DOE/EA-1416

DRAFT
ENVIRONMENTAL ASSESSMENT

Northwest Fuel Development, Incorporated

Demonstration of an Integrated Power Generation System for Coal Mine Waste Methane Utilization

Federal Number 2 Mine
Parrish Shaft Site
Monongalia County, West Virginia

April 2002

U.S. Department of Energy
National Energy Technology Laboratory

National Environmental Policy Act (NEPA) Compliance
Cover Sheet

Proposed Action: The U.S. Department of Energy (DOE) proposes, through a cooperative agreement with Northwest Fuel Development, Incorporated, to provide funds for the construction of a facility to demonstrate an integrated system which would use coal mine waste methane, commonly referred to as "gob gas", for the production of electrical power. The facility would be located at the Parrish Shaft site of the Federal Number 2 Mine near the unincorporated town of Crossroads in western Monongalia County, West Virginia. If approved, DOE would provide approximately 35% ($600,000) of the funding required for the project.

Type of Statement: Environmental Assessment

Lead Agency: U.S. DOE; National Energy Technology Laboratory (NETL)

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Abstract: The U.S. Department of Energy (DOE) prepared this draft Environmental Assessment (EA) to assess the environmental and human impacts that would result from DOE's participation in a cooperative agreement between DOE and Northwest Fuel Development, Incorporated for the construction and operation of an Integrated Power Generation System for Coal Mine Waste Methane Utilization. DOE's objective in participating in the agreement is to support demonstration of a technology that has the potential to reduce methane emissions from coal mines. Specifically, DOE seeks to provide partial funding ($600,000 or approximately 35% of the total project cost) to demonstrate the application of a system which would collect "gob gas" (waste methane from the mined out portion of an underground mine following extraction of the coal using longwall mining), upgrade the gas by removing impurities (primarily water, carbon dioxide, and nitrogen), and use the fuel gas in a series of 18 modular gensets (reciprocating internal combustion engines driving electrical generators) to generate electricity for use at the mine. A portion of the gas which meets pipeline quality standards would sold to the local gas distribution company.

The new power generation system would be installed on a site owned by Eastern Associated Coal Corporation located in an unincorporated part of western Monongalia, West Virginia. The environmental analysis identified that the most notable changes to result from the proposed project would occur in the following areas: air emissions, safety

and health of employees, and community noise. No substantive adverse environmental concerns were identified in analyzing these changes.

Public Comments: DOE encourages public participation in the NEPA process. DOE consulted with a number of State and Federal agencies as part of the scoping process to identify areas to be analyzed in this draft EA. DOE also conducted internal scoping meetings and met with the residents closest to the site of the proposed project to better understand the potential contributions of the proposed project to community noise. The public is invited to comment on this draft EA during the public comment period. Comments may be addressed to either of the DOE contact points identified above.

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AGA	American Gas Association
ARCHIE	Automated Resource for Chemical Hazard Incident Evaluation
bcf	billion cubic feet
Btu	British Thermal Unit, (used in heat measurement)
CMM	Coal mine methane
CFR	Code of Federal Regulations
CO	carbon monoxide
CO_2	carbon dioxide
dB	decibel (sound level unit of measurement)
dBA	A-weighted decibel scale
DNL	Day-night equivalent noise level
DOE	U.S. Department of Energy
DOI	Department of the Interior
EA	Environmental Assessment
EACC	Eastern Associated Coal Corporation
EO	Executive Order
EPA	U.S. Environmental Protection Agency
GHG	greenhouse gases
HAP	Hazardous Air Pollutant
hp	horsepower
Hz	hertz (sound frequency unit of measurement)
L_{dn}	day-night equivalent noise level - sometimes also listed as DNL
L_{eq}	equivalent continuous sound level
lbs/mmscf	pounds per million standard cubic feet
LEL	Lower Explosive Limit
m	meters
m^3	cubic meters
MACT	Maximum Achievable Control Technology
MMBTU	million BTUs
MMCF	million cubic feet
MMTCE	million metric tons of carbon equivalents
MSDS	Material Safety Data Sheet
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NETL	National Energy Technology Laboratory
NHPA	National Historic Preservation Act of 1966
NO_2	nitrogen dioxide
NPS	National Park Service

NWI	National Wetlands Inventory
O_3	ozone
OAQ	WVDEP Office of Air Quality
ONG	Oil and Natural Gas Industry
OSHA	Occupational Safety and Health Administration
Pb	lead
$PM_{2.5}$	Particulate matter of less than 2.5 micron size
PM_{10}	Particulate matter of less than 10 micron size
PSD	Prevention of Significant Deterioration
RD&D	Research, Development and Demonstration
rpm	revolutions per minute
scfm	standard cubic feet per minute
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SO_2	sulfur dioxide
TWA	Time-weighted average
UEL	Upper Explosive Limit
USC	United States Code
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VFD	Volunteer Fire Department
VOC(s)	Volatile organic compound(s)
WVDEP	West Virginia Department of Environmental Protection
^oF	temperature in degrees Fahrenheit
:g	micrograms (1 x 10^{-6} grams)
:Pa	micropascal (unit of pressure used for reference in sound measurement)

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1.0 INTRODUCTION

This Environmental Assessment (EA) provides the results of a study on the potential environmental impacts from construction and operation of state-of-the-art coal mine gas recovery and utilization technologies on property owned by Eastern Associated Coal Corporation in western Monongalia County, WV. If approved, the U.S. Department of Energy (DOE) would implement a cooperative agreement with Northwest Fuel Development, Inc. (Northwest Fuel) of Oswego, OR to demonstrate that coal mine waste methane emissions could be collected for use as a fuel for electric power generation and processed for distribution in commercial natural gas pipelines. In March 2000, DOE issued a competitive solicitation (DE-PS26-00NT40767) to facilitate the development of coal mine waste methane recovery and utilization technologies. In response to this solicitation, Northwest Fuel Development, Inc. submitted a proposal to install a waste methane collection and processing system which would produce two streams of useable methane. A low quality methane stream would be used to fuel on-site combustion engines and associated generator sets to produce electricity. A high quality stream would be processed for distribution by a local commercial natural gas pipeline.

The proposed project would demonstrate that coal mine waste methane emissions could be utilized as a fuel for electric power production. It would also demonstrate that waste methane could be economically processed into pipeline quality methane capable of being added to an existing distribution system for eventual sale and utilization. The coal mine waste methane would otherwise be vented to the atmosphere contributing to global warming, so the proposed project would also demonstrate the feasibility of reducing methane emissions from mining operations in a manner that is economically attractive to U.S. mining operations. The resulting demonstrations would provide coal and energy companies with cost-effective commercial technology systems for effective recovery and utilization of coal mine methane emissions.

The purpose of the EA is to determine if the proposed action could potentially cause significant impacts to the environment. If potentially significant impacts are identified, and if they cannot be reduced to insignificance or avoided, then a more detailed Environmental Impact Statement would be prepared. If no significant impacts are identified, a Finding of No Significant Impact would be prepared and made available to the public, along with the EA itself, before the proposed project proceeds.

This study was prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 (42 United Sates Code 4321 *et seg.*), the Council on Environmental Quality's Regulations [Title 40, Code of Federal Regulations (CFR), Parts 1500-1508], and the Department of Energy's NEPA Implementing Procedures (Title 10, CFR, Part 1021).

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2.0 PURPOSE AND NEED FOR AGENCY ACTION

2.1 DOE's Purpose

As part of its stated agency mission, U.S. DOE's National Energy Technology Laboratory (NETL) provides science, technology, and policy options to resolve environmental, supply, and reliability issues associated with the use of fossil energy. Consistent with this mission and in partnership with its stakeholders, NETL supports efforts by industry to increase energy efficiency, minimize waste, reduce environmental impacts, and increase the availability of domestic energy production through productivity and operational enhancements and improvements. The Fuels and Energy Efficiency Projects Division of the NETL Office of Project Management implements external research, development and demonstration (RD&D) projects for natural gas processing, transportation fuels and chemicals, fuels advanced research, energy conservation and military applications.

Coal mine methane (methane that is released from coal seams during the mining process) is one source of natural gas that NETL is investigating as a potential resource for energy production. Methane is removed from coal seams either in advance of mining operations using conventional drilling techniques or by mine ventilation systems during active mining operations. Methane is vented from coal mines out of safety concerns for miners working the mine. Once a seam is mined out using longwall mining systems, the surrounding strata, or rock layers, collapse filling the void left from mining. This collapsed area, referred to as "gob", likewise can contain methane in recoverable quantities, and is sometimes referred to as "gob gas", a mixture of air and methane. In 1999, U.S. coal mines liberated a total of approximately 196 Bcf (billion cubic feet) of methane. The majority of this methane is simply released to the atmosphere. EPA estimates that 40 percent (88 Bcf) of methane emitted from underground mines could be profitably recovered and put to productive use (EPA, 2001). This amount of methane could supply heat to more than 1.2 million homes for an entire year.

One obstacle to the productive use of coal mine methane (CMM) is the low quality of the gas. Pipeline quality natural gas typically consists of 97% methane (EPA, 1997). Methane produced from coalbed seams ahead of mining operations is generally of high quality and can be injected directly into natural gas pipelines for sale. The methane content of gob gas, which has been mixed with mine ventilation air in varying amounts, typically ranges from 65 to 85% methane. Gob gas is also typically saturated with water vapor. This further degrades the mine gas from pipeline specifications, which typically limit water vapor to no greater than 7 lbs per million standard cubic feet (lbs/MMscf). For CMM to be an acceptable energy resource, the gas must be upgraded to pipeline specifications. Because of the cost of upgrading CMM and the smaller quantities of gas typically produced by individual mine vents, CMM is often simply vented to the atmosphere near ground level. Released in this manner, CMM contributes to the ozone problems in the troposphere (the

lowest layer of the earth's atmosphere) and at high concentrations can harm nearby vegetation and present a fire hazard (Brunner, 1999).

Methane also contributes to the "greenhouse effect". The greenhouse effect describes the buildup of heat on the earth's surface due, in part, to thermal radiation from the earth's atmosphere. Energy from the sun entering the earth's atmosphere heats the earth's surface and in turn is radiated back into space. Some of this outgoing energy is absorbed by atmospheric gases. The atmosphere, in turn, radiates energy in all directions - including back toward the earth's surface. Because the earth's surface is warmer than it would be without the heat contributed by atmospheric radiation, the effect is referred to as the "greenhouse effect" referring to how the glass panels in a garden greenhouse retain heat from the sun.

The greenhouse effect is necessary for the earth's surface to support life, but excess amounts of greenhouse gases (gases in the atmosphere that affect the earth's temperature and contribute to the greenhouse effect) are believed to contribute to global climate change. Some greenhouse gases (GHG) result exclusively from human activities; others occur naturally or in combination with human activities. Naturally occurring GHG include water vapor, carbon dioxide, methane, nitrous oxide, and ozone. Human activities add to the levels of these naturally occurring greenhouse gases.

Individual greenhouse gases contribute to global warming in differing degrees. Methane is 21 times more effective in trapping heat than is carbon dioxide (EPA, 2001). In assessing the contribution to global warming, estimates of GHG emissions are presented in terms of their equivalent effect relative to an equal amount of carbon dioxide. The unit used to express this equivalency is million metric tons (1000 kilograms) of carbon equivalents (MMTCE). One million metric tons is equal to one trillion grams, and the unit is sometimes expressed as teragrams (trillion grams) of CO_2 Equivalents (Tg CO_2 Eq.). Total annual methane emissions from sources within the U.S. in 1999 were approximately 620 MMTCE (EPA, 2001a). Overall, methane's contribution to global warming is second only to carbon dioxide. Coal mining is the fourth largest source of atmospheric methane in the U.S. In 1999, mining activities contributed nearly 62 (MMTCE) to methane emissions.

NETL is currently conducting activities under four specific climate change objective areas, including:

- Developing protocols and methodologies for the cost-effective implementation of flexible, market-based mechanisms for greenhouse gas emission control.
- Promoting the international transfer of clean technologies.
- Researching and encouraging the domestic adoption of greenhouse gas reducing technologies, and
- Training, developing analytical tools, and building capacity to develop regional and global capabilities to mitigate the effects of climate change.

The proposed project would be consistent with the DOE mission to ensure energy availability and to develop domestic renewable energy resources. It would utilize a source

of energy (methane) that is a waste byproduct of coal mining and a potent greenhouse gas. The proposed project would be consistent with DOE's ongoing research in developing and implementing GHG-reducing technologies. This project would also be consistent with DOE's commitment to environmental quality by demonstrating technologies that utilize waste methane, a major contributor to global warming.

2.2 DOE's Need for Action

NETL identified this opportunity after evaluating responses to solicitation number DE-PS26-00NT40767, entitled Recovery and Utilization of Coal Mine Methane: Pilot-Scale Demonstration Phase, released in March 10, 2000. The objective of this effort is to reduce methane emissions associated with underground coal mining operations by demonstrating state-of-the-art coal mine gas recovery and utilization technologies. The resulting demonstrations would provide coal and energy companies with cost-effective commercial technology systems for effective recovery and utilization of coal mine methane emissions.

The project would demonstrate that coal mine waste methane emissions could be utilized as a fuel for electric power production. It would also demonstrate that waste methane could be economically processed into pipeline quality methane capable of being added to an existing distribution system for eventual sale and utilization. The coal mine waste methane would otherwise be vented to the atmosphere contributing to global warming, so the proposed project would also demonstrate the feasibility of reducing methane emissions from mining operations in a manner that is economically attractive to U.S. mining operations.

With proper management and oversight, there is a high probability of success with this project. The proposed approach would utilize lower quality methane to produce electric power and add the electricity produced into a local grid for use by a local mining operation. Higher quality waste methane processed into pipeline quality methane would be added to a nearby pipeline for distribution and use. The technologies have been shown in previous projects to be effective. The integrated gas processing/power generation project would capture data on how efficiently waste methane can be processed and utilized for both electric generation and pipeline quality gas. Such information could lead to implementation of this or similar technology at other sites where suitable waste methane sources exist.

DOE's decision considered in the EA is whether to provide funding for the construction of this project. Northwest Fuel would be the responsible party for the operation and maintenance of the project if the decision is made to approve the proposed action.

2.3 Scoping

Internal scoping activities were conducted to identify significant issues associated with the proposed project. This effort was based on a review of the proposed technology,

construction and operational requirements for the project, long-term plans, the environmental setting, and other information available on the project. Scoping activities have included: internal discussions of the project and its potential environmental implications; discussions with the industrial participant; DOE review of preliminary environmental information supplied by the industrial participant; on-site visits at the proposed location; and preliminary characterization of background conditions.

Northwest Fuel has experience operating similar projects at other locations. As part of the scoping process, DOE visited two sites near Cadiz, OH on October 25th, 2001 to verify the proposed project configurations and identify potential impacts of the proposed action.

2.4 Scope of the Environmental Assessment

Extensive materials were provided by Northwest Fuel from similar projects and for the proposed Integrated Power Generation System project. These materials were reviewed by DOE, and an internal scoping meeting was held in May 2001 to discuss potential environmental concerns to be considered in the EA. An initial visit to the project site was made in July 2001; DOE has visited the site a number of times subsequent to the initial visit. Based on these reviews, DOE prepared a list of resources of concern and an approach for their analysis in the EA.

No adverse pollution prevention or environmental justice issues were identified in the internal scoping process. The proposed project would utilize a waste product (CMM) and put it to beneficial use, thereby presenting an opportunity for pollution prevention. The technology considered does not involve the use of hazardous materials other than oil and ethylene glycol, and would not generate wastewater. It thereby represents a favorable pollution prevention strategy. Environmental Justice, as described in Executive Order 12898, calls for the fair treatment and involvement of all people regardless of race, ethnicity, culture, income, or education level with respect to environmental laws, regulations, and policies. The expected emissions from air pollutants would not move offsite to any cluster of minority populations. No disproportionately high or adverse impacts on low-income minority populations would result from the proposed action.

Though no impacts on flora and fauna and historical and cultural resources are expected, to comply with the NEPA regulations, coordination letters were forwarded to the U.S. Fish and Wildlife Service and State Historic Preservation Officer. These letters, and the responses from the agencies contacted, are included in Appendix A of this EA.

Based on the scoping process, the key issues identified and analyzed for the proposed action included the following:

- Air emissions
- Noise generation
- Land surface disturbance

- Stream disturbance
- Release of waste gas

For those resources requiring detailed analysis, a framework was developed to provide qualitative indicators of the impact assessment or threshold analysis. Qualitative analyses were applied for all resources except air quality and noise pollution.

Air quality impacts were identified as one potential issue during scoping. Air emissions and air quality impacts were analyzed using quantitative information available from an air permit submitted to the West Virginia Department of Environmental Protection (WVDEP). Northwest Fuel applied for a permit to construct a new stationary source in July of 1997. A state permit to construct a new stationary source of air pollutants was issued by the WVDEP Division of Air Quality (DAQ) to Northwest Fuel Development, Inc. on December 29, 1999.

