Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health

Acquisition of Site for Development of a Replacement Underground Safety Research Program Facility in Mace, West Virginia

Final Environmental Impact Statement
Volume II

July 2021

APPENDIX A: PUBLIC SCOPING SUMMARY REPORT

Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health

Acquisition of Site for Development of a Replacement Underground Safety Research Program Facility in Mace, West Virginia

Public Scoping Summary

August 2018

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ACRONYMS

CDC	Centers for Disease Control and Prevention
CFR	Code of Federal Regulations
EIS	Environmental Impact Statement
GSA	United States General Services Administration
LEED	Leadership in Energy and Environmental Design
LLEM	Lake Lynn Experimental Mine
NEPA	National Environmental Policy Act
NIOSH	National Institute for Occupational Safety and Health
NOI	Notice of Intent
SHPO	State Historic Preservation Officer
U.S.	United States
WVDEP	West Virginia Department of Environmental Protection
WV SHPO	West Virginia State Historic Preservation Office

1 INTRODUCTION

This scoping report summarizes the scoping process for the Centers for Disease Control and Prevention (CDC) National Institute for Occupational Safety and Health (NIOSH) Site Acquisition and Development of an Underground Safety Research Facility Environmental Impact Statement (EIS). The EIS is being prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended and the Council on Environmental Quality regulations implementing NEPA (40 Code of Federal Regulations [CFR] 1500–1508).

CDC, in cooperation with the United States (U.S.) General Services Administration (GSA), is proposing to acquire a site in Mace, West Virginia, and develop the site into a new underground safety research facility for NIOSH to replace the previously occupied Lake Lynn Experimental Mine (LLEM). The property being considered for acquisition includes 461.35 acres located in Randolph and Pocahontas Counties, West Virginia. The purpose of the scoping process was to inform the public of the proposed action and to solicit input and comments to help define the issues that will be addressed in the EIS.

2 SCOPING PROCESS FOR THE UNDERGROUND SAFETY RESEARCH FACILITY EIS

The scoping period for the CDC NIOSH Site Acquisition and Development of an Underground Safety Research Facility EIS began on June 14, 2018, and ended on July 14, 2018.

2.1 Notice of Intent

The scoping period began with the publication of a Notice of Intent (NOI) to prepare an EIS in the *Federal Register*. A copy of the NOI is provided in Appendix A.

2.2 Newspaper Advertisement

Advertisements were published in the following newspapers:

- *Pocahontas Times* (June 21, 2018)
- *Randolph Inter-Mountain* (June 18, 21, and 25, 2018)

The advertisements announced the beginning of the scoping process, briefly described the proposed action, and solicited comments. The advertisements provided information on the upcoming public scoping meeting and information on how to comment online and by mail. A copy of the advertisement is in Appendix B.

2.3 Mailed Notices

A scoping letter announcing the beginning of the scoping process and soliciting comments on the proposed action was mailed on June 19, 2018. This letter was sent to 49 state and local elected officials; federally recognized Native American tribes; federal, state, and local government agencies; non-governmental organizations; and businesses or individuals with a known or potential interest in the proposed action and its potential environmental impacts, including nine adjacent property owners.

Appendix C provides a sample scoping letter and a complete list of the elected officials, tribal representatives, government agencies, organizations, and persons who were sent the scoping letter.

2.4 Web Portal

CDC and GSA used the www.regulations.gov website to provide information on the EIS and receive comments. Comments could be made directly through the website. All comments on www.regulations.gov are publicly visible.

2.5 Public Scoping Meeting

During the scoping period, CDC and GSA hosted a public scoping meeting to provide the public with information on the proposed action and EIS process, and give the public the opportunity to submit comments.

The public scoping meeting was held at the Linwood Community Library, 72 Snowshoe Drive, in Slatyfork, West Virginia on June 26, 2018, from 5:30 to 8:30 p.m.

The meeting was held in open-house format. Information regarding the project was displayed on six poster stations:

- Purpose and need
- Project area
- What is NIOSH?
- Lake Lynn Experimental Mine
- Alternatives dismissed from consideration
- Schedule and how to comment

Public Scoping Meeting, June 26, 2018

Copies of the poster boards are provided in Appendix D. In addition, a PowerPoint presentation ran on a loop in the corner of the meeting space. The PowerPoint included the same information as the banners plus additional information on LLEM. It described actions that would occur on-site, provided expanded information on NEPA and section 106 of the National Historic Preservation Act, and described opportunities for public involvement.

Each poster station was staffed by representatives from CDC/NIOSH and GSA (supported by project staff from Louis Berger, the consultant under contract to GSA to prepare the EIS), who were available to answer questions and offer clarifications.

Meeting attendees were encouraged to provide comments and were invited to provide oral comments to a stenographer at the meeting. Attendees were also informed that they could comment later by mail or through the www.regulations.gov website. Meeting attendees were invited, but not required, to sign in. Thirty-three people signed in to the meeting.[1] Seven people spoke to the stenographer.

Attendees who signed in as well as those who provided comments were offered the opportunity to be added to the project's mailing list for future EIS-related notifications.

[1] Most but not all attendees signed in. Therefore, actual attendance may have been slightly more than 33 people.

3 SCOPING COMMENTS

Eighteen comments, emails, or letters were received. Of these, four were from government agencies and one was from a Native American tribe. Agency and tribal comments are summarized in Sections 3.1 and 3.2, respectively. Original letters or emails are provided in Appendix E. Comments from the public are characterized in Section 3.3. Original public comments, including the public scoping meeting transcript, are provided in Appendix F.

3.1 Agency Comments

3.1.1 U.S. Environmental Protection Agency

The U.S. Environmental Protection Agency submitted comments by letter dated July 13, 2018. The letter contained detailed recommendations for the preparation of the EIS pertaining to the following topics:

Purpose and Need

- Identify and describe the underlying problem or deficiency and the context or perspective of the agency mission in relation to the need for action.

Range of Alternatives and Alternatives Analysis

- Discuss the alternatives, including both sites and designs eliminated from further consideration. Discussion should include the criteria GSA and CDC used in the Request for Expression of Interest.
- Compare the alternatives considered and clearly state the rationale for the selection of the preferred alternative in the analysis.
- Explore site and design alternatives.
- Disclose the process for property acquisition.

Land Use and Applicable Regulation

- Describe the type and acreage of land affected and existing structures on the site and their current and past use.
- Discuss any permits that would be required prior to commencement of the project and summarize applicable regulatory requirements.

Air Quality

- Discuss the area's attainment status under the National Ambient Air Quality Standards.
- Analyze direct, indirect, and cumulative air quality impacts from construction and operation of the proposed campus under a general conformity rule analysis.
- Use best management practices to control or minimize construction emissions.

Water Resources

- Address all water quality issues, including surface water, groundwater, drinking water, stormwater management, wastewater management, wetlands, oceans and watersheds.
- Identify and describe the principal aquifers in the region and all public and private wells. Identify nearby areas of groundwater recharge and examine any potential impacts on them.

- Outline measures to protect surface waters, including runoff and sediment and erosion control measures. Mitigation measures should address both short-term construction impacts and long-term project impacts.
- Delineate wetlands and avoid or minimize impacts on them whenever possible. Provide the total size of the wetland and the size of the direct impact.
- Analyze stormwater runoff in accordance with Section 438 of the Energy Independence Security Act.

Physiography

- Describe the physical and natural resources of the project area, including physiographic provinces, topography, climate, geologic setting and soil classifications.

Terrestrial Resources and Threatened and Endangered Species

- Describe the terrestrial habitat resources, including mammals, birds, amphibians, reptiles, and plants, as well as threatened and endangered species. Consider the effects of forest fragmentation.

Hazardous Waste Management

- Identify and evaluate nearby hazardous sites.
- Indicate if a hazardous waste management plan and hazardous waste minimization plan are in place. Identify known hazardous materials and provide a detailed plan for proper disposal.

Community Impacts

- Describe community impacts, including topics such as noise, socioeconomics, traffic and transportation, and environmental justice, human health and children's health, and cultural resources.

Energy Efficiency, Resiliency and Design

- Address energy efficiency and resiliency, and consider incorporating Leadership in Energy and Environmental Design (LEED) into the project design

Cumulative Impacts

- Analyze secondary and cumulative effects impacts on the natural and human environment.

3.1.2 Advisory Council on Historic Preservation

On July 6, 2018, the Advisory Council on Historic Preservation provided a letter requesting additional information on the project, including:

- a description of the area of potential effects
- identified historic properties
- affected historic properties
- the undertaking's effect on historic properties
- an explanation of why the criteria of adverse effect were found applicable or inapplicable
- other measures considered but rejected to avoid or minimize adverse effects

- copies of views provided by consulting parties

The Advisory Council indicated that once it receives the information, it would determine within 15 days if it would like to participate in further consultation on the project.

3.1.3 West Virginia State Historic Preservation Office (West Virginia Division of Culture and History)

On Monday, July 9, 2018, the West Virginia State Historic Preservation Office (WV SHPO) sent an email request for additional information to assist in the completion of the formal agency response letter. WV SHPO requested answers to the following (directly quoted) questions:

- It is unclear if there is already a mine on site or if a mine for your purposes will be mined. If a mine exists, what is the age? Does it have a name? If a mine exists, is this an adaptive reuse/reclamation?
- If a mine is being mined for the purposes of safety education would this need West Virginia Department of Environmental Protection (WVDEP) permitting?
- Mapping shows building in a potential viewshed. If these are in the view shed please note and photograph those over 45 years of age. If they are not in the viewshed please note that as well. We note the abandoned railroad as well, some of these are considered eligible for the National Register of Historic Places. We will need enough information to determine if this one qualifies.

CDC responded by email on July 11, 2018, and confirmed that that no mining facility exists on the site. CDC indicated that consultation with the West Virginia Department of Environmental Protection (WVDEP) is under way regarding permitting requirements, and that CDC is reviewing viewsheds and the potential for historic resources in and around the project site and will provide the WV SHPO with the findings when they are complete. The WV SHPO has not yet submitted a formal response.

3.1.4 West Virginia Department of Environmental Protection

On June 25, 2018, WVDEP called the CDC project manager to request additional information regarding the permitting associated with the LLEM. WVDEP requested answers to the following questions:

- Did CDC/NIOSH have to acquire permits related to the fire testing facility at the Lake Lynn facility?
- Did CDC obtain a mining permit to develop the underground facility at Lake Lynn and will permits be required to develop the underground facility at Mace, WV?

CDC responded by email on July 3, 2018, and noted that internal research indicates that no air quality permits are needed at LLEM. CDC also indicated that it has no records of mining permits because LLEM was developed originally by Bureau of Mines. CDC/NIOSH will continue a discussion with WVDEP representatives regarding the proposed action to determine if mining permits would be required to develop the facility.

3.1.5 West Virginia Division of Natural Resources (WVDNR):

On July 12, 2018, WVDNR sent a letter confirming there are no known records of rare, threatened, or endangered species or sensitive habitats within the project boundary. The WVDNR noted that the project site is within the habitat buffer for the Indiana bat and recommended consultation with USFWS. The letter also noted there are caves located on the northern part of the property that could potentially be habitat for rare invertebrates in addition to bat populations.

3.2 Comments from Native American Tribes

The scoping notice (see Section 2.4) was sent to 23 federally-recognized tribes with a potential cultural interest in actions conducted in Randolph and Pocahontas counties in West Virginia. One tribe, the Cherokee Nation, submitted a response, noting that Randolph and Pocahontas counties are outside the tribe's area of interest and the tribe defers to other tribes that may have an interest in this area. A second tribe, the Catawba Indian Nation, responded that they had no immediate concerns regarding the project area, but requested to be notified should artifacts or human remains be located during the ground disturbance phase of the project.

3.3 Public Comments

Thirteen written or verbal comments were received from members of the public, including representatives of non-governmental organizations and individuals. One commenter provided the same comment via email and on www.regulations.gov. Table 1 presents a summary of the contents of these comments, along with their relevance to the EIS. Copies of the public comments (redacted to protect commenter privacy) are provided in Appendix F.

Table 1: Summary of Public Comments

Theme	Sub-theme	Number of References[a]	Relevance to the EIS
1. General Opinion about Project	Generally support project	1	NA
	Generally opposed to the project at the proposed location	2	NA
	Positive about the project location	1	NA
	Generally agrees with project purpose and need	2	Purpose and Need
2. Site Selection	Request to include continued use of LLEM as a viable alternative under eminent domain	1	Alternatives Considered but Dismissed
	Opposition to the no-action alternative	1	NA
	Supports dismissal of placing facility on Department of Defense properties (See EIS Section 2.2.2)	1	Alternatives Considered but Dismissed
	Supports dismissal of placing facility on properties outside the United States (See EIS Section 2.2.2)	1	Alternatives Considered but Dismissed
	Questions regarding other potentially available sites, including historic mines	2	Site Selection
3. Water Supply and Quality	Concerns about vibration changing the limestone and resulting in changes to water supply	8	Groundwater Resources / Vibration
	General concern about karst topography	1	Groundwater Resources
	Concerns regarding potential overflow from on-site settling ponds	1	Surface Water

Theme	Sub-theme	Number of References[a]	Relevance to the EIS
	Concerns about dewatering moving water from one watershed to another during construction	1	Water Resources
	Concerns that diesel fuel spills will contaminate the water supply	1	Water Resources
4. Community Impacts	Concerns regarding compatibility of proposed project with Snowshoe Mountain Resort and area tourism, including impacts from vibration	2	Socioeconomic Impacts / Vibration
	Potential for adverse environmental impacts from the proposed project to harm the area's tourist industry.	1	Socioeconomic Impacts
	Concern about restrictions on land use that would limit opportunities for income on adjacent properties	1	Socioeconomic Impacts
	Concern regarding emergency preparedness in the event of a fire	1	Community Facilities
	Concerns regarding the noise and vibration from testing operations, including potential impacts on the nearby Atlantic Coast Pipeline	3	Noise and Vibration / Cumulative Impacts
	Concerns regarding the visual intrusion of the chain link fence surrounding the property	2	Visual Resources
5. Requests	Request for an extension of the public scoping period	1	NA
	Request for the materials provided at the public scoping meeting	1	NA

[a] Because one comment may reference several issues, the numbers in this column add up to more than the number of public comments received.

Comments can be organized into five broad thematic categories:

- **General Opinion about the Project.** Expressions of support and opposition were received during the public scoping period. Some commenters opposed the location of the site but were supportive of the overall mission of NIOSH.
- **Site Selection.** One commenter provided multiple comments regarding site selection, including support for the dismissal of placing the facility on Department of Defense property or in existing international facilities as viable alternatives No feasible sites were identified on Department of Defense properties and international facilities could not support this research long term. For additional details, please see Section 2.2.2 of the EIS. The commenter opposed the no-action alternative and requested that the continued use of LLEM be retained as a viable alternative. The commenter suggested CDC acquire LLEM by eminent domain.

Some commenters were unclear why the proposed site is the only site available for consideration and questioned why no closed mines could be used.

- **Water Supply and Water Quality:** A number of commenters expressed concern about the potential for their water supply to be harmed by development and operation of the facility. Commenters noted that the area is karstic, and the limestone has cracks through which the water flows, and that the flows can change. Many in the community get their water from springs where the limestone cracks intersect with the surface. Commenters were concerned that blasting associated with the project would affect people's water supply. Several commenters mentioned the 2011 earthquake in Virginia and how it affected springs and wells. One commenter was concerned about the settling ponds that would be needed at the facility, and another was concerned that on-site spills could contaminate the water supply.
- **Community Impacts:** Commenters noted that the primary economic driver in the area is tourism, specifically Snowshoe Mountain Resort, which is near the proposed project site. Commenters voiced concern that the noise and vibration associated with the project may not be compatible with activities at the resort. Tourism could be affected if water supply is affected. One commenter mentioned community plans to convert the railroad right-of-way to a rail-to-trail facility.

  An adjacent property owner expressed concern that the proposed facility might limit or preclude oil and gas exploration on his property and the associated right to earn an income from it.

  Multiple commenters expressed concerns that the noise and vibration from construction blasting and operation of the facility would be obvious from adjacent and nearby properties. A new natural gas pipeline is being constructed in the general vicinity. Several concerns were raised about the pipeline, including that the blasting at the proposed project site could harm the pipeline.

  Commenters expressed concern that the fence that would surround the property could be an eyesore if it is not set back from the road and from adjoining properties.

  One commenter raised concerns that the volunteer fire department would be unable to provide adequate response in the case of an accident at the facility.
- **Requests.** One commenter requested the information provided at the public meeting; another commenter requested an extension of the public scoping period.

4 CONCLUSION

The results of the scoping process indicate a high level of public interest in the project. The public is concerned about the potential impact of the project on springs and wells that provide water to area homes and businesses. They also expressed concerns about the compatibility of the proposed facility with Snowshoe Mountain Resort, which is a large employer in the area and about the tourism industry more generally. The community wants to make sure that the noise and vibration would not be evident from adjacent properties, and that vibration would not damage the sewer line at Snowshoe Mountain Resort or the natural gas pipeline currently under construction. Commenters are also concerned about aesthetics of the proposed facility and do not want the fence around the property boundary to be a visual intrusion. These comments will be addressed under the current scope of the EIS.

Comments from government agencies focused on the NEPA process and its required elements. Commenters provided information about required consultations; requested clarifications about the proposed facility and whether there is already a mine on the site, and requested information about permits needed at LLEM. The WV SHPO and ACHP noted that there could be nearby structures that may be eligible for the National Register of Historic Places. These comments do not reveal any unusual or unforeseen environmental conditions, issues, or concerns. These comments will be addressed under the current scope of the EIS.

Appendix A – Notice of Intent

EXHIBIT 1—ESTIMATED ANNUALIZED BURDEN HOURS—Continued

Form name	Number of respondents/ POCs	Number of responses per POC	Hours per response	Total burden hours
Total	NA	NA	NA	121

EXHIBIT 2—ESTIMATED ANNUALIZED COST BURDEN

Form name	Number of respondents/ POCs	Total burden hours	Average hourly wage rate *	Total cost burden
Eligibility and Registration Form	100	8	$45.23	$361.84
Data Use Agreement	100	5	45.23	226.15
ASC Site Information	100	8	45.23	361.84
Data Files Submission	100	100	45.23	4,523.00
Total	NA	121	45.23	5,472.83

* Based on the mean hourly wage for 100 ASC Administrative Services Managers (11–3011; $45.23) obtained from the May 2016 National Industry-Specific Occupational Employment and Wage Estimates: NAICS 621400—Outpatient Care Centers (located at *http://www.bls.gov/oes/current/naics4_621400.htm#11-0000*).

Request for Comments

In accordance with the Paperwork Reduction Act, comments on AHRQ's information collection are requested with regard to any of the following: (a) Whether the proposed collection of information is necessary for the proper performance of AHRQ's health care research and health care information dissemination functions, including whether the information will have practical utility; (b) the accuracy of AHRQ's estimate of burden (including hours and costs) of the proposed collection(s) of information; (c) ways to enhance the quality, utility and clarity of the information to be collected; and (d) ways to minimize the burden of the collection of information upon the respondents, including the use of automated collection techniques or other forms of information technology.

Comments submitted in response to this notice will be summarized and included in the Agency's subsequent request for OMB approval of the proposed information collection. All comments will become a matter of public record.

Francis D. Chesley, Jr.,

Acting Deputy Director.

[FR Doc. 2018–12767 Filed 6–13–18; 8:45 am]

BILLING CODE 4160–90–P

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Centers for Disease Control and Prevention

[Docket No. CDC–2018–0057]

Notice of Intent To Prepare an Environmental Impact Statement, Public Scoping Meeting, and Request for Comments; Acquisition of Site for Development of a Replacement Underground Safety Research Program Facility for the Centers for Disease Control and Prevention/ National Institute for Occupational Safety and Health (CDC/NIOSH) in Mace, West Virginia

AGENCY: Centers for Disease Control and Prevention (CDC), Department of Health and Human Services (HHS)

ACTION: Notice of intent; announcement of public meeting; and request for comments.

SUMMARY: The Centers for Disease Control and Prevention (CDC) within the Department of Health and Human Services (HHS), in cooperation with the General Services Administration (GSA), announces its intent to prepare an Environmental Impact Statement (EIS) to analyze and assess the environmental impacts of the proposed acquisition of a site in Mace, West Virginia, and the development of this site into a replacement of the National Institute for Occupational Safety and Health (NIOSH) Underground Safety Research Program facility (Proposed Action). The current acquisition and development would replace the former Lake Lynn Experimental Mine in Fayette County, Pennsylvania and would support research programs focused on miner health and safety issues. The site being considered for acquisition and development includes 461.35 acres located off of U.S. Route 219 in Randolph and Pocahontas Counties near Mace, West Virginia.

This notice is pursuant to the requirements of the National Environmental Policy Act of 1969 (NEPA) as implemented by the Council on Environmental Quality (CEQ) Regulations (40 CFR parts 1500–1508). CDC, in cooperation with GSA, also intends to initiate consultation, as required by Section 106 of the National Historic Preservation Act (NHPA), to evaluate the potential effects, if any, of the Proposed Action on historic properties. Following the scoping meeting, a Draft EIS will be prepared and circulated for public comment. CDC is the lead federal agency for this Proposed Action.

DATES:

Public Scoping Meeting: A public scoping meeting in open house format will be held on June 26, 2018 in Slatyfork, West Virginia. The meeting will begin at 5:30 p.m. and end no later than 8:30 p.m.

Written comments: Written scoping comments must be submitted by 11:59 p.m. on July 14, 2018.

Deadline for Requests for Special Accommodations: Persons wishing to participate in the public scoping meeting who need special accommodations should contact Sam Tarr at 770–488–8170 by 5:00 p.m. Eastern Time, June 19, 2018.

ADDRESSES: The public scoping meeting will be held at the Linwood Community Library, 72 Snowshoe Drive, Slatyfork, West Virginia 26291.

You may submit comments identified by Docket No. CDC–2018–0057 by either of the following methods:

- *Federal eRulemaking Portal: http://www.regulations.gov* (Follow the instructions for submitting comments).
- *U.S. Mail:* Sam Tarr, Office of Safety, Security, and Asset Management (OSSAM), Centers for Disease Control and Prevention, 1600 Clifton Road NE, MS–K80, Atlanta, Georgia 30329–4027.

Instructions: All submissions must include the agency name and Docket Number. All relevant comments received will be posted to *http://www.regulations.gov* (personally identifiable information, except for first and last names, will be redacted). For access to the docket to review background documents or comments received, go to *http://www.regulations.gov.*

FOR FURTHER INFORMATION CONTACT: Sam Tarr, Office of Safety, Security, and Asset Management (OSSAM), Centers for Disease Control and Prevention, 1600 Clifton Road NE, MS–K80, Atlanta, Georgia 30329–4027, phone: (770) 488–8170, or email: *cdc-macewv-eis@cdc.gov.*

SUPPLEMENTARY INFORMATION:

Background: CDC is dedicated to protecting health and promoting quality of life through the prevention and control of disease, injury, and disability. NIOSH, one of CDC's Centers, Institutes, and Offices, was established by the Occupational Safety and Health Act of 1970. NIOSH plans, directs, and coordinates a national program to develop and establish recommended occupational safety and health standards, conduct research and training, provide technical assistance, and perform related activities to ensure safe and healthful working conditions for every working person in the United States.

In 1997, NIOSH assumed the lease for a facility referred to as the Lake Lynn Experimental Mine (LLEM) when the mine safety and health function was transferred from the Bureau of Mines (BOM) to NIOSH. The LLEM facility had been leased by BOM since 1982. The LLEM was located 60 miles south of Pittsburgh, Pennsylvania. The LLEM and above ground fire testing facility was primarily used for studies and research on mine explosions, mine seals, mine rescue, ventilation, diesel exhaust, new health and safety technologies, ground control, and fire suppression. After December 2012, the property was no longer available for long-term leasing. CDC attempted to purchase the LLEM underlying property, but LLEM was vacated by the Government after market-based purchase offers were rejected by the property owners.

In 2013, CDC completed a Project Development Study to outline a design solution for the replacement of the LLEM. The study presented the facility and site requirements and design concepts for the replacement facilities. In 2016, to identify potentially available locations that could accommodate the space requirements defined in the 2013 study, GSA issued (on behalf of CDC) two separate Request for Expressions of Interest (REOI) for a site, developed or undeveloped, that could be used for the new underground safety research facility. The first REOI, advertised in June 2016, contained a limited delineated area within a 200-mile radius of the LLEM. The REOI set forth criteria that would be used to evaluate the suitability of the submitted sites. One expression of interest that had the potential to meet the minimum criteria was received. After further evaluation, however, the site was found to be non-viable.

The second REOI was issued in October 2016 and expanded the delineated area to the contiguous United States. Three expressions of interest were received. One did not meet the minimum criteria, and a second expression of interest did not contain all necessary information to evaluate the offer. The offeror of the second site did not respond to subsequent GSA inquiries.

The third potential site met the minimum criteria and was determined to be a viable site. The site is located near Mace, West Virginia, and straddles the Randolph and Pocahontas County lines.

In accordance with NEPA, as implemented by the CEQ regulations (40 CFR parts 1500–1508), CDC is initiating the preparation of an EIS for the proposed acquisition of the site and construction of a new underground safety research facility on the Site. Under NEPA, Federal agencies are required to evaluate the environmental effects of their proposed actions and a range of reasonable alternatives to the proposed action before making a decision. At a minimum, the EIS will evaluate the following two alternatives: The Proposed Action Alternative (acquisition of the Site and construction of a new underground safety research facility) and the No Action Alternative.

Scoping Process: In accordance with NEPA, a public scoping process will be conducted to establish the range of issues to be addressed during the preparation of the EIS. Scoping is an early and open process for determining the scope of issues to be addressed and identifying issues that should be taken into account in selecting an alternative for implementation. To that end, during the scoping process, CDC will actively seek input from interested people; organizations; federally recognized Native American tribes; and federal, state, and regional agencies.

The purpose of this Notice is to inform interested parties regarding CDC's plan to prepare an EIS for the proposed Site acquisition in Mace, West Virginia, and the development of the Site into an underground safety research facility; to provide information on the nature of the Proposed Action; and to initiate the scoping process. The public scoping meeting will be held on June 26, 2018, at the Linwood Community Library, 72 Snowshoe Drive, Slatyfork, West Virginia 26291, from 5:30 p.m. to 8:30 p.m. Eastern Time. The public scoping meeting will be in open house format. General information on the Site and the Proposed Action will be provided, and representatives of CDC and GSA will be available to answer one-on-one questions. There will be no formal presentation or question-and-answer session. Participants may arrive at any time between 5:30 p.m. and 8:30 p.m. Eastern Time. Comment forms will be provided for written comments, and a stenographer will be available to transcribe oral comments. Through the NEPA scoping process, CDC will also facilitate consultation with the public as required by Section 106 of the NHPA.

Dated: June 7, 2018.

Sandra Cashman,

Executive Secretary Centers for Disease Control and Prevention.

[FR Doc. 2018–12660 Filed 6–13–18; 8:45 am]

BILLING CODE 4163–18–P

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Food and Drug Administration

[Docket No. FDA–2018–D–1918]

Human Immunodeficiency Virus-1 Infection: Developing Systemic Drug Products for Pre-Exposure Prophylaxis; Draft Guidance for Industry; Availability

AGENCY: Food and Drug Administration, HHS.

ACTION: Notice of availability.

SUMMARY: The Food and Drug Administration (FDA or Agency) is announcing the availability of a draft guidance for industry entitled ''Human Immunodeficiency Virus-1 Infection: Developing Systemic Drug Products for

Appendix B – Newspaper Advertisements

Legal Advertisements

NOTICE OF PUBLIC MEETING FOR CDC NIOSH SITE ACQUISITION AND DEVELOPMENT OF UNDERGROUND SAFETY RESEACH PROGRAM FACILITY ENVIRONMENTAL IMPACT STATEMENT AND SECTION 106 REVIEW

The Department of Health and Human Services (HHS)'s Centers for Disease Control and Prevention (CDC), in cooperation with the U.S. General Services Administration (GSA), is preparing an Environmental Impact Statement (EIS) to assess the environmental impacts of the proposed acquisition of a site in Mace, West Virginia, and the development of this site into a replacement of the National Institute for Occupational Safety and Health (NIOSH) Underground Safety Research Program facility (Proposed Action). The current acquisition and development would replace the former Lake Lynn Experimental Mine in Fayette County, Pennsylvania and would support research programs focused on miner health and safety issues. The site being considered for acquisition and development includes 461.35 acres located off of U.S. Route 219 in Randolph and Pocahontas County near Mace, West Virginia. The EIS is being prepared in accordance with the National Environmental Policy Act (NEPA). Additionally, CDC and GSA will consider the effects of the proposed site acquisition and development on historic properties in accordance with Section 106 of the National Historic Preservation Act.

To provide the community with information about the project and help identify community concerns and issues to be addressed in the EIS, CDC and GSA will host a public meeting on: **June 26, 2018, from 5:30 to 8:30 p.m. at Linwood Community Library, 72 Snowshoe Drive, Slaty Fork, West Virginia 26291**

You may arrive at any time between 5:30 and 8:30 p.m. The meeting will be held in an open-house format with informational displays and materials. Representatives of CDC and GSA will be available to discuss the project and take comments.

Public participation is an essential part of the NEPA process. CDC and GSA strongly encourage you to comment on the project and its potential effects on the environment and historic properties. Comments may be submitted during the public meeting or through one of the following methods:

• On the web at: http://www.regulations.gov (follow the instructions for submitting comments; you may use one or more of the following keywords to locate the project: CDC NIOSH, Site Acquisition, Underground Safety Research Program, HHS).

• By mail to: Sam Tarr, Centers for Disease Control and Prevention, 1600 Clifton Road N.E., MS-K80, Atlanta, Georgia 30329-4027.

All comments must be sent on or before July 14, 2018. If you have a question on how to comment, please send it to cdc-macewv-eis@cdc.gov.

Persons wishing to participate in the public scoping meeting who need special accommodations should call 770-488-8170 or send an email to cdc-macewv-eis@cdc.gov by 5 p.m. on June 19, 2018.

6/21/1c

Classifieds

GET THE JOB DONE!

Buy • Sell • Trade • Rent • Hire

Advertising deadline is Monday at noon. Call 304-799-4973 to place yours now.

For Sale

TRACTOR FOR SALE - 2004 Mahindra 2810 AGR, 4WD, 28hp, 355 hours. Six-foot King Kutter finishing deck and front end loader. Excellent condition. $12,000. 304-536-9142 or 304-536-3267. 6/21/1c

FOR SALE - 1999 Mercedes 4Matic. New tires, well-maintained. Runs great. $4,045. 304-456-4543. 6/21/1p

CHICKEN LITTER FOR SALE - In the Franklin area. Good quality. Call 304-358-7317. 6/14/4p

FOR SALE - 1974 Chevrolet Camper Special pickup. 304-456-3161. 6/14/4c

FOR SALE - 1994 416 Backhoe. $26,000. 2006 236 skid steer. $25,000. Call 304-799-4488. 6/14/4p

FOR SALE - Happy Jack® Flexenhance Plus: Relieves arthritic pain in dogs. Contains natural flea repellent. Southern States. 304-799-6523 or www.kennelvax.com 5/31/4p

Wanted

WANTED - Tub transfer swivel seat or bench. 304-646-8586. 6/14/tfnc

WANTED - Someone to cut hay, Brownsburg Road Farm. 304-799-2517. 6/7/3p

Wanted To Buy

WANTED TO BUY - Dried, fresh cherry bark (thin, smooth) $1.45/lb.; (thick, rough) $0.45/lb; Cut, dried skunk cabbage roots, $6 - $7/lb.; Black Cohosh, washed, cut and dried, $3.50 - $4/lb.; Reishi (grows on hemlocks, logs, snags and trees) red and shiny on top, white on bottom, no insect holes. Handle carefully. Do not touch the white part. Leave a little bark on the arm that was attached to the tree. Fan dry Reishi for one week. $7.50/lb. Dove's Fur. 304-257-4491. 5/31/eowp

For Rent

FOR RENT - Renovated three bedroom, two bath home in Cass. Mostly furnished. Well and septic. Available immediately. $1,000/month. Call Rosemary at 304-646-9798. Owner/Agent. 6/14/2c

FOR RENT - Efficiency, one, two and three bedroom apartments available at Greenbrier Building Apartments. 304-536-3111. 12/7/tfnc

Houses And Real Estate

HOUSES AND REAL ESTATE - Land for sale, 4.39 acres in Mill Point. 804-720-6398. Priced under appraised value. 6/14/2p

Positions Available

POSITIONS AVAILABLE - RL Contracting of West Virginia, Commercial Contractor, is hiring. Immediate openings for full-time lead carpenter, carpenters and laborers, willing to learn. Please call, 304-991-1614. 6/21/4p

COOKING/CLEANING POSITIONS - The National Youth Science Foundation is seeking food service and cleaning staff for the National Youth Science Camp near Bartow, WV. Please contact 304-205-9724 to be considered. Various positions as long as June 23 - July 27. 6/14/2c

POSITIONS AVAILABLE - Bedmaker to CNA Positions Open. Candidates will assist the Nursing Department in non-medical tasks then participate in a free six-week RLTCNA class that is necessary to become a Registered Long-Term Care Nursing Assistant. Candidates will be able to work during the period of the class if they choose. Contact the Business office, Pocahontas Center, 304-799-7375. EOE/AA-M/F/VET/DISABLED 6/7/4c

RNs, LPNs, AND RLTCNAs - Join a Winning Team. Genesis Health Care - Pocahontas Center. 5 Everett Tibbs Road, Marlinton. 304-799-7375. EEO/AA-M/F/VET/DISABLED. 1/4/tfnc

Services

SERVICES - Water well drilling - pumping systems - geothermal systems, five generation experience. **FRAME DRILLING**. WV006311. 304-799-4626 or 304-636-6025. 6/21/1p

SERVICES - The Outhouse, LLC. Septic pumping, portable toilets and sinks available. 304-456-5466. 6/21/1p

SERVICE - Long-Arm quilting service. Batting and backing available. Also providing machine binding. Customized embroidery quilt label. Frost, WV 304-606-2909. 5/31/10p

SERVICES - Exterior house painting. References available. Agust "August" Gudmundsson. 304-799-3989. 5/3/8c

SERVICES - Computer Help Desk. Agust "August" Gudmundsson. 304-799-3989. 5/3/8c

SERVICE - Rossell Forestry. Timber and Wildlife Management. 30 years' experience managing, marking and selling timber for private landowners in Pocahontas County. WV Registered Forester #276. SAF Certified Forester #3130. 304-456-4178 or jrossell@frontiernet.net 5/3/52p

SERVICE - Ron's Tree Service, LLC. Complete tree care and removal. Free estimates. 304-799-2476. 5/19/tfnc

SERVICE - Dawn's Pet Grooming. Located at Graham's Motel in Buckeye. Call for an appointment. 304-799-6047 or 304-799-6400. 1/2/tfnp

COMPUTERS-R-US - Problems? We can help. Home or business. Call Christine Rebinski - 304-456-3244 or Terry Gett - 304-456-4353. 5/7/tfnp

Notices

NOTICE - Snowshoe Mountain seeks drivers to guide our guests toward the best possible mountain experience. Join us today. Snowshoe will offer two separate Class B CDL classes. One three-week class will be on Tuesday and Thursday nights 5 p.m. - 9 p.m., beginning July 10. The other six-week class will be on Saturdays 9 a.m. - noon., beginning July 14. $50 non-refundable deposit required. If interested, contact Britt Parcell, 304-572-5626 or Robert Cutlip, 304-572-6916. 6/21/2c

NOTICE - Accepting small animals - rabbits, guinea pigs. Lisa Sheets. 304-456-4071 or 304-704-4217. 6/21/2p

NOTICE - Looking for a Correctional Officer job? Testing will be offered at the Denmar Correctional Center, Hillsboro, WV, on a daily basis. Interested parties should contact Human Resources at the facility at 304-653-4201 to schedule an appointment. 2/25/tfnc

SALE - 60% off all oak, maple, hickory and painted door styles in Kraftmaid kitchen cabinetry. Custom CAD computer design. Glades Building Supply. 304-799-4912. 5/14/tfnc

Miscellaneous

HANDS ON THE RIVER MASSAGE, Geraldine Gardner, LMT, 3422 Pennsylvania Ave., Charleston, WV. Call 304-541-9139 for an appointment. 6/21/nc

SAVE ON MEDICARE SUPPLEMENT INSURANCE! Get a fast and free rate quote from Medicare.com. No cost. No obligation. Compare quotes from Major Insurance Companies. Operators standing by. Call 1-866-242-1621. 6/21/nc

MEDICAL-GRADE HEARING AIDS for less than $200. FDA-Registered. Crisp, clear sound, state of-the-art features and no audiologist needed. Try it risk free for 45 days. Call 1-888-701-4595. 6/21/nc

UNABLE TO WORK DUE TO INJURY OR ILLNESS? Call Bill Gordon & Assoc., Social Security Disability Attorneys! FREE Evaluation. Local Attorneys. Nationwide 1-800-912-3915. Mail: 2420 N. St. NW, Washington, DC. Office: Broward Co. FL (TX/NM Bar.) 6/21/nc

BECOME A PUBLISHED AUTHOR! Publications sold at all major secular and specialty Christian bookstores. Call Christian Faith Publishing for your free author submission kit. 1-855-781-5497. 6/21/nc

Internet/TV

DISH TV $59.99 for 190 Channels $14.95 High Speed Internet. Free Installation, Smart HD DVR included, Free Voice Remote. Some restrictions apply. Call 1-855-736-4350. 6/21/nc

EARTHLINK HIGH SPEED INTERNET. As Low As $14.95/month (for the first 3 months.) Reliable High Speed Fiber Optic Technology. Stream Videos, Music and More. Call Earthlink today 1-866-305-7264. 6/21/nc

SPECTRUM TRIPLE PLAY! TV, Internet and Voice for $29.99 each. 60 MB per second speed. No contract or commitment. More Channels. Faster Internet. Unlimited Voice. Call 1-855-659-9619. 6/21/nc

Yard Sales

YARD SALE - Rain or shine. Friday, June 22 and Saturday, June 23, 9 a.m. to 3 p.m. 1523 Woodrow Road. Not responsible for accidents. 6/14/2p

YARD SALE - Tom and Sarah Sanders, Mary Sue White and other families will have yard sales at New Hope Lutheran Church in Minnehaha Springs on Friday, June 22, and Saturday, June 23, from 8 a.m. to ?. New Hope Lutheran Church will be selling hot dogs and Rene White's famous barbecues. 6/14/2c

YARD SALE - Saturday, June 23, 8 a.m. to 3 p.m. at John Wayne residence, Buffalo Mountain Road, Arbovale. 6/21/1p

YARD SALE - Friday and Saturday, June 22 and 23, 9 a.m. to ?, Rt. 28, Pampered Pets. Too much to list. 6/21/1c

YARD SALE - Friday, Saturday and Sunday, June 22, 23 and 24, 8 a.m. to 6 p.m. Rain or shine. The Lee residence at Beard Heights, 163 Waugh/Walnut Street, Marlinton. Kitchen stove, table and chairs, bikes, climbing tree stand, tools, clothes, shoes, lots of dishes, home décor and much more. Priced cheap. 6/21/1p

COMMUNITY YARD SALE - Beard Heights, Marlinton, WV. Saturday, June 23, 9 a.m. to 2 p.m. Seven-plus households. Something for everyone. 6/21/1c

Free

FREE - Three Old Town wooden canoes, 14 feet. 304-456-5377. 6/21/1p

State of West Virginia, County of andolph, ss.

I, Brad Johnson, Executive Editor of THE INTER-MOUNTAIN, a newspaper published at Elkins, in said county, do hereby certify that the annexed advertisement was published on the following dates:

20 18 as required by law

Given under my th day o

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
LORI D. SMITH
THE INTER-MOUNTAIN
520 RAILROAD AVE., PO BOX 1339
ELKINS, WV 26241
My commission expires November 02, 2020

Editor

Printer's Fee: $ 206.12

Subscribed and sworn to before me this 2nd day of _____. 20

My Commission Expires the 2nd _____ day of _ N Public

. 20.

NOTICE OF PUBLIC MEETING FOR CDC NIOSH SITE ACQUISITION AND DEVELOPMENT OF UNDERGROUND SAFETY RESEACH PROGRAM FACILITY ENVIRONMENTAL IMPACT STATEMENT AND SECTION 106 REVIEW

The Department of Health and Human Services (HHS)'s Centers for Disease Control and Prevention (CDC), in cooperation with the U.S. General Services Administration (GSA), is preparing an Environmental Impact Statement (EIS) to assess the environmental impacts of the proposed acquisition of a site in Mace, West Virginia, and the development of this site into a replacement of the National Institute for Occupational Safety and Health (NIOSH) Underground Safety Research Program facility (Proposed Action). The current acquisition and development would replace the former Lake Lynn Experimental Mine in Fayette County, Pennsylvania and would support research programs focused on miner health and safety issues. The site being considered for acquisition and development includes 461.35 acres located off of U.S. Route 219 in Randolph and Pocahontas County near Mace, West Virginia. The EIS is being prepared in accordance with the National Environmental Policy Act (NEPA). Additionally, CDC and GSA will consider the effects of the proposed site acquisition and development on historic properties in accordance with Section 106 of the National Historic Preservation Act.

To provide the community with information about the project and help identify community concerns and issues to be addressed in the EIS, CDC and GSA will host a public meeting on:

June 26, 2018 from 5:30 PM to 8:30 PM
at
Linwood Community Library, 72 Snowshoe Drive, Slatyfork, West Virginia 26291

You may arrive at any time between 5:30 PM and 8:30 PM. The meeting will be held in an open-house format with informational displays and materials. Representatives of CDC and GSA will be available to discuss the project and take comments.

Public participation is an essential part of the NEPA process. CDC and GSA strongly encourage you to comment on the project and its potential effects on the environment and historic properties. Comments may be submitted during the public meeting or through one of the following methods:

- On the web at: http://www.regulations.gov (follow the instructions for submitting comments; you may use one or more of the following key words to locate the project: CDC NIOSH, Site Acquisition, Underground Safety Research Program, HHS).
- By mail to: Sam Tarr, Centers for Disease Control and Prevention, 1600 Clifton Road N.E., MS-K80, Atlanta, Georgia 30329-4027.

All comments must be sent on or before July 14, 2018. If you have a question on how to comment, please send it to cdc-macewv-eis@cdc.gov. Persons wishing to participate in the public scoping meeting who need special accommodations should call 770-488-8170 or send an email to cdc-macewv-eis@cdc.gov by 5 PM on June 19, 2018.
6-18, 6-21, 6-25

NOTICE OF PUBLIC MEETING FOR CDC NIOSH SITE ACQUISITION AND DEVELOPMENT OF UNDERGROUND SAFETY RESEACH PROGRAM FACILITY ENVIRONMENTAL IMPACT STATEMENT AND SECTION 106 REVIEW

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6-18, 6-21, 6-25

Appendix C – Sample Scoping Letter and Mailing List

DEPARTMENT OF HEALTH & HUMAN SERVICES Public Health Service

Centers for Disease Control
and Prevention (CDC)
Atlanta, GA 30341-3724

June 19, 2018

Subject: Public Scoping Notice — Site Acquisition and Development of an Underground Safety Research Program Facility Environmental Impact Statement and Section 106 Compliance – Mace, WV

Dear Friends and Neighbors,

The Centers for Disease Control and Prevention (CDC) within the Department of Health and Human Services (HHS), in cooperation with the General Services Administration (GSA), announces its intent to prepare an Environmental Impact Statement (EIS) to analyze and assess the environmental impacts of the proposed acquisition of a site in Mace, West Virginia, and the development of this site into a replacement of the National Institute for Occupational Safety and Health (NIOSH) Underground Safety Research Program facility (Proposed Action). The current acquisition and development would replace the former Lake Lynn Experimental Mine in Fayette County, Pennsylvania and would support research programs focused on miner health and safety issues. The site being considered for acquisition and development includes 461.35 acres located off of U.S. Route 219 in Randolph and Pocahontas Counties near Mace, West Virginia.

NIOSH, one of CDC's Centers, Institutes, and Offices, was established by the Occupational Safety and Health Act of 1970. NIOSH plans, directs, and coordinates a national program to develop and establish recommended occupational safety and health standards, conduct research and training, provide technical assistance, and perform related activities to ensure safe and healthful working conditions for every working person in the United States.

In 1997, NIOSH assumed the lease for a facility referred to as the Lake Lynn Experimental Mine (LLEM) when the mine safety and health function was transferred from the Bureau of Mines (BOM) to NIOSH. The LLEM facility had been leased by BOM since 1982. The LLEM was located 60 miles south of Pittsburgh, Pennsylvania. The LLEM and above ground fire testing facility was primarily used for studies and research on mine explosions, mine seals, mine rescue, ventilation, diesel exhaust, new health and safety technologies, ground control, and fire suppression. After December 2012, the property was no longer available for long-term leasing. CDC attempted to purchase the LLEM underlying property, but LLEM was vacated by the Government after market-based purchase offers were rejected by the property owners. In 2016, to identify potentially available locations that could accommodate the space requirements, GSA issued (on behalf of CDC) two separate Request for Expressions of Interest for a site, developed or undeveloped, that could be used for the new underground safety research facility. Three expressions of interest were received that met the minimum criteria; two sites were determined to be non-viable and the third site is the proposed project area in Mace, West Virginia.

In accordance with NEPA, as implemented by the CEQ regulations (40 CFR parts 1500-1508), CDC is initiating the preparation of an EIS for the proposed acquisition of the site and construction of a new underground safety research facility on the Site. Under NEPA, Federal agencies are required to evaluate the environmental effects of their proposed actions and a range of reasonable alternatives to the proposed action before making a decision. At a minimum, the EIS will evaluate the following two alternatives: The Proposed Action Alternative (acquisition of the Site and construction of a new underground safety research facility) and the No Action Alternative. Additionally, CDC and GSA will consider the effects of the proposed site acquisition and development on historic properties in accordance with Section 106 of the National Historic Preservation Act.

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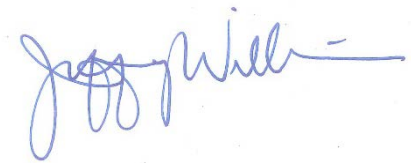
- By mail to: Sam Tarr, Centers for Disease Control and Prevention, 1600 Clifton Road N.E., MS-K80, Atlanta, Georgia 30329-4027.

All comments must be sent on or before July 14, 2018. If you have a question on how to comment, please send it to cdc-macewv-eis@cdc.gov.

We look forward to hearing from you.

Sincerely,



Jeffery Williams
Director, Asset Management Services Office (AMSO)
Office of Safety, Security and Asset Management (OSSAM)
Centers for Disease Control and Prevention (CDC)

Enclosures: Map of the Project Area and Lake Lynn Experimental Mine location

Figure 1: Location of Lake Lynn Experimental Mine and Proposed Acquisition and Development Site

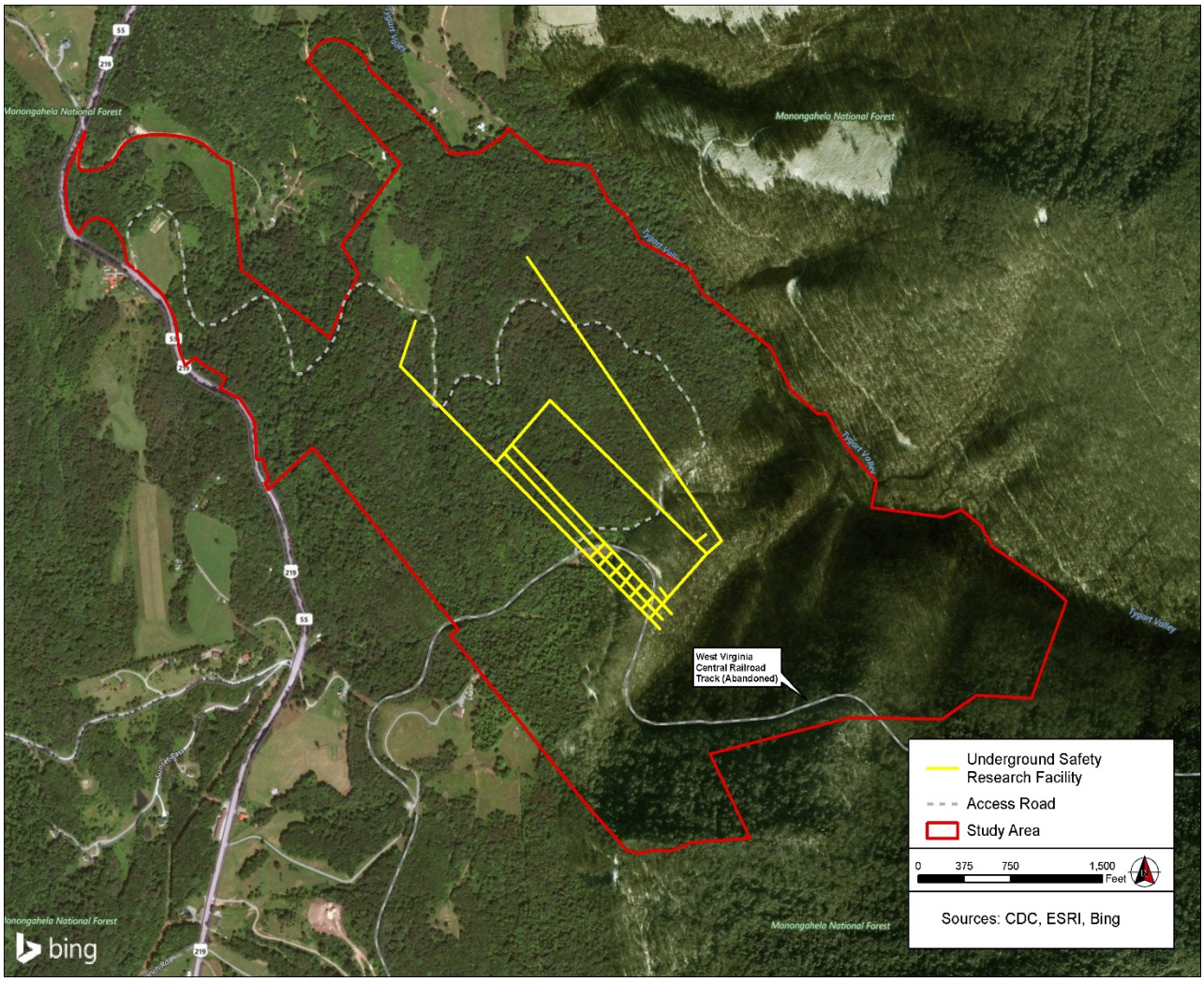


Figure 2: Proposed Project Area and Site Layout

Mailing List

Ms. Kirsten Brinker Kulis
Advisory Council on Historic Preservation
401 F Street NW
Suite 308
Washington, DC 20001-2637

Mr. Morris Abrams
Seneca Nation of Indians
90 Ohi:Yoho Way
Salamanca, NY 14779

Ms. Kim Penrod
Delaware Nation
31064 US Highway 281,
Building 100
PO Box 825
Anadarko, OK 73005

Ms. Erin Thompson
Absentee Shawnee Tribe of Oklahoma
2025 South Gordon Cooper Drive
Shawnee, OK 74801

Chief Sidney Hill
Onondaga Nation of New York
4040 Route 11
Nedrow, NY 13120

Chief Leo R. Henry
Tuscarora Nation of New York
2006 Mt. Hope Road
Lewiston, NY 14092

Ms. Susan Pierce
West Virginia Divisions of Culture and History - Historic Preservation Office
1900 Kanawha Boulevard East
Charleston, WV 25305-0300

Mr. Brett Barnes
Eastern Shawnee Tribe of Oklahoma
12705 South 705 Road
Wyandotte, OK 74370

Mr. Ray Halbritter
Oneida Indian Nation
2037 Dream Catcher Plaza
Oneida, NY 13421

Mr. Clint Halftower
Cayuga Nation of Indians
2540 State Route 89
PO Box 803
Seneca Falls, NY 13148

Mr. Arnold Printup
St. Regis Mohawk Tribe
412 State Route 37
Akwesasne, NY 13655

Chief George Wickliffe
United Keetoowah Band of Cherokee Indians
2450 Muskogee Avenue
PO Box 746
Tahlequah, OK 74464

Mr. William Tarrant
Seneca Cayuga Tribe of Oklahoma
23701 South 655 Road
PO Box 45322
Grove, OK 74345

Mr. Russell Townsend
Eastern Band of Cherokee Indians
Qualla Boundary Reservation
PO Box 455
Cherokee, NC 28719

Ms. Tonya Tipton
Shawnee Tribe
29 South 69a Highway
PO Box 189
Miami, OK 74354

Ms. Corina Williams
Oneida Nation of Wisconsin
PO Box 365
Oneida, WI 54155

Chief Roger Hill
Tonawanda Band of Seneca Indians of New York
7027 Meadville Road
Basom, NY 14013

Mr. Bill John Baker
Cherokee Nation
17675 South Muskogee Avenue
PO Box 948
Tahlequah, OK 74465

Mailing List

Dr. Andrea A. Hunter
Osage Nation
627 Grandview Avenue
Pawhuska, OK 74056

Mr. Earl J. Barbry, Jr.
Tunica-Biloxi Tribe of Louisiana
151 Melacon Drive
PO Box 1589
Marksville, LA 71351

Mr. Thomas Parker
Omaha Tribe of Nebraska
PO Box 368
Macy, NE 68039

Dr. Wenonah G. Haire, DMD
Catawba Cultural Preservation Project
1536 Tom Steven Road
Rock Hill, SC 29730

Dr. Bruce Obermeyer
Delaware Tribe of Indians
Roosevelt Hall, Room 212
1200 Commercial Street
Emporia, KS 66801

Ms. Elizabeth Merritt
National Trust for Historic Preservation
The Watergate Office Building
2600 Virginia Avenue NW,
Suite 1100
Washington, DC 20037

Ms. Anne Nelson
National Trust for Historic Preservation
The Watergate Office Building
2600 Virginia Avenue NW,
Suite 1100
Washington, DC 20037

Ms. Danielle Parker
Preservation Alliance of West Virginia
421 Davis Avenue
#4
Elkins, WV 26241

Mr. Wayne Gillispie
Pocahontas County HLC
PO Box 125
Marlinton, WV 24954

Mr. Joseph W. Smith
Pocahontas County Historical Society
PO Box 453
Marlinton, WV 24954

Randolph County Historical Society
PO Box 1164
Elkins, WV 26241

Mr. Lyle Smith Jr.
1170 Faust Dr
Englewood, FL 34224

Mr. James Meyer
1550 Ewing St
Nokomis, FL 35275

Mr. Walter Hylton
314 Eidson Creek Road
Staunton, VA 24401

Ms. Amy Mitchem
33028 SENECA TRL
Valley Head, WV 26294

George and Jeanne Bell
P O BOX 30
Snowshoe, WV 26209

Mr. Mark Marshall
14281 W PICCADILLY RD
Goodyear, AZ 85395

MINGO TRAILS RANCH LLC
30925 SENECA TRL
Valley Head, WV 26294

Mailing List

Mr. Robert Mace
41828 SENECA TRL
Valley Head, WV 26294

Mr. Carl Mace
413 FAY AVE
St. Marys, WV 26170

John Schmidt
U.S. Fish and Wildlife Service,
West Virginia Field Office
90 Vance Drive
Elkins, West Virginia 26241

Cosmo Servidio, Regional Administrator Environmental Protection Agency, Mid-Atlantic Region
1650 Arch Street
Philadelphia, PA 19103

Senator Joe Manchin
306 Hart Senate Office Building
Washington, DC 20510

Senator Joe Manchin
900 Pennsylvania Avenue,
Suite 629
Charleston, WV 25302

Senator Shelley Moore Capito
500 Virginia Street East, Suite 950
Charleston, WV 25301

Senator Shelley Moore Capito
172 Russell Senate Office Building
Washington, DC 20510

Stephen McDaniel, Director West Virginia Department of Natural Resources,
324 Fourth Avenue
South Charleston, WV 25303

U.S. Congressman Alex Mooney
1232 Longworth House Office Building
Washington, DC 20515

U.S. Congressman Evan Jenkins
1609 Longworth House Office Building
Washington, DC 20515

West Virginia Fire Department Services Division
1207 Quarrier Street, 2nd Floor
Charleston, WV 25301

Greenville Water and Sewer Authority
407 W Broad Street
Greenville, SC 29601

Pocahontas County Building Commission
900 10th Avenue
Marlinton, WV 24954

Randolph County Commission of West Virginia
4 Randolph Avenue
Elkins, WV 26241

Green Bank Observatory
155 Observatory Road
P.O. Box 2
Green Bank, WV 24944

Snowshoe Mountain Resort
10 Snowshoe Drive
Snowshoe, WV 26209

Appendix D – Public Meeting Materials

Acquisition and Development of an Underground Safety Research Program Facility

Environmental Impact Statement

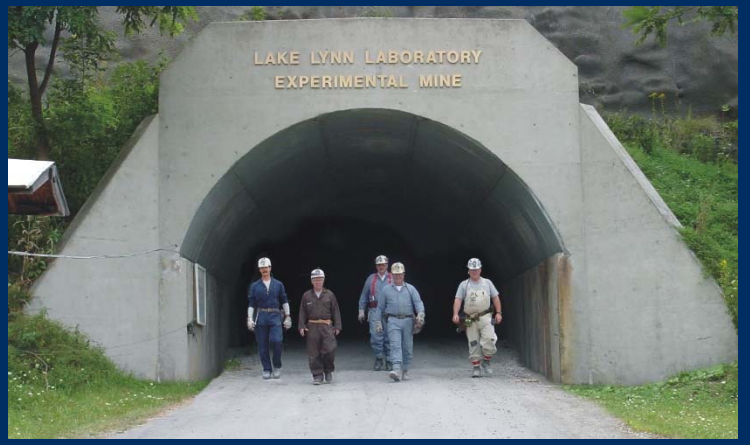
6.26.2018

Public Scoping Meeting

Purpose and Need

Purpose

The purpose of the proposed action is to provide the National Institute for Occupational Safety (NIOSH) with a new underground safety research facility that would allow for full-scale mine experiments and research that accurately simulate an underground mine.



Need

The proposed action is needed because NIOSH's former underground testing laboratory, the Lake Lynn Experimental Mine in Pennsylvania, was a leased facility and all efforts to purchase the facility or continue the lease on a long-term basis have failed. The facility is needed to help meet the NIOSH mission for conducting research and making recommendations for the prevention of work-related illnesses and injuries related to the mining industry.

What is NIOSH?

National Institute for Occupational Safety and Health

NIOSH is a research branch of the Centers for Disease Control and Prevention. NIOSH was created in 1970 when Congress passed the Occupational Safety and Health Act to promote workplace and worker safety.

NIOSH is responsible for

- Enumerating hazards present in the workplace
- Identifying the causes of work-related diseases and injuries
- Evaluating the hazards of new technologies and work practices
- Training safety and health professionals
- Recommending occupational safety and health standards
- Creating new ways to control hazards

Lake Lynn Experimental Mine

Until 2012, NIOSH performed essential research focused on miner health and safety issues at the Lake Lynn Experimental Mine (LLEM). The research conducted by NIOSH significantly contributes to the enhancement of workplace health and safety for miners and other workers, including development of improved technology and practices to protect mining personnel from the many hazards associated with their jobs.

Lake Lynn Experimental Mine History

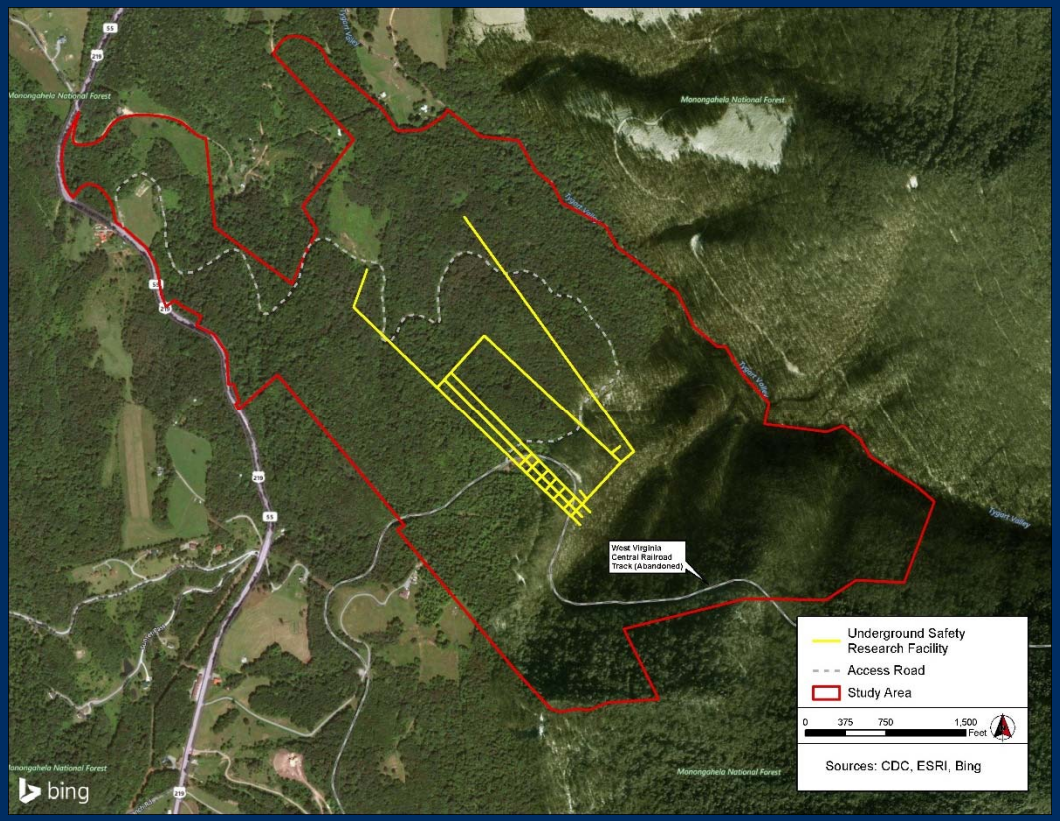
- Constructed in 1979 and 1981
- Located on the site of a discontinued commercial surface quarry and underground mining operation
- NIOSH occupied 409 acres within a larger private property
- 25 year lease expired in 2008 and on-site research ended in 2012
- Access to the property was shared with Laurel Aggregates, Inc, which actively mined the property to the north and west of the LLEM. Laurel Aggregates is not part of NIOSH.
- NIOSH completed research and full-scale testing; no active mining or strip mining was conducted


Laurel Aggregates Inc.
This is active strip mine and is not associated with NIOSH or the federal government.
Lake Lynn Experimental Mine
This is NIOSH's former underground safety research facility
PENNSYLVANIA
WESTVIRGINIA

What actions would occur in Mace?

The majority of the proposed actions for the research facility in Mace, WV would:

- Occur deep underground
- Require very little ground disturbance
- Not include any active mining
- Underground tests to simulate the hazards of methane and coal dust



What is an EIS?

National Environmental Policy Act

The National Environmental Policy Act, or NEPA, requires federal agencies to involve the public when making decisions that may impact the natural, cultural, and socioeconomic environment. An environmental impact statement, or EIS, will look at the potential impacts from the proposed action.

In support of the EIS, the CDC is completing technical reports and surveys to determine any potential natural or cultural resources that are present on the site, as well as potential impacts from the operation of the research facility.

The EIS will identify potential impacts on:

- Vegetation
- Wildlife, including special-status species
- Visual resources
- Water resources
- Cultural resources, such as archaeology
- Noise and vibration

What is Section 106?

National Historic Preservation Act

Section 106 of the National Historic Preservation Act, or Section 106, requires federal agencies to take into account the effects of their action on historic properties. Section 106 requires federal agencies to involve the public, local Tribes, as well as other consulting parties for actions that could affect historic properties.

In support of Section 106, the CDC will complete an archaeological survey of the property to determine the presence or absence of archaeological resources. There are no historic structures on the property, although the abandoned railroad may be eligible for listing on the National Register of Historic Places.

How can I be involved?

