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**west virginia** department of environmental protection

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Jim Justice, Governor  
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## **ENGINEERING EVALUATION / FACT SHEET**

### BACKGROUND INFORMATION

Registration No.: R13-3222A  
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: Modification  
Received Date: February 23, 2017  
Engineer Assigned: Thornton E. Martin Jr.  
Fee Amount: \$2,000.00  
Date Received: February 24, 2017  
Complete Date: March 13, 2017  
Applicant Ad Date: February 24, 2017  
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 modification permit for the engines associated with the four 2,000 kW generators that will be upgraded to meet the non-emergency requirements of the US EPA's RICE NESHAP as per 40 CFR 63 Subpart ZZZZ.

### BACKGROUND DISCUSSION

Mountaineer Park Inc. operates multiple backup generator-engine sets at its Mountaineer Casino, Racetrack, & Resort facility located at RR2 in Chester. The facility operates under Permit to Construct No. R13-3222 effective January 23, 2015. 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 sizes were added over the course of the facility's 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.

All twelve emergency generators were eligible to participate in the emergency Demand Response program. On May 1, 2015, the U.S. Court of Appeals for the District of Columbia Circuit issued a decision to vacate Sections 63.6640(f)(2)(ii) - (iii) from the RICE NESHAP as well as 60.4211(f)(2)(ii) - (iii) for Subpart III and 60.4243(d)(2)(ii) - (iii) for Subpart JJJJ from the RICE NSPS.

(ii) 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.

(iii) Emergency stationary RICE may be operated for periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.

## MODIFICATION

The facility is planning to upgrade the engines associated with its four 2,000 kW generators (Emission Unit IDs 1S, 2S, 3S, and 12S) to meet the non-emergency requirements of the U.S. EPA's Reciprocating Internal Combustion Engine (RICE) National Emission Standards for Hazardous Air Pollutants (NESHAP) via 40 CFR 63 Subpart ZZZZ.

The engines were participating in the PJM emergency demand response (DR) program but this participation ceased in May, 2016 when the EPA Appeals Court Mandate went into effect prohibiting emergency engines from operating in emergency DR. In order to participate in the emergency DR program, the engines must be upgraded to meet the non-emergency requirements of the RICE NESHAP. The engines will continue to operate as emergency engines under the WV DAQ air regulations.

As per the RICE NESHAP, the facility is an area source of hazardous air pollutant (HAP) emissions. Since construction commenced on each of the four stationary RICE before June 12, 2006, each engine is an existing stationary RICE as per 63.6590(a)(1)(iii). In order for the engines to be used in the emergency DR program, they must meet the non-emergency requirements of the RICE NESHAP. Each engine is greater than 500 hp. As per Table 2d, Item 3 of the RICE NESHAP, non-emergency CI stationary RICE > 500 hp must meet the following emission limits for carbon monoxide (CO) except during periods of startup:

- a. Limit concentration of CO in the stationary RICE exhaust to 23 parts per million volume dry (ppmvd) at 15 percent oxygen (O<sub>2</sub>); or
- b. Reduce CO emissions by 70 percent or more.

To meet the CO limit, diesel oxidation catalysts (DOC) will be installed on each engine. As per 63.6604(a), "[i]f you own or operate an existing non-emergency, non-black start CI

stationary RICE with a site rating of more than 300 brake HP with a displacement of less than 30 liters per cylinder that uses diesel fuel, you must use diesel fuel that meets the requirements in 40 CFR 80.510(b) for nonroad diesel fuel.” Thus, the engines will only use ultra low sulfur diesel at 15 ppm sulfur (which was assumed for the original permit).

Except for CO which will decrease, the emission limits in the permit will stay the same. The CO emissions will decrease by 70% from what is currently permitted. In addition, the non-emergency portions of the RICE NESHAP for area sources of HAP emissions for engines greater than 500 hp will need to be met.

Note that the engines will continue to operate as emergency only engines under the WV DEP air regulations.

Three of the seven engines manufactured prior to 2006 (Units 4S, 5S and 11S); will continue to operate under the U.S. EPA’s National Emission Standards for Hazardous Pollutants (NESHAP) as per 40CFR63 Subpart ZZZZ. The five engines (Units 6S, 7S, 8S, 9S and 10S) manufactured in 2007 or 2008 will 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 III. 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 continue to operate under the NESHAP.

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.

Hourly operation records are kept and updated monthly. The type of operation (e.g., emergency, emergency demand response, testing and maintenance) are included.

