

Kennedy Space Center
Title V Air Operation Permit
Permit Number 0090051-033-A V

Permit Attachment 1-A
EU 100 - Hot Water Generators / Boilers with an individual heat input rate ≥ 10 MMBtu/hr

Asset Identification Number	Location Description	Building Number	Manufacturer	Model	Serial No.	Capacity	Capacity Unit Of Measure	Start Up Date ¹	Primary Fuel	Date Removed
IM-B-0002-A	Utility Annex	K6-0947	The International Boiler Works (IBW) Company	TJW-C-20	L-260	20,000,000	MMBtu/hr	32142	Natural Gas	N/A
IM-B-0002-B	Utility Annex	K6-0947	The International Boiler Works (IBW) Company	TJW-C-20	14918	20,000,000	MMBtu/hr	31412	Natural Gas	N/A
IM-B-0002-C	Utility Annex	K6-0947	The International Boiler Works (IBW) Company	TJW-C-20	L-319	20,000,000	MMBtu/hr	33603	Natural Gas	N/A

¹ The start up date may be an equipment installation date, facility construction date, air construction permit issue date, equipment manufactured date, or an estimated start up date provided by facility personnel.
N/A = Not Applicable

Permit Attachment 2-A

EU 101 - Permitted Surface Coating Operations

Asset Identification Number	Location Description	Building Number	Paint Booth Description	Manufacturer	Model	Type of Particulate Matter Control	Start Up Date ¹	Date Removed
ARB-1844B	Abrasive Blast Bldg.	K6-1844B	Abrasive Recovery Building	N/A	N/A	Dust Bags	12/31/2015	N/A
IM-P-001A	Corrosion Control Facility	M6-1625	Corrosion Control Booth Number 1	Ralph, Hahn & Associates	N/A	Filter	12/31/1992	N/A
IM-P-001B	Corrosion Control Facility	M6-1625	Corrosion Control Booth Number 2	Ralph, Hahn & Associates	N/A	Filter	12/31/1992	N/A
M-EF-7	Manufacturing Building/Booster Fabrication Facility (BFF)	L6-0247	TPS Small Parts Paint Booth Room M-129	Binks Manufacturing Co.	N/A	Filter	12/01/1990	N/A
SK-P-001	Manufacturing Building/Booster Fabrication Facility (BFF)	L6-0247	Top Coat Application Cell	Currier	39-ED-29	Filter	12/31/1986	N/A
SK-P-004A-N	Manufacturing Building/Booster Fabrication Facility (BFF)	L6-0247	Thermal Protection System (TPS) Spray Cell No. 1 (North Room 132)	Currier	39-ED-29	Filter	12/31/1986	N/A
SK-P-004A-S	Manufacturing Building/Booster Fabrication Facility (BFF)	L6-0247	Thermal Protection System (TPS) Spray Cell No. 1 (South Room 132)	Currier	39-ED-29	Filter	12/31/1986	N/A

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EU 101 - Permitted Surface Coating Operations

Asset Identification Number	Location Description	Building Number	Paint Booth Description	Manufacturer	Model	Type of Particulate Matter Control	Start Up Date ¹	Date Removed
SK-P-004B-N	Manufacturing Building/Booster Fabrication Facility (BFF)	L6-0247	Thermal Protection System (TPS) Cure Cell No. 1 (North Room 141)	Currier	39-ED-29	Filter	12/31/1986	N/A
SK-P-004B-S	Manufacturing Building/Booster Fabrication Facility (BFF)	L6-0247	Thermal Protection System (TPS) Cure Cell No. 1 (South Room 141)	Currier	39-ED-29	Filter	12/31/1986	N/A
SK-P-006A	Hangar AF Area Solid Rocket Booster (SRB) Paint Bldg.	66310	East Spray Cell Paint Booth	Binks Manufacturing Co.	FAC-0101-1	Filter	12/31/1985	N/A
SK-P-006B	Hangar AF Area Solid Rocket Booster (SRB) Paint Bldg.	66310	West Spray Cell Paint Booth	Binks Manufacturing Co.	FAC-0101-2	Filter	12/31/1985	N/A
SK-P115	Manufacturing Building/Booster Fabrication Facility (BFF)	L6-0247	Ordnance Room 1149	N/A	N/A	Filter	12/31/1986	N/A
SK-P-115A	Manufacturing Building/Booster Fabrication Facility (BFF)	L6-0247	Booster Separation Motor (BSM) Cell Room 1150	N/A	N/A	Filter	12/31/1986	N/A
TM-H-002	Component Refurbishment and Chemical Analysis Facility	K6-1696	IPA Vent Hood	Wiltech - Field Fabricated	N/A	N/A	12/31/1998	N/A

