National Aeronautics and Space Administration

Goddard Space Flight Center
Wallops Flight Facility
Wallops Island, VA 23337-5099

April 15, 2020

Reply to Attn of: 250.W

Tidewater Regional Office
Attn: Mr. Matthew Slemp
Air Compliance Inspector
Virginia Department of Environmental Quality
5636 Southern Boulevard
Virginia Beach, VA 23462

Subject: NASA Goddard Space Flight Center Wallops Flight Facility,
Air Emissions Annual Update for Calendar Year 2019

Ref: S/C Plant ID: 51-001-00031, Registration No. 40909, Island Launch Facility

In accordance with 9 VAC 5-40-50.H and 9 VAC 5-50-50.H of the Regulations for the Control and Abatement of Air Pollution, Wallops Flight Facility (WFF) hereby submits the Annual Air Emissions Data for Calendar Year (CY) 2019 for Plant Identification Number 51-001-00031, registration number 40909, Island Launch Facility.

If you have any questions or comments concerning this report, please contact Ms. Kathy Moxley at (301) 286-0717, or kathleen.moxley@nasa.gov.

T.J. Meyer
Associate Chief, Medical and Environmental Management Division

Enclosures (4)
1. 2019 Emissions Statement Summary
2. Annual Update Report for CY 2019 and Certification
3. Open Burn Log
4. Option III Emission Calculations

cc: (w/o encls.)
228/ Mr. G. Lilly
250/ Ms. K. Finch

DEQ

VIRGINIA DEPARTMENT OF
ENVIRONMENTAL QUALITY

2019 EMISSION STATEMENT

Please correct any errors in the information below (cross out & replace)

FACILITY NAME ***US NASA - WALLOPS ISLAND***			***REGISTRATION #*** 40909
LOCATION ADDRESS ***Island Facility, Accomac, VA 23337***			***COUNTY/CITY*** ***Accomack County 001***
MAILING ADDRESS ~~***ATTN: Code 205.W Wallops Environmental Office, Building N-161, Wallops Island, VA 23337-5099***~~ ***Wallops Flight Facility, Mailstop 250.W, Wallops Island, VA 23337***			
CONTACT PERSON ***THEODORE J. (T.J.) MEYER***	***TELEPHONE NUMBER*** (757) 824-1987	***PRIMARY NAICS*** Space Research and Technology 927110	*For Agency Use Only*

FACILITY TOTALS *(Sum emissions from attached pages)*

POLLUTANTS	***ANNUAL***	***OZONE SEASON***
TOTAL VOC EMISSIONS	***0.57 TONS/YR***	***3.09 LBS/DAY***
TOTAL NO_X EMISSIONS	***5.58 TONS/YR***	***29.19 LBS/DAY***
TOTAL SO_2 EMISSIONS	***0.10 TONS/YR***	NA
TOTAL PM_{10} EMISSIONS	***0.43 TONS/YR***	NA
TOTAL PB EMISSIONS	***0.00 TONS/YR***	NA
TOTAL TRS EMISSIONS	***0.00 TONS/YR***	NA
TOTAL TNMOC EMISSIONS *(landfills only)*	***N/A TONS/YR***	NA
TOTAL non-VOC/non-PM HAP EMISSIONS	***0.13 TONS/YR***	NA
TOTAL CO EMISSIONS	***1.31 TONS/YR***	NA
TOTAL $PM_{2.5}$ EMISSIONS	***0.43 TONS/YR***	NA
TOTAL NH3 EMISSIONS	***0.00 TONS/YR***	NA

PLEASE ATTACH "ANNUAL UPDATE REPORT" AND "DOCUMENT CERTIFICATION" with appropriate signature.

DOCUMENT CERTIFICATION

Facility Name: ***NASA Wallops Flight Facility – Mainland/Island***

Registration #: **40909**

Facility Location: **NASA GSFC Wallops Flight Facility, Wallops Island, VA 23337**

Type of Submittal Attached: *Option III Emission Calculation Sheet*

Certification: I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering and evaluating the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name of Responsible Official (Print): Theodore J. Meyer

Title: Associate Chief, Medical and Environmental Management Division

Signature: _____

EMISSION STATEMENT FORM INSTRUCTIONS

APPLICABILITY:

A) Facilities emitting 25 tons or more of VOC or 25 tons or more of NOx per year, **and** located in an emissions control area, are required to submit an emission statement annually. The emission statement must provide VOC and NOx emissions for **both** the calendar year and for a typical day during the peak ozone season (June through August). The jurisdictions included in Virginia emission control areas are: Alexandria, Arlington, Botetourt, Charles City, Chesapeake, Chesterfield, Colonial Heights, Fairfax city, Fairfax county, Falls Church, Frederick, Fredericksburg, Gloucester, Hampton, Hanover, Henrico, Hopewell, Isle of Wight, James City, Loudoun, Manassas, Manassas Park, Newport News, Norfolk, Petersburg, Poquoson, Portsmouth, Prince George, Prince William, Richmond, Roanoke city, Roanoke county, Salem, Spotsylvania, Stafford, Suffolk, Virginia Beach, Williamsburg, Winchester, and York.

B) Facilities required to pay permit fees **must** submit emission calculations for pollutants regulated by the permit fee program prior to April 15 each year. This emission statement may be used to fulfill this requirement. Permit fee facilities must submit calendar year emissions (in tons) for VOC, NOx, SO2, PM10, PB, total reduced sulfur (TRS), non-methane organic compounds (TNMOC), and non-volatile/non-particulate hazardous air pollutants (HAPs). (See Appendix.) **Air pollutant emission estimates submitted may be used for the assessment of permit fees during the next billing cycle.**

C) Title V facilities must submit emission calculations for criteria pollutants annually. Criteria pollutant emissions are required for the preparation of a comprehensive emission inventory. (See Appendix for pollutant list.)

D) For some facilities, multiple paragraphs (A, B, and C) may apply. In this case, one submission may suffice, provided it contains all data required by the above programs.

E) Emissions of NH3 and PM2.5 are required for regional haze planning activities and for preparation of a comprehensive emission inventory.

The regulatory basis for the above requirements can be found in 9 VAC 5-20-160, 9 VAC 5-20-206, VAC 5-80-340, and 65 FR 33268.

PLEASE COMPLETE THIS FORM, INCLUDING THE DOCUMENT CERTIFICATION, AND RETURN TO THE APPROPRIATE DEQ REGIONAL OFFICE.

DEFINITIONS:

As used in this document, all terms not defined here shall have the meaning given in the regulations, unless otherwise required by context.