Opportunities for Public Comment

This public scoping meeting is the beginning of the public involvement process. The CDC is looking for public input on the range of alternatives and potential impact topics for inclusion in the EIS.

After all public comments are reviewed, the CDC will begin to draft the EIS. Once the EIS analysis is complete, the draft document will be published for public review and comment. Under the current schedule, the draft EIS is anticipated for release around December 2018. After the draft EIS is released, the CDC will hold another public meeting to solicit public comments and answer any questions on the project.

After all public comments are reviewed, the CDC will update the draft EIS based on substantive comments received. The CDC will also provide responses to all substantive public comments. The CDC will then release a final EIS.

How can I provide my comment?

There are multiple ways to provide public comments on the proposed action:

1. Submit comments electronically at http://www.regulations.gov

2. Mail hardcopy comments to:
   Sam Tarr, Centers for Disease Control and Prevention
   1600 Clifton Road NE, MS-K80
   Atlanta, Georgia 30329-4027

3. Submit verbal comments in-person at this meeting by speaking with the court reporter, located in the Library, behind the banners

All comments must be submitted by July 14, 2018

Thank you for coming!

CDC and NIOSH Staff are available to answer any questions you may have about the proposed project, NEPA process, or Section 106

Welcome

To the public scoping meeting for the

Site Acquisition and Development of an Underground Safety Research Program Facility Environmental Impact Statement

Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health
Underground Safety Research Facility EIS

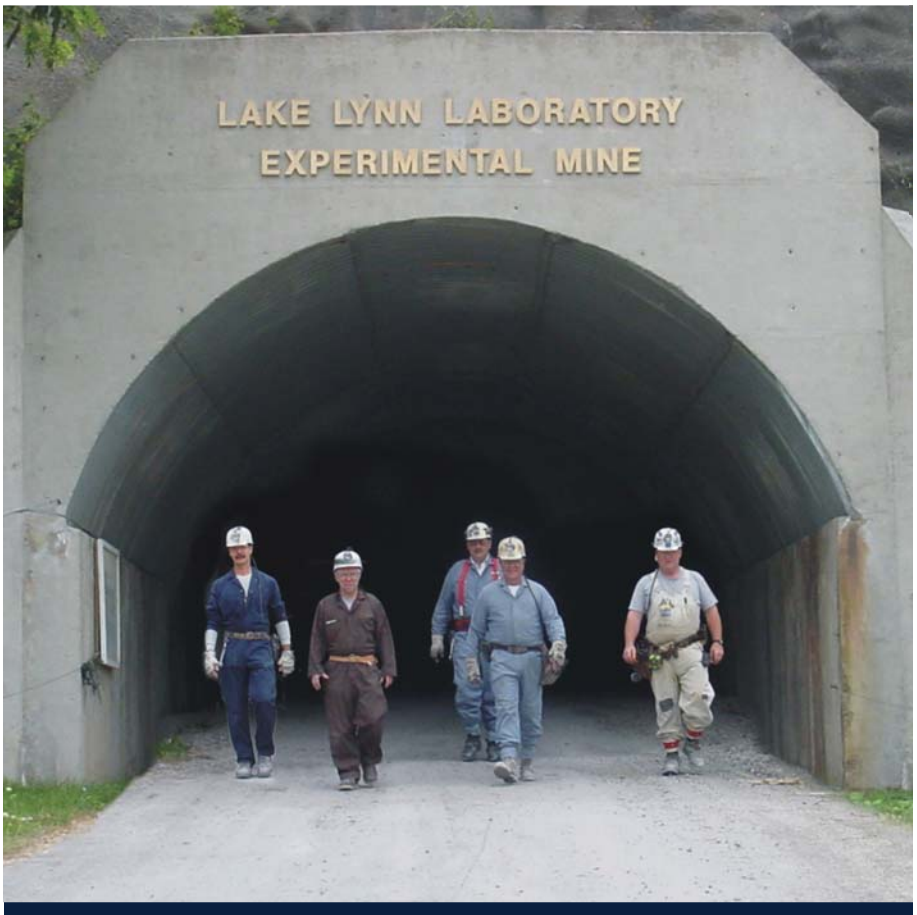
Purpose & Need

PURPOSE

The purpose of the proposed action is to provide the National Institute for Occupational Safety and Health (NIOSH) with a new underground safety research facility that would allow for full-scale mine experiments and research that accurately simulate an underground mine.

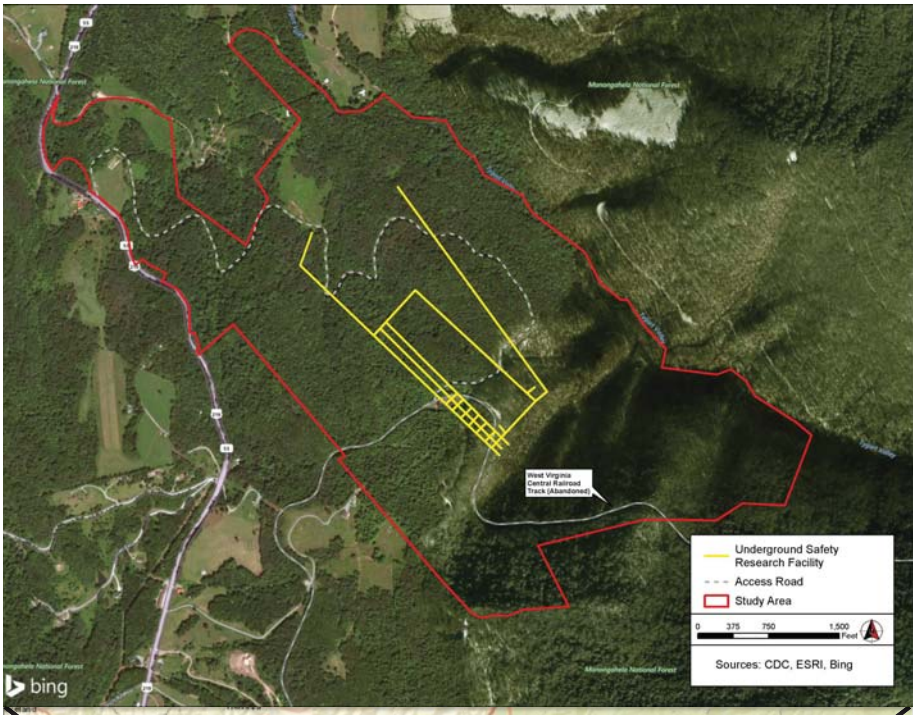
NEED

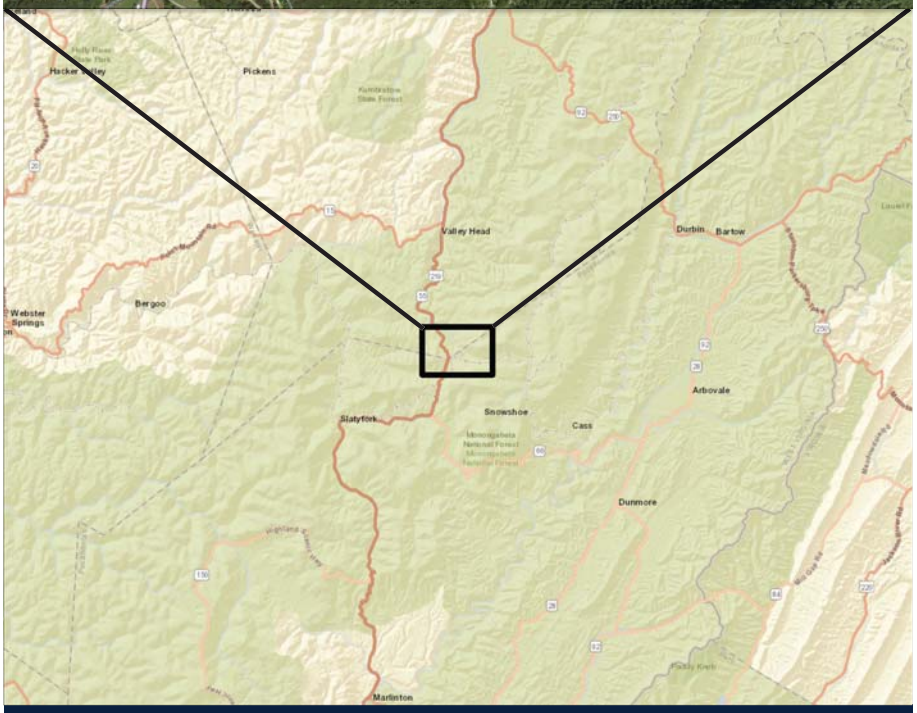
The proposed action is needed because NIOSH's former underground testing laboratory, the Lake Lynn Experimental Mine in Pennsylvania, was a leased facility and all efforts to purchase the facility or continue the lease on a long-term basis have failed. The facility is needed to help meet the NIOSH mission for conducting research and making recommendations for the prevention of work-related illnesses and injuries related to the mining industry.



Project Area

The site being considered for acquisition and development includes 461.35 acres located off of U.S. Route 219 in Randolph and Pocahontas counties near Mace, West Virginia.





Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health
Underground Safety Research Facility EIS

What is NIOSH?

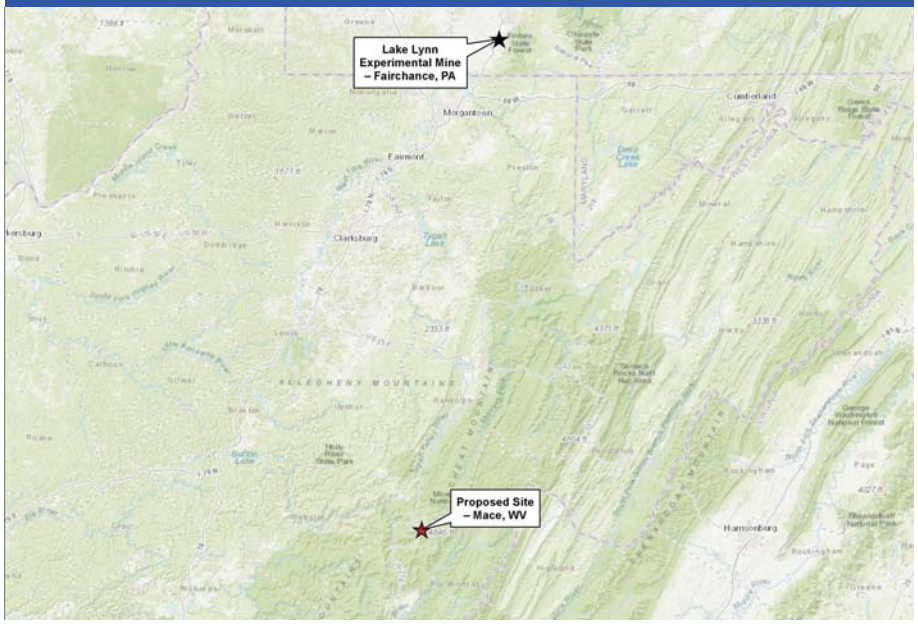
In 1970, Congress passed the Occupational Safety and Health Act to promote workplace and worker safety. The Act resulted in the creation of an enforcement branch, the Occupational Safety and Health Administration and a research branch, NIOSH. NIOSH is an institute of the Centers for Disease Control and Prevention, which is part of the Health and Human Services Department.

As a research branch or "agency", NIOSH is responsible for:

- Enumerating hazards present in the workplace.
- Identifying the causes of work-related diseases and injuries.
- Evaluating the hazards of new technologies and work practices.
- Creating ways to control hazards.
- Training safety and health professionals.
- Recommending occupational safety and health standards.

Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health
Underground Safety Research Facility EIS

Lake Lynn Experimental Mine



Until 2012, NIOSH performed essential research focused on miner health and safety issues at the Lake Lynn Experimental Mine (LLEM), located 60 miles south of Pittsburgh, Pennsylvania. The facility had been leased by CDC, and previously the Bureau of Mines, since 1982.

Efforts to continue operation under a long-term lease and purchase of the facility failed and all research was halted in 2012 (see the Alternatives Dismissed from Consideration banner).

The LLEM and above ground fire testing facility was primarily used for studies and research on:

- mine emergency escape and rescue
- mine explosions
- mine seals
- ventilation
- diesel exhaust
- new health and safety technologies
- ground control, and
- fire suppression

Alternatives Dismissed from Consideration

CDC has explored numerous alternatives to construction of a new facility.

Continue Use of LLEM	The lease agreement at LLEM included 406 acres within an overall property parcel of 4,350 acres. The owner would not enter into a long-term lease and rejected multiple offers for CDC to purchase the property.
Use of the Central Mining Institute's Experimental Mine Barbara in Poland	Discussions with leadership at this facility determined that while the facility provides a short term solution to examine some issues surrounding mine safety, it is not feasible for examining all critical issues in the long-term.
Use of a Similar Facility in South Africa	This facility does not meet the requirements of the CDC research experiments.
Use of Existing Department of Defense Facilities	Existing DoD facilities do not have the test facilities to conduct methane and dust propagation experiments to meet the size requirements for CDC research experiments.

Schedule & How to Comment

The National Environmental Policy Act (NEPA) requires federal agencies to involve the public when making decisions that may impact the natural, cultural, and socioeconomic environment. CDC is coordinating National Historic Preservation Act compliance with the NEPA process. CDC will analyze the environmental impacts of alternatives to address the purpose and need.

This public scoping meeting is the beginning of the public involvement process. CDC is looking for public input on the proposed action alternatives, issues, and impact topics for inclusion in the environmental impact statement.

TIMELINE

EARLY SUMMER 2018	Public Scoping Period (June 15 – July 14, 2018)
SUMMER / FALL 2018	Development of the Environmental Impact Statement (EIS)
LATE FALL 2018	Release of the Draft EIS for Public Review and Comment
WINTER 2019	Review of Public Comments / Response to Comment and Final EIS Development
SPRING 2019	Release of Final EIS, 30-day waiting period, and Record of Decision

HOW TO COMMENT

1. Submit comments electronically at:
   http://www.regulations.gov

   (follow the instructions for submitting comments; you may use one or more of the following keywords to locate the project: CDC NIOSH, Site Acquisition, Underground Safety Research Program, HHS).

2. Mail hardcopy comments to:

   Sam Tarr, Centers for Disease Control and Prevention
   1600 Clifton Road NE, MS-K80
   Atlanta, Georgia 30329-4027

3. Submit verbal comments in-person at this meeting by speaking with the court reporter

All comments must be submitted by July 14, 2018

Appendix E – Comments from Agencies and Tribes

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

July 13, 2018

Mr. Sam Tarr
Centers for Disease Control and Prevention
1600 Clifton Road ME, MS-K80
Atlanta, Georgia 30329-4027

Re: Scoping for an Environmental Impact Statement for Center for Disease Control and Prevention, National Institute for Occupational Safety and Health Underground Safety Research Program Facility, Mace, West Virginia

Dear Mr. Tarr:

In accordance with the National Environmental Policy Act (NEPA) of 1969, Section 309 of the Clean Air Act, and the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 CFR 1500-1508), the U.S. Environmental Protection Agency (EPA) is responding to the Center for Disease Control and Prevention (CDC) request for scoping suggestions on the planned Environmental Impact Statement (EIS). The EIS is proposed to analyze and assess the environmental impacts of the proposed acquisition of a site in Mace, West Virginia, and the development of this site as replacement of the National Institute for Occupational Safety and Health (NIOSH) Underground Safety Research Program facility in Fayette County, Pennsylvania.

CDC completed a Project Development Study to outline a design solution for the replacement of the Lake Lynn Experimental Mine (LLEM), a facility NIOSH leased for health and safety research related to mining but was not able to purchase from the landowner. After the Project Development Study outlined facility site requirements and design concepts for the replacement facilities, General Services Administration (GSA) on behalf of CDC, issued two separate Requests for Expressions of Interest (REOI) for a site that could be used for the new underground safety research facility. The first REOI was limited to near LLEM and the second expanded to include the entire contiguous United States.

The second REOI returned three potential sites. Two of the sites were determined to be non-viable; the third site is the proposed project area in Mace, WV. The site being considered for acquisition and development includes 461 acres located off U.S. Rouse 219 in Randolph and Pocahontas Counties in the Monongahela National Forest. The Notice of Intent (NOI) states that the EIS would evaluate at least two alternatives: the Action and No Action Alternative.

The examination and comparison of alternatives under consideration is the heart of the EIS. The alternatives analysis portion of the EIS should include alternative sites considered and eliminated and alternative site designs of the Preferred Alternative to determine the environmentally preferred alternative. It is recommended that site alternatives and design for this project be thoroughly explored. EPA recommends disclosing information regarding the process of acquiring property for NIOSH, such

as the criteria GSA/CDC used in the REOIs for sites. It is unclear if existing or abandoned mine operation was a requirement or preference in site selection. It is not apparent that the Mace, WV location has existing or abandoned operations. Preference to previously disturbed land, such as former mining sites, would be recommended. EPA recommends that site design criteria be presented in the study and include avoidance of natural and cultural resources and give preference to land re-use.

EPA has included the following general comments for your consideration in the development of the EIS (enclosure). Thank you for the opportunity to provide scoping comments for this important project. We would be pleased to discuss and contribute to the NEPA study, receive project updates, or review preliminary drafts. Please feel free to coordinate with EPA during development of the EIS. EPA looks forward to receiving the Draft EIS. If you have questions, please contact me at 215-814-3322, rudnick.barbara@epa.gov or the staff contact for this project is Ms. Nora Theodore; she can be reached at 215-814-2728 or theodore.nora@epa.gov.

Sincerely,

Barbara Rudnick
NEPA Team Leader
Office of Environmental Programs

Enclosure

Enclosure

Scoping for proposed Environmental Impact Statement
NIOSH Underground Safety Research Program Facility, Mace WV
Technical Comments

Purpose and Need

Since the range of alternatives evaluated is defined by the purpose and need for the project, it is important for the purpose and need to be clearly identified in the Environmental Impact Statement (EIS). The purpose or objective of the proposal should be defined in relationship to the need for the action. Therefore, the need for the action should identify and describe the underlying problem or deficiency; facts and analyses supporting the problem or deficiency in the particular location at the particular time should be specified; and the context or perspective of the agency mission in relation to the need for action should be stated.

Alternatives Analysis

As described in the regulations for the Council on Environmental Quality (CEQ) (40 CFR §1502.14), the examination and comparison of the alternatives under consideration is the heart of the environmental document. It is through this comparison that the lead agency is able to incorporate agency and public input to make informed decisions with regard to the merits of the project and the advantages and disadvantages of each of the alternatives being studied. Consequently, the CEQ regulations require that the details of each alternative, including the "no action" alternative be clearly presented in a comparative form for easy analysis by the reader. The rationale for the selection of the preferred alternative should be clearly stated in the analysis. For those alternatives that are eliminated from consideration, the reasons for their elimination should be given.

The alternatives analysis should include other alternative sites considered and eliminated. As stated previously, use of previously disturbed land, abandoned mine land or some form a land reuse is strongly encouraged. Alternative site designs of the Preferred Alternative is also needed to determine the environmentally preferred alternative. It is recommended that alternative project design be evaluated and disclosed in the EIS, we recommend design approaches consider and compare impacts to the natural and cultural environment.

Land Use and Applicable Regulation

The project area should be described, specifying the type and acreage of land impacted as well as a description of the existing buildings on the site including their current and past use. Please discuss any permits required before commencement of the project. This may include a Section 404/Section 10 permit from the Corps of Engineers, state water quality certification, and local construction and zoning permits. In addition to NEPA, other laws, regulations, permits, licenses and Executive Orders may be applicable to the Proposed Action (some are discussed in more detail below). A summary of applicable regulatory requirements and approvals with which the Proposed Action will demonstrate compliance should be discussed in the EIS.

ENVIRONMENTAL IMPACTS

The EIS should examine the potential direct and indirect impacts of the project on the environment. In addition, mitigation measures for any adverse environmental impacts should be described. Areas recommended for detailed analysis are described below.

Some useful information can be gleaned from on-line tools, such as:

EnviroMapper: https://www.epa.gov/waterdata/waters-watershed-assessment-tracking-environmental-results-system - The Watershed Assessment, Tracking & Environmental Results System (WATERS) unites water quality information previously available only from several independent and unconnected databases

Envirofacts: https://www3.epa.gov/enviro - Includes enforcement and compliance information

NEPAssist: https://www.epa.gov/nepa/nepassist - NEPAssist is a tool that facilitates the environmental review process and project planning in relation to environmental considerations. The web-based application draws environmental data dynamically from EPA Geographic Information System databases and web services and provides immediate screening of environmental assessment indicators for a user-defined area of interest.

303(d) Listed Impaired Waters: https://www.epa.gov/exposure-assessment-models/303d-listed-impaired-waters

Watershed Resources Registry: https://watershedresourcesregistry.org/index.html. This newly released mapping and screening tool prioritizes areas for preservation and restoration of wetlands, riparian zones, terrestrial areas, and stormwater management across several states in the mid-Atlantic region, including Pennsylvania. This tool is useful for planners to access environmental data to avoid impacting natural areas and identify optimal mitigation areas.

West Virginia's Geological and Economic Survey GIS tool:
http://www.wvgs.wvnet.edu/GIS/CBMP/all_mining.html

Air Resources

Attainment/Non-attainment: EPA, under the requirements of the 1970 Clean Air Act (CAA) as amended in 1977 and 1990, has established National Ambient Air Quality Standards (NAAQS) for six contaminants, referred to as criteria pollutants (40 CFR 50). These are: ozone (O3), carbon monoxide (CO), nitrogen dioxide (NO2), particulate matter (PM), lead (Pb), and sulfur dioxide (SO2). Particulate matter is divided into two classes, coarse particulate matter (PM10), particulates between 2.5 and 10 microns in diameter, and fine particulate matter (PM 2.5), particles less than 2.5 microns in diameter. The EIS should identify areas that meet the NAAQS standard for a criteria pollutant as well as those areas where a criteria pollutant level exceeds the NAAQS.

Conformity Analysis: A general conformity rule analysis should be conducted according to the guidance provided by the EPA in Determining Conformity of General Federal Actions to State or Federal Implementations Plans. Under the general conformity rule, reasonable foreseeable emissions associated with all operation and construction activities, both direct and indirect, must be quantified and compared to the annual de minimis levels for those pollutants in nonattainment for that area.

Construction Permit Requirements/Temporary Impacts: In an effort to eliminate the NAAQS violation, GSA/CDC should control or minimize construction emissions through use of Best Management Practices (BMPs) in association with each proposed project involving on-site construction.

Water Resources

All water quality issues including surface water, groundwater, drinking water, stormwater management, wastewater management, wetlands, oceans and watersheds should be addressed.

Groundwater: The principal aquifers in the region should be identified and described. All wells, both public and private, that could potentially be affected by the project should be identified. Areas of groundwater recharge in the vicinity should also be identified and any potential impacts from the proposed action examined.

Surface Water Resources: The EIS should outline measures to protect surface waters. The aquatic ecosystem should be evaluated and a detailed discussion of runoff, sediment and erosion control measures should be included. It is recommended that interaction of surface and ground water be evaluated, to consider potential direct or secondary impacts to both systems. Any mitigation measures should address both short-term construction impacts and long-term project impacts.

Wetlands: Wetlands present on, or immediately surrounding the site should be delineated according to the 1987 Federal Manual for Identifying and Delineating Jurisdictional Wetlands. Impacts to wetlands should be avoided or minimized whenever possible. The total size of the wetlands should be provided, in addition to the size of the wetland in the study area and size of the direct impact. The EIS should analyze the size and functional values of all impacted wetlands and develop a mitigation plan for their replacement. Even if wetlands are not present on the site, as applicable, please provide necessary information for the nearest wetland.

Stormwater Management/Low Impact Development: Stormwater runoff in urban and developing areas is one of the leading sources of water pollution in the United States. In recognition of this issue, Congress enacted Section 438 of the Energy Independence and Security Act of 2007 (EISA) to require federal agencies to reduce stormwater runoff from federal development and redevelopment projects to protect water resources. Implementation of Section 438 of the EISA can be achieved through the use of the green infrastructure/low impact development (GI/LID) infrastructure tools described in the Technical Guidance (https://19january2017snapshot.epa.gov/sites/production/files/2015-09/documents/eisa-438.pdf). For more information on specific GI/LID practices and how they function, visit: www.epa.gov/greeninfrastructure and www.epa.gov/nps.lid. The intention of the statute is to maintain or restore the pre-development site hydrology during the development or redevelopment process and ensure that receiving waters are not negatively impacted by changes in runoff temperature, volumes, durations and rates resulting from federal projects.

Physiography

The physical and natural resources of the project area should be described including physiographic provinces, topography, climate and geologic setting. Soils at the project should be mapped and outlined. Distribution and classification of soils within the study area, and the major soil types found at the project site should be described.

Terrestrial Resources

EPA suggests the EIS provide a description of the terrestrial habitat resources in the study area, which can include species lists for mammals, birds, amphibians, reptiles, and plants present, a summary

of composition and characteristics of each community type and the functions and total acreage indicated. Please identify forest resource, any potential interior forest and related species. Effects of forest fragmentation should be considered. Please discuss potential impacts to these communities as a result of demolition/construction activities and possible mitigation measures to minimize/avoid impacts.

Threatened and Endangered Species

The Endangered Species Act (ESA) provides for the listing of endangered and threatened species of plants and animals as well as the designation of critical habitat for listed species. The ESA prohibits the taking of any listed species without (for federal agencies) an "Incidental Take Statement." The EIS should provide a description of terrestrial, wildlife and aquatic species in the study area. Any threatened or endangered species and critical habitat for threatened or endangered species should be properly identified. The EIS should describe the potential project impacts to these species. The most recent state and federal threatened and endangered species coordination letters should be included in the EIS. In addition, we recommend that the appropriate state and federal agencies be contacted annually at a minimum regarding these issues.

Hazardous Waste Management

Please identify and evaluate hazardous sites nearby the proposed sites and alternatives. This would include sites being investigated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund) or sites regulated under the Resource Conservation and Recovery Act (RCRA). Any impact of these sites on the alternatives or construction methods should be considered (and/or impact of new construction on any ongoing cleanup or recovery activities).

RCRA set standards for hazardous waste treatment, storage, and disposal facilities. The management of hazardous waste at a proposed facility should be conducted in compliance with RCRA. The EIS should state if a Hazardous Waste Management Plan and a Hazardous Waste Minimization Plan are in place. Please identify known hazardous materials, including asbestos-containing materials (AM), lead-based paint (LBP), and oil and other hazardous materials (OHMs), located within the study area. The status of the materials should be discussed as well as remedial methods described (if applicable) in addition to providing a detailed plan for proper disposal.

COMMUNITY IMPACTS

Noise: EPA retains authority to investigate and study noise and its effect, disseminate information to the public regarding noise pollution and its adverse health effects, respond to inquiries on matters related to noise, and evaluate the effectiveness of existing regulations for protecting the public health and welfare, pursuant to the Noise Control Act of 1972 and the Quiet Communities Act of 1978. Studies have shown that there are direct links between noise and health. Problems related to Noise Induced Hearing Loss (NIHL) is the most common and often discussed health effect, but research has shown that exposure to constant or high levels of noise can cause additional adverse health effects (including stress related illnesses, high blood pressure, speech interference, hearing loss, sleep disruption, and lost productivity). Please discuss potential noise impacts that may result from the Proposed Action.

Socioeconomics: We recommend discussion of the socioeconomic and cultural status of the area, including the number of people, employees and/or jobs impacted as a result of the proposed project. We suggest the EIS address the decrease or increase of people/employees/jobs in relation to its effect on tax base, local housing, job markets, schools, utilities, businesses, etc.

Traffic and Transportation: The EIS should address traffic and transportation as it relates to the Proposed Action. It may be necessary to provide an evaluation of existing roads specifying existing levels of service at major intersections near the project area as well as accident data. If appropriate, an evaluation of the impacts associated with an increased number of employees should be provided. The EIS should discuss existing and proposed public transportation to the area under consideration and provide estimates of expected usage. Traffic projections should then be made to show expected conditions for a completed project.

Environmental Justice: Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,* directs each federal agency to incorporate environmental justice into its mission and activities by identifying and addressing, as appropriate, "disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations...." The Executive Order also explicitly called for the application of equal consideration for Native American programs.

The EIS should identify Environmental Justice (EJ) communities in the study area and discuss potential impacts that the Proposed Action may have on these communities. Maps displaying the defined study area are helpful, as well as maps and data of Census tracts and/or block groups to identify areas with populations of concern. Areas within the proposed action having high minority and low-income populations should be readily identifiable in the data provided, and targeted for meaningful public involvement and outreach. Additionally, the EIS should include the methodology used to identify EJ at risk communities and conduct EJ assessment and the potential direct, indirect and cumulative impacts (i.e., air, noise, water quality, aesthetics, social, economic, health, and subsistence activities) to EJ populations. To assist in this effort, EPA has developed a new EJ mapping and screening tool called EJSCREEN. It is based on nationally consistent data and an approach that combines environmental and demographic indicators in maps and reports. It can be accessed at: https://www.epa.gov/ejscreen. Additionally, please consider referring to "Promising Practices for EJ Methodologies in NEPA Reviews": https://www.epa.gov/environmentaljustic/ej-iwg-promising-practices-ej-methodologies-nepa-reviews.

Human Health: Please discuss the human health risks associated with demolition/construction activities and estimate the nature and probability of adverse health effects in humans who may be exposed to contaminants. Please consider impacts and mitigation for any potential health risks, as appropriate.

Children's Health: Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks,* requires each federal agency to identify and assess environmental health and safety risks to children. "Environmental health and safety risks" are defined as "risks to health or to safety that are attributable to products or substances that the child is likely to come in contact with or ingest." When conducting assessments of environmental risks, the lead agency should take into account health risks to children and infants from environmental hazards. Please identify/discuss children in the study area and potential impacts that may result from the Proposed Action.

Cultural Resources: EPA understands that GSA/CDC will identify historic properties that may potentially be affected by the implementation of the proposed action and to seek ways to resolve potential adverse effects. Please include within the EIS detailed descriptions of any affected sites and potential impacts including correspondence with agencies and a Memorandum of Agreement, if applicable.

Energy Efficiency and Resiliency

EO 13693 has an overarching goal to maintain Federal leadership in sustainability and greenhouse gas emission reductions. The EO outlines a combination of efficient Federal operations to reduce agency emissions while fostering innovation, reducing spending and strengthening the communities in which Federal facilities operate. Information relating to EO 13693 can be obtained at the following link: https://www.epa.gov/greeningepa/executive-order-13693-planning-federal-sustainability-next-decade.

Leadership in Energy and Environmental Design (LEED)

The LEED Green Building Rating System is a voluntary, consensus-based national standard for developing high-performance, sustainable buildings. LEED was created in order to define "green building" by establishing a common standard of measurement; promote integrated, whole-building design practices; recognize environmental leadership in the building industry; stimulate green competition; raise consumer awareness of green building benefits; and transform the building market. LEEP provides a complete framework for assessing building performance, emphasizing state of art strategies for sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality. LEED standards are currently available for: new construction and major renovation projects, existing building operations, commercial interiors projects, and core and shell projects. For more information, contact the U.S. Green Building Council at the following web address: http://www.usgbc.org/leed. Where feasible, please consider incorporating LEED into the project design.

Natural and Human Environment, Secondary and Cumulative Impacts

The Council on Environmental Quality (CEQ) in 40 CFR 1508.8 defines secondary effects as "caused by an action and are later in time or farther removed in distance but are still reasonably foreseeable". Examples of these could be the environmental effects of interconnected projects, such as additional infrastructure that may be needed to support the project. Impacts of these types of activities should be considered and evaluated in the EIS.

Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time. The CEQ in 40 CFR 1508.7 defines cumulative impacts as "impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions." A cumulative impacts assessment should be a part of the EIS.

Preserving America's Heritage

July 6, 2018

Mr. Jeffery Williams
Asset Management Services Office
Office of Safety, Security, and Asset Management
Centers for Disease Control and Prevention
U.S. Department of Health and Human Services
4770 Buford Highway, NW
Atlanta, GA 30341-3724

Ref: *Proposed Site Acquisition and Development of an Underground Safety Research Program Facility, Mace, West Virginia*

Dear Mr. Williams:

On June 21, 2018, the Advisory Council on Historic Preservation (ACHP) received your notification of adverse effect for the referenced undertaking that was submitted in accordance with Section 800.6(a)(1) of our regulations, "Protection of Historic Properties" (36 CFR Part 800). The background documentation included with your submission does not meet the specifications in Section 800.11(e) of the ACHP's regulations. We, therefore, are unable to determine whether Appendix A of the regulations, *Criteria for Council Involvement in Reviewing Individual Section 106 Cases*, applies to this undertaking. Accordingly, we request that you submit the following additional information so that we can determine whether our participation in the consultation to resolve adverse effects is warranted.

- A description of the area of potential effects for the undertaking, including photographs, maps, drawings, as necessary;
- A description of the steps taken to identify historic properties;
- A description of the affected historic properties, including information on the characteristics that qualify them for the National Register;
- A description of the undertaking's effects on historic properties;
- An explanation of why the criteria of adverse effect were found applicable or inapplicable, including any conditions or future actions to avoid, minimize, or mitigate adverse effects;
- An evaluation of other measures considered, but rejected, to avoid or minimize the undertaking's adverse effects; and
- Copies or summaries of any views provided by consulting parties, the public, and the West Virginia State Historic Preservation Officer.

Upon receipt of the additional information, we will notify you within 15 days of our decision.

We have copied Ms. Donna Andrews, Regional Historic Preservation Officer, Mid-Atlantic Region, U.S. General Services Administration (GSA), on this letter, as you stated you're pursuing this undertaking in coordination with GSA.

If you have any questions, please contact Ms. Kirsten Kulis, GSA Liaison, at 202-517-0217 or via e-mail at kkulis@achp.gov.

Sincerely,

Artisha Thompson
Federal Property Management Section
Office of Federal Agency Programs

From: Tarr, Michael S. (Sam) (CDC/OCOO/OSSAM)
Sent: Wednesday, July 11, 2018 9:31 AM
To: Blevins, Ernest E <Ernest.E.Blevins@wv.gov>
Cc: CDC-MaceWV-EIS (CDC) <cdc-macewv-eis@cdc.gov>
Subject: FW: Underground Safety Research Program -- Mace, West Virginia

Mr. Blevins,

Please find responses to your questions below indicated in red. Unfortunately we do not have the answers to #2 and #3 at this moment, but we are working to get answers as quickly as possible.

Thank You,

Sam Tarr
Director, Projects and Construction Management Services Office (PCMSO)
Asset Management Services Office (AMSO)
Office of Safety, Security, and Asset Management (OSSAM)

From: Blevins, Ernest E <Ernest.E.Blevins@wv.gov>
Sent: Monday, July 9, 2018 3:14 PM
To: Tarr, Michael S. (Sam) (CDC/OCOO/OSSAM)
Subject: Underground Safety Research Program -- Mace, West Virginia

I am doing the review for the proposed project.

1. It is unclear if there is already a mine on site or if a mine for your purposes will be mined. If a mine exists, what is the age? Does it have a name? If a mine exists, is this an adaptive reuse/reclamation? There is not an existing mine on the site. If the project were to move forward, the Underground Laboratory will require new mining activities. Please note the mining activities will only be used to construct the underground laboratory….i.e, this would not be an active production mine once the lab is constructed.

2. If a mine is being mined for the purposes of safety education would this need WVDEP permitting? We are unsure if a permit will be required, this action is probably more analogous to roadway tunneling activities than production mining, but we would rely on WVDEP to provide guidance on permits required. We have initiated consultation with WVDEP, but have not determined the answer to this question; further consultation with WVDEP is currently being pursued by CDC.

3. Mapping shows building in a potential viewshed. If these are in the view shed please note and photograph those over 45 years of age. If they are not in the viewshed please note that as well. We note the abandoned railroad as well, some of these are considered eligible for the National Register of Historic Places. We will need enough information to determine if this one qualifies. Potential viewsheds are currently under review and analysis and CDC will provide the WVSHPO with our findings as soon as they are complete.

When I get this information I'll complete our formal response letter.

Thanks.

Ernest Everett Blevins, MFA
Structural Historian for Review & Compliance
West Virginia Division of Culture & History
West Virginia State Historic Preservation Office
1900 Kanawha Boulevard East
Charleston, West Virginia 25305
304-558-0240, ext. 726
ernest.e.blevins@wv.gov

From: Tarr, Michael S. (Sam) (CDC/OCOO/OSSAM)
Sent: Tuesday, July 3, 2018 10:20 AM
To: Coccari, Gene M <Gene.M.Coccari@wv.gov>
Cc: CDC-MaceWV-EIS (CDC) <cdc-macewv-eis@cdc.gov>
Subject: RE: Air Quality Permit information on Lake Lynn facility

Mr. Coccari,
In response to your questions regarding CDC/NIOSH's new site in Mace, WV and activities at our previously occupied Lake Lynn facility I have the following information:

1. Did CDC/NIOSH have to acquire permits related to the fire testing at the Lake Lynn facility? *I spoke to our research team who conducted research at the Lake Lynn Site when it was operational, and to the best of their knowledge, no air quality or emissions type permits were issued related to their research. (Primarily related to the research regarding fire testing / conveyor belt burn testing)*
2. Did CDC obtain a mining permit to develop the underground facility at Lake Lynn and will permits be required to develop the underground facility at Mace, WV? *The Lake Lynn facility was developed by the Bureau of Mine (BOM) prior to the BOM activities being transferred to NIOSH; we do not have records indicating if permits were*

issued for the development of the Lake Lynn underground facility. As for the new proposed Mace WV underground facility, WV DEP representative (Mr. Caperton) did attend the public meeting held on June 26, 2018; CDC/NIOSH will continue a discussion with WV DEP representatives regarding our proposed action to determine if mining permits will be required to develop the new underground facility.

Thank you for your interest in our project, if you should have further questions, or need additional information, please do not hesitate to contact me.

Sam

Sam Tarr
Director, Projects and Construction Management Services Office (PCMSO)
Asset Management Services Office (AMSO)
Office of Safety, Security, and Asset Management (OSSAM)
Office of the Chief Operating Officer (OCOO)

From: Coccari, Gene M <Gene.M.Coccari@wv.gov>
Sent: Monday, June 25, 2018 2:26 PM
To: Tarr, Michael S. (Sam) (CDC/OCOO/OSSAM) <mst1@cdc.gov>
Cc: Durham, William F <William.F.Durham@wv.gov>
Subject: Air Quality Permit information on Lake Lynn facility

Hello-
Let me know if you find out anything on this issue. Thank you.

Gene M. Coccari
Environmental Resource Analyst
Division of Air Quality
Small Business Assistance Program
601 57th Street, SE
Charleston, WV 25304
(304) 926-0475, ext. 1245

From: Elizabeth Toombs <elizabeth-toombs@cherokee.org>
Sent: Thursday, July 19, 2018 3:24 PM
To: Tarr, Michael S. (Sam) (CDC/OCOO/OSSAM)
Subject: Underground Safety Research Program Facility EIS and Section 106

Good Afternoon, Mr. Williams:

This Office recently received a review request for a site acquisition and development in Randolph and Pocahontas counties in West Virginia. Many thanks for the opportunity to provide comment upon this proposed undertaking. Randolph and Pocahontas counties are outside the Cherokee Nation's area of interest. Thus, this Office respectfully defers to federally recognized Tribes that may have an interest in this area.

Please contact me if there are any questions or concerns.

Wado,

Elizabeth Toombs, Tribal Historic Preservation Officer
Cherokee Nation
Tribal Historic Preservation Office
PO Box 948
Tahlequah, OK 74465-0948
918.453.5389

Appendix F – Public Comments

ORIGINAL

CDC SITE ACQUISITION AND DEVELOPMENT

OF AN UNDERGROUND SAFETY RESEACH PROGRAM FACILITY

COMMUNITY OPEN HOUSE

* * *

STATEMENTS OF AREA RESIDENTS

* * *

Held at:

Linwood Community Library

72 Snowshoe Drive, Slatyfork, WV 26921

June 26, 2018

REALTIME REPORTERS
Kimberly Wooten, Court Reporter
713 Lee Street
Charleston, WV 25301
(304)344-8463
www.realtimereporters.net

STATEMENT OF DOUG COOPER

I am Doug Cooper. And retired from Union Carbide, and I moved up here 24 years ago because of the clean atmosphere, clean water.

And we're very concerned about this project in that water is our lifeline up here, we're all on springs and wells. And this facility is going in, we're sitting on 800 feet of fractured limestone, and in these fractures is where water migrates. And you can tap a well into it, it comes out as a spring, and any blasting -- we had an earthquake here about five years ago and it actually altered wells in the area, people had to re-drill wells.

So what our concern is locally, is all this underground explosions and blasting, it could alter the fractures and water migration. That's our big concern.

STATEMENT OF JEANNE BELL

Well, I'm adjacent to them, I'm the house that's directly across the road from the entrance. And I have, my main concern -- I have two concerns, water and seismic activity.

We're sitting on limestone, it's fractured everywhere. I've got caves on my property, there is

caves on the property they're buying, I know where the sinkholes are.

It's also right above the headwaters of the Tygart Valley River, they're going own the headwaters of the Tygart Valley River, which comes out a cave, comes out of the side of the mountain. So it's a big concern with them drilling lobbies into the limestone, because I could lose my well, is my chief concern. If they change where the water is going through the fractured limestone, I might end up with no water. So that's a huge concern for me.

I always worried about a housing development and drilling wells, but I never thought of something like this. I didn't really worry about a housing development, but I figured that was what was going to happen there.

And I'm worried that when they de-water the site, they're straddling the county line, and the Pocahontas County side of the property I think is in the Elk River watershed, and the Randolph County side where the main site is, is in the Tygart Valley watershed. So it's a problem if they're moving water from one watershed to the other, because they can move contaminants and, you know, algal bloom and that kind of

thing. And I'm concerned about diesel spills in the cars, they could spill it on the ground, it could get into a crack and very easily contaminate the water.

Since I live across the road, I see that the red line is the chainlink fence. And I was hoping -- I'm hoping this comment, that they can move that chainlink fence back away from the road so we can't see it. It drops off just beyond that little field that -- right now I pasture a horse over there, I lease it -- but if we could just not have the chainlink fence right along the road, it would be great.

And I'm worried about the noise, if we can hear the explosions. And I know at the former Lake Lynn site, they did above-ground fire suppression testing. And it looked, I saw pictures of explosions coming out of the site, like out of the side of the mountain, so I'm hoping that that's not -- they say it's all underground, so hopefully that's it. And I guess that's about all.

STATEMENT OF IRA MAUPIN

I live here at Snowshoe full-time. I'm up on the mountain, I have a home up there. I'm retired, and I've been here now for, oh, 15 or 16 years.

And I've been paying, oh, I think careful attention to all matters environmental up here, particularly because it's such a beautiful place. And honestly, I've enjoyed so much living here. Love the wintertime. The wintertime, that brought me up here, but it's the summertime that keeps me, because it almost never gets above 75 degrees. But environmentally, it is such a gorgeous area.

We had a big discussion, oh, a big go-around when they were building the big sewage treatment plant just 100 yards from here. But the sewage treatment plant has a pipeline that comes down the mountain about four miles, and it's a huge pipeline and it feeds the sewage treatment system from roughly 2,200 places to stay up on top of the mountain.

So I've been concerned about it ever since we began talking about the sewage treatment plant, that it could be just a terrible, a devastating environmental accident if that pipeline ever broke. If anything caused that pipeline to somehow break and spill that sewage, if it happened during the middle of the winter up here, which sometimes the snow is six or eight feet deep, it would be nearly impossible to fix it during the cold wintertime season. Generally, it's roughly from

the 1st of November until the end of March, so it's roughly a six-month time frame in which the conditions are so severe up here that it would be terrible if there was a break in that pipeline.

I tried to get that sewage treatment plant built up on top of the mountain so there would be no four miles of pipeline to be interfered with or possible creating an environmental spill. I wasn't successful, too bad. But I was alert to the idea that anything that might cause a shifting of the earth, if it would cause that pipeline to sway, if it could create a break in that pipeline, then we would all be in some serious trouble up here.

Now, the idea of the ground shaking might be caused by an earthquake, and I'm not as crazy as that sounds. About 125 miles from here, east of here -- in fact, about 10 miles east of Charlottesville, there was an earthquake a couple of years ago and did some very significant damage in a little town in Virginia called Mineral, Virginia. And the concept now that I'm thinking about is, who would have ever guessed that there would be an earthquake over as far east as in Virginia, central Virginia over there, but it happened. And I think that it's unpredictable enough, I don't know

if one might happen over here.

But get to the point. I understand that this facility might be built in such a way that they could experiment with some sort of underground explosions, like methane explosions that might occur in terms of coal mining operations, obviously seeking to make it more safe for miners that are trying to mine coal. But the concern that I have is that any experiments of that nature could shake the ground in much like an earthquake might.

And the facility would be located five miles from here, or something like that, it might very well -- the cost of rain that we have up here, underground caverns, underground water, water running along the surface going underground for a mile or two, coming back out again, it could have a significant impact on course terrain, I think. And so my concern has to do with anything like experiments involving explosions or any other significant events that would cause us to be impacted here in the vicinity of Snowshoe Mountain.

Snowshoe is a big operation. We have, oh, around 400,000 visitors a year that come here, many of them during the wintertime for skiing. But then they're developing a summer program, as well, lot of mountain

biking, lot of kids camps, lot of summertime activities around our lake up on top of the mountain. So it's a huge economic factor associated with Snowshoe and its ability to attract visitors, and provide, oh, something less than a thousand jobs to people in this community.

And so we also, I think, have to be concerned about anything that could have an impact on Snowshoe's ability to attract customers to come to the mountain for lots of reasons related to the mountain, whether it be skiing, or whether it be summertime activities, or whether it's just to visit and enjoy the atmosphere up here. And we're talking about rarely above 75 degrees in the summertime, low humidity and a little breeze blowing all the time.

So, I might have said this, it was the wintertime that brought me, but it's the summertime that keeps me. Gosh, it's beautiful up here. So I want to be sure that people are aware of at least these several feelings, and thought that this might be a good way to do it, by talking to you. Saved me from writing an email.

STATEMENT OF MICHELLE GREENBERG

My name is Michelle Greenburg, and I live most

of the time in Sunset Mountain Village, which is just off Route 219 about three miles north of the intersection with Route 66 and Snowshoe Resort. I am speaking in opposition to placing this mine research facility here near Keith Mace's house in what you are calling Mace, West Virginia.

Here are my concerns: Number one, and the prime one, is water. Almost all of us in this area live off our wells. Snowshoe Ski Resort, which is very close to your proposed site, is dependent on Shavers Lake. Shavers Lake is fed by the springs around here. There are several major springs in the area. Close to your proposed facility is the Colonel Marshall Spring, which we believe feeds into the Mace Spring, and which we believe feeds into Big Spring. A lot of us around here get our water through that watershed. The real concern with Shavers Lake and the springs around here is that this is the headwaters for the Tygart River, and that's the watershed for everything between here north to Grafton.

This is an area that is known for its karst. I understand that would be one of the reasons why it would be attractive to you. However, if you're going to be doing underground blasting, as explained to me that

you would be doing in your testing, if you collapse the karst, you could permanently damage our water system. So that's my main concern.

My second concern is, this is a major tourist area. There is no question that Pocahontas County and Randolph County could use more employment; no question. However, the key employer, at least in this area, is the Snowshoe Ski Resort, and damaging this resort or making it less attractive to buyers can hurt all of us. Many of us work at Snowshoe part-time; some people work full-time; other people, my husband and I are retired, volunteer there; but this is the key employer in the area.

It is also one of the prime tourist destinations in the state, and it just didn't make any sense to place a research facility that it going to engage in underground blasting in such close proximity to a ski resort.

Another concern I have is the chainlink fence that I'm told would surround the property. I certainly understand the need for a fence. However, this fence would abut our neighbor Keith Mace's property and would be an eyesore for all of us around there. Keith's property is at a high elevation, which means we would be

able to see that fence from the road, which is an eyesore and would be sad.

Keith Mace is a neighbor and the good friend of the community. Obviously, you're talking about Mace, West Virginia, it's his family property. If you were to buy the facility despite concerns, and if you could get past the West Virginia DEP requirements, I would hope you would consider changing the boundary where it abuts Keith Mace's home to not do that for at least within maybe 50 feet.

Lastly, is a concern in regards to the pipeline. We have the ACP pipeline coming through here. While it does not come though adjacent to your proposed site, it does cross Route 219 just south of Route 66. I'm not sure how far your blast shock waves could go, but it is a concern of mine. Also, while they're constructing the pipeline in that section, it may be that part of 219 will be blocked, that might be a concern of yours.

The last concern I have has to do with an emergency. Because we are a rural area, we have a volunteer fire department. Lovely people, but they are not equipped to deal with a major emergency. So if your fire testing would get away from you, if your blasting

would get away from you, it could take quite a long time before somebody could come from Elkins -- which would be 40 minutes away -- and the four or five guys at Shavers Fire Station could not possibly cope with this.

So for all of those reasons, I am opposed to this project. I hope you can find some other location for your project. I would point out that there are many abandoned coal mines in southern West Virginia, and they probably would appreciate your being located there and providing jobs down there. That concludes my remarks.

STATEMENT OF JOY COOPER

I'm Joy Cooper, and I live probably five miles -- less than five miles from this facility that's going to be built. And I'm sure there's been a lot of other comments, and I probably could agree with most of them, but the thing I would like to emphasize is my concern about the settling ponds they talked about.

There will be recycling of the water, I was told, but there will be a settling pond. And we live in a county where there are -- it's a birth place of five rivers, and I'm concerned about the overflow when storms happen, when we get big storms. And I was next to a person in the forestry service who said West Virginia

has very poor laws concerning settling ponds, so I would like to hear more, hear that addressed.

STATEMENT OF MARTY GIDDINGS

Well, my name is Marty Giddings, and I am a local real estate broker here. And I have lived here since 1977 when Snowshoe was in its infancy, and have left for a couple years here and there, always came back. This is a very special area.

I think my concern when I read about the project, was because this is a birthplace of rivers, this county. My utmost concern was how it was going to -- or hopefully not going to -- affect the water table and our karst topography in this area.

I feel like having now done the gamut around the room and talked with, you know, the folks from NIOSH, from CDC, everybody that's going to be in here, the fellow Garrett that's going to be doing the mining testing, I feel like this is -- I feel really positive about this.

I think as far as mine safety, that's exciting. I think we need for all kinds of mining much better safety records, safety equipment. Of course, you know, my job aside, because I don't really -- I mean, it

could equate to some people buying property -- but the thing to me is that it will help the economy, in that when they have people coming in to do testing, obviously they'll come here, they'll rent rooms, that type of thing -- fall in love with our area, who knows -- but it is a very special place. So I see that as a positive.

I truly believe, after speaking with all the people I talked with tonight, that they're all very good at what they do. They don't want to come in here and rape our landscape, or, you know, harm our natural resources. That's not their job. They want to do this in the most pristine and most professional way that they can. And I really, in weighing what could go into this property, or what -- I mean, if it wasn't this project -- I think this is a good thing.

So I'm much more excited about it now that I came here and went to this program -- or not program, but exploratory evening -- so I'm glad to have done that and get educated.

STATEMENT OF ROBERT MACE

Well, first of all, my name is Robert Mace. I receive mail and I go by my middle name, Keith. Locally, everybody knows me by Keith Mace instead of

Robert. But, anyway, I'm here, I received mail with a map, and my property borders the proposed site that we're talking about here, and come to see what's what.

And my concern is naturally the water. I have a mountain spring, and it's some distance from this test site, proposed test site. It's good water. I know it's limestone country, and I know the water travels sort of in mysterious ways in some of this limestone cavern country.

And I am a former coal miner. I spent a large part of my younger life underground in the coal mines. I understand 100 percent of what this is all about, or near 100 percent. And I worked on the surface mines, too.

And my last years of employment, I worked in the shop for Snowshoe. Retired from Snowshoe, it's been 17 years now.

I worked as equipment operator, fabricator, welder, mechanic, electrician, and my whole life has pretty well been the same thing wherever I was, on the surface or underground or whatever. I've worked in underground coal mines that was -- had methane gas, which I run a Lee Norse continuous miner, ignited gas, had flashes more than once, but very small, very slight.

I worked for the Pittston Company just out of Richwood at Nettie, West Virginia, and was a good company, good mine, good ventilation, no problems.

And then I worked around in this local area for various companies underground, which mines are not so deep underground as they are over at Nettie, and no methane gas that we've detected. And was very fortunate that I worked for as long as I did without an injury or any bad thing happen, it was good work.

My concern here is basically the water. I do have a mountain spring, as I said before, and some other people do. I think I should state, explosions or test explosions for underground simulating mine explosions, I would assume and hope that they would be small enough that they wouldn't do any wide-spread damage to the mountain streams, surface springs.

And then my other, another concern is due to the gas line that is coming through here, Atlantic Coast Pipeline. I'm hoping that there won't be any restrictions surrounding this test facility, which my property borders it, in case they would want to do some drilling, and whether it be on my property or close by, that would restrict the gas companies from getting any gas from my property and keeping me from receiving

income from it.

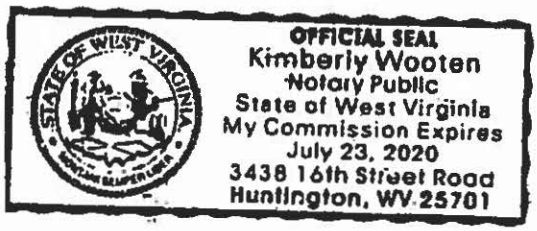
I'm all for research and safety. And with talking with some of the representatives here right now, I can readily see that there's been quite some improvement as far as barricades -- and I don't know the word to describe -- in case of a mine explosion or whatever, is shelters, explosion shelters or facilities that would provide protection for miners that were trapped underground until rescue efforts could be completed.

And like I say, I'm all for helping anybody and everybody. And I know there needs to be mine research, there needs to be safety procedures still put in effect. And the federal mine inspectors, state mine inspectors, we can thank them for what they have done and see that the companies, you know, do provide what is required of them. And I'm all for that.

And I don't know a whole lot other, anything else to say really. Again, I'll say water and explosion tests is my main concern, and restrictions around the test facility that wouldn't restrict me from any things like gas removal or drilling close by.

That's about it, about all I know. And I thank you for the display and the people here that has

been very informative and very polite, and I've learned a lot -- and seen a lot of my neighbors I hadn't seen for quite some time. That's about it.



From: CDC-MaceWV-EIS (CDC)
Sent: Tuesday, July 3, 2018 10:38 AM
To: 'ï»¿David Cline' <dcline1712@frontier.com>
Cc: CDC-MaceWV-EIS (CDC) <cdc-macewv-eis@cdc.gov>
Subject: RE: need copy of site map

Dear Mr. Cline,

Thank you for your interest in the CDC/NIOSH Acquisition of Site for Development of a Replacement Underground Safety Research Program Facility project. In response to your email inquiry below, please find attached the materials presented at the June 26, 2018 Public Meeting. Within the attached you will find a site location map with an aerial view of the site with the property boundary indicated. (property boundary is shown as "Study Area" on the aerial map)

Thank You again for your interest in the project.

Respectfully,
Sam Tarr

From: ï»¿David Cline <dcline1712@frontier.com>
Sent: Monday, July 2, 2018 8:24 PM
To: CDC-MaceWV-EIS (CDC) <cdc-macewv-eis@cdc.gov>
Subject: need copy of site map

Please send me a copy of the site map with property line for the Mace WV property
Thank you

David Cline

July 5, 2018

Written Comment – Mace, West Virginia Underground Safety Research Facility /Program Acquisition of property

To: Sam Tarr,
CDC / Prevention, 1600 Clifton Road NE, MS-K80, Atlanta, Georgia 30329-4027

From: David Cline, 320 Booker Street, Weirton, WV 26062 – dcline1712@frontier.com
Rent property, - cabin next to site
County Line Cabin – 42130 Seneca Trails (US-219) , Mace , WV
County Map – Poco / Greenbank 4/ map– 62 parcel 0003
Owner – Carl O Mace, 413 Fay Ave. Saint Marys, WV 26170-9768

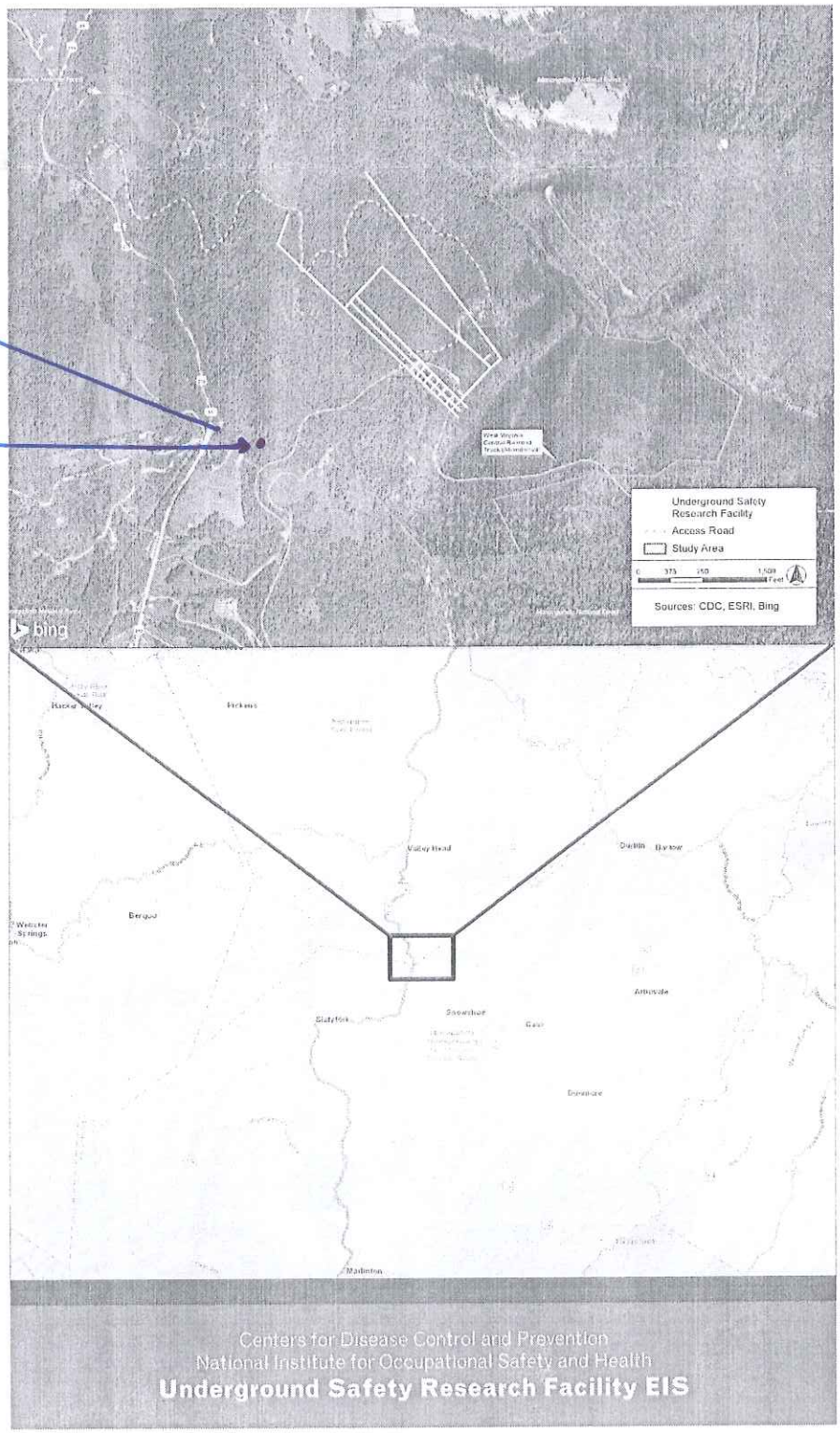
I have rented, this property beginning in the late 1970's to the present from the Mace family, we have a rustic cabin at the county line near US 219. Our water supply is a spring near the railroad south east side of the property. The proposed acquisition is along the north west side of the 37 acre property. My personal concern is damage or lose of our water supply from the spring. Water supply for potable water in the mountains is very limited, even with drilling water wells. The spring is from the limestone shelf with holding tanks at the spring location. You are more than welcome to inspect the spring and it's flow.

I am retired from Acrelor Mittal Steel in Weirton, and I have worked part-time for Snowshoe Ski Area for 38 years as a Ski Patroller, and Summer Bike / Event staff member.
I called Carl Mace and asked if I could make this comment, he gave me permission to comment on our behalf.

David Cline

Project Area

The site being considered for acquisition and development includes 461.35 acres located off of U.S. Route 219 in Randolph and Pocahontas counties near Mace, West Virginia.



Cabin

Spring (water)

Carl Mace Property

David Cline

Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health
Underground Safety Research Facility EIS

Certain browser plug-ins or extensions, such as Grammarly, may interfere with submitting comments on the comment form. If you have issues, please disable browser plugins and extensions and try submitting your comment again. If you need additional assistance, please contact the Help Desk at 1-877-378-5457.

regulations.gov
Your Voice in Federal Decision-Making

Comment from John Carruth

The is a Comment on the **Centers for Disease Control and Prevention** (CDC) Notice: **Notice of Intent to Prepare and Environmental Impact Statement, Acquisition of a Site for Development of a Replacement Underground Safety Research Program for CDC/NIOSH in Mace, West Virginia**

For related information, **Open Docket Folder**

Comment

First and foremost this scoping period is completely inadequate. [Redacted]. The only way I found out about this was when a concerned neighbor called an hour before the Linwood meeting on June 27. He only heard by word of mouth. I could not attend with no advanced notice. No doubt hundreds of potentially impacted citizens couldn't either and most people around here know nothing of this even now. The scoping period is shown as one month from June 15 to July 15. A slipshod, meeting is held with virtually no attempt at real notification 12 days into the period! It is an insult. You must extend this scoping period. The informational brochure that was handed out is an insult to intelligence. The only "need" discussed in the brochure is the fact that NIOSH was kicked out of where it was and now after 6 years claims it needs this site. After searching the world (Poland, South Africa and the vast footprint of DoD) it lands on a pristine piece of Karst laden ground next to a ski resort that is the critical economic engine for the region. Ridiculous! Furthermore, the brochure appears to have typos in the timeline. And you are a research organization? Wow! What trust that must bring to your work or any claims you might make about impact from this endeavor. You must extend this scoping period. Based on feedback from attendees of the meeting the information shared was incomplete and inconsistent. You must extend this scoping period!

ID: CDC-2018-0057-0002

Tracking Number: 1k2-940i-za5k

Document Information

Date Posted:
Jul 5, 2018

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Submitter Information

Submitter Name:
John Carruth

regulations.gov
Your Voice in Federal Decision-Making

Comment from David Cline

The is a Comment on the **Centers for Disease Control and Prevention** (CDC) Notice: **Notice of Intent to Prepare and Environmental Impact Statement, Acquisition of a Site for Development of a Replacement Underground Safety Research Program for CDC/NIOSH in Mace, West Virginia**

For related information, **Open Docket Folder**

Comment

From: David Cline, Rent property, - cabin next to site [Redacted] , Mace , WV [Redacted], Concerns- damage or lose of water supply - spring I have rented, this property beginning in the late 1970s to the present from [Redacted], we have a rustic cabin at the county line near US 219. Our water supply is a spring near the railroad south east side of the property. The proposed acquisition is along the north west side of the 37 acre property. My personal concern is damage or lose of our water supply from the spring. Water supply for potable water in the mountains is very limited, even with drilling water wells. The spring is from the limestone shelf with holding tanks at the spring location. You are more than welcome to inspect the spring and it's flow. Map and letter also mailed via us mail General comment - will public access to the total 420 ac be limited, WV State Rail Authority - railroad right of way is used for hiking and biking. There are plans to improve that railroad right of way for future public use and rail service.

ID: CDC-2018-0057-0003

Tracking Number: 1k2-943r-nas2

Document Information

Date Posted:
Jul 6, 2018

Show More Details

Submitter Information

Submitter Name:
David Cline

Industrial Minerals Association — North America

July 12, 2018

Mr. Sam Tarr
Office of Safety, Security, and Asset Management (OSSAM)
Centers for Disease Control and Prevention
1600 Clifton Road, NE
MS–K80
Atlanta, Georgia 30329-4027.