Permit Attachment 2-A**EU 101 - Permitted Surface Coating Operations**

Asset Identification Number	Location Description	Building Number	Paint Booth Description	Manufacturer	Model	Type of Particulate Matter Control	Start Up Date¹	Date Removed
TM-P-002	Hangar AF	66250	Small Parts Paint Booth	USBI- Field Fabricated	NA	Filter	12/31/1990	N/A
TM-P-003	Launch Equipment Shop Paint Shop	K6-1397	Paint Booth	Spray Booth Systems, Inc.	NA	Filter	12/31/1984	N/A
IM-P-002	Base Support	M6-0486	Spray Booth	DeVilbiss	N/A	Water wall	12/31/1972	08/01/2014

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N/A = Not Applicable

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Title V Air Operation Permit
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Permit Attachment 3-A
EU 102 – Non-Emergency RICE NESHAP Subpart ZZZZ Stationary Compression Ignition Engines

Asset Identification Number	Location Description	Building Number	Engine Description	Engine Displacement (liters per cylinder)	Engine Manufacturer	Engine Model Number	Engine Serial Number	Engine Manufacture Date	Start-up Date ¹	Nominal Rating (kW)	Standby Break Horsepower (bhp) ²	EPA Engine Emissions Tier Number (0 - 4)	Subject to New Source Performance Standard (NSPS)/40 CFR Part 60, Subpart IIII (Y/N)	Rationale for NSPS Applicability Determination	Subject to RICE NESHAP/ 40 CFR Part 63 Subpart ZZZZ (Y/N)	Comments
EVG01001	Emergency Power Station	K6-1091	Generator #1	4.30	Caterpillar	3516	7RN00683	10/16/1998	04/06/1999	2000	2934	0	No	Manufactured BEFORE April 1,2006	Yes	
EVG01002	Emergency Power Station	K6-1091	Generator #2	4.30	Caterpillar	3516	7RN00686	10/20/1998	04/06/1999	2000	2934	0	No	Manufactured BEFORE April 1,2006	Yes	
EVG01003	Emergency Power Station	K6-1091	Generator #3	4.30	Caterpillar	3516	7RN00687	10/21/1998	04/05/1999	2000	2934	0	No	Manufactured BEFORE April 1,2006	Yes	
EVG01004	Emergency Power Station	K6-1091	Generator #4	4.30	Caterpillar	3516	7RN00688	10/22/1998	04/05/1999	2000	2934	0	No	Manufactured BEFORE April 1,2006	Yes	
EVG01005	Emergency Power Station	K6-1091	Generator #5	4.30	Caterpillar	3516	7RN00689	10/23/1998	04/02/1999	2000	2934	0	No	Manufactured BEFORE April 1,2006	Yes	
PGE01001	Emergency Generator Building	K7-1203	Generator #1	2.60	Caterpillar	3456	7WG02514	10/20/2004	12/31/2005	500	764	0	No	Manufactured BEFORE April 1,2006	Yes	
PGE01002	Emergency Generator Building	K7-1203	Generator #2	2.60	Caterpillar	3456	7WG02524	10/22/2004	12/31/2005	500	764	0	No	Manufactured BEFORE April 1,2006	Yes	
HE902347	Generator Building	M6-0139	Generator #1 East	2.30	Cummins Onan	N14-G2	11855364	07/01/1997	12/31/1997	350	535	1	No	Manufactured BEFORE April 1,2006	Yes	
HE902351	Generator Building	M6-0139	Generator #2 Middle	2.30	Cummins Onan	N14-G2	11856022	08/01/1997	12/31/1997	350	535	1	No	Manufactured BEFORE April 1,2006	Yes	
HE503094	Blast Building # 2	M6-1627	Dust Collector	1.00	Cummins	ECSP18, NASA ECN	1455-3, NASA ECN	12/31/1992	12/31/1992	41	55	0	No	Manufactured BEFORE April 1,2006	Yes	Removed 8/1/2015. Excessed 4/5/2017
HE503138	Blast Building # 2	M6-1627	Dust Collector	0.75	John Deere	4039DF001	T04039D554327	06/18/1996	12/31/2009	60	80	0	No	Manufactured BEFORE April 1,2006	Yes	Removed 2/1/2017. Excessed 4/5/2017
HE503140	Blast Building # 2	M6-1627	Dust Collector		John Deere		1A9VSNR2XT1247692	06/01/1996	08/01/1992	60	80	0	No	Manufactured BEFORE July 1, 2006	Yes	Removed 2/1/2017. Excessed 4/5/2017