Noise generation is another potential issue identified during scoping of the EA. Previously, a mine shaft ventilation fan was placed at the proposed project site, causing a significant increase in noise levels and raising the concern of neighboring homeowners. The fan has since been removed, but residents living near the site have become sensitized to the issue of noise pollution. Analysis of background noise values indicates that this area is a quiet rural community. People in the immediate area of the proposed project would be sensitive to any significant increase in noise levels resulting from this proposed project. Background information was collected from the proposed site and at a similar site in Ohio to evaluate potential noise impacts.

Disturbance of land and aquatic environments at the project site is another potential issue. Since the proposed project would not result in any pollutant discharges to the adjacent watershed, any disturbance of aquatic environments would be limited to construction activities only. The affected environment for the analysis of impacts was considered to be the boundaries of the WV portion of Dunkard Creek watershed and Monongalia County. The proposed project was also evaluated with respect to floodplain restrictions and potential impacts on any identified wetlands.

Construction of the proposed project may also have some impacts on the immediate area. However, since this area has previously been altered for other mine-related projects, these impacts would be limited. Environmental consequences of land disturbance from the proposed action were evaluated for the project site area only.

Under the No Action Alternative, DOE would not participate in the proposed project nor provide funding for to assist in the construction of the Integrated Power Generation System. For this proposed project, the industrial partner (Northwest Fuel Development, Inc.) could decide to proceed with the project even if DOE decides not to participate. Potential project impacts discussed in this EA would then be realized no matter what the DOE decides. Should the industrial participant decide not to proceed without DOE's contribution, current venting of waste methane from the mine would continue. The No

Action Alternative is analyzed accordingly recognizing these two possible outcomes. DOE'S involvement would insure that project data are objectively analyzed to evaluate the benefits this system may offer. Also, by keeping DOE involved, the neighbors would retain an advocate committed to analyzing potential environmental impacts and evaluating and/or implementing alternative engineering solutions for issues identified.

3.0 DESCRIPTION OF ALTERNATIVES INCLUDING THE PROPOSED ACTION

The proposed action is for the United States Department of Energy (DOE) to provide, through a cooperative agreement with Northwest Fuel Development, Inc. of Oswego, OR, cost-shared financial support for the design, construction, and operation of an integrated power generation system that uses coal mine waste methane. The proposed system would be located at the Eastern Associated Coal Corporation's (EACC's) Federal Number 2 Mine near the unincorporated town of Crossroads in rural western Monongalia County, WV (Figure 3.1). The cooperative agreement would result in a 3-year project. The project would demonstrate the collection, processing, and utilization of coal mine methane.

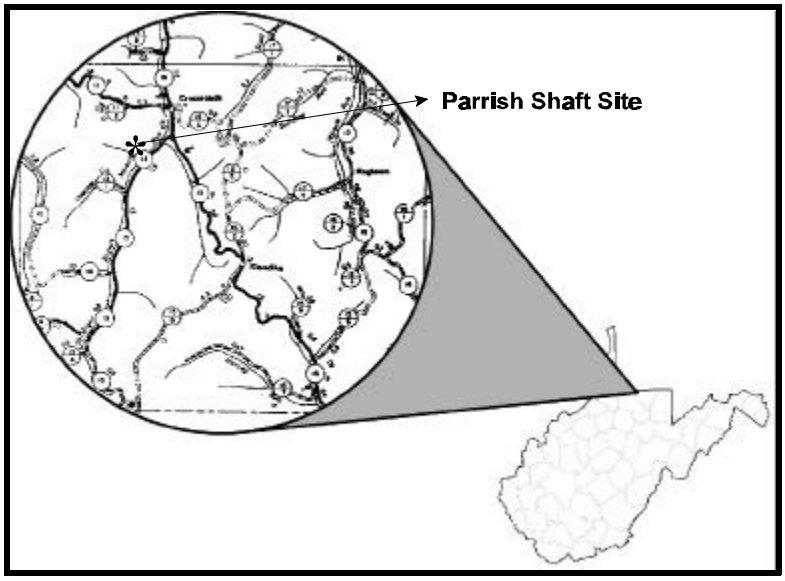

Figure 3.1 Location of Proposed Project

Under the proposed action, DOE would provide $600,000 (approximately 35%) of the total cost for the proposed project. The cooperative agreement would result in a project to test the commercial viability of capturing low quality coal mine methane and processing the gas on-site into two gas streams - a pipeline quality gas for sale and a lower quality gas stream for combustion in a series of modular reciprocating internal combustion engines to generate electricity for use by the mine.

3.1 Background

The site for the proposed project would be the Parrish Shaft of EACC's Federal Number 2 Mine in western Monongalia County, West Virginia. The Federal No. 2 Mine employs longwall mining techniques. As mining progresses through the coal seam, the area behind the longwall miner collapses, and the area fills with rock debris from the overlying and adjacent rock layers. This gob contains a mixture of methane and ventilation air. Currently, waste methane gas from the mine is vented to the atmosphere by vertical boreholes drilled in advance of mining.

The Parrish Shaft site is located along an access road off of County Route 13 approximately 0.4 miles from County Route 15. The proposed site is located approximately 2.25 miles southeast of Wadestown, WV. The site was previously the location of a fan for the Federal No. 2 Mine. Approximately three years ago EACC removed the fan, and the site was converted to an emergency hoisting facility. The site is located in the Dunkard Creek watershed and is adjacent to the Right Branch of Miracle Run, a tributary of Dunkard Creek.

3.2 Description of the Proposed Action

The proposed project would combine two technologies - gas processing and power generation - in an integrated system on a small field site. Northwest Fuel would construct and demonstrate an integrated gas processing/power generation system capable of producing approximately 500,000 standard cubic feet per day (scfd) of pipeline quality gas and approximately 1.2 megawatts of electricity. The gas processing system would use continuous pressure swing adsorption to separate pipeline-quality methane, which would be sold, from the high-nitrogen coal mine methane. Electricity would be generated using modular units of approximately 75 kilowatts each. In each unit, combustion engines would use the high nitrogen content methane gas rejected from processing operations and additional high-nitrogen methane from the mine. Overall, the system would use about 1,000,000 scfd of coal mine methane that would otherwise be vented to the atmosphere.

Equipment for the proposed project would be located on the Parrish Shaft site. Currently, the site comprises a fenced area of 150 ft by 300 ft and houses an emergency hoisting facility for the mine. The gensets, gas upgrading equipment, and vacuum blower for the gathering lines would be located within the fenced area on previously disturbed land immediately west of the hoisting facility and adjacent to the EACC electrical substation. Gathering lines would be installed to bring the waste methane from two existing ventilation boreholes (i.e., gob vents 29 and 30) to the project site. The ventilation boreholes are located across a small unnamed ridge southeast of the site and across County Route 13. A vacuum system would be used to extract the waste methane from the ventilation boreholes. The vacuum system would eliminate the need for a compressor station at the ventilation boreholes making operation and maintenance easier. Additionally, operating the gathering system under vacuum (rather than compression) would reduce the amount of water condensing in the gathering lines.

Site preparation would consist of installation of a supply pipeline from the two boreholes. The pipeline would be constructed of polyethylene plastic and buried to a depth of 3 feet to avoid frosting. The pipeline would cross over the Right Branch of Miracle Run adjacent to the Parrish Shaft site. Overall, the length of the supply pipeline would be approximately 7,000 feet. This pipeline would follow an existing, EACC-owned right-of-way for approximately 2,000 feet. The remainder of the pipeline would be installed along the route of an existing jeep trail through woodland and a pasture (Figure 3.2).

Figure 3.2 Expected Route of Pipeline Along Existing Trail

The supply pipeline would cross two streams, the Right Branch of Miracle Run and an unnamed tributary to that stream. The pipeline would be installed in a shallow trench, which would be filled and reseeded. The pipeline would pass under County Route 13 and would pass over the Right Branch of miracle Run on an overhead pipe rack. The pipe rack would be installed over the Right Branch of Miracle Run immediately adjacent to the Parrish Shaft site. It is anticipated that the pipeline crossing the unnamed tributary would be underground. Figure 3.3 shows the route of the proposed pipeline - including the line running from the proposed project to the gas distribution pipeline.

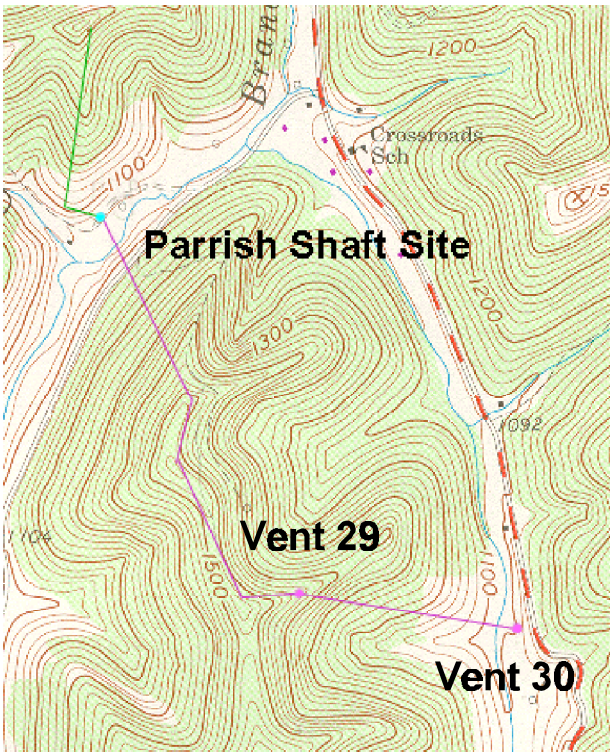

Figure 3.3 Proposed Pipeline Route

A short pipeline would also be installed to transport high quality product gas from the project site to an existing, commercial natural gas distribution pipeline. An Equitrans natural gas distribution pipeline traverses EACC property and is less than 0.5 miles from the Parrish Shaft. The required pipeline would generally follow an existing roadway and EACC's power line right-of-way to the natural gas distribution

pipeline, about 2,500 ft from the project site.

Land required for the pipeline segments is owned by EACC and several local residents. Temporary disturbances to the land caused by installation of the supply and product pipelines and the gas processing/power generation equipment would be mitigated by appropriate construction and re-seeding. Right-of-way agreements would be needed for installation of the pipeline.

The coal mine waste gas, which is currently vented to the atmosphere from a sealed portion of the mine, would be supplied to a Nitrogen Rejection Unit (NRU). Feed capacity of the unit would be 1 million scfd. The NRU would receive 500,000 scfd of higher quality gas (containing approximately 89% methane) from the two gob vents and 650,000 scfd of lower quality gas (approximately 45% methane) from the Parrish Shaft. The NRU would preferentially remove excess nitrogen (using the Continuous Pressure Swing Adsorption process) and would produce two gas streams. One stream (approximately 285,900 scfd) of pipeline quality natural gas (95% methane) would be delivered to the natural gas pipeline located near the Parrish Shaft property. A second gas stream (approximately 819,500 scfd) of "waste" byproduct gas (containing approximately 55% methane) would be piped directly to a power generation unit capable of using the lower quality gas. A process diagram showing the waste methane utilization is shown is Figure 3.4.

The gas processing system would also include units to remove carbon dioxide and water. These systems would include either an amine scrubbing system or pressure swing adsorption to remove excess carbon dioxide and either a tri-ethylene glycol (TEG) system or salt system to remove excess water. A TEG system, which is a common dehydration method currently used by the oil and gas industry, uses tri-ethylene glycol to

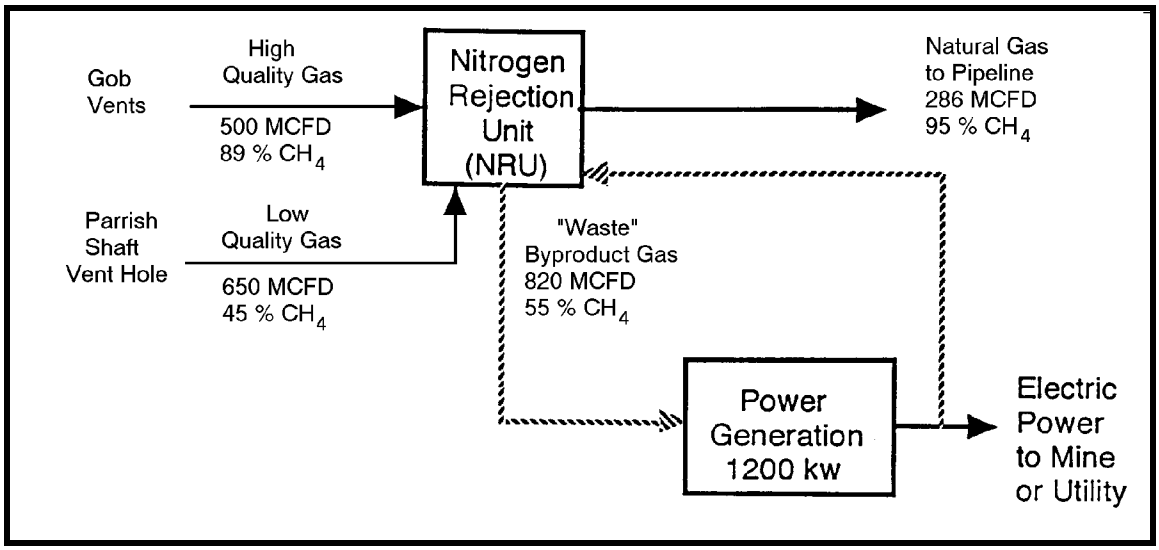

Figure 3.4 General Process Diagram Showing Methane Utilization

strip away the unwanted water. The tri-ethylene glycol is then heated to eliminate the water and the TEG is recirculated and continuously reused.

The power generation subsystem would consist of 18 skid-mounted reciprocating internal combustion engines driving electric generators, each rated at 75 kilowatts. The internal combustion engines would be conventional Chevy 454 (cubic inch) light truck engines, and each engine would be limited to a maximum design heat input of 1.4 million Btu/hr. The 18 engine/generator modules (gensets) would be installed in two rows of 9 engines exhausted though common manifolds to a 90 ft tall stack to be located at the proposed site (Figure 3.5). Exhaust to the stack would be assisted by a fan. The gensets and associated manifolds and control panels would occupy an area measuring approximately 60 ft by 120 ft. The anticipated general site layout is depicted in Figure 3.6.

Electricity from the proposed project would be sold directly to the mine. The proposed project would provide more than 10% of the electricity used by the Federal

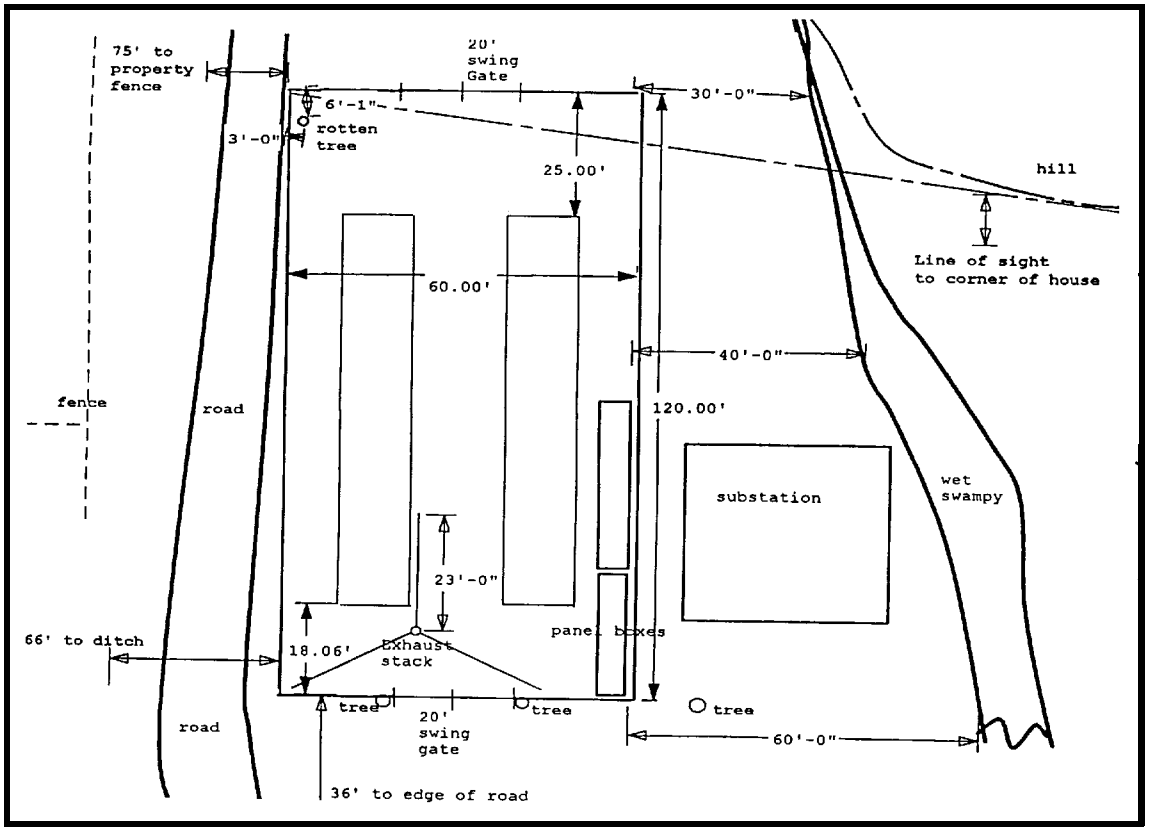

Figure 3.5 General Site Layout

Number 2 Mine. Electric utility companies in the vicinity of the proposed project generate over 90% of their electricity from coal-fired plants. The electricity generated

from combusting gas produced by the proposed project would effectively offset current emissions produced from combusting coal at a utility plant to supply the equivalent amount of electricity to the mine. Generators for the proposed project would be connected to an existing electrical substation owned by EACC and located at the Parrish Shaft site. No electrical transmission lines would be constructed offsite under the proposed action.