A continuous parametric monitoring system (CPMS) will be installed on each of the engines that are being upgraded to meet the non-emergency requirements of the RICE NESHAP. The RICE NESHAP requires that the catalyst inlet temperature to be measured once per month the engine operates. Both parameters will be measured approximately every minute the engine operates. Semi-annual compliance reports will be submitted to the Department of Environmental Protection (DEP), since it has delegation for Subpart ZZZZ; the RICE NESHAP allows for annual compliance reporting if the engines are limited use (operate 100 hours or less per engine per year) and there have been no malfunctions or deviations. The facility will follow a site specific monitoring plan as per the RICE NESHAP. Stack testing for carbon monoxide (CO) will also be conducted as per 40 CFR 63 Subpart ZZZZ, Table 4, Item 1. Initial stack testing will be completed within 180 days of the DOC’s becoming operational. Subsequent stack testing will be conducted every three years, unless the engines operate as limited use, then subsequent testing will be conducted every five years. A stack test protocol will be submitted to the DEP prior to any compliance testing.

The following Table outlines the facility/generator configuration:

Table 1: Generator Location

Generator #	Source Location	Size (kW)	Make/Model	Year	Eligible for DR Program
1	Fire House CAT #1	2000	Caterpillar 3516	2004	Yes, DOC
2	Fire House CAT #2	2000	Caterpillar 3516	2004	Yes, DOC
3	Fire House CAT #3	2000	Caterpillar 3516	2004	Yes, DOC
4	Courtyard MIS (Hotel)	155	John Deere 6068HF285	2001	Yes, < 300 hp
5	Courtyard (AUTOTOTE)	25	John Deere 4024TF270	2005	Yes, < 300 hp
6	Infield North Track Lights 1	100	John Deere 4045HF285	2007	Yes, Tier 3
7	Infield South Track Lights 2	100	John Deere 4045HF285	2007	Yes, Tier 3
8	North End of Grandstand Track Lights 3	100	John Deere 4045HF285	2007	Yes, Tier 3
9	Mechanical Room Clubhouse Stair Lights	30	Briggs 354447	2008	No
10	Grandstand Walkway - Mis Game Room	125	John Deere 6068TF250	2007	Yes, Tier 3
11	Egress Lights for Hotel (across from fitness)	500	Caterpillar 3412	2000	No
12	Barns and Backside Buildings	2000	Caterpillar 3516B	2004	Yes, DOC

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 calendar 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 2 outlines the proposed equipment and control device information taken from permit application R13-3222 and R13-3222A:

Table 2: Equipment and Control Device Listing

<b>Emission Unit ID</b>	<b>Emission Unit Description</b>	<b>Detail Make/Model Fuel/Throughput</b>	<b>Year Installed/ Modified</b>	<b>Design Capacity</b>	<b>Type<sup>1</sup> and Date of Change</b>	<b>Control Device</b>
1S	Emergency Generator #1	Caterpillar 3516 2FO / 171.6 gph	2004	2,000 kW	Modification 2017	DOC
2S	Emergency Generator #2	Caterpillar 3516 2FO / 171.6 gph	2004	2,000 kW	Modification 2017	DOC
3S	Emergency Generator #3	Caterpillar 3516 2FO / 171.6 gph	2004	2,000 kW	Modification 2017	DOC
4S	Emergency Generator #4	John Deere 6068HF285 2FO / 12.4 gph	2001	155 kW	ATF-2015	None
5S	Emergency Generator #5	John Deere 4024TF270 2FO / 3.4 gph	2005	25 kW	ATF-2015	None
6S	Emergency Generator #6	John Deere 4045HF285 2FO / 10.3gph	2007	100 kW	ATF-2015	None
7S	Emergency Generator #7	John Deere 4045HF285 2FO / 10.3 gph	2007	100 kW	ATF-2015	None
8S	Emergency Generator #8	John Deere 4045HF285 2FO / 10.3 gph	2007	100 kW	ATF-2015	None
9S	Emergency Generator #9	Briggs 354447 PQ / 399scfh	2008	100 kW	ATF-2015	None
10S	Emergency Generator #10	John Deere 6068TF250 2FO / 12.4 gph	2007	30 kW	ATF-2015	None
11S	Emergency Generator #11	Caterpillar 3412 2FO / 44.7 gph	2000	125 kW	ATF-2015	None
12S	Emergency Generator #12	Caterpillar 3516B 2FO / 160 gph	2004	2,000 kW	Modification 2017	DOC
T01	Tank FT1	Approx. 10,000 gpy	2004 approx.	1,000 gal.	ATF-2015	None
T02	Tank FT2	Approx. 1,000 gpy	2004 approx.	100 gal.	ATF-2015	None
T03	Tank FT3	Approx. 25,000 gpy	2004 approx.	2,500 gal.	ATF-2015	None
T04	Tank FT4	Approx. 25,000 gpy	2004 approx.	2,500 gal.	ATF-2015	None
T05	Gen4Tank	Approx. 3,500 gpy	2001	350 gal.	ATF-2015	None
T06	Gen5Tank	Approx. 1,000 gpy	2005	68 gal.	ATF-2015	None
T07	Gen6Tank	Approx. 2,000 gpy	2007	200 gal.	ATF-2015	None
T08	Gen7Tank	Approx. 2,000 gpy	2007	200 gal.	ATF-2015	None
T09	Gen8Tank	Approx. 2,000 gpy	2007	200 gal.	ATF-2015	None
T10	Gen10Tank	Approx. 2,000 gpy	2007	172 gal.	ATF-2015	None
T11	Gen11Tank	Approx. 6,000 gpy	2000	600 gal.	ATF-2015	None

