Potential to Emit: Grand Totals
Island Launch Range
Permit #40909

Source Classes	PM-primary	PM-10 primary	SO2	NOx	VOC	TRS	non-VOC/non-PM HAP	CO-optional	PM filterable	PM-10 filterable	PM condensable	Pb	HAPs - Cr	HAPs - Co	HAPs - cumene	HAPs - dicholoromethane
LPG Boilers (SCC 10201002)	0.38	0.38	0.01	6.17	0.32	0.00	0.00	1.04	0.19	0.19	0.17	0.00				
LPG Space Heaters (SCC 10500110)	0.08	0.08	0.00	1.43	0.04	0.00	0.00	0.24	0.04	0.04	0.04	0.00				
LPG Generators (SCC 20200202)	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
#2 Fuel Boilers and Furnaces (SCC 10300501)	0.07	0.04	0.01	0.73	0.01	0.00	0.00	0.18	0.07	0.04	0.05	0.00				
#2 Generators < 600 HP	0.26	0.26	0.75	11.38	0.93	0.00	0.00	2.45	0.26	0.26	0.00	0.00				
#2 Generators > 600 HP	27.20	27.20	77.14	1173.59	95.79	0.00	0.00	252.59	27.20	27.20	0.00	0.00				
Paint Booths	1.99	1.99	0.00	0.00	1.06	0.00	1.99	0.00	1.99	1.99	1.99	0	0.01	0.02	1.39	0.50
Welding	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Sand Blasting	418.51	59.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
Hydrazine																
Composite Motors	0.28	0.28	0.00	0.23	0.00	0.00	0.56	0.44	0.28	0.28	0.28					
Double Base Motors	0.02	0.02	0.00	0.22	0.00	0.00	0.38	0.73	0.02	0.02	0.02	0.02				
Ampules	0.051863747	0.051863747	0.052	0.051863747	0.05186375	0.051863747	0.051863747	0.051863747	0.051863747	0.051863747	0.051863747	0.05				
LPG Tanks (VOC as 1% total 2019 throughput)					0.36											
Total (tons/year)	448.84	90.08	77.95	1193.82	98.57	0.05	2.99	257.74	30.12	30.09	2.60	0.08	0.01	0.02	1.39	0.50

Potential to Emit: Grand Totals
Island Launch Range
Permit #40909

HAPs - ethylbenzene	HAPs - ethylene glycol	HAPs - fine mineral fibers	HAPs - formaldehyde	HAPs - glycol ether	HAPs - hexamethane diisocyanate	HAPs - hydrochloric acid	HAPs - MIK	HAPs - methanol	HAPs - naphthalene	HAPs - phenol	HAPs - styrene polymer	HAPs - TCE
0.12	1.49	0.60	0.99	1.99	0.10	0.95	0.60	0.01	0.99	1.99	0.50	1.59
						0.56						
						0.38						
						0.05						
0.12	1.49	0.60	0.99	1.99	0.10	1.95	0.60	0.01	0.99	1.99	0.50	1.59

Potential to Emit: Grand Totals
Island Launch Range
Permit #40909

HAPs - toluene	HAPs - xylene	HAPs - Manganese	Hydrazine
		0.00	
			0.000157719
0.00	0.00	0.00	0.00

Potential to Emit: P ane Boilers (EXEMPT)
Per #40909
Webfire Code: 10201002

Sources

Source Name	Rated capacity	Gallon conversion	Rated throughput	Max throughput conversion	Max throughput
V-027-01	398,000 btu/hr	1.0911E-05 gal/btu	4.343 gal/hr	8760 hr/yr	38042.24 gal/yr
V-027-02	398,000 btu/hr	1.0911E-05 gal/btu	4.343 gal/hr	8760 hr/yr	38042.24 gal/yr
V-055-01	750,000 btu/hr	1.0911E-05 gal/btu	8.184 gal/hr	8760 hr/yr	71687.64 gal/yr
V-055-03	248,000 btu/hr	1.0911E-05 gal/btu	2.706 gal/hr	8760 hr/yr	23704.71 gal/yr
X-035-01	2,000,000 btu/hr	1.0911E-05 gal/btu	21.823 gal/hr	8760 hr/yr	191167.04 gal/yr
X-079-01	1,000,000 btu/hr	1.0911E-05 gal/btu	10.911 gal/hr	8760 hr/yr	95583.52 gal/yr
X-079-02	1,000,000 btu/hr	1.0911E-05 gal/btu	10.911 gal/hr	8760 hr/yr	95583.52 gal/yr
X-079-03	1,000,000 btu/hr	1.0911E-05 gal/btu	10.911 gal/hr	8760 hr/yr	95583.52 gal/yr
Total	6,794,000 btu/hr				649394.42 gal/yr