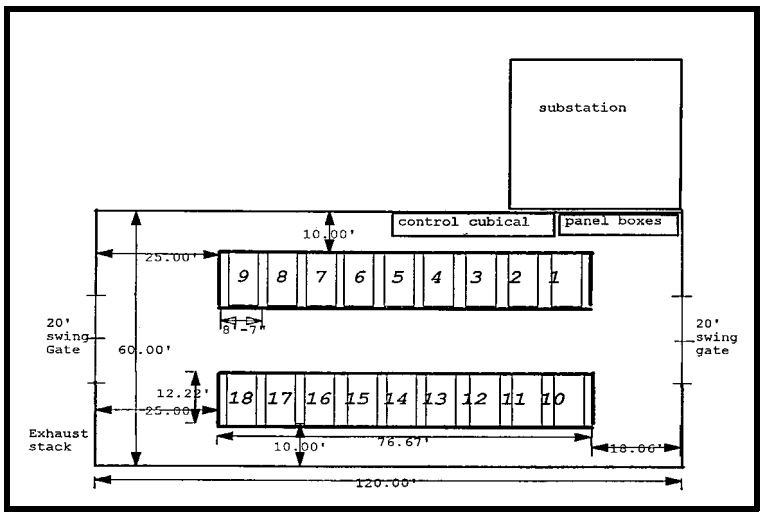

Figure 3.6 Arrangement of Gensets

3.3 Project Schedule

The proposed project is expected to last for approximately 36 months including final engineering design work and the environmental review, which includes the preparation of this EA. The demonstration phase of the project, which would include full operation of the project as described earlier in this section, is expected to last 12 to 24 months. Site preparation would involve standard work practices such as trenching and laying continuous pipeline and minor leveling of the site. The gensets are modular units, and are readily available for delivery and hookup. Because of the minimal site work required and the use of modular gensets, DOE anticipates that the project could begin operations within 60 days of a decision to proceed.

DOE anticipates that the demonstration phase of the project would begin in the spring of 2002. Following completion of the demonstration phase of the project, the project would either be discontinued or converted to commercial operations by the Industrial Participant. If discontinued, the Industrial Participant would submit a site restoration plan to DOE for approval, and the project would be dismantled. The modular gensets would be removed and either reused - in whole or in part - at another location operated by the Industrial Participant or sold for salvage value. The site would be turned back over to the owner, EACC. It is expected that the underground portion of the gas pipelines would be abandoned in place to avoid the additional damage of re-opening the trench for removal of the lines. DOE anticipates that site restoration work would be completed within 30 days of approval of the site restoration plan.

In lieu of discontinuing the project at the end of the demonstration phase, based on successful operation during the demonstration phase and favorable economic conditions at the end of the demonstration phase, the Industrial Participant could decide to continue operating the project on a commercial basis. Both the Industrial Participant and the site owner are aware of the possibility of future commercial operations, and are supportive of the concept. DOE's involvement is limited to the demonstration phase of the project, and DOE would provide no funding for commercial operations should they occur. While commercial operation at the conclusion of the demonstration phase - and DOE's involvement - is possible, the occurrence of such would depend on activities (for example, future mining operations and the price of natural gas and electricity) outside of DOE's control. DOE has no information on either the likelihood of commercial operation occurring or the duration of commercial operations should they occur.

3.4 Alternatives to the Proposed Project

The solicitation (DE-PS26-00NT 40767) which resulted in the selection of the proposed project for consideration for partial funding by DOE was restricted to five firms which had participated in Phase I (feasibility study) and Phase II (conceptual design and analysis) efforts conducted under previous Government contracts. The solicitation called for responding firms to use data results obtained from their respective Phase I and Phase II efforts to propose a pilot-scale project demonstrating the technology and design of their earlier efforts. The objective of the solicitation and projects selected was to reduce methane emissions associated with underground mining operations by conducting a pilot-scale field demonstration of existing technologies for capturing, recovering, and utilizing coal mine methane from mine operations. As part of the evaluation criteria used in selecting the successful proposal, offerors were required to demonstrate a commitment from a coal mine owner for utilization or recovery of the coal mine methane.

DOE's participation in the proposed project is limited to partial funding of the project proposed by private industry. Because of DOE's limited funding role in the proposed project (financial assistance for 35% of the estimated cost of the Integrated Power Generation System project), and due to the absence of a decision-making role other than a decision to act on a proposal from private industry for a defined project at a specific location, alternatives to be considered in the EA are limited to the No Action alternative and minor design consideration alternatives.

3.4.1 No Action

Under the No Action alternative, DOE would not provide partial funding for the installation and operation of the Integrated Power Generation System at EACC's Parrish Shaft site. In the absence of DOE funding, Northwest Fuel or a successor could continue with its plans to construct and operate the project subject to all applicable regulations and permits. Under this case, the environmental changes resulting from the project would be

expected to be the same as those identified and analyzed in Section 4 of this EA. It is more likely, however, that the action in the absence of DOE's funding is that the plans for the Integrated Power Generation System would be discontinued and the mine would continue to vent waste methane to the atmosphere.

Should the Industrial Participant decide to proceed with the project in the absence of DOE funding, noise arising from the project could be greater than with DOE's participation, as DOE has determined to require noise abatement measures to mitigate property line noise. As neither West Virginia nor Monongalia County have enacted noise control ordinances, in the absence of DOE's participation, noise abatement measures would be at the discretion of the Industrial Participant or the site owner unless or until public concern or the threat of legal action necessitated noise abatement.

3.4.2 Gas Turbine for Full or Partial Power Generation

In its initial proposal, Northwest Fuel proposed to install the gensets in two stages. During the first stage, nine reciprocating internal combustion engines with generators would be installed and operated while the methane productivity of the two vent holes was evaluated. Additional generating capacity would then be added in a second stage after methane quality and quantity was verified as sufficient to support the additional generating capacity. Northwest Fuel identified two options for the additional generating capacity: an additional bank of nine reciprocating internal combustion engines or a single gas turbine.

A gas turbine (also referred to as a "combustion turbine") is an internal combustion engine that operates with a rotary (as opposed to a reciprocating) motion. Gas turbines consist of three essential components: a compressor, a combustor, and a power turbine. The compressor draws in and compresses ambient air and directs the compressed air to the combustor. In the combustor, fuel (in this case, waste coal mine methane) is introduced, mixed with the compressed air, ignited, and burned. Hot gases from the combustion process are directed to the power turbine where energy from the hot, expanding exhaust gases is utilized to drive a rotating shaft. Over half of the shaft horsepower is utilized to drive the compressor; the remaining horsepower generated is available to drive an external load (in this case, an electric power generator).

The combustion process in a gas turbine can be classified as either diffusion flame combustion or lean-burn, premix staged combustion. In diffusion flame combustion, mixing of the fuel and air occurs simultaneously with combustion in the primary combustion zone. This process produces regions in the combustion chamber with fuel/air mixtures near the stoichiometric ratio, the exact proportion of air necessary for the complete combustion of the fuel gas. Combustion at the stoichiometric ratio produces comparatively high temperatures, which would favor the production of oxides of nitrogen (NO_x), a generally unfavorable scenario. In a lean-burn, premix staged combustor, fuel and air are completely mixed in an initial stage. This process results in a

uniform, lean, unburned fuel/air mixture. This mixture is directed to a second stage where the combustion actually occurs. The majority of gas turbines manufactured today use lean-burn, premix staged combustors.

Because gas turbines burn natural gas, the same products of combustion associated with burning natural gas are produced in gas turbines as in reciprocating, internal combustion engines. EPA has calculated emission factors which can be used to estimate the amount and types of products emitted from gas turbines. These emission factors are based on the heat intake of the combustion turbine, and are tabulated in pounds per million British Thermal Units (MMBTUs) in Chapter 3.1 of the AP-42 Handbook of Emission Factors (EPA, 2000).

The proposed project would use 820 thousands standard cubic feet (scf) of mine gas per day (MCFD) with an average methane content of 55% for the generation of electricity. Assuming half of this amount (410 MCFD) would be used in the gas turbine (the other 410 MCFD being combusted in the initial bank of 9 reciprocating internal combustion engines), the heat input to the gas turbine would be 8.7 MMBTU/hour. Using this heat input, a lean-burn premix staged combustion gas turbine would produce 0.86 lbs/hour of oxides of nitrogen (NO_x) and 0.13 lbs/hour of carbon monoxide (CO). Emissions of volatile organic compounds (VOC), a precursor to the formation of ozone, would be expected to be 0.02 lbs/hour. A second bank of 9 reciprocating internal combustion engines as currently proposed would produce 35.4 lbs/hr of NO_x and 2.8 lbs/hour of CO. VOC emissions would be expected to be 1.0 lbs/hour. Emissions of lead (Pb) and particulate matter (PM) for both types of engines would be negligible. The comparative air emissions for criteria air pollutants are tabulated in Table 3.1.

Source noise levels for a single gas turbine sized to produce 675 kW (the power output of nine reciprocating internal combustion engines) was estimated at 105.2 dBA using the tables and methodology published by the American Gas Association (Miller, 1969). Applying the AGA methodology and tables for reciprocating engines fired on natural gas, nine engines would be expected to produce 94.7 dBA. As the decibel scale used to describe noise is logarithmic, the noise level expected from the gas turbine would be more than twice the noise level of the second bank of nine reciprocating internal combustion engines. When added to the base level of nine reciprocating internal combustion engines (the power generation to be initially installed) following the rules for adding comparable noise levels, the net increase in noise from the gas turbine alternative would be 7.5 dBA, which would be a noticeable difference for most people.

Air emissions from the proposed action (18 reciprocating internal combustion engines) as limited by the State air permit would not result in an exceedance of applicable ambient air quality standards. Therefore, the lower emissions expected from the gas turbine - while desirable - would have little incremental benefit over the proposed action. Noise, on the other hand, was identified as a potential concern for the nearest

Pollutant	Gas Turbine Alternative	Second Bank of Nine Reciprocating Engines
Oxides of Nitrogen	0.86 lbs/hr	35.4 lbs/hr
Carbon Monoxide	0.13 lbs/hr	2.8 lbs/hr
Volatile Organic Compounds	0.02 lbs/hr	1.0 lbs/hr
Data from AP-42 Handbook of Emission Factors (EPA, 2000)		

Table 3.1 Comparison of Expected Air Emissions for Alternatives Considered

residents to the proposed site. As the selection of the proposed action would be expected to have lower noise impacts than the gas turbine alternative, the proposed action would be preferred when considering the consequences of community noise.

3.4.3 Selection of Alternate Vent Holes

The proposed project would utilize coal mine methane gathered from two vent holes (# 29 and # 30) located approximately 4,500 feet and 6,000 feet, respectively, from the Parrish Shaft site. The pipeline to connect these vents to the proposed project would generally follow an existing power line right-of-way and existing jeep trail. The vent holes were selected because of their productivity, which is anticipated to be sufficient for the proposed power generation, their proximity to the Parrish Shaft site, their availability, and their accessibility for purposed of constructing the pipeline. Additionally, the pipeline would be operated under vacuum to reduce the cost of the project and to minimize the collection of water in the line. Under vacuum operation, it is necessary to minimize the number of low-lying sections of pipeline where water from the mine gas would collect. The proposed vent holes selected to supply the project may allow for the pipeline to be routed with few dips while still following the general route of the existing right-of-way and jeep trail.

The selection of alternate vent holes for the methane supply would depend on the expected productivity of the individual vent holes and their availability to the project. For purposes of considering reasonable alternatives, two nearby vent holes (# 28 and #26) were considered as representing the potential impacts of using other alternate vent holes. Vent #28 is located approximately 1900 feet northwest of vent hole #30. Vent hole #26 is located on the west facing hillside across County Route 15.

Vent # 28 is located approximately the same distance from the Parrish Shaft site as vent hole #29. However, access to vent hole #28 is via an access road off of County

Route 15. To connect the pipeline to this vent hole would require disturbing approximately 1200 feet of woodlands to reach the existing jeep trail before following the proposed pipeline route along the ridgeline. Vent #26 is slightly further from the Parrish Shaft site than Vent #30, and would require the pipeline to be located along a small valley. The location of Vent #26 is also approximately 50 feet higher in elevation than Vent #30. However, to connect this vent to the Parrish Shaft site, the pipeline would have to cross under County Route 15 and continue down to the nearby valley before heading up the hillside to the existing power line right-of-way and jeep trail. This drop of approximately 80 feet in vertical elevation would increase the likelihood of water from the mine gas plugging the pipeline. Under vacuum conditions, it would not be possible to drive the water plug out of the line. Consequently, it would be necessary to either establish a permanent cleanout in the pipeline to drain the collected water or install a gas dryer at the vent hole to dry the mine gas before introducing it into the pipeline. Either option would be expected to increase the surface disturbance to the land around the pipeline or the vent hole.

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4.0 AFFECTED ENVIRONMENT AND THE ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION

4.1 Approach

Section 4.0 of the Environmental Assessment describes the environment which would be potentially affected by the proposed project, and discusses the potential impacts which may result. Beginning with Section 4.3, this section of the Environmental Assessment is organized by resource. Relevant aspects of the existing conditions for each resource are described followed by potential consequences of the proposed action on that resource. Emphasis is placed on the resources and consequences identified as potentially more significant during DOE's public scoping process. For resources not expected to be impacted by the proposed action or where consequences resulting from the proposed action would be expected to be *de minimis*, descriptions and discussions are less detailed.

4.2 Site Description

The proposed project would be located at the site of the Parrish Shaft of Eastern Associated Coal Corporation's (EACC) Federal Number 2 Mine in the Battelle District of western Monongalia County, West Virginia. The site was previously the location of the Miracle Run exhaust Fan for the Federal Number 2 mine. The site is currently used by EACC for an emergency hoistway. The access road to the site is off of County Route 13 approximately 0.4 miles from County Route 15. The proposed site is located approximately 2.25 miles southeast of Wadestown, WV in an unincorporated section of Monongalia County, and is situated in the south central section of the Wadestown, WV - PA USGS 7.5 minute topographic quadrangle.

The site for the proposed generator facility is located in the Dunkard Creek watershed approximately 400 feet north of Right Branch Miracle Run. Right Branch Miracle Run flows predominantly north-northeast for over eight miles until it joins Miracle Run about five miles downstream from the project site. Miracle Run is one of six major tributaries of Dunkard Creek in western Monongalia County, WV. The Dunkard Creek watershed is a part of the larger Lower Monongahela River watershed.

Gathering lines to collect waste methane from coal mine vents would run from property located off of County Route 15 approximately 1 mile southeast of and across a small unnamed ridge from the main project site. The route for the buried lines would cross a small, unnamed tributary of Right Branch Miracle Run and would proceed across a small sloping field and along a jeep trail to the top of the unnamed ridge. It would generally follow an existing powerline along the ridge and down the western slope, where it would cross underneath County Route 13 and over the Right Branch Miracle Run next to the Parrish Shaft site.

4.3 Air Quality

The air quality section provides a general discussion of the air quality in the region and identifies and discusses potential impacts to air quality anticipated from the proposed project. The U.S. Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS) for the following seven criteria pollutants: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter of less than 10 micron size (PM_{10}), particulate matter of less than 2.5 micron size ($PM_{2.5}$), and lead (Pb). The NAAQS are expressed as concentrations of the pollutant in ambient air. Table 4.1 lists the current standards established by EPA for the seven criteria pollutants. It should be noted that the NAAQS for particulate matter are derived from statistical data collected over a three year period. The $PM_{2.5}$ standard was promulgated in 1997. Implementation of this new standard was blocked by a civil suit filed by an industrial consortium. The matter is still before the courts. Consequently, NAAQS for $PM_{2.5}$ has not been implemented and is not enforceable at this time.

