STATE OF MISSOURI

Jeremiah W. (Jay) Nixon, Governor • Sara Parker Pauley, Director

DEPARTMENT OF NATURAL RESOURCES

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MAR 2 7 2014

Mr. Dave Caughey
Environmental Manager
US DOE National Nuclear Security Administration - National Security Campus KCP
14520 Botts Rd
Kansas City, MO 64147

RE: New Source Review Permit - Project Number: 2013-12-033

Dear Mr. Caughey:

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 with 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.

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:dpl

Enclosures

c: Kansas City Regional Office
PAMS File: 2013-12-033

Permit Number: 032014-010

STATE OF 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: 032014-010 Project Number: 2013-12-033

Facility Number: 095-2442

Parent Company: US DOE National Nuclear Security Administration - National Security Campus KCP

Parent Company Address: 14520 Botts Rd, Kansas City, MO 64147

Installation Name: US DOE National Nuclear Security Administration - National Security Campus KCP

Installation Address: 14520 Botts Rd, Kansas City, MO 64147

Location Information: Jackson County, S27, T47N, R33W

Application for Authority to Construct was made for:
Base, hydrographic, and clear surface coating operation (EP-26a liquid coating, EP-26b hydrographics) located in Building 4. 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.

MAR 27 2014

EFFECTIVE DATE

Lynn L Moore

DIRECTOR OR DESIGNEE
DEPARTMENT OF NATURAL RESOURCES

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 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 Department's Air Pollution Control Program of the anticipated date of start up of these air contaminant sources. The information must be made available within 30 days of actual startup. Also, you must notify the Department of Natural Resources Regional office responsible for the area within which you are located within 15 days after the actual start up of these air contaminant sources.

A copy of this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources' 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 sources(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 at (573) 751-4817. If you prefer to write, please address your correspondence to the Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention: Construction Permit Unit.

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."

US DOE National Nuclear Security Administration - National Security Campus KCP (NNSA)
Jackson County, S27, T47N, R33W

1. Superseding Condition
   The conditions of this permit supersede all special conditions found in permit 1227B issued by the Air Pollution Control Program.

2. $PM_{2.5}$ Emission Limitation
   A. NNSA shall emit less than 7.0 tons of $PM_{2.5}$ in any consecutive 12-month period from all emission units at facility ID 095-2442.

   B. NNSA shall develop and use forms to demonstrate compliance with Special Condition 2.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) Emission units
      7) Emission unit respective current monthly throughput
      8) Emission unit respective emission factors, and source
      9) Total $PM_{2.5}$ emissions for the reporting date range
      10) 12-month rolling total $PM_{2.5}$ emissions
      11) Indication of compliance status with Special Condition 2.A.

3. NO_X Emission Limitation
   A. NNSA shall emit less than 1.0 tons of NO_X in any consecutive 12-month period from all emission units at facility ID 095-2442.

SPECIAL CONDITIONS:

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

B. NNSA shall develop and use forms to demonstrate compliance with Special Condition 3.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) Emission units
   7) Emission unit respective current monthly throughput
   8) Emission unit respective emission factors
   9) Total NO_X emissions for the reporting date range
   10) 12-month rolling total NO_X emissions
   11) Indication of compliance status with Special Condition 3.A.

4. VOC Emission Limitation
   A. NNSA shall emit less than 39.0 tons of VOC in any consecutive 12-month period from all emission units at facility ID 095-2442.

   B. NNSA 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) Emission units
      7) Emission unit respective current monthly throughput
      8) Emission unit respective emission factors, and source. If the source is a MSDS, then use the maximum of the weight % range.
      9) Total VOC emissions for the reporting date range
      10) 12-month rolling VOC emissions
      11) Indication of compliance status with Special Condition 4.A.

5. HAP Emission Limitations
   A. NNSA shall not exceed the respective SMAL for each individual HAP emissions in any consecutive 12-month period from the combined installation, facility IDs 095-2450 and 095-2442.