"Actual emissions" means the actual rate of emission of a pollutant from an emission unit for the preceding calendar year or seasonal period. Actual emission estimates shall be adjusted to reflect the effects of process upsets and control equipment downtime and shall follow an emission estimation method acceptable to the Department.

"Control efficiency" means the amount of any given pollutant removed from an air stream by a control device prior to discharge to the ambient air, expressed as a percentage. For certain VOC sources, both the capture and the destruction/collection efficiencies should be used to determine the overall control efficiency.

"Control equipment device code" means the three-digit code, which defines the equipment (such as an incinerator or carbon absorber), used to reduce, by destruction or removal, the amount of air pollutant in an air stream prior to discharge to the ambient air.

"Design value control efficiency" means the manufacturer's specified design efficiency. This value can be used if no testing has been performed on the control equipment.

"Emission factor" means, an AP-42 factor, a Federal factor, or other local factor, which has been tested and is recognized as a standard for calculating emissions.

"Fuel Parameter" means the ash or sulfur content of a fuel used in a combustion process expressed as a weight percentage.

"Material balance" means a method of calculating emissions where the difference between the raw materials (or "mass in") and the recovered products (or "mass out") is considered the emissions for a source.

"Ozone season" means that period between June 1 and August 31 of each year during which conditions for photochemical ozone formation are most favorable. Generally, sustained periods of direct sunlight (i.e., long days, small cloud cover) and warm temperatures.

"Ozone season daily thruput" means the actual or estimated daily fuel, process or solid waste operating rate on an average of the operating days during the ozone season (may be the same as the normal daily rate), expressed in the units of measure appropriate for the particular type of equipment or process involved.

"Unit" means a physical emission point or process within a plant that result in pollutant emissions. (Note: Formerly called "Point")

"Regulated air pollutants" are defined in 9 VAC 5-80-320 and include VOC, NOx, SO2, PM10, PB, TRS, TNMOC, and non-volatile/non-particulate HAPs.

"Process" means components of a point process, such as fuel type that are used in the computation of emissions. (Note: Formerly called "Segment".

"Release Point" means any point in a source designed to emit solids, liquids, or gases into the air, including pipes or ducts. (Note: Formerly called "Stack".)

"Thruput" means the actual or estimated fuel, process, or solid waste operating rate for the calendar year or ozone season, expressed in the units of measure appropriate for the particular type of equipment or process involved.

EMISSION CALCULATIONS
OPTION I: EMISSION FACTOR METHOD

*REGISTRATION #:*_____ *REL. POINT NO.:* _____ *UNIT NO.:*_____ *PROCESS NO.:*_____ *SCC NO.:*

	ANNUAL		PEAK OZONE SEASON (JUNE, JULY, AUGUST)	
THRUPUT (with units)				
NO. OPERATING DAYS	days		days	
NO. OPERATING HOURS PER DAY	hours		hours	
DAILY THRUPUT (with units) = Thruput per day	NA		per day	
VOC EMISSION FACTOR (with units) = EF				
Emission Factor source[1] / Control Efficiency basis[2]				
VOC CONTROL DEVICE CODE[3]				
Avg. VOC CONTROL EFFICIENCY[4] = CE	%		%	
VOC EMISSIONS[5]	tons VOC per yr		lbs VOC per day	
NOx EMISSION FACTOR (with units) = EF				
Emission Factor source[1] / Control Efficiency basis[2]				
NOx CONTROL DEVICE CODE[3]				
Avg. NOx CONTROL EFFICIENCY[4] = CE	%		%	
NOx EMISSIONS[5]	tons NOx per yr		lbs NOx per day	
SO2 EMISSION FACTOR (with units) = EF				
Emission Factor source[1] / Control Efficiency basis[2]				
FUEL PARAMETER (% ash or % sulfur) = FP	%		%	
SO2 CONTROL DEVICE CODE[3]				
Avg. SO2 CONTROL EFFICIENCY[4] = CE	%		%	
SO2 EMISSIONS[5]	tons SO2 per yr		lbs SO2 per day	
PM10 EMISSION FACTOR (with units) = EF				
Emission Factor source[1] / Control Efficiency basis[2]				
FUEL PARAMETER (% ash or % sulfur) = FP	%		%	
PM10 CONTROL DEVICE CODE[3]				
Avg. PM10 CONTROL EFFICIENCY[4] = CE	%		%	
PM10 EMISSIONS[5]	tons PM10 per yr		lbs PM10 per day	
PB EMISSION FACTOR (with units) = EF				
Emission Factor source[1] / Control Efficiency basis[2]				
PB CONTROL DEVICE CODE[3]				
Avg. PB CONTROL EFFICIENCY[4] = CE	%		%	
PB EMISSIONS[5]	tons PB per yr		lbs PB per day	

1. **AP-42**; **CEMS**; **ST** = Stack test; **F** = Federal factor (EPA standard factor); **O** = Other (describe on separate sheet; use subject to DEQ approval)
2. **A** = Tested (by EPA Reference Method); **B** = Tested (other); **C** = Material balance; **D** = Design; **O** = Other (describe on separate sheet)
3. See 3-digit control device codes listed in appendix.
4. Note control efficiency will be zero if there is no control device **OR** the emission factor accounts for controls (i.e. EF is identified to be with controls).
5. Annual Emissions = ANNUAL THRUPUT x EF x FP x (1/2000) x (100-CE)/100 ; Ozone Emissions = DAILY THRUPUT x EF x FP x (100-CE)/100

EMISSION STATEMENT FORM INSTRUCTIONS (continued)

PROCEDURES (OPTION I: EMISSION FACTOR METHOD):

1. You should have an **Annual Update** form, an **Emission Statement** form, and a **Certification** form. Please contact your DEQ Regional office if any item is missing.

2. Complete the **Annual Update**. Make sure the Annual Update form includes all significant emission generating activities. The Emission Statement should correlate with the Annual Update.

3. Before you begin, make additional copies of the blank form pages, as needed.

4. Some facilities must report both annual emissions and ozone season emissions. If your facility emits at least 25 tons of VOC or at least 25 tons of NOx **and** is located in an emission control area, then you must report annual emissions (tons/year) and ozone season emissions (pounds/day) for VOC and NOx. If your facility is required to pay a permit fee, then you must report annual emissions for VOC, NOx, SO2, PM10, PB, TRS, TNMOC, and non-VOC/non-PM HAPs. (See **APPLICABILITY** for details) Gray areas of the Ozone Season column are not required.