For each of the NAAQS for criteria pollutants, the EPA classifies regions within the states as either being in attainment or not being in attainment for each of the criteria pollutants mentioned above. Some regions for which insufficient data are available for accurate classification are listed as nonclassified. In response to the NAAQSs and the subsequent classification, each state is required to submit to the EPA for approval an implementation plan detailing the manner by which the state will achieve and maintain the NAAQS within the state. The State Implementation Plan (SIP) submitted by West Virginia was initially approved by EPA in 1972 and has been subsequently revised as the air quality in areas initially not in attainment with one or more of the NAAQS has improved.

As a potential Federal co-sponsor of the proposed project, DOE would be required to prepare a conformity determination if the proposed project was located in a nonattainment area for any criteria pollutant. A conformity determination would also be required if the proposed project would be located in a maintenance area - an area in attainment but which was previously in nonattainment for any criteria pollutant and is striving to maintain attainment with one or more criteria pollutants pursuant to an approved SIP. The conformity determination assures that an agency of the Federal

POLLUTANT	STANDARD VALUE *	STANDARD TYPE
Carbon Monoxide (CO)		
8-hour Average	9 ppm (10 mg/m^3)	Primary
1-hour Average	35 ppm (40 mg/m^3)	Primary
Nitrogen Dioxide (NO_2)		
Annual Arithmetic Mean	0.053 ppm (100 :g/m^3)	Primary & Secondary
Ozone (O_3)		
1-hour Average	0.12 ppm (235 :g/m^3)	Primary & Secondary
8-hour Average **	0.08 ppm (157 :g/m^3)	Primary & Secondary
Lead (Pb)		
Quarterly Average	1.5 :g/m^3	Primary & Secondary
Particulate (PM 10)[1]		
Annual Arithmetic Mean	50 :g/m^3	Primary & Secondary
24-hour Average	150 :g/m^3	Primary & Secondary
Particulate (PM 2.5)[2]		
Annual Arithmetic Mean **	15 :g/m^3	Primary & Secondary
24-hour Average **	65 :g/m^3	Primary & Secondary
Sulfur Dioxide (SO_2)		
Annual Arithmetic Mean	0.03 ppm (80 :g/m^3)	Primary
24-hour Average	0.14 ppm (365 :g/m^3)	Primary
3-hour Average	0.50 ppm (1300 :g/m^3)	Secondary

Note: Values in parentheses are approximate equivalent concentrations

[1] Particles with diameters of 10 micrometers or less

[2] Particles with diameters of 2.5 micrometers or less.

** The ozone 8-hour standard and the PM 2.5 standards are included for information only. A 1999 federal court ruling blocked implementation of these standards, which EPA proposed in 1997. EPA has asked the U.S. Supreme Court to reconsider that decision.

Table 4.1 National Ambient Air Quality Standards (NAAQS)

government does not undertake actions that would violate provisions of a State's approved implementation plan.

EPA has also established standards to comply with the Prevention of Significant Deterioration (PSD) of air quality as defined by the NAAQSs. The PSD standards provide a ceiling on allowable increases in concentration of pollutants in areas which are in attainment with all NAAQSs. PSD standards are applicable for major new emission sources as well as existing sources undergoing major modifications which would increase emissions of a regulated pollutant. PSD standards are expressed as allowable increments (increases) in the atmospheric concentration of regulated pollutants. One set of allowable increment exists for most of the United States. Certain areas within the United States are designated as Class I areas. These areas are defined under the Clean Air Act (42 USC 7472 Section 162) as international parks, national parks that exceed 6,000 acres or national memorial parks that exceed 5,000 acres in size. Allowable PSD increments currently exist for SO_2, NO_2, and PM_{10}, and are shown in Table 4.2.

Because the allowable PSD increments are expressed as increases in atmospheric concentrations of regulated pollutants (for example, milligrams per cubic meter) and not as emission rates (for example, tons per year), determining whether a proposed project would result in an exceedance of an allowable increment requires atmospheric modeling. To reduce the burden on industry while ensuring compliance with PSD increments, EPA allows states to designate smaller emission sources as "synthetic minor sources" under PSD regulations. Sources choosing to be regulated as synthetic minor sources agree to limit by permit their emissions of pollutants covered under PSD regulations to below the thresholds which trigger a New Source Review and applicability of PSD regulations.

		Allowable Increment ($\mu g/m^3$)	
Pollutant	**Averaging Time**	**Class I Area [1]**	**Class II Area [2]**
SO_2	3 hr (max)	25	512
	24 hr (max)	5	91
	Annual[3]	2	20
NO_2	Annual[3]	2.5	25
PM_{10}	24 hr (max)	8	30
	Annual[3]	4	17

[1] Special designated areas - including international parks, national parks over 6,000 acres, national wilderness areas over 5,000 acres.
[2] Remainder of the United States
[3] Arithmetic mean

Table 4.2 Allowable PSD Increments

In addition to the NAAQS, EPA regulates air quality by limiting toxic and other emissions from certain industrial segments. Under the Clean Air Act Amendments of 1990, EPA is required to regulate sources of 188 listed toxic air pollutants. (Note that this list

originally referenced 189 pollutants, but EPA has subsequently removed the chemical caprolactum from the list.) On July 16, 1992, EPA published a list of industry groups (known as source categories) that emit one or more of these hazardous air pollutants. For listed categories of "major" sources (those that have the potential to emit 10 tons/year or more of a listed hazardous air pollutant (HAP) or 25 tons/year or more of a combination of HAPs), the Clean Air Act requires EPA to develop standards that are based on stringent air pollution controls, known as maximum achievable control technology (MACT). Oil and natural gas production and natural gas transmission and storage are source categories listed by EPA for regulation.

On June 17, 1999, EPA promulgated National Emission Standards for Hazardous Air Pollutants (NESHAP) for the oil and natural gas production industry. These NESHAP define the MACT for control of emissions from this industry. Consequently, this rule is sometimes referred to as the ONG (Oil and Natural Gas) MACT. In general terms, the rule requires controls on certain glycol dehydration units and condensate storage tanks, as well as equipment leaks at natural gas processing plants. The rules are applicable to major sources of hazardous air pollutants in the Oil and Natural Gas production industry. The rule allows three years for facilities to come into compliance, but requires that some facilities provide notification of their compliance plans within one year from rule promulgation (or by June 17, 2000).

4.3.1 Affected Environment

Monongalia County is classified as being in attainment for all NAAQS. Air quality within the state is regulated through the West Virginia Department of Environmental Protection (WVDEP) - Division of Air Quality (DAQ). For purposes of determining permit requirements under applicable state air regulations, the DAQ defines a major source as one having a potential to emit more than 100 tons per year of any regulated criteria pollutant. The proposed project has the potential to emit more than 100 tons per year of oxides of nitrogen, and would be regulated as a new source under state air quality regulations (45CSR13). The industrial participant has applied for and received a permit to construct the electrical generation facility being considered in the proposed action (permit number R13-2148).

No parts of Monongalia County are designated as a Class I area for purposes of determining the application of allowable PSD increments. Class II allowable PSD increments for SO_2, NO_2, and PM_{10} would be applicable to the proposed project if the project met the thresholds as a “major source” under PSD regulations. The WVDEP-DAQ has designated the proposed project as a “synthetic minor source” for purposes of PSD regulation, and PSD increments would not apply.

The ONG MACT was targeted to cover the largest sources of HAPs within the industry. Facility which process less than 650 MCFD of gas are exempt from the implementing the MACT requirements. The proposed project would process 1,150 MCFD of gas, and so would not be exempted from MACT requirements as a facility. The ONG MACT also exempts certain individual units within a facility based on the size of the particular unit. Glycol dehydration units with annual average throughput of less than 3 MMCFD are exempt from MACT regulations. The glycol dehydration unit which would be installed at the proposed project is expected to have an average annual throughput of < 1.15 MMCFD, and would be exempt from the ONG MACT requirements.

4.3.2 Environmental Consequences

The proposed project will combust coal mine waste methane. Methane is the major component of natural gas. The combustion of natural gas produces varying quantities of all criteria pollutants regulated under NAAQSs. The proposed project would emit small quantities of NO_x, CO, SO_2, VOCs and particulate matter. Emission of criteria pollutants allowed by permit are shown in table 4.3. These pollutants would be emitted from the top of the 90 foot stack and would be dispersed into the atmosphere. Consistent with its regulation as a synthetic minor source, the proposed project would not be expected to significantly add to the ambient concentration of regulated criteria pollutants.

Criteria Pollutant	Permitted Emissions (tons/yr)
NO_x	249.1
CO	17.84
SO_2	12.24
PM_{10}	0.8
VOC	6.47

Table 4.3 Permitted Emissions of Criteria Pollutants for the Proposed Project

The combustion of methane also produces trace amounts of some materials regulated as hazardous air pollutants (HAPs). In particular, very small quantities of acetaldehyde, acrolein, benzene, formaldehyde, naphthalene, toluene, and xylene could be emitted from the proposed project. The quantities of these HAPs which could be emitted under the air permit granted by the DAQ are shown in table 4.4. Total HAPs expected to be emitted by the proposed project are below thresholds which would trigger applicability of NESHAP rules. Further, the small glycol dehydrator which could be used to

dry the waste methane sold to Equitrans would not be subject to MACT rules promulgated for the Oil and Natural Gas industry.

4.4 Water Quality

The water quality section provides a general discussion of the watershed basin and the potential impacts which would be anticipated for this project. Potential benefits are discussed qualitatively.

4.4.1 Affected Environment

VOC Hazardous Air Pollutant	Permitted Emissions (tons/yr)
Acetaldehyde	0.338
Acrolein	0.094
Benzene	0.265
Formaldehyde	2.59
Naphthalene	0.008
Toluene	0.092
Xylene	0.026

Table 4.4 Permitted Emissions of VOC-Hazardous Air Pollutants

The proposed main project site is located 400 feet north of Right Branch Miracle Run. Right Branch Miracle Run flows for over eight miles until it joins Miracle Run about five miles downstream from the project site. Miracle Run is one of six major tributaries of Dunkard Creek in western Monongalia County, WV. The Dunkard Creek watershed is part of the larger Lower Monongahela River watershed, identified by United States Geological Survey (USGS) Cataloging Unit Number 05020005.

The Clean Water Act requires states to produce lists of water bodies that have water quality problems limiting the designated uses of those water bodies. Dunkard Creek has been listed as a water quality impaired stream on the West Virginia 303(d) Lists for 1996 and 1998. The pollutants of concern are metals resulting from acid mine drainage. Acid mine drainage can contribute high levels of metals, such as iron and aluminum, which are detrimental to aquatic life. States are also required to develop a Total Maximum Daily Load (TMDL) for each listed water body. TMDLs analyze existing pollutant inputs from all sources and tributaries in the watershed and determine the amount of each pollutant that can be assimilated by a water body without compromising water quality standards and associated designated uses. The TMDL process is a planning tool to develop pollution reduction goals that will improve impaired waters to meet water quality standards. At this time, a TMDL has not been developed for the Dunkard Creek watershed. Dunkard Creek is listed as a medium priority by the WV Department of Environmental Protection. Higher priority watersheds are being addressed at this time.

4.4.2 Environmental Consequences

There would be no on-site water source for this project. Water would be trucked to the site for process make-up water. The proposed project would generate a small amount of wastewater (40 gallons per day) as a result of condensation from the compressors and associated equipment to be used at the power plant site. Wastewater would be collected, pumped to a storage tank and trucked off-site for proper disposal in accordance with applicable environmental regulations.

Normal maintenance activities would be performed on the engines and generator sets. These activities would include the periodic change out of lubricants - including oil and grease. Unexpected equipment breakdown could also occur. Depending on the nature of the equipment failure, oil or grease could escape the engine casing and antifreeze could escape the radiative cooling system. The proposed project has planned for unexpected equipment breakdown that could result in the release of lubricants and antifreeze. Each of the engine/generator sets would be built on separate skids that act as catch basins for any potential spills. The volume of the skid containers would be large enough to hold all oil and anti-freeze from the engines. Also, the modular design of engine/generator sets allows for the removal of a failed unit with little impact to the operation of the proposed facility. Major overhauls of equipment would take place at a offsite location further reducing the likelihood of releasing oil, grease, or antifreeze into the watershed.

There are no wastewater facilities available at this small rural project site. Area homeowners use septic systems for disposal of domestic wastewater. Portable restroom facilities would be rented by Northwest Fuel. Additional portable facilities could be made available during construction at the project site. No permanent restroom facilities would be constructed at the project site.

Given the small amount of wastewater generated by this project and the plans to collect and properly dispose of the wastewater offsite, no impacts to water quality from wastewater discharge is expected. Additionally, with the proposed project's modular design, which includes integral spill containment structures, and the plans for major equipment overhauls to be completed at an offsite location, no releases of oil, grease or antifreeze would be expected. During construction, standard best management practices would be used to control storm water runoff and erosion at the site. Therefore, no impacts on the water quality of Miracle Run or the Dunkard Creek watershed are anticipated.

4.5 Socioeconomic Resources

Socioeconomic resources include the general sociological and economic climate in the area of the proposed project. It includes employment considerations, such as the

availability of a trained workers and demands placed on the local workforce, impacts to the tax base, and population demographics. Other factors include demands for and the availability of supporting infrastructure such as educational, recreational, and childcare services.

4.5.1 Affected Environment

Monongalia County has a population (Census 2000) of 81,866. This is an increase of 8.4 percent from the 1990 population. Over the same time period, the population of the state as a whole rose by only 0.8 percent. The County includes only five incorporated municipalities; all but one (Blacksville) are located in the central district of the County. The unemployment rate in Monongalia County (October 2001) of 1.7 percent compares favorably to the unemployment rate of 3.9 percent for the state as a whole. The median income for County residents is $32,365, approximately 18 percent higher than for the State as a whole.

Western Monongalia County is largely unincorporated. The town of Blacksville, located approximately 6.5 miles northeast of the proposed project, experienced a decline in population in the decades of the seventies and eighties. The decline stabilized somewhat in the mid-nineties, but continues with the estimated population (1999) at 157.

4.5.2 Environmental Consequences

The proposed project would have no permanent on-site workforce, and the number of workers employed during the construction phase of the project would not be significant compared to the total nonfarm employment base of over 29,300 (1999) for the County as a whole. With no permanent workforce or sizable transient workforce, the proposed project would not be expected to increase the school-aged population or have any adverse impacts to local educational or recreational resources. Some minor increase to the tax base due to construction and operation of the proposed project may occur, but would be minor when compared to the existing County tax base.

4.6 Safety and Health

Safety and Health pertains to the workforce which would be employed in the construction and operation of the proposed project. This would include any transient workforce involved in construction as well as the permanent workforce employed in the operation of the power generation facility. Personnel servicing the construction and operation phases of the proposed project - such as those making deliveries to the site, are also considered within the resource of Safety and Health.

The proposed project would also utilize coal mine waste methane, which is a flammable gas. The gas would be transported to the engine gensets through a gas pipeline which would be routed underground except for a small section where the line would pass under County Route 13 and cross over the Right Branch Miracle Run. After the aerial stream crossing, the pipeline would continue underground across the Parrish Shaft site to the power generation facility on the northwest portion of the site. As part of the scoping process, DOE identified for further analysis the possibility of accidental release of methane from the pipeline. This issue is analyzed in this section of the EA.

4.6.1 Affected Environment

Emergency services are provided throughout Monongalia by a central dispatch (MECCA 911). The western part of the County is serviced by a local volunteer fire department - the Clay Battelle VFD and by the Monongalia Sheriff's Department and the Morgantown Detachment of the West Virginia State Police. The area is served by two hospitals located in Morgantown, the county seat, approximately 30 minutes distance by road. The hospitals include a Level 1 trauma center.

The proposed project includes activities that could present potential safety and health hazards to personnel performing work at the site. It is understood that employees will not be at the site on a permanent basis. However, servicing and maintenance of the eighteen internal combustion engines and generators at the site would require periodic visits. For operational activities, US Department of Labor, Occupational Safety and Health Administration (OSHA) requirements would be in effect. These standards are published as 29 Code of Federal Regulations (CFR), Part 1910, "Occupational Safety and Health Standards". Northwest Fuel would be responsible for compliance with OSHA's 29 CFR 1910 requirements.

4.6.2 Environmental Consequences

Industrial noise may pose an impact to employees. Noise exposure is regulated by OSHA in 29 CFR 1910.95, "Occupational Noise Exposure". Noise is defined as unwanted sound. Occupational noise exposure has been demonstrated to cause short and long-term hearing loss to exposed employees. OSHA has established that employees may be exposed to no more that 90 decibels measured on an A-scale (dBA) averaged over the course of an 8-hour shift. The time weighted average exposure of 90 dBA is referred to as the "Permissible Exposure Limit". If any employee is exposed to a noise level of 85 dBA averaged over the course of an 8-hour shift, the employer is required to implement a comprehensive hearing conservation program. The time weighted average exposure of 85 dBA is referred to as the "Action Level".