SPECIAL CONDITIONS:

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

B. NNSA shall emit less than 25.0 tons per year of combined HAPs in any consecutive 12-month period from the combined installation, facility IDs 095-2450 and ID 095-2442.

C. The combined installation, facility IDs 095-2450 and ID 095-2442 include all emission units in at NNSA and Table 1 of permit 1228A.

D. NNSA shall develop and use forms to demonstrate compliance with Special Conditions 5.A and 5.B. 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) Emission units
7) Emission unit respective current monthly throughput
8) Emission unit respective emission factors and source. If the source is a MSDS, then use the maximum of the weight % range.
9) Total HAP emissions for each individual HAP for the reporting date range, including those HAP emissions from facility ID 095-2450. Individual HAP potential to emit (Table 2) for facility ID 095-2450 may be used when actual emissions are not available.

Table 2: Facility ID 095-2450 HAP PTE (tons per month)

Acetaldehyde	1.11E-04
Acrolein	5.36E-05
Arsenic compounds	1.47E-04
Benzene	1.95E-04
Beryllium compounds	1.10E-04
1,3-Butadiene	1.48E-05
Cadmium compounds	1.14E-04
Carbon tetrachloride	3.11E-07
Chlorobenzene	2.26E-07
Chloroform	2.40E-07
Chromium compounds	1.16E-04
Cobalt compounds	3.68E-06
Dioxins/Furans	8.34E-10
1,2-Dibromoethane	3.74E-07
1,4-Dichlorobenzene(p)	5.25E-05
1,1-Dichloroethane	1.98E-07

SPECIAL CONDITIONS:

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

1,2-Dichloroethane	1.98E-07
Dichloromethane	7.23E-07
1,2-Dichloropropane	2.28E-07
1,3-Dichloropropene	2.23E-07
Ethyl benzene	1.75E-05
Formaldehyde	1.72E-02
Hexane	7.88E-02
Lead compounds	3.29E-04
Manganese compounds	2.21E-04
Mercury compounds	1.11E-04
Methanol	5.37E-05
Nickel compounds	1.19E-04
[1] POM combined	1.24E-03
POM Anthracene	3.39E-07
POM Benz(a)anthracene	1.09E-06
POM Benzo(a)pyrene	5.25E-08
POM Benzo(b)fluoranthene	4.06E-07
POM Benzo(k)fluoranthene	3.98E-07
POM Chrysene	6.48E-07
POM Dibenz(a,h)anthracene	5.20E-07
POM Indeno(1,2,3CD)pyrene	5.84E-07
POM 2-Methylnaphthalene	1.05E-06
POM Naphthalene	3.15E-04
Selenium compounds	5.48E-04
Styrene	2.09E-07
1,1,2,2-Tetrachloroethane	4.44E-07
Toluene	1.73E-03
1,1,1-Trichloroethane	6.35E-05
1,1,2-Trichloroethane	2.69E-07
Vinyl chloride	1.26E-07
Xylenes (isomers and mixture)	2.65E-05
o-Xylenes	2.93E-05

[1] POM combined for comparison to major source threshold, not combined for comparison to individual POM SMAL. This permit's POM combined exceeds the sum of the individual POM due to some AP-42 PAH and POM emission factors being non-speciated.

SPECIAL CONDITIONS:

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

10) 12-month rolling total individual HAP emissions, including those HAP emissions from facility ID 095-2450
11) Individual HAP SMAL obtained from the most recent Appendix A or *Air Pollution Control Program Table of Hazardous Air Pollutants, Screening Model Action Levels, and Risk Assessment Levels* available at http://www.dnr.mo.gov/env/apcp/permits/constpmtguide.htm
12) Total HAP emissions for the reporting date range, including those HAP emissions from facility ID 095-2450
13) 12-month rolling total HAP emissions, including those HAP emissions from facility ID 095-2450
14) Indication of compliance status with Special Conditions 5.A and 5.B.

6. Capture Device Requirement - Booth
NNSA shall capture emissions from the base, hydrographic, and clear coat process EP-26a and EP-26b using a booth. All doors, curtains, and windows shall be closed.