5. Remember to fill in the appropriate values for **FACILITY TOTALS** on the cover page.

6. If you have any questions, please call the appropriate DEQ Regional Office as soon as possible.

UNIT AND PROCESS LEVEL INFORMATION:

1. REGISTRATION #: the registration number found in the header of the Annual Update.

2. UNIT NO.: the reference number contained in the ID column on the Annual Update.

3. PROCESS NO.: the reference number contained in the ID column on the Annual Update.

4. THRUPUT: ANNUAL - copy the revised "Annual Thruput" you supplied on your completed Annual Update. OZONE SEASON - determine the thruput for the months of June, July, and August. Use same units for both annual thruput and ozone season thruput.

5. NO. OPERATING DAYS: ANNUAL - the number of days per calendar year the activity occurred. OZONE SEASON - the number of days during the June, July, and August that the activity occurred.(Maximum of 92 days for the ozone season.)

6. NO. OPERATING HOURS PER DAY: the average number of hours per day the activity occurred.

7. DAILY THRUPUT: the thruput for a typical day during the ozone season. To calculate divide the Ozone Season THRUPUT by NO. OPERATING DAYS for the Ozone Season.

8. EMISSION FACTOR: Indicate emission factor for each pollutant.

9. EMISSION FACTOR SOURCE: choose one of the options listed at the bottom of the page. Use of option 'O' is subject to DEQ Regional approval and must be described on a separate sheet.

10. FUEL PARAMETER: the ash or sulfur content of the fuel expressed as a percent. In some cases for PM10 and SO2, the emission factor may include a multiplier. This multiplier indicates whether the percent of ash or sulfur should be used to calculate emissions. For example, 12.0 * S is the emission factor for a boiler burning #6 oil. The S indicates that the percent sulfur in the oil should be used to calculate the emissions. Assuming, the percent sulfur is 1.9%, the fuel parameter would be 1.9 in the equation. (If the emission factor has no multiplier, then assume 1 as the fuel parameter.)

11. CONTROL EFFICIENCY BASIS: choose one of the options listed at the bottom of the page. If option 'O' is selected, please describe on a separate sheet..

12. CONTROL DEVICE CODE: 3-digit code used to identify the type of control device (see appendix).

13. CONTROL EFFICIENCY: Average control efficiency for the pollutant being controlled. This average should account for downtime as illustrated in the example. Please indicate the basis for the control efficiency in the appropriate box above.

    Example (Average control efficiency): A process operated a total of 260 days in the year. It is equipped with a carbon adsorption unit with a manufacturer's rated efficiency of 95%. The carbon adsorption unit was out of service for maintenance for 5 process operating days and was malfunctioning for an additional 10 process operating days. The average control efficiency must account for the 15 days of down time or malfunction. Assuming the efficiency was 0% during the malfunctions, the average control efficiency would be calculated as follows: [1 - (15/260)] X 95% = 89.5%

14. EMISSIONS: Pollutant emissions at the process (segment) level are required. Calculate ANNUAL EMISSIONS in tons and OZONE SEASON EMISSIONS in pounds per day. If your facility emits at least 25 tons of VOC or at least 25 tons of NOx **and** is located in an emissions control area, then you must report annual emissions **and** ozone season emissions for VOC and NOx. If your facility is required to pay a permit fee, then you must report annual emissions of TRS, TNMOC, non-VOC/non-PM HAPs, and all criteria pollutants. Some facilities must report both annual emissions and ozone season emissions. (See **APPLICABILITY** for details)

    ANNUAL EMISSIONS = ANNUAL THRUPUT x EMISSION FACTOR x FUEL PARAMETER x (1/2000) x (100-CONTROL EFFICIENCY)/100

    OZONE SEASON EMISSIONS = DAILY THRUPUT x EMISSION FACTOR x FUEL PARAMETER x (100-CONTROL EFFICIENCY)/100

EMISSION CALCULATIONS
OPTION I: EMISSION FACTOR METHOD (continued)

*REGISTRATION #:*_____ *REL. POINT NO.:* _____ *UNIT NO.:*_____ *PROCESS NO.:*_____ *SCC NO.:*

	ANNUAL	PEAK OZONE SEASON (JUNE, JULY, AUGUST)
THRUPUT (with units)		
NO. OPERATING DAYS	days	days
NO. OPERATING HOURS PER DAY	hours	hours
DAILY THRUPUT (with units) = Thruput per day	NA	per day
TRS Emission Factor (with units) = EF		
Emission Factor source[1] / Control Efficiency basis[2]		
TRS CONTROL DEVICE CODE[3]		
Avg. TRS CONTROL EFFICIENCY[4] = CE	%	%
TRS EMISSIONS[5]	tons TRS per yr	lbs TRS per day
TNMOC EMISSION FACTOR (with units) = EF		
Emission Factor source[1] / Control Efficiency basis[2]		
TNMOC CONTROL DEVICE CODE[3]		
Avg. TNMOC CONTROL EFFICIENCY[4] = CE	%	%
TNMOC EMISSIONS[5]	tons TNMOC per yr	lbs TNMOC per day
CO EMISSION FACTOR (with units) = EF		
Emission Factor source[1] / Control Efficiency basis[2]		
CO CONTROL DEVICE CODE[3]		
Avg. CO CONTROL EFFICIENCY[4] = CE	%	%
CO EMISSIONS[5]	tons per yr	lbs per day
PM 2.5 EMISSION FACTOR (with units) = EF		
Emission Factor source[1] / Control Efficiency basis[2]		
FUEL PARAMETER (% ash or % sulfur) = FP	%	%
PM 2.5 CONTROL DEVICE CODE[3]		
Avg. PM 2.5 CONTROL EFFICIENCY[4] = CE	%	%
PM 2.5 EMISSIONS[5]	tons per yr	lbs per day
NH3 EMISSION FACTOR (with units) = EF		
Emission Factor source[1] / Control Efficiency basis[2]		
NH3 CONTROL DEVICE CODE[3]		
Avg. NH3 CONTROL EFFICIENCY[4] = CE	%	%
NH3 EMISSIONS[5]	tons per yr	lbs per day

1. **AP-42**; **CEMS**; **ST** = Stack test; **F** = Federal factor (EPA standard factor); **O** = Other (describe on separate sheet; use subject to DEQ approval)
2. **A** = Tested (by EPA Reference Method); **B** = Tested (other); **C** = Material Balance; **D** = Design; **O** = Other (describe on separate sheet)
3. See 3-digit control device codes listed in appendix.
4. Note control efficiency will be zero if there is no control device **OR** the emission factor accounts for controls (i.e. EF is identified to be with controls).
5. Annual Emissions = ANNUAL THRUPUT x EF x FP x (1/2000) x (100-CE)/100; Ozone Emissions = DAILY THRUPUT x EF x FP x (100-CE)/100

EMISSION STATEMENT FORM INSTRUCTIONS (continued)

PROCEDURES (OPTION I: EMISSION FACTOR METHOD) continued:

This page may be used to report emissions for total reduced sulfur (TRS), total nonmethane organic compounds (TNMOC), carbon monoxide (CO), particulate matter with diameter less than 2.5 micrometers (PM2.5), and ammonia (NH3).