An operation in Ohio similar to the Parrish Shaft site had noise measurements at one location on the facility of 103 dBA. An unprotected employee would be allowed in noise levels of this magnitude for less than an hour. Based on measurements taken during a visit at the Rose Valley site near Cadiz, OH, workplace sound level of around 98 dBA would be expected at the proposed facility on the Parrish Shaft site. A properly calibrated sound level meter would be required to evaluate actual noise levels after commencement of the project. In order to determine actual employee noise exposures, personal dosimetry with calibrated noise dosimeters would need to be performed on employees performing work in the area.

In the event of employee exposures above the time weighted Action Level of 85 dBA, Northwest Fuel would be required to institute a Hearing Conservation Program with the following elements:

Implementation of a monitoring program, including area monitoring and personal monitoring for employees.

Establishment of an audiometric testing program. This includes performing a baseline and periodic audiograms in accordance with 29 CFR 1910.95, paragraphs (g) and (h).

Making hearing protection devices readily available to employees in the program. The Industrial Partner would be required to provide training on the proper fit, use, and care of the devices in accordance with 29 CFR 1910.95, paragraphs (i) and (j).

Providing training to all employees in the program in accordance with 29 CFR 1910.95, paragraph (k). Among the topics required in this training are the effects of noise on hearing; and the purpose and proper use of hearing protection devices.

Establishment of recordkeeping as required in 29 CFR 1910.95, paragraph (m). Records are required to be kept on noise measurements, exposure assessments, and audiometric testing.

During servicing activities for the generator, internal combustion engines, or associated equipment, OSHA's electrical safety requirements may be relevant. The following sections would be in effect when dealing with live electrical equipment:

29 CFR 1910.302 - "Electrical Utilization Systems"

29 CFR 1910.303 - "General Requirements"

29 CFR 1910.333 - "Selection and Use of Work Practices"

29 CFR 1910.334 - "Use of Equipment"

29 CFR 1910.335 - "Safeguards for Personnel Protection"

OSHA requires all employers using hazardous chemicals to establish a Hazard Communication Program if hazardous materials are present on site. OSHA's definition of hazardous materials includes such items as flammable substances, toxic materials, carcinogens (cancer causing substances) corrosive materials, irritants, and oxidizers. 29 CFR 1910.1200 paragraph (d) details what factors determine if a chemical is hazardous. OSHA requires the following elements in 29 CFR 1910.1200:

A written Hazard Communication Plan which describes how the employer will comply with the various sections of the Hazard Communication Standard. Requirements for the plan are listed in 29 CFR 1910.1200, paragraph (e).

The maintenance of material safety data sheets (MSDSs) for all hazardous chemicals used or stored at the site. MSDS requirements are outlines in 29 CFR 1910.1200, paragraph (g).

Proper labeling of all hazardous chemicals at the work site. At a minimum, hazardous substance containers would be required to be labeled as to their contents, health and physical hazards posed by the contents, and the name/phone number/address of the manufacturer or distributor. Labeling requirements are detailed in 29 CFR 1910.1200, paragraph (f).

A Hazard Communication training program. Employees would be required to be trained on the identity of hazardous substances on the worksite, hazards posed by these substances, protective measures which can be used to protect employees against these hazards, methods of detecting the presence of these hazardous substances, employee rights under the Hazard Communication Standard, and details of the Industrial Partner's written Hazard Communication Plan. Training requirements are detailed in 29 CFR 1910.1200, paragraph (h).

A list be maintained of all hazardous substances present at the worksite would also be required.

Construction activities at the Parrish Shaft site may involve several OSHA standards. Construction activities are covered by 29 CFR 1926, "Safety and Health Requirements for Construction". Excavations for fuel lines feeding the project would be covered by 29 CFR 1926, Subpart P, "Excavations". OSHA has requirements for protecting

occupants of open excavations and trenches, including utilizing shoring systems and sloping options.

The project plans call for erecting a 90 foot high exhaust stack. For stack erection activities, 29 CFR 1926 Subpart N, "Cranes, Derricks, Hoists, Elevators, and Conveyors", sections 550-556 covers operational requirements for cranes, material hoists, personnel hoists, and overhead hoists.

Concrete operations would be required to pour the footings for some equipment. The Industrial Partner would be required to follow 29 CFR 1926, Subpart Q, "Concrete and Masonry Construction".

General personal protective equipment requirements for construction activities, including head, foot, and eye protection, are covered in Subpart E, "Personal Protective and Life Saving Equipment".

Application of regulatory requirements under OSHA would be expected to provide adequate worker safety, and safety and health services are available in the County. The proposed project would not be expected to adversely impact the safety and health of the local workforce.

The proposed project would gather 500 MCFD of high quality (89% methane) mine gas and 650 MCFD of low quality (45% methane) through the pipelines from the ventilation boreholes to the Parrish Shaft site. Methane is a flammable gas, and mixture of methane and air can burn if the methane concentration is between 5.3% and 15%. If the methane concentration in air is below 5.3%, the mixture is too lean to ignite or sustain combustion. If the methane concentration in air is above 15%, the mixture is too rich. The limits are respectively referred to as the lower and upper limits of flammability, or the Lower Explosive Limit (LEL) and Upper Explosive Limit (UEL).

The pipelines for the proposed project would operate under a vacuum system, and would not be pressurized. Under normal operations, the methane would not be expected to be released even if the pipeline would be breached. In the event of a failure of the project's collection blowers, which would provide the vacuum to the pipeline, gas pressure in the pipeline could stabilize to the approximate reservoir pressure (the gas pressure in the coal mine). Under this scenario and with the simultaneous failure of the pipeline, mine methane may be released to the atmosphere at the point where the pipeline was breached if the atmospheric pressure is less than the gob reservoir pressure.

NETL analyzed the risk of the release of mine methane to atmosphere using an emergency response model developed by the Federal Emergency Management Agency

(FEMA, 1988). Under the very unlikely dual failure scenario (that is, the collection blower fails allowing the pipeline pressure to rise to reservoir pressure and the pipeline is breached at a point where is crosses the Right Branch Miracle Run) and the condition where reservoir pressure is higher than atmospheric pressure, methane may be released to atmosphere. NETL used a model known as ARCHIE (Automated Resource for Chemical Hazard Incident Evaluation) to evaluate the potential for buildup of explosive concentrations of methane at or near ground level.

The scenario modeled assumed a convergence of worst case conditions such as a full breach of the pipeline, stable atmospheric conditions, and a release extending for 10 hours, such as might occur overnight. The results of the evaluation indicate that a flammable mixture could occur within the immediate vicinity (~ 35 ft) of the breach, but would not extend offsite. Additionally, the total amount of methane within the area above the LEL would be approximately 11 lbs. Unconfined mixtures of flammable gas and air generally will not explode if the total amount of flammable gas in the atmosphere is less than 1000 lbs. The methane and air mixture that could result from the accidental release scenario evaluated would not be expected to be an explosion hazard to either workers onsite or to nearby residents.

4.7 Floodplains and Wetlands

4.7.1 Affected Environment

The proposed main project site (generator pad) would consist of a graded and fenced area, approximately 150 by 300 feet. It would be located slightly up slope, 400 feet north of Right Branch Miracle Run. This area has been previously disturbed by the construction of an electrical substation, mine emergency escape shaft, numerous bore holes and vents, associated access roads and parking area. A pipeline would gather waste methane from existing bore holes located in the hills south of the generator site. The pipeline would collect waste methane from the first borehole, cross a small intermittent stream adjacent to County Road 15, continue uphill to another borehole, follow the ridge line and then continue downhill to the generator site after going under County Road 13 and crossing Right Branch Miracle Run.

A site visit was completed in October, 2001. There was no outward sign of any obvious wetlands in the immediate vicinity of the project site. Right Branch Miracle Run is a very small creek easily stepped across at that time of year. A 1987 U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) map for the Wadestown, WV-PA quadrangle shows that no wetlands have been identified in the immediate project area. A small palustrine wetland with emergent aquatic vegetation (classified as PEM1C) occurs about 2,000 feet downstream from the project area. According to the National Wetlands Inventory, the classification PEM1C means the following:

P	=	palustrine (swampy)
EM	=	emergent vegetation (e.g., cattails)
1	=	persistent
C	=	seasonally flooded

This wetland is located approximately one half mile northeast of and on the other side of County Route 13 from the proposed project site.

4.7.2 Environmental Consequences

The main project area would be constructed at approximately 1,060 feet above sea level. This places the proposed project site just above the 100-year flood elevation. This determination is based on the Federal Emergency Management Agency's Flood Insurance Rate Map (Community Panel Number 540139 0050 B; dated May 1, 1984) covering the project area. Therefore, the main part of the proposed project would not be constructed in a floodplain.

The pipeline carrying waste methane from the borehole vents will need to cross Right Branch Miracle Run and a support structure would be required for this elevated pipeline section. The project would make all attempts to minimize the size of the concrete foundations for the elevated pipeline supports and place them above the anticipated high water mark corresponding to the 100-year flood elevation where practicable. It is anticipated that at least one small (<10 square feet) footer would be installed within the area of the 100-year floodplain.

The pipeline from the first borehole would need to cross the unnamed perennial tributary along County Road 15. This pipeline section would be trenched from the borehole, across the stream, and then up slope to the next borehole. The area where the pipeline would cross this un-named stream is just upstream from the section identified to be within the 100-year floodplain.

There are no documented wetlands in the immediate area of the proposed project site. This is based on official U.S. Fish and Wildlife Service National Wetland Inventory maps (1987) and confirmed by a site visit. A small wetland located approximately 2,000 feet downstream of the proposed project site would not be affected by the project during either construction or operation. A small (6 inches diameter) pipeline supplying waste methane to the generators would need to cross Right Branch Miracle Run. All efforts would be made to minimize any impacts to the creek. Instead of trenching across the creek, the pipeline would be elevated to cross over the creek. The project would make all attempts to minimize the size of the concrete foundations for the elevated pipeline supports and place

them above the anticipated high water mark corresponding to the 100-year flood elevation. However, given the span of the crossing, it is expected that one concrete footer for the proposed support structure would be located in the floodplain on Right Branch Miracle Run.

4.8 Flora and Fauna

4.8.1 Affected Environment

The vast majority of land surrounding the proposed project site is composed of woodland and pasture. This agrees with the general dominance of woodland (60%) and pastureland (20%) in the Dunkard Creek watershed. The woodlands are typical temperate mesophytic (moderate moisture) forests, with mostly regenerated oak-hickory forests of pole to saw timber size. Existing stands in the area are composed of black oak (*Quercus velutina*), red oak (*Quercus rubra*), chestnut oak (*Quercus prinus*), white oak (*Quercus alba*), various hickories (*Carya* spp.), sugar maple (*Acer saccharum*), and yellow poplar (*Liriodendron tulipifera*). The forests on the adjacent hillsides have been disturbed by the placement of boreholes, power lines, and access roads associated with local coal mining activities.

The Dunkard Creek watershed offers good habitat for white-tailed deer (*Odocoileus virginianus*) and wild turkey (*Meleagris gallopavo silvestris*) resulting in large populations of big game animals. Populations of small game animals, including cottontail rabbits *(Sylvilagus floridanus*), eastern gray squirrel (*Sciurus carolinensis*), and fox squirrels (*Sciurus niger*), are good, with fair numbers of ruffed grouse (*Bonasa umbellus*). The Dunkard Creek watershed is also home to a variety of raptors, passerines, waterfowl, non-game animals, reptiles and amphibians.

No Federally listed threatened or endangered species are known to occur in the Dunkard Creek watershed, and are therefore not expected to be found at the project site. Species of concern currently have no legal protection, may be in need of concentrated conservation actions, and could become candidates for future listing as more reliable data on their distribution becomes available. The area could be summer range for the Indiana bat (*Myotis sodalis*), but no sitings in Monongalia County have been documented. Dunkard Creek is home to two species of concern, the salamander mussel (*Simpsonaias ambigua*) and the snuffbox mussel (*Epioblasma triquetra*). However, these mussels are found in small to medium-sized rivers with good water quality and should not be found in the small tributary streams at the project site. The salamander mussel is only found where its host species, the common mudpuppy (*Necturus maculosus*), is located. Other species of concern found in Monongalia County that could be found around the project site include Bachman′s sparrow (*Aimophila aestivalis*), Butternut (white walnut; *Juglans cinerea*), and Barbara's buttons (*Marshallia mohrii*). However, these species have not been identified in the immediate project area and/or have not been reported in over ten years. Additional species of concern

have been documented from other areas of Monongalia County that offer unique habitat not found at the project site.

4.8.2 Environmental Consequences

The proposed main project site would be located in a previously disturbed area between two hillsides, 400 feet north of Right Branch Miracle Run. This area is mostly overgrown pastureland that was at one time woodland prior to disturbance by mine-related activities. The pipeline for this project would be placed to minimize disturbance to the forested woodlands by locating it along existing access roads, jeep trails, and power line rights-of-way where possible.

Since this project would be placed in a previously disturbed area, adverse impacts to fish, plant, or wildlife species from construction or operation of the proposed project would be minimal. There may be some avoidance of the immediate project area due to higher levels of human activity and associated noise. However, this should be very localized and would diminish with time as construction activities are completed and animals acclimate to the project. Furthermore, no Federally listed threatened or endangered (T&E) species are known to occur in the watershed. As part of its scoping process, DOE consulted with the U.S. Fish and Wildlife Service (USFWS). The USFWS has not identified any T&E species or critical habitat in the proposed project area. Letters of consultation and response are included in Appendix A of this EA.

4.9 Cultural and Historic Resources

The most comprehensive national policy on historic preservation was established by Congress with the passage of the National Historic Preservation Act of 1966 (NHPA). In this act historic preservation was defined to include "the protection, rehabilitation, restoration and reconstruction of districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, or culture." The act led to the creation of the National Register of Historic Places, a file of cultural resources of national, regional, state, and local significance maintained by the National Park Service (NPS) of the Department of the Interior (DOI). The act also established the Advisory Council on Historic Preservation (the Council), an independent federal agency responsible for administering the protective provisions of the act.

In general, the major provisions of the NHPA which must be addressed by DOE are Sections 106 and 110. Both sections aim to ensure that historic properties are appropriately considered in planning federal initiatives and actions. Section 106 is a specific, issue-related mandate to which federal agencies must adhere. It is a reactive mechanism that is driven by a federal action. Section 106 requires that the head of any federal agency having direct or indirect jurisdiction over a proposed federal or federally assisted undertaking in any state,

and the head of any federal department or independent agency having authority to license any such undertaking must ensure that the provisions of the NHPA are administered. Section 106 also mandates consultation during such federal actions. It compels federal agencies to "take into account" the effect of their projects on historical and archaeological resources and to give the Council the opportunity to comment on such effects.

Section 110, in contrast, sets out broad federal agency responsibilities with respect to historic properties. It is a proactive mechanism with emphasis on ongoing management of historic preservation sites and activities at federal facilities. Section 110(a) of the NHPA and Executive Order (E.O.) 11593 (which was substantially incorporated into the NHPA amendments of 1980) require agencies to provide leadership in preserving, restoring, and maintaining the historic and cultural environment of the nation. The 1980 NHPA amendments expanded the NHPA of 1966 by making federal agencies responsible for identifying, preserving, and nominating to DOI all sites, buildings, districts, and objects under their jurisdiction or control that appear to qualify for listing on the National Register of Historic Places.

The proposed action under review in this Environmental Assessment would be entirely located on property that is not within the control or jurisdiction of the DOE. Therefore, Section 110 would not apply to the proposed project. Under Section 1.06 DOE must determine whether or not the proposed action would involve historic properties as defined by the National Park Service guidelines and seek the consensus of the SHPO regarding those historic properties and potential impacts thereto.

4.9.1 Affected Environment

Monongalia County was one of the first three counties formed within the State. It was created in October of 1776 by and act of the Virginia General Assembly from parts of the District of West Augusta. It was named for the Monongahela River which flows through the central district of the county. The Monongahela River was named by the Algonquin (Delaware) Indians from a word meaning “crumbling banks” or “high banks fall down”. The spelling was changed to Monongalia - either on purpose of as a result on a error - in the bill creating the County.

The original territory which comprised Monongalia County included land now occupied by eighteen of West Virginia’s fifty-five counties and parts of three counties (Greene, Fayette, and Washington) in present day Pennsylvania. The land in the three counties in Pennsylvania was lost to Pennsylvania following the westward extension of the Mason-Dixon line in 1781.

The proposed project would be located on property previously used for a mine exhaust fan. The fan was removed by the mine approximately 2 years ago, and the property is currently used for an emergency hoistway for the mine. There are no structures located on the site which would be affected by the proposed project, and the current Register of Historic Places does not have any listing for the proposed project site. The pipelines which would carry waste methane from mine vents located on private property to the southeast of

the Parrish Shaft site would generally follow an existing jeep trail and powerline right-of-way. As part of the site inspection, DOE walked the length of the proposed pipeline route. No structures were noted on the proposed route.