Re: Notice of Intent To Prepare an Environmental Impact Statement, Public Scoping Meeting, and Request for Comments; Acquisition of Site for Development of a Replacement Underground Safety Research Program Facility for the Centers for Disease Control and Prevention/National Institute for Occupational Safety and Health (CDC/NIOSH) in Mace, West Virginia; Docket No. CDC–2018–0057

Dear Mr. Tarr:

The Industrial Minerals Association – North America (IMA-NA) is a trade association created to advance the interests of North American companies that extract or process industrial minerals used throughout the manufacturing and agricultural industries. IMA-NA has long been a supporter of the former Lake Lynn Experimental Mine (LLEM), which is no longer available to NIOSH. The nearly six intervening years since the LLEM became unavailable to NIOSH diminished NIOSH's capacity to conduct mine safety and health research in a controlled underground mine setting. National mine safety and health research has suffered as a direct result. Consequently, IMA-NA and its member companies support CDC and NIOSH intentions to consider a replacement underground mine safety research program facility.

The next step in the site acquisition process is for CDC and NIOSH to prepare an Environmental Impact Statement (EIS) for the proposed acquisition of the Mace, WV, site and for the construction of a new underground mine safety research facility on the site. Under the National Environmental Policy Act federal agencies are required to evaluate the environmental effects of their proposed actions and consider a range of reasonable alternatives to the proposed action before making a decision. CDC and NIOSH have initiated a public scoping process through publication of a Notice of Intent in the *Federal Register* dated June 14, 2018 (83 FR 27781-2). A public meeting was held on June 26, 2018, in Slatyfork, WV, to begin to establish the range of issues to be addressed during the preparation of the EIS. IMA-NA has reviewed the materials made available at that public meeting (Attachment 1, hereby made a part of these comments) and offers the following comments.

IMA-NA supports the Purpose and Need descriptions as stated in the meeting materials. IMA-NA acknowledges the Project Area, What is NIOSH?, and the Lake Lynn Experimental Mine descriptions as stated in the meeting materials. As to the Alternatives Dismissed from Consideration descriptions as stated in the meeting materials, IMA-NA offers the following comments:

- Continue Use of LLEM – The meeting materials state, "[t]he lease agreement at LLEM included 406 acres within an overall property parcel of 4,350 acres. The owner would not enter into a long-term lease and rejected multiple offers for CDC to purchase the property." Faced with these existing conditions, IMA-NA has supported in the past and continues to support the taking of the LLEM by eminent domain. While remediation work still would be necessary to rehabilitate the LLEM, the advantage of taking the LLEM by eminent domain is that it would obviate the time and expense needed for "green fields" construction. The LLEM also is more conveniently located to the NIOSH Pittsburgh Research Laboratory, which formerly staffed the LLEM. Attached is a statement issued by IMA-NA prior to the expiration of the lease for the LLEM on September 30, 2102 (Attachment 2, also hereby made a part of these comments). Also attached are letters of support to which IMA-NA was a signatory advocating either additional funds needing to be appropriated for the purchase of the LLEM, or that the federal government should consider taking the property under the doctrine of eminent domain and letting the courts decide appropriate compensation (Attachments 3 and 4, also hereby made a part of these comments). A less attractive alternative identified in these letters, given the time and expense involved in developing a "green fields" site, was to identify a suitable location to build a new facility to replace the LLEM. IMA-NA maintains that Continue Use of LLEM should remain an alternative considered in the EIS.

- Use of the Central Mining Institute's Experimental Mine Barbara in Poland – IMA-NA supports the statement contained in the meeting materials.

- Use of a Similar Facility in South Africa – IMA-NA supports the statement contained in the meeting materials.

- Use of Existing Department of Defense Facilities – IMA-NA supports the statement contained in the meeting materials.

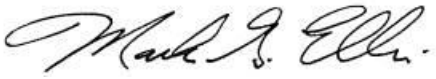
The *Federal Register* Notice on Intent dated June 14, 2018, referenced above, states that at a minimum, the EIS will evaluate the following two alternatives: The Proposed Action Alternative (acquisition of the site and construction of a new underground mine safety research facility) and the No Action Alternative. IMA-NA offers the following comments:

- The Proposed Action Alternative (acquisition of the site and construction of a new underground mine safety research facility) – IMA-NA supports the development of a Proposed Action Alternative in the EIS.

- No Action Alternative – While a no action alternative typically is included in an EIS, IMA-NA already does not favor this alternative for reasons made evident in these comments and in Attachments 2, 3 and 4 to these comments.

Thank you for your consideration of IMA-NA's comments on the CDC/NIOSH Notice of Intent. IMA-NA stands ready to participate constructively in discussions regarding the acquisition of the Mace, WV, site for development of a replacement underground mine safety research program facility but also supports including the acquisition of the former NIOSH Lake Lynn Experimental Mine as an alternative in the EIS.

Sincerely,



Mark G. Ellis
President

Attachments as stated

regulations.gov
Your Voice in Federal Decision-Making

Comment from Ricki Carruth

The is a Comment on the **Centers for Disease Control and Prevention** (CDC) Notice: **Notice of Intent to Prepare and Environmental Impact Statement, Acquisition of a Site for Development of a Replacement Underground Safety Research Program for CDC/NIOSH in Mace, West Virginia**

For related information, **Open Docket Folder**

Comment

I respectfully submit comments about the proposed Underground Safety Research Facility EIS on the Randolph-Pocahontas County line in West Virginia. Thank you for this opportunity. These are our tax dollars were considering for investment and I hope comments from local residents of this rural area will be listened to. I do live very near the proposed facility. Before I can comment more meaningfully about the project, I have much to learn about its impact on our local community and environment. Following are some of my concerns: How can we be assured there will be no impact felt within the surrounding area. At the recent public meeting on this project, representatives stated methane gas explosions would be tested at the site, but that these gases would not escape, nor would the explosions be felt or heard. We live in an area underlain with karst topography. How can we be certain this fragile region wont be harmed? Are there not other, more appropriate underground mines already in existence in economically ravaged regions of South Western West Virginia that could be used for this site? Our community is known for its natural scenic beauty and environmental purity. We are dependent on tourism investments. To many of us here, it just doesnt seem like this facility is a good fit for this part of the Allegheny Highlands. If the project does go through, could it be possible to advance these interests for preserving the natural beauty and environment uniqueness of our region by establishing a conservation easement or some other appropriate protected zone surrounding the facility site? That could turn out to be a win-win situation for all. Ours is a community about to be heavily impacted by the onslaught of construction of the Atlantic Coast Pipeline. I was adamantly opposed to that privately-funded project; however, it seems the comments of those of us in opposition to ACP were not heard. We sincerely hope that will not be the case with this project. Like others here, I stand ready to support this project and be a positive public partner for it If we can be confident it wont hurt our community. Open, honest communication from the project team can accomplish that. Thank you. [Redacted]

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Submitter Information

Submitter Name:
Ricki Carruth

APPENDIX B: NOISE AND VIBRATION TECHNICAL REPORT

Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health

Acquisition of Site for Development of a Replacement Underground Safety Research Program Facility in Mace, West Virginia

Noise and Vibration Technical Report
FINAL

October 2018

This technical report was completed in support of the Draft EIS analysis. Any assumptions or resource updates to this reports were made directly in the Final EIS. Where there are differences between the Technical Report and the Final EIS language, the Final EIS language supersedes the Technical Reports.

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ABBREVIATIONS AND ACRONYMS

Acronym	Definition
ANFO	Ammonium nitrate/fuel oil
CDC	Centers for Disease Control and Prevention
dB	decibel
dBA	A-weighted (human response) decibels
dBL	Linear decibel
FTA	Federal Transit Administration
GSA	General Services Administration
Hz	Hertz
in/sec	Inches per second
lbs	Pounds
L_{dn}	Day-night sound level
L_{eq}	Equivalent sound level
LLEM	Lake Lynn Experimental Mine
ML	Measurement Location
NEPA	National Environmental Policy Act
NIOSH	National Institute for Occupational Safety and Health
NRQZ	National Radio Quiet Zone
OSMRE	Office of Surface Mining Reclamation and Enforcement
PPV	Peak particle velocity in inches per second
SD	Scaled distance

1 INTRODUCTION

This Noise and Vibration Impact Technical Report has been prepared as part of the environmental impact statement (EIS) for the proposed acquisition and development of a site by the Centers for Disease Control and Prevention (CDC) within the Department of Health and Human Services, in cooperation with the U.S. General Services Administration (GSA). The site would be developed into the new National Institute for Occupational Safety and Health (NIOSH) Underground Safety Research Program facility (proposed action). The acquisition and development would replace the former Lake Lynn Experimental Mine (LLEM) in Fayette County, Pennsylvania, and would support research programs focused on miner health and safety issues. The site being considered for acquisition and development includes 461.35 acres located off U.S. Route 219 in Randolph and Pocahontas Counties near Mace, West Virginia (the project site). CDC is preparing this EIS in cooperation with GSA to comply with the requirements of the National Environmental Policy Act (NEPA) of 1969.

The underground safety research facility would include two distinct areas:

- an underground research facility with crosscuts and entries that simulate a room and pillar mine and a longwall operation, totaling more than 15,000 linear feet of entryway; and
- surface facilities to support underground research activities, including offices, research and research support buildings, maintenance shops, and a fire suppression research facility.

The previously leased and operated LLEM was a unique facility that offered the opportunity for various full-scale mine experiments and research. The research was essential to programs focused on miner health and safety issues. The LLEM was initially constructed under a long-term lease agreement with the original land owner. Located 60 miles south of Pittsburgh, Pennsylvania, the lease agreement covered 406 acres of the overall property parcel of approximately 4,350 acres. Underground mine safety research was conducted at LLEM until 2008 when the roof collapsed. This underground experimental coal mine and aboveground fire testing facility was primarily used for studies and research on mine explosions, mine seals, mine rescue, ventilation, diesel exhaust, new health and safety technologies, ground control, and fire suppression.

Research continued at the LLEM until it was closed in December 2012. CDC/NIOSH intended to extend the lease on the facility but no lease agreement could be reached with the new property owners. The facility continued to operate under a series of standstill agreements, and during this time, several rehabilitation projects were initiated. The federal government decided to purchase the facility and complete the rehabilitation work after obtaining title to the property. Negotiations to purchase the property were unsuccessful, with the owners rejecting multiple offers.

After the lease and purchase negotiations failed, a number of other options were considered for conducting full-scale experiments that required the use of LLEM. The purpose of the proposed action is to provide NIOSH with a new underground safety research facility that would allow for full-scale mine experiments and research that accurately simulate an underground mine. After a nationwide search for alternative sites and methods for conducting the full-scale experiments, no viable alternatives other than construction of a new research facility were found.

The project site in West Virginia met the minimum criteria and was determined to be a viable site. It is located near Mace, West Virginia, straddles the Randolph and Pocahontas County lines, and is less than a 4-hour drive from CDC/NIOSH's Bruceton, Pennsylvania research facility.

2 NOISE FUNDAMENTALS

Noise is undesirable sound that causes interference and disturbance. Sound is caused by vibrations traveling through a medium, such as air or water, which are sensed by the ear. The perception and evaluation of sound involves three basic physical characteristics: intensity (the acoustic energy, which is expressed in decibels [dB]); frequency (the number of cycles per second the air vibrates, expressed in Hertz [Hz]); and duration (the length of time a sound can be detected).

The loudest sounds that can be detected comfortably by the human ear have intensities that are a trillion times higher than those of sounds that can barely be detected. This vast range means that using a linear scale to represent sound intensity is not feasible. Therefore, dB, which represents the intensity of sound or noise level, is a logarithmic unit. Further, because the human ear cannot perceive all frequencies (or pitches) equally, noise measurements are generally adjusted (or "weighted") to better match human hearing by filtering out very low and very high frequencies. This adjusted unit is known as the A-weighted decibel, or dBA.

Because of the logarithmic nature of the dB scale, noise levels do not add up linearly. This means that two loud noises together, such as a garbage truck (100 dBA) and a lawn mower (95 dBA), result in a combined noise that is only slightly louder than the louder of the two component noises, in this case 101.2 dBA (not 195 dBA). Changes in noise levels of less than 3 dB are generally not perceived. A 10-dB change is generally perceived as a doubling (or halving) of the noise level.

Because noise consists of vibrations that can be slowed down or absorbed by the media they travel through, noise levels decrease with distance from the source and are reduced by barriers, both artificial (e.g., sound walls) and natural (e.g., densely forested areas, hills). Conversely, noise can be amplified or can travel farther by bouncing off certain hard surfaces (echo).

Table 1 shows examples of common noise levels along with an indication of how they are typically perceived.

TABLE 1. TYPICAL SOUND LEVELS

Noise Level (dBA)	Typical Source	Subjective Impression
10	Threshold of hearing	
20–50	Rustling leaves; whisper; refrigerator humming	Extremely to very quiet
50–60	Traffic in suburban areas; large transformer at 100 feet; normal speech at 10 feet	Quiet
60–70	Air conditioner at 100 feet; gas lawn mower at 65 feet	Moderately loud
70–80	Busy roadway at 50 to 100 feet; traffic in downtown area; vacuum cleaner	Loud
80–90	Passing freight train at 30 feet; leaf blower at 5 feet, garbage disposal	Very loud
90–100	Gas lawn mower at 3 feet; wood chipper shredding trees; chain saw cutting trees at 10 feet	Very loud
100–110	Jackhammer at 3 feet	Uncomfortably loud

Noise Level (dBA)	Typical Source	Subjective Impression
110–120	Turbo-fan aircraft at take-off power at 200 feet; indoor rock concert	Uncomfortably loud
120	Air raid siren at 50 feet	Threshold of pain

Source: CDC (2018)

3 NOISE AND VIBRATION REGULATIONS

Federal and state laws, regulations, and guidelines provide the noise and vibration regulatory environment for the project. No local vibration or airblast regulations are applicable to the project area, and blasting noise and vibration regulations for operational periods are not specifically provided by state and federal laws and guidelines. However, noise and vibration guidelines for blasting are provided in the state's mining regulations and the Department of Interior Office of Surface Mining Reclamation and Enforcement (OSMRE), so although this facility would not be a mining facility, these regulations are discussed here to provide context.

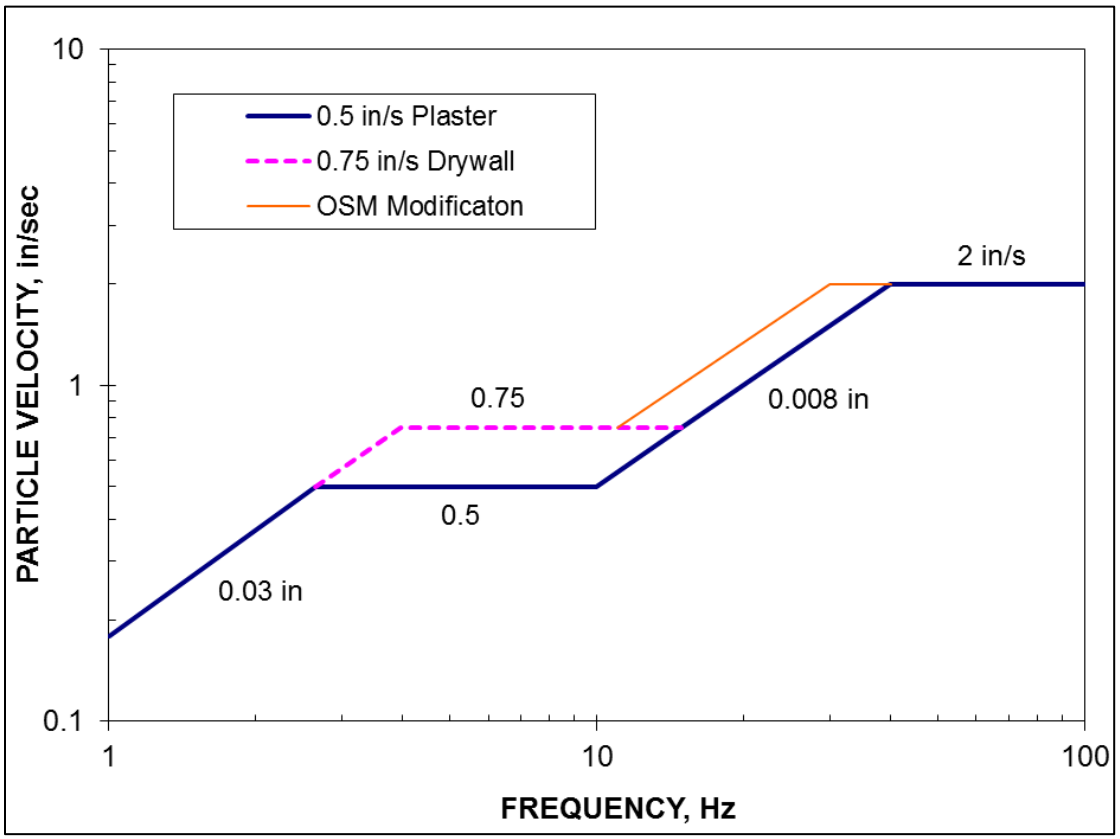
Similarly, construction noise and vibration limits are not provided at the state or local level; in lieu of regulations at the state and local level, the Federal Transit Administration (FTA) provides guidelines for construction noise and vibration for the purposes of this analysis.

The project would be located inside the National Radio Quiet Zone (NRQZ). While the NRQZ is not a noise or vibration regulation, it is noted here to present the heightened sensitivity associated with infrastructure projects, such as this one, located in this area of West Virginia. The NRQZ was established by the Federal Communications Commission in 1958 to minimize possible harmful interference with the National Radio Astronomy Observatory in Green Bank, West Virginia, and the radio receiving facilities for the United States Navy in Sugar Grove, West Virginia. Within the NRQZ, it is illegal to operate, or cause to be operated, any electrical equipment that causes harmful interference with the reception of radio waves. While the NRQZ does not apply to "noise" per se, it is noted here for the purposes of indicating the higher sensitivity of the facility to outside influences. Sound waves and vibrations would not interfere with the measurement and observance of radio waves, although vibration could affect vibration-sensitive equipment.

3.1 Federal Blast Vibration and Overpressure (Airblasts) Regulation

OSMRE provides threshold limits for ground-borne vibrations and peak overpressure (airblast) from blasting at mines (30 Code of Federal Regulations 816.66 Use of Explosives: Blasting Signs, Warnings, and Access Control). The regulation provides ground-borne vibration thresholds in peak particle velocity (PPV) values and airblast limits, set in linear decibels (dBL) on a flat response. The dBL is used because portions of a given blast event's sound pressure levels are at frequencies at or below frequencies (e.g., Hz) that are audible, and the dBL is used because it does not weight sound pressure levels like the dBA does. Allowable ground-borne vibration levels are limited to 1.25 inches per second (in/sec) PPV at 0 to 300 feet, 1.00 in/sec PPV at distances of 301 to 5,000 feet, and 0.75 in/sec PPV at distances of 5,001 feet or more. Allowable airblasts are limited to 129 dBL at 6 Hz or lower and 133 dBL at 2 Hz or lower. Annoyance is subjective, but studies have shown annoyance to be less likely if received airblast levels are kept below 120 dBL at sensitive structures or locations. Alternatively, this regulation provides blasting level criteria (e.g., Blasting Level Chart) based on the ground-vibration limits to determine the maximum allowable vibration where seismograph records provide both PPV and vibration-frequency

information. **Figure 1** displays the blasting ground vibration criteria established in federal regulation and used in this study.



Source: OSMRE (1987)

FIGURE 1. OSMRE SAFE BLASTING GROUND VIBRATION CRITERIA

3.2 Federal Transit Administration Construction Noise and Vibration Guidelines

FTA provides general construction (i.e., non-blasting) guidelines that can be useful for situations where federal, state, and local noise and vibration limits are not provided. While these are not regulated limits specifically applicable to this project area, adherence to these guidelines can be considered a "best practice" in situations where no construction noise limits exist, such as is the case for the project. The FTA noise criteria are for 8-hour noise exposure during either daytime or nighttime periods. The proposed action would only be constructed during daytime (i.e., 7:00 a.m. to 7:00 p.m.), so only the daytime guidelines are applicable (**Table 2**). Damage associated with vibration from general construction is the predominant concern for the proposed action. For this reason, the FTA guidelines are based on damage criteria for what it has determined to be classified as Category 3 structures, which are non-engineered timber and masonry buildings. Residences near the project are assumed to be Category 3 uses, which have a PPV limit of 0.2 in/sec.

TABLE 2. FEDERAL TRANSIT ADMINISTRATION DAYTIME CONSTRUCTION NOISE LIMITS

Land Use	Daytime L_{eq}
Residential	80
Commercial	85
Industrial	90

Source: FTA (2006)

3.3 State of West Virginia Blast Vibration and Overpressure (Airblasts) Regulation

The State of West Virginia regulates blast noise and vibration associated with mineral extraction via the State's code, Section 22-4-13 (State of West Virginia 2018). Although this facility would not be a mineral extraction facility, these regulations are provided for context in the analysis. PPV are restricted to the following levels depending on proximity of the blast event to a vibration sensitive structure:

- 1.25 PPV where sensitive receptors are within 300 feet
- 1.00 PPV where sensitive structures are 301 to 5,000 feet
- 0.75 PPV where sensitive structures are 5,001 feet or greater

For airblasts, the State restricts dBL to the following levels:

- 1 Hz or lower 134 peak dBL
- 3 Hz or lower 133 peak dBL
- 6 Hz or lower 129 peak dBL

The closest noise and vibration sensitive structures to the project area are located approximately 1,200 feet away, so the State's 1.00 PPV level is applicable. This level is less restrictive than what FTA recommends; therefore, compliance with the FTA guidelines ensures compliance with the State's limit. West Virginia does not promulgate construction noise and vibration limits applicable to the construction or operation of the proposed project.

4 EXISTING NOISE AND VIBRATION CONDITIONS

Noise and vibration levels were monitored at the project area and the project's site boundary at three locations to establish the existing noise and vibration conditions (**Figure 2**). Sound levels were measured for 24-hour periods at three locations with spot vibration measurements of approximately 10 to 20 minutes duration. Several noise metrics were collected, including the A-weighted decibel (dBA) broadband equivalent sound level (L_{eq}) and statistical sound levels such as L_{10} (level exceeded 10 percent of the time), L_{50} (level exceeded 50 percent of the time), and L_{90} (level exceeded 90 percent of the time). Hourly L_{eq} values were used to calculate the day-night average sound level (L_{dn}), which includes a 10 dB penalty for nighttime sound levels.

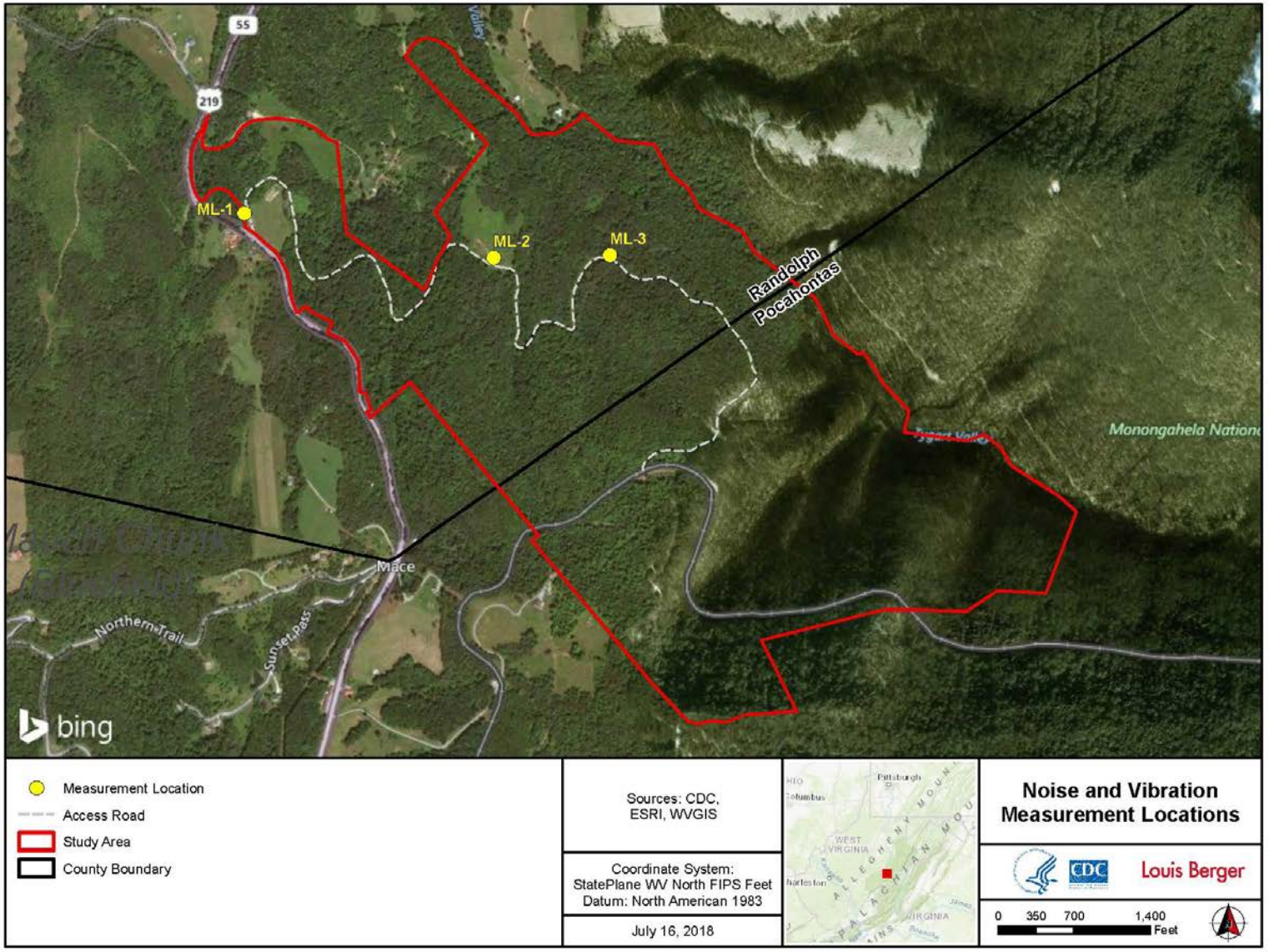


FIGURE 2. NOISE AND VIBRATION MEASUREMENT LOCATIONS

Noise measurements were collected with American National Standards Institute Type 1 sound level meters, specifically the Bruel and Kjaer model 2250 datalogger paired with a half-inch microphone and appropriate preamplifier. Appendix A provides the annual laboratory calibration sheets for the equipment used in the monitoring effort. Sound levels were collected in 1-hour and 1-second intervals beginning the morning of June 6, 2018, and concluding the morning of June 7, 2018. **Table 3** provides the summary of measured sound levels by daytime, nighttime, and total measurement periods. Total noise levels (i.e., 52 dBA L_{dn}) at Measurement Location (ML)-1 are highest because of its proximity to roadway traffic.

Vibration levels were also collected with a Bruel and Kjaer 2250 datalogger paired with a vibration accelerometer. At each location PPVs were collected. Vibration levels were highest at ML-1 because of its proximity to roadway traffic vehicle pass-by events. **Table 4** provides the monitored vibration levels.

TABLE 3. MONITORED SOUND LEVELS

Measurement Location	Sound Levels (dBA)												
	Daytime				Nighttime				Total				
	L_{eq}	L_{10}	L_{50}	L_{90}	L_{eq}	L_{10}	L_{50}	L_{90}	L_{eq}	L_{10}	L_{50}	L_{90}	L_{dn}
ML-1	47	40	31	29	44	31	25	24	46	37	28	27	52
ML-2	47	39	32	31	41	30	26	25	46	36	29	29	49
ML-3	42	35	30	30	35	31	27	27	40	34	29	29	43

TABLE 4. MONITORED VIBRATION LEVELS

Measurement Location	Minimum PPV (in/sec)	Maximum PPV (in/sec)	Average PPV (in/sec)
ML-1	0.0014	0.0067	0.0035
ML-2	0.0019	0.0048	0.0034
ML-3	0.0004	0.0009	0.0006

5 IMPACT ANALYSIS

5.1 Methodology

As noted above, there are no applicable operational thresholds for this facility. To provide a measurable context, this analysis uses OSMRE threshold limits for ground-borne vibrations and peak overpressure (airblast) from blasting at mines (30 CFR 816.66: Use of Explosives: Blasting Signs, Warnings, and Access Control). The proposed action would develop an underground safety research facility with associated surface structures. The majority of the facility would be constructed underground with two egress locations and approximately 17,000–25,000 square feet of surface structures on 5.5 acres. An access road already exists within the project area, and the surface structures would be located in what is already a cleared field area. The access road would need to be slightly widened, and the field area would need to be graded. To the extent possible, material removed from underground would be used as fill in the vicinity of the support facilities.

Scaled distance (SD) equations are used to predict ground vibration and airblasts associated with blasting efforts. The SD equations for vibration and airblasts are as follows:

$$\text{Ground-Vibration prediction: } SD = D/W^{1/2}$$

$$\text{Airblast prediction: } SD = D/W^{1/3}$$

where D = distance (feet) between the blast and receptor
W = maximum weight of explosive (pounds [lbs]) detonated per delay

To facilitate these predictions, OSMRE has prepared spreadsheet models for both ground-vibration and airblast predictions. A number of options are available for use in predictions of blasting at mine sites for mineral extraction; however, because the blasting efforts for the proposed action would be associated with construction, this analysis used the setting "Upper Bounds Oriard (Construction Worst Case-Not Highly Confined)." This setting implements the SD equation above and is adjusted to account for blasting conditions typical to construction efforts, such as those that might be encountered during construction of the proposed action. The calculation conservatively assumes a worst-case construction blasting scenario with a charge weight of 103 lbs per delay, an amount the project engineers have identified as being the high end of what would be used during construction (NIOSH 2018). For this analysis, blasts are also assumed to be conducted at the surface, which also provides a worst case. As the construction progresses, blasts would be conducted deeper and deeper underground, providing more distance for vibration attenuation. Because of this, the surface blast at the start of construction would be worst case and the most likely to result in offsite impacts on nearby sensitive structures. Additionally, as construction blasting progresses deeper into the facility, airblasts would be shielded by the intervening facility walls, making the initial blast at the surface also conservative for airblast prediction.

General construction noise and vibration were also analyzed for the proposed action. These predictions were conducted implementing procedures identified in the FTA's Noise and Vibration Assessment (FTA 2006). These procedures are widely used for a variety of major infrastructure projects. For the noise analysis, the predictions take into account the construction equipment type, usage factor, ground conditions (i.e., hard surface or vegetated), and intervening barriers if applicable. For this analysis, it assumed that the area is vegetated and no barriers would be implemented. General construction vibration predictions also account for types of construction equipment; however, since vibration is more of an instantaneous concern, individual events are the basis of the analysis. Therefore, the construction equipment with the highest potential for damage is the worst-case scenario.

5.2 No-Action Alternative

Under the no-action alternative, there would be no changes to the existing noise and vibration environment in Pocahontas and Randolph Counties. No construction would occur, and no noise or vibration impacts would occur.

5.3 Proposed Action Alternative

Construction noise and vibration as well as some operational noise would result from the new underground safety research facility. Operationally, noise and vibration would be negligible to minor because the test activities (e.g., methane explosions, coal dust ignition) would occur well below ground and set back away from noise and vibration sensitive land uses. The proposed layout of the facility within the project area is provided in **Figure 3**. The nearest noise and vibration sensitive land uses are residences, with the closest residence located no closer than 1,200 feet. Assuming the operational test explosions are equivalent to no more than 100 lbs of lower-powered explosives (i.e., ammonium nitrate/fuel oil [ANFO]), vibration levels are estimated to attenuate to 0.11 PPV at 1,200 feet from the

facility and would not pose a risk of damage at the residences. Airblasts would be almost completely shielded because they would be underground; therefore, there would be less noise associated with these airblasts than with airblasts at the surface, and they would not result in potential damage at the residences. However, even if the blast occurred at the surface, 100 lbs of lower-powered explosives (i.e., ANFO) would equate to 116 dBL, which is well below the State's limit of 133 dBL and the OSMRE annoyance threshold of 120 dBL. Therefore, negligible to minor, adverse impacts are anticipated.

Further, PPV from blasts during construction and operation would be imperceptible at 2,600 feet from the location of the blast within the project area and would be further reduced as the distance increases. Vibration impacts at the Green Bank Observatory would be 0.0003 PPV in/sec and 38 vibration decibels. FTA regulations stipulate that 42 vibration decibels are allowable without interfering with the most vibration-sensitive equipment (FTA 2006), although the equipment at the observatory may be less sensitive. CDC and NIOSH coordinated with the Green Bank Observatory, and the observatory confirmed noise or vibration resulting from construction or operation of the project would not constitute a conflicting use within the NRQZ (Green Bank Observatory 2018).

Similar calculations for the Atlantic Coast Pipeline, which is 3.5 miles from the Site, indicate that vibrations would be 0.0018 PPV in/sec at the pipeline. FTA guidance places a vibration limit of 0.12 PPV in/sec to protect the most sensitive historic structures to prevent damage, and the pipeline is engineered to be resilient to damage. Adverse impacts on sensitive receptors from noise and vibration, including nearby residences, the Green Bank Observatory, and the pipeline would be negligible to minor.

Construction noise and vibration was evaluated for the potential to exceed regulatory thresholds because these activities would occur, at least initially, at the surface. Construction of the proposed project would occur over a 4-year period. CDC and NIOSH staff developed a tentative blast plan was that includes up to a 103-pound charge weight per delay. Construction blasting at the surface using the SD equations described above would result in 0.12 PPV in/sec at 1,200 feet, a level that is well below the State's limit of 1.00 PPV in/sec for distances of 301 to 5,000 feet, and a dBL of 117, a level that is also well below the State's limit of 133 dBL at 3 Hz and below the OSMRE annoyance threshold of 120 dBL, used here as a guideline. Therefore, the impact off-site from blast-related vibration or airblasts during construction would be minor. A Y-shaped berm would be constructed in front of the entrance to the underground facility during construction to deflect and buffer overpressure noise upward. The berm would decrease noise, particularly for properties facing the entrance to the underground facility. As excavation moves deeper, perceptible noise and vibration at the surface would decrease. Once construction is finished, the berm would be removed and replaced with blast doors at the facility entrance for operation.

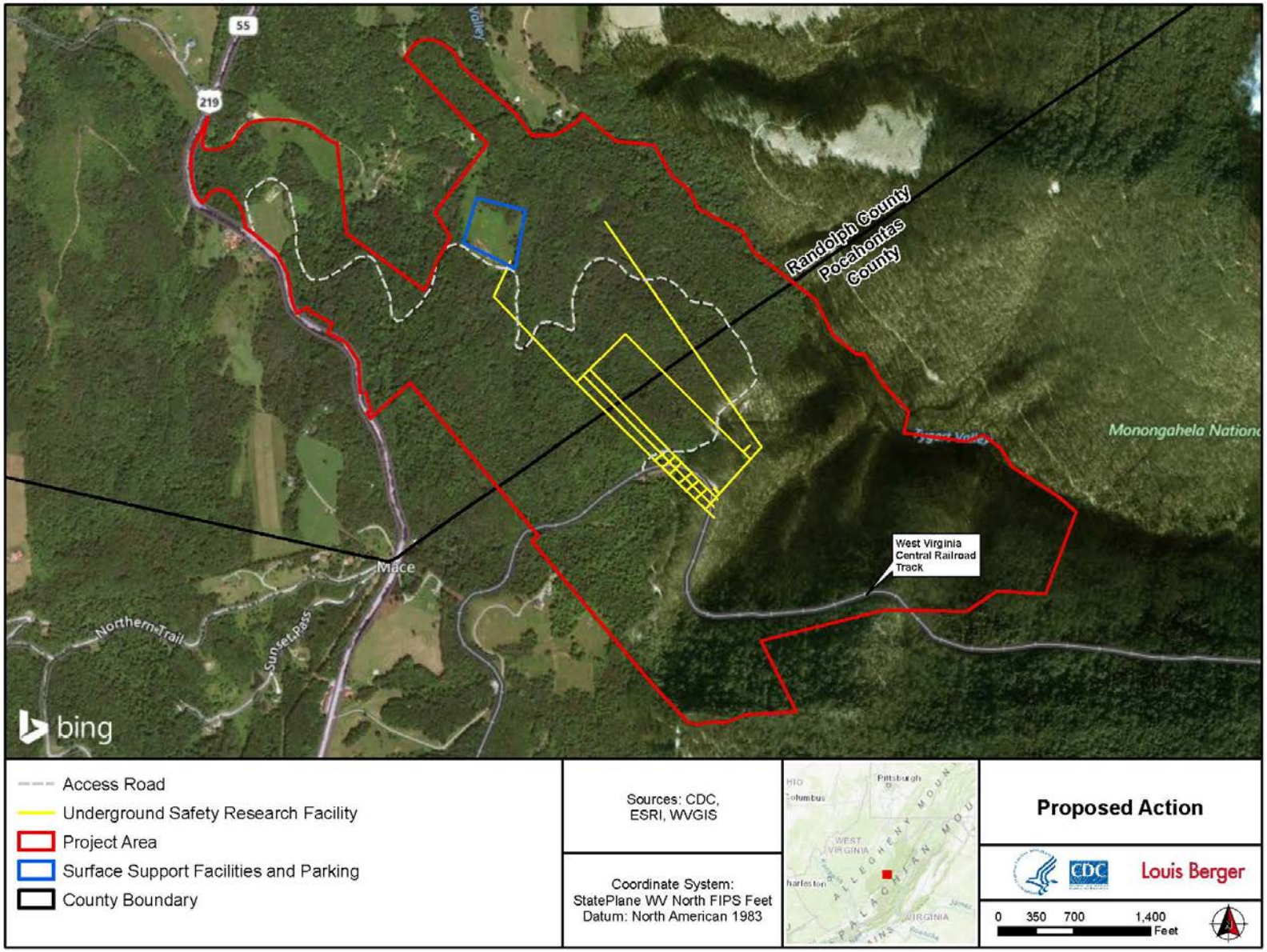


FIGURE 3. PROPOSED FACILITY LAYOUT

Additionally, CDC and NIOSH staff familiar with the proposed action provided construction equipment types that are summarized in **Table 5**. Construction activities are anticipated to involve clearing trees, vegetation, and soils from some areas of the project site. Diesel-powered construction equipment would be used to remove and load excavated material. Construction of the access road has the highest potential to exceed the FTA guidelines at the nearest residences; the access road would be constructed within approximately 200 feet of the nearest residence. As **Table 5** indicates, construction noise at the nearest residences would not exceed the 80 dBA L_{eq} criteria at this distance. Construction noise would be audible off the property, but would be within daytime hours and within the dBL standard for construction.

TABLE 5. CONSTRUCTION EQUIPMENT NOISE LEVELS

Construction Phase	Equipment[a] Type	Quantity	Maximum Sound Level (L_{max}) @ 50 ft[b] (dBA)	Composite Sound Level (hourly L_{eq}) in dBA at Distance[c] Variable Distances (feet) 50	100	200	400	800	1200
MEM Development	Drill Rig	2	79	83	75	67	59	51	46
	LHDs	2	78						
	Truck	2	76						
MEM Bench Preparation	Dozer	2	82	82	74	66	58	50	45
	Trucks	2	76						
Access Roadway Construction	Grader	1	85	84	76	68	60	52	47
	Dozer	1	82						
	Dump Truck	1	76						
	Roller	1	80						
	Backhoe	1	78						

Source: HMMH (2018)

[a] Provided by CDC and NIOSH.

[b] Federal Highway Administration (2006)

[c] Assumes soft vegetated ground.

Table 6 shows the distance from construction equipment where the vibration impact level for Category 3 buildings, 0.2 PPV inches per second, would be exceeded. As noted in the construction noise analysis discussion, the closest construction effort to residential areas would be for the access road, which would be approximately 200 feet away. As **Table 6** indicates, the PPV for access road construction would be well below the FTA damage criteria at this distance, and no impact is anticipated.

TABLE 6. CONSTRUCTION EQUIPMENT VIBRATION LEVELS

Phase	Equipment	Reference FTA PPV at 25 feet (in/sec)	Vibration Level (PPV in/sec)	Distance to Damage Criteria (feet)
MEM Development	Drill rig	0.089	0.20	14
	Loaded truck	0.076	0.20	13
MEM Bench Preparation	Dozer	0.089	0.20	14
	Loaded truck	0.076	0.20	13
Access Roadway Construction	Dozers/graders	0.089	0.20	14
	Loaded truck	0.076	0.20	13
	Roller	0.21	0.20	26
	Backhoe	0.003	0.20	2

Source: HMMH (2018)

6 MITIGATION RECOMMENDATIONS

Although no impacts are anticipated, to the extent practicable, the following mitigation measures are recommended to reduce community noise and vibration exposure associated with the proposed action.

- Construction operations would not occur between 7:00 p.m. and 7:00 a.m. on weekdays or Saturday, or at any time on Sunday within 500 feet of an occupied residence.
- Construction site and access road speed limits would be established and enforced during the construction period.
- Electrically powered equipment should be used instead of pneumatic or internal combustion powered equipment, where feasible.
- Material stockpiles and mobile equipment staging, parking, and maintenance areas would be located as far as practicable from noise-sensitive receptors.
- The use of noise-producing signals, including horns, whistles, alarms, and bells, would be for safety warning purposes only.
- No project-related public address or music system would be audible at any adjacent receptor.
- All noise-producing construction equipment and vehicles using internal combustion engines would be equipped with mufflers, air-inlet silencers where appropriate, and any other shrouds, shields, or other noise-reducing features in good operating condition that meet or exceed original factory specification. Mobile or fixed “package” equipment (e.g., arc-welders, air compressors) would be equipped with shrouds and noise control features that are readily available for that type of equipment.
- Noise and vibration levels should be monitored continuously for the duration of the construction effort at selected locations along the property line of the project site to ensure criteria limits are not exceeded at the nearby residential uses.

- Construct a Y-shaped berm in front of the entrance to the underground facility during construction to deflect and buffer overpressure noise upward. The berm would decrease noise, particularly for properties facing the entrance to the underground facility. Once construction is complete, the berm would be removed and replaced with blast doors at the facility entrance for operation.

7 CONCLUSIONS

The objective of this analysis is to determine whether the proposed underground safety research facility would have adverse impacts on the surrounding community from noise and vibration associated with the proposed action. Operationally, noise and vibration would be negligible to minor. These impacts are anticipated from noise associated with the airblasts. During construction, the impact off-site from blast-related vibration or airblasts would be minor. Mitigation measures are recommended to reduce construction noise and vibration exposure from construction of the proposed action on the surrounding community.

8 REFERENCES

CDC (Centers for Disease Control and Prevention)

2018 Draft Environmental Impact Statement – Site Acquisition and Campus Consolidation, Cincinnati, Ohio. Centers for Disease Control and Prevention. February.

Federal Highway Administration

2006 Roadway Construction Noise Model User's Guide. Available at https://www.fhwa.dot.gov/environment/noise/construction_noise/rcnm/rcnm.pdf. Accessed July 17, 2018.

FTA (Federal Transit Administration)

2006 Noise and Vibration Impact Assessment. Available at https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/FTA_Noise_and_Vibration_Manual.pdf . Accessed July 12, 2018

Green Bank Observatory

2018 Letter from M.J. Holstine, P.E., Business Manager, to J. Herring, Project Manager/Lease Contracting Officer, General Services Administration, about the proposed project. March 23, 2018.

OSMRE (Office of Surface Mining Reclamation and Enforcement)

1987 Blast Guidance Manual. Available at https://www.osmre.gov/lrg/docs/directive315.pdf. Accessed July 12, 2018.

State of West Virginia

2017 West Virginia State Code, Section 22-4-13 Blasting Restrictions. Available at http://www.wvlegislature.gov/WVCODE/Code.cfm. Accessed July 12, 2018.

NIOSH (National Institute for Occupational Safety and Health)

2018 Personal communication via email on July 1, 2018, with J. Welsh NIOSH, and the project team about noise and vibration assumptions for the Project.

Appendix A. Equipment Laboratory Calibration Sheets

Scantek, Inc.
CALIBRATION LABORATORY

ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.40288

Instrument:	**Sound Level Meter**
Model:	**2250**
Manufacturer:	**Brüel and Kjær**
Serial number:	**2619790**
Tested with:	**Microphone 4189 s/n 2578556** **Preamplifier ZC0032 s/n 6630**
Type (class):	**1**
Customer:	**Harris Miller Miller & Hanson Inc.**
Tel/Fax:	**781-229-0707 x3119 / 781-229-7939**

Date Calibrated: **3/13/2018** *Cal Due:*

Status:	**Received**	**Sent**
In tolerance:	X	X
Out of tolerance:		
See comments:		

Contains non-accredited tests: __Yes _X_ No
Calibration service: __ Basic _X_ Standard
Address: **77 South Bedford Street**
Burlington, MA 01803

Tested in accordance with the following procedures and standards:
Calibration of Sound Level Meters, Scantek Inc., Rev. 6/26/2015
SLM & Dosimeters – Acoustical Tests, Scantek Inc., Rev. 7/6/2011

Instrumentation used for calibration: Nor-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31061	Jul 28, 2017	Scantek, Inc./ NVLAP	Jul 28, 2018
DS-360-SRS	Function Generator	88077	Sep 15, 2016	ACR Env./ A2LA	Sep 15, 2018
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Sep 20, 2017	ACR Env./ A2LA	Sep 20, 2018
HM30-Thommen	Meteo Station	1040170/39633	Oct 25, 2017	ACR Env./ A2LA	Oct 25, 2018
PC Program 1019 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1251-Norsonic	Calibrator	30878	Nov 10, 2017	Scantek, Inc./ NVLAP	Nov 10, 2018

Instrumentation and test results are traceable to SI (International System of Units) through standards maintained by NIST (USA) and NPL (UK).

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
24.2	99.37	37.7

Calibrated by:	Jeremy Gotwalt	**Authorized signatory:**	Steven E. Marshall
Signature		Signature	
Date	3/13/18	Date	3/15/2018

Scantek, Inc.
CALIBRATION LABORATORY
ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.40289

Instrument: **Microphone**
Model: **4189**
Manufacturer: **Brüel & Kjær**
Serial number: **2578556**
Composed of:

Date Calibrated: **3/12/2018** *Cal Due:*

Status:	**Received**	**Sent**
In tolerance:	**X**	**X**
Out of tolerance:		
See comments:		

Contains non-accredited tests: **__Yes _X_ No**

Customer: **Harris Miller Miller & Hanson Inc.**
Tel/Fax: **781-229-0707 x3119/781-229-7939**
Address: **77 South Bedford Street**
Burlington, MA 01803

Tested in accordance with the following procedures and standards:
Calibration of Measurement Microphones, Scantek, Inc., Rev. 2/25/2015

Instrumentation used for calibration: N-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31061	Jul 28, 2017	Scantek, Inc./ NVLAP	Jul 28, 2018
DS-360-SRS	Function Generator	88077	Sep 15, 2016	ACR Env./ A2LA	Sep 15, 2018
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Sep 20, 2017	ACR Env./ A2LA	Sep 20, 2018
HM30-Thommen	Meteo Station	1040170/39633	Oct 25, 2017	ACR Env./ A2LA	Oct 25, 2018
PC Program 1017 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1253-Norsonic	Calibrator	28326	Nov 10, 2017	Scantek, Inc./ NVLAP	Nov 10, 2018
1203-Norsonic	Preamplifier	92268	Oct 18, 2017	Scantek, Inc./ NVLAP	Oct 18, 2018
4180-Brüel&Kjær	Microphone	2246115	Oct 24, 2017	DANAK / DPLA	Oct 24, 2019

Instrumentation and test results are traceable to SI - BIPM through standards maintained by NPL (UK) and NIST (USA)

Calibrated by:	Jeremy Gotwalt	**Authorized signatory:**	Steven E Marshall
Signature		Signature	
Date	3/12/18	Date	3/15/2018

Scantek, Inc.
CALIBRATION LABORATORY
ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.40290

Instrument:	**Acoustical Calibrator**	*Date Calibrated:* **3/12/2018** *Cal Due:*	
Model:	**4231**	*Status:*	**Received** / **Sent**
Manufacturer:	**Brüel and Kjær**	*In tolerance:*	X / X
Serial number:	**2579292**	*Out of tolerance:*	
Class (IEC 60942):	**1**	*See comments:*	
Barometer type:		*Contains non-accredited tests:*	**__Yes _X_ No**
Barometer s/n:			
Customer:	**Harris Miller Miller & Hanson Inc.**	*Address:*	**77 South Bedford Street**
Tel/Fax:	**781-229-0707 x3119 / 781-229-7939**		**Burlington, MA 01803**

Tested in accordance with the following procedures and standards:
Calibration of Acoustical Calibrators, Scantek Inc., Rev. 10/1/2010

Instrumentation used for calibration: Nor-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31061	Jul 28, 2017	Scantek, Inc./ NVLAP	Jul 28, 2018
DS-360-SRS	Function Generator	88077	Sep 15, 2016	ACR Env./ A2LA	Sep 15, 2018
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Sep 20, 2017	ACR Env./ A2LA	Sep 20, 2018
HM30-Thommen	Meteo Station	1040170/39633	Oct 25, 2017	ACR Env./ A2LA	Oct 25, 2018
140-Norsonic	Real Time Analyzer	1403978	Mar 22, 2017	Scantek, Inc. / NVLAP	Mar 22, 2018
PC Program 1018 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
4192-Brüel&Kjær	Microphone	2854675	Nov 11, 2017	Scantek, Inc. / NVLAP	Nov 11, 2018
1203-Norsonic	Preamplifier	92268	Oct 18, 2017	Scantek, Inc./ NVLAP	Oct 18, 2018

Instrumentation and test results are traceable to SI (International System of Units) through standards maintained by NIST (USA) and NPL (UK)

Calibrated by:	Jeremy Gotwalt	Authorized signatory:	Steven E. Marshall
Signature		Signature	
Date	3/12/18	Date	3/15/2018

Scantek, Inc.
CALIBRATION LABORATORY
ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.40280

Instrument:	**Sound Level Meter**
Model:	**2250**
Manufacturer:	**Brüel and Kjær**
Serial number:	**2579777**
Tested with:	**Microphone 4189 s/n 2589635** **Preamplifier ZC0032 s/n 7764**
Type (class):	**1**
Customer:	**Harris Miller Miller & Hanson Inc.**
Tel/Fax:	**781-229-0707 x3119 / 781-229-7939**

Date Calibrated: **3/14/2018** *Cal Due:*

Status:	**Received**	**Sent**
In tolerance:	X	X
Out of tolerance:		
See comments:		

Contains non-accredited tests: __ **Yes** _X_ **No**
Calibration service: __ **Basic** _X_ **Standard**
Address: **77 South Bedford Street, Burlington, MA 01803**

Tested in accordance with the following procedures and standards:
Calibration of Sound Level Meters, Scantek Inc., Rev. 6/26/2015
SLM & Dosimeters – Acoustical Tests, Scantek Inc., Rev. 7/6/2011

Instrumentation used for calibration: Nor-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31052	Oct 30, 2017	Scantek, Inc./ NVLAP	Oct 30, 2018
DS-360-SRS	Function Generator	33584	Oct 24, 2017	ACR Env./ A2LA	Oct 24, 2019
34401A-Agilent Technologies	Digital Voltmeter	US36120731	Oct 25, 2017	ACR Env. / A2LA	Oct 25, 2018
HM30-Thommen	Meteo Station	1040170/39633	Oct 25, 2017	ACR Env./ A2LA	Oct 25, 2018
PC Program 1019 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1251-Norsonic	Calibrator	30878	Nov 10, 2017	Scantek, Inc./ NVLAP	Nov 10, 2018

Instrumentation and test results are traceable to SI (International System of Units) through standards maintained by NIST (USA) and NPL (UK).

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
23.6	99.19	38.2

Calibrated by:	Lydon Dawkins	**Authorized signatory:**	Steven E. Marshall
Signature	Lydon Dawkins	Signature	Steven E Marshall
Date	3/14/2018	Date	3/15/2018

Scantek, Inc.
CALIBRATION LABORATORY

ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.40281

Instrument: **Microphone**
Model: **4189**
Manufacturer: **Brüel & Kjær**
Serial number: **2589635**
Composed of:

Date Calibrated: **3/13/2018** *Cal Due:*

Status:	Received	Sent
In tolerance:	X	X
Out of tolerance:		
See comments:		

Contains non-accredited tests: __Yes _X_ No

Customer: **Harris Miller Miller & Hanson Inc.**
Tel/Fax: **781-229-0707 x3119/781-229-7939**
Address: **77 South Bedford Street, Burlington, MA 01803**

Tested in accordance with the following procedures and standards:
Calibration of Measurement Microphones, Scantek, Inc., Rev. 2/25/2015

Instrumentation used for calibration: N-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31052	Oct 30, 2017	Scantek, Inc./ NVLAP	Oct 30, 2018
DS-360-SRS	Function Generator	33584	Oct 24, 2017	ACR Env./ A2LA	Oct 24, 2019
34401A-Agilent Technologies	Digital Voltmeter	US36120731	Oct 25, 2017	ACR Env. / A2LA	Oct 25, 2018
HM30-Thommen	Meteo Station	1040170/39633	Oct 25, 2017	ACR Env./ A2LA	Oct 25, 2018
PC Program 1017 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1253-Norsonic	Calibrator	28326	Nov 10, 2017	Scantek, Inc./ NVLAP	Nov 10, 2018
1203-Norsonic	Preamplifier	14059	Feb 12, 2018	Scantek, Inc./ NVLAP	Feb 12, 2019
4180-Brüel&Kjær	Microphone	2246115	Oct 24, 2017	DANAK / DPLA	Oct 24, 2019

Instrumentation and test results are traceable to SI - BIPM through standards maintained by NPL (UK) and NIST (USA)

Calibrated by:	Lydon Dawkins	**Authorized signatory:**	Steven E. Marshall
Signature	Lydon Dawkins	Signature	Steven E Marshall
Date	3/13/2018	Date	3/15/2018

Document stored as: Z:\Calibration Lab\Mic 2018\B&K4189_2589635_M1.doc

Scantek, Inc.
CALIBRATION LABORATORY

ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.40282

Instrument:	**Acoustical Calibrator**	*Date Calibrated:* **3/12/2018** *Cal Due:*	
Model:	**4231**	*Status:*	**Received** / **Sent**
Manufacturer:	**Brüel and Kjær**	*In tolerance:*	X / X
Serial number:	**2579293**	*Out of tolerance:*	
Class (IEC 60942):	**1**	*See comments:*	
Barometer type:		*Contains non-accredited tests:*	**__Yes _X_ No**
Barometer s/n:			
Customer:	**Harris Miller Miller & Hanson Inc.**	*Address:*	**77 South Bedford Street, Burlington, MA 01803**
Tel/Fax:	**781-229-0707 x3119 / 781-229-7939**		

Tested in accordance with the following procedures and standards:
Calibration of Acoustical Calibrators, Scantek Inc., Rev. 10/1/2010

Instrumentation used for calibration: Nor-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
4838-Norsonic	SME Cal Unit	31052	Oct 30, 2017	Scantek, Inc./ NVLAP	Oct 30, 2018
DS-360-SRS	Function Generator	33584	Oct 24, 2017	ACR Env./ A2LA	Oct 24, 2019
34401A-Agilent Technologies	Digital Voltmeter	US36120731	Oct 25, 2017	ACR Env. / A2LA	Oct 25, 2018
HM30-Thommen	Meteo Station	1040170/39633	Oct 25, 2017	ACR Env./ A2LA	Oct 25, 2018
140-Norsonic	Real Time Analyzer	1406423	Oct 31, 2017	Scantek / NVLAP	Oct 31, 2018
PC Program 1018 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
4134-Brüel&Kjær	Microphone	173368	Nov 10, 2017	Scantek, Inc. / NVLAP	Nov 10, 2018
1203-Norsonic	Preamplifier	14059	Feb 12, 2018	Scantek, Inc./ NVLAP	Feb 12, 2019

Instrumentation and test results are traceable to SI (International System of Units) through standards maintained by NIST (USA) and NPL (UK)

Calibrated by:	Lydon Dawkins	**Authorized signatory:**	Steven E. Marshall
Signature	Lydon Dawkins	Signature	Steven E Marshall
Date	3/12/2018	Date	3/15/2018

Scantek, Inc.
CALIBRATION LABORATORY

ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.40291

Instrument:	**Sound Level Meter**
Model:	**2250**
Manufacturer:	**Brüel and Kjær**
Serial number:	**2619791**
Tested with:	**Microphone 4189 s/n 2616506** **Preamplifier ZC0032 s/n 11159**
Type (class):	**1**
Customer:	**Harris Miller Miller & Hanson Inc.**
Tel/Fax:	**781-229-0707 x3119 / 781-229-7939**

Date Calibrated: **3/14/2018** *Cal Due:*

Status:	**Received**	**Sent**
In tolerance:	**X**	**X**
Out of tolerance:		
See comments:		

Contains non-accredited tests: __ **Yes** **X** **No**
Calibration service: __ **Basic** **X** **Standard**
Address: **77 South Bedford Street**
Burlington, MA 01803

Tested in accordance with the following procedures and standards:
Calibration of Sound Level Meters, Scantek Inc., Rev. 6/26/2015
SLM & Dosimeters – Acoustical Tests, Scantek Inc., Rev. 7/6/2011

Instrumentation used for calibration: Nor-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31061	Jul 28, 2017	Scantek, Inc./ NVLAP	Jul 28, 2018
DS-360-SRS	Function Generator	88077	Sep 15, 2016	ACR Env./ A2LA	Sep 15, 2018
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Sep 20, 2017	ACR Env./ A2LA	Sep 20, 2018
HM30-Thommen	Meteo Station	1040170/39633	Oct 25, 2017	ACR Env./ A2LA	Oct 25, 2018
PC Program 1019 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1251-Norsonic	Calibrator	30878	Nov 10, 2017	Scantek, Inc./ NVLAP	Nov 10, 2018

Instrumentation and test results are traceable to SI (International System of Units) through standards maintained by NIST (USA) and NPL (UK).

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
22.9	99.31	38.8

Calibrated by:	Jeremy Gotwalt	**Authorized signatory:**	Steven E. Marshall
Signature		Signature	
Date	3/14/18	Date	3/15/2018

Scantek, Inc.
CALIBRATION LABORATORY

ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.40292

Instrument: **Microphone**
Model: **4189**
Manufacturer: **Brüel & Kjær**
Serial number: **2616506**
Composed of:

Date Calibrated: **3/12/2018** *Cal Due:*

Status:	**Received**	**Sent**
In tolerance:	**X**	**X**
Out of tolerance:		
See comments:		

Contains non-accredited tests: **__Yes _X No**

Customer: **Harris Miller Miller & Hanson Inc.**
Tel/Fax: **781-229-0707 x3119/781-229-7939**
Address: **77 South Bedford Street**
Burlington, MA 01803

Tested in accordance with the following procedures and standards:
Calibration of Measurement Microphones, Scantek, Inc., Rev. 2/25/2015

Instrumentation used for calibration: N-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31061	Jul 28, 2017	Scantek, Inc./ NVLAP	Jul 28, 2018
DS-360-SRS	Function Generator	88077	Sep 15, 2016	ACR Env./ A2LA	Sep 15, 2018
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Sep 20, 2017	ACR Env./ A2LA	Sep 20, 2018
HM30-Thommen	Meteo Station	1040170/39633	Oct 25, 2017	ACR Env./ A2LA	Oct 25, 2018
PC Program 1017 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1253-Norsonic	Calibrator	28326	Nov 10, 2017	Scantek, Inc./ NVLAP	Nov 10, 2018
1203-Norsonic	Preamplifier	92268	Oct 18, 2017	Scantek, Inc./ NVLAP	Oct 18, 2018
4180-Brüel&Kjær	Microphone	2246115	Oct 24, 2017	DANAK / DPLA	Oct 24, 2019

Instrumentation and test results are traceable to SI - BIPM through standards maintained by NPL (UK) and NIST (USA)

Calibrated by:	Jeremy Gotwalt	**Authorized signatory:**	Steven E Marshall
Signature		Signature	
Date	3/12/18	Date	3/15/2018

Scantek, Inc.
CALIBRATION LABORATORY

ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.40293

Instrument:	**Acoustical Calibrator**	*Date Calibrated:* **3/12/2018** *Cal Due:*	
Model:	**4231**	*Status:*	**Received** / **Sent**
Manufacturer:	**Brüel and Kjær**	*In tolerance:*	X / X
Serial number:	**2579294**	*Out of tolerance:*	
Class (IEC 60942):	**1**	*See comments:*	
Barometer type:		*Contains non-accredited tests:*	**__Yes _X_ No**
Barometer s/n:			
Customer:	**Harris Miller Miller & Hanson Inc.**	*Address:*	**77 South Bedford Street**
Tel/Fax:	**781-229-0707 x3119 / 781-229-7939**		**Burlington, MA 01803**

Tested in accordance with the following procedures and standards:
Calibration of Acoustical Calibrators, Scantek Inc., Rev. 10/1/2010

Instrumentation used for calibration: Nor-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31061	Jul 28, 2017	Scantek, Inc./ NVLAP	Jul 28, 2018
DS-360-SRS	Function Generator	88077	Sep 15, 2016	ACR Env./ A2LA	Sep 15, 2018
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Sep 20, 2017	ACR Env./ A2LA	Sep 20, 2018
HM30-Thommen	Meteo Station	1040170/39633	Oct 25, 2017	ACR Env./ A2LA	Oct 25, 2018
140-Norsonic	Real Time Analyzer	1403978	Mar 22, 2017	Scantek, Inc. / NVLAP	Mar 22, 2018
PC Program 1018 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
4192-Brüel&Kjær	Microphone	2854675	Nov 11, 2017	Scantek, Inc. / NVLAP	Nov 11, 2018
1203-Norsonic	Preamplifier	92268	Oct 18, 2017	Scantek, Inc./ NVLAP	Oct 18, 2018

Instrumentation and test results are traceable to SI (International System of Units) through standards maintained by NIST (USA) and NPL (UK)

Calibrated by:	Jeremy Gotwalt	**Authorized signatory:**	Steven E. Marshall
Signature	Jeremy Gotwalt	Signature	Steven E Marshall
Date	3/12/18	Date	3/15/2018

Scantek, Inc.
CALIBRATION LABORATORY
ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
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CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.40294

Instrument:	**Sound Level Meter**	*Date Calibrated:* **3/14/2018**	*Cal Due:*
Model:	**2250**	*Status:*	**Received** / **Sent**
Manufacturer:	**Brüel and Kjær**	*In tolerance:*	X / X
Serial number:	**2579776**	*Out of tolerance:*	
Tested with:	**Microphone 4189 s/n 2616507**	*See comments:*	
	Preamplifier ZC0032 s/n 18967	*Contains non-accredited tests:*	**__Yes _X_ No**
Type (class):	**1**	*Calibration service:*	**__ Basic _X_ Standard**
Customer:	**Harris Miller Miller & Hanson Inc.**	*Address:*	**77 South Bedford Street, Burlington, MA 01803**
Tel/Fax:	**781-229-0707 x3119 / 781-229-7939**		

Tested in accordance with the following procedures and standards:
Calibration of Sound Level Meters, Scantek Inc., Rev. 6/26/2015
SLM & Dosimeters – Acoustical Tests, Scantek Inc., Rev. 7/6/2011

Instrumentation used for calibration: Nor-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31061	Jul 28, 2017	Scantek, Inc./ NVLAP	Jul 28, 2018
DS-360-SRS	Function Generator	88077	Sep 15, 2016	ACR Env./ A2LA	Sep 15, 2018
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Sep 20, 2017	ACR Env./ A2LA	Sep 20, 2018
HM30-Thommen	Meteo Station	1040170/39633	Oct 25, 2017	ACR Env./ A2LA	Oct 25, 2018
PC Program 1019 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1251-Norsonic	Calibrator	30878	Nov 10, 2017	Scantek, Inc./ NVLAP	Nov 10, 2018

Instrumentation and test results are traceable to SI (International System of Units) through standards maintained by NIST (USA) and NPL (UK).