7. Control Device Requirement - Panel Filters
A. NNSA shall control emissions from the base, hydrographic, and clear coat process (EP-26a and EP-26b) using panel filters as specified in the permit application.

B. The filters shall be operated and maintained in accordance with the manufacturer's specifications. The filters shall be equipped with a gauge or meter, which indicates the pressure drop across the control device. These gauges or meters shall be located such that the Department of Natural Resources' employees may easily observe them.

C. Replacement filters shall be kept 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).

D. NNSA shall monitor and record the operating pressure drop across the filters at least once every 24 hours of operation. Periods of non-operation in excess of 24 hours shall be indicated. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.

SPECIAL CONDITIONS:

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

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

F. NNSA shall maintain an operating and maintenance log for the filters 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.

8. Control Device Requirement - Carbon Filters

A. NNSA shall control emissions from the base, hydrographic, and clear coat process (EP-26a and EP-26b) using carbon filters as specified in the permit application.

B. NNSA shall regenerate/replace the filters before breakthrough.

C. The filters shall be operated and maintained in accordance with the manufacturer's specifications. NNSA shall develop and implement a written filter regeneration/replacement plan, which shall be kept on site. The plan shall include a method to evaluate filter performance in order to determine when the filters shall be regenerated/replaced.

D. Replacement filters shall be kept 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).

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

F. NNSA shall maintain an operating and maintenance log for the filters 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.

SPECIAL CONDITIONS:

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

9. Operational Requirement - Solvent/Coating Cloths
NNSA shall keep the solvents, coatings, and cleaning solutions in sealed containers whenever the materials are not in use. NNSA shall provide and maintain suitable, easily read, permanent markings on all solvent, coating, and cleaning solution containers used with this equipment.

10. Alternative Coating at EP-26a and EP-26b
   A. Before using an alternative coating in the spray gun or hydrographic process that differs from a material listed in the application for authority to construct, NNSA shall calculate the potential emissions of all individual HAPs and total VOC in the alternative coating.

   B. NNSA 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 Appendix B, or http://www.dnr.mo.gov/env/apcp/permits/constpmtguide.htm, whichever is most recent, or if the total VOC emissions exceed 12.05 tpy.

   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 10.A. and 10.B.

11. Record Keeping and Reporting Requirements
   A. NNSA 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 MSDS for all materials used.

   B. NNSA shall report to the Air Pollution Control Program's Compliance/Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, 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: 2013-12-033
Facility ID Number: 095-2442
Permit Number: 032014-010

Application Complete: December 24, 2013
US DOE National Nuclear Security Administration - National Security Campus KCP
14520 Botts Rd
Kansas City, MO 64147

Parent Company:
US DOE National Nuclear Security Administration - National Security Campus KCP
14520 Botts Rd
Kansas City, MO 64147

Jackson County, S27, T47N, R33W

REVIEW SUMMARY

- US DOE National Nuclear Security Administration - National Security Campus KCP has applied for authority to install a base, hydrographic, and clear surface coating operation (EP-26a and EP-26b) located in Building 4.

- HAP emissions are expected from the proposed surface coating.

- None of the NSPS under 40 CFR 60 apply to the surface coating operation.

- 40 CFR 63 Subpart HHHHHH, *National Emission Standards for Hazardous Air Pollutants: Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources*, (MACT 6H) does not apply to the surface coating operation according to §63.11169(d). However, spray application of a target HAP occurs and the exhaust filter manufacturer claims the filter is MACT 6H compliant.

- Panel filters are being used to control the PM, PM_{10}, $PM_{2.5}$, and particulate matter HAP emissions. Carbon filters are being used to control the VOC and volatile HAP emissions.

- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of all pollutants are conditioned to de minimis levels and respective SMAL.

- This installation is located in Jackson County, a maintenance area for ozone and an attainment area for all other 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 installation are conditioned to de minimis levels and respective SMAL.

- Emissions testing is not required for the equipment.

- Submittal of an application to amend the basic operating permit is required for this installation within 30 days of equipment startup.

- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

The installation consists of production emission units owned by the Department of Energy (DOE) National Nuclear Security Administration (NNSA), operated by Honeywell and support emission units constructed by the General Service Administration (GSA), transferred to CenterPoint Properties Trust. The installation relocated to Botts Road under permits 1227 and 1228. The production and support activities have separate facility IDs, 095-2442 and 095-2450, respectively. NNSA manufactures nonnuclear components of nuclear weapons. CenterPoint consists mainly of boilers and emergency generators. The facilities are one installation for permitting applicability. The combined installation is a NSR de minimis source and is a basic source for operating permit applicability. The following NSR permits have been issued to the combined installation.

Table 1: Permit History

Facility ID	Permit Number	Description
095-2442	1227	NNSA Botts Road construction permit
	1227A	NNSA amendment to address as-built versus permitted emission units
	1227B	NNSA emission limits
095-2450	1228	CenterPoint Botts Road construction permit
	1228A	CenterPoint amendment to address as-built versus permitted emission units, emission limits

PROJECT DESCRIPTION

NNSA proposes to install a base coat, hydrographic dip coat, and clear coat process. Spray applied coatings and dip coatings will be applied in separate mobile booths. Each booth is a Shop Pro Equipment make, Mobile Work Station model, equipped with exhaust panel filters and exhaust carbon filters. Air intake and exhaust is within the booth.

Spray applied surface coatings include those evaluated under previous permits for other emission units. Spray coating MHDR is based upon 32 fluid ounces of coating per paint cup being sprayed in 1 minute, with setup, drying and cleaning encompassing almost an entire hour. The spray coating MHDR is 0.25 gal/hr.

The hydrographic process consists of floating a polyvinyl alcohol and glycerol graphic in water, activating the graphic using a spray applied solvent, then dipping the substrate into the water to coat the substrate with the graphic. Solvent MHDR of 6 fluid ounces per hour was provided by the applicant based upon coating 3 parts per hour with each part requiring 2 ounces of solvent.

EMISSIONS/CONTROLS EVALUATION

Spray applied solids transfer efficiency of 65% was obtained from section 5-9 of the EPA document, *Sources and Control of Volatile Organic Air Pollutants, Student Manual, APTI 482*, 3rd edition, November 2002. Remaining solids were conservatively assumed $PM_{2.5}$. Booth capture efficiency of 95% was assumed using engineering judgment. The booth is comprised of 4-sided and roofed curtain enclosures, but without demonstration of negative pressure at all joints. Intake air is drawn within the enclosure, and exhaust air discharges into the enclosure. In effect, the booth operates as push-pull hood. The manufacturer has documentation showing minimum air velocity of 125 feet per minute at 5 feet from the intake filters. The booth dimensions are 10 feet wide x 8 feet tall x 8 feet deep. The air handling equipment is located inside the booth, with approximately 5 feet of booth depth available for working. Surface coating will occur at locations meeting or exceeding the reported minimum air velocity. 100% capture was not used since the booth isn't required to meet EPA Method 204 criteria for permanent or temporary total enclosure. The panel filters were assumed 98% PM control efficiency as the manufacturer claims compliance with MACT 6H. The carbon filters were assigned 95% VOC and volatile HAP control efficiency according to the EPA document, *Carbon Adsorption for Control of VOC Emissions: Theory and Full Scale System Performance*, June 1988.

All spray applied particulate matter were considered subject to the spray gun's transfer efficiency of 65% and booths' PM capture/control efficiency of 95% / 98%, for an overall removal efficiency of 97.59%. All available VOC were considered subject to the booths' VOC capture/control efficiency of 95% / 95% for an overall removal efficiency of 90.25%. These values are to be used in calculating actual emissions.