4.9.2 Environment Consequences

The proposed power generating facility would be located on property which has been previously disturbed and is currently used for mining support activities. The property was previously used for a mine exhaust fan. The fan was removed by the mine approximately 2 years ago, and the property is currently used for an emergency hoistway for the mine. DOE reviewed the current Register of Historic Places and could identify no properties within or near the proposed project site that are listed or would be eligible for listing on the National Register. The proposed pipeline route crosses open pastureland before following an existing powerline right-of-way and a jeep access trail. Other than the mine vents, power line poles and modern fencelines, no structures were identified along the proposed route.

The proposed project is not expected to involve any known or suspected historic properties of districts. Moreover, the proposed project - including the proposed pipeline route - is located on property that has been previously disturbed or is currently being used in a manner similar with actions being considered in the proposed project. Therefore, impacts to cultural and historic properties are not expected to result from the proposed action. As part of its scoping process and to comply with Section 1.06 requirements, DOE consulted with the West Virginia SHPO. The SHPO has not identified any items of historic significance associated with the proposed project. The letter of consultation and the SHPO's response are included in Appendix A.

4.10 Soils and Geology

4.10.1 Affected Environment

Soils in the area of the proposed project are stable and would be used as a base to support the light industrial structures (e.g., the 90 foot stack) which would be constructed. The soil at the Parrish Shaft site was previously disturbed. The soils along the proposed route for the gathering lines support the presence of grass and pasture lands as well provide structural support for the unimproved jeep trail and powerline right-of-way. The subsurface geology of the area consists of coal sequences of sedimentary strata. The area has been extensively mined, and underground mining continues in surrounding areas. Longwall mining, such as that occurring in the general area, results in the planned collapse of undermined strata behind the active face. This collapse can produce surface subsidence, and some surface subsidence has been reported in the general area.

4.10.2 Environmental Consequences

The soils at the Parrish Shaft site would provide a base for the light industrial use. The soils have been previously disturbed, and the proposed project would not alter the current use. Installation of the gathering lines would result in a temporary disturbance to surface soils. Impacts expected would include soil erosion and runoff. Standard construction practices - including control of soil runoff and re-seeding of disturbed areas - would occur. No lasting impacts would be expected to occur to the soils and local geology as a result of the proposed action.

4.11 Noise

This Section of the EA addresses potential consequences of environmental noise. Simply defined, noise is unwanted sound. People are exposed to noise on a nearly continual basis in every area of their lives. Excessive noise in the work place is recognized as a potential hazard for employees. Work place noise is regulated by OSHA under rules promulgated under the Occupational Safety and Health Act. Potential impacts to worker Safety and Health from work place noise from the proposed project are discussed in Section 4.6 of this EA.

In 1972, the United States Congress passed the Noise Control Act (42 USC 4901 *et seq*). In its statement of intent in passing the Act, Congress noted that " *inadequately controlled noise presents a growing danger to the health and welfare of the Nation's population, particularly in urban areas*". Congress also noted that "*the major sources of noise include transportation vehicles and equipment, machinery, appliances, and other products in commerce*". While recognizing that the primary responsibility for regulating and controlling noise rested with state and local governments, Congress declared as national policy "*to promote an environment for all Americans free from noise that jeopardizes their health or welfare*". Environmental noise is explicitly defined in Section 4902 of the Noise Control Act to mean " *the intensity, duration, and the character of sounds from all sources*". The term environmental noise is used somewhat synonymously with the term "community noise". The latter term, while not defined statutorily in the Noise Control Act, generally refers to noise to which a particular population may be exposed in the community outside of the work place.

Primary sources of community noise include those defined in general terms in the Noise Control Act (transportation vehicles and equipment, machinery, appliances, and products used in commerce). Specific examples of sources of noise (unwanted sound) within a community can include everything from traffic at a nearby airport or rail yard to barking dogs. Common sources of community noise include motor vehicles, domestic outdoor equipment (for example, lawn mowers), live or recorded music, sporting events, and industrial equipment.

To understand the potential impacts of community noise, it is helpful to understand the nature of sound, its measurements, and its propagation, or the manner in which it travels

in the environment. Formally defined, sound is the fluctuations in pressure above or below the ambient pressure in a medium (such as air) that has both elasticity and viscosity (Ostergaard, 2000). When speaking of sound or noise, most people are referring to airborne sound occurring within the normal response range of the human auditory system. Airborne sound is the rapid oscillation of air pressure above or below atmospheric pressure. It is a form of mechanical energy sometimes referred to as acoustical energy. Acoustical energy is transmitted in air as a longitudinal wave (that is, it consists of alternating zones of compression and expansion (or rarefaction) in the direction of transmission). Sound can be described in terms of frequency, or how fast these fluctuations occur, intensity , or how large these fluctuations are, and duration, or how long the sound persists. Each of these properties will be discussed below in terms of how it describes sound and how it is measured.

Because sound is the fluctuation in pressure above or below atmospheric pressure, it can be described in terms of the number of times per second that the fluctuating pressure rises above or falls below atmospheric pressure. Recalling that sound travels as a longitudinal wave, one cycle of that wave consists of a rise over atmospheric pressure (compression) followed by a drop below atmospheric pressure (expansion) and a return to the atmospheric pressure. The number of cycles per second (cps) describes the frequency of a sound. Frequency is generally described in a unit called hertz (abbreviated Hz), where one hertz is defined as one cycle per second. In the normal environment, sound is composed of various frequencies just as white light is composed of different colors. In understanding community noise, the frequencies of greatest interest are those frequencies which can be perceived as sound by the human auditory system. In a young person having a normal hearing range, the human ear can detect sounds having frequencies between 20 and 20,000 Hz. Normal human speech ranges between 100 and 6,000 Hz.

Sound intensity or amplitude refers to the relative power level of a sound. For sound within the hearing range, sound intensity corresponds to the perceived “loudness” of a sound or noise. The sound levels we encounter in daily life vary over a wide range. The lowest pressure level the human ear can detect is more than a million times less than that produced by a jet taking off. To avoid using both very large and very small numbers to express sound intensity in absolute terms, sound level is expressed in a logarithmic scale, which uses the exponential power of a number instead of the actual number. Recalling that sound is fluctuation in pressure above or below atmospheric pressure, sound intensity (or loudness) is defined as the difference in pressure fluctuation relative to a reference pressure. The unit of measure of sound level is the decibel (dB), which is a dimensionless quantity defined by:

$L = 20 \log (A/B)$ dB, where L is the sound level (in dB), and A, B are sound pressure levels.

In acoustics, all sound levels are defined as the logarithm of the ratio of two quantities where the denominator is the reference level. The sound pressure most commonly used as a reference pressure is 20 micropascals (20 : Pa). This pressure was chosen as a standard reference pressure because it approximately equals the threshold of human hearing at a frequency of 1,000 Hz in a person having a normal auditory response (Ostergaard, *ob cit*).

Using this reference pressure, the lowest sound level which the human ear can detect would be expressed in decibels as 0 dB, while the sound level produced by a nearby riveter (producing absolute pressure fluctuations of ~ 20,000,000 ∶Pa) would be expressed as 120 dB. For most people, sound levels of 140 dB and higher would produce an actual sensation of pain. Because sound levels are expressed on a logarithmic scale, simply adding or multiplying sound levels does not give the intended results. For people having a normal hearing response, an increase in sound level of 10 decibels would be perceived as a doubling in loudness. Therefore, increasing a sound level from 65 dB to 75 dB would be perceived as doubling the loudness (an increase of 100%) rather than increasing the loudness by ~15% as would be indicated if the scale was linear. An increase in sound level of 3 dBA would be barely noticeable while an increase of 5 dBA would be clearly apparent for most people in normal circumstances (Cavanaugh,1998).

The duration of a sound is the time over which the pressure fluctuations occur. Sounds may be constant with respect to intensity and frequency, or they may vary in intensity, frequency or both. Sounds may also be impulsive - such as the sound produced by a pneumatic hammer or pile driver. In general, impulsive sounds are more readily perceived than are steady-state sounds of similar frequency and amplitude.

Because community noise is most concerned with sound that is detected by the human ear, a weighting factor is often used to measure environmental sound. Referred to as "A-weighted sound", this weighting factor places greater emphasis on those frequencies that are detected by people having a normal auditory response. The A-weighted sound level de-emphasizes the very low and very high frequency components of sound in a manner similar to the frequency response of the human ear. A-weighted sound levels, which are expressed in decibels and indicated as dBA, correlate well with subjective reactions to noise.

In addition to weighting community noise to better reflect the human response to noise, it is also necessary to express sound that varies over time in frequency and loudness. A metric commonly used is the equivalent continuous sound level, expressed as L_{EQ}. The equivalent continuous sound level is the steady-state sound level that would produce an equivalent amount of acoustical energy as that present in the fluctuating sounds over the period of measurement (often 24 hours). L_{EQ} can be thought of as the average energy level of a varying sound in a community. Noise regulations often use L_{EQ} as an enforceable standard, and while L_{EQ} is not a direct measure of how people perceive and react to noise, L_{EQ} does correlate well with community responses to intrusive noise.

While L_{EQ} does correlate well with community response to noise, it does not adequately address the annoyance that the sound represents to the community - particularly in the nighttime when intrusive noise is generally perceived as being more annoying. A metric commonly used to express community noise and one that accounts for the difference between daytime noise and nighttime noise is the day-night equivalent noise level, expressed as DNL or L_{dn}. DNL is an equivalent noise index that accounts for the greater annoyance caused by noise during the nighttime hours. DNL values are calculated by averaging hourly equivalent sound levels over a 24-hours period, and applying a 10 dB "penalty" to noise produced between the hours of 10 pm and 7 am. The two periods (that is,

7 am to 10 pm and 10 pm to 7 am) are then averaged to compute the overall DNL. For a continuous, non-varying noise source, the 10 dB penalty for nighttime hours results in a 6.4 dB addition to the steady-state noise level when the DNL is computed. In other words, a 60 dBA continuous noise source would yield a DNL of 66.4 dBA. DNL is computed by the following equation:

$$DNL = 10 \log 1/24 \left[15(10^{Ld/10}) + 9(10^{(Ln+10)/10})\right] \text{ dB, where,}$$

Ld is the equivalent noise level for the daytime hours (7 am -10 pm), and,
Ln is the equivalent noise level for the nighttime hours (10 pm - 7 am).

Although the Noise Control Act established as policy the promotion of environments free from harmful noise, there are no Federal regulations governing community noise. Likewise, the Federal government has not established enforceable standards as to the acceptable levels for community noise. Responding to the mandates of the Noise Control Act, in 1974 EPA issued guidelines to assist state and local governments seeking to establish state or local ordinance, regulations, or statutes related to community noise (EPA, 1974). The recommended level for the protection against outdoor activity interference and annoyance in rural residential areas is a DNL of 55 dBA. Because of the 10 dB penalty for nighttime hours, a DNL of 55 dBA is equivalent to a continuous noise level of 48.6 dBA. EPA has also found that people in a community will notice and complain about a new noise source if that new source increases the community noise level by 5 dBA or higher over the levels of existing noise in the community without the new source.

4.11.1 Affected Environment

Neither West Virginia nor Monongalia County have implemented noise control ordinances. A mine exhaust fan was previously located at the site of the proposed project. The fan, which ran continuously, was removed approximately 2 years ago. The property line of the proposed site is located approximately 30 meters from the nearest residence, a single family dwelling immediately northeast of the site. The actual generating facility would be located near the center of the proposed site at a distance of approximately 330 meters from the nearest residence.

As part of its public scoping process, DOE met with the nearest residents to the site of the proposed project. According to these residents, the exhaust fan was installed by the mine some time after they had purchased the property adjacent to the Parrish Shaft site. Noise from the fan was an annoyance about which the residents complained to the mine on numerous occasions without satisfactory resolution. Because the fan is no longer in place, it is not possible to define precisely the noise levels experienced by the nearby residents. However, another fan located at the Honey Run mine portal a few miles north of the Parrish Shaft site produces sound levels of approximately 65 dBA at a straight-line distance of 100 meters. This would be equivalent to a DNL of 71.4 dBA.

Because of the past experiences of the nearby residents with the exhaust fan noise, and because preliminary noise estimates derived from published data and calculated from a similar project located in Ohio suggest that noise levels could approach those produced by the exhaust fan, DOE conducted a property line noise survey to establish a baseline against which to assess potential impacts of noise from the proposed project. The survey was conducted over a 2-day period beginning at ~ 3:20 PM on Sunday, December 9, 2001 and ending at approximately 12 noon on Tuesday, December 11. The survey was conducted using a Quest 1900 digital integrating sound level meter housed in an environmental enclosure. The unit was set up on the property line between the Parrish Shaft site and the closest residence. The instrument was placed in a line-of-site with the proposed location of the generator sets. The sound meter was set to measure A-weighted sound integrated at 10 minute intervals and recorded hourly. The meter was calibrated against a Quest QC-10 acoustic calibrator at the beginning and end of the survey.

The results of the baseline survey confirm the reports of the residents as well as spot readings taken earlier in the month. The site is a quiet, rural community with little intrusive noise. The DNL for the period of the survey was 48.5 dBA. Over the survey period, peak noise level recorded was 102.1 dB. The noise level that was exceeded 50 percent of the time was 33.7 dBA The summary information from the baseline survey is shown in Table 4.5.

Run Time:	44:39:22	LDN:	48.5dB
LEQ:	45.0dB	CNEL:	48.9dB
TWA:	52.5dB	TAKM3:	51.7dB
SEL(3):	97.1dB	Pa2Sec:	2.0
Ovl:	0.00%	LN5:	49.5dB
Peak:	102.1dB	LN10:	44.5dB
Max:	87.9dB	LN50:	33.7dB
Min:	28.2dB	LN90:	30.2dB

Logging Parameters

Start Time:	12/9/01 3:22:05 PM
Stop Time:	12/11/01 12:01:27 PM
Logging Interval:	0:10:00
Meter Range:	30 - 90dB
Weighting:	A
Peak Weighting:	C
Threshold:	Off
Exchange Rate:	3dB
Time Constant:	Fast
C-A or TAKM:	TAKM3
Filter:	(none)

Table 4.5 Parrish Shaft Site Baseline Noise Survey Summary

4.11.2 Environmental Consequences

Using the EPA guidelines, a DNL of 55 dBA would need to be met at the property line next to the closest residence to ensure that noise from the proposed project does not adversely affect community noise. The proposed project would run constantly, and would be expected to produce continuous noise. Because of this continuous operation, and the 10 dB penalty applied to noise emitted during the nighttime hours of 10 pm to 7 am, the noise level at the property line would need to be no greater than 48.6 dBA to have no significant impact to community noise using the EPA recommended DNL of 55 dBA.

The proposed project would consist of eighteen Chevrolet 454 engines powered by methane. These exhaust from these engines would be discharged through a ninety foot tall stack that would be located on the southwest side of the generator facility. The use of reciprocating internal combustion engines fired on natural gas to produce electricity is not a new technology, and the noise produced by reciprocating internal combustion engines fired on natural gas has been studied and documented by the American Gas Association (AGA) in

a 1969 report (Miller, 1969). Reciprocating Internal combustion engines produce noise primarily through three mechanisms: the engine casing, the engine exhaust, and the air intake to the engine. Based on a study on 75 reciprocating internal combustion engines - including both diesel-fuel fired and natural gas fired engines - the AGA study correlates engine casing noise to the continuous horsepower rating of the engine, the type of fuel, and the shaft speed.

The engines which would be used in the proposed project have a continuous horsepower rating of approximately 85 hp each fired on waste methane. The engines would turn at 1,800 rpm. Based on these operating parameters, casing noise from each engine would be expected to be 94.9 dBA at the source (that is, immediately next to the engine). Since noise is expressed on a logarithmic scale, adding similar noise sources is not a simple addition. For two sources having identical noise levels, the combination of these two sources is equivalent to adding 3 dB to the noise level of either source. For example, combining two 90 dB sources yields a noise level of 93 dB and not 180 dB. Applying the correction factors for the individual noise levels for casing noise to all eighteen engines, the expected casing noise would be expected to be 107.4 dBA at the source. Exhaust noise from the engines would be routed through a common stack, and would be expected to be 84.7 dBA for each engine, or 97.2 dBA for all eighteen engines. Air intake noise would be expected to be 91.5 dBA for each engine, or 106.6 dBA for all eighteen engines. Combining these three noise levels, the expected noise level at the site would be 110.4 dBA for all eighteen engines.

The AGA study was conducted prior to passage of the Noise Control Act of 1972. Thus, engines included in the study would not have been subject to regulations promulgated subsequent to the Act which impose limits on manufacturers who produce equipment used in construction (40 CFR 204) and transportation (40 CFR 205). The engines which would be used for the proposed project are conventional light truck engines, and would be subject to rule applicable to transportation equipment. DOE therefore believes the noise estimated for the proposed project using the AGA study is higher than would be expected for the proposed project.