REGULATED POLLUTANTS

Total Emissions	1000 gal		PM-primary	PM-10 primary	SO2	NOx	VOC	TRS	non-VOC/non-PM HAP	CO-optional	PM filterable	PM-10 filterable	PM condensable	Pb
SCC No. =	10201002	ORIGIN OF Emission Factor	WebFIRE	WebFIRE	AFCEC (Aug 2018, Table 2-12)	WebFIRE	WebFIRE			WebFIRE	WebFIRE	WebFIRE	WebFIRE	AFCEC (Aug 2018, Table 2-12)
		Emission Factor	1.106 lbs/Kgal	1.106 lbs/Kgal	0.016 lbs/Kgal	19.000 lbs/Kgal	1.000 lbs/Kgal			3.200 lbs/Kgal	0.600 lbs/Kgal	0.600 lbs/Kgal	0.526 lbs/Kgal	0.00000458 lbs/Kgal
		E.F. multiplier (%ash or %S)												
Annual Thruput=	649 Kgal/yr	AVG. Control Efficiency (%)												
Ozone Season Thruput=	163.7 lbs/day	EMISSIONS (tons/yr)	0.36	0.36	0.01	6.17	0.32	0.00	0.00	1.04	0.19	0.19	0.17	0.00
Ozone Operating Days=	92	Emissions (Lb/Ozone day)				33.80	1.78							

Potential to Emit: Propane Space Heaters (EXEMPT)
Per #40909
Webfire Code: 10500110

Sources					
Source Name	Rated capacity	Gallon conversion	Rated throughput	Max throughput conversion	Max throughput
V-027-03	125,000 btu/hr	1.0911E-05 gal/btu	1.364 gal/hr	8760 hr/yr	11947.94 gal/yr
V-027-04	125,000 btu/hr	1.0911E-05 gal/btu	1.364 gal/hr	8760 hr/yr	11947.94 gal/yr
V-027-05	125,000 btu/hr	1.0911E-05 gal/btu	1.364 gal/hr	8760 hr/yr	11947.94 gal/yr
V-027-06	125,000 btu/hr	1.0911E-05 gal/btu	1.364 gal/hr	8760 hr/yr	11947.94 gal/yr
X-015-01	250,000 btu/hr	1.0911E-05 gal/btu	2.728 gal/hr	8760 hr/yr	23895.88 gal/yr
X-015-02	250,000 btu/hr	1.0911E-05 gal/btu	2.728 gal/hr	8760 hr/yr	23895.88 gal/yr
X-015-03	250,000 btu/hr	1.0911E-05 gal/btu	2.728 gal/hr	8760 hr/yr	23895.88 gal/yr
X-015-04	250,000 btu/hr	1.0911E-05 gal/btu	2.728 gal/hr	8760 hr/yr	23895.88 gal/yr
Total					143375.28 gal/yr

			REGULATED POLLUTANTS											
Total Emissions	1000 gal		PM-primary	PM-10 primary	SO2	NOx	VOC	TRS	non-VOC/non-PM HAP	CO-optional	PM filterable	PM-10 filterable	PM condensable	Pb
SCC No. =	10201002	ORIGIN OF Emission Factor	WebFIRE	WebFIRE	AFCEC (Aug 2018, Table 2-12)	WebFIRE	WebFIRE			WebFIRE	WebFIRE	WebFIRE	WebFIRE	AFCEC (Aug 2018, Table 2-12)
		Emission Factor	1.130 lbs/Kgal	1.130 lbs/Kgal	0.018 lbs/Kgal	20.000 lbs/Kgal	0.550 lbs/Kgal			3.400 lbs/Kgal	0.600 lbs/Kgal	0.600 lbs/Kgal	0.526 lbs/Kgal	0.00000458 lbs/Kgal
		E.F. multiplier (%ash or %S)												
Annual Thruput=	143 Kgal/yr	AVG. Control Efficiency (%)												
Ozone Season Thruput=	36.1 lbs/day	EMISSIONS (tons/yr)	0.08	0.08	0.00	1.43	0.04	0.00	0.00	0.24	0.04	0.04	0.04	0.00
Ozone Operating Days=	92	Emissions (Lb/Ozone day)				7.86	0.22							