Gray fields are not required.

UNIT AND PROCESS LEVEL INFORMATION:

1. REGISTRATION #: the registration number found in the header of the Annual Update.

2. UNIT NO.: the reference number contained in the ID column on the Annual Update.

3. PROCESS NO.: the reference number contained in the ID column on the Annual Update.

4. THRUPUT: copy the revised "Annual Thruput" value you supplied on your completed Annual Update.

5. NO. OPERATING DAYS: the number of days per calendar year the activity occurred.

6. NO. OPERATING HOURS PER DAY: the average number of hours per day the activity occurred.

7. EMISSION FACTOR: Indicate emission factor for each pollutant.

8. EMISSION FACTOR SOURCE: choose one of the options listed at the bottom of the page. Use of option 'O' is subject to DEQ Regional office approval and must be described on a separate sheet.

9. FUEL PARAMETER: the ash or sulfur content of the fuel expressed as a percent. In some cases, for particulate and sulfur dioxide, the emission factor may include a multiplier. This multiplier indicates whether the percent of ash or sulfur should be used to calculate emissions. For example, 12.0 * S is the emission factor for a boiler burning #6 oil. The S indicates that the percent sulfur in the oil should be used to calculate the emissions. Assuming, the percent sulfur is 1.9%, the fuel parameter would be 1.9 in the equation. (If the emission factor has no multiplier, then assume 1 as the fuel parameter.)

10. CONTROL EFFICIENCY BASIS: choose one of the options listed at the bottom of the page. If option 'O' is selected, please describe on a separate sheet.

11. CONTROL DEVICE CODE: 3-digit code used to identify the type of control device (see list in appendix).

12. CONTROL EFFICIENCY: Average control efficiency for the pollutant being controlled. This average should account for downtime as illustrated in the example. Please indicate the basis for the control efficiency in the appropriate box above.

    Example (Average control efficiency): A process operated a total of 260 days in the year. It is equipped with a carbon adsorption unit with a manufacturer's rated efficiency of 95%. The carbon adsorption unit was out of service for maintenance for 5 process operating days and was malfunctioning for an additional 10 process operating days. The average control efficiency must account for the 15 days of down time or malfunction. Assuming the efficiency was 0% during the malfunctions, the average control efficiency would be calculated as follows: [1 - (15/260)] X 95% = 89.5%

13. EMISSIONS: Pollutant emissions at the process level are required. Calculate ANNUAL EMISSIONS in tons. If your facility is required to pay a permit fee, then you must also report annual emissions of TRS, TNMOC, non-VOC/non-PM HAPs, and all criteria pollutants. (See APPLICABILITY for details)

    ANNUAL EMISSIONS = ANNUAL THRUPUT x EMISSION FACTOR x FUEL PARAMETER x (1/2000) x (100-CONTROL EFFICIENCY)/100

EMISSION CALCULATIONS
OPTION I: EMISSION FACTOR METHOD (HAPs)

REGISTRATION #:________ REL. POINT NO.: _______ UNIT NO.:_______ PROCESS NO.:_______ SCC NO.:

	ANNUAL	PEAK OZONE SEASON (JUNE, JULY, AUGUST)
THRUPUT (with units)		
NO. OPERATING DAYS	days	days
NO. OPERATING HOURS PER DAY	hours	hours
DAILY THRUPUT (with units) = Thruput per day	NA	per day
HAP EMISSION FACTOR (with units) = EF		
Emission Factor source[1] / Control Efficiency basis[2]		
HAP CONTROL DEVICE CODE[3]		
Avg. HAP CONTROL EFFICIENCY[4] = CE	%	%
HAP (______________) EMISSIONS[5]	tons TNMOC per yr	lbs TNMOC per day
HAP EMISSION FACTOR (with units) = EF		
Emission Factor source[1] / Control Efficiency basis[2]		
HAP CONTROL DEVICE CODE[3]		
Avg. HAP CONTROL EFFICIENCY[4] = CE	%	%
HAP (______________) EMISSIONS[5]	tons per yr	lbs per day
HAP EMISSION FACTOR (with units) = EF		
Emission Factor source[1] / Control Efficiency basis[2]		
HAP CONTROL DEVICE CODE[3]		
Avg. HAP CONTROL EFFICIENCY[4] = CE	%	%
HAP (______________) EMISSIONS[5]	tons per yr	lbs per day
HAP EMISSION FACTOR (with units) = EF		
Emission Factor source[1] / Control Efficiency basis[2]		
HAP CONTROL DEVICE CODE[3]		
Avg. HAP CONTROL EFFICIENCY[4] = CE	%	%
HAP (______________) EMISSIONS[5]	tons per yr	lbs per day
HAP EMISSION FACTOR (with units) = EF		
Emission Factor source[1] / Control Efficiency basis[2]		
HAP CONTROL DEVICE CODE[3]		
Avg. HAP CONTROL EFFICIENCY[4] = CE	%	%
HAP (______________) EMISSIONS[5]	tons per yr	lbs per day
HAP Emission Factor (with units) = EF		
Emission Factor source[1] / Control Efficiency basis[2]		
HAP CONTROL DEVICE CODE[3]		
Avg. HAP CONTROL EFFICIENCY[4] = CE	%	%
HAP (______________) EMISSIONS[5]	tons per yr	lbs per day

1. **AP-42; CEMS; ST** = Stack test; **F** = Federal factor (EPA standard factor); **O** = Other (describe on separate sheet; use subject to DEQ approval)
2. **A** = Tested (by EPA Reference Method); **B** = Tested (other); **C** = Material Balance; **D** = Design; **O** = Other (describe on separate sheet)
3. See 3-digit control device codes listed in appendix.
4. Note control efficiency will be zero if there is no control device **OR** the emission factor accounts for controls (i.e. EF is identified to be with controls).
5. Annual Emissions = ANNUAL THRUPUT x EF x FP x (1/2000) x (100-CE)/100 ; Ozone Emissions = DAILY THRUPUT x EF x FP x (100-CE)/100

EMISSION STATEMENT FORM INSTRUCTIONS (continued)

PROCEDURES (OPTION I: EMISSION FACTOR METHOD) continued:
This page may be used to report emissions for any hazardous air pollutant (HAP). Please provide the CAS number in the blank provided. If there is no CAS number for the HAP, then provide the pollutant name.