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
23.2	99.31	39.1

Calibrated by:	Jeremy Gotwalt	**Authorized signatory:**	Steven E. Marshall
Signature		Signature	
Date	3/14/18	Date	3/15/2018

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NVLAP Lab Code: 200625-0

Calibration Certificate No.40295

Instrument: **Microphone**
Model: **4189**
Manufacturer: **Brüel & Kjær**
Serial number: **2616507**
Composed of:

Date Calibrated: **3/12/2018** *Cal Due:*

Status:	Received	Sent
In tolerance:	X	X
Out of tolerance:		
See comments:		

Contains non-accredited tests: __Yes _X_ No

Customer: **Harris Miller Miller & Hanson Inc.**
Tel/Fax: **781-229-0707 x3119/781-229-7939**
Address: **77 South Bedford Street**
Burlington, MA 01803

Tested in accordance with the following procedures and standards:
Calibration of Measurement Microphones, Scantek, Inc., Rev. 2/25/2015

Instrumentation used for calibration: N-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31061	Jul 28, 2017	Scantek, Inc./ NVLAP	Jul 28, 2018
DS-360-SRS	Function Generator	88077	Sep 15, 2016	ACR Env./ A2LA	Sep 15, 2018
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Sep 20, 2017	ACR Env./ A2LA	Sep 20, 2018
HM30-Thommen	Meteo Station	1040170/39633	Oct 25, 2017	ACR Env./ A2LA	Oct 25, 2018
PC Program 1017 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1253-Norsonic	Calibrator	28326	Nov 10, 2017	Scantek, Inc./ NVLAP	Nov 10, 2018
1203-Norsonic	Preamplifier	92268	Oct 18, 2017	Scantek, Inc./ NVLAP	Oct 18, 2018
4180-Brüel&Kjær	Microphone	2246115	Oct 24, 2017	DANAK / DPLA	Oct 24, 2019

Instrumentation and test results are traceable to SI - BIPM through standards maintained by NPL (UK) and NIST (USA)

Calibrated by:	Jeremy Gotwalt	**Authorized signatory:**	Steven E Marshall
Signature		Signature	
Date	3/12/18	Date	3/15/2018

Document stored as: Z:\Calibration Lab\Mic 2018\B&K4189_2616507_M1.doc

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CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.40296

Instrument:	**Acoustical Calibrator**	*Date Calibrated:* **3/12/2018** *Cal Due:*	
Model:	**4231**	*Status:*	**Received** / **Sent**
Manufacturer:	**Brüel and Kjær**	*In tolerance:*	X / X
Serial number:	**2579295**	*Out of tolerance:*	
Class (IEC 60942):	**1**	*See comments:*	
Barometer type:		*Contains non-accredited tests:*	**__Yes _X_ No**
Barometer s/n:			
Customer:	**Harris Miller Miller & Hanson Inc.**	*Address:*	**77 South Bedford Street**
Tel/Fax:	**781-229-0707 x3119 / 781-229-7939**		**Burlington, MA 01803**

Tested in accordance with the following procedures and standards:
Calibration of Acoustical Calibrators, Scantek Inc., Rev. 10/1/2010

Instrumentation used for calibration: Nor-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31061	Jul 28, 2017	Scantek, Inc./ NVLAP	Jul 28, 2018
DS-360-SRS	Function Generator	88077	Sep 15, 2016	ACR Env./ A2LA	Sep 15, 2018
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Sep 20, 2017	ACR Env./ A2LA	Sep 20, 2018
HM30-Thommen	Meteo Station	1040170/39633	Oct 25, 2017	ACR Env./ A2LA	Oct 25, 2018
140-Norsonic	Real Time Analyzer	1403978	Mar 22, 2017	Scantek, Inc. / NVLAP	Mar 22, 2018
PC Program 1018 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
4192-Brüel&Kjær	Microphone	2854675	Nov 11, 2017	Scantek, Inc. / NVLAP	Nov 11, 2018
1203-Norsonic	Preamplifier	92268	Oct 18, 2017	Scantek, Inc./ NVLAP	Oct 18, 2018

Instrumentation and test results are traceable to SI (International System of Units) through standards maintained by NIST (USA) and NPL (UK)

Calibrated by:	Jeremy Gotwalt	Authorized signatory:	Steven E. Marshall
Signature		Signature	
Date	3/12/18	Date	3/15/2018

APPENDIX C: PUBLIC COMMENT RESPONSE REPORT

Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health

Acquisition of Site for Development of a Replacement Underground Safety Research Program Facility in Mace, West Virginia

Public Comment Response Report

June 2021

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Introduction

This public comment report summarizes the public comment process for the Centers for Disease Control and Prevention (CDC) National Institute for Occupational Safety and Health (NIOSH) Site Acquisition and Development of an Underground Safety Research Facility Draft Environmental Impact Statement (EIS).

CDC, in cooperation with the United States (U.S.) General Services Administration (GSA), is proposing to acquire a site in Mace, West Virginia, and develop the site into a new underground safety research facility for NIOSH to replace the previously occupied Lake Lynn Experimental Mine (LLEM). The property being considered for acquisition includes 461.35 acres located in Randolph and Pocahontas Counties, West Virginia. The purpose of the public comment process was to release the Draft EIS to the public for review, and to solicit input and comments on the document.

Public Comment Process for the Draft EIS

The public comment period for the CDC NIOSH Site Acquisition and Development of an Underground Safety Research Facility Draft EIS began on February 14, 2019, and ended on April 5, 2019.

Notice of Availability

A Notice of Availability (NOA) for the Draft EIS was published in the *Federal Register* (FR) on February 14, 2019 (Docket No. CDC–2018–0057). Publication of the NOA initiated a 51-day review period during which CDC and GSA solicited comments on the Draft EIS from the public and from federal, state, and local agencies and organizations. The NOA provided the following methods to submit public review comments: online at www.regulations.gov; by mail to: Sam Tarr, Office of Safety, Security, and Asset Management, Centers for Disease Control and Prevention, 1600 Clifton Road NE, MS–K80, Atlanta, Georgia 30329–4027; or by attending a public meeting hosted by CDC and GSA on March 6, 2019.

Newspaper Advertisement and Mailings

In addition to publishing the NOA in the *Federal Register*, CDC published an advertisement announcing the release and comment period for the Draft EIS and the public meeting in the following newspapers:

- *Pocahontas Times* (February 14, 21, and 28, 2019)
- *Randolph Inter-Mountain* (February 14, 16, 19, 21, 23, and 27, 2019, and March 2 and 5, 2019)

On February 14, 2019, CDC mailed a letter announcing the release of the Draft EIS and the public meeting and soliciting comments to 58 state and local elected officials; federally recognized Native American tribes; federal, state, and local government agencies; non-governmental organizations; and businesses or individuals with a known or potential interest in the proposed action and its environmental impacts, including 10 adjacent property owners. On February 14, 2019, CDC also emailed all scoping meeting attendees who provided an email address, as well as people who provided public scoping comments electronically, to announce the release of the Draft EIS.

Web Portal

CDC and GSA used the www.regulations.gov website to provide information on the Draft EIS and receive comments. Comments could be made directly through the website. All comments on www.regulations.gov are visible to the public.

Public Meeting

During the public comment period, CDC and GSA hosted a public meeting to provide the public with information on the proposed action, the National Environmental Policy Act (NEPA) and Section 106 processes applicable to the project, the alternatives analyzed, and their impacts. The public had the opportunity to submit comments.

The public meeting was held on March 6, 2019, from 5:30 PM to 8:30 PM at the Linwood Community Library in Slatyfork, West Virginia.

The meeting was held in an open-house format. Information regarding the project was made available through poster stations; fact sheets; and informal conversation with representatives of CDC, NIOSH, and GSA. Project information was displayed on 11 poster stations covering the following topics:

- Purpose and need
- Project area
- What is NIOSH?
- Lake Lynn Experimental Mine
- Alternatives analyzed
- Alternatives dismissed from consideration
- Impacts from the Proposed Action Alternative
- Section 106 of the National Historic Preservation Act
- Schedule and how to comment

In addition, a PowerPoint presentation ran on a loop in the corner of the meeting space. The PowerPoint presentation included the same information as the poster stations plus additional information on LLEM.

Each poster station was staffed by representatives from CDC/NIOSH and GSA (supported by project staff from WSP USA [formerly Louis Berger U.S.], the consultant under contract to GSA to prepare the EIS), who were available to answer questions and offer clarifications.

Meeting attendees were encouraged to submit written comments via https://www.regulations.gov or verbal comments via a stenographer present at the meeting.

Meeting attendees were invited, but not required, to sign in. Fifty-seven people signed in to the meeting. Seven people spoke to the stenographer. Attendees who signed in as well as those who provided comments were offered the opportunity to be added to the project's mailing list for future EIS-related notifications.

Public Comments

Sixty-one correspondences were received from the public. An additional five correspondences were from government agencies and one was from a Native American tribe.

Definition of Terms

Primary terms used in the document are defined below.

Correspondence: A correspondence is the entire document received from commenters and includes letters, written comment forms, and public meeting transcripts.

Comment: A comment is a portion of the text within a correspondence that addresses a single subject. It could include such information as an expression of support or opposition for an alternative, additional data regarding the existing conditions, or suggestions for resource topics to be considered.

Concern: Concerns are statements that summarize the comments under each subject. Some subjects required multiple concern statements, while others did not.

Comment Analysis Methodology

Each correspondence was read, and specific comments within each unique correspondence were identified. When identifying comments, every attempt was made to capture the full breadth of comments submitted.

To categorize comments, each comment was assigned a specific subject to identify its general content and to group similar comments. Once every correspondence was broken into comments, all substantive comments were categorized into concern statements or summarized with similar comments. Agency responses are provided for each concern statement.

Concern Response Report

This report summarizes the comments received during the public comment period. Tables 1 through 20 provide the concern statements by subject/topic and associated agency responses.

Table 1. Purpose and Need

Concern ID 1: Several commenters noted that the proposed action was not consistent with the agency missions of CDC and NIOSH.
Agency Response: The Final EIS has been updated to include additional information about the missions of both the CDC and NIOSH. This project aligns with the missions of both organizations.
Concern ID 2: Several commenters questioned the need for the safety research facility, noting that no research has been conducted since the Lake Lynn facility closed in 2012 and that coal mining, specifically underground coal mining, is a declining industry. As a result, several commenters requested that CDC further justify the need for the proposed action, including a projection of the coal economy or a cost/benefit analysis. Several commenters requested justification for this project, quoting an article "Promising Invention Becomes Tragic Mistake," claiming the head of NIOSH in Pittsburgh stated that coal mine safety cannot be duplicated in limestone test mines.
Agency Response: The proposed action is consistent with the mission of NIOSH and in accordance with the 2019–2023 Strategic Plan for NIOSH's Mining Program (CDC 2019). Specifically, the Strategic Plan notes: “Looking forward, the future of mining will involve working in deeper mines, mines that are less accessible, and ores that are lower grade. In addition, economic pressures will require companies to increase their efficiencies to remain competitive. Mining in the future will involve more and more challenging conditions. As mines go deeper, it becomes more difficult to ventilate them to remove contaminants and to cool the air, which may reach temperatures upwards of 110 degrees Fahrenheit, especially considering the heat generated by equipment and increases in subsurface temperature with depth. In situ ground stresses increase with depth and can result in geologic instabilities and seismicity, which will likely require more sophisticated ground support to maintain safe work spaces.” Furthermore, advances in technology suggest that future mining activities will involve application of sophisticated systems coupled to monitoring interfaces to provide situational awareness for autonomous haulage systems, use of battery-powered or hydrogen-powered vehicles to reduce emissions and heat in underground environments, and use of robots and autonomous drones for mine rescue and recovery. Such technologies must be thoroughly tested at full scale in a mine environment to confirm readiness for actual underground conditions. While desktop and laboratory-scale research has continued since the closure of the Lake Lynn facility, NIOSH is unable to complete critical safety testing that supports its overall mission of improving mine worker health and safety in all underground mines including for workers employed in metal, nonmetal, and coal mines.

Although coal mining has declined over the past decade, coal remains an important domestic resource and will continue to be for the foreseeable future. Over 90 percent of domestic coal production is supplied for power generation, with the remainder used by industries that produce coal coke, concrete, paper, and steel. Although 2020 saw a roughly 24 percent decline in domestic coal production, the U.S. Energy Information Agency (EIA) forecasts a 12 percent increase in production in 2021 and another 4 percent increase in 2022. The EIA forecasts that increases in natural gas prices will reduce natural gas consumption for electricity generation, resulting in an increased share for coal—and to a lesser extent, an increased share for renewables such as wind and solar in the electricity generation mix (EIA 2021). Despite a downturn in domestic coal production in 2020, employment data collected by the Mine Safety and Health Administration for the third quarter of that year showed 22,900 mine workers employed at 251 operating underground coal mines, representing a working population that has benefited from and will continue to benefit from NIOSH testing and evaluation.

While some NEPA documents voluntarily include a cost/benefit analysis, the implementation cost of each alternative is not a NEPA requirement (CEQ 1978). Regarding the applicability of a limestone mine for coal mine safety testing, the commenters are misconstruing the quote from the article published on December 17, 2006, in the *Pittsburgh Post-Gazette*. Dr. Gurtunca confirmed that a limestone mine does not exactly replicate a coal mine. This comment was made in reference to the suitability of the Lake Lynn strata for assessing strengths of mine seals. Safety testing was still completed by accounting for the known differences between underground conditions. While CDC recognizes that differences in strata competency exist between coal mines and Mace, these differences would not affect the majority of testing. This facility would be carefully developed with dimensions similar to those in coal mines to effectively translate critical health and safety research results to the nation's coal mining workforce.

CDC (Centers for Disease Control and Prevention)

2019 NIOSH Mining Program Strategic Plan. 2019–2023. Updated November 2019. Available at https://www.cdc.gov/niosh/mining/UserFiles/researchprogram/strategicplan/StrategicPlan11-10-2019_508-1.pdf. Accessed December 8, 2020.

CEQ (Council on Environmental Quality)

1978 40 CFR Part 1502.14. 55978–56007. November 29, 1978. National Environmental Policy Act Regulations.

EIA (Energy Information Agency)

2021 Fossil fuel production expected to increase through 2022 but remain below 2019 peak. January 15, 2021. Available at https://www.eia.gov/todayinenergy/detail.php? id=46496, accessed January 27, 2021.

Table 2. Minimum Criteria

Concern ID 3: Several commenters noted that the proposed site does not meet the minimum criteria listed in the EIS. Specifically, commenters indicated the presence of caves and sinkholes, slope, proximity to emergency services, and availability of public utilities. Commenters also questioned compatibility with surrounding land uses, such as the Green Bank Observatory and Snowshoe. Commenters requested the Final EIS be updated to include the known caves and sinkholes on the property and requested a LiDAR survey be completed. Commenters also requested additional borings to confirm the site meets the minimum criteria.
Agency Response: The minimum criteria are focused on the specific location of the proposed underground facility and do not need to apply to the entire project area. The government has determined that the offered site meets all the minimum criteria. These criteria were preferences used to rank offered sites. The Request for Expressions of Interest (REOI) was designed to be broad enough to meet necessary qualifications but is not a final guideline of requirements. CDC performed the core drilling that allowed it to confirm the site meets the minimum criteria. In addition to the initial core drilling that was completed, three additional cores were drilled in support of the groundwater study; the results of this core drilling are documented in the aquifer pump test report appendix in the Final EIS (appendix H). Commenters noted the REOI contained a typographic error regarding the requirement of an active mine when offering undeveloped sites. This text has been removed from the EIS. Soil slopes are not the same as the slope of an undisturbed rock formation. CDC is taking appropriate measures concerning soil and erosion control for aboveground construction in areas of higher slope. For example, the existing access road is already badly eroded. CDC construction on-site would implement erosion control methods to stabilize the road and reduce increased sedimentation into surface waters. The fire suppression system would be designed and constructed to effectively put out fires, including an instant fire suppression system. Research occurred at the previous facility for 30 years without incident. Maps of known documented cave formations have been added to the Final EIS. While there are known sinkholes on the property, the buffer area around the underground facility, including the remainder of the project area, can have sinkholes. There are no zoning regulations in this area that would restrict the proposed use. CDC confirmed with the Green Bank Observatory that the proposed use would not be incompatible with the operation of the observatory. Additionally, the site has reasonable access to all necessary utilities to operate the facility.
Concern ID 4: Commenters requested the entire property be surveyed to identify caves, springs, sinkholes, seeps, wetlands, and streams.
Agency Response: Since the Draft EIS was published, the proposed fence line was relocated, and additional acres of the proposed property have been surveyed. Survey of the entire property is not required, in accordance with U.S. Fish and Wildlife Service (USFWS) and U.S. Army Corps of Engineers requirements. Only acres of potential disturbance were surveyed. Caves and sinkholes were previously documented, and a map has been included in the Final EIS. During the surveys, additional caves or sinkholes were not observed.

Concern ID 5: Several commenters noted the West Virginia Speleological Society has additional information regarding caves on the site and requested cave information be included in the EIS.
Agency Response: The West Virginia Speleological Society provided additional information that was included in the Final EIS, including a map of known caves in the project area.

Table 3. Proposed Action Alternative

Concern ID 6: Several commenters requested additional information regarding the length of time the facility could operate and the disposition process, should underground safety testing no longer be required. Similarly, commenters requested additional information on what would happen should the facility be used for a different purpose or by a different federal agency.
Agency Response: The facility would be designed to have a minimum service life of 25 to 50 years (service life is defined as the time something would remain functional without showing signs of distress). Typical maintenance efforts would occur during this time. While disposition of the property is not currently anticipated, should it be warranted in the future, CDC would follow the GSA's federal disposal process. This process requires that excess property first be offered to other federal agencies that may have a program need for it. If there is no further need for the property within the federal government, the property is determined to be "surplus" and may be made available for other uses, including homeless use, a negotiated sale, or a public sale based on GSA's determination of the property's highest and best use. The transfer or disposal of federal property would require a NEPA analysis and additional public involvement efforts at that time.
Concern ID 7: One commenter questioned the definition of "reasonably foreseeable" as included in Table 2-1: Summary of Impacts. The commenter questioned the potential future use of the site if the facility changed operations, such as use as a quarry.
Agency Response: The text referred to by the commenter relates to cumulative impacts or other projects that are ongoing or proposed that could contribute additional impacts on the same resources affected by the proposed action—not future actions on the site. Should CDC substantially change the proposed use of the site, additional NEPA compliance would be required at that time. To respond to the commenter's specific concern, CDC would never operate a quarry. Property disposal from federal ownership would require additional NEPA compliance, as noted above under Concern ID 6.
Concern ID 8: The U.S. Department of Agriculture - Forest Service (USFS) noted that the southeastern border of the site is adjacent to national forest system lands and requested CDC mark and protect the surveyed end corners and markers and monuments for the boundary. USFS indicated that CDC should contact USFS if it damages or moves a marker or monument, and CDC would be required to survey the markers or monuments with the certified state surveyor.
Agency Response: CDC and GSA would have an official boundary service completed. No disturbance is proposed for the periphery of the property, and CDC does not anticipate disturbing any boundaries or markers.

Concern ID 9: Several commenters provided duplicate comments noting confusion between the definition of the "Site" and the aboveground facilities. Commenters requested that this issue be clarified in the EIS. Commenters also requested an additional public comment period.
Agency Response: The commenters directly cite the Draft EIS where the entire 461.35-acre parcel is defined as the site. While natural and cultural resource surveys were limited to the potential areas of disturbance in accordance with regulating agency requirements, it is unclear what sections of the EIS were confusing. CDC considers that it has adequately met the public and scoping meeting requirements under NEPA.
Concern ID 10: Several commenters raised concerns regarding what permits would be required to operate the facility, noting that because the project type is so rare, the West Virginia Department of Environmental Protection (WVDEP) has no required state permits.
Agency Response: CDC would adhere to all local, state, and federal regulations and permit requirements. Multiple permits would apply during both the construction and operation of the facility, although they may not all be issued by WVDEP. While mining regulations would not apply, operation of the facility may require a permit for operation of an emergency generator.
Concern ID 11: Several commenters requested additional information regarding the operation of the fire suppression facility, including how frequently it would be used; what chemicals would be used; and any potential impacts on air, water, and soils. Commenters specifically asked about the potential for foam fire suppressants and if those would contain pefluorooctane sulfonate (PFOS) or perfluorooctanoic acid (PFOA).
Agency Response: Additional details regarding the operation of the fire suppression facility have been included in the Final EIS. The facility would use reclaimed water or remove oxygen from the area to extinguish fires during testing. All waters/chemicals used in fire testing would drain into a dedicated sump that would be pumped out on a regular basis with all fluids/solids hauled off-site for proper disposal. The facility would not use PFOS or PFOA, and water used for the aboveground fire suppression system would be recycled and would remain within a closed system on-site. Any chemicals used and stored at the facility would comply with all hazardous materials storage requirements, as noted in Concern ID 62. Providing a complete list of every chemical on-site is not possible because of all the small items that could be overlooked, such as paint thinner, or because the chemicals may change over the years.
Concern ID 12: One commenter requested additional information regarding the excess limestone and asked that a transparent process be included into the Draft EIS that documents who would monitor the distribution of the excess limestone and who would benefit from this distribution.
Agency Response: The federal government would not sell any limestone. If the action alternative is selected, disposal of the limestone would be part of the construction contract and would become property of the contractor. Any portion of the limestone not reused on-site would be disposed at the contractor's discretion. Disposal at a quarry is included to account for any off-site disposal traffic.

Concern ID 13: Commenters requested additional information regarding the proposed fence line maintenance, including how the 10-foot buffer would be maintained and if herbicides would be used.
Agency Response: As a result of public comments, the fence line was relocated. A 10-foot buffer is no longer required. The fence would be located within areas that would be maintained by mowing.

Table 4. Public Involvement

Concern ID 14: One commenter requested an extension of the public comment period because they felt additional time was needed to determine if any impacts reached a threshold of significance.
Agency Response: CDC exceeded the required public comment period. Draft EISs must be available for public review and comment for 45 days; the Draft EIS was available for 51 days.
Concern ID 15: One commenter indicated that CDC did not properly notify the public for the release of the Draft EIS and the public meeting. Two commenters noted that a hardcopy of the Draft EIS was not available at the public libraries at the beginning of the public comment period.
Agency Response: As noted in the Final EIS, CDC provided multiple days of meeting advertisements in two newspapers in addition to emailing members of the interested stakeholders list in addition to publishing a notice of availability in the Federal Register. After the public scoping meeting in 2018, CDC emailed all meeting attendees and added them to an email list for project updates. CDC invited stakeholders to forward the email to other neighbors and potential stakeholders to develop a comprehensive stakeholder list. The comment period was open for an additional month after the public meeting, and CDC brought additional hardcopies to the public meeting to ensure everyone had access to the document.

Table 5. Other NEPA Issues

Concern ID 16: Several commenters indicated the Draft EIS was insufficient and requested a Supplemental EIS be completed and provided for public comment.
Agency Response: While commenters provided specific comments that they felt warranted a Supplemental EIS, the items noted do not rise to requiring a Supplemental EIS, and the Draft EIS was not "inadequate as to preclude meaningful analysis." Between the Draft and Final EIS, the proposed action has not changed. Additional information regarding existing groundwater and potential impacts was included in the Final EIS at the request of commenters. CDC will hold a virtual information meeting to present the new information contained in the Final EIS. All publicly available information was included in the Draft EIS. Some commenters noted that residential well information was not included; however, that information was either incomplete or not available from either the Randolph or Pocahontas Health Departments. CDC contacted homeowners to voluntarily provide residential well information for inclusion.

Concern ID 17: One commenter noted a CDC representative provided an estimated construction cost at the Draft EIS Public meeting and questioned why this cost was not included in the Draft EIS. The commenter requested that cost be compared to the cost of reissuing a more proactive search to find an existing facility that meets the minimum requirements.

Agency Response: NEPA and CEQ's implementing regulations do not require agencies to monetize costs and benefits of a proposed action. CEQ regulations provide that agencies need not weigh the merits and drawbacks of particular alternatives in a monetary cost-benefit analysis (CEQ 1978).

CEQ (Council on Environmental Quality)

1978 40 CFR Part 1502.14. 55978–56007. November 29, 1978. National Environmental Policy Act Regulations.

Table 6. Alternatives Considered but Dismissed

Concern ID 18: Multiple commenters requested additional information regarding other alternatives considered, including the potential use of an existing mine as well as additional information for why existing testing sites do not meet the purpose, need, or minimum requirements. One commenter asked if an inventory of all limestone quarries in the United States had been completed. Noting that one potential alternative was dismissed because it would be cost prohibitive, commenters requested a cost analysis of each alternative. Several commenters recommended reviewing existing properties already owned by the federal government or existing coal mines that could be used.

Agency Response: CDC and GSA followed the standard federal acquisition process, which began by looking at all available existing testing facilities to determine if any were appropriate. Once the agencies determined that no existing facilities could be used, they completed a thorough search of federally controlled properties before advertising for a new site acquisition through a REOI. Preliminary due diligence was performed on all offered sites, including test borings as necessary. The current site was offered by the owner during the REOI process and was the only site that satisfied the minimum requirements. Sites that did not meet the minimum requirements were dismissed from further consideration.

While there may be abandoned mines in West Virginia, the mine needs to be a hardrock mine, not a coal mine. If a coal mine were used for this testing, the coal seam would ignite and would not be extinguished until all the coal had burned, which could last for decades. Additional details have been incorporated into the dismissal statements in the Final EIS.

Concern ID 19: Several commenters suggested that the Lake Lynn facility should be acquired by eminent domain and requested CDC disclose how much it had offered to purchase the facility.
Agency Response: In 2010, CDC developed an environmental assessment of the Lake Lynn facility to support purchasing the site, but the owner was unwilling to sell the property under any circumstances. CDC will not disclose the fair market value price offered because it is a private property and disclosure of this information could potentially affect the property owner during any potential future sale. While the use of eminent domain is a mechanism available to the federal government to obtain property; eminent domain was not pursued to obtain the Lake Lynn property. The potential financial risk to the agency related to the use of eminent domain was determined to be an unacceptable unknown risk because of the current extensive mineral and hydrocarbon activities on the site and the planned natural gas storage below the site.

Table 7. Mitigation Measures

Concern ID 20: A commenter wanted a sign to be installed uphill from the entrance on Route 219 requiring trucks not to use their engine or jake-brake.
Agency Response: CDC will adhere to all West Virginia Department of Transportation (WV Department of Transportation) requirements for site access during the construction period.
Concern ID 21: Several commenters requested the inclusion of a water mitigation plan to ensure no adverse impacts on local groundwater or residential wells. Specific requests included baseline sampling, well monitoring, financial compensation related to property values related to any loss or contamination of water (including loss of income from rental properties), extension of and connection to the municipal water system, and CDC payment of water bills for residents. Several commenters noted that only one of the two nearby municipal water supplies were included in the Draft EIS.
Agency Response: Additional information regarding groundwater, including the results of an aquifer pump test and residential well information, has been added to the Final EIS. CDC would sample wells before, during, and after construction, if authorized by homeowners. The Final EIS also includes a proposal to and analysis of extension of the municipal water system to homes within a 1-mile radius of the proposed facility. Connection to the system would be voluntary for residents, and CDC would not pay the water bill for residents should they choose to connect to the public system. CDC does not currently have authority to expend funds on non-federal property; however, CDC/NIOSH would seek authority and funding for off-site improvements to extend the municipal water service as described in the Final EIS. Implementation of any off-site infrastructure improvements would be in accordance with such authority.

Concern ID 22: Several commenters requested the EIS include an analysis on impacts from invasive species, noting the plant surveys found Japanese stiltgrass within the project area.
Agency Response: CDC would adhere to all federal, state, and local requirements regarding invasive species. Under the Federal Noxious Weed Act (7 United States Code 2801), federal agencies are required to manage invasive plant species, including development and coordination of a management program to control invasive plants on federal land in collaboration with states. This regulation only applies if similar programs are being implemented on state or private lands in the same area. The Monongahela National Forest has an invasive species management plan from 2014. CDC will consult with USFS to determine if there are similar programs in the area adjacent to the project area that will require collaboration.

Table 8. Cumulative Impacts

Concern ID 23: Several commenters requested additional information regarding the potential cumulative impacts from construction and operation of the Atlantic Coast Pipeline project, including potential impacts on traffic, noise and vibration, and groundwater. Commenters noted that the EIS states that the Atlantic Coast Pipeline is located 3.5 miles from the proposed site, but stated it is within 2 miles.
Agency Response: Since publishing the Draft EIS, the Atlantic Coast Pipeline project has been canceled. The Final EIS has removed the project from the list of cumulative actions.
Concern ID 24: One commenter stated that the Draft EIS does not include cumulative noise impacts from the mine ventilation that would affect the quiet and natural sounds of the area for residents and visitors. The commenter also stated that engineering and design to eliminate noise from the facility must be included in the EIS.
Agency Response: Additional information regarding the proposed ventilation fan has been incorporated into the Final EIS under the Proposed Action Alternative and noise analysis (Section 4.1.3). The EIS includes a cumulative impact assessment for operational noise and concludes that no significant impacts are anticipated.

Table 9. Noise

Concern ID 25: Several commenters requested a map that shows the distance that pressure waves or vibrations would be felt. Commenters requested specific information regarding the potential for impacts on nearby residences, roads, caves, wildlife, the railroad, and the Atlantic Coast Pipeline. One commenter asked if CDC would be obligated to pay for any damages to surrounding structures.
Agency Response: The Draft EIS analyzes potential impacts from noise and vibration on nearby residences, the railroad, and the Atlantic Coast Pipeline under Section 4.1.3.1, Sensitive Receptors. While Dominion Energy and Duke Energy confirmed the pipeline would withstand the proposed operations, the Atlantic Coast Pipeline has been canceled since the Draft EIS was published, and reference to the pipeline has been removed from the Final EIS. The proposed action is not anticipated to affect roads or caves, but impacts on wildlife, including bats in nearby caves, are analyzed under Section 4.5.3.2, Threatened and Endangered Species. To further support the analysis, the Final EIS has

been updated with a map that displays the modeled peak particle velocity (PPV) at the closest residences as well as the limit where vibrations would be imperceptible. Should the Proposed Action Alternative be selected, CDC would complete preconstruction surveys to document existing conditions for surrounding properties prior to beginning construction. Should any damages occur during construction, CDC would make the appropriate repairs.
Concern ID 26: Commenters noted the EIS states that 90 linear decibels (dBL) is the acceptable Federal Transit Administration (FTA) noise criteria for daytime exposure to industrial construction and questioned the potential impacts of noise during the construction period. One commenter also questioned when construction would be authorized and if it could occur 24 hours a day.
Agency Response: As noted in Section 3.1.1.2 of the Draft EIS, there are no construction noise or vibration limits at the state or local level; in lieu of regulations at the state and local level, the noise analysis in the Draft EIS relies on FTA-provided guidelines for construction noise and vibration. The Draft EIS also notes that while most of the construction noise would be below the surface, a worst-case analysis was completed to ensure the project would not exceed the FTA guidelines. In Section 4.1.3 of the Draft EIS, the analysis demonstrates the construction of the access road would be the component of the project with the potential to occur closest to residences. Use of heavy equipment in that location would be below 90 dBL and would be audible off the property; however, this use would occur during daytime hours and would be within the dBL standard for construction. Additionally, construction of the access road would be of short duration and would not occur during the entire four-year construction period.
Concern ID 27: Several commenters requested additional information regarding the potential impacts from ventilation fans, including the hours of operation and potential noise.
Agency Response: Additional information regarding the proposed ventilation fan has been incorporated into the Final EIS under the Proposed Action Alternative in Section 2.1.3 and in the noise analysis in Section 4.1.3.
Concern ID 28: One commenter requested the Final EIS be updated to include information about delivery truck traffic and noise associated with natural gas delivery.
Agency Response: The commenter cited the minimum requirements section noting that access to public utilities is preferred. Section 4.4.3.2 of the Draft EIS notes that natural gas is not available in the vicinity and that electric heat or propane could be used as an alternative energy source. If propane were used as the energy source, delivery is anticipated to occur once every three to six months and would not represent additional traffic impacts or a potentially significant impact from associated noise.
Concern ID 29: One commenter asked why impacts on wildlife from noise frequency were not addressed in the Draft EIS, noting the existing standards are for industrial and urban exposure.
Agency Response: A fan at the experimental mine in Bruceton, Pennsylvania, operates at 100,000 cubic feet per minute. At this capacity, the average noise reading is less than 70 dBA in the direct vicinity of the fan. A similarly sized fan is anticipated for the proposed action. Operation of the existing fan in Bruceton has had no adverse impacts on wildlife, and overall noise impacts are limited.

Table 10. Geology, Topography, and Soils

Concern ID 30: Several commenters noted the site is located in the Mauch Chunk Group, which is highly erodible, and erosion could affect adjacent streams. Commenters requested "enhanced BMPs [best management practices]" to address potential soil erosion but did not specify which BMPs they would like to see.
Agency Response: CDC would adhere to all federal, state, and local regulations, including soil erosion and control plans, and stormwater permits as well as all requirements under a federal National Pollutant Discharge Elimination System (NPDES) permit.
Concern ID 31: Several commenters indicated that sedimentation from access roads would adversely affect the surface waters on the site, noting that the soils in the project area are rated as "severe" erosion potential. Commenters requested this potential impact and associated mitigation measures be included in the EIS.
Agency Response: Most of the access road included under the proposed action already exists. CDC would widen and stabilize the access road, which is currently severely eroded in several locations. Stabilizing the access road, including adding culverts to convey water beneath the road instead of over the top of it, would decrease sedimentation from the existing access road. As noted above, CDC would adhere to all federal, state, and local regulations for soil erosion and control. The U.S. Department of Agriculture-Natural Resources Conservation Service (USDA-NRCS) erosion hazard rating is based on potential erosion if 50 to 75 percent of the soils were exposed, which would not be the case for the proposed action.
Concern ID 32: Commenters requested a detailed analysis of geology on-site, including mapping of karst and groundwater features. They requested the target formation be mapped for significant voids, faults, and fracture patterns. They also requested a map of the proposed facility with caves and subterranean streams to determine if the facility would intersect with caves or aquifers.
Agency Response: Section 3.2.2, Geology, has been updated with additional information on caves, including a figure and table. Additional information on the geological formation underlying the site has been added in Section 3.3.4, Groundwater, including findings of the aquifer pump test conducted in November 2020.
Concern ID 33: One commenter asked if the LLEM facility was located in karst topography.
Agency Response: The LLEM facility was located in karst topography and had sinkholes, as did the surrounding limestone mines.

Table 11. Water Resources

Concern ID 34: Several commenters requested additional information regarding the use of oil/water separators in the stormwater management ponds, including the specific list of potential contaminants and how they would be mitigated. Commenters requested CDC assess the exposure limits for all emitted/released/generated compounds at expected concentrations both for human health, aquatic toxicity, and drinking water quality and quantify the impact these may have on groundwater and air quality and potential health risks/damage.
Agency Response: CDC would adhere to all construction requirements, including development of a spill prevention plan. The Final EIS has been updated to include additional details regarding testing on-site; the Final EIS clarifies that water would not be used within the underground testing facility and confirms that the stormwater management ponds would include oil/water separators to manage runoff from the parking area. Please see expanded responses under Concern ID 41, 42 and 48. At the Lake Lynn facility, NIOSH used a well on-site for drinking water.
Concern ID 35: Multiple commenters noted the information regarding existing residential wells was inaccurate or incomplete and stated all adjacent residents rely on residential wells for water supply.
Agency Response: In October 2020, CDC sent a letter to all homeowners within a 1-mile radius requesting residents voluntarily submit their well information. CDC had previously reached out to both the Randolph and Pocahontas Health Departments for this information, but the information was unavailable or incomplete. All information submitted by homeowners has been incorporated into the Final EIS.
Concern ID 36: Commenters requested a groundwater study to determine the flow, direction, and yield of all aquifers in the area as well as available groundwater and potential impacts from drawdowns associated with the proposed action. They also requested the depth to water be overlain with the horizon of the proposed underground facility and indicated that detailed analysis must be performed showing fractures in the geology where groundwater is present. Commenters indicated that the target formation must be thoroughly mapped for significant voids, faults, and fracture patterns, and a profile view of the proposed mine with elevation depths should be overlaid with the mapped caves and subterranean streams in the vicinity to determine if the underground facility intersects any caves or aquifers. One commenter specifically noted "there are numerous limestone outcrops on the property and several enlarged vertical joints at these outcrops into which surface water flows. It is likely this water flows by underground conduit flow (not diffuse groundwater flow) to Marshall Cave/spring to the north in the Tygart Valley watershed. There may also be flow paths toward the Dry Branch or Big Spring Fork watersheds of the Elk River."
Agency Response: CDC completed an aquifer pump test in November 2020. The report is included as appendix H to the Final EIS, and the findings have been incorporated into the EIS analysis. Known cave locations have been incorporated into the Final EIS.
Concern ID 36: Commenters requested groundwater monitoring wells be installed to monitor any potential impacts on groundwater.
Agency Response: As a result of the aquifer pump test, three wells were drilled on the property that could be used for groundwater monitoring during construction and operation of the facility.

Concern ID 37: Commenters requested a sediment loading estimate for the construction period to ensure the operation would comply with the total maximum daily load for the Tygart Valley River.
Agency Response: CDC would comply with all requirements under the NPDES permit and stormwater prevention plans, as required. Additional BMPs could include stormwater collection ponds, silt fencing during construction, and revegetating exposed soils after construction. Improving the eroded access road would also reduce sedimentation from existing conditions.
Concern ID 38: Commenters questioned the conclusion in the Draft EIS that the impact on groundwater would be short term, noting if the flow is altered, the impact would be long term.
Agency Response: The aquifer pump test report confirms the on-site aquifer has low transmissivity and that the risk of adverse impacts on off-site groundwater is low. No drawdown associated with the test was measured in the on-site observation wells or in the off-site private residential well, indicating a low potential for hydraulic connection between on and off-site wells. Alteration of groundwater flow is not anticipated because of the narrow profile of the underground facility. Additional details regarding the dimensions and construction methods of the proposed facility have been included in Chapter 2 of the Final EIS.
Concern ID 39: Commenters asked why water sampling was not completed in support of the Draft EIS analysis, noting that 'acid mining drainage' that lowers pH and metals contamination occurs miles downstream from the project area. Commenters requested the Tygart Valley River be monitored before, during, and after construction.
Agency Response: Acid mining drainage is associated with the release of acidic materials in a coal seam during mining activities. The proposed facility would be located within a limestone formation, not a coal-bearing formation; therefore, the types of impacts referenced by the commenter would not occur. Regardless, CDC would obtain baseline measurements of surface waters before construction. However, the baseline conditions would be specific to that day only. During the groundwater study, CDC took a sample that identified the presence of naturally occurring constituents in groundwater at levels below the West Virginia Groundwater Quality Standards.
Concern ID 40: Commenters requested a dye tracer study to determine where the groundwater on the site flows and which residential wells could potentially be affected. Commenters requested a 4-mile radius for identifying residential wells and requested four sets of dye tracers tests, one during each season.
Agency Response: CDC completed an aquifer test, as opposed to a dye tracer study, to determine the volume of water on-site and potential connectivity. The aquifer test (pump test) indicated that drawing water on-site does not influence the water levels on one off-site well. While this test indicated a lack of connectivity, it was not 100 percent conclusive. As a result, CDC has incorporated extension of the public waterline from the Pocahontas Public Service District to connect all homes within a 1-mile radius to the public water system as a mitigation measure.

Concern ID 41: Commenters asked for additional details regarding the settling ponds, including the volume of water they would hold and the recovery rate of the aquifer related to any planned dewatering activities.

Agency Response: CDC would implement stormwater controls as required by WVDEP and in compliance with Section 438 of the Energy Independence and Security Act of 2007. Specific stormwater management techniques could include stormwater collection ponds, vegetated swales, or green roofs. The specific type, size, and location of stormwater management would be determined during the design process. Any stormwater management elements would function only to manage stormwater on-site and would not treat any water associated with operation of the facility.

Concern ID 42: Commenters asked for additional details for how coal dust would be separated from discharged water after testing.

Agency Response: Each test at the facility would be conducted with blast doors closed to contain blast fumes and particulate matter within the underground environment. Following a test, sufficient time would be allowed for the dust and particulates to settle on the mine floor. The ventilation fan would then be started and allowed to draw the gaseous fumes from the underground workings, leaving the dust and particulates on the floor. With the fumes removed, facility personnel would safely enter the underground workings and continue post-test cleanup.

To avoid creating hazardous aqueous solutions of test residue, water would not be used in the cleaning process. Instead, a mobile sweeper would first be used to collect the post-test dust and particulate matter, the majority of which would be on the floor. Compressed air would then be used to blow off what little dust remains on the walls/ceiling of the test drift. This dust would also be collected by the mobile sweeper, with all dusts and particulate matter placed in appropriate containers for disposal at an approved off-site location. Cleaning with the sweeper and compressed air would ensure that no water is used or is needed to wash down the underground test facility following a test.

Concern ID 43: Commenters noted the facility would increase impervious surface and requested the EIS include an analysis on the increase in impervious surface, as well as any potential downstream impacts on flooding and stream bank erosion. Commenters indicated that an increase in impervious surface would require new floodplain maps and adjusted insurance rates for homeowners, and they requested the EIS reflect these costs and changes.

Agency Response: As noted on Page 4-11 of the Draft EIS, "After construction is completed, there would be a slight increase in impervious surfaces of approximately 1 acre; however, the majority of the disturbed area would be permeable. Impervious surfaces would include a small parking area and the footprints of two support buildings. This increase could result in long-term, adverse impacts from increased stormwater runoff, although implementation of stormwater BMPs would avoid or minimize impacts from stormwater on surface water resources." CDC would comply with all stormwater management requirements, including Section 438 of the Energy Independence and Security Act of 2007 (EISA) 438 would not require revised Federal Emergency Management Agency (FEMA) floodplain maps or insurance requirements. There would be no impact on floodplains."

Concern ID 44: One commenter questioned the Draft EIS analysis that the proposed fence line would not directly affect surface waters.
Agency Response: As a result of public comments, the fence line was relocated. The Final EIS analysis has been updated.
Concern ID 45: One commenter questioned why Sharp's Cave was not mentioned in the Draft EIS, noting it is a 4-mile cave that runs parallel with Route 219. The commenter noted the Big Spring Fork of the Elk River has been dye traced and is connected to many springs and wells in the area.
Agency Response: In review of this comment, CDC confirmed the entrance to Sharp's Cave is more than 7 miles from the project area and was therefore not included in the EIS. Similarly, the project area is not within the Elk River watershed. As a result, this information was not added to the Final EIS.
Concern ID 46: Commenters requested additional information regarding the impacts on groundwater, including any drawdown impacts, required duration of any water pumping, volume of water to be pumped, impacts on water quality, and the potential impacts on karst features and aquifer integrity from blasting
Agency Response: The Final EIS has been updated to clarify the underground facility would not use water, and water associated with the fire suppression facility would be recycled. As a result, drawdown impacts are not anticipated. Information from an aquifer pump test has been included into the Final EIS.
Concern ID 47: Commenters requested additional drilling to determine the exact location of groundwater within the site, including details on how water flow will be kept out of the facility to protect drinking water.
Agency Response: Three additional corings/wells were drilled during the aquifer pump test, and the impacts of the aquifer pump test have been incorporated into the Final EIS and as Appendix H. Additional construction details regarding how the facility would address groundwater have been incorporated in to the Final EIS.
Concern ID 48: One commenter noted the EIS does not address how wastewater or air emissions will be managed or treated. The commenter asked if wastewater would be treated on-site, where would the effluent discharge, and how would it be kept out of the groundwater given the karst geology. If on-site treatment (e.g., air oxidation) what would be the impact of the organics stripped from the wastewater by air sparging to the local quality and odors?
Agency Response: A typical coal dust test at the facility would generate both gaseous (carbon monoxide, carbon dioxide, hydrogen, and oxygen) residue and solids in the form of dusts and other particulate matter (char, combustion products, and tars). Samples of post-test gases collected following a number of coal dust tests at LLEM showed the following average compositions: nitrogen 74.82 percent, argon 0.896 percent, oxygen 0.51 percent, carbon dioxide 15.95 percent, carbon monoxide 5.59 percent, hydrogen 1.77 percent, methane 0.232 percent, acetylene 0.043 percent, and ethylene 0.025 percent (Conti et al. 1988). The scope and size of the tests reported in this publication are very similar to those proposed at the Mace facility. Testing at LLEM also showed that some, but not all, of the rock dust (ground limestone) used to limit combustion of the coal dust was converted to carbon

dioxide during the test. The remainder of the rock dust ended up as post-test residue having bonded chemically with some of the gaseous by-products.

As noted under the response to Concern 42, each test at the facility would be conducted with the blast doors closed to contain blast fumes and particulate matter within the underground environment. Following a test, sufficient time would be allowed for the dust and particulates to settle on the mine floor. The ventilation fan would then be started and allowed to draw the gaseous fumes from the underground workings, leaving the dust and particulates on the floor. With the fumes removed, facility personnel would safely enter the underground workings and continue post-test cleanup.

To avoid creating hazardous aqueous solutions of test residue, water would not be used in the cleaning process. Instead, a mobile sweeper would first collect the post-test dust and particulate matter, the majority of which would be on the floor. Compressed air would then be used to blow off what little dust remains on the walls/ceiling of the test drift. This dust would also be collected by the mobile sweeper, with all dusts and particulate matter placed in appropriate containers for disposal at an approved off-site location. Cleaning with the sweeper and compressed air would ensure that no water is used or is needed to wash down the underground test facility following a test.

Conti R.S., I.A. Zlochower, and M.J. Sapko

1988 Rapid (Grab) Sampling During Full-Scale Explosions – Microscopic and Analytical Evaluation, US Bureau of Mines, Report of Investigations, 9192, 17pp.

Table 12. Utilities

Concern ID 49: Several commenters requested that if CityNet extends the fiber optic line to service the site, that residents also be provided access to the service.
Agency Response: CityNet confirmed extension of the fiber optic network would be feasible but has not confirmed it would be completed. However, CDC would not own the line. If the line were extended, CDC could let CityNet know that additional residents would be interested in using this service.
Concern ID 50: Commenters requested the EIS analyze the installation of utilities, specifically questioning if the installation of power lines would affect the viewshed.
Agency Response: Section 4.4.3.1 in the Draft EIS includes the requested analysis, specifically stating the details of power line extension and noting MonPower indicated the upgrade of overhead power lines would likely be installed on existing poles within the current right-of-way and would therefore not alter the viewshed. Similar details and associated analysis are provided for each utility analyzed in Section 4.4.3.
Concern ID 51: Commenters noted that the existing analysis was inadequate in terms of analyzing proposed water usage by the site and potential drawdown of aquifer levels from on-site wells.
Agency Response: The Draft EIS includes the potential water usage by the facility, noting that it would be approximately the same as two residences. Potential impacts on groundwater have been expanded by a groundwater study. Additionally, CDC could also potentially use water from the extended public water line, eliminating any potential drawdown of aquifer levels from on-site wells. Please see the agency response to Concern ID 46.

Concern ID 52: Commenters noted that the analysis of impacts from the sanitary sewer was inadequate and requested CDC consider extending the existing sewer line to the site instead of developing on-site disposal options. The commenters felt that the EIS analysis conclusion that the most appropriate on-site disposal system would be determined during design was not analysis. They requested the agency further evaluate the potential for a septic system to pollute ground and connected surface water both on- and off-site. If a surface facility is to be used, they requested the Final EIS evaluate the quality of its likely discharges, the baseline volume and quality of the likely receiving streams, and calculate whether those streams can meet state water quality standards after accepting the waste load from the treatment unit.
Agency Response: The EIS analysis notes that septic is one possibility and includes multiple design options that could be used, and the EIS commits to using the design option with the least environmental impact. Regardless of which specific disposal method would be used, both methods would require a permit from West Virginia, which would ensure no adverse impacts on water quality.

Table 13. Biological Resources

Concern ID 53: Several commenters questioned the analysis in the Draft EIS on rare, threatened, and endangered species, noting the Draft EIS states that the West Virginia Department of Natural Resources (WVDNR) stated there were no rare, threatened, or endangered species on-site, yet the Draft EIS analyzes threatened and endangered species. Commenters noted that this is a contradiction and indicated that caves are a sensitive habitat that should be analyzed.
Agency Response: The commenter is incorrectly conflating state-listed species with federally listed species. WVDNR confirmed there are no state-listed species in the project area; however, several federally listed species have the potential to exist in the project area. CDC consulted with USFWS and completed habitat and species surveys in support of a biological assessment, which was submitted for USFWS review on January 4, 2021. The conclusion of Section 7 consultation will be documented in the Record of Decision. In support of the Section 7 analysis, potential impacts on bats in nearby caves are analyzed, as noted below in response to Concern ID 55.
Concern ID 54: One commenter was concerned that the proposed fence line would trap bears within the fenced property and requested a wildlife escape hatch to prevent restricted wildlife movement.
Agency Response: In response to public comments, the fence line has been relocated. The fence would no longer enclose the entire property and would only surround the aboveground structures. As a result, the commenter's concerns about wildlife trapped within the fence have been addressed.
Concern ID 55: Commenters questioned the potential impacts from blasting on cave-dwelling species, including bats.
Agency Response: The discussion of impacts on bats from blasting and tree cutting has been expanded and is described in Section 4.5.3.2 of the Final EIS. USFWS consultation is underway.

Concern ID 56: Commenters requested the opportunity to review the species surveys for threatened and endangered species prior to release of the Final EIS. Similarly, commenters noted the Draft EIS was released prior to the completion of Section 7 consultation with USFWS and felt that without a biological opinion, the Draft EIS does not satisfy NEPA and restricts the ability for the public to accurately comment on potential impacts on federally listed species. Commenters requested that CDC prepare a Supplemental EIS and biological opinion for public comment.
Agency Response: The specific locations of threatened and endangered species are not released to the public because of resource sensitivity. The surveys were completed in November 2018 and September 2019, and reports were provided to USFWS for review and concurrence in support of the biological assessment for the proposed action. Relevant summaries of the field surveys are included in Section 3.5.3 of the EIS. Section 7 consultation does not need to be completed prior to publication of a Draft or Final EIS. A biological opinion is required prior to signing a Record of Decision to document the conclusion of the Section 7 consultation. NEPA provides the public an opportunity to comment on the Draft EIS, which included a detailed analysis on federally listed species. However, a public comment period is not required for Endangered Species Act Section 7 documents, such as biological assessments or biological opinions, which often contain resource-sensitive information and are not publicly available.
Concern ID 57: Commenters requested the EIS note that the headwaters of the Tygart Valley River are designated Trout Waters and stated the Draft EIS incorrectly describes the Tygart Valley River as an intermittent stream.
Agency Response: The Tygart Valley River is adjacent to the site. The Draft EIS does not describe the Tygart Valley River as an intermittent stream, although the site does contain intermittent streams. The water resources report notes that the Tygart Valley River was surveyed as intermittent adjacent to the property but is joined by additional tributaries and becomes perennial. Text was added to Section 1.8 of the Final EIS to note that trout could be present in or adjacent to the site and provides the rationale for not carrying forward an analysis in the EIS of the potential impacts on the trout. USFWS, WVDNR, and WVDEP did not express concern about impacts on trout or trout habitat during agency consultation.
Concern ID 58: Commenters questioned why the surveys for federally listed species were limited to only the areas of potential disturbance; they requested a full survey of the site and a USFWS-issued biological opinion.
Agency Response: All species surveys were completed in consultation with USFWS. Under Section 7, the "action area" is defined as the area of potential disturbance and is not the same as the overall site or project area. All surveys were conducted by an approved contractor according to USFWS guidance. USFWS requested that the surveys cover the areas where disturbance, including vegetation clearing and tree removal, is proposed. As noted above, a biological opinion will be documented in the Record of Decision.

Concern ID 59: Commenters raised concerns regarding potential impacts on migratory bird species, noting these species depend on unfragmented habitat. Commenters also noted the project area is within a designated Important Bird Area.
Agency Response: Section 1.8 of the Final EIS has been updated to reflect this designation. The section describes the potential impacts on migratory birds and then provides the rationale for the dismissal from full EIS analysis.

Table 14. Cultural Resources

Concern ID 60: Several commenters questioned the viewshed analysis completed for the EIS. Specifically, commenters requested the proposed fence and potential staging areas be included in the analysis or indicated that their specific viewshed was not considered in the analysis.
Agency Response: The West Virginia Division of Culture and History (WV SHPO) defines viewshed as follows "viewshed is tied to the cultural resources analysis for purposes of [the National Historic Preservation Act] NHPA." Several commenters indicated that their houses were not identified as a potentially eligible cultural resource because they are less than 50 years old, would not have a view of the facilities, or have been significantly altered. Although unrelated to the viewshed analysis, the fence line has been revised as a result of public comments on the Draft EIS and would no longer enclose the entire property boundary and would not be visible from the road. Similarly, staging areas are temporary and are not included in the viewshed analysis. The viewshed analysis used a topography analysis and identified all structures that are 50 years or older, in compliance with Section 106 of the National Historic Preservation Act. The cultural resource study confirmed that the proposed action would not affect these resources, and the WV SHPO concurred with this finding.
Concern ID 61: Commenters raised concerns regarding potential impacts on cultural resources, specifically noting the area was used by Confederate soldiers during the Civil War and may contain unmarked graves.
Agency Response: Surveys of areas of potential disturbance were completed, and the WV SHPO concurred with the finding of no effect. No archaeological resources that are potentially eligible for listing on the National Register of Historic Places were discovered. If archaeological resources, including human remains, were discovered during construction, the construction document would have an approved mitigation measure to immediately stop construction until an archaeologist can investigate the findings.

Table 15. Hazardous Substances

Concern ID 62: Several commenters requested the definition of hazardous substances and a list of the chemicals that would be used and stored on-site, including their potential health impacts. Commenters requested additional information regarding how the water supply would be protected from hazardous substances during construction and operation.
Agency Response: Hazardous substance means any substance that could pose a risk to health, safety, property, or the environment. The U.S. Environmental Protection Agency (U.S. EPA) regulates the transportation, storage, and disposal of hazardous materials and the management of hazardous waste through Titles 49 and 40 Code of Federal Regulations (CFR) Parts 172 and 266, respectively, under the authority of the Resource Conservation and Recovery Act. All hazardous materials and wastes associated with the proposed action would be handled in accordance with these the regulations. During construction, contractors would be required to keep spill clean-up kits on-site so spills of hydraulic fluid, oil, or other contaminants from drilling or excavation equipment could be immediately contained and cleaned up in place. Additionally, as discussed in detail in Section 4.3.3.3 of the EIS, excavation and construction of the underground safety research facility would likely require dewatering. Groundwater from dewatering activities would be pumped to areas that would be contained without any adverse effects on receiving waters or to a sediment-trapping device prior to release to existing streams at rates that would not cause downstream erosion. No water would be discharged during construction without acquiring the necessary state and/or local permits. The reinforced concrete lining would provide permanent protection to the tunnel structure against intruding groundwater, offer a physical barrier that would prevent methane gas and coal dust from escaping through most of the tunnel length, provide blast-resistance capability to withstand the effects of repeated testing, and reduce the potential for damage to surrounding rock. In addition to collecting and treating all water, project specifications would include strict controls regarding the types of allowable explosives to prevent loss of nitrates or ammonia to groundwater. There would be no use of water in the underground facility during operation.
Concern ID 63: Several commenters requested additional information regarding the proposed settling ponds, including the treatment and disposal of the water.
Agency Response: Please see response to Concern ID 41.

Table 16. Land Use

Concern ID 64: One commenter noted that Pocahontas County prohibits mines and mining activity.
Agency Response: The underground testing facility is not a mine, and mining activities would not occur on-site. Pocahontas County has acknowledged that the proposed action would be a laboratory, not an active mine.

Table 17. Visual Quality

Concern ID 65: Several commenters requested potential impacts from light pollution be included in the EIS analysis, specifically requesting nighttime lighting requirements; impacts on night sky, property values, and wildlife; and any planned mitigation measures.
Agency Response: The facility would include security lighting in the parking area and wall packs along the building as well as at the entrance and gate, which would be set back from the roadway. The access road would not be lit. When appropriate, CDC would aim to include fully shielded and low color temperature lights. Most employees would leave the site by 5:00 PM, further reducing the potential for lighting other than security lights. Because of the topography and heavily forested nature of the project area, the lighting is not expected to be visible or contribute to light pollution in the vicinity. The Final EIS has been updated to provide the rationale for the dismissal of potential impacts from lighting under the visual resources impact topic.
Concern ID 66: Multiple commenters raised concerns regarding the potential change in views from the proposed chain-link that would surround the property.
Agency Response: As a result of public comments on the Draft EIS, the proposed fence line has been relocated to enclose only the aboveground structures.
Concern ID 67: Several commenters requested the visual quality analysis consider the potential daily smoke or visibility impacts from the above and below-ground testing.
Agency Response: As noted in the Draft EIS, testing would occur twice a week. After the underground tests, the facility would be cleaned using mobile sweepers to remove the dust and other particulates. Compressed air would be used to blow off what little dust remains on the walls/ceiling. This dust would also be swept up, with all collected particulates placed in appropriate containers for proper disposal at an approved off-site location. No water would be used to clean or wash down the test drift. In the aboveground fire testing facility, a filter/containment system would remove post-fire particulates from the test gallery and scrub particles out of the air. Fire testing is anticipated to occur with a small test every few days and larger tests once every few weeks. With the installation of the filtering systems to remove particulate matter, the facility would not release visible particles. Additionally, there would be no testing in the winter.

Table 18. Transportation

Concern ID 68: Several commenters requested additional information regarding access to the site from Route 219, including the proposed site plan and proposed landscaping, noting the existing access point to the property constitutes a potential public safety hazard.
Agency Response: CDC has started and would continue to coordinate with the WV Department of Transportation and would comply with all requirements for access to and from the property during the construction period. On September 16, 2020, the WV Department of Transportation confirmed that CDC should coordinate with District 8 in Elkins once plans are available, but it does not anticipate the need for a traffic study or construction of turning lanes on Route 219. Similarly, the WV Department of Transportation noted that the required construction equipment may need a permit for transport of large equipment because they are in excess of the allowable size and weight and recommended coordination with the Highway Operations Division's Charleston Headquarters when specific equipment needs are known.
Concern ID 69: Several commenters noted that truck trips during site preparation would affect the environment, tourism, and visitors to Snowshoe Mountain Resort.
Agency Response: Excavated material would be stockpiled on-site and used for site preparation as much as possible to limit off-site disposal. CDC estimates approximately two-thirds of the excavated material could be used on-site for the access road improvement and development as well as for site grading for the aboveground facilities and gravel parking. A conservative estimate includes off-site disposal for half of the materials. The Draft EIS uses a conservative approach that did not include on-site stockpiling during the initial site preparation. As a result of public comments and concern regarding the potential impacts from truck trips, this assumption has been revised. CDC anticipates materials hauled off-site would occur evenly over the four-year construction period, resulting in an average of 10 dump truck trips per day. CDC would coordinate with the WV Department of Transportation to meet all site access requirements. As a result, no impacts on tourism are anticipated.

Table 19. Socioeconomics

Concern ID 70: Several commenters asked about impacts on existing recreational access to the site, which is authorized by the current owner, as well as impacts on recreational fishing in the Tygart River.
Agency Response: The site is private land not currently publicly available for recreation. Any authorizations for recreational use of the land are at the owner's discretion. CDC would not authorize recreational use on the site; however, the Tygart River would continue to be accessible, assuming access is authorized by other private landowners adjacent to the river or via other public lands.

Concern ID 71: Several commenters indicated that the proposed action has the potential to impact the regional tourism economy, specifically with noise and traffic impacts from construction, as well as viewshed, light pollution, visibility, and curb appeal. Commenters noted that the impact on the tourism economy and on taxpayers should be fully analyzed in the EIS.
Agency Response: Please see the responses to Concern IDs 67 and 69. Over the four-year construction period, an average of ten truck trips per day are anticipated, and no long-term impacts on traffic and transportation are expected. Visual impacts from smoke are not anticipated. As demonstrated in the Final EIS, noise and vibration impacts would be negligible off the project area. In response to public comments, the fence line has been relocated. The fence would no longer enclose the entire property and would only surround the aboveground structures, eliminating any concerns regarding curb appeal.
Concern ID 72: One commenter felt that CDC did not sufficiently address comments during public scoping regarding the proposed impacts on recreation and tourism.
Agency Response: Chapter 1 of the Draft EIS notes in several locations the specific concerns raised during public scoping, including viewshed, noise and vibration, and water supply. A viewshed analysis was completed and confirmed that the facility would not be visible from Snowshoe in either leaf-on or leaf-off conditions. Regarding concerns about noise and vibrations, the noise and vibration analysis confirmed no vibration impacts would be felt outside 1,200 feet from the facility, and noise and vibration would not affect Snowshoe.

Table 20. Air Quality

Concern ID 73: Commenters requested additional information regarding the potential pollutants in the air emissions vented from the testing facility and any associated smoke impacts. They requested the Final EIS provide information on the quality and composition of both the gases and water generated by normal facility operations. Commenters noted smoke could reduce visibility or impact tourism. Commenters asked if any diesel or aerosol studies would be completed and if air quality would be monitored.
Agency Response: Please see the responses to Concern IDs 48 and 67.
Concern ID 74: Commenters indicated that the Draft EIS does not address air quality issues, including any required ventilation systems and current ambient air quality. Commenters noted that the statement that that current construction methods would mitigate any increase in particulate pollution from trucking of underground materials was unsupported by documentation.
Agency Response: As noted in Section 1.8 of the Draft EIS, a full air quality analysis was completed and included as Appendix C in the Draft EIS. The appendix includes a detailed analysis, including the existing ambient conditions. The appendix complies with the General Conformity Rule. The appendix also describes that the project would require an erosion and sediment control plan approved by WVDEP and detailed the specific elements of such a plan that would be required to control fugitive dust during the construction period.

APPENDIX D: ENVIRONMENTAL JUSTICE AND SOCIOECONOMICS ANALYSIS TECHNICAL REPORT

Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health

Acquisition of Site for Development of a Replacement Underground Safety Research Program Facility in Mace, West Virginia

Socioeconomics and Environmental Justice Technical Report

FINAL

December 2018

This technical report was completed in support of the Draft EIS analysis. Any assumptions or resource updates to this reports were made directly in the Final EIS. Where there are differences between the Technical Report and the Final EIS language, the Final EIS language supersedes the Technical Reports.

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ABBREVIATIONS AND ACRONYMS

Acronym	Definition
ACS	American Community Survey
CDC	Centers for Disease Control and Prevention
EIS	environmental impact statement
EJ	environmental justice
EO	Executive Order
GSA	General Services Administration
HHS	Department of Health and Human Services
LLEM	Lake Lynn Experimental Mine
NEPA	National Environmental Policy Act
NIOSH	National Institute for Occupational Safety and Health
U.S. EPA	U.S. Environmental Protection Agency
WVDEP	West Virginia Department of Environmental Protection
WVDNR	West Virginia Department of Natural Resources
WV SHPO	West Virginia State Historic Preservation Office

1 INTRODUCTION

This Socioeconomics and Environmental Justice (EJ) Technical Report has been prepared as part of the environmental impact statement (EIS) for the proposed acquisition and development of a site by the Centers for Disease Control and Prevention (CDC) within the Department of Health and Human Services (HHS), in cooperation with the U.S. General Services Administration (GSA). The site would be developed into the new National Institute for Occupational Safety and Health (NIOSH) Underground Safety Research Program facility (proposed action). The acquisition and development would replace the Lake Lynn Experimental Mine (LLEM) in Fayette County, Pennsylvania, and would support research programs focused on miner health and safety issues. The site being considered for acquisition and development includes 461.35 acres located off U.S. Route 219 in Randolph and Pocahontas Counties near Mace, West Virginia (the project site). CDC is preparing this EIS in cooperation with GSA to comply with the requirements of the National Environmental Policy Act (NEPA) of 1969. The study area for this analysis includes three census tracts that contain the project site: 54075960102, 54075960200, and 54083966500. For the analysis of race and ethnicity only, data were gathered at the block group level to provide a finer level of detail: 540759602001, 540839665003, 540839665004, and 540759601022.