Potential to Emit: Propane Generators (EXEMPT)
Per #40909
Webfire Code: 20200202

Sources					
Source Name	Rated capacity	Gallon conversion	Rated throughput	Max throughput conversion	Max throughput
U-025-01	212,500 btu/hr	1.0911E-05 gal/btu	2.319 gal/hr	8760 hr/yr	20311.50 gal/yr
V-066-01	524,000 btu/hr	1.0911E-05 gal/btu	5.718 gal/hr	8760 hr/yr	50085.76 gal/yr
Total					70397.26 gal/yr

				REGULATED POLLUTANTS										
Total Emissions	1000 gal.		PM-primary	PM-10 primary	SO2	NOx	VOC	TRS	non-VOC/non-PM HAP	CO-optional	PM filterable	PM-10 filterable	PM condensable	Pb
SCC No. =	10201002	ORIGIN OF Emission Factor	WebFIRE	WebFIRE	WebFIRE	WebFIRE	WebFIRE			WebFIRE	WebFIRE	WebFIRE	WebFIRE	
		Emission Factor	20.100 lbs/MCF	############	0.600 lbs/MCF	2840.000 lbs/MCF	116.000 lbs/MCF			399.000 lbs/MCF	10.000 lbs/MCF	10.000 lbs/MCF	10.100 lbs/MCF	
		E.F. multiplier (%ash or %S)												
Annual Thruput=	0.0094 MCF/yr	AVG. Control Efficiency (%)												
Ozone Season Thruput=	0.0 lbs/day	EMISSIONS (tons/yr)	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ozone Operating Days=	92	Emissions (Lb/Ozone day)				0.07	0.00							

Potential to Emit: #2 Fuel O" Boilers and Furnaces (EXEMPT)
Per. . #40909
Webfire Code: 10300501

Sources					
Source Name	Rated capacity	Gallon conversion	Rated throughput	Max throughput conversion	Max throughput
U-30-01	661,000 btu/hr	7.2103E-06 gal/btu	4.766 gal/hr	8760 hr/yr	41750.38 gal/yr
W-20-01	490,000 btu/hr	7.2103E-06 gal/btu	3.533 gal/hr	8760 hr/yr	30949.60 gal/yr
Total					72699.98 gal/yr

				REGULATED POLLUTANTS										
Total Emissions	1000 gal		PM-primary	PM-10 primary	SO2	NOx	VOC	TRS	non-VOC/non-PM HAP	CO-optional	PM filterable	PM-10 filterable	PM condensable	Pb
SCC No. =	10300501	ORIGIN OF Emission Factor	WebFIRE	WebFIRE	WebFIRE	WebFIRE	WebFIRE			WebFIRE	WebFIRE	WebFIRE	WebFIRE	WebFIRE
		Emission Factor	2.000 lbs/Kgal	1.080 lbs/Kgal	0.215 lbs/Kgal	20.000 lbs/Kgal	0.340 lbs/Kgal			5.000 lbs/Kgal	2.000 lbs/Kgal	1.080 lbs/Kgal	1.300 lbs/Kgal	0.00125 lbs/Kgal
		E.F. multiplier (%ash or %S)			0.0015 %									
Annual Thruput=	73 Kgal/yr	AVG. Control Efficiency (%)												
Ozone Season Thruput=	18.3 lbs/day	EMISSIONS (tons/yr)	0.07	0.04	0.01	0.73	0.01	0.00	0.00	0.18	0.07	0.04	0.05	0.00
Ozone Operating Days=	92	Emissions (Lb/Ozone day)				3.98	0.07							

Potential to Emit: #2 G··erators <600 HP (EXEMPT)
Per. #40909
Webfire Code: 20100102