Facilities required to pay a permit fee must report emissions for the following non-volatile, non-particulate HAPs:
Chlorine, Hydrazine, Hydrochloric Acid (Hydrogen Chloride), Hydrogen Fluoride (Hydrofluoric Acid), Methyl Chloroform (1,1,1-Trichloroethane), Methylene Chloride (Dichloromethane), Phosphine, Phosphorus, Tetrachloroethylene (Perchloroethylene), and Titanium Tetrachloride. (See CAS number list in appendix.)

Gray fields are not required.

HAP UNIT AND PROCESS LEVEL INFORMATION:

1. REGISTRATION #: the registration number found in the header of the Annual Update.
2. UNIT NO.: the reference number contained in the ID column on the Annual Update.
3. PROCESS NO.: the reference number contained in the ID column on the Annual Update.
4. THRUPUT: copy the revised "annual thruput" value you supplied on your completed Annual Update.
5. NO. OPERATING DAYS: the number of days per calendar year the activity occurred.
6. NO. OPERATING HOURS PER DAY: the average number of hours per day the activity occurred.
7. EMISSION FACTOR: Indicate emission factor for each pollutant.
8. EMISSION FACTOR SOURCE: choose one of the options listed at the bottom of the page. Use of option 'O' is subject to DEQ Regional office approval and must be described on a separate sheet.
9. CONTROL EFFICIENCY BASIS: choose one of the options listed at the bottom of the page. If option 'O' is selected, please describe on a separate sheet.
10. CONTROL DEVICE CODE: 3-digit code used to identify the type of control device (see list in appendix).
11. CONTROL EFFICIENCY: Average control efficiency for the pollutant being controlled. This average should account for downtime as illustrated in the example. Please indicate the basis for the control efficiency in the appropriate box above.

    Example (Average control efficiency): A process operated a total of 260 days in the year. It is equipped with a carbon adsorption unit with a manufacturer's rated efficiency of 95%. The carbon adsorption unit was out of service for maintenance for 5 process operating days and was malfunctioning for an additional 10 process operating days. The average control efficiency must account for the 15 days of down time or malfunction. Assuming the efficiency was 0% during the malfunctions, the average control efficiency would be calculated as follows: [1 - (15/260)] X 95% = 89.5%

12. EMISSIONS: Pollutant emissions at the process level are required. Calculate ANNUAL EMISSIONS in tons. If your facility is required to pay a permit fee, then you must also report annual emissions of TRS, TNMOC, non-VOC/non-PM HAPs, and all criteria pollutants. (See APPLICABILITY for details).

    ANNUAL EMISSIONS = ANNUAL THRUPUT x EMISSION FACTOR x (1/2000) x (100-CONTROL EFFICIENCY)/100

EMISSION CALCULATIONS
OPTION I: EMISSION FACTOR METHOD (continued)

RELEASE POINT NUMBER: ____________________ ***REGISTRATION #:***

	ANNUAL
RELEASE POINT HEIGHT (ft)	
RELEASE POINT DIAMETER (ft)	
EXIT GAS TEMPERATURE (E F)	
EXIT GAS VELOCITY (ft per second)	
ELEVATION (ft above sea level)	
GAS FLOW RATE (cu.ft per minute)	

RELEASE POINT NUMBER: ____________________

	ANNUAL
RELEASE POINT HEIGHT (ft)	
RELEASE POINT DIAMETER (ft)	
EXIT GAS TEMPERATURE (E F)	
EXIT GAS VELOCITY (ft per second)	
ELEVATION (ft above sea level)	
GAS FLOW RATE (cu.ft per minute)	

RELEASE POINT NUMBER: ____________________

	ANNUAL
RELEASE POINT HEIGHT (ft)	
RELEASE POINT DIAMETER (ft)	
EXIT GAS TEMPERATURE (E F)	
EXIT GAS VELOCITY (ft per second)	
ELEVATION (ft above sea level)	
GAS FLOW RATE (cu.ft per minute)	

RELEASE POINT NUMBER: ____________________

	ANNUAL
RELEASE POINT HEIGHT (ft)	
RELEASE POINT DIAMETER (ft)	
EXIT GAS TEMPERATURE (E Ft)	
EXIT GAS VELOCITY (ft per second)	
ELEVATION (ft above sea level)	
GAS FLOW RATE (cu.ft per minute)	

RELEASE POINT NUMBER: ____________________

	ANNUAL
RELEASE POINT HEIGHT (ft)	
RELEASE POINT DIAMETER (ft)	
EXIT GAS TEMPERATURE (E Ft)	
EXIT GAS VELOCITY (ft per second)	
ELEVATION (ft above sea level)	
GAS FLOW RATE (cu.ft per minute)	

EMISSION STATEMENT FORM INSTRUCTIONS (continued)

PROCEDURES (OPTION I or OPTION II) continued:
This page may be used to report stack parameter information for each individual stack within the facility. If there have been no changes to the stack information, you may note "No change to any stack information" on the form.

NOTE: If your facility reports more than five stacks, please make multiple copies of this page before you begin.

RELEASE POINT INFORMATION:
1. REGISTRATION #: the registration number found in the header of the Annual Update.

2. RELEASE POINT NUMBER: the value contained in the ID column on the Annual Update.

3 RELEASE POINT HEIGHT: the height of the stack measured, in feet, from ground level to the top of the stack. If no definable stack exists, enter the plume height, in feet, and then enter zero for diameter.

4. RELEASE POINT DIAMETER: the inside diameter of the exit stack expressed in inches to the nearest inch. For stacks of rectangular cross-section, specify the inside length and width in inches to the nearest inch (e.g. 30 x 15).

5. EXIT GAS TEMPERATURE: the average temperature of the exhaust stream at the release point exit, under normal operating conditions, in degrees Fahrenheit.

6. EXIT GAS VELOCITY: the exhaust gas velocity for the release point in feet per second. If the actual measurement is not available, use the design or maximum value.

7. ELEVATION: the release point elevation in feet above mean sea level.

8. GAS FLOW RATE: the total volume of exhaust gas released, at the average operating temperature, and at normal atmospheric pressure, expressed in cubic feet per minute, at actual conditions.

EMISSION CALCULATIONS
OPTION II: ENGINEERING ESTIMATE OR MATERIAL BALANCE METHOD

*REGISTRATION #:*_____ *REL. POINT NO.:* _____ *UNIT NO.:* _____ *PROCESS NO.:* _____ *SCC NO.:*

EMISSION STATEMENT FORM INSTRUCTIONS (continued)

PROCEDURES (OPTION II: ENGINEERING ESTIMATE or MATERIAL BALANCE METHOD):

This option may be used as an alternative to "OPTION I: Emission Factor Method" when emission factors are not used to determine emissions. Calculations are reviewed by Department personnel.