Additionally, the noise calculated using data from the AGA report is higher than the actual noise measured at a similar site at Rose Valley near Cadiz, OH, where noise levels of 60.8 dBA were measured at a point 50 meters from the source. Correcting for attenuation from divergence, DOE has estimated noise levels of 92 dBA for the 4 gensets (plus one engine driving the blower for the stack) operating on the day of the visit to the Ohio site. Correcting to the larger number of gensets proposed for the Parrish site, noise levels at the source would be expected to be 98 dBA. Noise levels from the Rose Valley site are based on actual engines and generators similar to what would be used at the proposed site. Site layout and operation is also similar to that proposed for the Parrish Shaft site. It is therefore DOE and the Industrial Participant’s expectation that noise levels at the source (that is, without factoring in natural attenuation as described above) would be closer to the 98 dB calculated for the Rose Valley site. If this is the case, total attenuation of 49.4 dBA would be needed to ensure that the project would have no significant impact to community noise. If noise levels are closer to those estimated from the noise emission factors published by AGA,

the proposed project would need to achieve noise total noise attenuation of 61.8 dBA to have no significant impact to community noise.

Environmental noise is attenuated by a number of factors, including geometric divergence, air absorption, environmental factors, and natural and constructed barriers (Driscoll, 2000). Geometric divergence (sometimes referred to as spreading loss), results as sound waves propagate away from a source. As sound waves expand they become less intense due to the larger spherical area that exists at greater distances from the source. In general, for every doubling of distance between points, where one point is a reference point, the sound level is reduced 6 dB. For example, a sound that measures 60 dbA at a point 100 feet from the source will measure 54 dBA at a point 200 feet from the source. The actual equation for calculating attenuation due to geometric divergence is:

$A_{div} = 20 \log (r/r_0)$ dB,
where r is the distance in meters from the source and r_0 is the reference distance, generally taken as 1 meter.

Attenuation due to geometric divergence is not dependent on the frequency of the sound. The distance from the property line of the Parrish Shaft site is approximately 275 meters from the proposed location of the generators. At this distance, attenuation due to geometric divergence would be expected to be 48.8 dB.

Noise is also attenuated by air absorption through the mechanisms of heat conduction and relaxation of air molecules as they vibrate. Attenuation due to air absorption is dependent of frequency, air temperature, and relative humidity. The greatest attenuation occurs in higher frequencies. The equation for calculating attenuation due to air absorption is:

$A_{air} = "'r/1000$,
where "' is the air attenuation coefficient in dB/km, and r is the distance in meters from the source.

For summer conditions (86^{o}F and 70% relative humidity), when community residents spend more time outdoors or would be more likely to sleep with their windows open, the air attenuation coefficients are 0.26, 0.96, 3.1, 7.4, 13, and 23 dB per kilometer for frequencies of 125, 250, 500, 1000, 2000, and 4000 Hz, respectively. Expected attenuation due to air absorption for the proposed project would be expected to range from less than 0.1 to 6.3 dB, with the greatest attenuation occurring in the higher frequencies.

Attenuation also occurs due to environmental factors, which include wind and temperature gradients and ground absorption and reflection. Environmental factors such as wind and temperature gradients can vary greatly and ground absorption is also affected by weather because snow-covered ground absorbs lower frequency sounds more readily than grass-covered ground. The Parrish shaft site is characterized by mixed ground types. The property inside the fenceline includes open water (a drainage pond associated with mine-related activities not related to the proposed project), graveled roads and packed earth. All

of these ground types would be classified as “hard ground” (providing minimal sound absorption) for purposes of calculating environmental attenuation. The area between the fenceline and the property line (approximately 60 m) consists of grass-covered ground, which would be classified as soft ground for purposes of calculating sound absorption. Environmental attenuation (A_{ENV}) is frequency dependent. Total attenuation due to environmental factors would be expected to range from around -1.5 dB for lower frequency components to around 14 dB for higher frequency components.

Other factors contributing to attenuation include natural barriers (such as hills and trees) and manmade barriers such as berms. Trees and vegetation offer an effective visible barrier, but are acoustically transparent, and are not an effective barrier to noise. The generation facility would be situated further up in the small valley present at the site, and the intervening hill would be expected to provide some barrier to sound originating from the gensets proper. The exhaust stack would be located closer to the current road, and would be in visible light of site to the nearest residence. The natural topography of the site would not be expected to pose any acoustical barrier to noise emitted from the stack tip.

Considering all factors expected to attenuate noise from the proposed project, total attenuation in excess of 55 dB would be expected at the property line. This attenuation would be adequate to reduce the lower expected noise level to below levels of concern. If noise is turns out to be closer to that predicted by noise emission factors, additional noise attenuation would be needed to ensure that noise from the proposed project does not significantly impact community noise.

Propagation of noise in the environment is a complex process, and actual noise levels cannot be precisely predicted. The Industrial Participant has submitted and DOE has reviewed a plan for additional noise reduction at the site should noise exceed expected levels. Proven measures being considered include a stack silencer, which would reduce the noise emitted from the stack tip by up to 75 dB . The stack is expected to emit lower frequencies than the gensets proper. Lower frequencies attenuate less readily than do higher frequencies. Also, the stack tip would of necessity be an elevated source and in the line-of-site to the closest residence. Both the presence of lower frequencies and the elevation of the source would favor the propagation of noise from the stack. Reducing stack noise would therefore appear to offer the greatest opportunity to reduce noise from the proposed project. Additional measures under consideration include construction of sound barriers curtains in the vicinity of the gensets. This measure would be expected to reduce noise levels from the two banks of gensets by an additional 15 dB. It is unlikely that these latter measures will be necessary. However, DOE would conduct follow-up noise surveys once operations commence to ensure that the project does not increase the total community noise to a level greater than 3 dbA above the measured baseline and that fenceline noise attributable to the proposed project does not exceed 55 dBA for greater than fifteen (15) minutes in a twenty-four (24) hour period.

4.12 Environmental Justice

Environmental justice addresses considerations related to the fair treatment and meaningful involvement of all people regardless of race, ethnicity, culture, income, or educational level in developing, implementing, and enforcing environmental laws, regulations, and policies. The environmental justice movement was started by citizens, primarily persons of color, who needed to address the inequity of environmental protection services in their communities. The goal of environmental justice is to ensure that all people, regardless of race, national origin or income, are protected from disproportionate impacts of environmental hazards.

On February 11, 1994, President Bill Clinton signed an Executive Order (EO 12898) to focus federal attention on the environmental and human health conditions of minority and low-income populations with the goal of achieving environmental protection for all communities. The Order directed Federal agencies to develop environmental justice strategies to aid Federal agencies in identifying and addressing disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. The Order is also intended to promote nondiscrimination in Federal programs substantially affecting human health and the environment, and to provide minority and low-income communities access to public information on, and an opportunity for public participation in, matters relating to human health or the environment.

To be classified as an environmental justice community, residents must be a minority and/or low income group; excluded from the environmental policy setting and/or decision-making process; subject to a disproportionate impact from one or more environmental hazards; and experience a disparate implementation of environmental regulations, requirements, practices and activities in their communities. To determine whether the potential exists for environmental justice issues to result from a proposed Federal action it is first necessary to determine whether the site where the proposed Federal action will occur would be classified as environmental justice community. The most reliable source of such data is the census tract data collected and reported by the Census Bureau.

Census tracts are small, relatively permanent geographic entities within counties delineated by a committee of local users of statistical data collected by the Census Bureau. The Census Bureau uses census tracts to collect, organize, tabulate, and report the results of its decennial (occurring every 10 years) censuses. Generally, census tracts have between 2,500 and 8,000 people and boundaries that follow visible features such as roads, highways, rivers, railroads, or high-tension power lines. In other words, the boundaries of census tracts can be clearly demarcated with regard to the population included in a particular census tract. The Census Bureau recognizes 50,690 census tracts in the United States and Puerto Rico.

4.12.1 Affected Environment

The proposed project would be located in Western Monongalia County West Virginia. The proposed site falls in Census Tract 114 within Monongalia County West Virginia (hereafter referred to herein as simply tract 114). Tract 114 is roughly demarcated

by the Marion County- Monongalia County border on the south, the Wetzel County-Monongalia County border on the west, and the Pennsylvania border on the north. The eastern boundary of Census Tract 114 roughly follows County Route 29 to Route 33 to Route 22 to Route 31 where it joins State Route 7. The northeastern border runs west along State Route 7 before terminating at the Pennsylvania border just east of Blacksville, WV.

Data from the 2000 decennial census is still being tabulated at the local level. Based on the 1990 census, Census Tract 114 had a total population of 3,909 persons. Of this total population, 3,901 persons identified their race as "White"; 8 persons identified their race as Asian or Pacific Islander. No responders to the census identified their race as Black or identified themselves as being of Hispanic origin. By comparison, taken as a whole, Monongalia County has a Black population of 3.4 percent and an Asian or Pacific Islander population of 2.5 percent. One percent of County residents identify their national origin as being Hispanic. Based on these data, Census Tract 114 would not be classified as an environmental justice community with regard to race or national origin.

The median household income in Census Tract 114 (based on 1989 data) is $25,107. The median household income for Monongalia County (based on 1993 data) was $28,537. Adjusting these figures using an annual 3 percent cost-of-living adjustment between 1989 and 1993 would indicate an adjusted 1993 median income for Census Tract 114 of $28,258. Both Monongalia County as a whole and Census Tract 114 taken individually have median incomes that are greater than the median income than the State taken as a whole. Additionally, the median income for Census Tract 114 is greater than the median income for all but four of the nineteen census tracts in Monongalia County. Based on these data, Census Tract 114 would not be classified as an environmental justice community with regard to income level.

4.12.2 Environmental Consequences

The population potentially affected by the proposed project would not be classified as an environmental justice community. Further, the expected impacts from the proposed Federal action would not include actions having an adverse impact on the environment or representing a disparate application of environmental laws or policies.

4.13 Aesthetics

4.13.1 Affected Environment

The proposed project would be located in a rural setting in a valley with a history of farming and underground mining. Currently, a small transformer and associated power lines and an emergency mine hoist and associated structures are located on the proposed site. The topography of the area varies from a flat stream valley to steep hills and small ridge lines. Elevations of nearby hilltops exceed 1600 feet above sea-level, and the topographic relief (the difference between the lowest and highest elevations) in the vicinity

of the proposed project is over 400 feet. Vegetative cover on the valley and slopes includes hardwoods and evergreens reaching heights of 70 feet and more.

4.13.2 Environmental Consequences

The exhaust stack for the proposed project would be 90 feet in height. The stack would be located at the edge of the main valley and would be visible to some nearby residences to the north and south of the project site. The height and location of the stack are based on screening modeling studies performed in conjunction with the application to the WVDEP- DAQ for the permit to construct the proposed facility. Moving the stack further up the side valley would have resulted in ground level impacts on the hilltop and slope from the project exhaust. This, in turn,. would have required increasing the elevation of the stack to avoid these impacts.

Although the stack for the proposed project would be taller than any man-made structures in the vicinity, it would have little impact on the viewshed. The view of the stack from the residences to the south would be partially obstructed by trees and topography and naturally mitigated by the distance to the site (approximately ½ mile). The view of the stack from residences north of the site would be partially obstructed by trees and topography. Further the tree-covered slope to the southwest of the site would provide a visual backdrop with staggered vertical components (trees) which should largely mask the view of the stack from all but the closest residence. The view of the stack from the closest residence would be partially obstructed by the intervening topography and by other man-made object such as the pre-existing transformer station and the utility poles and wires.

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5.0 REGULATORY COMPLIANCE

The proposed project would be conducted under the terms of all existing and future permits, licenses, and requirements. Key Federal and State requirements associated with the proposed project are identified in this section.

5.1 Federal Requirements

- Clean Air Act, as specified at 40 CFR, Part 70 - Title V Operating Permits

Any major new or modified stationary sources having a potential to emit more than 100 tons/year of any regulated air pollutant is required to obtain a permit to operate. The authority to issues permits is delegated to the state where the state has submitted, and received Federal approval for, its Title V operating permit program.

- Clean Air Act Amendments of 1990 (CAAA), Title III (Hazardous Air Pollutants)

The CAAA required EPA to develop a listing of all categories and subcategories of major emission sources and area sources for 189 listed hazardous air pollutants and to subsequently establish emission standards for those categories and subcategories based on application of “maximum achievable control technology”, or MACT. MACT standards require controlling emissions to at least the level achieved by the best controlled similar emission sources.

A major source is defined as any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit (considering controls) in the aggregate 10 tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants. An area source was defined as any source of emissions of hazardous air pollutants that was not a major source. A new source was defined as any stationary source the construction of modification of which was commenced after regulations establishing an emission standard for that source are proposed.

- National Emission Standards for Hazardous Air Pollutants (NESHAP) applicable to the Oil and Natural Gas industry as specified at 40 CFR 63.760 *et seq.*

EPA promulgated the NESHAP for the oil and natural gas production industry on June 17, 1999. The new emission standards define the MACT for controlling hazardous air emissions from the Oil and Natural Gas industry, and this rule, accordingly, is sometimes referred to as the ONG MACT. The rule was targeted to cover large sources for HAPs within the industry category, and requires controls on certain glycol dehydration units and condensate storage tanks. It also imposes requirements for repairing equipment leaks at natural gas processing plants. Affected facilities (those defined as a "major source" under the NESHAP) have three years to come into compliance.

Based on the final design submitted by the Industrial Participant, the proposed project would not be subject to the requirements of the ONG MACT. Whether the ONG MACT requirements could become applicable to the proposed project at some point in the future would depend on the operation of the facility. Glycol dehydration units that process less than 3 MMCFD on an annual average are exempt from the MACT requirements. Should gas production from the vents be more productive than anticipated, MACT requirements could apply and would have to be re-evaluated by the Industrial Participant.

5.2 State Requirements

- 45 CSR 13 - Permits for the Construction, Modification, Relocation, and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permit, General Permit, and Procedures for Evaluation

Expected emissions of oxides of nitrogen would exceed 100 tons per year triggering a requirement for a Title V Operating Permit. The WVDEP-DAQ issued a permit (R13-21-2148) to the industrial participant for the construction of the facility..

- 45 CSR 14 - Permits for the Construction and Major Modification of Major Stationary Sources of Air Pollution for the Prevention of Significant Deterioration

Projects located in an area in attainment with the NAAQS for a criteria pollutant and which would be a major new source for the criteria pollutant are subject to New Source Review requirements. Monongalia County is in attainment with the NAAQS for all criteria pollutants. Northwest Fuel has elected to be permitted as a "synthetic minor source" under WVDEP-DAQ rules. As a synthetic

minor source, the project would limit - under a federally-enforceable permit - the emission of oxides of nitrogen to less than 250 tons/year, the threshold that would trigger a New Source Review and the requirements of 45 CSR 14. As a synthetic minor source, the proposed project is not subject to the Prevention of Significant Deterioration requirements.

- 22 - 21 - Coalbed Methane Wells and Units

Under the subject regulations, a *"Coalbed methane well" means any hole or well sunk, drilled, bored, or dug into the earth for the production of coalbed methane for consumption or sale, including a gob well.* Coalbed methane is defined as "*...gas which can be produced from a coal seam, the rock or other strata in communication with a coal seam, a mined-out area or a gob well.*" Under section 22-21-6, it is unlawful *for any person to commence, operate, deepen or stimulate any coalbed methane well, to conduct any horizontal drilling of a well commenced from the surface for the purpose of commercial production of coalbed methane, or to convert any existing well, vent hole, or other hole to a coalbed methane well, including in any case site preparation work which involves any disturbance of land, without first securing from the chief* [of the Office of Oil and Gas of the Division of Environmental Protection] *a permit pursuant to this article.* The proposed project would convert two existing ventilation boreholes (vents 29 and 30) to commercial production. Additionally, a new coalbed methane well would be drilled on the Parrish Shaft site. Northwest Fuel would need to obtain a permit to drill the new well on the Parrish Shaft site. Permits would also be needed before converting Vents 29 and 30 to coalbed methane wells from their current status as mine ventilation boreholes.

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6.0 CUMULATIVE EFFECTS AND LONG-TERM ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION

Cumulative impacts are additive effects over time on the same or related resources from multiple actions or causes. The Integrated Power Generation System for Coal Mine Waste Methane Utilization, if successful, could continue to be operated by the Industrial Participant, or a successor, as a commercial activity after the completion of the demonstration period under the cooperative agreement with DOE. The project would continue to utilize waste methane from the mine, which would continue to realize the benefits of reducing methane emissions and converting a waste product to beneficial use. The generation of electricity from methane would offset an equivalent amount of generation from conventional sources, which in this geographic area would most likely be from coal-fired steam generation. No adverse cumulative effects or long-term consequences on any resource could be identified for the proposed action.