The following table provides an emissions summary for this project. Existing potential emissions were cited from amendment 1227B. Actual emissions were obtained from the previous location's (ID 095-0005) 2012 emissions inventory questionnaire (EIQ), but do not include the updated emission units. The NNSA conditioned potential emissions represent voluntary limits for the new emission units evaluated in this permit plus those emission units in a 50 page document submitted under amendment 1227B on September 10, 2013, where the first page is titled, *NNSA HAP Emission Sources Excluding Combustion Sources*. Unconditioned potential emissions of this project were calculated only to the extent that permit need was determined. Therefore, potential emissions of the project are higher than shown. However, the combined installation potential emissions of each pollutant are limited to the respective de minimis level or SMAL. The combined installation conditioned potential emissions represent voluntary limits in this permit and amendment 1228A. These limits are divided between NNSA and CenterPoint, hence the 7, 1, and 39 tpy NNSA limits.

Table 2: Emissions Summary (tpy)

Pollutant	Regulatory *De Minimis* Levels	NNSA Existing Potential Emissions	NNSA Actual Emissions (2012 EIQ)	Unconditioned Potential Emissions of the Project	NNSA Conditioned Potential Emissions	Combined Installation Conditioned Potential
PM	25.0	N/A	N/D	N/D	N/A	12.07
PM_{10}	15.0	N/A	1.50	N/D	N/A	11.50
$PM_{2.5}$	10.0	< 7.0	0.56	N/D	< 7.0	< 10.0
SOx	40.0	N/A	0.14	N/A	N/A	0.76
NOx	40.0	< 1.0	13.41	N/A	< 1.0	< 40.0
VOC	40.0	< 39.0	8.88	0.15	< 39.0	< 40.0
CO	100.0	N/A	0.80	N/A	N/A	25.78
GHG (CO_2e)	75,000/100,000	N/A	N/A	N/A	N/A	46,886.22
GHG (mass)	0.0/100.0/250.0	N/A	N/A	N/A	N/A	45,303.96
Combined HAPs	10.0/25.0	[1]	1.65	0.29	[1]	< 25.0
Individual HAP	10.0	[1]	N/D	N/D	[1]	< SMAL
Chromium 6 Metal	[2] 0.002	[1]	N/D	0.004	[1]	< SMAL

N/A = Not Applicable; N/D = Not Determined

[1] GSA and NNSA shall share the installation-wide individual HAP SMAL limit and combined HAP 25.0 tpy limit

[2] SMAL

PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of all pollutants are conditioned to de minimis levels.

APPLICABLE REQUIREMENTS

US DOE National Nuclear Security Administration - National Security Campus KCP 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

- *Submission of Emission Data, Emission Fees and Process Information,* 10 CSR 10-6.110
- *Operating Permits*, 10 CSR 10-6.065
- *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

The installation is subject to several NSPS, NESHAP, and MACT regulations including but not limited to the following subparts. It is the installation's responsibility to demonstrate compliance with all applicable regulations.

- 40 CFR 60 Subpart VVV, *Standards of Performance for Polymeric Coating of Supporting Substrates Facilities*

- 40 CFR 61 Subpart H, *National Emission Standards for Emissions of Radionuclides Other Than Radon from Department of Energy Facilities*

- 40 CFR 63 Subpart T, *National Emission Standards for Halogenated Solvent Cleaning*

- 40 CFR 63 Subpart OOOOOO, *National Emission Standards for Hazardous Air Pollutants for Flexible Polyurethane Foam Production and Fabrication Area Sources*

- 40 CFR 63 Subpart WWWWWW, *National Emission Standards for Hazardous Air Pollutants: Area Source Standards for Plating and Polishing Operations*

The installation may be subject to regulations under 10 CSR Division 10, including the following. However, due to the ever-changing batch style operation of several emission units, applicability was not determined at the time of this permit's issuance. It is the installation's responsibility to demonstrate compliance with all applicable regulations. Applicability and compliance can be verified during inspections.

- 10 CSR 10-2.205 *Control of Emissions From Aerospace Manufacture and Rework Facilities* may apply. The installation claims current usage of primers, topcoats, specialty coatings, and chemical milling maskants is less than the 50/200 gallon threshold in 10 CSR 10-2.205(3)(J).

- 10 CSR 10-2.210 *Control of Emissions from Solvent Metal Cleaning*

- 10 CSR 10-2.215 *Control of Emissions from Solvent Cleanup Operations* does not apply if the cleaning solvent VOC emissions are less than 500 pounds per day.