The underground safety research facility would include two distinct areas:

- an underground research facility with crosscuts and entries that simulate a room and pillar mine and a longwall operation, totaling more than 15,000 linear feet of entryway; and
- surface facilities to support underground research activities, including offices, research and research support buildings, maintenance shops, and a fire suppression research facility.

The previously leased and operated LLEM was a unique facility that offered the opportunity for various full-scale mine experiments and research. The research was essential to programs focused on miner health and safety issues. The LLEM was initially constructed under a long-term lease agreement with the original land owner. Located 60 miles south of Pittsburgh, Pennsylvania, the lease agreement covered 406 acres of the overall property parcel of approximately 4,350 acres. Underground mine safety research was conducted at LLEM until 2008 when the roof collapsed. This underground experimental coal mine and aboveground fire testing facility was primarily used for studies and research on mine explosions, mine seals, mine rescue, ventilation, diesel exhaust, new health and safety technologies, ground control, and fire suppression.

Research continued at the LLEM until it was closed in December 2012. CDC/NIOSH intended to extend the lease on the facility, but no lease agreement could be reached with the new property owners. The facility continued to operate under a series of standstill agreements, and during this time, several rehabilitation projects were initiated. The federal government decided to purchase the facility and complete the rehabilitation work after obtaining title to the property. Negotiations to purchase the property were unsuccessful, with the owners rejecting multiple offers.

After the lease and purchase negotiations failed, a number of other options were considered for conducting full-scale mine experiments that required the use of LLEM. The purpose of the proposed action is to provide NIOSH with a new underground safety research facility that would allow for full-scale mine experiments and research that accurately simulate an underground mine. After a nationwide search for alternative sites and methods for conducting the full-scale studies, no viable alternatives other than construction of a new research facility were found.

The project site in West Virginia met the minimum criteria and was determined to be a viable site. It is located near Mace, West Virginia, straddles the Randolph and Pocahontas County lines, and is less than a 4-hour drive from the LLEM in Bruceton, Pennsylvania.

2 COMMUNITY OUTREACH AND PUBLIC PARTICIPATION

As part of the planning process, CDC and GSA implemented a public involvement plan. The purpose of the plan is to provide the public and other stakeholders with information and opportunities to comment on the proposed action and its potential impacts on the human environment throughout the EIS process in accordance with NEPA regulations. The plan also provides CDC and GSA with reliable and meaningful information on the concerns and interests of the public and project stakeholders with regard to the proposed action and its anticipated impacts so these can be appropriately considered in the agencies' decision making.

2.1 Community Outreach Strategies

Various methods have been used to-date to keep the public informed of project-related activities, including:

- A 30-day public scoping period that began on June 14, 2018, and ended on July 15, 2018.
- An open-house public scoping meeting was held on June 26, 2018, from 5:30 PM to 8:30 PM at the Linwood Community Library in Slatyfork, West Virginia. Information on the NEPA process and the proposed action was made available through poster stations, fact sheets, and informal conversation with representatives of CDC, NIOSH, and GSA. In addition, a PowerPoint presentation ran on a loop in the corner of the meeting space. The PowerPoint included the same information as the poster stations plus additional information on LLEM. It described actions that would occur on-site, provided expanded information on NEPA and Section 106 of the National Historic Preservation Act, and described opportunities for public involvement.

The scoping period and public meeting were advertised as follows:

- Paid advertisements in the *Pocahontas Times* (June 21, 2018) and the *Randolph Inter-Mountain* (June 18, 21, and 25, 2018).
- Forty-nine scoping letters were mailed on June 19, 2017, to state and local elected officials; federally recognized Native American tribes; federal, state, and local government agencies; non-governmental organizations; and businesses or individuals with a known or potential interest in the proposed action and its potential environmental impacts, including 9 adjacent property owners.
- The www.regulations.gov website was used to solicit and record comments during the scoping period. Comments could also be directly mailed to Sam Tarr, Office of Safety, Security and Asset Management, Centers for Disease Control and Prevention, 1600 Clifton Road N.E., MS-K80, Atlanta, Georgia 30329-4027.

To provide continued communication to interested stakeholders throughout the process, CDC emailed all meeting attendees who provided an email address, as well as people who provided public comments electronically. CDC requested that the email recipients forward the email to friends and neighbors who would like to receive regular email updates on the project. The same strategies will be used to announce the availability of the Draft EIS for public review and comment.

2.2 Summary of Scoping Comments

2.2.1 Agency Comments

- **U.S. Environmental Protection Agency:** By letter dated July 13, 2018, the U.S. Environmental Protection Agency (U.S. EPA) provided recommendations on the preparation of the EIS pertaining to the following topics: purpose and need; alternatives; land use; air quality; water resources; physiography; terrestrial resources and threatened and endangered species; hazardous waste management; EJ and other community concerns; energy efficiency, resiliency and design, and cumulative impacts. This Draft EIS addresses impacts pertaining to those areas of concern.
- **Advisory Council on Historic Preservation:** On July 6, 2018, the Advisory Council on Historic Preservation provided a letter requesting additional information on the project. On September 19, 2018, CDC provided the Advisory Council with a copy of a letter it had sent to the West Virginia State Historic Preservation Office (WV SHPO) containing a viewshed analysis and a list of known structures eligible for listing on the National Register of Historic Places. Consultation with the Advisory Council is ongoing.
- **West Virginia Division of Culture and History (State Historic Preservation Office)**: On July 9, 2018, the WV SHPO sent an email request for additional information to assist in the completion of the formal agency response letter. CDC responded by email on July 11, 2018, and confirmed that that no mining facility exists on the site. CDC responded by email on July 11, 2018, and confirmed that that no mining facility exists on the site. CDC indicated that consultation with the West Virginia Department of Environmental Protection (WVDEP) is underway regarding permitting requirements, and that CDC is reviewing viewsheds and the potential for historic resources in and around the project site and will provide the WV SHPO with the findings when they are complete. The WV SHPO has not yet submitted a formal response. On September 19, 2018, CDC provided the WV SHPO with a viewshed analysis, a list of known structures eligible for listing on the National Register of Historic Places, and the phase I archaeology survey. Consultation with the WV SHPO is ongoing.
- **West Virginia Department of Environmental Protection**: On June 25, 2018, WVDEP called the CDC project manager to request additional information regarding the permitting associated with the LLEM. CDC responded by email on July 3, 2018, and noted that internal research indicates that no air quality permits were needed at LLEM. CDC also indicated that it has no records of mining permits because LLEM was developed originally by Bureau of Mines. CDC/NIOSH will continue a discussion with WVDEP representatives regarding the proposed action to determine if mining permits would be required to develop the facility.
- **West Virginia Division of Natural Resources:** On July 12, 2018, the West Virginia Division of Natural Resources (WVDNR) sent a letter confirming there are no known records of rare, threatened, or endangered species or sensitive habitats within the project boundary. The WVDNR noted that the project site is within the habitat buffer for the Indiana bat and recommended consultation with the U.S. Fish and Wildlife Service. The letter also noted there are caves located on the northern part of the property that could provide habitat for rate invertebrates in addition to bat populations.
- **U.S. Fish and Wildlife Service:** On June 19, 2018, CDC sent a letter to the USFWS West Virginia Field Office to initiate informal consultation regarding potential impacts on threatened and endangered species from the proposed action, pursuant to ESA Section 7. CDC received a

response letter from the USFWS West Virginia Field Office on August 3, 2018, which included an official species list for the project area and proposed next steps, including field surveys and measures to avoid or minimize adverse impacts on federally listed species. A follow-up teleconference was held on September 10, 2018. In the letter and during the teleconference, USFWS requested additional information about the project area and proposed action. On September 19, 2018, CDC sent a response letter to the USFWS West Virginia Field Office providing the requested information, confirming commitments to avoid or minimize adverse impacts on federally listed species, and describing next steps for ongoing Section 7 consultation.

2.2.2 Summary of Tribal Comments

The scoping notice was sent to 23 federally recognized tribes with a potential cultural interest in actions conducted in Randolph and Pocahontas Counties, West Virginia. One tribe, the Cherokee Nation, submitted a response, noting that Randolph and Pocahontas Counties are outside the tribe's area of interest and the tribe defers to other tribes that may have an interest in this area. A second tribe, the Catawba Indian Nation, responded that it had no immediate concerns regarding the project area, but requested to be notified should artifacts or human remains be located during the ground disturbance phase of the project.

2.2.3 Public Comments

Public comments received during the scoping period fell into five broad thematic categories:

- **General Opinion about the Project.** Expressions of support and opposition were received during the public scoping period. Some commenters opposed the location of the site but were supportive of the overall mission of NIOSH.
- **Site Selection.** One commenter provided multiple comments regarding site selection, including support for the dismissal of Department of Defense and international facilities as viable alternatives after CDC investigation showed these sites could not support the research program over the long term. The commenter opposed the No Action Alternative and requested that the continued use of the LLEM be retained as a viable alternative. The commenter suggested CDC acquire the LLEM by eminent domain.

  Some commenters were unclear why the proposed site is the only site available for consideration and questioned why no closed mines could be used.
- **Water Supply and Water Quality:** A number of commenters expressed concern about the potential for development and operation of the facility to harm their water supply. Commenters noted that the area is karstic, and the limestone has cracks through which the water flows, and that the flows can change. Many in the community get their water from springs where the limestone cracks intersect with the surface. Commenters were concerned that blasting associated with the project would affect the water supply. Several commenters mentioned the 2011 earthquake in Virginia and how it affected springs and wells. One commenter was concerned about the settling ponds that would be needed at the facility, and another was concerned that on-site spills could contaminate the water supply.
- **Community Impacts:** Commenters noted that the primary economic driver in the area is tourism, specifically the Snowshoe Mountain Resort, which is near the proposed project site. Commenters voiced concern that the noise and vibration associated with the project may not be compatible with activities at the resort. Tourism could be affected if the water supply is

affected. One commenter mentioned community plans to convert the railroad right-of-way to a rail-to-trail facility.

An adjacent property owner expressed concern that the proposed facility might limit or preclude oil and gas exploration on his property and the associated right to earn an income from it.

Multiple commenters expressed concerns that the noise and vibration from construction blasting and operation of the facility would be noticeable from adjacent and nearby properties. Commenters noted that a new natural gas pipeline is being constructed nearby, and several concerns were raised about the pipeline, including that the blasting at the proposed project site could harm the pipeline.

Commenters expressed concern that the fence that would surround the property could be an eyesore if it is not set back from the road and from adjoining properties.

One commenter raised concerns that the volunteer fire department would be unable to provide adequate response in the case of an accident at the facility.

- **Requests.** One commenter requested the information provided at the public meeting; another commenter requested an extension of the public scoping period.

3 DEMOGRAPHICS

3.1 Age Characteristics

In 2016, 9,713 people lived in the three census tracts that contain the project site, according to the 2012–2016 American Community Survey (ACS) 5-Year Estimates. Between 2011 and 2016, the total population of the study area remained flat, while the populations of both Pocahontas County and Randolph County declined slightly, by -1.8 percent and -0.1 percent, respectively.

The median age in the study area was approximately 44 years of age in 2016.[1] Median age in the state of West Virginia was 42 in 2016, slightly lower than in the study area—the median age in Pocahontas and Randolph Counties was 48 and 43, respectively. In 2016, 17.7 percent of residents in the study area were under the age of 18, a relatively lower percentage of residents under the age of 18 compared to the state or Randolph County, and a similar percentage relative to Pocahontas County (US Census 2017a)(**Table 1**).

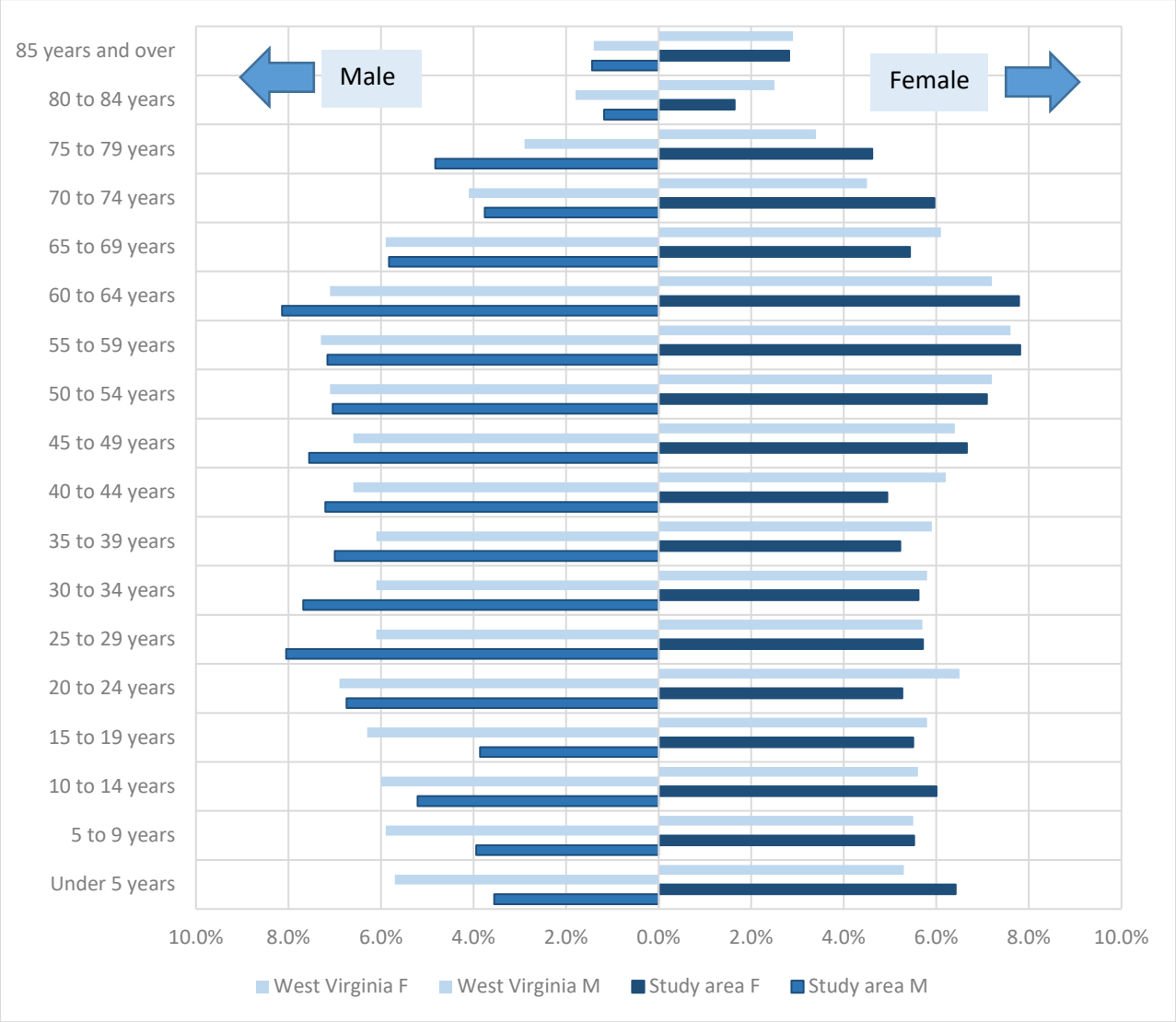
TABLE 1. TOTAL POPULATION, MEDIAN AGE, AND POPULATION UNDER 18

	Study Area	Pocahontas County	Randolph County	West Virginia
Total Population	9,713	8,620	29,287	1,846,092
Median Age (Years)	44	48	43	42
18 Years And Under	17.7%	17.6%	19.3%	20.6%

Source: US Census (2017a)

[1] Calculated using a weighted average of median age for census tracts 54075960102, 54075960200, and 54083966500.

The age distribution of men and women in the study area generally followed the age distribution at the state level, with a slightly larger percentage of males between the ages of 25 and 64, and a smaller percentage of males under the age of 19. Between the ages of 25 and 64, more of the population is male than female (US Census 2017b).



Source: US Census (2017b)

FIGURE 1: POPULATION OF THE STUDY AREA RELATIVE TO THE STATE, 2016

3.2 Race and Ethnicity

In 2016, respondents who identified as white alone made up the largest percentage of the total population at 97.1 percent. A small percentage, 2.2 percent, identified as two or more races, and less than 1 percent identified as Black or African American alone. These trends closely follow both Pocahontas and Randolph Counties, which displayed the same patterns within two percentage points. The state of West Virginia had a higher percentage of respondents identify as Black or African American alone, at 3.4 percent, and a lower percentage of respondents who identified as white alone, at 92.4 percent (**Table 2**) (US Census 2017c).

TABLE 2: RACE AND ETHNIC COMPOSITION OF STUDY AREA, COUNTIES, AND STATE, 2016

Race or Ethnicity	Study Area	Pocahontas County	Randolph County	West Virginia
White alone	97.1%	95.7%	96.2%	92.4%
Black or African American alone	0.7%	1.2%	1.7%	3.4%
American Indian and Alaska Native alone	0.0%	0.0%	0.4%	0.2%
Asian alone	0.0%	0.0%	0.4%	0.7%
Some other race alone	0.0%	0.2%	0.0%	0.1%
Two or more races	2.2%	2.1%	0.4%	1.7%
Hispanic or Latino	0.0%	0.9%	0.8%	1.4%

Source: US Census (2017c)

4 INCOME AND POVERTY

Median household income in the study area was approximately $34,600[2] in 2016, according to the 2012–2016 ACS 5-Year Estimates. This is somewhat lower than Pocahontas County at $36,800, and lower still than Randolph County at $41,200. Median household income in the state of West Virginia was $43,600 in 2016. Mean household income in the study area was also almost a fifth lower than the value for the state (**Table 3**) (US Census 2017d).

TABLE 3: INCOME AND POVERTY FOR THE STUDY AREA, COUNTIES, AND STATE, 2016

	Study Area	Pocahontas County	Randolph County	West Virginia
Median household income (dollars)[a]	$34,569	$36,793	$41,167	$43,552
Mean household income (dollars)[a]	$47,425	$51,399	$55,310	$59,010
Per capita income (dollars)[a]	$18,611	$22,804	$22,549	$24,513
Below poverty level (percent)	20.5%	18.6%	16.9%	17.7%

Source: US Census (2017d, 2017e)

[a] All dollar values have been adjusted to 2017 dollars using the CPI-U. Median household income, mean household income, and per capita income were calculated for the study area using a weighted average.

Per capita income was also at least $3,000 dollars less than for either Pocahontas County or Randolph County (US Census Bureau 2017d). The lower income is reflected in the study area's population of individuals whose incomes fell below the poverty level, which was 20.5 percent in 2016. (US Census Bureau 2017e).

[2] All dollar values have been adjusted to 2017 dollars using the annual average Historical Consumer Price Index for All Urban Consumers (CPI-U) (BLS 2018b).

5 HOUSING

The study area had approximately 8,000 housing units in 2016, approximately 54 percent of which were vacant. This vacancy rate is substantially higher than the vacancy rate for the state of 16 percent and is likely related to the seasonal nature of the study area, which includes Snowshoe Mountain Resort. Pocahontas County's vacancy rate was similar to the study area, with a vacancy rate of nearly 59 percent, where Randolph County's vacancy rate was more similar to the state, at 18 percent. Approximately 81 percent of the housing units in the study area were owner-occupied, higher than the percentage of owner-occupied housing units for the state of West Virginia at 73 percent. The median home value of owner-occupied units was approximately $91,000 in 2016,[3] substantially lower than either Randolph County ($101,000), Pocahontas County ($115,000), or the state ($110,000) (**Table 4**) (US Census 2017f).

TABLE 4: HOUSING INFORMATION FOR THE STUDY AREA, COUNTIES, AND STATE

	Study Area	Pocahontas County	Randolph County	West Virginia
Total housing units	7,995	8,836	14,186	884,728
Occupied housing units	3,646 (45.6%)	3,646 (41.3%)	11,626 (82.0%)	739,397 (83.6%)
Vacant housing units	4,349 (54.4%)	5,190 (58.7%)	2,560 (18.0%)	145,331 (16.4%)
Owner-occupied	2,949 (80.9%)	2,927 (80.3%)	8,311 (71.5%)	535,940 (72.5%)
Renter-occupied	697 (19.1%)	719 (19.7%)	3,315 (28.5%)	203,457 (27.5%)
Median home value (owner-occupied units)[a]	$90,847	$115,407	$101,415	$109,688
Median gross rent (renter-occupied units paying cash rent)*	$592	$590	$579	$672

Source: US Census (2017f); BLS (2018a)

[a] A weighted average was used to calculate median home value and median gross rent in the study area. All dollar values have been adjusted to 2017 dollars using the annual average Historical Consumer Price Index for All Urban Consumers (CPI-U) (BLS 2018b).

6 EDUCATION CHARACTERISTICS

The percentage of individuals in the study area without a high school diploma was approximately 23 percent in 2016, according to the 2012–2016 ACS 5-Year Estimates. This is higher than for either Pocahontas County (15 percent) or Randolph County (17 percent) and higher than for the state of West Virginia (15 percent). The percentage of individuals in the study area with only a high school diploma was approximately 63 percent, higher than for the state of West Virginia. However, the percentage of the population in the study area with a post-secondary degree (including all degrees beyond a high school diploma, including Associate's, Bachelor's, Master's, Professional School, and/or Doctorate) was 15 percent, substantially lower than either of the two counties or the state (US Census 2017e). See

[3] A weighted average was used to calculate median home value and median gross rent in the study area. All dollar values have been adjusted to 2017 dollars using the annual average Historical Consumer Price Index for All Urban Consumers (CPI-U) (BLS 2018b).

Table 5. These data suggest a lack of jobs in the immediate area that require a post-secondary education.

TABLE 5: EDUCATIONAL ATTAINMENT AT THE STATE, COUNTY, AND NEIGHBORHOOD LEVEL

Educational Attainment	Study Area	Pocahontas County	Randolph County	West Virginia
No diploma	22.5%	15.2%	17.2%	14.7%
High school diploma	63.0%	63.8%	59.1%	59.0%
Post-secondary degree[a]	14.5%	20.9%	23.7%	26.3%

Source: US Census Bureau (2017e)

[a] Post-secondary degree includes Associate's, Bachelor's, Master's, Professional School, and/or Doctorate. Percent totals may be greater or less than 100% due to rounding.

7 LABOR FORCE CHARACTERISTICS

The total potential labor force population includes individuals 16 years of age and older. As shown in **Table 6**, according to the 2012–2016 ACS 5-Year Estimates, in the state of West Virginia, Pocahontas County, and Randolph County, more than half of the population 16 years old and older participated in the labor force in 2016. The study area had a slightly lower labor force participation rate than the state or the two counties, at 46 percent. The lower participation rate is indicative of the slightly higher median age in the study area that may include more retirees and elderly persons who no longer participate in the labor force. Slightly less than half the population in each of the counties and the state of West Virginia was employed; Pocahontas County had the highest level of employment, with approximately half its population 16 years and older employed. The study area population had a relatively low level of employment at 43 percent but also had relatively low unemployment at 3 percent, which is consistent with the relatively low labor force participation rate for the study area and reflective of the retiree population. Unemployment in both counties and the state of West Virginia was approximately 4 percent (US Census 2017d).

TABLE 6: LABOR STATUS IN THE STUDY AREA, COUNTIES, AND STATE, 2016

	Study Area	Pocahontas County	Randolph County	West Virginia
Population 16 years and over	8,161	7,278	24,227	1,509,212
In labor force	45.5%	52.9%	51.9%	53.8%
Employed	42.5%	49.9%	48.1%	49.7%
Unemployed	3.0%	3.0%	3.9%	4.1%

Source: US Census Bureau (2017d)

7.1 Employment by Industry

In Pocahontas County, employment was concentrated in local government (11 percent of all jobs) in 2016, followed by retail trade (9 percent). Retail trade (13 percent) was the largest industry in terms of total employment in Randolph County in 2016, followed by employment in manufacturing (8 percent). Health care and social assistance (14 percent) was the largest industry in terms of total employment in the state of West Virginia in 2016, followed by the retail trade industry (12 percent) (**Table 7**).

TABLE 7: EMPLOYMENT BY INDUSTRY IN THE COUNTIES AND STATE, 2016

	West Virginia			Pocahontas, WV			Randolph, WV		
Industry	**2016 Total**	**Percent Change (2007-2016)**	**Percent of Total**	**2016 Total**	**Percent Change (2007-2016)**	**Percent of Total**	**2016 Total**	**Percent Change (2007-2016)**	**Percent of Total**
Total employment (number of jobs)	892,900	-2.6%	-	4,579	-7.6%	-	15,381	-5.0%	-
Farm employment	20,436	-11.7%	2.3%	364	-6.7%	7.9%	378	-20.4%	2.5%
Forestry, fishing, and related activities	3,207	-9.2%	0.4%	(D)[a]	(D)	(D)	120	(D)	0.8%
Mining, quarrying, and oil and gas extraction	34,117	-2.4%	3.8%	(D)	(D)	(D)	335	(D)	2.2%
Utilities	5,381	-14.1%	0.6%	(D)	(D)	(D)	84	21.7%	0.5%
Construction	43,158	-23.3%	4.8%	219	-26.5%	4.8%	761	-27.2%	4.9%
Manufacturing	49,558	-19.3%	5.6%	294	-21.6%	6.4%	1,268	-32.9%	8.2%
Wholesale trade	24,818	-7.9%	2.8%	(D)	(D)	(D)	394	-4.1%	2.6%
Retail trade	106,353	-5.5%	11.9%	428	-4.5%	9.3%	1,921	-1.4%	12.5%
Transportation and warehousing	25,653	-4.8%	2.9%	165	-11.8%	3.6%	589	14.8%	3.8%
Information	11,232	-14.3%	1.3%	41	-8.9%	0.9%	135	-18.7%	0.9%
Finance and insurance	25,853	-7.5%	2.9%	84	-16.8%	1.8%	397	-3.9%	2.6%
Real estate and rental and leasing	26,933	6.9%	3.0%	163	-7.9%	3.6%	356	-11.0%	2.3%
Professional, scientific, and technical services	38,656	0.1%	4.3%	(D)	(D)	(D)	443	7.5%	2.9%
Management of companies and enterprises	7,011	36.2%	0.8%	-	(D)	0.0%	44	-29.0%	0.3%
Administrative and support and waste management and remediation services	42,706	2.6%	4.8%	(D)	(D)	(D)	338	-53.5%	2.2%

	West Virginia			Pocahontas, WV			Randolph, WV		
Industry	**2016 Total**	**Percent Change (2007-2016)**	**Percent of Total**	**2016 Total**	**Percent Change (2007-2016)**	**Percent of Total**	**2016 Total**	**Percent Change (2007-2016)**	**Percent of Total**
Educational services	12,867	9.7%	1.4%	(D)	(D)	(D)	(D)	(D)	(D)
Health care and social assistance	125,545	10.6%	14.1%	(D)	(D)	(D)	(D)	(D)	(D)
Arts, entertainment, and recreation	13,987	-8.0%	1.6%	(D)	(D)	(D)	226	34.5%	1.5%
Accommodation and food services	70,970	6.7%	7.9%	(D)	(D)	(D)	969	-0.4%	6.3%
Other services (except government and government enterprises)	47,774	-7.6%	5.4%	260	-11.9%	5.7%	723	-4.2%	4.7%
Federal civilian	23,649	4.6%	2.6%	61	3.4%	1.3%	159	-19.7%	1.0%
Military	8,517	-12.1%	1.0%	38	-11.6%	0.8%	124	-9.5%	0.8%
State government	52,275	9.1%	5.9%	283	2.5%	6.2%	932	-3.1%	6.1%
Local government	72,244	-3.2%	8.1%	504	-3.6%	11.0%	982	-5.8%	6.4%

Source: BLS (2018a)

[a] Note that the (D) indicates data suppression due to privacy issues. Data suppression is common in small geographic areas (such as counties), for industries with few employers, and for industries that are dominated by a single employer.

Total employment (by number of jobs) declined in both Pocahontas and Randolph Counties between 2007 and 2016; by 8 and 5 percent, respectively. The industries that saw the largest percentage decline in employment were the construction (-27 percent) and manufacturing (-22 percent) industries in Pocahontas County. A number of industries in Randolph County declined over the same period, including administrative and support and waste management and remediation services (-54 percent), manufacturing (-33 percent), management of companies and enterprises (-29 percent), and construction (-27 percent). In Pocahontas County, employment in federal and state government showed the largest increase in employment between 2007 and 2016 (only approximately 3 percent each). In Randolph County, the arts, entertainment, and recreation industry and utilities showed relatively greater growth over the same period, at 35 and 22 percent, respectively.

The project site is located in a rural, hilly area in the Appalachian region, surrounded by a few residences, forest and former mining operations (visible by satellite imagery). The largest business located near the project site is Snowshoe Mountain Resort, approximately 10 miles south of the project site. This resort primarily serves recreational skiers between December and March. During the summer, the resort serves recreational mountain biking, all-terrain vehicle use, and golfing (Snowshoe Mountain 2018).

Aside from Snowshoe Mountain, other major employers in the area include manufacturing linked to the area's timber production, health care and social assistance, and public administration (**Tables 8 and 9**).

TABLE 8. MAJOR EMPLOYERS OF POCAHONTAS COUNTY, 2018

Employer	NAICS	Employees
Snowshoe Mountain, Inc.	721110	500 and Greater
Inter-State Hardwoods Company, Inc.	321113	100 to 199
Associated Universities, Inc.	541712	100 to 199
West Virginia Division of Natural Resources	924120	100 to 199
Pocahontas Memorial Hospital	622110	100 to 199
West Virginia Department Of Corrections	922140	100 to 199
Eldercare Resources Corp.	623110	50 to 99
Burns Motor Freight Inc.	551114	50 to 99
Beckwith Lumber Company, Inc.	321113	50 to 99
Pocahontas Co Board Of Education	611110	50 to 99

Source: WV Department of Commerce (2018a)

TABLE 9. MAJOR EMPLOYERS IN RANDOLPH COUNTY, 2018

Employer	NAICS	Employees
Armstrong Hardwood Flooring Company	321918	500 and Greater
Davis Memorial Hospital	622110	500 and Greater
Huttonsville Correctional Center	922140	200 to 499
Wal-Mart Stores, Inc.	452112	200 to 499

Employer	NAICS	Employees
Davis And Elkins College	611310	200 to 499
West Virginia Department Of Highways	237310	200 to 499
Colonial Millworks, Ltd.	321918	100 to 199
Advanced Telemarketing Corp.	561422	100 to 199
Aegis Communications Group, Inc.	561422	100 to 199
Elkins Regional Convalescent Center	623110	100 to 199

Source: WV Department of Commerce (2018b)

8 JOURNEY-TO-WORK

Journey-to-work shows the transportation mode used by residents to commute to their place of work and provides additional insight into the general socioeconomic status of the area. In 2016, the percentage of commuters carpooling in the study area was approximately 17 percent according to the 2012–2016 ACS 5-Year Estimates (US Census 2017g). This figure is substantially higher than was true either for Pocahontas or Randolph County, and higher still than was true for the state of West Virginia. Because of a high margin of error, vehicle ownership is not included in **Table 10** for the study area. However, both Pocahontas County and Randolph County have a higher percentage of commuters with no vehicle available relative to the state of West Virginia. This suggests that the study area may be transportation-disadvantaged relative to the state.

TABLE 10: JOURNEY-TO-WORK INFORMATION FOR THE STUDY AREA, COUNTIES, AND STATE

	Study Area	Pocahontas County	Randolph County	West Virginia
Drove alone	76.9%	77.1%	79.5%	82.0%
Carpooled	17.1%	12.2%	12.8%	9.9%
Public transportation (excluding taxicab)	0.0%	0.6%	0.0%	0.9%
No vehicle available	-	16.0%	23.0%	2.9%
1 vehicle available	-	41.3%	44.1%	21.8%
2 vehicles available	-	42.2%	29.2%	43.2%
3 or more vehicles available	-	0.0%	0.0%	32.2%

Source: US Census Bureau (2017g)

9 PROTECTION OF CHILDREN

9.1 Regulatory Context

Executive Order (EO) 13045, Protection of Children from Environmental Health Risks and Safety Risks, requires that government agencies recognize that children may suffer more than adults from environmental health and safety risks. For instance, children are more apt to ingest or touch items that contain contaminants, such as peeling paint that might be lead-based. The executive order directs

federal agencies to ensure their policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks.

9.2 Summary

An initial step in this process is to determine whether children have an enhanced potential to be exposed to the impacts of a proposed action. Project areas with especially high concentrations of children require special consideration.

For the purpose of this analysis, children are defined as persons under 18 years of age. Median age and the percentage of the population under the age of 18 are included in Section 3.1. Approximately 18 percent of the local population in the study area was under 18 years of age, according to the 2012–2016 ACS 5-Year Estimates. This is approximately the same as the percentage for Pocahontas County, also 18 percent, and lower than the percentage for Randolph County, 19 percent, or the state, 21 percent. The percentage of children is not unusually large in the study area.

Facilities or organizations that cater specifically to children include a childcare center that is attached to the local library. Potential impacts to children are included in Section 11.

10 ENVIRONMENTAL JUSTICE

10.1 Regulatory Context

EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, signed on February 11, 1994, requires that "…each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies and activities on minority populations and low-income populations…" [Subsection 1-101].

In 2011, GSA and other federal agencies signed a memorandum of understanding on EJ and EO 12898. Among other initiatives, the EJ memorandum of understanding adopted an updated charter for the Federal Interagency Working Group on Environmental Justice (a group established by EO 12898 and chaired by the U.S. EPA Administrator), reaffirmed the importance of identifying and addressing EJ considerations in the policies and activities of federal agencies, and provided that a signatory agency become a Participatory Agency consistent with EO 12898 (GSA 2016a). GSA has issued an EJ Strategy for fiscal years 2016–2018. The 2016–2018 Strategy outlines the agency's commitment to EJ through four main goals including: (1) enhanced communication and coordination to improve the health, quality-of-life, and economic opportunities in overburdened communities; (2) enhanced multi-agency support of holistic community-based solutions to provide assistance to address EJ issues; (3) advanced interagency strategies to identify and address EJ concerns in agency programs, policies, and activities; and (4) development of partnerships with academic institutions in providing long-term technical assistance to over-burdened communities (GSA 2016b).

The methodology used for identification of minority populations is based on guidance provided by the Federal Interagency Working Group on Environmental Justice and National Environmental Policy Act (NEPA) Report (U.S. EPA 2016). This guidance recommends conducting a two-step approach for identifying the presence of a minority population, which includes both the Fifty Percent analysis and the Meaningfully Greater analysis. The two steps include: (1) identifying the presence of a minority population in cases where the percentage of minority individuals (i.e., all individuals other than non-Hispanic whites) exceeds 50 percent, and (2) identifying the presence of a minority population in cases where the percentage of minority individuals is "meaningfully greater" (e.g., 10 or 20 percent) than the

reference community. As defined by the *Environmental Justice Guidance Under NEPA* (Council on Environmental Quality 1997), "minority populations" include persons who identify as Asian or Pacific Islander, Native American or Alaskan Native, Black (not of Hispanic origin), or Latino.

Identifying low-income populations is also based on guidance provided by the *Federal Interagency Working Group on Environmental Justice and National Environmental Policy Act (NEPA) Report* (U.S. EPA 2016). This guidance suggests that two approaches may be used, including either an Alternative Criteria Analysis or a Low-Income Threshold Criteria Analysis. Using the Alternative Criteria Analysis, low-income populations are identified where a certain percentage of individuals' incomes fall below a percentage of an established poverty threshold. The Low-Income Threshold Criteria Analysis, the percentage of individuals whose incomes falls below a percentage of an established poverty threshold is also determined, but low-income populations are only identified when that percentage is equal to or greater than a reference community.

10.2 Minority Population Analysis

To summarize race and ethnicity, population characteristics from the 2012–2016 ACS 5-Year Estimates were used. Again, minority populations include persons who identify as Asian or Pacific Islander, Native American or Alaskan Native, Black (not of Hispanic origin), or Latino. Race and ethnicity data from the 2012–2016 ACS 5-Year Estimates were used. The block groups that contain a portion of the project site were selected to represent the study area. Block groups were identified as the most appropriate geographic unit of analysis for the study area because that data provide information most specific to the project area.

In **Table** 11 **11**, data for Randolph County, Pocahontas County, and West Virginia are included as reference communities.

TABLE 11: MINORITY COMPOSITION OF STUDY AREA, COUNTIES, AND STATE, 2016

Race or Ethnicity	Study Area	Pocahontas County	Randolph County	West Virginia
White alone	97.1%	95.7%	96.2%	92.4%
Black or African American alone	0.7%	1.2%	1.7%	3.4%
American Indian and Alaska Native alone	0.0%	0.0%	0.4%	0.2%
Asian alone	0.0%	0.0%	0.4%	0.7%
Some other race alone	0.0%	0.2%	0.0%	0.1%
Two or more races	2.2%	2.1%	0.4%	1.7%
Hispanic or Latino	0.0%	0.9%	0.8%	1.4%
Minority population	2.9%	4.3%	3.8%	7.6%

Source: US Census (2017c)

In the study area, 97.7 percent of individuals identified as white alone in 2016. That percentage is lower in Randolph County, at 96.2 percent, and lower still in Pocahontas County, at 95.7 percent. The percentage of individuals who identified as white alone in West Virginia was lower still, at 92.4 percent (**Table 11**) (US Census 2017c).

Based on the Federal Interagency Working Group on Environmental Justice and National Environmental Policy Act (NEPA) Report (U.S. EPA 2016), EJ considerations for minority populations do not need to be pursued. The minority population does not exceed 50 percent of the total population (the Fifty Percent analysis), nor does it exceed the percentage of minority individuals in any of the reference communities (the Meaningfully Greater analysis).

10.3 Poverty

Low-income populations in this analysis are defined using the percent of all individuals with determined poverty status, as defined by the U.S. Census Bureau, for each specific geographic area. For this analysis, the percentage of individuals whose incomes fell below the census-designated poverty threshold was used, with the percentages from the counties and state provided as reference communities. The census tracts that contain a portion of the project site were selected to represent the study area. Census tracts were identified as the most appropriate geographic unit of analysis for the study area because the U.S. Census statistics provide poverty estimates down to the census tract level only, and this was the smallest unit of geography where poverty information was available.

As described above in Section 4, approximately 21 percent of the population in the study area had incomes that fell below the poverty level, compared to 19 percent for Pocahontas County, 17 percent in Randolph County, and 18 percent in West Virginia (**Table 12**) (US Census 2017e).

TABLE 12: POVERTY LEVELS FOR THE STUDY AREA, COUNTIES, AND STATE, 2016

	Study Area	Pocahontas County	Randolph County	West Virginia
Below poverty level (percent)	20.5%	18.6%	16.9%	17.7%

Source: US Census (2017e)

Low-income populations are defined as census tracts where the percentage of the population considered to be low income is greater than or equal to the percentage of the general population with low incomes in the community of comparison. Because poverty levels in the study area exceed the levels in both Pocahontas County and Randolph County, the study area is an EJ community of concern for low-income populations.

11 ECONOMIC IMPACTS AND ENVIRONMENTAL JUSTICE CONCERNS

11.1 Employment and Income

The project site is currently unoccupied and, as a result, no businesses would be directly affected or relocated by the development of the project. During the construction period, workers would be on-site daily for three to four years. Because of the rural nature of the project location and the specialized nature of the workforce required to construct the facility, it is possible that construction workers would be temporarily relocated to the project site during construction. However, given the geographic area and the current employment patterns reported in Sections 7 and Section 7.1, it is possible that the skilled labor necessary for construction could be found locally. Any construction materials purchased locally would support local sales, jobs, income, and taxes. Any additional purchases made locally either by those traveling to the site or by the local workforce would similarly support local sales, jobs, income, and taxes. The beneficial impact would be minor and temporary, lasting only during the project's construction period.

During the operation of the facility, 12 staff would be permanently assigned to the project site. These staff members would be on-site daily, Monday through Friday, from 7:00 AM to 5:00 PM. In addition, 25 staff and/or visitors from other locations would likely be on site two times a week. If there is a meeting or training, there may be 50 additional staff or visitors approximately two times a month. Specific days and times would vary. The impact on the local economy would be negligible and beneficial if these workers purchase goods or services in the project area during their visit. However, it is likely that any purchases made by visiting employees would be small and would not require local workers to remain in the local community overnight. As a result, it is likely that any long-term economic benefits would negligible.

Communities of concern identified through the EJ analysis in Section 10 would likely experience negligible to small beneficial economics impacts as a result of the project. Members of the local community, including groups identified in the EJ analysis, may be employed during construction to support project development.

The health and well-being of children in the community and the viability of facilities and programs serving children would not be affected, either during construction or the operation of the facility.

11.2 Traffic and Transportation

The overall impacts of the proposed action on traffic operations would be minimal, primarily because employees would access the project site at irregular intervals throughout the day and week. Short-term impacts associated with an increase in truck traffic during the construction period would be adverse. These impacts would be minor compared to the daily truck traffic using U.S. Route 219. Overall impacts on the transportation network would be minimal and would not disproportionately affect EJ populations.

11.3 Air Quality

There would be minimal emissions from the proposed action. During the three to four-year construction period, the most common emissions would be from fugitive dust associated with unpaved roads and construction equipment on disturbed soils. Air quality impacts during construction could be minimized by including standard construction dust control best management practices. Long-term operational effects on air quality would be negligible. A detailed air quality analysis related to stationary or mobile sources is not necessary because operation of the facility would entail minimal stationary or mobile sources of air pollution. Minor mobile source emissions from vehicles would occur as operators travel to and from the facility and during routine maintenance. The proposed action would not involve new major stationary sources of air emissions; however, the facility would include a backup generator on-site. Emissions from the generator would include monthly testing as well as potential emissions during a power outage. Given the limited emissions during construction and operation, overall air quality impacts would be minimal and would not disproportionately affect EJ populations.

11.4 Water and Groundwater

Overall impacts on surface water resources would mainly be temporary and minimal, although it is assumed that a 38-foot intermittent stream segment would need to be filled, which would result in a permanent, adverse impact. There would be no impacts on floodplains because no 100-year floodplains are located within the project area. During construction, short-term, adverse impacts on surface water resources could result from stream disturbance and sediment and other pollutant loading during various land- and stream-disturbing activities. While construction of the Proposed Action Alternative would result in the loss of 38 linear feet of an intermittent stream, overall impacts on surface waters would not have observable consequences on a regional scale and would not be frequently altered from desired

conditions. The Proposed Action Alternative would not result in an exceedance of water quality standards or criteria.

Overall impacts on wetlands would mainly be temporary and minimal, from wetland disturbance and sediment and other pollutant loading during various land- and stream-disturbing activities during construction. Although 0.001 acre of wetlands would be permanently lost from filling the stream section, overall impacts on wetlands would be minor because large amounts of wetland area and/or the wetland functions would not be substantially altered. Implementation of best management practices and compliance with applicable regulations, water quality standards, and permits would minimize the short-term, adverse impacts from construction. Compensatory mitigation would occur to offset the affected stream length, replace lost functions and values, and minimize impacts, resulting in minor, long-term, adverse impacts.

Overall impacts on groundwater would be minor. Tunneling activities and detonations associated with the construction of the underground safety research facility could result in impacts on groundwater resources by altering the current groundwater flow. Any impacts on groundwater resources would be short term during the construction period or long term from the installation of a new underground structure within the karst topography. Given the topography of the site, the depth of nearby wells, and the overall thickness of the Greenbrier Limestone, the presence of the underground safety research facility is not anticipated to noticeably alter the flow pattern or volume of groundwater. While dewatering could modify aquifer hydraulics by acting as a sink for local groundwater or potentially cause sinkholes to develop at the surface, these impacts would be short term.

These impacts would be mostly localized on the project site and would not disproportionately affect EJ populations.

11.5 Infrastructure and Utilities

To meet the utility needs of the proposed action, the following upgrades would be required: extending the three-phase power and fiber optic cable to the site, developing on-site water supply and wastewater treatment and disposal systems, using propane as an alternative to natural gas, and incorporating runoff-reducing techniques in overall site design to minimize stormwater flows from the developed areas. Overall impacts on utility systems in the area would be minimal. Given the minimal impacts on utilities and infrastructure in the vicinity of the project area, impacts on EJ populations would not be disproportionate.

11.6 Vibration and Noise

Analysis was completed to determine if noise and vibration associated with the construction and operation of the proposal action would have adverse impacts on the surrounding community. Based on these analyses, negligible to minor impacts are anticipated from the proposed action; however, mitigation measures would further reduce construction noise and vibration exposure from construction of the proposed action on the surrounding community, including EJ populations.

12 CONCLUSION

The median age in the study area is comparable to the rest of West Virginia, with fewer people under the age of 18. The ethnic profile of the study area is relatively homogenous, with a lower proportion of non-white residents compared to the rest of the state. The median income is almost one-fifth lower than the state median, at $34,569 per year. More than half of the housing units in the study area were vacant in 2016, although this is likely attributable to the seasonal nature of Snowshoe Mountain Resort.

The population in the study area has a higher percentage than the state of individuals with no high school diploma or only a high school degree, and a lower percentage of the population with a post-secondary degree.

The study area also has a slightly lower labor force participation rate than the state or the two counties, which may be due to a higher number of retirees in the area. The largest business near the project site is Snowshoe Mountain Resort, and other business include those related to the timber industry.

The proposed site acquisition and development of the underground safety research facility in Mace, West Virginia, would not have adverse socioeconomic impacts on the area. Impacts from noise and vibration and on water resources, biological resources, and transportation would not adversely affect economic drivers in the area, such as Snowshoe Mountain Resort, the timber industry, or other employment centers.

Although there would be adverse impacts on several resources, many of them would be short term and localized on the site. Impacts from the proposed acquisition and development of an underground safety research facility in Mace, West Virginia, would not disproportionally affect EJ communities.

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APPENDIX E: AIR QUALITY TECHNICAL REPORT

Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health

Acquisition of Site for Development of a Replacement Underground Safety Research Program Facility in Mace, West Virginia

Air Quality Impact Analysis Technical Report

August 2018

This technical report was completed in support of the Draft EIS analysis. Any assumptions or resource updates to this reports were made directly in the Final EIS. Where there are differences between the Technical Report and the Final EIS language, the Final EIS language supersedes the Technical Reports.

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LIST OF TABLES

ABBREVIATIONS AND ACRONYMS

Acronym	Definition
CAA	Clean Air Act
CDC	Centers for Disease Control and Prevention
CFR	Code of Federal Regulations
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
DAQ	(West Virginia Department of Environmental Protection) Division of Air Quality
EIS	environmental impact statement
GHG	greenhouse gas
GSA	General Services Administration
HAP	hazardous air pollutant
HHS	Department of Health and Human Services
LLEM	Lake Lynn Experimental Mine
MACT	Maximum Achievable Control Technology
NAAQS	National Ambient Air Quality Standards
NESHAPS	National Emission Standards for Hazardous Air Pollutants
NIOSH	National Institute for Occupational Safety and Health
NO_2	nitrogen dioxide
NO_x	oxides of nitrogen
O_3	ozone
$PM_{2.5}$	particulate matter that is 2.5 micrometers or less in diameter
PM_{10}	particulate matter that is 10 micrometers or less in diameter
SO_2	sulfur dioxide
U.S. EPA	U.S. Environmental Protection Agency
VOC	volatile organic compound
West Virginia DEP	West Virginia Department of Environmental Protection

1 INTRODUCTION

This Air Quality Impact Technical Report has been prepared as part of the environmental impact statement (EIS) for the proposed acquisition and development of a site by the Centers for Disease Control and Prevention (CDC) within the Department of Health and Human Services (HHS), in cooperation with the U.S. General Services Administration (GSA). The site would be developed into the new National Institute for Occupational Safety and Health (NIOSH) Underground Safety Research Program facility (proposed action). The acquisition and development would replace the Lake Lynn Experimental Mine (LLEM) in Fayette County, Pennsylvania, and would support research programs focused on miner health and safety issues. The site being considered for acquisition and development includes 461.35 acres located off U.S. Route 219 in Randolph and Pocahontas Counties near Mace, West Virginia (the project site). CDC is preparing this EIS in cooperation with GSA to comply with the requirements of the National Environmental Policy Act (NEPA) of 1969.

The underground safety research facility would include two distinct areas:

- an underground research facility with crosscuts and entries that simulate a room and pillar mine and a longwall operation, totaling more than 15,000 linear feet of entryway; and
- surface facilities to support underground research activities, including offices, research and research support buildings, maintenance shops, and a fire suppression research facility.

The previously leased and operated LLEM was a unique facility that offered the opportunity for various full-scale mine experiments and research. The research was essential to programs focused on miner health and safety issues. The LLEM was initially constructed under a long-term lease agreement with the original land owner. Located 60 miles south of Pittsburgh, Pennsylvania, the lease agreement covered 406 acres of the overall property parcel of approximately 4,350 acres. Underground mine safety research was conducted at LLEM until 2008 when the roof collapsed. This underground experimental coal mine and aboveground fire testing facility was primarily used for studies and research on mine explosions, mine seals, mine rescue, ventilation, diesel exhaust, new health and safety technologies, ground control, and fire suppression.

Research continued at the LLEM until it was closed in December 2012. CDC/NIOSH intended to extend the lease on the facility but no lease agreement could be reached with the new property owners. The facility continued to operate under a series of standstill agreements, and during this time, several rehabilitation projects were initiated. The federal government decided to purchase the facility and complete the rehabilitation work after obtaining title to the property. Negotiations to purchase the property were unsuccessful, with the owners rejecting multiple offers.

After the lease and purchase negotiations failed, a number of other options were considered for conducting full-scale mine experiments that required the use of LLEM. The purpose of the proposed action is to provide NIOSH with a new underground safety research facility that would allow for full-scale mine experiments and research that accurately simulate an underground mine. After a nationwide search for alternative sites and methods for conducting the full-scale studies, no viable alternatives other than construction of a new research facility were found.

The project site in West Virginia met the minimum criteria and was determined to be a viable site. It is located near Mace, West Virginia, straddles the Randolph and Pocahontas County lines, and is less than a 4-hour drive from the LLEM in Bruceton, Pennsylvania. Approximately 12 people would report to the site daily. In addition to daily staff, up to an estimated 25 additional staff or visitors would be on site twice a week and an estimated 50 additional staff or visitors would be on site twice a month.

2 AIR POLLUTANTS AND REGULATIONS

The Clean Air Act (CAA) of 1970 and its amendments require the U.S. Environmental Protection Agency (U.S. EPA) to establish National Ambient Air Quality Standards (NAAQS) for ambient air pollutants, known as "criteria pollutants," considered harmful to public health and the environment. U.S. EPA and local governments are also concerned about the toxic and hazardous air pollutants (HAPs) being emitted in the environment and their effect on the population and greenhouse gases (GHGs) and their climatic and regional impacts.

Pollutants considered in this air quality evaluation include criteria pollutants, HAPs, and GHG pollutants, as described below.

2.1 Air Pollutants

2.1.1 Ozone, Oxides of Nitrogen, and Volatile Organic Compounds

Ground-level ozone (O_3), a criteria pollutant, results from a chemical reaction of volatile organic compounds (VOCs) and oxides of nitrogen (NO_x) in the presence of sunlight. NO_x is the collective term for the ozone precursors, nitrogen monoxide (NO) and nitrogen dioxide (NO_2). VOCs and NO_x are emitted from both stationary (e.g., fossil fuel burning equipment such as boilers and generators) and mobile (e.g., fossil fuel burning equipment such as vehicles and mobile construction equipment) sources.

Breathing ozone can trigger health issues in humans, such as asthma, chest pain, coughing, and throat irritation or inflammation. Ground-level O_3 can also cause or contribute to problems in natural ecosystems through vegetation disease, decreased plant growth, and reduced photosynthesis by hindering sunlight (U.S. EPA 2018a). In addition to being an O_3 precursor, NO_2 is also a regulated criteria pollutant.

NO_2 is primarily emitted from stationary sources and can be major concern at large stationary point sources, such as fossil fuel power plants or other heavy industrial sources. Like O_3, NO_2 can cause or contribute to adverse effects in humans when inhaled, such as asthma and other respiratory problems (U.S. EPA 2018b).

2.1.2 Sulfur Dioxide

Sulfur dioxide (SO_2) is a criteria pollutant that is primarily emitted from stationary sources that use sulfur-containing fuels, such as oil and coal. SO_2 can cause or contribute to respiratory problems in humans when inhaled, can damage or decrease the growth of vegetation, and can cause a reduced visibility in the atmosphere through haze (U.S. EPA 2018c).

2.1.3 Carbon Monoxide

Carbon monoxide (CO) is a criteria pollutant that is primarily emitted by fuel combustion of stationary and mobile sources. When breathed in by humans, CO can cause or contribute to serious health effects by decreasing oxygen delivery throughout the body. If inhaled at extremely high levels, CO can cause death (U.S. EPA 2018d).

2.1.4 Particulate Matter

Particulate matter is a criteria pollutant that is regulated in two forms: particulate matter that is 10 micrometers or less in diameter (PM_{10}) and particulate matter that is 2.5 micrometers or less in diameter ($PM_{2.5}$). SO_2, NO_x, ammonia, VOCs, and other gases are precursors for $PM_{2.5}$ when they meet and react in the atmosphere. Particulate matter is emitted from both stationary and mobile sources and

may be either in the form of liquid droplets or solids suspended in the atmosphere. Heavy duty diesel-powered vehicles, such as buses and large construction equipment and trucks, are a significant source of fine particulate matter. Particulate matter can cause or contribute to serious respiratory problems in humans when breathed in and is the main cause of reduced visibility in the atmosphere through haze (U.S. EPA 2018e). PM_{10} and $PM_{2.5}$ can also be a part of "fugitive emissions," which are emissions that are released into the air without passing through a stack or vent, such as non-contained dust outdoors (40 Code of Federal Regulations [CFR] 70.2). Fugitive emissions are typically temporary (i.e., only generated during a project's construction phase).

2.1.5 Lead

Lead is a criteria pollutant that is typically associated with industrial sources and vehicles that use leaded fuel. Lead can cause or contribute to adverse effects on humans' internal systems and functions, most commonly neurological effects in children and cardiovascular effects in adults. Lead in the environment can contaminate soil and water, resulting in decreased growth and reproductive issues in plants and animals (U.S. EPA 2018f). As of January 1996, the CAA banned the sale of leaded fuel, concluding a 25-year effort to phase it out completely.

2.1.6 Toxic and Hazardous Air Pollutants

HAPs are air pollutants that may cause or contribute to a serious illness, such as cancer, or cause or contribute to death in humans. HAPs may also cause serious adverse environmental effects when they are deposited in soil or water. HAPs are usually present in minimal quantities in the ambient air; however, their high toxicity may pose a threat to public health even at low concentrations. U.S. EPA regulates 187 HAPs (U.S. EPA 2018g).

2.1.7 Greenhouse Gases

There is scientific consensus that GHG-emitting human activities are changing the chemical composition of the Earth's atmosphere and causing a shift in the global climate. GHGs are relatively stable in the atmosphere and are essentially uniformly mixed throughout the troposphere and stratosphere. The climatic impact of GHG emissions does not depend on source location and any impacts from GHGs are likely a function of global impacts. GHGs are emitted from stationary and mobile sources, resulting in trace amounts in the atmosphere. GHGs include water vapor, carbon dioxide (CO_2), nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Water vapor occurs naturally and is the most abundant GHG, with CO_2 being the second most abundant. Because CO_2 constitutes an abundant amount of human-caused GHG emissions, it is used as the basis for calculating the equivalent amounts of CO_2 other GHGs would emit. The carbon dioxide equivalent (CO_2e) is therefore used as a measurement of GHGs as a common unit and allows GHGs to be expressed as a single number (ERA Environmental Management Solutions 2018).

2.2 Regulatory Context

2.2.1 Federal

Criteria Pollutants

Criteria pollutants include O_3, NO_2, SO_2, CO, PM_{10}, $PM_{2.5}$, and lead. The CAA established two types of NAAQS. Primary standards protect general public health and the health of sensitive populations, which include children, the elderly, and the infirmed. Secondary standards protect public welfare, such as visibility changes and damage to crops, vegetation, and buildings (40 CFR Part 50). The NAAQS are expressed as a concentration in air and duration of exposure, often including both short-term and long-term exposure. **Table 1** lists the criteria pollutants and the relevant NAAQS. As with all aspects of environmental regulations, states have the authority to adopt stricter standards; however, West Virginia

maintains the U.S. EPA standards (U.S. EPA 2018h). Details on how the standard is measured or considered are included in the "Type" column.

The U.S. EPA uses geographic regions, defined and separated by county lines, to designate the NAAQS attainment status of an area. As defined by the CAA, an attainment area is in compliance with the NAAQS, while a non-attainment area does not meet one or more of the NAAQS. A maintenance area is an area that was previously in non-attainment but is now in attainment and in compliance with the NAAQS (U.S. EPA 2018i). Areas are also often classified by a category or level of attainment or non-attainment, such as "severe," "marginal," or "moderate."

The General Conformity rule requires that federal agencies work with state, tribal, and local governments in nonattainment or maintenance areas to ensure that federal actions conform to the air quality plans established to meet or maintain the NAAQS. U.S. EPA first promulgated the General Conformity rule in 1993. After soliciting public comments, U.S. EPA issued final rule revisions on April 5, 2010. The purpose of the General Conformity rule is to ensure that:

- Federal activities do not cause or contribute to new violations of the NAAQS.
- Federal actions do not worsen existing violations of the NAAQS.
- Attainment of the NAAQS is not delayed.

TABLE 1: NATIONAL AMBIENT AIR QUALITY STANDARDS FOR CRITERIA POLLUTANTS

Criteria Pollutant	Primary/ Secondary	Averaging Time	Standard	Type
CO	primary	8 hours	9 ppm	Not to be exceeded more than once per year
		1 hour	35 ppm	
Lead	primary and secondary	Rolling 3 month average	0.15 µg/m^3 [(a)]	Not to be exceeded
NO_2	primary	1 hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	primary and secondary	1 year	53 ppb [(b)]	Annual mean
O_3	primary and secondary	8 hours	0.070 ppm [(c)]	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
$PM_{2.5}$	primary	1 year	12.0 µg/m^3	Annual mean, averaged over 3 years
	secondary	1 year	15.0 µg/m^3	Annual mean, averaged over 3 years
	primary and secondary	24 hours	35 µg/m^3	98th percentile, averaged over 3 years

Criteria Pollutant	Primary/ Secondary	Averaging Time	Standard	Type
PM_{10}	primary and secondary	24 hours	150 µg/m^3	Not to be exceeded more than once per year on average over 3 years
SO_2	primary	1 hour	75 ppb [(d)]	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	secondary	3 hours	0.5 ppm	Not to be exceeded more than once per year

Notes: ppm – parts per million; ppb – parts per billion; µg/m^3 – micrograms per cubic meter

(a) In areas designated nonattainment for the lead standards prior to the promulgation of the current (2008) standards and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/m^3 as a calendar quarter average) also remain in effect.

(b) The level of the annual NO_2 standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard level.

(c) Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O_3 standards additionally remain in effect in some areas. Revocation of the previous (2008) O_3 standards and transitioning to the current (2015) standards will be addressed in the implementation rule for the current standards.

(d) The previous SO_2 standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2) any area for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and approved and which is designated nonattainment under the previous SO_2 standards or is not meeting the requirements of a State Implementation Plan call under the previous SO_2 standards (40 CFR 50.4(3)). A State Implementation Plan call is an U.S. EPA action requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the required NAAQS.

In promulgating the General Conformity rule, U.S. EPA recognizes that most federal actions do not result in significant increases in emissions in nonattainment and maintenance areas. Therefore, U.S. EPA established *de minimis* (threshold) emissions levels for each of the NAAQS pollutants. If the total direct and indirect emissions from an action are below the *de minimis* levels, the action is exempt from General Conformity requirements. The *de minimis* levels are based on an area's designation and classification.

If a federal agency determines that its action will result in total direct and indirect emissions in a nonattainment or maintenance area, it must compare the projected annual emissions to the *de minimis* levels applicable to the pollutant for which the area is in nonattainment or maintenance. The total direct and indirect emissions are the net emission increases in the nonattainment or maintenance area caused

by the action. The emissions must be reasonably foreseeable at the time the conformity determination is made. For indirect emissions the federal agency also must be able to practicably control the emissions based on the agency's continuing program responsibility.

Because both Randolph and Pocahontas Counties are in attainment for all criteria pollutants, a general conformity rule applicability analysis is not warranted and was not conducted for this proposed action.

Toxic and Hazardous Air Pollutants

Under CAA, U.S. EPA established New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants (NESHAPS) to minimize emissions of criteria and hazardous air pollutants from human-made emission sources. Under Section 112 of the CAA, the U.S. EPA also set NESHAPs for air pollutants that may cause or contribute to an increase in mortality or serious illness in humans or may cause serious adverse environmental effects. NESHAPs apply to stationary sources (with the exception of asbestos, which has separate standards for building renovation and demolition).

NESHAPs define HAP source categories for stationary equipment and the maximum degree of emission reduction that must be achieved for a particular category, known as the Maximum Achievable Control Technology (MACT) (U.S. EPA 2018g). MACT standards apply to both major and area sources. U.S. EPA's major source thresholds for HAPs include emissions greater than 10 tons per year of a single HAP or greater than 25 tons per year of combined HAPs (U.S. EPA 2017). Area sources, or those sources that emit less than the major source thresholds, may also have specific MACT standards (U.S. EPA 2018j).

Greenhouse Gases

GHGs are likely a function of regional impacts and are not specific to source locations; therefore, GHGs are often reviewed at a state-wide or regional level. GHGs are regulated under Section 202 of the CAA. The U.S. EPA regulates GHGs through mobile source emission standards and permitting requirements through the Title V Operating Permits and Prevention of Significant Deterioration programs (U.S. EPA 2018k, 2018l).

2.2.2 State

Facilities that emit at or above major source thresholds (100 tons per year of a single criteria pollutant and 10 tons per year of a single HAP or 25 tons per year of combined HAPs) are required by the West Virginia Department of Environmental Protection [West Virginia DEP]) to obtain a major source operating permit (Title V). In the State of West Virginia, non-Title V and minor facilities obtain a permit that covers all applicable fuel-burning equipment and emission sources at the respective facility (West Virginia DEP 2018a).

3 COMMUNITY OUTREACH AND PUBLIC PARTICIPATION

3.1 Agency Comments

Scoping comments were received from the following agencies:

- **U.S. Environmental Protection Agency (U.S. EPA):** By letter dated July 13, 2018, the U.S. EPA provided recommendations on the preparation of the EIS pertaining to the following topics: purpose and need; alternatives; land use; air quality; water resources; physiography; terrestrial resources and threatened and endangered species; hazardous waste management; environmental justice and other community concerns; energy efficiency, resiliency and design, and cumulative impacts. This Draft EIS addresses impacts pertaining to those areas of concerns.

- **Advisory Council on Historic Preservation (ACHP):** On July 6, 2018, the ACHP provided a letter requesting additional information on the project.
- **West Virginia Division of Culture and History (State Historic Preservation Office**): On July 9, 2018, the West Virginia State Historic Preservation Office (WV SHPO) sent an email request for additional information to assist in the completion of the formal agency response letter. CDC responded by email on July 11, 2018, and confirmed that that no mining facility exists on the site. CDC indicated that consultation with the West Virginia Department of Environmental Protection (WVDEP) is under way regarding permitting requirements, and that CDC is reviewing viewsheds and the potential for historic resources in and around the project site and will provide the WV SHPO with the findings when they are complete. The WV SHPO has not yet submitted a formal response.
- **West Virginia Department of Environmental Protection:** On June 25, 2018, WVDEP called the CDC project manager to request additional information regarding the permitting associated with the LLEM. CDC responded by email on July 3, 2018, and noted that internal research indicates that no air quality permits were needed at LLEM. CDC also indicated that it has no records of mining permits because LLEM was developed originally by BOM. CDC/NIOSH will continue a discussion with WVDEP representatives regarding the proposed action to determine if mining permits would be required to develop the facility.
- **West Virginia Division of Natural Resources (WVDNR):** On July 12, 2018, WVDNR sent a letter confirming there are no known records of rare, threatened, or endangered species or sensitive habitats within the project boundary. The WVDNR noted that the project site is within the habitat buffer for the Indiana bat and recommended consultation with USFWS. The letter also noted there are caves located on the northern part of the property that could potential be habitat for rate invertebrates in addition to bat populations.