A successful demonstration of the Integrated Power Generation System could lead to similar installations at other sites. These sites could, but would not necessarily, be located in Monongalia County. Following a successful demonstration, it is likely that subsequent projects - should they occur - would be undertaken as commercial operations without cost-shared funding by DOE.

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7.0 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The irreversible and irretrievable commitments of resources for the proposed action are the energy and materials that could not be reclaimed, reused, or recycled during construction of the proposed facilities. During operation, the following resource commitments would be required for the coal mine waste methane integrated power generation system:

- Air (for combustion) 2200 MMCF
- Coal Mine Waste Methane 470 MMCF

Adequate quantities of these materials would be available locally to support the long-term needs of the proposed project. Northwest Fuel has obtained the necessary lease agreements from the property owners of the coal mine methane vents to product the methane as proposed. In addition, Northwest Fuel has obtained a farmout (essentially a sub-lease) from Dominion, the lessee for the coalbed methane rights at the Federal No.2 Mine. Northwest Fuel does plan to examine the existence of standards for energy conservation and efficiency that could be applied to the proposed project for minimizing resource commitments.

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8.0 ENVIRONMENTAL CONSEQUENCES OF THE NO ACTION ALTERNATIVE

Only the no-action alternative was considered since DOE's role in the proposed project would be limited, involving only financial support for 35% of the integrated system's estimated cost. Also, DOE does not have a decision-making role in the proposed project, other than a decision to act on a proposal for a defined project at a specific location.

Under the No-Action Alternative, DOE would not provide partial funding for the integrated power generation system for coal mine waste methane utilization. In the absence of DOE funding, Northwest Fuel Development, Inc. could continue with plans to construct and operate the proposed system, in which case environmental changes would be expected to be the same as those identified and analyzed in the Environmental Assessment. Alternately, Northwest Fuel Development, Inc. could also discontinue plans for the project.

If the proposed project was not funded by DOE, data resulting from demonstration of this innovative technology application would not be available. Information for use by industry in decision making on the application of the technology would also not be available. Evaluation of the applicability and feasibility of the technology for utilization of coal mine waste methane would not be possible.

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9.0 SIMILAR ACTIONS AND ACTIONS BEING CONSIDERED UNDER OTHER NATIONAL ENVIRONMENTAL POLICY ACT REVIEWS

The proposed action is not related to other actions currently in process or actions being considered under other NEPA reviews.

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10.0 RELATIONSHIP OF THE PROPOSED ACTION TO THE APPLICABLE FEDERAL, STATE, REGIONAL, OR LOCAL LAND USE PLANS AND POLICIES

The proposed project would be contained totally within the boundaries of the Eastern Associated Coal Corporation (EACC) Federal Number 2 Mine, located in Monongalia County, WV; and would be consistent with existing operational activities. Operational activities at EACC's Federal Number 2 Mine are consistent with applicable Federal, state, regional, and local land use plans and policies.

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11.0 Stakeholder Participants

Meetings with the industrial participant and internal subject matter experts were held on May 24, 2001 to discuss the final proposed project design and environmental issues. A visit to the proposed project site, which included walking the expected route for the underground pipeline was made on October 8th, 2001. A visit to two similar projects operated by the industrial participant near Cadiz, OH was made on October 25th, 2001. Personnel from NETL met with the nearby residents on December 6, 2001 to discuss concerns over noise first raised in an e-mail sent to DOE on August 23, 2001. A subsequent meeting with the Industrial Participant and NETL personnel was held on January 30, 2002 to discuss options for noise mitigation measures requested by DOE and proposed by Northwest Fuel.

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13.0 LIST OF AGENCIES AND INDIVIDUALS CONTACTED

- West Virginia Development Office - Energy Efficiency Program
- U.S. Department of the Interior; Fish and Wildlife Service
- West Virginia Division of Culture and History

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APPENDIX A

AGENCY CONSULTATION CORRESPONDENCE

(#1)

Coordination letter to the West Virginia Development Office
- Energy Efficiency Program

(#2)

Consultation letter to the U.S. Fish and Wildlife Service

(#3)

Consultation letter to the State Historic Preservation Officer

(#4)

Letter from the U.S. Fish and Wildlife Service

(#5)

Letter from the State Historic Preservation Officer

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U.S. Department of Energy

National Energy Technology Laboratory

December 21, 2001

Mr. John F. Herholdt, Jr.
Manager, Energy Efficiency Program
West Virginia Development Office
State Capitol Complex
Building #6, Room 645
Charleston, WV 25305

Dear Mr. Herholdt:

The purpose of this letter is to inform you that the U.S. Department of Energy (DOE) is considering participation in a project to develop an "Integrated Power Generation System for Coal Mine Waste Methane Utilization." The project would result in design, construction, and operation of an integrated gas processing and power generation system at a site in western Monongalia County, WV. This system would demonstrate the feasibility of using waste coal mine methane gas to generate electricity and would be located at the Parrish Shaft property of the Federal Number 2 Mine southeast of Wadestown, WV. A detailed description of the proposed project and graphics depicting its location are enclosed.

Based on review of currently available information on the scope, location, and projected environmental consequences of the proposed project, DOE considers the proposed action to be one for which an Environmental Assessment (EA) would provide the appropriate level of review and analysis under DOE's National Environmental Policy Act Implementing Procedures. The EA will be prepared in compliance with the requirements of the National Environmental Policy Act of 1969. Our Office anticipates completion of a draft EA within the next few months, and we welcome initial input from the State of West Virginia regarding the scope of the environmental analyses that should be incorporated into the EA. Upon availability, copies of the draft EA will be forwarded to your office for review and comment. The Department of Energy will address comments in a final EA, which will form the basis for decision-making.

Should you require additional information, please contact me by telephone at 412-386-6159 or by e-mail at 'lorenzi@netl.doe.gov.'

Sincerely,

Lloyd Lorenzi, Jr.
NEPA Compliance Officer

Enclosures

626 Cochrans Mill Road, P.O. Box 10940, Pittsburgh, PA 15236-0940 ❖ 3610 Collins Ferry Road, P.O. Box 880, Morgantown, WV 26507-0880
REPLY TO: Pittsburgh Office • lorenzi@netl.doe.gov • Voice (412) 386-6159 • Fax (412) 386-4604 • www.netl.doe.gov

U.S. Department of Energy

National Energy Technology Laboratory

December 21, 2001

Ms. Traci L. Knight
U.S. Fish and Wildlife Service
West Virginia Ecological Services Field Office
694 Beverly Pike
Elkins, WV 26241

Dear Ms. Knight:

The United States Department of Energy (DOE) is considering participation in a project that would result in design, construction, and operation of an integrated gas processing and power generation system at a site in western Monongalia County, WV. This system would demonstrate the feasibility of using waste coal mine methane gas to generate electricity and would be located at the Parrish Shaft property of the Federal Number 2 Mine southeast of Wadestown, WV. A description of the proposed project and graphics depicting its location are enclosed.

As part of our coordination and consultation responsibilities, and to comply with both Section 7 of the Endangered Species Act of 1973, as amended, and provisions of the Fish & Wildlife Coordination Act, we would appreciate receiving any information you have on wildlife resources, including endangered and threatened species or critical habitat, in the project area. Your thoughts on the potential impacts associated with the proposed project would also be appreciated.

Based on the scope of the proposed project, a preliminary examination of the proposed site, and the potential for the project to result in minimal environmental consequences, DOE has initiated preparation of an Environmental Assessment under the National Environmental Policy Act. Information that you provide will be incorporated and appropriately addressed in the Environmental Assessment. If your initial review concludes that no endangered or threatened species (or their habitat) are present in the project area, and that neither protected species nor their habitat would be affected by the proposed action, a written acknowledgement of that conclusion would be appreciated. In any case, the information that you provide will be considered in preparing the draft Environmental Assessment, which will be provided for review upon availability.

Should you require additional information, please contact me by telephone at 412-386-6159 or by e-mail at 'lorenzi@netl.doe.gov.'

Sincerely,

Lloyd Lorenzi, Jr.
NEPA Compliance Officer

Enclosures

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United States Department of the Interior

FISH AND WILDLIFE SERVICE

West Virginia Field Office
694 Beverly Pike
Elkins, West Virginia 26241

JAN 3 0 2002

Mr. Lloyd Lorenzi, Jr.
U.S. Department of Energy
National Energy Technology Laboratory
P.O. Box 10940
Pittsburgh, PA 15236-0940

Dear Mr. Lorenzi

This responds to your information request of December 21, 2001 regarding the potential impacts of a proposed project on wetlands and federally listed endangered and threatened species and species of concern. The United States Department of Energy is considering participating in a project to design, construct, and operate an integrated gas processing and power generation system at a site in western Monongalia County, West Virginia. This system would demonstrate the feasibility of using waste coal mine methane gas to generate electricity and would be located at the Parrish Shaft property of the Federal Number 2 Mine southeast of Wadestown, West Virginia. The project would be located on previously disturbed land. Approximately one-half mile of natural gas pipeline will be constructed to join the proposed facility to Eastern States existing pipeline. The new pipeline will generally follow an existing roadway and power line right-of-way, but would also cross the Right Branch of Miracle Run and an unnamed tributary to that stream.

No federally listed endangered and threatened species or species of concern are expected to be impacted by the project. Therefore, no Biological Assessment or further Section 7 consultation under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) is required with the Fish and Wildlife Service. Should project plans change, or if additional information on listed and proposed species or species of concern becomes available, this determination may be reconsidered. A compilation of federally listed endangered and threatened species in West Virginia is enclosed for your information.

Our review of the National Wetlands Inventory 7½-minute topographic maps indicates a palustrine emergent wetland occurs on the site. However, definitive determinations of the presence of waters of the United States, including wetlands, and the need for permits, if any, are

made by the U.S. Army Corps of Engineers. They may be contacted at: Pittsburgh District, Regulatory Branch, William S. Moorhead Federal Building, 1000 Liberty Avenue, Pittsburgh Pennsylvania 18222-4188, telephone (412)395-7152.

Please address all future correspondence to me at the letterhead address. If you have any questions regarding this letter, please contact Ms. Linda Smith of my staff at (304) 636-6586.

Sincerely,

Jeffrey K. Towner

Jeffrey K. Towner
Field Supervisor

Enclosure

FEDERALLY LISTED ENDANGERED AND THREATENED SPECIES IN WEST VIRGINIA

COMMON NAME	SCIENTIFIC NAME	STATUS	DISTRIBUTION
FISHES			
None			
BIRDS			
Eagle, bald	Haliaeetus leucocephalus		Entire state Nest sites: (1) Mineral, (2) Hampshire, (1) Hancock, (1) Pendleton, (1) Grant, (3) Hardy, and (1) Wood Counties
MAMMALS			
Bat, Indiana	Myotis sodalis		Known hibernacula in Tucker, Pocahontas, Greenbrier, Randolph, Preston, Pendleton, Monroe and Mercer Counties. Critical habitat: Hellhole Cave, Pendleton County - Bats may occupy summer habitat throughou the entire state
Bat, Virginia big-eared	Corynorhinus (=Plecotus) townsendii virginianus		Primarily northeastern counties, especially Pendleton, Tucker and Grant Counties. Critical habitat: Hellhole Cave, Cave Mountain Cave, Hoffman School Cave, and Sinnit Cave in Pendleton Co.; Cave Hollow Cave in Tucker Co.
Bat, gray	Myotis grisescens		Hellhole Cave, Pendleton Co.
Cougar, eastern	Felis concolor cougar		Entire state, may be extinct
Squirrel, West Virginia northern flying	Glaucomys sabrinus fuscus		Pocahontas, Tucker, Pendleton, Greenbrier, Webster, and Randolph Counties, within proclamation boundary of Monongahela National Forest
MOLLUSKS			
Snail, flat-spired three-toothed land	Triodopsis platysayoides		Monongalia and Preston Counties, mainly in Cooper's Rock State Forest area, both sides of Cheat River Gorge
Mussel, tubercled-blossom pearly	Epioblasma (=Dysnomia) torulosa torulosa		Kanawha River, Fayette Co., may be extinct
Mussel, pink mucket pearly	Lampsilis abrupta (=orbiculata)		Kanawha River, Fayette Co., Ohio River, Cabell, Mason and Wood Counties; Elk River, Kanawha Co
Mussel, James spiny	Pleurobema (=Canthyria) collina		Monroe Co., South Fork of Potts Creek
Mussel, fanshell	Cyprogenia stegaria (=irrorata)		Kanawha River, Fayette Co.; Ohio River, Wood Co.
Mussel, clubshell	Pleurobema clava		Elk River, Braxton, Kanawha, and Clay Counties; Hackers Creek, Lewis Co.; Meathouse Fork, Doddridge, Co South Fork Hughes River, Ritchie County
Mussel, northern riffleshell	Epioblasma torulosa rangiana		Elk River, Kanawha Co.

COMMON NAME	SCIENTIFIC NAME	STATUS	DISTRIBUTION
PLANTS			
Harperella	Ptilimnium nodosum	E	Morgan and Berkeley Counties
Shale barren rock cress	Arabis serotina	E	Greenbrier, Hardy, and Pendleton Counties
Running buffalo clover	Trifolium stoloniferum	E	Fayette, Webster, Tucker, Pocahontas, Barbour and Randolph Counties
Virginia spiraea	Spiraea virginiana	T	Nicholas, Fayette, Mercer, Raleigh, Summers, and Greenbrier Counties
Northeastern bulrush	Scirpus ancistrochaetus	E	Berkeley and Hardy Counties
Small whorled pogonia	Isotria Medeoloides	T	Greenbrier County
AMPHIBIANS			
Cheat Mountain salamander	Plethodon nettingi	T	Pendleton, Pocahontas, Randolph, Grant and Tucker Counties

Threatened

Endangered

Revised April 9, 2001

U.S. Department of Energy

National Energy Technology Laboratory

December 21, 2001

Ms. Nancy Herholdt
State Historic Preservation Officer
Historic Preservation Office
1900 Kanawha Boulevard East
Charleston, WV 25305-0300

Dear Ms. Herholdt

The United States Department of Energy (DOE) is considering participation in a project that would result in design, construction, and operation of an integrated gas processing and power generation system at a site in western Monongalia County, WV. This system would demonstrate the feasibility of using waste coal mine methane gas to generate electricity and would be located at the Parrish Shaft property of the Federal Number 2 Mine southeast of Wadestown, WV. A description of the proposed project and graphics depicting its location are enclosed.

As part of our coordination and consultation responsibilities, and to comply with provisions implementing Section 106 of the National Historic Preservation Act of 1966, we would appreciate receiving any information you have regarding historic or cultural properties in the project area. Your thoughts on the potential impacts associated with the proposed project would also be appreciated.

Based on the scope of the proposed project, a preliminary examination of the proposed site, and the potential for the project to result in minimal environmental consequences, DOE has initiated preparation of an Environmental Assessment under the National Environmental Policy Act. Information that you provide will be incorporated and appropriately addressed in the Environmental Assessment. If your initial review concludes that no historic or cultural properties are present in the project area, a written acknowledgement of that conclusion would be appreciated. In any case, the information that you provide will be considered in preparing a draft Environmental Assessment, which will be provided for review upon availability.

Should you require additional information, please contact me by telephone at 412-386-6159 or by e-mail at 'lorenzi@netl.doe.gov.'

Sincerely,

Lloyd Lorenzi, Jr.
NEPA Compliance Officer

Enclosures

626 Cochrans Mill Road, P.O. Box 10940, Pittsburgh, PA 15236-0940 ❖ 3610 Collins Ferry Road, P.O. Box 880, Morgantown, WV 26507-0880
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WEST VIRGINIA DIVISION OF
CULTURE AND HISTORY

January 10, 2002

Mr. Lloyd Lorenzi, Jr.
US DEP
625 Cochrans Mill Road
P.O. Box 10940
Pittsburgh, PA 15236

RI Integrated gas processing and power generation
System site in western Monongalia County
R# 02-289-MG

Dear Mr. Lorenzi:

We have reviewed the above mentioned project to determine its effects to cultural resources. As required by Section 106 of the National Historic Preservation Act, as amended, and its implementing regulations, 36 CFR 800: "Protection of Historic Properties," we submit our comments.

Archaeological Resources:
A search of office site files and maps located no known sites within the 1 mile Area of Potential Effect (APE) of the proposed project area. As well, your information indicates that the majority of the proposed project will be in areas of greater than 20% slope. The remainder of the project will be within areas of previous disturbance. Therefore, we are of the opinion that there is little possibility of intact archaeological deposits within the project area. We have also determined that no known archaeological sites listed on or eligible for inclusion in the National Register will be affected by this project. If, however, cultural materials are encountered during construction, all such activities shall cease and our office shall be contacted immediately.

We appreciate the opportunity to be of service. *If you have questions regarding our comments or the Section 106 process, please call Rachel Black, Staff Archaeologist at (304) 558-0220.*

Sincerely,

Joanna Wilson
Senior Archaeologist

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