- 10 CSR 10-2.230 *Control of Emissions From Industrial Surface Coating Operations*

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*, I recommend this permit be granted with special conditions.

David Little
New Source Review Unit

2/27/2014
Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated December 19, 2013, received December 24, 2013, designating US DOE National Nuclear Security Administration - National Security Campus KCP as the owner and operator of the installation.

Attachment A – Alternative Coating EP-26a and EP-26b Compliance Worksheet

US DOE National Nuclear Security Administration - National Security Campus KCP
Jackson County, S27, T47N, R33W
Project Number: 2013-12-033
Facility ID Number: 095-2442
Permit Number: 032014-010

Coating or material name _____ Date _____ Density (lb/gal)_____ Copy this sheet as needed.

A	B	C	D	E	F	G	H	I	J
Process and Emission Unit	Individual HAP Name and CAS No.	HAP is also Particulate Matter (yes / no)	Individual HAP Content (max weight %)	Maximum Hourly Application Rate (lbs coating per hour)	Overall PM Transfer and Control Efficiency (%)	Individual HAP PTE (tpy)	Individual HAP SMAL (tpy)	Coating VOC (weight %)	Coating VOC PTE (tpy)
(Example) EP-26a basecoat	*Cobalt 2-Ethylhexanoate 136-52-7*	*yes*	*0.5%*	*1.419*	*97.59%*	*7.49 E-04*	*0.1*	*26%*	*0.16*
(Example) EP-26a clearcoat	*Benzene 71-43-2*	*no*	*2.0%*	*0.347*	*N/A*	*2.96 E-03*	*2.0*	*89%*	*0.13*

A. Record the process description and emission unit.
B. Record the individual HAPs from this single coating/material MSDS.
C. Compare the HAP to Appendix B for verification as particulate matter.
D. Record the maximum weight percent of each HAP from the MSDS.
E. Calculate the coating's maximum hourly application rate (lb/hr) by multiplying the coating density (lb/gal) by the respective basecoat MHDR of 0.25 gal/hr, or respective dipcoat MHDR of 0.047 gal/hr. Include mix ratio if applicable. Seek approval from the Air Pollution Control Program New Source Review Unit if the new MHDR will exceed 0.25 or 0.047 gal/hr, respectively.
F. The overall PM transfer and control efficiency includes the spray gun transfer efficiency (65%), booth capture efficiency (95%), and exhaust filter PM control efficiency (98%): 65% + (1 - 65%) x 95 x 98% = 97.59%. The transfer efficiency is 100% for dip coating.
G. Calculate the particulate matter HAP potential to emit: G = D x E x (1 - F) x 8,760 / 2,000. Otherwise calculate the volatile HAP potential to emit: G = D x E x (1 – 90.25%) x 8,760 / 2,000.
H. Record the individual HAP SMAL from Appendix B. If the individual HAP potential to emit exceeds the respective SMAL seek approval from the Air Pollution Control Program New Source Review Unit before using this coating.
I. Record or calculate the coating's VOC weight % from the MSDS.
J. Calculate the VOC potential to emit: J = E x I x (1 – 90.25%) x 8,760 / 2,000. If the VOC potential to emit exceeds 12.05 tpy seek approval from the Air Pollution Control Program New Source Review Unit before using this coating.

Appendix B: Table of Hazardous Air Pollutants and Screening Model Action Levels (May 3, 2012 Revision 10)

Chemical	CAS #	24hr. Screen	Group ID	HAP	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	0.08		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
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
DICHLOROPHENOXYACETIC 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
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

Appendix B: Table of Hazardous Air Pollutants and Screening Model Action Levels (May 3, 2012 Revision 10)

