fluorides excluding HF			0	none	100%	0%	0	0.00
SAM			0	none	100%	0%	0	0.00
CO2	120,000		274.4470588	some controls increase CO2	100%	0%	274.4470588	1202.08
CH4	2.3		5.26E-03	none	100%	0%	0.005260235	0.02
N2O	2.2		5.03E-03	none	100%	0%	0.005031529	0.02
GHG (mass)								1202.12
GHG (CO2e)								1209.22
Combined HAPs	1.8884582		0.004319015	none	100%	0%	4.32E-03	0.019
POM aggregate group	0.0006982		1.60E-06	none	100%	0%	1.60E-06	6.99E-06
POM Acenaphthene	1.80E-06		4.12E-09	none	100%	0%	4.12E-09	1.80E-08
POM Acenaphthylene	1.80E-06		4.12E-09	none	100%	0%	4.12E-09	1.80E-08
POM Anthracene	2.40E-06		5.49E-09	none	100%	0%	5.49E-09	2.40E-08
POM Benzo(a)Anthracene	1.80E-06		4.12E-09	none	100%	0%	4.12E-09	1.80E-08
POM Benzo(a)Pyrene	1.20E-06		2.74E-09	none	100%	0%	2.74E-09	1.20E-08
POM Benzo(b)Fluoranthene	1.80E-06		4.12E-09	none	100%	0%	4.12E-09	1.80E-08
POM Benzo(g,h,i)Perylene	1.20E-06		2.74E-09	none	100%	0%	2.74E-09	1.20E-08
POM Benzo(k)Fluoranthene	1.80E-06		4.12E-09	none	100%	0%	4.12E-09	1.80E-08
POM Chrysene	1.80E-06		4.12E-09	none	100%	0%	4.12E-09	1.80E-08
POM Dibenz(a,h)Anthracene	1.20E-06		2.74E-09	none	100%	0%	2.74E-09	1.20E-08
POM 7,12-Dimethylbenz[a]Anthracene	1.60E-05		3.66E-08	none	100%	0%	3.66E-08	1.60E-07
POM Fluoranthene	3.00E-06		6.86E-09	none	100%	0%	6.86E-09	3.01E-08
POM Fluorene	2.80E-06		6.40E-09	none	100%	0%	6.40E-09	2.80E-08
POM Indeno(1,2,3-c,d)Pyrene	1.80E-06		4.12E-09	none	100%	0%	4.12E-09	1.80E-08
POM 2-Methylnaphthalene	2.40E-05		5.49E-08	none	100%	0%	5.49E-08	2.40E-07
POM 3-Methylcholanthrene	1.80E-06		4.12E-09	none	100%	0%	4.12E-09	1.80E-08
POM Naphthalene	6.10E-04		1.40E-06	none	100%	0%	1.40E-06	6.11E-06
POM Phenanthrene	1.70E-05		3.89E-08	none	100%	0%	3.89E-08	1.70E-07
POM Pyrene	5.00E-06		1.14E-08	none	100%	0%	1.14E-08	5.01E-08
Arsenic compounds	2.00E-04		4.57E-07	none	100%	0%	4.57E-07	2.00E-06
Benzene	2.10E-03		4.80E-06	none	100%	0%	4.80E-06	2.10E-05
Beryllium compounds	1.20E-05		2.74E-08	none	100%	0%	2.74E-08	1.20E-07
Cadmium compounds	1.10E-03		2.52E-06	none	100%	0%	2.52E-06	1.10E-05
Chromium compounds	1.40E-03		3.20E-06	none	100%	0%	3.20E-06	1.40E-05
Cobalt compounds	8.40E-05		1.92E-07	none	100%	0%	1.92E-07	8.41E-07
1,4-Dichlorobenzene(p) CAS 106-46-7	1.20E-03		2.74E-06	none	100%	0%	2.74E-06	1.20E-05
Formaldehyde	7.50E-02		1.72E-04	none	100%	0%	1.72E-04	7.51E-04
Hexane	1.80E+00		0.00412	none	100%	0%	0.004116706	0.02
Lead compounds	5.00E-04		1.14E-06	none	100%	0%	1.14353E-06	5.01E-06
Manganese compounds	3.80E-04		8.69E-07	none	100%	0%	8.69E-07	3.81E-06
Mercury compounds	2.60E-04		5.95E-07	none	100%	0%	5.95E-07	2.60E-06
Nickel compounds	2.10E-03		4.80E-06	none	100%	0%	4.80E-06	2.10E-05
Selenium compounds	2.40E-05		5.49E-08	none	100%	0%	5.49E-08	2.40E-07
Toluene	3.40E-03		7.78E-06	none	100%	0%	7.78E-06	3.41E-05
copper, not a hap	8.50E-04		1.94E-06	none	100%	0%	1.94E-06	8.51E-06
vanadium, not a hap	2.30E-03		5.26E-06	none	100%	0%	5.26E-06	2.30E-05
zinc, not a hap	2.90E-02		6.63E-05	none	100%	0%	6.63E-05	2.91E-04

Natural gas HHV of 1,020 Btu/cf cited from AP-42 Section 1.4, July 1998.