1. You should have an **Annual Update** form, an **Emission Statement** form, and a **Certification form**. Please contact your DEQ Regional office if any item is missing.

2. Complete the **Annual Update** form. Make sure the Annual Update form includes all significant emission generating activities. The Emission Statement should correlate with the Annual Update.

3. Before you begin, make additional copies of this blank form as needed.

4. Some facilities must report both annual emissions and ozone season daily emissions. If your facility emits at least 25 tons of VOC or at least 25 tons of NOx **and** is located in an emissions control area, then you must report annual emissions (tons/year) and ozone season emissions (pounds/day) for both VOC and NOx. If your facility is required to pay a permit fee, then you must report annual emissions for VOC, NOx, SO2, PM10, PB, TRS, TNMOC, and non-VOC/non-PM HAPs. (See **APPLICABILITY** section for details.)

5. Remember to fill in the appropriate values for **FACILITY TOTALS** on the cover page.

6. If you have any questions, please call the appropriate DEQ Regional Office as soon as possible.

7. REGISTRATION #: the registration number found in the header of the Annual Update.

8. UNIT NO.: the reference number contained in the ID column on the Annual Update.

9. PROCESS NO.: the reference number contained in the ID column on the Annual Update.

10. Supply calculations in space provided.

APPENDIX

CONTROL DEVICE CODES

CODE	DESCRIPTION	CODE	DESCRIPTION
000	No Equipment	059	Metal Fabric Filter Screen - Cotton Gins
001	Wet Scrubber - High Efficiency	060	Process Gas Recovery
002	Wet Scrubber - Medium Efficiency	061	Dust Suppression By Water Sprays
003	Wet Scrubber - Low Efficiency	062	Dust Suppression By Chemical Stabilizers Or Wetting Agents
004	Gravity Collector - High Efficiency	063	Gravel Bed Filter
005	Gravity Collector - Medium Efficiency	064	Annular Ring Filter
006	Gravity Collector - Low Efficiency	065	Catalytic Reduction
007	Centrifugal Collector - High Efficiency	066	Molecular Sieve
008	Centrifugal Collector - Medium Efficiency	067	Wet Lime Slurry Scrubbing
009	Centrifugal Collector - Low Efficiency	068	Alkaline Fly Ash Scrubbing
010	Electrostatic Precipitator - High Efficiency	069	Sodium Carbonate Scrubbing
011	Electrostatic Precipitator - Medium Efficiency	070	Sodium-Alkali Scrubbing
012	Electrostatic Precipitator - Low Efficiency	071	Fluid Bed Dry Scrubber
013	Gas Scrubber -General, Not Classified	072	Tube And Shell Condenser
014	Mist Eliminator - High Velocity (V>250 Ft/Min)	073	Refrigerated Condenser
015	Mist Eliminator - Low Velocity (V<250 Ft/Min)	074	Barometric Condenser
016	Fabric Filter - High Temperature (T>250 degrees F)	075	Single Cyclone
017	Fabric Filter - Medium Temperature (180<T<250 degrees F)	076	Multiple Cyclone W/O Fly Ash Reinjection
018	Fabric Filter - Low Temperature (T<180 degrees F)	077	Multiple Cyclone W/Fly Ash Reinjection
019	Catalytic Afterburner	078	Baffle
020	Catalytic Afterburner With Heat Exchanger	079	Dry Electrostatic Granular Filter
021	Direct Flame Afterburner	080	Chemical Oxidation
022	Direct Flame Afterburner With Heat Exchanger	081	Chemical Reduction
023	Flaring	082	Ozonation
024	Modified Furnace Or Burner Design	083	Chemical Neutralization
025	Staged Combustion	084	Activated Clay Adsorption
026	Flue Gas Recirculation	085	Wet Cyclonic Separator
027	Reduced Combustion - Air Preheating	086	Water Curtain
028	Steam Or Water Injection	087	Nitrogen Blanket
029	Low Excess - Air Firing	088	Conservation Vent
030	Use Of Fuel With Low Nitrogen Content	089	Bottom Filling
031	Air Injection	090	Conversion To Variable Vapor Space Tank
032	Ammonia Injection	091	Conversion To Floating Roof Tank
033	Control Of %O2 In Combustion Air (Off–Stoichiometric Firing)	092	Conversion To Pressurized Tank
034	Wellman-Lord/Sodium Sulfite Scrubbing	093	Submerged Filling
035	Magnesium Oxide Scrubbing	094	Underground Tank
036	Dual Alkali Scrubbing	095	White Paint
037	Citrate Process Scrubbing	096	Vapor Lock Balance Recovery System
038	Ammonia Scrubbing	097	Installation Of Secondary Seal For External Floating Roof Tank
039	Catalytic Oxidation - Flue Gas Desulfurization	098	Moving Bed Dry Scrubber
040	Alkalized Alumina	099	Miscellaneous Control Devices
041	Dry Limestone Injection	101	Particulate Air Filter - High Efficiency
042	Wet Limestone Injection	102	Low Solvent Coatings
043	Sulfuric Acid Plant - Contact Process	103	Powder Coatings
044	Sulfuric Acid Plant - Double Contact Process	104	Waterborne Coatings
045	Sulfur Plant	105	Process Modification - Electrostatic Spraying
046	Process Change	106	Dust Suppression By Physical Stabilization
047	Vapor Recovery System (Incl. Condensers, Hooding, Other Enclosures)	107	Selective Noncatalytic Reduction For NOx
048	Activated Carbon Adsorption	108	Dust Suppression - Traffic Control
049	Liquid Filtration System	109	Catalytic Oxidizer
050	Packed-Gas Absorption Column	110	Vapor Recovery Unit
051	Tray-Type Gas Absorption Column	112	Afterburner
052	Spray Tower	113	Rotoclone
053	Venturi Scrubber	115	Impingement Type Wet Scrubber
054	Process Enclosed	116	Catalytic Incinerator