Chemical	CAS #	SMAL (tons/yr)	Group ID	VOC	PM
HEXACHLOROCYCLOPENTADIENE	77-47-4	0.1		Y	N
HEXACHLOROETHANE	67-72-1	5		Y	N
HEXAMETHYLENE,-1,6-DISOCYANATE	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
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 DISOCYANATE, [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
XYLENE, [ORTHO-]	95-47-6	10	G	Y	N
XYLENE, [PARA-]	106-42-3	10	G	Y	N
XYLENES (MIXED ISOMERS)	1330-20-7	10	G	Y	N

Legend

Group ID	Aggregate Group Name
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

Note 1	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

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
SIC ..... Standard Industrial Classification
SIP ..... State Implementation Plan
SMAL ..... Screening Model Action Levels
SO_x ..... sulfur oxides
SO_2 ..... sulfur dioxide
tph ..... tons per hour
tpy ..... tons per year
VMT ..... vehicle miles traveled
VOC ..... Volatile Organic Compound

Installation: USDOE, NNSA (Honeywell is the contractor)
ID: 095-2442
Calculation Version: 2/3/2014
Project Description: permit for new surface coating operation at building 4 of National Security Campus
base coat in 1st booth
hydrographic polyvinylalchohol-glycerol film water dip process in 2nd booth
return to 1st booth for clear coat
each booth has PM and VOC control
same spray applied surface coatings as permit 1227B, EP-6
restate permit 1227B emission limits, but with redefined installation

PTE

Pollutant	Unconditioned Project (lb/hr)	**Conditioned Project (tpy)	Conditioned NNSA (tpy)	Conditioned Installation (tpy)
PM	n/d	n/d		12.07
PM10	n/d	n/d		11.5
PM2.5	n/d	n/d	< 7.0	< 10.0
SOx	n/a	n/a		0.76
NOx	n/a	n/a	< 1.0	< 40.0
VOC	n/d	0.15	< 39.0	< 40.0
CO	n/a	n/a		25.78
HAPs	n/d	0.29		< 25
Individual HAP	varies	varies		≤ SMAL
Chromium 6 Metal	0.004	n/d		≤ SMAL
GHG (mass)	n/a	n/a		45,303.96
GHG (CO2e)	n/a	n/a		46,886.22

n/d = not determined
n/a = not applicable

Unconditioned Project base coat hexavalent chromium metal PTE exceeds SMAL, therefore permit required.

Conditioned Project PTE didn't include total base coat and clear coat PTE, therefore project PTE is higher than shown, but no effect on permit applicability. Actual emissions will be included in installation-wide recordkeeping. Project PTE is higher than shown.

Conditioned NNSA PTE is restated from permit 1227B.

Conditioned combined installation PTE is restated from permit 1227B.

process is exempt from MACT 6H, as NNSA

Emission Unit	Emission Point	Description	Coating MHDR (gal / hr)	Component	Density (lb / gal)	Mix Ratio	Component MHDR (gal / hr)	Component MHDR (lb / hr)	Ingredient	Max Wt. %	Pollutant	Available Emissions (lb/hr)	Control Device	Capture Efficiency	Control Efficiency	Overall Removal Efficiency	Removed Emissions (lb/hr)	PTE (lb/hr)	PTE (tpy)
	EP-26A	base coat prior to hydrographic	0.250	20685	11.35	50%	0.125	1.419	strontium chromate	10%	hap,pm	0.0497	same as hydrographic	95%	98%	93.1%	0.0462	0.0034	0.02
									Cr 6 metal portion										0.004

Chromium Metal Mass

compound	formula	mass			
		Sr	Cr	O4	Cr mass%
strontium chromate	SrCrO4	87.62	51.996	63.996	25.54%

Only one component of one two-part coating was evaluated to determine permit applicability.
MHDR considers setup, drying, cleaning. Time to empty 32 fl oz paint cup is approximately 1 minute. 1 minute of spraying per hour.

