west virginia department of environmental protection

Division of Air Quality
601 57th Street SE
Charleston, WV 25304
Phone 304/926-0475

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Registration No.:	R13-3222 ***After-the-Fact***
Plant ID No.:	029-00079
Applicant:	Mountaineer Park Inc.
Facility Name:	Chester (Mountaineer Casino, Racetrack & Resort)
Location:	Chester, Hancock County
SIC Code:	7011 ; NAICS Code: 721120
Application Type:	Construction
Received Date:	October 30, 2014
Engineer Assigned:	Thornton E. Martin Jr.
Fee Amount:	$4,500.00
Date Received:	November 03, 2014
Complete Date:	December 02, 2014
Applicant Ad Date:	October 16, 2014
Newspaper:	*The Weirton Daily Times*
UTM's:	Easting: 529.22214 km Northing: 4492.38662 km Zone: 17
Description:	Mountaineer Park Inc. has applied for a permit for twelve (12) emergency generators that were installed for the purpose of providing back-up electrical power for critical operating functions. The operational dates for the generators vary and date back to calendar year 2001. The engines will be enrolled in the PJM Emergency Load Response Program. The emergency generators will be operated no more than 500 hours per year and the facility will limit testing/maintenance/emergency demand response ("DR") use to 100 hours per engine per calendar year. Eleven (11) diesel fuel storage tanks are included in the application, one for each diesel generator. One of the twelve generators (#9) operates on natural gas utilizing spark ignition.

BACKGROUND DISCUSSION

A total of twelve emergency generators have been installed and operated at the Mountaineer Casino, Racetrack & Resort beginning in 2001. Diesel fueled emergency generators of various size were added over the course of the facilities development to provide backup emergency power for

critical facility operations. The last emergency generator was installed in 2008 and is the only natural gas fueled generator. The following Table outlines the facility/generator configuration:

Table 1: Generator Location

Generator #	Source Location	Size (kW)	Make/Model	Year
1	Fire House CAT #1	2000	Caterpillar 3516	2004
2	Fire House CAT #2	2000	Caterpillar 3516	2004
3	Fire House CAT #3	2000	Caterpillar 3516	2004
4	Courtyard MIS (Hotel)	155	John Deere 6068HF285	2001
5	Courtyard (AUTOTOTE)	25	John Deere 4024TF270	2005
6	Infield North Track Lights 1	100	John Deere 4045HF285	2007
7	Infield South Track Lights 2	100	John Deere 4045HF285	2007
8	North End of Grandstand Track Lights 3	100	John Deere 4045HF285	2007
9	Mechanical Room Clubhouse Stair Lights	30	Briggs 354447	2008
10	Grandstand Walkway - Mis Game Room	125	John Deere 6068TF250	2007
11	Egress Lights for Hotel (across from fitness)	500	Caterpillar 3412	2000
12	Barns and Backside Buildings	2000	Caterpillar 3516B	2004

REGULATORY DISCUSSION

Seven of the engines were manufactured prior to 2006 (Units 1S, 2S, 3S, 4S, 5S, 11S and 12S); thus, these engines operate under the U.S. EPA's National Emission Standards for Hazardous Pollutants ("NESHAP") as per 40CFR63 Subpart ZZZZ. The remaining five engines (Units 6S, 7S, 8S, 9S and 10S) were manufactured in 2007 or 2008; thus, these engines operate under EPA's New Source Performance Standard ("NSPS"). The four 2007 diesel engines (Units 6S, 7S, 8S and 10S) are Tier 3 certified and operate under 40CFR60 Subpart IIII. The one natural gas engine was manufactured in 2008 (Unit 9S), prior to the January 01, 2009, applicability date for emergency engines with a maximum engine power greater than 19 KW (25 HP). Unit 9S will operate under the NESHAP, however.

The NSPS engines meet the requirements of the NESHAP by operating under the NSPS. Engines operating under the NESHAP cannot use the WV DEP's General Permit for Emergency Engines and therefore, must be registered through an individual Rule 13 Permit as a synthetic minor.

In addition to emergency operations, testing and maintenance, the engines will also be enrolled in the PJM Emergency Load Response Program which meets the definition of emergency demand response ("DR") in the NESHAP as per 63.6640(f)(2)(ii) and in the NSPS as per 60.4211(f)(2)(ii) for Subpart IIII and 60.4243(d)(2)(ii) for Subpart JJJJ.

Emergency stationary RICE may be operated for emergency demand response for

periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see §63.14), or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3.

The facility will limit testing/maintenance/emergency DR use to 100 hours per engine per calendar year; thus, the engines will maintain their emergency status as per the NESHAP and NSPS regulations.