APPENDIX

CODE	DESCRIPTION	CODE	DESCRIPTION
055	Impingement Plate Scrubber	117	Packed Scrubber
056	Dynamic Separator - Dry	118	Crossflow Packed Bed
057	Dynamic Separator - Wet	119	Dry Scrubber
058	Mat Or Panel Filter	120	Floating Bed Scrubber
121	Multiple Cyclones	148	Clean Burn
122	Quench Tower	149	Pre-Combustion Chamber
123	Spray Scrubber	150	Mechanical Collector
124	High Pressure Scrubber	151	Fiber Mist Eliminator
125	Low Pressure Scrubber	152	Mist Eliminator - High Efficiency
127	Fabric Filter	153	Water Sprays
128	Electrostatic Precipitator	154	Screened Drums Or Cages
129	Scrubber	155	Packed Bed Scrubber - High Efficiency
130	Caustic Scrubber	157	Screen
131	Thermal Oxidizer	158	Ionizing Wet Scrubber
132	Condenser	159	Electrified Filter Bed
133	Incinerator	201	Knock Out Box
134	Demister	202	Spray Dryer
137	HVAF	203	Catalytic Converter
138	Boiler At Landfill	204	Overfire Air
139	SCR (Selective Catalytic Reduction)	205	Low NOx Burners
140	NSCR (Non-Selective Catalytic Reduction)	206	Dry Sorbent Injection
141	Wet Scrubber	207	Carbon Injection
143	Wet Suppression	208	Freeboard Refrigeration Device
144	Spray Screen	300	Coalescing Filter
145	Single Wet Cap	301	Regenerative Thermal Oxidizer
146	Wet Electrostatic Precipitator	302	Process Partially Enclosed
147	Increased Air/Fuel Ratio With Intercooling	999	OTHER - (Please specify)

Federally Required Pollutants	
CHEMICAL NAME	*ABBREVIATION*
Volatile Organic Compounds	VOC
Nitrogen Oxides	NOx
Sulfur Dioxide	SO2
Lead & Compounds	PB
Carbon Monoxide	CO
Ammonia	NH3
Particulate Matter (dia.10 µm or less)	PM 10
Particulate Matter (dia.2.5 µm or less)	PM 2.5

Permit Fee Pollutants	
CHEMICAL NAME	*ABBREVIATION*
Volatile Organic Compounds	VOC
Nitrogen Oxides	NOx
Sulfur Dioxide	SO2
Lead & Compounds	PB
Particulate Matter (dia.10 µm or less)	PM 10
Total Reduced Sulfur	TRS
Total Non-Methane Organic Compounds (landfills only)	TNMOC
Non-Volatile and Non-Particulate Hazardous Air Pollutants	Non-VOC/ Non-PM HAPs

Non-Volatile and Non-Particulate HAPs	
CHEMICAL NAME	*CAS NUMBER*
Chlorine	7782-50-5
Hydrazine	302-01-2
Hydrochloric Acid (Hydrogen Chloride)	7647-01-0
Hydrogen Fluoride (Hydrofluoric Acid)	7664-39-3
Methyl Chloroform (1,1,1-Trichloroethane)	71-55-6
Methylene Chloride (Dichloromethane)	75-09-2
Phosphine	7803-51-2
Phosphorus	7723-14-0
Tetrachloroethylene (Perchloroethylene)	127-18-4
Titanium Tetrachloride	7550-45-0

Other Hazardous Air Pollutants *(voluntary reporting)*			
CHEMICAL NAME	*CAS NUMBER*	*CHEMICAL NAME*	*CAS NUMBER*
1,4-Dioxane	123-91-1	Ethyl Acrylate	140-88-5
1,3-Butadiene	106-99-0	Ethylene Oxide	75-21-8
1,3-Dichloropropene	542-75-6	Ethylene Dichloride	107-06-2
1,2-Dichloropropane	78-87-5	Ethylidene Dichloride	75-34-3
1,4-Dichlorobenzene	106-46-7	Formaldehyde	50-00-0
1,2-Dibromoethane	106-93-4	Glycol Ethers	na
2,3,7,8-TCDD/2,3,7,8-TCDF(Dioxins/Furans)	1746-01-6	Hexachlorobenzene	118-74-1
2-Nitropropane	79-46-9	Hexachlorocyclopentadiene	77-47-4
Acetaldehyde	75-07-0	Maleic Anhydride	108-31-6
Acrolein	107-02-8	Manganese & compounds	na
Acrylamide	79-06-1	MDI (Methylene Diphenyl Diisocyanate)	101-68-8
Acrylonitrile	107-13-1	Mercury & compounds	na
Arsenic & compounds	na	Methyl Bromide	74-83-9
Benzene	71-43-2	Methyl Chloride	74-87-3
Benzyl Chloride	100-44-7	Naphthalene	91-20-3
Beryllium & compounds	na	Nickel & compounds	na
bis(2-ethylhexyl)phthalate	117-81-7	Phosgene	75-44-5

Cadmium & compounds	na	POM (PAHs) (excluding Naphthalene)	na
Carbon Tetrachloride	56-23-5	Quinoline	91-22-5
Chloroform	67-66-3	Toluene	108-88-3
Chromium & compounds	na	Trichloroethylene	79-01-6
Coke Oven Emissions	na	Vinyl Chloride	75-01-4

4/6/2020, 2:29 PM

Commonwealth of Virginia
Department of Environmental Quality
Annual Update Report for Calendar Year: 2019

FACILITY INFORMATION

Registration No.	40909	Office:	Tidewater Regional Office
Site Name:	US NASA - Wallops Island	County / City:	Accomack County 001
Physical Location:	Island Facility, Accomac, VA 23337	NAICS:	Space Research and Technology 927110
Mailing Address:	ATTN: Code 205.W Wallops Environmental Office Building N-161 Wallops Island, VA 23337-5099	Employees:	100
		Classification:	Synthetic Minor
Annual Update Report Contact:	Theodore J. (T.J.) Meyer (757) 824-1987 Email:theodore.j.meyer@nasa.gov	Inspector:	Matthew Slemp (757) 518-2186
Billing Contact:	Theodore J. (T.J.) Meyer (757) 824-1987 Email:theodore.j.meyer@nasa.gov		

PROCESS INFORMATION

CEDS ID (RelPt-Unit-Process)	Process Description	Annual Throughput			Fuel Data: Sulfur (Wt%)		Fuel Data: Ash (Wt%)		Fuel Data: Heat Content (MMBtu/unit)	
		CY 2018	CY 2019	Units	CY 2018	CY 2019	CY 2018	CY 2019	CY 2018	CY 2019
1-1-1	**#2 OIL/ALL BOILERS & FURN**	**14.686**	**13.82**	**1000 Gallons Burned**	0.3	0.3	0.3	0.3	139	139
		Annual Throughput by Season (%)								
		Dec-Feb	*Mar-May*	*Jun-Aug*	*Sep-Nov*	Year				
		100	*0*	*0*	0	CY 2018				
	Unit Ref ID: 1	31%	32%	13%	24%	CY 2019				
1-1-2	**PROPANE/ALL FURNACES**	**47.307**	**7.89**	**1000 Gallons Burned**	0.03	0.03			92	92
		Annual Throughput by Season (%)								
		Dec-Feb	*Mar-May*	*Jun-Aug*	*Sep-Nov*	Year				
		35	*24*	*18*	23	CY 2018				
	Unit Ref ID: 1	26%	7%	29%	38%	CY 2019				
1-1-3	**OFF-SPEC JET FUEL/ALL BOILERS**	**0**	**0**	**1000 Gallons Burned**	0.3	0.3			127	127
		Annual Throughput by Season (%)								
		Dec-Feb	*Mar-May*	*Jun-Aug*	*Sep-Nov*	Year				
		0	*0*	*0*	0	CY 2018				
	Unit Ref ID: 1	0%	0%	0%	0%	CY 2019				