<sup>1</sup> ATF - After-the-Fact; Modification - NESHAP, CO Limitation (70% CO control efficiency)

## SITE INSPECTION

This is a modification of (4) emergency generators installed for the purpose of allowing key systems to continue to operate without interruption during times of utility power outages. The modification consists of adding an Air Pollution Control Device (APCD) to limit CO emissions. Based on the scope of the modification proposed, a site inspection was deemed unnecessary by the writer at this time.

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

## ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Emission estimates for criteria pollutants, hazardous and toxic pollutants were determined using emission factors from AP-42, 5<sup>th</sup> 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 modification to their emergency generators and operation will result in the following estimated potential to discharge controlled emissions:

Table 3: Emergency Generator Emission Summary - Criteria Pollutants

Source ID No.	Potential Emissions (lbs/hr)					Potential Emissions (tons/yr)				
	NO <sub>x</sub>	CO	VOC	SO <sub>2</sub>	PM <sub>10</sub>	NO <sub>x</sub>	CO	VOC	SO <sub>2</sub>	PM <sub>10</sub>
1S	69.03	4.75	2.03	0.03	2.01	17.26	1.19	0.51	0.01	0.50
2S	69.03	4.75	2.03	0.03	2.01	17.26	1.19	0.51	0.01	0.50
3S	69.03	4.75	2.03	0.03	2.01	17.26	1.19	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	4.34	1.85	0.03	1.84	15.77	1.08	0.46	0.01	0.46
TOTAL	302.72	30.62	10.97	2.15	9.22	75.7	7.65	2.75	0.56	2.28

The Applicant incorrectly stated the total emission of CO (currently and after modification) in their Class I legal notice. It listed the total emission of CO from only the four modified engines. DAQ's notice of intent to approve will correct these values and show the current and after modification values.

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

Source	Potential Emissions (lbs/hr)						Potential Emissions (tons/yr)					
	Benzene	Ethyl-benzene	Toluene	Xylenes	n-Hexane	Formaldehyde	Benzene	Ethyl-benzene	Toluene	Xylenes	n-Hexane	Formaldehyde
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
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	0.00180
TOT	0.083	0.000	0.031	0.021	0.000	0.038	0.021	0.000	0.008	0.005	0.000	0.011

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 source is ineligible for a General Permit and therefore, the proposed modification requires a Rule 13 Permit to Modify. The applicant has submitted the \$2,000 application fee and published a Class I legal advertisement in *The Weirton Daily Times* on February 24, 2017.

*45CSR22 Air Quality Management Fee Program*

This rule establishes a program to collect fees for certificates to operate and for permits to construct, modify or relocate sources of air pollution. Funds collected from these fees will be used to supplement the Director’s budget for the purpose of maintaining an effective air

quality management program. An Application for a Certificate to Operate (CTO) will be enclosed with the permit at time of issuance as this will be a new construction.

*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. 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. Units (6S, 7S, 8S, 9S and 10S) are considered a new area source of HAPs, since they were constructed after June 12, 2006.

The facility will not be subject to the following state and federal rules:

*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.

## TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

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, a PTE at or above 100 TPY. The estimated PTE for  $PM_{10}$  is 2.28 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 R13-3222A 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 modification of four (4) emergency generators / operation of twelve (12) emergency generators at the Casino, Racetrack & Resort, Hancock County, WV, is hereby recommended.

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Thornton E. Martin Jr.  
Permit Engineer

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March 13, 2017  
Date