3.2 Tribal Comments

The scoping notice was sent to 23 federally recognized tribes with a potential cultural interest in actions conducted in Randolph and Pocahontas Counties in West Virginia. One tribe, the Cherokee Nation, submitted a response, noting that Randolph and Pocahontas Counties are outside the tribe's area of interest and the tribe defers to other tribes that may have an interest in this area. A second tribe, the Catawba Indian Nation, responded that they had no immediate concerns regarding the project area, but requested to be notified should artifacts or human remains be located during the ground disturbance phase of the project.

3.3 Public Comments

Public comments received during the scoping period fell into five broad thematic categories:

- **General Opinion about the Project.** Expressions of support and opposition were received during the public scoping period. Some commenters opposed the location of the site but were supportive of the overall mission of NIOSH.
- **Site Selection.** One commenter provided multiple comments regarding site selection, including support for the dismissal of Department of Defense and international facilities as viable alternatives after CDC investigation showed these sites could not support the research program over the long term. The commenter opposed the No Action Alternative and requested that the continued use of the LLEM be retained as a viable alternative. The commenter suggested CDC acquire the LLEM by eminent domain.

Some commenters were unclear why the proposed site is the only site available for consideration and questioned why no closed mines could be used.

- **Water Supply and Water Quality:** A number of commenters expressed concern about the potential for development and operation of the facility to harm their water supply. Commenters noted that the area is karstic, and the limestone has cracks through which the water flows, and that the flows can change. Many in the community get their water from springs where the limestone cracks intersect with the surface. Commenters were concerned that blasting associated with the project would affect the water supply. Several commenters mentioned the 2011 earthquake in Virginia and how it affected springs and wells. One commenter was concerned about the settling ponds that would be needed at the facility, and another was concerned that on-site spills could contaminate the water supply.
- **Community Impacts:** Commenters noted that the primary economic driver in the area is tourism, specifically the Snowshoe Mountain Resort, which is near the proposed project site. Commenters voiced concern that the noise and vibration associated with the project may not be compatible with activities at the resort. Tourism could be affected if the water supply is affected. One commenter mentioned community plans to convert the railroad right-of-way to a rail-to-trail facility.

  An adjacent property owner expressed concern that the proposed facility might limit or preclude oil and gas exploration on his property and the associated right to earn an income from it.

  Multiple commenters expressed concerns that the noise and vibration from construction blasting and operation of the facility would be noticeable from adjacent and nearby properties. Commenters noted that a new natural gas pipeline is being constructed nearby, and several concerns were raised about the pipeline, including that the blasting at the proposed project site could harm the pipeline.

  Commenters expressed concern that the fence that would surround the property could be an eyesore if it is not set back from the road and from adjoining properties.

  One commenter raised concerns that the volunteer fire department would be unable to provide adequate response in the case of an accident at the facility.
- **Requests.** One commenter requested the information provided at the public meeting; another commenter requested an extension of the public scoping period.

4 CURRENT AIR QUALITY CONDITIONS

4.1 Existing Emission Conditions

The project is located in the community of Mace, West Virginia, and straddles Pocahontas and Randolph Counties. There are no active air quality monitors in either county to provide ambient air quality data on criteria air pollutants. Both counties are in attainment for all criteria pollutants.

Because the impact of GHGs is a function of regional impacts rather than project-specific, GHGs are reviewed on a state-wide level. Estimates of GHG emissions in West Virginia in 2014 (the latest date identified for these data) ranged from 129.9 million metric tons (World Resources Institute 2014) to 90.04 million metric tons (Light 2014).

4.2 Existing Facility Emissions and Sources

LLEM is currently non-operational and therefore has no emissions. Because no air permit was required, only one year of emissions data from LLEM is known. The emissions from the surface testing facility in 1996 are available in **Table 2**.

TABLE 2: SURFACE TESTING FACILITY EMISSIONS, 1996

	Pollutant (tons per year)			
Research Activity	**CO**	**NO_x**	**SO_x**	**PM**
Surface testing	2.80	3.10	0.30	1.40

Source: NIOSH (2018a)

There are no existing emissions at the project site. The project area is undeveloped.

5 IMPACT ANALYSIS

5.1 Methodology

The proposed action would develop an underground safety research facility with associated surface structures. The new facility would include development of a new underground mine area (approximately 1,760,000 gross square feet [GSF]); a new underground research facility (approximately 164,000 GSF); surface facilities and support areas, including office, storage and control facilities (approximately 17,000 to 25,000 GSF). The total area of development for the surface support facilities would also include a parking area and preparation space. Approximately 5.5 acres of aboveground disturbance would be required to develop the surface support facilities. The entrance to the underground facility would be located adjacent to the surface facilities. A second entrance/exit to the underground facility would be developed for secondary/emergency use. While there would be no support facilities located at this entrance, additional tree clearing would be required. An access road already exists within the project area, and the surface structures would be located in what is already a cleared field area. The access road would need to be slightly widened, and the field area would need to be graded.

In addition to the development above and below ground, the entire boundary of the property would be fenced, and occupied buildings would be set back from the nearest public street in accordance with applicable federal antiterrorism/force protection standards. The fence would be an 8 foot high chain link fence. From the property entrance off U.S. Route 219 to the parking lot, the existing access road would be widened to 20 feet. The access road would be improved and surfaced with gravel. From the parking lot to the end of the access road, near the abandoned railroad tracks, the access road would be widened to 15 feet and surfaced with gravel. Because of the steeper topography along the access road in this area, some regrading or culvert installation may also be required. Vehicular access for employees, visitors, and construction vehicles would be from U.S. Route 219.

The construction period is anticipated to last approximately four years. Surface site preparation would consist of excavating approximately 362,000 tons of material, with approximately 2/3 being re-used on-site as fill to grade the location of the surface facilities (approximately 241,333 tons) and the remaining 1/3 (approximately 120,666 tons) would be hauled off-site. Development of the underground safety

research facility would require excavating approximately 152,000 tons of limestone. Once site preparation is complete, construction of the surface and underground facilities would commence. A facility construction timeline would be established once a facility design and construction plan is developed.

Both counties within the project area are in attainment for all criteria pollutants. As such, a conformity analysis is not warranted. Additionally, the facility is not expected to generate emissions greater than 10 tons per year of a single HAP or greater than 25 tons per year of combined HAPs. The facility is not anticipated to be a major source of criteria pollutant emissions and would not require a Title V operating permit. Finally, the facility would not generate significant traffic in the area and a mobile source air quality evaluation is not warranted. Therefore, a qualitative analysis of impacts to air quality has been completed.

5.2 No-Action Alternative

Under the no-action alternative, there would be no changes to the existing air quality in Pocahontas and Randolph Counties. No construction would occur, and air quality would not be affected.

5.3 Proposed Action Alternative

There would be emissions from both the construction and operation of a new underground safety research facility.

During the construction period, the most common emission would be from fugitive dust. Among criteria pollutants, fugitive dust is represented by PM_{10}, $PM_{2.5}$, and VOC. Fugitive dust associated with the construction projects is associated with unpaved roads and construction equipment on disturbed soils, including the grading and filling activities.

Construction of the proposed project would occur over a 4-year period. Although estimates for type, number, duration, and location of heavy equipment are preliminary, equipment requirements and construction activities can be estimated based on similar construction projects and activities. Construction activities are anticipated to involve clearing trees, vegetation, and soils from some areas of the project site. Blasting would be used to break bedrock structures, and dozers, excavators, dump trucks, and other diesel-powered construction equipment would be used to load and remove excavated material. Additional equipment required for construction may include cranes, loaders, concrete delivery trucks, water trucks for dust suppression, and miscellaneous material delivery by over-the-road semi-tractor trailers.

Construction activities would result in emissions of criteria pollutants through fugitive dust and vehicle exhaust. Air quality impacts during construction would be minimized by including standard construction dust control best management practices in the erosion and sediment control plan approved by West Virginia Department of Environmental Quality (DEP). Elements of such a plan include the following provisions for controlling fugitive dust from the construction site:

- Establish stabilized truck exit areas for washing the wheels of all trucks that enter paved roadways from the construction site and dirt roads leading from the construction site.
- Establish tracking pads at construction exits to prevent dirt from being tracked onto roadways.
- Apply water or dust-reducing agents to any truck routes within the construction site as needed (during dry and windy periods) or, in cases where such routes would remain in place for an extended duration, cover the routes with gravel to avoid re-suspension of dust.

- Apply water or dust-reducing agents to all exposed surfaces as needed during dry weather. Exposed surfaces include, but are not limited to, soil piles, graded areas, unpaved parking areas, staging areas, and access roads.
- Cover or maintain at least 2 feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Cover any haul trucks that would be traveling along freeways or major roadways.
- Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent paved public roads.
- Limit vehicle speeds on unpaved roads to 10 miles per hour.

To control vehicle emissions from diesel-powered equipment working at the construction site the plan would also include:

- Minimize idling time by either shutting equipment off when not in use or reducing idling time to 5 minutes. Provide clear signage regarding this requirement for workers at the entrances to the site.
- Establish protocols for equipment inspection and maintenance programs to ensure work and fuel efficiencies.
- Maintain all construction equipment in proper working condition according to manufacturer's specifications.
- Ensure that equipment is running in proper condition before it is operated.

Long-term operational effects on air quality would be negligible. A detailed air quality analysis related to stationary or mobile sources is not necessary because operation of the facility would entail minimal stationary or mobile sources of air pollution. Minor mobile source emissions from vehicles would occur as operators travel to and from the facility and during routine maintenance. The proposed action would not involve new major stationary sources of air emissions; however, the facility would include a backup generator on-site. Emissions from the generator would include monthly testing as well as potential emissions during a power outage.

The proposed underground safety research facility is not anticipated to be a major source of HAPs air pollutants based on previous operations at LLEM. Research activities may contribute minor sources of air pollutants, including burn testing, explosives testing, and explosives detonation.

Overall, the proposed action would not contribute long-term measureable impacts on air quality and is not anticipated to affect the attainment status of both Randolph and Pocahontas Counties. Emissions during the construction period would be temporary and are not anticipated to noticeably affect air quality. The application of best management practices to reduce fugitive emissions would further limit the potential impacts on air quality.

During operation of the facility, laboratory tests would include "fire testing" of equipment (conveyor belt burn testing). Certain kinds of open burning are permitted in West Virginia if not prohibited by local ordinances (West Virginia DEP 2018b), including West Virginia DEP, Division of Air Quality-approved fire training. All permits for such activity would be procured as needed.

5.3.1 Greenhouse Gas Emissions Impact Analysis

Analysis found in an EIS for a similar but larger NIOSH laboratory facility in Cincinnati, Ohio, estimated GHG emissions totaling approximately 870 metric tons spread over two years and annual operational

GHG emissions of approximately 5,903 metric tons (NIOSH 2018b). The proposed project is expected to generate less GHG during both construction and operation. Even if construction and operation generate the same amounts as the Ohio facility, the relative contribution to West Virginia's total GHGs would be negligible (approximately 0.0066 percent of annual GHG emissions).

6 CONCLUSIONS

The objective of this analysis is to determine whether the proposed underground safety research facility would have adverse impacts on air quality. Following are the conclusions of this analysis:

- Criteria pollutant emissions would have a less than significant impact on air quality.
- A General Conformity Determination is not required.
- A less than significant impact would be anticipated from fugitive emissions during construction. No long-term permanent impacts from fugitive emissions are expected. A Title V permit is not anticipated to be required.
- HAPs and toxic air emissions would have a less than significant impact on air quality. The facility would not be a major source of HAPs.
- GHG emissions would be negligible compared to annual GHG emissions in West Virginia.

7 REFERENCES

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2018a Personal communication via email on June 28, 2018, with G. Goodman, NIOSH, and the project team.

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APPENDIX F: TRANSPORTATION TECHNICAL REPORT

Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health

Acquisition of Site for Development of a Replacement Underground Safety Research Program Facility in Mace, West Virginia

Traffic Impact Analysis Technical Report

January 2021

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ABBREVIATIONS AND ACRONYMS

Acronym	Definition
AADT	average annual daily traffic
CDC	Centers for Disease Control and Prevention
EIS	Environmental Impact Statement
GSA	General Services Administration
HHS	Department of Health and Human Services
LLEM	Lake Lynn Experimental Mine
mph	miles per hour
NIOSH	National Institute for Occupational Safety and Health
WVDOT	West Virginia Department of Transportation

1 INTRODUCTION

This Transportation Technical Report has been prepared as part of the environmental impact statement (EIS) for the proposed acquisition and development of a site by the Centers for Disease Control and Prevention (CDC) within the Department of Health and Human Services (HHS), in cooperation with the U.S. General Services Administration (GSA). The site would be developed into the new National Institute for Occupational Safety and Health (NIOSH) Underground Safety Research Program facility (proposed action). The acquisition and development would replace the Lake Lynn Experimental Mine (LLEM) in Fayette County, Pennsylvania, and would support research programs focused on miner health and safety issues. The site being considered for acquisition and development includes 461.35 acres located off U.S. Route 219 in Randolph and Pocahontas Counties near Mace, West Virginia (the project site). CDC is preparing this EIS in cooperation with GSA to comply with the requirements of the National Environmental Policy Act of 1969.

The underground safety research facility would include two distinct areas:

- an underground research facility with crosscuts and entries that simulate a room and pillar mine and a longwall operation, totaling more than 15,000 linear feet of entryway; and
- surface facilities to support underground research activities, including offices, research and research support buildings, maintenance shops, and a fire suppression research facility.

The previously leased and operated LLEM was a unique facility that offered the opportunity for various full-scale mine experiments and research. The research was essential to programs focused on miner health and safety issues. The LLEM was initially constructed under a long-term lease agreement with the original landowner. Located 60 miles south of Pittsburgh, Pennsylvania, the lease agreement covered 406 acres of the overall property parcel of approximately 4,350 acres. Underground mine safety research was conducted at LLEM until 2008 when the roof collapsed. This underground experimental coal mine and aboveground fire testing facility was primarily used for studies and research on mine explosions, mine seals, mine rescue, ventilation, diesel exhaust, new health and safety technologies, ground control, and fire suppression.

Research continued at the LLEM until it was closed in December 2012. CDC/NIOSH intended to extend the lease on the facility, but no lease agreement could be reached with the new property owners. The facility continued to operate under a series of standstill agreements, and during this time, several rehabilitation projects were initiated. The federal government decided to purchase the facility and complete the rehabilitation work after obtaining title to the property. Negotiations to purchase the property were unsuccessful, with the owners rejecting multiple offers.

After the lease and purchase negotiations failed, several other options were considered for conducting full-scale mine experiments that required the use of LLEM. The purpose of the proposed action is to provide NIOSH with a new underground safety research facility that would allow for full-scale mine experiments and research that accurately simulate an underground mine. After a nationwide search for alternative sites and methods for conducting the full-scale studies, no viable alternatives other than construction of a new research facility were found.

The project site in West Virginia met the minimum criteria and was determined to be a viable site. It is located near Mace, West Virginia, straddles the Randolph and Pocahontas County lines, and is less than a 4-hour drive from the LLEM in Bruceton, Pennsylvania. Further, the proposed new facility would provide approximately 1,940,500 gross square feet of surface and underground laboratory, research, support, and office space. Facility access Monday through Friday would include 12 staff on a regular

daily basis between 7:00 am and 5:00 pm, 25 additional staff or visitors twice a week at irregular times, and 50 additional staff or visitors twice a month at irregular times.

2 ROADWAY NETWORK

This section describes the roadway network in vicinity of the project site and characterizes the current operation of this network with regard to vehicular traffic. The traffic study area is centered on U.S. Route 219 between State Route 15 to the north and State Route 66 to the south, and includes Dry Branch Road, extending to the west of U.S. Route 219.

In general, based on the West Virginia Department of Transportation (WVDOT) Functional Class, the transportation system in the vicinity of the project site includes a network of one turnpike, two feeders, and one collector (WVDOT 2017). A description of the study area roadway is provided below. **Figure 1** shows the existing street network near the project site.

2.1 East-West Roadways

2.1.1 State Route 15

State Route 15 is an east-west, two-lane feeder that traverses rural West Virginia between Interstate 79 near the town of Flatwoods and U.S. Route 219 in the community of Valley Head, approximately 7.5 miles north of the project site. As a feeder, the roadway serves community-to-community travel and collects and feeds traffic to an Interstate and U.S. Route (WV State Code 2017). It has a posted speed limit of 55 miles per hour (mph), and in 2017, had an annual average daily traffic (AADT) of 790 vehicles for segments connecting to U.S Route 219 in the vicinity of the project site (WVDOT 2016).

2.1.2 State Route 66

State Route 66 is an east-west, two-lane feeder that traverses rural West Virginia between U.S. Route 219 and State Route 92, approximately 3 miles south of the project site. The roadway serves as an important intra-county travel corridor between a U.S. and State Route that provides sole access to Snowshoe Mountain and its associated resorts, including Silver Creek and Village Center. It has a posted speed limit of 55 mph, and in 2016, had an AADT of 1,632 vehicles for segments connecting to U.S. Route 219 in the vicinity of the project site (WVDOT 2016). The AADT may fluctuate higher on weekend days during winter months when the resort's ski operations are in service compared to other times throughout the year.

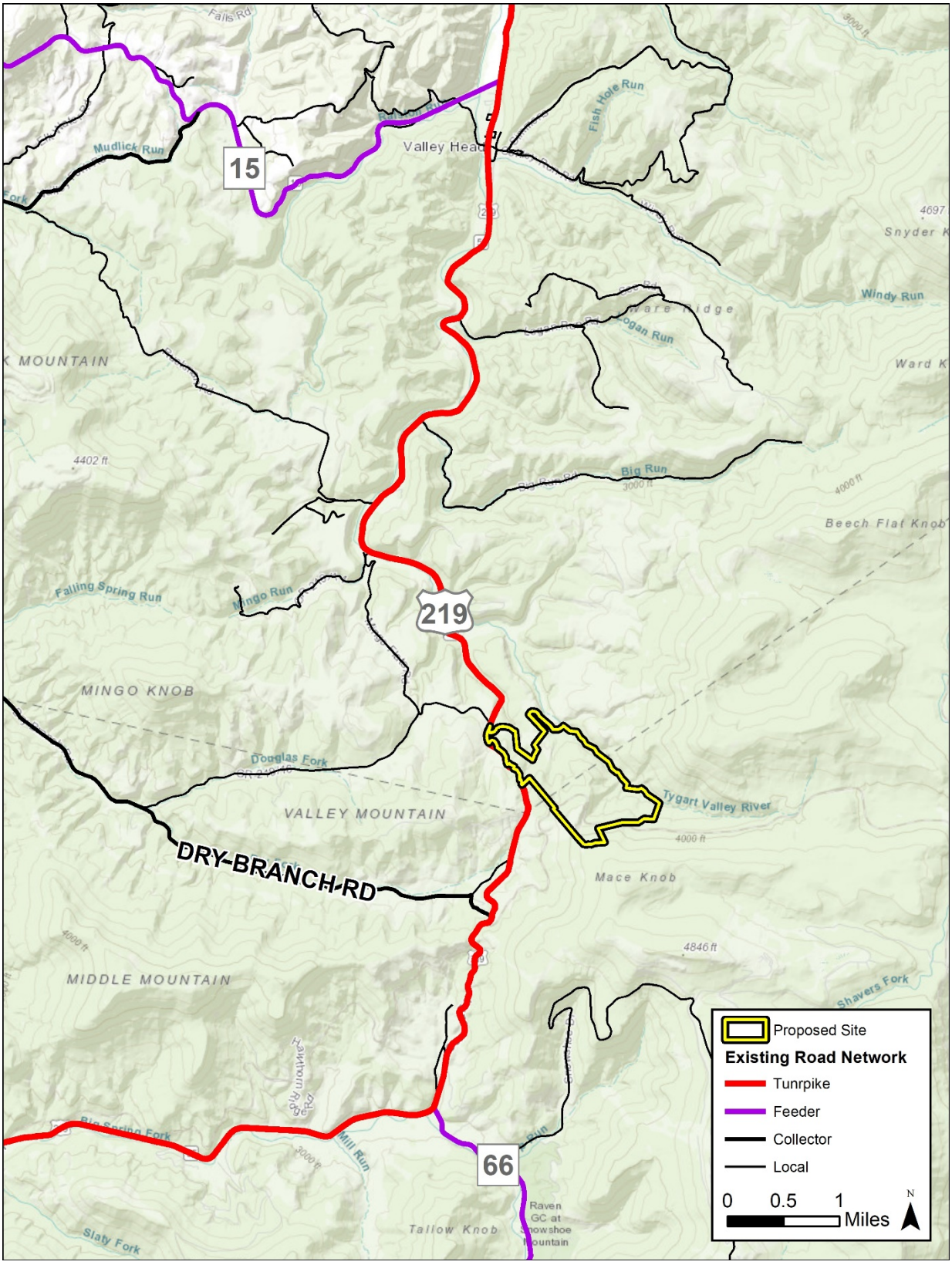

FIGURE 1: EXISTING ROAD NETWORK

2.1.3 Dry Branch Road (County Road 219)

Dry Branch Road is an east-west, undivided collector that traverses rural West Virginia between Valley Fork Road (County Road 49) and U.S. Route 219 in the community of Mace near the project site. The roadway provides local residential access and other land uses. It has a posted speed limit of 25 mph, and in 2016, had an AADT of 22 vehicles for segments connecting to U.S. Route 219 in the vicinity of the project site (WVDOT 2016).

2.2 North-South Roadways

2.2.1 U.S. Route 219

U.S. Route 219 is a north-south, two-lane turnpike that traverses rural West Virginia between the town of Rich Creek and the Maryland state line near the community of Silver Lake. The roadway serves as a travel corridor indicative of statewide or interstate travel through Appalachia connecting major cities and other urban areas (WV State Code 2017). It has a posted speed limit of 55 mph, and in 2016, had an AADT of 1,119 vehicles for segments in the vicinity of the project site (WVDOT 2016). Further, it runs adjacent and parallel to the project site for approximately 3,600 feet just north of the community of Mace.

2.3 Existing Traffic Operations

U.S. Route 219 is approximately 30 feet wide, and in 2015, trucks made up 15.7 percent of the total traffic based on WVDOT traffic count data collected from two stations between State Route 15 and 66. The roadway near the project site does not have any controlled intersections. State Route 66 is approximately 20 feet wide, and in 2015, trucks made up 15.2 percent of the total traffic based on the nearest WVDOT traffic count station to U.S. Route 219. The only controlled intersection along the roadway near the project site is a stop sign at its termination with U.S. Route 219. State Route 15 is approximately 30 feet wide. In 2015, trucks made up 7.2 percent of the total traffic based on the nearest WVDOT traffic count station to U.S. Route 219. The only controlled intersection along the roadway near the project site is a stop sign at its termination with U.S. Route 219 (WVDOT 2015). Based on team observations, each roadway has a striped lane for each travel direction, 2 to 5-foot-wide shoulders except areas with guardrails, and is generally windy and hilly conforming to the Appalachian terrain. Further, based on existing conditions and geometry, the roadways can accommodate most types of vehicles and trucks, as well as the amount of AADT (Google Earth; Louis Berger 2018). However, based on the width, State Route 66 provides substandard geometry for two trucks to safely pass. U.S. Route 219 and State Route 15 provides adequate widths for trucks.

Dry Branch Road is approximately 20 feet wide without separated travel direction lanes and shoulders, intermittently unpaved, and meanders through the bottom of a valley. No traffic count data are available for Dry Branch Road. Because the roadway provides intermittent pavement, it can primarily accommodate personal vehicles and small- to medium-sized trucks only.

Beyond vehicular and truck traffic, the project site is not serviced by pedestrian facilities, bicycle facilities, public transit, carshare, or any other mode of transportation except ride-hailing car services such as Uber and Lyft depending on availability.

3 IMPACTS

3.1 No-Action Alternative Traffic Operations

Traffic operations under the no-action alternative would remain the same as existing traffic operations. Furthermore, U.S. Route 219 would continue to serve as a turnpike for statewide or interstate travel

though Appalachia; State Route 66 would continue to serve as a feeder to points east and sole access to Snowshoe Mountain between U.S. Route 219 and State Route 92; State Route 15 would continue to serve as a feeder to points west; and Dry Branch Road would continue to provide relatively localized connections. Snowshoe Mountain announced in March 2018 that an upcoming investment in upgraded snow-making technology would enable more ski trails to be open by early December (Snowshoe Mountain 2018). This upgrade could increase vehicle traffic earlier in the ski season than in prior years. No other development growth has been identified in the vicinity of the project site that would introduce a measurable increase of traffic from existing conditions.

3.2 Proposed Action Alternative Traffic Operations

3.2.1 Site Access

Access to the project site under the proposed action would be provided from U.S. Route 219 by way of an existing gravel farm road to be improved and widened to 20 feet. The access point would be located just south of Mingo Flats Road (County Road 51) on a straight segment of U.S. Route 219.

3.2.2 Closure of Affected Streets

No streets would be closed because of the proposed action. However, traffic on U.S. Route 219 may be temporarily stopped on an intermittent basis to allow egress/ingress of construction traffic to the project site, if needed.

3.2.3 Construction

A temporary increase of construction traffic would result from the proposed action during preparation and construction of the project, which would last four years. Construction traffic would include hauling in and out of heavy machinery, building materials, and excavated material. Due to the terrain of the site, a highway rear dump truck with a 13-ton capacity would be used for site preparation work. Surface site preparation work and excavation of sedimentary material, including limestone, would include removal of approximately 272,000 tons of debris. Excavated material would be stockpiled on-site and used for site preparation as much as possible to limit off-site disposal. CDC estimates approximately two-thirds of the excavated material could be used on-site for access road improvements and development and site grading for the aboveground facilities and gravel parking; however, a conservative estimate of off-site disposal for half of the excavated materials is used. Removal of the debris not used on-site would require approximately 10,500 dump truck loads over a four-year construction period, or an average of 10 loads per day.

Construction of the surface and underground facilities would begin once site preparation is complete. A facility construction timeline would be established once a facility design and construction plan is developed.

No other traffic impacts are anticipated during construction of the proposed action.

3.2.4 Trip Generation and Distribution

In general, travelers to the project site are expected to originate in an even distribution from points north and south along U.S. Route 219. The nearest towns with sizeable populations are Elkins, West Virginia, approximately 40 miles north at the intersection of U.S. Route 250 and 33, and Lewisburg, West Virginia, approximately 70 miles south at the intersection of U.S. Route 219 and Interstate 64.

The proposed action would add a minimal number of vehicle trips along U.S. Route 219 from points north or south from staff and visitors accessing the site Monday through Friday, including 12 staff on a regular daily basis between 7:00 am and 5:00 pm, 25 additional staff or visitors twice a week at irregular

times, and 50 additional staff or visitors twice a month at irregular times. No other traffic impacts are anticipated as a result of the proposed action.

3.2.5 Future Traffic Operations

Traffic operations under the proposed action would remain consistent with existing traffic operations except for the addition of temporary construction traffic and a minimal number of vehicles trips along U.S. Route 219 from staff and visitors accessing the project site on a daily, weekly, and monthly basis. No significant traffic impacts are anticipated as a result of the proposed action.

4 CONCLUSIONS

In summary, the overall impacts of the proposed action on traffic operations would be minimal, primarily because only 12 staff would access the project site on a regular daily basis coupled with additional staff and visitors accessing the site at irregular times on a weekly and monthly basis. Short-term impacts associated with an increase in truck traffic during the construction period would be adverse. These impacts would be minor compared to the daily truck traffic using U.S. Route 219.

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APPENDIX G: WATER RESOURCES TECHNICAL REPORT

Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health

Acquisition of Site for Development of a Replacement Underground Safety Research Program Facility in Mace, West Virginia

Water Resources Technical Report

January 2021

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ABBREVIATIONS AND ACRONYMS

Acronym	Definition
BMP	best management practice
CDC	Centers for Disease Control and Prevention
FEMA	Federal Emergency Management Agency
gpm	gallons per minute
GSA	General Services Administration
GSF	gross square feet
LLEM	Lake Lynn Experimental Mine
mg/L	milligrams per liter
MS4	Municipal Separate Storm Sewer System
NHD	National Hydrography Dataset
NIOSH	National Institute for Occupational Safety and Health
NPDES	National Pollutant Discharge Elimination System
PEM	palustrine emergent wetland
SWPPP	stormwater pollution prevention plan
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
West Virginia DEP	West Virginia Department of Environmental Protection

1 INTRODUCTION

This Water Resources Technical Report has been prepared as part of the environmental impact statement (EIS) for the proposed acquisition and development of a site by the Centers for Disease Control and Prevention (CDC) within the Department of Health and Human Services (HHS), in cooperation with the U.S. General Services Administration (GSA). The site would be developed as the new National Institute for Occupational Safety and Health (NIOSH) Underground Safety Research Program facility (proposed action). The acquisition and development would replace the Lake Lynn Experimental Mine (LLEM) in Fayette County, Pennsylvania, and would support research programs focused on miner health and safety issues. The site being considered for acquisition and development includes 461.35 acres located off U.S. Route 219 in Randolph and Pocahontas Counties near Mace, West Virginia (the project site). CDC is preparing this EIS in cooperation with GSA to comply with the requirements of the National Environmental Policy Act (NEPA) of 1969.

The underground safety research facility would include two distinct areas:

- an underground research facility with crosscuts and entries that simulate a room and pillar mine and a longwall operation, totaling more than 15,000 linear feet of entryway; and
- surface facilities to support underground research activities, including offices, research and research support buildings, maintenance shops, and a fire suppression research facility.

The previously leased and operated LLEM was a unique facility that offered the opportunity for various full-scale mine experiments and research. The research was essential to programs focused on miner health and safety issues. The LLEM was initially constructed under a long-term lease agreement with the original land owner. Located 60 miles south of Pittsburgh, Pennsylvania, the lease agreement covered 406 acres of the overall property parcel of approximately 4,350 acres. Underground mine safety research was conducted at LLEM until 2008 when the roof collapsed. This underground experimental mine and aboveground fire testing facility was primarily used for studies and research on mine explosions, mine seals, mine rescue, ventilation, diesel exhaust, new health and safety technologies, ground control, and fire suppression.

Research continued at the LLEM until it was closed in December 2012. CDC/NIOSH intended to extend the lease on the facility but no lease agreement could be reached with the property owners. The facility continued to operate under a series of standstill agreements. The federal government decided to purchase the facility and complete the rehabilitation work after obtaining title to the property. Negotiations to purchase the property were unsuccessful, with the owners rejecting multiple offers.

After the lease and purchase negotiations failed, a number of other options were considered for conducting full-scale experiments that required the use of LLEM. The purpose of the proposed action is to provide NIOSH with a new underground safety research facility that would allow for full-scale mine experiments and research that accurately simulate an underground mine. After a nationwide search for alternative sites and methods for conducting the full-scale studies, no viable alternatives other than construction of a new research facility were found.

The project site in West Virginia met the minimum criteria and was determined to be a viable site. It is located near Mace, West Virginia, straddles the Randolph and Pocahontas County lines, and is less than a 4-hour drive from the Bruceton, Pennsylvania, research facility.

Following the acquisition of the site, CDC would develop it into a new underground safety research facility that would allow for full-scale mine experiments and research for NIOSH that accurately

simulates an underground mine. Based on the 2013 Project Development Study (CDC 2013), the new facility would provide surface and underground laboratory, research, support, and office space. At this early stage of planning, the specific layout of the surface facilities has not been defined, but the size and location of the underground facility has been proposed within the center of the project area. For the purposes of this technical report, it is assumed that the new facility would include an underground safety research facility (approximately 164,000 GSF located 500 feet underground) and surface facilities and support areas, including office and storage and control facilities (approximately 17,000 to 25,000 GSF). Surface site preparation work is anticipated to be short in duration, occurring over approximately 4 months. Underground site preparation work would take approximately an additional 3 years. Surface site preparation would consist of excavating approximately 272,000 tons of material, with approximately half being re-used on-site as fill and the remaining approximately half being hauled off-site. Underground site preparation would consist of excavating approximately 152,000 tons of sedimentary rock, including limestone.

From the parking lot to the end of the access road, near the railroad tracks, the remaining mile of the existing access road would be widened to 15 feet and surfaced with gravel and crushed limestone excavated on-site. Because of the steeper topography along the access road in this area, some regrading or culvert installation may also be required. A new access road would be constructed from the surface facilities to the second underground research facility entrance along the ridgeline in that location. The new access road would be approximately a quarter of a mile long, 20 feet wide, and surfaced with gravel and crushed limestone excavated on-site, similar to the existing access road. In addition to the development above and below ground, the access road and surface facilities, including both entrances to the underground research facility, would be enclosed by an 8-foot-high chain link fence.

This report examines surface and groundwater resources, including water quality for both surface and groundwater, floodplains, and wetlands in the project area, and the impacts anticipated as the result of the site acquisition and development of the facility.

2 EXISTING CONDITIONS

2.1 Surface Water

The proposed project site is located within the larger Monongahela River watershed, in the smaller Tygart Valley River and Upper Tygart Valley River watersheds, and is adjacent to the Tygart Valley River. The Monongahela River watershed encompasses an area of about 7,340 square miles and lies mostly within the Appalachian Plateau physiographic province, with a minor portion of the Cheat River in the Valley and Ridge province. The Tygart Valley River watershed encompasses an area of about 1,184 square miles (Kozar and Brown 1995), comprising the upper and lower portions of the Tygart Valley River. The Upper Tygart Valley River watershed encompasses an area of about 270 square miles. Major tributaries of the upper portion of the Tygart Valley River are Mill Creek, Chenowith Creek, Stalnaker Run, Files Creek, Becky Creek, and Riffle Creek. The elevations in the watershed range from about 1,900 feet to 4,600 feet (USDA 2001).

The Upper Tygart Valley River watershed is located almost entirely within Randolph County, although a small portion of the watershed extends into Pocahontas County (**Figure 1**). The upper portion of the Tygart Valley River begins near Mingo and passes through the communities of Valley Head, Huttonsville, Mill Creek, Valley Bend, Dailey, and Beverly before reaching Elkins. From Elkins, the lower portion of the Tygart Valley River flows in a northwesterly direction through Randolph, Barbour, Taylor, and Marion Counties, to Fairmont, West Virginia, where it joins the West Fork River to form the Monongahela River.

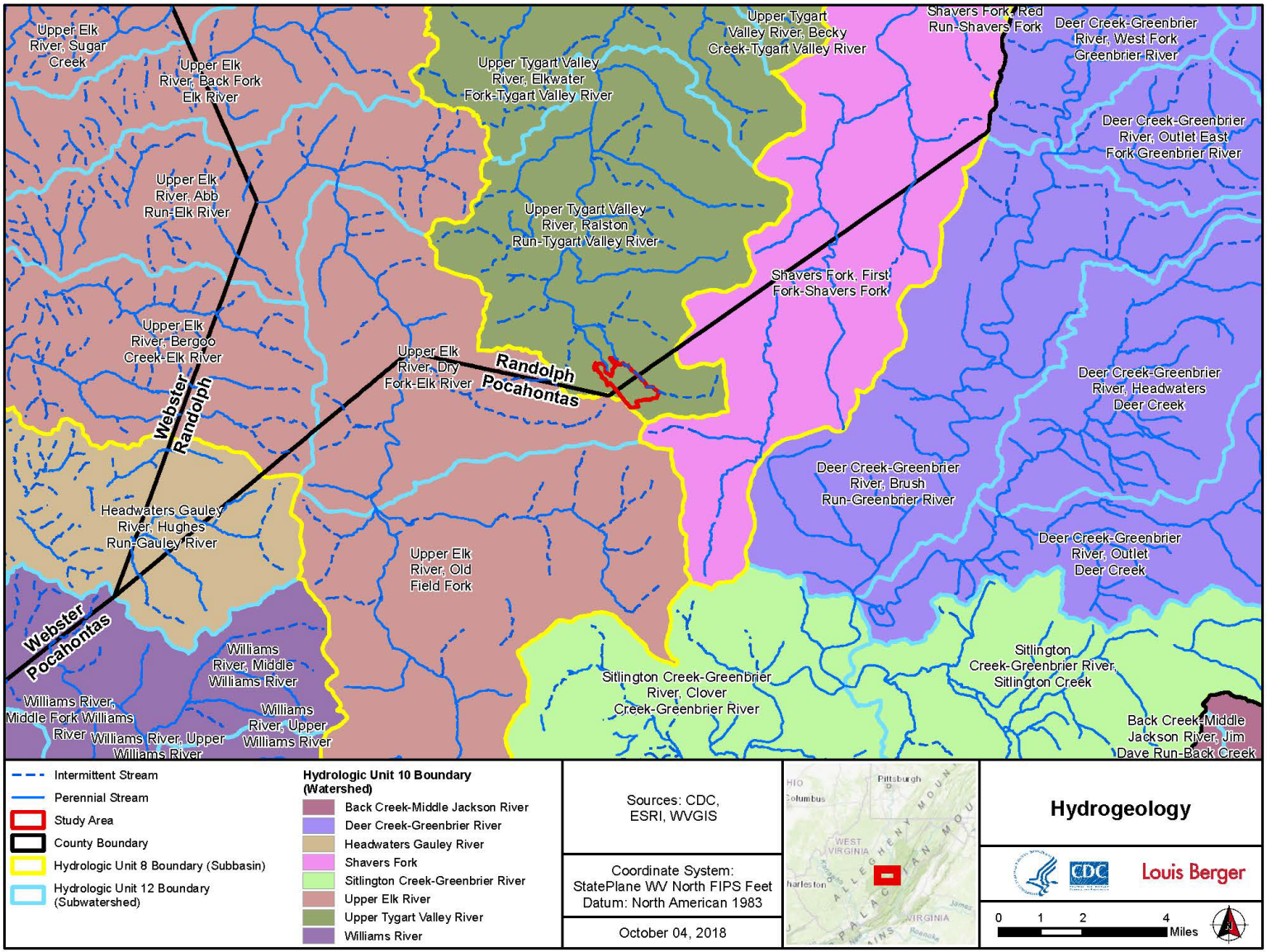


FIGURE 1: WATERSHEDS AND HYDROGEOLOGY IN THE PROJECT VICINITY

Surface water resources such as streams, springs, seeps, and wetlands are all present in the project area, which includes all five parcels of the site acquisition. The Tygart Valley River runs along the northeastern border of the project area from its headwaters located several miles east in Pocahontas County **(Figure 2)**. At this point, it is considered an intermittent stream; however, soon after exiting the project area in Randolph County, it is joined by two tributaries and becomes perennial. According to the National Hydrography Dataset (NHD), three other unnamed intermittent streams cross the project area (USGS 2018). One is a tributary to the Tygart Valley River and the other two drain to another Tygart Valley River tributary.

In addition to NHD surface water information, a field survey was completed in June 2018 to identify wetland and surface water resources that could be present within areas of the site where potential development could occur. The June 2018 survey included approximately 38 acres of the overall 460-acre project area that was originally proposed to be disturbed. When a portion of the proposed fence line was relocated to accommodate the planned railroad reactivation, an additional 6.4 acres that would be disturbed by the relocated fence line along the north side of the railroad ROW were surveyed in November 2018. In September 2019, an additional 33 acres that would be disturbed were surveyed. In total, 77 acres of the overall 460-acre project area were surveyed. Open water habitats, or waters of the United States, observed in the project area may be subject to jurisdiction under Section 404 of the Clean Water Act. The classification of all observed waters was based on field observations and the *Classification of Wetlands and Deepwater Habitats of the United States* (Federal Geographic Data Committee 2013). Forty-one linear surface water features were identified within the survey area (**Figures 2, 3, and 4** and **Table 1**) (Louis Berger 2018, WSP 2019). These waterbodies comprise nine open water classes and a ditch.

- **Riverine Lower Perennial Sandy Unconsolidated Bottom (R2UB1)**: This habitat is characterized by a low gradient, slow water velocity, and no tidal influence. Some water flows throughout the year. The substrate consists mainly of sand and mud. Oxygen deficits may sometimes occur. The fauna is composed mostly of species that reach their maximum abundance in still water, and true planktonic organisms are common. The gradient is lower than that of the Upper Perennial Subsystem, and the floodplain is well developed. The lower perennial streams identified in the project area have a cobble/ gravel substrate.
- **Riverine Upper Perennial Unconsolidated Bottom (R3UB1)**: This habitat is characterized by a high gradient, fast water velocity, and no tidal influence. Some water flows throughout the year. The substrate consists of rock, cobbles, or gravel with occasional patches of sand. The natural dissolved oxygen concentration is normally near saturation. The fauna is characteristic of running water, and there are few or no planktonic forms. The gradient is high compared with that of the Lower Perennial Subsystem, and there is very little floodplain development.
- **Riverine Intermittent Sandy, Muddy and Vegetated Streambed (R4SB)**: This habitat is characterized by a channel that has no tidal influence and where water only flows for part of the year. When water is not flowing, it may remain in pools or may be totally absent. The intermittent streambeds identified in the project area consist of cobble/gravel (R4SB3) and muddy (R4SB5) substrate.
- **Riverine Intermittent Cobble/Gravel Streambed (R4SB3)**: This habitat is characterized by a channel that has no tidal influence and where water only flows for part of the year. When water is not flowing, it may remain in pools or may be totally absent. The intermittent streambeds identified in the project area consist of cobble/gravel (R4SB3).

- **Riverine Ephemeral, Cobble/Gravel Streambed (R6SB3)**: This habitat is characterized by a channel where water flows for brief periods during and after rainfall but is generally dry. The streambeds identified in the project area consist of cobble/gravel (R6SB3).
- **Riverine Intermittent Rubble Streambed (R4SB2)**: This habitat is characterized by a channel that has no tidal influence and where water only flows for part of the year. When water is not flowing, it may remain in pools or may be totally absent. The intermittent streambeds identified in the project area consist of rubble (R4SB2).
- **Riverine Ephemeral, Rubble Streambed (R6SB2)**: This habitat is characterized by a channel where water flows for brief periods during and after rainfall but is generally dry. The streambeds identified in the project area consist of rubble (R6SB2).
- **Riverine Ephemeral, Mud Streambed (R6SB5)**: This habitat is characterized by a channel where water flows for brief periods during and after rainfall but is generally dry. The streambeds identified in the project area consist of mud (R6SB5).
- **Riverine Intermittent, Sand Streambed (R4SB4)**: This habitat is characterized by a channel that has no tidal influence and where water only flows for part of the year. When water is not flowing, it may remain in pools or may be totally absent (R4SB4).

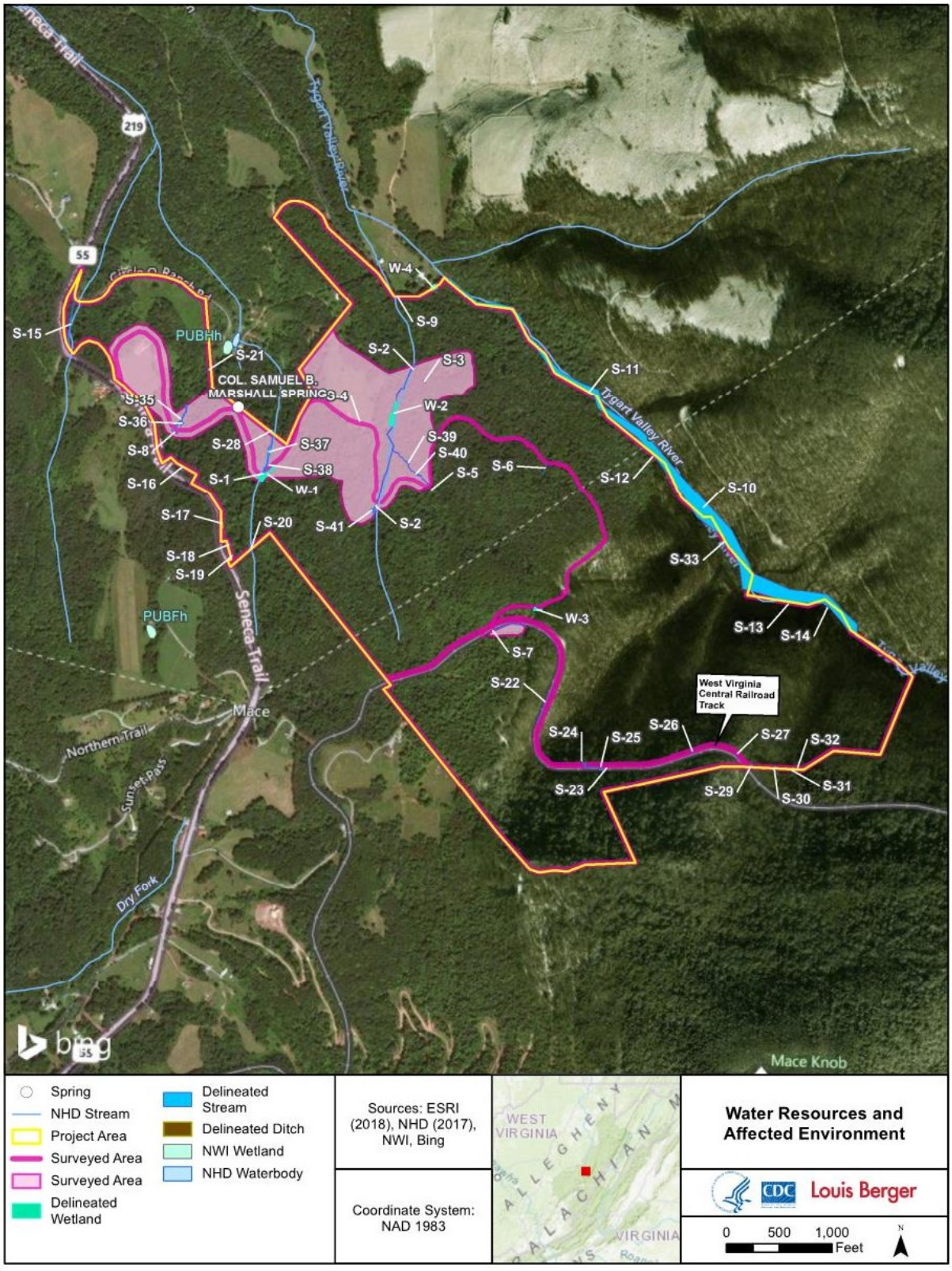


FIGURE 2: SURVEYED AREAS, SURFACE WATERS, AND WETLANDS

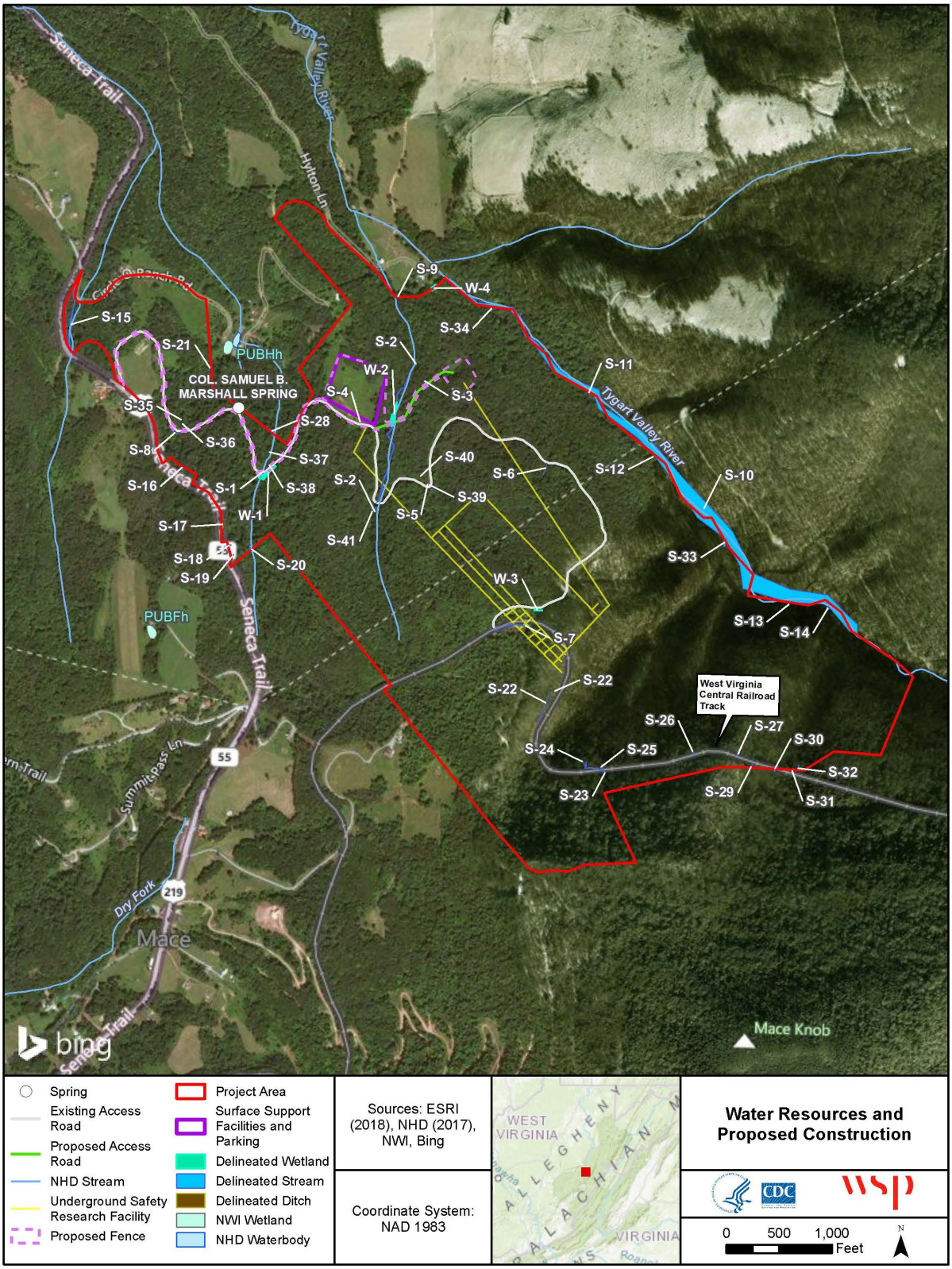


FIGURE 3: SURFACE WATER AND WETLAND RESOURCES IN RELATION TO THE PROPOSED DEVELOPMENT

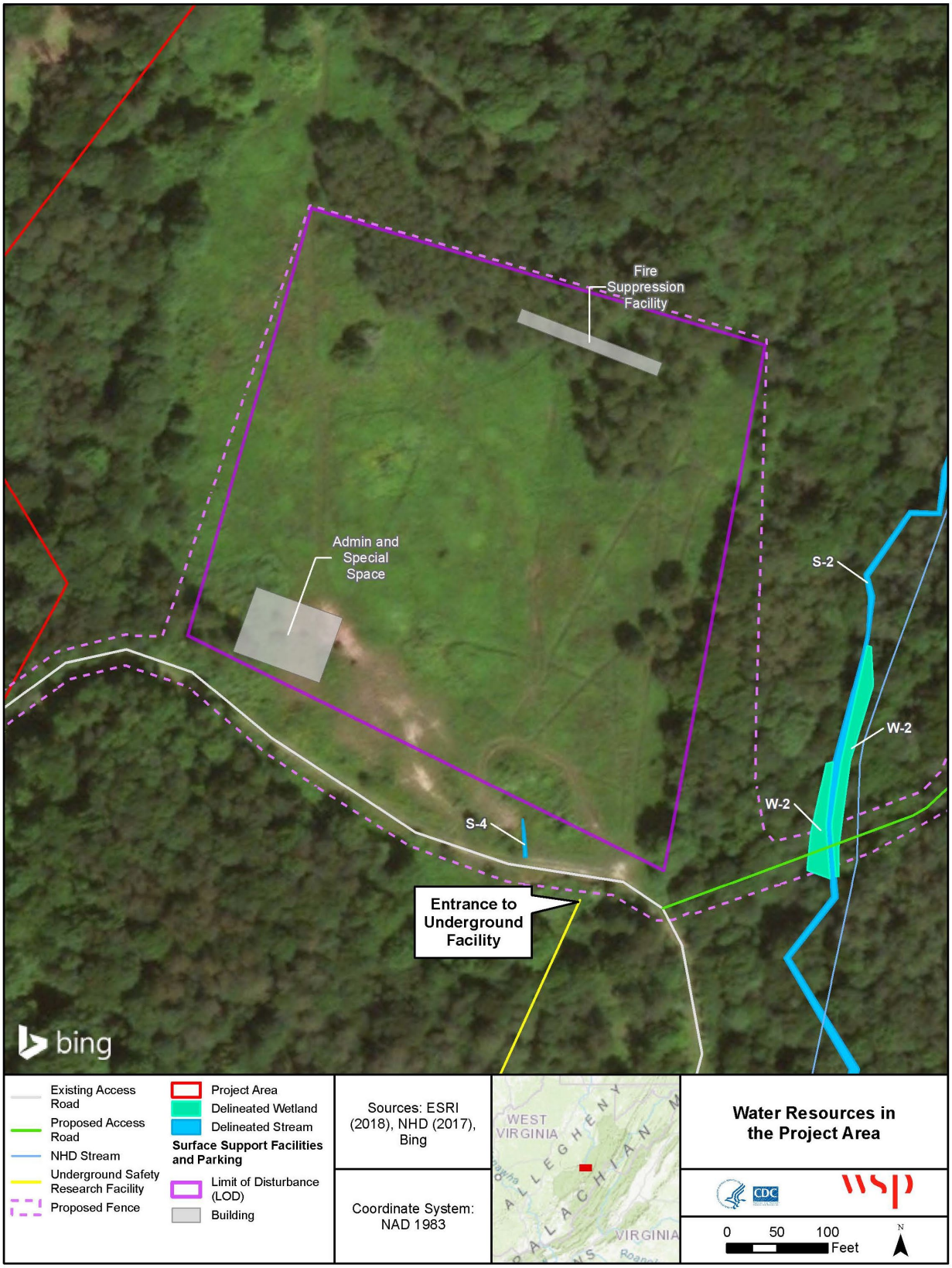


FIGURE 4: SURFACE WATER AND WETLAND RESOURCES NEAR PROPOSED SURFACE FACILITIES

TABLE 1: SUMMARY OF SURFACE WATERS IDENTIFIED IN THE SURVEY AREA

ID on Map	Cowardin Classification	Approximate Length Surveyed (linear feet)
S-1	R3UB1	72
S-2	R3UB1	1,509
S-3	R4SB5	38
S-4	R4SB5	38
S-5	R4SB3/R4SB5	25
S-6	R4SB3/R4SB5	123
S-7	R4SB5	322
S-8	R4SB3/R4SB5	72
S-9	R4SB3/R4SB5	44
S-10	R2UB1	5,376
S-11	R4SB3/R4SB5	38
S-12	R4SB3/R4SB5	28
S-13	R4SB3/R4SB5	31
S-14	R3UB1	30
S-15	R4SB3/R4SB5	627
S-16	R4SB3/R4SB5	60
S-17	ditch	82
S-18	R4SB3/R4SB5	39
S-19	R4SB3/R4SB5	75
S-20	R4SB3/R4SB5	52
S-21	R4SB3/R4SB5	36
S-22	R6SB3	387
S-23	R6SB3	253
S-24	R6SB2	80
S-25	R6SB5	42
S-26	R6SB5	89
S-27	R6SB3	69
S-28	R4SB3	91
S-29	R6SB2	69
S-30	R4SB2	38
S-31	R4SB4	38
S-32	R4SB4	51
S-33	R6SB3	83
S-34	R4SB4	55
S-35	R4SB3	269

ID on Map	Cowardin Classification	Approximate Length Surveyed (linear feet)
S-36	R4SB3	81
S-37	R3UB1	395
S-38	R4SB5	45
S-39	R4SB3	510
S-40	R6SB5	43
S-41	R4SB5	29

Source: Louis Berger (2018), WSP (2019)

Notes: R2UB1 – Riverine Lower Perennial Sandy Unconsolidated Bottom; R3UB1 – Riverine Upper Perennial Unconsolidated Bottom; R4SB3 – Riverine Intermittent Cobble-Gravel Streambed; R4SB5 – Riverine Intermittent Mud Streambed; R6SB3 – Riverine Ephemeral, Cobble/Gravel Streambed); R4SB2 – Riverine Intermittent Rubble Streambed; R6SB2 – Riverine Ephemeral, Rubble Streambed; R6SB5 – Riverine Ephemeral, Mud Streambed; R4SB4 – Riverine Intermittent, Sand Streambed

The topography of the project area is karstic, including Greenbrier Limestone outcrops (Pocahontas County 2012; Weary 2008). In a karst terrain, fractured bedrock formations and the dissolution of soluble rock such as limestone allow for hydrological connections between groundwater and surface water. In Pocahontas County and likely also in Randolph County, the local streamflow is strongly influenced by groundwater with an annual baseflow (i.e., annual streamflow attributed to groundwater discharge) of approximately 35 percent (Pocahontas County 2013). Springs and seeps are areas of groundwater discharge where water from subsurface aquifers flows to the land surface. These seeps and springs can emerge from fractures or filter though permeable substrate. Springs typically have higher flow rates than seeps. Springs and seeps are common along drainage depressions, hillslopes, and toeslopes (Byers et al. 2007). One documented spring, the Colonel Samuel B. Marshall spring, is located just north of the access road on a hillside in the northwest portion of the project area (West Virginia Natural Resource Analysis Center 1986). However, other undocumented smaller seeps and springs are likely in, and adjacent to, the project area. Additional ephemeral streams are also likely located in un-surveyed parts of the project area, including in the steep valleys.

2.2 Wetlands in the Project Area

The U.S. Army Corps of Engineers (USACE) defines jurisdictional wetlands as areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions. Three criteria are used to determine the occurrence of jurisdictional wetlands: (1) hydric soils, (2) wetland hydrology, and (3) hydrophytic vegetation.

Executive Order 11990, Protection of Wetlands, requires federal agencies to consider alternatives to wetland sites and to limit potential damage if an activity affecting a wetland cannot be avoided. Specifically, Section 1 of the executive order states that an agency is required "minimize the destruction, loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands."

Section 404 of the Clean Water Act regulates the discharge of dredged or fill material into waters of the United States. USACE permits are offered as Nationwide Permits and Individual Permits. Activities in wetlands that exceed the impact thresholds defined for that activity require Individual Permits;

whereas, a Nationwide Permit is required if the proposed activities are minor in scope and are within the impact thresholds. When USACE has jurisdiction under Section 404 of the Clean Water Act, it issues a wetland boundary certification, namely a Jurisdictional Determination. Isolated wetlands, which are non-jurisdictional, are considered "waters of the state." In addition to Section 404 regulations, wetlands are also protected by West Virginia water quality standards, National Pollutant Discharge Elimination System (NPDES) permitting, and Clean Water Act Section 401 certification from the state.

A wetland delineation was performed to determine the jurisdictional boundaries of wetlands and water areas within the project area. Surveyors used the 1987 *Corps of Engineers Wetlands Delineation Manual* and *2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0)* to delineate all wetlands and waters of the United States subject to jurisdiction under Section 404 of the Clean Water Act found in the project area. Wetland habitats were categorized based on field observation using the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979; Federal Geographic Data Committee 2013). Four wetland features, shown in **Figures 2, 3**, **and 4** were delineated within the project area (**Table 2**) (Louis Berger 2018).

Palustrine Persistent Emergent Wetland (PEM1): Palustrine persistent emergent wetlands are characterized by an array of grass-like plants and broad-leaved herbaceous emergents. Vegetation observed in the emergent wetlands identified within the project area included jewelweed (*Impatiens capensis*), soft rush (*Juncus effusus*), and sedges (*Carex* spp.). In the emergent wetland areas, hydrology is associated with a seasonally high water table and surface saturation. Following the Cowardin system, the hydroperiod of the palustrine emergent wetland systems in the project area is classified as seasonally flooded/saturated.

TABLE 2: SUMMARY OF WETLANDS IDENTIFIED IN THE PROJECT AREA

Wetland ID	Cowardin Classification	Approximate Size (acres)
W-1	PEM1	0.09
W-2	PEM1	0.08
W-3	PEM1	0.02
W-4	PEM1	0.04

Source: Louis Berger (2018)
Notes: PEM1 – palustrine persistent emergent wetland

2.2.1 Surface Water Quality

The Clean Water Act and the state water quality standards are the basis for controlling pollutants in West Virginia water resources. The standards consist of designated uses, water quality numeric and narrative criteria, an antidegradation policy, and other general policies on implementation. Designated or beneficial uses include public water, aquatic life (i.e., warm water fishery, trout waters, and wetlands), water contact recreation, irrigation, livestock watering, wildlife, water transport, cooling water, power production, and industrial purposes. The water quality standards and criteria are set to ensure that the beneficial uses are maintained and protected. Under Section 303(d) of the Clean Water Act, the state is required to provide a list of waters that do not meet the state water quality standards; this list of impaired waters is referred to as the 303(d) list.

The Tygart Valley River was placed on West Virginia's 303(d) list for water quality impairment for most of its length due to biological impairment, algae, fecal/bacteria, iron, manganese, and pH. The reach

within and adjacent to the project area is only impaired for fecal/bacteria (West Virginia DEP 2016a). According to the West Virginia Requirements Governing Water Quality Standards (Title 47 Code of State Rules, Series 2), the narrative criteria state that no wastes that cause or contribute to a condition that adversely alters the integrity of the waters of the state, including the chemical, physical, hydrologic, or biological components of aquatic ecosystems are allowed. Point sources of fecal coliform include discharges from sewage treatment facilities and stormwater discharges from Municipal Separate Storm Sewer Systems (MS4s) (West Virginia DEP 2016b). Nonpoint sources include failing septic systems and runoff from agricultural and residential land uses. The state has developed a Total Maximum Daily Load plan for the Tygart Valley River for fecal coliform to address this water quality issue (West Virginia DEP 2016b).

The remaining surface waters in the project area are considered to be “high quality” waters in which the level of water quality exceeds levels necessary to support recreation, wildlife, and the propagation of fish and aquatic life.

2.3 Aquifers and Groundwater Resources

2.3.1 Regional Hydrogeology

Regionally, the primary aquifer units in the Appalachian Plateaus Province and the Allegheny Mountain Section physiographic sub-province consist of the sedimentary rocks of the Mississippian and Pennsylvanian Periods. To a lesser degree, localized water-bearing units occur within the Quaternary alluvium deposits.

The regional aquifer systems largely are recharged directly from precipitation, baseflow, or underflow from adjacent units. According to the U.S. Geological Survey (USGS), the Monongahela River watershed has a mean annual recharge of approximately 21 inches/year (USGS 2001). The actual recharge rate within the watershed can vary from location to location and depends on many factors, including surficial rock type, thickness of soil cover, soil type, vegetative cover, position with respect to valleys and mountain tops, climate, and impervious surfaces. Most of the precipitation that reaches ground surface runs rapidly off the slopes, discharging to the nearest surface water feature. The portion of precipitation that does infiltrate the ground surface migrates under the influence of gravity through the weathered bedrock, following a somewhat step-like path as it moves through units horizontally and then descends vertically along deeper fractures to the next permeable horizontal feature or unit (USGS 1997). The general flow pattern lends itself to the formation of springs and seeps, where permeable water-bearing units daylight at ground surface.

The Mississippian aquifers of the Greenbrier and Mauch Chunk Groups are unconfined at shallow depths and confined at greater depths. Aquifer unit thicknesses typically range from 50 feet to 200 feet and are known to occasionally exceed 300 feet. Where the Greenbrier Limestone is the surficial bedrock unit or where it is overlain by thin strata, the topography is karstic. Karst terrain is characterized by numerous caves, crevices, cavities (voids), fractured rock, disappearing streams, sinkholes, and springs. Karst features are well-developed in the Greenbrier Limestone because it is sandy and fossiliferous rather than having an interlocking crystalline texture. Fracture openings in the limestone aquifer generally are enlarged from long-standing dissolution of the carbonate rock (Kozar and Brown 1995).