Ultra low sulfur diesel ("ULSD") is used as fuel with the exception of Unit 9S; thus the requirement for sites with NESHAP engines enrolled in emergency DR programs for more than 15 hours per calendar year to start purchasing ULSD starting January 01, 2015 is met. Starting with clendar year 2015, the required emergency DR reporting as per 40CFR63.6650(h) will be made to U.S. EPA.

The NESHAP engines will comply with the following maintenance requirements:

- Operate/maintain engine & control device per manufacturer's instructions or owner-developed maintenance plan
- Change oil/filter and inspect hoses/belts every 500 hours or annually; inspect air cleaner (CI) or spark plugs (SI) every 1,000 hours or annually
- May use oil analysis program instead of prescribed oil change frequency
- Emergency engines must have hour meter and record hours of operation
- Keep records of maintenance

Table 3 outlines the proposed equipment and control device information taken from permit application R13-3222:

Table 3: Equipment and Control Device Listing

Emission Unit ID	Emission Unit Description	Detail Make/Model Fuel/Throughput	Year Installed/ Modified	Design Capacity	Type[3] and Date of Change	Control Device
1S	Emergency Generator #1	Caterpillar 3516 2FO / 171.6 gph	2004	2,000 kW	After-the-Fact	None
2S	Emergency Generator #2	Caterpillar 3516 2FO / 171.6 gph	2004	2,000 kW	After-the-Fact	None
3S	Emergency Generator #3	Caterpillar 3516 2FO / 171.6 gph	2004	2,000 kW	After-the-Fact	None
4S	Emergency Generator #4	John Deere 6068HF285 2FO / 12.4 gph	2001	155 kW	After-the-Fact	None
5S	Emergency Generator #5	John Deere 4024TF270 2FO / 3.4 gph	2005	25 kW	After-the-Fact	None
6S	Emergency Generator #6	John Deere 4045HF285 2FO / 10.3gph	2007	100 kW	After-the-Fact	None

Emission Unit ID	Emission Unit Description	Detail Make/Model Fuel/Throughput	Year Installed/ Modified	Design Capacity	Type[3] and Date of Change	Control Device
7S	Emergency Generator #7	John Deere 4045HF285 2FO / 10.3 gph	2007	100 kW	After-the-Fact	None
8S	Emergency Generator #8	John Deere 4045HF285 2FO / 10.3 gph	2007	100 kW	After-the-Fact	None
9S	Emergency Generator #9	Briggs 354447 PQ / 399scfh	2008	100 kW	After-the-Fact	None
10S	Emergency Generator #10	John Deere 6068TF250 2FO / 12.4 gph	2007	30 kW	After-the-Fact	None
11S	Emergency Generator #11	Caterpillar 3412 2FO / 44.7 gph	2000	125 kW	After-the-Fact	None
12S	Emergency Generator #12	Caterpillar 3516B 2FO / 160 gph	2004	500 kW	After-the-Fact	None
T01	Tank FT1	Approx. 10,000 gpy	2004 approx.	1,000 gal.	After-the-Fact	None
T02	Tank FT2	Approx. 1,000 gpy	2004 approx.	100 gal.	After-the-Fact	None
T03	Tank FT3	Approx. 25,000 gpy	2004 approx.	2,500 gal.	After-the-Fact	None
T04	Tank FT4	Approx. 25,000 gpy	2004 approx.	2,500 gal.	After-the-Fact	None
T05	Gen4Tank	Approx. 3,500 gpy	2001	350 gal.	After-the-Fact	None
T06	Gen5Tank	Approx. 1,000 gpy	2005	68 gal.	After-the-Fact	None
T07	Gen6Tank	Approx. 2,000 gpy	2007	200 gal.	After-the-Fact	None
T08	Gen7Tank	Approx. 2,000 gpy	2007	200 gal.	After-the-Fact	None
T09	Gen8Tank	Approx. 2,000 gpy	2007	200 gal.	After-the-Fact	None
T10	Gen10Tank	Approx. 2,000 gpy	2007	172 gal.	After-the-Fact	None
T11	Gen11Tank	Approx. 6,000 gpy	2000	600 gal.	After-the-Fact	None

SITE INSPECTION

This is an after-the-fact application for twelve (12) emergency generators installed for the purpose of allowing key systems to continue to operate without interruption during times of utility power outages. A site inspection was deemed unnecessary by the writer at this time, however, the facilities will be placed on the emergency generator list of sources from this permitting action.

Directions: From downtown Chester, take WV-2 to Mountaineer Circle (Mountaineer Casino)

Promoting a Healthy Environment.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Emission estimates for criteria pollutants, hazardous and toxic pollutants were determined using emission factors from AP-42, 5th Edition, 1996 and Tier III limits where applicable. Emission estimates for the natural gas engine were determined using the emission factors from AP-42, Supplement F, August 2000. Estimated diesel heat input = gal/hr X 135,000 Btu/gal and estimated natural gas heat input = scf X 1020 Btu/gal. Emission estimates were calculated by the applicants' consultant and checked for accuracy and completeness by the writer.