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² Standby bhp @ 1800 RPM for generator engines (number includes parasitic accessories).

CILC = Florida Power & Light (FPL) Commercial/Industrial Load Control Program

TBD = To be determined

N/A = Not Applicable

Kennedy Space Center
Title V Air Operation Permit
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Permit Attachment 4-A
EU 103 – Emergency NSPS Subpart IIII Stationary Compression Ignition Engines

Asset Identification Number	Location Description	Building Number	Engine Description	Engine Displacement (liters per cylinder)	Engine Manufacturer	Engine Model Number	Engine Serial Number	Engine Manufacture Date	Start-up Date¹	Nominal Rating (kW)	Standby Break Horsepower (bhp)²	EPA Engine Emissions Tier Number (0 - 4)	Subject to New Source Performance Standard (NSPS)/40 CFR Part 60, Subpart IIII (Y/N)	Rationale for NSPS Applicability Determination	Subject to RICE NESHAP/ 40 CFR Part 63 Subpart ZZZZ (Y/N)	Comments
2864922	Back-up Generators	60674	Generator	2.50	Caterpillar	C15	FSE03276	06/09/2010	06/16/2011	400	619	3	Yes	Manufactured AFTER April 1,2006	Yes	
3367659	Back-up Generators	60674	Generator	3.70	Caterpillar	C32	PRH00494	06/28/2010	06/16/2011	1000	1474	2	Yes	Manufactured AFTER April 1,2006	Yes	
BC5310220723	Electromagnetic Lab	M6-0336	Generator	2.28	Generac	RD0-020236DAE	3001822325	06/15/2017	12/07/2017	20	33.4	4i	Yes	Manufactured AFTER April 1,2006	TBD	
BOG01001	Kennedy Data Center	M6-0547	Generator	3.14	Cummins Onan	QSK50-G5	25399409	04/28/2014	02/01/2016	1250	1850	2	Yes	Manufactured AFTER April 1,2006	Yes	
CLG01001	Payload Hazardous Servicing Facility	M7-1354	Generator	2.70	Caterpillar	C32	PRH00520	07/06/2010	11/22/2010	1000	1474	2	Yes	Manufactured AFTER April 1,2006	Yes	
FPG02001	Fire Station #2 (KSC)	J6-2370	Generator	1.50	Caterpillar	C9	S9L02581	04/30/2009	08/05/2010	250	398	3	Yes	Manufactured AFTER April 1,2006	Yes	
FSG01001	Fire Station #1 (KSC)	M6-0695	Generator	1.10	John Deere	4045HF285	PE4045L240434	06/06/2013	09/03/2013	107	158	3	Yes	Manufactured AFTER April 1,2006	Yes	
HE906236	Pump House N9	M5-1586A	Grove Pump	1.00	Cummins	6BTA 200	60251798	09/09/2008	09/09/2009	149	200	1	Yes	Re-Constructed AFTER July 11,2005	Yes	
HE906258	Pump House N3	N6-0407	Grove Pump	1.00	Cummins	4BT 76	60117234	08/31/2005	09/08/2005	57	76	1	Yes	Re-Constructed AFTER July 11,2005	Yes	NOTE: ENGINE SHUT DOWN 9/30/2016 PER NASA Engine physically removed 1/11/2018. Engine to be excessed. Also known as "GROVE PUMP 3"
HE906260	Pump House N5	N6-0107	Grove Pump	1.10	John Deere	4045HF285	PE4045L019648	08/08/2007	12/31/2009	104	139	3	Yes	Manufactured AFTER July 1, 2006	Yes	
J6-1874-2	Support Building	J6-1874	Generator	1.12	Cummins	QSB7-G5 NR3	7421957	08/01/2016	10/14/2016	209	325	4	Yes	Manufactured AFTER April 1,2006	Yes	
M6-0410-1	KSC Visitor Center, Administration Building	M6-0410	Generator	0.90	Generac	D3400T-Gen1 ESN	TP9W00635	11/26/2012	07/15/2014	63	85	3	Yes	Manufactured AFTER April 1,2006	No	
M6-0458-1	Commissary Building	M6-0458	Generator	0.60	John Deere	5030TF270C	PE5030T085836	05/20/2006	12/31/2006	50	80	2	Yes	Manufactured AFTER April 1,2006	No	
S2G01001	Multi-Payload Processing Facility	M7-1104	Generator	2.30	Caterpillar	C27 ATAAC	MJE03713	10/10/2013		750	1141	2	Yes	Manufactured AFTER April 1,2006	Yes	
TBD-3	Cross Connect Terminal #14	K7-1607	Generator	0.6	Perkins	404D-22G	010156A	08/30/2015		24	33	4i	Yes	Manufactured AFTER April 1, 2006	Yes	