Sources					
Source Name	Rated capacity	Gallon conversion	Rated throughput	Max throughput conversion	Max throughput
U-048-01	350,000 btu/hr	7.2103E-06 gal/btu	2.524 gal/hr	8760 hr/yr	22106.86 gal/yr
V-062-01	52,886 btu/hr	7.2103E-06 gal/btu	0.381 gal/hr	8760 hr/yr	3340.41 gal/yr
Z-62-01	52,886 btu/hr	7.2103E-06 gal/btu	0.381 gal/hr	8760 hr/yr	3340.41 gal/yr
W-020-02	141,000 btu/hr	7.2103E-06 gal/btu	1.017 gal/hr	8760 hr/yr	8905.91 gal/yr
Total					37693.58 gal/yr

			REGULATED POLLUTANTS											
Total Emissions	1000 gal.		PM-primary	PM-10 primary	SO2	NOx	VOC	TRS	non-VOC/non-PM HAP	CO-optional	PM filterable	PM-10 filterable	PM condensable	Pb
SCC No. =	20100102	ORIGIN OF Emission Factor	AFCEC (July 201	AFCEC (July 201	AFCEC (July 2016,	AFCEC (July 2016, Table 3-3)	WebFIRE			AFCEC (July 2016	WebFIRE	WebFIRE	AP-42	
		Emission Factor	14.000 lbs/Kgal	14.000 lbs/Kgal	39.700 lbs/Kgal	604.000 lbs/Kgal	49.300 lbs/Kgal			130.000 lbs/Kgal	14.000 lbs/Kgal	14.000 lbs/Kgal	0.000 lbs/Kgal	
		E.F. multiplier (%ash or %S)												
Annual Thruput=	38 Kgal/yr	AVG. Control Efficiency (%)												
Ozone Season Thruput=	9.5 lbs/day	EMISSIONS (tons/yr)	0.26	0.26	0.75	11.38	0.93	0.00	0.00	2.45	0.26	0.26	0.00	0.00
Ozone Operating Days=	92	Emissions (Lb/Ozone day)				62.38	5.09							

Potential to Emit: #2 Generators >600 HP
Per #40909
Webfire Code: 20100102

Sources					
Source Name	Rated capacity	Gallon conversion	Rated throughput	Max throughput conversion	Max throughput
U-012-01		7.2103E-06 gal/btu	214.200 gal/hr	8760 hr/yr	1876392.00 gal/yr
U-012-02		7.2103E-06 gal/btu	214.200 gal/hr	8760 hr/yr	1876392.00 gal/yr
U-065	2,110,000 btu/hr	7.2103E-06 gal/btu	15.214 gal/hr	8760 hr/yr	133272.77 gal/yr
Total					3886056.77 gal/yr

				REGULATED POLLUTANTS								
Total Emissions	1000 gal.		PM-primary	PM-10 primary	SO2	NOx	VOC	TRS	non-VOC/non-PM HAP	CO-optional	PM filterable	PM-10 filterable
SCC No. =	20100102	ORIGIN OF Emission Factor	AFCEC (July 20	AFCEC (July 201	WebFIRE	WebFIRE	WebFIRE			WebFIRE	WebFIRE	WebFIRE
		Emission Factor	14.000 lbs/Kgal	14.000 lbs/Kgal	39.700 lbs/Kgal	604.000 lbs/Kgal	49.300 lbs/Kgal			130.000 lbs/Kgal	14.000 lbs/Kgal	14.000 lbs/Kgal
		E.F. multiplier (%ash or %S)										
Annual Thruput=	3886 Kgal/yr	AVG. Control Efficiency (%)										
Ozone Season Thruput=	979.5 lbs/day	EMISSIONS (tons/yr)	27.20	27.20	77.14	1173.59	95.79	0.00	0.00	252.59	27.20	27.20
Ozone Operating Days=	92	Emissions (Lb/Ozone day)				6430.63	524.88					

Potential to Emit: Paint Booth
Permit #40909
Webfire Code: 40200410

Sources					
Source Name	Rated capacity	Gallon conversion	Rated throughput	Max throughput conversion	Max throughput
X-030-1					346.00 gal/yr
Total					346.00 gal/yr