Mountaineer Park Inc. proposed facility emergency generator installation and operation (*after-the-fact*) will result in the following estimated potential to discharge controlled emissions:

Table 2: Emergency Generator Emission Summary - Criteria Pollutants

Source ID No.	Potential Emissions (lbs/hr)					Potential Emissions (tons/yr)				
	NOx	CO	VOC	SO_2	PM_{10}	NOx	CO	VOC	SO_2	PM_{10}
1S	69.03	15.82	2.03	0.03	2.01	17.26	3.96	0.51	0.01	0.50
2S	69.03	15.82	2.03	0.03	2.01	17.26	3.96	0.51	0.01	0.50
3S	69.03	15.82	2.03	0.03	2.01	17.26	3.96	0.51	0.01	0.50
4S	6.44	1.39	0.51	0.43	0.46	1.61	0.35	0.13	0.11	0.11
5S	1.74	0.37	0.14	0.11	0.12	0.43	0.09	0.03	0.03	0.03
6S	1.14	1.41	0.43	0.35	0.06	0.29	0.35	0.11	0.09	0.01
7S	1.14	1.41	0.43	0.35	0.06	0.29	0.35	0.11	0.09	0.01
8S	1.14	1.41	0.43	0.35	0.06	0.29	0.35	0.11	0.09	0.01
9S	1.62	0.22	0.05	0.00023	0.00003	0.41	0.06	0.01	0.00006	.000008
10S	1.37	1.70	0.51	0.43	0.07	0.34	0.42	0.13	0.11	0.02
11S	17.97	4.12	0.53	0.01	0.52	4.49	1.03	0.13	0.0023	0.13
12S	63.07	14.45	1.85	0.03	1.84	15.77	3.61	0.46	0.01	0.46
TOTAL	302.72	73.94	10.97	2.15	9.23	75.70	18.49	2.75	0.56	2.31

Table 3: Emergency Generator Emission Summary - Hazardous/Toxic Pollutants

Source	Potential Emissions (lbs/hr)						Potential Emissions (tons/yr)					
	Benzene	Ethyl-benzene	Toluene	Xylenes	n-Hexane	Formal-dehyde	Benzene	Ethyl-benzene	Toluene	Xylenes	n-Hexane	Formal-dehyde
1S	0.018	0	0.00651	0.00447	0	0.00183	0.0045	0	0.00163	0.00112	0	0.00046
2S	0.018	0	0.00651	0.00447	0	0.00183	0.0045	0	0.00163	0.00112	0	0.00046
3S	0.018	0	0.00651	0.00447	0	0.00183	0.0045	0	0.00163	0.00112	0	0.00046
4S	0.00156	0	0.00068	0.00048	0	0.00198	0.0004	0	0.00017	0.00012	0	0.00049
5S	0.00042	0	0.00019	0.00013	0	0.00054	0.0001	0	0.00005	0.00003	0	0.00013
6S	0.00130	0	0.00057	0.00039	0	0.00164	0.00033	0	0.00014	0.00009	0	0.00041

Source	Potential Emissions (lbs/hr)						Potential Emissions (tons/yr)					
	Benzene	Ethyl-benzene	Toluene	Xylenes	n-Hexane	Formal-dehyde	Benzene	Ethyl-benzene	Toluene	Xylenes	n-Hexane	Formal-dehyde
7S	0.00130	0	0.00057	0.00039	0	0.00164	0.00033	0	0.00014	0.00009	0	0.00041
8S	0.00130	0	0.00057	0.00039	0	0.00164	0.00033	0	0.00014	0.00009	0	0.00041
9S	0.00018	0	0.00016	0.00007	0	0.0210	0.00004	0	0.00004	0.00002	0	0.00525
10S	0.00156	0	0.00069	0.00048	0	0.00198	0.00039	0	0.00017	0.00012	0	0.00049
11S	0.00468	0	0.00169	0.00116	0	0.00048	0.00117	0	0.00042	0.00029	0	0.00012
12S	0.0168	0	0.0061	0.00417	0	0.00170	0.0042	0	0.00152	0.00104	0	0.00043
TOT	0.083	0.000	0.031	0.021	0.000	0.038	0.021	0.000	0.008	0.005	0.000	0.010

REGULATORY APPLICABILITY

PSD has no applicability to the proposed facility. The facility is subject to the following state and federal rules:

45CSR13 *Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, and Procedures for Evaluation*

The proposed construction is subject to the requirements of 45CSR13 because there will be a potential to discharge controlled emissions in excess of 6 pph and 10 tpy of a regulated air pollutant. In addition, the proposed construction is ineligible for a General Permit and therefore requires a Rule 13 Permit to Construct. The applicant has submitted the $4,500 application fee and published a Class I legal advertisement in *The Weirton Daily Times* on October 16, 2014.