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EU 103 – Emergency NSPS Subpart IIII Stationary Compression Ignition Engines

Asset Identification Number	Location Description	Building Number	Engine Description	Engine Displacement (liters per cylinder)	Engine Manufacturer	Engine Model Number	Engine Serial Number	Engine Manufacture Date	Start-up Date ¹	Nominal Rating (kW)	Standby Break Horsepower (bhp) ²	EPA Engine Emissions Tier Number (0 - 4)	Subject to New Source Performance Standard (NSPS)/40 CFR Part 60, Subpart IIII (Y/N)	Rationale for NSPS Applicability Determination	Subject to RICE NESHAP/ 40 CFR Part 63 Subpart ZZZZ (Y/N)	Comments
XZG01001	Generator Enclosure	M6-0342D	Generator	1.50	Caterpillar	C9	S9L03258	08/09/2010	10/28/2010	250	398	3	Yes	Manufactured AFTER April 1,2006	Yes	

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² Standby bhp @ 1800 RPM for generator engines (number includes parasitic accessories).

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Permit Attachment 5-A
EU 104 – Non-Emergency NSPS Subpart IIII Stationary Compression Ignition Engines

Asset Identification Number	Location Description	Building Number	Engine Description	Engine Displacement (liters per cylinder)	Engine Manufacturer	Engine Model Number	Engine Serial Number	Engine Manufacture Date	Start-up Date ¹	Nominal Rating (kW)	Standby Break Horsepower (bhp) ²	EPA Engine Emissions Tier Number (0 - 4)	Subject to New Source Performance Standard (NSPS)/40 CFR Part 60, Subpart IIII (Y/N)	Rationale for NSPS Applicability Determination	Subject to RICE NESHAP/ 40 CFR Part 63 Subpart ZZZZ (Y/N)	Comments
BOG02001	Kennedy Data Center	M6-0547	Generator	3.14	Cummins Onan	QSK50-G8	25401470	06/15/2014	02/01/2016	1250	1850	4	Yes	Manufactured AFTER April 1,2006	Yes	
HE503156	Blast Building # 2	M6-1627	Dust Collector	.85	Perkins	3914/2200	L026378A	12/31/2015	02/10/2017	55	75	4	Yes	Manufactured AFTER April 1, 2006	Yes	
HE503158	Blast Building # 2	M6-1627	Dust Collector	.85	Perkins	3914/2200	L026373A	12/31/2015	02/10/2017	55	75	4	Yes	Manufactured AFTER April 1, 2006	Yes	
HE503160	Blast Building # 2	M6-1627	Dust Collector	.85	Perkins	3914/2200	L026361A	12/31/2015	02/10/2017	55	75	4	Yes	Manufactured AFTER April 1, 2006	Yes	
KG503002	Blast Building # 2	M6-1627	Vacuum Pump	1.00	Cummins	6BT-152-2500	60237662	03/03/2006	12/31/1993	114	152	0	Yes	Re-Constructed AFTER July 11,2005	Yes	
TBD-2	Central Campus HQ Bldg.	TBD-2	Generator	2.25	Caterpillar	C27 ATAAC	ZRS00712	12/01/2014		800		4	Yes	Manufactured AFTER April 1,2006	Yes	