Dichlorobenzene group CAS 25321-22-6 conservatively assumed as 100% 1,4-dichlorobenzene CAS 106-46-7.

Activity	MHDR (tons/hr)	(trips/hr)	semi	type	type	type	We*	Wf*
canister material receiving	0.030	0.009	100%				15	18.5
canister shipping	0.030	0.009	100%				15	18.5

Truck Types

Truck Type	We (tons)	Wf (tons)
semi	15	18.50
type		
type		

0.035 canisters painted per hour
0.875 finished canister weight (tons)
0.030 mhdr tph canisters
4 canisters per truck

Activ

Road Segment ID	1	2	3	4	5	6	7	8
D one way (feet)	800							
D one way (miles)	0.152	0.000	0.000	0.000	0.000	0.000	0.000	0.000
canister material receiving	3							
canister shipping	3							

1=empty
2=full
3=both

W

canister material receiving	8.375	0.000	0.000	0.000	0.000	0.000	0.000	0.000
canister shipping	8.375	0.000	0.000	0.000	0.000	0.000	0.000	0.000
W	16.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Surface	Paved	Unpaved	Unpaved	Unpaved	Unpaved	Unpaved	Unpaved	Unpaved

MHE

Eext(PM2.5) (lbs/VMT):	0.01669							
Eext(PM10) (lbs/VMT):	0.06799							
Eext(PM30) (lbs/VMT):	0.33995							
canister material receiving	0.002622	0	0	0	0	0	0	0
canister shipping	0.002622	0	0	0	0	0	0	0
MHDR (VMT/hr)	0.005245	0	0	0	0	0	0	0

PTE (lb/hr)

PTE PM2.5 (lb/hr) w/ rain	8.75E-05	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
PTE PM10 (lb/hr) w/ rain	0.000357	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
PTE PM30 (lb/hr) w/ rain	0.001783	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!

PTE (tons/yr)

PTE PM2.5 (tons/yr) w/ rain	0.000383	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
PTE PM10 (tons/yr) w/ rain	0.001562	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
PTE PM30 (tons/yr) w/ rain	0.007809	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!

tpy	
0.0078	PM
0.0016	PM10
0.0004	PM2.5

Typically no added control % for dry sweeping paved roads, but the sL decreases.
sL of 2.0 g/m2 is assumed for light industry (except more fugitive materials such as grain, aggregate, coal, etc may have higher sL).
sL lower than 2.0 can be used with a permit limit, cleaning, and testing required.

rates to modeling 24 hr max throughput (lb/hr)	
paved	w/o rain
paved with control	reduced sL or contr, w/o rain
unpaved	w/o rain
unpaved with control	controlled w/o rain

rates to modeling annual throughput (lb/hr)	
paved	with rain
paved with dry sweeping/vac	reduced sL, with rain
paved with washing	reduced sL or same sL w/ control, w/o rain
unpaved	with rain
unpaved with control	controlled w/o rain

tpy rates to permit PTE annual throughput	
paved	with rain
paved with dry sweeping/vac	reduced sL, with rain
paved with washing	reduced sL or same sL w/ control, w/o rain
unpaved	with rain
unpaved with control	controlled w/o rain

to portion out an activity in order to add to a composite emission factor:
apply this equation to each segment that the activity travels on and sum the results: MHDR' / MHDR(VMT/hr) x PTE(lb/hr)
then divide by that activity's MHDR (tph) to get lb/ton emission factor

yellow highlight means user must input in order to calculate control efficiency

Paved Road Control Efficiency

"Control of Open Fugitive Dust Sources" EPA, Sept 1988, page 27 of 308, Table 2-4
water paved at 0.48 gal / square yard

water flushing

	number of vehicle passes empty and full on this segment, per day
	waterings per day on this segment
#DIV/0!	number of vehicle passes since watering
#DIV/0!	pm2.5 control
#DIV/0!	pm10 control
#DIV/0!	pm control

water flushing followed by sweeping

	number of vehicle passes empty and full on this segment, per day
	waterings per day on this segment
#DIV/0!	number of vehicle passes since watering
#DIV/0!	pm2.5 control
#DIV/0!	pm10 control
#DIV/0!	pm control

	rain amount to equal one watering
0.48	gallons water / sq yd paved, per EPA document
110.8877	convert to cubic inches water per sq yd
0.086	convert to inches rain