45CSR30 *Requirements for Operating Permits*

Certain compression ignition internal combustion engines are subject to 40CFR60, Subpart IIII, and therefore subject to 45CSR30 as a deferred source. In this case, the four (4) diesel engines (Units 6S, 7S, 8S and 10S) are Tier III certified and subject to 40CFR60, Subpart IIII. In addition, certain spark ignition internal combustion engines are subject to 40CFR60, Subpart JJJJ, and therefore subject to 45CSR30 as a deferred source. In this case, the one (1) natural gas engine (Unit 9S - 40 hp/30kW) manufactured in 2008 is *not* subject to 40CFR60, Subpart JJJJ.

45CFR60 *Subpart IIII—Standards of Performance for Stationary Compression Ignition Internal Combustion Engines*

Mountaineer Park Inc. is subject to this subpart because four (4) engines (units 6S, 7S, 8S and 10S) were manufactured after April 1, 2006. The engine emissions for these units are EPA Tier III Certified.

40CFR63 *Subpart ZZZZ—National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*

Mountaineer Park Inc. is subject to 40CFR63 Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines, because Units (1S, 2S, 3S, 4S, 5S, 11S and 12S) are considered an existing area source of HAPs since they were constructed before June 12, 2006. Unit 9S is considered a new area source of HAPs, since it was constructed after June 12, 2006.

The facility will <u>not</u> be subject to the following state and federal rules:

45CSR14 *Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution for the Prevention of Significant Deterioration*

In accordance with 45CSR14 Major Source Determination, the emergency generators and facility is not listed in Table 1. The facility will have the potential to emit 99.85 TPY of regulated air pollutants and HAP's combined, which is less than the 45CSR14 threshold of 250 TPY.

40CFR60 *Subpart JJJJ—Standards of Performance for Stationary Spark Ignition Internal Combustion Engines*

Subpart JJJJ sets forth emission limits, fuel requirements, installation requirements, and monitoring requirements based on the year of installation of the subject internal combustion engine. Subpart JJJJ applies to owners and operators of stationary SI ICE that commence construction after June 12, 2006, where the stationary SI ICE is manufactured on or after January 1, 2009, for emergency engines with a maximum engine power greater than 19 KW (25 HP). Unit 9S has a maximum engine power of 30 KW (40 HP) and was manufactured in 2008 and therefore not subject to 40CFR60, Subpart JJJJ.

<u>TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS</u>

Small amounts of non-criteria regulated hazardous or toxic air pollutants such as benzene, ethylbenzene, toluene, xylenes and formaldehyde may be emitted. Total non-criteria regulated hazardous/toxic air pollutant emissions are tabulated for each registered emergency generator in the Class II General Permit Registration Application. A toxicity analysis will be performed when the Director finds existing circumstances and/or submitted data provide cause for an assessment to be made concerning whether a specific emergency generator may interfere with attainment or maintenance of an applicable ambient air quality standard or cause or contribute to degradation of public health and welfare. Any emergency generator granted Class II General Permit registration by the Director shall not have a potential to emit of 10 tons per year of any hazardous/toxic pollutant or 25 tons per year of any combination of hazardous/toxic pollutants.

AIR QUALITY IMPACT ANALYSIS

Air dispersion modeling will be performed when the Director finds existing circumstances and/or submitted data provide cause for an assessment to be made concerning whether a specific emissions source may interfere with attainment or maintenance of an applicable ambient air quality standard or cause or contribute to a violation of an applicable air quality increment from any proposed permit registration action. Factors to be considered when determining whether an ambient air assessment would be made include:

a. Existing air quality of the area
b. Topographic or meteorological factors
c. Maximum emissions
d. Siting criteria

Air dispersion modeling was not performed due to the scope of the application for this facility. This facility is located in Hancock County, WV, which is currently designated as non-attainment for $PM_{2.5}$ (particulate matter less than 2.5 microns in diameter). The definition of a major source of $PM_{2.5}$ is, not including fugitive emissions from haulroads, a PTE at or above 100 TPY. The estimated PTE for PM_{10} is 2.31 TPY. Since $PM_{2.5}$ is a subset of PM_{10}, $PM_{2.5}$ is less than the 100 TPY limit for a major source.

RECOMMENDATION TO DIRECTOR

The information contained in the permit application R13-3222 indicates that compliance with all applicable state rules and federal regulations should be achieved when all proposed control methods are in operation. Therefore, the granting of a permit to Mountaineer Park Inc. for the installation and operation of twelve (12) emergency generators at the Casino, Racetrack & Resort, Hancock County, WV, is hereby recommended.

Thornton E. Martin Jr.
Permit Engineer

December 02, 2014
Date