The hydraulic characteristics of the Mississippian aquifer system are complicated by differences in hydraulic connections and water-bearing properties. Some generalizations can be formulated regarding water availability, well yields, and development potential. For example, although the regional aquifers are recharged by the infiltration of meteoric waters at an estimated rate of 7 inches per year, additional recharge into valleys by gravitational flow of groundwater from adjacent hillsides may result in potentially higher yields in wells located within low-lying areas. The higher yields may also be

augmented by the concentration of permeability-enhancing stress-relief fractures that are commonly associated with the regional valley floors. Generally, the productive aquifer systems are associated with sandstones and limestones because of their primary (intergranular) and secondary (fracture/solution) porosity. In some instances, however, the secondary pore spaces may be sealed from extensive secondary mineralization, thus serving to restrict aquifer hydraulic conductivity. Additionally, shales that generally serve as confining units may provide additional sources of groundwater, provided that an extensive, interconnected fracture system exists (USDA-NRCS 2001).

2.3.2 Local Hydrogeology

The project area is located at a topographically high elevation, and surface water drainage is expected to be toward the north-northwest and to the south and east away from the site (**Figure 4**), discharging to the nearby intermittent tributaries and headwaters reach of the Tygart Valley River.

The local aquifer system near the project area consists of the karstic Greenbrier Limestone and is recharged though infiltration of precipitation. Karst features are well developed in the Greenbrier Limestone because it is sandy, fossiliferous, and characterized by dissolution of the carbonate rock. The limestone outcrops extend across the northwestern portion of the site. Based on rock coring conducted at the site by Earthtech, Inc. (2017) (**Figure 5**), the Greenbrier Limestone is encountered beginning at approximately 20 feet below ground surface and extends to depths between approximately 220 and 720 feet below ground surface. In some cases, the top of the Greenbrier layer is much deeper (Earthtech, Inc. 2018). During coring, water was reportedly lost at 30 feet, which indicates a connection was made with a large fracture or void. There are several mapped caves are within or surrounding the project area. Seven known caves are on the Site, and eight others are located immediately off the property. The Colonel Samuel B. Marshall spring is mapped in or near the northern portion of the site (**Figures 2 and 3**).

And approximately 30 residential parcels are located within a 1-mile radius. Information from the Pocahontas and Randolph County Health Departments regarding residential wells was either unavailable or incomplete. CDC requested that homeowners voluntarily provide their well information for inclusion in the analysis. The residential water information is known for 12 of the 30 residences. Two adjacent properties do not have wells but rely on springs or underground streams for residential use. The other 10 properties have wells that range in depth from 165 to 700 feet below ground surface. Three parcel owners also provided that their wells provide water at a rate between 10 to 30 gallons per minute. A GEOCHECK® well search was conducted within a 1-mile radius from the project area of the following databases: Federal USGS, Federal Reporting Data System Public Water Supply, and State Database. Two USGS wells were identified within a radius of 0.5 mile to 1.0 mile southwest of the site (**Figure 6**). No wells were identified from a search of the Federal Reporting Data System Public Water Supply database or the state database.

In November 2020, CDC/NIOSH completed an aquifer pump test. The methodology and detailed outcomes regarding the aquifer pump test are provided in Appendix H of the Final EIS. The aquifer pump test concluded that the on-site Greenbrier Formation is highly competent, and the on-site aquifer has low transmissivity.

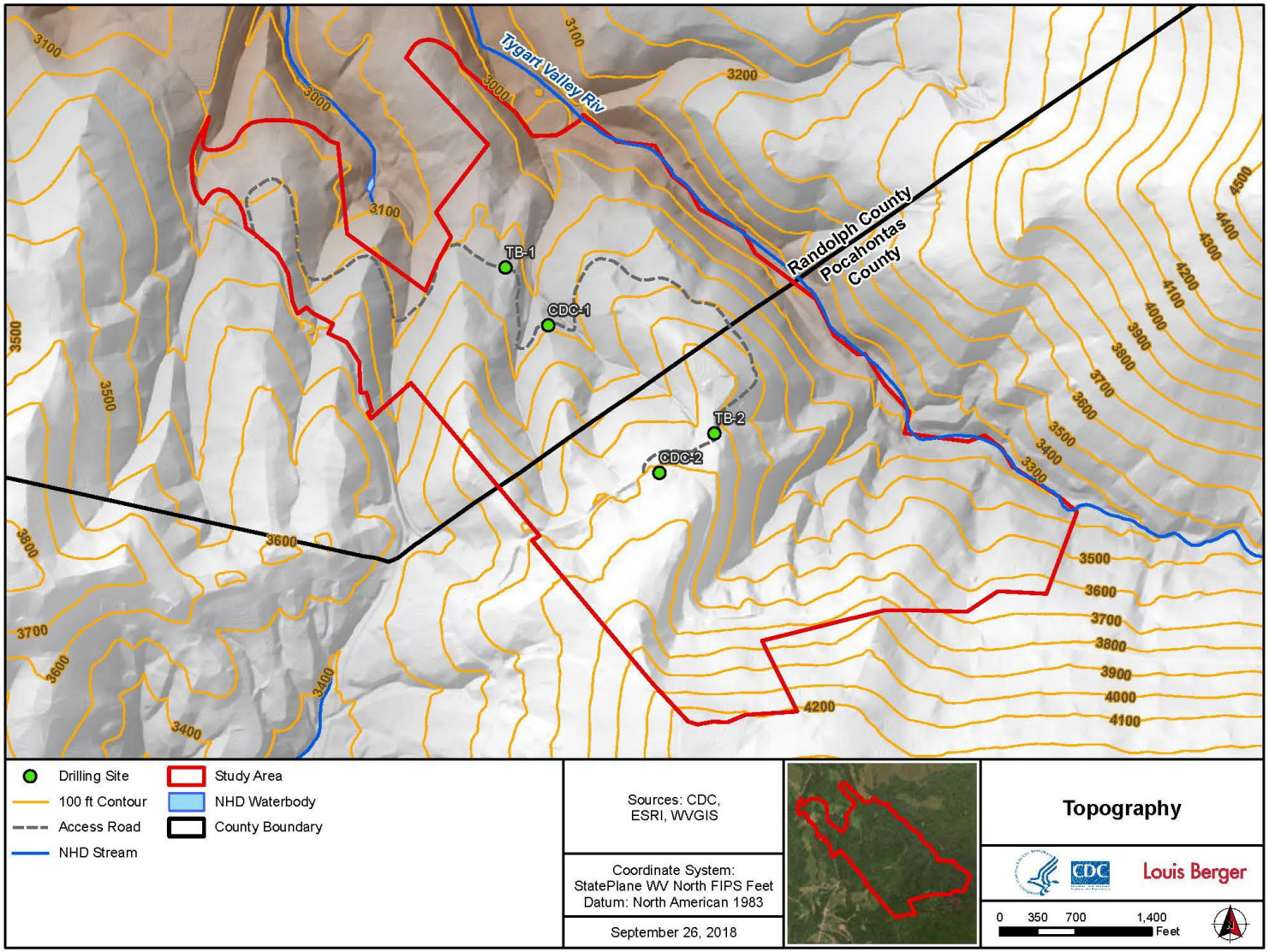
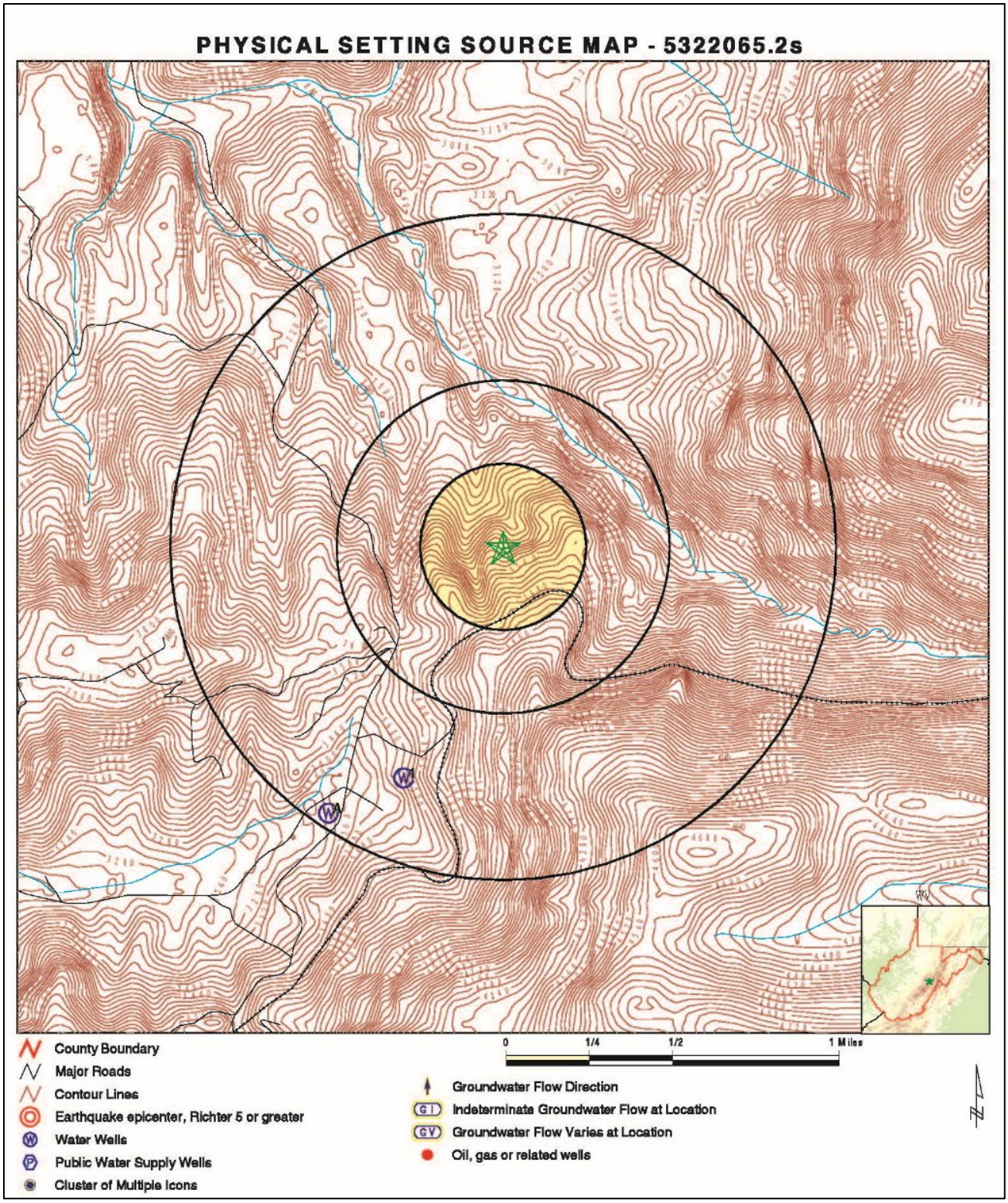


FIGURE 5: TOPOGRAPHY OF THE PROJECT AREA



Source: EDR (2018)

FIGURE 6: GEOTECH WELL SEARCH FINDINGS

2.3.3 Groundwater Use

Moderate to excellent well yields have been reported from the Mississippian aquifer system, regionally. The highest yielding wells are located in the valleys, especially in the western portion of the Greenbrier River Valley. In areas with limestone, yields from springs and wells that tap solution openings range from 1 to 100 gallons per minute (gpm) and may exceed 200 gpm. In karstic aquifers, well yields reflect where they are completed: wells that are completed within large solution openings can produce large volumes of water, whereas a well that penetrates few fractures or solution openings can be virtually dry (Puente 1985). Although yields are generally adequate for domestic, farm, and small commercial supplies, concentrated groundwater withdrawal in the valleys may have negative impacts on streams and wetlands. The Greenbrier Group aquifer can be susceptible to pollution from surface sources from the presence of surface karst features such as solution openings and sink holes that can be direct conduits to groundwater.

The alluvial deposits provide poor to moderate yields of relatively good quality water. Generally, their restricted thickness and aerial extent limit their potential as an exploitable water source. Therefore, while the unconsolidated alluvial deposits can yield sufficient quantities of water for spatially dispersed domestic or farming purposes, they cannot be relied on to provide a water supply that would meet the demands of any extensive development or heavy industrial use. To do so, separate well fields over a large areal extent would be needed for such a water supply development.

Overall, the drawback of using groundwater for a community supply in the alluvial deposits is the relative unknown reliability of wells especially during periods of drought. Also, relying on groundwater to supplement a river intake source could create issues because the groundwater system is the recharge source for the rivers during a drought. Once a drought has occurred and the wells are engaged, the continuous lowering of the water table would eliminate much, if not most, of the stream recharge. Additionally, once the groundwater reservoir is drawn down, recharge of the aquifers in this hydrogeologic setting may take several years or more. The impacts of excessive draw down of the aquifers could include dewatering local perennial streams, many of which are native trout streams that rely on base flow coming from springs supported by the same aquifer system as the wells.

2.3.4 Groundwater Quality

Groundwater quality is generally good, with the exception of elevated iron and chloride contents. Iron concentrations may range up to 10 milligrams per liter (mg/L), but the major limitation with respect to a community water source is the extremely high chloride levels, with local occurrences of up to 7,000 mg/L having been recorded. These high values may be tempered by the median chloride concentration, which is reported as 16 mg/L. An evaluation of available reference material of approximate reliable groundwater yields was performed as part of the Water Resources Plan (Downstream Strategies, LLC n.d.). The lowest yield estimate in the watershed is 0 to 10 gpm and occurs along the ridge bounding the Upper Tygart Valley River watershed. Although a slight improvement is estimated for the valley floor, available well yield data suggests only a 10 to 50 gpm yield is likely. These groundwater yield estimates are based on installation of conventional community water wells and may not be available at all locations (Kozar and Brown 1995).

In Pocahontas County to the south of the site, groundwater quality varies greatly across the county based on a variety of factors. Areas that are conducive to large volumes of seasonal recharge tend to exhibit better groundwater quality, with lower levels of dissolved metals and solids. Areas with low groundwater movement generally tend to exhibit poorer water quality. Although recent groundwater quality data are sparse, historical data (mainly from the 1980s) exist for several sites in Pocahontas County. Because little or no increase in groundwater withdrawals has occurred across much of the

county since the mid-1980s, it is likely that the historical groundwater data still provide a reasonable representation of groundwater conditions across the county. Changes in groundwater quality over time are typically due to changes in the quality of water recharging the aquifer or the withdrawal-induced movement of poorer quality groundwater (West Virginia DEP 2013).

Generally, water resources within karst formations are particularly susceptible to impairment because of the degree of hydrologic connectivity between surface waters and shallow aquifers, where pollution and contaminates can be ready discharged to other springs and seeps in the area. The vulnerability of the surface waters within the project area to contamination is low, with the exception of a few spots along the Tygart Valley River that are considered medium vulnerability (Pocahontas County 2018). Risks (e.g., slope and proximity to streams) and hazards (e.g., land cover, septic system density, and proximity to roads) were analyzed to assess vulnerability.

2.4 Regulated Floodplains in the Project Area

Executive Order 11988, Floodplain Management, requires federal agencies to avoid floodplain development and any adverse impacts from the use or modification of floodplains when a feasible alternative is available. Specifically, Section 1 of the executive order states that an agency is required "to reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by flood plains in carrying out its responsibilities".

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map panels 54075C0235D (effective November 4, 2010) and 54083C0725C (effective September 29, 2010) indicate that the project area does not contain any floodplains (i.e., 100-year or 500-year floodplains) (FEMA 2010a, b). The entire site is in Zone X and is considered an area of minimal flood hazard.

2.5 Impact Analysis

2.5.1 Methodology

The proposed action would develop an underground safety research facility with associated surface structures, an access road, and boundary fence. The majority of the facility would be constructed underground with two entrance/exit locations. Approximately 17,000 to 25,000 GSF of surface structures would be located within a field on approximately 5.5 acres that would need to be partially cleared and graded. An access road already exists within the project area, but it would need to be widened slightly to accommodate construction vehicles. To the extent possible, material removed from underground would be used as fill in the vicinity of the support facilities. The entrance to the underground facility would be located adjacent to the surface facilities. A second entrance/exit to the underground facility would be developed for secondary/emergency use. While there would be no support facilities located at this entrance, additional tree clearing would be required.

The surface water resources analysis evaluates potential impacts on streams, springs, and seeps, including water quality issues related to the acquisition, construction, and operation of a new underground safety research program facility. A qualitative analysis of water resources impacts was based on a review of publicly available data, studies, reports, and water quality standards.

The analysis of potential impacts on wetlands focuses on the expected extent of impacts on wetland functions and values and direct disturbance to the wetland areas. A field survey assessed site topography, soil characteristics, plant communities, and the hydrologic characteristics of the site. The analysis used existing data, studies, reports, and information, including the U.S. Fish and Wildlife Service National Wetland Inventory maps, the USGS National Hydrography Dataset, the U.S. Department of

Agriculture (USDA) Soil Surveys for Pocahontas and Randolph Counties, West Virginia, and USDA National Resource Conservation Service GIS metadata.

The analysis for groundwater impacts relied on information from test borings conducted on the site, consultation with a blast consultant with expertise in karstic environments, and a reconnaissance-level narrative that includes a review and summary of publicly available information and data regarding groundwater as well as results from the aquifer pump test. Groundwater information was available on a regional scale, with very little information available locally for Randolph and Pocahontas Counties.

Because no regulated floodplains exist in the project area, there would be no impacts on floodplains or floodplain values, so an analysis for floodplains is not included.

2.5.2 No-Action Alternative

Under the no-action alternative, there would be no changes to the project area, and no resulting change to existing surface water, groundwater, or wetlands resources. As a result, there would be no impacts on these resources.

2.5.3 Proposed Action Alternative

Surface Water

Construction activities in the project area including land disturbance; clearing, grading; and adding impervious surface for surface structures, road widening, and a fence line buffer could result in potential impacts on surface water resources.

Surface structures for the main aboveground facility would be placed in the large open field located in the northern part of the project area. Additional aboveground structures would be placed at the two underground facility entrance/exit locations to the east and south of the open field. One intermittent stream (S-4) is located in the field near the proposed parking area for the main aboveground facility. Although CDC would make an effort to avoid or minimize disturbance of this stream segment, the analysis assumes it will not be possible to avoid the stream during construction and that the entire stream would be affected.

Construction of the surface facilities and support areas (e.g., parking, road widening, and installation of a fence) would involve clearing 11.71 acres of vegetation (including 6.78 acres of forested land and 4.93 acres of successional old field), grading, and excavation. These activities would disturb soil and increase the potential for erosion and the transport of sediment into surrounding surface waters via overland stormwater runoff, which could result in temporary, adverse impacts on surface waters during construction. Additional temporary, indirect, adverse impacts could result from the operation of construction equipment, which would increase the potential for accidental leaks or spills of fuel, lubricants, or other materials that could contaminate nearby surface water. Implementation of erosion and sediment control practices in accordance with the West Virginia erosion and sediment control manual (WVDEP 2016c) would minimize or avoid these impacts. After construction is completed, there would be a slight increase in impervious surfaces of approximately 1 acre; however, the majority of the disturbed area would be permeable. Impervious surfaces would include a small parking area and the footprints of two support buildings. This increase could result in long-term, adverse impacts from increased stormwater runoff, although implementation of stormwater BMPs would avoid or minimize impacts from stormwater on surface water resources.

Although every practicable effort would be made to avoid the stream at the southern edge of the field during design, this analysis assumes that the construction would result in the loss of the intermittent stream, and impacts would be long term and adverse. If avoidance is not possible, the 38-foot-long

intermittent stream would be filled for the construction of the surface facilities, and impacts on the streambed would be permanent, unavoidable, and adverse. Compensatory mitigation may be required (i.e., creation, restoration, or enhancement) to offset the affected stream length; replace lost functions and values; and minimize long-term, adverse impacts. Compensatory mitigation would be determined during the permitting process.

The access road would be widened and resurfaced from the property entrance to the end of the access road near the railroad track. Road widening would require clearing, grading, and soil disturbance that would increase the potential for erosion and sedimentation of surrounding surface waters, resulting in short-term, adverse impacts. Several intermittent streams would be crossed during road widening, which would require the placement of longer culverts. During culvert placement, the streambed and banks would be temporarily disturbed, which would increase turbidity and result in short-term, adverse impacts. These impacts would be minimized through the implementation of instream sediment and erosion controls. Impacts on streams would be minimal, permanent, direct, and adverse because the new culverts would be larger and would replace a small amount of stream area at each culvert. Appropriate culvert sizing and placement would prevent erosion and adverse impacts on stream hydrology, resulting in no long-term impacts. Similarly, construction of the fence and new access road to the second facility entrance would cross one perennial stream with a wetland on either side. The access road would be raised or bridged in this location to avoid impacts on the wetland and stream. Construction and erosion and sediment control practices would be used, and applicable guidelines for vegetative buffers would be followed adjacent to streams.

The excavation for and construction of a new underground safety research facility is not anticipated to affect the quality of surface water resources over the long term. Except for some minimal surface construction surrounding the entrances/exits to the research facility, as discussed above, construction activities would occur from an existing rock outcrop to approximately 500 feet underground. During construction of the underground safety research facility, impacts on surface water quality could be temporary and adverse from sediments or other pollutants discharged during excavation; use of equipment; and associated handling and storage of spoil, waste, and debris. These temporary impacts, including mitigation measures, are described under the groundwater analysis.

Several federal and state permits may be required, depending on the final design of the proposed alternative, including a USACE CWA Section 404 permit for the loss of approximately 38 linear feet of streambed and for discharge of dredged or fill material, and a Section 401 Water Quality Certification administered by the state. All permitting activities would occur during the design phase. If USACE considers the waters non-jurisdictional, a WVDEP State Waters Permit may also need to be submitted. A WVDNR Stream Activity Application may be required for construction activities that occur within the normal high water mark of affected streams. Construction would disturb more than 1 acre of land; therefore, the project would require an NPDES Construction Stormwater General Permit. Compliance under this permit would require development of a stormwater pollution prevention plan (SWPPP) and groundwater protection plan (GPP), as well as implementation of stormwater BMPs to prevent water quality impacts. Stormwater runoff would be managed on-site in compliance with WVDEP and Section 438 of the Energy Independence and Security Act of 2007. Adherence to the water quality regulations and permitting requirements, and implementation of management plans, an SWPPP, and BMPs that reduce stormwater runoff and associated erosion, pollution, and sedimentation would minimize and prevent any indirect pollutant loading to surface waters, resulting in short-term, adverse impacts on surface waters.

BMPs and measures to minimize and control sediment and erosion include the use of silt fences, check dams, sediment traps and basins, vegetated buffer strips, temporary seeding and mulching, erosion

control fabric, temporary diversions, inlet/outlet protection, and riprap. Following construction, temporarily disturbed areas would be revegetated or stabilized using seeding and mulching, planting, or sodding. Other practices include diverting stormwater runoff away from disturbed areas and, where feasible, preserving topsoil and minimizing soil compaction and disturbance on steep slopes. If construction must occur on steep slopes, such as along the existing access road, steep slope construction guidelines would be followed.

While construction of the Proposed Action Alternative would result in the loss of 38 linear feet of an intermittent stream, overall impacts on surface waters would not have observable consequences on a regional scale and would not be frequently altered from desired conditions. The Proposed Action Alternative would not result in the exceedance of water quality standards or criteria.

Wetlands

Construction would involve clearing less than 12 acres of vegetation and grading activities. These activities would disturb soil and increase the potential for erosion and the transport of sediment into the wetland via overland stormwater runoff, possibly resulting in temporary, indirect, adverse impacts, although the use of sediment and erosion control BMPs would minimize or prevent these impacts.

Widening the access road from the project area entrance to the railroad and constructing the proposed access road would result in both short- and long-term, adverse impacts on three wetlands (W-1, W-2, and W-3). In addition to soil compaction and disturbance to the area surrounding the existing access road, widening would require clearing, grading, filling, and covering less than 0.001 acre of the wetlands, resulting in direct, long-term, adverse impacts. Wetland functions would be degraded. Temporarily disturbed wetland areas would be restored to their original, pre-construction contours and revegetated. However, permanent, unavoidable, adverse impacts on less than 0.001 acre of wetlands would occur from road widening. This permanent loss of wetlands may require compensatory mitigation (i.e., creation, restoration, or enhancement) to offset the affected wetland acreage, replace lost functions and values, and minimize long-term, adverse impacts. Similarly, the construction of the new access road would traverse W-2, located on either side of a perennial stream. In this location, the access road would be elevated to avoid impacts, but approximately 0.02 acres of the wetland would be shaded by approximately 50 linear feet of the raised structure. Therefore, road widening would result in minor, short-term, adverse impacts from temporary disturbance to wetland functions and values and water quality issues, and minor, long-term, adverse impacts from lost wetland area and wetland functions and values.

Additional temporary, adverse impacts could result from water quality issues from accidental leaks or spills of fuel, lubricants, or other materials from the operation of construction equipment. If construction cannot avoid wetlands, a federal CWA Section 404 permit for discharge of dredged or fill material and a Section 401 Water Quality Certification administered by the state would be required. As noted above, an NPDES permit may be also required. Compliance with this permit would require development of an SWPPP and GPP, as well as implementation of stormwater BMPs to prevent water quality impacts. However, adherence to the water quality regulations and permitting requirements and implementation of management plans, an SWPPP, and BMPs would minimize indirect pollutant loading to the wetlands, resulting in negligible, short-term, adverse impacts.

Because of the location of the wetlands, the depth of the construction of the underground safety research facility, and the topography of the Site, it is unlikely that groundwater in the vicinity of the underground activities provides the primary hydrology sources for wetlands in the project area.

Although 0.001 acres of wetlands would be permanently lost, overall impacts on wetlands would be minor because large amounts of wetland area and/or the wetland functions would not be substantially altered.

Groundwater

Land disturbance, clearing, grading, adding impervious surface for surface structures, road widening, and a fence line buffer could result in potential impacts on groundwater resources such as wells and springs by altering groundwater recharge and potential contamination by sediment and other pollutants.

Tunneling activities and detonations associated with the construction of the underground safety research facility could result in impacts on groundwater resources, including wells, springs, and other local groundwater sources by altering the current groundwater flow. Any impacts on groundwater resources would be short term during the construction period or long term from the installation of a new underground structure within the karst topography. Borings in two locations at the proposed underground safety research facility confirm the top of the Greenbrier Limestone begins between 320 and 470 feet below the surface, depending on the elevation of the boring. The average thickness of the Greenbrier Limestone is 477.5 feet. The height and width of the underground facility would be small compared to the overall thickness of the limestone. Given the topography of the site, the depth of nearby wells, and the overall thickness of the Greenbrier Limestone, the presence of the underground safety research facility is not anticipated to noticeably alter the flow pattern or volume of groundwater.

Excavation and construction of the underground safety research facility would likely require dewatering. Groundwater from dewatering activities would be pumped to areas that would be contained without any adverse effects on receiving waters or to a sediment-trapping device prior to release to existing streams at rates that would not cause downstream erosion. No water would be discharged during construction without acquiring the necessary state and/or local permits.

In addition to collecting and treating all water, project specifications would include strict controls regarding types of allowable explosives to prevent loss of nitrates or ammonia to groundwater. Construction contract provisions would require the use of fixed-cartridge explosives to prevent spillage that could occur with the use of bulk explosives. Contractors would also be required to keep spill clean-up kits on-site so spills of hydraulic fluid, oil, or other contaminants from drilling or excavation equipment could be immediately contained and cleaned up in place.

A GPP would be prepared and implemented as part of the construction stormwater permit to provide practices and procedures to prevent groundwater and soil contamination. While dewatering could modify aquifer hydraulics by acting as a sink for local groundwater or potentially cause sinkholes to develop at the surface, these impacts would be short term. No drawdown of off-site wells was observed during the aquifer pump test, indicating a low potential for hydraulic connection between on- and off-site wells. This low potential makes it unlikely that construction activities would affect the ability of adjacent private wells to produce water.

Several wells or springs providing residential water have been noted near the project area, and CDC anticipates using on-site wells to provide potable water for the surface buildings and research facility. The facility could also use water from the Colonel Samuel B. Marshall spring, which is located close to the proposed surface facilities. No water would be used during operation of the underground facility; the fire suppression facility would recycle water, so water use would be minimal, based on previous operations at the LLEM, resulting in minor to no impacts on groundwater use. Given the topography and minimal profile of the proposed underground construction as well as the low transmissivity of the aquifer, it is unlikely that the placement of the underground safety research facility would alter the

groundwater flow to the extent springs or wells would no longer receive sufficient groundwater. While adverse impacts and alteration of groundwater flow is unlikely, CDC/NIOSH recognizes the concerns of the community and the unknowns related to karst topography. To ensure residents maintain adequate water supply, CDC/NIOSH would extend the public water supply, pending authority to expend federal funds as noted in Chapter 2 of the Final EIS. Given the historical low volume of groundwater available in some areas of the Pocahontas Public Service District, reducing the number of residences relying on wells or springs could increase groundwater supply, resulting in beneficial impacts.

2.6 Mitigation Measures and Best Management Practices

Mitigation measures would be used to offset and decrease the intensity of impacts that could not be avoided. BMPs would be used to avoid or minimize potential impacts.

2.6.1 Surface Water

- Implement mitigation measures in accordance with any necessary wetland and stream permits, such as Section 404 permits, related to fill or instream work to install new culverts. Mitigation could include creation, restoration, or enhancement of wetlands or streams.
- Comply with all erosion and sediment control requirements to minimize impacts on water quality.
- Use stormwater management BMPs to manage water quantity and water quality after construction.
- Require contractors to use fixed-cartridge explosives that prevent spillage that could occur with the use of bulk explosives. Require contractors to keep spill clean-up kits on site so spills of hydraulic fluid, oil or other contaminants from drilling or excavation equipment can be immediately contained and cleaned up in place.
- Revegetate cleared areas around the proposed fence line to stabilize soils and prevent erosion and sedimentation that could result in water quality impacts.

2.6.2 Groundwater

- Extend the public water supply from the Pocahontas PSD and connect all residents within a 1-mile radius of the Site to public water.
- Sample wells within a 1-mile radius of the Site before, during, and after construction, if authorized by homeowners.

2.6.3 Wetlands

- Section 404 of the Clean Water Act requires projects that affect wetlands to follow the sequential process of avoiding adverse impacts, then minimizing impacts not practicably avoided, and finally compensating for impacts that cannot be further minimized through wetland mitigation (i.e., compensatory mitigation). Compensatory mitigation for impacts on aquatic resources authorized by the Clean Water Act (33 United States Code § 1251 et seq.) is accomplished through wetland creation, restoration, or enhancement projects; purchase of credits from a mitigation bank; monetary compensation; or participation in the West Virginia In-Lieu Fee Mitigation Program.

3 CONCLUSIONS

Overall impacts on surface water resources would mainly be temporary and minimal, although it is assumed that a 38-foot intermittent stream segment would need to be filled, which would result in a permanent, adverse impact. During construction, short-term, adverse impacts on surface water resources could result from stream disturbance and sediment and other pollutant loading during various land- and stream-disturbing activities. While construction of the Proposed Action Alternative would result in the loss of 38 linear feet of an intermittent stream, overall impacts on surface waters would not have observable consequences on a regional scale and would not be frequently altered from desired conditions. The Proposed Action Alternative would not result in the exceedance of water quality standards or criteria.

There would be no impacts to floodplains because there are no 100-year floodplains located within the project area.

Overall impacts on wetlands would mainly be temporary and minimal from wetland disturbance and sediment and other pollutant loading during various land- and stream-disturbing activities during construction. Although 0.001 acre of wetlands would be permanently lost from filling the stream section, overall impacts on wetlands would be minor because large amounts of wetland area and/or the wetland functions would not be substantially altered.

Implementation of erosion and sediment control BMPs and compliance with applicable regulations, water quality standards, and permits would minimize the short-term, adverse impacts from construction. Permanent disturbances, such as the loss of the 38-foot section of intermittent stream, would require compensatory mitigation to offset the affected stream length, replace lost functions and values, and minimize impacts, which would result in in minor, long-term, adverse impacts.

Overall impacts on groundwater would be minor. Tunneling activities and detonations associated with the construction of the underground safety research facility could result in impacts on groundwater resources by altering the current groundwater flow. Given the topography and minimal profile of the proposed underground construction as well as the low transmissivity of the aquifer, it is unlikely that the placement of the underground safety research facility would alter the groundwater flow to the extent springs or wells would no longer receive sufficient groundwater. While adverse impacts and alteration of groundwater flow is unlikely, CDC/NIOSH recognizes the concerns of the community and the unknowns related to karst topography. To ensure residents maintain adequate water supply, CDC/NIOSH would extend the public water supply, pending authority to expend federal funds.

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APPENDIX H: AQUIFER PUMP TEST REPORT

Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health

Acquisition of Site for Development of a Replacement Underground Safety Research Program Facility in Mace, West Virginia

Aquifer Pump Test Report

May 2021

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ACRONYMS AND ABBREVIATIONS

bgs	belowground surface
CDC	Centers for Disease Control and Prevention
CVAA	cold vapor atomic absorptions spectrometry
EPA	United States Environmental Protection Agency
ft^2/day	square feet per day
gpm	gallons per minute
GSA	General Services Administration
Hyre's	Hyre's Well & Pump Service
ICP/MS	inductively coupled plasma/mass spectrometry
NIOSH	National Institute for Occupational Safety and Health
SM	Standard Method
TAL	Target Analyte List
U.S.	United States
USGS	United States Geological Survey
WSP	WSP USA, Inc.

EXECUTIVE SUMMARY

The Centers for Disease Control and Prevention (CDC), in cooperation with the U.S. General Services Administration, is considering the acquisition of a site in eastern West Virginia for the development of a new underground safety research facility for the National Institute for Occupational Safety and Health. The Site is located to the east of U.S. Route 219 (Seneca Trail) and the unincorporated community of Mace and comprises five properties in Randolph County and one in Pocahontas County, which total 461.35 acres (the Site).

WSP USA, Inc., (WSP) conducted a preliminary groundwater investigation to assess the potential for the construction and operation of the new facility to adversely affect the supply to and operation of residential drinking water wells located in the vicinity of the project area. Based on review of site characteristics and previously conducted studies, as well as discussion with the CDC, an aquifer pumping test with three borings was completed.

Three bedrock monitoring wells were advanced to study groundwater resources at the Site. WSP conducted a 12-hour constant rate aquifer test between November 20 and November 21, 2020. The results of the bedrock drilling and aquifer testing investigation show:

1. In the vicinity of the proposed surface facility, the Greenbrier Formation is highly competent and sparsely fractured based on the drilling observations and review of boreholes previously advanced by others.
2. The sustainable pumping rate at the Site is less than 1 gallon per minute (gpm). For future property use, the Site aquifer may be of limited value as a water resource but may be useful for intermittent water demands.
3. The monitoring wells were not hydraulically influenced by the pumping well, indicating a low potential for hydraulic connection between the on- and off-site wells. This low potential makes it unlikely that construction activities would affect the ability of adjacent private wells to produce water.
4. A transmissivity value of 0.5 square feet per day (ft^2/day) was derived for this singular point within the bedrock using the drawdown data. This is an order of magnitude lower than the minimum transmissivity reported from a U.S. Geological Survey study of 15 wells within the Greenbrier Formation. The hydraulic conductivity was estimated to be $2x10^{-3}$ ft/day. This value is in the low-end range of sandstone and approaching the high-end range of unfractured metamorphic and igneous rock.
5. Analytical results indicted the presence of naturally occurring constituents in groundwater at levels below the West Virginia Groundwater Quality Standards, suggesting that Site groundwater has not been affected by local activities.

1 INTRODUCTION

The Centers for Disease Control and Prevention (CDC), in cooperation with the United States (U.S.) General Services Administration (GSA) is considering the acquisition of a site in eastern West Virginia for the development of a new underground safety research facility for the National Institute for Occupational Safety and Health (NIOSH). The site is located to the east of U.S. Route 219 (Seneca Trail) and the unincorporated community of Mace, West Virginia. The site comprises five properties in Randolph County and one in Pocahontas County, which total 461.35 acres (the Site). Figure 1-1 illustrates the Site, the orientation of the proposed underground safety research facility and associated surface facilities, the county boundary, and the area transportation network.

The CDC retained WSP USA, Inc., (WSP) to conduct a preliminary groundwater investigation to assess the potential for the construction and operation of the new facility to adversely affect the supply to and operation of residential drinking water wells located in the vicinity of the project area. Based on a review of site characteristics and previously conducted studies, as well as discussion with the CDC, the scope of the investigation was determined to be an aquifer pump test. An aquifer test is a traditional approach to evaluate hydraulic characteristics, using drawdown measurements collected from monitoring wells oriented around a pumping well. The measurements can be used to derive hydraulic parameters that can be used to model sustainable well yields and simulate groundwater flow.

This report summarizes well drilling and installation activities and the results of the aquifer test conducted at the Site from November 9 through 22, 2020. The aquifer test was conducted in accordance with the Aquifer Test Work Plan (WSP, 2020) that CDC and NIOSH approved prior to testing.

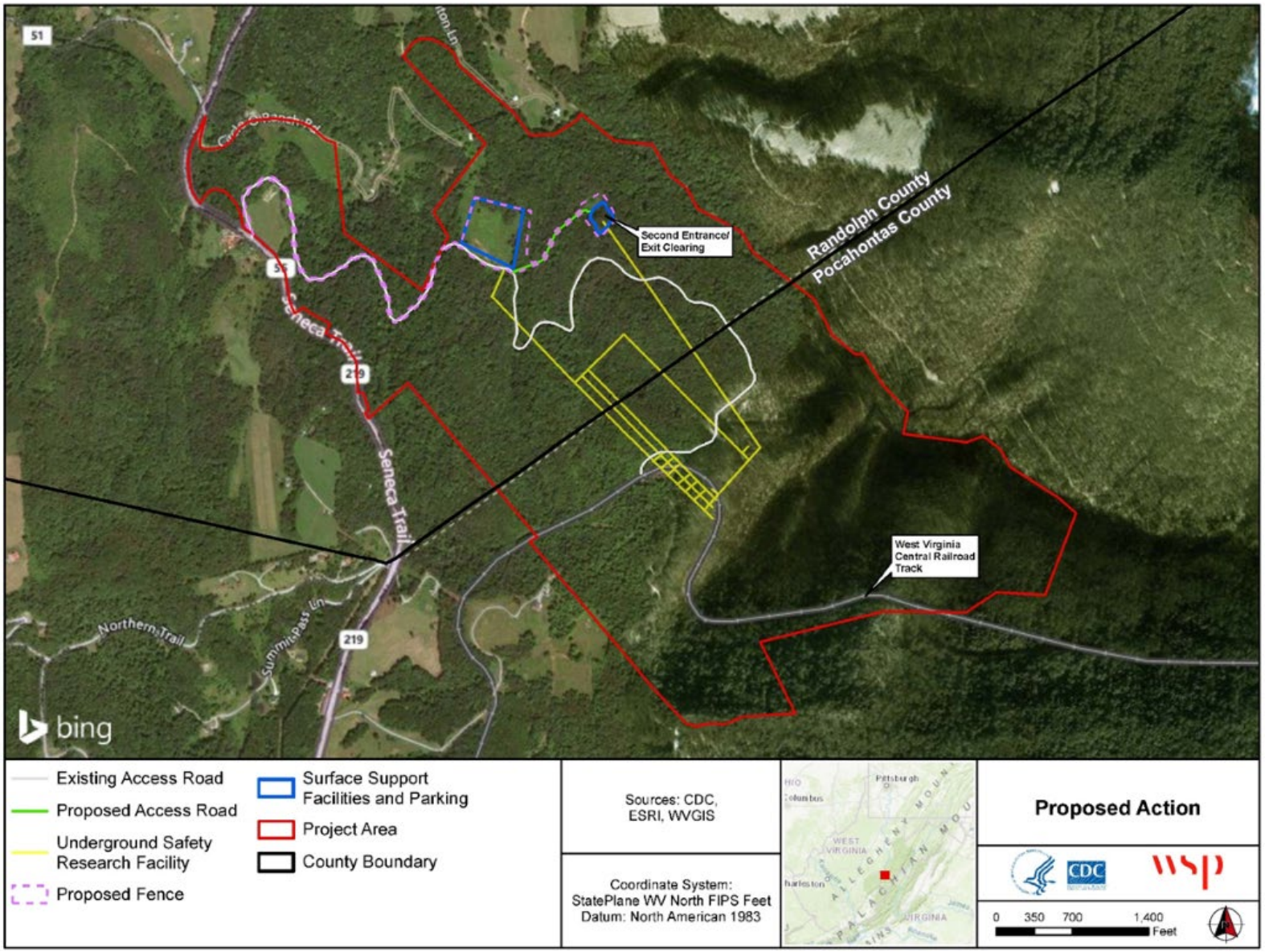


Figure 1-1. Conceptual Layout

2 EXISTING CONDITIONS

2.1 Geology

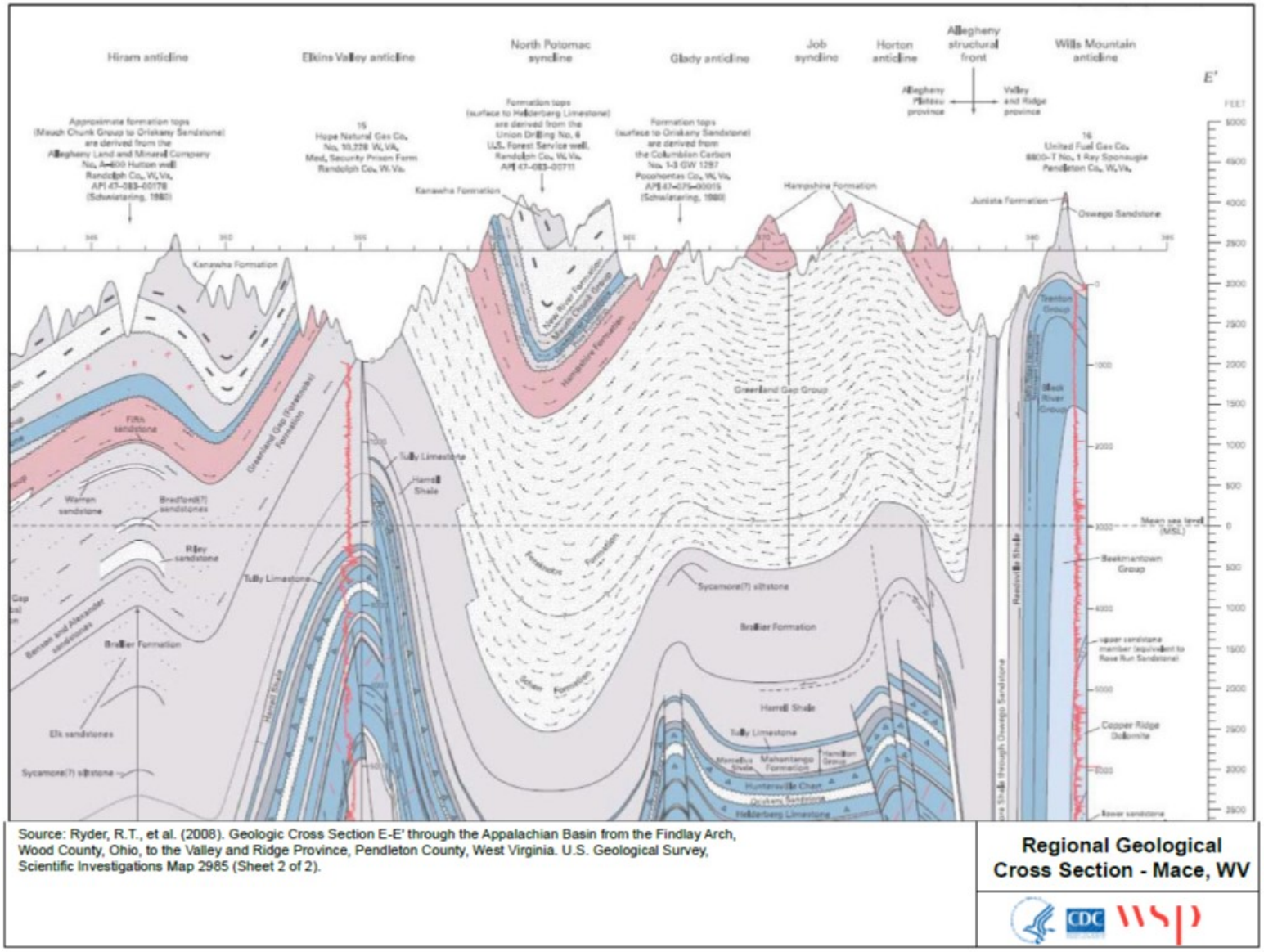
The project area is located on the border of two physiographic provinces, including one subprovince. The Appalachian Plateau physiographic province and Allegheny Mountain Section subprovince are to the west. The Allegheny Mountain Section is characterized by a series of rugged, high plains located on the western side of the Appalachian Highlands mountain range that extends along the entire east coast of the United States. The eastern portion of the project area is within the Valley and Ridge physiographic province, which is characterized by the long north-northeasterly ridges of the Appalachian Mountains separated by fertile valleys. The rocks near the project area are a combination of the stratigraphic characteristics of these provinces, including the severely eroded, westward-tilting plateau of sedimentary strata of the Appalachian Plateau and the tightly folded and faulted rocks of the Valley and Ridge physiographic province (WVGES, 2017).

The bedrock across most of the state consists of sedimentary rocks that were deposited during geologic periods when shallow marine seas covered the state or during a series of mountain-building events. Marine and non-marine depositions during this era include limestones, shales, siltstones, sandstones, terrigenous red beds (red-colored marine-deposited sedimentary beds), clastics (pieces of older broken rocks cemented in a fine grain matrix), carbonates, and coal (WVGES, 2017). The development of the Appalachian Mountains resulted in the deformation (mostly folding and thrust faulting) and erosion of the existing sedimentary rocks and intrusion of igneous dikes. Following the mountain-building, the area has been geologically quiet with only the accumulation of alluvium from weathering and erosional processes. The alluvial deposits generally consist of an assortment of sand, gravel, silt, and clay. Locally, the bedrock is composed primarily of the sedimentary strata that were deposited in shallow marine seas and later folded during the mountain-building episode (Figure 2-1) (WVGES, 2017).

The project area is located near the mapped extents of various anticlines, or folds that slope downward from a common crest. The rocks, which are composed of green sandstones and shales, are often characterized as flagstones and alluvium along the Tygart Valley River. The folds tend to follow a northeasterly-southwesterly trend that align with the structural grain of the physiographic province (USDA-NRCS, 2001). The formations present at the project area, from oldest to youngest, are the Pocono Formation (Lower Mississippian Period), the Greenbrier Limestone (Middle Mississippian Period), and the Hinton Formation and Bluestone, Princeton Formation of the Mauch Chunk Group (Upper Mississippian Period;) (WVGES, 2017). Study area geology is shown on Figure 2-2 (Note: the drilling sites shown on the figure are from the previous investigations).

Other than the northernmost part of the project area, the remaining northern half of the property is largely underlain by the Greenbrier Limestone. The Greenbrier Limestone is a marine limestone interbedded with marine and non-marine red and grey shale and minor sandstone. Near the project area, the limestone's distinguishing characteristics are described as soft, oolitic (sphere-like), and susceptible to weathering and erosion. Generally, because of its susceptibility, the Greenbrier Limestone forms karst terrain. Karst terrain is characterized by numerous caves, crevices, cavities (voids), fractured rock, disappearing streams, sinkholes, and springs. Karst features are well developed in the Greenbrier Limestone because it is sandy and fossiliferous rather than having an interlocking crystalline texture. Fracture openings in the limestone aquifer generally are enlarged from long-standing dissolution of the

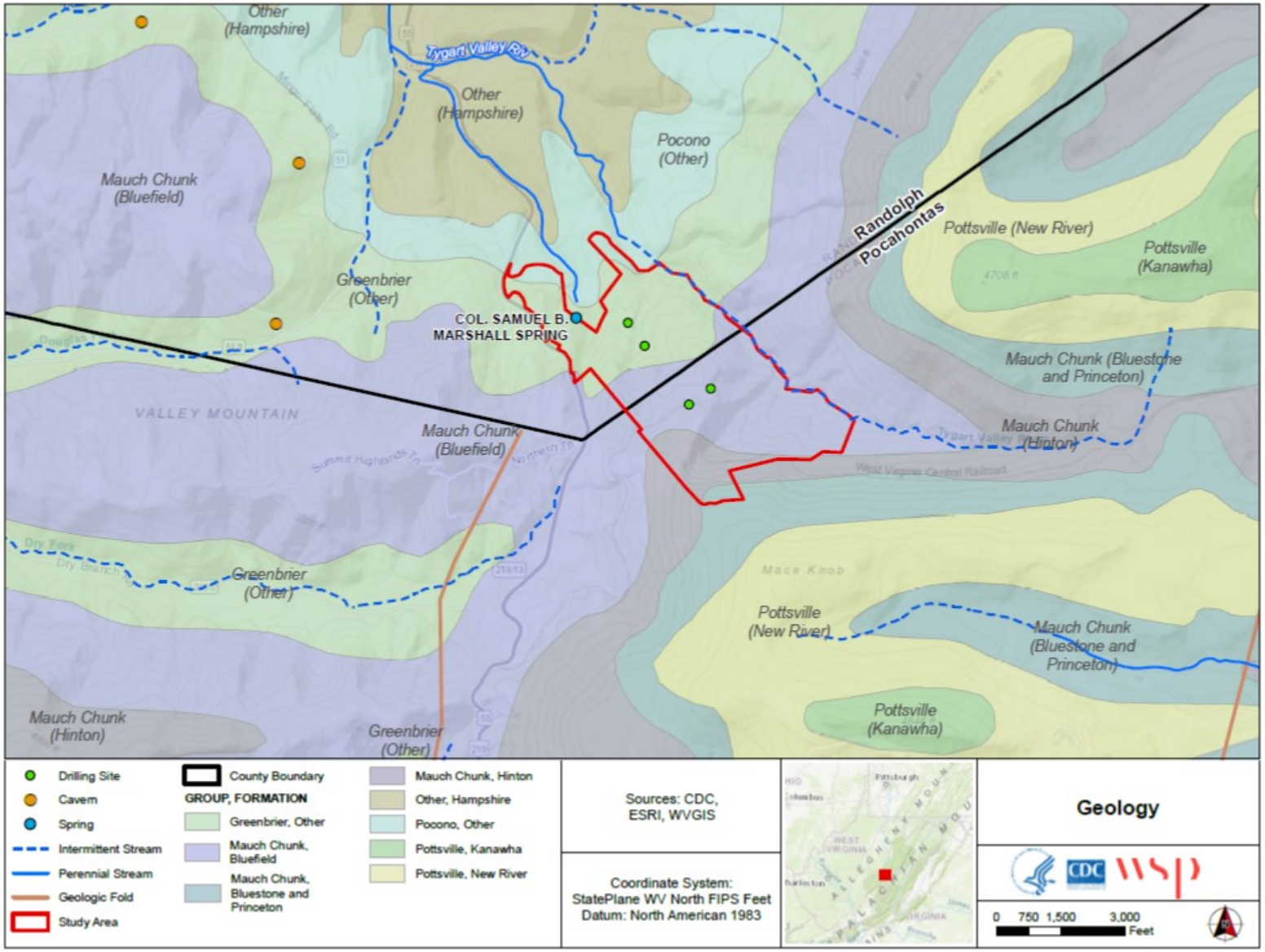
carbonate rock (Kozar & Brown, 1995). Rock coring completed at the site indicates the Greenbrier Limestone is encountered beginning at approximately 20 feet belowground surface (bgs) and extends to depths between 220 and 720 feet bgs. In some cases, the top of the Greenbrier layer is much deeper (EarthTech, Inc., 2018). Overlying the Greenbrier Limestone and outcropping in the southern half of the site is the Mauch Chunk Group. Both formations within the group are described as being red-grey shale and sandstone with few thin limestone lenses (WVGES, 2017). Study area geology is shown on Figure 2-2.



Source: Ryder, R.T., et al. (2008). Geologic Cross Section E-E' through the Appalachian Basin from the Findlay Arch, Wood County, Ohio, to the Valley and Ridge Province, Pendleton County, West Virginia. U.S. Geological Survey, Scientific Investigations Map 2985 (Sheet 2 of 2).

Regional Geological Cross Section - Mace, WV

Figure 2-1. Regional Geological Cross Section



Note: The drilling sites shown are from previous investigations.

Figure 2-2. Study Area Geology

2.2 Hydrogeology

The regional aquifers of the Greenbrier and Mauch Chunk Groups are unconfined at shallow depths and confined at greater depths. Aquifer unit thicknesses typically range from 50 feet to 200 feet and are occasionally known to exceed 300 feet. In the northern portion of the project area, where the Greenbrier Limestone is the surficial bedrock unit or where it is overlain by thin strata, the topography is karstic and permeable. In the southern half of the project area, the Mauch Chunk Group overlies the Greenbrier. Locally, the Mauch Chunk Group is described as relatively impermeable and is not recognized as a major source of extractable groundwater (USGS, 1997).

The regional aquifer systems are recharged from precipitation, baseflow, or underflow from adjacent units. According to the U.S. Geological Survey (USGS) (USGS, 2001), the Monongahela River watershed has a mean annual recharge of approximately 21 inches/year. The actual recharge rate within the watershed can vary by location and depends on many factors, including surficial rock type, thickness of soil cover, soil type, vegetative cover, position with respect to valleys and mountaintops, climate, and impervious surfaces. Most of the precipitation that reaches the ground surface runs rapidly off the slopes, discharging to the nearest surface water feature. The precipitation that does infiltrate the ground surface migrates under the influence of gravity through the weathered bedrock, following a horizontal path before descending vertically along deeper fractures to the next permeable horizontal feature or unit (USGS, 1997). The general flow pattern lends itself to the formation of springs and seeps, where permeable water-bearing material reaches the ground surface.

The hydraulic characteristics of the regional aquifer system are complicated by differences in hydraulic connections and water-bearing properties. Although the regional aquifers are recharged by the infiltration of water from precipitation, additional recharge into valleys by the gravitational flow of groundwater from adjacent hillsides may result in potentially higher yields in wells located in low-lying areas. The higher yields may also be augmented by the concentration of stress-relief fractures that enhance permeability and are commonly associated with regional valley floors. On a regional scale, the fractures and dissolution (karstic) features provide a small void space for groundwater relative to the intergranular space of the bedrock matrix. Though occupying a small proportion of the bedrock, the groundwater within the fractures and dissolution (karstic) features is more easily released and provides the dominant volume of water to wells (transmissivity) because the water within the granular matrix is not easily released. Additionally, shale units fracture more easily into an interconnected fracture network, relative to the predominant limestone, therefore providing a notable source of groundwater (USDA-NRCS, 2001).

The local aquifer system near the project area consists of the karstic Greenbrier Formation and is recharged though infiltration of precipitation. Karst features are well developed in the Greenbrier Limestone because it is sandy, fossiliferous, and characterized by dissolution of the carbonate rock. There are seven known caves within the Site and eight located just off the property.

As shown on Figure 2-2, the Colonel Samuel B. Marshall spring is mapped near the northern portion of the Site. Limited information is available about wells and springs used for potable purposes near the project area but, in general, groundwater is relied on for local community water supply. Two USGS wells were identified within a 1.0-mile radius, located southwest of the Site. There are 30 residential parcels within a 1-mile radius of the project area. Information from the Pocahontas and Randolph County Health Departments regarding residential wells was either unavailable or incomplete. CDC requested

homeowners to voluntarily provide their well information for inclusion in the analysis. The residential water information is known for 12 of the 30 residences. Two adjacent properties do not have wells but rely on springs or underground streams for residential use. The other ten properties have wells that range in depth from 165 feet bgs to 700 feet bgs. Three parcel owners also provided that their wells provide water at a rate between 10 to 30 gallons per minute. Groundwater flows from karst vary due to the variable nature of the rock itself.

Generally, the highest yielding wells associated with the regional aquifers are located in the valleys. The production of limestone aquifers varies depending on where the well is located. A well completed in a large dissolution opening could produce large volumes of water, but one that penetrates few fractures or solution openings could be almost dry (Puente, 1985). Although well yields when supplemented with a storage tank are generally adequate for domestic, farm, and small commercial supplies, concentrated groundwater withdrawal in the valleys may have negative effects on streams and wetlands. The alluvial deposits provide poor to moderate yields of relatively good quality water. Generally, their restricted thickness and aerial extent limit their potential as an exploitable water source except for spatially dispersed domestic or farming purposes. Alluvial deposits typically have relative unknown reliability during periods of drought, and excessive draw down of the aquifers could dewater local perennial streams that rely on baseflow from springs.

Groundwater quality near the project area is generally good apart from elevated iron and chloride contents. In Pocahontas County to the south of the project area, groundwater quality varies greatly across the county. Areas that have a lot of seasonal groundwater recharge tend to exhibit better groundwater quality with lower levels of dissolved metals and solids, whereas areas with low groundwater movement generally exhibit poorer water quality. Changes in groundwater quality over time are typically due to changes in the quality of water recharging the aquifer or the withdrawal-induced movement of poorer quality groundwater (WVDEP, 2013). Furthermore, the Greenbrier Group aquifer can be susceptible to pollution from surface sources from the presence of surface karst features such as solution openings and sink holes that can be direct conduits to groundwater.

2.3 Previous Site Investigations

Two separate boring surveys previously characterized the bedrock beneath the site. Two of the four borings installed during these investigations, TB-1 and CDC-1, were advanced through the Greenbrier Formation. Boring locations are shown on Figure 2-3. TB-2 and CDC-2 were advanced through the Mauch Chunk Group.

2.3.1 TB-1

TB-1 was advanced to a depth of 245 feet bgs from August 9 to 10, 2017, using diamond coring techniques (Earthtech, 2017). This borehole is situated approximately 500 feet southeast of the aquifer test well cluster. The goal of the investigation was to characterize the thickness, depth, rock quality designation, and rock mass rating of the Greenbrier Formation which underlies the site. The results indicated that most of the rock core sequence at this location was predominantly gray limestone that was divided into two sub-units. The first unit had a recovery of nearly 100 percent, a rock quality designation of 95 to 100 percent, and an overall rock mass rating of 83 (Class I, very good). The lower unit had a recovery of 100 percent, and rock designation quality of 95 to 100 percent (very good) and an

overall rock mass rating of 87 (Class I, very good). There was no clear indication of groundwater encountered in the boring (Earthtech, 2017).

2.3.2 CDC-1

CDC-1 was advanced to a depth of 315 feet bgs from August 6 to 8, 2018, using air rotary techniques. This borehole was situated approximately 3,000 feet southeast of the aquifer test well cluster. The boring log indicates predominantly gray limestone with occurrences of red limestone, red siltstone, and green siltstone lithology. On August 20, 2018, THG Geophysics collected several borehole geophysical logs to characterize boreholes (THG Geophysics , 2018). Only one open fracture was observed through the length of the borehole at 306.2 feet bgs. The geophysical log shows the water level in the boring was 234 feet bgs at the time of logging.

2.3.3 Findings

The characteristics identified during advancement of borings TB-1 and CDC-1 suggest that the Greenbrier Formation underlying the site is highly competent with limited fractures and no apparent dissolution features to provide significant groundwater transmissivity to groundwater wells.

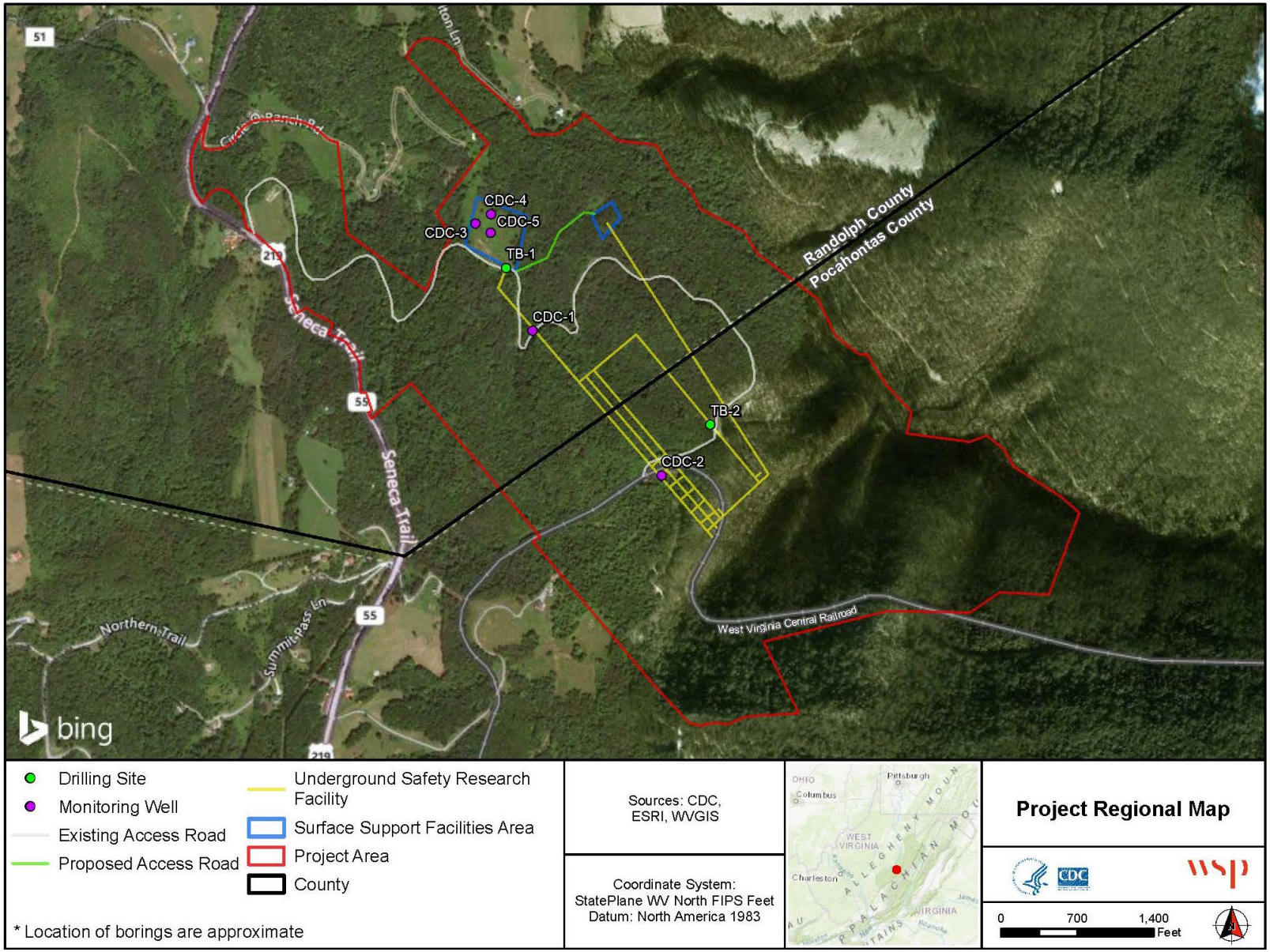


Figure 2-3. Drilling and Monitoring Locations

3 WELL DRILLING AND INSTALLATION

Drilling and installation activities for the three new wells began on November 10, 2020, and were completed on November 18, 2020. As specified in the work plan, three boreholes oriented in a right-angle configuration were installed and completed as monitoring wells in accordance with West Virginia State Regulations: 64CSR46-Water Well Design Standards and 64CSR19 – Water Well Regulations. These wells were designated CDC-3, CDC-4, and CDC-5.

The new wells were placed to the north of the cleared and relatively flat portion of the site identified in Figure 1-1 for the development of surface infrastructure (office space, control facilities, storage, parking area), near the entrance to the proposed underground facility and approximately 5,300 feet along a laneway from Seneca Trail. Figure 3-1 presents the layout of the new wells; the locations of previously drilled boreholes TB-1 and CDC-1 are shown on Figure 2-3.