Unpaved Road Control Efficiency

"Mojave Desert Air Quality Management District Antelope Valley Air Pollution Control District Emissions Inventory Guidance Mineral Handling and Processing Industries" page 26 of 31 pdf
similar method to May 25, 2009 Holcim memo

	evaporation rate (inches/month), input most representative value below from "Mean Monthly, Seasonal, and Annual Pan Evaporation for the United States" NOAA 1982, page 40 of 91 pdf.
8.11	Columbia
8.99	Pomme de Terre dam
6.75	St. Louis
8.00	Spickard
7.39	Weldon Springs
	number of vehicle passes empty and full on this segment, per hour
	watering rate on this segment (gallons / sq yd)
	hours between waterings on this segment
#DIV/0!	pm2.5 control
#DIV/0!	pm10 control
#DIV/0!	pm control

	rain amount to equal one watering
0	unpaved watering rate shown above (gal/sq yd)
0	convert to cubic inches water per sq yd
0.000	convert to inches rain. For comparison, BMP documented watering is 0.25 inches rain, converts to 1.403 gal/sq yd.

Missouri BMP Policy for "Documented Watering"
100 gallons / 1000 sq ft (0.9 gal/sq yd) once daily

74%	pm2.5 control
90%	pm10 control
90%	pm control

Missouri Policy "Undocumented Watering" water as necessary to avoid visible fugitive emissions leaving the property

41.1%	pm2.5 control
50%	pm10 control
50%	pm control

Haul Road/Haul Truck/Material Hauled Information								
Haul Road ID No.:	1	2	3	4	5	6	7	8
W (tons):	16.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00
sL (g/m^2):	2.0							
P:	105	105	105	105	105	105	105	105
N:	365	365	365	365	365	365	365	365
Haul Roads - Max Hourly VMT Rate and Emission Factor Calculations								
$E(PM_{2.5})$(lbs/VMT):	0.0180							
$E(PM_{10})$(lbs/VMT):	0.0733							
$E(PM_{30})$ (lbs/VMT):	0.3663							
$Eext(PM_{2.5})$(lbs/VMT):	0.0167							
$Eext(PM_{10})$(lbs/VMT):	0.0680							
$Eext(PM_{30})$ (lbs/VMT):	0.3399							

E = k(sL)^0.91 * (W)^1.02 where:
E = particulate emission factor (having units matching the units of k)
k = particle size multiplier for particle size range and units of interest
sL = road surface silt loading (grams per square meter) (g/m^2)
W = average weight (tons) of the vehicles traveling the road

Table 13.2.1-1 PARTICLE SIZE MULTIPLIERS FOR PAVED ROAD EQUATION

Size range	k (lb/VMT)
PM2.5	0.00054
PM10	0.0022
PM15	0.0027
PM30	0.011

Eext = [k(sL)^0.91 * (W)^1.02](1-P/(4N)) where:
k, sL, W and S are as defined above and
Eext = annual average emission factor in the same units as k
P = number of "wet" days with at least 0.01 inch of precipitation during the averaging period
N = number of days in the averaging period (365 for annual)

The equations retain the quality rating of A (D for PM2.5), if applied within the range of source
Silt loading:

0.03-400 g/m^2

0.04-570 grains/square foot (ft^2)

Mean vehicle weight:

1.8-38 megagrams (Mg)

2.0-42 tons

Mean vehicle speed:

1-88 kilometers per hour (kph)

1-55 miles per hour (mph)

The upper 95% confidence levels of equation 1 for PM10 is best described with equations using an
E95% = k(sL)^1.14 * (W)^1.19

$E95\%(PM_{2.5})$(lbs/VMT): 0.0341

$E95\%(PM_{10})$(lbs/VMT): 0.1387

Haul Road/Haul Truck/Material Hauled Information

Haul Road ID No.:		1	2	3	4	5	6	7	8
	W (tons):	16.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	s (%):								
	P (days):	105	105	105	105	105	105	105	105
E(PM2.5) (lbs/VMT):									
E(PM10) (lbs/VMT):									
E(PM30) (lbs/VMT):									
Eext(PM2.5) (lbs/VMT):									
Eext(PM10) (lbs/VMT):									
Eext(PM30) (lbs/VMT):									