2-2-1	**#2 OIL/DIESEL GENS & PUMPS <600 HP**	**2.003**		**5.12**	**1000 Gallons Burned**	0.3	0.3	0.3	0.3	139	139
		Annual Throughput by Season (%)									
		Dec-Feb	*Mar-May*	*Jun-Aug*	*Sep-Nov*	Year					
		31	*22*	*25*	22	CY 2018					
	Unit Ref ID: 2	0%	37%	28%	35%	CY 2019					
2-2-2	**Gens & pumps--OFF SPEC JET FUEL**	**0**		**0**	**1000 Gallons Burned**	0.3	0.3			127	127
		Annual Throughput by Season (%)									
		Dec-Feb	*Mar-May*	*Jun-Aug*	*Sep-Nov*	Year					
		0	*0*	*0*	0	CY 2018					
	Unit Ref ID: 2	0%	0%	0%	0%	CY 2019					
2-2-3	**Gens & pumps--propane**	**2.258**		**9.3608**	**1000 Gallons Burned**	0.3	0.3			92	92
		Annual Throughput by Season (%)									
		Dec-Feb	*Mar-May*	*Jun-Aug*	*Sep-Nov*	Year					
		53	*15*	*0*	32	CY 2018					
	Unit Ref ID: 2	64%	26%	0%	10%	CY 2019					
2-2-4	**#2 OIL/DIESEL GENS & PUMPS >600 HP**	**3.366**		**12.22**	**1000 Gallons Burned**	0.3	0.3	0.3	0.3	139	139
		Annual Throughput by Season (%)									
		Dec-Feb	*Mar-May*	*Jun-Aug*	*Sep-Nov*	Year					
		35	*6*	*59*	0	CY 2018					
	Unit Ref ID: 2	21%	25%	35%	19%	CY 2019					
3-3-1	**PAINT BOOTH BLDG X-30 (Avg VOC lbs/gal = _____)**	**15.88**		**16.17**	**Gallons Coating**	0	0	0	0	0	0
		Annual Throughput by Season (%)									
		Dec-Feb	*Mar-May*	*Jun-Aug*	*Sep-Nov*	Year					
		26	*0*	*73*	1	CY 2018					
	Unit Ref ID: 3	26%	59%	15%	0%	CY 2019					
4-4-1	**PAD 2 rocket motor testing - Composite Fuel**	**1.475**		**0.324**	**TONS BURNED**	0	0	0	0	0	0
		Annual Throughput by Season (%)									
		Dec-Feb	*Mar-May*	*Jun-Aug*	*Sep-Nov*	Year					
		100	*0*		0	CY 2018					
	Unit Ref ID: 4	0%	100%	0%	0%	CY 2019					

4-4-2	**PAD 2 rocket motor testing - Double base fuel**		**0**		**0**		**tons burned**					
			Annual Throughput by Season (%)									
			Dec-Feb	*Mar-May*	*Jun-Aug*	*Sep-Nov*	Year					
			0	*0*	*0*	0	CY 2018					
	Unit Ref ID: 4		0%	0%	0%	0%	CY 2019					
5-5-1	**Hydrazine Fueling Emissions**		**0**		**0.004375**		**Tons Burned**					
			Annual Throughput by Season (%)									
			Dec-Feb	*Mar-May*	*Jun-Aug*	*Sep-Nov*	Year					
			0	*0*	*0*	100	CY 2018					
	Unit Ref ID: 5		0%	50%	0%	50%	CY 2019					

OTHER INFORMATION

CHANGES: As necessary, please provide appropriate information regarding equipment or process changes.

Off-spec fuel has not been used since 2010-2011.

EXCEEDANCES: As necessary, please provide appropriate information regarding potential emissions or throughput exceedances.

COMMENTS: As necessary, please provide any other appropriate information that is not captured elsewhere in the report.

Emissions from ampule testing at Pad #2 included on Option III Emissions Spreadsheet.
Paint booth VOCs are calculated using a rating of 100% VOC per gallon of throughput. Hydrazine throughput represents possible emissions (in tons) during fueling operations, not quantity burned.

Document Certification:
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering and evaluating the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name of Responsible Official (Print) Theodore J. Meyer

Title Associate Chief, Medical and Environmental Management Division

Signature _____

Must be signed by a Responsible Official as defined in 9 VAC 5-20-230 of the Regulations for the Control and Abatement of Air Pollution, available at: http://www.deq.virginia.gov/

Year 2019 Operating Record

Date HW Received	NEW (lbs)	Motor Type and SN	Date Treatment	Method Treatment	Incident
3-6-2019	650	Orion	3-7-2019	Burn/static Fire	N/A
4-29-2019	1663	Taurus 3646	5-2-2019	Burn/static Fire	N/A
4-29-2019	1663	Taurus 3697	5-7-2019	Burn/static Fire	None
5-2-2019	1663	Taurus 3637	5-8-2019	Burn/static Fire	None
5-2-2019	1663	Taurus 4242	5-9-2019	Burn/static Fire	None
5-7-2019	1663	Taurus 3220~~4302 1113~~	5-10-2019	Burn	None
5-7-2019	1663	Taurus 4302	5-14-2019	Burn	None
5-7-2019	1663	Taurus 4998	5-15-2019	Burn	No
5-9-2019	1663	Taurus 4190	5-17-2019	OB	None
5-9-2019	1663	Taurus 3939	5-20-2019	OB	None
5-9-2019	1663	Taurus 4976	5-22-2019	OB	None
5-13-2019	1663	Taurus 5268	5-23-2019	OB	None
5-13-2019	1663	Taurus 5015	5-28-2019	OB	None
5-16-2019	1663	Taurus 3931	5-29-2019	OB	None
5-21-2019	1663	Taurus 3629	5-30-2019	OB	None
5-21-2019	1663	Taurus 563	5-31-2019	OB	None
5-30-2019	1663	Taurus 122	6-3-2019	OB	None
5-30-2019	1663	Taurus 77	6-4-2019	OB	None
6-3-2019	1663	Taurus 4488	6-5-2019	OB	None
6-3-2019	1683	Taurus 3061	6-6-2019	OB	None

P # 9 9 u y 9 9