Total Emissions	lbs	5	PM-primary	PM-10 primary	SO2	NOx	VOC	TRS	HAP non-VOC non-PM10	CO-optional	PM filterable	PM-10 filterable	PM condensable
			REGULATED POLLUTANTS										
SCC No. =	40200410	ORIGIN OF Emission Factor	SDS	SDS			WebFIRE		SDS (max)		SDS	SDS	SDS
		Emission Factor	1.00 lb/lb	1.00 lb/lb			6.100 lb/gal		1.00 lb/lb		1.00 lb/lb	1.00 lb/lb	1.00 lb/lb
		E.F. multiplier (%ash or %S)											
Annual Thruput=	3979 lbs	AVG. Control Efficiency (%)											
Ozone Season Thruput=	1003 lbs	EMISSIONS (tons/yr)	1.99	1.99	0.00	0.00	1.06	0.00	1.99	0.00	1.99	1.99	1.99
Ozone Operating Days=	92	Emissions (Lb/Ozone day)	x	x	x	0.00	531.99	x	x	x	x	x	x

Potential to Emit: Paint Booth
Permit #40909
Webfire Code: 40200410

Total Emissions	lbs	5		HAPs - Cr	HAPs - Co	HAPs - cumene	HAPs - dicholoromethane	HAPs - ethylbenzene	HAPs - ethylene glycol	HAPs - fine mineral fibers	HAPs - formaldehyde	HAPs - glycol ether	HAPs - hexamethane diisocyanate
SCC No. =	40200410	ORIGIN OF Emission Factor		SDS	SDS	SDS	SDS	SDS	SDS	SDS	SDS	SDS	SDS
		Emission Factor		0.20 lb/lb	0.01 lb/lb	0.01 lb/lb	0.70 lb/lb	0.25 lb/lb	0.06 lb/lb	0.75 lb/lb	0.30 lb/lb	0.50 lb/lb	1.00 lb/lb
		E.F. multiplier (%ash or %S)											
Annual Thruput=	3979 lbs	AVG. Control Efficiency (%)											
Ozone Season Thruput=	1003 lbs	EMISSIONS (tons/yr)		0.40	0.01	0.02	1.39	0.50	0.12	1.49	0.60	0.99	1.99
Ozone Operating Days=	92	Emissions (Lb/Ozone day)											

Potential tr[illegible]nit: Paint Booth
Per[illegible] #40909
Webfire Code: 40200410

Total Emissions	lbs	5	HAPs - hydrochloric acid	HAPs - MIK	HAPs - methanol	HAPs - naphthalene	HAPs - phenol	HAPs - styrene polymer	HAPs - TCE	HAPs - toluene	HAPs - xylene
SCC No. =	40200410	ORIGIN OF Emission Factor	SDS	SDS	SDS	SDS	SDS	SDS	SDS	SDS	SDS
		Emission Factor	0.05 lb/lb	0.48 lb/lb	0.30 lb/lb	0.01 lb/lb	0.50 lb/lb	1.00 lb/lb	0.25 lb/lb	0.80 lb/lb	0.75 lb/lb
		E.F. multiplier (%ash or %S)									
Annual Thruput=	3979 lbs	AVG. Control Efficiency (%)									
Ozone Season Thruput=	1003 lbs	EMISSIONS (tons/yr)	0.10	0.95	0.60	0.01	0.99	1.99	0.50	1.59	1.49
Ozone Operating Days=	92	Emissions (Lb/Ozone day)									

Potential to Emit: Sand Blasting
Permit #40909
Webfire Code: 30900202

Sources					
Source Name	Rated capacity	Pound conversion	Rated throughput	Max throughput conversion	Max throughput
X-30-02	1,050 lbs/hr		1,050 lbs/hr	8760 hr/yr	9198000 lbs/yr
Total					9198000 lbs/yr

				REGULATED POLLUTANTS										
Total Emissions	1000 lbs		PM-primary	PM-10 primary	SO2	NOx	VOC	TRS	non-VOC/non-PM HAP	CO-optional	PM filterable	PM-10 filterable	PM condensable	Pb
SCC No. =	30900202	ORIGIN OF Emission Factor	WebFIRE	WebFIRE										
		Emission Factor	91.000 lbs/Klbs	13.000 lbs/Klbs										
		E.F. multiplier (%ash or %S)												
Annual Thruput=	9198 Klbs/yr	AVG. Control Efficiency (%)												
Ozone Season Thruput=	2318.4 lbs/day	EMISSIONS (tons/yr)	418.51	59.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ozone Operating Days=	92	Emissions (Lb/Ozone day)				0.00	0.00							

Potential to Em[illegible] Welding - EXEMPT
Pe[illegible] #40909
Webfire Code: 30905152