E = k (s/12)^a * (W/3)^b where:
E = size-specific emission factor (lb/VMT)
s = surface material silt content (%)
W = mean vehicle weight (tons)

Constants for Equation

	Constant		
Particle Size	k(lb/VMT)	a	b
PM2.5	0.15	0.9	0.45
PM10	1.5	0.9	0.45
PM30	4.9	0.7	0.45

Eext = E[(365-P)/365] where E is defined above and:
Eext = annual size-specific emission factor extrapolated for natural mitigation (lb/VMT)
P = number of days in a year with at least 0.01 inch of precipitation

McDonnell St
McDonnell St
McDonnell St
Measure distance
Click on the map to add to your path
Total distance: 809.09 ft (246.61 m)

Ui	1	4	7	8	9	10	12	20	43	45	46	35	49	50	51	13	26	27	39	41	42	44	47	48 various	tpy
escription	garnet abrasive paint	paint	paint	paint	paint	paint	paint	paint	paint	paint	welding	engine test	engine test	blasting	natural gas fi	power washi	space heater	makeup air u	burn off over	gas fired clea	infrared over	infrared over	infrared over	natural gas at booths	
di		5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2														0.0260
hromium		0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21				3.08										0.00259
obalt		0.00084	0.00084	0.00084	0.00084	0.00084	0.00084	0.00084	0.00084	0.00084	0.00084														0.0000042
thylbenzene		0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78														0.0039
ormaldehyde		0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03			0.86											0.00058
lycol ethers		10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56														0.0528
ylene		34.65	34.65	34.65	34.65	34.65	34.65	34.65	34.65	34.65	34.65			0.21											0.173355
umene		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01														0.00005
ead		0.00582	0.00582	0.00582	0.00582	0.00582	0.00582	0.00582	0.00582	0.00582	0.00582														0.0000291
nanganese	4.88	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	8.76													0.00722
nethanol		0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08														0.0004
nibk		77.87	77.87	77.87	77.87	77.87	77.87	77.87	77.87	77.87	77.87														0.38935
exane		1.74	1.74	1.74	1.74	1.74	1.74	1.74	1.74	1.74	1.74														0.0087
ickel		0.00024	0.00024	0.00024	0.00024	0.00024	0.00024	0.00024	0.00024	0.00024	0.00024														0.0000012
oluene		7.31	7.31	7.31	7.31	7.31	7.31	7.31	7.31	7.31	7.31			0.30											0.0367
,3 butadiene														0.03											0.000015
cetaldehyde														0.56											0.00028
crolein														0.07											0.000035
enzene														0.68											0.00034
aphthalene														0.06											0.00003
um		138.5269	138.5269	138.5269	138.5269	138.5269	138.5269	138.5269	138.5269	138.5269	138.5269	8.76	0	2.77	3.08										0.6999395

welding should have additional haps

inactive

there are additional haps from diesel combustion

didn't submit hap worksheet for any of the natural gas combustion units

draft OP says mact mmmm due to major hap source.
pte shows 17.49 tpy chromium compounds, yet requires exhaust filters. 17.49 tpy in Excel w/o the transfer and control eff. Chromium controlled pte is 0.11 tpy.

	uncontrolled pte in OP/excel	controlled in Excel	
Manganese	3.4214201	1.5609538	
1,6-Diisocyanatohexane	0.9539313	0.9539313	
Ethylbenzene	0.2238153	0.2238153	
Methylisobutylketone	10.53779	10.53779	could take a limit to get out of MMMM, "once in always in" doesn't apply anymore per EPA 2018-01-25 letter
Toluene	3.4495806	3.4495806	
Antimony	0.0130378	7.823E-05	
Chromium	17.490085	0.1080773	
Glycol Ethers	0.5541059	0.5541059	
xylene	6.6709999	6.6709999	
Lead	0.878964	0.0052738	
Methyl alcohol	0.029335	0.029335	
Nickel	0.0130378	7.823E-05	
sum of these specific individual	44.24	24.094019	
sum all, engines, combustion, etc	44.47	24.33	less than 25 tpy combined, and take 10/25 limit anyhow

not everything they coat is a military munition, so not categorically exempt from MMMM
see if getting out of mmmm and being area source means another mact applies?
6h likely subject, but less stringent than MMMM
6x not subject

restate 250 tpy voc limit? op 250 limit missed diesel engines, fuel tanks
voc actuals 7-28 tpy. Take 40 tpy limit get out of P70.
nox limit, actuals 3-5 tpy. Get out of OP. May not need limit due to engine testing NSR applicability. Permits 042009-007 and 012011-005 have issues, count engines as stationary sources but say not subject to NSPS/MACT.
See Hyundai 2010, General Motors 2012, John Deere 2016 EPA letters.
if no more P70, then put the voluntary exhaust filter requirements (OP condition 4) into CP, if they aren't already in an older CP. Most controls are not required in their older cp.