spray transfer efficiency
65%

Emission Unit	Emission Point	Description	MHDR (parts/hr)	MHDR (fl oz / part)	Material	Density (lb / gal)	MHDR (lb / hr)	Ingredient	CAS	Max Wt. %	Pollutant	Available Emissions (lb/hr)	Control Device	Capture Efficiency	Control Efficiency	Overall Removal Efficiency	Removed Emissions (lb/hr)	PTE (lb/hr)	PTE (tpy)
	EP-26B	hydrographic dip coating	3	2	Carolina Solvents 3-3502 activator, MSDS date 02/23/2007	7.9	0.3703	2-(2-butoxyethoxy)ethyl acetate	124-17-4	17%			see below						
								2-butoxyethanol	111-76-2	5%									
								2-ethoxyethyl acetate	111-15-9	32%	hap,voc	0.1185		95%	95%	90.3%	0.1069	0.0116	0.05
								aromatic hydrocarbons	64742-94-5	25%									
								dibutyl phthalate	84-74-2	7%	hap,voc	0.0259		95%	95%	90.3%	0.0234	0.0025	0.01
								dimethyl glutarate	1119-40-0	3%									
								n-butyl acetate	123-86-4	7%									
								naphthalene	91-20-3	3%	hap,voc	0.0111		95%	95%	90.3%	0.0100	0.0011	0.00
								total VOC		92%	VOC	0.3407		95%	95%	90.3%	0.3075	0.0332	0.15
								total PM		8%	PM	0		95%	98%	93.1%	0.0000	0.0000	0.00
					RPM Wood Finishes ACT-NJM2010SPC, MSDS date 07/12/2011	7.4	0.3469	hylene glycol monobutyl ether ace	124-17-4	50%									
								petroleum distillate	64742-49-0	30%									
								m xylene	108-38-3	20%	hap,voc	0.0694		95%	95%	90.3%	0.0626	0.0068	0.03
								o xylene	95-47-6	10%	hap,voc	0.0347		95%	95%	90.3%	0.0313	0.0034	0.01
								p xylene	106-42-3	10%	hap,voc	0.0347		95%	95%	90.3%	0.0313	0.0034	0.01
								ethylbenzene	100-41-4	10%	hap,voc	0.0347		95%	95%	90.3%	0.0313	0.0034	0.01
								cellulose nitrate, cellulose ester	9004-70-0	10%									
								plasticizer	proprietary	10%									
								ethanol	64-17-5	10%			see below						
								toluene	108-88-3	1%	hap,voc	0.0035		95%	95%	90.3%	0.0031	0.0003	0.001
								fragrance	proprietary	0.1%									
								benzene	71-43-2	0.1%	hap,voc	0.0003		95%	95%	90.3%	0.0003	0.0000	0.0001
								naphthalene	91-20-3	0.1%	hap,voc	0.0003		95%	95%	90.3%	0.0003	0.0000	0.0001
								total VOC		94.9%		0.3291		95%	95%	90.3%	0.2970	0.0321	0.14
								total PM		4.88%		0		95%	98%	93.1%	0.0000	0.0000	0.00

PTE theoretical hybrid activator

Pollutant	CAS	(tpy)	Unconditioned (lb/hr)
VOC	n/a	0.15	0.3407
2-ethoxyethyl acetate	111-15-9	0.05	
dibutyl phthalate	84-74-2	0.01	
naphthalene	91-20-3	0.00	
m xylene	108-38-3	0.03	
o xylene	95-47-6	0.01	
p xylene	106-42-3	0.01	
ethylbenzene	100-41-4	0.01	
toluene	108-88-3	0.001	
benzene	71-43-2	0.0001	
total HAPs	n/a	0.29	

control device:
Shop-Pro Equipment "Mobile Work Station" portable spray booth with curtains and roof. Activated charcoal and carbon filters for VOC, panel filters for PM, vendor says 6H compliant.
10' wide, 8' tall, 8' deep
intake and exhaust is within the booth

capture efficiency:
95% assumed as 4 sided curtain enclosure with roof, but likely gaps, and no demonstration of negative pressure within booth as system exhausts back into the booth

VOC control efficiency:
95% cited from EPA document, "Carbon Adsorption for Control of VOC Emissions: Theory and Full Scale System Performance", June 1988, EPA-450/3-88-012

PM control efficiency:
98% assumed from MACT 6H mimimum, vendor claims 6H compliant