Total Emissions	1000 lbs	5		HAPs - Cr	HAPs - Mn	HAPs - Pb
SCC No. =	30905152	ORIGIN OF Emission Factor		WebFIRE	WebFIRE	WebFIRE
		Emission Factor		0.013 lb/Klbs	0.846 lb/Klbs	0.162 lb/Klbs
		E.F. multiplier (%ash or %S)				
Annual Thruput=	0.020 Klbs	AVG. Control Efficiency (%)				
Ozone Season Thruput=	0 lbs/day	EMISSIONS (tons/yr)		0.00	0.00	0.00
Ozone Operating Days=	92	Emissions (Lb/Ozone day)				

Hydrazine Emissions Vented to Air during Initial Venting Operation of Spacecraft Vehicles

Ideal Gas Equation $pV = nRT$

Where:

P=pressure=vapor pressure of hydrazine at 298K = 0.0197 atm

V=volume=ullage

(the vapor containing volume of the 4BW container holding 32.9 gallons of liquid hydrazine) = 83.4 L

n=number of moles=number of moles of hydrazine = $\frac{\text{grams of hydrazine in vapor}}{\text{molecular wt. of hydrazine}}$

R=gas constant = 0.0826 L - atm/K-mol

T=temperature = 298K

Rearranging and Substituting:

$$m = \frac{Mw \times p \times V}{R \times T}$$

Where:

m= mass of hydrazine vapor

Mw= molecuar wt. of hydrazine = 32g/mol

Therefore in the intial venting 2.15 g of hydrzine will be vented to the atomosphere. This estimate is conservative, since venting will cease when the pressure inside the 4BW reaches ambient pressure, so that some of the 2.15 g will remain inside the 4BW container.

Hydrazine vented to atmosphere from the 4BW container after spacecraft fueling ended

Using the same equations from the initial venting exercise

$$M = \frac{32\text{g/mole} \times 0.0197 \text{ atmosphere} \times 196.5\text{L}}{0.08206\text{L -atm/K-mol} \times 298 \text{ K}} = 5.065 \text{ g}$$

196.48 L will be the volume of the ullage in the 4BW after spacecraft fueling occurs

Approximately 12 L of liquid hydrazine will remain in the 4BW

Therefore 5.065 g of hydrazine will vent to the atmosphere after spacecraft fueling from the 4BW container. Again, this estimate is conservative.

Hydrazine vented to the atmosphere from vacuum dump bottles after fueling has ended.

Volume of the three bottles = 2.5 gallons x 3 x 3.785 L/gallon = 28.4 L

Ratio of Volume of vacuum dump bottles to 4BW container = 28.4 /196.5 = 0.145

0.145 x 5.065 g (amount of hydrazine vapor in 4BW) = 0.734 g

0.734 g hydrazine vented to atmosphere from the vacuum dump bottles after fueling has ended.

Total amount of Hydrazine vented to atmosphere per one fueling event:

2.15 g + 5.065 g + 0.734 g = 7.949 grams or 0.01752437 pounds

An average Hydrazine fueling event takes 2.75 hours to complete; therefore the hourly Hydrazine emission rate would be 0.01752437 lbs/2.75 hours	=	Hourly Hydrazine Emissions 0.00637 lbs/hr	Hydrazine Hourly Exempt Threshold 0.00858 lbs/hr	Hourly emissions exem
Max of 18 separate spacecraft Hydrazine fueling events (per Site-Wide PEIS) 0.01752437 lbs per fueling event x 18 fueling events = 0.08762185 lbs/2000 lbs/ton	=	Annual Hydrazine Emissions 0.00016 tons/yr	Hydrazine Annual Exempt Threshold 0.01885 tons/yr	Annual emissions exer

All Hydrazine fuel loading events would be performed inside the Payload Processing Facility building under controlled conditions.