moeis admin
mmmm added in 2013 and 2015.
mmmmm major hap flexible foam, maybe this was a mistake. Confirmed with DRS that it doesn't apply.
ddddd major hap boiler and process heater, maybe a mistake. Site has ovens and heaters in OP but no boilers. Maybe the ovens are indirect fired and subject if the site is hap major. DRS confirmed it doesn't apply.

DRS confirmed 8/22/2018 "would like to remain a Part 70 at this time and they do not wish to take installation-wide limits."
per 8/27/18 email, yes restate the installationwide 250 tpy voc limit

emission unit	description	voc factor	factor units of measure	factor source	email comment 9/10/2018
EP04	Paint Booth – Blockbooth surface coating emissions	100%	of voc used	mass balance	
EP07	Paint Booth – P1 surface coating emissions				
EP08	Paint Booth – Plant 1 surface coating emissions				
EP09	Paint Booth – P5 surface coating emissions				DRS EP09 "removed from service"
EP10	Paint Booth – P1 surface coating emissions (different name than EP07?)				DRS confirmed this is correct name
EP12	Paint Booth – P4 surface coating emissions				
EP20	Paint Booth – P4 surface coating emissions				
EP43	Paint Booth – Topcoat surface coating emissions				
EP45	Paint Booth – Wash Primer P1				
EP46	Paint Booth – Primer P1				
EP52	Global Finishing Solutions (GFS) Booth, surface coating emissions				
EP??	Maintenance department parts washers, <10 gal each				Maintenance department parts washers, <10 gal each
EP04a	Paint Booth – Blockbooth natural gas fired heater	5.5	lb/mmcf fuel input	AP-42 table 1.4-2	
EP07a	Paint Booth – P1 natural gas fired heater				
EP08a	Paint Booth – Plant 1 natural gas fired heater				
EP09a	Paint Booth – P5 natural gas fired heater				DRS EP09 "removed from service"
EP10a	Paint Booth – P1 natural gas fired heater (different name than EP07?)				DRS confirmed this is correct name
EP12a	Paint Booth – P4 natural gas fired heater				
EP13	Oven P1, natural gas fired				
EP20a	Paint Booth – P4 natural gas fired heater				
EP26	Power Washers (8), Natural Gas fired				
EP27	Space Heaters, Natural Gas fired				
EP39	Area Air Makeup Units, natural gas fired				
EP41	Burnoff Oven, natural gas fired				
EP42	Cleaning Tanks, Spray Equipment, natural gas fired				
EP44	Primer Cure Infrared Oven, natural gas fired				
EP47	Infrared Oven P1, natural gas fired				
EP48	Convection Oven P1, natural gas fired				
EP52a	GFS Booth makeup air heater, natural gas fired				
EP29	Aboveground Fuel Storage – Diesel	1.00E-02	lb/1,000 gal	TANKS program based upon other installations	
EP33	Aboveground Fuel Storage – Gasoline	1.70E-01	lb/1,000 gal	TANKS program based upon other installations	
EP35	Gas Metal Arc Welding (GMAW & GTAW)	0		no value in AP-42, webfire, or online search. As long as surface oil/solvent free.	
EP50	Tunner Engine Test, diesel RICE	0.36	lb/mmbtu input	AP-42 table 3.3-1	
EP50a	M1000 (APU) engine test, diesel RICE				
EP50b	Pump engine test, diesel RICE				
EP53	emergency generator, natural gas, 60hp/45kW, June 2007	0.12	lb/mmbtu input	AP-42 tables 3.2-1 and 3.2-2	
EP??	Any oxyfuel cutting?	0.493382353	lb/1,000 gal	none for plasma cutting. Use propane factor for other than natural gas fuel.	DRS plasma is "not active"

diesel tank

	project	voc factor (lb/1000 gal throughput)	
	2017-11-005	4.45E-03	
	2010-04-031	1.89E-02	
	2011-03-026	5.69E-03	
	2011-08-043	6.93E-03	underground
	2011-11-026	8.88E-03	
avg except underground tank		9.47E-03	
	round up	1.00E-02	

gasoline tank

project	voc factor (lb/1000 gal throughput)
2017-08-051	0.161854894
round up	1.70E-01