3.1 Drilling

Hyre's Well & Pump Service (Hyre's) of Rock Cave, West Virginia, conducted the well drilling using air rotary/water injection techniques under the supervision of WSP field hydrogeologists. On November 10, 2020, Hyre's mobilized the drill rig (Ingersoll Rand TH-60) to the site. The well casings were constructed with galvanized steel pipe and installed to a depth of 20 feet bgs with an 8-inch hammer rotary bit and grouted into the bedrock. The boreholes were then drilled to the well completion depth with a 6-inch hammer rotary drill bit.

The supervising WSP field hydrogeologists recorded all pertinent drill cutting details, drilling notes, and well construction details. For more information regarding well construction, see Table 3-1. The borehole was periodically assessed for signs of groundwater throughout the drilling process as described below in Section 4.1. The boreholes were terminated based on the field observations of lithology and apparent well yield.

The geological boring logs are included as Appendix A.

3.1.1 CDC-3

CDC-3 was installed from November 16 to 18, 2020. Bedrock was encountered at a depth of 3 feet bgs, and the final well depth measured 420 feet bgs. This boring lithology was predominantly pale brown limestone, with many occurrences of dark gray, moderate reddish-brown sandstone, and a thin occurrence of a soft white sandstone.

Groundwater was encountered from 58 to 64 feet bgs, and the total well yield was estimated to be 1.2 gallon per minute (gpm). The water level did not stabilize over the course of the test.

3.1.2 CDC-4

CDC-4 was installed from November 13 to 14, 2020. Bedrock was encountered at a depth of 4 feet bgs, and the final well depth measured 460 feet bgs. This boring lithology was predominantly pale brown limestone, with a few occurrences of dark gray and moderate reddish-brown sandstone.

No noticeable transmissive feature was encountered over the length of the borehole, and the total well yield was lower than what Hyre's could reliably quantify (less than 1 gpm). The water level did not reach

a static level over the course of the test, characterized by an initial elevation of 462 feet bgs on November 16 and rising to 385 feet bgs on November 22. This change in elevation is equivalent to a recharge rate of 18 gallons per day.

3.1.3 CDC-5

CDC-5 was installed from November 10 to 12, 2020. Bedrock was encountered at a depth of 4 feet bgs, and the final well depth measured 460 feet bgs. This boring lithology was predominantly pale brown limestone, with some occurrences of dark-gray sandstone, and a few occurrences of moderate reddish-brown sandstone.

A suspected groundwater transmissive feature was encountered at 132 feet bgs, and the total well yield was estimated to be 1 gpm. The static water level appeared to be approximately 175 feet bgs.

3.2 Development and Completion

Upon reaching the planned termination depth, the boreholes were developed to remove any rock cuttings and fines introduced to the formation during the drilling process. In general, the development process began by leaving the drill string and bit in-place overnight to allow transmissive features to carry rock fines and cuttings into the borehole. The following day, potable water was injected into the drill bit to flush and carry all rock debris to the surface. The development process lasted approximately 45 minutes, until the borehole discharge was visually clear of any rock remnants.

The boreholes were completed as stick-up monitoring wells and secured with aluminum locking lids. As per the State Water Well Regulations (West Virginia Department of Health and Human Resources, 2008), the driller information and well yield are printed inside the lid. At a future date, a licensed West Virginia land surveyor will be mobilized to the Site to survey the monitoring wells. The survey for each well will involve collecting the location and elevation of the top outer casing, well lid, and representative ground surface.

Well permits are included as Appendix B.

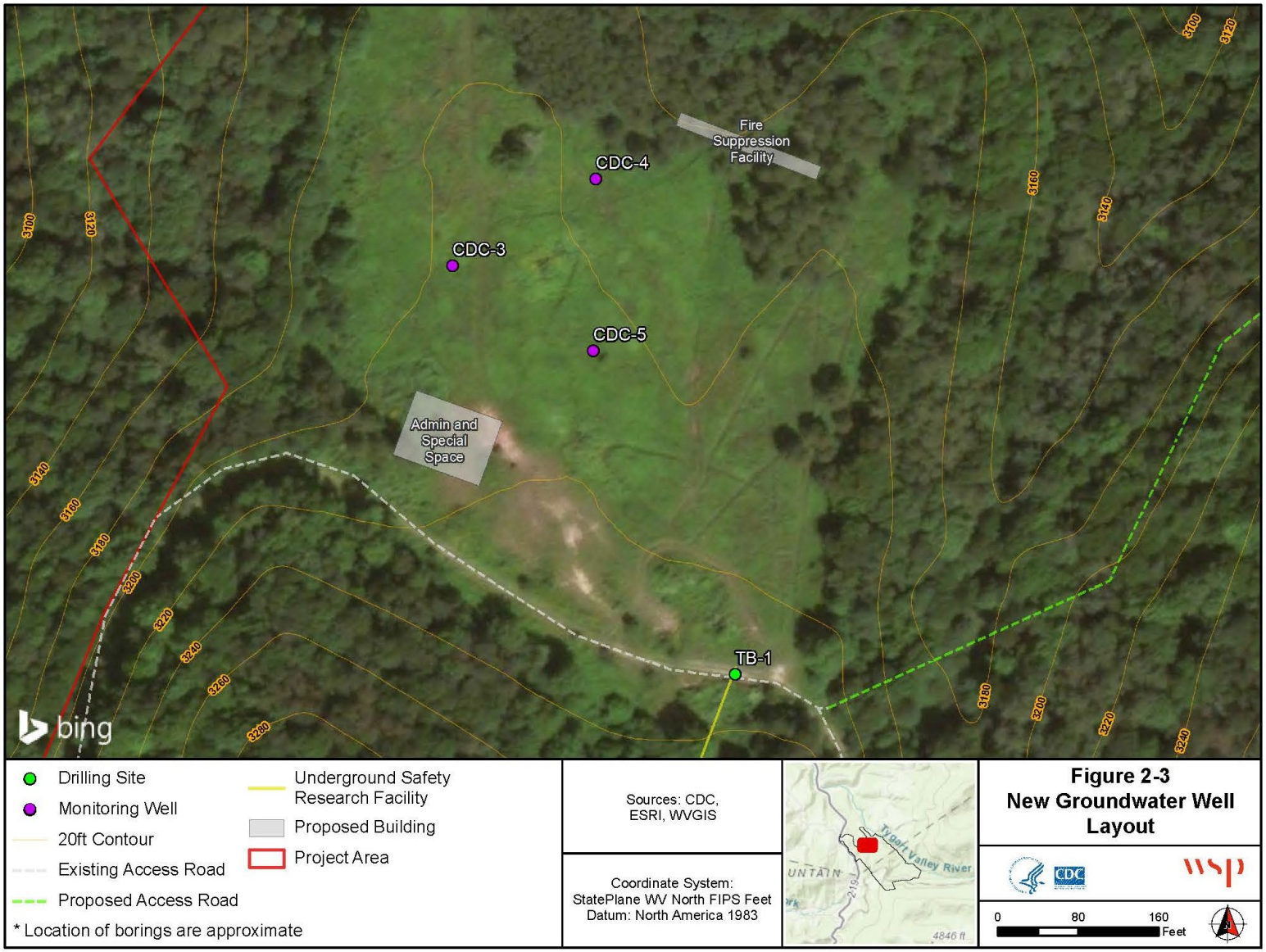


Figure 3-1. New Groundwater Well Layout

Table 3-1. Summary of Bedrock Well Construction, Groundwater Levels, and Other Bedrock Borings

MONITORING WELL SURVEY DATA					HYDRAULIC HEAD GAUGING DATA			
Well ID	Bottom of Casing (feet bgs)	Top of Casing (feet abg)	Open Interval (feet bgs)	Well Completion Depth (feet bgs)	Depth to Water (feet bgs)	Available Drawdown (feet)	Wellbore Storage (gallons)	Date
NEW AQUIFER TEST WELLS								
CDC-3	20	3.17	20 - 420	420	179.62	240.4	348	11/20/20 15:00
CDC-4	20	2.67	20 - 460	460	408.11	51.9	72	11/20/20 15:00
CDC-5	20	2.50	20 - 460	460	170.41	289.6	422	11/20/20 15:00
OTHER WELLS AND BORINGS								
[redacted]	42	1	43 - 325	326	250	NA	NA	11/22/20 11:45
TB-1	NA	NA	NA - NA	244	NA	NA	NA	8/20/2018
CDC-1	NA	NA	NA - NA	315	234*	NA	NA	NA

Notes:

* Estimated from geophysical log, depth below ground surface.

feet bgs: feet below ground surface

feet abg: feet above ground surface

4 AQUIFER TEST DESIGN AND IMPLEMENTATION

The aquifer test was originally expected to proceed using only the three newly installed wells. However, the homeowners located within half a mile of the surface facilities offered to include their private residential well as part of the monitoring network (hereinafter referred to as the Residential Well), expanding the network for monitoring drawdown during the test. The location of this well is not shown on Figure 2-3 but is at approximately 3,245 ft asl. The test comprised three phases: background monitoring, well pumping, and recovery monitoring. In addition, once the rest was completed, a groundwater sample was collected to characterize water quality.

A second aquifer test was also conducted using only the Residential Well. This test is described separately from the main aquifer test.

4.1 Design

As specified in the Work Plan, the three new wells were laid out oriented in a right-angle configuration. One of the wells served as the pumping well, while the other two were used to monitor changes in the groundwater elevation. The pumping well was selected based on the magnitude of the driller's estimated yield, which was determined through periodic pauses in the drilling process to evaluate suspected transmissive features. Once drilling was stopped, any collected drilling fluid and groundwater were removed from the well to permit natural recharge to occur for a period of time, generally 30 to 45 minutes. Once the recharge period was over, groundwater that had collected in the borehole was blown to the surface with compressed air, and the driller visually estimated the well yield based upon the response. This volume was used in conjunction with the recharge time to calculate an equivalent yield for each well:

- CDC-3: 1.2 gpm
- CDC-4: 0.01 gpm
- CDC-5: 1 gpm

CDC-3 was selected as the pumping well for the aquifer test based on the magnitude of estimated yield, while CDC-4 and CDC-5 served as monitoring wells.

The Residential Well was also monitored as part of this aquifer test. The well was installed in 1987 to supply the private residence on the property. The casing was installed to 42 feet, which the homeowners indicated was due to dissolution features encountered during drilling. The well is 325 feet deep with a submersible pump installed at 311 feet below grade with a static water level around 250 feet below grade at the time of this field investigation. The well cap indicates that the well yield was rated as 12 gpm.

4.2 Set-Up and Implementation

Prior to initiation of the test, the pumping well (CDC-3) and the Residential Well were outfitted with the required equipment. A ½ horsepower submersible pump was installed in CDC-3 at a depth of 400 bgs, the depth calculated to yield a pumping rate of 1 gpm, slightly less than the equivalent yield of 1.2 gpm calculated during drilling. Pump flow was controlled using an in-line ball valve.

On November 19, 2020, WSP and Hyre's convened at the Residential Well to instrument the well for hydraulic monitoring. Due to torque arrestors installed on the well pump assembly, the water column could not be accessed for monitoring while the assembly was in place. Hyre's removed the entire pump assembly from the well to facilitate access and secured a vented pressure transducer to the pipe assembly for hydraulic monitoring during the aquifer test.

When the pump assembly was examined after removal from the well, it was found to be covered in rock fines. Hyre's attributed the fines to centralizers installed part way up the well assembly, which scratched the well walls during pump motion. The scratching action mobilized the softer rock, suspending the fines, and facilitating coating of the pump assembly during operations. At the recommendation of the owners, the centralizers were removed, and the pump was disconnected from the house plumbing and purged to remove any accumulated suspended solids. Once the pump discharge was visually clear of suspended solids, the pump assembly was reconnected to house plumbing. The water column was sanitized with chlorine tablets before departing. The homeowners were advised to continue using their typical water well usage during the monitoring period.

On November 22, 2020, WSP and Hyre's returned to the Residential Well to retrieve the monitoring equipment. The pump and pipe assembly were pulled from the well to retrieve the pressure transducer. At the direction of the homeowner, the pump and pump wiring were replaced prior to reinstallation of the well. Two torque arrestors were left in place, and the third torque arrestor was removed because of previous damage.

4.2.1 Background Monitoring

Background monitoring was conducted prior to the pumping phase to obtain the baseline water level needed to distinguish background fluctuations from the effects of pumping during the test. Background hydraulic monitoring began once the drilling and development of each monitoring well were complete. These measurements were collected manually using an electric water level meter until the water depth was approaching a static level. Once this occurred, a vented pressure transducer rated at 100 pounds per square inch was installed to collect continuous background water level measurements. Manual gauging of the wells continued through transducer deployment at a minimum frequency of once per day. Electronic monitoring began on November 14, 2020, at CDC-5; on November 17, 2020, at CDC-4; and on November 18, 2020, at CDC-3. Manual gauging of the wells continued through transducer deployment.

Barometric pressure loggers were deployed concurrent with the vented transducers to collect measurements of atmospheric pressure. This additional pressure monitoring was conducted to facilitate adjustment of the results in the event of a shift in the atmospheric signal at depth or an over-correction of the data by the vented transducer. The pressure loggers collected data from November 12 through 22, 2020.

Precipitation amounts were monitored with an on-site rain gauge. Rain accumulations were logged as observed, while snow accumulation in the gauge was allowed to melt and then logged as an equivalent amount of rain.

4.2.2 Well Pumping and Groundwater Response

The pumping phase began at 3:00 pm on November 20, 2020, and was terminated at 3:00 am on November 21, 2020, after 12 hours (720 minutes). The target pumping rate of 1 gpm was achieved, on

average, for the duration of the test. Approximately 720 gallons of groundwater were removed from CDC-3 over the course of the test, corresponding to a water level draw down of 110 feet. Hydraulic monitoring data for CDC-3 are shown on Figure 4-1.

It should be noted that the pumping phase of the aquifer test was planned to last 24 hours; however, mechanical and hydraulic issues encountered with the pumping well caused the reduced duration. A low test flowrate is characterized by a large margin for deviation, especially early on. Approximately 9 hours (558 min) into the test, the ball valve on the discharge pipe was opened fully to maintain the 1 gpm discharge rate. After the valve was adjusted, the test discharge rate began to decrease slowly. Approximately 12 hours (714 minutes) into the test, the flow rate had declined to 0.5 gpm. At that time, the pump was stopped and repositioned in an effort to increase the flow rate. This attempt was unsuccessful, and the test was transitioned into the recovery monitoring phase.

Wells CDC-4, CDC-5, and the Residential Well served as monitoring wells during this phase, with electronic and manual water depth measurements collected at the frequency established during background monitoring. The following observations were recorded:

1. Water level measurements at CDC-4, located 225 feet away from the pumping well, indicated that this well did not experience any drawdown effects during the pumping phase of the test. Hydraulic monitoring data for CDC-4 are shown on Figure 4-2.
2. Water level measurements at CDC-5, located approximately 102 feet from the pumping well, indicated that this well did not experience any drawdown during the pumping phase of the test. Rather, the water level rose to two 2 feet over the course of the test. Hydraulic monitoring data for CDC-5 are shown on Figure 4-3.
3. Water level measurements collected at the Residential Well, located 2,300 feet west of the pumping well, indicated that this well did experience a brief period of drawdown during the pumping phase of the test. However, the duration and magnitude of this drawdown suggest the source likely originated with the homeowner's daily fluctuating water consumption. Hydraulic monitoring data for the Residential Well are shown on Figure 4-4.

4.2.3 Recovery Monitoring

Recovery monitoring was conducted upon completion of the pumping phase to determine how long the groundwater takes to return to pre-test static levels. This monitoring was conducted using the same instrumentation and techniques as the background monitoring.

Recovery monitoring was initiated after 12 hours of pumping and continued until water level measurements indicated that CDC-3 had fully recovered, a duration of approximately 31 hours. Hydraulic monitoring data for CDC-3 are shown on Figure 4-1.

4.3 Sample Collection and Analysis

At the request of the CDC, groundwater was collected and analyzed to characterize the water quality at the site. Eurofins TestAmerica in Pittsburgh, Pennsylvania, conducted the laboratory analyses.

4.3.1 Sample Collection

One environmental groundwater sample (CDC-3) and one equipment blank sample (EB-1) were collected during the program with the submersible pump used for the test. The samples were used to

evaluate groundwater quality and to confirm the efficacy of the decontamination procedure, respectively.

The environmental groundwater sample (CDC-3) was obtained from CDC-3 before the pump was removed once recovery monitoring was complete. The pump was purged for approximately one hour prior to sample collection to remove any accumulated sediment or other solids. Water was pumped directly from the well into sample containers provided by the analytical lab.

The equipment blank sample (EB-1) was collected to after the pump was removed from the well. Prior to collection, the pump was cleaned with a mixture of Liquinox soap and lab-grade distilled water and fully rinsed with lab-grade distilled water. Lab-grade distilled water was then pumped directly into sample containers provided by the analytical lab.

Once collected, the samples were placed on ice after collection and shipped to Eurofins TestAmerica for analysis.

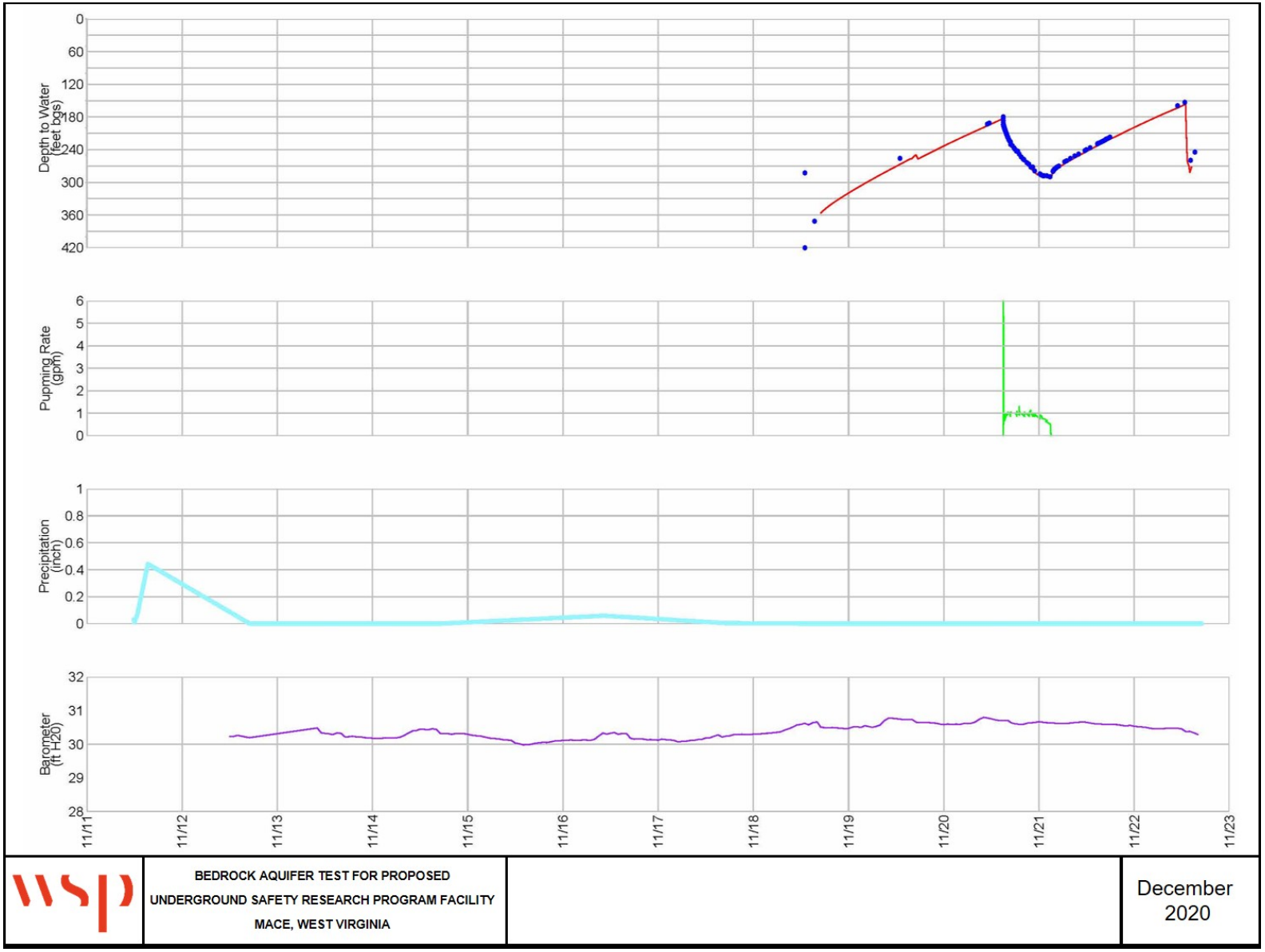


Figure 4-1. Hydraulic Measurements, Pumping Well CDC-3

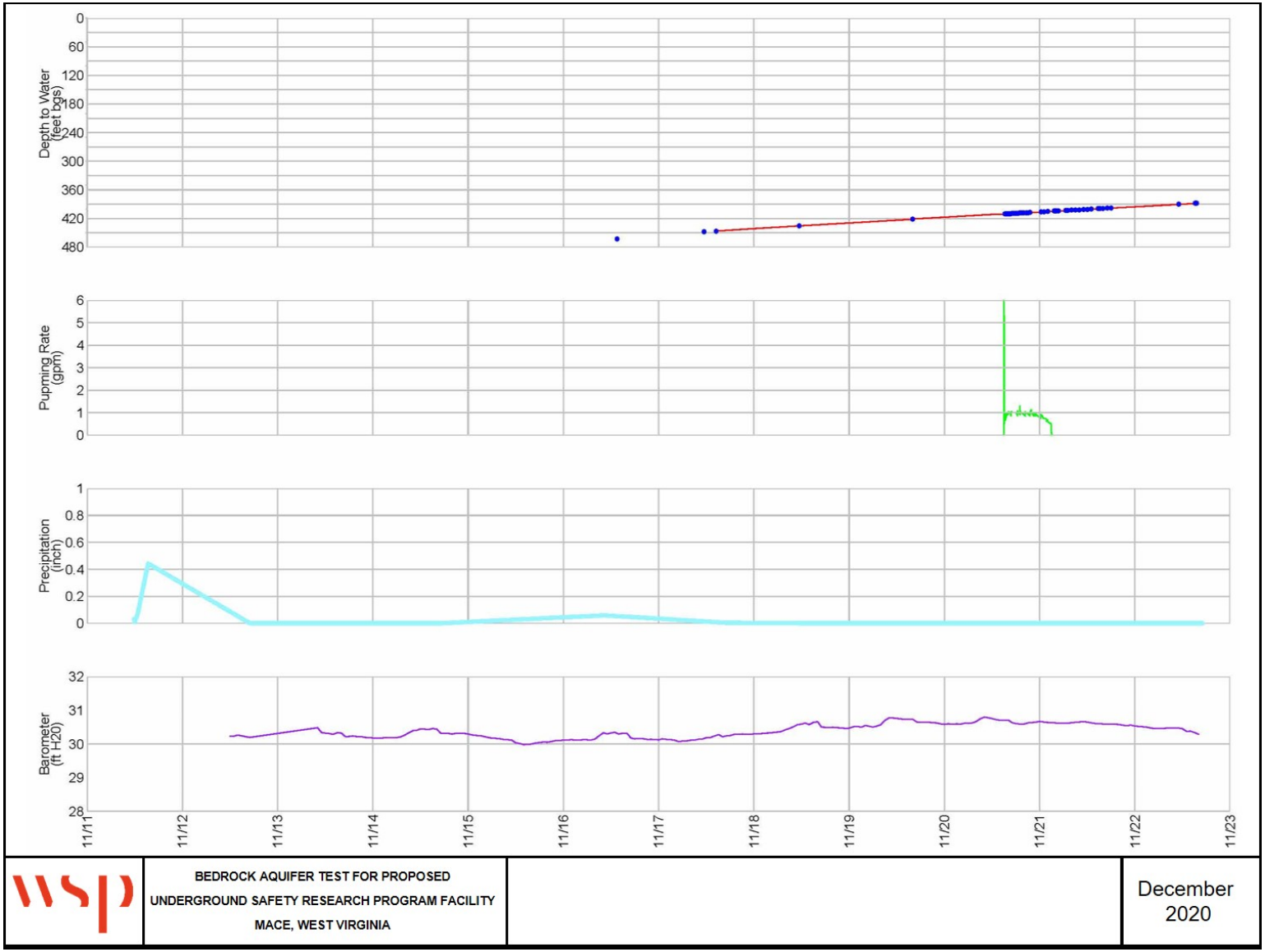


Figure 4-2. Hydraulic Measurements, Monitoring Well CDC-4

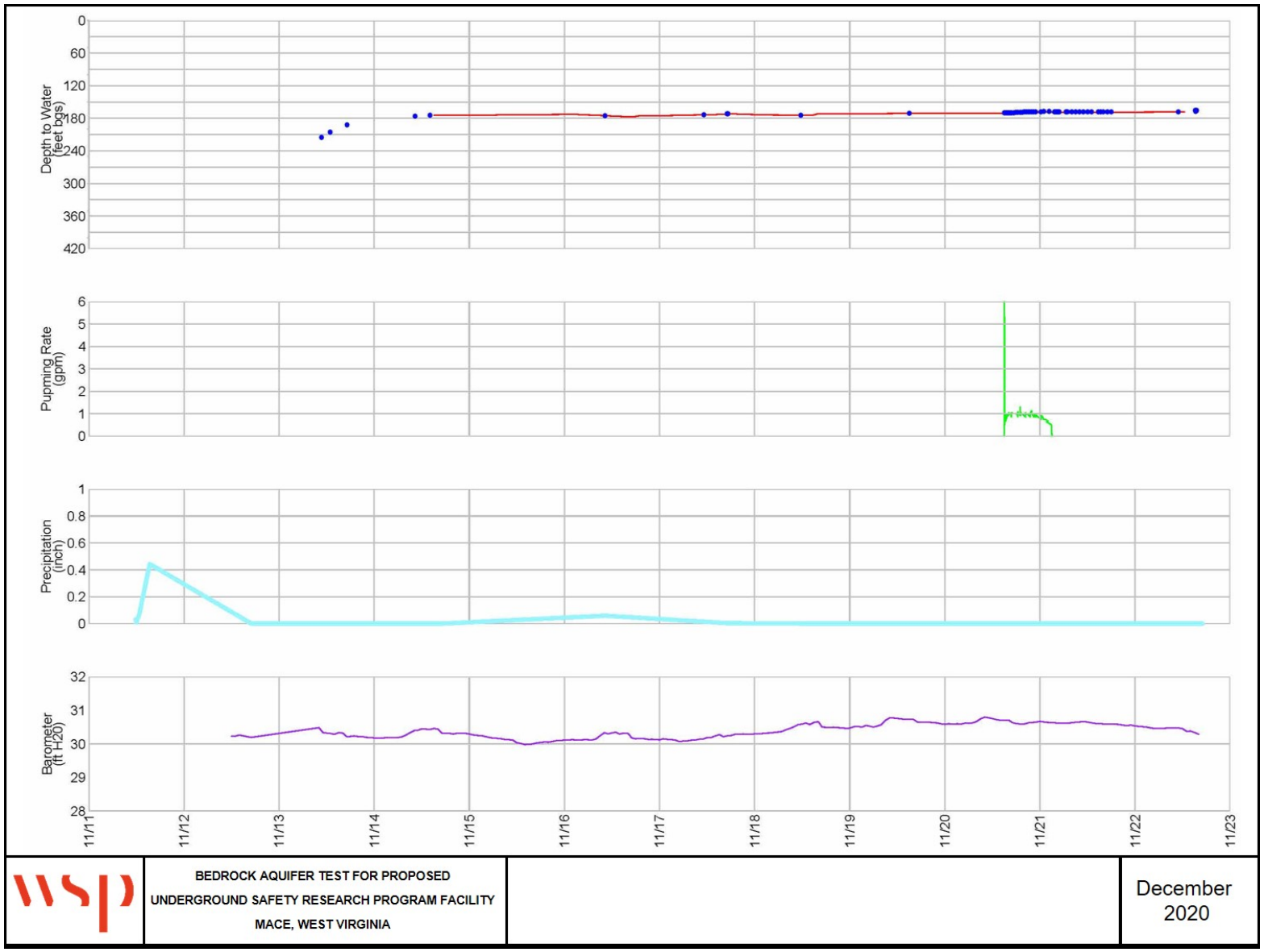


Figure 4-3. Hydraulic Measurements, Monitoring Well CDC-5

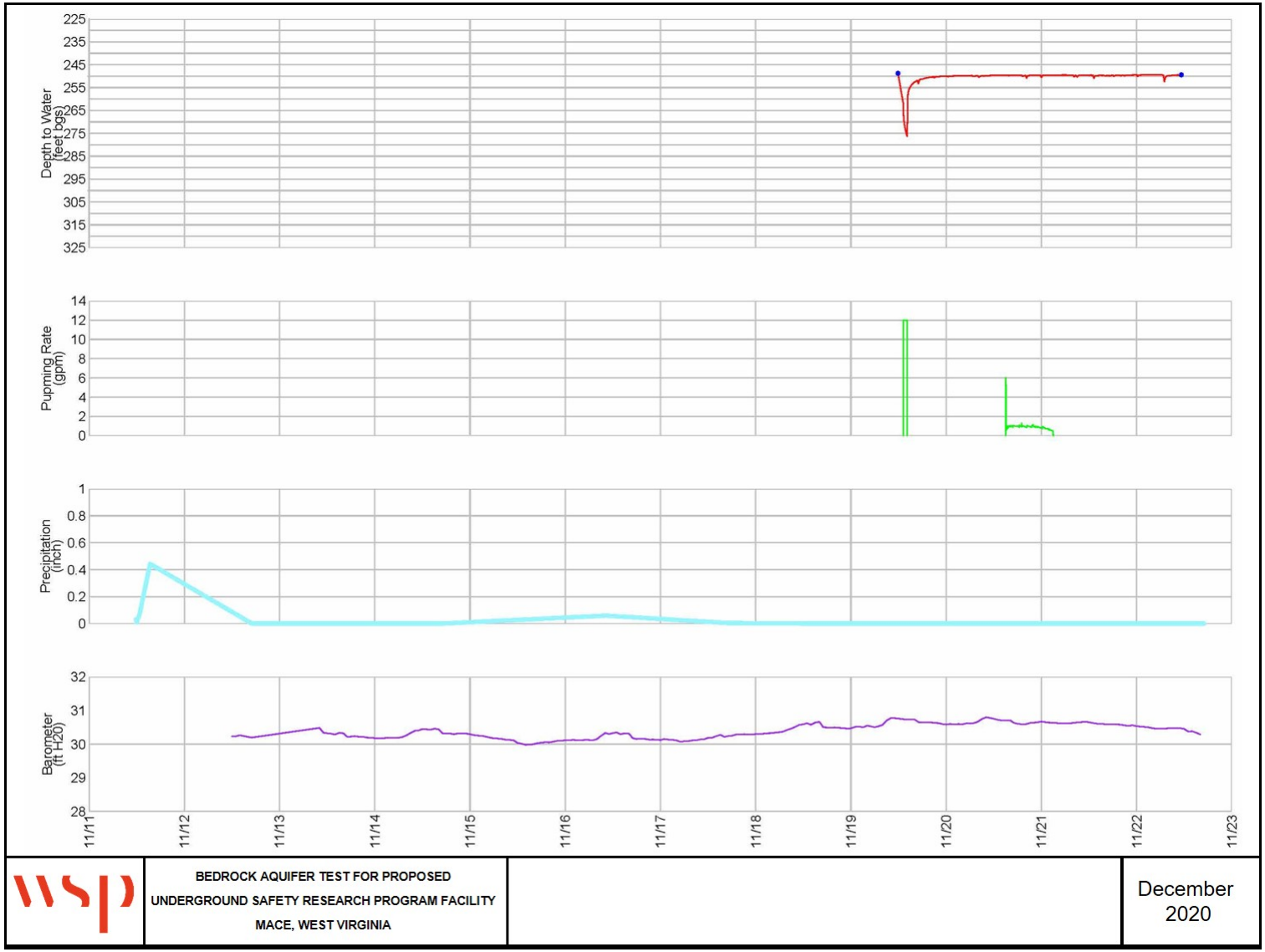


Figure 4-4. Hydraulic Measurements, Monitoring Well – The Residential Well

4.3.2 Analysis and Results

CDC-3 and EB-1 were analyzed for groundwater quality parameters as follows:

- Anions by Ion Chromatography (U.S. Environmental Protection Agency [EPA] 300.0 R2.1)
- Total Recoverable Target Analyte List (TAL) Metals by inductively coupled plasma/mass spectrometry (ICP/MS) (EPA 6020B)
- Dissolved TAL Metals by ICP/MS (EPA 6020B)
- Total Mercury using cold vapor atomic absorptions spectrometry (CVAA) (EPA 7470A)
- Dissolved Mercury using CVAA (EPA 7470A)
- Total Hardness (as calcium carbonate) by calculation (Standard Method [SM] 2340B)
- Total Suspended Solids (SM 2540D)
- Total Dissolved Solids (SM 2540C)
- Total Organic Carbon (SM 5310C)
- Dissolved Organic Carbon (SM 5310C)
- Alkalinity, Bicarbonate and Total (SM 2320B)

Detected parameters include anions, metals (total and dissolved phase), solids, organic carbon, alkalinity, and hardness. The detected concentrations were compared to the West Virginia Water Quality Standards, where a standard was defined; all results were below their respective standards. Analytical detections and corresponding criteria are presented in Table 4-1. The analytical summary report is included as Appendix C.

4.4 Limited Duration Aquifer Test – Residential Well

A limited duration pumping test was conducted on the Residential Well on November 19, 2020, to gather information on drawdown and recharge at an off-site location. This test was separate from the main test that was conducted to evaluate hydraulic conductivity between the new wells (CDC-3, CDC-4, and CDC-5) and off-site wells.

This location-specific test was conducted by purging the well at a rate of 12 gpm (the maximum discharge) for 60 minutes, conducting periodic flow checks, and measuring the drawdown with an electronic pressure transducer. A maximum drawdown of 14.5 feet was measured during the test. Hydraulic monitoring data for the Residential Well gathered during this test are also shown on Figure 4-4.

Table 4-1. Detected Parameters

	Sample ID	CDC-3		EB	
	Sample Type	Groundwater		Equipment Blank	
	Date/Time Collected	11/22/2020 14:00		11/22/2020 14:45	
Analyte	**WV Groundwater Standard**	**Result**	**Qualifier**	**Result**	**Qualifier**
Anions (mg/L)					
Chloride	--	1.3		ND	
Sulfate	--	4.8		ND	
Total Metals (mg/L)					
Aluminum	--	3.9		0.17	
Antimony	0.006	0.0019	J	ND	
Arsenic	--	0.0033		ND	
Barium	2	0.22		0.0016	J
Beryllium	0.004	0.00027	J	ND	
Calcium	--	40		ND	
Chromium	0.1	0.0093		ND	
Cobalt	--	0.0022		ND	
Copper	--	0.0062	B	ND	
Iron	--	4	B	0.18	B
Lead	0.015	0.0017		ND	
Magnesium	--	2.5		ND	
Manganese	--	0.048		0.0041	J
Nickel	0.1	0.0067		0.00036	J
Potassium	--	5.9		ND	
Sodium	--	47		ND	
Thallium	0.002	0.00018	J	0.00016	J
Vanadium	--	0.0067		ND	
Zinc	--	0.03		ND	
Disolved Metals (mg/L)					
Aluminum	--	0.033		ND	
Antimony	--	0.0019	J	ND	
Arsenic	--	0.0026		ND	
Barium	--	0.17		ND	
Calcium	--	37		0.16	J
Cobalt	--	0.00051		ND	
Magnesium	--	1.9		ND	
Manganese	--	0.0099		0.0016	J
Nickel	--	0.0014		ND	
Potassium	--	3.9		ND	
Sodium	--	48		ND	
Thallium	--	0.00041	J	0.00046	J
Zinc	--	0.0033	J	ND	
General Chemistry (mg/L)					
Total Dissolved Solids	--	320		ND	
Total Suspended Solids	--	82		6.2	
Dissolved Organic Carbon	--	2		ND	
Total Organic Carbon	--	1.6		ND	
Total Alk as $CaCO_3$ to pH 4.5	--	200		ND	
Bicarb Alk as CaCO3	--	200		ND	
Carbonate Alk as $CaCO_3$	--	ND		ND	
Total Hardness (as $CaCO_3$)	--	110		ND	

Notes:
Constituents shown were detected in one or more samples.
ND indicates that the constituent was not detected; -- indicates that no standard was identified.
Standards taken from the West Virginia Legislative Rule Title 46, Series 12 Requirements Governing Groundwater Standards 7/1/2002
Qualifier Definitions:
J = The result is less than the reporting limit but greater than or equal to the minimum detection limit; concentration is an approximate value; B = The compound was found in the blank and in the sample.

5 ANALYSIS AND CONCLUSIONS

5.1 Analysis

Typically, an aquifer test is conducted to characterize the range of hydraulic parameters characterizing a groundwater system. The test uses the hydraulic response detected in one or more monitoring wells to a pumping well, thereby sampling a larger volume of the aquifer. Monitoring data indicate that no hydraulic response was detected in the monitoring wells, evidenced by the lack of drawdown observed at CDC-4 and CDC-5, as well as the increase in the water level in CDC-5.

The drawdown in CDC-3 was analyzed for transmissivity using the Cooper-Jacob straight line analysis method for a single well drawdown data (Cooper Jr & Jacob, 1946). This approach to derive aquifer transmissivity, based upon an approximation of the Theis solution, has been found to be a reasonable approach with minimal error or bias (Halford, Weight, & Schreiber, 2006). The approach involves plotting the well drawdown-time data on a semi-log plot and fitting a straight line to the data from the data in the later part of the test. The transmissivity (T) is derived using the following equation:

$$T = \frac{2.3 \cdot Q}{4 \cdot \pi \cdot \Delta s}$$

where Q = aquifer test constant discharge rate, and Δs is the straight trend line drawdown per log cycle. The hydraulic conductivity (K) can then be derived from the following equation:

$$K = \frac{T}{b}$$

where b = the height of the saturated well column.

The drawdown trend line over one log-cycle at CDC-3 was measured to be 63 feet, yielding an estimated transmissivity of 0.5 ft^2/day. This value is smaller than the transmissivity summarized for 13 sites in the USGS study of the Greenbrier Group conducted by Kozar and Mathes in 2001 (Kozar & Mathes, 2001). Using this transmissivity value and the height of the saturated well column, the hydraulic conductivity was estimated to be $2x10^{-3}$ feet/day. This value is in the low-end range of sandstone and approaching the high-end range of unfractured metamorphic and igneous rock. The Cooper-Jacob straight line analysis of the drawdown at the CDC-3 is presented on Figure 5-1.

Analysis of the aquifer test data also estimated a specific capacity of approximately 0.01 gpm/foot. The straight-line time-drawdown trend line was fitted to the response between 10 minutes to 558 minutes, corresponding to when the pumping rate was most consistent at 0.96 gpm. The trend line was extended to determine the sustainable yield for this well. The trend line suggested the pumping well would run dry after 33 days if no further infiltration to the bedrock aquifer occurred.

The time-drawdown data collected at the Residential Well was also analyzed using the Cooper-Jacob straight line drawdown method (Cooper Jr & Jacob, 1946). Because the Residential Well test duration was 60 minutes, which corresponds to two-thirds of a log cycle, the series was extended to 100 minutes to derive a straight-line drawdown per log cycle. The analysis derived a transmissivity value of 43 ft^2/day, a value toward the bottom of the transmissivity range summarized by the USGS for the Greenbrier Group (Kozar & Mathes, 2001). Over the length of the water column, this transmissivity value equates to a hydraulic conductivity of 2,050 feet/day, which is on the low end of the range of karst

limestone hydraulic conductivities (Freeze & Cherry, 1979). The Cooper-Jacob straight line analysis of the drawdown at the Residential Well is presented on Figure 5-2.

The range of permeability response calculated from the results of the two tests is indicative of the apparent variation and occurrence of fractures and dissolution features with the Greenbrier Formation within the region.

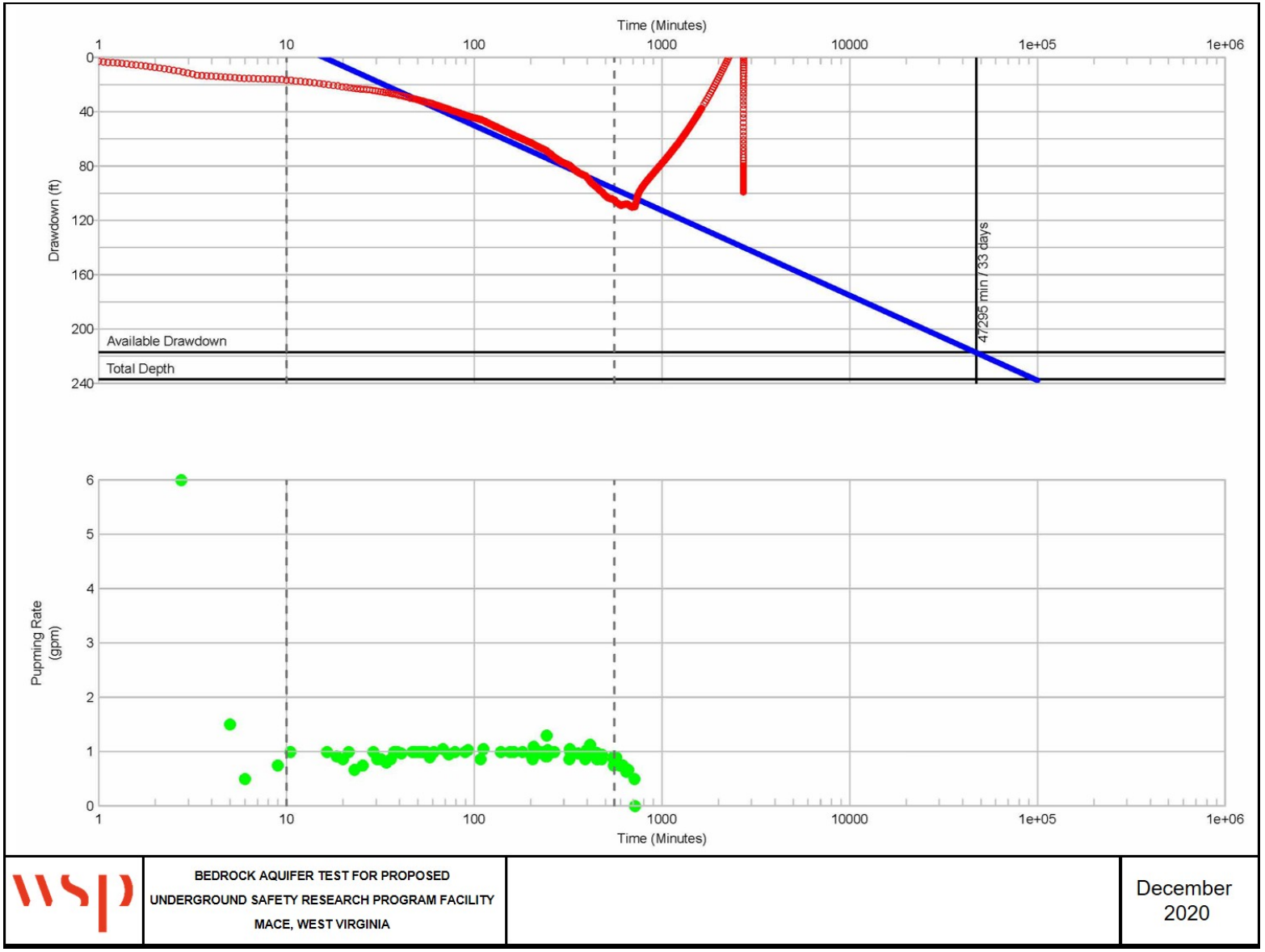


Figure 5-1. Drawdown-Time Analysis, CDC-3

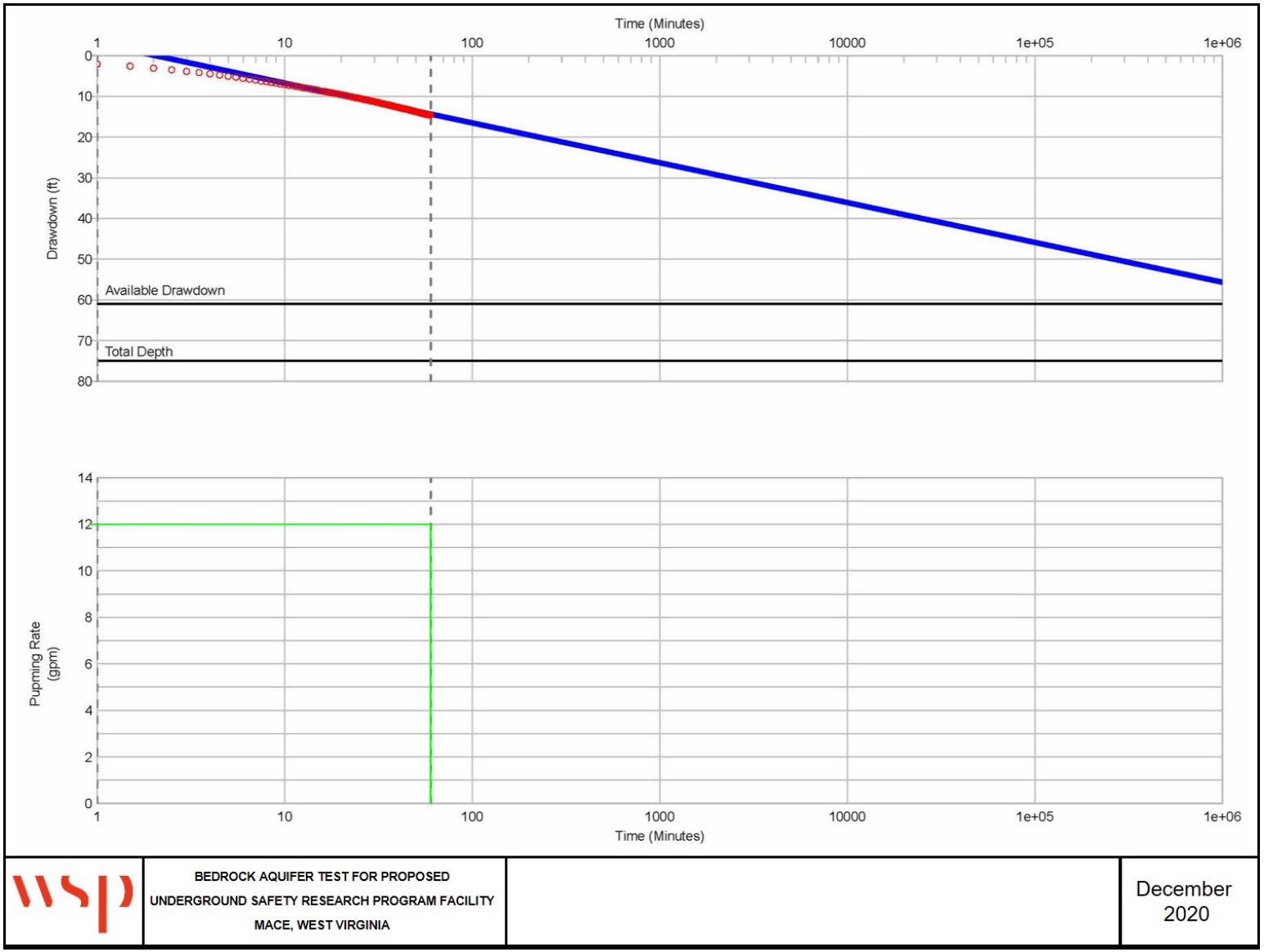


Figure 5-2. Drawdown-Time Analysis, The Residential Well

5.2 Conclusions

The major conclusions from this focused aquifer test are outlined below:

1. The on-site Greenbrier Formation is highly competent.

   Based on drilling observations, the Greenbrier Formation underlying the proposed surface facilities appears to be very competent. This finding is in accordance with previous rock coring conducted in the vicinity of the site that demonstrated high rock quality designation and rock mass rating and borehole geophysical characterization that found sparse secondary porosity (fracture and dissolution) in the boreholes.

2. The on-site aquifer has low transmissivity.

   The very low yield of the pumping well and the lack of observed drawdown in the on-site monitoring wells after the 720-minute pumping test indicated the Greenbrier Formation is low permeability. This is supported by the transmissivity of 0.15 ft^2/day and hydraulic conductivity of $2x10^{-3}$ feet/day calculated based on the data, both of which are comparable to literature values for low permeability sandstone or unfractured metamorphic or igneous rocks (Freeze & Cherry, 1979).

3. The Residential Well is in a higher transmissivity aquifer than the on-site wells.

   The off-site response of the aquifer test conducted at the Residential Well indicated a transmissivity of 43 ft^2/day and a hydraulic conductivity of 2,050 feet/day, both of which are comparable to literature values of karst limestone (Freeze & Cherry, 1979).

4. Groundwater resources available on the Site are limited.

   The aquifer test indicated that the sustainable pumping rate of CDC-3, the highest apparent yield of the three wells, is less than 1 gpm. For future property use, the three wells may be of limited value as a water resource but may be useful for intermittent water demands.

5. Based on the observations of this testing, the risk of negative effects on off-site groundwater wells is low.

   No drawdown associated with the test was measured in the on-site observation wells or the off-site private residential well, indicating a low potential for hydraulic connection between the on- and off-site wells. This low potential makes it unlikely that construction activities would affect the ability of adjacent private wells to produce water.

6. Based on the data collected during this program, local activities have not affected Site groundwater.

   Analytical results indicted the presence of naturally occurring constituents in groundwater at levels below the West Virginia Groundwater Quality Standards.

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APPENDIX A: GEOLOGICAL BORING LOGS

Drilling Log

BORING NO.: CDC-3

WELL NO.: CDC-3

CLIENT: CENTERS FOR DISEASE CONTROL AND PREVENTION	**PROJECT NO.:** LF2004859.005
PROJECT: MACE, WEST VIRGINIA	**DATE STARTED:** 11/16/2020
DRILLING CONTRACTOR: HYRES WELL & PUMP SERVICE	**DATE FINISHED:** 11/18/2020
DRILLING METHOD: AIR ROTARY WITH WATER INJECTION	**DRILLER:** J. HYRE

BOREHOLE DATA	**WELL DATA**	
Diameter (in): 6	**Completion:** MONITORING WELL	**INSPECTOR:** P. TRUDELL
Total Depth (ft.): 420	**Total Depth (ft.):** 420	**NORTHING:** NA
Sampler: P. TRUDELL	**Screen Length (ft.)/Slot (in):**	**EASTING:** NA
Depth to Water (ft.): NA	**Depth to Water (ft.):** 182.79	**GROUND ELEVATION:** NA
Depth to Rock (ft.): 3	**Permit No.:** DW-42-20-13	**TOC ELEVATION:** NA

NOTES:

Depth (feet)	Lithology	USCS	Blow Counts	Sample Interval	Sample Recovery	PID Reading (ppm)	Description and Stratigraphy	Remarks
							OVERBURDEN.	
							Pale brown (5YR 5/2), LIMESTONE.	**Hard**
30							Dark gray (N3), SANDSTONE.	
							Light brown (5YR 6/4), LIMESTONE.	
60							Moderate reddish brown (10R 4/6), SANDSTONE.	**Suspected Transmissive Feature**
							Pale brown (5YR 5/2), LIMESTONE.	
70							White (N9), SANDSTONE.	**Soft**
80							Pale brown (5YR 5/2), LIMESTONE.	
90								

Drilling Log

BORING NO.: CDC-3

WELL NO.: CDC-3

CLIENT: CENTERS FOR DISEASE CONTROL AND PREVENTION

PROJECT NO.: LF2004859.005

Depth (feet)	Lithology	USCS	Blow Counts	Sample Interval	Sample Recovery	PID Reading (ppm)	Description and Stratigraphy	Remarks
110							Pale brown (5YR 5/2), LIMESTONE.	
							Dark gray (N3), SANDSTONE.	
120							Pale brown (5YR 5/2), LIMESTONE.	
130								
140								
150								
160							Dark gray (N3), SANDSTONE.	
170							Moderate reddish brown (10R 4/6), SANDSTONE.	
							Dark gray (N3), SANDSTONE.	
180								
190								
200								
210							Pale brown (5YR 5/2), LIMESTONE.	
							Dark gray (N3), SANDSTONE.	**Soft**
220								
230								

Drilling Log

BORING NO.: CDC-3

WELL NO.: CDC-3

CLIENT: CENTERS FOR DISEASE CONTROL AND PREVENTION

PROJECT NO.: LF2004859.005

Depth (feet)	Lithology	USCS	Blow Counts	Sample Interval	Sample Recovery	PID Reading (ppm)	Description and Stratigraphy	Remarks
240							Dark gray (N3), SANDSTONE.	
250								
260								
270							Pale brown (5YR 5/2), LIMESTONE.	
280								
290								
300							Dark gray (N3), SANDSTONE.	
310							Pale brown (5YR 5/2), LIMESTONE.	
320							Dark gray (N3), SANDSTONE.	
330							Pale brown (5YR 5/2), SANDSTONE.	
340								
350							Dark gray (N3), LIMESTONE.	
360								
370							Moderate reddish brown (10R 4/6), SANDSTONE.	

Drilling Log

BORING NO.: CDC-3

WELL NO.: CDC-3

CLIENT: CENTERS FOR DISEASE CONTROL AND PREVENTION

PROJECT NO.: LF2004859.005

Depth (feet)	Lithology	USCS	Blow Counts	Sample Interval	Sample Recovery	PID Reading (ppm)	Description and Stratigraphy	Remarks
380							Moderate reddish brown (10R 4/6), SANDSTONE.	
							Dark gray (N3), SANDSTONE.	
390								
400							Moderate reddish brown (10R 4/6), SANDSTONE.	
410								
420							Pale brown (5YR 5/2), LIMESTONE.	
							Total Depth of Boring 420 feet.	
430								
440								
450								
460								
470								
480								
490								
500								
510								

Drilling Log

BORING NO.: CDC-4

WELL NO.: CDC-4

CLIENT: CENTERS FOR DISEASE CONTROL AND PREVENTION	**PROJECT NO.:** LF2004859.005
PROJECT: MACE, WEST VIRGINIA	**DATE STARTED:** 11/13/2020
DRILLING CONTRACTOR: HYRES WELL & PUMP SERVICE	**DATE FINISHED:** 11/14/2020
DRILLING METHOD: AIR ROTARY WITH WATER INJECTION	**DRILLER:** J. HYRE

BOREHOLE DATA	**WELL DATA**	
Diameter (in): 6	**Completion:** MONITORING WELL	**INSPECTOR:** P. TRUDELL
Total Depth (ft.): 460	**Total Depth (ft.):** 460	**NORTHING:** NA
Sampler: P. TRUDELL	**Screen Length (ft.)/Slot (in):**	**EASTING:** NA
Depth to Water (ft.): NA	**Depth to Water (ft.):** 410.78	**GROUND ELEVATION:** NA
Depth to Rock (ft.): 4	**Permit No.:** DW-42-20-14	**TOC ELEVATION:** NA

NOTES:

Depth (feet)	Lithology	USCS	Blow Counts	Sample Interval	Sample Recovery	PID Reading (ppm)	Description and Stratigraphy	Remarks
10 20 30 40 50 60 70 80 90							OVERBURDEN. Pale brown (5YR 5/2), LIMESTONE.	**Very Hard**

Drilling Log

BORING NO.: CDC-4

WELL NO.: CDC-4

CLIENT: CENTERS FOR DISEASE CONTROL AND PREVENTION

PROJECT NO.: LF2004859.005

Depth (feet)	Lithology	USCS	Blow Counts	Sample Interval	Sample Recovery	PID Reading (ppm)	Description and Stratigraphy	Remarks
110							Pale brown (5YR 5/2), LIMESTONE.	
							Dark gray (N3), SANDSTONE.	
120							Pale brown (5YR 5/2), LIMESTONE.	
130								
140								
150								
160							Dark gray (N3), LIMESTONE.	
							Moderate reddish brown (10R 4/6), LIMESTONE.	
170							Dark gray (N3), LIMESTONE.	
180								
190								
200								
210							Pale brown (5YR 5/2), LIMESTONE.	
220							Dark gray (N3), LIMESTONE.	
230								

Drilling Log

BORING NO.: CDC-4

WELL NO.: CDC-4

CLIENT: CENTERS FOR DISEASE CONTROL AND PREVENTION

PROJECT NO.: LF2004859.005

Depth (feet)	Lithology	USCS	Blow Counts	Sample Interval	Sample Recovery	PID Reading (ppm)	Description and Stratigraphy	Remarks
240							Dark gray (N3), LIMESTONE.	
250							Pale brown (5YR 5/2), LIMESTONE.	
260								
270								
280								
290								
300							Dark gray (N3), LIMESTONE.	
310								
320								
330								
340								
350								
360								
370								

Drilling Log

BORING NO.: CDC-4

WELL NO.: CDC-4

CLIENT: CENTERS FOR DISEASE CONTROL AND PREVENTION

PROJECT NO.: LF2004859.005

Depth (feet)	Lithology	USCS	Blow Counts	Sample Interval	Sample Recovery	PID Reading (ppm)	Description and Stratigraphy	Remarks
380							Dark gray (N3), LIMESTONE.	
390								
400								
410								
420								
430								
440								
450							Pale brown (5YR 5/2), LIMESTONE.	
460							Total Depth of Boring 460 feet.	
470								
480								
490								
500								
510								

Drilling Log

BORING NO.: CDC-5

WELL NO.: CDC-5

CLIENT: CENTERS FOR DISEASE CONTROL AND PREVENTION	**PROJECT NO.:** LF2004859.005
PROJECT: MACE, WEST VIRGINIA	**DATE STARTED:** 11/10/2020
DRILLING CONTRACTOR: HYRES WELL & PUMP SERVICE	**DATE FINISHED:** 11/12/2020
DRILLING METHOD: AIR ROTARY WITH WATER INJECTION	**DRILLER:** J. HYRE

BOREHOLE DATA		WELL DATA		
Diameter (in):	6	**Completion:**	MONITORING WELL	**INSPECTOR:** P. TRUDELL
Total Depth (ft.):	460	**Total Depth (ft.):**	460	**NORTHING:** NA
Sampler:	P. TRUDELL	**Screen Length (ft.)/Slot (in):**		**EASTING:** NA
Depth to Water (ft.):	NA	**Depth to Water (ft.):**	172.91	**GROUND ELEVATION:** NA
Depth to Rock (ft.):	4	**Permit No.:**	DW-42-20-15	**TOC ELEVATION:** NA

NOTES:

Depth (feet)	Lithology	USCS	Blow Counts	Sample Interval	Sample Recovery	PID Reading (ppm)	Description and Stratigraphy	Remarks
10 20 30 40 50 60 70 80 90							OVERBURDEN. Light gray (N7), LIMESTONE.	

Drilling Log

Page 2 of 4

BORING NO.: CDC-5

WELL NO.: CDC-5

CLIENT: CENTERS FOR DISEASE CONTROL AND PREVENTION

PROJECT NO.: LF2004859.005

Depth (feet)	Lithology	USCS	Blow Counts	Sample Interval	Sample Recovery	PID Reading (ppm)	Description and Stratigraphy	Remarks
110							Light gray (N7), LIMESTONE.	
120							Dark gray (N3), SANDSTONE.	
130							Pale brown (5YR 5/2), LIMESTONE.	**Suspected Transmissive Feature**
140								
150								
160								
170								
180							Dark gray (N3), SANDSTONE.	**Soft**
							Moderate reddish brown (10R 4/6), SANDSTONE.	**Soft**
190							Dark gray (N3), SANDSTONE.	
200							Pale brown (5YR 5/2), LIMESTONE.	
210								
220								
230							Dark gray (N3), SANDSTONE.	

Drilling Log

BORING NO.: CDC-5

WELL NO.: CDC-5

CLIENT: CENTERS FOR DISEASE CONTROL AND PREVENTION

PROJECT NO.: LF2004859.005

Depth (feet)	Lithology	USCS	Blow Counts	Sample Interval	Sample Recovery	PID Reading (ppm)	Description and Stratigraphy	Remarks
240							Dark gray (N3), SANDSTONE.	
250							Pale brown (5YR 5/2), LIMESTONE.	
260							Dark gray (N3), SANDSTONE.	
270								
280								
290							Pale brown (5YR 5/2), LIMESTONE.	
300								
310								
320								
330								
340								
350								
360							Dark gray (N3), SANDSTONE.	
370								

Drilling Log

BORING NO.: CDC-5

WELL NO.: CDC-5

CLIENT: CENTERS FOR DISEASE CONTROL AND PREVENTION

PROJECT NO.: LF2004859.005

Depth (feet)	Lithology	USCS	Blow Counts	Sample Interval	Sample Recovery	PID Reading (ppm)	Description and Stratigraphy	Remarks
380–390							Dark gray (N3), SANDSTONE.	
390–400							Moderate reddish brown (10R 4/6), SANDSTONE.	
400–410							Dark gray (N3), SANDSTONE.	
410–430							Pale brown (5YR 5/2), LIMESTONE.	
430–460							Total Depth of Boring 460 feet.	
460–510								

APPENDIX B: WELL PERMITS

SW-257
Rev. 8/01

WEST VIRGINIA DEPARTMENT OF HEALTH AND HUMAN RESOURCES

PERMIT

Owner CONSORTIUM FOR SILVER CREEK GROUP and Driller HYRES WELL & PUMP SERVICE

are hereby issued a permit to CONSTRUCT (Construct, Modify, or Abandon) a well located

at RT 219/55 - .7 MILES N. OF RANDOLPH-POCAHONTAS COUNTY LINE ON EAST SIDE OF RT. 219

in accordance with Chapter 16, Article 1, Section 9 of the Code of West Virginia.

Date issued: 11/19/2020

Expires: 11/19/2021

Permit No.: DW-42-20-13

SAMANTHA BEAUDOIN — Issuing Officer

SANITARIAN II — Title

RANDOLPH-ELKINS — County Health Department

This permit is not transferable and any change of information submitted in application dated will automatically render this permit invalid

SW-257
Rev. 8/01

WEST VIRGINIA DEPARTMENT OF HEALTH AND HUMAN RESOURCES

PERMIT

Owner CONSORTIUM FOR SILVER CREEK GROUP and Driller HYRES WELL & PUMP SERVICE

are hereby issued a permit to CONSTRUCT (Construct, Modify, or Abandon) a well located

at RT 219/55 - .7 MILES N. OF RANDOLPH-POCAHONTAS COUNTY LINE ON EAST SIDE OF RT. 219

in accordance with Chapter 16, Article 1, Section 9 of the Code of West Virginia.

Date issued: 11/19/2020

Expires: 11/19/2021

Permit No.: DW-42-20-14

SAMANTHA BEAUDOIN — Issuing Officer

SANITARIAN II — Title

RANDOLPH-ELKINS — County Health Department

This permit is not transferable and any change of information submitted in application dated will automatically render this permit invalid

SW-257
Rev. 8/01

WEST VIRGINIA DEPARTMENT OF HEALTH AND HUMAN RESOURCES

PERMIT

Owner CONSORTIUM FOR SILVER CREEK GROUP and Driller HYRES WELL & PUMP SERVICE

are hereby issued a permit to CONSTRUCT (Construct, Modify, or Abandon) a well located at RT 219/55 - .7 MILES N. OF RANDOLPH-POCAHONTAS COUNTY LINE ON EAST SIDE OF RT. 219

in accordance with Chapter 16, Article 1, Section 9 of the Code of West Virginia.

Date issued: 11/19/2020

Expires: 11/19/2021

Permit No.: DW-42-20-15

SAMANTHA BEAUDOIN — Issuing Officer

SANITARIAN II — Title

RANDOLPH-ELKINS
County Health Department

This permit is not transferable and any change of information submitted in application dated will automatically render this permit invalid

APPENDIX C: ANALYTICAL REPORT

[This analytical report is not included because it could not be made compliant with Section 508 of the Rehabilitation Act and therefore could not be posted on a federal website. The analytical report is available for review by contacting cdc-macewv-eis@cdc.gov]