Potential to Emit: Com[illegible]site Motor Testing at Pad 2
Per[illegible] #40909
Webfire Code: N/A

Sources					
Source Name	Rated mass	Weight conversion	Rated weight	Max motors	Max throughput
Orion Motor	278 kg	2.2046 lbs/kg	612.884 lbs	8/yr	4903.07 lbs/yr
Total					4903.07 lbs/yr

Total Emissions	lbs	5	PM-primary	PM-10 primary	SO2	NOx	VOC	TRS	HAP non-VOC non-PM10	CO-optional	PM filterable	PM-10 filterable	PM condensable
			REGULATED POLLUTANTS										
SCC No. =	N/A	ORIGIN OF Emission Factor	Motor spec	Motor spec		Motor spec			Motor spec	Motor spec	Motor spec	Motor spec	Motor spec
		Emission Factor	0.12 lb/lb	0.12 lb/lb		0.09 lb/lb			0.23 lb/lb	0.18 lb/lb	0.12 lb/lb	0.12 lb/lb	0.12 lb/lb
		E.F. multiplier (%ash or %S)											
Annual Thruput=	4903 lbs	AVG. Control Efficiency (%)											
Ozone Season Thruput=	1236 lbs	EMISSIONS (tons/yr)	0.28	0.28	0.00	0.23	0.00	0.00	0.56	0.44	0.28	0.28	0.28
Ozone Operating Days=	92	Emissions (Lb/Ozone day)	x	x	x	1.26	0.00	x	x	x	x	x	x

Potential to Emit: Com[illegible]site Motor Testing at Pad 2
Pe[illegible] #40909
Webfire Code: N/A

Total Emissions	lbs	5	HAPs - hydrochloric acid
SCC No. =	N/A	ORIGIN OF Emission Factor	Motor spec
		Emission Factor	0.23 lb/lb
		E.F. multiplier (%ash or %S)	
Annual Thruput=	4903 lbs	AVG. Control Efficiency (%)	
Ozone Season Thruput=	1236 lbs	EMISSIONS (tons/yr)	0.56
Ozone Operating Days=	92	Emissions (Lb/Ozone day)	

Potential to Emit: Doul[illegible] Base Motor Testing at Pad 2
Pe[illegible] #40909
Webfire Code: N/A

Sources

Source Name	Rated mass	Weight conversion	Rated weight	Max motors	Max throughput
Taurus Motor	754 kg	2.2046 lbs/kg	1662.283 lbs	2/yr	3324.57 lbs/yr
Total					3324.57 lbs/yr

Total Emissions	lbs	5	PM-primary	PM-10 primary	SO2	NOx	VOC	TRS	HAP non-VOC non-PM10	CO-optional	PM filterable	PM-10 filterable	PM condensable
			REGULATED POLLUTANTS										
SCC No. =	N/A	ORIGIN OF Emission Factor	Motor spec	Motor spec		Motor spec			Motor spec	Motor spec	Motor spec	Motor spec	Motor spec
		Emission Factor	0.01 lb/lb	0.01 lb/lb		0.14 lb/lb			0.23 lb/lb	0.44 lb/lb	0.01 lb/lb	0.01 lb/lb	0.01 lb/lb
		E.F. multiplier (%ash or %S)											
Annual Thruput=	3325 lbs	AVG. Control Efficiency (%)											
Ozone Season Thruput=	838 lbs	EMISSIONS (tons/yr)	0.02	0.02	0.00	0.22	0.00	0.00	0.38	0.73	0.02	0.02	0.02
Ozone Operating Days=	92	Emissions (Lb/Ozone day)	x	x	x	1.23	0.00	x	x	x	x	x	x

Potential to Emit: Doub[illegible] Base Motor Testing at Pad 2
Pe[illegible] #40909
Webfire Code: N/A

Total Emissions	lbs	5	HAPs - hydrochloric acid	HAPs - lead
SCC No. =	N/A	ORIGIN OF Emission Factor	Motor spec	Motor spec
		Emission Factor	0.23 lb/lb	0.01 lb/lb
		E.F. multiplier (%ash or %S)		
Annual Thruput=	3325 lbs	AVG. Control Efficiency (%)		
Ozone Season Thruput=	838 lbs	EMISSIONS (tons/yr)	0.38	0.02
Ozone Operating Days=	92	Emissions (Lb/Ozone day)		

Potential to Emit: Amp Testing at Pad 2 - EXEMPT
Per. #40909
Webfire Code: N/A

Sources

Source Name	Rated mass	Weight conversion	Rated weight	Scaling Factor	Max throughput
Ampules			51.864 lbs	2	103.73 lbs/yr
Total					103.73 lbs/yr