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² Standby bhp @ 1800 RPM for generator engines (number includes parasitic accessories).
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Kennedy Space Center
Title V Air Operation Permit
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Permit Attachment 6-A
EU 105 – Emergency NSPS Subpart IIII Fire pumps Compression Ignition Engines

Asset Identification Number	Location Description	Building Number	Engine Description	Engine Displacement (liters per cylinder)	Engine Manufacturer	Engine Model Number	Engine Serial Number	Engine Manufacture Date	Start-up Date¹	Nominal Rating (kW)	Standby Break Horsepower (bhp)²	EPA Engine Emissions Tier Number (0 - 4)	Subject to New Source Performance Standard (NSPS)/40 CFR Part 60, Subpart IIII (Y/N)	Rationale for NSPS Applicability Determination	Subject to RICE NESHAP/ 40 CFR Part 63 Subpart ZZZZ (Y/N)	Comments
HE906268	Reusable Launch Vehicle Hangar - Flight Vehicle Facility	J6-2466	Fire Pump #3	1.00	Cummins	6BTA5.9G3	46770605	06/24/2007	11/18/2008	140	207	1	Yes	Manufactured AFTER July 1, 2006	Yes	
HE906270	Reusable Launch Vehicle Hangar - Flight Vehicle Facility	J6-2466	Fire Pump #4	1.00	Cummins	6BTA5.9G3	46770775	06/23/2007	11/18/2008	140	207	1	Yes	Manufactured AFTER July 1, 2006	Yes	
HE906314	FireX Pump Station	M7-1362	Fire Pump #3	3.90	Cummins	QSK23-NR2	326955	04/08/2014	02/16/2017	910	1220	2	Yes	Manufactured AFTER July 1, 2006	Yes	
HE906320	Utility Annex	K6-0947	Fire Pump	2.25	John Deere	6135HFC48	RG6135L029411	07/01/2014	05/30/2017	392	526	3	Yes	Manufactured AFTER July 1, 2006	Yes	
HE906322	Utility Annex	K6-0947	Fire Pump	2.25	John Deere	6135HFC48	RG6135L029419	07/01/2014	05/30/2017	392	526	3	Yes	Manufactured AFTER July 1, 2006	Yes	
HE906324	Utility Annex	K6-0947	Fire Pump	2.25	John Deere	6135HFC48	RG6135L029413	07/01/2014	05/30/2017	392	526	3	Yes	Manufactured AFTER July 1, 2006	Yes	
HE906326	Utility Annex	K6-0947	Fire Pump	2.25	John Deere	6135HFC48	RG6135L029414	07/01/2014	05/30/2017	392	526	3	Yes	Manufactured AFTER July 1, 2006	Yes	

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² Standby bhp @ 1800 RPM for generator engines (number includes parasitic accessories).
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Permit Attachment 7-A

EU 106 - Chromatic Conversion Operation subject to NESHAP Subpart WWWWWW (6W)

Asset Identification Number	Location Description	Building Number	Description	Tank Size (gal)	Tank Contents	Agitation Type	Tank Closed During Idle	°F Temperature ()
N/A	Paint Shop	K6-1397	Chromatic Conversion Tank	380	Alodine 1200	Mechanical	Yes	70 - 100

N/A = Not Assigned/Not Applicable

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Permit Attachment 8-A

EU 107 - Portable Materials Crushing Operation subject to NSPS Subpart 000

Asset Identification Number	Location Description	Building Number	Description	Material	Associated Engines*	Engine Rating (horsepower)	Maximum Capacity (tons/hr)
N/A	Diverted Aggregate Reclamation and Collection Yard (DARCY)	DARCY	Portable Crusher	Construction	TBD	535	200

*Typical engine that would be used during a crushing operation. Engine information could change. Current information is based on 2015 crushing event.

N/A = Not Applicable

TBD = To be determined.