Total Emissions	lbs	S	PM-primary	PM-10 primary	SO2	NOx	VOC	TRS	HAP non-VOC non-PM10	CO-optional	PM filterable	PM-10 filterable	PM condensable
			REGULATED POLLUTANTS										
SCC No. =	N/A	ORIGIN OF Emission Factor	Mass Balance	Mass Balance	Mass Balance	Mass Balance	Mass Balance	Mass Balance	Mass Balance	Mass Balance	Mass Balance	Mass Balance	Mass Balance
		Emission Factor	1.00 lb/lb	1.00 lb/lb	1.00 lb/lb	1.00 lb/lb	1.00 lb/lb	1.00 lb/lb	1.00 lb/lb	1.00 lb/lb	1.00 lb/lb	1.00 lb/lb	1.00 lb/lb
		E.F. multiplier (%ash or %S)											
Annual Thruput=	104 lbs	AVG. Control Efficiency (%)											
Ozone Season Thruput=	26 lbs	EMISSIONS (tons/yr)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Ozone Operating Days=	92	Emissions (Lb/Ozone day)	x	x	x	0.28	26.15	x	x	x	x	x	x

Potential to Emit: Amp[illegible] Testing at Pad 2 - EXEMPT
Pe[illegible] #40909
Webfire Code: N/A

Total Emissions	lbs	5	HAPs - hydrochloric acid	HAPs - lead
SCC No. =	N/A	ORIGIN OF Emission Factor	Mass Balance	Mass Balance
		Emission Factor	1.00 lb/lb	1.00 lb/lb
		E.F. multiplier (%ash or %S)		
Annual Thruput=	104 lbs	AVG. Control Efficiency (%)		
Ozone Season Thruput=	26 lbs	EMISSIONS (tons/yr)	0.05	0.05
Ozone Operating Days=	92	Emissions (Lb/Ozone day)		

Potential to Em[illegible] Welding - EXEMPT
Pe[illegible] #40909
Webfire Code: 30905152

Sources					
Source Name	Rated capacity	Gallon conversion	Rated throughput	Max throughput conversion	Max throughput
W-40-01					10.00 lbs/yr
X-35-02					10.00 lbs/yr
Total					20.00 lbs/yr

Total Emissions	1000 lbs	5	PM-primary	PM-10 primary	SO2	NOx	VOC	TRS	HAP non-VOC non-PM10	CO-optional	PM filterable	PM-10 filterable	PM condensable
			REGULATED POLLUTANTS										
SCC No. =	30905152	ORIGIN OF Emission Factor	WebFIRE	WebFIRE							WebFIRE	WebFIRE	WebFIRE
		Emission Factor	18.00 lb/Klbs	18.00 lb/Klbs							18.00 lb/Klbs	18.00 lb/Klbs	18.00 lb/Klbs
		E.F. multiplier (%ash or %S)											
Annual Thruput=	0.020 Klbs	AVG. Control Efficiency (%)											
Ozone Season Thruput=	0 lbs/day	EMISSIONS (tons/yr)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ozone Operating Days=	92	Emissions (Lb/Ozone day)	x	x	x	0.00	0.00	x	x	x	x	x	x

Potential to Emit: Liquifie[illegible]etroleum Gas Tanks (EXEMPT)
Per[illegible] #40909
Webfire Code: N/A

Estimate of transfer and working losses, based on total LPG throughput to Island Launch Facility.
These tanks are not owned by NASA and exempt per 9VAC5-80-1105B4

Sources

Source Name	Rated mass	Conversion	2019 throughput	Weight Conversion	Max throughput
Tanks			17246.8 gal	4.2100 lbs/gal	72609.03 lbs/yr
Total					72609.03 lbs/yr

Total Emissions	lbs	5	PM-primary	PM-10 primary	SO2	NOx	VOC	TRS	HAP non-VOC non-PM10	CO-optional	PM filterable	PM-10 filterable	PM condensable
			REGULATED POLLUTANTS										
SCC No. =	N/A	ORIGIN OF Emission Factor					1% Mass Balance						
		Emission Factor					0.01 lb/lb						
		E.F. multiplier (%ash or %S)											
Annual Thruput=	72609 lbs	AVG. Control Efficiency (%)											
Ozone Season Thruput=	18301 lbs	EMISSIONS (tons/yr)	0.00	0.00	0.00	0.00	0.36	0.00	0.00	0.00	0.00	0.00	0.00
Ozone Operating Days=	92	Emissions (Lb/Ozone day)	x	x	x	0.00	183.01	x	x	x	x	x	x